

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

Individual town results: Greater Bristol

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1 Introduction

1.1 Description of the Cycling City and Towns programme in Greater Bristol

Greater Bristol was awarded Cycling City status in June 2008. Bristol City Council and South Gloucestershire Council¹ worked in partnership to deliver a series of major infrastructure initiatives and smarter choice measures through the 'Greater Bristol Cycling City' programme. A 20 mph speed limit was also piloted in two parts of the city.

Infrastructure improvements in the area have focused on the construction of 36 new or improved routes (both on-road and traffic-free). The main focus of the programme was on radial routes and arterial routes out of the city centre. Three major parts of the programme were the creation of Concorde Way linking Cribbs Causeway and Cabot Circus, improvements to the Bristol and Bath Railway Path and the introduction of contraflow lanes for cyclists in central Bristol. Between July 2008 and March 2010, 8,709 cycle parking spaces were added in educational facilities, workplaces and shopping centres in the Greater Bristol area. Route signing has also been enhanced to raise awareness, particularly of arterial routes into the city centre².

Smarter measures involved engaging 62 of the city's employers, who together employ 26% of the Greater Bristol workforce. Council staff built relationships with 12 major employers with the aim of increasing cycling levels and they offered support and services including Dr Bike maintenance sessions and led rides. Neighbourhood engagement including Community Travel Planning and Personalised Travel Planning was rolled out to 2,829 households in the Bishopston, Redland and Horfield areas. The approach was then changed to a roadshow format which extended the project's reach to events and businesses as well as households leading to engagement with over 20,000 people. Loan bikes, Dr Bike sessions and adult cycle training were all used to engage participants. Children and young people were encouraged to cycle through Bikeability training (16,920 children were trained between 2008 and 2011). Bike It projects were delivered by four officers over the programme period, with additional funding provided by the Bristol Primary Care Trust. As of September 2010, 55 schools were engaged in Bike It. New BMX tracks and cycling clubs provided further opportunities for young people to engage with the programme. Work has also taken place at stations. Parking at the two main city stations, and in the 10 suburban train stations has sought to facilitate better cycle-train integration. Promotional literature has been used to highlight the leisure/family routes within the Greater Bristol area².

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 Greater Bristol during the Cycling City and Towns programme are summarised in Table 1-1.

¹ Bristol City Council and South Gloucestershire Council are referred to collectively as 'Greater Bristol' in this report

² Cycling City (2011) Greater Bristol Cycling City End of Project Report, Bristol City Council and South Gloucestershire Council . Available at <https://www.gov.uk/government/publications/cycling-england-cycling-city-and-towns-end-of-programme-reports> [Accessed 31 May 2012]

Table 1-1 Funds invested in cycling in Greater Bristol

	2008 – 2011 revenue	2008 – 2011 capital	Total
Cycling England/DfT/DH investment	£3,996,743	£7,641,625	£11,638,368
Matched funding	£4,447,816	£3,627,738	£8,075,554
Total	£8,444,559	£11,269,363	£19,713,922

1.3 Summary of available monitoring data

The following data sources are available:

- Data from 31 automatic cycle counters
- 12 hour manual counts performed quarterly since 2008 at 20 locations
- data from the Big Commuter Count between 2007 to 2011
- PLASC school census travel data and monitoring data from Bike It
- route user intercept survey on Ashton Avenue Bridge
- workplace travel survey data
- STATS19 cycling casualty data
- Active People Survey (APS) data.

1.4 Summary of headline findings

Strong evidence of high levels of growth in cycling from a relatively high baseline

The most complete data sets, time series data from automatic cycle counters located predominantly on traffic-free cycle routes, indicate a growth in levels of cycling over the programme period. This is corroborated by data from manual counts performed across the city. These suggest an overall growth in cycling between the time periods compared. Notwithstanding the limitations of the data source, levels of cycling to secondary schools have increased steadily over time, whilst cycling to primary schools remains static between 2008/09 and 2010/11 after an initial uplift. Schools engaged with Bike It have seen a significant increase in the numbers of children cycling to school everyday.

- Automatic cycle counter data indicate an increase in volumes of cycles counted of 40% against a 2007 baseline. Based on data from the 31 automatic cycle counters, this estimated growth corresponds to an increase from 8,058 trips per day counted in 2007 to 11,271 in 2011
- An increase was observed at 29 sites and a decrease at two sites
- Analysis of manual count data collected in comparable periods at 13 count locations indicates a significant change at nine sites – an increase at six and a decrease at three locations
- Across all schools, the percentage of children cycling to school as measured by PLASC was 3.0% in 2010/11 compared to 1.5%
- Bike It data indicate an increase in children cycling to school on the day of the survey from 3.2% in pre surveys to 9.1% in post surveys, and an

increase in children cycling to school everyday from 2.5% in pre surveys to 7.9% in post surveys

- The proportion of Big Commuter Count respondents cycling to work increased from 10.6% in 2007 to 14.3% in 2011
- The number of people killed or seriously injured was not significantly greater during the programme compared to before the programme. There was an increase in the number of slight casualties, and this was statistically significant.
- Active People Survey data indicate a significant increase in Greater Bristol in the proportion of respondents cycling once or more per month and the proportion cycling 12 or more times per month between 2007/8 and 2010/11

2 Analysis of automatic cycle counter data

Data from a total of 31 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. Four of the 31 count sites were installed in 1997, one in 1998, two in 1999, three in 2000, one in 2005, 18 in 2009 and two in 2010. In order to be consistent across the Cycling City and Towns, data from 2007 onwards are included in the analysis.

Two distinct sets of analysis have been undertaken using cycle counter data in Greater Bristol. 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 September 2011.

Table 2-1 Change in cycle count in Greater Bristol at the end of the Cycling City and Towns period relative to a 2007 baseline (baseline = 100%)

	2007	2008	2009	2010	2011
Change against 2007 baseline	100%	104%*	112%*	116%*	140%*

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

The counter data indicates a significant increase in the volume of cyclists recorded in each year relative to the baseline. In order to explore whether the periods of severe weather nationally in late 2009 and early and late 2010 have impacted 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 Greater Bristol at the end of the Cycling City and Towns period relative to a 2007 baseline including an adjustment for snow (baseline = 100%)

	2007	2008	2009	2010	2011
Change against 2007 baseline	100%	105%*	114%*	123%*	139%*

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

When adjusting for the periods of severe weather in 2009 and 2010, there is an increased growth in cycling levels between 2009 and 2010, although the growth over the programme period has decreased by 1%-point.

2.2 Analysis of data from individual counter 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. The results of this analysis are summarised in Table 2-3 and alongside more detailed information for each counter in Table 2-4. There are sufficient data available to robustly estimate the annual percentage change in the number of cyclists counted over time for 12 counters. For the remaining counters, based on the more limited data available, change over time is positive for 17 count sites and negative for two.

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

Number of counters for which data are available	31
Number of counters for which sufficient data are available to quantify change over time ³	12
Number of counters with quantifiable increase	12
Number of counters with no change	0
Number of counters with quantifiable decrease	0

In the following table counters are ordered by their location relative to the centre of Bristol, starting with those located closest to the city centre. Map references refer to the accompanying map (section 9).

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

Table 2-4 : Description of automatic cycle counters in Greater Bristol

Map reference	Location	Time period	Annual change ^b	Average daily count in 2010	Comments
1.	College Green	2007-2011 ^a	Weekday: +5% Sat/Sun: +7%	Overall: 1,107 Weekdays: 1,253 Weekend days: 422	Located on a traffic-free cycle path linking to National Route 4 of the National Cycle Network. The cathedral, library, schools, colleges and many other trip generators are nearby. Weekday counts show 'commuting' peaks.
2.	Whiteladies Road	2007-2011 ^a	Weekday: +3% Sat/Sun: +3%	Overall: 485 Weekdays: 563 Weekend days: 241	Located on an on-road mandatory cycle lane approximately half a mile north-west of the centre of Bristol, between the residential areas of Clifton and Redland. Bristol University is located nearby. Weekday counts show 'commuting' peaks.
3.	Temple Way link between the Bristol and Bath Railway Path and Bristol Temple Meads	2009-2011	Positive	Overall: 353 Weekdays: 442 Weekend days: 126	Located on National Route 4 of the National Cycle Network on a traffic-free underpass segregated for pedestrian and cycle use under the A4044 Temple Way. The route links Temple Meads Railway station and the Bristol and Bath Railway Path to the centre of Bristol, half a mile to the west. Weekday counts show 'commuting' peaks.
4.	Cumberland Road	2007-2011 ^a	Weekday: +9% Sat/Sun: +8%	Overall: 251 Weekdays: 292 Weekend days: 165	Located on a traffic-free section of National Route 41 of the National Cycle Network on a shared use path adjacent to Cumberland Road and parallel to the River Avon. The site is approximately half a mile south of the centre of Bristol. Weekday counts show 'commuting' peaks.
5.	Gaol Ferry Bridge	2009-2011	Positive	Overall: 1,015 Weekdays: 1,180 Weekend days: 624	Located on a bridge over the River Avon on a path segregated for pedestrian and cycle use and linking to National Route 41 of the National Cycle Network. The bridge joins the residential area of Southville to the south and the centre of Bristol, half a mile to the north. Weekday counts show 'commuting' peaks.

