

Outcomes of the Cycling Demonstration Towns programme: monitoring project report

Describing the impacts of investment in the six Cycling Demonstration Towns

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1 Key findings

Cycling trips in the six Cycling Demonstration Towns appear to have increased over time, with growth throughout the first and second phases of the programme. Positive change is evident across a number of indicators, although the magnitude of growth is variable both across the towns and phases of the programme.

The overall picture presented by the count data is:

- An average growth in cycling trips¹ of +29% across all towns in 2011 relative to a 2005 baseline². At the individual town level, growth ranged from +6% to +59%
- an increase in all towns in cycle trips measured by manual counts.

Surveys of physical activity suggest:

- In household level surveys, an increase in the proportion of respondents doing some cycling in a typical week from 24.3% in 2006 to 27.2% in 2011. This growth is concentrated in the first phase of the programme, with no notable change in this measure between 2009 and 2011
- in household level surveys, a decline in the proportion of adults classed as 'inactive' from 26.2% in 2006 to 24.3% in 2011, and a corresponding increase in those classed as 'moderately inactive'. As above, the decline occurred during the first phase of the programme
- in the Active People Survey, an increase in the proportion of adults cycling once a month or more between 2005/06 and 2007/08 (from 11.7% to 15.1%) followed by a decline to 12.4% in 2010/11.

Amongst school children:

- The proportion of children reporting that they usually cycle to school increases in all towns between 2007 and 2011. Although year-to-year change is variable between towns, overall the proportion cycling to school increased from 1.5% in 2007 to 2.4% in 2011
- in schools engaged in Bike It, the proportion of pupils cycling to school everyday increases from 4.1% to 9.7%, whilst the proportion never cycling to school decreases from 76.3% to 55.8%.

A limited comparison of data from the Cycling Demonstration Towns with data from different locations, or from different periods in the same towns, suggests:

- A slower growth in cycle trips in the years prior to the Cycling Demonstration Towns programme than during the programme delivery period for the three towns where this analysis was possible
- an elevated growth in the proportion of pupils reporting that they cycle to schools in Cycling Demonstration Towns relative to that recorded in matched towns without Cycling Demonstration Towns interventions
- growth in cycle trips (based on automatic cycle counter data) in areas matched to the Cycling Demonstration Towns, but at a slower rate than in the intervention towns with the exception of one matched area which shows a greater growth than the corresponding Demonstration Town.

¹ Calculated as the unweighted mean of the percentage change values calculated for each of the six towns

² 2006 for Brighton and Hove

2 Expenditure in the Cycling Demonstration Towns

While this report is primarily concerned with the monitoring evidence around outcomes of the Cycling Demonstration Towns programme, it is useful to place these in context through summarising the programme inputs in terms of capital and revenue expenditure.

In both the first and second phases of the programme, investment from Cycling England and the Department for Transport³ was intended to be approximately £5 per capita per annum matched by the local authorities with an equivalent amount. In practice, 'outturn' expenditure varied somewhat from town to town. Investment in each town in the two phases of the programme is summarised in Table 2-1.

Table 2-1 Capital and revenue investment made in the Cycling Demonstration Towns

	Population ^c	Phase 1: 2005-2008 ^a		Phase 1: 2008-2011 ^b		Annual expenditure per head ^f
		Capital	Revenue	Capital	Revenue	
Aylesbury	65,000	£1,720,000	£750,000	£2,608,841	£628,771	£16
Brighton and Hove	95,000 ^d	£1,664,439	£1,257,441	£2,385,537	£929,963	£12
Darlington	99,000	£2,290,580	£319,800	£2,507,633	£845,326	£11
Derby	105,000 ^e	£2,740,500	£900,489	£4,932,000	£1,390,000	£17
Exeter	115,000	£3,142,605	£491,029	£13,514,746	£1,031,358	£29
Lancaster with Morecambe	96,000	£2,789,578	£690,406	£2,755,319	£579,076	£13
Total	575,000	£14,347,702	£4,409,165	£28,704,076	£5,404,494	£17

^a Total spending in phase 1 – including funding claimed from Cycling England and local authority matched funding (Department for Transport (2009) 'Making a Cycling Town: a compilation of practitioners experiences from the Cycling Demonstration Towns programme. Qualitative survey 2005-2009'. Department for Transport); ^b Total spending in phase 2 – calculated based on the funding reported to have been claimed from Department for Transport/Cycling England and matched expenditure for cycle-specific schemes (<https://www.gov.uk/government/publications/cycling-england-cycling-city-and-towns-end-of-programme-reports>). ^c Cycling England (2010) 'Cycling City and Towns Project Overview: March 2010', Cycling England ^d Brighton and Hove focused their programme in the western part of the town, with a target population of 95,000 of the total population of 254,000 ^e Derby focused their programme on children and young people, with a target population of 105,000 of the total population of 245,000 (Cycling England (2010) 'Cycling City and Towns Project Overview: March 2010', Cycling England); ^f calculated as the sum of expenditure divided by the population divided by five and a half

The capital spend was in the region of three to four times revenue spend in the majority of the towns. The ratio was lower in Brighton and Hove, with approximately double the expenditure on capital as on revenue. The same ratio was substantially greater in Exeter with 11 times more spent on capital than on revenue. This is driven by a high level of matched funding from cycling-specific schemes in the second phase of the programme, particularly matched funding of £8,956,079 for the Exe Estuary Cycle Trail, much of which extends beyond Exeter itself.

Between 2005 and 2008 Darlington also received funding as part of the Sustainable Travel Town programme. The funding was used to promote walking, cycling, car-sharing and using public

³ The programme was also supported by funding from the Department of Health, which was routes via the Department for Transport

transport and therefore some of the Sustainable Travel Town initiatives may have had an impact on the results reported here for Darlington.

3 Sources of data and information generated

A suite of monitoring tools was employed across the six Cycling Demonstration Towns, tailored to reflect the emphasis of the programme delivered in each location. Common indicators of changes in cycling across the six towns are summarised in Table 3-1. As noted in Part B: Data collection and analytical methodologies, the approach includes multiple indicators to avoid reliance on a single data source. Each of the data sources used have their own deficiencies and strengths, and the use of a broader set of indicators is preferred as a more suitable mechanism for providing sound insight.

Table 3-1 Common indicators of change in cycling across the Cycling Demonstration Towns

Change	Population	Indicator
Overall cycle trips	Adults and children	Continuous count data from automatic cycle counters located on both traffic-free and trafficked routes, but predominantly on traffic-free routes Manual counts of cyclists performed on both traffic-free and trafficked routes, but predominantly on trafficked routes
Behaviour change	Adults	Household level physical activity survey Active People Survey
	Children	Pupil Level Annual School Census Bike It monitoring data

4 Automatic cycle count data

4.1 Programme-wide changes in automatic cycle counts

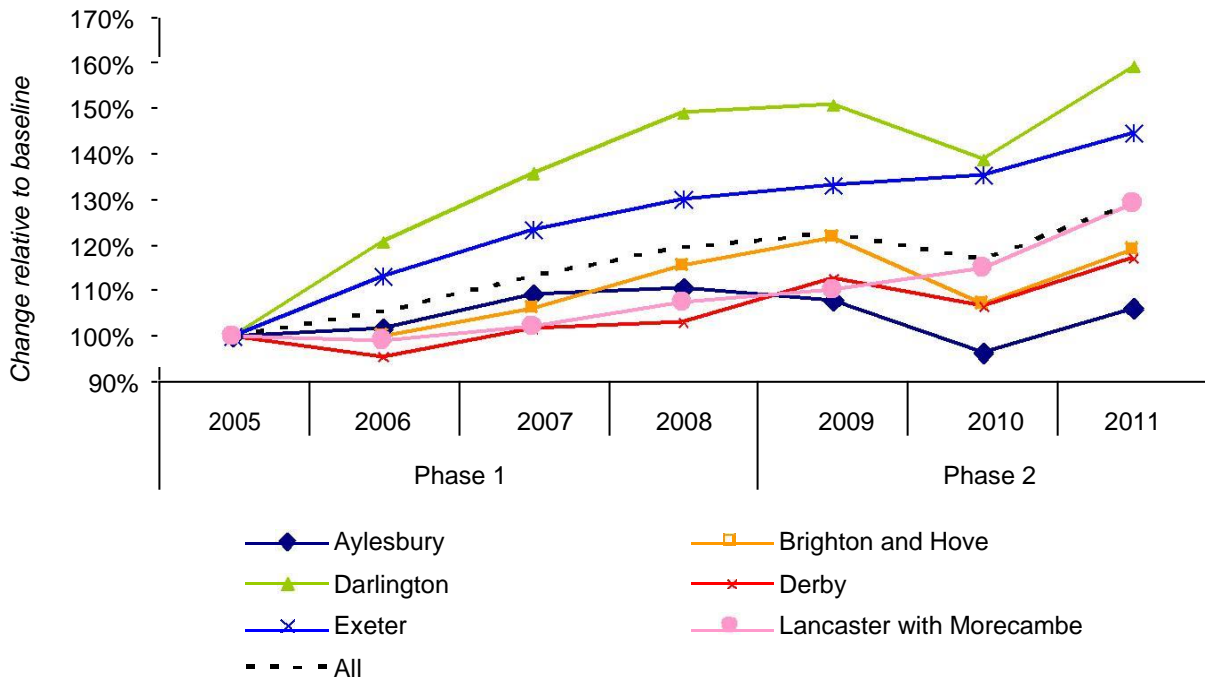
All six towns showed an overall increase in cycle trips over time as measured by automatic cycle counters, (presented in Table 4-1). Year to year change is, however, highly variable (Chart 4-1). We cannot fully explain the variations in the trajectory of change between the towns; the individual delivery programmes, political support, funding changes, influence from other interventions and weather influences may have each contributed.

Table 4-1 Change in count recorded in 2011 compared to a 2005 baseline

	Count in 2011 against a 2005 baseline ^{a,b, c}	Average daily count per counter in 2005 ^a	Average daily count per counter in 2011	Absolute change in count in 2011 against a 2005 baseline ^b
Aylesbury	106%	68	72	4
Brighton and Hove	119%	503	600	97
Darlington	159%	50	79	29
Derby	117%	85	100	15
Exeter	145%	99	143	44
Lancaster with Morecambe	129%	170	220	50
All towns ^d	129%			

^a 2006 for Brighton and Hove ; ^b Baseline = 100%; ^c increase between baseline year and 2011 is statistically significant in each of the six towns ($p < 0.05$) ; ^d unweighted mean of the six percentage change values across the towns

Chart 4-1 Change in counts recorded by automatic cycle counters in each year of the programme against a 2005 baseline (2006 for Brighton and Hove, baseline = 100%)



Four of the six towns saw a decline in counts recorded in 2010 relative to 2009. This may be in part attributable to poor weather conditions experienced nationwide in late 2009 and early and late 2010. The change in cycle counts over time was recalculated including a factor to represent the impact of adverse weather conditions. Including a factor to represent poor weather conditions in the towns moderates the drop in counts in 2010 relative to previous years (Chart 4-2). The average daily count per counter recorded in each year of the programme is presented in Chart 4-3.

