Outcomes of the Cycling City and Towns programme: monitoring project report

Individual town results: Southend

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1 Introduction

1.1 Description of the Cycling City and Towns programme in Southend

The Cycling City and Towns programme delivered in Southend - 'Cycle Southend' - aimed to make using a bicycle in the town routine for all ages and all trip types[1].

Infrastructure improvements have included traffic-calming schemes on Bournemouth Park Road, work on the Royal Artillery Way and development of the Western Esplanade cycle track and the Prittle Brook Greenway. Cycle parking was also a priority. Twenty seven of the town's primary schools, three leisure centres, the Southend Campus of the University of Essex, secondary schools and parks throughout the area have benefited from high-quality cycle parking facilities. Cycle parking at the town's three stations has also been improved.

Smarter measures delivered by Cycle Southend included engagement with workplaces through the Move Easy network. Both the hospital and council offices have benefitted from improved cycle provision. Bike availability has been increased through the 'ReCycle Centre' which has sold over 600 recycled bicycles to the community. Children and young people were a particular focus for the Cycle Southend team. Bike It has been delivered in 14 schools over the three years, and 5,026 children have benefitted from Bikeability training.

1.2 Expenditure

While this report is primarily concerned with the monitoring evidence around outcomes of the Cycling City and Towns programme, it is useful to place these in context through summarising the programme inputs in terms of capital and revenue expenditure. Details of expenditure in Southend during the Cycling City and Towns programme are summarised in Table 1-1.

Table 1-1 Funds invested in cycling in Southend

	2008 – 2011 revenue	2008 – 2011 capital	Total
Cycling England/DfT/DH investment	£1,621,726	£1,888,034	£3,509,760
Matched funding	£98,800	£3,091,000	£3,189,800
Total	£1,720,526	£4,979,034	£6,699,560

[1] Cycle Southend (2011) Cycle Southend End of Programme Report 2008-2011, Cycle Southend. Available at https://www.gov.uk/government/publications/cycling-england-cycling-city-and-towns-end-of-programme-reports [Accessed 31 May 2012]

1.3 Summary of available monitoring data

The following data sources are available:

- Data from seven automatic cycle counters[2]
- 12 hour manual counts performed in alternate quarters since 2010 at 26 locations
- Pupil Level Annual School Census (PLASC) travel data and monitoring data from Bike It
- STATS19 cycling casualty data
- Active People Survey (APS) data

1.4 Summary of headline findings

Weak evidence of growth in cycling, limited by data availability

Limitations on the count data available for Southend mean that no firm conclusion on the magnitude and direction of change over time is possible. Based on the limited data available, cycling levels recorded by automatic cycle counters in the town have increased although it is not possible to make an estimate of change in the final year of the programme due to the absence of data for 2011. Manual count data can be compared for quarter 1 of 2010 and quarter 1 of 2011 only, between which counts increase. Notwithstanding the limitations of the data source, levels of cycling to primary and secondary schools appear to have increased over the course of the programme. Schools beginning engagement with Bike It in the 2008/09 and 2009/10 academic years have seen significant increases in the number of children cycling to school everyday.

- Based on data from seven automatic cycle counters, volumes of cycles counted have increased by an estimated +17% against a 2007 baseline – from 1,295 trips per day counted in 2007 to 1,520 in 2010
- An increase was observed at four of the automatic cycle counter sites and a decrease at the remaining three sites
- Analysis of manual count data collected in comparable periods at 26 count locations indicates a significant increase in counts with a significant change at 15 sites – an increase at 11 and a decrease at four locations
- Across all schools, the percentage of children cycling to school as measured by PLASC was 3.5% in 2010/11 compared to 2.2% in 2006/07
- Bike It data indicate an increase in children cycling to school on the day of the survey from 5.3% in pre surveys to 19.0% in post surveys, and an increase in children cycling to school everyday from 5.4% in pre surveys to 15.6% in post surveys
- Compared to pre-programme data, the number of cycling casualties was not significantly different during the Cycling City and Town programme
- Active People Survey data indicate a decrease in Southend in the proportion of respondents cycling once or more per month and a significant decrease in the proportion cycling 12 or more times per month between 2007/8 and 2010/11

[2] Automatic cycle counter data are available to the end of 2010 only

2 Analysis of automatic cycle counter data

Data from a total of seven automatic cycle counters have been analysed. In the following sections information regarding the location, volumes of cyclists recorded and change in volumes of cyclists recorded over time are presented for each location. In Southend the cycle counters are spread widely from east to west of the town centre following the coastline. Five of the seven counters were installed in 1999 and one each in 2001 and 2002. In order to be consistent across the Cycling City and Towns, data from 2007 onwards are included in the analysis. No data are available for any of the count sites for 2011.

Two distinct sets of analysis have been undertaken using cycle counter data in Southend. In the first, all available data were analysed using a regression model to allow an estimate of change in cycle trips recorded over the programme period against a baseline. In the second, data from individual sites were analysed in order to determine the average volumes of cyclists recorded, distribution of cycle trips over the course of the day and (where sufficient data are available) the annual percentage change in the count of cyclists.

2.1 Town-wide analysis

Table 2-1 presents the percentage change in cycle counts relative to a 2007 baseline including data to the end of June 2010.

Table 2-1 Change in cycle count in Southend at the end of 2010 relative to a 2007 baseline (baseline = 100%)

	2007	2008	2009	2010
Change against 2007 baseline	100%	95%*	101%	117%*

* indicates a significant difference ($p<0.05$) compared to the 2007 baseline

The counter data indicate a decline in the volume of cyclists recorded in 2008 compared to 2007, followed by a substantial uplift in counts recorded between 2009 and 2010.

In order to explore whether the periods of severe weather nationally in late 2009 and early and late 2010 have had an impact on these estimates of change in cycle counts, an additional element was added into the regression model. Table 2-2 presents the findings of this analysis.