6.	Chocolate Path Extension	2007-2011	Weekday: +15% Sat/Sun: +12%	Overall: 167 Weekdays: 194 Weekend days: 110	Located on a traffic-free shared use path adjacent to a railway used for heritage tourism. The path links the Chocolate Path section of National Route 41 of the National Cycle Network to the M-Shed museum. The site is half a mile south of the centre of Bristol. Weekday counts show 'commuting' peaks.
7.	Chocolate Path, off Cumberland Road	2009-2011	Positive	Overall: 135 Weekdays: 147 Weekend days: 102	Located on a traffic-free shared use section of the Chocolate Path, part of National Route 41 of the National Cycle Network, parallel to Cumberland Road, the River Avon and a railway line. The site is half a mile south of the centre of Bristol. Weekday counts show 'commuting' peaks.
8.	Malago Greenway	2007-2011 ^a	Weekday: +10% Sat/Sun: +8%	Overall: 126 Weekdays: 144 Weekend days: 69	Located on a traffic-free path adjacent to a park with a high street and residential areas nearby. The site is approximately half a mile south of the centre of Bristol. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
9.	Railway Passage, Bristol and Bath Railway Path	2007-2011 ^a	Weekday: +4% Sat/Sun: +6%	Overall: 1,725 Weekdays: 2,097 Weekend days: 812	Located on a traffic-free shared use path, the Bristol and Bath Railway Path in the Lawrence Hill area, approximately one mile east of the centre of Bristol. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
10.	Stone Mason's yard	2010-2011	Positive	Overall: 149 Weekdays: 179 Weekend days: 84	Located on an on-road cycle lane on the A38 approximately half a mile south of the centre of Bristol. A supermarket, library and shops are nearby. Weekday counts show 'commuting' peaks.

11.	Cumberland Basin Road	2010-2011	Positive	Overall: 259 Weekdays: 295 Weekend days: 159	Located on a traffic-free shared use path parallel to the River Avon and Hotwell Road one mile from the centre of Bristol. The route links the centre of Bristol to residential and industrial areas to the north-west including Shirehampton and Avonmouth. Weekday counts show 'commuting' peaks.
12.	Hotwell Road	2007-2011 ^a	Weekday: +11% Sat/Sun: +18%	Overall: 251 Weekdays: 295 Weekend days: 170	Located on a traffic-free shared use path parallel to the River Avon and Hotwell Road one mile from the centre of Bristol. The route links the centre of Bristol to residential and industrial areas to the north-west including Shirehampton and Avonmouth. Weekday counts show 'commuting' peaks.
13.	Ashton Pill	2007-2011 ^a	Weekday: +4% Sat/Sun: -3%	Overall: 142 Weekdays: 121 Weekend days: 251	Located on a traffic-free section on National Route 41 of the National Cycle Network, a riverside towpath along the Avon Gorge approximately two miles west of the centre of Bristol. The counter is to the north of the traffic free link from Rownham Hill onto the National Cycle Network.
14.	St Werburghs Cycle Path – east of Station Road	2009-2011	Positive	Overall: 219 Weekdays: 274 Weekend days: 117	Located on a traffic-free shared use path adjacent to the railway line, two miles north of the centre of Bristol in the Ashley Down area. A college site is nearby. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
15.	Bristol and Bath Railway Path, Johnson's Lane	2010-2011	Positive	Overall: 1,572 Weekdays: 1,870 Weekend days: 846	Located on a traffic-free shared use path linking to National Route 4 of the National Cycle Network, the Bristol and Bath Railway Path. It is located in the Whitehall area of Bristol approximately two miles from the city centre. A school site is nearby. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.

16.	Lower Hartcliffe Way, Vale Lane	2010-2011	Positive	Overall: 267 Weekdays: 318 Weekend days: 129	Located on a traffic-free cycle path adjacent to the A4174 Hartcliffe Way. The site is two miles south of the centre of Bristol and is near industrial units and a business park. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
17.	St Werburghs Cycle path, south of Muller Road	2009-2011	Positive	Overall: 70 Weekdays: 92 Weekend days: 39	Located on a traffic-free shared use path adjacent to the railway line, two miles north of the centre of Bristol in the Ashley Down area. A college site is nearby. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
18.	Eastville Park	2010-2011	Positive	Overall: 120 Weekdays: 142 Weekend days: 74	Located on a traffic-free shared use path in a park in Eastville, a residential area two miles to the north-east of the centre of Bristol. Weekday counts show 'commuting' peaks.
19.	Crox Bottom, Hartcliffe Way	2010-2011	Positive	Overall: 150 Weekdays: 176 Weekend days: 74	Located on a traffic-free shared use path in urban green space in the Headley Park area of Bristol two miles south of the city centre. A school site and superstores are nearby. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
20.	Novers Lane, Upper Hartcliffe Way	2010-2011	Positive	Overall: 120 Weekdays: 155 Weekend days: 60	Located on a traffic-free cycle path adjacent to the A4174 Hartcliffe Way. The site is two miles south of the centre of Bristol and is near Hengrove Leisure Park and a retail park. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.

21.	Ridgeway Road, Bristol and Bath Railway Path	2010-2011	Positive	Overall: 83 Weekdays: 99 Weekend days: 37	Located on an access path onto National Route 4 of the National Cycle Network, the Bristol and Bath Railway Path, approximately two and a half miles north-west of the centre of Bristol. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
22.	Whitchurch Railway Path, Manston Close	2010-2011	Positive	Overall: 36 Weekdays: 42 Weekend days: 32	Located on a traffic-free cycle path on National Route 3 of the National Cycle Network, approximately two and a quarter miles south-east of the centre of Bristol. Signage was installed on this route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
23.	Bristol and Bath Railway Path, Hockeys Lane	2009-2011	Positive	Overall: 1,089 Weekdays: 1,326 Weekend days: 638	Located on National Route 4 of the National Cycle Network, the Bristol and Bath Railway Path in the Fishponds area, adjacent to a roundabout next to a supermarket three miles north-east of the centre of Bristol. Signage and new lighting were installed on this section of the route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.
24.	Whitchurch Railway Path, Craydon Grove	2010-2011	Positive	Overall: 48 Weekdays: 48 Weekend days: 48	Located on National Route 3 of the National Cycle Network, a traffic-free shared use railway path in the Whitchurch area of Bristol, four miles south of the city centre. A school site is close by. Signage was installed on this route as part of the Cycling City and Towns programme.
25.	Bristol and Bath Railway Path, Railway Terrace	2009-2011	Positive	Overall: 807 Weekdays: 901 Weekend days: 612	Located on a traffic-free shared use path linking to National Route 4 of the National Cycle Network, the Bristol and Bath Railway Path, in a residential area four miles north-east of the centre of Bristol. Signage and new lighting were installed on this section of the route as part of the Cycling City and Towns programme. Weekday counts show 'commuting' peaks.

26.	Cycle Path, Westbound A4174 Filton Road	2007-2011 ^a	Weekday: +8% Sat/Sun: +9%	Overall: 788 Weekdays: 914 Weekend days: 148	Located on a traffic-free shared use path adjacent to A4174 Filton Road, four miles north of the centre of Bristol. The route links Frenchay and Filton and is close to the University of the West of England. Weekday counts show 'commuting' peaks.
27.	Cycle Path, Kingsfield Lane, Kingswood	2007-2011 ^a	Weekday: -1% Sat/Sun: +2%	Overall: 41 Weekdays: 46 Weekend days: 35	Located on a traffic-free shared use path in the residential area of Kingswood, four miles east of the centre of Bristol. Recreation grounds and superstores are located nearby.
28.	Cycle Path, Northbound A4018 Cribbs Causeway	2007-2011 ^a	Weekday: +9% Sat/Sun: +10%	Overall: 103 Weekdays: 117 Weekend days: 75	Located on National Route 41 of the National Cycle Network, a traffic-free shared use path adjacent to the A4018. The counter is approximately five miles north of the centre of Bristol and half a mile to the west of Cribbs Causeway, a major regional shopping centre. Weekday counts show 'commuting' peaks.
29.	Cycle Path, A4174 east of Church Lane, Downend	2007-2011 ^a	Weekday: +11% Sat/Sun: +8%	Overall: 427 Weekdays: 487 Weekend days: 198	Located on a traffic-free shared use cycle path parallel to the dual carriageway A4174. The path is at the edge of Downend, a residential area five miles north-east of the centre of Bristol. Weekday counts show 'commuting' peaks.
30.	Pathway between The Common (East) and Bradley Stoke Way	2009-2011	Negative	Overall: 36 Weekdays: 42 Weekend days: 23	Located on a traffic-free footpath in Patchway, six miles north of the centre of Bristol. A school site is nearby.
31.	Footbridge north of The Common (East), Bradley Stoke	2009-2011	Negative	Overall: 60 Weekdays: 66 Weekend days: 40	Located on a traffic-free footbridge in Patchway, six miles north of the centre of Bristol. A school site is nearby. Weekday counts show 'commuting' peaks.