Chart 4-2 Change in counts recorded by automatic cycle counters in each year of the programme against a 2005 baseline (2006 for Brighton and Hove, baseline = 100%) - including a factor for poor weather conditions

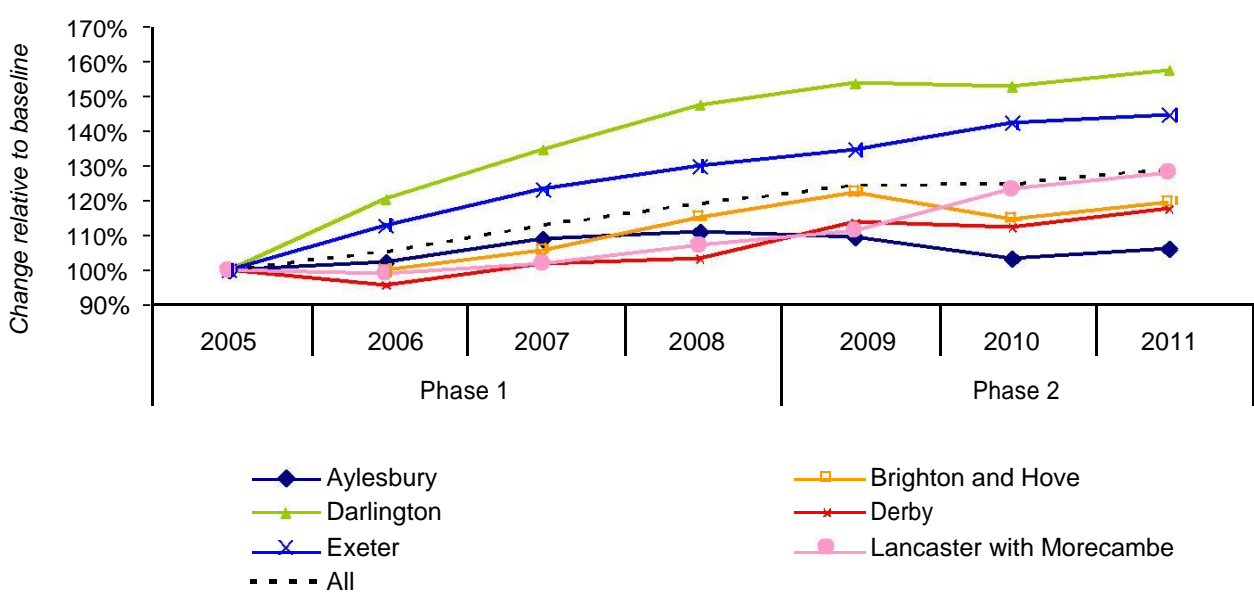
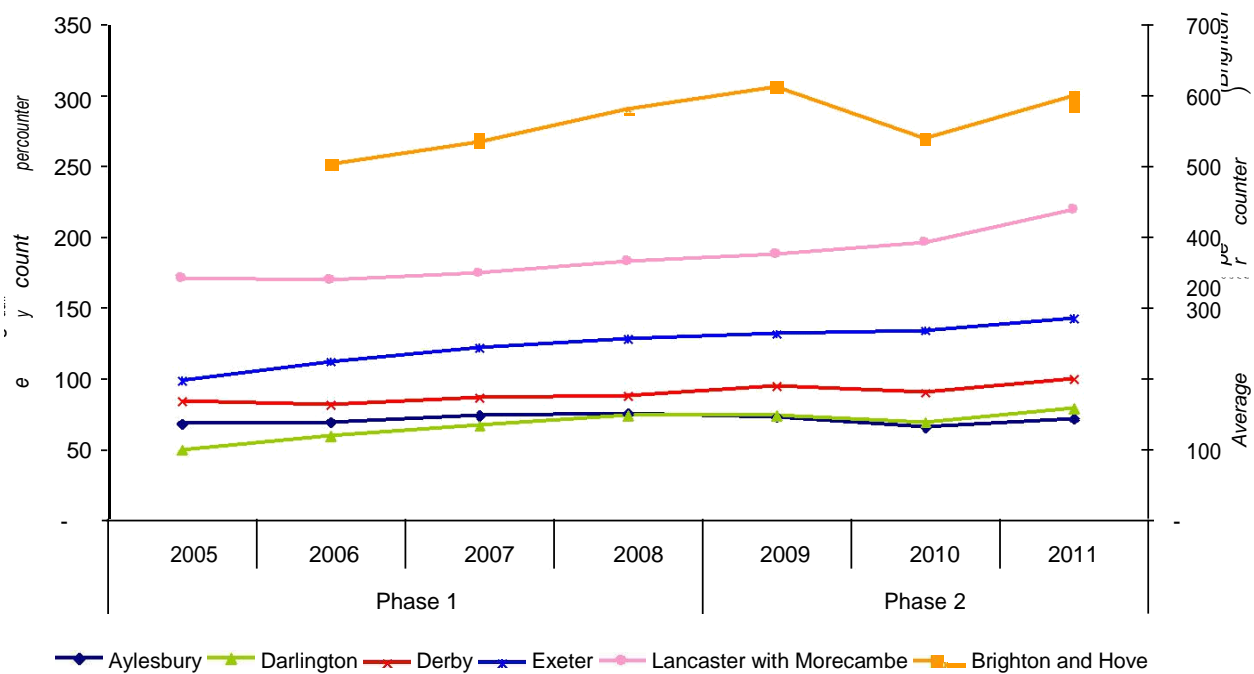


Chart 4-3 Average daily count per counter in each year of the programme



Presentation of the data in this way indicates differences in the trajectories of growth, both between the individual towns and between the two phases of the programme. Derby and Exeter show a steady and continued growth in cycle trips across the whole programme period. In Lancaster and Morecambe, the rate of growth in the second phase appears greater than in the first phase. For Brighton and Darlington, growth appears to level off during the second phase, whilst for Aylesbury growth has been concentrated in the first phase with a slight decline in the second phase.

Percentage change in 2009 against a 2005 baseline (representing the first phase of the programme), percentage change in 2011 against a 2007 baseline (representing the second phase of the programme) and percentage change in 2011 against a 2005 baseline (representing the whole programme) are presented in Table 4-2.

Table 4-2 Change in count recorded in 2009 compared to a 2005 baseline, 2011 compared to a 2007 baseline and 2011 compared to a 2005 baseline

	Count in 2009 against a 2005 baseline ^{a,b,c}	Count in 2011 against a 2007 baseline ^c	Count in 2011 against a 2005 baseline ^{a,c}
Aylesbury	108%*	97%*	106%*
Brighton and Hove	122%*	112%*	119%*
Darlington	151%*	117%*	159%*
Derby	113%*	115%*	117%*
Exeter	133%*	117%*	145%*
Lancaster with Morecambe	110%*	125%*	129%*

^a 2006 for Brighton and Hove; ^b These values are not comparable to those reported at the end of the Cycling Demonstration Towns period due to the inclusion of complete data for 2009 (data to the end of March 2009 only was included in the analysis reported at the end of the Cycling Demonstration Towns period) and minor changes to the group of counters included in the analysis (as a result of some sites being discontinued, new sites being added and data being excluded due to issues with data reliability); ^c Baseline = 100%

The percentage change in counts at the end of the programme is presented in Chart 4-4 (in order of increasing percentage change against the baseline) and Chart 4-5 (in order of increasing average daily count per counter in the baseline year) for each town, together with the average daily count of cyclists per counter recorded in the baseline year and at the end of the programme.⁴ These plots show there to be no clear correlation between levels of change in cycle trips based on the counters and the base level of counts.

⁴ Calculated as the total count of cyclists in the baseline year and in 2011 divided by the total number of automatic cycle count sites in the town

Chart 4-4 Change in counts recorded by automatic cycle counters in 2011 against a 2005 baseline (2006 for Brighton and Hove), and counts per day recorded across all counters in the baseline year and 2011 – plotted in order of increasing percentage change against the baseline

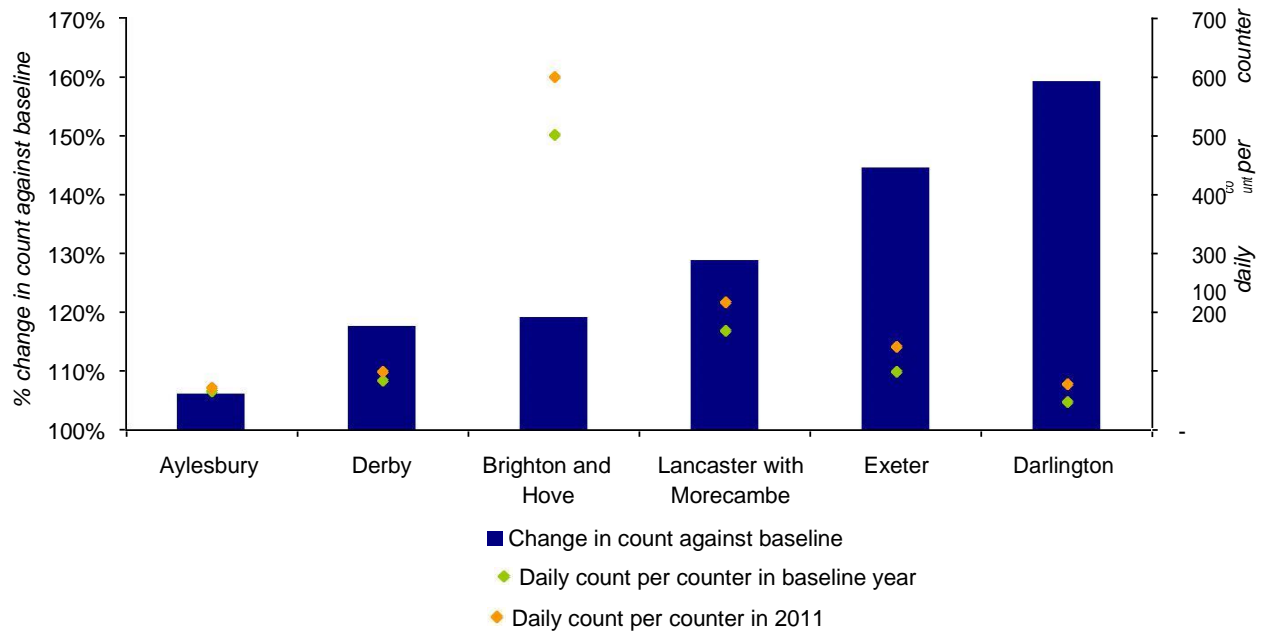
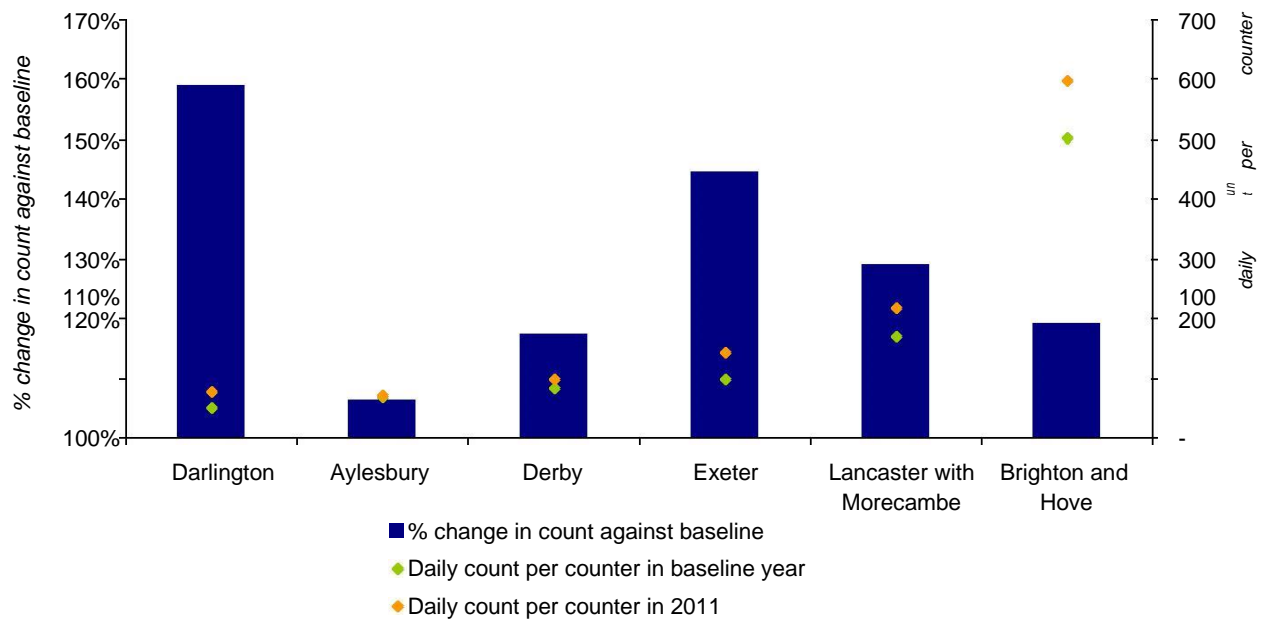
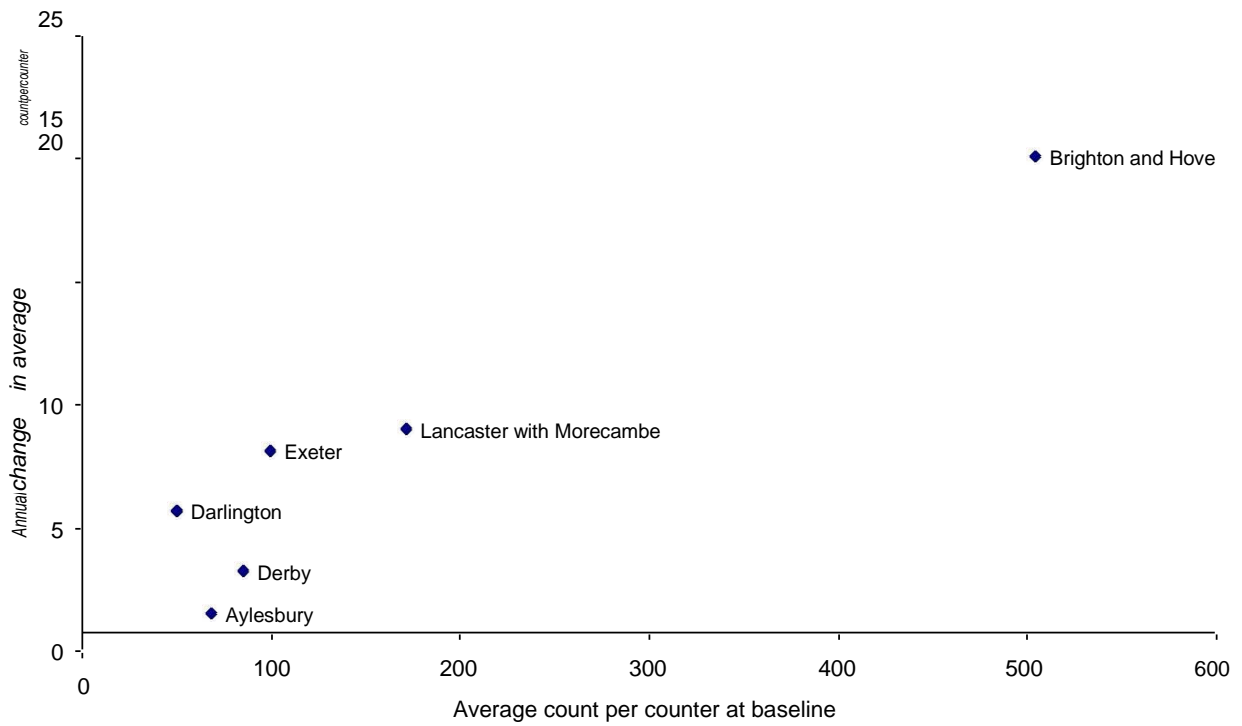