Table 2-2 Change in cycle count in Southend at the end of 2010 relative to a 2007 baseline including an adjustment for snow (baseline = 100%)

	2007	2008	2009	2010
Change against 2007 baseline	100%	95%*	103%	130%*

* indicates a significant difference ($p<0.05$) compared to the 2007 baseline

This analysis suggests that because of the short time series of data available, the adverse weather in 2010 may have resulted in the original analysis underestimating the increase in cycling between 2009 and 2010.

2.2 Analysis of data from individual sites

Data from individual cycle counters were analysed in order to determine the rate of change in volumes of counts recorded at each location over time. None of the counters in Southend had sufficient data since 2007 to be able to estimate an annual change in counts. As all of the counters had data for 2006, this additional data was included in the analysis of individual counters. The results of this analysis are summarised in Table 2-3 and alongside more detailed information for each counter in Table 2-4. Sufficient data are available to robustly estimate the annual percentage change in the number of cyclists counted for all of the seven automatic cycle counters included in the analysis.

Table 2-3 Summary of findings of detailed analysis of data from individual count sites

Number of counters for which data are available	7
Number of counters for which sufficient data are available to quantify change over time[3]	7
Number of counters with quantifiable increase	4
Number of counters with no change	0
Number of counters with quantifiable decrease	3

In the following table counters are ordered by their location relative to the centre of Southend, starting with those located closest to the town centre. Map references refer to the accompanying map (section 7).

[3] None of the changes at individual counters are statistically significant.

Table 2-4 Description of automatic cycle counters in Southend

Map reference	Location	Time period	Annual change	Average daily count in 2009[b]	Comments
1.	Rochford cycle route	2007-2009[a]	Weekday: -3% Sat/Sun: +4%	Overall: 112 Weekdays: 127 Weekend days: 77	Located on a traffic-free shared use route adjacent to the A127 Prince Avenue. It is two miles north-west of the centre of Southend in the St Laurence Ward. Weekday counts show 'commuting' peaks.
2.	Prittle Brook cycle route, north of Ronald Park Avenue	2007-2010[a]	Weekday: +1% Sat/Sun: +4%	Overall: 90 Weekdays: 96 Weekend days: 79	Located on a traffic-free shared use route running alongside a brook in Prittlewell, approximately one and a half miles north-west of the centre of Southend. A school site is adjacent. Weekday counts show 'school commuting' peaks.
3.	Town centre cycle route	2007-2010[a]	Weekday: -3% Sat/Sun: 0%	Overall: 307 Weekdays: 329 Weekend days: 200	Located on a traffic-free cycle route adjacent to Victoria Avenue, approximately one and a half miles north-west of the centre of Southend. Schools, a college, law courts, a rail station and many other trip generators are nearby. Weekday counts show morning 'commuting' peaks.
4.	Cycle track, north-west of Victoria Circus	2007-2009[a]	Weekday: 0% Sat/Sun: +1%	Overall: 294 Weekdays: 324 Weekend days: 188	Located on a traffic-free cycle route near to a roundabout approximately half a mile north of the centre of Southend. Bus and rail stations and many public and administrative buildings are nearby.
5.	Seafront cycle route	2007-2010[a]	Weekday: +5% Sat/Sun: +9%	Overall: 341 Weekdays: 307 Weekend days: 451	Located on a traffic-free seafront cycle route adjacent to the Eastern Esplanade and the sea walls. It is approximately one and a half miles east of the centre of Southend.
6.	Thorpe Esplanade east of Walton	2007-2010[a]	Weekday: +1% Sat/Sun: +10%	Overall: 157 Weekdays: 142 Weekend days: 251	Located on a traffic-free seafront cycle route adjacent to the pavement and Thorpe Esplanade. It is approximately one and a half miles east of the centre of Southend in the Thorpe area.

7.	Shoebury Common Road, west of Waterford Road, Shoeburyness	2007-2010[a]	Weekday: +4% Sat/Sun: +11%	Overall: 105 Weekdays: 92 Weekend days: 181	Located on a traffic-free cycle route adjacent to Shoebury Common Road and Shoebury Common itself. It is approximately two and a half miles east of the centre of Southend.

[a] data are also available for earlier periods, but to ensure consistency with other towns these have not been included in the regression analysis although 2006 data has been used in order to allow an estimation of the annual change at individual sites

[b] as there is not a good coverage of data in 2010, average daily counts have been calculated based on 2009 data

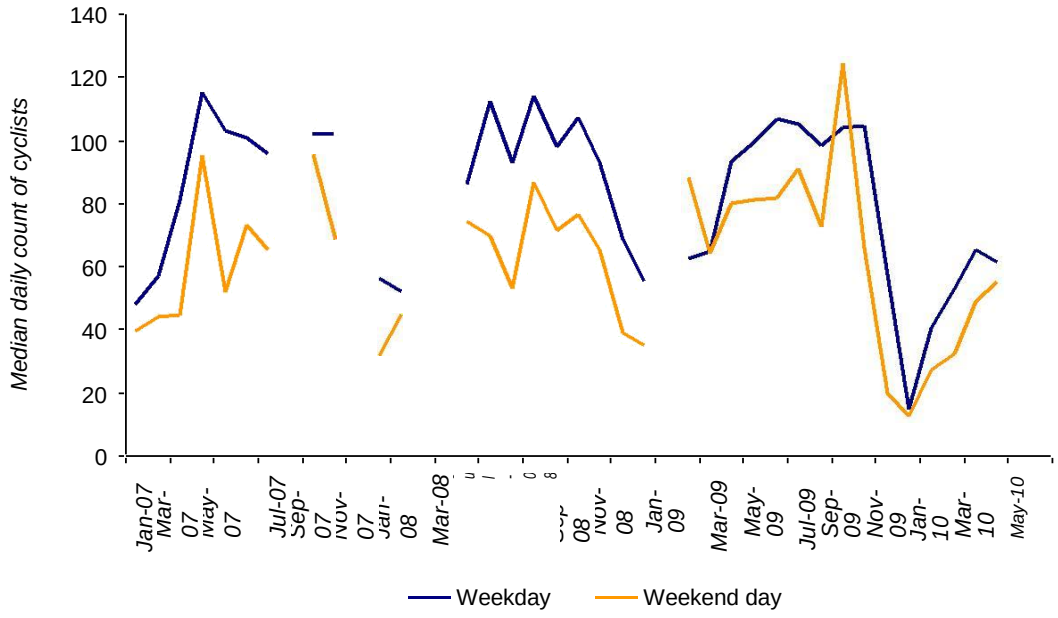
2.3 Relationship between programme activity and automatic count data

2.3.1 Prittle Brook Greenway

The Prittle Brook Greenway links Priory Park and Blenheim Park, to the north-west of Southend town centre, close to several schools. Work on six sections of the route was completed in April 2011. An automatic cycle counter is located on the route north of Ronald Park Avenue (map reference 2), although no data are held for this site for the period of time coinciding with route improvements.