^a data are also available for earlier periods, but to ensure consistency across the Cycling City and Towns these have not been included in the analysis

^b for counters with less than 36 months of data only a tentative indication as to the direction of the change can be reported, either positive, negative or no change

2.3 Relationship between programme activity and automatic count data

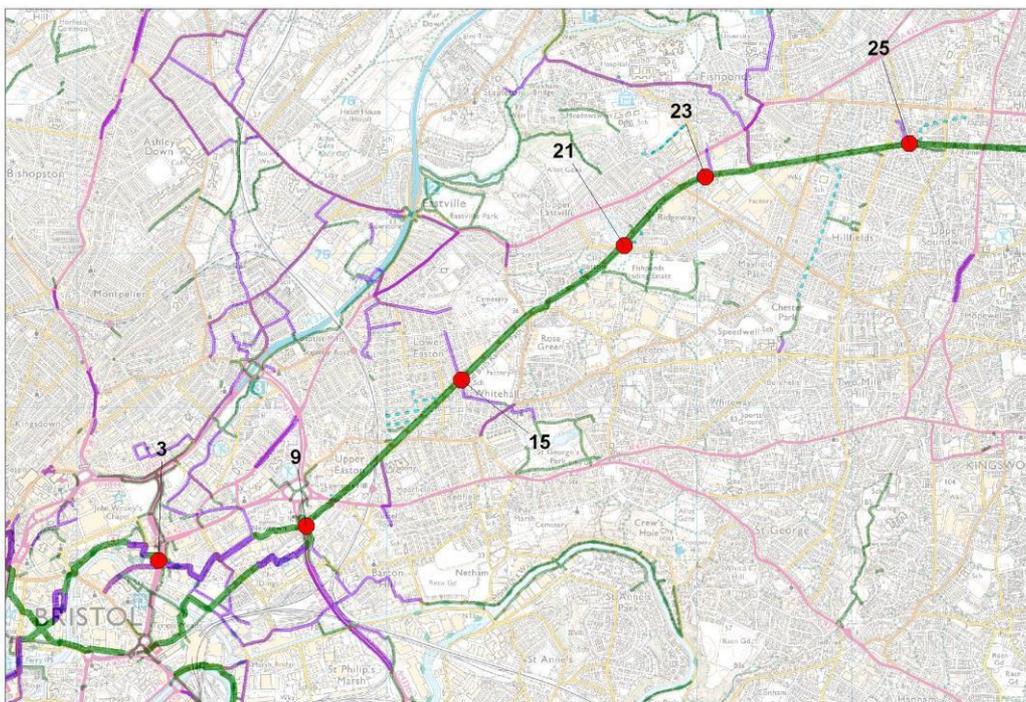
2.3.1 Bristol and Bath Railway Path

The Bristol and Bath Railway Path links Bristol to Bath via a 20km traffic-free route. During the Cycling City and Towns programme measures implemented to increase use of the route included two new paths providing access to and from the route for two additional communities, and installation of lighting on the section of path up to the administrative boundary of Bristol City Council, extending lighting from between Alcove Road in the Fishponds area to the Staple Hill Tunnel. The path was also gritted during periods of snow and frost for the first time during 2010.

Six automatic cycle counters monitor movement on the Bristol and Bath Railway Path or on access routes close to the path (ordered by their proximity to Bristol), in the following locations indicated on Map 2-1:

- Temple Way link between the Bristol and Bath Railway Path and Bristol Temple Meads (map reference 3)
- Railway Passage (map reference 9)
- Johnsons Lane (map reference 15)
- Ridgeway Road (map reference 21)
- Hockeys Lane (map reference 23)
- Railway Terrace (map reference 25)

Map 2-1 Location of automatic cycle counter monitoring the Bristol and Bath Railway Path (site numbers refer to Table 2-4)



Substantial volumes of cyclists are recorded using the Bristol and Bath Railway Path on both weekdays and weekend days, as presented in Table 2-5.

Table 2-5 Median daily count in 2010 of cyclists recorded at six locations on the Bristol and Bath Railway Path or on access routes to the path

Counter	Median daily count in 2010	
	Weekdays	Weekend days
Temple Meads pedestrian/cyclist underpass	442	126
Railway Passage	2,097	812
Johnsons Lane	1,870	846
Ridgeway Road	99	37
Hockeys Lane	1,326	638
Railway Terrace	901	612

Collective analysis of data from these six counters indicates a growth in the number of cyclists counted of +30% against a 2009 baseline (Table 2-6), with the majority of growth occurring between 2010 and 2011.

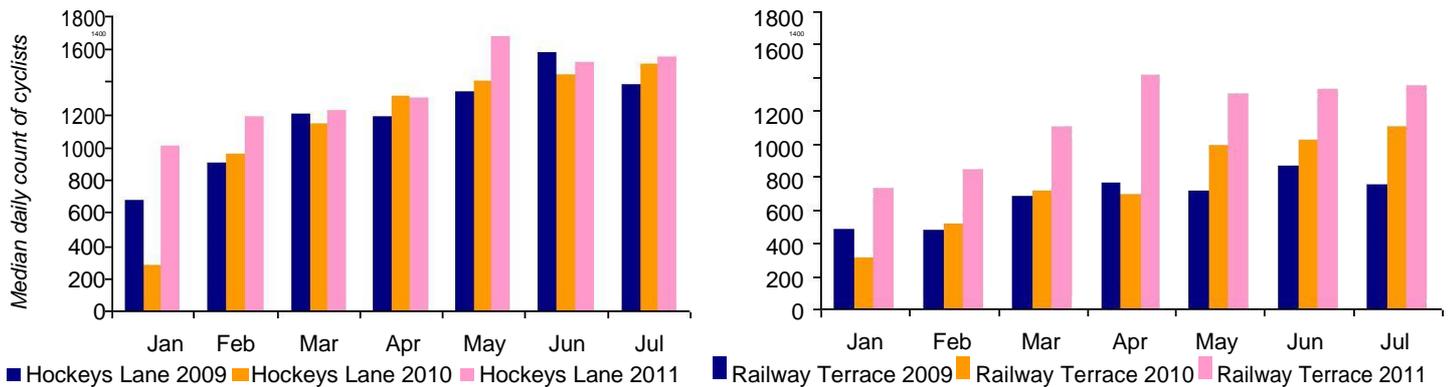
Table 2-6 Change in cycle count recorded by six counters monitoring the Bristol and Bath Railway Path at the end of the Cycling City and Towns period relative to a 2009 baseline (baseline = 100%)

	2009	2010	2011
Change against 2009 baseline	100%	102%	130%*

* indicates a significant difference ($p < 0.05$) compared to the 2009 baseline

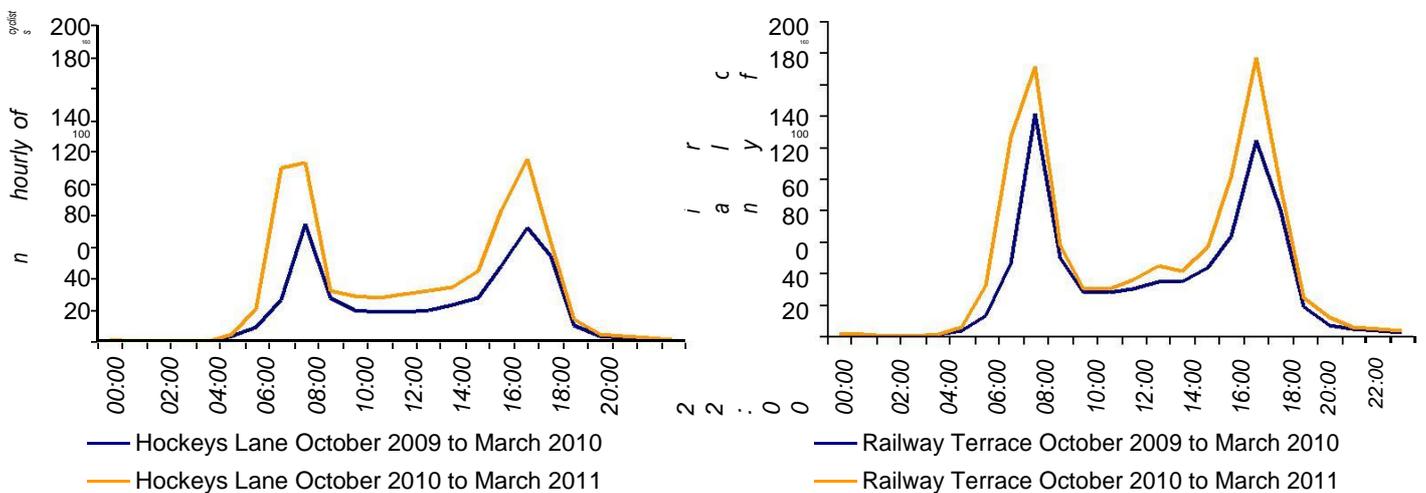
The counters at Hockeys Lane and Railway Terrace are located on the section of route where new lighting was installed in the spring of 2010. Both counters were installed in 2009. Median daily counts (for comparable months only) are presented in Chart 2-1 for these sites. Whilst there has been a growth in volumes of cyclists recorded in the darker winter months, this is also the case across the other months compared. From this it may be reasonable to infer that the lighting has encouraged sustained usage in the winter months which has then encouraged more use during the rest of the year.

Chart 2-1 Median daily counts of cyclists recorded at Hockeys Lane and Railway Terrace in comparable months in 2009, 2010 and 2011



The average count of cyclists recorded between October 2009 and March 2010 is compared to the same data for October 2010 to March 2011 in Chart 2-2. Growth is concentrated around commuting times. Whilst the morning commuting peak broadens to encompass trips made earlier in the day (potentially an impact of the improved lighting on the route) this is not matched in the distribution of afternoon trips.

