

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

Individual town results: Stoke-on-Trent

April 2017

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Acknowledgments

The authors are grateful for the extensive assistance of officers in the twelve Cycling City and Towns in supplying monitoring data for this research.

We are also grateful for additional support provided by Lisa Muller, Katie Pullen, George Macklon, Katie Thomson, James O'Hare, Richard Sanders, Alison Janes, Hannah Delaney, Laurence Bonner, Peter Stephenson, Charlotte Draycott and Jo Watson.

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1 Introduction

1.1 Description of the Cycling City and Towns programme in Stoke-on-Trent

The Cycling City and Towns programme delivered in Stoke-on-Trent – ‘Cycle Stoke’ - focused on raising the profile of cycling, making cycling more accessible and improving cycle infrastructure in the area.

Stoke-on-Trent is made up of six towns and Cycle Stoke ensured that all areas benefited from the programme. Infrastructure works focused on filling in gaps in National Routes 5 and 55 of the National Cycle Network, particularly linking town centres onto the network. Smarter measures such as school engagement and infrastructure improvements such as signage and advanced stop lines were distributed across all of Stoke-on-Trent.

The infrastructure programme included the improvement or creation of 20 greenways/cycle paths, 69 advanced stop lines, 10 cycle gates and four contra flow cycle schemes¹. The cycling network was increased from 124km to 161km by March 2011, of which 87km is traffic-free provision and an additional 40km is shared use paths. The remainder is mostly on-road cycle lanes (32km) but also 2km of bus lanes where cycling is permitted. In addition to route development, investment was made in signage and in the provision of cycle parking. There was a 125% increase in cycle parking across Stoke-on-Trent, including the installation of 830 covered parking spaces at schools, 72 spaces at the university, 61 at workplaces, 20 at railway stations and 47 at leisure and tourist attractions.

Smarter measures delivered include workplace and neighbourhood engagement programmes, promotion and marketing campaigns and increased availability of bicycles to certain groups. A range of initiatives focused on young people were supported through the Cycling City and Towns programme, including Bike It officers, Bikeability training, improved cycling infrastructure to and at schools and cycling challenges. Cycle Stoke also worked in partnership with further and higher education establishments to promote cycling to students and staff.

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 Stoke-on-Trent during the Cycling City and Towns programme are summarised in Table 1-1.

¹ Cycle Stoke (2011) Stoke on Trent Cycling City and Towns End of Programme Report (2008-2011), Cycle Stoke. 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 Stoke-on-Trent

	2008 – 2011 revenue	2008 – 2011 capital	Total
Cycling England/DfT/DH investment	£1,325,514	£3,675,878	£5,001,392
Matched funding	£1,173,852	£2,356,449	£3,530,301
Total	£2,499,366	£6,032,327	£8,531,693

1.3 Summary of available monitoring data

The following data sources are available:

- Data from 17 automatic cycle counters
- 12 hour manual counts performed at 30 sites forming a cordon around the city centre since 2008, at eight sites as part of the annual traffic count since 2005 and at 17 sites on the A500 screenline since 2009
- Pupil Level Annual School Census (PLASC) travel data and monitoring data from Bike It
- counts of parked bicycles performed at 14 locations in Hanley town centre in 2010 and 2011
- route user intercept surveys at Ford Green and Sideway
- STATS19 cycling casualty data
- Active People Survey (APS) data

1.4 Summary of headline findings

Consistent evidence for growth in levels of cycling from a low initial baseline

Amongst the indicators of change available, there is evidence of growth in cycling in Stoke-on-Trent over the programme period. The most complete data sets, time series data from automatic cycle counters located predominantly on traffic-free cycle routes, indicate a substantial growth in volumes of cyclists recorded over time. This is corroborated by manual count data, recording an overall increase over time across the three groups of manual counts performed. Notwithstanding the limitations of the data source, cycling to both primary and secondary schools appears to have grown significantly over time. 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 +62% against a 2007 baseline. Based on data from the 17 automatic cycle counters, this estimated growth corresponds to an increase from an estimated 530 trips per day counted in 2007 to 860 in 2011
- An increase was observed at 13 sites and a decrease at three sites²
- Analysis of manual count data collected in comparable periods at 30 count locations on the city centre suggests a significant increase in counts.

² Insufficient data were available for the seventeenth count site to enable an estimate of change over time to be calculated

Significant changes were observed at 10 of the sites and nine of these were increases

- Analysis of manual count data collected in comparable periods at 17 count locations on the A500 screenline suggests a significant increase in counts. Significant changes were observed at eight of the sites – seven of these were increases and one was a decrease
- Across all schools, the percentage of children cycling to school as measured by PLASC was 1.5% in 2010/11 compared to 0.4% in 2006/07
- Bike It data indicate an increase in children cycling to school on the day of the survey from 3.1% in pre surveys to 9.5% in post surveys, and an increase in children cycling to school everyday from 2.4% in pre surveys to 7.6% in post surveys
- Counts of parked bicycles in Hanley town centre decreased by 27% between March 2010 and March 2011
- A survey of route users performed at Ford Green in 2007 counted 166 cyclists over four 12 hour periods; 231 cyclists were counted in 2009 over an equivalent period. In 2009 the majority of cyclists were making leisure journeys (79.1%)
- A survey of route users performed at Sideway counted 559 cyclists over four 12 hour periods in 2008 and 591 over an equivalent period in 2010. In 2010, 46.4% were making leisure journeys
- 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 Stoke on Trent in the proportion of respondents cycling once or more per month and no change in the proportion cycling 12 or more times per month between 2007/8 and 2010/11

2 Analysis of automatic cycle counter data

Data from 17 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. The cycle counters are distributed across the six towns in the area, with a greater concentration around the city centre. Three of the counters were installed in 2005, one in 2006, four in 2007 and the remaining nine were installed 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 Stoke-on-Trent. 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 were 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 Stoke-on-Trent 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%	95%*	126%*	135%*	162%*

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

In order to explore whether the periods of poor weather nationally during 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).

When this factor is included in the model, growth in 2010 compared to the baseline increases and the figures suggest a relatively constant rate of growth between 2009 and 2011.

Table 2-2 Change in cycle count in Stoke-on-Trent 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%	95%*	128%*	145%*	162%*

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

Much of the growth reported has been driven by the counter on Hot Lane. Substantial improvements in this area may have contributed to the growth in cycle counts recorded at this site. In order to explore the influence of this counter on the overall analysis, Table 2-3 presents the change in cycle counts over time excluding data from the counter on Hot Lane.

Table 2-3 Change in cycle count in Stoke-on-Trent at the end of the Cycling City and Towns period relative to a 2007 baseline (excluding Hot Lane counter, baseline = 100%)

	2007	2008	2009	2010	2011
Change against 2007 baseline	100%	98%	122%*	126%*	149%*

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

Although the overall trend in Table 2-3 is similar to that in Table 2-1, these tables demonstrate the considerable impact of this one counter on the growth recorded by automatic cycle counters in Stoke.

The counter data indicate a decline in the volume of cyclists recorded in 2008 compared to the previous year. It is possible that so little of the impact of the programme would be detectable in the data at this early stage; infrastructure delivery began in September 2008 and engagement with schools, workplace and neighbourhoods began in 2009. Substantial uplifts in counts are observed in each of the subsequent years of the programme, from 2008 to 2011.

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 2-4 and alongside more detailed information for each counter in Table 2-5. Sufficient data are available to robustly estimate the annual percentage change in the number of cyclists counted for seven of the 17 automatic cycle counters included in the analysis. Of the remaining ten count sites, based on the more limited data available, change over time is positive for six and negative for three count sites. The tenth site has less than one year's complete data hence it is not possible to make an estimate of change over time.

Table 2-4 Summary of findings of detailed analysis of data from individual count sites

Number of counters for which data are available	17
Number of counters for which sufficient data are available to quantify change over time ³	7
Number of counters with quantifiable increase	7
Number of counters with no change	0
Number of counters with quantifiable decrease	0

In the following table counters are ordered by their location from north to south. Map references refer to the accompanying map (section 10).

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

Table 2-5 Description of automatic cycle counters in Stoke-on-Trent

Map reference	Location	Time period	Annual change ^b	Average daily count in 2010	Comments
1.	Scotia Valley Greenway	2010-2011	Negative	Overall: 32 Weekdays: 29 Weekend days: 42	Located on the Scotia Valley Greenway, a traffic-free section of National Route 5 of the National Cycle Network, approximately four and a half miles north of the city centre.
2.	Little Chell	2007-2011 ^a	Weekday: +10% Sat/Sun: +5%	Overall: 22 Weekdays: 23 Weekend days: 19	Located in the Little Chell area of Stoke, on a traffic-free route running through a park in an urban area. Four and a half miles north of the city centre. A primary school is nearby.
3.	Ford Green	2007-2011 ^a	Weekday: +7% Sat/Sun: -1%	Overall: 45 Weekdays: 43 Weekend days: 52	Located in the Ford Green area of Stoke, on a traffic-free section of National Route 55 of the National Cycle Network, three miles north of the city centre
4.	Caldon Canal - near Onyx Grove	2010-2011	Positive	Overall: 29 Weekdays: 26 Weekend days: 38	Located near Topaz Close on a traffic-free section on the Caldon Canal towpath. The site is on the edge of an urban area approximately three and three quarter miles north of the city centre.
5.	Sproson Park Greenway	2010-2011	Positive	Overall: 38 Weekdays: 40 Weekend days: 32	Located on the Sproson Park Greenway, a traffic-free section of National Route 5 of the National Cycle Network, approximately three and half miles north of the city centre. A football stadium and a leisure centre are nearby.
6.	Trent and Mersey Canal - Middleport	2010-2011	Positive	Overall: 103 Weekdays: 105 Weekend days: 99	Located on a traffic-free section of National Route 5 of the National Cycle Network running parallel to the Trent and Mersey Canal, three miles north-west of the city centre.

7.	Hot Lane	2007-2011 ^a	Weekday: +43% Sat/Sun: +40%	Overall: 43 Weekdays: 46 Weekend days: 35	Located at Hot Lane on a traffic-free section of National Route 5 of the National Cycle Network, two and a half miles north of the city centre. An industrial estate is located nearby.
8.	Central Forest Park	2007-2011 ^a	Weekday: +8% Sat/Sun: +6%	Overall: 32 Weekdays: 32 Weekend days: 34	Located in Central Forest Park in Stoke, on a traffic-free section of National Route 55 of the National Cycle Network, two miles north of the city centre.
9.	Caldon Canal - Lichfield Street	2007-2011	Weekday: +16% Sat/Sun: +9%	Overall: 88 Weekdays: 96 Weekend days: 73	Located near Lichfield Street on a traffic-free section along the Caldon Canal towpath which links to National Route 5 of the National Cycle Network, one mile north of the city centre.
10.	Trentmill Road	2010-2011	Negative	Overall: 32 Weekdays: 34 Weekend days: 21	Located near Trentmill Road, on a traffic-free local route one and a quarter miles north-east of the city centre.
11.	Caldon Canal - Stoke College	2007-2011	Weekday: +15% Sat/Sun: +8%	Overall: 74 Weekdays: 77 Weekend days: 67	Located near Stoke College on a traffic-free section along the Caldon Canal towpath which links to National Route 5 of the National Cycle Network. The site is approximately one mile north of the city centre.
12.	Trent and Mersey Canal - near Vernon Road	2010-2011	Positive	Overall: 140 Weekdays: 154 Weekend days: 112	Located near Vernon Road on a traffic-free section of National Route 5 of the National Cycle Network running parallel to the Trent and Mersey Canal. The site is half a mile from the city centre.
13.	Meir Hay Greenway	2010-2011	- ^c	Overall: 5 Weekdays: 5 Weekend days: 3	Located on the Meir Hay Greenway, a traffic-free local route, approximately two and half miles west of the city centre and close to an industrial unit.