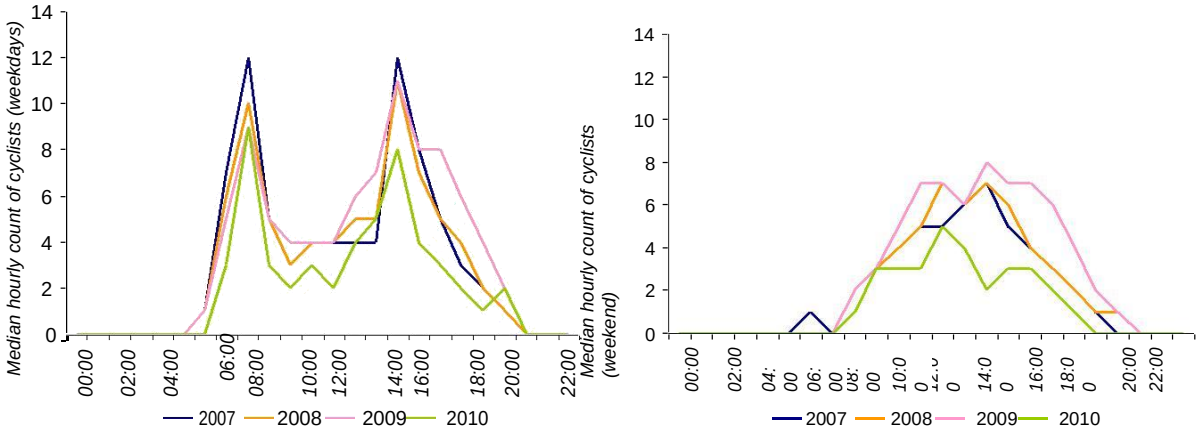
The median daily count on weekdays and weekend days for the period of time that data are available are presented in Chart 2-1.

Chart 2-1 Median daily count of cyclists recorded at Prittle Brook on weekdays and weekend days



The greater volumes of cyclists recorded on weekdays compared to weekend days suggests the use of the route for commuting and utility journeys. This is supported by analysis of the hourly distribution of counts (Chart 2-2). Weekday counts show prominent peaks at commuting times. The afternoon peak in cyclists occurs between 3pm and 4pm, concurrent with the location of the counter close to schools. Such peaks are absent in the weekend day data. Chart 2-2 compares counts recorded in 2007 to 2010. Volumes of cyclists expressed as the median counted per hour are lower in 2010 than in other years. This may be the result either of the relative sparsity in data for this site in 2010 compared to previous years, or disruption to use of the route whilst infrastructure development was underway.

Chart 2-2 Median hourly count of cyclists recorded on weekdays and weekend days at Prittle Brook



3 Analysis of manual count data

26 manual count sites were established in Southend in 2010 in order to monitor the Cycling City and Towns programme. These sites form four distinct groups, namely the town centre cordon, an outer cordon, an eastern screenline and a western screenline. Counts were undertaken at all locations in quarter 1 of 2010, quarter 3 of 2010 and quarter 1 of 2011. The 26 sites, indicated on the accompanying map (section 7), are as follows:

Western screenline

- Prince Avenue junction west of Bridgwater Drive/Rayleigh Road (map reference A)
- Kenilworth Gardens east of Eastwood Boulevard (map reference B)
- Leigh Road west of Sandleigh Road (map reference C)
- The Ridgeway at Chalkwell Station (map reference D)
- Manchester Drive west of Eastwood Boulevard (map reference E)
- Cinder Path at Chalkwell Station (map reference F)

Outer cordon

- Station Road east of Grosvenor Road (map reference G)
- Genesta Road west of Valkyrie Road (map reference H)
- London Road west of West Road (map reference I)
- Fairfax Drive east of Brightwell Avenue (map reference J)
- Hobleythick Lane south of Carlton Avenue (map reference K)
- Cuckoo Corner (Victoria Avenue junction west of Prince Avenue) (map reference L)
- Sutton Road junction west of Eastern Avenue (map reference S)
- Bournemouth Park Road south of Eastern Avenue (map reference R)
- Branksome Road west of Hamstel Road (map reference V)
- Southchurch Boulevard east of Hamstel Road (map reference W)
- Shaftesbury Avenue west of Warwick Road (map reference X)

Town centre cordon

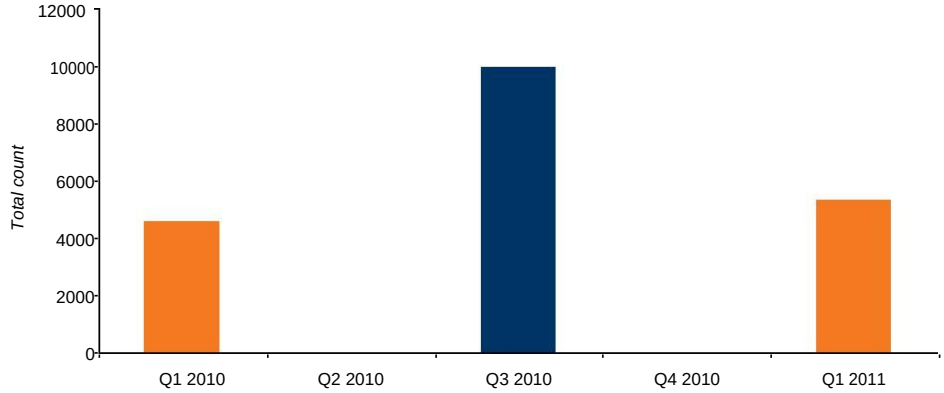
- Avenue Road south of London Road (map reference M)
- Cambridge Road junction west of Scratton Road (map reference N)
- Chichester Road south of Queensway (map reference O)
- Sutton Road south of Boscombe Road (map reference P)
- Queensway subway west of Tyrell Drive (map reference Q)
- Marine Parade west of Southchurch Avenue (map reference T)
- Woodgrange Drive west of Queensway (map reference U)

Eastern screenline

- Delaware Road east of Maplin Way (map reference Y)
- Church Road east of Maplin Way (map reference Z)

Chart 3-1 presents the total counts in each quarter across the 26 count sites.

