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### Sustainable travel towns: An evaluation of the longer term impacts

Main report

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## Executive summary

### Background to the study

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' (STT) demonstration project. All three programmes put in place a range of initiatives aiming to encourage more use of non-car options – in particular, bus use, cycling and walking – and to discourage single-occupancy car use. The strategies adopted by the three towns included the development of a strong brand identity; travel awareness campaigns; public transport promotion; cycling and walking promotion; school and workplace travel planning; and large-scale personal travel planning work. An evaluation conducted on behalf of the Department for Transport of the impacts of the STT project concluded that it was successful in reducing travel by car and increasing the use of other modes, from a comparison with trends in other medium-sized urban areas. Overall, in the three towns, there was a reduction in total traffic levels in the order of 2%, together with a reduction of 7-10% in the number of car driver trips per resident. A cost-benefit analysis, undertaken on a relatively conservative basis and considering congestion benefits only, produced a BCR of 4.5:1<sup>1</sup>.

This project was commissioned to provide indicative evidence about whether the short to medium term impacts were sustained in the longer-term (based on data collection and analysis in late 2014), 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. Longevity was a particular focus because the BCR calculated in the previous study assumed that the initial traffic reductions achieved would 'decay' at a rate of 40% per year if no further initiatives were implemented, so any evidence that effects are more permanent would have a significant impact on the business case for smarter travel schemes.

The study methodology involved obtaining data (quantitative and qualitative) on sustainable transport initiatives delivered in each town since the STT programme (the 'outputs'); obtaining and analysing data on local trends in each mode (from both national and local authority sources); and comparison of trends in each town with the trends for English urban areas (excluding London).

### Smarter travel initiatives following the STT programme

Following completion of the STT programmes, all three local authorities were positive about smarter choice activities. The cuts to local authority funding caused by an economic downturn meant that the amount of local authority spending on such activities initially reduced dramatically. However, all three authorities successfully bid for Local Sustainable Transport Fund (LSTF) grants in 2011/12. In Darlington and Peterborough, this led to spending on multi-stranded smarter choice programmes in the towns which

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<sup>1</sup> 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.

was substantially greater than that during the STT period. Worcestershire focused its funding on the neighbouring town of Redditch, meaning that such activities were significantly reduced in Worcester.

Meanwhile, there were also various other sustainable transport initiatives, some overlapping with, and others subsequent to the STT programmes, often building on, or driven by, the success of the STT programme, which could arguably be seen as part of the legacy. In particular, there were major upgrades to the cycling and walking infrastructure in Darlington and Worcester, not least due to ongoing Cycle Demonstration Town funding for Darlington (until 2011), and £4 million funding for Connect2 projects for Worcester (mainly opening around 2010), together with major upgrades to Peterborough and Darlington stations as part of the pilot station travel plans programme.

Hence, in all three towns, disentangling the specific impacts of the STT funding is problematic, not least due to general changes caused by the economic conditions, new types of smarter choice activity (including large-scale multi-stranded programmes in Darlington and Peterborough beginning in 2011/12) and changes to modal provision (including changes in bus services caused by national reductions in bus funding, and changes to walking and cycling infrastructure, funded through particular initiatives in Worcester and Darlington).

As their work has evolved, all three authorities have emphasised the importance of integrating 'hard' and 'soft' transport measures – for example, ensuring that new services or infrastructure are accompanied by appropriate information and incentives to use them. This conclusion is endorsed in other recent DfT work<sup>2</sup>. The geographical reach of activities undertaken has extended, with more of a focus on inter-urban trips. All three authorities have chosen to retain an overarching brand for their work, and to provide targeted advice (in particular, to schools, households or employees). Walking and rail travel have received greater attention. All three authorities reported on positive links with health colleagues, and increasing use of Section 106 agreements as one way of funding smarter travel work.

### **Travel trends to 2014**

Growth in bus use in both Worcester and Peterborough was part of the success story of the STT programme. However, bus use subsequently declined in all three towns, although, at the time of this analysis, bus use in Worcester was still at a higher level than it was at the start of the STT period. Some of the reductions could be attributed to reductions in the bus offering (either in terms of reduced services or fare increases), not least due to cuts in local and national funding for services. However, following the end of the STT period, reductions in information and marketing activity (and a decline in the effects of the STT information and marketing work) also appear to have played a role.

In contrast, the evidence suggests that gains in cycling and walking have been sustained, and potentially augmented, supported by high quality, or improved infrastructure in all three towns, and by further promotional work through LSTF funding in Darlington and Peterborough. Darlington's experience was particularly interesting –

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<sup>2</sup> 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 Department for Transport.

following major growth in cycling during the STT period (due to a combination of promotional work and infrastructure improvements), cycling levels were sustained, but seemed to plateau (despite further infrastructural improvements from Cycle Demonstration Town funding). LSTF activity was then potentially starting to encourage further growth.

Changes in mode share for the school journey also seemed to show a positive story. In all three towns, for particular groups of schools, it seemed that the car mode share had dropped, whilst the active travel share had increased – in contrast to national trends, where car use had increased at the expense of active travel. Changes in school travel patterns also appeared to relate relatively directly to the activities that the towns had undertaken, with some decay of effects when support was withdrawn.

For car use, it was difficult to be certain of effects. This was primarily because the amount of data for the three towns was less than in the previous study – in particular, in terms of traffic count data for Worcester, and household travel survey data for the other two towns. In addition, the substantial changes in traffic levels nationally, following the economic downturn, made isolating the (relatively small overall) traffic effects of any previous initiative particularly problematic. What did emerge was that, at the time of this analysis, car use or observed traffic levels per person were still below 2004 levels in all three towns. In Peterborough, between 2003/4 and 2012/13, there was a 15% reduction in observed traffic miles per capita, in a context of major population and economic growth, which was greater than the reduction in traffic occurring nationally over that period.

### **Policy implications**

The evidence from this study suggests that, in most cases, the outcomes from sustainable travel behaviour programmes do not decay rapidly, not least because involvement in such activities seems to lead to further related activities, and because they often involve supportive local infrastructure and service improvements. Instead, the benefits of such initiatives may be long-lived, particularly where there are ongoing inputs to such work; where underpinning infrastructure and service quality is maintained or enhanced, as part of an integrated approach; and where there are broadly supportive underlying national trends.

In particular, increases in walking and cycling levels during the STT period appear to have been largely sustained, and with further increases potentially occurring given further activities. The story was less positive for bus use, although this partly reflects the importance of an integrated approach. Patronage levels are unlikely to remain high if there are service cuts or fare increases, regardless of any prior information and marketing activity. The data were more limited for traffic impacts, though Peterborough had clearly undergone major growth whilst achieving a reduction in traffic miles per capita which was greater than changes occurring nationally. Work on school travel appears to show clear impacts from activities – although either regular inputs, or embedding changes (via new infrastructure or the establishment of regular events within the school year) may be important to ensure that effects are sustained. Peterborough's work on commuter travel would repay further evaluation in the future, as an important long-term case study of such activity.

In short, the investment put into the STT 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, all three authorities remain 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, either locally or nationally, highlighting, as ever, the importance of an integrated and consistent approach to encouraging sustainable travel.

# 1 Introduction

## 1.1 Background

In 2004, the Department for Transport published 'Smarter Choices: Changing the Way We Travel' (Cairns et al. 2004), which reviewed the evidence available at that time on the effect and scale of implementation of smarter choice measures. The review suggested that these measures - including workplace and school travel plans; personalised travel planning (PTP), public transport information and marketing and travel awareness campaigns; car clubs and car sharing schemes; and the use of tele-options for work and shopping - had the potential to deliver substantial changes in travel behaviour and reductions in traffic, if implemented in a supportive policy context and on a large scale over a period of ten years.

The Department then launched the Sustainable Travel Towns demonstration project to provide a real-world test of whether it was indeed the case that intensive, town-wide 'smarter choice' programmes might have such an impact on travel behaviour and traffic. It ran from April 2004 to April 2009, with £10 million national funding (and additional local funding) for the implementation of such programmes in three towns: Darlington, Peterborough and Worcester. In all three towns, 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 less single-occupancy car use. The work undertaken in the three towns was subject to an extensive evaluation study, which resulted in the publication of both a main and summary report<sup>3</sup>.

This study concluded that the project was successful in reducing travel by car and increasing the use of other modes, from a comparison with trends in other medium-sized urban areas. Overall, in the three towns, there was a reduction in total traffic levels in the order of 2%, together with a reduction of 7-10% in the number of car driver trips per resident. A cost-benefit analysis, undertaken on a relatively conservative basis and considering congestion benefits only, produced a BCR of 4.5:1, based on an assumption that the initial traffic reductions achieved would 'decay' at a rate of 40% per year if no further initiatives were implemented.

This work is referred to throughout this report, often described as 'the original study' or 'previous study' of the Sustainable Travel Towns. It provides the baseline against which subsequent changes can be assessed and any observed decay is compared.

## 1.2 Changes since the STT period

The ending of the STT period coincided with major national economic changes, when local authorities were under pressure to significantly reduce spending. There have also been other important national developments since that time - notably, reductions in government funding for local authority transport, the increased enthusiasm around cycling following the 2012 Olympics and changes in the funding for buses, including

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<sup>3</sup> 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.

reductions in the Bus Service Operators' Grant and changes to the formula for funding local authorities for the statutory free travel scheme for older people and those with disabilities.

Meanwhile, there were also a variety of other initiatives taking place in the towns – such as the Cycling Demonstration Town project (starting 2005) in Darlington; the ATOC Station Travel Plan Pilot Programme (starting 2008) in Darlington and Peterborough; and Sustrans' cycling/walking infrastructure projects in Worcester (completed 2010). In particular, the Local Sustainable Transport Fund (LSTF), which ran between 2011 and 2015 (with extension funding for some authorities to 2016), included successful bids from all the Sustainable Travel Towns local authorities (although Worcestershire's activities were focused on the neighbouring town of Redditch).

It should be noted that the three towns where measures were implemented are somewhat different. Peterborough is the largest, and experiencing rapid growth in population and employment. Between 2001 and 2011, it grew in size by 18%, and according to the 2011 Census<sup>4</sup>, its population was 183,631. Meanwhile, its working population increased by 21%. In contrast, Worcester has a more stable population of 98,768, as of 2011, an increase of 6% from 2001. Over the same period, its working population increased by 7%. Worcester also comes under the remit of Worcestershire County Council, which therefore has responsibility for a much wider area than just the town. Darlington has a population of about 90,000 – though its latest work now covers the whole borough, comprising 105,564 people (as of 2011). Between 2001 and 2011, it experienced population growth of 8% and an increase in the working population of 15%.

### **1.3 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 can be deduced about lessons learnt, longevity of the benefits of sustainable travel interventions, and potential policy implications for sustainable transport schemes in the future.

### **1.4 Methodology**

A detailed summary of the methodology used, including the research questions defined, and the limitations of the approach used, are given in Appendix A. Key features of the methodology include:

- Interviews with key local authority personnel in each of the three towns in September 2014.
- A structured request for key output metrics from the three towns, to give an idea of how public transport, walking, cycling, schools, workplace and personalised travel planning initiatives have been delivered over time.
- Analysis of local authority data about trends in bus patronage, cycling, walking, travel to school, travel to work and traffic flows, including comparison of information with that given in the previous evaluation report.

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<sup>4</sup> <http://www.ons.gov.uk/ons/guide-method/census/2011/uk-census/index.html>

- Analysis of national data sets about local travel – in particular, Census data, National Road Traffic Estimates (NRTE) data and DfT figures on bus use.
- Comparison of trends in the towns with trends for English urban areas (excluding London), using comparable figures from the National Travel Survey, Census, NRTE data and DfT figures on bus use.
- Review of draft material by an expert panel.

Active People Survey data were considered for use in the project (and initial analysis was undertaken), however it was excluded from final reporting, due to the small sample sizes per town and changes in the walking and cycling questions at a key time, as discussed further in Appendix A.

The best approach for comparing trends in the towns was the subject of considerable deliberation. Various approaches – including use of control towns, regional trend data, and model data – were considered and discarded, again as discussed in Appendix A.

Various limitations of the work are as follows:

- Quantification of both inputs and outputs, and unambiguous allocation to particular funding streams, was often not possible, given that either records were not available, or that disaggregation between mode or budget headings was not meaningful, given that initiatives had been delivered in an integrated way.
- Data provided was checked for consistency with previous information, and internal validity, but collection procedures were not audited. Comments on data reliability are therefore limited to describing what was provided.
- The complexity of changes in the three towns over time makes simple statistical testing of relationships between individual components relatively meaningless. Consequently, 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.

Issues of attribution are discussed in more detail in Chapter 5.

The remainder of this report is structured as follows:

- Chapter 2 describes the inputs to sustainable travel work during and after the STT period, in particular, the funding streams and programmes through which activities were delivered.
- Chapter 3 describes the outputs to sustainable travel work during and after the STT period, including key ways in which the authorities have chosen to modify their approaches over time, and key differences between their approaches.
- Chapter 4 describes the observed trends in walking, cycling, bus use and car use/traffic, both generally, and at schools and workplaces, both during and after the STT period (up to 2014), and how those trends compare with what was happening in similar places nationally.
- Chapter 5 provides a summary and overview of the findings, in particular, exploring what can be said about whether changes achieved during the STT period were sustained, enhanced or eroded, and drawing out the implications for policy.

## 2 What were the inputs during and after the STT programme?

### Summary:

Between 2004/5 and 2008/9, expenditure on the sustainable travel towns work was estimated to be £4.4 million in Darlington, £6.8 million in Peterborough and £4.4 million in Worcester, including both revenue funding and capital expenditure on a variety of supporting measures, such as bus and cycle infrastructure and safe routes to school. The ending of the STT period coincided with a period of significant economic change for local authority budgets. Consequently, smarter-choices type spending in all three authorities was dramatically curtailed, although both Darlington and Peterborough continued with some small-scale work (in Darlington, part funded via European funds; in Peterborough, through allocation of its own budget). However, there were other major complementary activities (such as station travel plan work in Peterborough and Darlington, and Cycling Demonstration Town infrastructure improvements in Darlington). All three authorities then bid for LSTF funding. In Darlington and Peterborough, this led to even bigger programmes of smarter choices activity, with initial budgets of £13.2 million in Darlington and £15.7 million in Peterborough, for the period 2011/12 to 2014/15 (with some further funding in 2015/16). In contrast, Worcestershire refocused its smarter choices work on Redditch. Consequently, relatively little smarter-choice type activity took place in Worcester after 2008/9, although there was investment in the order of £5 million in walking and cycling infrastructure improvements, including two major schemes that opened in 2010.