14.	Trent and Mersey Canal – Sideway	2007-2011	Weekday: +10% Sat/Sun: +1%	Overall: 102 Weekdays: 105 Weekend days: 96	Located in Sideway on a traffic-free section of National Route 5 of the National Cycle Network running parallel to the Trent and Mersey Canal. One mile south of the city centre. A football stadium is located nearby.
15.	Hollybush	2010-2011	Positive	Overall: 48 Weekdays: 53 Weekend days: 34	Located on a traffic-free local route near Parkview Close one and a half miles south of the city centre and linking an industrial estate to residential housing. A football stadium is nearby.
16.	Longton Brook Greenway	2010-2011	Positive	Overall: 17 Weekdays: 14 Weekend days: 30	Located on the Longton Brook Greenway, a traffic-free local route two miles south of the city centre. Housing surrounds the greenway.
17.	Trent and Mersey Canal - near Limekiln Bridge	2010-2011	Negative	Overall: 89 Weekdays: 84 Weekend days: 106	Located near Limekiln Bridge on a traffic-free section of National Route 5 of the National Cycle Network running parallel to the Trent and Mersey Canal.

^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

^c insufficient data are available for this site to enable any estimate of change over time to be made

2.3 Relationship between programme activity and automatic count data

2.3.1 University Quarter

The University Quarter in Stoke benefited from a variety of measures under the Cycling City and Towns programme. Access to this area has been improved through the installation of directional signage and Advanced Stop Lines have also been put in place in the area. A 'UniQ Area Wide Travel Plan' was prepared in conjunction with Staffordshire University, the Sixth Form College and the University Quarter campus of the Stoke-on-Trent College of Further Education. In addition, 72 cycle parking spaces were installed, six pool bikes were made available and various events took place to engage staff and students.

Three automatic cycle counters are located near to the University Quarter in Stoke-on-Trent (Map 2-1):

- Caldon Canal - Stoke College (map reference 11)
- Caldon Canal - Lichfield Street (map reference 9)
- Trent and Mersey Canal - near Vernon Road (map reference 12)

Map 2-1 Automatic cycle counters monitoring the University Quarter in Stoke (site numbers refer to Table 2-5)



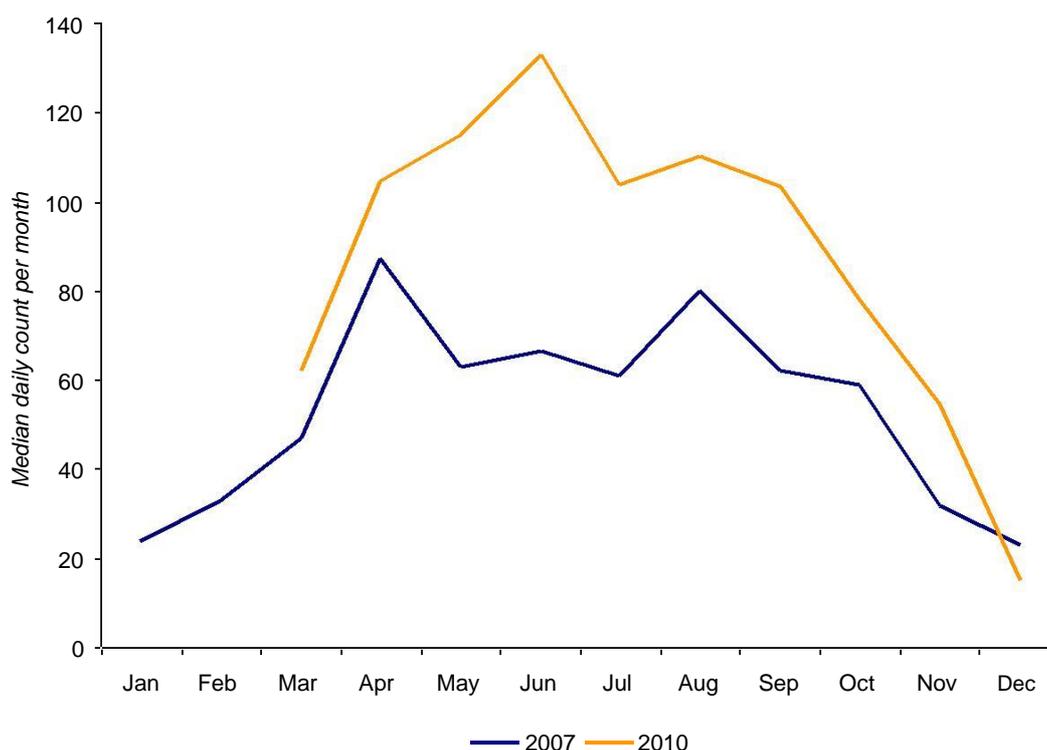
Table 2-6 presents the average annual percentage change for each of these sites. A sizeable annual increase has been observed at two of the sites. As the counter on the Trent and Mersey Canal route was installed in 2010, only a tentative indication of the direction of change can be given, which in this case is positive.

Table 2-6 Average annual percentage change in counts recorded at locations near to the University Quarter in Stoke-on-Trent

Counter	Average annual % change in daily count
Caldon Canal 1 - Stoke College	+13%
Caldon Canal 2 - Lichfield Street	+15%
Trent and Mersey Canal - near Vernon Road	positive

Analysis of data from the three counters close to the University Quarter together indicates a +62% increase relative to a 2007 baseline. Chart 2-1 presents the annual distribution of counts recorded the at the Lichfield Street count site in 2007 and 2010. Whilst volumes of cycles counted at this sites have increased across the whole year, this is particularly prominent in the summer months.

Chart 2-1 Average daily count of cyclists recorded at Caldon Canal 2 (Lichfield Street) in each month in 2007 and 2010



2.3.2 Canal towpaths

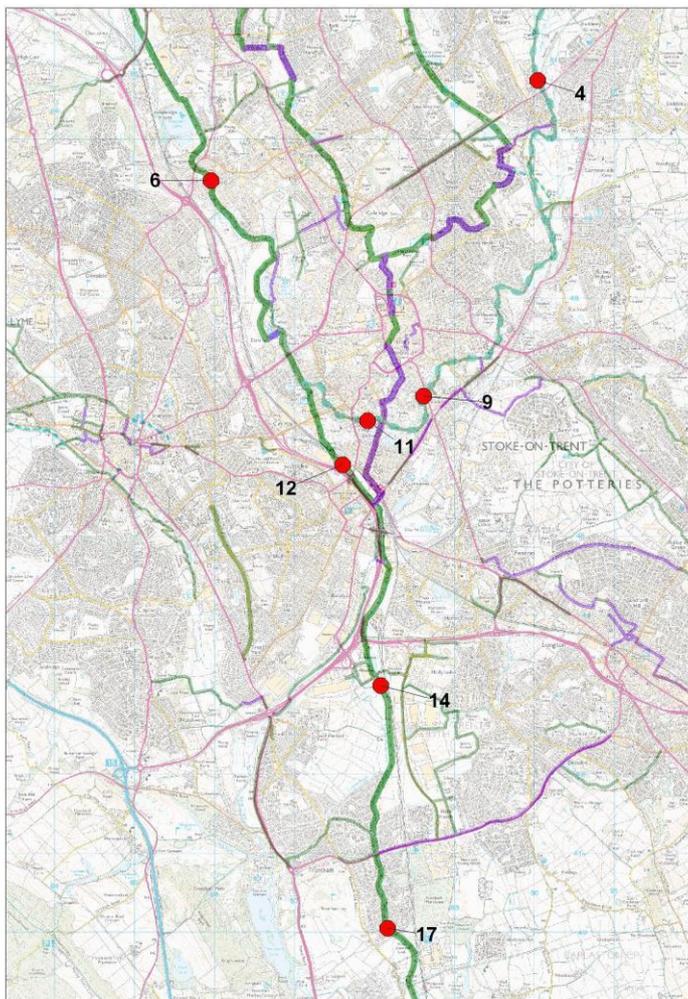
The two canal towpath routes in Stoke-on-Trent form key access routes into the city from the north and the south. The Trent and Mersey Canal route provides access from the north west and links to Burslem and into the city centre itself. The Caldon Canal route provides access from the north east, around Hanley, and links on to Trent and Mersey Canal routes to provide access into Stoke and to the south.

Infrastructure work was undertaken on the Grange Park Greenway as part of the Cycling City and Towns programme. This improved access between Festival Park and Cobridge, and may have made the Trent and Mersey Canal route more accessible from this area. The route also benefited from directional signage. This route may also have been indirectly impacted by smarter measures work in the area, including the promotion of routes through the 'Leisurely Cycle Ride' maps, workplace engagement and increased bike availability.

Seven automatic cycle counters monitor the canal towpaths (Map 2-2):

- Trent and Mersey Canal - Sideway (map reference 14)
- Trent and Mersey Canal - Middleport (map reference 6)
- Trent and Mersey Canal - near Limekiln Bridge (map reference 17)
- Trent and Mersey Canal - near Vernon Road (map reference 12)
- Caldon Canal - Stoke College (map reference 11)
- Caldon Canal - Lichfield Street (map reference 9)
- Caldon Canal - near Onyx Grove (map reference 4)

Map 2-2 Automatic cycle counters on canal towpath routes in Stoke-on-Trent (site numbers refer to Table 2-6)



Three of the four counters on the Trent and Mersey Canal were installed in the spring of 2010 and therefore only a tentative indication of the direction of change in counts recorded over time can be reported (Table 2-7). The data suggest an

increase in counts recorded at three of the four count sites over the period for which data are available.

