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Sustainable travel towns: An evaluation of the longer term impacts

Appendices

S Cairns, M Jones, I York, S Greenshields, C Torkington, S Ball and S Rahman

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Appendix A Methodology

A.1   Project remit

This project was commissioned to provide indicative evidence of how short to medium term impacts on mode shift towards non-car modes such as buses, cycling, and walking are sustained in the longer-term, including examining what could be deduced about lessons learnt, longevity of the benefits of sustainable travel interventions, and potential policy implications for sustainable transport schemes in the future. Some of the key research questions outlined in the original brief were as follows:

- To what extent have the treatment towns maintained their funding for sustainable travel? Which sustainable travel initiatives have continued since 2009?

- What are the longer term impacts of sustainable travel investment under different levels of ongoing support?

- What are the trends of sustainable travel in the STTs? How do these trends differ from those in other areas?

- How have levels of sustainable travel changed after the 2004/5-2008/9 programme implementation?

- To what extent have the inputs to maintain sustainable travel been maintained in each of the towns?

- What other interventions are likely to have affected time series data for sustainable travel in the STTs?

During the project, these were distilled into the following key questions:

- RQ1: What inputs into sustainable travel initiatives have been continued since the STT period?

- RQ2: What outputs (particularly in terms of measures to promote bus use, cycling and walking, and to engage with schools, workplaces, and individual households) are evident since the STT period?

- RQ3: What are the outcome trends in walking, cycling, bus patronage, travel to school, travel to work, travel by households and traffic levels, as evident from both local area monitoring data and national statistics?

- RQ4: How do local travel trends in each of the three towns relate to the measures taken to promote sustainable travel in the towns?

- RQ5: How do travel trends in the three towns compare with national travel trends, and how far can any observed differences be attributed to sustainable travel activities undertaken in those towns during the STT period?

Appendices C-E provide a detailed understanding of what happened in each of the three towns, specifically addressing the research questions in relation to each town, to the extent that this is possible. The main report outlines the overarching conclusions that can be drawn, including a discussion of the challenges for answering the questions.

A.2 General features of the methodological approach

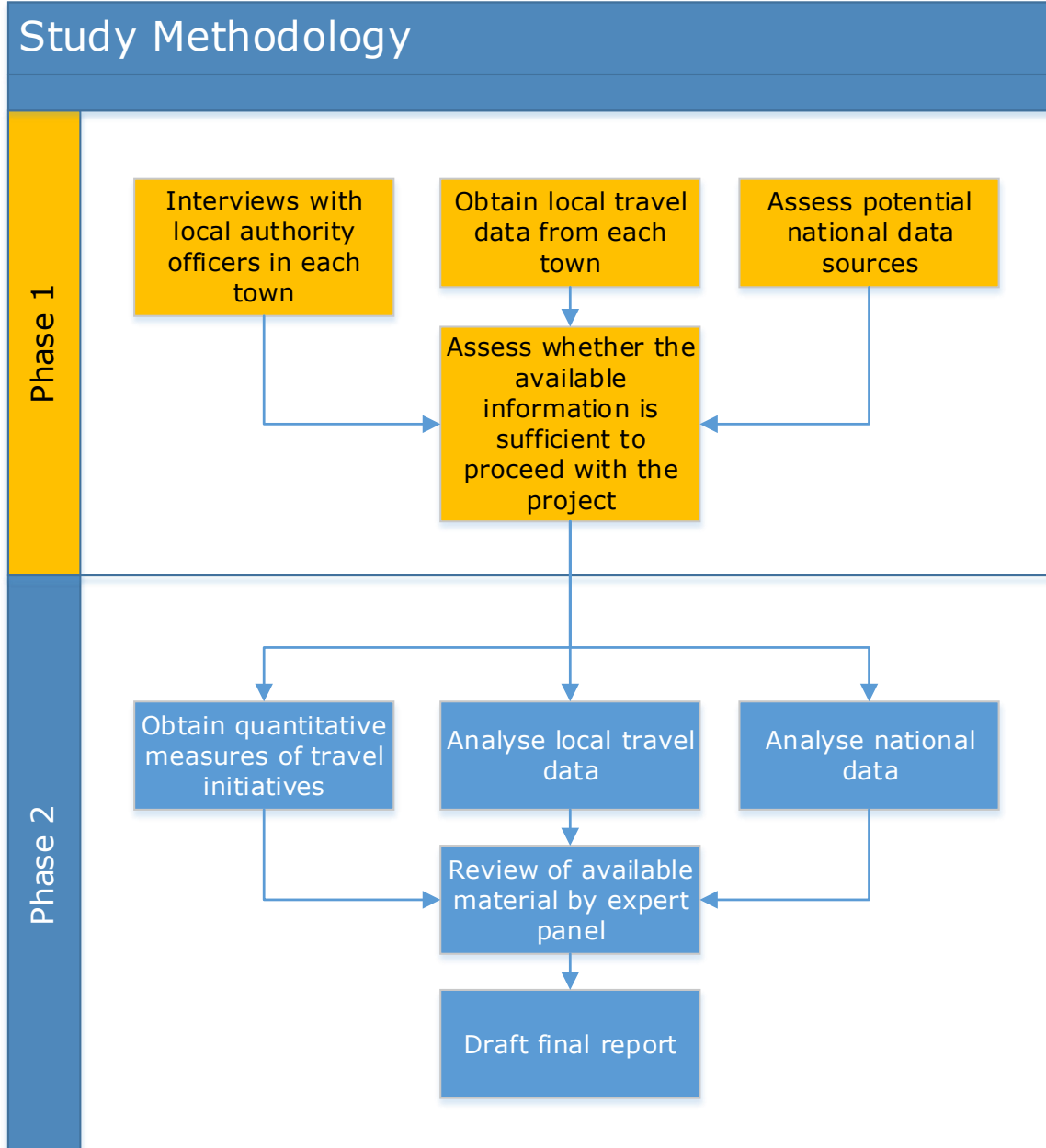There are various key features of the approach which has been adopted.

Where information has been available to quantify either inputs or outputs, this has been used. However, this has not always been available. In particular, given the time that had elapsed, it was not feasible to estimate expenditure on sustainable travel initiatives in each year since the Sustainable Travel Towns programme. Moreover, separating out 'smarter choice' type activity from 'harder measures' is often not meaningful where it is a combination of initiatives which has had an effect, and disaggregating by mode can also be problematic.

Triangulation of data sources has been used wherever possible in order to understand the broader trends, and this has been prioritised over more disaggregate analysis of any particular data source. In particular, the focus of this project has been to seek a broad brush understanding of travel trends in the towns, and the factors which have driven those. Whilst data provided has been checked for consistency with previous information, and for internal validity (such as gaps in traffic counter or cycle counter data), we have not audited the collection of this information, and comments on data reliability are therefore limited to describing the limitations of what has been provided.

The complexity of changes in the three towns over time makes simple statistical testing of relationships between individual components relatively meaningless. This means that the work has focused on obtaining a qualitative understanding of what has happened, and the data obtained has been used to 'tell the story', rather than adopting a more formal, structured report of the data available in each section.

Understanding the counterfactual situation - 'what would have happened without the STT funding' - is extremely problematic. This subject is discussed in considerably more detail in Section A.7 and in the main report.

The key stages of the methodology are set out in the diagram. Each of those stages is discussed in the sections below. The project was set up in two phases, where the first stage was used to assess the feasibility of the second stage. In practice, there was some iteration between phases – in particular, in relation to obtaining the local travel data. Following completion of phase 1, an Analysis Plan for phase 2 was developed, including a revised methodology based on what was considered achievable given the available data. This included refining the research questions as discussed above.

Study Methodology

Phase 1

- Interviews with local authority officers in each town
- Obtain local travel data from each town
- Assess potential national data sources

Assess whether the available information is sufficient to proceed with the project

Phase 2

- Obtain quantitative measures of travel initiatives
- Analyse local travel data
- Analyse national data

Review of available material by expert panel

Draft final report

A.3   Local authority interviews

In order to obtain information on the level of sustainable travel initiatives taking place since the STT programme, and to understand what other changes had taken place that might have affected travel behaviour, interviews were conducted with key local authority staff in each town.

The interviews were structured through the use of a prepared interview guide, which was circulated to the local authorities in advance, so that they could obtain the detailed information requested. Interviews took place in early September 2014.

In Darlington and Peterborough, there was some continuity of staffing. In particular, in Peterborough, the interviewer had previously been the STT programme manager. However, for Worcester, none of the five members of staff involved in the interview were part of the original STT team and, since the original STT programme for Worcester was led at county level, they were from Worcestershire County Council, rather than Worcester City Council.

A.4   Measuring inputs and outputs

Following consideration of the information obtained through the interviews, it became clear that sustainable travel initiatives are continuing under a range of different budget headings, such as road safety, public transport and planning work on new developments, making direct comparison of budgets difficult. Division of sustainable travel activities between different local authority departments is always fluid, and there is no standard approach. For example, previous work on school travel alone has shown that responsibilities can be split between those working on road safety, health, cycling and walking promotion, small-scale infrastructure schemes, new developments, education, child well-being etc., and often evolves over time. Where interviewees highlighted that such changes were important, these have been highlighted in the discussion. For example, increased use of Section 106 contributions to fund sustainable travel marketing was mentioned by all three local authorities.

As discussed previously, given the difficulties and effort that would be required to fully investigate what should be counted as sustainable travel spend, at the beginning of phase 2, as part of the revised methodology, it was instead agreed that the research team would focus on understanding the outputs that had resulted from relevant activity, based on expert understanding within the authorities.

The local authorities were therefore requested to provide a series of quantified measures for public transport provision, cycling and walking initiatives, school and workplace activity, and personalised travel planning. The indicators developed were partly derived from those used for LSTF monitoring, in order to help ensure data availability and minimise demands on LA staff. Some additional indicators were also included for consistency with the previous study, in particular, on the numbers of workplace and school travel plans. Data were requested via a short pro-forma, for March 2004, 2008, 2012 and 2014, to give an indication of change over time, whilst keeping the data request manageable.

The data that was subsequently received varied in its level of detail and the time periods that it covered. In some cases, it was possible to use it to give clear trends in the delivery of particular measures. In others, it has proved more useful for giving an

indication of the scale of particular measures, rather than a clear trend in provision over time.

A.5   Local travel data

Local authority data included in the Sloman et al (2010) study[1] included manual counts of cycles, pedestrians and traffic, 'hands up' surveys of how pupils travelled to school, counts from permanent automatic cycle and traffic counters (ACCs and ATCs), workplace survey data, and patronage information provided by bus operators.

In this work, the local authorities were asked whether they were able to supply similar information, grouped into 6 categories:

- Bus patronage.
- Cycling.
- Walking.
- Travel to school.
- Travel to work.
- Traffic flows.

Information received was checked and compared to the data from the 2004-2008 survey, where the datasets chronologically overlapped. Any discrepancies between the current and previous datasets were investigated.

Large-scale household surveys, commissioned as part of the STT programmes, were a key element of the previous STT evaluation, providing direct information on how transport use and modal choice had varied within the targeted population. Since the STT programme ended, Darlington commissioned a substantial household survey in 2011 (with a repeat survey planned for 2014, and since completed). However, this information was not available at the time of analysis for this project. In Worcester, a major household survey was carried out by Sustrans and Socialdata in 2010, and data from this survey are considered as part of the Worcester evidence base.

A.6   National travel data

Various sources of national data on travel behaviour were obtained and analysed for this study. These were as follows:

- **Census data** is available for 2001 and 2011, and was analysed in relation to trends in population, employment, and modes of travel to work.

- **National Travel Survey** data provides key information on the trips and distance made by different modes per person per year for medium-sized urban areas (defined as those of 25k to 250k population). Data were available between 2002

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[1] Sloman L, Cairns S, Newson C, Anable J, Pridmore A and Goodwin P (2010) *The effects of the smarter choices programmes in the Sustainable Travel Towns. Main report, and summary report.* Department for Transport, London.

https://www.gov.uk/government/publications/the-effects-of-smarter-choice-programmes-in-the-sustainable-travel-towns-full-report

and 2012, in two year bands. (In 2013, the area classification used was changed meaning that data are no longer produced on the same basis). Data about cycling were requested specifically for this study.

- **National Road Traffic Estimates** are produced by the DfT annually. Total traffic mileages were analysed for the local authority areas of Darlington and Peterborough, together with per-capita estimates (generated by converting the annual traffic mileages by the mid-year population estimates from NOMIS). Worcester data were generated and analysed separately, as discussed in Appendix E.

- Local authority level estimates of **annual journeys on local buses** have been collated nationally for a number of years for Darlington and Peterborough[2]. Data for Worcester were not available, given that this is a district rather than a unitary or county authority. National and local data on annual bus patronage appeared to be the same dataset for Darlington and Peterborough.

The **Active People Survey** (conducted annually by Sport England) is a rolling programme of surveys (starting in October and conducted throughout the year) that investigates sport and recreation activities. It is a large survey, which began in 2005[3]. However, questions on cycling and walking were substantially modified after the first survey and also in January 2012, affecting both the 2011/12 and 2012/13 surveys. For this study, use of this data to examine trends between 2007/8 and 2010/11 was considered. However, a combination of the small sample sizes (about 500 people for each town each year), the exclusion of cycling and walking trips of less than 30 minutes, and the short time frame available meant that these data were excluded from the final analysis.

A.7   Possible approaches to contextualising trends

As part of understanding how far any behavioural changes were maintained, enhanced or eroded following the end of the STT programme in March 2009, it becomes necessary to have some idea of 'what would have happened anyway'. Identifying this counterfactual case is often seen as being of prime importance (particularly by those from other disciplines, like health, where direct comparisons for the object of study can be more readily identified). It is always problematic in transport, given the complexity of factors contributing to travel trends in any one area (including, but not limited to, population socio-demographics, urban form, existing infrastructure, economic opportunities, the characteristics of the surrounding area, local and national policies, prevailing behavioural norms etc.).

Various approaches were considered for this study including:

- Identifying control towns.
- Examination of regional trends.
- Use of model data.

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[2]   https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/356180/bus0109.xls

[3]   The first survey was conducted between October 2005 and October 2006, and contained over 360,000 responses. The latest available survey from 2012/13 contained over 165,000 responses.

- National trends for similar sized urban areas outside London.

These are discussed in greater detail in the following sections.

A.7.1   Identifying control towns

The most obvious initial approach might be to identify 'control towns'. This approach was considered in the original study, with the following conclusion:

> "*The possibility of comparing each of the towns with a similar 'control' town was considered in detail but rejected. This is partly because all locations have their own distinct characteristics, in terms of demography, geography and socio-economics, such that even if it is possible to match on one dimension, it is almost impossible to match on all. Even if it were possible to identify similar towns in terms of 'background characteristics', the matched towns would have had their own policy interventions during the period in question, most likely intended to meet similar objectives to those in the Sustainable Travel Towns, and potentially including, to a greater or lesser extent, smarter choice measures. Thus, there could be no guarantee (without detailed investigation of the policies and measures implemented in the comparator towns) that these towns represented a 'base case'. Moreover, our investigation of the three designated towns has indicated that substantial analysis is required to obtain a full picture of what has happened, and the resources and data were not available to conduct a similar level of analysis in other locations.*" (Sloman et al. 2010, research report, chapter 10, p 164)

For example, considerations of nearby location and size might have suggested comparing Peterborough with Cambridge, but it is immediately apparent that other differences are profound, especially in a study where cycling is of importance. Other potential comparators have similar problems.

Interestingly, in the recent meta-analysis of the Local Sustainable Transport Fund large projects, this issue was again examined – specifically:

> "*We considered whether it was feasible to make comparisons at programme level with a matched set of local authorities, using the National Statistics 2001 Area Classification for Local Authorities, which measures the similarity of pairs of local authorities in terms of a range of demographic, socio-economic, employment and industry characteristics. However, this approach was not used because so many of the 'close match' local authorities had also received LSTF funding as Small Projects.*" (Sloman et al, 2015[4], Chapter 1, p13).

It should be noted that this conclusion was also reinforced after an initial exploration of the data for the meta-analysis project suggested that trends in potential 'matched authorities' varied from national data, from each other and from the project areas, again indicating that a straightforward comparison would be relatively meaningless.

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[4] Sloman L, Cairns S, Goodman A, Hopkin J and Taylor I (2015). Meta-analysis of outcomes of investment in the 12 Local Sustainable Transport Fund Large Projects: Interim Report to the Department for Transport.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/477527/meta-analysis_of-interim-report.pdf

Similar difficulties with use of 'matched authorities' from the National Statistics 2001 Area Classification were also encountered in the analysis of data from the Cycling City and Towns / Cycling Demonstration Towns work.

A.7.2 Examination of regional trends

As a second option, exploratory analysis was undertaken to assess whether use of national data about regional trends would be a good way to put trends in the towns into context. This was not pursued for four main reasons.

First, trends at regional level often differed significantly from trends at national level, suggesting that further exploration and explanation would be needed to understand those trends in themselves, before any comparison with trends in the towns could be made.

Second, national data sources did not agree about the direction or magnitude of some important regional trends – in particular, in some cases, National Travel Survey results differed from those evident from the National Road Traffic Estimates or national bus patronage estimates. Whilst resolution of these discrepancies might have been possible with further examination of the nature and details of the data sources, this was beyond the scope of this study.

Third, it is clear that some of the most dominant effects on travel behaviour result from trends at the national level – specifically, for example, the overall changes to the economic situation, the 'Olympics' effect on cycling, and the changes to bus funding – making national scale changes potentially of the most relevant for comparisons.

Fourth, there is increasing appreciation that a range of factors are affecting travel behaviour trends, including differential effects for specific classes of area, such as London, large cities, towns and rural areas; and population segments, including those differentiated by age, gender, traveller status and journey purpose. For this reason, it is unclear whether the most appropriate comparison should be with areas in the same part of the country, or, for example, with those of a particular type, or that containparticular types of people.

A.7.3 Use of model data

Another possibility could have been to use the DfT's National Travel Model (NTM), which is capable of making forecasts for a similar classification of English urban areas, with those forecasts representing the 'default' case of what might have been expected to happen in the absence of new policy initiatives.

However continuing work both by the DfT, and independent voices outside the Department, have led to increasing awareness that there are serious issues with these forecasts, with more in-depth work being carried out to expand on these issues.

The Department's current view of this strand of research is summarised in the recent Road Traffic Forecasts 2015[5], and its background paper Understanding the Drivers of Road Travel[6]. The Executive Summary of the new forecasts explains:

> "... Some stakeholders have expressed a general concern around how our forecasts of significant traffic growth fit with recent data showing a largely flat trend over the last decade, and highlighted specific issues such as the performance of the forecast in London….
>
> The Department is taking forward a programme of work to understand these trends and how they should influence future demand." (DfT, 2015, p5[5])

At this time, there is still a wide range of professional judgment on the relative strength of macro-economic background factors (incomes, prices etc.); economic and other personal motivations; and the sensitivity of trends to policy initiatives as moderated by dynamically-formulated demand elasticities which evolve over time. It seems to be common ground that such issues may not be resolved without the use of detailed survey data based on individuals and/or household surveys, as well as quite subtle dynamic analysis of longitudinal time series data sets. Undertaking such activity was clearly beyond the scope of this project, and, given these issues, use of model outputs did not seem like an appropriate approach. However, the increasing understanding of differences in trends in urban areas, as opposed to rural locations, has influenced the comparator approach taken[7].

A.7.4 Examination of national trends for medium sized urban areas outside London

As a pragmatic alternative to the potential options discussed above, the approach adopted here has been to look at national trends in travel, focussed on a generic comparator of the average of English urban areas. In making these comparisons, where possible, we excluded London data, to avoid having to tackle the usually controversial question of which parts of London are like other towns and cities; and used data for places of comparable size, where this was available. The main advantages of this approach is that it should capture a sufficient range of places to even out local factors, and should also best reflect the effects of national influences.

By focussing on the English urban areas as comparator, we have, in effect, assumed that whatever the strength of the different background factors (such as income and prices), the *difference* between the STTs and the comparators should be relatively independent of the effects of such factors.

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[5] Department for Transport (2015) Road traffic forecasts 2015. DfT, London.
https://www.gov.uk/government/publications/road-traffic-forecasts-2015

[6] Department for Transport (2015) Understanding the drivers of road travel: current trends in and factors behind roads use. DfT, London.
https://www.gov.uk/government/publications/understanding-the-drivers-of-road-travel-current-trends-in-and-factors-behind-roads-use

[7] As part of the EPSRC/UK Energy Research Council project on using the MOT data to investigate car ownership and use (EP/K000438/1), the viability of finding new ways to identify typologies of car ownership and use are being explored. However, there were no conclusions available that could be used for this study.

A.7.5   Unresolvable issues of comparability

The approach adopted to comparison was considered to be the most robust approach that we could devise. However, five key limitations remain. These are as follows:

A.7.5.1   Everywhere is unique

First, everywhere is unique, comprising a specific combination of geography, socio-economic demographics and transport options. Our rationale for comparison with national data for (where possible similar-sized) urban areas in England excluding London – was assessed as being the best possible solution, given the need to reflect national policy changes, to even out specific local factors, and to allow for the important difference in trends in urban as opposed to rural areas. However, no control is perfect.

A.7.5.2   Discontinuity of trends over time

Second, the end of the programme coincided with a major discontinuity of previous trends anyway, due to the changes in economic circumstances. This was accompanied by major public funding cuts, particularly, in many cases, to local authority transport budgets, and, similarly, by national reductions in traffic. Assessing the impact of particular interventions in a context of major structural change is particularly challenging.

A.7.5.3   Sustainable travel initiatives undertaken in many locations

Third, the three towns were not alone in undertaking sustainable travel initiatives, and activity in this area has increased over time – not least since the Local Sustainable Transport Fund injected more than £600 million of national funding into a wide range of communities in England for sustainable travel projects from 2011/12, often complemented by a range of ongoing local funding.

One option might have been to attempt to define a group of 'control' locations which had not undertaken any smarter travel type work. However, arguably, this comparison would overplay the benefits of the STT investment, since other places have managed to undertake at least some investment in such measures (and an 'extreme groups' comparison of the 'best' and the 'worst' would not necessarily be that meaningful). Conversely, where differences are evident with the comparator that we have used, even small differences can potentially be seen as an achievement.

As with most transport evaluations, any comparison cannot be a precise science. At the time the three towns were awarded STT funding, via a competitive tendering process, they must be considered as being some of the leaders in the field, in terms of knowledge, enthusiasm and political support for smarter-choice type measures. Having received substantial external funding over five years on programmes that were largely deemed a success, they could still be expected to be relatively advanced authorities (compared to other locations), in terms of both what they had practically implemented, and in terms of internal competence and support for such measures. It should be noted that activities during that time consisted of both what are perhaps traditionally thought of as revenue-based 'smarter choice' type measures, and supportive capital spending on measures such as bus, cycle and walk infrastructure, and safer routes to school – i.e. packages of local sustainable transport measures.

Since that time, the three locations have had as much (or as little) opportunity to invest in such measures as anywhere else. In Darlington, the continuation of Cycle Demonstration Town funding to 2011 provided further upgrades to the cycling and walking infrastructure. There was a period of hiatus in terms of smarter choice type activity, although, from 2011/12, LSTF funding led to an even greater programme to support local sustainable travel (compared with the STT budget, though of potentially similar magnitude if CDT funding is considered). In Peterborough, the council's own funding provided some continuity of activity, which was also boosted by LSTF funding in 2011/12. External funding for Peterborough LSTF work was greater than that for the STT programme, although staffing levels were lower. In Worcester, almost all smarter-travel type activity ceased at the end of the STT period, however there has been major investment in local cycling and walking infrastructure.

In brief, then, it is our qualitative conclusion that investment in these three towns in sustainable local travel measures over the last 10 years is likely to have been greater than the average for all medium-sized urban areas in England, and, as such, should potentially show more positive travel trends than elsewhere. Logically, given a build-up of experience, it might also be expected that such investment would have been relatively effectively targeted. However, the extent of the difference with other locations is unclear and there may be other particular places which have done even more to boost local sustainable travel.

A.7.5.4   Initiatives undertaken in the towns since the STT programme

Fourth, the towns have undertaken a range of relevant initiatives overlapping with, and taking place since the STT programme, whose effects cannot be simplistically untangled from each other, not least because one initiative may affect another – e.g. a workplace introducing home working may enable a parent to walk to school etc.

A.7.5.5   Complexity of behavioural change

Fifth, since the STT programme, a range of behavioural changes will have occurred. In most cases, it is not possible to distinguish between these effects, and it is likely that all of them have occurred to some extent. These include:

a) decay in behaviour change by some individuals following the STT period, as the effects of the initial work has 'worn off';

b) stability in behaviour change by other individuals following the STT period, for whom the new behaviour became their default 'habit';

c) increases in behaviour change following the STT period (either by individuals who were already influenced, or by new individuals), as a result of cumulative or synergistic effects from the original interventions, making certain types of travel increasingly attractive (either directly, such as increasing numbers of bikes on road making it safer, or by changes to wider social norms, such that choosing to cycle is seen as more 'normal' behaviour);

d) responses to initiatives undertaken since the end of the STT period;

e) build-up of effects as new residents in the towns (or new pupils or employees) arrived to a relatively attractive sustainable transport proposition and adopted more sustainable travel habits as a result, or, conversely, decay in population-level effects since the new arrivals were not exposed to the original initiatives and

were therefore not influenced to adopt more sustainable patterns of behaviour; and

f) new responses to sustainable travel options catalysed by changes in circumstances – for example, residents in the towns may have had more capacity or inclination (given previous awareness raising) to respond to the recession by changing their behaviour to more cost effective modes of transport than residents in other locations.

Thus there are many factors that could have influenced the trends observed, and the available data sources do not enable the effects of any individual initiative to be simplistically identified in isolation.

A.8   Expert panel review and possible future research directions

Having assembled a considerable body of source material, the information obtained and subsequent draft reports, were reviewed by a panel of three national experts, comprising Prof Phil Goodwin, Prof Jillian Anable and Dr Lynn Sloman. Their expertise has been invaluable in relation to a wide range of issues.

As priorities for potential further research on this topic, they suggested:

- Obtaining further detailed feedback from local authority officers (particularly those involved in the original STT work) on the material discussed here, given the potential for further reflections arising from reviewing the information that has been assembled and analysed;

- Looking at the most interesting trends in more detail, potentially at a route level, to increase understanding (for example, in relation to bus patronage in Peterborough and cycling growth in Darlington), and

- Disaggregated analysis of the household survey data obtained in Worcester and Darlington (to look at the types of trip purposes and people that were most affected by the initiatives).

Their review also highlighted the difficulty with finding an appropriate comparator to assess 'what would have happened anyway', not least given the broad national factors that are influencing travel patterns, as discussed previously.

In relation to their third recommendation, we note that arguably, commissioning new household surveys, done on a clearly comparable basis to those in 2004 and 2008, might be a more valuable activity. Worcester's survey was undertaken in 2010 whilst Darlington's was done in 2011. In both cases, the time period since the STT work ended was relatively short, and would have been heavily influenced by the economic changes that occurred, which could have a significant effect on the insights. New surveys, undertaken after the completion of current LSTF activities and the embedding of new infrastructure, would be able to explore longer term trends in behaviour change, and could include key questions to examine the impacts of different waves of travel initiatives. Ideally, a respondent panel could be established, which would enable the tracking of individual travel behaviour in the future, and respondents could be explicitly asked about the impacts of particular initiatives in the past.

Another possibility would be to focus on particular initiatives. For example, enabling Peterborough to consistently continue with its workplace programme until the Census in

2021 could potentially prove very informative about the longer-term effects of this type of activity.

These are only a few possibilities for future research. Identifying the most important priorities for future research was beyond the scope of this project.

Appendix B National trends in travel

B.1   Introduction

As outlined in Appendix A, four sources of national data have been examined in this study:

- National Travel Survey data.

- National Road Traffic Estimates.

- Census data.

- Bus patronage estimates.

Results on national trends evident from each of these are presented below.

B.2   National Travel Survey data

B.2.1   Data about car use, bus use and walking

NTS data for car driving, car passenger travel, local bus use and walking are presented for the period 2002 through to 2012, for medium sized urban areas (areas with a population of 25,000-250,000), which is the urban-rural category that the STTs fall into, and which was used for the baseline in the original study. The urban-rural classification used for the NTS data was changed from 2013 onwards, meaning that comparable data are not available after 2011/2012. Data are taken from NTS tables NTS9903 and NTS9904. Data are provided in the original data source as the average of two year periods.

Data about cycling are presented in Section B.4.

Figure 1: Changes in trips per person per year (for urban areas 25k-250k people); source: NTS
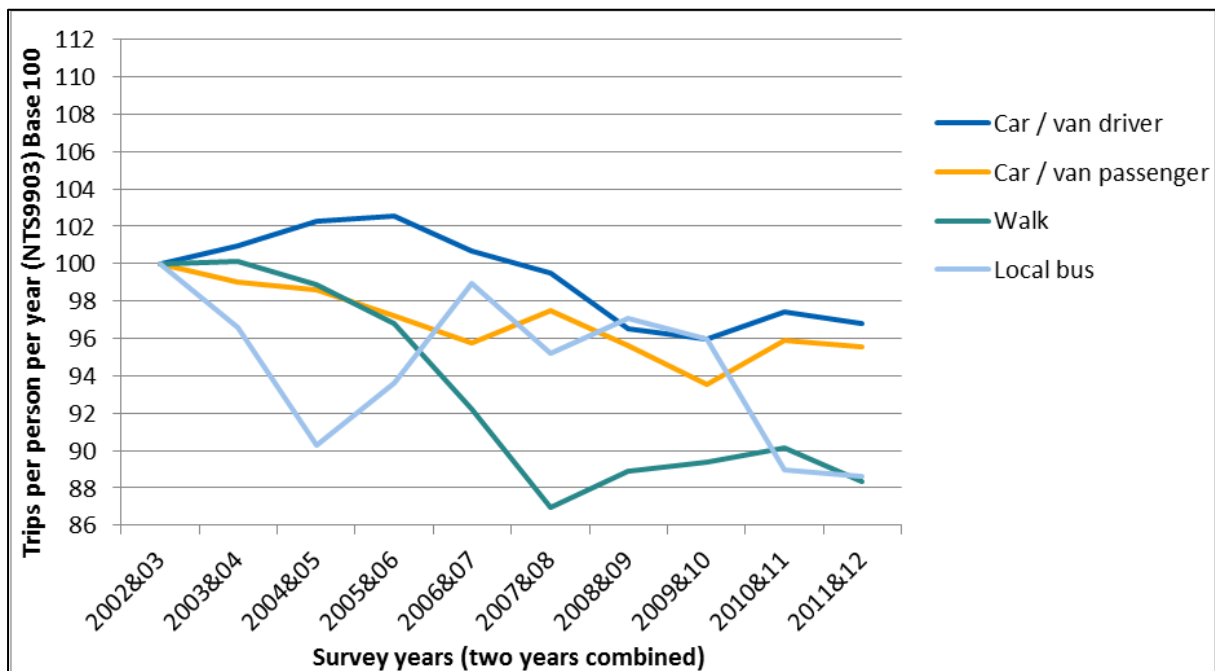
Figure 2: Changes in mileage per person per year (for urban areas 25k-250k people); source: NTS
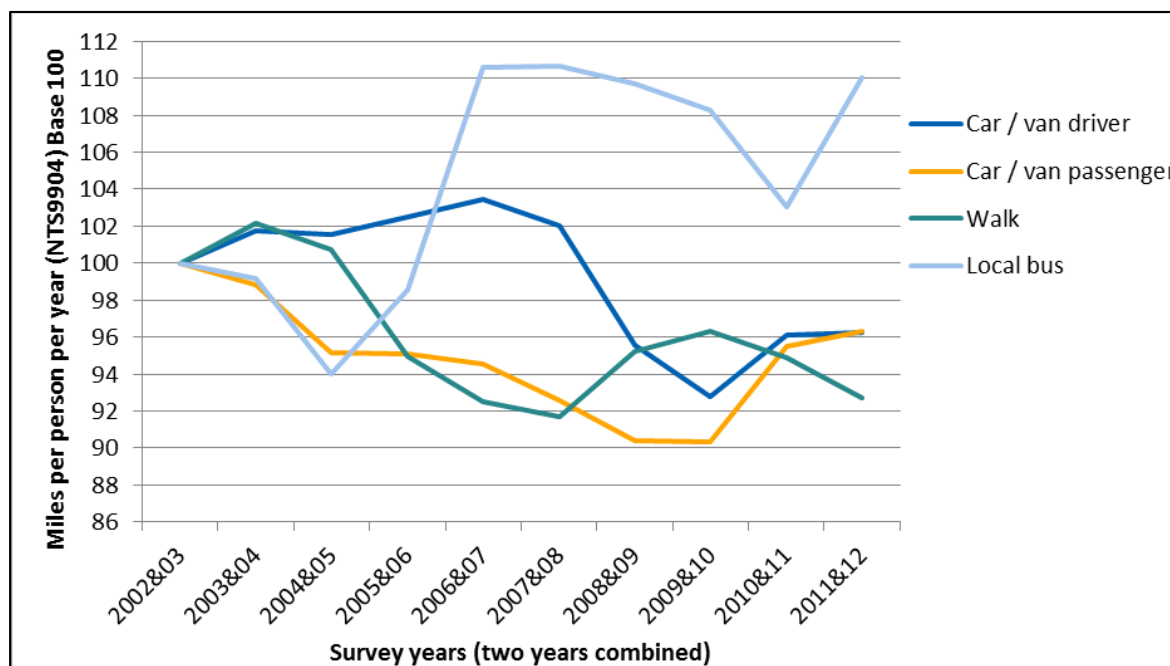
Table 1: Summary of key figures from NTS data*

	2003 & 2004	2008 & 2009	2011 & 2012	Change between 2003/4 and 2008/9	Change between 2008/9 and 2011/12	Change between 2003/4 and 2011/12
Trips per person per year						
Car driver	444	425	426	-4%	0%	-4%
Car passenger	246	238	238	-3%	0%	-3%
Local bus	50	50	46	0%	-8%	-8%
Walk	263	234	233	-11%	-0.5%	-11.5%
Other#	60	61	59	+2%	-3%	-2%
Miles per person per year						
Car driver	3610	3390	3414	-6%	+1%	-5%
Car passenger	2101	1922	2048	-9%	+7%	-3%
Local bus	202	224	224	+11%	0%	+11%
Walk	217	202	197	-7%	-2.5%	-9%
Other#	833	907	915	+9%	+1%	+10%

#Note that the 'other' category includes cycling, and means that the first five rows provide the total number of trips for medium sized urban areas. *%-change calculations undertaken using the un-rounded figures.