### 2.1 Introduction

This Chapter examines the inputs that are relevant to changes in sustainable travel in the three towns. There is some inconsistency in the literature about what comprises 'smarter choices' type activity – namely, whether it refers to a package of measures that includes both practical changes and associated information and marketing work, or whether it should simply refer to information and marketing style activity. Here, we take it to mean the package approach.

### 2.2 Darlington

During the STT period, £2.6 million revenue and £1.7 million capital expenditure took place, comprising total expenditure of £4.4 million. The capital figure is primarily comprised of 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.

Since that time, there have been a number of further relevant initiatives. The most significant is Darlington's LSTF Local Motion programme (2011/12 - 2014/15), focused borough-wide on improving sustainable travel, through a range of measures (as described in Section 3.3.1). It was awarded a DfT grant of £4.1 million, with a further £9.1 million of local contribution proposed at application stage.

Other specific strands of funding (some of which supported the local contribution to the LSTF programme) included:

- Further Cycling Demonstration Town work – between July 2008 and March 2011, £3.7 million was spent on cycling in Darlington<sup>5</sup>.
- Local Transport Plan 3 (2011-2026) – some funding for small-scale smarter choices projects, including Safe Routes to Schools work.
- BAPTS (Boosting Advanced Public Transport Systems) – funded via the European regional development programme Interreg IVB (2008-2011).
- Tees Valley Bus Network Improvement (TVBNI) project (2010 to 2014) covering a much wider area, 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) aimed at increasing sustainable egress/access options to Darlington station.
- Community Rail Partnership (since 2010) – revenue funding for a part time officer to provide support on the Bishop Line.
- Rail service improvements, particularly on the Tees Valley line to the east of Darlington.

These strands of funding demonstrate that Darlington continued to significantly fund smarter choices activity following the STT period, particularly via LSTF funding (2011/12 to 2014/15).

## 2.3 Peterborough

Figure 1 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 counted as 'Travelchoice' activities. These figures do not include any local contributions to Travelchoice work from teams or organisations outside Peterborough Highway Services, such as Section 106<sup>6</sup> 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).

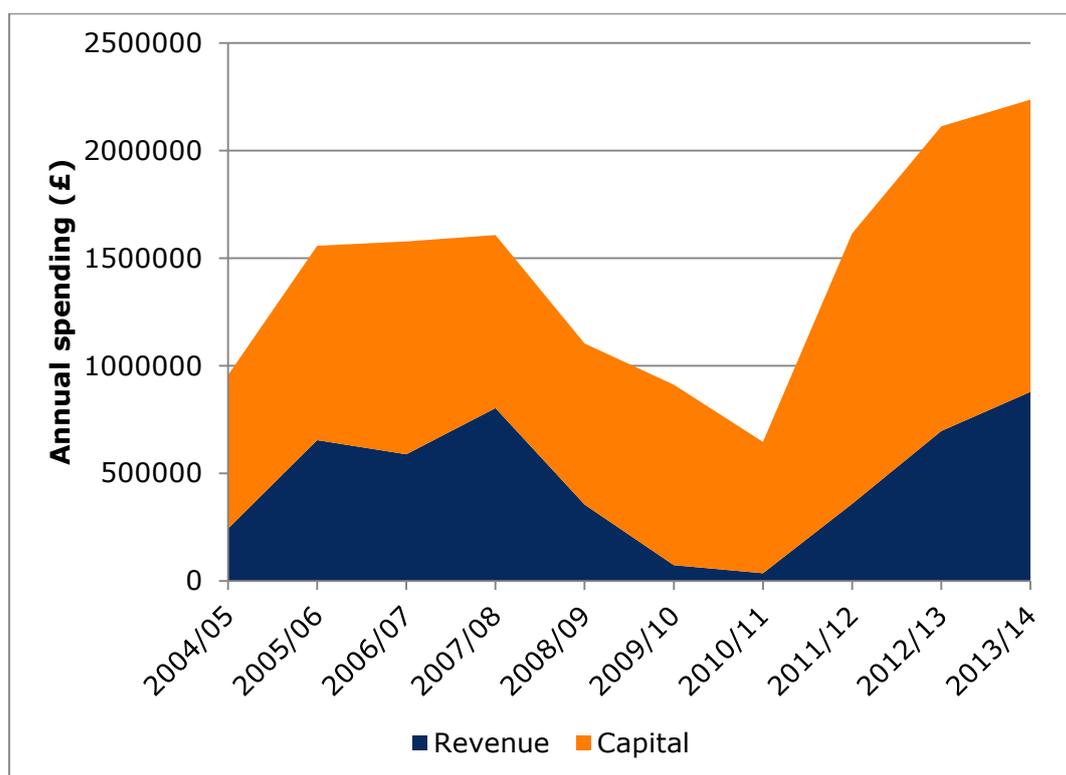
The graph illustrates that funding for smarter choices activities was temporarily reduced at the end of the STT period but increased from 2011/12 to reach annual levels in 2013/14 which were similar (for revenue) and higher (for capital) to the peak of funding during the STT period.

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<sup>5</sup> We believe this spending is not captured in the figures reported for the STT period, although it is impossible to be sure that there is not some overlap.

<https://www.gov.uk/government/publications/cycling-england-cycling-city-and-towns-end-of-programme-reports>

<sup>6</sup> Section 106 agreements are legal contracts that can be linked to a planning application in order to mitigate the impact of a development or ensure that it complies with policy. They can be used as a mechanism to obtain funding for relevant local transport activity associated with a new development.

**Figure 1: Spending on Travelchoice in Peterborough since 2004/5**

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. Between 2011/12 and 2013/14, it came from LSTF. Capital funding came 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.

### **Peterborough – delivering funding for sustainable travel through the planning system**

During the STT period, the Travelchoice team established enhanced working relationships with their planning colleagues. One legacy is that Development Control and Planning officers continue to stipulate robust requirements of developers in relation to sustainable travel. For example, residents of all new developments larger than ten dwellings are targeted through household travel information packs, funded through Section 106 contributions from developers. Travelchoice receives £10 per household to provide the necessary leaflets, maps and timetables, while the developer also provides a month's bus pass or £50 voucher for a local bike shop. Developers are 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 are required, as well as necessary associated sustainable transport infrastructure.

## 2.4 Worcester

Spending on sustainable travel initiatives in Worcester is summarised below. After 2008/9, it mostly comprised capital spend on infrastructure. Spending by other organisations (such as public transport information and marketing by the bus operator) is not included in the figures. Worcester differed from Darlington and Peterborough in that the levels of revenue funding seen during the STT period were generally not renewed in subsequent years (as the authority focused its work in this area elsewhere).

**Table 1: Sustainable travel funding for Worcester**

2004/5 to 2008/9	2008/9 to 2013/14
£1.6 million revenue and £2.9 million capital expenditure, totalling £4.4 million of expenditure overall.	<p>£4m funding for Connect2<sup>7</sup> projects – specifically, upgrading the walking/cycling links across the river in two locations.</p> <p>£0.7m for improving walking/cycling routes around the university.</p> <p>Small scale capital spending on local infrastructure, including improvements for rail, bus, cycle and walk trips.</p> <p>Small scale revenue spending on Bikeability and pedestrian training in schools; Tour of Britain cycle tour; and information provision.</p>

## 2.5 Summary of the changes to inputs

Table 2 provides an overview of how funding for sustainable travel activities changed during and after the STT period. Whilst all three authorities bid for large LSTF grants enabling similar or larger-scale smarter choice programmes to be put in place, Worcestershire chose to focus their activities on other parts of the county. However, there has been significant investment in walking and cycling infrastructure in Worcester since the STT work, partly in accordance with priorities identified during the STT period.

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<sup>7</sup> Connect2 is the National Lottery funded Sustrans programme to improve a number of key local walking and cycling links.

**Table 2: Overview of sustainable travel activities in the three towns during and after the STT programme**

		STT: 2004/5 - 2008/9	Post-STT: 2008/9 - 2013/14
Overall sustainable travel programmes	Darlington	£4.4m programme (£2.6m revenue, £1.7m capital) with 'Local Motion' brand.	Dip in activity 2009-11 then £13.2m LSTF smarter choices programme starting 2011/12 (including continued 'Local Motion' branding). Increased focus on the rest of the borough beyond town. Pilot station travel plan and rail service improvements.
	Peterborough	£6.8m programme (£3.6m revenue, £3.2m capital) with 'Travelchoice' brand.	Dip in activity 2009-11 then £15.7m LSTF smarter choices programme starting 2011/12 (including continued 'Travelchoice' branding). Increased focus on the rest of the area beyond town. Sustainable prompts to developers embedded in planning process. Pilot station travel plan.
	Worcester	£4.4m programme (£1.6m revenue, £2.9m capital) with 'Choose how you move' brand	Sustainable travel activities substantially reduced and re-focused on county-wide initiatives using a generic 'Choose' brand, with LSTF work targeting Redditch rather than Worcester. However, around £5 million spending on walking and cycling infrastructure in Worcester, following priorities identified in original STT work; ongoing pedestrian and cycle training in schools; and rail improvements.

### 3 What were the outputs during and after the STT programme?

#### Summary:

All three authorities have chosen to continue some, or all, of the activities that were begun as part of the STT programme, and felt that the STT work had partially shaped their activities. In particular, activities have included use of a strong brand identity, personalised travel planning work, cycling and walking promotion, public transport promotion, school travel planning, travel awareness campaigns, and workplace engagement. Key differences between the towns, and between the STT work and the later activities, are described after Section 3.2.

Given its responsibility for a wider area, it should be noted that Worcestershire shifted the focus of sustainable travel work to Redditch, with sustainable travel work in Worcester after the STT period being relatively minimal. Worcestershire's work in this area has also partly focused on strands of activity that can be delivered county-wide, such as Bikeability and pedestrian training; the car-share scheme (promoted through workplaces); the move to a generic 'Choose' brand; and plans for a developer-funded county-wide PTP approach.

#### 3.1 How the STT programme influenced local authority activities

The three lead local authorities involved in the STT programme have all remained positive about smarter choices work and felt that the STT work had helped with gaining further funding, and shaping activities. This demonstrates that one of the 'outputs' from such programmes is an influence on the development of future activities.

Specifically, all three authorities successfully bid for LSTF funding, and chose to continue some or all of the activities that were undertaken during the STT period. For example, Darlington argued that their involvement in the Tees Valley Bus Network Improvement project had led to the inclusion of a significantly greater information and marketing component in the overall project than would otherwise have been the case. Worcestershire reported that STT work had provided the catalyst for obtaining the funding for the Diglis Bridge. Peterborough reported that the Travelchoice work had helped to ensure the inclusion of sustainable travel ambitions in a number of important policy documents, such as the 2011 Core Strategy Development Plan and 2014 Environment Capital Action Plan.

Partly building on activities during the STT period, the value of developing positive links with a number of important partners was reported – in particular, health and planning colleagues in all three locations, not least in relation to active travel promotion, and requesting developer contributions for smarter choices work. Both Darlington and Peterborough commented on having greater confidence, and more effective mechanisms, for asking for Section 106 contributions from developers.

However, a more mixed picture was reported in relation to LEP enthusiasm for smarter choices work. Whilst, in one authority, major scheme funding had been used to make significant infrastructure improvements for pedestrians and cyclists, less positive experience was also reported. One authority commented that the LEP is particularly

interested in longer journeys, but perceives that smarter choice type measures are more relevant to shorter journeys. Another felt that the LEP was unconvinced about the economic benefits of smarter choices work. It was also reported that it can be difficult to justify that proposed smarter travel initiatives provide value for money compared with infrastructure projects, with officers from one authority stating that when they apply the methodology for calculating benefit to cost ratios (BCRs) in DfT's transport appraisal guidance (WebTAG), it tends to result in higher BCRs for road schemes than for smarter travel initiatives. It was suggested that the DfT should mandate the incorporation of smarter travel measures into infrastructure improvement programmes.

Overall, therefore, the authorities felt that their involvement in the STT programme had been influential in shaping their activities. They also felt that smarter choices work would benefit from greater national support and justification when attempting to involve those who have not had such experience, in particular, some of those involved in the LEPS.

### 3.2 Key features of the programmes during and after the STT period

As discussed in Chapter 2, there was a substantial reduction in revenue-funded activity for all towns after 2008/09. Substantial new funding was established in Darlington and Peterborough from 2011/12; this did not happen in Worcester, although there was significant infrastructure investment. However, all three towns' activities have included at least some of the following elements either during or after the STT period:

- Development of a **strong brand identity** for their sustainable travel work during the STT period, which has been continued (and, in the case of Worcestershire, extended county-wide). In particular, the brands developed during the STT period were 'Local Motion' in Darlington, 'Travelchoice' in Peterborough and 'Choose how you move' in Worcester.
- **Personalised travel planning work**, where individuals are given tailored advice on their travel options, together with incentives to try alternatives, such as free bus tickets. During the STT period, PTP was rolled out to a large proportion of households in all three towns. All three authorities have chosen to continue with some variation of personalised travel planning in later work, but refined their approaches, as discussed in the box at the end of this chapter.
- **Cycling and walking promotion**, including pedestrian and cycle training in schools and for adults, led rides, the development of maps and guides, route signing, events, loan schemes etc. There were major infrastructure improvements in Darlington until 2011 (through the Cycling Demonstration Town work), whilst subsequent activity focused more on non-infrastructure measures, such as training, led rides, maps etc.. In Worcester, there have been some major infrastructure upgrades, whilst promotional work has been relatively limited. Peterborough's work has been an ongoing mix of both hard and soft improvements. Peterborough also developed an innovative programme to promote active travel as part of a healthy living initiative.
- **Public transport promotion** - information and marketing about bus services was a particular feature of work during the STT period in Peterborough and Worcester, not least given major improvements to services that also took place during that time. Since then, local-authority led work in Worcester has been relatively limited. Work in Peterborough has continued, but on a smaller scale. Darlington developed a number of new initiatives, through positive working

relationships with the operator. However, all three authorities commented that cuts in bus funding had made service promotion problematic. In contrast, since the STT period, work with rail providers had increased, and there had been substantial work in all three towns on improving sustainable access to local rail stations.