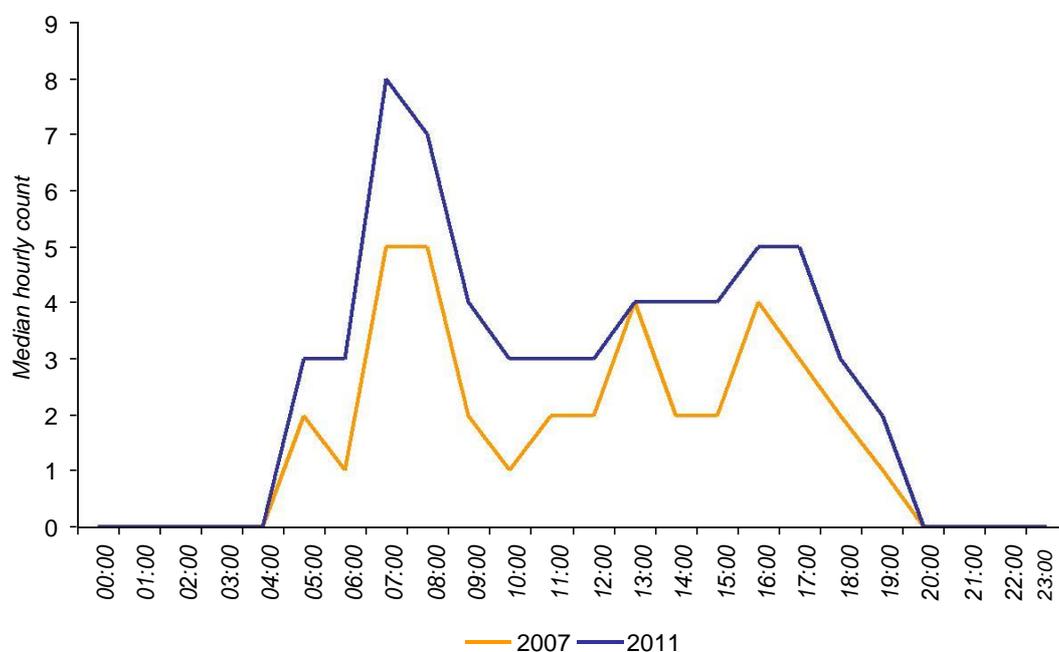
Table 2-7 Average annual percentage change in counts recorded at locations on the Trent and Mersey Canal route

Counter	Average annual % change in daily count
Trent and Mersey Canal – Sideway	+7%
Trent and Mersey Canal – Middleport	Positive
Trent and Mersey Canal - near Limekiln Bridge	Negative
Trent and Mersey Canal - near Vernon Road	positive

Analysis of combined data from these four counters suggests a +42% increase against a 2007 baseline⁴. This finding is likely to be heavily influenced by the counter at the Sideway site, the only counter for which data are available prior to 2010. Taking 2010 as a baseline suggests a +20% increase to 2011⁵.

Chart 2-2, presenting the hourly distribution of counts recorded at the Sideway site, suggests much of the growth in cycle volumes between 2007 and 2010 to be at the times of data associated with commuting trips.

Chart 2-2 Median hourly counts on weekdays for Trent and Mersey Canal -Sideway in 2007 and 2011



⁴ Significant increase ($p < 0.05$)

⁵ Significant increase ($p < 0.05$)

The Caldon Canal route has also benefited from directional signage and is likely to have been affected by smarter measures work including the work in the University Quarter detailed above. Three automatic counters monitor this route.

Table 2-8 Average annual percentage change in counts recorded at locations on the Caldon Canal route

Counter	Average annual % change in daily count
Caldon Canal - Stoke College	+13%
Caldon Canal - Lichfield Street	+15%
Caldon Canal - near Onyx Grove	positive

Analysis of these three counters combined indicates a +59% increase relative to a 2007 baseline.

3 Analysis of manual count data

The manual counts undertaken in Stoke which are relevant to this analysis can be separated into those forming a cordon around the city centre and the remaining sites which are either part of the A500 screenline, the University Quarter screenline, or both.

3.1 City centre cordon

The frequency of counts at sites around the city centre which had previously been monitored annually was increased to quarterly from 2009. Map 3-1 shows the locations of the 30 sites. Thirteen of the sites are on-road counts, indicated on the accompanying map (section 10):

- Hanover Street and New Hall Street (map reference RA)
- Town Road (map reference RB)
- Sampson Street (map reference RC)
- Huntbach Street (map reference RD)
- Trinity Street (map reference RE)
- Old Hall Street (map reference RF)
- Albion Street bus lane (map reference RG)
- Piccadilly (map reference RH)
- Albion Street and Pall Mall (map reference RI)
- Warner Street (map reference RJ)
- Lichfield Street (map reference RK)
- Cannon Street (map reference RL)
- Bethesda Street (map reference RM)

The remaining 17 sites complete the cordon and record cyclists at pedestrian crossings:

- Hanover Street – pedestrian crossing (map reference CA)
- Bryan Street (map reference CB)
- Town Road – pedestrian crossing (map reference CC)
- York Street (map reference CD)
- Hillchurch Street (map reference CE)
- Huntbach Street – pedestrian crossing (map reference CF)

- Newhall Street (map reference CG)
- Bucknall New Road (map reference CH)
- Trinity Street – pedestrian crossing (map reference CI)
- Marsh Street (Clough Street) (map reference CJ)
- Marsh Street (Piccadilly) (map reference CK)
- Charles Street (map reference CL)
- Warner Street (map reference CM)
- Birch Terrace (map reference CN)
- Cannon Street – pedestrian crossing (map reference CO)
- Bethesda Street – pedestrian crossing (map reference CP)
- Hinde Street (map reference CQ)

Map 3-1 Manual count sites on the city centre cordon in Stoke-on-Trent

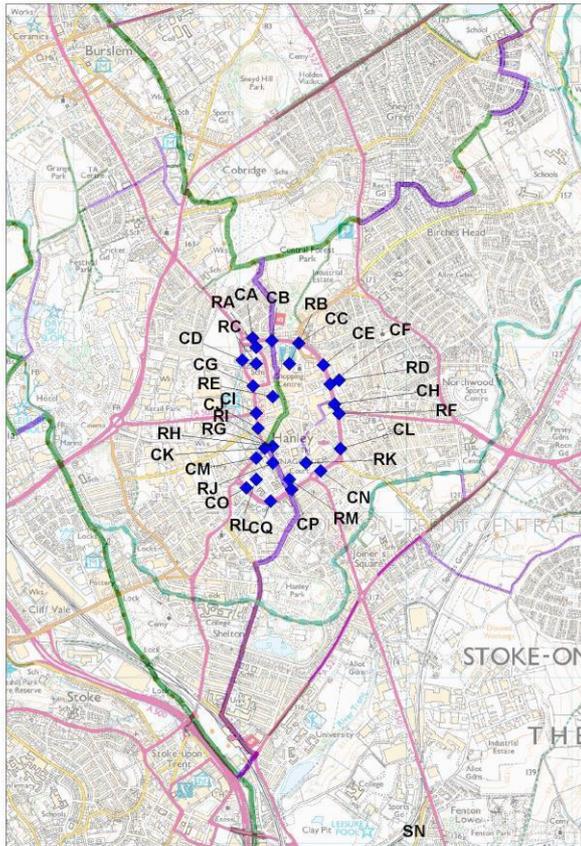
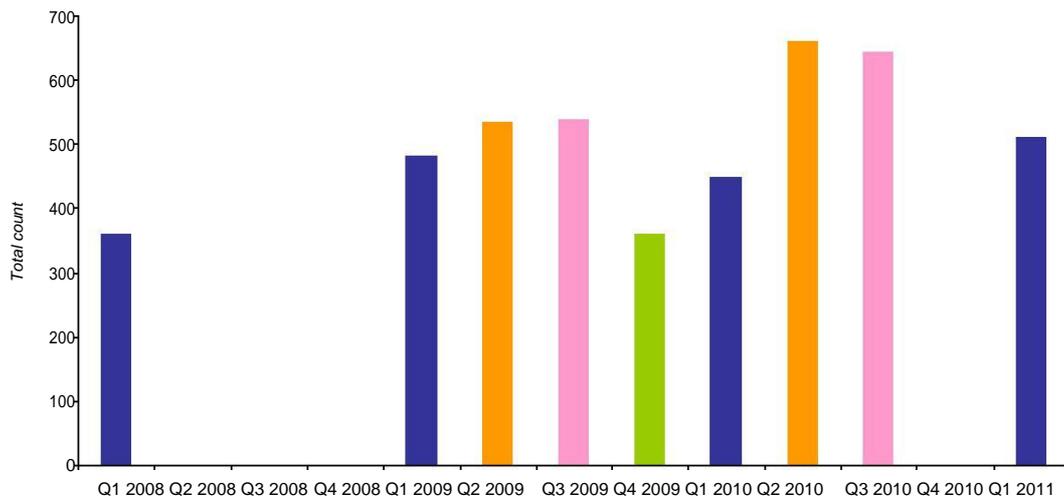


Chart 3-1 presents the total counts in each quarter across the 28 count sites with data in each of the periods in which counts were undertaken⁶.

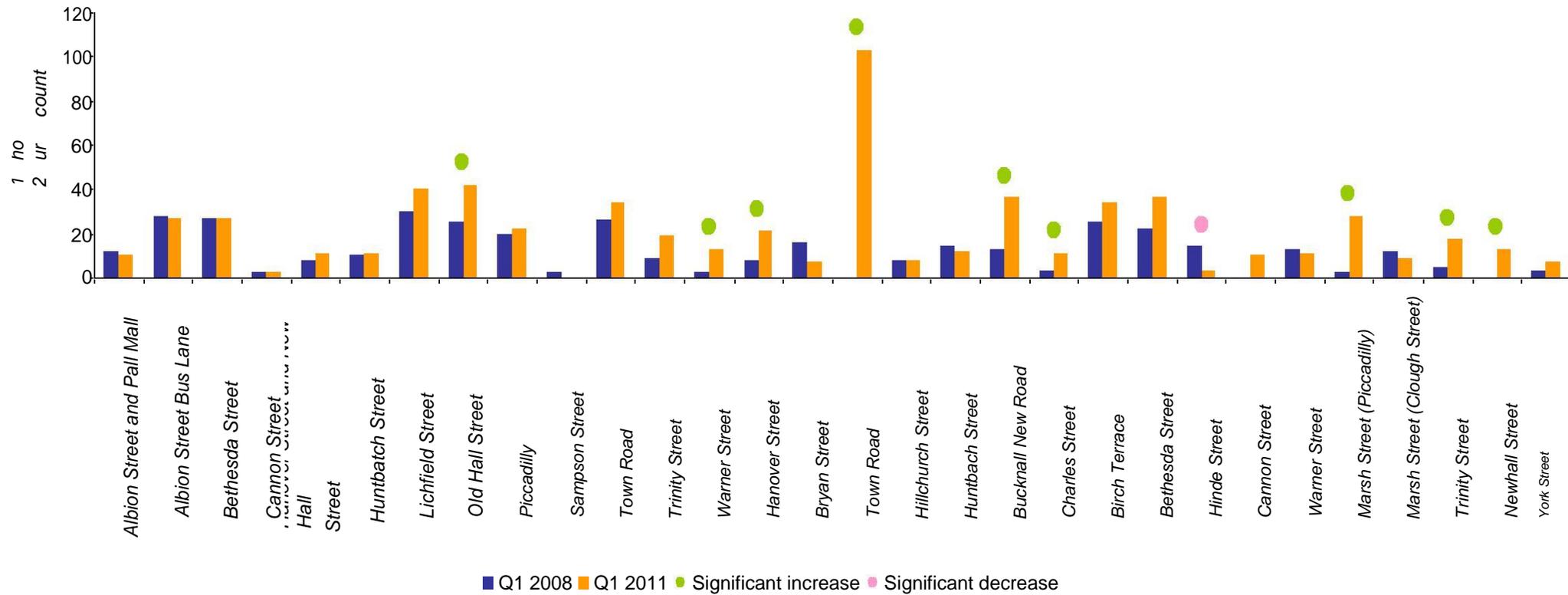
⁶ Pedestrian crossing counts were not undertaken on Town Road or Cannon Street in March 2008 and therefore data for these two locations have been excluded from Chart 3-1.