Chart 2-2 Median hourly counts of cyclists recorded in October 2009-March 2010 and October 2010-March 2011 at Hockeys Lane and Railway Terrace on the Bristol and Bath Railway Path



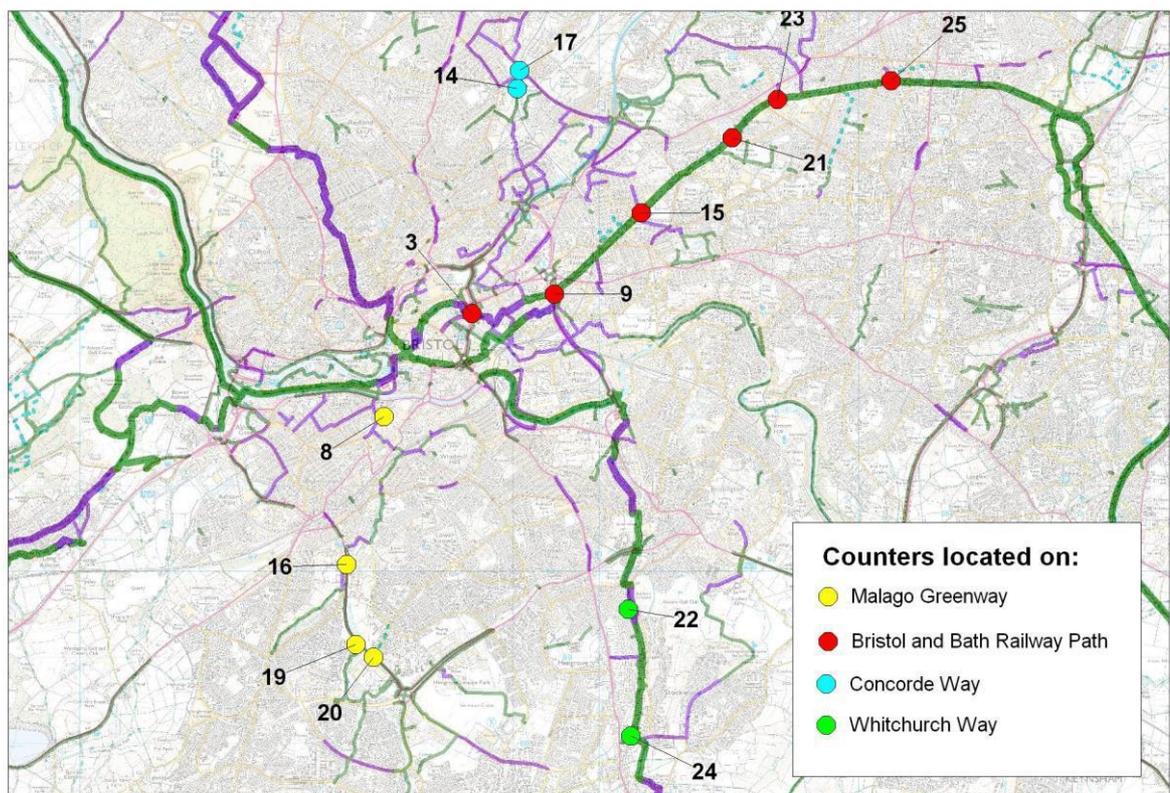
Based on automatic cycle counter data, use of this popular route has increased during the Cycling City and Towns programme. The increase in use in winter months is likely to have been influenced by the installation of additional lighting as well as the gritting of the path during periods of snow and frost from 2010. The changes in the morning peak flow of cyclists may also be in part due to the installation of additional lighting on the route as well as the additional signage on the route, which will be discussed below, and the improved access routes onto the Bristol and Bath Railway Path.

2.3.2 Signage

Extensive signage was installed during the Cycling City and Towns programme, focused on seven key cycle routes, namely the Concorde Way, Frome Valley Greenway, Bristol and Bath Railway Path, Whitchurch Way, Malago Greenway, Festival Way and Downs Way. A number of cycle counters (indicated in Map 2-2) are located on routes where additional signage has been installed:

- Two counters on the Concorde Way (map reference 14 and 17)
- Six counters on the Bristol and Bath Railway Path (as detailed in the section above)
- Two counters on the Whitchurch Way (map reference 22 and 24)
- Four counters on the Malago Greenway (map reference 8, 16, 19 and 20)

Map 2-2 Location of automatic cycle counters monitoring routes where signage has been installed during the Cycling City and Towns programme (site numbers refer to Table 2-4)



Collective analysis of count data from these 14 sites indicate an uplift in levels of cycling of +30% compared to a 2009 baseline (Table 2-7), with most growth occurring between 2010 and 2011. This is a greater increase than indicated by the same analysis of all counters across the project area (+25% against a 2009 baseline), suggesting that the signage programme may have had a positive effect on cycling above that seen on other routes in the city. Other interventions and route developments may have contributed to the observed uplift.

Table 2-7 Change in cycle count recorded by 14 counters located on routes in Greater Bristol where signage was installed the end of the Cycling City and Towns period relative to a 2009 baseline (baseline = 100%)

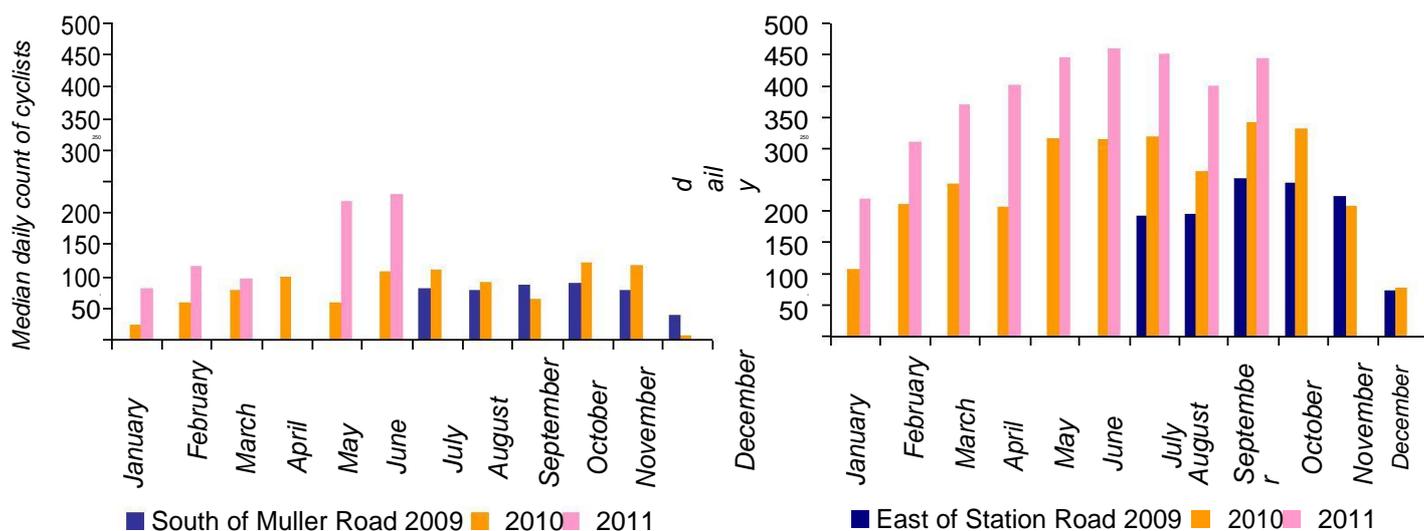
	2009	2010	2011
Change against 2009 baseline	100%	103%*	130%*

* indicates a significant difference (p<0.05) compared to the 2009 baseline

2.3.3 St Werburghs

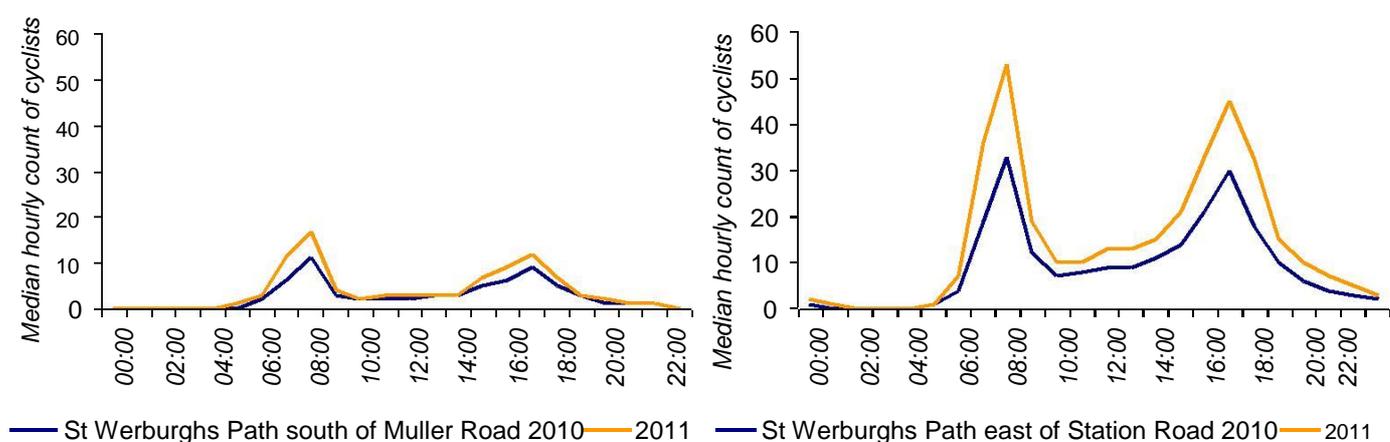
St Werburghs Path, completed in May 2009, forms part of the Concorde Way. Two counters are located on the route, south of Muller Road (map reference 17) and east of Station Road (map reference 14). Data collected at these sites from May 2009 onwards indicates a year on year growth between comparable months, and substantially more cyclists recorded at the Station Road site, the more southerly location on the route (Chart 2-3).