- **School travel planning** – during the STT period, all three towns had a strand of work focusing on school travel, and, at the end of the period, a high proportion of school pupils were covered by an active travel plan in all three towns. Since then, Darlington had continued to make this a major strand of work, albeit the focus had shifted from encouraging cycling to a more multi-modal approach. Peterborough had continued with the activity, albeit giving it less emphasis. In Worcester, work was limited to Bikeability and pedestrian training and school-led initiatives.
- **Travel awareness campaigns** – during the STT period, all towns used a wide variety of information dissemination techniques, including generating a steady stream of publicity and media coverage via advertising, poster campaigns, events and other activities. This work continued in Peterborough and Darlington, but not Worcester. Greater use of websites, including providing information electronically, and communication via social media was taking place, albeit to varying degrees in the three towns.
- **Workplace travel planning** – whilst all three towns undertook some activity in relation to workplace travel planning during the STT period, this was only a major focus in Peterborough, and this continued to be the case. Peterborough's activities included the provision of personalised advice on commuting options to employees.

More details of the programmes in the individual towns are given in Section 3.3.

#### **Key differences between the towns since the STT programme:**

**Darlington** had significant improvements to its cycle infrastructure implemented as part of the Cycling Demonstration Town programme. It had chosen to put more emphasis on personalised travel planning, and has had a relatively consistent active school travel programme.

**Peterborough** has had a much more substantial workplace travel programme than the other two authorities, and had also developed an innovative programme to promote active travel via healthy living, including, for example, the distribution of 10,000 pedometers.

**Worcester** had benefitted from some major infrastructure improvements for pedestrians and cyclists, but relatively little else had taken place. Worcestershire County Council was also less convinced of the benefits of school and workplace travel work, compared with the other two authorities, given a view that it may be more cost-effective to interact directly with individuals.

### Key changes in the approaches that all three authorities had adopted since the STT programme:

- **Greater integration between 'hard' and 'soft' measures**, with Worcestershire and Darlington both describing an evolution of staff roles such that those delivering 'softer' measures were also often involved in delivery of local infrastructure measures. One authority also argued that the DfT should mandate the incorporation of smarter travel measures into infrastructure improvement programmes.
- **Geographical extension of activity**, with both Peterborough and Darlington starting to focus on the whole borough population rather than just the urban areas, and on inter-urban as well as intra-urban trips; whilst Worcestershire was developing county-wide initiatives.
- **Refined approaches to personalised travel planning** (see box at end of this chapter).
- Underlying **reductions in bus funding over time**, which had affected the opportunities to promote buses given the impacts on services and/or fares.
- More **focus on rail**, particularly in relation to improving station accessibility and on-site facilities such as cycle parking.
- New activities including small-scale work on **eco-driving, electric vehicles, and much greater use of the internet and social media**.

## 3.3 Details of the outputs since the STT programme in each town

### 3.3.1 Darlington

The ongoing 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. Meanwhile, the overall balance of the Smarter Choices work in Darlington had changed since the STT programme. Whilst the promotion of cycling and personalised travel planning (PTP) had continued, there was also 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.

In particular, key initiatives undertaken in Darlington since the end of the Sustainable Travel Towns period (and largely through LSTF funding) have included:

- A programme to provide **personalised travel planning** again, to all households in the borough between 2012 and 2014, this time delivered in-house, and enhanced by an app to help with engagement. The team delivering the

programme had also provided personal travel advice at the job centre, and at some college engagement events.

- **Ongoing engagement with schools**, and the introduction of new activities, including encouraging sustainable travel on 'MEGA Fridays' (i.e. once a week), a transitions programme about travel for those starting secondary school and the extension of Bikeability and child pedestrian training. There was a brief gap in funding for school work in 2011/12.
- A **travel awareness programme**, including ongoing development of the Local Motion brand (including via the website and social media), campaigns in the summer and at Christmas, and events, including the annual MEGA festival.
- **Partnership working with the local bus operator**, leading to the introduction of smart ticketing; upgrades on 8 main routes accompanied by a targeted marketing campaign; the introduction of a new high-end service (the Sapphire Service from Darlington to Durham); and improvements to on-street timetables and 'next stop' announcements (for those with visual impairments).
- **Ongoing work on cycling and walking**, although, following completion of the Cycling Demonstration Town work, with less emphasis on infrastructure and more focus on led walks and cycle rides, adult cycle training and relevant local maps and guides. Relatively few walking initiatives took place between 2008 and 2012.
- **Work on rail services**, including improvements to Darlington, Dinsdale and North Road stations, improved services on the Tees Valley line, and a campaign around North Road station to encourage use of services for commuting on the Bishop Line.
- A **small-scale workplace travel programme**, including positive work in relation to a new Department for Education building, and running bike to work events.

Meanwhile, reductions in funding for council supported bus services had led to some cuts in services, which had been partially offset by the introduction of some commercial or community transport services.

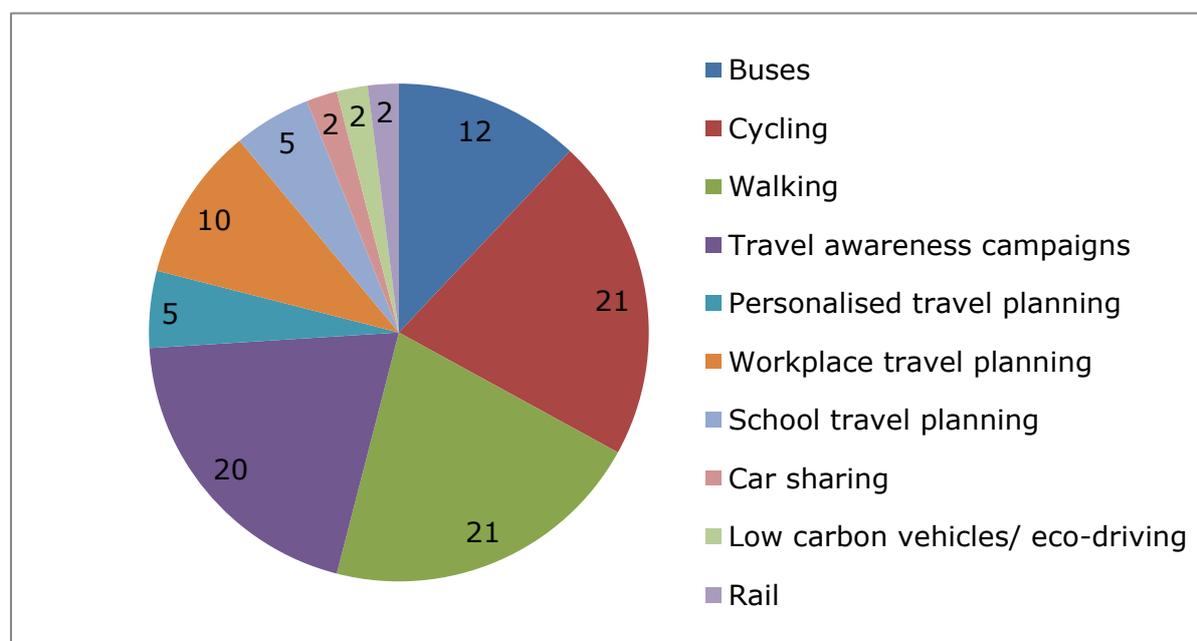
### **3.3.2 Peterborough**

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 reported 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 in 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 (including those in previously untargeted locations), 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 PTP, officers felt that the balance of the Travelchoice programme had remained broadly similar, with the majority of effort being put into walking, cycling and travel awareness, while public transport and travel planning were secondary foci.

Figure 2 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 was more important in 2012/13 during the implementation of the station access improvement scheme.

**Figure 2: 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 the costs of updating); 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 (from both the council and local stakeholders) such as the 2011 Core Strategy Development Plan and 2014 Environment Capital Action Plan.

Key initiatives undertaken in Peterborough since the end of the Sustainable Travel Towns period, mostly following the award of LSTF funding, have included:

- An **ongoing workplace engagement programme**, involving 72 employers in 2014. Initiatives have included a biennial awards programme, the availability of match-funded grants; the distribution of bikes for use in pool bike scheme and a workplace personalised travel scheme (where individual travel advice had been provided to over 8,000 employees by the end of 2014).
- An **ongoing travel awareness programme**, including development of the Travelchoice website, use of social media, campaigns, events, and quarterly circulation of the Travelchoice newsletter to those signing up to the Good Going pledge scheme.

- A **targeted smaller-scale programme of personalised travel planning** aimed at 6,000 households in 2 areas where segmentation analysis suggested that such activity could be beneficial.
- A new **programme to promote active travel as part of 'healthy living'**, including various courses, the hand-out of 10,000 pedometers and the recruitment of 300 volunteer health champions. This was being run by 'Live Healthy', the public health team.
- **Ongoing cycling and walking promotion**, including the installation of 485 cycle parking spaces between 2011/12 and 2014, new cycle/pedestrian routes, better pedestrian signing, ongoing sales of the cycle map developed during the STT period, provision of bikes to job seekers, cycle training, cycle maintenance courses and led cycle rides.
- **Some improvements to public transport**, including roll-out of real time information, small-scale bus stop improvements, upgrade of the main bus station and the launch of a smart-card for Stagecoach services.
- An **ongoing schools engagement programme**, although staffing issues meant that activity had been somewhat sporadic. There was an increasing cycling focus, with the introduction of Bike It into an increasing number of schools from 2011/12.
- **Improvements to Peterborough rail station**, including the introduction of a 290-space cycle compound, improved signing, CCTV, real time passenger information, traffic calming and a widened shared pedestrian/cycle pathway.

Meanwhile, there had been some increases in bus fares, and some cuts to services.

### 3.3.3 Worcester

When the STT programme ended, the STT team was disbanded. Actual spend in Worcester on smarter travel type activity (apart from on sustainable infrastructure) was relatively minimal after 2008/9.

Specifically, Worcestershire County Council felt that it was important to spread investment in smarter travel work beyond Worcester. Consequently, their LSTF bid focused on Redditch, the second largest urban area in the county. Worcestershire County Council's view was also that the STT project highlighted a lack of sustainable infrastructure in Worcester, and that suitable infrastructure was needed before further smarter travel work could be undertaken. Consequently, since 2008/9, most of the specific initiatives in Worcester that were likely to encourage sustainable travel habits were infrastructure based. Key developments included:

- The completion of a new pedestrian/cycle crossing over the River Severn in Worcester, **the Diglis Bridge**, in 2010, and the **redevelopment of walking and cycling links near the New Road Bridge**, as part of the Sustrans Connect2 programme. 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.
- **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** as part of the County's annual programme, 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.**

Non-infrastructure measures have included:

- **Bikeability and pedestrian training** for schools.
- Reprinting of the Worcester **walking and cycling guides**.
- Funding for the **'Tour of Britain' cycle tour**, which passes through Worcester and South Worcester.

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 were partially offset by some improvements to bus services.

## The evolution of approaches to personalised travel planning

During the STT period, large-scale personalised travel planning programmes took place in all three towns, whereby people are given individual advice and incentives to encourage them to travel more sustainably. These programmes targeted all households in the town of Darlington, 50% of households in Peterborough and 60% of households in Worcester. Since that time, all three authorities have chosen to continue with variations of personalised travel planning, although their approaches have all evolved, as described below. All three commented on the value of *associated work to raise awareness of the PTP programme*, so that people do not receive it entirely 'cold'.

As part of its LSTF project, **Darlington** had chosen to visit/revisit all households in the borough (an expansion of the previous programme, which only covered the town). Other key differences of the approach included:

- Work was undertaken by a team of in-house 'travel advisors', who worked on related travel projects during the winter.
- Following a drop in engagement (to 44% households), an app was developed, which significantly increased engagement rates (to 64% households at the time of the interview). New materials were developed including a postcard competition and household travel challenges.
- The travel team also provided individual advice to people through engagement with Darlington Job Centre and through local college events.

In **Peterborough**, the decision was made not to repeat the programme across the authority, on the basis that saturation levels had been reached. (Data protection issues also meant that the authority could not establish which households had previously received the intervention – this is now explicitly addressed in any new contracts with subcontractors.) However, some PTP work was continued. In particular, this had included:

- Smaller-scale targeted work in three areas which segmentation analysis suggested as being appropriate given particular potential for benefits.
- A workplace PTP programme, (MyPTP), where (unless they opted out) employees were provided with individual information about different options for their commute (including costs, CO<sub>2</sub> and calories), which was delivered via email.
- Developer-funded household travel information packs for residents of new developments.

**Worcestershire** had continued with its PTP work through activities in Redditch, and was aiming to develop a cost-effective offering that could be funded by developer contributions and extended county-wide. Its work differed from the STT programme in that:

- All households were involved.
- It was more targeted, and it was made clearer to households that they could opt out.
- Every phase of the work was monitored, and monitoring included panel (rather than cross-sectional) surveys, so that it was possible to track individual change, and participant opinion on the programme so that it could be continually enhanced.

### 3.4 Summary of the changes in outputs during and after the STT work

A summary of each of the main strands of work undertaken both during and after the STT programme *within the three towns* is given below. Shading is used to give an indication of the scale of activity, and how that has changed over time.

**Table 3: Overview of the levels of sustainable travel activities in the three towns**

Treatment level (approximate)	
	Very substantial
	Substantial
	Moderate
	Low

Key to locations	
D	Darlington
P	Peterborough
W	Worcester

STT activity	Town*	STT: 2004/5-2008/9	Post-STT: 2008/9-2014~
Personal travel planning	D	All households targeted.	Renewed.
	P	50% households targeted.	Focused activity with workplaces and in several specific areas.
	W	60% households targeted.	Mostly discontinued in Worcester.
Bus services and subsidies	D	STT period spent getting to a better position in order to make improvements; concessionary fares.	Smart ticketing, improved on-street information and improvements on particular routes.
	P	Service improvements; information and marketing; concessionary fares.	Some ongoing activity. Cuts to some services and fare increases from 2012.
	W	Service improvements; information and marketing; concessionary fares.	Cuts to services and subsidies from 2011 partly offset by some service improvements.