Chart 3-1 Total counts for 28 manual count sites on the city centre cordon in Stoke



In order to explore change over time, data from quarter 1 2008 has been compared with data from quarter 1 2011. As no counts were undertaken on the pedestrian crossings on Town Road and Cannon Street in March 2008, the March 2009 counts are compared for these locations. The counts in both periods and an indication of significant change are presented in Chart 3-2 below.

Chart 3-2 Comparison of manual count data collected on the city centre cordon in Stoke in quarter 1 2008 with data collected in quarter 1 2011⁷⁸



⁷ Pedestrian crossing counts were not undertaken on Town Road or Cannon Street in March 2008 ; counts performed in March 2009 are compared to March 2011 counts for these locations

⁸ Indicated as significant where $p < 0.05$

Comparison of data collected in quarter 1 2008 and 2009 with data collected in quarter 1 2010 and 2011 for the 28 sites with data in all four periods suggests a significant increase in counts. A significant change was observed at 10 of the count sites, nine of which were significant increases.

In 2008/09 a scheme improved the crossing of the A5272 near the Keelings Road/Janet Place junction. This forms part of an advisory route from the Caldon Canal to the city centre via Bucknall Old Road and Old Hall Street. The promotion of this route and work done with nearby communities may have contributed to the apparent increase in counts recorded on Old Hall Street and Bucknall New Road.

The increase in counts recorded at the Warner Street site may have been influenced by the installation of cycle parking. The Potteries Way extension between Broad Street and Etruria Road (opened in 2010) has created more opportunity to use Warner Street as a cycle route. Improved cycle facilities on Etruria Road may also have influenced the increase in counts recorded on Trinity Street. The promotion of the route through Central Forest Park to Hanley may have contributed to the increase in counts recorded at the Town Road site.

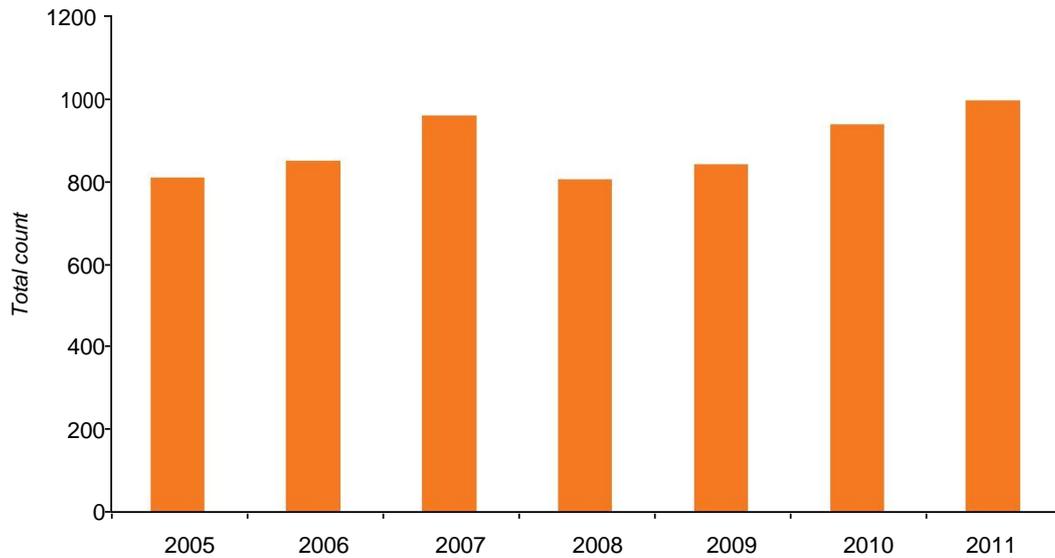
3.2 Historic manual counts

Eight count sites are monitored during annual traffic counts in Stoke-on-Trent. Counts were initiated at these sites between 1999 and 2004, and are normally undertaken in April of each year. The locations of the sites are shown on the accompanying map (section 10):

- Scotia Road (map reference SB)
- Shelton New Road (map reference SG)
- Stoke Road (map reference SH)
- College Road (map reference SI)
- Leek Road (map reference SL)
- City Road (map reference SN)
- Canal Towpath - Sideway Canal Bridge (map reference SP)
- Trentham Road (map reference SR)

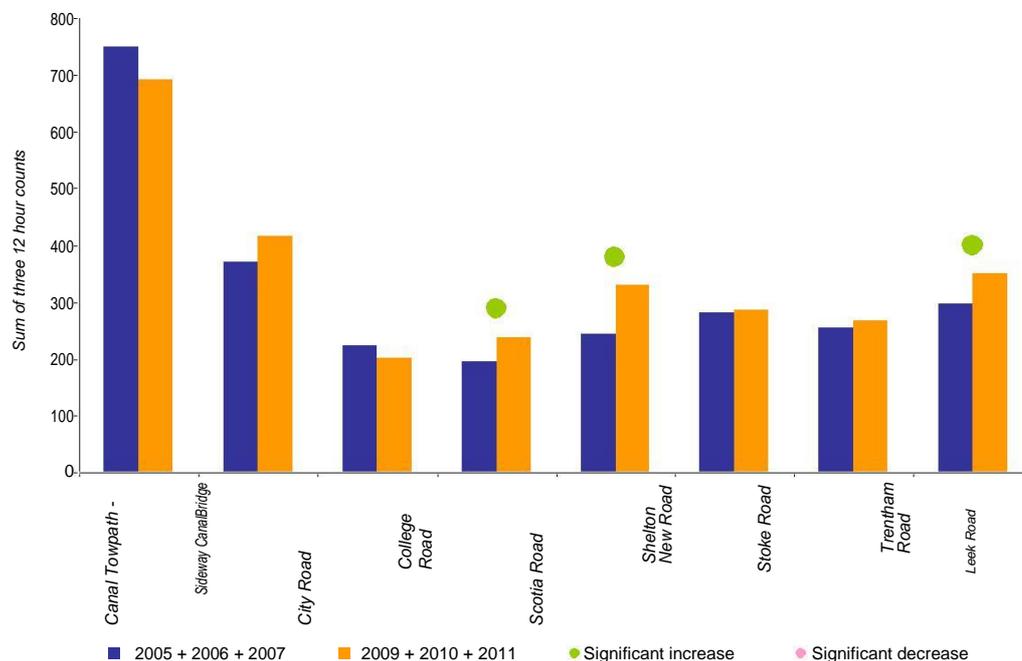
Chart 3-3 presents the total counts in each year from 2005 onwards. The data suggest an increase in counts between 2005 and 2007, a lower count in 2008 compared to previous years (consistent with automatic cycle counter data) followed by a year to year increase to 2011. Considering data from the sites individually, a decrease in counts in 2008 was recorded at all with the exception of Shelton New Road site.

Chart 3-3 Total counts for eight manual count sites in Stoke



In order to compare pre-programme data with data collected during the programme, counts recorded in 2005, 2006 and 2007 are combined and compared to combined data from 2008, 2009 and 2010 in Chart 3-4 below.

Chart 3-4 Comparison of manual count data collected at the historic manual count sites in Stoke in 2005, 2006 and 2007 with data collected in 2009, 2010 and 2011⁹



Significant increases in counts between the two periods compared are recorded for three sites. Combining data from all eight sites for these two periods of time suggests significant growth in counts over time.

⁹ Indicated as significant where $p < 0.05$

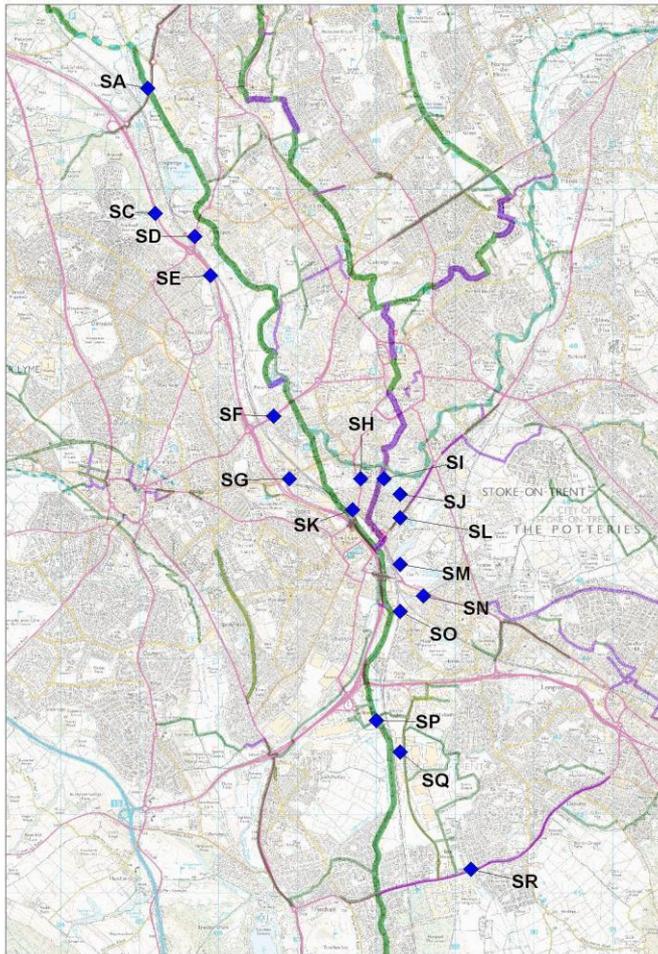
The decrease in counts recorded at the Sideway Canal Bridge site may have been influenced by the displacement of cyclists onto a parallel route along the A34 offering an alternative route to Stoke via the River Trent Path from the Trentham area. Similarly, the decrease recorded at the College Road site may have been influenced by the creation of parallel routes through Hanley Park.