Chart 4-5 Change in counts recorded by automatic cycle counters in 2011 against a 2005 baseline (2006 for Brighton and Hove), and counts per day recorded across all counters in the baseline year and 2011 – plotted in order of increasing average daily count per counter in the baseline year



The absolute increase in counts (per counter per year) is presented in Chart 4-6 together with the average daily count per counter in the baseline year. When absolute rather than percentage increases are considered, a more consistent pattern emerges. There appears to be a positive relationship between the amount of cycling recorded in the baseline year and the absolute increase in cycling levels observed.

Chart 4-6 Average annual change in daily counts recorded per automatic cycle counter between 2005 (2006 for Brighton and Hove) and 2011, and average daily count per counter in the baseline year



The numbers of individual counters in each town displaying positive or negative change over time are presented in Table 4-3. Chart 4-7 presents the range of annual percentage change across all counters in each town.⁵

Table 4-3 Number of automatic cycle counters in each town and number of counters with positive, negative and no change over time⁶

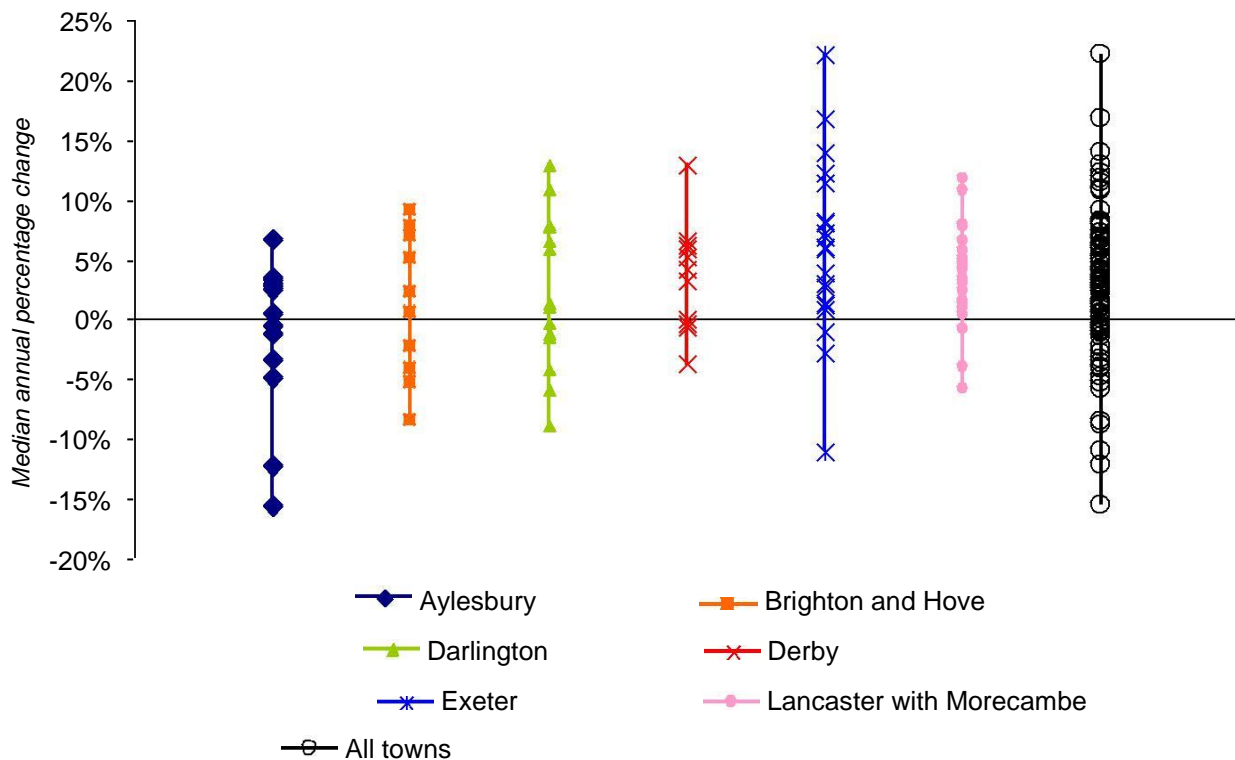
Town	Total	Number of counters		
		with positive annual change	with no change over time	with negative annual change
Aylesbury	19	9	1	9
Brighton and Hove ^a	13	7	0	5
Darlington	19	12	2	5
Derby	15	10	2	3
Exeter	26	21	0	5
Lancaster with Morecambe	26	22	1	3
All towns	118	81	6	30

^a one site in Brighton had insufficient data to make any estimate of change in counts recorded over time

⁵ Table 4-3 includes *all counters* in each town, with the number of sites showing positive, negative or no change regardless of whether sufficient data (ie, at least three years worth of data in for each month) are available to robustly quantify the percentage change over time; Chart 4-7 includes only those sites where sufficient data are available to calculate the annual percentage change in the count of cyclists recorded at an individual site

⁶ None of the individual count sites showed a significant change in counts. See section B (Data collection and analytical methodologies) for details about how this was calculated.

Chart 4-7 Range of median annual percentage change recorded across counters in each town



The range of percentage changes observed across individual count sites varies substantially within and between the towns. Of the 117 count sites analysed, the average annual change in the median daily count of cyclists was positive for 69% and negative for 26%. For the remaining 5%, there was no change overall over the time period included in the analysis.

4.2 Comparison of automatic cycle count data with equivalent data in matched areas

For a subset of towns, limited counter data were available for a comparable matched local authority area⁷. This analysis was performed using data from areas matched to Darlington, Exeter and Lancaster. It was not possible to perform this analysis for Aylesbury, Brighton or Derby due to the absence of sufficient counter data for their respective matched areas. All of the comparison areas are categorised as being 'very similar' to the Cycling Demonstration Town areas to which they are matched. Data were drawn from Sustrans' database of continuous count data, as supplied by local authorities. Data from 2005 onwards were included in the analysis.

Table 4-4 below summarises several key statistics for each town and matched area. In order to give some indication of the comparability of the baseline level of cycling in each location, data from the 2001 Census on mode of travel to work, and the counts per day per counter recorded in the baseline year are presented. Based on the 2001 Census data, the proportion of people cycling to work is lower in the matched areas than in the cycling towns, suggesting that these areas are starting from a lower base level of cycling. However, this is contradicted by the counts per day per counter in the matched areas, all of which are greater than in the cycling towns. It should be noted, however, that there are substantially fewer counters for which data are available within two of the matched areas (Exeter and Lancaster with Morecambe). Whilst the distribution of counters in the cycling towns was, on the whole, designed to provide a well-rounded coverage of cycling across the whole town area,

⁷ The National Statistics 2001 Area Classification gives for each local authority up to four other corresponding local authorities classified as being extremely similar; very similar; similar or somewhat similar.

the monitoring team had no input into the location of counters in matched areas. These counters may have been sited in response to locally delivered initiatives or to monitor routes of local interest, and so possibly monitor sites of intensive usage. As such they may not necessarily give a complete picture of town-wide trends in cycling in these areas over time.

Table 4-4 presents the percentage change in cycle trips in 2011 compared to a 2005 baseline. Year-to-year change in counts of cyclists are shown in Table 4-5 and Chart 4-8 for Darlington, Exeter and Lancaster with Morecambe and their respective matched areas.

Table 4-4 Details of cycling in matched and intervention areas derived from the 2001 Census and automatic cycle counter data, and percentage change in cycle trips in 2011 against a 2005 baseline in the intervention and matched areas

Town	Number of count sites included in analysis		% cycling (2001 census, mode of travel to work ^a)		Baseline (2005) counts per day per counter		2011 counts per day per counter		Absolute change in counts per day per counter (2005 to 2011)		Change in cycling in 2011 against 2005 baseline ^{b,c}	
	Intervention	Matched	Intervention	Matched	Intervention	Matched	Intervention	Matched	Intervention	Matched	Intervention	Matched
Darlington	19	15	1.4%	1.2%	50	46	79	69	29	23	159%	150%
Exeter	26	6	2.4%	1.6%	99	77	143	105	44	28	145%	136%
Lancaster with Morecambe	26	3	2.4%	1.7%	170	204	220	313	49	110	129%	154%

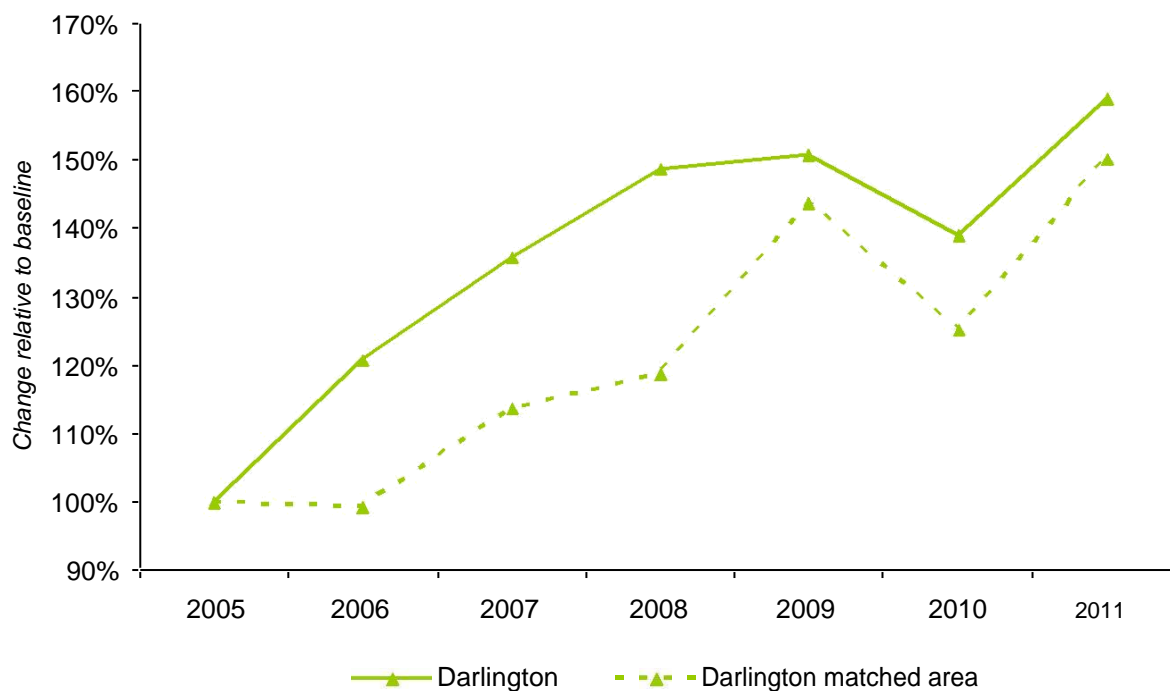
^a Calculated as the percentage of those travelling to work (excluding those working from home) travelling by bicycle (http://data.gov.uk/dataset/method_of_travel_to_work_-_daytime_population_2001_census); ^b Baseline = 100%; ^c A significant increase in counts was observed for each of the intervention and matched towns when comparing 2011 against the baseline year (p<0.05)