STT activity	Town*	STT: 2004/5-2008/9	Post-STT: 2008/9-2014~
Cycling and walking infrastructure	D	Cycle Demonstration Town (CDT) funding; pedestrianisation of town centre.	CDT continued to 2011 with £3.7m spent 2008-11; station upgrade.
	P	Small scale (but good pre-existing cycle network).	Station upgrade; additional cycle routes.
	W	Small scale.	Around £5m on projects around river and university, mostly completed by 2010. Station upgrade.
Cycling and walking promotion	D	Many activities including production of information resources and maps, route signing, events (including festivals and led walks/rides), loan schemes and cycle training.	Some dip in activity, followed by an increase with LSTF funding from 2011/12.
	P		Continued and increased, with new emphasis on active travel as part of health promotion.
	W		Largely discontinued, though walking and cycling guides produced, and cycle events supported.
School travel planning	D	73% pupils covered by a travel plan in 2008^	Maintained (except for a dip around 2011), with a shift from a focus on cycling, to a more multi-modal approach.
	P	77% pupils covered by a travel plan in 2008^	Reduced, though with a new targeted cycling programme
	W	82% pupils covered by a travel plan in 2008^.	Significantly reduced – though ongoing cycling and pedestrian training.
Workplace travel plans	P	Mainly in Peterborough.	Continued in Peterborough, with a new workplace PTP programme.
Travel awareness campaigns	D	Many activities including use of brand identities in all three towns, information and marketing and resident engagement.	Development of Local Motion brand, events and campaigns.
	P		Ongoing marketing, information and events – with some shift to online activity.
	W		Very little activity.

\*See key above for explanation of the letters used. ~Activities reported up to September 2014

^Figures relate to pupils at schools where travel plans had been agreed.

## 4 What happened to travel in the three towns to 2014, compared to trends elsewhere?

### 4.1 Introduction

The original STT evaluation concluded that the programme “*was successful in reducing travel by car, and increasing the use of other modes... The trends in the towns were different from those in other medium-sized urban areas, with respect to car, bus, walking and cycling trips per person and also with respect to changes in traffic.*”, (Sloman et al, 2010, p55). A key question for this evaluation was, therefore, whether this had continued to be the case.

Observed trends are described and discussed below. Attributing any observed changes to particular interventions is problematic, as discussed further in Chapter 5.

### 4.2 Changes in bus use

Figure 3 provides the comparable bus data that were available, for the three towns and at national level, indexed to 2004/5 in order to show *relative change* over time. It should be noted that in terms of *absolute numbers*, bus use was considerably higher in Darlington at the start of the STT programme<sup>8</sup>, and remained relatively high in 2013/14<sup>9</sup>.

Nationally, bus use was declining prior to the STT period. The introduction of concessionary fares in 2006 led to an uplift of about 8%, although there was a decline of about 5% after 2008/9, possibly stabilising in 2012/13, such that boardings were about 3% above 2004/5 levels in 2013/14. For the three towns, the main findings were as follows:

- Since 2004/5, bus boardings in **Darlington** had declined by more than the national rate of reduction (albeit, as already noted, from a high level of bus usage per person). 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 could be attributed to local improvements to the bus offering.
- Bus use in **Peterborough** showed substantially greater growth during the STT period than that which occurred nationally<sup>10</sup>, but subsequently showed significantly greater reductions, and, in 2013/14, passenger numbers were only 6% greater than in 2004/5.

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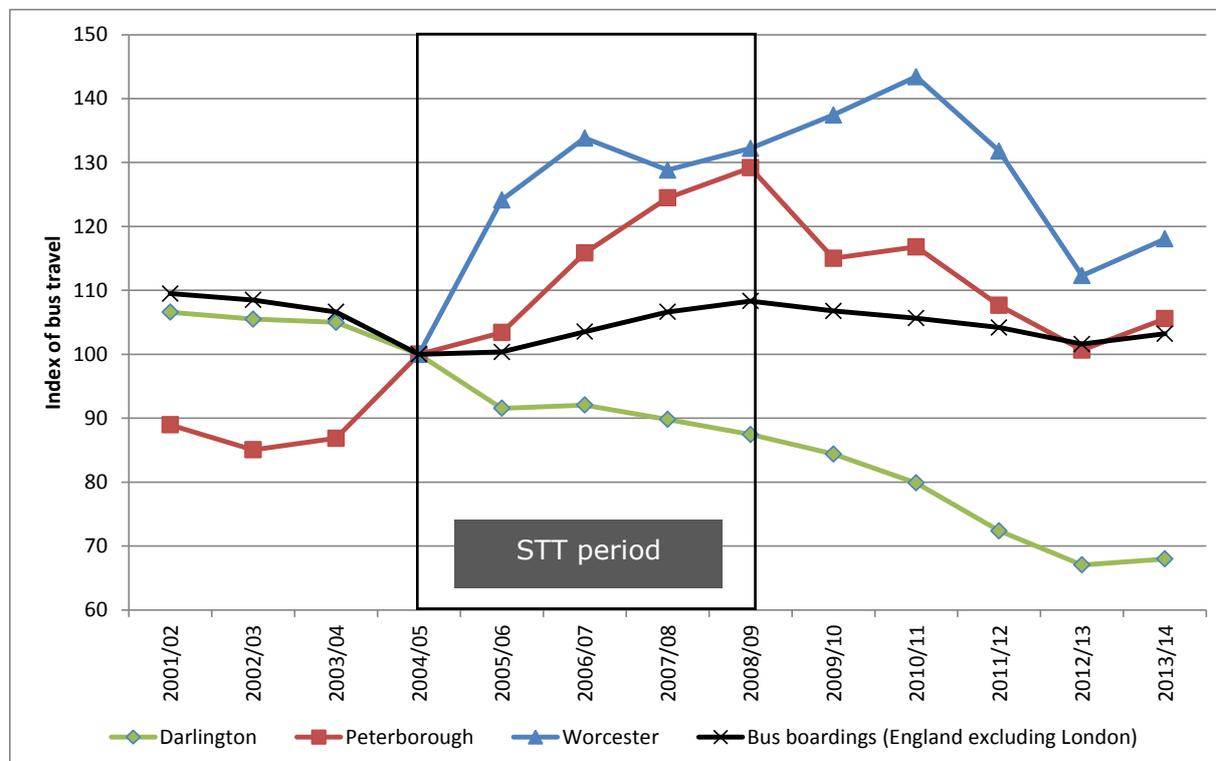
<sup>8</sup> The baseline survey for the STT work by Sustrans/Socialdata in 2004 showed that public transport use accounted for 12% of trips in Darlington (compared with 6% in Peterborough or Worcester), according to figures based on the weighted dataset, excluding trips over 100km and commercial trips.

<sup>9</sup> 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 relates to boardings of intra-city services only, so is not directly comparable.

<sup>10</sup> The STT report indicates 40% growth between 2004/5 and 2008/9 based on figures for Citi and Local Link services. The figures used here, about all bus boardings in Peterborough (including boardings for inter-urban services), suggest 29% growth over that period.

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

**Figure 3: Changes in bus boardings<sup>11</sup>**



Growth in bus use in both Worcester and Peterborough was part of the success story of the STT programme, with bus use peaking in Peterborough in 2008/9, and continuing to grow in Worcester until early 2010, as information and marketing activities took place in conjunction with improvements to services. In contrast, this was not the case in Darlington, where bus use declined, albeit from a high base level. In recent years, bus use declined in all three towns – in particular, for the two towns where there was previously growth, from 2009/10 in Peterborough, and from summer 2010 in Worcester. Some reductions can be attributed to changes in service provision. Specifically, in Worcester, cuts in county-wide funding led to significant service reductions in September 2011. In Peterborough, 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 there were major reductions to the council’s Local Link services in October 2013. There was also some negative reporting about buses in the local media.

<sup>11</sup> Bus data for Peterborough and Darlington were only provided as annual totals, for all bus boardings within the authority. Worcester data were provided as monthly totals, enabling more precise understanding of when changes occurred. Worcester data were also broken down by route, and only related to intra-city services.

However, in both Worcester and Peterborough, this leaves periods of patronage decline without a clear explanation (roughly summer 2010 to autumn 2011 in Worcester, and 2009/10 to 2011/12 in Peterborough). Interviewees from both towns noted that these were also periods 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. In Worcester, interviewees reported that publicity about the budget cuts may have led passengers to seek alternative transport arrangements prior to the reduction of services in September 2011. In Peterborough, reductions in bus service promotion and publicity were also explicitly mentioned as a cause for decline. (These activities were also cut back in Worcester). The rate of decline in both towns was significantly greater than the national rate, implying that local factors must have been important and that a reduction in publicity and promotion (both directly for public transport services, and more generally, in terms of a reduction in activities like PTP) may have contributed to the decline. Interestingly, Darlington interviewees explicitly commented that when funding for bus campaigns ended, there was a negative change in perceptions of buses.

From 2012/13 to 2013/14, there was some uplift in patronage in all three towns, which was also in line with the national trend, although the degree of uplift appears to have been greater in Peterborough and Worcester. In Worcester, the introduction of a multi-operator ticket in April 2013, accompanied by related information and marketing activity, may have been an important contributory factor. In Peterborough, a smartcard launch, and general travel awareness raising work as part of the LSTF programme may have been relevant. However, it is difficult to isolate the importance of any one factor.

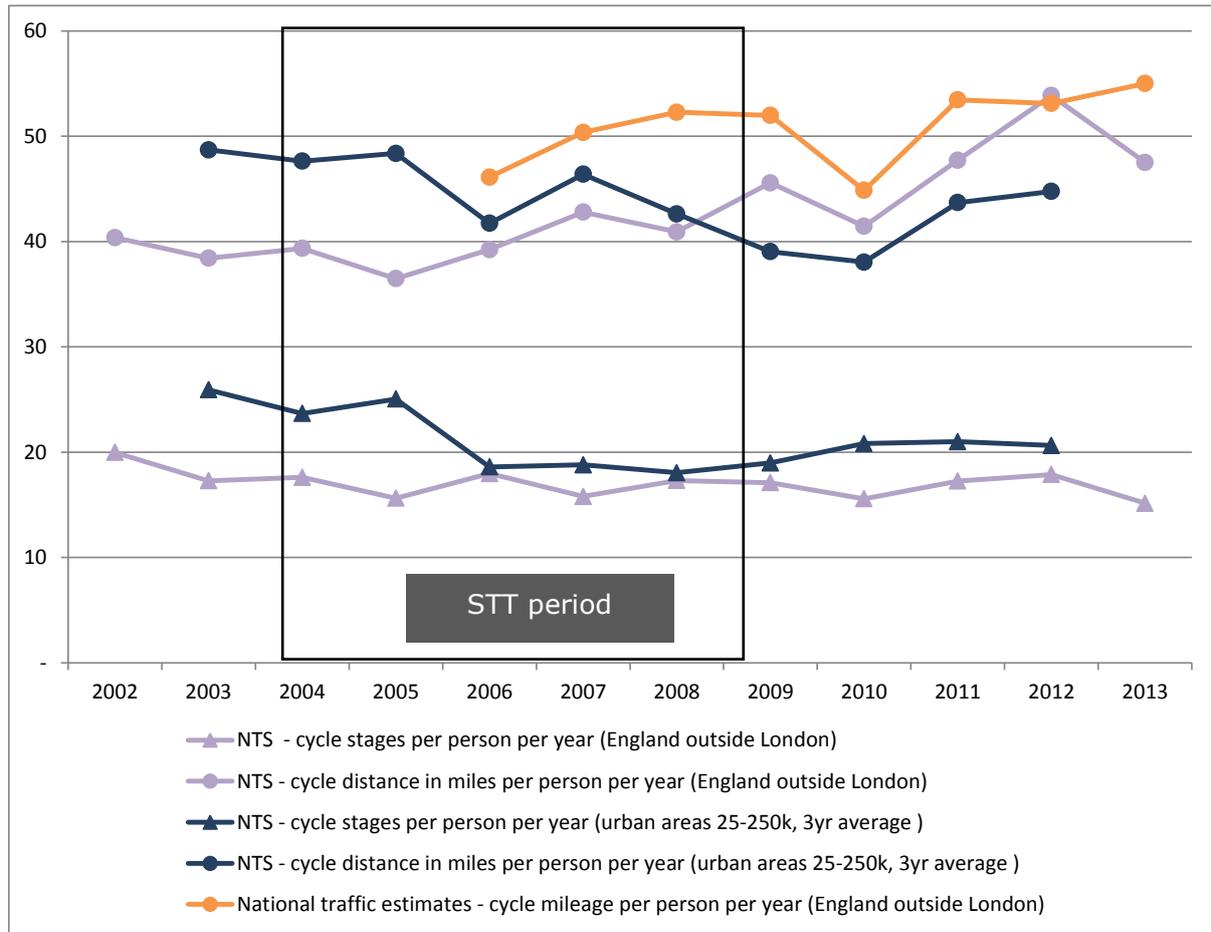
In brief, then, changes in Peterborough and Worcester show that encouraging bus use may be successfully achieved through a combination of good services and publicity and promotion, however reductions in promotion and/or service quality mean that any gains are not sustained. One interesting question is whether the bus market may now be more volatile in both towns – i.e. the population may be more primed to consider using the bus if the conditions are right and/or the right promotional messages are used – although it is impossible to conclude this with any certainty.