3.3 A500 Screenline

Counts on this screenline began in 2009. The screenline incorporates 10 new count sites with seven of the eight older annual count sites described above (excluding Scotia Road). Counts at all 17 locations were undertaken quarterly between quarter 2 of 2009 and quarter 2 of 2011. The locations of all of the sites are shown in Map 3-4. The 10 new sites are as follows:

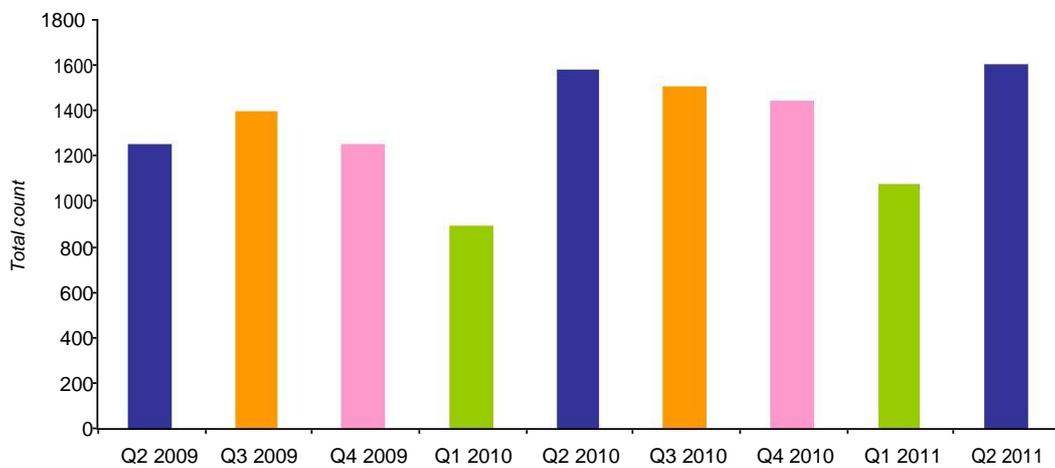
- Reginald Mitchell Way (map reference SA)
- Peel Street subway (map reference SC)
- Longport Road (map reference SD)
- Orford Street subway (map reference SE)
- Etruria Road (map reference SF)
- Boughey Road (map reference SJ)
- Canal Towpath near Vernon Road (map reference SK)
- Lordship Lane (map reference SM)
- Whieldon Road (map reference SO)
- Stanley Matthews Way (map reference SQ)

Map 3-4 A500 manual count screenline



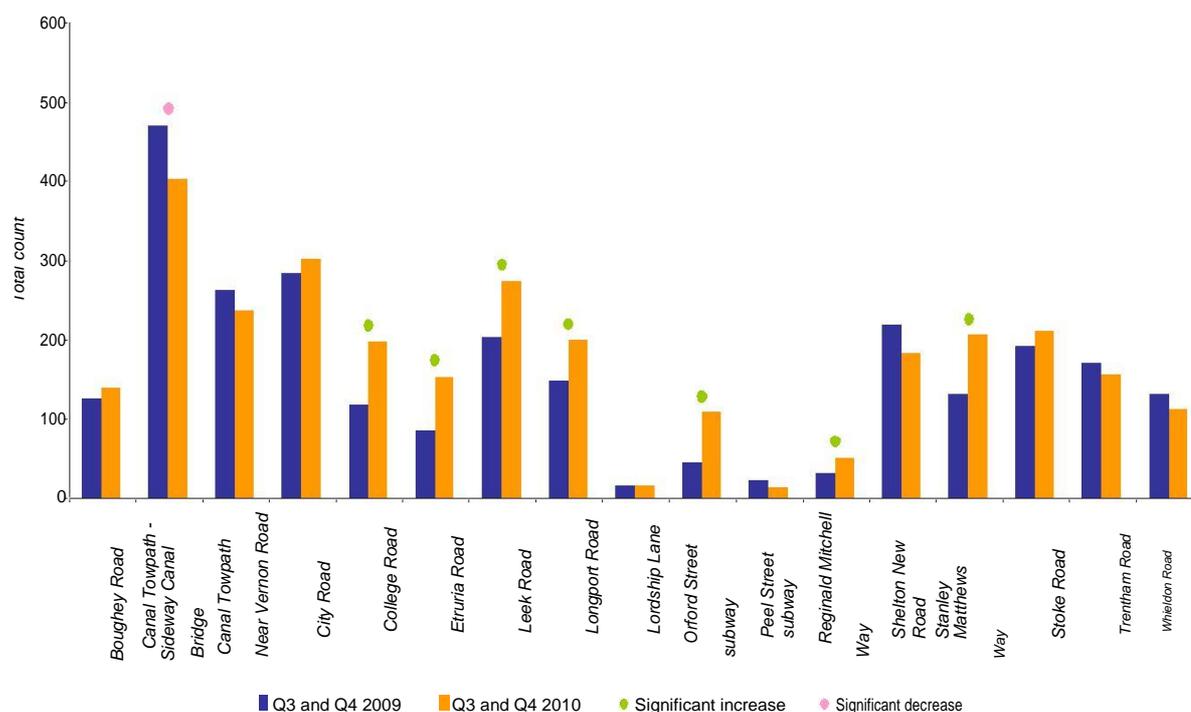
The combined total counts in each quarter across the 17 count sites are presented in Chart 3-5.

Chart 3-5 Total counts for 17 manual count sites on the A500 screenline in Stoke



Based on Chart 3-5, there appears to be an increase in counts between comparable quarters. Chart 3-6 compares combined data from counts in quarters 3 and 4 of 2009 with combined data from counts in quarters 3 and 4 of 2010. These periods have been selected in order to include as much data as possible whilst across the programme period.

Chart 3-6 Comparison of manual count data collected on the A500 screenline in Stoke in quarter 3 2009 and quarter 4 2009 with data collected in quarter 3 2010 and quarter 4 2010¹⁰



Significant increases between the two periods compared were recorded at seven sites, and a significant decrease at one site. This significant decrease was recorded at the Sideway Canal Bridge site. As detailed above, counts at this site may have been influenced by displacement onto other routes. Comparing data across all sites suggests a significant increase of +11% between the two sets of combined data compared.

The increase in counts recorded at Etruria Road may be linked to the opening of part of the Potteries Way extension between Broad Street and A5010 Etruria Road at the end of 2010. The route connecting the Orford Street subway to the Trent and Mersey Canal towpath and the Port Street area has been improved and signage added during this period. Cycle Stoke have targeted workplaces close to the Reginald Mitchell Way, Longport Road and Stanley Matthews Way count sites. This may have contributed to the increase in counts recorded at these locations. The increase in counts recorded at the Reginald Mitchell Way site may also have been influenced by the opening of the Tunstall Northern Bypass (James Brindley Way) in 2008, improving links to the east of the City and National Route 5 of the National Cycle Network.

¹⁰ Indicated as significant where $p < 0.05$

The following seven sites are part of the A500 screenline but also form a screenline through the University Quarter:

- Lordship Lane (map reference SD)
- Stoke Road (map reference SH)
- College Road (map reference SI)
- Boughey Road (map reference SJ)
- Canal Towpath near Vernon Road (map reference SK)
- Leek Road (map reference SL)
- City Road (map reference SN)

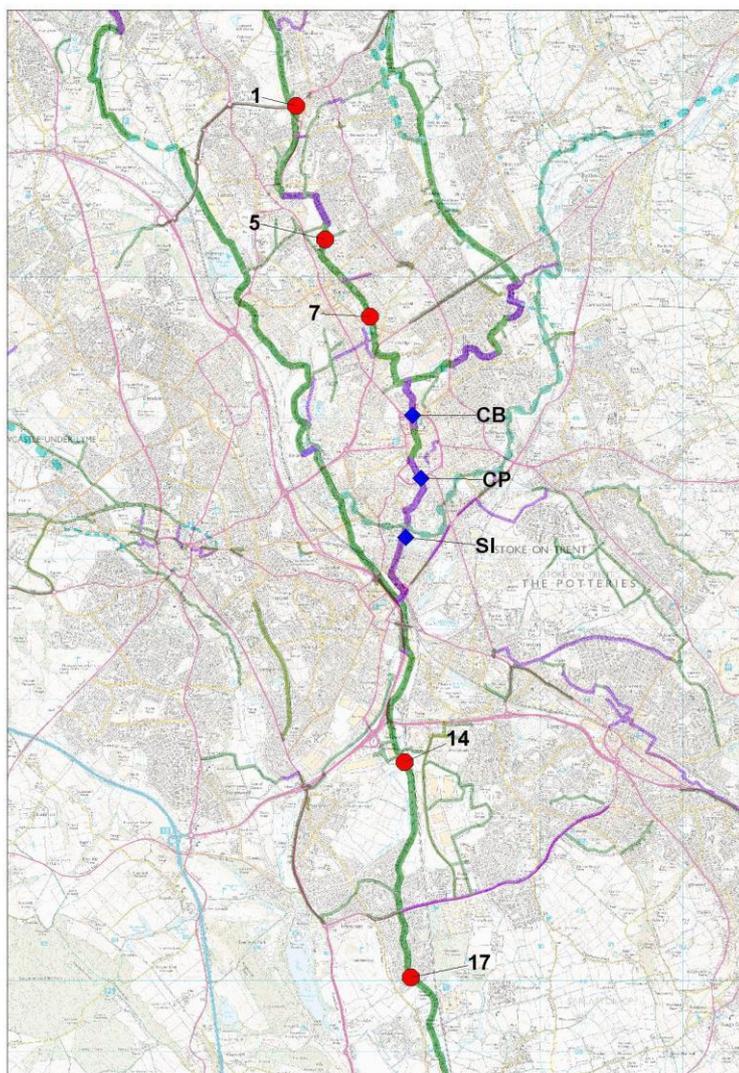
Comparing data from quarter 3 2009 and quarter 4 2009 with data collected in quarter 3 2010 and quarter 4 2010 for this subset of count sites also suggests a significant increase in cyclists counted of 14% ($p < 0.05$).

4 Combined manual and automatic count data

4.1 North/south movement on National Route 5 of the National Cycle Network

A key part of the infrastructure work undertaken as part of the Cycling City and Towns programme in Stoke-on-Trent was to fill missing links and to join National Routes 5 and 55 of the National Cycle Network into the town centres and the surrounding residential and employment areas. National Route 5 of the National Cycle Network is an important route connecting the towns in the area. The route is monitored through a combination of automatic and manual cycle counts (Map 4-1).

Map 4-1 Automatic and manual count sites on National Route 5 of the National Cycle Network (site numbers refer to Table 2-6)



The following five automatic counters monitor usage along sections of National Route 5 of the National Cycle Network:

- Hot Lane (map reference 7)
- Trent and Mersey Canal – Sideway (map reference 14)
- Sproson Park Greenway (map reference 5)
- Scotia Valley Greenway (map reference 1)
- Trent and Mersey Canal - near Limekiln Bridge (map reference 17)

The following three manual count locations also provide information about volumes of cyclists on this route:

- Bryan Street (map reference CB)
- Bethesda Street (map reference CP)
- College Road (map reference SI)

In order to compare data over the maximum period of time possible, data from Hot Lane and Sideway counters were combined with manual count data. Comparing data from March 2008 with data from March 2010 suggests a significant increase in

counts ($p < 0.05$). In order to include the College Road location (where a manual count was not undertaken in 2008) data from July 2009 was compared to data from July 2010. This comparison also suggests significant increase in counts ($p < 0.05$).