The main patterns shown are:

- Reductions in car trips/mileage around 2008/9, with subsequent growth around 2010/11, albeit that levels are still significantly lower than they were before the economic changes.

- Growth in local bus use around 2006/7, following previous decline (presumably due to the introduction of concessionary fares) – with a change in situation around 2010/11, when trips fell, but mileage levels seem to have been maintained.

- A major decline in walking until 2007/8, when there appears to have been some stabilisation.

B.2.2 *Data about travel to school*

The National Travel Survey also includes data about travel for school. Data given here is for travel to school in England, and is taken from table NTS0613. (It has not been possible to exclude London data).

The general picture is that, since the end of the STT period, travelling to school by car has increased, largely at the expense of walking, and with some decline in bus and cycle use.

Figure 3: Trends in travel to school in England; source: NTS
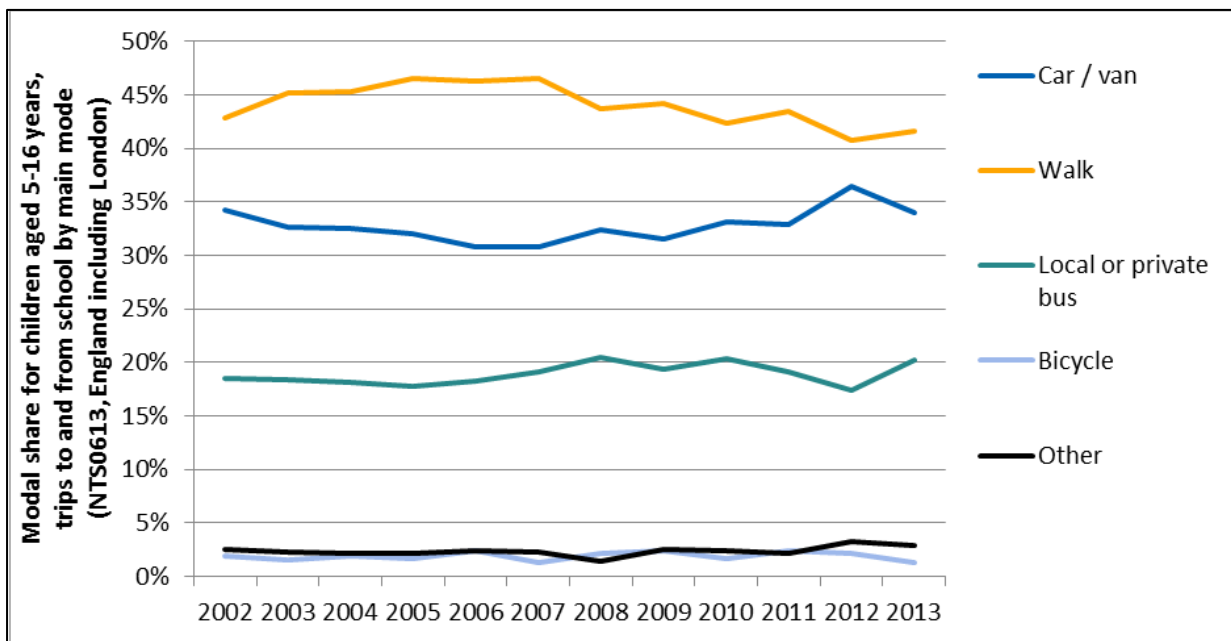
Table 2: Changes in mode of travel to school in England, source: NTS

	2003 & 2004	2008 & 2009	2012 & 2013	Change between 2003/4 and 2008/9*	Change between 2008/9 and 2012/13*	Change between 2003/4 and 2012/13*
Car/van	33	32	35	-2	10	8
Walk	45	44	41	-3	-6	-9
Local or private bus	18	20	19	9	-6	3
Bicycle	2	2	2	33	-24	1
Other	2	2	3	-11	56	40

*%-change calculations undertaken using the un-rounded figures.

B.2.3   *Data about travel to work*

The National Travel Survey also includes data about commuting. Data given here is for travel for the whole of Great Britain, and is taken from table NTS0409. The general picture is one of stability, although with some increase in cycling for the period shown.

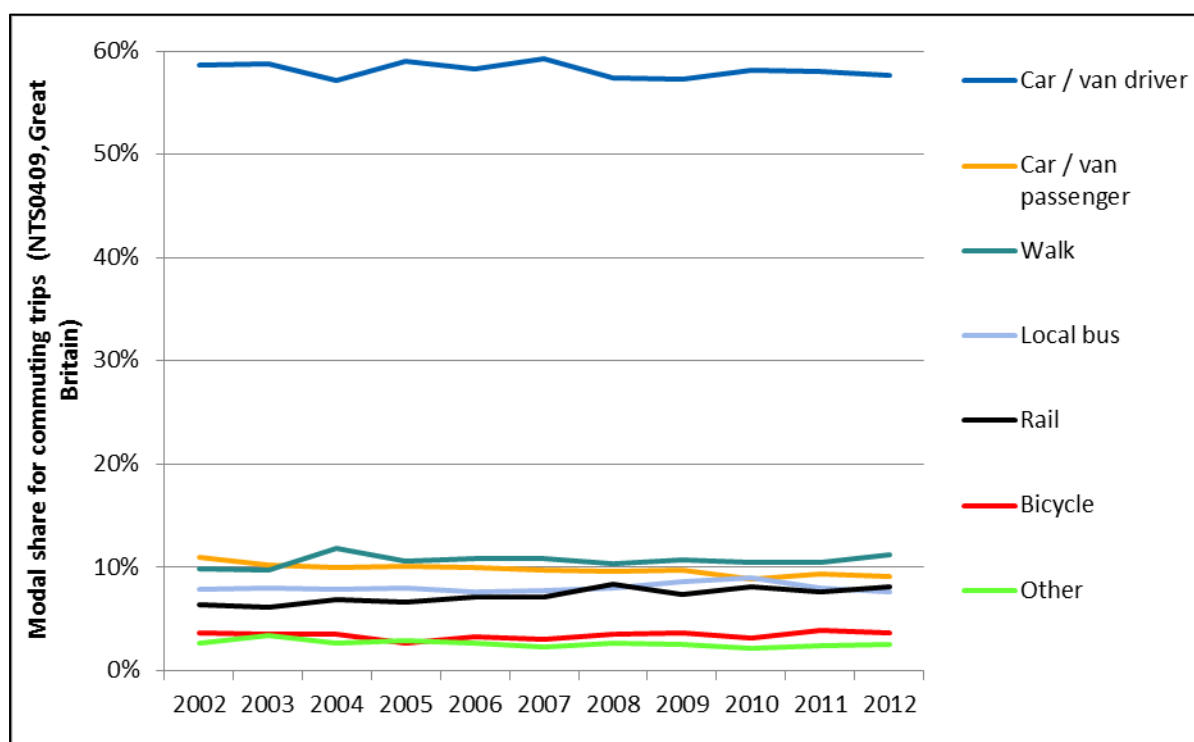**Figure 4: Trends in travel to work in Great Britain; source: NTS**

Table 3: Changes in mode of travel to work in Great Britain, source: NTS

	2003 & 2004	2008 & 2009	2011 & 2012	Change between 2003/4 and 2008/9*	Change between 2008/9 and 2011/12*	Change between 2003/4 and 2011/12*
Car/van driver	58.3	57.3	57.9	-1.2%	1.1%	-0.2%
Car passenger	10.1	9.7	9.3	-4.5%	-4.4%	-8.7%
Walk	10.8	10.5	10.9	-2.5%	3.1%	0.5%
Local or private bus	7.9	8.3	7.8	5.1%	-6.3%	-1.5%
Bicycle	3.5	3.6	3.8	+1.8%	+5.0%	+6.9%

*%-change calculations undertaken using the un-rounded figures.

B.3   National Road Traffic Estimates

B.3.1   Changes in traffic

From the National Road Traffic Estimates, a special tabulation of the data was obtained, for urban roads in England excluding London, as the best available comparator dataset to the three towns. In addition, mid-year population estimate data has been used to assess average changes in traffic on a per capita basis (although this was not available for 2014). Results are shown in Figure 5, Figure 6 and Table 4. In particular, these indicate the dramatic impacts of the changes in economic circumstances around 2008/9.
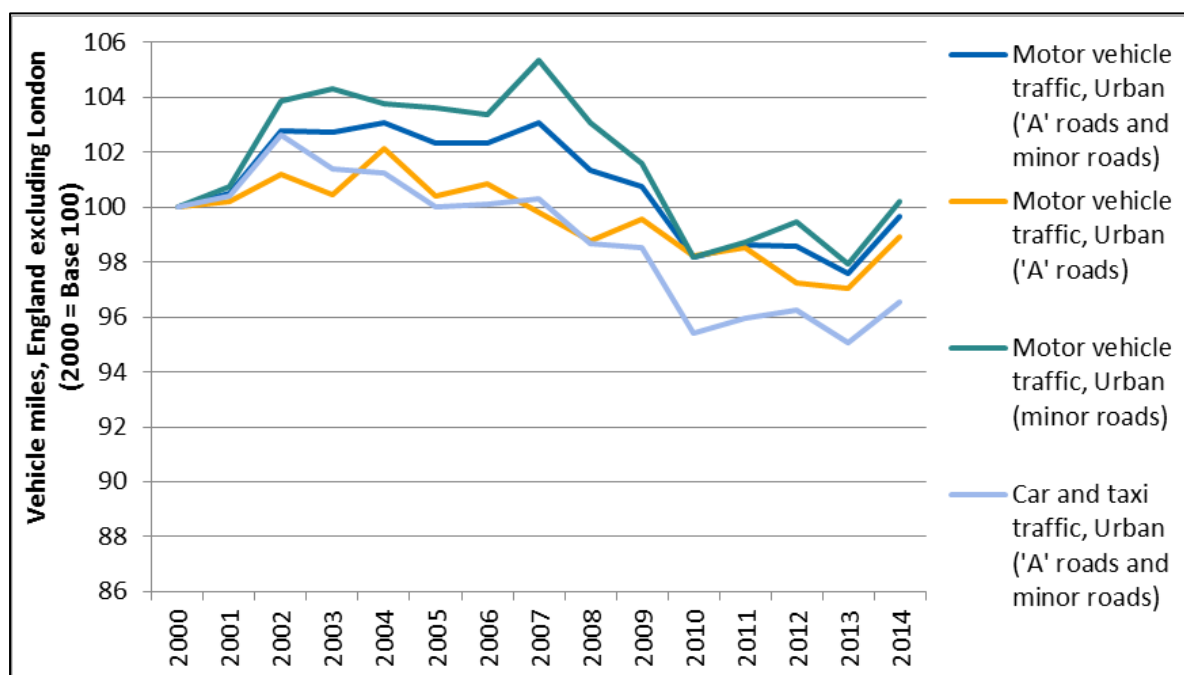
Figure 5: Absolute changes in traffic, England excluding London; source NRTE

Figure 6: Per capita changes in traffic, England excluding London; source NRTE[8]
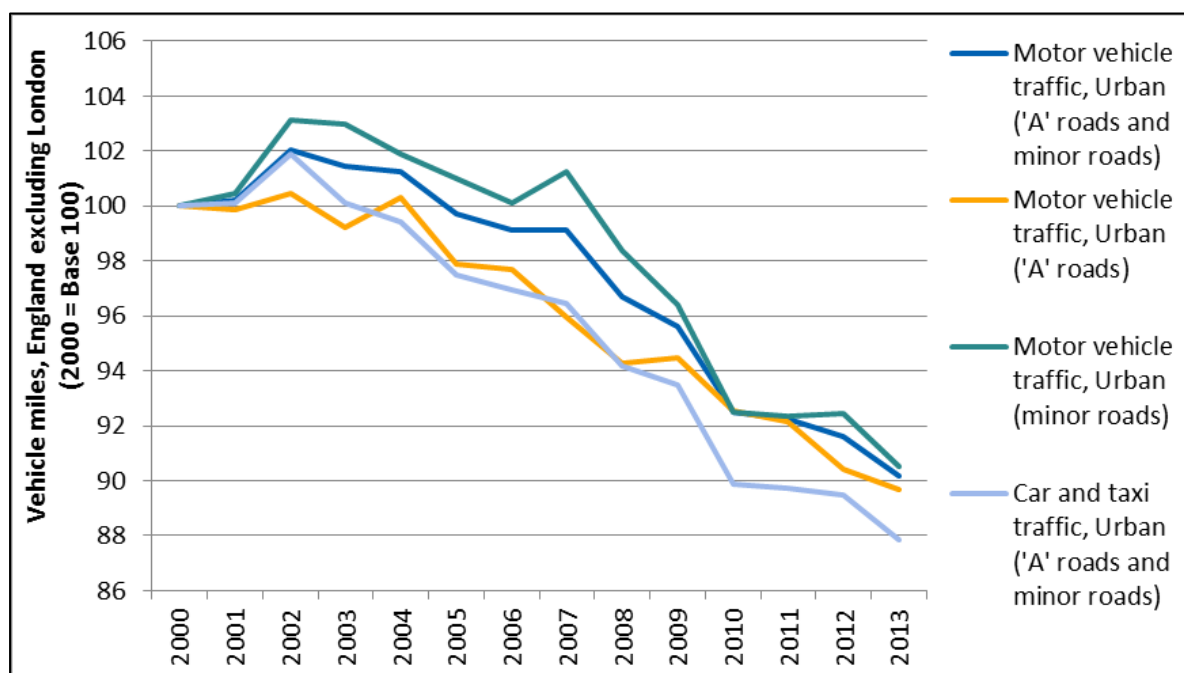
Table 4: Changes in traffic; source NRTE

	2003 & 2004	2008 & 2009	2012 & 2013	Change between 2003/4 and 2008/9	Change between 2008/9 and 2012/13	Change between 2003/4 and 2012/13
Absolute changes in traffic (in million vehicle miles)						
Motor vehicle traffic, Urban ('A' roads and minor roads) - England excluding London	87,156	85,566	83,053	-1.8%	-2.9%	-4.7%
Motor vehicle traffic, Urban ('A' roads) - England excluding London	34,863	34,132	33,436	-2.1%	-2.0%	-4.1%
Motor vehicle traffic, Urban (minor roads) - England excluding London	52,292	51,435	49,617	-1.6%	-3.5%	-5.1%
Car and taxi traffic, Urban ('A' roads and minor roads) - England excluding London	72,537	70,603	68,510	-2.7%	-3.0%	-5.6%

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[8]   Source data manipulated using mid-year population estimates.

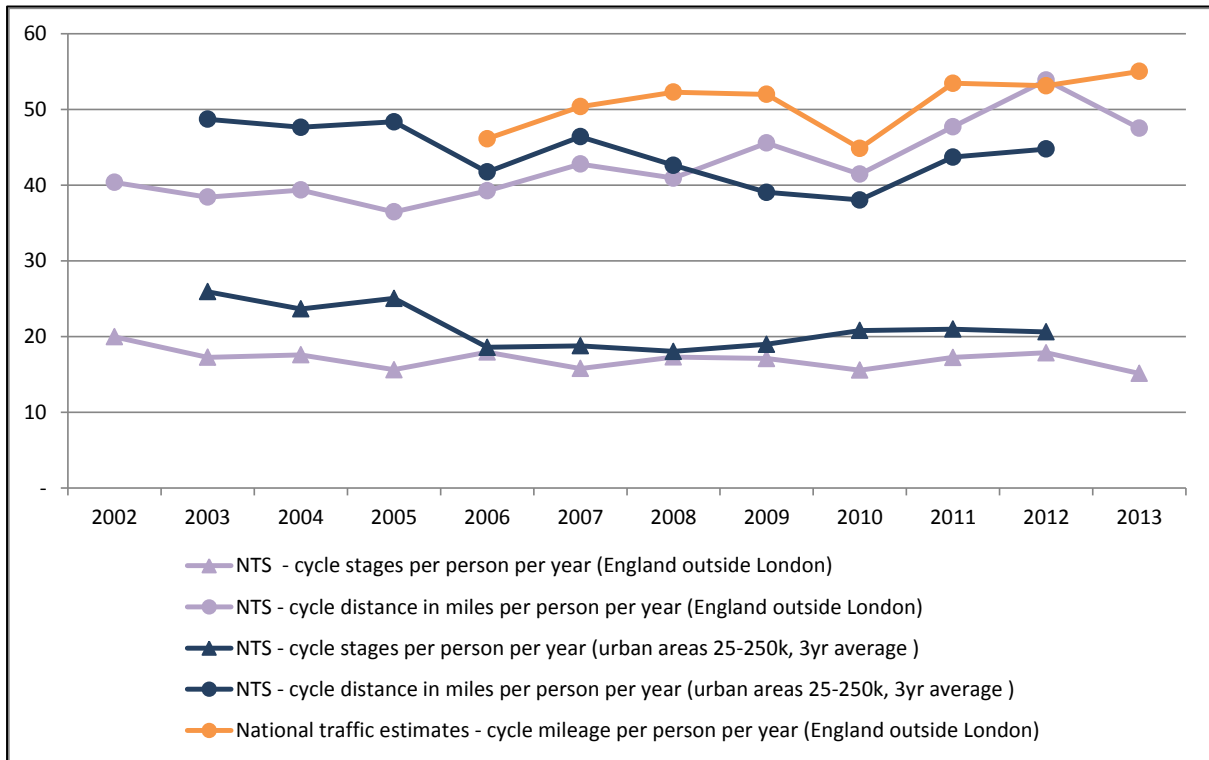|	2003 & 2004	2008 & 2009	2012 & 2013	Change between 2003/4 and 2008/9	Change between 2008/9 and 2012/13	Change between 2003/4 and 2012/13
Changes in traffic (miles per capita)						
Motor vehicle traffic, Urban ('A' roads and minor roads) - England excluding London	2,044	1,939	1,833	-5.1%	-5.5%	-10.3%
Motor vehicle traffic, Urban ('A' roads) - England excluding London	817	773	738	-5.4%	-4.6%	-9.7%
Motor vehicle traffic, Urban (minor roads) - England excluding London	1,226	1,166	1,095	-4.9%	-6.1%	-10.7%
Car and taxi traffic, Urban ('A' roads and minor roads) - England excluding London	1,701	1,600	1,512	-5.9%	-5.5%	-11.1%

B.4 Data about cycling from the National Travel Survey and the National Road Traffic Estimates

Obtaining definitive data about national trends in cycling is difficult, since levels of cycling are much lower, meaning that survey results are more vulnerable to fluctuation. Data from the National Travel Survey for medium-sized urban areas were obtained specifically for this project, and three year averages were calculated to reduce individual year fluctuation. Separately, data for all areas in England outside London were also obtained and analysed. Data from the National Traffic Estimates is also available (TRA0403) and has been converted into per capita estimates using the mid-year population estimates. All three sets of information have been used, since it is hard to be sure which, if any, of them is reliable. The results from the different data sources are shown in Figure 7.

In the original STT study, it was reported that the National Travel Survey methodology was changed in 2007 in a way which may have impacted on the reporting of short trips, which would have had particular implications for cycling given the low number of trips. Therefore, it is unclear whether NTS data pre and post that time can be properly compared[9]. Perhaps the most meaningful interpretation of Figure 5 is that, for medium sized urban areas, there is no evidence for a substantial increase in cycling during the STT period, and since that time, increases in both mileage and cycle stages have potentially been relatively moderate (in the order of about 10% in total). There is no evidence from any of the data for a substantial increase in cycling between 2012 and 2013.

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[9] Note that the data for medium-sized urban areas is three-year averages, potentially affecting data up to the '2007' figure.

Figure 7: Changes in cycling levels in comparable areas

Legend:
- NTS - cycle stages per person per year (England outside London)
- NTS - cycle distance in miles per person per year (England outside London)
- NTS - cycle stages per person per year (urban areas 25-250k, 3yr average)
- NTS - cycle distance in miles per person per year (urban areas 25-250k, 3yr average)
- National traffic estimates - cycle mileage per person per year (England outside London)

B.5   Census data

Census data provided a very specific, but also very comprehensive, measure of changes in travel to work between 2001 and 2011. Results are shown in Figure 8 and Table 5. Data are for England excluding London.

Figure 8: Travel to work in 2001 and 2011, England excluding London
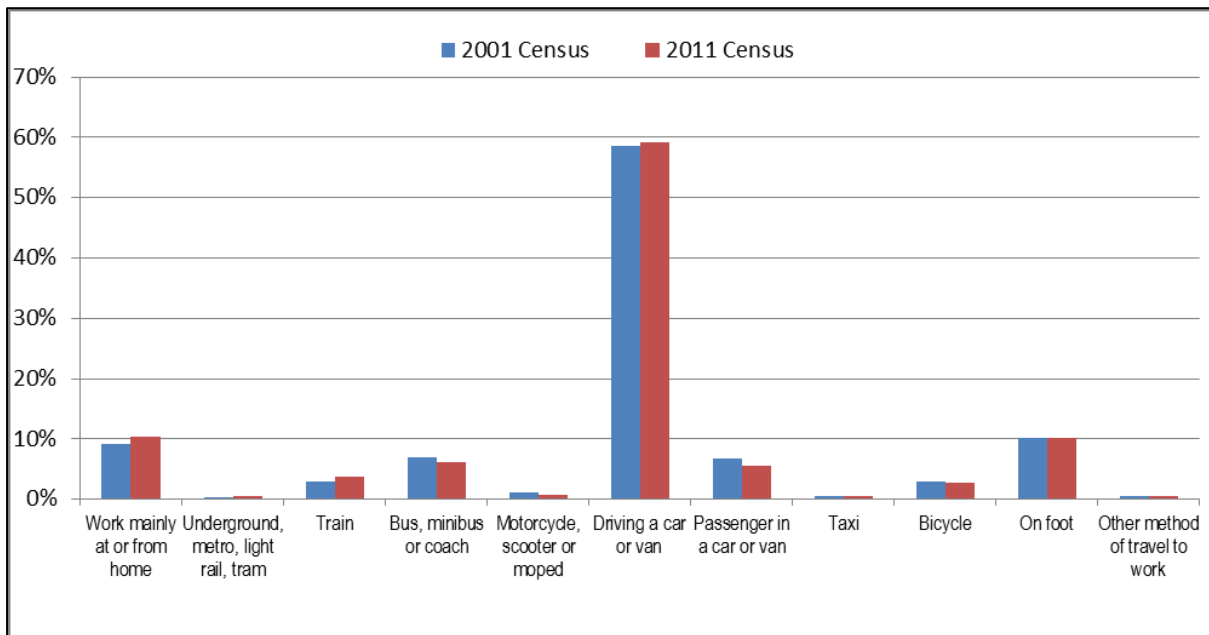
Data taken from Census table CT0015, to ensure comparability of data sources.

**Table 5: Census data on travel to work (England excluding London)**

	2001 Census	2011 Census	Percentage point change*	Scale factor change*
Work mainly at or from home	9.3%	10.4%	+1.1%	x 1.12
Underground, metro, light rail, tram	0.4%	0.6%	+0.1%	x 1.31
Train	2.9%	3.7%	+0.8%	x 1.29
Bus, minibus or coach	6.9%	6.1%	-0.7%	÷ 1.12
Motorcycle, scooter or moped	1.1%	0.7%	-0.3%	÷ 1.43
Driving a car or van	58.6%	59.2%	+0.5%	x 1.01
Passenger in a car or van	6.7%	5.5%	-1.2%	÷ 1.22
Taxi	0.5%	0.5%	0	÷ 1.02
Bicycle	2.9%	2.7%	-0.2%	÷ 1.09
On foot	10.3%	10.1%	-0.1%	÷ 1.01
Other method of travel to work	0.5%	0.5%	0	x 1.03
Total working population	**19.122**	**21.163**		**x 1.11**

*Calculations performed on unrounded data

Between 2001 and 2011, the working population of England excluding London grew by 11%. Over the same period, there were reductions in the proportion of people commuting by bus/minibus/coach, on foot and by bike, whilst there was a small increase in the proportion driving to work. (There were also changes in the use of other modes.)

B.6   Bus patronage estimates

From national figures, it was possible to get annual totals of passenger journeys on local bus services. There was a change in methodology for recording bus boardings in 2004/5, resulting in a small discontinuity in the data at that time. Results are shown in Figure 9 and Table 6. The data suggest an increase in bus use around 2006, when concessionary fares were introduced. In line with the NTS data, after about 2008/9, the number of bus trips reduced.

Figure 9: Annual bus boardings over time, England excluding London
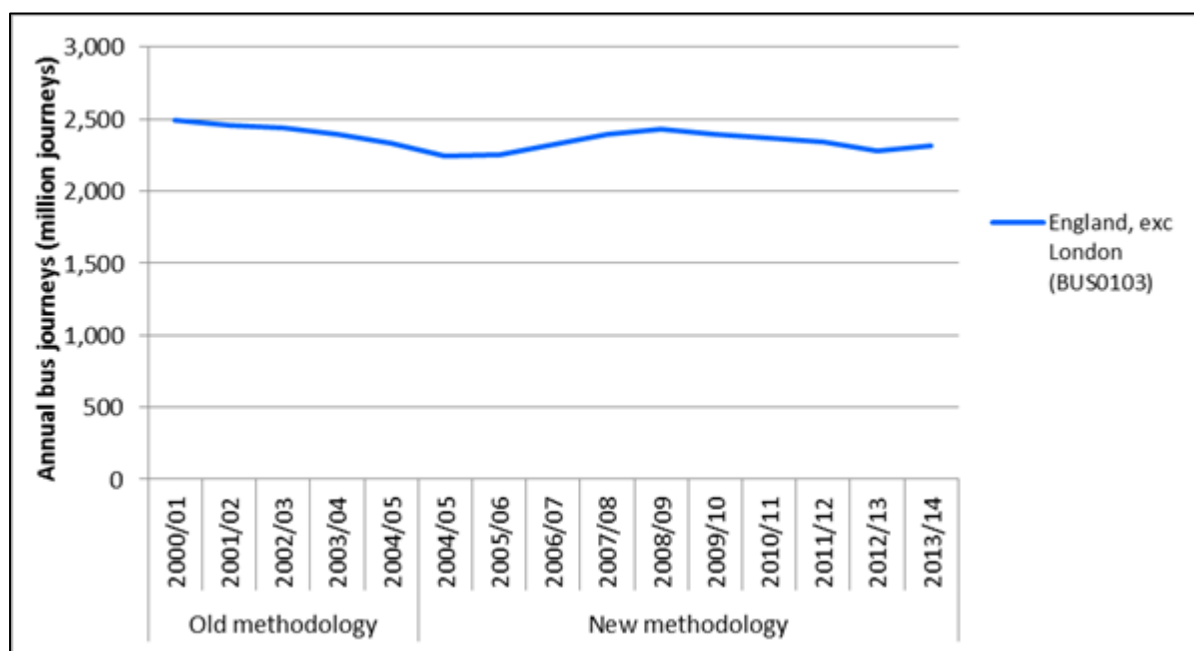
Table 6: Summary of key figures on bus use per capita, England excluding London; source DfT

	2004/5	2008/9	2013/14	Change between 2004/5 and 2008/9	Change between 2008/9 and 2013/14	Change between 2004/5 and 2013/14
Bus boardings (in millions)	2246	2433	2318	+8%	-5%	+3%

Appendix C Darlington

C.1   Overview of Darlington's activities

C.1.1   Background

Darlington is a unitary authority, located in the Tees Valley sub-region, in the North East of England. According to the Census, the borough population increased from 97,383 people in 2001 to 105,564 people in 2011, an increase of 7.9%. Over the same period, the working population increased by 14.5%. About 90% of the borough population are estimated to live in the town itself.

According to Sloman et al (2010), up to and during the Sustainable Travel Towns (STT) period, Darlington's relatively compact urban area was being affected by the decentralisation of employment and the development of peripheral employment sites. Part of the motivation for engaging in the STT work was to ensure that additional employment did not compromise accessibility or worsen congestion. Investment in active travel modes was partly seen as a priority because health inequalities between affluent and less well-off areas of the town were very marked, with a 13 year differential in life expectancy.

During the STT period, Sloman et al (2010) estimated that effective expenditure on the smarter choices programme was in the order of £4.4 million, compromising £2.6 million revenue and £1.7 million capital expenditure. These figures include some of the capital spending from the Cycling Demonstration Town programme. Pedestrianisation of Darlington town centre also took between 2005 and 2009 (comprising £6.5 million of spending), and significant changes to the bus network were implemented by Arriva in 2008.

In April 2004, approximately 1.8 FTE (Full Time Equivalent) officers were working on what might be termed 'smarter choices' work. This rose to approximately 6-7 FTE officers during the STT period.

C.1.2   Resources for sustainable travel work since 2009

When the STT programme ended, there was very little funding available for smarter travel programmes, although there was some continuation of activity via the Cycling Demonstration Town work (albeit that this was primarily capital funding used to build a comprehensive radial route cycle network). Local Transport Plan funding was cut as part of general budget cuts and the focus of the transport strategy changed to prioritise maintaining the existing highway network and transport assets. The Local Motion brand identity was kept separate to the Council, which was seen as helpful for avoiding criticism during budget cuts.

Between 2008 and 2011, Darlington was a partner in a European Interreg IVB project, which provided some funding for bus smart ticketing, rail cycle parking, sustainable travel marketing and improved pedestrian conditions as part of the town centre redevelopment.

LSTF funding then commenced in 2011/12 which provided much more funding for smarter travel type activities. There was some change in focus, as discussed below, in particular towards borough-wide activity, public transport and to inter-urban as well as intra-urban trips. Darlington's LSTF grant was worth £4.1 million between 2011/12 and

2014/15, with a further £9.1 million of local contribution proposed at application stage. In 2013/14, approximately £1.1 million was being spent on smarter travel type activity. This figure excludes spending on the Tees Valley Bus Network Improvement project, which was being funded separately (to a total of £57 million, albeit across a wider area including Darlington). There were 12 people employed in the Sustainable Transport Team (full or part-time), and a further 8 travel advisers, employed to work (for part of each year) on the individualised marketing programme. The team was also responsible for concessionary fares, and the delivery of the LTP capital programme. A positive ongoing relationship had been established with the Public Health team, although there had been no funding through that route.

The local authority interviewees reported that the STT experience helped Darlington to secure funding from Europe, as well as some resources achieved through Section 106 agreements as the team has had more confidence in asking for contributions from developers. The fact that Darlington demonstrated success as a STT was also reported to have helped with the successful LSTF project and subsequent Connect Tees Valley LSTF Bid (2015/16). Meanwhile, funding was still needed to secure some of the smarter travel work in the longer term. The introduction of the LEP had created some challenges, as the main focus of the smarter travel work had tended to be on shorter journeys, which can be hard to translate to the larger LEP area.