Chart 2-3 Median daily count of cyclists recorded at two locations on St Werburghs Path



The distribution of hourly counts at both sites (Chart 2-4) indicate a concentration of cycle trips recorded at commuting times, and a growth in use at these times of day between 2010 and 2011, particularly at the site east of Station Road.

Chart 2-4 Median hourly count of cyclists recorded at two locations on St Werburghs Path



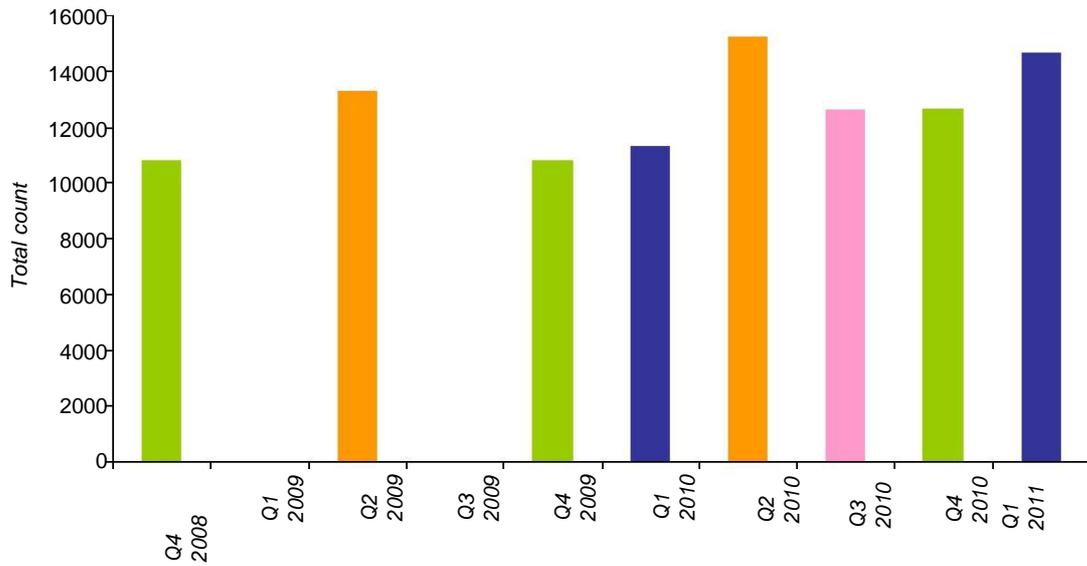
3 Analysis of manual count data

Although manual counts have been previously undertaken in Bristol, only data collected since quarter 4 2008 have been included in this analysis. Quarterly 12 hour counts were undertaken at 20 sites. No counts were undertaken in either quarter 1 2009 or quarter 3 2009 for 18 of the sites. Seven sites have at least one additional period of missing data. The 20 sites are at various locations around Bristol, indicated on the accompanying map (section 9):

- College Green south of Unity Street (map reference A)
- North Street (map reference B)
- Wapping Road (map reference C)
- Broad Plain east of Temple Way (map reference D)
- Gaol Ferry Bridge (map reference E)
- Coronation Road (map reference F)
- Bedminster Bridge (map reference G)
- Temple Gate (map reference H)
- Hotwell Road east of Dock Gate Lane (map reference I)
- Cheltenham Road north of Arley Hill (map reference J)
- Whiteladies Road north of Cotham Hill (map reference K)
- Redland Grove south of Kensington Road (map reference L)
- Bath Bridge (map reference M)
- Bristol and Bath Railway Path, Railway Passage (map reference N)
- Ashton Avenue Bridge (map reference O)
- Lawrence Hill west of Ducie Road (map reference P)
- Bath Road east of Totterdown Bridge (map reference Q)
- Glenfrone Road north of St Werburghs Park (map reference R)
- Hartcliffe Way (map reference S)
- Hockeys Lane (map reference T)

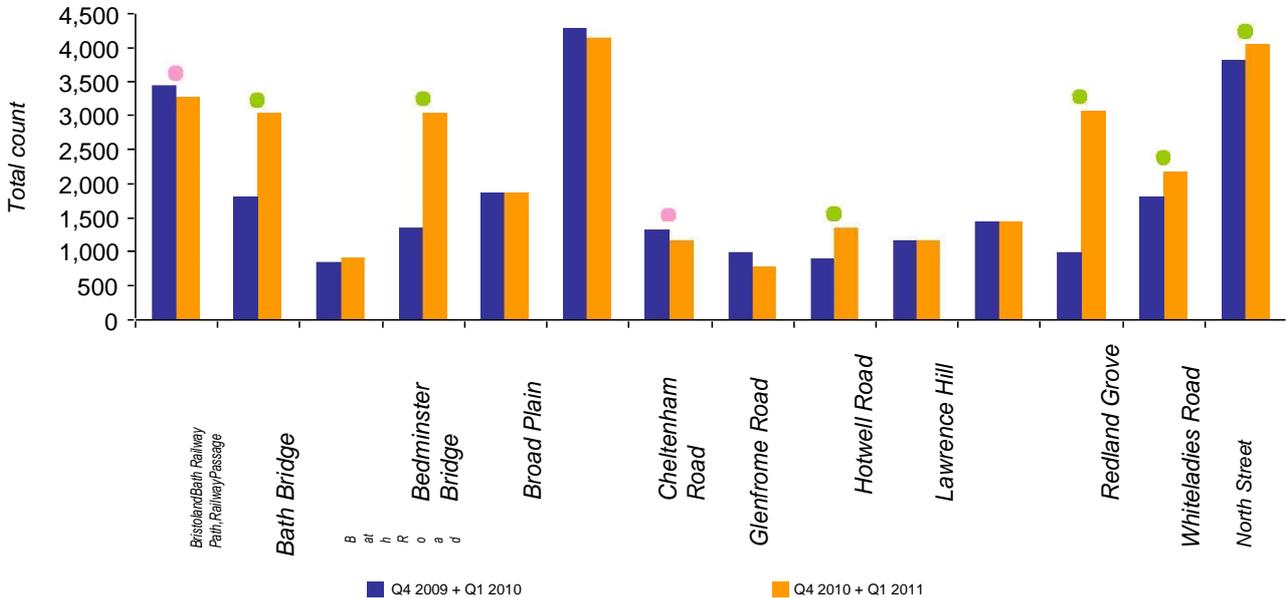
Chart 3-1 presents the total counts in each quarter across the 13 count sites for which we have data since quarter 4 2008, with the exception of quarter 1 2009 and quarter 3 2009.

Chart 3-1 Total counts for 13 manual count sites in Bristol



When comparing the same quarters across years, there appears to be an increase in counts, particularly from 2009 onwards. Chart 3-2 compares data collected in quarter 4 2009 and quarter 1 2010 with data collected in quarter 4 2010 and quarter 1 2011. Fourteen of the sites have data for all four of these periods.

Chart 3-2 Comparison of manual count data collected in Bristol in quarter 4 2009 and quarter 1 2010 with data collected in quarter 4 2010 and quarter 1 2011⁴



⁴ Significant where $p < 0.05$

A significant change in counts was recorded at eight sites over this period. Six of these were increases and two were decreases. The opening of a new bridge has created alternative routes which may mean that cyclists now bypass Cheltenham Road, thus influencing the non-significant decrease in counts recorded at this site. Cyclists using the new bridge would, however, still pass the North Street count site and this site has seen a significant increase in counts.

Counts recorded at Coronation Road decreased significantly. This may also be due to displacement as cyclists use the new Festival Way route. Similarly, Glenfrome Road north of St Werberghs may have been affected by an alternative route through the St Werburghs development. Route development may have impacted on the increase at Temple Gate underpass as cyclists choose to use this route rather than the route passing the Broad Plain count site. Chart 3-2 above compares combined data from quarters 1 and 4 in 2009/2010 and 2010/11. Data for other comparable periods of time in the count sequence are presented in Table 3-1 below.