Of the five automatic counter locations monitoring the route in this area, the two sites closest to Hanley show a quantifiable growth in the volume of cyclists recorded over time. As the remaining three counters were installed in 2010, only a tentative indication of the direction of change can be reported (Table 4-1).

Table 4-1 Average annual percentage change in counts recorded at locations on National Cycle Network National Route 5 in Stoke-on-Trent

Counter	Average annual % change in daily count
Hot Lane	+ 43%
Trent and Mersey Canal - Sideway	+7%
Sproson Park Greenway	positive
Scotia Valley Greenway	negative
Trent and Mersey Canal - near Limekiln Bridge	negative

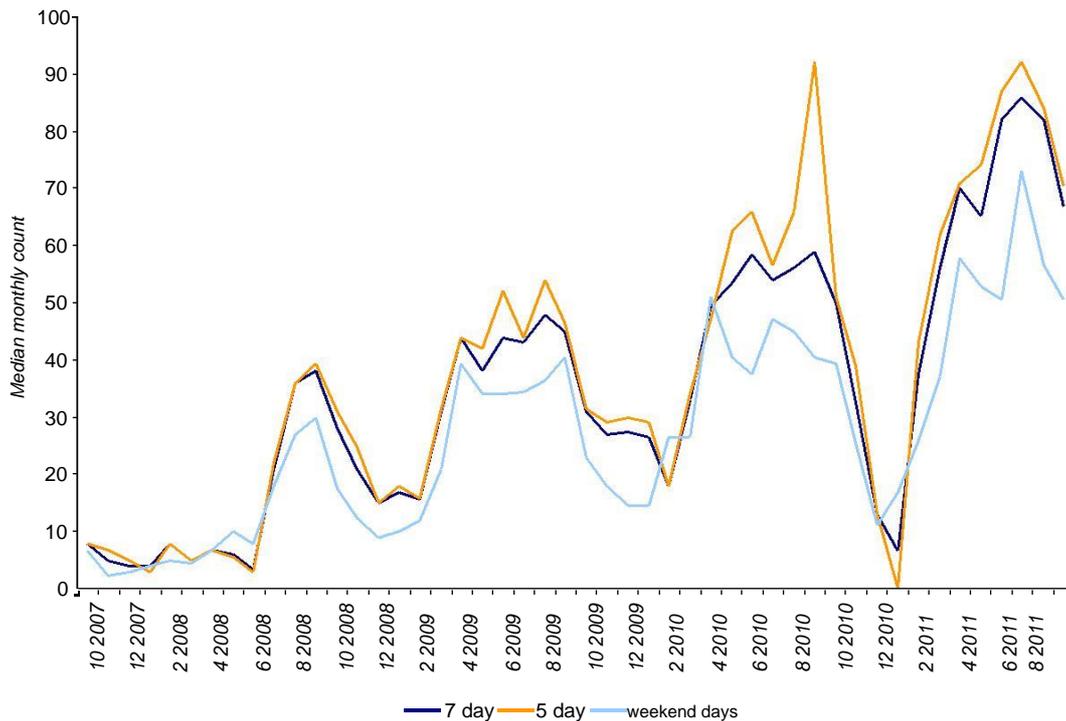
Analysing data from all five count sites suggests a +94% increase against a 2007 baseline¹¹. This growth is strongly influenced by data from the counter located at Hot Lane. Removing this counter from the analysis suggests a 37% increase against a 2007 baseline¹².

The growth in counts recorded by the Hot Lane counter (map reference 7) may be linked to improvements made in the area, including tunnel improvements and increased accesses, as well as work place engagement. Chart 4-1 suggests the Hot Lane counter to have seen a fairly steady growth in cycle volumes over time, in both weekday and weekend flows.

¹¹ Significant increase ($p < 0.05$)

¹² Significant increase ($p < 0.05$)

Chart 4-1 Chart 13: Median monthly cycle counts at Hot Lane



5 Analysis of school related data

Cycle Stoke recognised that levels of cycling to school were well below the national average and therefore part of the programme for ‘accessible cycling’ involved working with schools and young people. Bike It has been delivered in 28 schools since July 2009. Since 2009, 1,217 pupils have been trained to Bikeability Level One and 2,649 to Bikeability Level Two. This cycle training was supported by ‘Confidence Camps’ during school holidays which included training and bike rides for primary school children as well as their siblings and parents. Since 2009, 744 children and adults have received training from such camps. The High School Engagement programme included training and motivation work. Infrastructure developments included connecting several schools to the greenway network and increasing the availability of school cycle parking facilities.

5.1 PLASC

The percentage of pupils surveyed in Stoke-on-Trent stating cycling to be their usual mode of travel to school are summarised in Table 5-1. The proportion of pupils usually cycling to primary schools has increased significantly between 2006/07 and 2010/11 (from 0.1% to 1.2%). The levels of cycling to secondary schools have also seen a significant increase over the same time period (from 0.9% to 1.9%). Considering data across all schools, the proportion of children cycling to school increased significantly from 0.4% in the 2006/07 academic year to 1.5% in 2010/11.

Table 5-1 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	0.1%	0.1%	0.1%	0.6%	1.2%*
Secondary	0.9%	0.8%	0.6%	0.7%	1.9%*
All schools	0.4%	0.4%	0.3%	0.7%	1.5%*

^a These figures are based on data from 55 primary schools and 10 secondary schools

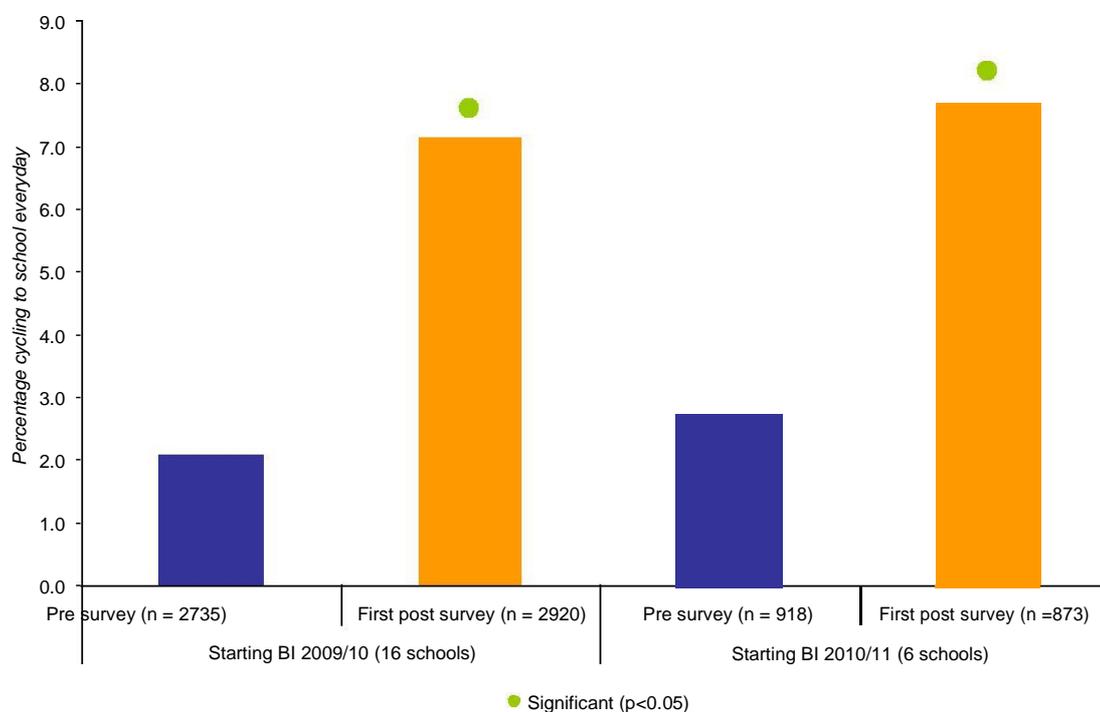
* indicates a significant change in cycling in the 2010/2011 academic year compared to the 2006/07 academic year ($p < 0.05$)

The increase in cycling levels suggested by the PLASC data is concentrated between 2008/09 and 2010/11 for primary school pupils and between 2009/10 and 2010/11 for secondary school pupils.

5.2 Bike It

Bike It has been delivered in 28 schools in Stoke-on-Trent 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 22 schools. Aggregated percentages of children cycling everyday for schools starting Bike It in each academic year during the programme are presented in Chart 5.1. 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 2009/10 and 2010/11 academic years.

Chart 5-1 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 reporting to cycle to school everyday increased from 2.4% to 7.6%¹³, whilst the proportion cycling to school regularly increased from 9.1% to 25.3%¹⁴. The proportion 'never' cycling to school decreased from 81.0% to 61.2%¹⁵. The proportion of children cycling to school on the day of the survey increased from 3.1% to 9.5%¹⁶.

For 13 schools in Stoke-on-Trent, 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 5-2. 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'.

¹³ Significant increase (p < 0.05)

¹⁴ Significant increase (p < 0.05)

¹⁵ Significant decrease (p < 0.05)

¹⁶ Significant increase (p < 0.05)

Table 5-2 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	2.1%	7.5%*	6.3%*
Regularly	9.5%	23.9%*	23.8%*
Never	80.2%	63.4%*	57.9%*

^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 5-3 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 5-3 Comparison of PLASC data from non-Bike It schools and Bike It schools grouped by year of first engagement in Stoke-on-Trent

	2007	2008	2009	2010	2011
Non-Bike It schools ^a	0.4%	0.4%	0.3%	0.4%	0.8%
Bike It in 2009 ^{b,d}	0.5%	0.4%	0.3%	1.9%	4.1%
Bike It in 2010 ^{c,d}	0.0%	0.0%	0.0%	0.0%	0.0%

^a Data for 37 primary schools and nine secondary schools that were not engaged in Bike It

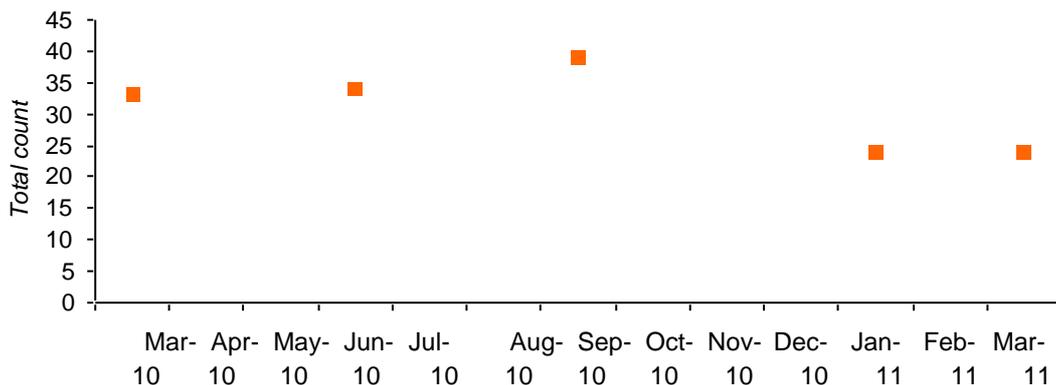
^b Data for 16 primary schools and one secondary school initially engaged in Bike It in 2009

^c Data for two primary schools initially engaged in Bike It in 2010

^d 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

6 Analysis of counts of parked bicycles

Counts of parked bicycles were performed at 14 locations in Hanley town centre in March, June and September of 2010 and January and March of 2011. Chart 6-1 presents the number of bicycles counted at all locations for the five days on which counts were undertaken.