C.1.3   Key initiatives since 2009

The ongoing Smarter Travel activity in Darlington was considered to be a mixture of continuing initiatives begun under the STT programme, transferring/replicating STT initiatives to new locations, and to a lesser degree, introducing new initiatives. Key initiatives that may have encouraged more sustainable travel habits since 2009 included:

- Further Cycling Demonstration Town work. (Between July 2008 and March 2011, £3.7 million was spent on cycling in Darlington).

- LTP3 (2011-2026) – some funding for small-scale smarter travel projects, including Safe Routes to Schools work.

- BAPTS (Boosting Advanced Public Transport Systems) - Interreg IVB (2008-2011).

- Tees Valley Bus Network Improvement (TVBNI) project (2010 to 2014), covering a much wider area than Darlington, but including a major junction improvement at North Road and support for 8 bus routes affecting Darlington (worth £57 million overall).

- Pilot Station Travel Plan work at Darlington station (2008 to 2012).

- Community Rail Partnership (since 2010) involving revenue funding for a part time officer to support the CRP on the Bishop line.

- Rail service improvements, particularly on the Tees Valley line to the east of Darlington.

The overall balance of the smarter travel work in Darlington had changed since the STT programme. Whilst the promotion of cycling and Individualised Travel Marketing had continued, there was more emphasis on public transport and walking, on borough-wide initiatives and on longer journeys (including 10-20 mile commuter trips). Meeting the

needs of disabled people, and tackling inter-urban journeys along two key corridors between Darlington and South Durham were also priorities. There was a positive working relationship with Arriva (the main bus operator since 2007), and considerable bus promotion work as part of the TVBNI project. There had also been considerable work on rail. Cycling was receiving less funding than during CDT/STT, and delivery of cycling infrastructure schemes was slower than previously, although there was still cycling promotion work through the LSTF programme. Funding for walking schemes was cut between 2008 and 2012, although there had been more recent activity as a result of LSTF. Personalised travel planning (PTP) continued to be a major focus - the mechanism for delivering PTP had changed significantly since the STT, as it was being managed internally. All households in the borough were visited again between 2012 and 2014. School travel was still a priority (although there was a brief gap in funding in 2011/12). Workplace travel planning was not a major part of the STT programme and this continued to be the case.

C.1.4   *Other changes affecting travel in Darlington*

Other transport developments which may have affected travel patterns included:

- The Eastern Transport Corridor, a new road between Darlington and the A66 which opened in 2008.

- A reduced number of flights from Tees Valley Airport.

- Roadworks on the inner ring road (which made traffic data for 2014 unreliable).

- Central Park development near the station, including the new Teesside University developed in 2009.

- Yarm Road retail development, which opened in 2014.

- A new DfE building, and separately, a cinema/hotel complex, which were in the process of being developed at the time of the interview.

All of these changes may have affected both the volume and patterns of travel within the town, in potentially complex ways. The impacts of the recession also had an effect on the local economy, which was likely to have resulted in an increase in the length of commuting journeys. Specifically, NOMIS data for Darlington suggested that the ratio of total jobs to population aged 16-64 went from a high of 0.88 in 2003, to a low of 0.79 in 2009, though had returned to 0.83 by 2013. The Local Growth Fund was planned to fund a new junction into Central Park, and further improvements to walking and cycling links to the main station.

C.2   Buses

C.2.1   *Factors affecting bus use*

When the Sustainable Travel Towns work commenced, levels of bus use in Darlington were relatively high. Specifically, the baseline survey for the STT work by Sustrans/Socialdata in 2004 showed that public transport use accounted for 12% of trips in Darlington (compared with 6% in Peterborough or Worcester)[10]. However, competing

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[10] Figures based on the weighted dataset, excluding trips over 100km and commercial trips.

bus operators in the town made having a general bus promotion strategy problematic. Following the takeover of Stagecoach services by Arriva in 2007, the network was redesigned in July 2008. The introduction of concessionary fares in April 2006, and their extension in 2008, was also likely to have had a positive impact on patronage.

In the original STT study, STT funding was felt to have helped with partnership building, and enabled a step change in bus service information provision that could support other changes. Those interviewed in the town felt that the bus offer in Darlington had significantly improved since the end of the STT programme, including a better working relationship between the council and Arriva. There was also a greater focus on inter-urban services.

Specific initiatives included:

- The introduction of **smart ticketing**, as part of the Interreg 2008-11 BAPTS project, led by Tyne and Wear Council.

- Infrastructure work, improvements to bus stops and some marketing activity, as part of the Tees Valley Bus Improvement project (TVBNI, 2010 to 2014), which included **improvements for 8 routes** in Darlington. The 'Connect Tees Valley' brand was introduced in 2011. A **direct marketing campaign** had also been undertaken, targeted at 5000 single-car households within 400m of a TVBNI route. (Results were not available at the time of the interview).

- Changes by Arriva, including ensuring that the network was relatively stable, providing a direct point of contact for discussions with the council, buying 11 gas powered vehicles with the support of the DfT Green Bus Fund, developing a **high-end service** (the Sapphire Service, from Darlington to Durham), **improved driver training**, and **improved 'next stop' announcements.**

- Improvements to **on-street timetables**, as part of general travel awareness work.

At the time of the interview, funding for council supported services had recently been reduced, leading to some evening and early morning services being withdrawn. Some of these had been replaced by commercial services or community transport. At the time of the interview, real time information was also unavailable, waiting on a replacement contract.

No quantitative information on bus service provision in Darlington was provided.

C.2.2 Changes in bus use

As well as the data from workplace, school and household surveys (discussed in other sections), there were two sources of data about changes in bus use:

- Ticket sales within Darlington.

- National bus passenger data.

The information given by the two sources was almost the same – and the small differences for four years may be due to whether data reported were for the calendar or

financial year[11]. For this reason, we have not presented the national data here, but instead focus on the information provided directly by Darlington.

Specifically, Darlington provided figures for total bus passenger boardings (ticket sales) within the borough of Darlington, from 2001/2 to 2013/14. Data are shown in Figure 10. There appear to be three main phases in the data: 2001/02 to 2005/6, when bus patronage fell by 1.4 million people; 2005/6 to2009/10, when bus patronage fell by a smaller amount, 690,000 people; and then 2009/10 to 2013/14, when bus patronage fell by a further 1.6 million people.

Figure 10: Bus boardings in Darlington over time
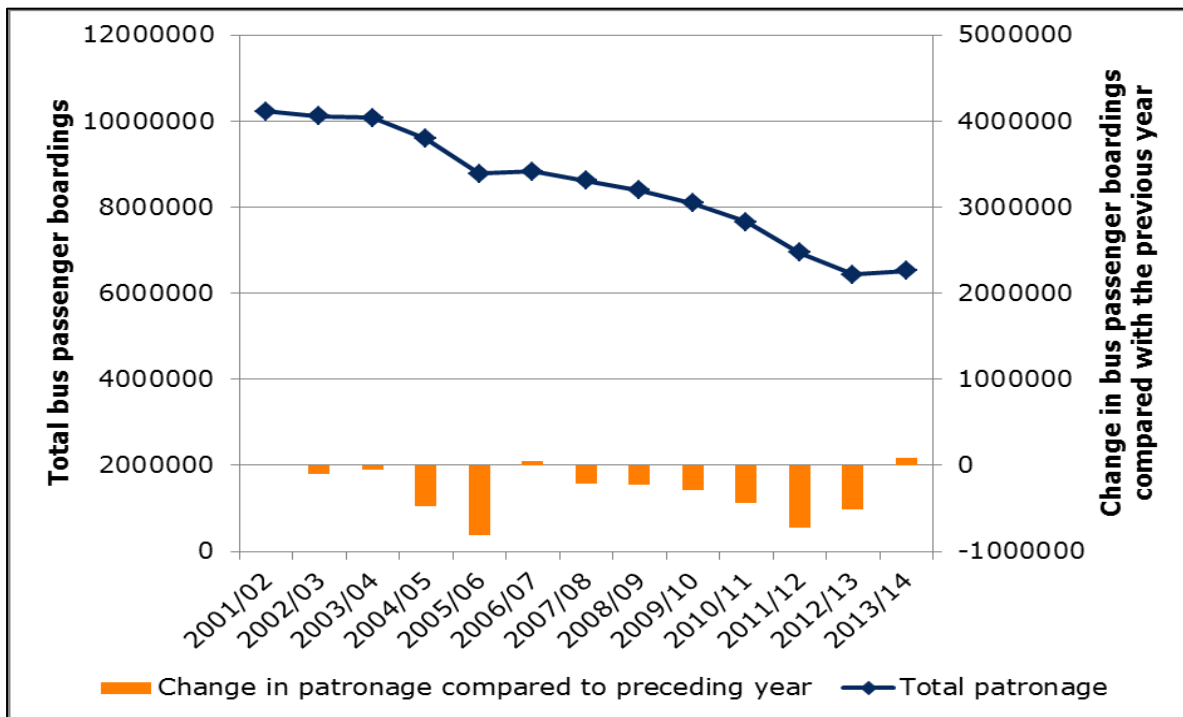
C.2.3   Summary

The major changes in bus provision introduced during and shortly after the Sustainable Travel Towns period, together with associated information and marketing work and the introduction of concessionary fares, do appear to have reduced the rate of decline in bus use from around 2006/7. Since then, there has been further decline, although it is possible that bus patronage levels were stabilising again, possibly reflecting the benefits of the work that has taken place since the STT period, in particular, the recent activities as part of the TVBNI project. (It should also be noted that the share of trips made by bus in Darlington was double that of the share in the other two towns in 2004, and, in absolute terms, remained relatively high[12]).

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[11] i.e. Figures for 2008, 2009, 2011 and 2012 from the national data do not match directly with the figures for 2008/9, 2009/10, 2011/12 and 2012/13.

[12] Using 2014 mid-year population estimates for calculations, there were 62 bus boardings per person in Darlington in 2013/14, compared with 56 in Peterborough, and 31 in Worcester, although it should be noted that the Worcester figure only relates to boardings of intra-city services, so is not directly comparable.

C.3 Cycling

C.3.1 Measures affecting cycling

As well as being a Sustainable Travel Town, Darlington was also one of the Cycling Demonstration Towns between 2005 and 2011, so had additional funding for cycling schemes. However, following the end of the CDT programme, cycling received less funding and delivery of cycling infrastructure schemes was slower than in the past. Activity since 2008 had included bi-annual updating of a Darlington **cycling map**, the development of '**cycle route cards**', **adult cycle training**, **led-cycle rides**, **cycle route promotion**, **cycle parking improvements**, the set-up of a **bike recycling centre** and the inclusion of cycling in the town's annual '**Mega-festival**'. As part of **school travel work**, there had been improvements for schools to help cycling, including 20mph zones, cycle parking and some cycle paths, as well as Bikeability training (available to all schools). **Bike week** had been run as part of engaging with employers. **Town centre improvements** had allowed cyclists to cycle through the town rather than having to go around the Ring Road. Both the recession and the Tour of Britain (2008/9) were felt to have locally boosted cycling, and officers reported that a wider range of people (including older people and women) could be observed cycling.

In terms of objective measures of change:

- At the time of the interview, there were approximately 200 **cycle parking** spaces in the town, which had all been introduced since 2004. All schools have cycle parking. Changes since 2008 include the introduction of swipe-card-activated parking at the main railway station, and outside the town hall, and additional parking was being delivered in individual locations as required, such as at workplaces.

- There was a substantial increase in **cycle route infrastructure** after 2004, much of which occurred during the CDT programme. Before 2004, there were 3 junction/crossing schemes for cyclists, and 2.5kms of off-road cycle/pedestrian routes. By 2014, 24 further junction/crossing schemes had been introduced, together with 10.5km of on-road cycle routes, 7.5km of shared pedestrian/cycle footway adjacent to the highway, and 17.1km of off-road routes. In addition, there were 20.2km of signed routes – including signing for 6 radial routes and a circular route, which had been introduced in 2013 and 2014.

- **Adult cycle training** was taking place with approximately 10-15 participants per year. A **cycle loan scheme** ran between 2005 and 2009, lending out between 10-15 bikes a year, albeit with a peak of 31 bikes in 2006. 20 **bike maintenance sessions** had been held.

- A programme of **led-cycle rides** was originally started by the health services, and then handed over to the Council's 'Sports Development Team'. Since 2012, they had been running two led cycle rides per week, open to anyone. 41 people took part in 2011/12, increasing to 58 in 2013/14. At the time of the interview, there had been 24 participants in 2014/15.

- There was an **annual festival** of cycling which started in 2005. This festival was renamed the 'Mega Festival', to encompass all modes of transport. Attendance numbers increased from 500 in 2008, to 800 in 2012, and 1000 in 2014. 196 people also took part in **Bike Week** in 2014.

C.3.2   Changes in cycling levels

As well as the data from workplace, school and household surveys (discussed in other sections), there were three sources of data about changes in cycling levels:

- Data from automated cycle counters.

- Data from manual counts.

- Data from the Cycling Demonstration Towns work.

These are reported individually below, followed by a summary of what they show.

#### C.3.2.1   Data from automated cycle counters

Darlington has a network of 17 automatic cycle counters, of which 11 began operation in August 2006. One counter (Haughton Road) did not have available data for 2012/13. Across all other counters, there were 10 months of missing data in total for the period show in Figure 11. Missing values have been estimated on the basis of the average of the adjoining months. Figure 11 provides a 12 month rolling average for the 16 counters with available data.

Meanwhile, there was one counter (Yarm Road) with a continuous data series since May 2004. This counter is located on a B road into central Darlington from the east of the town. The results for this counter are shown in Figure 12.

Figure 11: 12 month rolling average of automated cycle counts (16 counters)
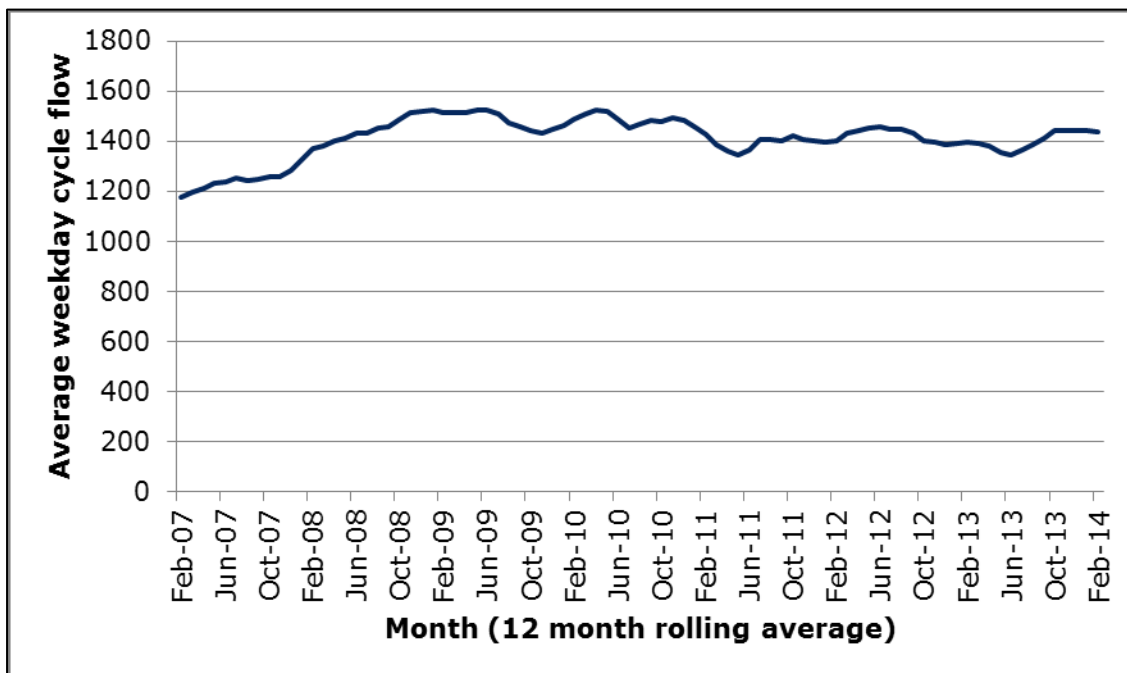
12 month rolling average calculated for month 7 of each 12 month period.

Figure 12: 12 month rolling average of Yarm Road automated cycle counts
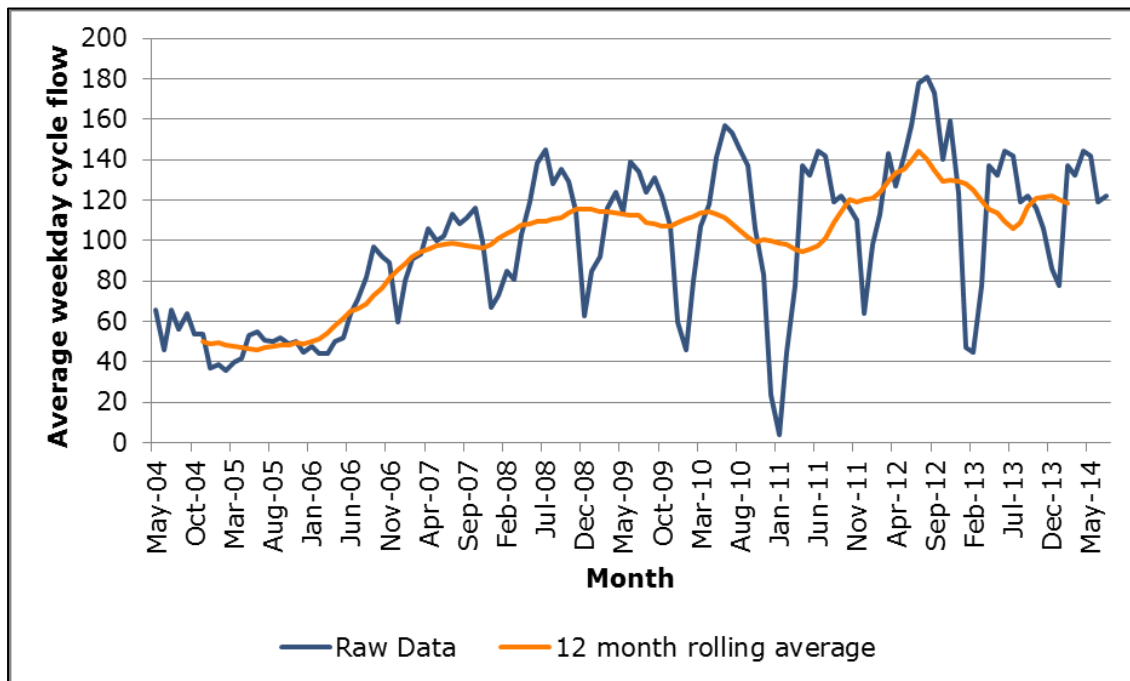
C.3.2.2   *Data from manual counts*

Twelve hour manual counts are conducted at a town centre cordon around Darlington, which captures all crossing points of the river or ring road into the town centre. Between 2001 and 2005, counts were performed in June. From April 2006 onwards, counts have been conducted quarterly (January, April, July and October).

In the original study, interpolation between data points was used to generate a June trend. Prior to June 2005, cycle counts were roughly stable, but then underwent a significant increase. Overall, the counts showed an increase of 84% to 116% between June 2004 and June 2009 (with the two figures given relating to whether data from one of the count sites was included or excluded). Figure 13 shows a combination of the trend from the original data set, and the trend in the July data from 2006 onwards. (The trend for the four seasons total between 2006 and 2013 is broadly similar, albeit with reductions in the overall number of cyclists in 2012, compared with 2011. As with the July data, the four seasons total also shows significant growth in cycle numbers between 2013 and 2014, from 3,523 cyclists to 3,980 cyclists).

Figure 13: Trends in number of cyclists into Darlington town centre, as demonstrated by the cordon counts
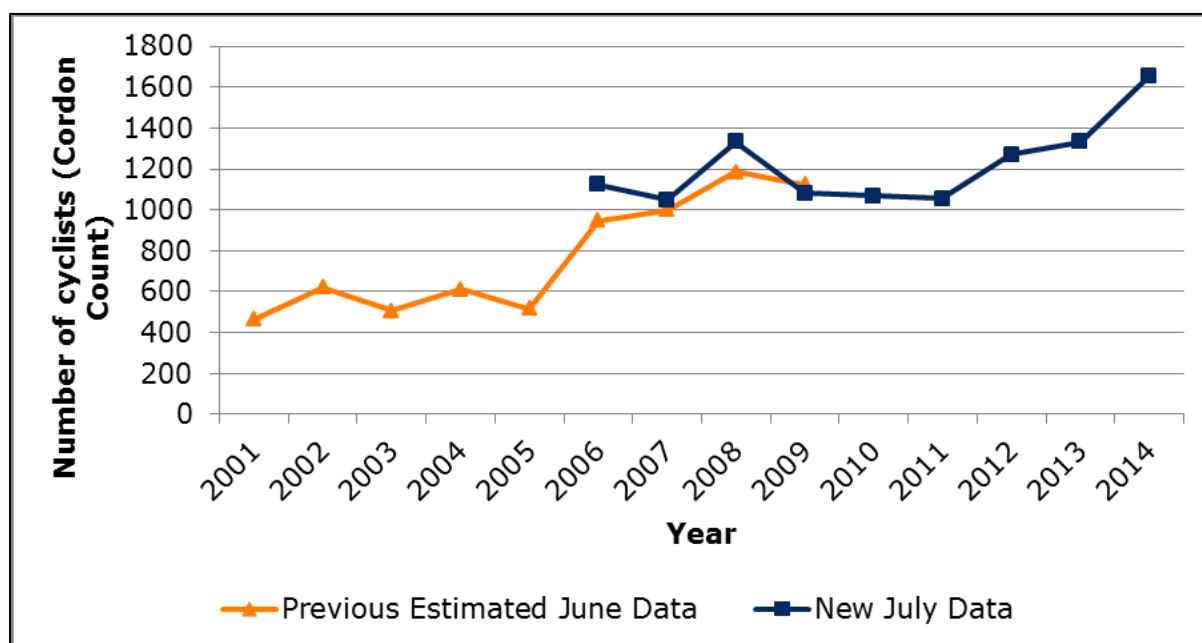
C.3.3   Summary

The story from the different data sources is that there was a major increase in cycling during the Sustainable Travel Towns period, which was maintained since that time. It is possible that a further increase had begun around 2012, although it is difficult to tell if this is a definite trend from these data. The infrastructure and promotion work that took place through the two major programmes between 2005 and 2009 therefore seem to have generated a legacy, whilst cycling work funded by the LSTF programme may have been starting to encourage a further increase.

C.4   Walking

C.4.1   Measures affecting walking

Between 2004 and 2014, pedestrians in Darlington benefitted from 24 crossing improvements, and 18.9kms of pedestrian route improvements. In many cases, these improvements took place in conjunction with improvements for cyclists. They also benefitted from pedestrianisation and the redevelopment of Darlington town centre - the 'Pedestrian Heart' scheme – which brought changes to the layout to the town centre between 2005 and 2009.

However, funding for walking schemes was cut between 2008 and 2012, so there were no major activities.

Since then, LSTF funding had enabled the creation of a **walking guide** (distributed to all households) and 13 **circular walk maps** (distributed through local leisure centres); **community street audits** in all wards; other pedestrian route audits; and the **development of new walking routes** for the university and along the Eastern Corridor.

There was also a programme of **led-walks**. These involved 382 participants in 2010/11; 172 participants in 2011/12; 119 participants in 2012/13 and 125 participants in 2013/14.

C.4.2   *Changes in walking levels*

As well as the data from workplace, school and household surveys (discussed in other sections), there were data from manual counts about changes in walking levels.

Twelve hour manual counts are conducted at a town centre cordon around Darlington, which captures all crossing points of the river or ring road into the town centre. Between 2001 and 2005, counts were performed in June. From April 2006 onwards, counts have been conducted quarterly (January, April, July and October)[13].

In the original study, interpolation between data points was used to generate a June trend. Prior to June 2005, walking into the town centre was reducing. It then underwent a significant increase. Overall, the counts showed an increase of 25% to 43% between June 2004 and June 2009 (with the two figures given relating to whether data from one of the count sites was included or excluded). The higher figure is likely to be the more accurate of the two.

Figure 14 shows a combination of the trend from the original data set, and the trend in the July data from 2006 onwards. It also includes an 'annual total' – which represents the sum of the four annual counts that are undertaken each year.

Figure 14: Trends in number of people walking into Darlington town centre, as demonstrated by the cordon counts

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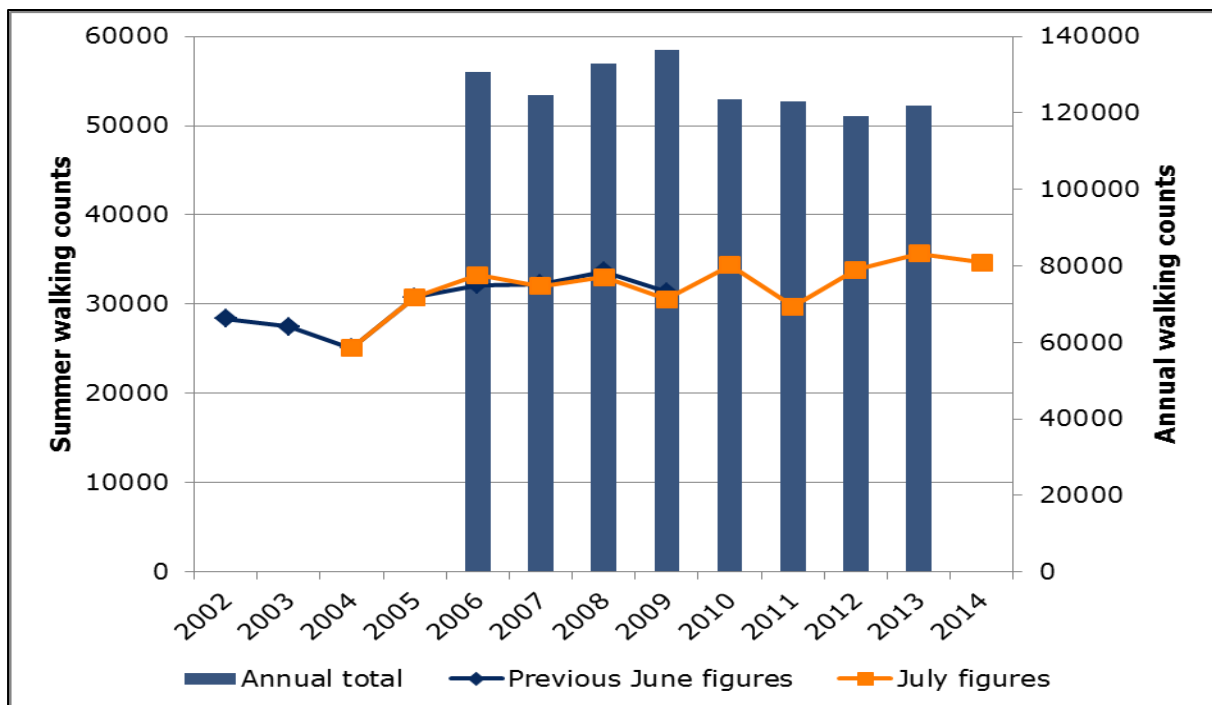
[13] In this study, the data provided for July 2006 was different to the value given in the previous study (33,267 versus 31,528). This does not affect analysis.

Overall, the July figures suggest that there was a further increase in walking into the town centre since the STT period, albeit that the scale of increase was relatively small (being a growth of 5% between July 2008 and July 2014). In contrast, total figures do not show a positive trend, but suggest that walking levels peaked in 2009 and subsequently dropped back to earlier levels (with a reduction of about 10% between 2009 and 2010). It should be noted that total figures are only available from 2006, and are therefore likely to already reflect the growth that occurred in the early part of the STT period. It should also be noted that all manual counts are subject to potential variability due to weather or changes to local conditions near count sites. Further correspondence with local authority officers suggests that the annual totals are not considered a particularly good reflection of changes in walking in Darlington overall, given other local information[14].

In summary, walking levels grew during the Sustainable Travel Towns period. Between 2008 and 2014, there may have been some further increase in summer walking levels, but the general indication is that walking levels were roughly stable. This is in the context of improvements in conditions for pedestrians to 2009, but then very little activity until work via the LSTF project.

C.5 Schools

C.5.1 Work with schools

By 2009, the schools accreditation scheme 'Mode Shift Stars' had been introduced. By 2010, all 29 primary schools (representing 8,478 pupils) and 7 secondary schools (representing 5,506 pupils) in Darlington had a **travel plan**. School travel has continued to be a significant focus of work since that time.

Between 2009 and 2014, 7-12 primary schools, and 1-3 secondary schools applied for the **Modeshift STARS accreditation programme** each year, and between 2006 and 2010, 'walk-to-school' week was run twice a year. Bikeability training became available to primary children, and primary school maps were produced.

In 2011, there was a break in activity. LSTF funding then enabled two members of staff to start working almost full-time with schools encouraging sustainable travel, with a range of associated activities including:

- Switching to '**Mega Fridays**', a focus on travelling sustainably once a week (rather than twice a year).

- Extending **Bikeability training** to secondary level, and providing **pedestrian training** at primary level.

- Introducing a **'transitions' programme** for the change between primary and secondary school, including the annual production of secondary school **maps** for the children.

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[14] As discussed in Section C.7.2, further household survey data has become available since the main analysis for this study was undertaken, although its interpretation (particularly in relation to cycling) is not straightforward. However, it is relatively unambiguous in suggesting that the modal share of walking in the urban wards has been sustained or increased since 2008.

- Undertaking some **infrastructure improvements** for schools including the introduction of new school entrances (Darlington School of Mathematics, West Park Academy), 20mph zones (Harrowgate Hill Primary), cycle parking (St Aidan's Academy), scooter parking and some cycle paths.

- **Teen Card events** in 2012, involving speaking to 759 secondary school pupils.

- General **cycling promotion**, including cycle maintenance sessions, participation in the Watt Bike competition and general work by officers in schools.

- Delivery of the **Amelix Youth Tour** in 4 secondary schools in 2014.

Some metrics of the extent of the recent school travel work are shown in Table 7.

Table 7: Recent measures of school travel work

	2011/12	2012/13	2013/14	2014/15
Bikeability training (levels 1 and 2, primary)	494 pupils	521 pupils	442 pupils	628 pupils to date
Bikeability training (levels 3 and 4, secondary)		199 pupils	204 pupils	146 pupils to date (240 target)
Pedestrian training (primary)	2,965 pupils	2,910 pupils	3,102 pupils	
MEGA Motion incentive campaign		24 schools	19 schools	23 schools
Local Motion transition programme		11 schools	9 schools	9 schools

C.5.2 *Changes in school travel*

Since January 2004, Darlington has been conducting surveys on travel to school, based on a hands-up, 'travel today' survey methodology. In 2006, the timing of the survey was changed from January to September. Data are referenced to the school year, although it should be noted that the September timing means that surveys are done at the very beginning of the school year (such that, for example, 2013/14 data were collected in September 2013.) Data are available for primary and secondary schools separately, and also on a combined basis. In 2012/13, there was a significant increase in the proportion of responses being recorded as 'other', and in 2013/14, the new categories of 'park and stride' and 'scooter' were added.

Results for all schools are given in Table 8. Meanwhile, Figure 15 shows the change in cycling to school over time, whilst Figure 16 shows the change in car use over time. (In the car use graph, both the car sharers and the park-and-stride users have been counted as 0.5 cars each.)