## **4.3 Changes in active travel**

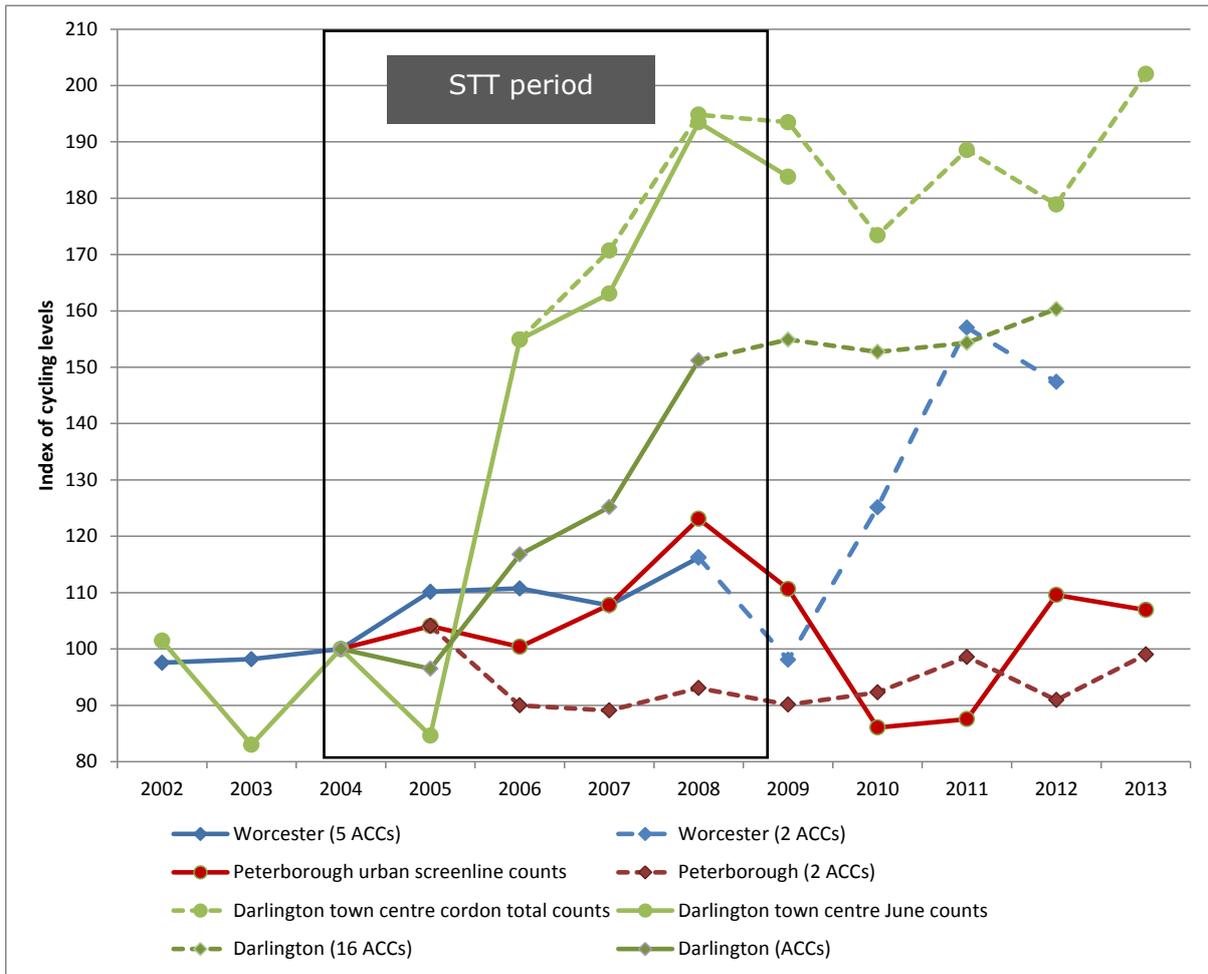
### **4.3.1 Town-wide changes in active travel**

Figure 4, Figure 5 and Figure 6 provide the available data about changes in active travel at a town-wide level for the three towns and at national level. (Again, data are for *changes* in travel rather than absolute numbers – in absolute terms, cycling trips per person were higher in Peterborough at both the beginning and end of the STT period, according to the household surveys.)

**Figure 4: Changes in cycling levels in comparable areas**



**Figure 5: Changes in cycling levels in the three towns**

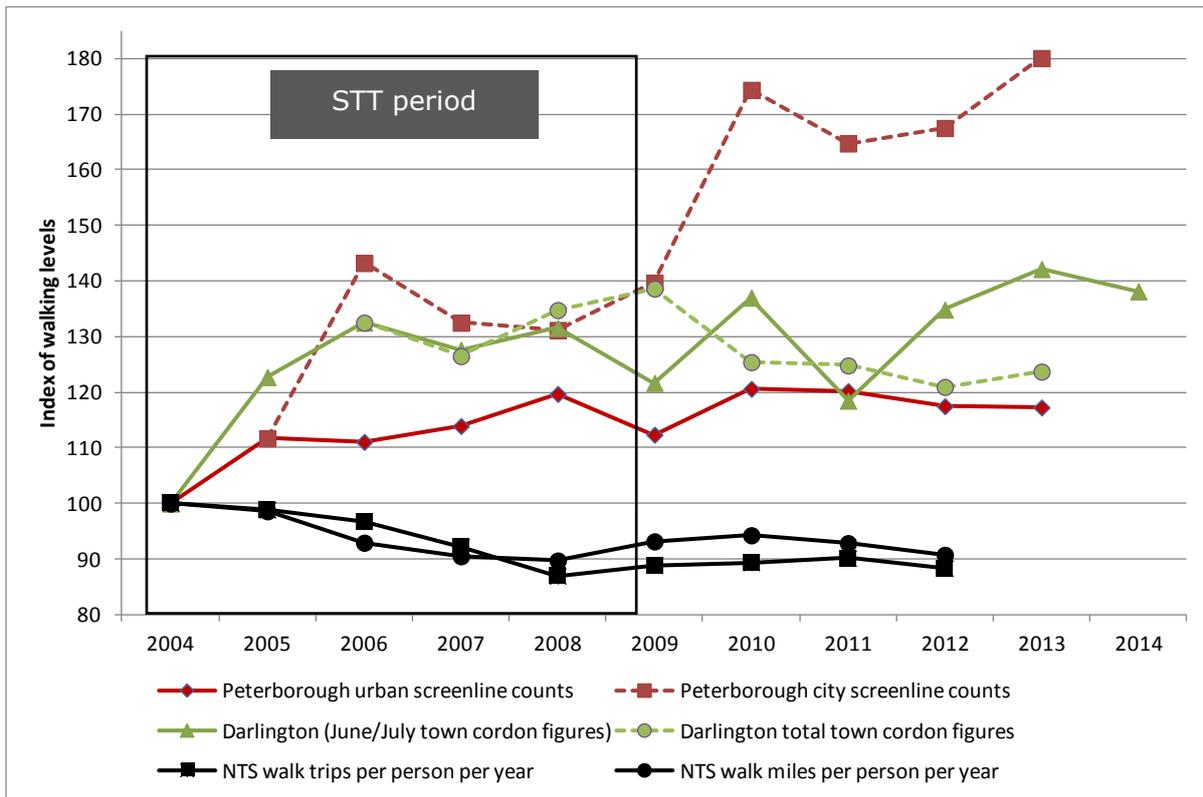


**Notes:**

Dotted lines indicate where data series were not available from 2004. In this case, data have been indexed to the nearest available point on a relevant series. For example, the Darlington ACC series suggest that there was roughly 50% growth in cycling levels between 2004 and 2008. To index the new ACC series to the old ACC series, a notional 2004 value has been used, which assumes that the 2008 figure also represents 50% growth between 2004 and 2008.

ACC data are for financial year. This has been plotted to the start of each financial period. For example, data for 2004/5 has been plotted against 2004. For Darlington and Worcester, the most recent ACC data was not available on the same basis as for the original report, hence the break in the series in each case. Peterborough data have been calculated for the two ACCs with a relatively continuous data series over that period. (March 2014 figures were not available, so March 2013 figures have been used to generate a financial year total.) For Darlington, from 2006 onwards, the 'June' figures represent an extrapolation between April and July figures, as undertaken in the original report. Also, the original ACC data series is based on the percentage change calculated between each pair of years, using all ACCs that had valid data for both years.

**Figure 6: Changes in walking levels**



**Notes:**

Dotted lines indicate where data series were not available from 2004. In this case, data have been indexed to the nearest available point on a relevant series. For example, the Peterborough urban screenline counts suggest that there was roughly 10% growth in walking levels between 2004 and 2005. To index the city screenline counts (which only began in 2005), a notional 2004 value has been used, which assumes that the 2005 figure also represents 10% growth between 2004 and 2005.

Peterborough counts are undertaken in May each year. The Darlington total counts represent the sum of counts undertaken in January, April, July and December.

NTS data are for medium sized urban areas (25k to 250k population). NTS figures represent a two-year average – for example, the 2012 figure is the average for 2011 and 2012. NTS surveys are undertaken throughout the year.

Obtaining definitive data about national trends in cycling in comparative areas is complex, since levels of cycling are relatively low, meaning that survey results are more vulnerable to fluctuation. Data from the National Travel Survey for medium-sized urban areas, and, separately, all areas in England outside London, are shown in Figure 4. Data from the National Traffic Estimates are also given. All three sets of information have been given, since it is hard to be confident which, if any, is the most reliable.

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<sup>12</sup>. Perhaps the most meaningful interpretation of Figure 5 is that, for medium sized urban areas, there was no evidence for an increase in cycling during the STT period, and, between 2008/9 and 2013, increases in both mileage and cycle stages have 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.

Meanwhile, for walking, as shown in Figure 6, National Travel Survey data suggests that, nationally, walking trips and mileage both fell during the STT period in medium-sized urban areas, with relatively stable levels since that time. Comparing averaged data from 2003 and 2004, with 2011 and 2012, suggests a 12% reduction in walk trips and a 9% reduction in walking miles.

In terms of changes in the towns<sup>13</sup>:

- In **Darlington**, cycling showed a very dramatic increase during the STT period, with growth of 50-100%. Walking also increased substantially, albeit that the relative increase over time was less dramatic. Between 2008/9 and 2013, both the higher cycling and walking levels were broadly maintained, with some indications that a further period of cycling growth might be starting.
- In **Peterborough**, although there was some increase in cycling levels between 2004 and 2005, it is unclear how cycling levels changed between then and 2013 compared with national trends<sup>14</sup>. However, the automatic counter data (both the trend series and examination of trends at the individual counters) suggest relatively substantial increases between 2012 and 2013, which may mark the beginning of an upward trend (though it was not possible to conclude this with confidence given the short time period of the available data). Meanwhile, walking increased by least 18% during the STT period and manual counts seem to show that those increases were either maintained or augmented by 2013.

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<sup>12</sup> Note that the data for medium-sized urban areas is three-year averages, potentially affecting data up to the '2007' figure.

<sup>13</sup> Note that data for the towns is based on counts of cyclists and walkers, rather than rates per resident, so is not entirely comparable. However, whilst factoring in population change would somewhat moderate the figures, it is unlikely to substantially change the trends shown.

<sup>14</sup> For completeness, the manual count data for cycling is shown in Figure 5. However, the large jumps in the data – in particular, the dip in 2010 and 2011 (which could not be explained by local authority officers) – mean that confidence in this data set is considerably less than for the automated cycle counters.

- In **Worcester**, cycling increased by 16% during the STT period, according to automatic cycle count data. Data to 2012 suggest that there was further, substantial growth since that time, although the number of cycle counters from which this conclusion is drawn is limited, and any increases are likely to geographically vary across the city<sup>15</sup>. According to household survey data<sup>16</sup>, walking also increased during the STT period, and data from the 2010 household survey suggested that the higher walking levels may have been maintained, with the number of walk trips per person per year increasing from 255 in 2004, to 284 in 2008 and 287 in 2010, an overall increase of 13%.

#### **4.3.2 Changes in active travel at schools and workplaces**

Data about changes in active travel were also available in relation to schools and workplaces, as shown in Figure 7.

In all three towns, the active travel mode share for the school journey increased during the period of available data, whilst, according to National Travel Survey data, the national trend was for a reduction. In Darlington, the cycling mode share rose to a peak of 7.5%, although this subsequently reduced, partly replaced by growth in both walking and scooter use. In Peterborough, the main increase was in walking, whilst Worcester experienced increases in the use of both modes.

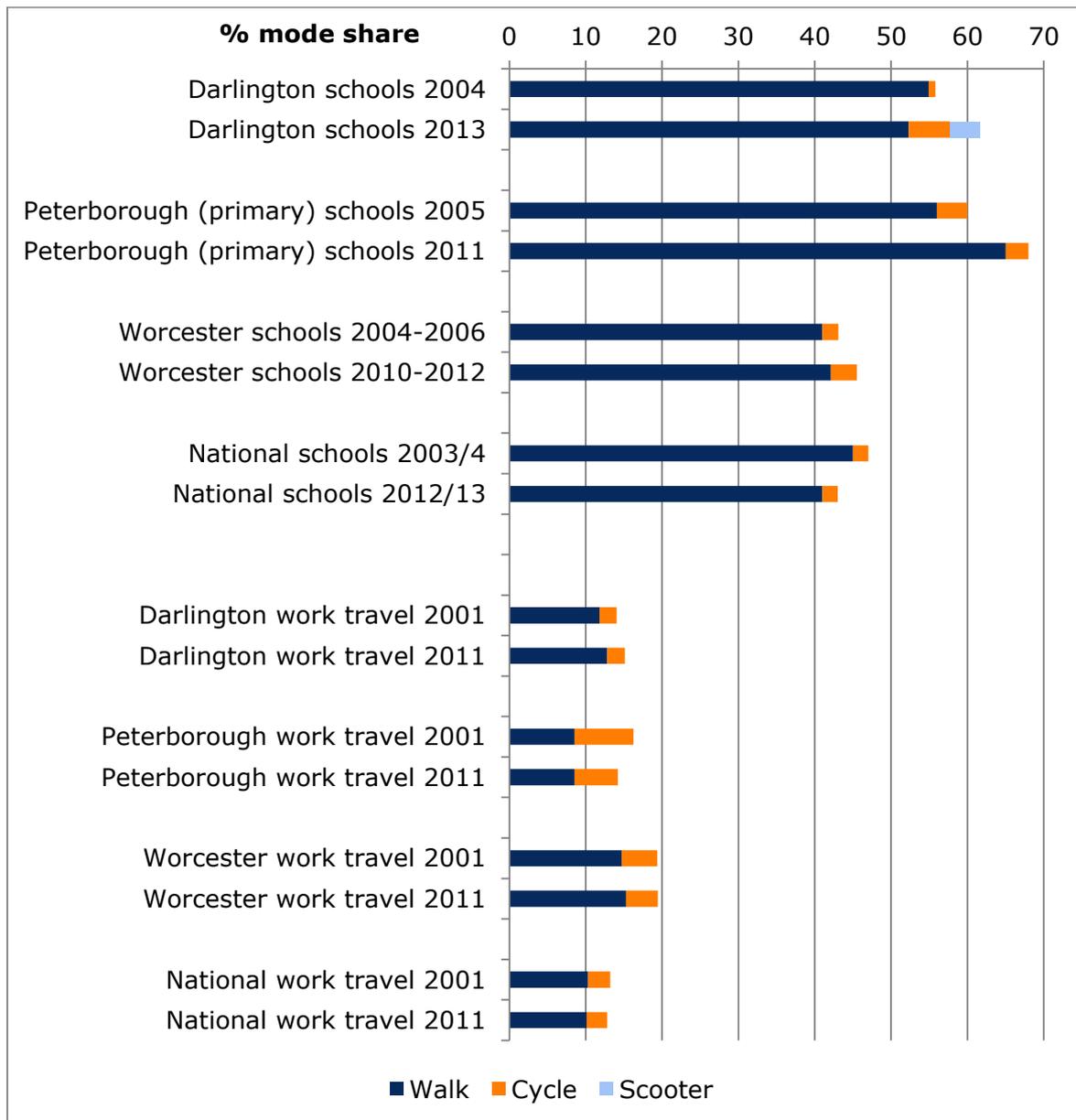
In contrast, Census data about mode choice for the commuting journey shows less obvious impacts. In 2011, all three towns had a higher active travel mode share for commuting than nationally - for example, the cycling mode share in Peterborough was 5.7% compared with 2.7% nationally. Moreover, there was some increase in the active travel mode share of commuting trips in Darlington between 2001 and 2011, and the active travel mode share was sustained in Worcester. Separate workplace data for Peterborough suggests that the time period of the Census means that it may not give a useful picture of trends resulting from the STT work, since available survey data from the local authority suggested that the active travel mode share may have increased between Autumn 2007 and 2011. Prior to that time, the trend may have been in the opposite direction, although we do not have available data with which to assess that.