Table 4-5 Change in count against a 2005 baseline for Darlington, Exeter and Lancaster compared to matched local authority areas

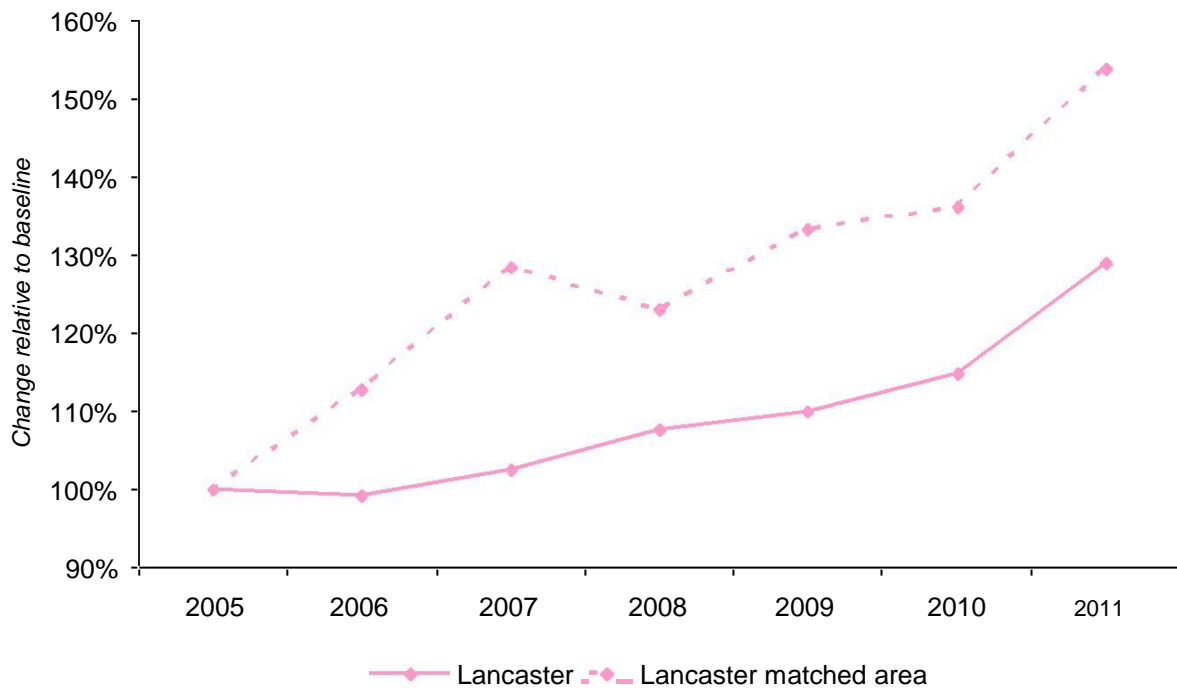
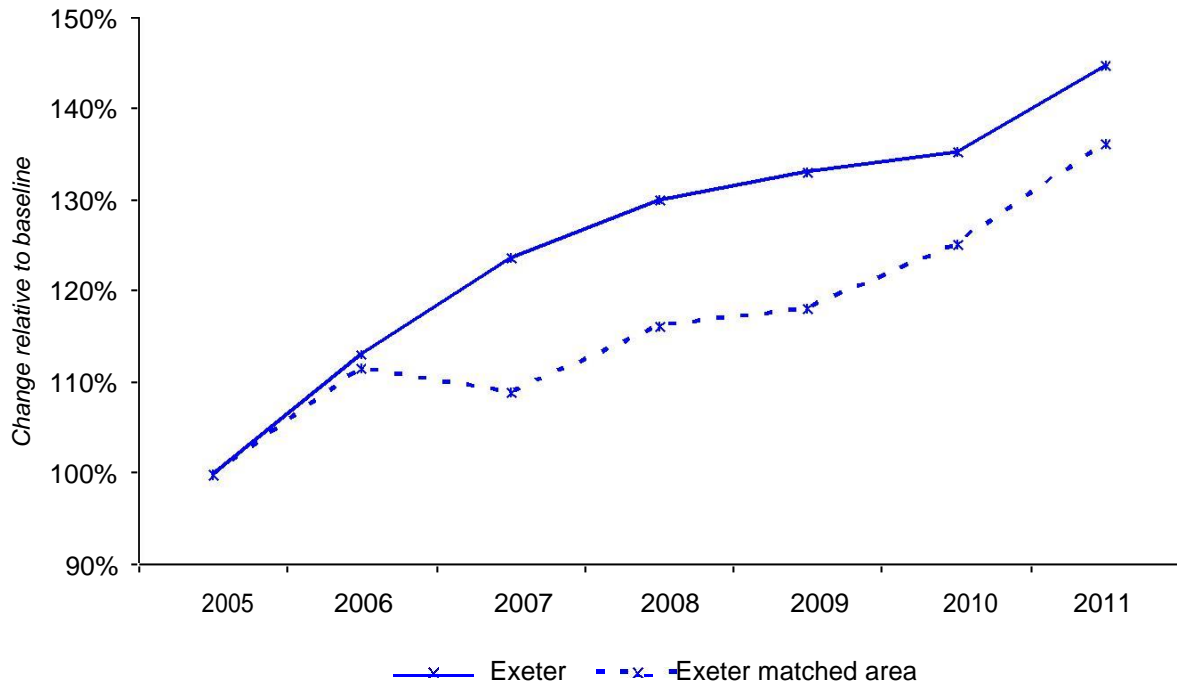
Town	Percentage change in count against baseline ^{a, b}						
	2005	2006	2007	2008	2009	2010	2011
Darlington	100%	121%	136%	149%	151%	139%	159%
Darlington matched area (very similar ⁸)	100%	99%	114%	119%	144%	125%	150%
Exeter	100%	113%	124%	130%	133%	135%	145%
Exeter matched area (very similar)	100%	112%	109%	116%	118%	125%	136%
Lancaster with Morecambe	100%	99%	102%	108%	110%	115%	129%
Lancaster matched area (very similar)	100%	113%	128%	123%	133%	136%	154%

^a Baseline = 100%; ^b A significant increase in counts was observed at each of the intervention and matched towns when comparing 2011 against the baseline year (p<0.05)

Chart 4-8 Change in counts against a 2005 baseline recorded by automatic cycle counters in Darlington, Exeter and Lancaster compared to counters in similar areas without Cycling Demonstration Towns



⁸ Classified using the National Statistics 2001 Area Classification



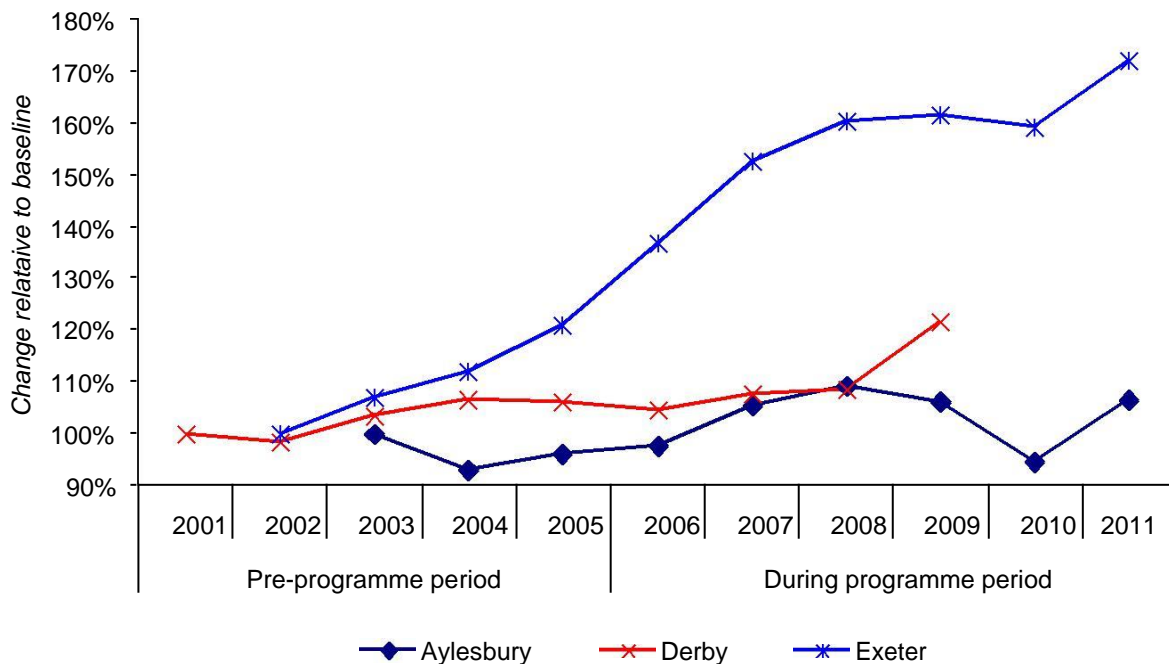
There has been an apparent growth in cycle trips in the matched areas over the programme period, with a lesser change over time in the areas matched to Darlington and Exeter than in the intervention towns. A greater growth was recorded in the corresponding matched area than in Lancaster with Morecambe. Whilst there was no significant investment in cycling in this matched area, political leadership strongly supportive of cycling is reported in this location during the corresponding period. There was some relatively small scale delivery of schemes to enable cycling, such as the installation of cycle contraflows, and a considerable effort to restrict car movement and to increase permeability of the town centre for cyclists. The limited data available for the matched area (from three count sites

only) makes it difficult to draw firm conclusions surrounding change in this particular area relative to growth in the Cycling Demonstration Towns.

4.3 Comparison of automatic cycle count data with equivalent data gathered prior to the Cycling Demonstration Towns programme

In a subset of the towns, a number of counters were identified for which data are available extending back several years before the start of the Cycling Demonstration Towns programme. Data from these counters were analysed in order to investigate change in cycle trips recorded over the years prior to the programme. This analysis was performed using count data from Aylesbury (five count sites), Derby (six count sites) and Exeter (13 count sites). It was not possible to perform the same analysis for Brighton, Darlington or Lancaster due to there being insufficient count data available before the start of the programme. The rate of change in counts over the years prior to the programme and the rate of change during the programme for these count sites⁹ were calculated. The change in counts recorded for counters with data for the pre-programme period are presented in Chart 4-9¹⁰, and the average change per year in the pre-programme and programme period, in Table 4-6. For Aylesbury and Exeter, growth in cycle trips drops in 2010 relative to earlier years. As discussed previously, this is potentially the result of poor weather conditions.