Table 8: Percentage of pupils travelling to all schools by different means

| Travel Mode	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14
Walk	54.9	55.7	54.8	54.2	53.6	52.4	52.6	50.9	48.4	52.3
Cycle	0.9	2.0	4.0	4.4	6.1	6.7	7.5	7.4	6.0	5.4
Bus	13.7	11.7	12.4	11.9	11.2	10.0	10.6	8.9	9.1	10.7
Train	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0
Car	25.8	25.0	19.2	24.2	23.1	24.7	25.0	27.9	23.0	18.9
Car share	4.5	5.1	9.1	5.1	5.7	5.5	3.9	3.7	5.9	4.4
Other	0.2	0.5	0.5	0.2	0.1	0.6	0.3	1.2	7.5	n/a
Park & stride	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	4.4
Scooter	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	3.9

Figure 15: Percentage of pupils cycling to school
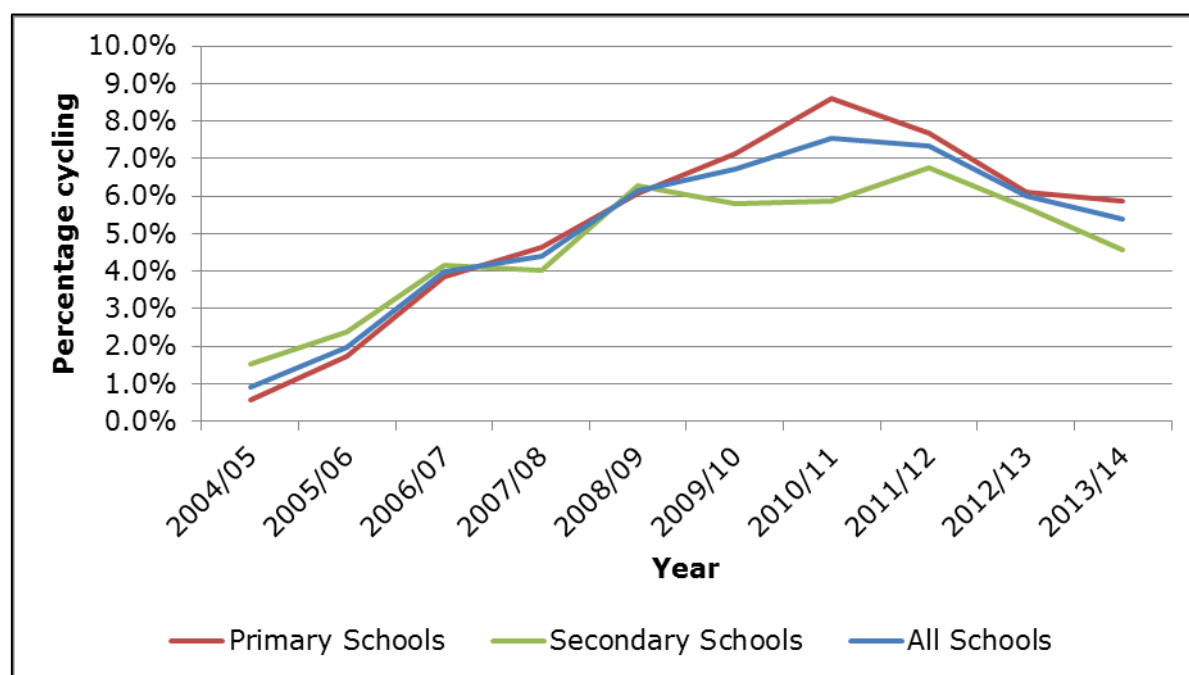
Figure 16: Number of cars per 100 children[15]
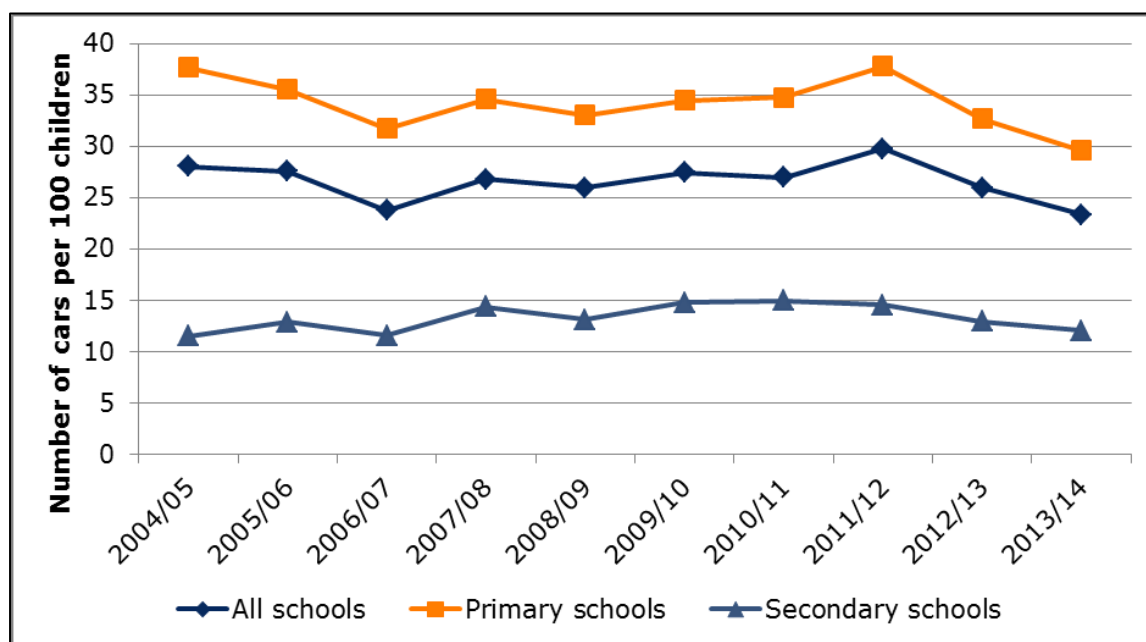
Table 9: Changes in car use and cycling

	2004/5			2013/14		
	% car	% car share or park and stride	% cycling	% car	% car share or park and stride	% cycling
All schools	25.8	4.5	0.9	18.9	8.8	5.4
Primary	34.6	6.1	0.6	24.4	10.4	5.9
Secondary	10.7	1.6	1.5	9.0	6.0	4.6

C.5.3   Summary

The most noticeable trends are the reduction in car use over time, particularly 'non-sharer' car use, and the substantial growth in cycling. There is some indication that the growth in cycling was also partly at the expense of walking at primary level, and bus use at secondary level. Cycling levels seem to have peaked in 2010/2011 and subsequently declined somewhat. Meanwhile, car use peaked in 2011/12, which is the year when there was a funding gap for school travel work, and officers interviewed felt that this reflected the lack of resourcing. Since then, car use continued to decline. It seems plausible that the ongoing school travel work was contributing to this, and whilst the programme still had a strong cycling focus, there was also ongoing work to promote all sustainable modes of travel. It was notable, for example, that both the bus and walking

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[15] Note that the 2012 figures for car use may be lower than reality, given the potential for 'park-and-striders' to have been included in the 'other' category.

mode shares increased at both primary and secondary level between 2012/13 and 2013/14, even without any consideration of scooting.

C.6 Workplaces

C.6.1 Work with employers

According to the local authority, in 2014 there were 4,793 employers in Darlington, representing 55,000 employees. Workplace travel planning was not a major part of the STT programme and this continued to be the case, although there had been some initiatives which could have influenced commuting travel behaviour (not least the wider promotion of cycling). The current economic climate, and a lack of parking or congestion problems in Darlington, were felt to make this a difficult topic to develop.

In 2014, two employers (representing 3000 employees) were actively engaged in developing a workplace travel plan with the council, specifically Darlington Borough Council itself (which had introduced business mileage for cyclists, better public transport claims processes and reviewed the parking permit scheme), and the Department for Education (who had developed a travel plan as part of their planning requirement for moving into a new building with very limited parking). The decision by the Department for Education to relocate to this location was seen as a positive indication of the opportunities to travel by non-car means.

Other workplace support had been delivered on an ad-hoc basis including:

- Provision of Bike breakfasts, cycle parking, and running Bike to Work events (which involved 196 people in 2014).
- The development of the Sapphire bus service between Darlington and Durham, which targets commuters and includes features such as Wi-Fi.
- The purchase of iTRACE[16] through the LSTF, which had led to some businesses developing their own travel plans.
- Provision of individual travel information to staff, including 122 employees at 3 businesses in 2012/13 and 50 Department for Education staff in 2014/15.

C.6.2 Changes in workplace travel

Darlington was planning to rerun its own workplace travel survey, however no data were available for this report. However, the Census does provide some data. For example, as already mentioned, it highlights that the working population of Darlington rose from 42,991 in 2001 to 49,215 in 2011, an increase of 14.5% (which compares with a population increase of 7.9% over the same period). It should be noted that this is the number of people living in Darlington who work – it is not the same as the number of people employed in Darlington (which is given in the preceding section).

It also provides data on how those living in Darlington travelled to work. Table 10 provides data for the main modes of travel. Data are for the whole population. The 'other' category includes: works mainly from home, underground/tube, train, taxi, motorcycle and other. The main change has been some growth in car/van use, at the

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[16] iTRACE is a software system which can be used to help with travel plan development and evaluation.

expense of bus use, and a small increase in cycling. As in the previous study, it should be noted that many of those living in Darlington will work elsewhere (and *vice versa*), such that changes in commuting choices by residents are not necessarily a good indicator of the impacts of work to promote sustainable travel options within the town, although general travel awareness messages (such as those delivered through PTP) may have had some impact.

Table 10: Modal use for work

	Cycle	Car/van driver	Bus	Cycling	Passenger in car or van	Other
Darlington 2001	2.21%	56.07%	10.15%	11.83%	8.09%	11.65%
Darlington 2011	2.34%	59.05%	6.91%	12.80%	6.80%	12.10%
%-point change	0.1%	3.0%	-3.2%	1.0%	-1.3%	0.45%

C.7   Work with Darlington residents

C.7.1   *Further sustainable travel activities*

All of the activities described above will have affected people living in Darlington. There were also a number of additional activities, which are not covered above.

General travel awareness work had become increasingly important. Following a change in staffing in 2013, 3 members of (part-time) staff were focused on marketing. As well as the development of the **Local Motion brand** (including via the website and social media), and work on public transport as part of the TVBNI project, work was becoming increasingly campaign led, with a focus on walking and cycling as part of a **'Big Summer' campaign** in 2014, and plans to promote bus use for shopping in the run up to Christmas. The number of residents engaged through **events** (including events held at supermarkets and town markets) had increased from 74 in 2012/13, to 763 in 2013/14 and 1,229 in 2014/15.

Individualised travel marketing was a big feature of Darlington's STT work. Between 2005 and 2007, all households were targeted, 69% of households were successfully contacted, and 45% of households subsequently received a range of intervention materials to encourage sustainable travel. The programme was managed jointly by the council and an external contractor. In 2008-9, the council developed a mini programme whereby advice was delivered via events only. An in-house pilot was then developed, covering three wards, and once LSTF funding commenced, this was expanded to engage the whole borough. Following a drop in engagement (to 44%), an App was developed during 2012/13, leading to an increase in the engagement rate to 64%. In total, between 2012 and 2014, more than 40,000 households had been visited, with 35% taking up personal travel planning incentives, information and/or advice. New materials included a postcard competition, and household travel challenges. The PTP team also visited Darlington Job Centre (providing travel information to over 100 clients/staff), and carried out some college engagement events, with 275 students engaged in 2013/14 through open days, bike marking events etc.

Another major area of work was **rail travel**. Darlington station was one of the pilot programme of Station Travel Plans from 2008. Measures delivered included improvements to cycle parking, including a secure cycle parking area and promotion of cycle and walking routes. There had also been improvements to Dinsdale Station and to rail services on the Tees Valley line, leading to increased patronage. In addition, there had been improvements to North Road Station, and the promotion of the station to those within walking distance, which had led to increases in commuting on the Bishop line.

More work had taken place to ensure that the travel activities were **meeting the needs of disabled people**. Car sharing and car clubs had been considered, but were unlikely to be delivered by the council. An eco-driving scheme introduced in Durham was offered in Darlington, but not taken up. Teleconferencing facilities were introduced in 2013, but were only being used by a small number of people.

C.7.2   *Evidence from household surveys*

A major strand of the original Sustainable Travel Towns evaluation involved self-completion mail-back household surveys, which were undertaken by Socialdata/Sustrans, in the autumns of 2004 and 2008, together with some interim survey work. In Sloman et al (2010), the information was reanalysed in a number of ways, including consideration of both weighted and unweighted datasets. Over 4,000 respondents completed the baseline and final surveys.

Key results for Darlington, as presented in the Sloman 2010 report, are shown in Figure 17.

Figure 17: Percentage changes in Darlington in trips per person by mode, relative to October 2004 baseline.
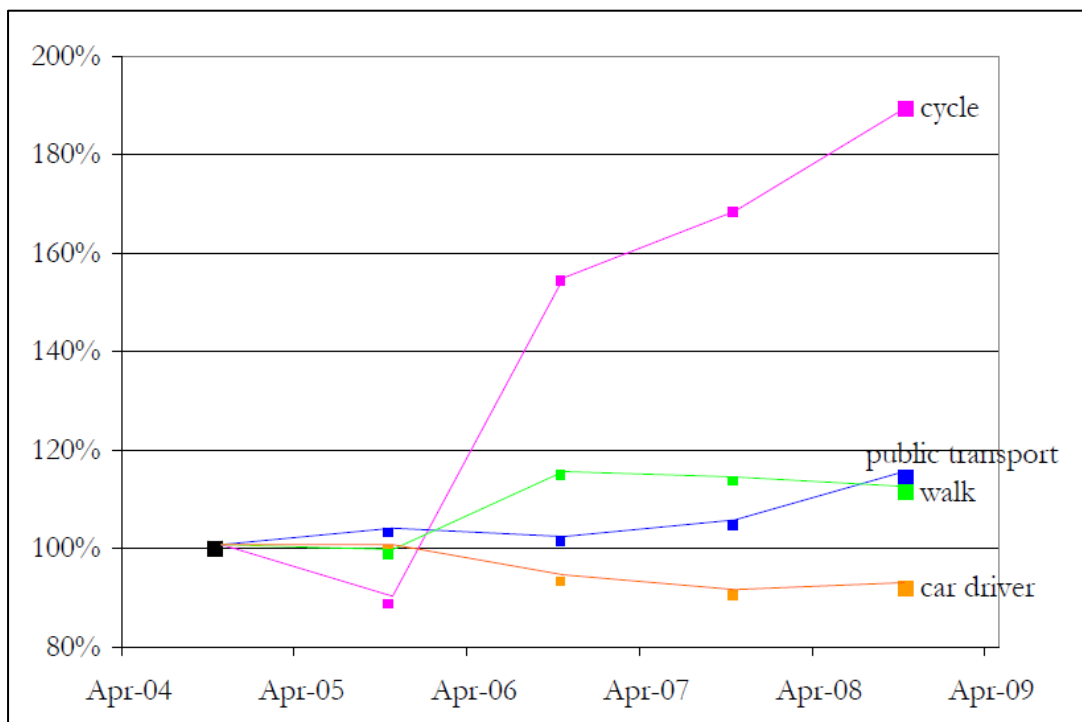

Figure reproduced from Sloman et al, 2010, Chapter 13. Results based on unweighted data and exclude trips of over 100km. Interim survey results were based on samples of approximately 1500 people.

Further household surveys were then undertaken by AECOM in 2011 and 2014. At the time of the analysis for this study, the results were not finalised, and could not be included within this report[17].

C.8   Traffic

All of the measures described previously will potentially have affected traffic levels in the town. There were two main sources of data about traffic levels. These were:

- Automatic traffic counter data.
- National Road Traffic Estimate data.

Each of these is discussed in turn.

### C.8.1   *Automatic traffic count data from Darlington*

Approximately 50 automatic traffic counters became operational in May 2004, although not all of these counters have worked for all of the time. When looking at the traffic counter data for this report, counters were excluded if there were missing data for more than four consecutive months, or if they were located outside the main Darlington urban area. Where there were missing values for four months or less, data have been estimated from the adjoining months. As in the previous study, counters were divided into subsets in order to look at trends in different parts of Darlington. The subsets of counters used were:

- An inner cordon (sites 11, 14, 15, 17, 18, 47).
- An outer cordon (sites 1, 2, 5, 22, 30, 37, 39, 40).
- Other sites within the Darlington urban area, located between the inner and outer cordons (sites 23, 28, 34, 35, 36, 38, 42, 44).

A 12 month rolling average has been created from the data sets (with each average being plotted against month 7 of the 12 month period, and indexed to the first available data point in November 2004). The results are shown in Figure 18.

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[17] Comparisons between the surveys undertaken during the STT period and the latest survey results are complex, due to differences in methodology, survey populations, trip numbers and sample sizes.

Figure 18: 12 month rolling average of traffic flows at different subsets of counters
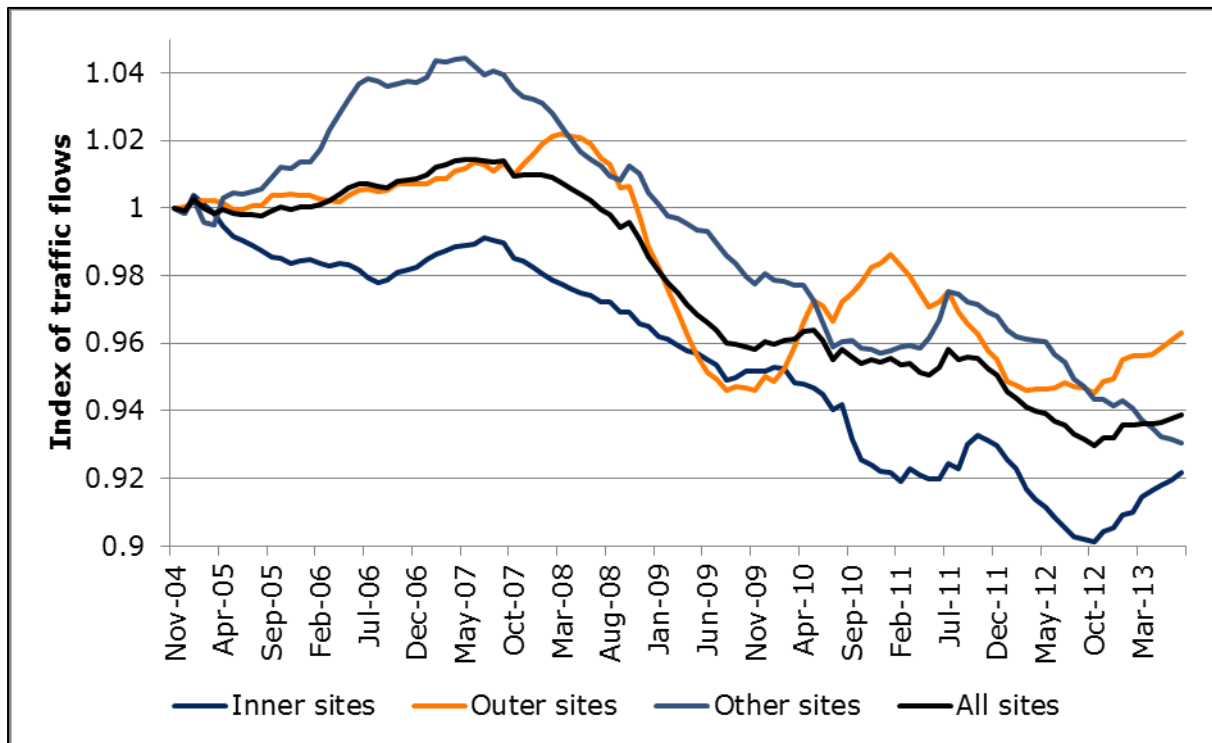
C.8.2 National Road Traffic Estimates

In the original study, data for particular NRTE sites was analysed in detail, to examine flows in different parts of the Darlington urban area. In this study, borough wide NRTE data are simply presented according to two sets of data: a 'per capita' measure of vehicle miles (where NRTE data have been divided by the mid-year population estimates), and total annual motor vehicle traffic (in million vehicle miles). It should be noted that not all car miles in Darlington will be generated by Darlington residents – however, there is no other obvious way to account for population changes in the area.

Figure 19 presents this information graphically, whilst Table 11 summarises the figures for key periods of interest.

Figure 19: Changes in traffic in Darlington, according to NRTE data
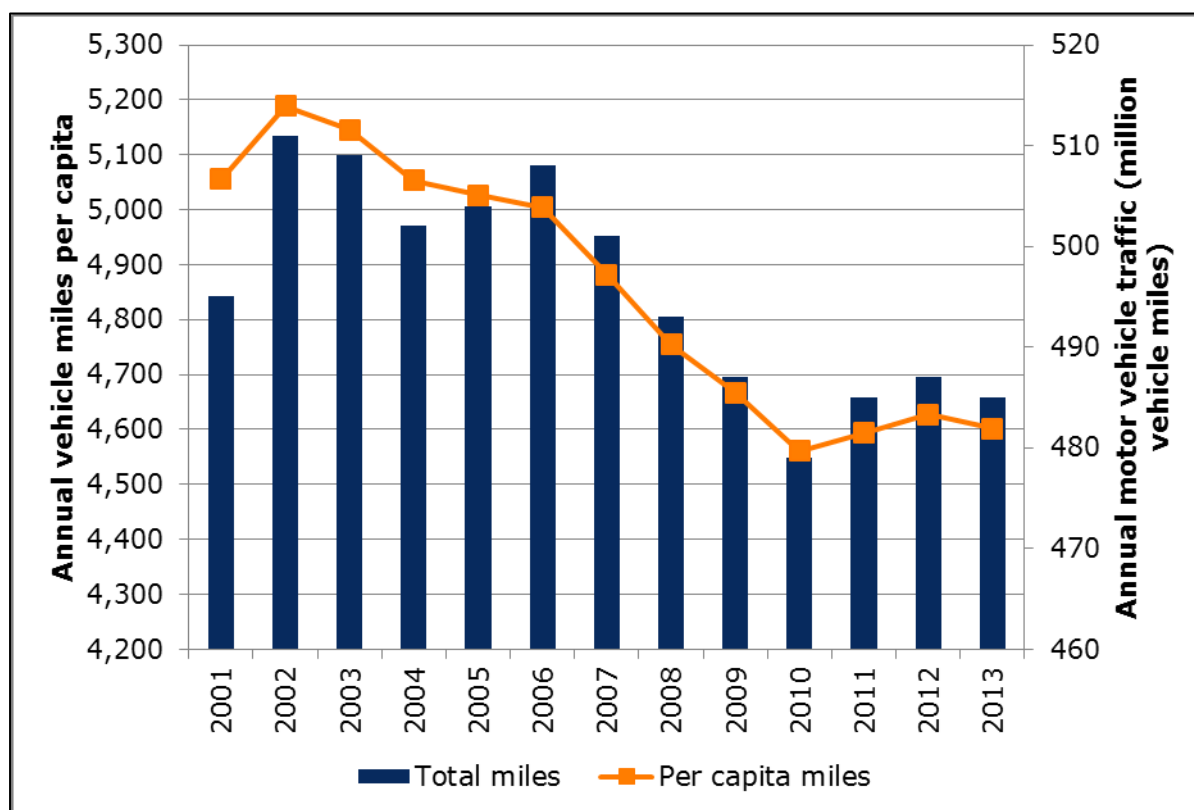
Table 11: Variance in traffic levels over time*

	2003/4 to 2008/9	2008/9 to 2012/13	2003/4 to 2012/13
Changes in total traffic (NRTE data)	-3.1%	-0.8%	-3.9%
Changes in traffic miles per capita (NRTE data)	-7.6%	-2.0%	-9.5%

*Two years of data have been averaged together, given the dramatic changes around 2008-9. It should be noted that this is not the approach that was adopted in the original STT evaluation, and may therefore lead to some differences in numbers.

C.8.3   Summary

The picture shown by both data sets is reasonably consistent. Specifically, before 2006, traffic levels in Darlington were possibly reducing on a per capita basis, but increasing on an absolute basis (albeit with some stability in the central area). From 2007 onwards, there was a significant reduction in both absolute and per capita traffic levels, particularly in the inner and suburban parts of Darlington. This was then potentially exacerbated by the recession, as shown by the fall in traffic levels at the outer cordon in the second half of 2008. Since that time, the situation is more complex. Traffic levels overall are considerably lower than they were in 2006 in all locations. The general trend in the inner and suburban areas has been one of continuing decrease, whilst the trend at the outer cordon has fluctuated since a low point at the end of 2009. NRTE data

suggests that traffic levels may have started to fall again in 2013, although more recent data would be needed to conclude this with confidence, and 2014 local traffic counter data was not available, given the major road works on the inner ring road which made the data unreliable.

C.9 Summary

Table 12 provides a summary of the main findings. It should be noted that in all cases, the new data obtained has largely corroborated the findings in the previous study. Looking at individual modes:

- **Traffic** fell by about 2% overall during the Sustainable Travel Towns period, but by more like 6% in the inner area, and as measured on a per-capita basis, with these larger reductions being evident before the economic downturn. Between 2008/9 and 2013, there were further reductions in traffic, suggesting an overall reduction (since 2004) of 4-6% in total traffic levels (NRTE/Darlington data), but a greater reduction in levels in the inner area (perhaps 8%, according to Darlington's ATC data) and on a per capita basis (perhaps 10% to 11%, NRTE/Darlington data). Whilst traffic levels around the edge of the town seemed to stabilise after the economic downturn, the other parts of the town have largely experienced ongoing reductions.

- **Bus use** declined throughout the relevant period of available data (2004/5 to 2013/14), but that rate of decline reduced significantly around 2006/7, perhaps in part reflecting the range of changes made by Arriva when they became the main operator in 2007, with subsequent redesign of the bus network. It is also possibly that bus passenger numbers started to stabilise, in the wake of initiatives such as the TVBNI project. Those interviewed felt that one positive outcome of the work both during and after the STT period was the partnership working arrangements developed with rail and bus operators . Positive trends in **rail use** were also reported (although rail travel was not a focus of this report).

- **Cycling** showed a very dramatic increase during the STT period, growing by 50-100%. This was particularly evident for school travel, where there was a six-fold increase in the proportion of pupils cycling to school. **Walking** also increased substantially during the STT period, albeit that the scale of increase was not so dramatic. Since that time, both the higher cycling and walking levels have been maintained. (For walking, this is at least true for the summer). This is an important finding, since one of the key questions about the effectiveness and value for money of the STT / CDT investment related to the longevity of the resulting behaviour change, and whether there would be a rapid 'decay' of effect, with travel behaviour reverting back to pre-intervention patterns over time. This did not appear to have happened at the time of this analysis. There was some indication that further increases could be starting, potentially as a consequence of the start of LSTF activities. Those interviewed felt that delivering a step change in walking and cycling levels was one of the main legacy benefits of the STT (and CDT) work.

- **School travel** showed an overall downward trend in pupils driven all the way to school on their own, albeit that this trend had fluctuated. Those interviewed felt that changes in school travel patterns very much reflected the work that was done on school travel in any year, where short term funding problems had

resulted in an increase in car use around 2011. Cycling to school remained much higher in 2013/14 than in 2004, but had fallen back since the peak in 2010/11. This could reflect a shift towards a more multi-mode focus of the school travel work, once the CDT project came to an end. Consequently, the cohort receiving the cycling promotion intervention would have moved through, whilst more recent work had focused on encouraging a more general shift away from single-occupancy car use.

- Census data on **commuting** suggests that there was a measurable increase in cycling to work between 2001 and 2011, although there was also a shift from bus use to car use, possible reflecting the broader trends of decentralised employment, and people seeking work further afield in the wake of the economic downturn.

Table 12: Summary of changes in travel trends

Key findings from Sloman et al. (2010)*	New evidence
CAR USE AND TRAFFIC LEVELS	
Car use fell by 6~7% per person, in terms of distance, between 2004 and 2008, based on large-scale household travel surveys According to automatic count data, traffic in the inner area fell by 5-7%, while traffic in the outer area rose by up to 2%, between 2004 and 2008, contributing to a 2-3% reduction in traffic levels in the town overall.	Automatic traffic count data suggest that traffic levels in the inner and suburban parts of Darlington continued to fall, whilst traffic in the outer area fell sharply during the economic recession, but subsequently stabilised. The automatic traffic counters suggested traffic reductions in the inner area were in the order of 8% between 2004 and 2013, whilst there was an overall town-wide reduction in traffic levels of 6% (which would be equivalent to about an 11% reduction in per capita levels). NRTE data broadly agrees with the other data sources, suggesting an overall reduction in traffic of 3% in the period 2003/4-2008/9, equivalent to an 8% reduction in car miles per capita. Since that time, further reductions have occurred, and NRTE estimates suggest that absolute traffic levels have fallen by about 4% between 2003/4 and 2012/13, equivalent to a reduction in car miles per capita of about 10%. The slightly lower figure for overall reduction may partly be accounted for by the fact that NRTE data are borough wide, rather than focused on Darlington.
BUSES	
Bus boardings decreased by 13% between 2004/5 and 2008/9	From 2006/7, the rate of decline in bus patronage appears to have substantially reduced, compared to changes in the preceding two years. It is also possible that bus passenger numbers started to stabilise in 2012/13.

* Extracted from Section 7 of the summary report

Key findings from Sloman et al. (2010)*	New evidence
CYCLING	
Before 2006, cycling levels were fairly stable. There was substantial growth between 2004/5 to 2008/9 (shown in both ACCs and cordon counts), of the order of 50-100%. Household travel surveys were consistent with major growth.	ACC and manual count data confirms the 'levelling off' after the end of the STT / CDT period. Cycling remained at the new, higher, level. 2014 manual count data suggests that further growth may have started, although available data were too limited to confirm this as a new trend.
WALKING	
Before 2004, walking into the town centre was declining. Between 2004 and 2009 (but mainly in the earlier part of this period), manual counts show walking into the town centre increased substantially (+43%). Household travel surveys suggested an average growth in walking distance of 15-20% between 2004 and 2008.	Summer counts suggest that the higher walking levels achieved during the STT period were maintained to 2014, and may have started to increase again. However, data about walking into the town centre at other times of the year (available only from 2006 to 2013) suggests that there may have been some drop in overall levels after 2009.
SCHOOL TRAVEL	
During the STT period, 70% of schools experienced a fall in car use (and 30% an increase). Cycling – a particular focus – increased from about 1% to about 6% of all trips to school. This was sometimes at the expense of walking, but overall levels of active travel still increased.	Between 2004/5 and 2013/14, there was a reduction in the number of children travelling by car (all the way, not sharing) at both primary and secondary schools, with an overall shift in mode share from 25.8% to 18.9%. According to an index of cars per 100 children created for this study, the number of cars per 100 children fell from 28.1% in 2004/5 to 26.0% in 2008/9. In 2011/12, it rose to a high of 29.8%, before falling back to 23.3% in 2013/14. Meanwhile, cycling levels increased substantially from less than 1%, peaking at 7.5% in 2010, before falling back to a share of 5.4% in 2013/14.
COMMUTING	
There was no evidence on commuter mode share from Darlington.	Data from the Census about travel to work suggests that, between 2001 and 2011, there was some increase in car/van use, at the expense of bus use, and a 1%-point increase in cycling mode share. However, it should be noted that this is data for Darlington residents and will reflect a significant proportion of inter-urban trips, and will not capture change in commuter behaviour by those who commute into Darlington from elsewhere.

* Extracted from Section 7 of the summary report

C.10 Comparison with national trends

- Absolute **traffic levels** in Darlington started falling before the economic downturn (particularly in the inner area), and continued to fall in the inner part of the town. This led to overall traffic reductions between 2003/4 and 2012/13 that were either comparable or greater than those which occurred nationally.

- Between 2003/4 and 2012/13, **car use per capita** (as evident from NRTE data) also fell in Darlington, by the same or a greater amount than nationally.

- **Bus boardings** in Darlington declined by more than the national reduction. There was a reduction in the rate of decline from about 2006/7, but, given the national boost to bus travel from concessionary fares, it is difficult to know how far this change can be attributed to local improvements to the bus offering.

- **Cycling and walking** levels in Darlington both increased substantially during the STT period, and these higher levels were largely sustained after that time, whereas the national trend was for reductions in walking, and considerably smaller increases in cycling mileage. There were also signs of further recent increases in cycling and walking, following LSTF activity, although available data were too limited to conclude this with any certainty.

- Car use for **school travel** declined in Darlington during the STT period, with further reductions since then, and a particularly dramatic increase in the share of pupils cycling to school. Whilst there was a small reduction in car use at the national level during the STT period, national trends have since reversed, with a small increase in car use, and no change in the cycling mode share.

- Trends in **workplace travel** showed a slightly greater increase in car use for work in Darlington compared to the national trend, but, at the same time, an increase in the proportion of people commuting to work by bike. Given the change in economic circumstances, local authority officers reported that many people have had to travel further (outside the Darlington urban area) for employment, which may partly account for this change.