Chart 3-1 Total counts for 26 manual count sites in Southend



Although it is reasonable to compare the data from quarter 1 2010 with the data from quarter 1 2011, it should also be noted that the 2010 counts were undertaken on March 9th, whereas the 2011 counts were undertaken on February 16th. The quarter 1 count in 2011 is 15% higher than the quarter 1 count in 2010. This is a significant increase. Counts can further be broken down into the four distinct groups detailed above (Chart 3-2).

Chart 3-2 Total counts for four groupings of manual count sites in Southend

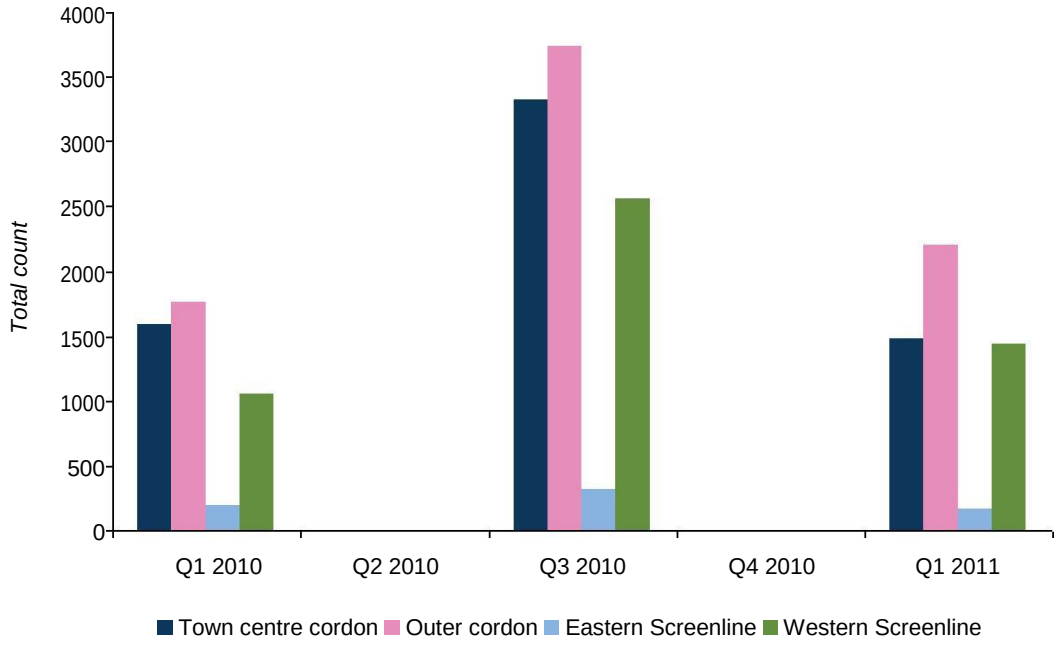
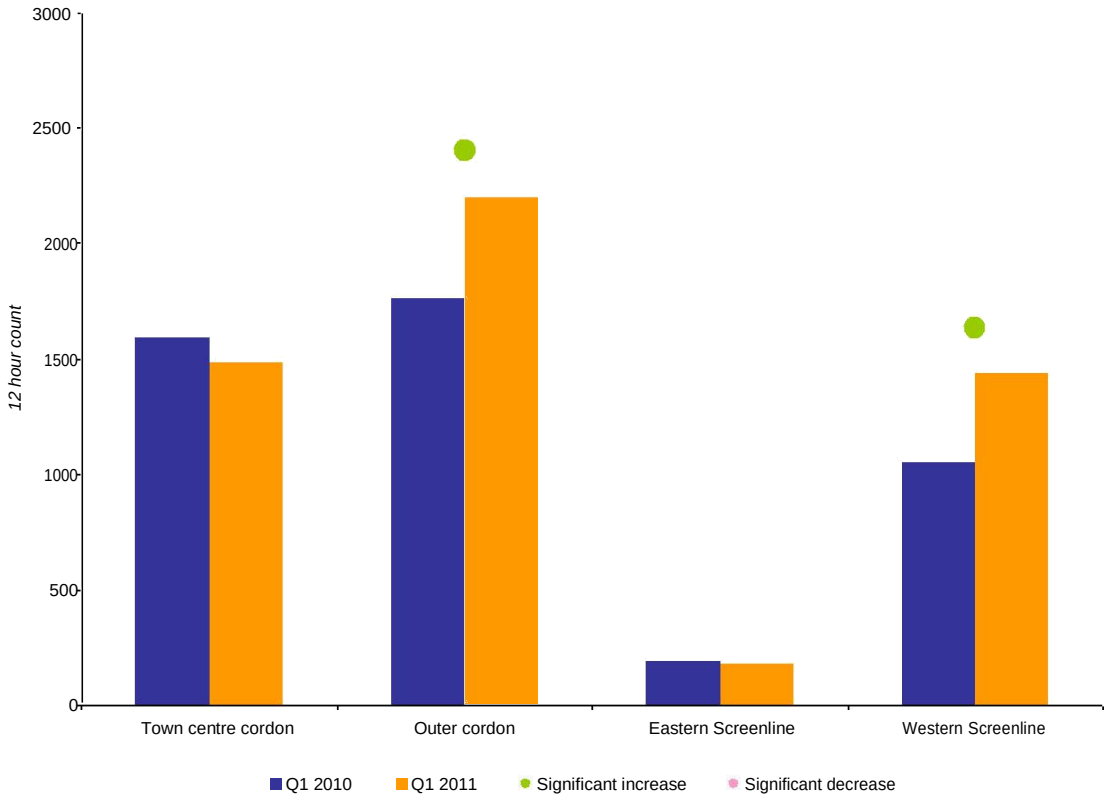


Chart 3-2 shows the outer cordon to have the highest volume of counts, although this is to be expected as this group has the highest number of count sites and covers the greatest area. Chart 3-3 below compares the data from quarter 1 of 2010 with the data from quarter 1 of 2011 for each of these groups.