Chart 4-9 Change in counts recorded by automatic cycle counters in each year of the programme against a pre-programme baseline



⁹ To allow a direct comparison to be made of growth in the pre and during programme period, only data from counters where pre programme data are available are included in the analysis; change against baseline is therefore not comparable to the earlier reported analysis using all counters regardless of the year in which data collection started (Table 4-2)

¹⁰ Due to variability in the duration of data available for each town in the pre-programme period, it is not possible to use a consistent baseline. Change in the pre programme period is expressed against a 2003 baseline for Aylesbury, 2001 for Derby and 2002 for Exeter. In analysing the 'in programme' data, for Aylesbury and Exeter, change in 2011 is compared to the baseline year; for Derby, the majority of counters where data are available in the pre-programme period are sites where counting was discontinued before the end of the Cycling City and Towns phase of the programme, therefore year to year change relative to the baseline is included up to 2009 only

Table 4-6 Average percentage change in count per year for Aylesbury, Derby and Exeter in years before and during the Cycling Demonstration Towns programme

Town	Average change per year	
	Pre-programme period	In-programme period
Aylesbury	-1.8%	1.7%
Derby	1.5%	3.9%
Exeter	6.9%	8.5%

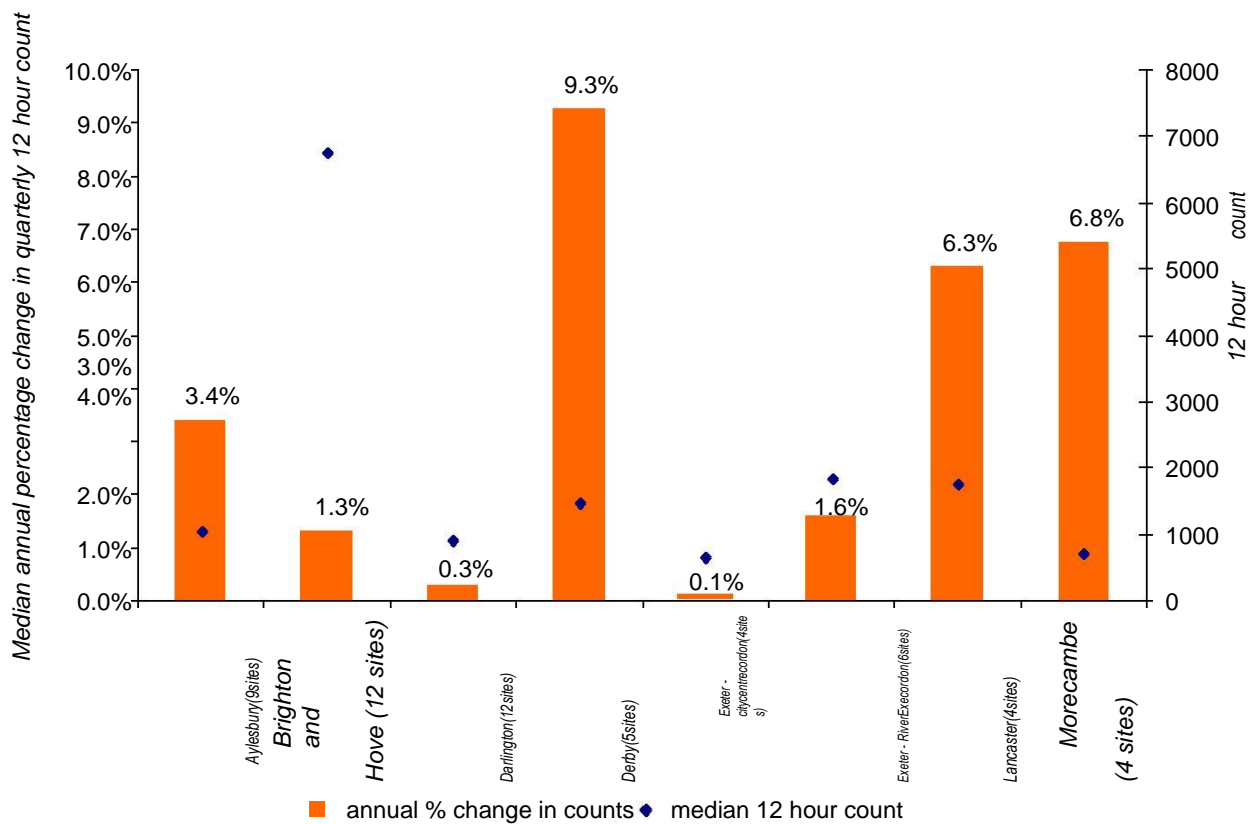
For the subset of counters in the three towns where it is possible to compare growth before and during the Cycling Demonstration Towns programme, a greater increase has been recorded in the count of cyclists over the period of time when Cycling Demonstration Town interventions have been delivered.

5 Manual cycle count data

5.1 Programme-wide changes in manual counts of cycles

Manual cycle count data collected across the six towns indicate a growth in cycle trips over the programme period. Series of manual counts were performed on a total of eight partial cordons and screenlines in the towns. One set of counts was performed in Aylesbury, Darlington, Derby and Brighton. In Exeter, two sets of counts were performed, one around the city centre and the second on a screenline based on the River Exe. Cordon counts were performed at a set of sites in Lancaster, and a distinct set of sites in Morecambe. The number of sites included in each cordon and screenline, the estimated annual percentage change in manual counts and the median 12 hour count of cyclists are presented in Chart 5-1.

Chart 5-1 Annual average percentage change based on manual count data collected over eight partial cordons and screenlines¹¹



The data from the manual counts performed across the six towns suggest an increase over time, although the magnitude of this change varies substantially between towns.

¹¹ When comparing the total count at each point in time with counts in the same quarter in different years, there are 32 possible comparisons in Aylesbury, 18 of which are significant differences (14 increases and four decreases). In Brighton and Hove there are 36 possible comparisons, 31 of which are significant differences (18 increases and 13 decreases). In Darlington there are 45 possible comparisons, 26 of which are significant differences (17 increases and nine decreases). In Derby there are 21 possible comparisons, 19 of which are significant differences (16 increases and three decreases). On the Exeter city centre cordon there are 40 possible comparisons, 31 of which are significant differences (10 increases and 21 decreases). On the River Exe screenline there are 40 possible comparisons, 29 of which are significant differences (15 increases and 14 decreases). In Lancaster there are 28 possible comparisons, 19 of which are significant differences (16 increases and three decreases). In Morecambe there are 32 possible comparisons, 24 of which are significant differences (16 increases and eight decreases).

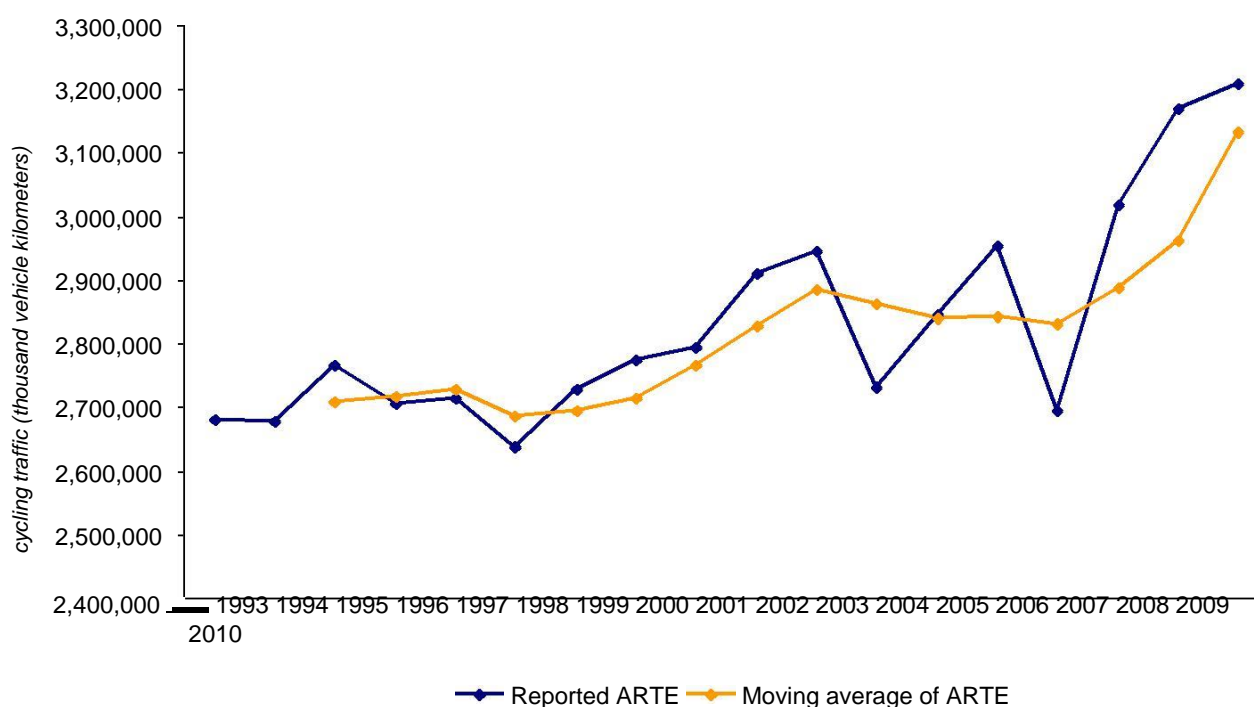
6 Comparison of change in the Cycling Demonstration Towns with national trends in cycling

6.1 Department for Transport Annual Road Traffic Estimates

Annual Road Traffic Estimates (ARTE) published by the Department for Transport in 2012¹² reported a year to year increase in cycle traffic from 2007 onwards. Cycle traffic increased by 2.2% between 2010 and 2011, and by 17.7% over the previous ten years.

Detailed data on cycle traffic were made available by the Department for Transport for the period 1993 to 2010. Although the data were not sufficiently robust to assess levels of cycling at a town level, it is possible to use the data to provide an indication of national trends. In order to make as direct a comparison as possible given the limitations of the data set, the cycle traffic estimates (expressed as thousands of vehicle kilometres) were summed across the English local authority areas, excluding London and metropolitan counties. The resulting values give an indication of national trends in on-road cycling on roads similar to those within the Cycling Demonstration Towns. It has not been possible to exclude data from areas involved in the programme from this dataset. Departmental advice is that any analysis based only on data from the Cycling Demonstration Towns, even if combined, would not be robust. The cycling traffic estimates (in thousands of vehicle kilometres) for each year, and estimates based on a three year moving average¹³ are presented in Chart 6-1.

Chart 6-1 Cycling traffic estimates for non-metropolitan areas in England



The ARTE data for cycle traffic fluctuate irregularly between 2003 and 2008, with an apparent increase from 2007. Levels of cycle traffic are relatively stable between 1995 and 2000. This is followed by a steady increase to 2003 after which cycling levels drop between 2003 and 2007. A substantial uplift is apparent in data collected between 2007 and 2010.

¹² Department for Transport (2012) 'Annual Road Traffic Estimates 2012' Department for Transport https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/9059/Road-Traffic-estimates-2011-Revised.pdf

¹³ The moving average has been calculated by taking the mean of the given year plus the two previous years.

6.2 National Travel Survey

The National Travel Survey (NTS) is a household survey collecting data on personal travel.. Cycle trip data were obtained from special tabulations of the NTS for the whole of Britain, medium urban areas (population of between 25,000 and 250,000) and large urban areas (population greater than 250,000). Bicycle miles per person per year, and bicycle stages¹⁴ per person per year are presented in Chart 6-2 and Chart 6-3 for the period 2002-2010. The national data suggest a slight increase in distance cycled per person during the Cycling Demonstration Towns period. Due to the small sample size, both measures show erratic fluctuation over the time period considered.