In summary, during the STT period, Darlington had a strong programme of walking and cycling promotion, which was conducted in partnership with substantial infrastructure improvements as part of the Cycling Demonstration Town activity. This boosted walking, and to a greater extent, cycling to higher levels than previously, in contrast to national trends, and these higher levels were sustained after the ending of the STT period. Considerably more people were travelling to school or work by bike in Darlington than nationally. Gains in walking and cycling had been matched by reductions in the proportion of children travelling to school by car. Funding cuts after the end of STT programme led to relatively curtailed activity at that point. Since the start of LSTF funding, sustainable travel work had begun to gain impetus again. There was some indication that this could be leading to further increases in cycling, further reductions in car travel for school travel and possibly further increases in walking, although, at the time of this analytical work, it was too early to make that judgement.

Appendix D Peterborough

D.1   Overview of Peterborough's activities

D.1.1   Background

Peterborough, a unitary authority in the East of England, was designated as a 'New Town' in 1968. Since that time, it has experienced rapid housing and employment growth. According to the Census, between 2001 and 2011, its population increased from 156,061 people to 183,631 people, representing growth of nearly 18%, whilst the working population increased even more, by nearly 21%. In 2008, the population of the urban core (i.e. excluding the rural hinterland) was estimated to be 144,000 – the implication is that about 80% of the borough population live within the city.

According to Sloman et al (2010), whilst smart measures were initially adopted as a means of minimising traffic growth and creating capacity to facilitate new housing development, they were increasingly being seen as a strategy for tackling carbon emissions. Since that time, Peterborough's aspiration to be the UK's 'Environment Capital' has continued, with 'sustainable transport' comprising one of the 10 policy areas intended to contribute to that ambition.

During the STT programme, Sloman et al (2010) estimated that effective expenditure on smarter choice measures was in the order of £6.8 million, comprising approximately £3.2 million of revenue expenditure, together with supporting capital spending on school travel infrastructure, public transport information, and other public transport, cycling and walking infrastructure. Staffing levels rose from about 3.25 FTE posts in 2004 to about 9 FTE posts in 2008.

D.1.2   Resources for sustainable travel work since 2009

In 2009/10 and 2010/11, Peterborough City Council (PCC) continued its smarter travel work under the Travelchoice brand, using revenue funding allocated from the Council's core budget and capital funding from the Integrated Transport Block (ITB). In addition, the Council's revenue budget covered the cost of the Travelchoice team staff (which was 6 FTE immediately after the completion of the STT programme). However, overarching pressures on Council budgets at that time were high, and actual expenditure on Travelchoice initiatives was less than initially budgeted, with funding being reallocated. Members and senior managers remained supportive, but required greater justification of activities, not least as all budgets became subject to close scrutiny.

The STT experience then enabled the swift mobilisation of support for preparing an LSTF bid, helped by the growing national interest (and cross-party support) for cycling, and the evolving Environment Capital aspiration. In 2011, the Council was granted £5m funding for its Local Sustainable Transport Fund (LSTF) programme, 'Travelchoice Plus', which committed to continuing the Travelchoice programme until at least 2014/15, (with total budget of £15.7m including £10.7m local contribution). Specifically, each year between 2011/12 and 2014/15, approximately £65k of Council revenue budget was allocated to Travelchoice. However, due to delays and internal budget pressures, again, spend did not always match the budget. Every year since 2009, the smarter travel work delivered under the Travelchoice umbrella was also complemented with a range of

capital projects benefiting walking, cycling and public transport, funded from the ITB through Local Transport Plan 3 (LTP3).

Other sources of funding for sustainable transport work that were mentioned included:

- Plugged-in Places grant (DfT): £24k, 2011/12-2012/13, three electric vehicle charge points installed.

- Cycle Safety Fund grant (DfT): £128k, 2013/14, Burghley Square cycle junction improvement.

- Approximately £120k of Section 106 contributions to capital and revenue initiatives between 2008 and 2014, supporting sustainable transport and smarter travel in relation to new developments. These initiatives were seen as being complementary to the work of Travelchoice but were not usually delivered directly by the Travelchoice team.

- £43m refurbishment and expansion of Peterborough Rail Station, which opened in 2014. While this activity complemented the Council's work on smarter travel, it was funded and completed by Network Rail.

- Funding for Bikeability.

- 'Travelchoice Focus' 2015/16 LSTF bid (DfT): £900k revenue funding (contributing to an £11.2m total programme budget, including £10.3m local contribution, dependent on other funding).

At the time of the interview, there were 5 FTE positions dedicated to the delivery of smarter travel initiatives within the Council, although only 4 FTE positions were filled. A number of other officers from highway services, and, where relevant, officers with specialist financial, procurement and legal expertise, were involved in delivering individual initiatives. However, those interviewed felt that it was difficult to quantify this officer time spent supporting smarter travel, and their input was seen as part of delivering their wider, overall role.

Since 2009, there had been high turnover of staff and long term vacancies, and between 2009 and 2012, the team fell to just 2 FTE staff. Reasons given for these problems during the interview included: appointment delays caused by internal restructures and recruitment freezes (as a result of the wider economic climate); long recruitment processes; and the nature of the work often appealing to recent graduates who then moved on.

Changes in funding and staffing levels – and the need to scale activities down or up accordingly – were reported as being the main challenge since the STT period, including the difficulties with spending large amounts of money quickly and effectively from an under-resourced team; and building long-term partnerships with schools and workplaces when there were staff discontinuities.

Figure 20 shows capital and revenue spending on Travelchoice over time. Data to 2008/9 reflects calculations made in the original evaluation study. Data from 2009/10 onwards indicates figures provided by the local authority interviewees, based on their assessment of what has constituted 'Travelchoice' activities. These figures do not include any local contributions to Travelchoice work from teams or organisations outside Peterborough Highway Services, such as the Section 106 funding from developers (which was estimated to be worth £120,000 between 2008 and 2014) or rail station development

(including £43 million spending on refurbishment and expansion of Peterborough Rail Station).

Figure 20: Spending on Travelchoice since the beginning of the STT period
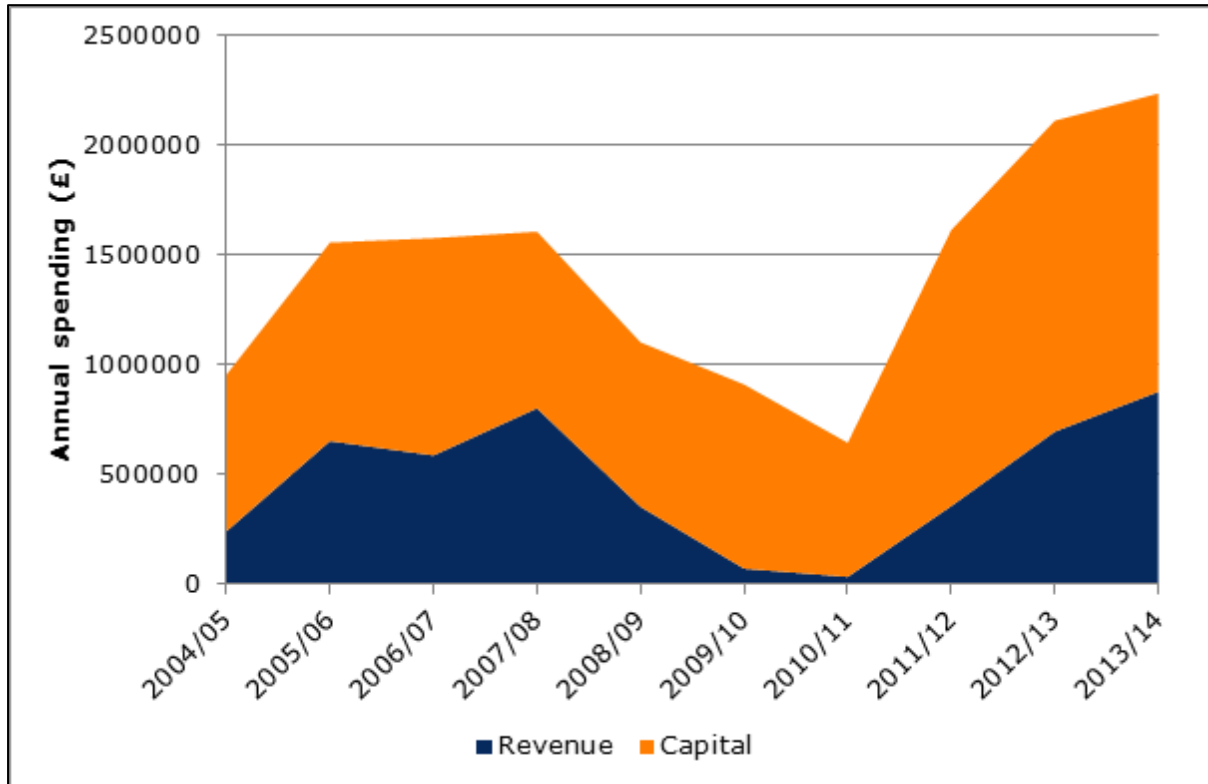
Notes: Budgeted figures for council spending were greater than actual spending throughout this period, due to delays and internal budget pressures. Revenue spending in 2009/10 and 2010/11 came from council budgets. After that time, it came from LSTF. Capital funding was generated from a combination of LTP3 and LSTF funding. In 2011/12 and 2012/13, it included £24k Plugged-in Places funding, whilst in 2013/14, it included £128k Cycle Safety Fund funding.

Officers felt that there was strong support for Travelchoice, as evidenced by the annual Council revenue budget for Travelchoice work; the focus on sustainable transport in LTP3; the inclusion of a sustainable transport element in almost all transport schemes (and its high profile in the 2011 Core Strategy); and having a Councillor who was acting as a 'Cycle Champion'.

During the STT period, the Travelchoice team worked to establish positive working relationships with their planning colleagues. One legacy was that Development Planning and Control officers were continuing to stipulate robust requirements of developers in relation to sustainable travel. For example, residents of all new developments larger than ten dwellings were being targeted through household travel information packs, funded through Section 106 contributions from developers. The Travelchoice team was receiving £10 per household to provide the necessary leaflets, maps and timetables, while the developer was also providing a month's bus pass or £50 voucher for a local bike shop. Developers were also required to fund bus stop improvements at the two bus stops closest to their development, and, in the case of larger developments, to contribute to enhancement of local bus services as well as local walking and cycling

routes. Where appropriate, workplace travel plans were also being required, as well as necessary associated sustainable transport infrastructure.

The Travelchoice team was also working with various other teams, including the Council's *Live Healthy* team, with responsibility for public health, and *Vivacity*, a charity managing Peterborough's cultural and leisure services. Live Healthy and Vivacity were both LSTF delivery partners, running active travel initiatives.

Peterborough City Council is also part of the *Greater Cambridge Greater Peterborough Enterprise Partnership,* a partnership of 13 local authorities. This LEP is seen as being supportive of sustainable travel. Various walking and cycling schemes were put forward for Peterborough in the planning stage for the Strategic Economic Plan and some received funding. However, a number of these were unfunded at the time of the interview. Peterborough will have two schemes delivered as a result of the LEP's growth deal (worth £15 million over three years).

D.1.3   Key initiatives since 2009

Following the STT period, the Travelchoice remit changed, so that the team became responsible for delivering smarter travel initiatives across the entire authority area, i.e. also including the city's rural hinterland. In 2009/10 and 2010/11, officers felt that about 90% of Travelchoice's focus was on continuing STT initiatives, whilst 10% involved expanding these to the rural area (including, for example, installing interchange posters at rural bus stops, and adding a rural edition to the existing suite of 'Area Guide' transport leaflets). Since that time, about half of the focus had become about expanding and replicating proven initiatives to open them up to new audiences, whilst the remaining effort was split between continuing previous initiatives, and introducing new initiatives (in particular, taking advantage of new technologies).

With the exception of personalised travel planning (PTP), officers felt that the balance of the Travelchoice programme had remained broadly similar to that during the STT programme, with the majority of effort being put in to walking, cycling and travel awareness, while public transport and travel planning were secondary foci. Encouraging active travel, in relation to healthy living, was an expanding theme. Peterborough also had a more substantial workplace travel planning programme than the other two towns.

Figure 21 indicates the balance of the programme in 2014, according to officer assessment of strategic focus and staff effort. However, officers stressed that this balance alters over time. For example, bus-related activity fell after bus service cuts were made in October 2013, whilst rail-related activity became more important in 2012/13 during the implementation of the station access improvement scheme. PTP activity was not continued in 2009/10 due to lack of budget, issues with accessing information about which households had already participated, and the sense that a saturation point had been reached. Since 2012/13, two further PTP activities had taken place, as discussed in Sections D.6.1 and D.7.1. Some PTP activity was also planned for 2015/16, focused on key destinations.

Figure 21: Breakdown of Travelchoice spending in 2014
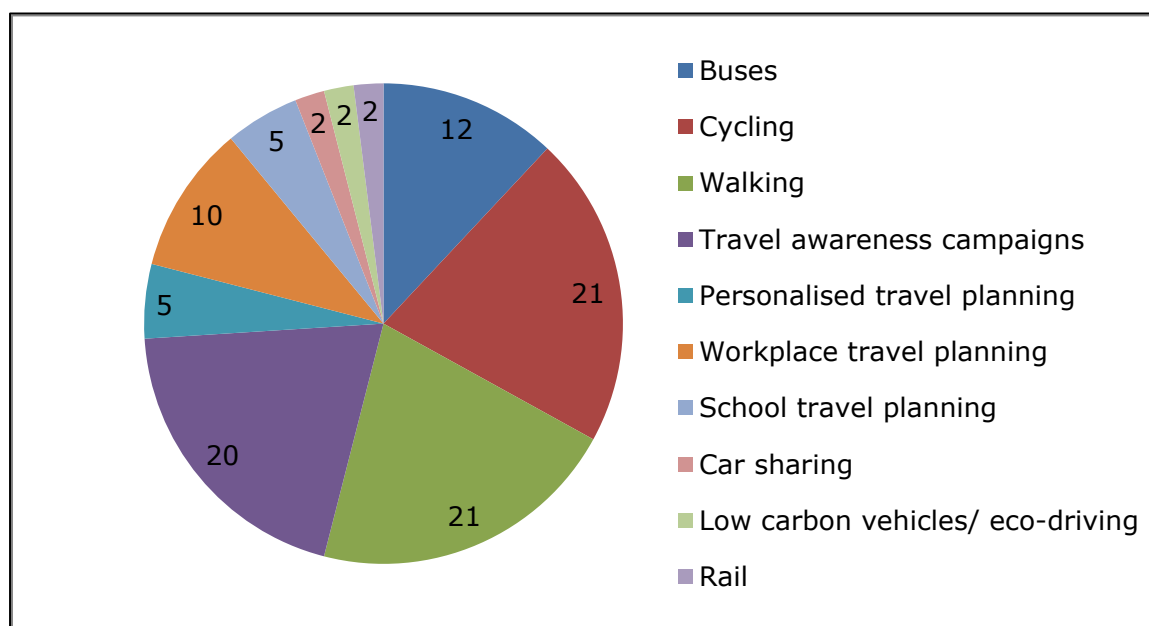
Other changes since the STT period included: phasing out paper-based resources in favour of web resources (particularly for maps and timetables, given updating costs); developing tighter contracts with external suppliers delivering Travelchoice projects; working more closely with external partners outside transport (including public health, leisure and environment); and embedding sustainable travel within a number of core policy documents (of both the council and local stakeholders).

D.1.4   Other changes affecting travel in Peterborough

Other changes affecting travel in Peterborough since the end of the STT period included:

- The introduction of further concessionary fares in 2008.

- The decentralisation of Peterborough District Hospital in 2010/11, from a city centre to a ring-road site, leading to reduced traffic, and increased vehicle speeds on Thorpe Road.

- Increases to capacity at Parkway Junction 5 in 2012, which led to initial congestion and delays due to roadworks, subsequent alleviation of those problems, but could lead to induced traffic in the longer term.

- Major improvements to Peterborough Rail Station between 2012 and 2014 by Network Rail, which were complemented by LSTF spending on improvements to station access, including a new cycle compound.

- Bus fare rises in April 2012, and service changes from 2013.

- Public realm improvements to Bourges Boulevard 2014-15, to improve a key link between the rail station and the bus station/city centre for pedestrians and cyclists.

- Opening of the 'University Centre Peterborough' in 2009, which had about 600 students in 2014.

- Ongoing residential and commercial developments, which, between 2009 and 2014, had included 4,191 houses, 31,656m^2 of new office space, 114,000m^2 of new industrial space and 63,400m^2 of new retail space.

D.2   Buses

D.2.1   Factors affecting bus use

Stagecoach was closely involved in the STT programme from its inception. From 2004, it introduced new Citi services, with expansion of these in 2006 and 2008. Meanwhile, the council also expanded the provision of its own 'Local Link' services. These service changes were complemented by ongoing bus stop improvements, better bus stop information (including the introduction of a 'Text and Go' service and route-by-route installation of real time information from 2006), promotion through PTP activity, a range of ticket offers, improvements to a travel advice centre (situated in the bus station), the introduction of an interactive journey planning kiosk, work with schools, and general travel awareness raising.

Following the end of the STT programme, the roll-out of real time information and small scale bus stop improvements continued. The bus station information centre and interactive kiosk were continued and bus stop interchange posters were maintained until 2012 (with the addition of some rural locations). The 'Text and Go' service continued, although users were charged for texts from 2009 and, by 2014, it was not being actively promoted given smartphone and RTPI technology. One of the Citi services was extended to serve the new hospital in November 2010.

Since 2011/12, there had been upgrade work on the bus station, and a smartcard for Stagecoach services was launched in 2013 (with council funding support). However, there had also been less positive changes. There were fare rises in April 2012 (which were reported to be due to the cut in the Bus Services Operators Grant and fuel duty increase), and then again in April 2014. Some commercial services were reorganised in January 2013, and the council's network of Local Link services was cut from 8 to 3 in October 2013. There had also been some negative reporting about buses in the local media.

D.2.2   Changes in bus use

Peterborough provided data about the number of local bus journeys originating in the Peterborough local authority area. This was essentially the same dataset as the national bus dataset[18].

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[18] In the national dataset, the 2009/10 figure was higher, but the data supplied by the local authority clarified that this figure had subsequently been corrected. The 2013/14 figure is taken from the national dataset, as this was not in the data supplied by the local authority.

Figure 22: Bus passengers in Peterborough over time
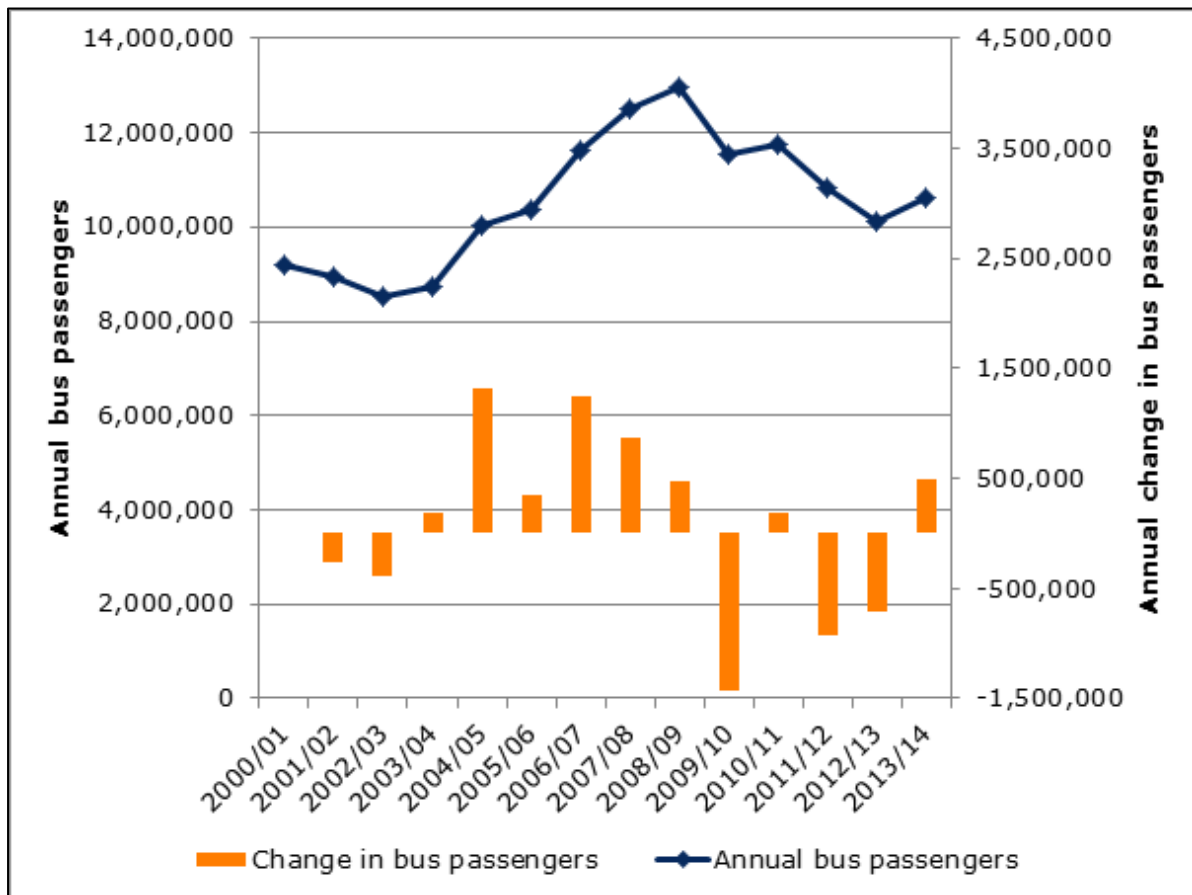
D.2.3   Summary

Growth in bus use in Peterborough was a major success story from the STT programme[19]. However, it appears to have declined significantly from 2009/10 onwards, with an overall decline of 18% between 2008/9 and 2013/14. Some reductions can probably be attributed to fare rises and service cuts from April 2012 onwards. However, this leaves periods of patronage decline without an obvious explanation (2009/10 to 2011/12), during which patronage fell by 6%. The local authority noted that this was a period of national decline in bus use, not least due to economic circumstances impacting on jobs and retail activities, and particularly bad weather in the winter of 2010/11. Fuel prices were also fluctuating. However, the local authority also reported that reductions in bus service promotion and publicity were considered to be part of the cause – i.e. reflecting a reduction in activity of this type following the STT programme.

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[19] This was estimated as being 40% in the original study based on data for the Citi and Local Link services. The data provided for this study suggests growth of 29% between 2004/5 and 2008/9, based on data about all bus boardings in Peterborough, including inter-urban services.

D.3 Cycling

D.3.1 Measures affecting cycling

At the outset of the STT programme, Peterborough had a fairly comprehensive cycle network, comprising over 200km of cycle routes. During the STT period, additional cycle parking was installed, a city-wide cycle map was produced, cycle training in schools took place, and various promotional activities occurred, including a summer 'Cycle Revolution' festival. An innovative way-finding project, involving the installation of various measures including solar studs, was trialled on two routes.

From 2009/10, the installation of cycle parking continued (with the installation of a further 485 spaces, including 290 spaces at the rail station). By 2014, five cycle route schemes had also been built, comprising 2.3km of route, and two further routes were signposted with solar-powered illuminated studs. 11,238 cycle maps had been sold between 2009 and 2014, and school cycle training had continued, with an upgrade to Bikeability in 2010. Bike Week was being held annually, and, from 2010/11, Travelchoice has also funded and managed activities in relation to a Tour Series event. Issue-specific promotions (e.g. on lights, and locks) had also taken place. In 2013/14, eligible applicants (such as those on low incomes or job seekers) had been gifted a free bike, plus associated security/safety equipment. A 20 bike Brompton Dock hire facility was installed at the train station in March 2013. The Cycle Safety Fund also enabled a major junction improvement in 2013/14. Adult cycle training and led-cycle rides were also taking place. Cycling had also formed part of wider active travel promotion, as discussed in Section 0.

D.3.2 Changes in cycling levels

D.3.2.1 Data from automated cycle counters

Data from eight automatic cycle counters were available from 2005, as shown in Figure 23. Five of these counters[20] provided a sufficiently continuous data series that they could be summed to produce an idea of trend. Figure 23 shows both this line, and a 12 month rolling average of the values. After August 2013, discontinuities in three of the counters meant that further interpolation was deemed unwise, although the indications from all counters with available data are that cycling levels in summer 2013 were higher than in summer 2012, and the overall trend would be upwards. This is confirmed by the trend shown for the two counters that did have relatively continuous data series[21].

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[20] These were Oxney Road, Eastern Industries Subway, the Boathouse at Thorpe Park, Ravensthorpe and the North Etton Green Wheel. Various months of missing data were interpolated, based on the average change between the month in question and the previous months at the other four counters. In total, about 18 months of missing data were interpolated, of which 9 were for the North Etton counter which has very low flows.

[21] These were the counters at Ravensthorpe and the Boathouse at Thorpe Park, which have been used to generate the 2 ACC data series for Peterborough given in the summary report.

Figure 23: Automatic cycle count data for Peterborough (from 2005)
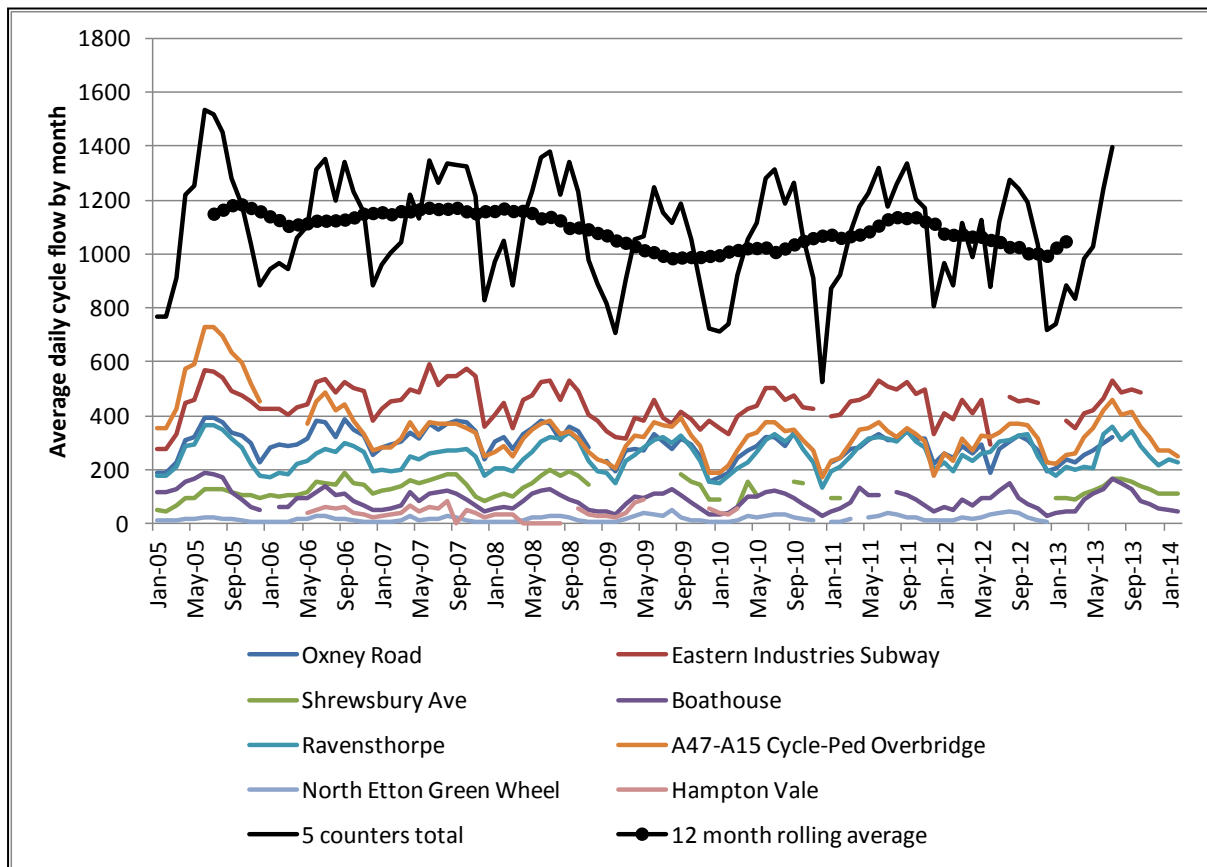
12 month rolling average calculated for month 7 of each 12 month period, shown by the thicker line comprised of overlapping black circles.

A number of new ACC counters were installed on key routes relevant to the LSTF programme from 2011/12. During the STT programme, officers reported that the location of ACCs was not considered optimal for detecting changes in cycling levels in the city. The new data are shown in Figure 24. A trend line has not been added, given the relatively disparate series, although several of the counters – such as Westfield Road and Frank Perkins – do provide a relatively continuous series for the two year period, and do appear to be showing growth.

D.3.2.2 Data from manual counts

Peterborough has undertaken manual counts in spring each year on a long term basis at 8/9 sites comprising an urban screenline. In 2005, five new city screenline sites were introduced, as a way of assessing walking and cycling in the north-eastern part of the city. Figure 25 shows the values for cycling.

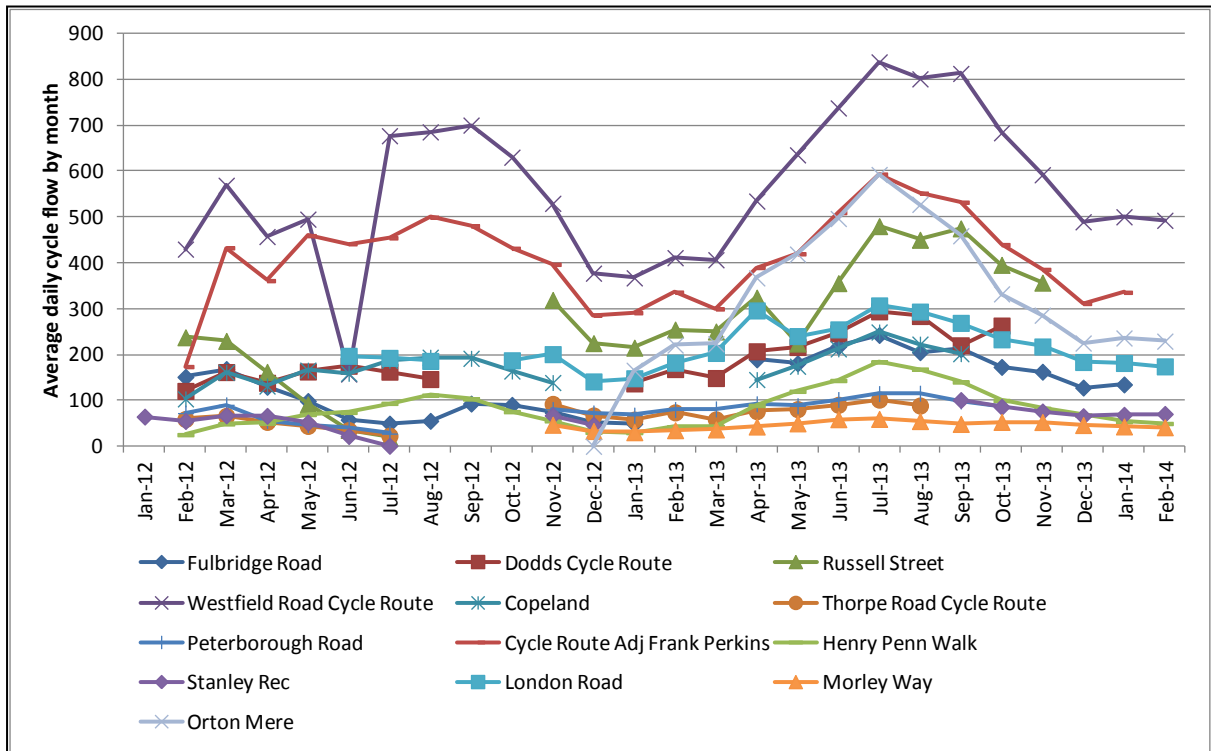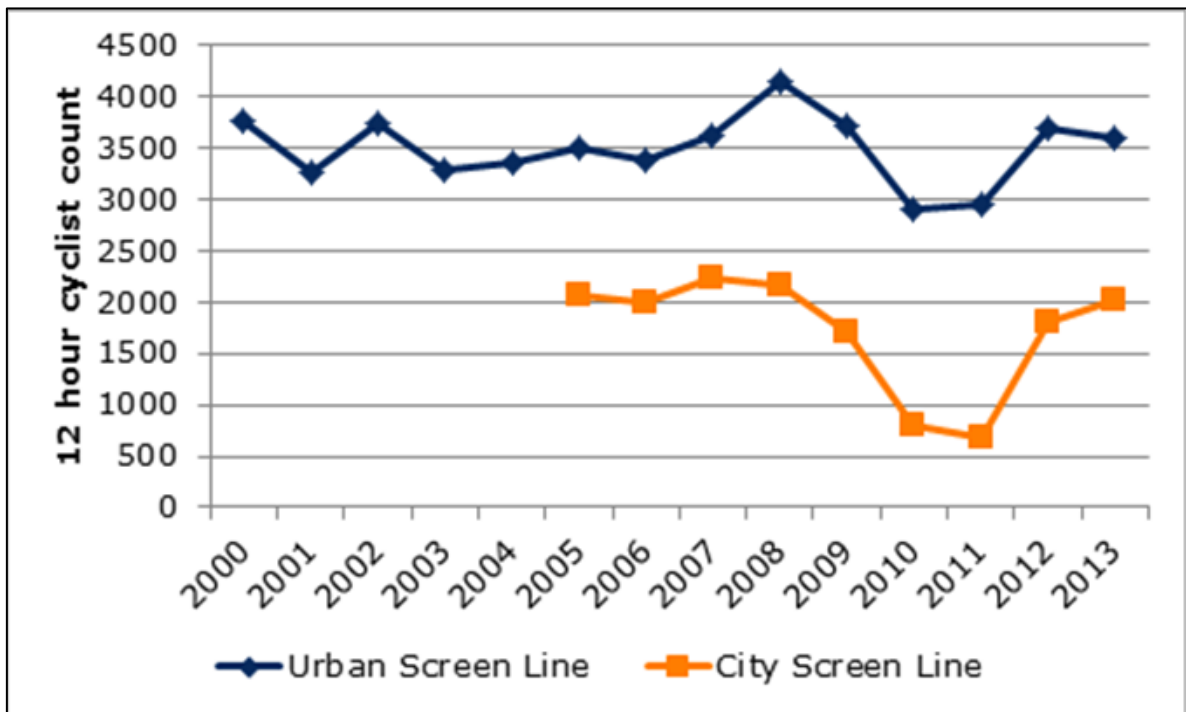**Figure 24: Automatic cycle count data for Peterborough (new counters)**

Figure 25: Trends in number of cyclists into Peterborough town centre, as demonstrated by the cordon counts

D.3.3   Summary

The automatic count data should be considered the most reliable. This showed a summer peak in cycling in 2005, followed by maintenance of cycling levels for most of the STT period. Cycling levels started to decline from around spring 2008, though with gradual growth in summer cycling levels between 2009 and 2011. There was also evidence for further growth between 2012 and 2013. The manual count data is not entirely consistent, but does support the picture of stable or increasing cycling levels during the STT period, followed by some decline, and then more recent growth.