Chart 3-3 Comparison of manual count data collected in Southend in quarter 1 2010 with data collected in quarter 1 2011[4]



Overall a significant increase in counts of 15.2% was recorded. Counts on the town centre cordon decreased overall although this was not significant. Significant changes were observed in data from four of the seven count sites: the only site where a significant increase in counts was recorded was Cambridge Road (junction with Scratton Road), on the west side of the cordon. Decreases in counts were observed at all four count sites on the east side of the town centre cordon. Three of these were significant.

Overall, counts on the outer cordon increased. Six of the eleven sites saw a significant increase in counts. The only count site at which a significant decrease was recorded was Southchurch Boulevard. This route is on the east side of the town and this is consistent with the findings from the town centre cordon. The Southchurch Boulevard site is on a major road into Southend from the east, has the highest counts of any sites on the eastern side of the outer cordon and therefore is likely to monitor many of the same cyclists who enter the town centre cordon from the east. A significant increase was recorded at Shaftesbury Avenue, also to the east of the town centre but closer to the coast.

Counts on the eastern screenline decreased slightly between quarter 1 of 2010 and quarter 1 of 2011. Although this group consists of just two count sites, this finding is consistent with the changes in count sites nearer to the town centre, monitoring movements to and from the east.

[4] Indicated as significant where $p<0.05$

In contrast, counts on the western screenline increased significantly over this period. Counts at four of the six manual count sites on the western screenline have increased significantly over this period. Two of these sites are near Chalkwell station and therefore the increase may be due to the infrastructure development on the Western Esplanade which links Chalkwell station to the pier.

4 Analysis of school related data

During the Cycling City and Towns programme, Cycle Southend has engaged with schools to encourage levels of cycling amongst parents, students and staff. Bike It has been delivered in 14 schools. During the programme, 1,852 pupils were trained to Bikeabilty Level One, 3,133 to Bikeability Level Two and 41 to Bikeability Level Three. Bike Club has been running in Southend for two years and has engaged over 100 children.

4.1 PLASC

The percentage of pupils surveyed in Southend stating cycling to be their usual mode of travel to school are summarised in Table 4-1. The proportion of pupils usually cycling to primary schools has increased significantly between 2006/07 and 2010/11 (from 1.4% to 2.4%) as have the levels of cycling to secondary schools (from 3.2% to 4.7%). Considering data across all schools, the proportion of children cycling to school increased significantly from 2.2% in the 2006/07 academic year to 3.5% in 2010/11.

Table 4-1 Percentage of pupils surveyed reporting cycling to be their usual mode of travel to school

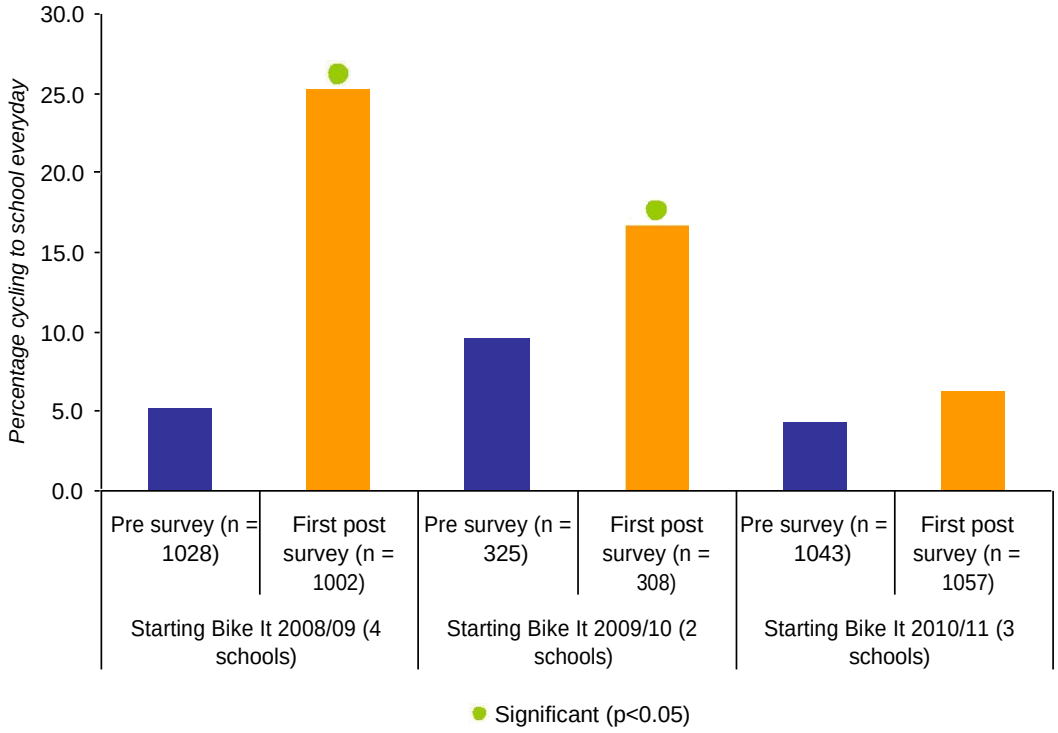
	Academic year				
	2006/07	2007/08	2008/09	2009/10	2010/11
Primary	1.4%	1.8%	1.9%	2.0%	2.4%*
Secondary	3.2%	3.8%	4.1%	5.1%	4.7%*
All schools	2.2%	2.7%	3.0%	3.5%	3.5%*

[a] These figures are based on data from 36 primary schools and 11 secondary schools
* indicates a significant change in cycling in the 2010/2011 academic year compared to the 2006/07 academic year ($p<0.05$)

4.2 Bike It

Bike It has been delivered in 14 schools in Southend during the Cycling City and Towns programme. Data are available in the standard format (i.e. pre survey followed by a post intervention survey at the end of the first academic year of engagement) for 9 schools. Aggregated percentages of children cycling everyday for schools starting Bike It in each academic year during the programme are presented in Chart 4-1. The change in the proportion of children reporting to cycle to school everyday between the pre and post survey is significant for schools starting Bike It in both the 2008/09 and 2009/10 academic years.