Table 3-1 Comparison of manual count data collected in Bristol between different periods of time

Count site ^a	Comparison			
	quarter 2 2009 and quarter 2 2010	quarter 4 2008 and quarter 4 2010	quarter 1 2010 and quarter 1 2011	quarter 4 2009 + quarter 1 2010 and quarter 4 2010 + quarter 1 2011 ^b
Bristol and Bath Cycle Path	positive*	negative	positive*	negative*
Bath Bridge	positive*	positive*	positive*	positive*
Bath Road east of Totterdown Bridge	positive*	positive	positive*	positive
Bedminster Bridge	positive*	positive*	positive*	positive*
Broad Plain east of Temple Way	positive	positive	negative	negative
Cheltenham Road north of Arley Hill	positive*	positive*	positive	negative
College Green south of Unity Street		positive*		
Coronation Road	positive	negative*	positive*	negative*
Glenfrome Road north of St Werburghs Park	negative	negative*	positive	negative*
Hotwell Road east of Dock Gate Lane	negative*	positive*	positive*	positive*
Lawrence Hill west of Ducie Road	positive	positive	positive	negative
Redland Grove south of Kensington Road	positive	positive	positive*	negative
Temple Gate	positive*	positive*	positive*	positive*
Whiteladies Road north of Cotham Hill	negative	positive	negative	positive*
Ashton Avenue Bridge		positive*		
North Street	positive*		positive	positive*
Wapping Road	positive*		positive	
Gaol Ferry Bridge		positive*		
Hartcliffe Way			negative	
Number of count sites showing growth ^c	12 (8)	13 (8)	13 (8)	7 (6)
Number of count sites showing decrease ^c	3 (1)	3 (2)	3 (0)	7 (3)

^a Hockeys Lane has not been included within the analysis as data is only available for four quarters and therefore a comparison can not be made

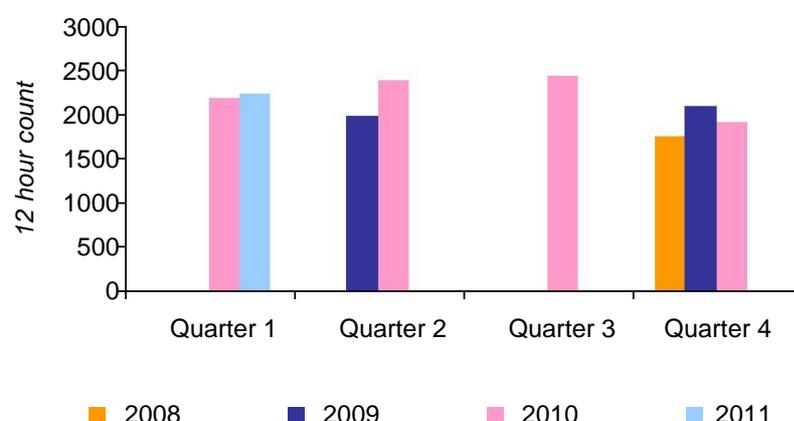
^b This comparison is presented in Chart 3-2

^c Figure in brackets gives the number of sites where the change is statistically significant (p<0.05)

* indicates a significant change between the periods compared (p<0.05)

The second comparison is the only one to span two years of data and the fourth is the only one to combine more than one period of data. These two columns are relatively consistent in terms of the direction of any change, particularly for significant changes. The exception is Cheltenham Road north of Arley Hill where a decrease was recorded when comparing quarter 4 2009 with quarter 4 2010, potentially the result of a particularly high count in quarter 4 2009 (Chart 3-3).

Chart 3-3 Volumes of cyclists recorded during manual quarterly counts at the Cheltenham Road north of Arley Hill site between 2008 and 2011



4 Analysis of school related data

During the Cycling City and Towns programme, Bike It has been delivered in 55 schools throughout Greater Bristol. Between 2008/09 and 2010/11 a total of 16,920 pupils that were trained in Bikeability (5,463 to level 1, 11,193 to level 2, and 264 to level 3). During the Bike to School Week organised by the local Councils, over 15,000 pupils were engaged in activities such as Dr Bike sessions, bike breakfasts, and Bikeability training. Schools also took part in Sustrans' Virtual Bike Race in 2010, involving 1,505 children plus staff. Sustrans ran a similarly themed 'Big Pedal' competition in 2011. During this three week period, 62,462 journeys were made to a Greater Bristol schools by bicycle.

4.1 PLASC

The percentage of pupils surveyed in Greater Bristol stating cycling to be their usual mode of travel to school are summarised in Table 4-1. Levels of cycling to school were significantly greater in the 2010/11 academic year than in 2006/07 for both primary and secondary schools. For primary schools, there has been a small decline in the proportion of pupils cycling to school following a peak at 1.5% in 2007/08. Secondary schools have seen a consistent increase in the proportion cycling to school with the exception of 2009/2010.

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

	Academic year				
	2006/07	2007/08	2008/09	2009/10	2010/11
Primary	0.9%	1.5%	1.4%	1.4%	1.4%*
Secondary	2.7%	4.9%	5.6%	6.1%	5.9%*
All schools ^a	1.5%	2.8%	2.9%	3.0%	3.0%*

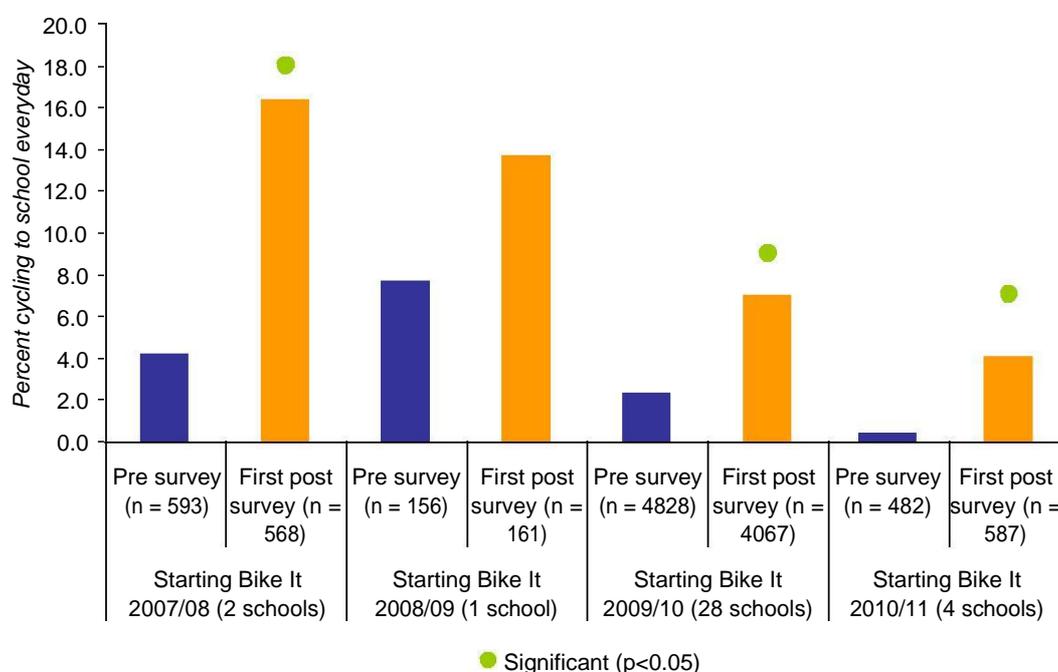
^a based on data from 134 primary schools and 19 secondary schools

* indicates a significant change in cycling in the 2010/2011 academic year compared to the 2008/09 academic year ($p < 0.05$)

4.2 Bike It

Bike It has been delivered in 55 schools in Greater Bristol 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 35 schools. Aggregated percentages of children cycling regularly (everyday or once or twice a week) 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 surveyed cycling to cycle to school everyday between the pre and post survey is significant for schools starting Bike It in the 2007/08, 2009/10 and 2010/11 academic years.

Chart 4-1 : Proportion of children cycling to school everyday 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 surveyed cycling to

school everyday increased from 2.5% to 7.9%⁵, whilst the proportion cycling to school regularly increased from 10.8% to 24.8%⁶. The proportion 'never' cycling to school decreased from 73.5% to 50.8%⁷. The proportion of children cycling to school on the day of the survey increased from 3.2% to 9.1%⁸.

For 23 schools in Greater Bristol, 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'.

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	2.6%	7.6%*	5.9%*
Regularly	10.9%	24.3%*	20.9%*
Never	73.0%	50.4%*	52.2%*

^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.

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 4-3 : Comparison of PLASC data from non-Bike It schools and Bike It schools grouped by year of first engagement in Greater Bristol

	2007	2008	2009	2010	2011
Non-Bike It schools ^a	1.5%	3.2%	3.5%	3.4%	3.0%
Bike It in 2006 ^{b,g}	1.6%	3.1%	2.9%	2.1%	1.7%
Bike It in 2007 ^{c,g}	0.0%	0.0%	0.0%	0.0%	0.8%
Bike It in 2008 ^{d,g}	4.5%	3.7%	3.5%	3.6%	3.8%
Bike It in 2009 ^{e,g}	1.1%	1.7%	1.9%	2.4%	3.1%
Bike It in 2010 ^{f,g}	1.9%	1.6%	1.4%	1.7%	1.6%

^a Data for 87 primary schools and 13 secondary schools that were not engaged in Bike It

^b Data for two primary schools initially engaged in Bike It in 2006

^c Data for three primary schools initially engaged in Bike It in 2007

^d Data for four primary schools and two secondary schools initially engaged in Bike It in 2008

^e Data for 30 primary schools and two secondary schools initially engaged in Bike It in 2009

^f Data for eight primary schools and one secondary school initially engaged in Bike It in 2010

^g 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 Route user intercept survey

A route user intercept survey was undertaken on Ashton Avenue Bridge on The Festival Way in Bristol during June and August 2009. Route users were counted and interviews performed over 12 hours on a school-holiday weekday, a school-holiday weekend day, a term-time weekday and a term-time weekend day. The survey was undertaken as part of the Festival Way Connect2 project in Bristol.