D.4   Walking

D.4.1   Measures affecting walking

Walking-only activities were relatively limited. They had included the installation of 13 totem signs, and 13 fingerposts, to assist with city centre wayfinding, adding Peterborough to the national walking journey planner, and small-scale infrastructure schemes. However, walking had also featured in general travel awareness work (as discussed in Section D.7.1) and, since 2011/12, via LSTF funding, in a programme of activity promotion run by the Live Healthy public health team. This had included the distribution of about 10,000 pedometers, the recruitment of about 300 volunteer health champions (then trained to raise health awareness amongst their peers), and various courses aimed at encouraging healthy eating and physical activity including active travel, targeted at families ('Morelife'), 5-17 years olds ('Movers and Shakers') and those aged 16+ ('Let's get moving' and 'Let's keep moving').

D.4.2   Changes in walking levels

As well as the data from workplace, school and household surveys (discussed in other sections), there were screenline counts about changes in walking levels.

Specifically, two sets of screenline counts were available for Peterborough, and these are given in Figure 26.

The urban screenline shows a major increase in walking during the STT period, which was then sustained. The new city screenline suggests that there was also a major increase in walking in that area between 2009 and 2010, and that walking levels were subsequently maintained at that higher level.

Figure 26: Trends in number of pedestrians into Peterborough town centre, as demonstrated by the cordon counts
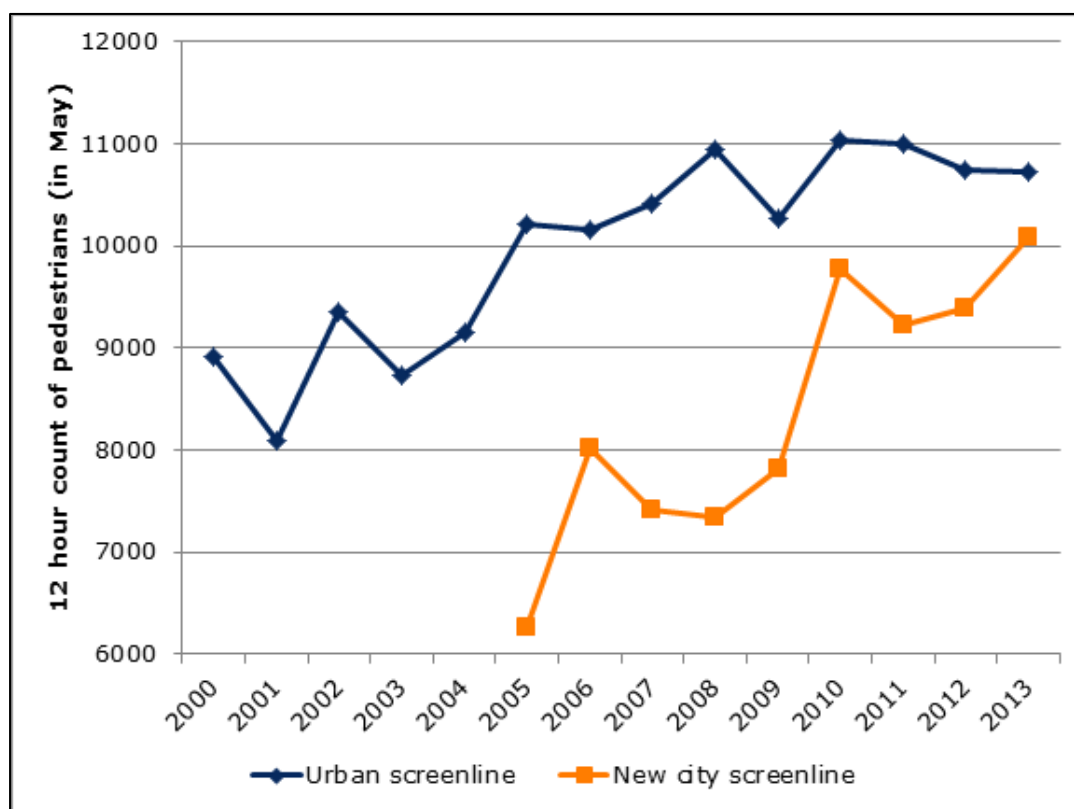
D.5 Work with schools

Between 2004 and 2008, the number of schools with travel plans rose from 8 primaries, to 43 primaries and 10 secondaries. In 2014, 56 primary schools and 11 secondary schools were reported to have a travel plan, comprising almost all schools in the area. Following the STT period, the 'safer journeys to school' programme of small capital works, benefitting 2-3 schools per year, continued. Cycle training continued, with an upgrade to Bikeability in 2010. A Peterborough-specific walk-to-school week promotion was delivered in 2009/10 and 2010/11 (involving 12 and 16 schools respectively). Theatre in education shows on sustainable travel and pedestrian safety were delivered between 2009/10 to 2011/12 (involving 10-20 schools a year). A quarterly newsletter on sustainable school travel was also distributed. However, staffing constraints had led to some disruption, and limited the capacity to provide school travel plan support. One positive development had been the introduction of Bike It, delivered by Sustrans to 5 schools in 2011/12, 11 schools in 2012/13 and 15 schools in 2013/14.

D.5.1 Changes in school travel

Data for individual schools was supplied on an annual basis for each year between 2005 and 2011. Separate data on consolidated school results were provided for 2011 and 2014. The number of schools taking part each year varied considerably (from a low of 49 in 2006, through to a high of 84 in 2010).

There were 33 primary schools with data for all the years between 2005 and 2011. Therefore, their data were extracted and are presented in Figure 27. As shown there, the proportion of pupils travelling to school by car dropped from 37% to 29% over that

period. There were 6 secondary schools with data between 2007 and 2011[22]. These showed the same (albeit even more dramatic) trends – car use dropped from 30% to 20% of pupils, whilst walking rose from 26% to 44%. Bus use fell from 29% to 25%, whilst cycling fell from 13% to 10%.

The consolidated data supplied for 2011 to 2014 shows a less positive picture – across all schools, the car/van/car share mode split rose from 25.5% to 30.2%, whilst walking fell from 57.0% to 54.8%. Separate figures for primary and secondary schools show similar trends (with some shift, at secondary level, from walking to cycling and public transport use)[23]. However, whilst the 2011 survey included results from 72 schools (with data for at least 90% of pupils), only 54 schools were included in the 2014 data, so it is unclear how far the figures are influenced by the survey composition. It is also notable the 2014 primary school figures for car use (32.6%) and walking (61.5%) still appear to be more favourable than those for the cohort of primary schools in 2005.

Figure 27: Travel to school by primary school pupils (33 school cohort)
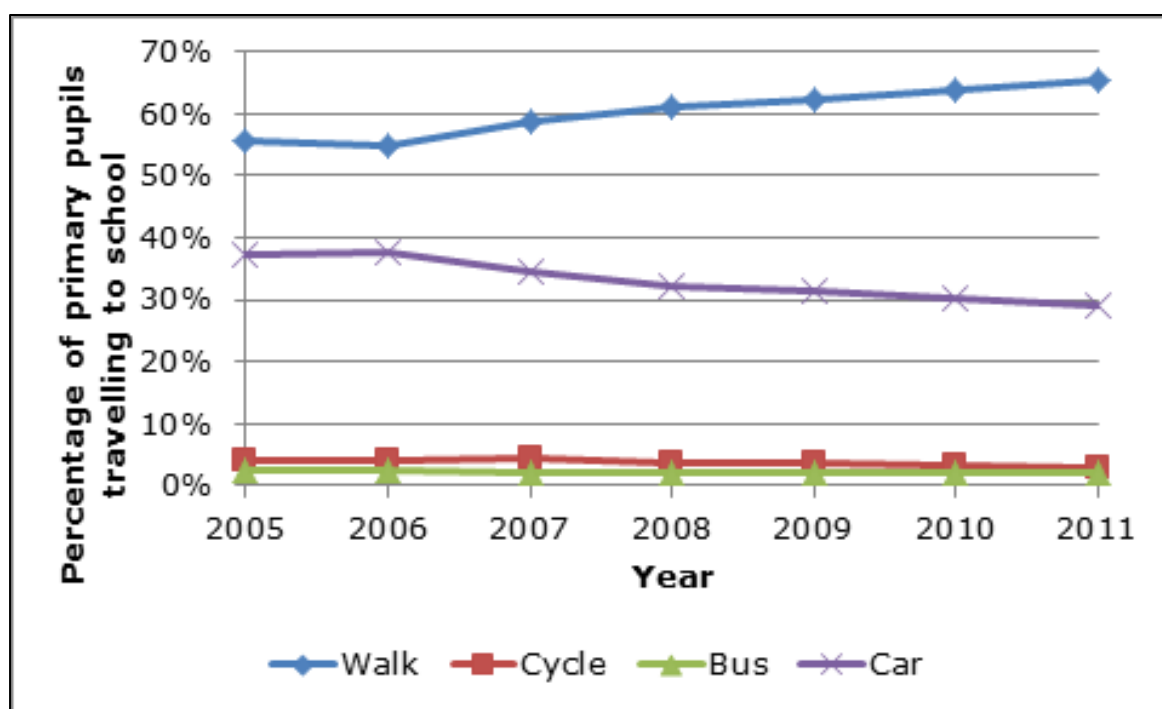
D.5.2   Summary

Data about travel between 2005 and 2011, for a cohort of 33 primary schools, shows reductions in car use and increases in walking, with similar changes occurring at the 6 secondary schools with data for 2007 to 2011. These trends would have been affected both by activities during the STT period, and some continuation after that time. Data for

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[22] None of these schools had data in 2006, and only four had data in 2005.

[23] Between 2011 and 2014, percentage mode share at primary level went from 29.6 to 32.6 for car/van/car share; 64.2 to 61.5 for walking; 2.6 to 3.7 for cycling; and 2.2 to 2.2 for public transport. At secondary schools, the percentage mode share went from 20.4 to 23.6 for car/van/car share; 48.5 to 35.5 for walk; 9.4 to 11.7 for cycling and 21.0 to 27.4 for public transport.

2011 to 2014 shows less positive trends. It is unclear how far this is due to changing sample composition. There was some diminution in general activity during that time, partly offset by more focused work on cycling at a subset of schools.

D.6 Workplaces

D.6.1 Work with employers

During the STT period, Peterborough worked in collaboration with the Cambridgeshire Travel for Work Partnership to offer an award scheme to recognise travel planning achievement. By Autumn 2008, 31 Peterborough organisations had received awards. As well as offering membership of a travel plan network, other support for employers included access to a city-wide car-share scheme, assistance in producing customised travel guides for key locations, and support with travel plan surveys and documents.

Between 2009 and 2014, the Travelchoice team estimated that they had engaged with around 60 workplaces, of whom 30 were actively involved in travel planning in 2014. Total engagement was reported to be 72 employers, of whom 64 had introduced new services, facilities or activities to reduce single-occupancy car use. The award scheme had been continued, although it became biennial from 2010. Approximately 15 Peterborough businesses were being rewarded at each event. Match-funded grants for small-scale infrastructure improvements were available, although only £3k-6k had been granted each year, as the current economic climate had meant that take-up had been low. A quarterly newsletter was being distributed to interested businesses, and the car-share scheme was ongoing. Two new sub-sites for car-sharing, targeting particular business parks, were launched in 2011/12, though low take-up meant that these were subsequently closed.

Since 2012/13, around 70 bikes (including 15 electrically-assisted bikes) had been distributed to workplaces for use as pool bikes, and Steer Davies Gleave were managing a competition to encourage, initially, cycling to work, then, from 2014, all sustainable modes of travel to work.

In addition, since 2012/13, a *My PTP* project had been delivered to workplaces. This was using postcodes supplied by companies to generate individual journey-specific sustainable travel options (including routes, maps and times). These were emailed to each employee (unless they opted out), along with information on the relative cost, CO_2 savings and calories used for each option. For walking and cycling, both a direct, and a nicer off-road, route were given. At the time of the interview, 8,347 adults from at least 17 workplaces had received information through this project. This work was being complemented by other promotional activity.

D.6.2 Changes in workplace travel

The Census highlights that the working population of Peterborough rose from 73,292 in 2001 to 88,414 in 2011, an increase of 20.6% (which compares with a population increase of 17.7% over the same period). It also provides data on how those living in Peterborough travel to work. Table 13 provides data for the main modes of travel. Data are for the whole population. The 'other' category includes: works mainly from home, underground/tube, train, taxi, motorcycle and other.

Meanwhile, Peterborough City Council had collected more specific data from organisations. Businesses were asked to take part in a bi-annual staff travel survey. Results from 2006 onwards are presented in Figure 28. The number of responses per survey varies from approximately 500 to 2000. Consolidated results (only) were supplied for this study, so it has not been possible to assess how far survey composition varies, and whether this is likely to be affecting results. The survey ceased to run in 2012 due to lack of resource. The general trends (since Autumn 2007) were for reducing car use, and an increase in the active travel share.

Table 13: Modal use for work

	Cycle	Car/ Van	Bus	Walk	Passenger in car or van	Other
Peterborough 2001	7.70	57.69	6.53	8.54	7.87	11.67
Peterborough 2011	5.67	57.54	7.31	8.53	8.5	12.45
%-point change	-2.03	-0.15	0.78	-0.01	0.63	0.78

Figure 28: Trends in commuting mode share, from workplace surveys
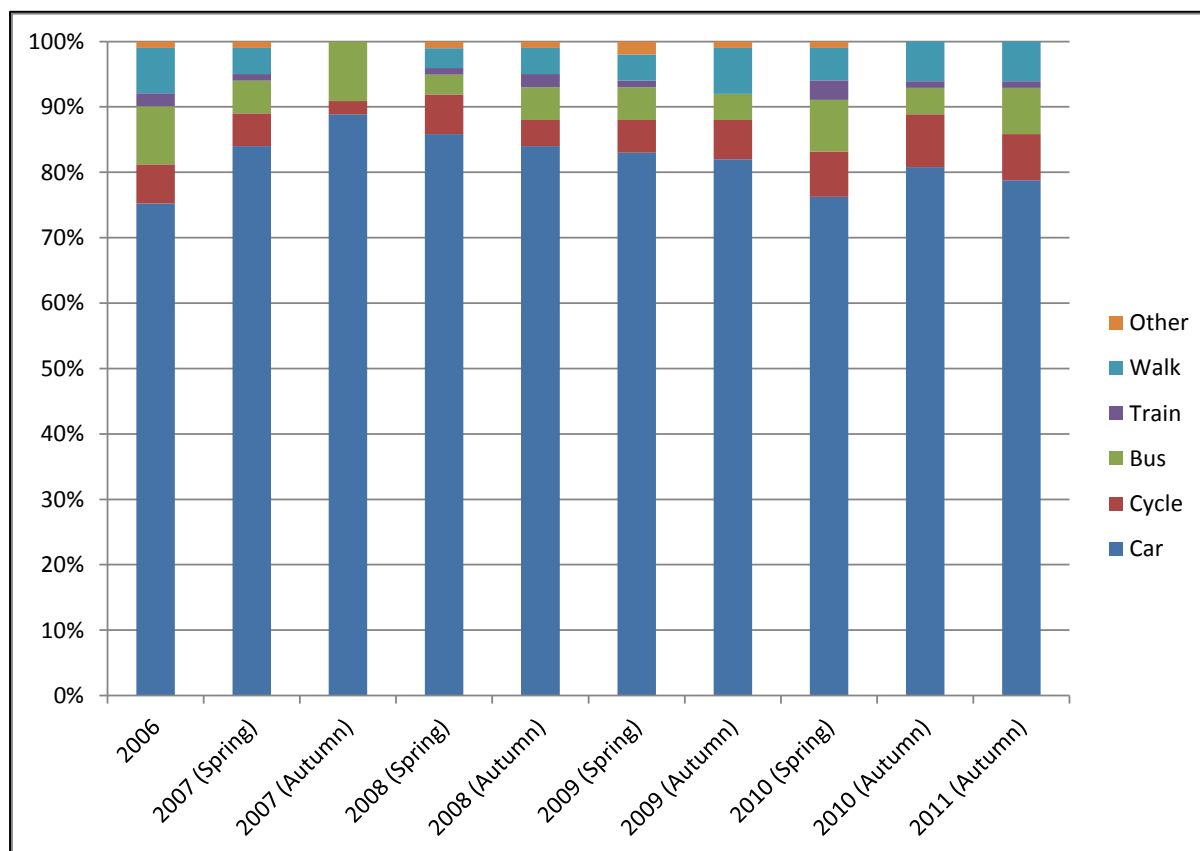
Note: The car figure represents the sum of the car (drive alone) and car share figures. It would be possible to look at these separately.

D.7 Work with Peterborough residents

D.7.1 Further sustainable travel activities

As well as the activities for specific modes described above, there had also been considerable **general travel information and marketing work**. Some paper-based resources, such as 'passport to travel' information booklets for new residents, 'transport to healthcare' booklets for healthcare facilities, and area guide leaflets were initially continued, but then phased out around 2010, in a general move away from paper-based resources. Through the **Travelchoice website**, an on-line information portal was launched in 2009/10, then revamped in 2013/14, with 50,000 unique users by the time of the interview. There was a quarterly **Travelchoice e-newsletter**, circulated to around 2,000 recipients, including those who signed up for **Good Going**, a pledge scheme established during the STT programme, whereby a pledge card for committing to more sustainable travel provides eligibility for discounts at local shops and services. 477 new members had signed up since 2013 – although, at the time of the interview, staff resources meant that the initiative was side-lined.

Sustainable travel was also being promoted through **social media** (394 twitter followers, 2,150 tweets, 180 Facebook likes at the time of the interview), through information displays at local **events** (2-3 per month), through poster and billboard **campaigns** (approximately 5 per year) and an annual week of events and promotions (extended to a month in 2014).

In 2013/14 and 2014/15, Sustrans also undertook a (relatively small) **PTP** exercise, targeting 6,000 houses in two areas - Werrington and the Ortons – given that segmentation analysis suggested this might be beneficial. At the time of the interview, 1,510 households had received information through this project.

Since 2011/12, other measures was included the installation of 3 electric vehicle charging points; the purchase of 5 **electric vehicles** (for council use); **low carbon vehicle promotion** (including 2 trial days and 30 test drives); and **eco-driving promotion**, including use of an eco-driver simulator (with 223 participants).

The other main development had been the **improvements to the rail station**, which, in 2012/13, included approximately £150k spending on access improvements for pedestrians, cyclists and bus passengers (in addition to the £43 million programme of refurbishment and expansion of the station funded by Network Rail).

D.7.2 Evidence from household surveys

A major strand of the original Sustainable Travel Towns evaluation involved self-completion mail-back household surveys, which were undertaken by Socialdata/Sustrans, in the autumns of 2004 and 2008, together with some interim survey work. In Sloman et al (2010), the information was reanalysed in a number of ways, including consideration of both weighted and unweighted datasets. Over 4,000 respondents completed the baseline and final surveys.

Key results for Peterborough, as taken from Sloman et al (2010), are shown in Figure 29. There have not been further household surveys in Peterborough since that time. This figure is repeated here to show the compatibility with the other data sources described above.

Figure 29: Percentage changes in Peterborough in trips per person by mode, relative to October 2004 baseline.
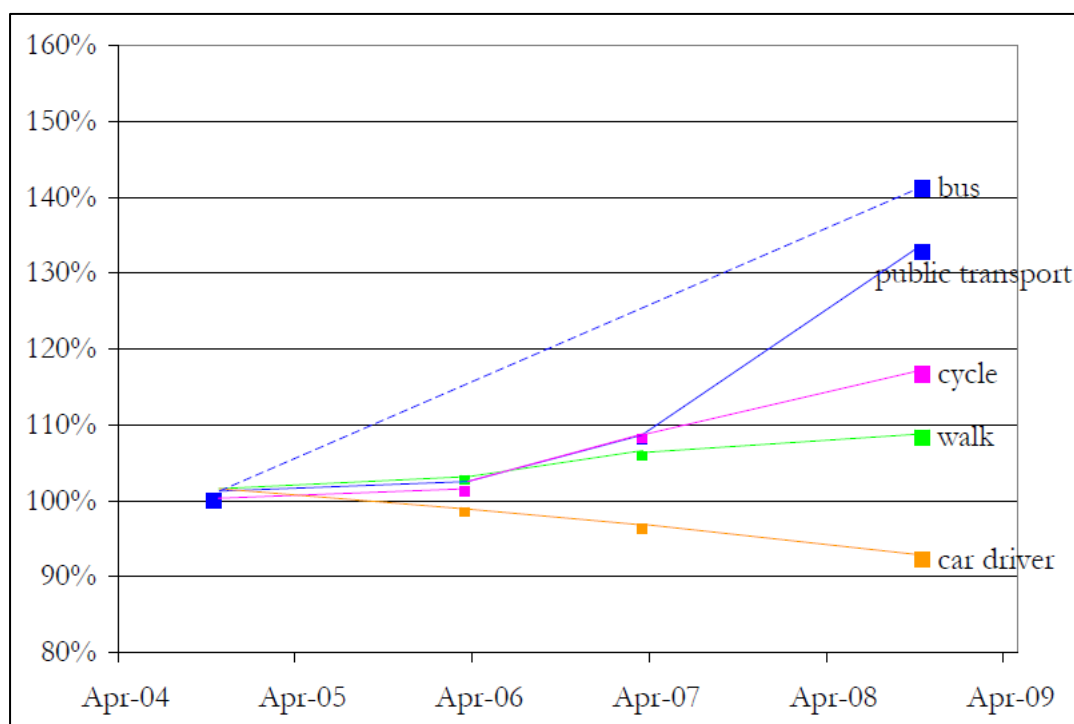

Figure reproduced from Sloman et al, 2010, Chapter 13. Results based on unweighted data and exclude trips of over 100km. Interim survey results were based on samples of approximately 1500 people.

D.8   Traffic

All of the measures described previously will potentially have affected traffic levels in the town. There were two main sources of data about traffic levels. These were:

- Automatic traffic counter data.
- National Road Traffic Estimate data.

Each of these is discussed in turn.

D.8.1   Automatic traffic count data from Peterborough

Automatic traffic counter data were available for 10 counters, from March 2006. Available data are shown in Figure 30. To get an idea of overall trend, data for five sites was summed together, and a 12 month rolling average index was generated[24].

Meanwhile, new traffic counters were added in 2011. Given significant differences in absolute flow levels, these have been converted to an index as displayed in Figure 31. This suggests significantly different trends in different locations.

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[24] The five sites were Longthorpe Parkway, Bourges Boulevard, Glinton, Paston Parkway and Boongate. Missing values were generated using the average change that occurred amongst the other counters with available data for the month of interest, and the preceding month. The two aberrant month values for Paston Parkway in spring 2009, caused by roadworks, were replaced with interpolated values. No values were generated after May 2013, given significant changes at two of the counters.

Figure 30: Traffic flows in Peterborough according to ATC data (from 2006)

Legend:
- A1139 Frank Perkins Parkway
- A1260 Nene Parkway
- A1139 Fletton Parkway
- Longthorpe Parkway
- A15 Werrington Parkway, Glinton
- Paston Parkway
- A15 Rivergate
- Boongate
- Bourges Boulevard
- Drakes Mere - Hampton Peripheral
- 12 month average (5 sites)
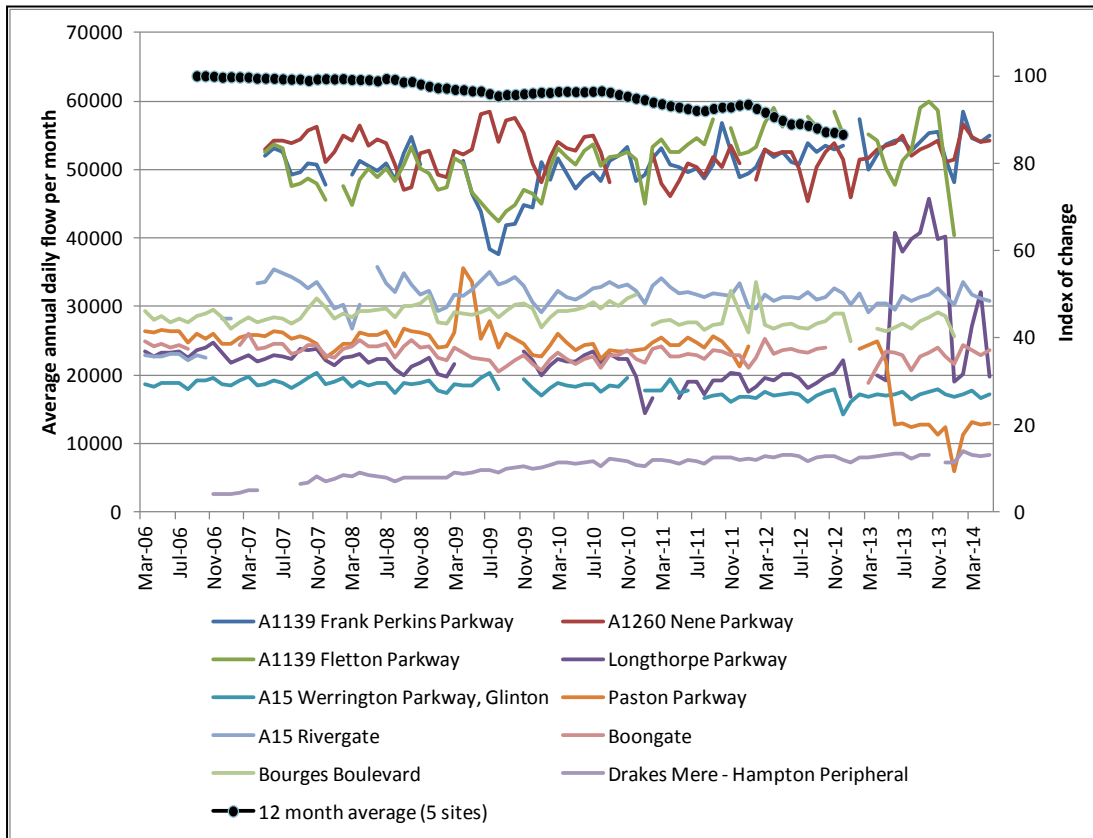
Figure 31: Traffic flows in Peterborough according to ATC data (new data)

Legend:
- Fletton Parkway - Jn 1-2
- Mayors Walk
- A1179 Thorpe Road
- Taverner's Road
- Crawthorne Road
- Westfield Road
- A1073 Eye Green
- A16 Nr Crowland
- A16 Cardyke
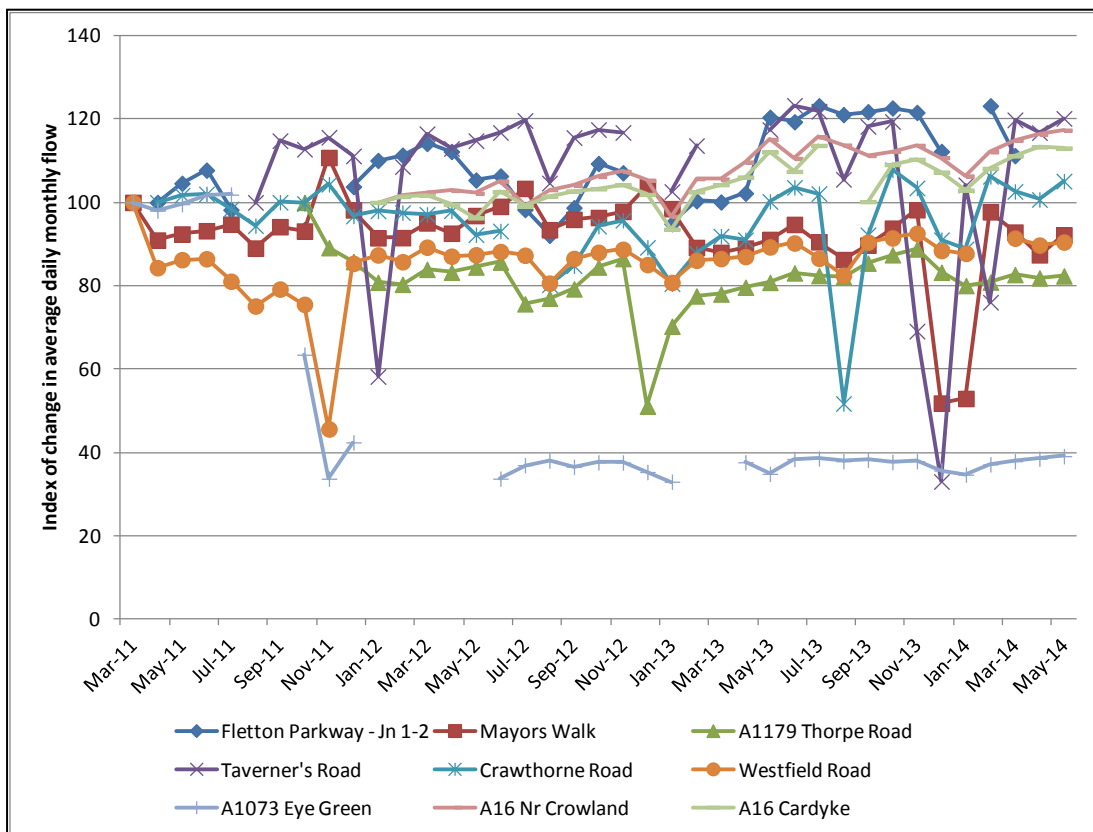
D.8.2 National Road Traffic Estimates

Borough-wide NRTE data are presented in two ways – total annual motor vehicle traffic (in million vehicle miles), and per capita vehicle miles (generated by dividing the NRTE figures by the mid-year population estimates). Data are presented in Figure 32 and Table 14.