Chart 6-2 Bicycle miles per person per year, 2002-2010 (National Travel Survey)

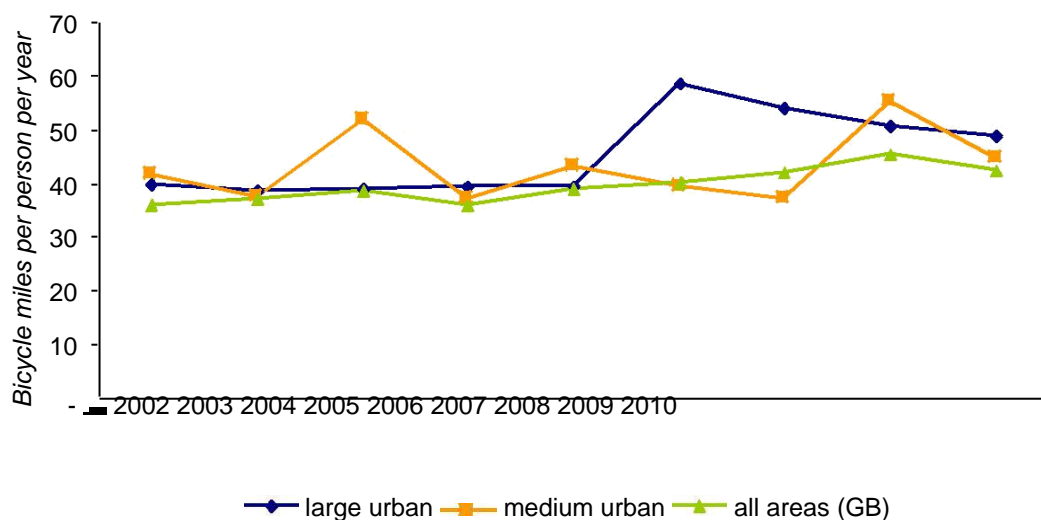
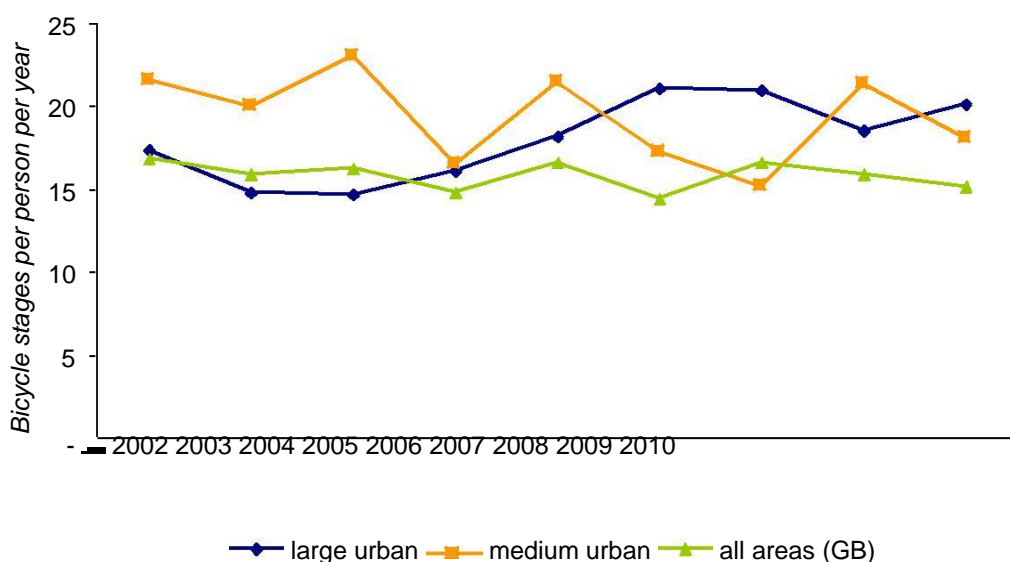


Chart 6-3 Bicycle stages per person per year, 2002-2010 (National Travel Survey)



¹⁴ Data for trip stages include trips made completely by bicycle, and cycling as part of a trip using other modes

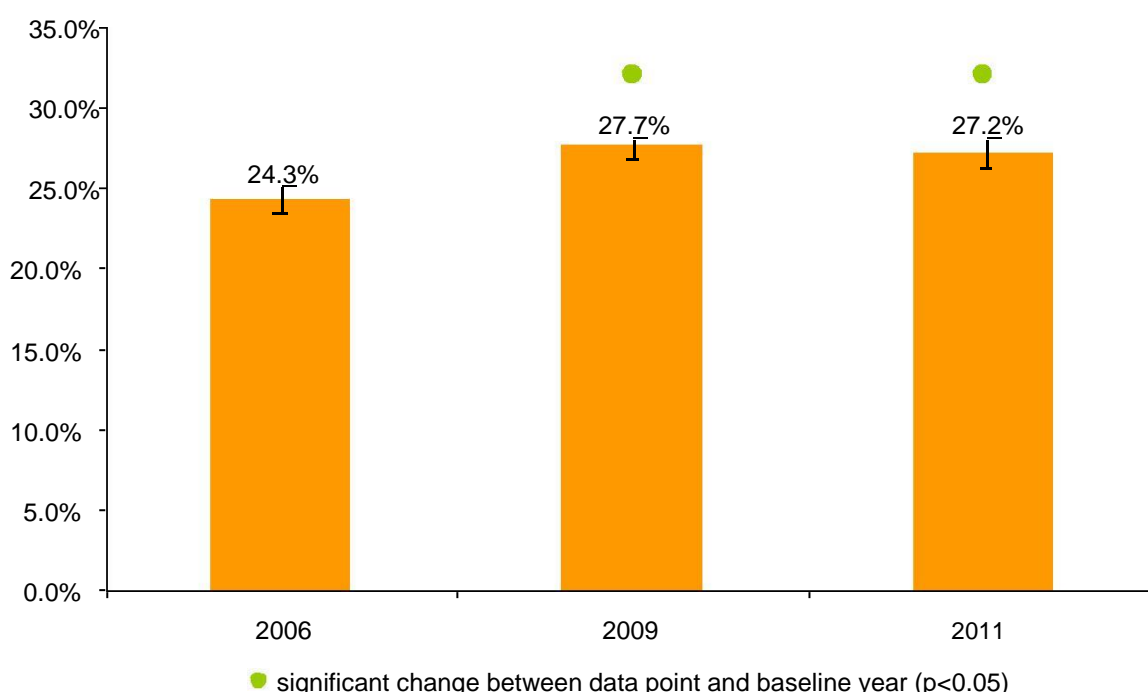
7 Physical activity and participation in cycling

7.1 Household level physical activity survey

The household level physical activity survey was designed to collect data representative of the adult population of the Cycling Demonstration Towns. Three waves of fieldwork were conducted in 2006 (before most activity began in the towns), in 2009 and in 2011.

The proportion of adults who said they did some cycling in a typical week (Chart 7-1) increased between 2006 and 2009, from 24.3% to 27.7%. However there was no significant change in this measure between 2009 and 2011 ($p>0.05$), with 27.2% reporting that they do some cycling in a typical week in 2011. There were differences between the individual towns, with Derby, Lancaster and Exeter registering a statistically significant increase between 2006 and 2009, but a mixed picture in the second period. There were no statistically significant changes in other towns.

Chart 7-1 Proportion of adults in the Cycling Demonstration Towns reporting that they do some cycling in a typical week (weighted to the profile of the adult population in each location)



To investigate the impact on health, the survey adopted the physical activity measure from the European Prospective Investigation into Cancer (EPIC) study¹⁵ This measure combines cycling and occupational activity with sport and leisure activities.

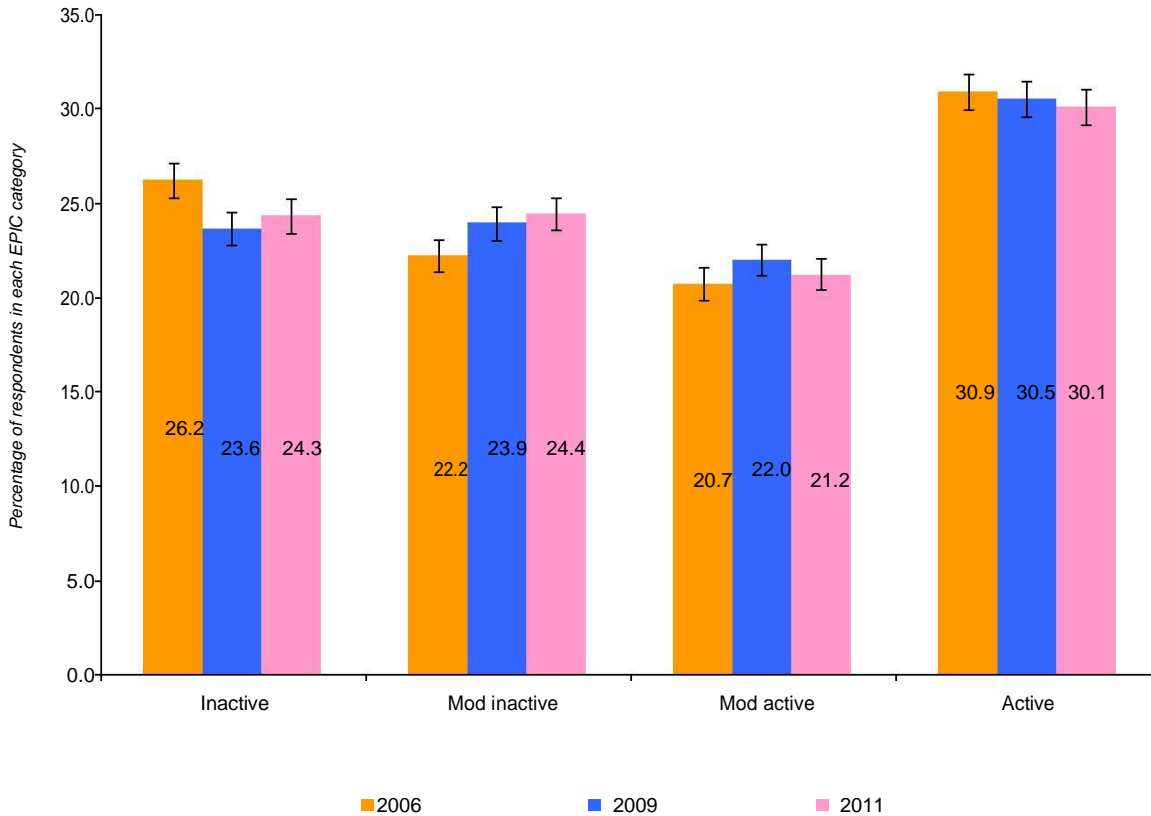
There was a decline in the proportion of adults classed as 'inactive' (those at the highest risk of mortality due to their inactivity) from 2006 to 2011 (from 26.2% to 24.3%), and a corresponding increase in those classed as 'moderately inactive'¹⁶. As above, this change occurred between 2006 and 2009 with no further change observable between 2009 and 2011. The proportion of adults in each EPIC category are presented in Chart 7-2. The proportion classed as inactive declined in

¹⁵Wareham NJ, Jakes RW, Rennie KL, Schuit J, Mitchell J, Hennings S and Day NE. Validity and repeatability of a simple index derived from the short physical activity questionnaire used in the European Prospective Investigation into Cancer and Nutrition (EPIC) study. Public Health Nutr. 2003 Jun;6(4):407-13.

¹⁶The decline in the proportion of adults classed as 'inactive' and the increase in those classed as 'moderately inactive' were both statistically significant ($p<0.05$).

Darlington, Lancaster and Derby, with the decline again being focused in the first phase of the programme (2006-2009). There were no changes in other towns.

Chart 7-2 Proportion of adults in the Cycling Demonstration Towns in each EPIC physical activity category



7.2 Changes in physical activity and participation in cycling in matched towns

7.2.1 Active People Survey

A secondary analysis of Sport England’s Active People Survey was conducted to validate the household level physical activity data, and to compare levels of cycling in local authorities containing a Cycling Demonstration Town, with local authorities without a Cycling Demonstration Town. This is not an ideal comparison in so much as APS data relate to the whole local authority area, whilst Cycling Demonstration Town interventions have not been applied across entire local authorities in many cases. We compared both a general sample of non-Cycling Demonstration Town authorities, and a sample of non-Cycling Demonstration Town authorities matched by demographics. However, it should be noted that data from the APS survey refer only to cycling in bouts of 30 minutes or more. This measure may therefore under represent overall cycling in the towns as shorter journeys are not included¹⁷.