Chart 4-1 Proportion of children cycling to school every day in the pre engagement Bike It survey and the first post-engagement survey



Aggregating together data from all pre intervention and first post intervention surveys performed during the project, the percentage of children reporting to cycle to school everyday increased from 5.4% to 15.6%[5], whilst the proportion cycling to school regularly increases from 22.7% to 35.3%[6]. The proportion 'never' cycling to school decreased from 56.1% to 41.7%[7]. The proportion of children cycling to school on the day of the survey increased from 5.3% to 19.0%[8].

For five schools in Southend, data are available from hands up surveys performed at the end of the second academic year after initial engagement. The proportion cycling to school everyday, regularly and never are presented in Table 4-2. These data suggest that levels of cycling in schools engaged with Bike It are sustained into the years following initial engagement. 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 engagement 'at distance'.

[5] Significant increase (p<0.05)
[6] Significant increase (p<0.05)
[7] Significant decrease (p<0.05)
[8] Significant increase (p<0.05)

Table 4-2 Proportion of children cycling to school everyday, regularly and never before Bike It and at the end of the first and second academic years of engagement

% Cycling to school	Pre survey [a]	First post survey[b]	Second post survey[c]
Everyday	6.6%	23.8%*	16.3%*
Regularly	24.4%	46.1%*	41.9%*
Never	58.5%	37.5%*	34.0%*

[a] pre-Bike It survey (in September of the first academic year of engagement)
[b] first Bike It survey performed at the end of the first academic year of engagement
[c] second Bike It survey performed at the end of the second academic year of engagement
* results are significantly different to the pre-intervention survey results ($p<0.05$)

Table 4-3 presents levels of cycling to school as recorded by PLASC in schools where Bike It was delivered between 2006 and 2011. In the table below non-Bike It schools are those not engaged in Bike It at any point between 2006 and 2011.

Table 4-3 Comparison of PLASC data from non-Bike It schools and Bike It schools grouped by year of first engagement in Southend

	2007	2008	2009	2010	2011
Non-Bike It schools [a]	2.5%	2.9%	2.9%	3.5%	3.2%
Bike It in 2008 [b,e]	2.2%	2.5%	4.5%	5.7%	5.5%
Bike It in 2009 [c,e]	0.0%	2.9%	3.7%	2.7%	2.7%
Bike It in 2010 [d,e]	0.9%	1.2%	1.9%	1.8%	4.7%

[a] Data for 26 primary schools and nine secondary schools that were not engaged in Bike It
[b] Data for three primary schools and one secondary school initially engaged in Bike It in 2008
[c] Data for one primary school and one secondary school initially engaged in Bike It in 2009
[d] Data for six primary schools initially engaged in Bike It in 2010
[e] PLASC data are collected in January. Bike It engages with schools from the beginning of the academic year. For schools starting Bike It in, for example, 2008, the relevant PLASC year is 2009

5 Analysis of casualty data

Cycle user casualty data were derived for Southend from STATS19 collision data. The average number of killed, seriously injured and slightly injured in each year prior to the Cycling City and Towns programme (2003-2008) are compared to those occurring during the programme in Table 5-1. The difference between the time periods compared is not significant.

Table 5-1 Annual average number of cyclists killed or injured in Southend before (2003-2008) and during (2009-2010) the Cycling City and Towns programme

	Annual average number of casualties			
	Killed	Seriously injured	Slightly injured	Total
Pre-programme	0.2	7.2	61.5	68.8
During programme	0.5	11.0	57.0	68.5

* indicates a significant change between cycling casualties recorded before and during the Cycling City and Town programme