Figure 32: Changes in traffic in Peterborough, according to NRTE data
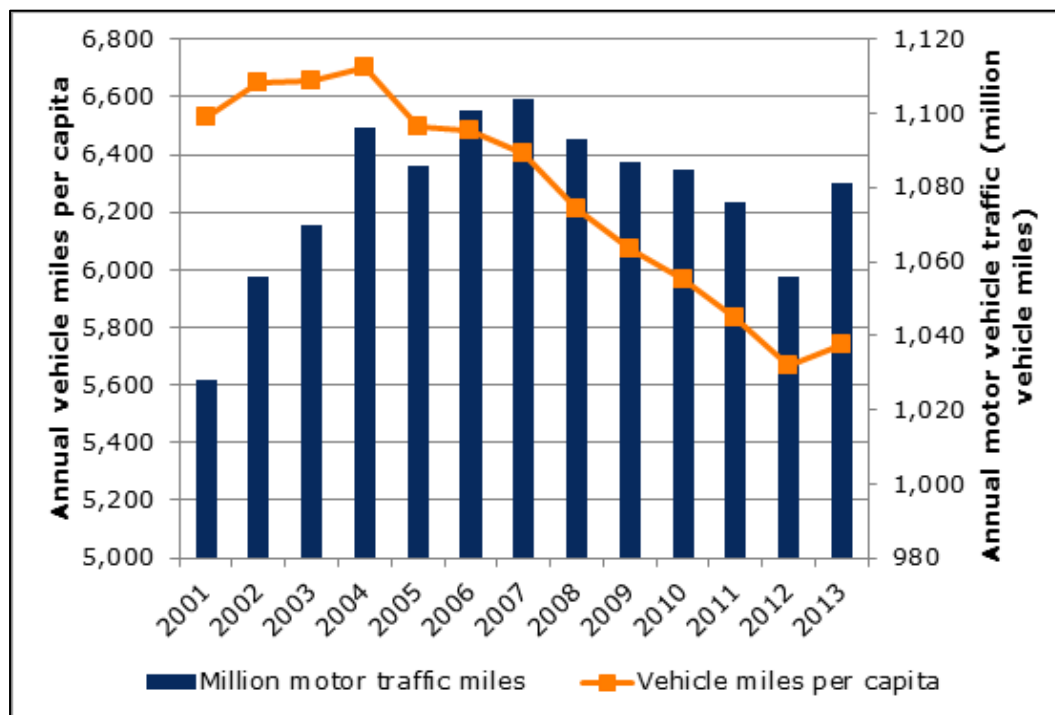

Table 14: Variance in traffic levels over time*

	2003/4 to 2008/9	2008/9 to2012/13	2003/4 to 2012/13
Changes in total traffic (NRTE data)	+0.6%	-2.0%	-1.3%
Changes in traffic miles per capita (NRTE data)	-8.1%	-7.1%	-14.6%

*Two years of data have been averaged together, given the dramatic changes around 2008-9. It should be noted that this is not the approach that was adopted in the original study, and may therefore lead to some differences in numbers.

D.8.3 Summary

Traffic levels in Peterborough seem to have started falling from 2007 or 2008 onwards, with this reduction continuing until 2012. Between 2012 and 2013, NRTE data suggests an increase, and data for individual counters suggest different trends in different places. Meanwhile, per capita data, generated from NRTE figures, suggests a reduction of nearly 15% between 2003/4 and 2012/13, from 2004 onwards.

D.9   Summary

Table 15 provides a summary of the main findings described above. It should be noted that in all cases, the new data obtained has largely corroborated the findings in the previous study. Looking at individual modes:

- **Traffic** in Peterborough has been through a long period of reduction (from about 2007 to 2012). Perhaps even more significantly, NRTE per capita data shows a relatively consistent reduction in traffic miles per person from 2004 onwards, equating to a 15% reduction overall between 2003/4 and 2012/13.

- **Bus use** within the city increased by about 40% during the STT period, but, by 2014, data about all bus boardings in the city suggested patronage had fallen back to levels that were reasonably similar to those in the early years of the programme. The reduction in information and marketing activity after the end of the STT programme was considered to be one factor, but the relative importance of this change was difficult to disentangle from other factors, including impacts from the economic changes, bad winter weather, and subsequent fare rises and service cuts.

- **Cycling** levels appeared to decline after about 2008, although there were subsequent increases, with relatively substantial increases between 2012 and 2013. There were some anomalous findings from the manual counts for 2010 and 2011, though these did not change this overall conclusion.

- **Walking** increased by about 18% during the STT period. Manual counts and school travel surveys seem to show that those increases were either maintained or augmented by 2013. Walking had featured in both general travel awareness, school and workplace activities, and also more specifically in active travel promotions run by the Live Healthy public health team, including the give-away of 10,000 pedometers.

- **School travel** data suggested significant falls in car use, and large increases in walking at the cohorts of schools that it had been possible to track between 2005 and 2011.

- Census data on **commuting** was not positive, but the council's own surveys suggest that, at workplaces they had engaged with, over time, the car mode share may have reduced whilst the active travel share had increased. This suggests that the time period over which analysis of trends is conducted is critical. Unfortunately, we do not have data enabling tracking of individual employers between 2004 and now.

Table 15: Summary of changes in travel trends

Key findings from Sloman et al. (2010)*	New evidence
CAR USE AND TRAFFIC LEVELS	
Car use fell by 7~10% per person, in terms of distance, between 2004 and 2008, based on large-scale household travel surveys. According to automatic count data, traffic in the inner area fell by 7%, while traffic in the outer area fell by 1%, between 2004 and 2008, contributing to a 2.4% reduction in traffic levels in the town overall. This was estimated to equate to an 8% reduction per capita, given population growth over that period.	Traffic levels in Peterborough fell between 2008 and 2012. The trend after 2012 was unclear. Meanwhile, NRTE per capita data shows a relatively consistent reduction in traffic miles per person from 2004 onwards, equating to a 15% reduction overall between 2003/4 and 2012/13.
BUSES	
Bus boardings increased by 40% between 2004/5 and 2008/9. Household surveys showed similar levels of increase in terms of bus trips per person, and greater increases (54-56%) in distance travelled by bus per person.	By 2013/14, bus use in Peterborough was back to the level it was at in the early years of the STT programme. This is a higher level than in 2003/4, but still represents a loss of most of the growth that occurred between 2004/5 and 2008/9.
CYCLING	
Household surveys suggested increases per person of 10-17% for cycling trips, and 23-38% for distance cycled. Automatic and some manual count data suggested relatively stable cycling levels from 2004 (following a previous period of decline), though with a possible increase of 11% near the city centre. Officers considered that the automatic count sites were poorly located to detect an increase.	There was some decline in cycling levels from 2008, although increases had subsequently taken place and latest data suggested particular growth between 2012 and 2013.
WALKING	
Manual counts suggested an increase in trips of about 18% between 2004 or 2005 and 2008. This was reasonably consistent with the household survey results: increases between 9-14% for trips, and increases between 14-33% for distance walked per person.	Manual count data suggest that walking increases during the STT period had either been broadly sustained, or, in the north-east of the city, substantially increased by 2014.

* Extracted from Section 7 of the summary report

Key findings from Sloman et al. (2010)*	New evidence
SCHOOL TRAVEL	
During the STT period, 70% of schools experienced a fall in car use (and 30% an increase). Overall levels of car use for school travel fell by 11-15%, whilst there was an increase in the active travel mode share, particularly walking.	Data from a cohort of 33 primary schools suggest that the proportion of pupils travelling to school by car fell substantially between 2005 and 2011 (from 37% to 29%, a relative reduction of over 20%), whilst the walking share significantly increased. Similar trends were evident for 6 secondary schools with comparable data between 2007 and 2011. Meanwhile data from 2011 to 2014 suggests that there may have been a small increase in car use over that period, although changes in sample composition make it difficult to be confident in results.
COMMUTING	
Mode share data from at least 2 surveys was available for 19 organisations in Peterborough. Of these, 13 (just over two-thirds) had achieved an average overall reduction in the number of cars per 100 staff of 8.4%, whilst the average change across all 19 organisations was a reduction of 3.5%.	Data from the Census about travel to work suggests that, between 2001 and 2011, car use was broadly stable, whilst there was a 2% reduction in the cycling modal share. However, Peterborough's survey of employers suggests that between 2007 and 2011, car use may have been falling, whilst the active travel mode share was increasing. (However, we do not have information about the comparability of survey composition).

* Extracted from Section 7 of the summary report

D.10   Comparison with national trends

- The per capita reductions in **car travel** in Peterborough appear to have been greater than those that occurred nationally, and it is notable that they appear to have begun around 2004/5[25].

- **Bus use** showed substantially greater growth during the STT period that that which occurred nationally, but had since shown significantly greater reductions.

- It is unclear whether **cycling** performance in Peterborough had been significantly better than nationally, although it should be noted that levels of cycling for work (as evident through the Census data) were relatively high, and Peterborough's workplace surveys suggested a trend of increase between 2007 and 2011. The automatic counter data suggested relatively substantial increases between 2012 and 2013, which would be different to national trends.

- The increases in **walking** in Peterborough in general, and at Peterborough schools, were in significant contrast to national trends, and potentially indicate some of the most important legacy benefits of the STT programme for Peterborough.

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[25] Nationally, NRTE data shows a per capita reduction in all motor traffic on urban roads (for England excluding London) starting in 2002, although NTS data suggests car driver mileage for residents of medium sized urban areas was relatively stable until around 2008.

- Although Census data did not show a reduction in **car use for work**, the council's own data on Peterborough's workplace travel programme does suggest that this occurred between 2007 and 2011 – and it is plausible that this could be contributing to overall traffic trends, given the importance of commuting trips in overall traffic volumes. Over a longer timescale, and as levels of engagement increase, the impacts of the work should become more evident. (Enabling Peterborough to consistently continue with its workplace programme until the Census in 2021, to enable a proper assessment of the long-term effects of such activities could potentially prove very informative.)

In summary then, the extensive work conducted during the STT period led to major increases in bus use, and more modest changes to cycling and walking. By 2014, bus use had declined. However, walking increases, in the town, and to schools, appear to have been largely maintained, and cycling levels were potentially starting to rise again. The effects of the workplace programme were unclear, although it remains of considerable interest, given that it has been a sustained initiative, and was not a focus in either of the other towns. Meanwhile, traffic levels per capita had fallen relatively consistently since 2004, whilst, at the same time, Peterborough had experienced major growth in population and employment.

Appendix E Worcester

E.1   Overview of Worcester's activities

E.1.1   Background

The City of Worcester is located in the West Midlands government region, with a population of 98,768 people according to the 2011 Census, an increase of 5.8% from 93,356 in 2001. Over the same period, the working population rose by 7.1%. Compared to the other two towns, these are relatively low rates of growth. Although the area covered by the STT activity was the city, the programme was run by Worcestershire County Council, which has responsibility for six districts, representing just over half a million people.

According to Sloman et al (2010), in originally proposing Worcester as a demonstration town, the local authority argued that it was a very 'middle of the range' town, whose experience would be widely transferable to other areas. For example, 'Worcester woman' has been used as a country average by election polling companies.

During the STT period, Sloman et al (2010) estimated that effective expenditure on Worcester's smarter choice programme was in the order of £4.4 million, including both revenue funding, and capital expenditure on supporting measures such as bus and cycle infrastructure and safe routes to school. In April 2004, approximately 1.3 FTE officers were working on what might be termed 'smarter choices work (mainly in relation to walking, cycling and school travel work). This rose to approximately 6-7 FTE officers during the STT period.

E.1.2   Resources for sustainable travel work since 2009

When the STT programme ended, the STT team was disbanded. At the time of the interview, within the County Council, there was one staff member who worked full time on smarter travel type initiatives, with two others working partly on smarter travel, and partly on other transport projects. During the interviews, it was reported that some councillors felt that there had previously been too much emphasis on green/sustainability issues. The existing team had a broader range of responsibilities, and the expansion of individual staff portfolios was seen as a strength, enabling staff to have a better understanding of how smarter travel fits into the wider transport context. Transport staff were also working closely with the public health department which had funded a cycling strategy for Worcestershire (largely focused on infrastructure). The overall budget spent on smarter travel in 2013/14 was £1.5 million. However, these staffing and budget figures were for smarter travel activity across the whole county. Actual spend in Worcester on smarter travel type activity had been relatively minimal since 2008/9.

Specifically, Worcestershire County Council felt that it was important to spread investment in smarter travel work beyond Worcester. Consequently, their LSTF bid had focused on Redditch, the second largest urban area in the county. In 2014, most of their smarter travel activity was focused there. One of the arguments in the original STT evaluation study was that the benefits of smarter travel type work in any one location would potentially be maximised if a similar approach was adopted in neighbouring towns. Hence, the activity in Redditch is of interest from that perspective – for example, it could

help to influence those commuting between Worcester and Redditch (or vice versa). However, at the same time, many of the smarter travel initiatives in Worcester had been discontinued.

Worcestershire County Council's view was also that the STT project highlighted a lack of sustainable infrastructure in Worcester, and that suitable infrastructure was therefore needed before further smarter travel work could be undertaken.

The interviewees also felt that it was difficult to show that smarter travel projects provide value for money compared to infrastructure projects, reporting that when they apply the methodology for calculating Benefit to Cost Ratios (BCR) in DfT's transport appraisal guidance (WebTAG), it tends to result in higher BCRs for road schemes than for smarter travel initiatives. This was reported to be particularly important given the focus of both the Council and the LEP on encouraging economic growth. The LEP was reported to give a relatively low priority to smarter travel measures, because of a lack of belief in its economic benefits. The interviewees felt that it would be valuable if the DfT mandated the incorporation of smarter travel measures into infrastructure improvement programmes.

In the rest of this chapter, discussion focuses on developments in Worcester that could have affected travel patterns in the city, and highlights that relatively little of the STT activities have continued there. However, from the County Council's perspective, smarter travel activity had been continued but refocused on a new location, Redditch, and was being further developed there. For example, in Redditch, personalised travel planning had been extended to all households and was considered to be an improvement on the previous approach. It was more targeted and households were being more clearly informed that they could opt out. Every phase of the work was being monitored, and monitoring included both panel (rather than cross-sectional) surveys, to enable tracking of individual change, and participant opinion on the programme, so that it could be continually enhanced. It was also being supported by wide variety of promotional activity, aimed at raising general awareness about the programme. The Council was hoping to use developer-funding contributions to develop a cost-effective PTP approach that could be extended county-wide, under a generic 'Choose' brand.

E.1.3   Key initiatives since 2009

Since 2009, most of the specific initiatives in Worcester likely to encourage sustainable travel habits were infrastructure based. Key developments included:

- As part of Connect2, £3 million was provided to complete a new pedestrian/cycle crossing over the River Severn in Worcester, the Diglis Bridge, and a further £1m was used to redevelop the riverfront, including South Parade. The project was undertaken as a partnership between Sustrans and Worcester City Council, and included £650,000 from the Big Lottery Fund. It ran between 2008 and 2012, with the Diglis Bridge opening in 2010. These developments have provided a key east-west link for Worcester, and a large associated network of good cycling and walking routes, particularly for those living in the south of the city. They were also expected to benefit new residential developments expected in Worcester. The STT programme was seen as key for securing political support and funding for the Diglis bridge construction.

- £700,000 from a Section 106 contribution was spent on improvements to cycling and walking links as part of University of Worcester development between 2009 and 2013. Improvements included four new road crossings to link two campuses.

- Other infrastructure improvements had been made in Worcester, as part of the County's annual programme (comprising £600,000p.a. for such measures county-wide), ranging from packages of dropped kerb measures to aid walking, through to the introduction of new shared-use paths.

- Improvements to Worcester Foregate Street rail station were completed early in 2014, including a new indoor cycle park, improvements to the entrance and better information provision.

- Bikeability and pedestrian training was being offered to schools.

- Worcester walking and cycling guides had recently been reprinted.

- Funding for the 'Tour of Britain' cycle tour, which passes through Worcester and South Worcester, had continued. (In 2007 and 2008, this was based on STT funding. At the time of the interview, it was being funded by the County Council and the LEP.)

A major development planned for the future is the opening of Worcestershire Parkway station to the south-east of Worcester, due for completion in spring 2017. (There are also plans for the upgrading of the area around Worcester Shrub Hill station.)

Negative factors affecting sustainable travel included the closure of one of Worcester's two park-and-ride services, and reductions in subsidies to bus services across the county, although these had been partially offset by some improvements to bus services, as discussed further in Section 0.

Table 16 summarises the main expenditure on sustainable travel in Worcester.

Spending by other organisations (such as public transport information and marketing by the bus operator) is not included in the figures.

Table 16: Main categories of expenditure on encouraging more sustainable travel in Worcester

2004/5 to 2008/9	2008/9-2013/14
£1.6 million revenue and £2.9 million capital expenditure, totalling £4.4 million of expenditure overall.	£4m for Connect2[26] projects, involving upgrading the walking/cycling links across the river in two locations.
	£0.7m for improving walking/cycling routes around the university.
	Small scale capital spending on local infrastructure, including improvements for rail, bus, cycle and walk trips.
	Small scale revenue spending on Bikeability and pedestrian training in schools; Tour of Britain cycle tour; and information provision.

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[26] Connect2 is the National Lottery funded Sustrans programme to improve a number of key local walking and cycling links.

E.1.4   Other changes affecting travel in Worcester

In terms of other changes affecting travel in Worcester, two other major local developments were mentioned, specifically:

- The introduction of Variable Messaging Static signs (VMS) to highlight road works and available spaces in major car parks, to improve traffic circulation.

- The increasing profile of the University within the town.

In terms of national impacts, the two main factors mentioned were:

- The recession, which particularly hit public sector jobs, although by the time of the interview, most staff made redundant were now thought to have found new jobs, and the high street was perceived to have fared comparatively well, with little vacant space.

- Increased public interest in cycling as a sporting/leisure activity, following the Olympics.

E.2   Buses

E.2.1   Factors affecting bus use

From 2002 onwards, Worcester made various improvements to its bus offering, supported by both Urban Bus Challenge and Kickstart funding. STT funding was used to complement this work, including significant provision of information and marketing about the buses. Between June and August 2005, three new 'Project Express' orbital services were introduced, serving the City's northern park-and-ride site, and providing circular routes around the city, resulting in a significant uplift in patronage. By 2008, the circular routes had been reduced in frequency, and in September 2008, branding was withdrawn and there was some change to routing so that they no longer served the park-and-ride site. Between that time and October 2009, various further network changes were made, including the introduction of new 'Diamond' services. This resulted in a further uplift in patronage.

However, in 2011, county support funding for bus services (for the county as a whole) was halved (from £5 million to £2.5 million[27]), and from September 2011, most of the Diamond services were withdrawn. Pockets of improvements still occurred – such as the introduction of two new evening services associated with the University. Service frequencies on three arterial routes to other towns were also improved). However, in 2014, county funding was reduced further (to £1.4 million). In August 2014, one of Worcester's park-and-ride services was cancelled, and, at the time of the interview, remaining service links to the Royal Hospital were considered at risk.

As well as changes to services, there had also been other developments. In April 2013, a multi-operator ticket offer was introduced and marketed, which had proved popular, and generated positive publicity for the bus services. There had also been some improvements to the on-street infrastructure, including some improvements to bus stops. Information supplied about bus fares from the periphery to the centre of

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[27] These figures exclude funding support for community transport and concessionary fares.

Worcester suggested that the average fare rose from £2.50 in 2004, to £3.50 in 2008, but has been relatively stable since then.

E.2.2 Changes in bus use

National data about bus patronage were not available for Worcester, but only Worcestershire. Meanwhile, the local authority provided data on the use of bus services within the City of Worcester, with aggregate figures shown below.

Figure 33: Bus boardings on bus services operating within Worcester City over time
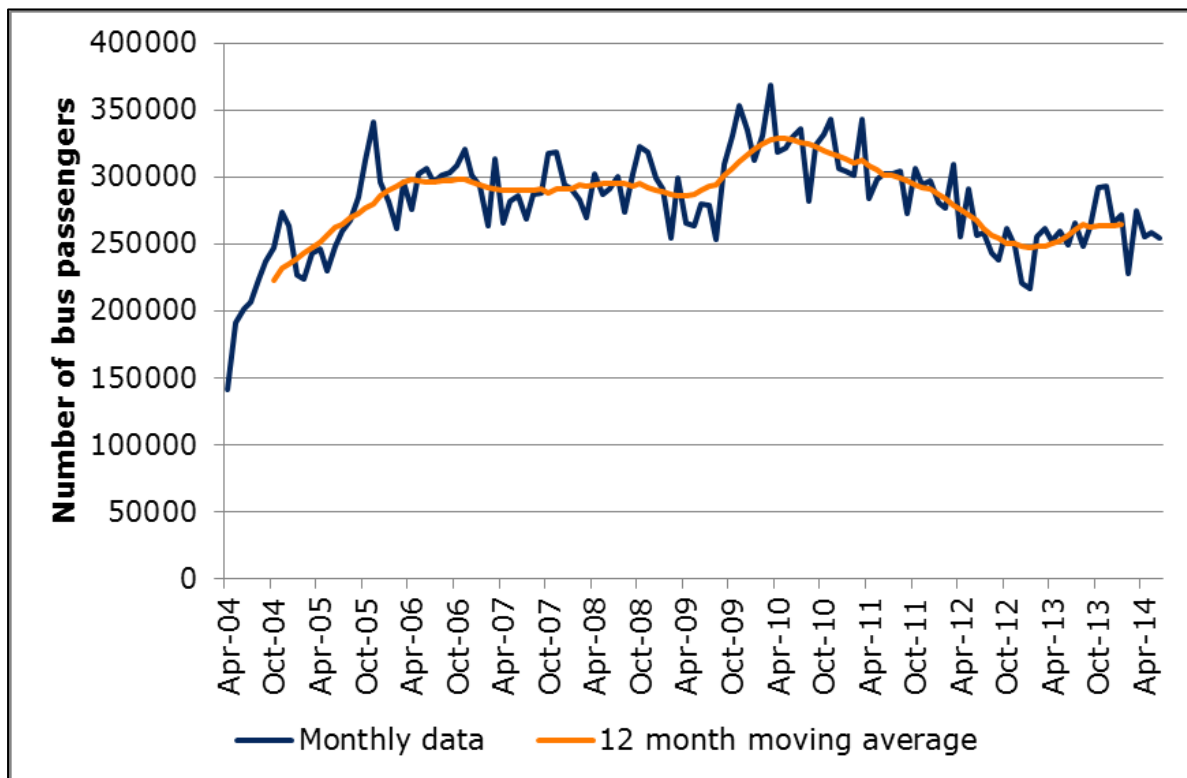
E.2.3 Summary

During the STT period, the combination of introducing new services and conducting extensive information and marketing work around their introduction was seen as resulting in very high increases in bus patronage at that time (subsequently supported by the introduction of concessionary fares in April 2006, although reduced fares were already in place for those over 60)[28]. Information and marketing work continued throughout the STT period, including promotional activity by First, the main operator. Reorganisation of services in 2008/9 then led to further gains in bus patronage.

Since that time, there had been significant reductions in patronage, beginning from summer 2010, resulting in an overall decline in patronage of 11% between 2008/9 and

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[28] In Sloman et al (2010), this was estimated to be an increase of 27% between 2004/5 and 2008/9. Because the new data set we received contained slightly lower figures for the initial period, recalculations suggest that this figure would be 32%.

2013/14. The significant reductions in services from September 2011 will have been one major factor. Before the service cuts, comparison of June-August figures for 2011 with 2010 suggests that there was a decline of about 4% during that time. The local authority suggested that potential reasons could include the adverse weather conditions during the winter of 2010/11 (affecting bus service reliability and the demand for travel, especially for non-essential journeys or by pensioners); the general economic situation; and the publicity about the budget cuts which may have led passengers to seek alternative transport arrangements prior to the reduction of services.

Meanwhile, the combination of introducing a multi-operator ticket and undertaking promotional work in April 2013 appeared to have stabilised patronage reductions, although this is likely to have been one of a number of factors contributing to this change, with other factors including the upturn in the economy and better weather.

E.3   Cycling

E.3.1   Measures affecting cycling

Since the end of the STT programme, the main measures affecting cycling had been the infrastructure improvements discussed in Section 0, including the Diglis Bridge and South Parade work; the improvements around the university; and the other upgrades that had occurred as part of the County's annual programme.

Cycling promotion work had largely been cut, except for the support to enable the Tour of Britain cycling tour to pass through Worcester. Since 2012, this had been complemented by an annual 'Tour Series' cycle road race in Redditch.) In 2013/14, cycling and walking guides that had been produced during the STT period for Worcester were updated and republished. Bikeability training was being offered to schools. Some bike maintenance classes had been offered.

E.3.2   Changes in cycling levels

#### E.3.2.1   Data from automated cycle counters

Sloman et al (2010) used counts from 10 counters, though only 5 provided sufficiently continuous information to generate a data series to look at trends in cycling over time. Data provided for this project included average daily counts for each month from January 2008 until December 2013 from 6 of the counters described in the 2010 report. However, the counter on Croft Road had no data after August 2009, and another, on Barbourne Road, had no data until January 2011 and data were patchy after that point.

Data from the remaining four counters is plotted in Figure 34. A 12 month rolling average has been calculated from the Barry Street and Woodgreen Drive figures[29], to give some indication of trend. It should be noted that the four counters are located in very different parts of Worcester. Weir Lane is close to the Diglis Bridge, and unsurprisingly showed a clear uplift when the project was completed in 2010. The A4440 counter is on the south east periphery of the city. Barry Street and Woodgreen Drive are

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[29] The 12 month rolling average is calculated against month 7 of any 12 month period. Missing data for the two counters have been interpolated, by using the percentage change recorded by the other working counters between the month in question and the previous month.

Figure 34: Cycle data for four counters in Worcester
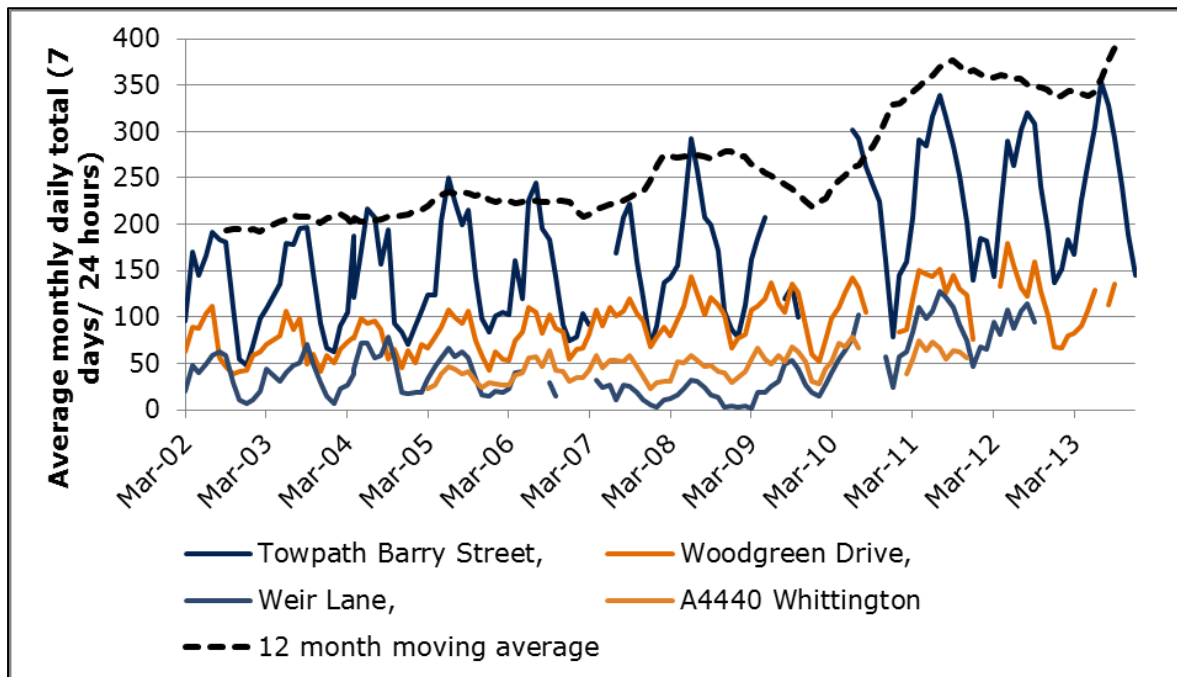
E.3.2.2   *Data from the intercept surveys*

As explained previously, there were two new major upgrades of cycling/walking infrastructure – namely the building of the Diglis Bridge, and second, upgrades in South Parade, near the New Road Bridge. Both provide key crossing points of the River Severn, and both experienced significant growth in use by both cyclists and pedestrians.

To assess the effects of the Diglis Bridge and upgrades to South Parade, a series of surveys were carried out[30] in the autumns of 2009 and 2011, with key results summarised in Table 17. Results for the Diglis Bridge suggest a potential annual usage of over 300,000 trips per annum in 2011. Results for South Parade suggest an increase of about 30% between 2009 and 2011. In both cases, there is some indication that use of the route may be substituting for other motorised modes, and/or generating active travel journeys. Clearly these data only indicate the localised changes in the places where the new infrastructure was introduced (i.e. they do not give any indication of overall changes in walking and cycling in Worcester). Nonetheless, they give a very positive picture of the increase in use of those routes by pedestrians and cyclists.

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[30] Data are reported in Sustrans (2012) 'Route User Intercept Survey Report Diglis Bridge, Worcester - Connect2', and Sustrans (2012) 'Route User Intercept Survey Report South Parade, Worcester—Connect 2'.

Surveys were conducted in four 12-hour periods in October/November 2009 and October 2011 at both locations: the survey days included a school-holiday weekday, a school-holiday weekend day, a term-time weekday and a term-time weekend day.

Table 17: Results from surveys of Connect2 infrastructure

	2009	2011
Diglis Bridge		
Total number of route users recorded	708	3951
Estimated annual number of pedestrians	141,397	290,470
Estimated annual number of cyclists	10,091	20,698
Proportion who might previously have used car/van#	20	18
Proportion who might previously have used the bus#	32	13
Proportion who would not previously have made the journey#	n/a	60
Proportion who would not make the journey if the route was unavailable	8	75
South Parade		
Total number of route users recorded	11733	15253
Estimated annual number of pedestrians	96,347	147,636
Estimated annual number of cyclists	1,225,230	1,571,218
Proportion who might previously have used car/van#	12	4
Proportion who might previously have used the bus#	56	57
Proportion who would not previously have made the journey#	21	21
Proportion who would not make the journey if the route was unavailable	39	32

#Answers taken from a multiple choice question, where users could indicate more than one option. Other answer options included 'don't know', taxi, rail and other.

E.3.3   Summary

Sloman et al (2010) reported on a 16% growth in cycling levels between 2004/5 and 2008/9. By 2014, it is clear that there had been further growth, particularly boosted by the new infrastructure developments within the city. Data from the two counters with a relatively continuous data series suggested that between 2008/9 and 2012/13, this represented growth of approximately 27% - though growth will have varied significantly in different parts of the city. As corroboratory evidence, Worcestershire County Council's public health department was collecting data on membership of cycle clubs, which had also increased considerably (across the county).

E.4   Walking

E.4.1   Measures affecting walking

Since the STT programme, the main way in which walking had been encouraged had been through the infrastructure schemes described in Section E.1.3. During the STT programme, a series of walking and cycling guides were developed, incorporating maps and advice, and new, updated versions for Worcester were produced in 2013/14. The

public health department was also running a series of nature walks across the county, which were popular.

E.4.2   Changes in walking levels

Apart from the school travel and household survey data, there was no available data about changes in walking in Worcester. The household surveys suggest stability in walking levels between 2008 and 2010, whilst the schools data suggests a small drop over that period - although both sources suggest that walking levels at the end of the available data were higher than in 2004. Meanwhile, as discussed in Section E.3.2.2, the route intercept surveys for the Diglis Bridge and South Parade work suggest that there were major increases in walking and cycling at those locations, representing both trip generation, and shift from motorised to non-motorised modes.

E.5   Schools

E.5.1   Work with schools

At the time of the STT programme, there were 36 schools in Worcester. The STT funding led to the appointment of a dedicated school travel adviser for the City (as part of a county team of 4 people, where the other three posts were supported by national school travel funding), and a shift from focusing on safer infrastructure to developing school travel plans. (Prior to that time, there had been one school travel advisor for the whole of Worcestershire and 18 Worcester schools had received safer routes infrastructure.) At the end of the STT period, all schools in Worcester were reported to have a travel plan, of which 16 were assessed as having 'level A' travel plans. Towards the end of the programme, the Worcester school travel advisor's post was realigned, such that only 50% of their time was spent on schools. Due to funding cuts, the school travel team was then disbanded in 2010. Interviewees reported that in 2010, there were 17 primary schools and 5 secondary schools with school travel plans in Worcester. Since that time, there had been no local authority support to help schools review their travel plans, or to monitor who is still delivering school travel work.