Comparing 2005/6 with 2010/11 there were no significant differences¹⁸ in cycling for at least 30 minutes once or more per month (Chart 7-3) in either the combined Cycling Demonstration Town authorities or the non-Cycling Demonstration Town authorities. The early increases in cycling seen between 2005-6 and 2007-8 (from 11.7% to 15.1%) appear to have been negated by subsequent

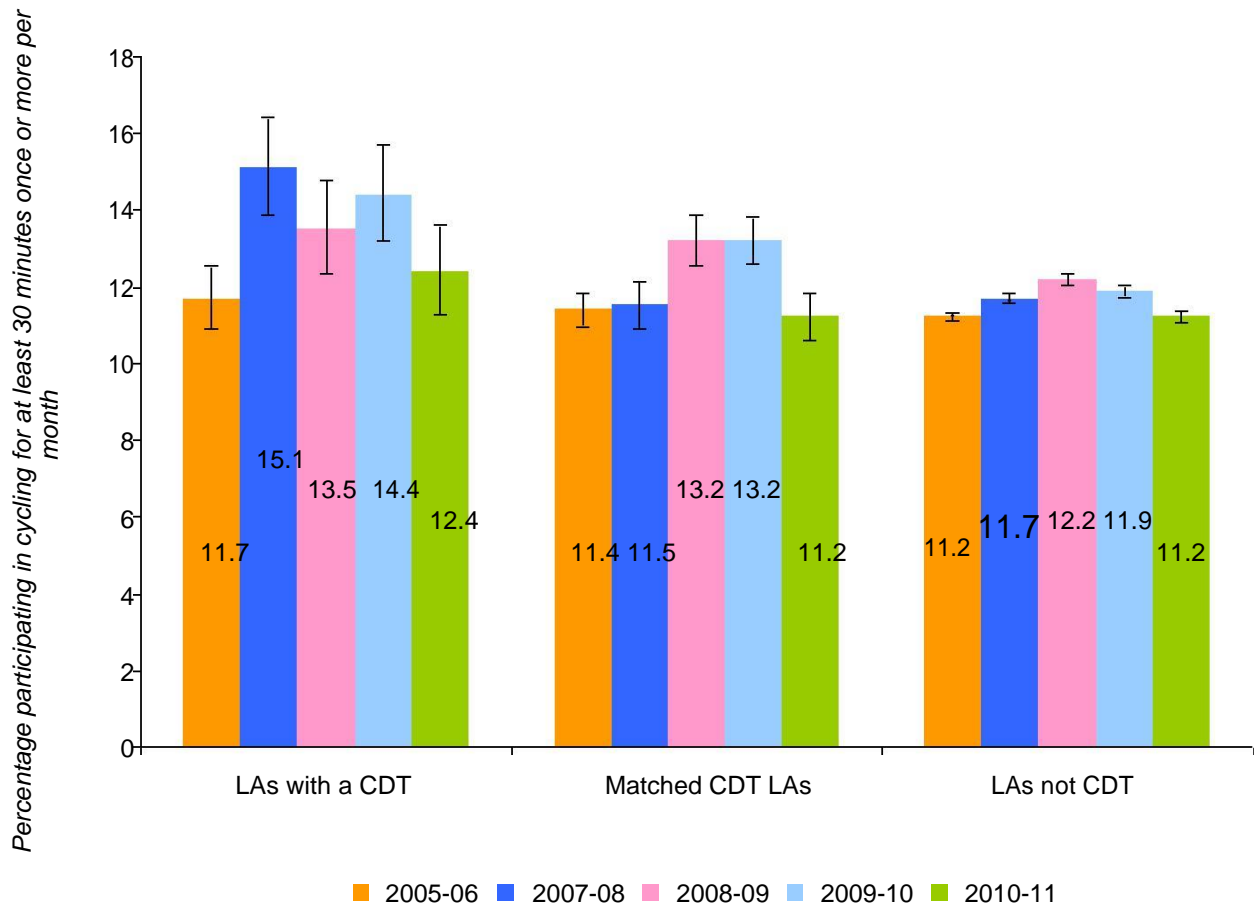
¹⁷ APS will in future be collecting data on cycle journeys of any length, but as this data is only available for 2010/11 onwards it was not possible to use it in this analysis.

¹⁸ $p=0.348$ in the Cycling Demonstration Town authorities and $p=0.9172$ in the non-Cycling Demonstration Town authorities.

falls in cycling, with the 2010/11 survey showing 12.4% of adults cycling once or more per month. This is not significantly different from the baseline year.

In Darlington and Lancaster there were significant increases in cycling once or more per month¹⁹. In Darlington the proportion cycling increased from 8.6% in 2005/6 to 12.7% in 2010/11. In Lancaster the proportion cycling increased from 13.7% in 2005/6 to 19.9% in 2010/11. In Brighton and Hove there was a significant decline from 13.7% in 2005/6 to 7.1% in 2010/11²⁰.

Chart 7-3 Proportion of APS respondents cycling for at least 30 minutes once or more a month

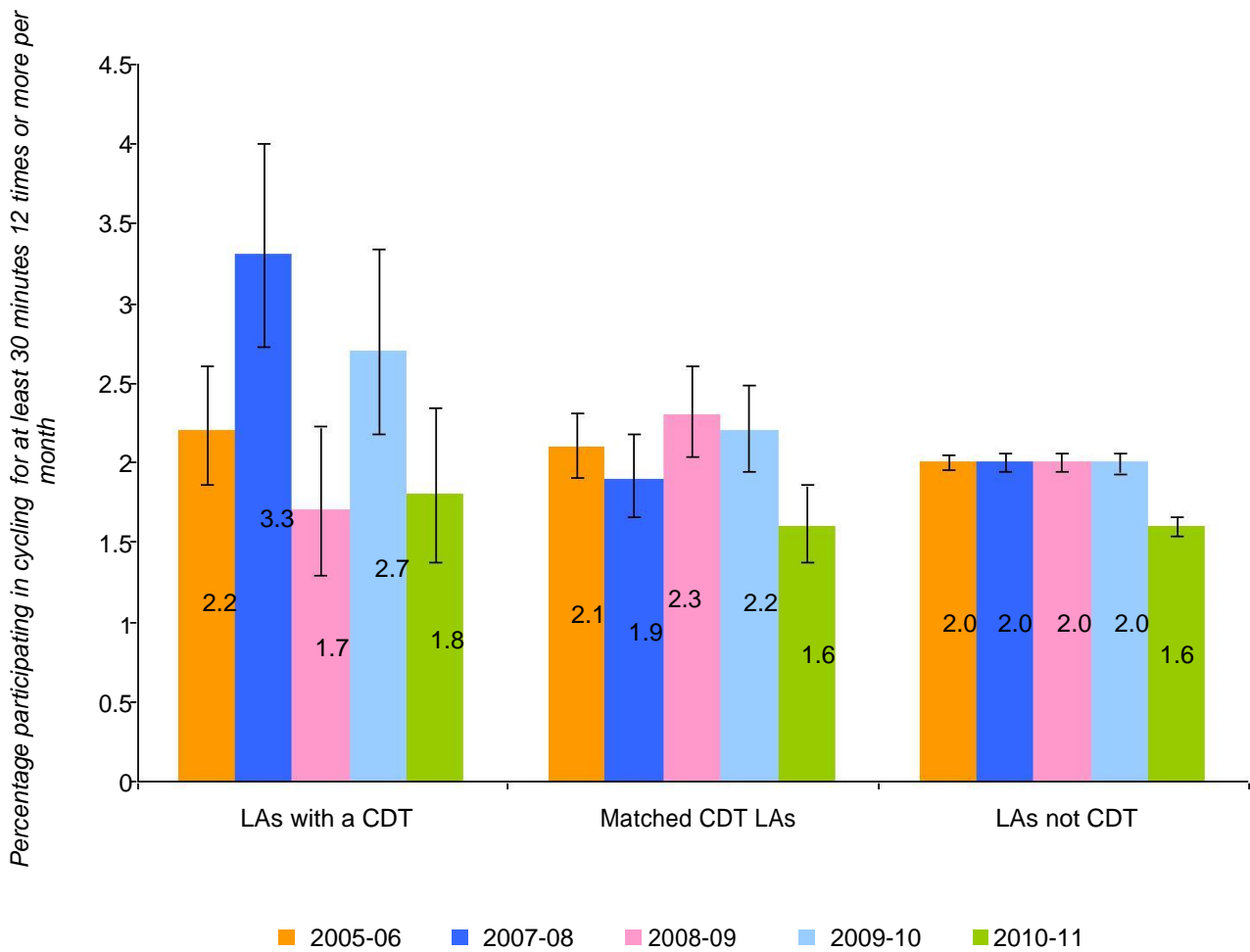


There is a similar picture emerging from the data for cycling for at least 30 minutes 12 or more times per month (Chart 7-4). Again, the early increases seen in the first phase of the programme have not been sustained in these data. In particular there appears to be a decline in proportion of people cycling from 2009/10 to 2010/11, across both Cycling Demonstration Town and non-Cycling Demonstration Town samples.

¹⁹ $p < 0.05$ in both cases

²⁰ $p < 0.05$

Chart 7-4 Proportion of APS respondents cycling for at least 30 minutes 12 times or more a month



8 Travel to school data

8.1 Pupil Level Annual School Census data

Information on mode of travel to school within the towns is available from the Pupil Level Annual School Census (PLASC) collected by the Department for Education. PLASC has included a question on the usual mode of travel to school since 2007. Data aggregated for the six towns are presented in Table 8-1 and Chart 8-1. The proportion of children reporting that they usually cycle to school increased in all towns between 2007 and 2011. Although year to year change is variable between towns, overall the proportion cycling to school increased from 1.5% in 2007 to 2.4% in 2011.

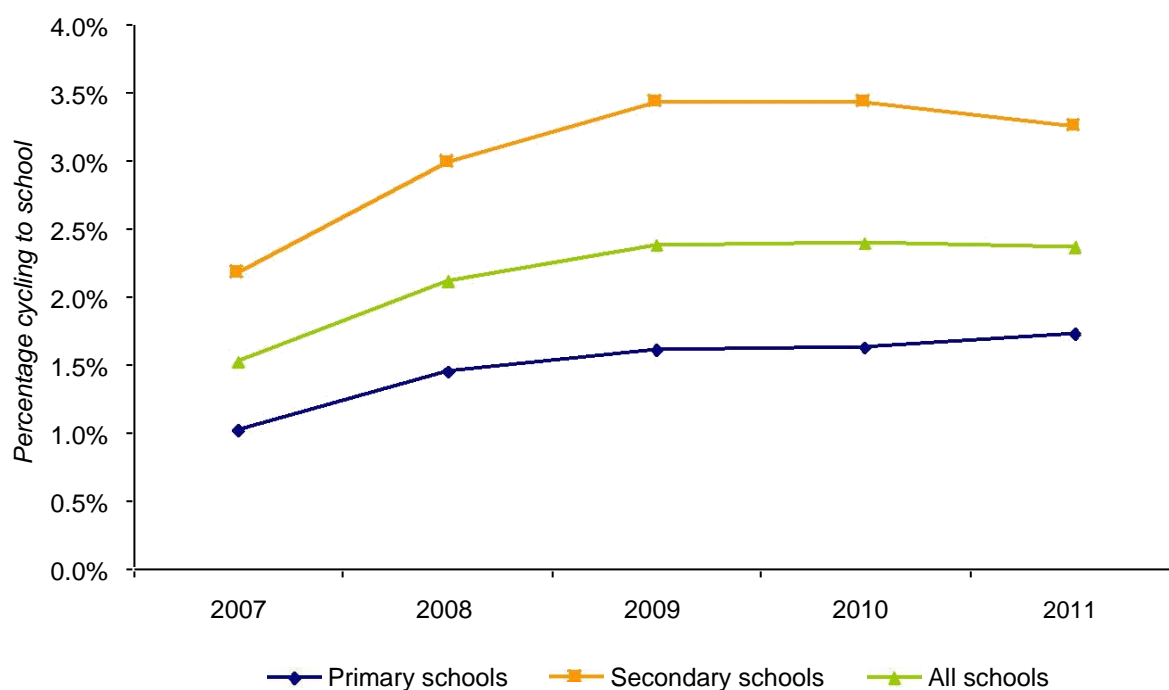
Cycling to both primary and secondary schools increased over the course of the programme. The relative change was greater in primary schools than in secondary schools. The proportion cycling to primary school increased from 1.0% to 1.7% between 2007 and 2011, compared to an increase from 2.2% to 3.3% in secondary schools.

Table 8-1 Percentage of pupils cycling to primary, secondary and all schools in the Cycling Demonstration Towns – PLASC data

	2007	2008	2009	2010	2011
Aylesbury	1.5%	1.7%	1.8%	1.6%	1.7%
Brighton and Hove	1.0%	1.8%	1.7%	1.5%	1.5%*
Darlington	2.7%	2.9%	3.2%	3.3%	3.3%*
Derby	0.9%	1.6%	2.1%	1.8%	1.9%*
Exeter	3.4%	4.3%	4.8%	5.5%	5.5%*
Lancaster with Morecambe	1.4%	1.7%	1.9%	2.5%	2.2%*
All towns – all schools	1.5%	2.1%	2.4%	2.4%	2.4%*
All towns – primary schools	1.0%	1.5%	1.6%	1.6%	1.7%*
All towns – secondary schools	2.2%	3.0%	3.4%	3.4%	3.3%*

* significant change between 2007 and 2011 ($p < 0.05$)

Chart 8-1 Proportion of pupils cycling to school in primary, secondary and all schools in the Cycling Demonstration Towns – PLASC data



8.2 Bike It data

Pre and post survey data²¹ are available for a total of 116 schools across the six towns. The proportion of children surveyed cycling to school everyday calculated from pooled pre survey data was 4.1%, compared to 9.7% in the post survey. The proportion of children surveyed who ‘never’ cycle to school was 76.3%, based on pooled pre-survey data, decreasing to 55.8%, based on pooled post-survey data. The proportions of Bike It survey respondents cycling to school everyday and never cycling to school are presented for each town in Table 8-2.