Over the four day survey period 2,276 cyclists were counted. Of those cyclists surveyed, most were commuting (48.8%) or making leisure journeys (40.0%) at the time of the survey. Over two thirds (68.4%) of cyclists classified themselves as experienced, regular cyclists, whilst 9.2% were new or returning to cycling. When asked about factors influencing their decision to use the route, 91.5% agreed or strongly agreed that it was the best transport option, 78.2% that it was the most convenient route, 94.3% that they liked the surroundings on the route and 84.8% that the route felt safe.

6 Commuter count data

Data on mode of travel to work have been collected annually since 2007 via the Big Commuter Count. The short survey is available online for one day only in October. All employers in the city are invited to take part. The proportion of survey respondents reporting to cycle on the day of the survey is presented in Table 6-1.

Table 6-1 Percentage of respondents cycling to work on the day of the Big Commuter Count survey

Year	Number of employers participating in the survey	Number of respondents	% cycling to work on the day of the survey
2007	50	8,796	10.6%
2008	69	10,592	12.2%
2009	77	11,079	12.2%
2010	72	8,682	14.0%
2011	81	11,196	14.3%

7 Analysis of casualty data

Cycle user casualty data were derived for the City of Bristol 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 7-1. There was a significant increase in the number of slight injuries and the total number of casualties recorded during the programme compared to the number recorded before the programme. The number of people killed or seriously injured was not significantly greater during the programme compared to before the programme.

Table 7-1 Annual average number of cyclists killed or injured in Bristol before (2003-2008) and during (2009-2010) the Cycling City and Towns programme

	Annual average number of casualties			Total
	Killed	Seriously injured	Slightly injured	
Pre-programme	0.7	27.8	200.0	228.5
During programme	1.5	34.0	241.5*	277.0*

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

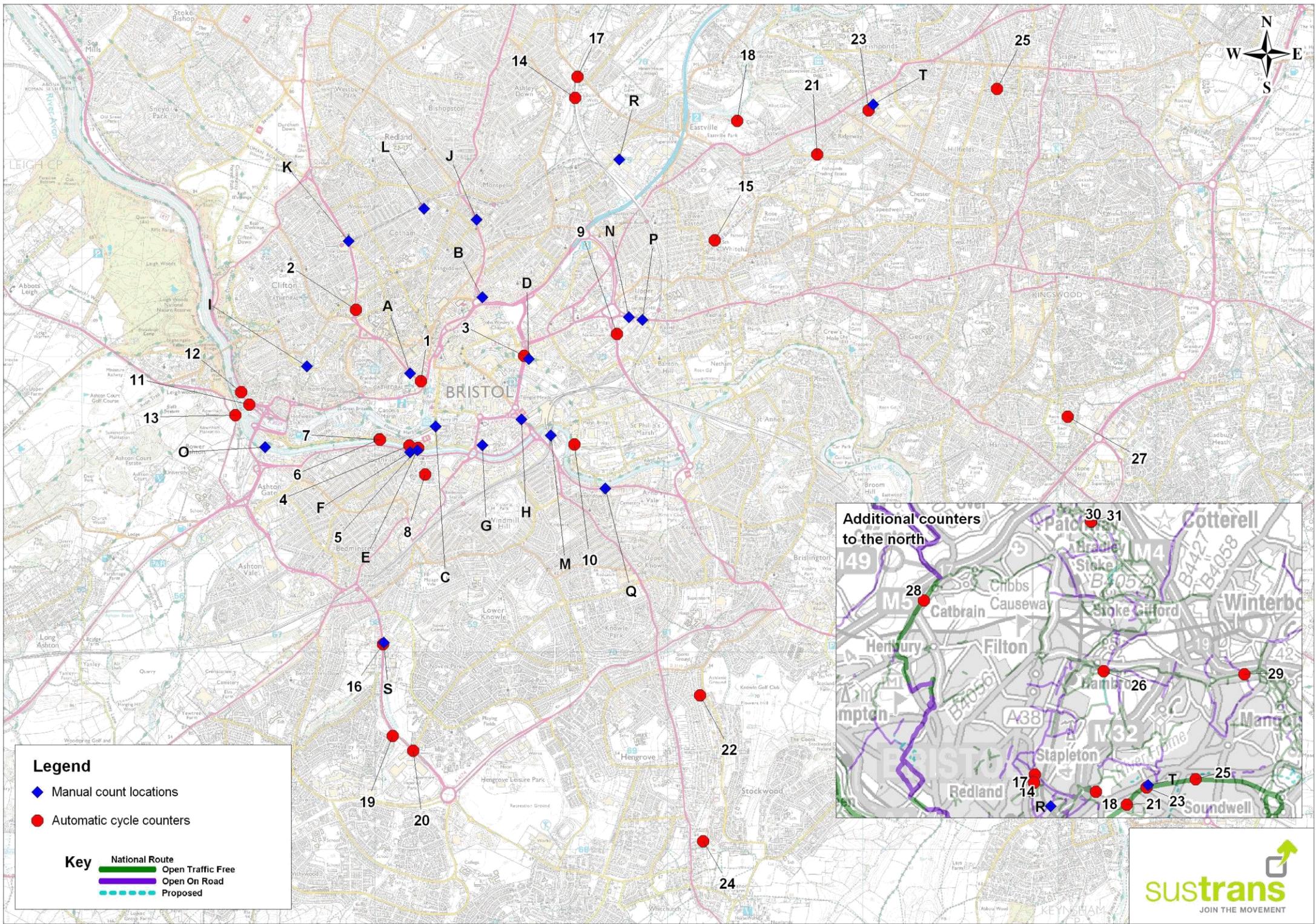
8 Analysis of physical activity data

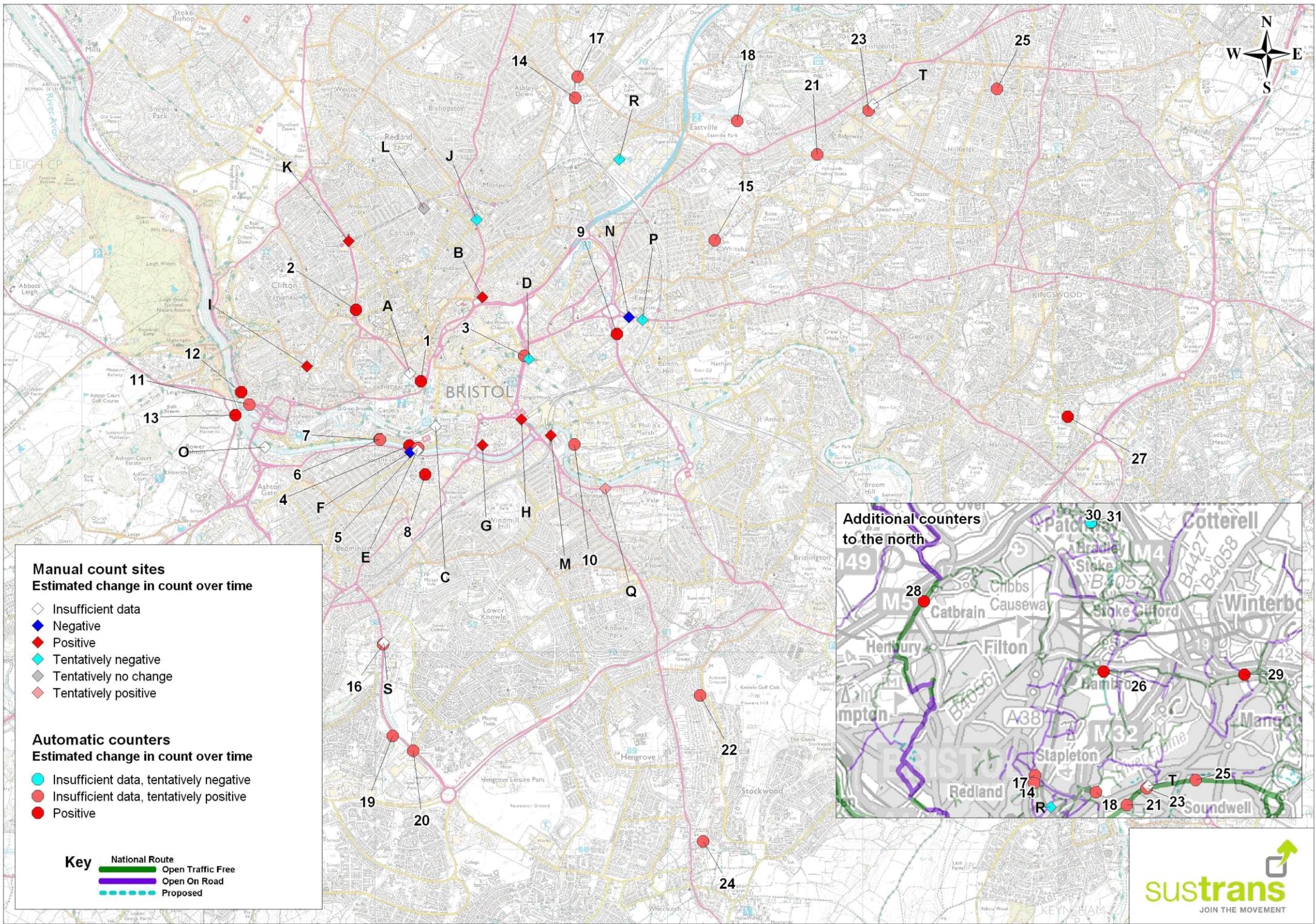
Data are available from Sport England's Active People Survey (APS) for two years prior to the Cycling City and Towns programme and all three years of the project. The APS data provide information on the proportion of people cycling for at least 30 minutes once or more per month and the proportion cycling 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.