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<sup>15</sup> However, neither of the counters used to create the most recent trend data are located directly next to the Connect2 projects.

<sup>16</sup> These data are not shown on Figure 6, given that they are a different type of information.

**Figure 7: Changes in active travel for school and work journeys**



**Notes:**

School travel data for the three towns were available from local sources. National Travel Survey data for England is used as a comparison. Data excluding London were not readily available, but would be expected to show a slightly lower active travel share. Darlington introduced a 'scooter' category in their 2013 survey, which is included here for completeness. They also introduced a 'park and stride' category, but this has been included in the car use category, to avoid any possible over-estimation of positive results. The other two towns did not offer pupils a scooter category - those scooting probably recorded themselves as walking. In Darlington, data are given for all pupils, and the comparison is between 2004 and 2013. In Peterborough, the data are for a cohort of 33 primary schools for the period 2005-2011. Peterborough secondary schools show similar trends to the primary schools. In Worcester, average figures for 2004-2006 and 2010-12 have been compared for a cohort of 16 schools.

Census data have been used to give an indication of commuting mode choice, although the timing of the Census is not ideal for detecting STT effects. In Peterborough, data from surveys with workplaces in the town suggested an increase in active travel mode share between Autumn 2007 and 2011.

### 4.3.3 Active travel summary

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 (CDT) activity. This boosted walking and, to a greater extent, cycling to higher levels than previously, in contrast to national trends. Reduced funding over time after the end of STT programme led to curtailed revenue activity at that point, although infrastructure improvements from the CDT programme continued until 2011. Between 2008 and 2011, the higher levels of cycling were maintained but appeared to plateau. Since the start of LSTF funding in 2011, sustainable travel work began to gain impetus again. There was some indication that this was leading to further increases in cycling, although available data sources (to 2013 or 2014) mean that it was not possible to make that judgement at the time of this analysis. 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.
- In **Peterborough**, walking increases in the town, and to schools, appeared to have been largely maintained or enhanced, and cycling levels were potentially starting to rise again (although, again, available data for this study meant that it was not possible to conclude this with certainty). Walking had featured in 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.
- In **Worcester**, cycling increases achieved during the STT period had been substantially augmented, following a variety of infrastructure improvements. Growth in walking achieved during the STT period also seemed to have been at least partially sustained, according to household and school surveys.

In brief, then, in all three towns, there is evidence that increases in walking and cycling during the STT period were sustained or enhanced, and that both hard and soft measures had played an important role in generating and maintaining those increases.

## 4.4 Changes in car use

### 4.4.1 Data sources available about town-wide changes in traffic and car use

A range of data sources were used to explore town-wide changes in traffic and car use, due to the importance of the topic; the fact that the individual data sources have particular strengths and weaknesses; and because the scale of change to be detected was relatively small.

*National data* about changes in car use and traffic were available from the National Travel Survey, and the National Road Traffic Estimates (NRTE). Data about traffic in Darlington and Peterborough were also available from the NRTE. However, equivalent data were not available for Worcester<sup>17</sup>, given that it is a district authority (rather than a unitary or county authority). There were also some limits to the NRTE data available for national comparison in that such data were only available for all urban roads ('A' roads and minor roads) in England excluding London. Comparison with NTS data for medium-sized urban areas suggests that using this information may overstate the degree of traffic reduction that has occurred in smaller places like the three towns, presumably partly because data for 'urban roads in England outside London' are influenced by traffic in the major conurbations.

In terms of *local data*, Darlington had relatively extensive traffic counter data; Peterborough had more limited traffic counter data; whilst the most useful data for Worcester came from the household surveys. In terms of specific details:

- Darlington has a relatively extensive network of 50 automatic traffic counters (ATCs), which have been operational since May 2004. 22 were situated in locations that were relevant to original STT work, and only had periods of 4 months or less of missing data to 2013, and were therefore suitable for examining trends in this study.
- Peterborough has available ATC data from 10 counters from 2006. A number of new counters were then added in 2011.
- Worcester has a series of seven ATCs located around the periphery, and one central counter. There were some considerable discontinuities in the counter sequences. Worcester also undertook repeat household surveys in 2010, on a comparable basis to those undertaken in 2004 and 2008, which provided an indication of car use per person.

Mid-year population estimates were available for use with all the data sets, and could therefore be used to convert the traffic figures into a measure of traffic miles per

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<sup>17</sup> Extraction of the raw individual Annual Average Daily Flows (AADF) data for major and minor roads in Worcester was undertaken from the national data set. The major roads data suggested a reduction in traffic volumes of about 9% between 2004 and 2013. However, the minor road data did not show the same trend. In order to calculate the minor road trend, it is necessary to estimate the volume of different minor road types within Worcester, and extrapolate from a limited number of counters for each road type, and then aggregate results. Although this was undertaken (using Ordinance Survey data for road volumes), sensitivity testing indicated that calculations were very dependent on assumptions about the volumes of different minor road types (and were also potentially unreliable due to the counter numbers), meaning that any trend data generated was not considered reliable.

resident (though it should be noted that this is achieved by dividing total traffic by resident numbers, therefore giving an index of how population numbers and car use equate, but not giving a direct measure of car use by residents).

#### 4.4.2 Changes in town-wide changes in traffic and car use

Table 4 provides a summary of the information about town-wide changes in traffic and car use in the three towns, as compared with the national trends. Summarising this information is relatively complex, given the range of data sources involved. Specifically, information for the STT period is taken from the original evaluation report, and includes both traffic count and household survey data. Meanwhile, estimates of the changes both during and after the STT period are based on traffic data for Darlington and Peterborough and household survey data for Worcester.

**Table 4: Comparisons between changes during the STT period, and between 2004 and latest available data at the time of this study**

	<b>STT period (2004 to 2008)</b> from Sloman et al 2010*	<b>2003/4 to the latest available data at the time of this study#</b>
<b>Information about car/vehicle mileage</b>		
National <sup>^~</sup>	Total traffic: -0.7% <sup>^</sup> Car mileage per person: -0.9% <sup>~</sup>	Total traffic: -5% <sup>^</sup> Traffic/car driver mileage per resident: -5% <sup>~</sup> to -10% <sup>^</sup>
Darlington	Total traffic: -2.4 to -3.2% Car mileage per person: -6 to -7%	Total traffic: -4% to -6% Traffic mileage per resident: -10% to -11%
Peterborough	Total traffic: -2.4% Car mileage per person: -7 to -10%	Total traffic: -1% Traffic mileage per resident: -15%
<b>Information about car trips per person</b>		
National <sup>~</sup>	Car driver trips per person: -1.2% <sup>~</sup>	Car driver trips per person to 2010: -4% <sup>~</sup>
Worcester	Car driver trips per person: -8 to -10%	Car driver trips per person to 2010: -10%

\*Figures taken from the original evaluation report. It should be noted that analysis given in the appendix, based on comparing 2003/4 averages with 2008/9 averages suggests different figures to those used in the original study, given that they catch the effects of the recession. In the original study, care was taken to ensure that consistent time periods were used for comparison for each of the data sources, and tailored to match the time period of the STT programme as well as possible.

<sup>~</sup>National Travel Survey information about urban areas, 25-250k.

<sup>^</sup>NRTE data for all vehicles. Data for urban roads used in the original study. Data for urban roads outside London used in this study.

# Trend data not calculated from the end of the STT period, since the economic changes in 2008/9 mean the timing of data collection in 2008 and/or 2009 is critical to results, and it is therefore even more difficult to compare between data sources. 2003/4 indicates the averaged data for those two years, not financial year.

More details on the changes in each of the towns were as follows<sup>18</sup>.

- In **Darlington**, during the STT period, car distance travelled fell by 6~7% per person between 2004 and 2008, according to the 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. These reductions, particularly in the inner area, began before the economic downturn. Since that time, automatic traffic count data suggests that traffic levels in the inner and suburban parts of Darlington continued to fall to 2013, whilst traffic in the outer area fell sharply during the economic recession, but subsequently stabilised. Traffic reductions in the inner area were in the order of 8% between 2004 and 2013, whilst there was an overall reduction in traffic levels in the town overall of 6%, which would be equivalent to about an 11% reduction in per capita levels. NRTE data broadly agrees with the household surveys and local traffic counts, suggesting an overall reduction in traffic of 3% in the period 2003/4-2008/9. After that time, NRTE data suggest further reductions occurred, with absolute traffic levels falling 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 the urban area of Darlington.
- In **Peterborough**, car distance travelled fell by 7~10% per person between 2004 and 2008, according to the 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 in traffic levels per capita, given population growth over that period. Automatic traffic counter and NRTE data since that time both suggest that traffic levels in Peterborough fell between 2008 and 2012, although trends between 2012 and 2014 are unclear. Meanwhile, NRTE per capita data also showed a relatively consistent reduction in traffic miles per person between 2004 and 2012, equating to a 15% reduction overall between 2003/4 and 2012/13.
- In **Worcester**, car distance travelled fell by about 3% per person between 2004 and 2008, according to the large-scale household travel surveys, although the fall in trip numbers was greater than this (8-10%, with the range depending on whether weighted or unweighted results were used). According to automatic count data, traffic levels at the periphery grew slightly then fell slightly, resulting in a reduction of about 2% between 2006 and 2008. Meanwhile, traffic at the central New Road counter showed a consistent declining trend from its inception in 2005, showing a reduction of about 8% over the STT period. Since that time (up to the end of available data in 2013), the automatic traffic count data suggest relatively stable traffic levels. This could represent declining levels of car use per person (given population growth), and it should also be noted that most of the ATCs are located peripherally. Meanwhile, the household surveys suggested that travel changes between 2004 and 2008 were largely maintained or slightly

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<sup>18</sup> For NRTE data, 2003/4, 2008/9 and 2012/13 relate to the average figures for those two year periods, not financial year figures. This approach was used given the change in trends around 2008/9.

enhanced by 2010 – the number of car driver trips per person fell by about 10% (from 221 in 2004, to 212 in 2008 and 200 in 2010), whilst changes in travel distance equated to perhaps a 6% reduction in car traffic between 2004 and 2010.

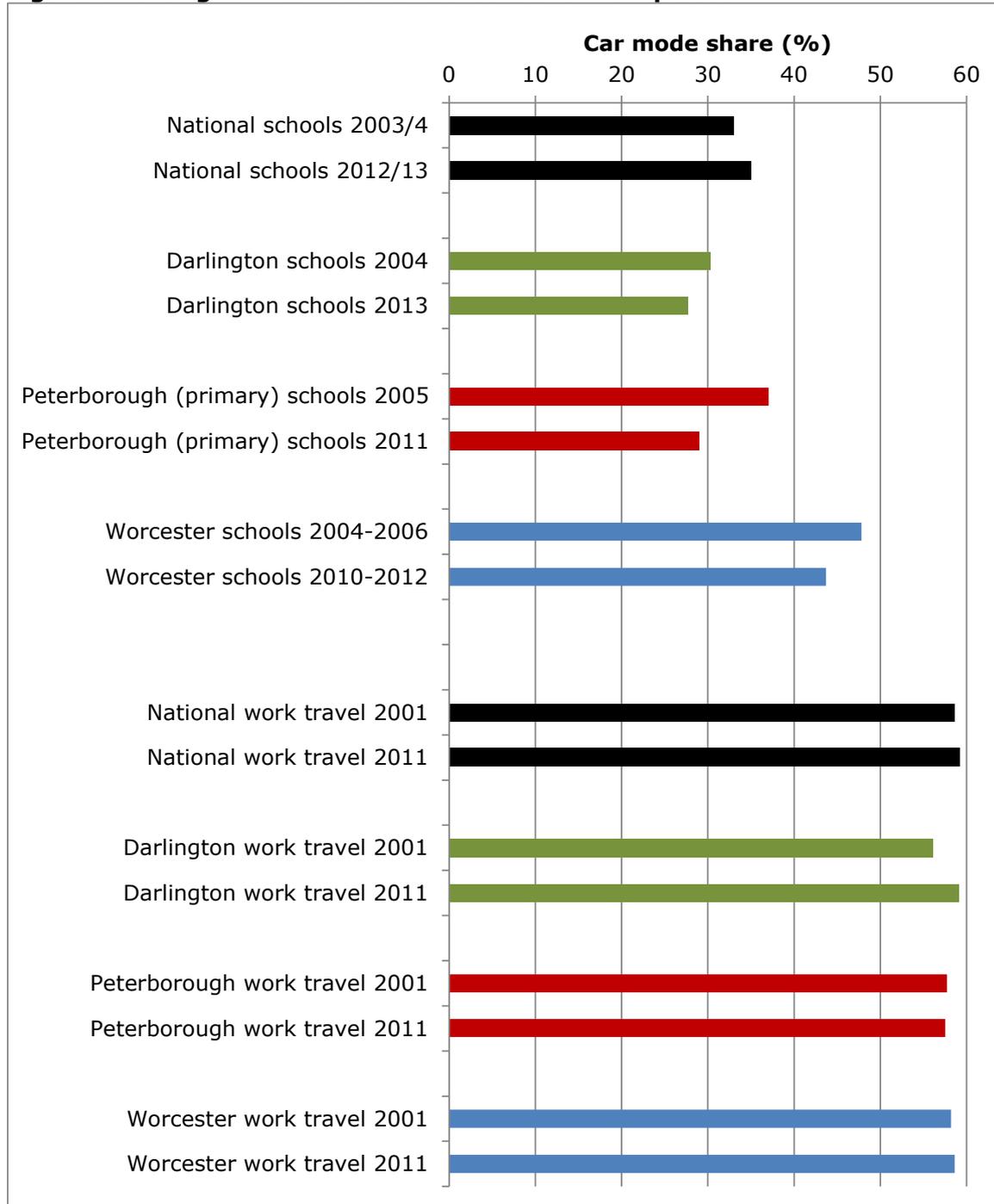
Overall, the most notable finding is that traffic mileage per person seems to have reduced more in Peterborough compared to national trends, despite major growth in population and employment over the period. Darlington figures, showing greater traffic reduction in the inner area, and Worcester data, suggesting above average reductions in car driver trips by residents, are also indications of positive change compared to the national picture.