Table 8-2 Proportion of pupils surveyed in schools engaged with Bike It cycling to school ‘everyday’ and ‘never’ in pre and post surveys

	% cycling to school everyday		% never cycling to school	
	Pre	Post	Pre	Post
Aylesbury	3.4%	10.7%*	75.1%	54.4%*
Brighton and Hove	5.0%	10.8%*	70.3%	48.8%*
Darlington	4.9%	8.8%*	75.8%	54.3%*
Derby	3.4%	12.0%*	71.0%	44.1%*
Exeter	4.6%	8.7%*	75.7%	63.5%*
Lancaster with Morecambe	3.2%	7.1%*	96.3%	63.6%*
All towns	4.1%	9.7%*	76.3%	55.8%*

* post survey results are significantly different to the pre-intervention survey results (p<0.05)

The proportion of children cycling to school on the day of the survey more than doubled, from 4.7% based on pooled pre survey data to 11.3% based on post survey data. The proportion of children travelling to school by car on the day of the survey decreased from 38.8% to 35.6%. The overall increase in cycling is countered by a decrease in the proportion of children walking to school, and the proportion travelling by car and bus. It is not possible to say from this data what proportion of the increase in cycling represents mode shift from car use. The proportions of Bike It survey respondents cycling to school on the day of the survey are presented for each town in Table 8-3.

²¹ Schools for which data are available for a ‘pre’ survey at the beginning of the first academic year of engagement and for a ‘post’ survey at the end of the first academic year of engagement are included in the analysis presented herein

Table 8-3 Proportion of pupils surveyed in schools engaged with Bike It cycling to school on the day of the survey in pre and post surveys

	% cycling to school on the day of the survey	
	Pre	Post
Aylesbury	4.2%	11.4%*
Brighton and Hove	4.9%	11.2%*
Darlington	6.1%	10.6%*
Derby	4.7%	17.0%*
Exeter	4.9%	10.2%*
Lancaster with Morecambe	4.0%	9.3%*
All towns	4.7%	11.3%*

* post survey results are significantly different to the pre-intervention survey results (p<0.05)

For a subset of 52 schools, data are available for additional post intervention surveys performed at the end of the second academic year following initial engagement with Bike It. The proportion of children surveyed cycling to school everyday and the proportion 'never' cycling are presented in Table 8-4.

Table 8-4 Proportion of pupils surveyed in schools engaged with Bike It cycling to school 'everyday' and 'never' in pre and two post surveys

	% cycling to school everyday			% never cycling to school		
	Pre	Post 1	Post 2	Pre	Post 1	Post 2
Aylesbury	1.5%	11.3%*	10.4%*	81.0%	54.6%*	58.9%*
Brighton and Hove	5.8%	9.6%*	7.9%*	68.2%	49.2%*	48.3%*
Darlington	1.0%	7.1%*	7.5%*	77.7%	54.4%*	43.7%*
Derby	3.1%	13.1%*	12.0%*	73.0%	37.6%*	42.4%*
Exeter	3.5%	7.9%*	8.1%*	80.4%	65.6%*	60.3%*
Lancaster with Morecambe	3.5%	9.0%*	6.4%*	75.3%	51.6%*	52.7%*
All towns	3.7%	9.6%*	8.6%*	69.8%	48.8%*	47.8%*

* results are significantly different to the pre-intervention survey results (p<0.05)

Comparing data collected at the end of the first and second academic years following engagement with Bike It suggests that the uplift in cycling recorded after initial engagement was mainly sustained,

although with some drop-off. However, it should be noted that schools may continue to have the support of Bike It officers beyond the first year of Bike It delivery, with some level of engagement ‘at distance’.

8.3 Comparison with changes in travel to school in matched towns

Aggregated proportions of pupils cycling to school in the Cycling Demonstration Towns and matched areas are presented in Table 8-5. Matched areas are based on the National Statistics 2001 Area Classification and largely reflect demographic and socio-economic factors; there is no guarantee that the match is good in terms of other factors which may affect cycling, such as baseline levels of cycling, local policy and cycling infrastructure.

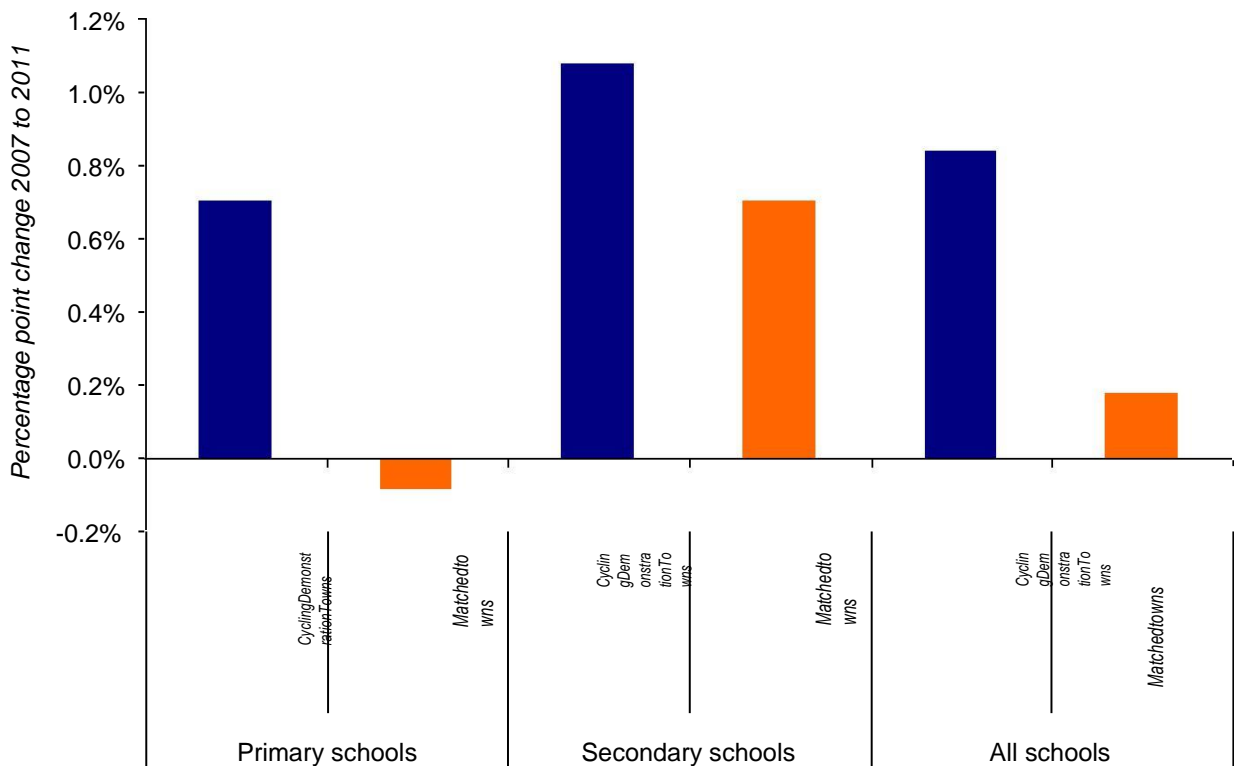
The percentage point change between 2007 and 2011 in levels of cycling to school recorded by PLASC in the Cycling Demonstration Towns and matched towns are presented in Chart 8-2. Whilst levels of cycling to primary schools are greater in the Cycling Demonstration Towns than in the matched areas, the reverse is the case for secondary schools. Based on pooled data, the percentage point change between cycling in 2007 and 2011 is greater in the Cycling Demonstration Towns than in the matched areas for primary, secondary and all schools.

Table 8-5 Percentage of pupils cycling to primary, secondary and all schools in the Cycling Demonstration Towns and matched towns – PLASC data

	2007	2008	2009	2010	2011
Cycling Demonstration Towns – primary schools	1.0%	1.5%	1.6%	1.6%	1.7%*
Matched towns – primary schools	0.7%	0.6%	0.6%	0.6%	0.6%
Cycling Demonstration Towns – secondary schools	2.2%	3.0%	3.4%	3.4%	3.3%*
Matched towns – secondary schools	4.0%	4.5%	4.9%	4.8%	4.7%*
Cycling Demonstration Towns – all schools	1.5%	2.1%	2.4%	2.4%	2.4%*
Matched towns – all schools	2.2%	2.3%	2.5%	2.4%	2.3%*

* significant change between 2007 and 2011 ($p < 0.05$)

Chart 8-2 Percentage point change between 2007 and 2011 in the proportion of pupils cycling to primary, secondary and all schools in the Cycling Demonstration Towns and matched towns, as recorded by PLASC



9 Cycling casualty data

Data concerning accident rates in the Cycling Demonstration Towns were obtained via the Department for Transport for all towns. The average number of accidents per year in the pre-programme period (2003-2005) was compared to the average number of accidents per year during the programme (2006-2010)²². There was no statistically significant change in the occurrence of accidents involving cyclists during compared to before the Cycling Demonstration Towns programme²³.

²²In the Reported Road Casualties in Great Britain: 2010 Annual Report, DfT report that nationally the number of cyclists being seriously injured has risen annually since 2004 and those slightly injured have risen each year since 2008. The number of cyclists who have been killed fluctuates far more due to the much smaller numbers involved.

²³See section B (Data collection and analytical methodologies) for a description of the caveats relating to this data source.

10 Summary

Data source	Data included	Short description of metric	Result
WHOLE TOWN ACTIVITY			
Automatic cycle counts	Unweighted mean percentage change relative to 2005 baseline (2006 for Brighton) calculated using data collected between January 2006 and September 2011	Cycle activity	+29% relative to baseline
Manual cycle count	Unweighted mean percentage change per year in quarterly manual counts	Cycle activity	+4% per year
ADULT POPULATION (>16)			
Household level survey	Household level surveys, all towns, 2006, 2009 and 2011 Relative change in percentage of adults doing any cycling in a typical week between 2006 and 2011	Cycle activity	+12% or +2.9%-points (from 24.3% to 27.2%)
	Household level surveys, all towns, 2006, 2009 and 2011 Relative change in percentage of adults classified as inactive between 2006 and 2011 (this is a negative indicator: a reduction in inactivity is an improvement)	Physical activity	-7% or -1.9%-points (from 26.2% to 24.3%)
Active People Survey	Active People Survey data, all towns, 2005/06 and 2010/11 Relative change in proportion of adults cycling for 30 minutes or more once a month or more	Cycle activity	No statistically significant change
	Active People Survey data, all towns, 2005/06 and 2010/11 Relative change in proportion of adults cycling for 30 minutes or more 12 times a month or more	Cycle activity	No statistically significant change
CHILD POPULATION (<16)			
School Census (PLASC) data	Annual pupil-level survey, all schools, pooled data for 2006/07 and 2010/11 academic years proportion of pupils for which cycling is the usual mode of travel to school	Cycling mode share for trips to school (SC)	+0.8%-points (from 1.5% to 2.4%)

<p>'Hands up' surveys of Bike It schools</p>	<p>Surveys of Bike It schools, pooled data from 'baseline' surveys (in September 2006/2007/2008/2009/2010) and 'ex-post' surveys (in July 2007/2008/2009/2010/2011) proportion of pupils cycling to school 'every day'</p>	<p>Number of children cycling to school everyday (HU)</p>	<p>+5.6%-points (<i>from 4.1% to 9.7%</i>)</p>
<p>'Hands up' surveys of Bike It schools</p>	<p>Surveys of Bike It schools, pooled data, change in cycling mode share between 'baseline' surveys (in September 2006/2007/2008/2009/2010) and 'ex-post' surveys (in July 2007/2008/2009/2010/2011) proportion of pupils for which cycling is the mode of travel to school on day of survey</p>	<p>Cycling mode share for trips to school (HU)</p>	<p>+6.7%-points (<i>from 4.7% to 11.3%</i>)</p>