In Greater Bristol there was a significant increase ($p < 0.05$) in both measures between 2007/8 and 2010/11. The proportion cycling once or more per month rose by 6.7% (from 12.7% to 19.5%) and the proportion cycling 12 or more times per month rose by 3.4% (from 3.1% to 6.5%).

9 Maps

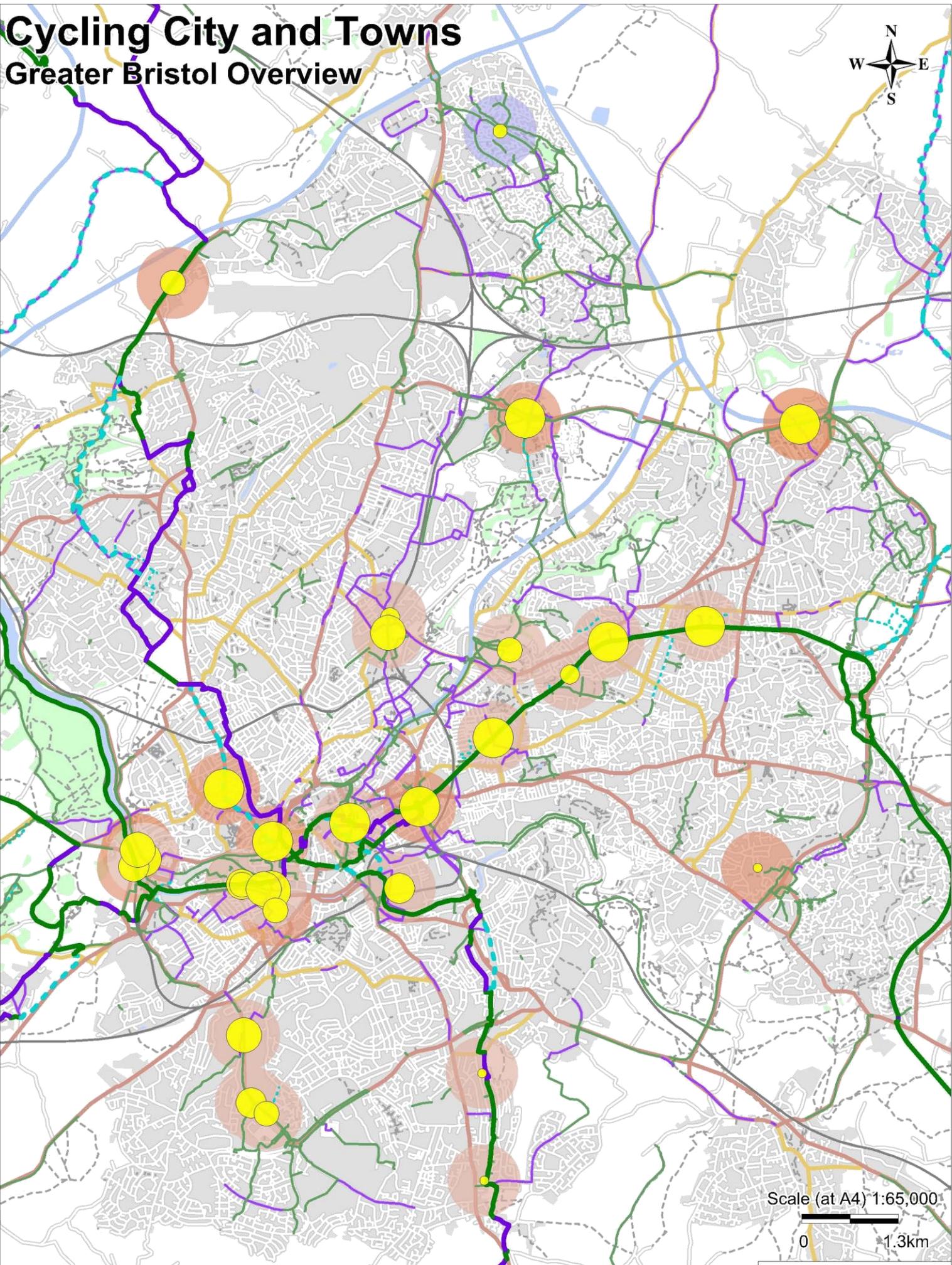
The following pages contain maps indicating the location of manual count and automatic cycle counter locations, and the estimated change in volumes of cycles recorded at these sites.





Cycling City and Towns

Greater Bristol Overview



Key

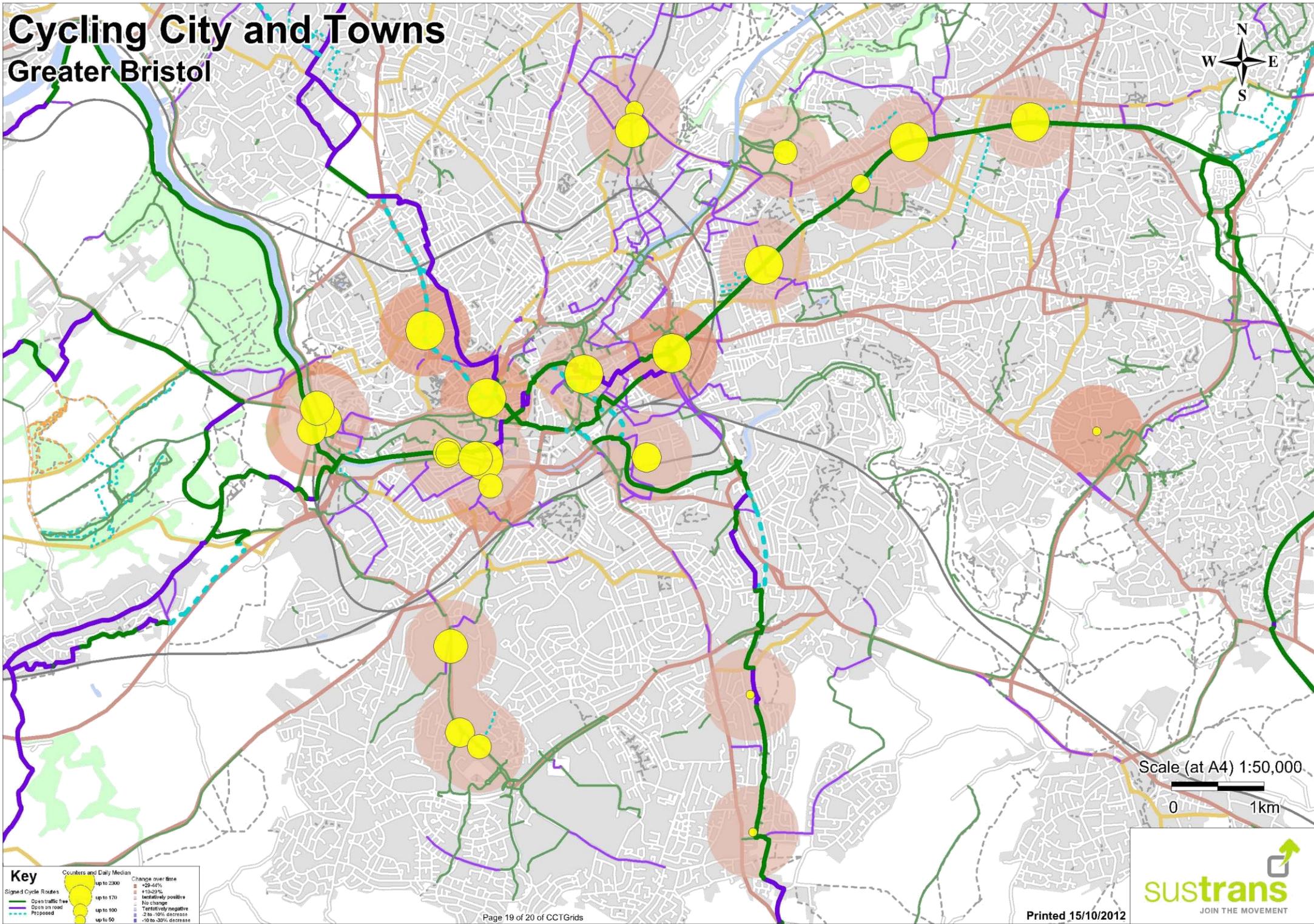
Signed Cycle Routes Open traffic free Open on road Proposed	Counters and Daily Median up to 2300 up to 170 up to 100 up to 50	Change over time +20-44% +10-25% tentatively positive No change Tentatively negative -2 to -10% decrease -10 to -30% decrease
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Scale (at A4) 1:65,000



Cycling City and Towns

Greater Bristol



Scale (at A4) 1:50,000
 0 1km

Key	
Signed Cycle Routes	Green line
Open traffic free	Blue line
Cycle on road	Purple line
Proposed	Red line
Counters and Daily Median	Yellow circles
up to 2300	Largest yellow circle
up to 170	Medium yellow circle
up to 100	Small yellow circle
up to 50	Smallest yellow circle
Change over time	Semi-transparent red circles
+20-44%	Lightest red circle
+10-20%	Light red circle
No change	Medium red circle
Tentatively positive	Dark red circle
-2 to -10% decrease	Very dark red circle
-10 to 30% decrease	Darkest red circle