6 Analysis of physical activity data

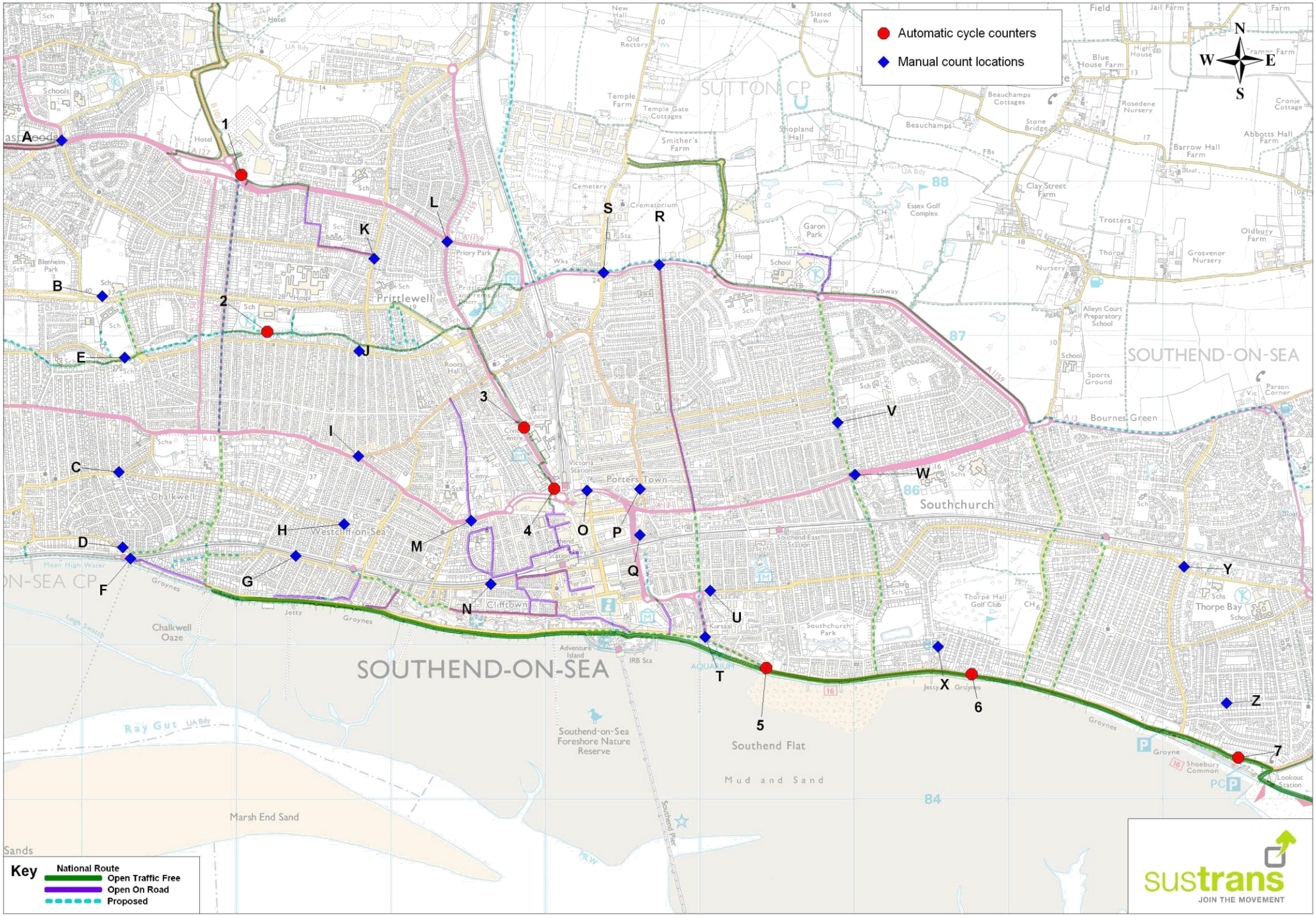
Data are available from Sport England's Active People Survey (APS) for two years prior to the Cycling City and Towns programme and all three years of the project. The APS data provide information on the proportion of people cycling for at least 30 minutes once or more per month and the proportion cycling for at least 30 minutes, 12 or more times per month. It should be noted that the data refer only to cycling in bouts of 30 minutes or more and therefore this measure may under represent overall cycling in the towns as shorter journeys are not included.

The proportion cycling once or more per month fell by 2.1%-points (from 13.0% to 10.9%) in Southend between 2007/8 and 2010/11[9]. The proportion cycling 12 or more times per month fell by 2.2%-points (from 3.8% to 1.6%), which is a significant decrease ($p<0.05$).

7 Maps

The following pages contain maps indicating the location of manual count and automatic cycle counter locations, and the estimated change in volumes of cycles recorded at these sites.

[9] Not a significant decrease (p=0.31)