#### **4.4.3 Changes in car use for school and workplace travel**

There was also evidence about changes in car use for travel to schools and workplaces in the three towns, as shown in Figure 8.

National Travel Survey data for **travel to schools** in England suggests that the proportion of pupils arriving by car or van increased from 33% to 35% (comparing averaged data for 2003 and 2004 with 2012 and 2013), a relative percentage increase of 8%. (The 'relative' change gives an indication of the change in cars that would be observed at the school gates).

In contrast, data for cohorts of comparable schools in the three towns suggest that car use reduced over time, in contrast to the national trend. There was also some evidence that this was a reflection of the school travel work taking place, since Darlington officers reported that the period when school travel work reduced corresponded with a car use increase, and Worcester, where the school travel programme had significantly reduced since the STT period, had seen an erosion of effect since that time. This indicates that school travel work may be relatively dependent upon ongoing input, perhaps unless sustained via new infrastructure and the embedding of activities within school routines – a finding which is perhaps unsurprising given the annual turnover of pupil populations.

**Figure 8: Changes in car use for schools and workplaces**

**School travel data** for the three towns were available from local sources. National Travel Survey data for England was used as a comparison. (Data excluding London were not readily available, but would be expected to show a slightly higher car mode share.) Darlington introduced a 'park and stride' category in 2013 which has been included in the car use category, to avoid any possible over-estimation of positive results. For Darlington, data are given for all pupils, and the comparison is between 2004 and 2013. In Peterborough, the data are for a cohort of 33 primary schools for the period 2005-2011. (Peterborough secondary schools show similar trends to the primary schools.) In Worcester, average figures for 2004-2006 and 2010-12 have been compared for a cohort of 16 schools.

The **travel for work** figures are taken from the Census.

In terms of specific details:

- In **Darlington**, data for all schools suggested that, between 2004/5 and 2013/14, the number of children arriving at school 'by car' reduced from 30% to 28%, a relative reduction of 9%. It should be noted that these figures included car sharers and those undertaking 'park-and-stride'. Given increases in car sharing, a separate calculation suggests that the number of cars per 100 children reduced from 28% to 23%, a relative reduction of 17%. There was a small increase in car use for school travel between 2010/11 and 2011/12, which officers directly attributed to a reduction in school travel work at that time.
- School travel data for **Peterborough** was available for a cohort of 33 primary schools for the period 2005-2011. Over this period, car use for the journey to school fell from 37% to 29%, a relative reduction of 22%. Data for a cohort of six secondary schools with data for 2007 to 2011 showed a similar positive trend.
- In **Worcester**, average figures for three time periods (2004-2006, 2007-2009 and 2010-12) were compared for a cohort of 16 schools which had comparable data. These data suggested that car mode share reduced from 48% to 44% between the first and last periods, a relative reduction of 9%. Data further suggested that changes were greatest during the STT period, with average car use dipping to 42% in the 2007-9 period, with some erosion of effects since that time.

In terms of **travel for work**, nationally, the Census suggests that the proportion of people travelling to work as a car/van driver increased from 58.6% to 59.2% between 2001 and 2011<sup>19</sup>. Data for the three towns does not show much evidence of positive effects. More specific details are as follows:

- In **Darlington**, Census data on workplace travel showed a somewhat greater increase in car use for work compared to the national trend, from 56.1% to 59.1%, 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 had to travel further (outside the Darlington urban area) for employment, which may partly account for this change<sup>20</sup>.
- For **Peterborough**, Census data on commuting did not show a significant reduction in car driving, changing from 57.7% to 57.5%. However, the council's surveys conducted between 2007 and 2011, suggested that, at workplaces they had engaged with, the car mode share did appreciably reduce during that period. The difference between the trends reported in the Census and the council's surveys may be explained by the difference in their reporting periods, and the smaller number of workplaces included in the council sample. It is possible that both results are correct, but that reductions in car use achieved by workplace engagement during the STT period were small compared with an underlying trend for sustained car use between the two census measures; that reductions at engaged employers were counterbalanced by increases elsewhere; or that the

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<sup>19</sup> Calculations include those working mainly at or from home.

<sup>20</sup> NOMIS data for Darlington also suggests that the total ratio of jobs to working age population fell from a high of 0.88 in 2003 to 0.79 in 2009, which would support this contention.

work moderated a trend of previously increasing car use. 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.

- For **Worcester**, Census data for travel to work showed an increase from 58.2% to 58.6% in car driving, a scale of change which was reasonably similar to the national trend.

#### **4.4.4** *Changes in car use summary*

From the traffic data, the most notable finding was that, in Peterborough, traffic levels per capita had fallen relatively consistently since 2004, achieving a greater level of reduction than that which occurred nationally, whilst, at the same time, Peterborough experienced major growth in population and employment. Darlington figures, showing greater traffic reduction in the inner area, and Worcester data, suggesting above average reductions in car driver trips by residents, are also indications of positive change compared to the national picture.

In all three cases, compared to the national picture, there also seemed to be a significant difference in trend for school travel (which is also an area where all three towns had devoted considerable effort during the STT period, and which is a distinct journey purpose largely undertaken by residents of the towns, to destinations within the towns). It should be noted that evaluations of smarter travel work in London have also tended to show relatively direct effects from school travel work, for similar reasons.

#### 4.5 Summary of observed travel trends in the three towns

Observed trends in travel in the three towns for the two time periods of interest are given in Table 5. Interpretation of the significance of these trends, in relation to the evidence that they provide about the longevity of the STT work, is provided in Chapter 5.

**Table 5: Overview of travel trends by mode in the three towns during and after the STT programme**

Trend		Key to locations	
	Positive	D	Darlington
	Negative	P	Peterborough
	Ambiguous due to data availability	W	Worcester

Note: A positive trend is defined as being an increase in cycling, walking or bus use, or a reduction in car use, compared to national trends, either for the period in question, or for the second period, for 2004/5 to latest available data, as outlined in earlier parts of this chapter. Note that the colour of shading for bus use in Worcester and Peterborough is different since, even though both experienced declines in bus use after the STT period which were greater than those occurring nationally during the period. This is because, in Worcester, levels remained above the 2004/5 levels whereas this was not the case in Peterborough.

Mode	Town	STT: 2004/5-2008/9*	Post-STT: 2008/9-2013/14~
Car use	D	Fall of 6~7% in car distance per person and 7~10% for car trips. Overall 2-3% reduction in traffic.	Further fall in traffic. Overall change similar or greater than national change.
	P	Fall of 7~10% in car distance per person and 8~10% for car trips. Overall 2% reduction in traffic.	Overall change in traffic miles per person greater than that which occurred nationally.
	W	Fall of 3% in car distance per person and 8-10% for car trips per person.	Lower levels of car trips per person appear to have been maintained without falling further, although there is a lack of data to enable assessment.

Mode	Town	STT: 2004/5-2008/9*	Post-STT: 2008/9-2013/14~
Bus use	D	Declined slightly (progress limited by lack of co-operation between bus operators), albeit from a higher level of bus trips per person	Further reductions (showing a greater decline than the national trend).
	P	Grew, reflecting major service improvements, together with information and marketing.	Fell back to a similar level to that in 2004/05.
	W	Grew, reflecting major service improvements, together with information and marketing.	Fell after 2010/11 but remained at higher level than 2004/05 (implying better performance than the national trend since the start of STT work).
Cycling	D	Major growth (not least reflecting Cycle Demonstration Town work).	Increased cycling levels sustained, and possible further localised increases from around 2011-2013.
	P	Moderate growth.	Trend unclear but probably little changed overall, though with growth between 2012 and 2013.
	W	Moderate growth.	Indications of further growth.
Walking	D	Increased substantially versus national decline.	Increased level maintained.
	P		Increased level maintained, and possible further growth.
	W		Trend unclear (due to lack of data) although some indications that levels were maintained.
School travel	All	Car use reduced in all areas by more than the national trend.	Car use reductions appear to have been maintained (albeit that available comparable data for W & P only goes to 2011/12) whilst national trend was for an increase in car use.
Work travel	All	Data only available for a significant number of organisations for P, and suggested overall reductions in car use.	Unclear whether any sustained improvement. Census data for 2001-11 on travel to work shows small increase in car/van driver mode share for D, but little change in P and W (although P's own data for workplaces engaged in activities (2007-2011) more positive).

\*Figures taken from the original 2010 study, with specific time periods dependent on data source. ~ Data goes up to the latest time period for which information was available at the time of undertaking this research. Specific time periods also dependent on data sources.

## 5 Summary and conclusions

### 5.1 Challenges for understanding the specific impacts of the STT work

Chapter 4 has provided a summary of travel trends in the three towns, as available from observed data for the towns, and compared with national trend data, defined on the most appropriate basis that we could devise. However, there are a number of reasons why it is difficult to attribute or explain the changes in the post-STT period to the work done during that STT programmes. These fall into five categories, as follows:

First, **everywhere is unique**, comprising a specific combination of geography, socio-economic demographics and transport options. As discussed in Appendix A, 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 provides a perfect indication of ‘what would have happened otherwise’ – a wide variety of other, local changes taking place in the towns will potentially have influenced travel choices too.

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 significant reductions in public funding, 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.

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. As discussed further in Appendix A, our qualitative conclusion is 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.

Fourth, **the towns have undertaken a range of relevant travel 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.

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:

- decay in behaviour change by some individuals following the STT period, as the effects of the initial work have 'worn off';
- stability in behaviour change by other individuals following the STT period, for whom the new behaviour became their default 'habit';
- 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);
- responses to initiatives undertaken since the end of the STT period;
- 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 therefore were not influenced to adopt more sustainable patterns of behaviour; and
- 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 influence observed trends, and the available data sources make isolating the magnitude of individual effects particularly challenging. Even when 'decay' in previous effects is observed, this is likely to represent the combined effects of numerous different behavioural responses.

## 5.2 Original assumptions about the longevity of the STT work

In order to undertake cost-benefit analysis, the original study assumed a 40% p.a. decay rate<sup>21</sup> in the traffic reductions achieved by the STT work, on the assumption that no further initiatives were implemented and that there were no changes in contextual factors (e.g. that the implementation of smarter choice style policies did not become more widespread). The authors noted that the assumed decay rate was "probably higher than is likely to the case", given the potential for an increasingly favourable context for more sustainable local transport policies.

Decay rates were not suggested for the gains in travel achieved for other modes, since benefits from these were not included in the cost-benefit analysis. Moreover, the behavioural effects achieved during the STT period were not considered to be the 'maximum' behavioural effects that could be achieved. It was argued that greater effects could be achieved with ongoing investment and further initiatives; with a focus on inter-

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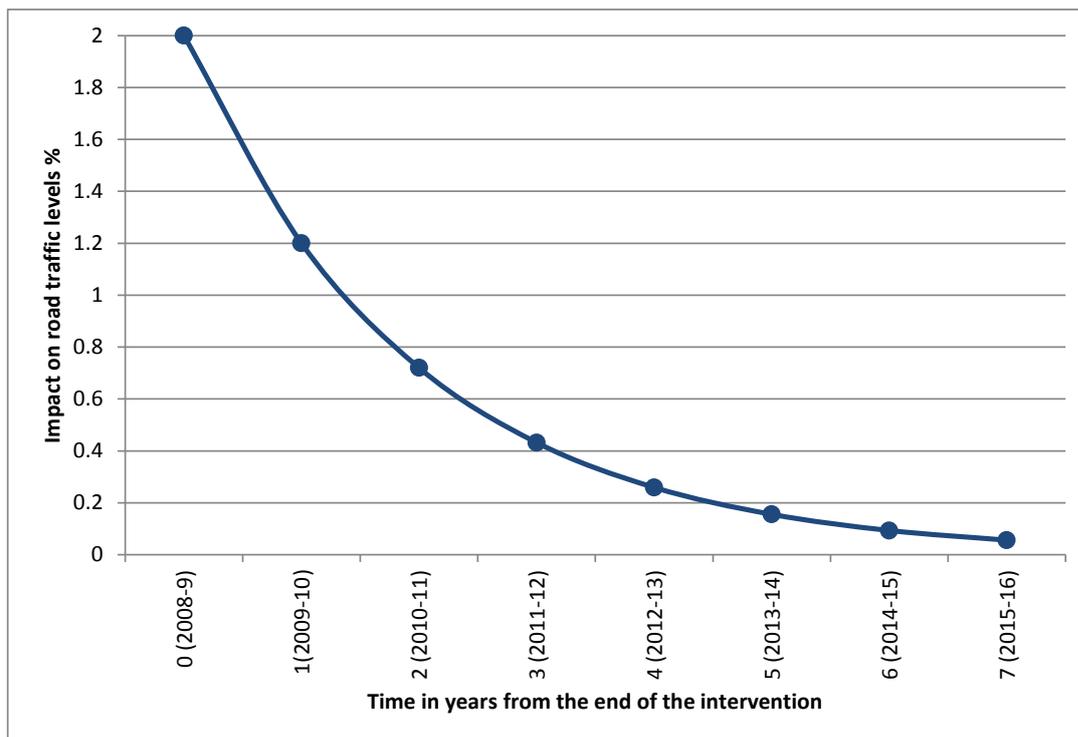
<sup>21</sup> The 40% decay rate was derived from the understanding at the time of the timescales of short to long run elasticities of behavioural change in response to a range of transport policies, and deliberately chosen to be relatively conservative, to ensure that the study could not be accused of exaggerating the effects of the STT project.

urban travel as well as intra-town trips; with a longer-term programme of workplace engagement; with similar policies being adopted in neighbouring towns; and with supportive policies being adopted at national level.