These data suggest a decline in the number of bicycle parked in Hanley town centre. The only two counts periods directly comparable are the first and the last counts undertaken in March on successive years. Comparing data from these periods suggests a decrease in counts of 27%.

Analysis of the duration data collected as part of the parked bicycles beat indicates 54% of bicycles counted to be parked for less than 45 minutes and 75% for less than 90 minutes. The majority of the bicycles counted are therefore likely to have been used for non-commuting trips, but this may be a reflection of the sites selected for the beat and may not be entirely representative of those cycling into Hanley.

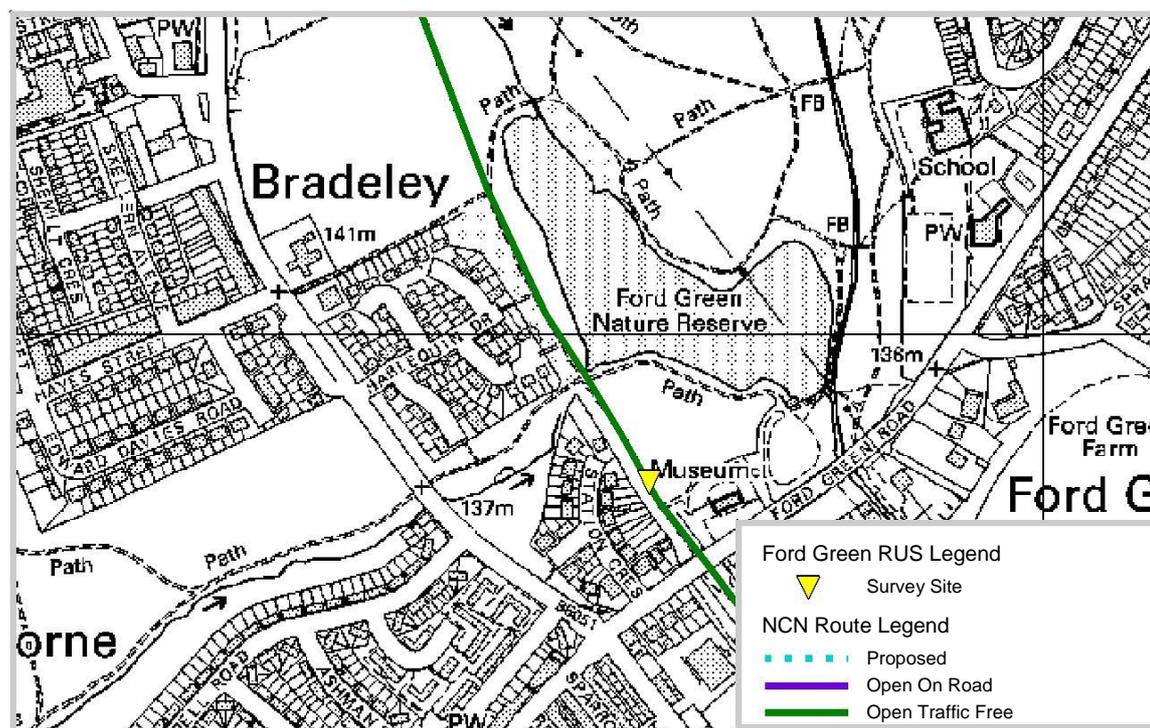
7 Route user intercept surveys

Route user intercept surveys have been undertaken at two sites in Stoke - Ford Green and Sideway. Surveys have been performed previously at the Ford Green site in 2002, 2005, 2007 and most recently during the Cycling City and Towns programme in 2009. Surveys were performed at the Sideway site in 2008 and 2009. For all surveys, route users were counted and interviews performed over 12 hours on each of four days – a school-holiday weekday, a school-holiday weekend day, a term-time weekday and a term-time weekend day.

7.1 Ford Green

The survey site, indicated in Map 7-1, is on National Route 55 of the National Cycle Network, immediately north of B5051 Ford Green Road. The route runs for 7km through the City of Stoke, from National Route 5 of the National Cycle Network in Central Forest Park near to the City Centre, through signed quiet streets and green space onto the Whitfield Valley Greenway heading north out of Stoke-on-Trent and onto Biddulph. The Ford Green survey site is on this Greenway, which was resurfaced in August 2004.

Map 7-1 Location of route user intercept survey performed at Ford Green in Stoke-on-Trent in 2009



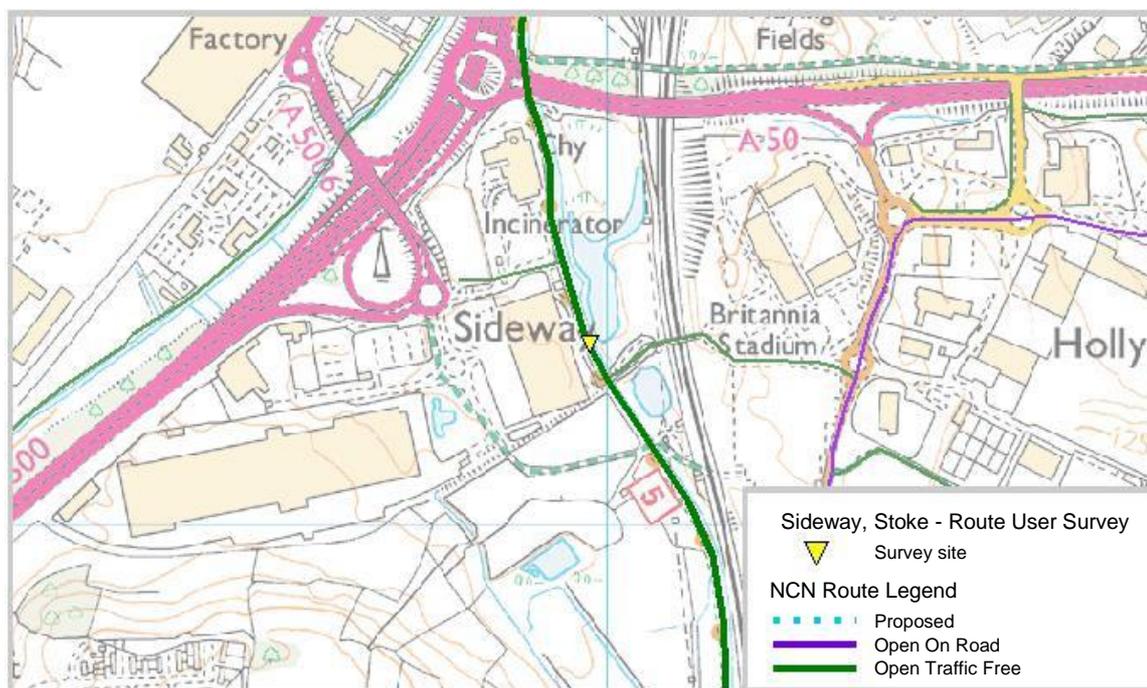
The number of cyclists counted over the four 12 hour periods was 42 in 2002, 89 in 2005, 166 in 2007 and 231 in 2009. The nearby automatic cycle counter (map reference 3) has recorded an average annual increase in counts of 5% between 2007 and 2011. Although the automatic cycle counter data suggests a lower rate of growth, this is an average based on data collected over a longer time period. The percentage of users who are cyclists increased between survey iterations (15% in 2002; 16% in 2005; 27% in 2007; 28% in 2009).

Based on the 2009 survey, the majority of cyclists were making leisure journeys at the time of the survey (79.1%) whilst all others interviewed were commuting (20.9%). Most cyclists classified themselves as experienced; 10.2% were new or returning to cycling. When asked about factors influencing their decision to use the route, 91.8% agreed or strongly agreed that it was the best transport option, 80.1% that this was the most convenient route, 76.7% that they liked the surroundings on the route and 70.6% that the route felt safe.

7.2 Sideway

The survey at Sideway was performed in August and September 2008 and August and September 2010. The survey site is located on the Trent and Mersey Canal at Sideway and forms part of National Route 5 of the National Cycle Network. The route links several town centres as well as other communities, workplaces, shopping and recreational areas.

Map 7-2 Location of route user intercept survey performed at Sideway on the Trent and Mersey Canal in Stoke-on-Trent in 2008 and 2010



The number of cyclists counted over the four 12 hour periods was 559 in 2008 and 591 in 2010. An average annual percentage change of 7% was recorded at an automatic cycle counter close to the survey site (Trent and Mersey Canal - Sideway) based on data collected between 2007 and September 2011.

In 2008, 38.2% of cyclists surveyed were making recreational journeys compared to 45.3% in 2010. When asked about factors influencing their decision to use the route 81.0% surveyed in 2010 agreed or strongly agreed that it is the best transport option, 85.5% that this is the most convenient route, 92.4% that they liked the surroundings on this route and 85.3% that this route feels safe.

8 Analysis of casualty data

Cycle user casualty data were derived for Stoke-on-Trent 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 8-1. The difference between the time periods compared is not significant.