Automatic cycle counters
Manual count locations
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Chalkwell
Westcliff-on-Sea
Cliftown
Porters Town
Southchurch
SOUTHEND-ON-SEA
SUTTON CP
Chalkwell Oaze
Ray Gut
Southend-on-Sea Foreshore Nature Reserve
Southend Flat
Mud and Sand
Marsh End Sand
Thorpe Bay
Bournes Green
Key
National Route
Open Traffic Free
Open On Road
Proposed
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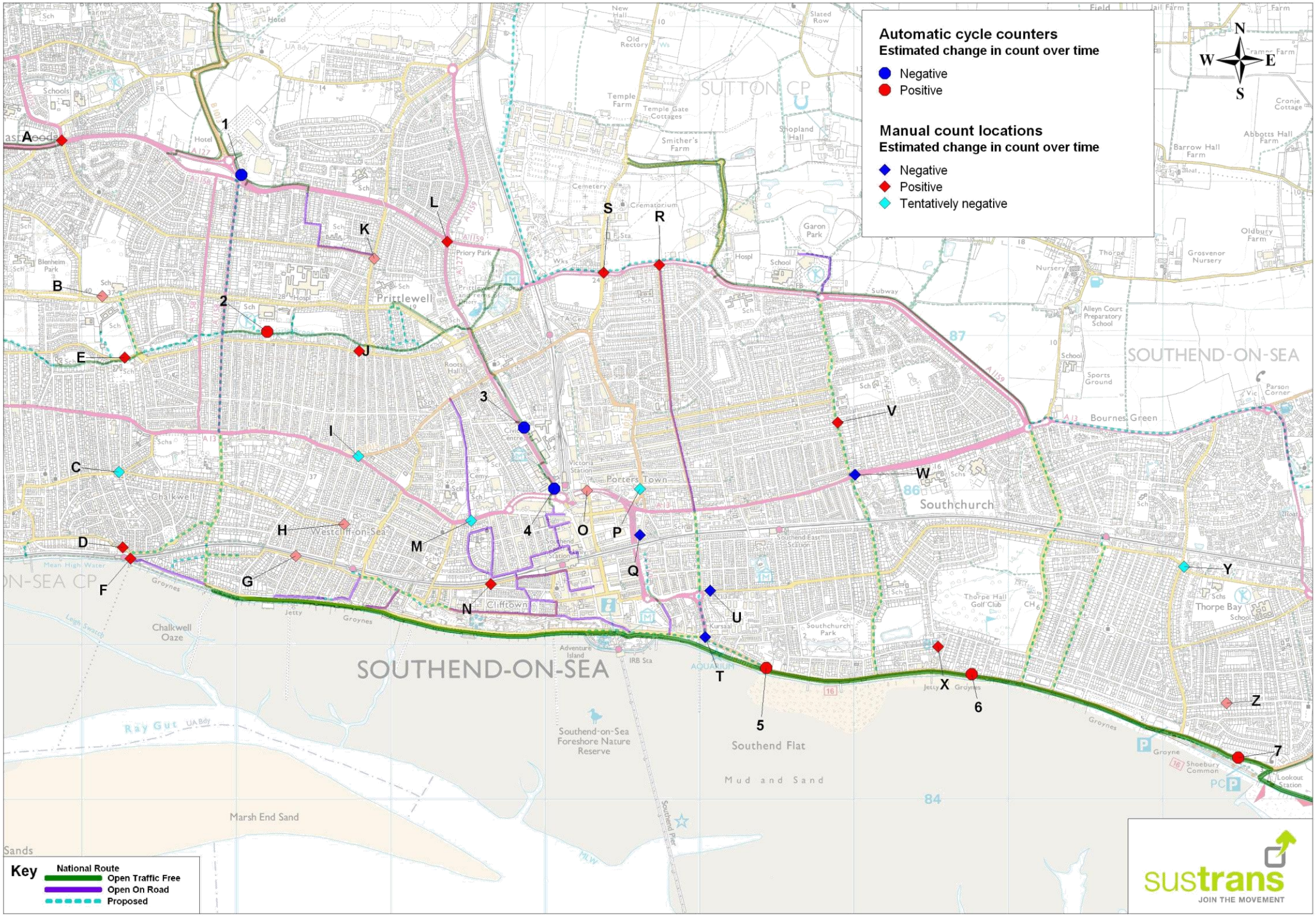
Automatic cycle counters
Estimated change in count over time
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Manual count locations
Estimated change in count over time
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Porters Town
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Mud and Sand
Southend-on-Sea Foreshore Nature Reserve
Bournes Green
Thorpe Bay
Key
National Route
Open Traffic Free
Open On Road
Proposed
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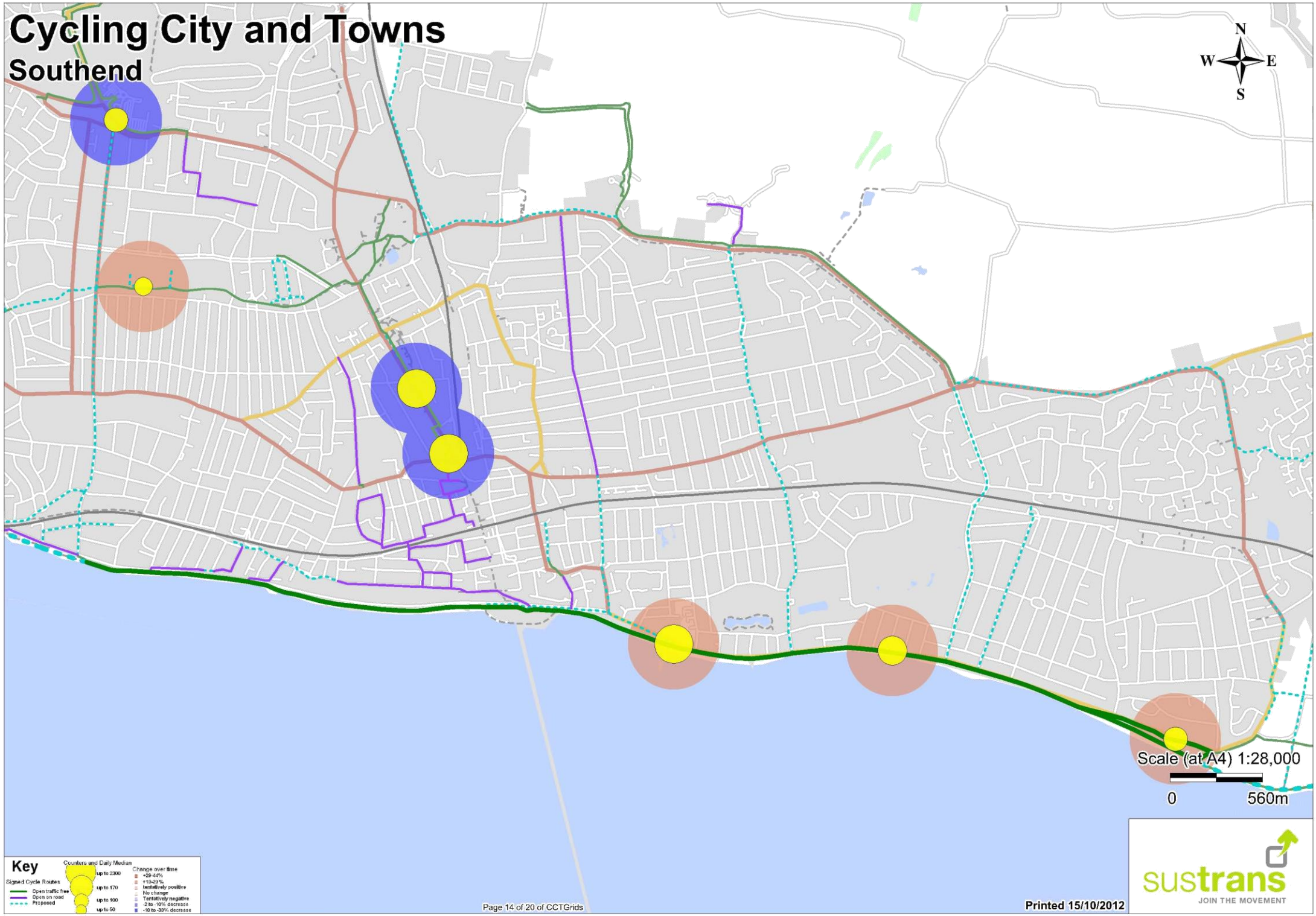
Cycling City and Towns
Southend
N
W
E
S
Scale (at A4) 1:28,000
0
560m
Key
Signed Cycle Routes
Open traffic free
Open on road
Proposed
Counters and Daily Median
up to 2300
up to 170
up to 100
up to 50
Change over time
+29-44%
+13-29%
tentatively positive
No change
Tentatively negative
-2 to -10% decrease
-10 to -30% decrease
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