The County was providing teacher resource packs and enabling schools to create their own travel plans through Modeshift Stars. One school in Worcester did so in 2014, as part of obtaining planning permission for a school extension. The County was also offering Bikeability and pedestrian training to (mainly primary) pupils (partly enabled by Bikeability funding). Take-up of these schemes is in Table 18. It was noted that the change to Bikeability had reduced numbers, because it is more time consuming.

Table 18: Numbers receiving pedestrian and cycle training*

	2008-9	2009-10	2010-11	2011-12	2012-13	2013-14
Pedestrian training	1321	1348	1533	1205	1312	956
Cycle training	1074	1444	1195	624	662	669

*Year refers to school year, for example, September 2008 to August 2009. Data are for Worcester City.

E.5.2   Changes in school travel

Sloman et al (2010) used hands-up counts from 32 schools which had at least two useable sets of survey results between 2004 and 2008. These surveys indicated that car use had reduced at 25 schools and had only increased at 7 schools, whilst walking and cycling had reduced at 12 schools but increased at 20 schools.

The new data set provided for this project contained information from surveys in 2004 to 2012 (excluding 2011). However, schools did not consistently take part in the surveys and the number taking part each year after 2006 decreased.

The analysis approach used here has been to calculate the average percentage of pupils travelling by each mode (car[31], cycle, bus and walking) in each of three time periods, namely 2004 to 2006, 2007 to 2009, and 2010 to 2012, and to focus on a cohort of 16 schools with data in all three time periods. Results are shown in Figure 35. 'Other' includes minor modes, such as taxi and train.

Separate analysis by the council, of average results for Worcester City, suggest a different picture. In this project, it has not been possible to resolve the differences between the two calculation methodologies – it may partly be the difference between weighted and unweighted averaging, and partly that the sample of schools used in the council's calculations was not always the same.

Figure 35: Modes used in three time periods at a consistent cohort of 16 schools
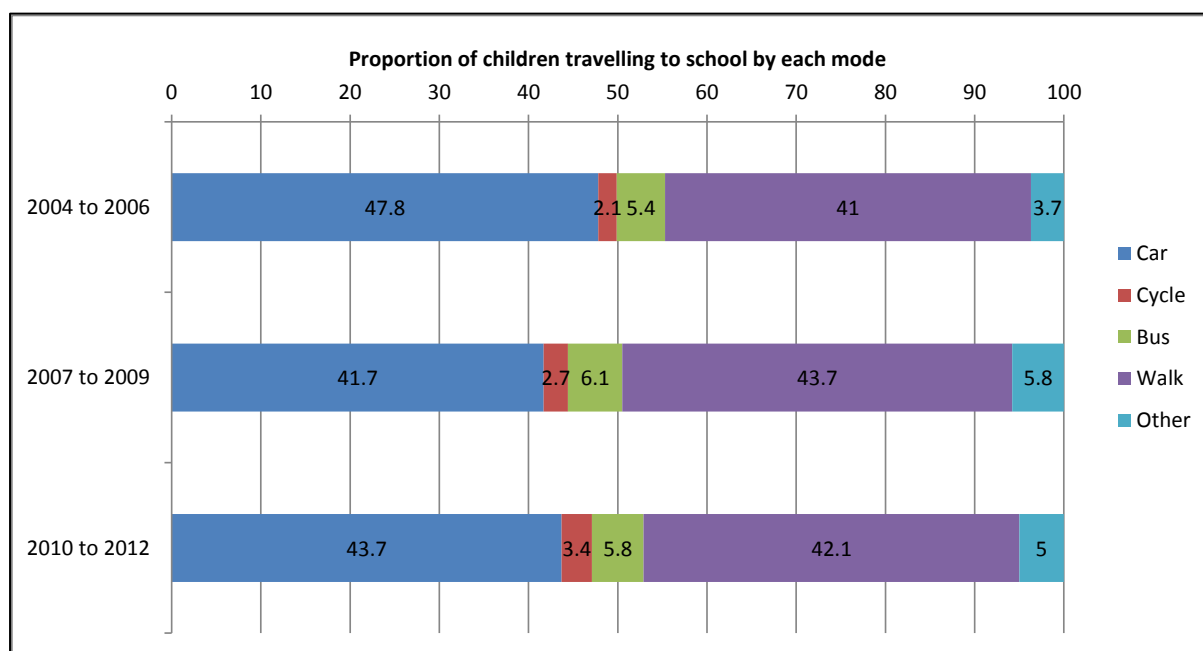
E.5.3   Summary

During the STT period, for school travel, car use dropped, whilst walking, cycling and bus use all increased. Since that time, car use had increased, though not back to initial

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[31] The 'car' category includes any pupil who travelled in a car for the majority of their journey to school.

levels, with a small erosion of the walking and bus mode shares. However, cycling had continued to increase slightly.

E.6   Workplaces

E.6.1   Work with employers

According to the Census, there were approximately 50,330 employees in Worcester in 2011 (an increase of 7.1%, from 47,008 in 2001). During the STT period, approximately 0.75 FTE staff time was spent on workplace travel planning. Support offered included a discounted bus ticket scheme, grants of up to £5,000 (offered on a matched funded basis), travel advice days conducted at workplaces, adult cycle training, membership of the Worcestershire car share database and other cycle support services. By May 2008, 32 employers, representing about 30% of the workforce in Worcester were reported to be engaged in workplace travel planning, although only a proportion of these – 8 organisations representing 11% of the workforce – were considered to have fully-fledged travel plans. The only location with two travel surveys was the Council's own offices at County Hall in Worcester.

Since STT funding, the county-wide car-share scheme had continued, operating via workplaces (although, at the time of the interview, it was about to be re-commissioned). Worcestershire County Council was also requiring its own staff members to work at home two days a week, and was aiming to improve broadband and online services, to enable more remote working. However, none of the other workplace travel activities undertaken during the STT programme appeared to have been continued. Instead, workplace travel planning activity was focused on Redditch.

E.6.2   Changes in workplace travel

At the time of the previous report, there was a small amount of data available for the County Hall site, which suggested that there had been a 5% reduction in the number of cars arriving per 100 staff between 2004 and 2007.

No additional data was provided for this research, however there is some information from the Census about how those living in Worcester travel to work. Table 19 provides data for the main modes of travel. Data are for the whole population. The 'other' category includes: works mainly from home, underground/tube, train, taxi, motorcycle and other. The overall picture is primarily one of stability.

Table 19: Modal use for work

	Cycle	Car/ van driver	Bus	Walk	Passenger in car or van	Other
Worcester 2001	4.68%	58.18%	4.54%	14.71%	7.12%	10.77%
Worcester 2011	4.16%	58.61%	4.46%	15.27%	5.65%	11.85%
%-point change	-0.5%	0.4%	-0.1%	0.6%	-1.5%	+1.1%

E.7 Work with Worcester residents

E.7.1 Further sustainable travel activities

There had been relatively significant rail improvements. Worcester Foregate Street had been developed, including a new indoor cycle park, and better access. There were also plans to upgrade the area around Worcester Shrub Hill station and to develop Worcestershire Parkway. There had also been improvements to stations and services in the surrounding area.

Two electric vehicle charging points had been installed at County Hall, with DECC funding, in 2012/13. The County was also promoting eco-driving to its own staff, with all those required to drive as part of their roles being offered training (with an estimated 70% take-up).

Other sustainable travel activities had been relatively limited – new travel awareness initiatives were focused on Redditch.

E.7.2 Evidence from household surveys

A major strand of the original Sustainable Travel Towns evaluation involved household surveys, which were undertaken by Socialdata/Sustrans, in the autumns of 2004 and 2008. Since that time, a further survey had been undertaken in autumn 2010[32] using the same methodology. Specifically, travel behaviour surveys using (mail back) travel diaries were undertaken with a random sample of between 3,140 and 4,125 residents in Worcester. Second, a sub-sample (between 280 and 400) from each year's set of travel diary respondents was interviewed about the trips recorded in their diaries and about their attitudes to transport issues.

The main results about the number of trips per person per year recorded in each of the survey waves, together with what that represented in terms of mode share, and relative change, are presented in Figure 36 and Figure 37.

Between 2008 and 2010, the share of trips made by bike, on foot and by public transport, were slightly enhanced, whilst the share of trips made by car had reduced. Specifically, the share of trips made by car (driver and passenger combined) went from 76% in 2004 to 62% in 2008, and reduced by a further percentage point to 61% in 2010, representing a 10% fall in the number of car trips made between 2004 and 2010.

There were also some changes in mode choice for different trip purposes between 2008 and 2010, most notably a reduction in the share of car-as-driver trips for work. The mode share of 'sustainable modes' for education journeys was reported as increasing between 2004 and 2008, before dropping back in 2010[33].

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[32] Socialdata/Sustrans (2011) Worcester: Travel behaviour research, 2010. Report to Worcestershire County Council, April 2011.

[33] The figures given are 18, 20 and 18 for active travel for education journeys, though it is unclear whether this is the number of trips per person; the mode share of active travel for education journeys; or the proportion of all active travel journeys that are done for education.

No changes in the distance travelled per person per day were reported between 2008 and 2010[34]. From a combination of information about the number of cars in Worcester, and average usage, the total number of kilometres driven by Worcester residents for everyday journeys was estimated to reduce from 427.1 million in 2004 to 407.8 million in 2008 and 402.5 million in 2010.

Meanwhile, the attitudinal work also revealed some interesting findings. In many cases attitudes were not as positive towards sustainable travel in 2010 as they were in 2008, although they typically remained more positive than in 2004. For example:

- A greater share of respondents in 2010 (73%) said that they expected traffic to increase in the coming years than had said this in 2008 (64%), compared to 87% in 2004.

- In 2010, the proportion of respondents saying that they expected growth in public transport use and walking (33% and 40% respectively) were lower than those in 2008 (50% and 50% respectively), although not as low as 2004 levels (26% and 30% respectively).

- For cycling, however, 74% of 2010 respondents said that they expected growth in future years, which was greater than 2008 (63%) and 2004 (43%).

Compared with 2004, the 2008 survey showed no change to the overwhelming majority (95%) of respondents who favoured giving 'sustainable travel modes' preference in transport policy and/or planning compared to 'motorised modes'. However, there was a notable change by 2010, with fewer (87%) of respondents taking this position. Meanwhile, there were continued increases in levels of satisfaction with public transport (with the proportions reporting that they were 'satisfied' being 26% in 2004, 37% in 2008 and 44% in 2010).

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[34] Rounded figures given in the report of 23km per day per person in both 2008 and 2010 may be disguising a small change, given later commentary about average distances travelled per car.

Figure 36: Patterns of travel behaviour recorded in the three survey waves
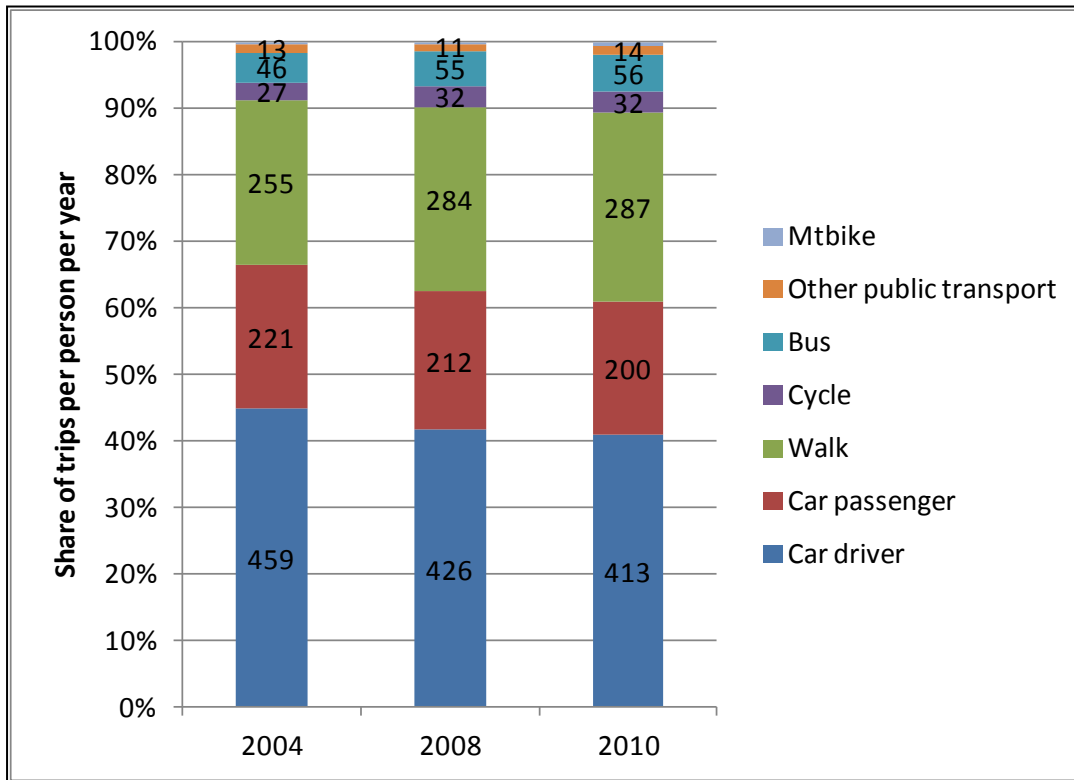
Note: The numbers on the graphic indicate the number of trips per person per year. Commercial trips, and trips of over 100km are excluded from the figures.

Figure 37: An index of the change in the number of trips per person per year
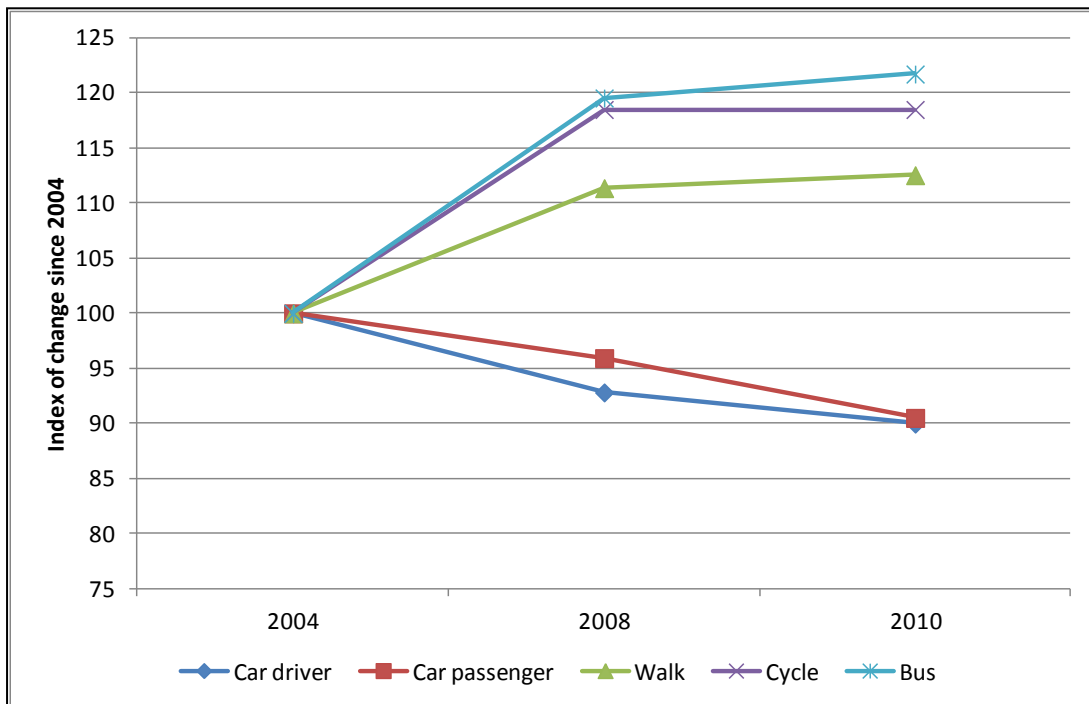
E.8   Traffic

All of the measures described previously will potentially have affected traffic levels in the town. There were two main sources of data about traffic levels. These were:

- Automatic traffic counter data.
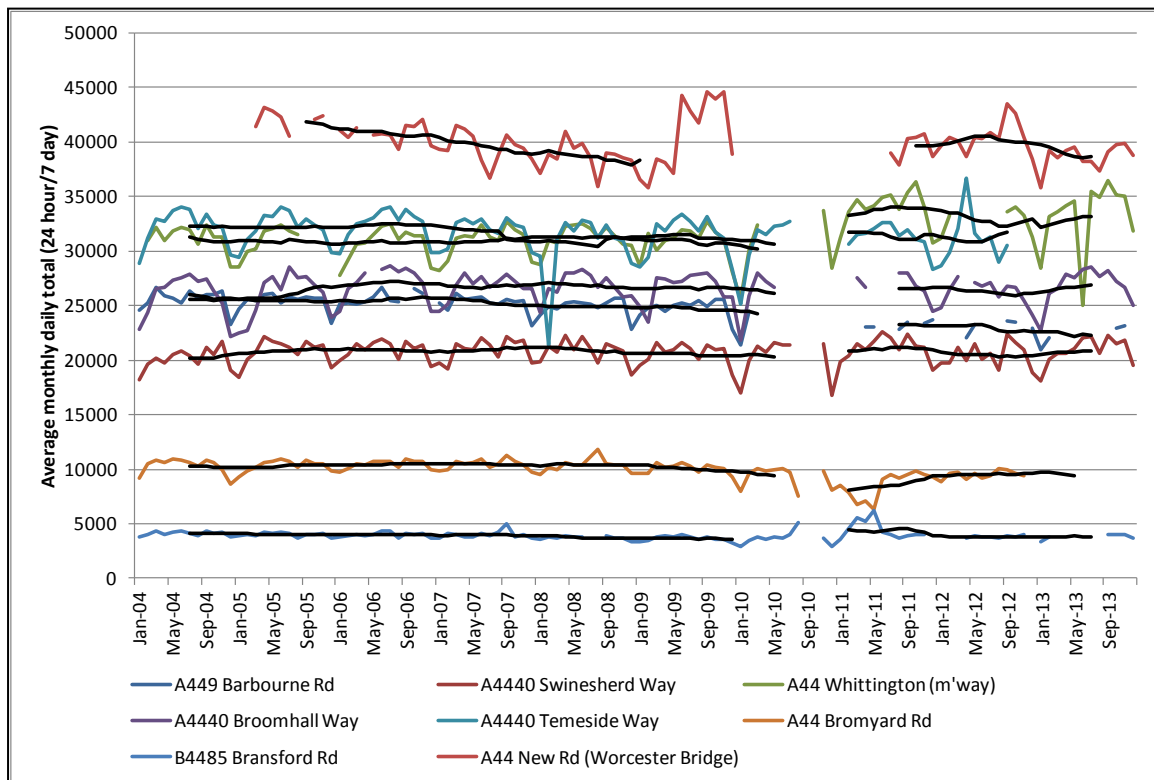- National Road Traffic Estimate data.

Each of these is discussed in turn.

E.8.1   *Automatic traffic count data from Worcester*

To generate a trend, Sloman et al (2010) used counts from 7 automatic traffic counters, which were located on major roads, largely around the periphery of the City. Data were also examined for an eighth counter at New Road – located centrally within Worcester – which became operational in March 2005. The main conclusion was that traffic levels had been broadly stable around the periphery, whilst showing a significant decline at the New Road site.

The new data set obtained for this project contained the data for the same counters, though became increasingly patchy from 2010 onwards. Figure 38 shows details of the individual counter data, together with trend lines, and highlights the discontinuities in the series which make analysis problematic. As a general interpretation, the traffic levels in most locations continued to be broadly stable, although levels at the A44 Whittington site (near the motorway) were at a higher level, whilst levels at Barbourne Road (on the A38, an arterial route into the town) showed a trend of decrease. Levels at the New Road site appeared to have stabilised – though at a lower level than that in 2004. As previously, the locations of the counters did not help with assessing intra-urban trends.

Figure 38: Traffic trends available from Worcester ATC data

E.8.2   *National Road Traffic Estimates*

NRTE data is released at local authority rather than district level, so was not directly available for Worcester, but only for Worcestershire. Consequently, raw NRTE was assessed, to examine the possibility of generating equivalent estimates for Worcester.

Within the urban boundary of Worcester, there are 22 major road count sites, although between 2004 and 2013, only 5 had been surveyed more than twice. There are 15 minor road sites: 6 of these had been surveyed between 2004 and 2009; whilst 9 had been surveyed between 2008 and 2013. In all cases, surveying at minor road sites had also been intermittent, though more frequent than for the major road sites (with 11 surveyed at least 5 times in the relevant period). The DfT have a process for converting the spot counts into average annual daily flows for every location (which must inevitably involve a large degree of interpolation given the substantial amount of missing raw data).

For major roads, traffic volumes are published by the DfT, which are based on a combination of annual average daily flows and road lengths. The traffic volumes were summed for the 22 sites in Worcester and an index was created.

For minor roads, roads are split into different classes (B, C and unclassified), and different scaling factors are applied to each type. OS 'Open Road' data was used to gain an estimate of the different road lengths of different types in Worcester. Then the AADF flows for the small sample of minor roads in Worcester were used to try to generate conversion factors to produce traffic volumes for each of the road types. These were then also summed together to produce an index. The net outcome of these processes is shown in Figure 39.

Given the paucity of the original data informing this graph, the very large amount of estimation that has been required and the sensitivity of the results to the methods used (for the minor roads), it is unclear that it is possible to create a meaningful measure of overall changes in traffic in Worcester using this data, although it is likely that the major roads data is as reliable (or unreliable) as NRTE data for anywhere else of similar size.

Figure 39: Changes in the volume of car/taxi miles in Worcester, estimated from NRTE source data
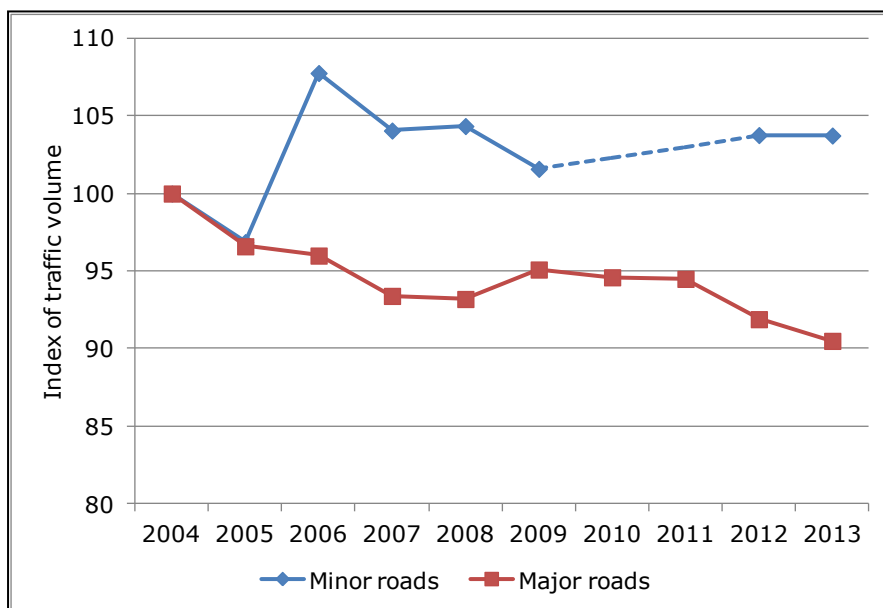
E.8.3 Summary

During the STT period, one central counter showed a fall in traffic levels, whilst a ring of peripheral counters showed relatively stable levels. Since that time, the broad picture has been one of stability, according to the ATC data, although the counters are not well located to pick up changes to travel by residents within the city, and some estimations using the NRTE data suggest that a different selection of count sites might show significantly different trends. Meanwhile, the population of Worcester grew over the period, so even stable traffic levels would indicate declining per capita levels.

E.9 Summary

Table 20 provides a summary of the main findings described above. It should be noted that in all cases, the new data obtained has largely corroborated the findings in the previous study. Looking at individual modes:

- Understanding changes in **traffic** in Worcester is complex. Household surveys suggest a 10% fall in car trips between 2004 and 2010. Changes in traffic are less clear cut. Household survey data suggests a fall of 6% between 2004 and 2010; automatic traffic counter data suggests a fall in the central area but little change around the periphery between 2004 and 2013. NRTE data suggests a 10% fall on the major roads between 2004 and 2013, but an increase on the minor roads. Meanwhile, there was population growth. The overall implication is that car driver miles per person did fall, but the scale of that reduction is unclear.

- **Bus use** increased substantially during and shortly after the STT period, though subsequently fell – albeit that it was still perhaps 18% higher in 2014 than when STT work started.

- **Cycling** increased by 16% during the STT period, according to ACC data. Latest figures suggested that there had been further, substantial growth since that time, although this would have varied geographically across the city.

- **Walking** also increased during the STT period, and the limited data available suggested that the higher walking levels were maintained after that time, though there were no recent city-wide data sources on walking.

- Data from a cohort of 16 schools suggested that, for **school travel,** there has been a reduction in car use accompanied by an increase in walking and cycling. Changes were greatest between the beginning and end of the STT period, and had subsequently been somewhat eroded, although, by 2012, car use was still less than at the start of the STT work.

- Census data on **commuting** suggested broadly stable travel habits between 2001 and 2011.

Table 20: Summary of changes in travel trends

Key findings from Sloman et al. (2010)*	New evidence
CAR USE AND TRAFFIC LEVELS	
Car use fell by about 3% per person, in terms of distance, between 2004 and 2008, based on large-scale household travel surveys, although the fall in trip numbers was greater than this (8-10%). According to automatic count data, traffic levels at the periphery grew slightly then fell slightly, resulting in an overall change of 1.9 to 2.6% between 2006 and 2008. Meanwhile, traffic at the central New Road counter showed a consistent declining trend from its inception in 2005, with a reduction of about 8% over the period.	Automatic traffic count data suggests relatively stable traffic levels after the end of the STT period to 2013, albeit that this would represent declining levels of car use per person (given population growth). Moreover, most of the ATCs are located peripherally. Meanwhile, NRTE data suggests that there was a reduction in flows on the major roads. The household surveys suggest that travel changes between 2004 and 2008 were largely maintained or slightly enhanced by 2010 – between 2004 and 2010, the number of car trips (driver and passenger) per person fell by about 10%, whilst changes in travel distance equated to perhaps a 6% reduction in car traffic, though a smaller reduction per person.
BUSES	
Bus boardings on services operating within Worcester increased by 27% between 2004/5 and 2008/9. Household surveys showed a similar increase in trip numbers (17-24%), but a greater increase in trip distance (30-46%).	Bus use continued to grow after March 2008, reaching a high in early 2010. However, since that time, it had reduced. By 2014, it had stabilised at levels similar to those in early 2005 – which would still represent growth of about 18% between 2004/5 and 2013/14 (based on the new dataset received). Household survey data was consistent with a pattern of growth to 2010.
CYCLING	
ATC data suggested a 16% growth in cycling levels between 2004/5 and 2008/9. Household surveys were broadly consistent in suggesting increases in trips (between 11-23%) though impacts on cycle distance were less clear.	After the STT period, there was further growth. Data from the two counters with a relatively continuous data series suggest that between 2008/9 and 2012/13, this represented further growth of approximately 27% - though growth would have varied significantly in different parts of the city. The household surveys showed stability in the number of cycle trips per person between 2008 and 2010, which is surprising given that the Diglis Bridge opening and the improvements around the New Road Bridge took place in that year, although it is possible that impacts took time to build up.
WALKING	
Household surveys suggested an increase in walking trips of 9-12% and walking distance of 25-29% between 2004 and 2008.	Both the household surveys and the school travel work suggest that walking levels in Worcester were at a higher level than they were at the beginning of the STT period at the time of the latest available data for this study.

* Extracted from Section 7 of the summary report. Household survey results from Sloman et al 2010 are sometimes given as a range since calculations were done using both weighted and unweighted data.

Key findings from Sloman et al. (2010)*	New evidence
SCHOOL TRAVEL	
During the STT period, for 32 schools with monitoring data, approximately 80% of schools experienced a fall in car use (and 20% an increase). This was accompanied by increases in both walking and cycling.	There were 16 schools which had survey results falling within all of the three time periods - 2004 to 2006, 2007 to 2009, and 2010 to 2012. For these schools, comparing 2004-6 with 2010-12 suggests that car use reduced, whilst walking and cycling levels increased. Comparisons for car and walk figures were more favourable between the first two time periods, and were subsequently somewhat eroded, whereas cycling showed an increase throughout the period.
COMMUTING	
There was no evidence on commuter mode share from Worcester.	Data from the Census about travel to work suggests that, between 2001 and 2011, travel habits were broadly stable.

* Extracted from Section 7 of the summary report. Household survey results from Sloman et al 2010 are sometimes given as a range since calculations were done using both weighted and unweighted data.

E.10 Comparison with national trends

- It is not possible to assess how **traffic levels** in Worcester have changed compared to national trends, although it is notable that between 2004 and 2010, the number of **car trips per person** fell by 10%, whilst NTS data for medium-sized urban areas suggests that, nationally, the reduction during that time was only about 5%.

- Between early 2004 and early 2010, **bus use** showed substantially greater growth than nationally. It had since declined significantly, though passenger numbers in 2013/14 were still 18% higher than in 2004/5.

- Growth in **cycling** levels during the STT period was substantially greater than that which occurred nationally. Since that time, there had been further increases, which also appeared to be greater than those occurring nationally (although the number of count sites from which this conclusion is derived is limited).

- For **school travel**, reductions in car use, and increases in active travel at a cohort of 16 Worcester schools were in contrast to national trends. (Data further suggested that changes were greatest during the STT period, and there had subsequently been some erosion of effects.)

- Census data for **travel to work** did not show obvious differences to national trends in relation to travel for work.

In summary, the work during the STT period led to major increases in bus use, and to gains in cycling and walking. After the STT period, increases in bus use continued for about a year (not least due to service reorganisations that took place between autumn 2008 and 2009). After that time, bus use declined, although by 2014, it was still higher than at the start of the period (and by a significantly greater amount than growth which occurred nationally). Meanwhile, increases in cycling had continued, not least due to a variety of infrastructure improvements. Growth in walking achieved during the STT period also seemed to have been largely sustained (although the available data for assessing this was particularly limited). Both the walking and cycling data suggested

more positive trends than those occurring nationally. Meanwhile, positive shifts in mode share from school travel work were evident between the beginning of the STT period and most recent data, although there was also evidence that these peaked in 2007-9, and had subsequently been partially eroded, not least, perhaps, because school travel work in Worcester had been relatively limited since the end of the STT period.

Sustainable travel towns: An evaluation of the longer term impacts

In 2004, three towns - Darlington, Peterborough and Worcester – jointly received £10 million funding from the Department for Transport for the implementation of large-scale 'smarter choice' programmes over a five year period, as part of the Sustainable Travel Towns demonstration project. A range of initiatives was put in place, aiming to encourage more use of non-car options – in particular, bus use, cycling and walking – and to discourage single-occupancy car use. According to analysis undertaken about five years after completion of the programmes, it appears that the investment has contributed to long-term increases in walking and cycling levels, and potentially helped to sustain traffic levels in all three towns at a lower level than when the work started. This has occurred both directly, and indirectly, via the additional activities that have followed from the work. Meanwhile, the three authorities involved have remained enthusiastic about undertaking such activities, and advocate that combining more traditional transport measures (such as new services or infrastructure) with softer measures (such as targeted information, marketing and incentives) is likely to be an efficient and effective way to encourage sustainable travel. Unsurprisingly, effects have been less long-lived when there have been countervailing forces such as funding cuts, service reductions or fare increases, either locally or nationally, highlighting, as ever, the importance of an integrated and consistent approach to encouraging sustainable travel.

These appendices provide the detailed information that supports the main report (PPR776).

Other titles from this subject area

Cairns S & Jones M (2016). *Sustainable travel towns: an evaluation of the longer term impacts – main report.* Report for the Department for Transport, PPR776, 978-1-910377-58

Sloman L, Taylor I, Wilson A, King N, Goodwin P, Anable J, Davison S, Crawford M, Cope A and Adcock S (2014). *Finding the optimum: revenue/capital investment balance for sustainable travel.* Report to the Department for Transport.

Sloman L, Cairns S, Newson C, Anable J, Pridmore A and Goodwin P (2010). *The effects of smarter choice programmes in the Sustainable Travel Towns. Main and summary reports.* Department for Transport, London

Cairns S, Sloman L, Newson C, Anable J, Kirkbride A and Goodwin P (2008). Smarter choices: assessing the potential to achieve traffic reduction using 'soft measures'. *Transport Reviews* **28** (5) pp593-618