Table 8-1 Annual average number of cyclists killed or injured in Stoke-on-Trent 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	0.2	5.5	56.3	62.0
During programme	0.0	5.5	50.5	56.0

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

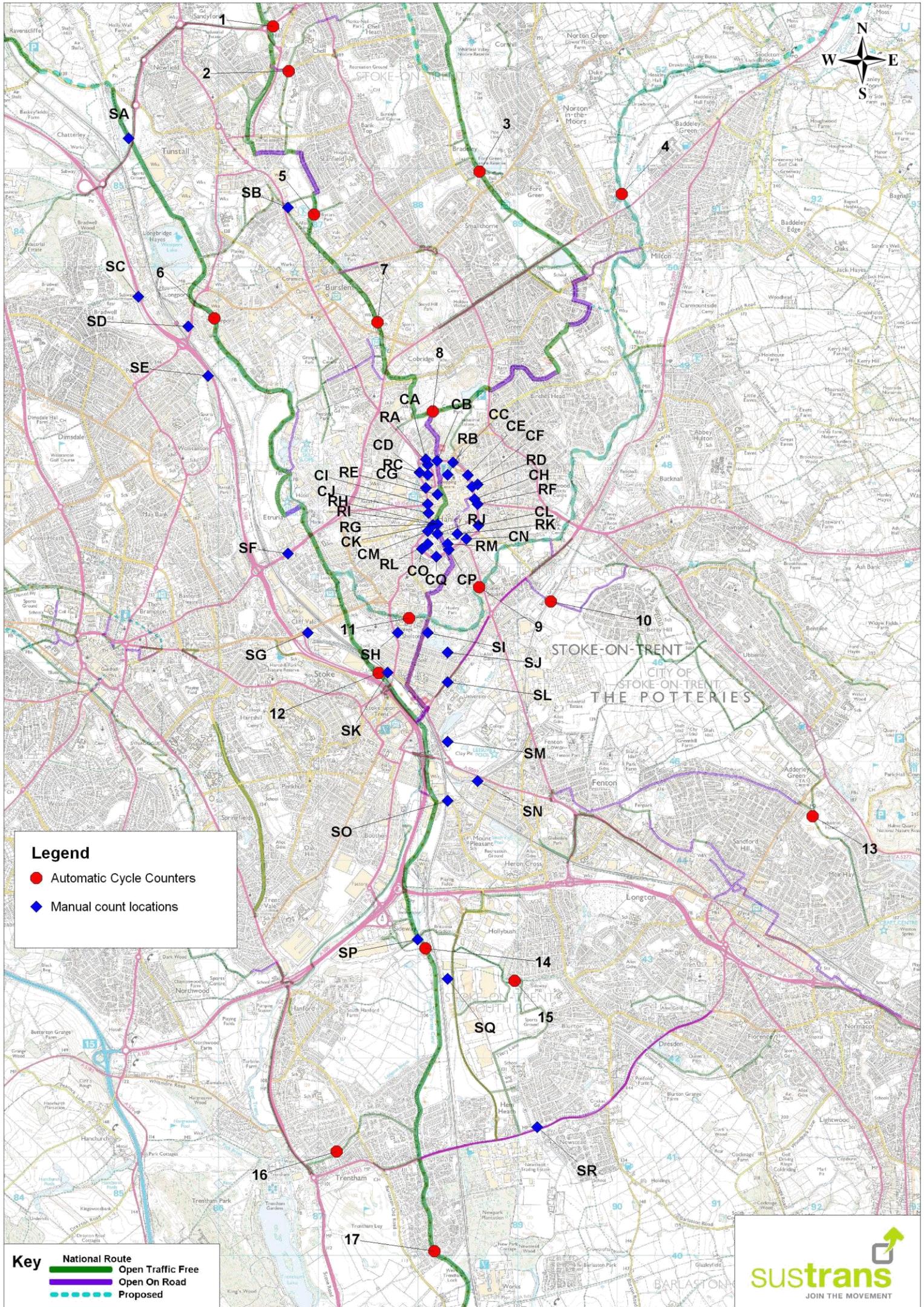
9 Analysis of physical activity data

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 1.7%-points (from 9.2% to 7.5%) in Stoke-on-Trent between 2007/8 and 2010/11. This decrease is not significant ($p=0.25$). The proportion cycling 12 or more times per month was 2.2% in both 2007/08 and 2010/11.

10 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.



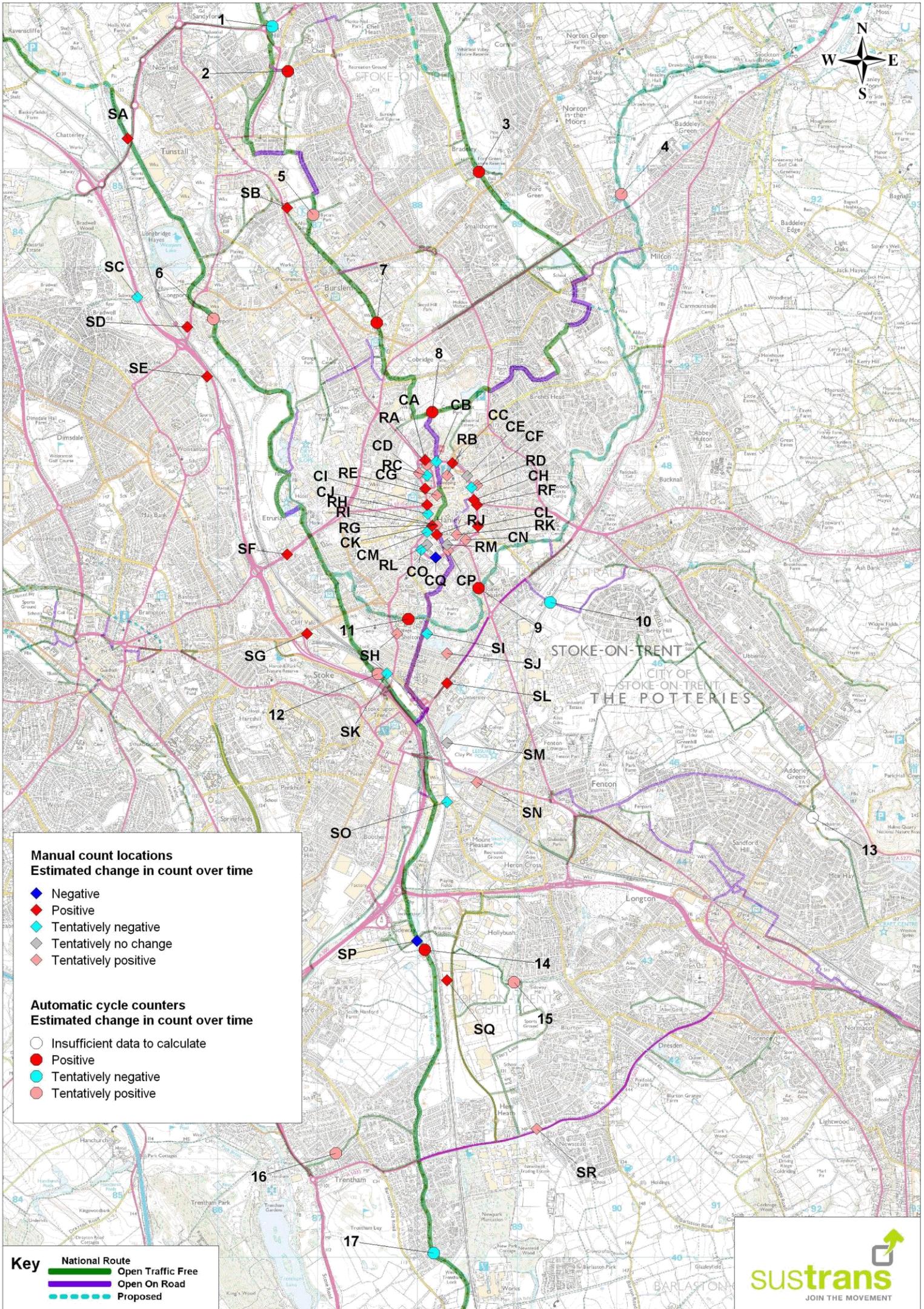
Legend

- Automatic Cycle Counters
- ◆ Manual count locations

Key

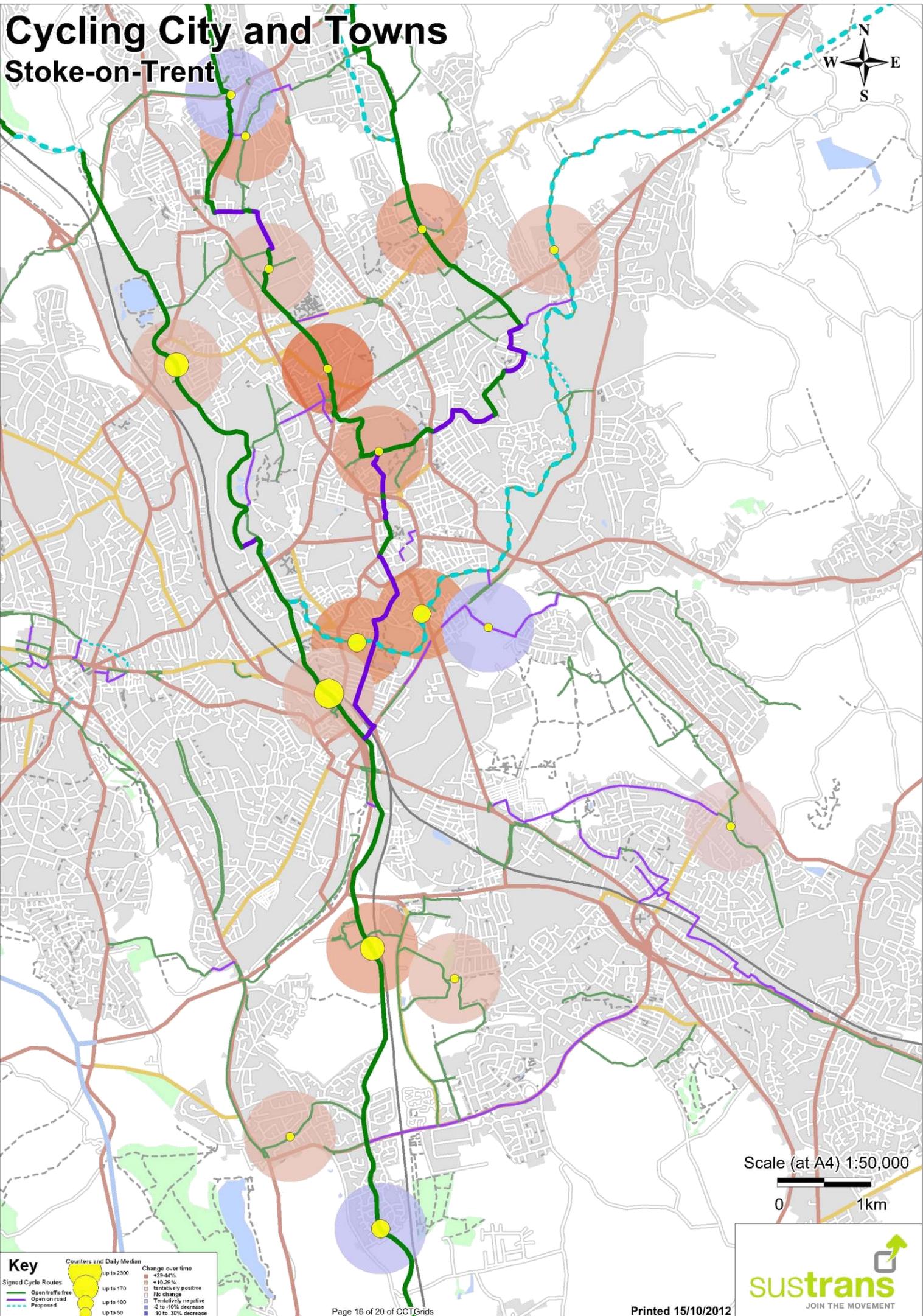
- National Route
- Open Traffic Free
- Open On Road
- ⋯ Proposed





Cycling City and Towns

Stoke-on-Trent



Key

Signed Cycle Routes	Counters and Daily Median	Change over time
Open traffic free	up to 2300	+25-44%
Open on road	up to 170	+10-25%
Proposed	up to 100	no change
	up to 50	tentatively positive
		no change
		tentatively negative
		-2 to -10% decrease
		-10 to -30% decrease