Using the assumption of a 40% decay rate for traffic impacts, an estimate of the *congestion benefits only* generated by the traffic reductions, and the costs of the programme, it was estimated that the programme gave a congestion-only benefit-cost ratio of 4.5:1. The report also argued that a full benefit-cost estimation for the programme, allowing for increases to the values for congestion and the value of time over time, plus the inclusion of health effects, carbon values, treatment of taxation, local environmental impact, consumer welfare and quality of life, could potentially double the congestion-only BCR.

It is important to note that a 40% decay rate is very high, and leads to the original impact declining to less than 10% of its original value by 5 years. To illustrate this, Figure 9 shows how an initial 2% reduction in road traffic levels would become less than 0.2% after 5 years, an impact that would be hard to distinguish from random chance.

**Figure 9: Illustration of a 40% p.a. decay rate on an initial 2% traffic reduction**



The purpose of the assumptions made was to enable a conservative assessment of the benefit:cost ratio of the programme. They were not intended as a set of hypotheses to be tested, and no longer-term monitoring mechanisms were specifically put in place to assess them.

### 5.3 Implications about potential decay rates from the study evidence

As described in Section 5.1, whilst it is possible to describe the changes in travel that have occurred since the ending of the STT period, it is much harder to specifically

attribute any observed change to the previous work. However, it is possible to give some indication of whether, at the aggregate level, when there have been breaks in particular activities, trends have been positive or negative. Table 6 provides a summary of what can be said about decay of effects from the trends that have been observed. It should be noted that these conclusions are indicative only.

**Table 6: Indicative evidence from the study about decay rates for sustainable travel initiatives**

Topic	Project evidence	Indicative finding
General points – relevant to all modes		
Expenditure on sustainable travel activity, and consequent outputs	Although the dramatic economic changes around the ending of the STT programme caused some discontinuity of activity, overall all three local authorities remained enthusiastic about smarter choices type activity, allocating some of their own resources to it, and (successfully) looking for external funding sources to enable its continuation. In Darlington and Peterborough, subsequent activity continued within the boroughs; for Worcestershire, the main smarter choices work was switched to Redditch, although major improvements in walking and cycling infrastructure did subsequently take place in Worcester.	Decay in effects from any specific town-wide programme is likely to be at least partially offset by subsequent work taking forward particular strands of activity.
Underlying national trends	Underlying national trends will always partially determine what happens in a particular location, meaning that disaggregating the effects of a particular initiative will be problematic, unless there are clear differences in trend.	How effects change over time will be either augmented or moderated by changes caused by broader national factors.
Composition of the intervention	Many of the initiatives put in place by the authorities comprised a mixture of both small scale capital work and revenue activity – for example, a school travel plan might have included both walking and cycling promotion, and the creation of a safer crossing near the school.	Overall observed decay in effects may reflect differential rates of decay for different parts of the initiative. Decay would not necessarily be expected for infrastructure or long term bus service changes, with similar discount rates to those used for road investment potentially being appropriate.

Topic	Project evidence	Indicative finding
Mode specific findings – influenced by the general points outlined above		
Bus use	<p>Although Darlington has relatively high levels of bus use (in absolute terms), given that it did not achieve gains in bus use during the STT period, the most interesting evidence comes from Peterborough and Worcester, where patronage increases were achieved through a mixture of service improvements, information and marketing.</p> <p>In Peterborough, annual data showed an increase in patronage of 29% between 2004/5 and 2008/9*, followed by a decline of 18% between 2008/9 and 2013/14. Between 2009/10 and 2011/12, there appear to have been relatively few initiatives or service changes, and there was a decline of 6% in patronage.</p> <p>In Worcester, annual data suggested an increase in patronage of 32% between 2004/5 and 2008/9*, followed by a decline of 11% between 2008/9 and 2013/14. Summer 2010-2011 seems to have been a period when there were relatively few initiatives or service changes and there was a decline in patronage of 4% compared with the previous year (comparing Jun-Aug figures).</p> <p>Nationally, bus boardings fell by 5% between 2008/9 and 2013/14, not least due to national and local reductions in bus funding over time.</p>	<p>In both Peterborough and Worcester, growth during the STT period was in the order of 6-7% p.a. Meanwhile, since that time, for a two-year period in Peterborough, and a one-year period in Worcester, there appear to have been relatively few initiatives or service changes that would otherwise have affected patronage. At these times annual declines appear to have been in the order of 3-4% - although nationally, bus use was declining at approximately 1% p.a. during this time, implying that only part of the 3-4% can be attributed to local factors.</p> <p>This implies that overall, there was some decay in observed effects from the STT work, although assessing specific decay rates for particular components of what was done is problematic.</p>

Topic	Project evidence	Indicative finding
Walking	<p>Data from all three towns was relatively limited, but what was available suggested, on balance, that increases in walking levels achieved during the STT period had subsequently been sustained at the higher levels that were achieved, with some indication in Darlington and Peterborough that walking levels were starting to rise again from 2012 (potentially reflecting LSTF funding). Nationally, since 2008, walking levels appear to have stabilised (following a previous period of decline).</p>	<p>Walking levels appear to have been largely sustained, despite reductions in sustainable travel activities immediately following the STT period, although it is notable that national trends have also been conducive to sustained walking levels.</p> <p>Further initiatives in all three towns will also have supported walking levels, although these initiatives were relatively limited in both Peterborough and Darlington between 2008/9 and 2011/12.</p>
Cycling	<p>The broad picture from the three towns was that cycling increases achieved by the end of the STT period – estimated as being a 26-30% increase in cycle trips per head across the three towns taken together - were broadly sustained (or augmented). In particular, both manual and automated counters in Darlington suggest that the 50-100% on-street increase in cycling levels achieved during the STT period had been maintained, with latest figures (to 2014) suggesting further increases.</p> <p>Nationally, distances cycled have increased since the end of the STT period.</p>	<p>Effects do not seem to have decayed, despite some temporary reduction in cycling promotion immediately following the STT period.</p> <p>However, increased cycling levels will have been supported by national trends, and by underpinning infrastructure (including a good pre-existing network of routes in Peterborough, considerable investment in infrastructure in Darlington as part of Cycling Demonstration Town work which continued until 2011, and new infrastructure implemented in Worcester after the end of the STT period, having been identified as a priority through STT work).</p>

Topic	Project evidence	Indicative finding
Traffic changes	<p>There was less data about car use for this study than for the previous study. Moreover, national data sources do not agree about relevant national trends. For medium-sized urban towns, NTS suggests no change in car driver trips per person between 2008/9# and 2011/12#, and a 1% increase in car driver distance. In contrast, national road traffic estimates suggest changes in motor vehicle traffic on urban roads (England excluding London) equivalent to a -5.5% reduction in traffic miles per capita between 2008/9# and 2012/13#, largely occurring by 2010.</p> <p>National data for Darlington suggested a per capita reduction in traffic miles of only 2% between 2008/9# and 2012/13#. However, automatic traffic counter data from the town showed different trends in different locations, with ongoing declines in the inner area partially offset by gains around the periphery.</p> <p>National data for Peterborough suggested a per capita reduction in vehicle miles of 7.1% between 2008/9# and 2012/13#, with reductions continuing until 2012, albeit with some upturn in 2013.</p> <p>Household surveys for Worcester in 2010 suggested that between 2008 and 2010, there was some further reduction in car distance travelled (additional to reductions that occurred during the STT period).</p>	<p>Data for Peterborough suggests that observed effects are not consistent with a hypothesis of decay. Instead, achieved traffic reductions that occurred during the STT period have potentially been augmented since that time, as per capita reductions in traffic seem to have been greater than those that have occurred nationally.</p> <p>However, these trends will also reflect ongoing initiatives, and other local factors (such as the development of new housing and jobs within the area) – the implication is that the STT work has been one contributory factor in setting the area on a trajectory of lower traffic intensity.</p> <p>In Darlington and Worcester, there was no indication that previous trends were undermined, although, equally, it was problematic to disaggregate the ‘sustained’ effects of previous work from other factors, including those triggered by changes to economic circumstances and further sustainable travel initiatives that then took place.</p>

Topic	Project evidence	Indicative finding
School travel	<p>Darlington commented that they believe school travel work tends to show immediate impacts on school travel habits, with a hiatus in work affecting 2011/12 results. According to the index of cars per 100 children created for this study<sup>22</sup>, 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.</p> <p>In Peterborough, data from comparable schools was only available to 2011. However, school travel work also continued over that period, meaning evidence about decay effects was not available.</p> <p>In Worcester, for 16 schools, car use fell from 47.8% in 2004-6 to 41.7% in 2007-9. After the STT period, there was a considerable reduction in activity, and the equivalent figure for 2010-12 was 43.7%.</p> <p>Nationally, car use for school travel in England rose after the STT period. 32% children were travelling to school by car or van in 2008/9#, rising to 35% in 2012/13#.</p>	<p>Evidence from the different towns implies somewhat different decay rates. In Darlington, 100% effects seem to have been wiped out, or re-introduced over a few years. In Worcester, about 1/3rd of the effect appears to have dissipated in 3 years (presumably partly fed by negative national trends).</p> <p>Overall, it is clear that school travel is amenable to influence by smarter travel initiatives, and relatively volatile, and that there is likely to be a decay of effects if inputs are not sustained.</p> <p>From the evidence reported here, 40% p.a. or more may be an appropriate decay rate to use for the 'softer' school travel measures, which may require ongoing support if their impact is to be maintained. Further investigation would be required to assess how far this depends on sustainable travel becomes embedded within schools (either via new infrastructure or the establishment of regular activities that no longer need external input).</p>

<sup>22</sup> This involved summing together the proportion arriving by car, plus half the proportion arriving as 'car share' or 'park and stride'.

Topic	Project evidence	Indicative finding
Workplace travel	Peterborough's own data suggests continuous positive trends after the end of the STT period, although there were also ongoing inputs to workplace travel activity.	Data too limited to draw conclusions.

\*Figures calculated from data sources obtained from this study, which vary slightly from the estimates generated during the original study, partly due to the use of slightly different time periods.

# Data relates to two years of data that have been averaged together, rather than financial year data. (This approach was adopted, given the dramatic changes that took place around 2008 and 2009).

## 5.4 Conclusions and policy implications

The evidence from this study suggests that the outcomes from sustainable travel behaviour programmes do not decay rapidly, not least because involvement in such activities seems to lead to further related activities, and because they often involve associated improvements to local infrastructure and services. Instead, the benefits of such initiatives may be long-lived, particularly where there are ongoing inputs to such work; where underpinning infrastructure and service quality is maintained or enhanced, as part of an integrated approach; and where there are broadly supportive underlying national trends.

In relation to individual modes and/or journey purposes, the following conclusions emerge:

- The evidence on **bus use** highlights that the effects of bus promotion work are unlikely to be long-lasting if there are countervailing forces. Specifically, reductions in services and increases in fares are likely to outweigh any gains that may have been made through previous work. Declines in Peterborough and Worcester prior to service reductions may directly reflect decay in patronage gains when information and marketing work was reduced (although it should be noted that the national trend was one of decline at this point too). Another potential implication of the data is that the bus market may now be more volatile in both towns – the population may be more primed to consider using the bus if the conditions are right and/or the right promotional messages are used – although it is impossible to conclude this with any certainty.
- For **active travel**, higher levels of walking and cycling have generally been maintained and/or enhanced in all three towns since the STT period. Complementary infrastructure improvements in walking and cycling in Worcester and Darlington, and LSTF activities in Darlington and Peterborough will have helped to sustain the initial growth that was achieved, and the underlying national trend has also been positive. It is notable that the growth in cycling in Darlington following renewed smarter-choices work, compared to the period of relative stability between the end of the STT period and that time, suggests that infrastructure improvements alone may not be sufficient to boost patronage, and that it was a *combination* of the STT promotional work and the infrastructure improvements that had such a dramatic effect on cycling levels in the town between 2004 and 2008.

- In relation to **car use or traffic levels per capita**, from the evidence that is available, the implication is that levels have remained below the levels that they were in 2004/5. In Peterborough, observed reductions between 2003/4 and 2012/13 were greater than those which occurred nationally. For Darlington and Peterborough, per capita reductions in traffic levels have taken place in a context of major population and employment growth. The implication is that the STT work has potentially been one contributory factor in reducing the levels of congestion that might otherwise have been experienced, and ensuring the economic efficiency of the towns. However, data limitations, and the major national changes in traffic levels that have occurred make drawing strong conclusions problematic.
- For **school travel**, changes in school travel patterns appear to relate directly to the activities that the towns had undertaken, with decay of effects occurring quickly when support was withdrawn (although it should also be noted that since the STT work, car use for school travel has increased nationally). Car use reduced at schools in all three towns, in contrast to the national trend, over the periods for which there were available comparable data. In Worcester, there was evidence of a decay in the effects achieved during the STT period since that time, in parallel with a decline in school travel activity. In Darlington, officers commented that an increase in car use in 2011 reflected a reduction in work with schools at that time, and a shift in emphasis from a focus on cycling to a more multi-modal approach also appeared to be reflected in changes in travel patterns.

The overall conclusion is that smarter choices type activities can lead to long-term behaviour change, particularly when complementary hard and soft measures are implemented in a sustained way over time; and that a combination of hard and soft measures may achieve greater behavioural change than implementing either in isolation.

This conclusion is endorsed in other recent DfT work<sup>23</sup>. Meanwhile, the LSTF programme (now completed) has provided a much larger experiment in implementing measures of this nature<sup>24</sup>. The evidence base for smarter choice measures should therefore increase over time, although the challenges of isolating the effects of such programmes will remain difficult. Confidence in the evaluation of any particular smarter choices programme should therefore potentially be derived from the relative consistency of conclusions that have emerged from many evaluations of this type of initiative.

Consideration may be given to whether appropriate monitoring mechanisms could be put in place now to look at the effects of the LSTF programme in the longer-term. Particular issues might be the need for panel survey data and for survey instruments specifically

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<sup>23</sup> 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.

<sup>24</sup> Transport for Quality of Life (2015) *Local Sustainable Transport Fund Annual Report 2013/14*. Department for Transport, London.

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.

designed to pick up on the perceived influence of the different components of initiatives. Assessment would need to adequately capture the populations and geographic locations most likely to have been affected by any particular initiative, together with clear definitions of the time periods of interventions taking place, both during and after specific work. Countervailing factors that may influence results need to be recorded, and control populations need to be carefully designed according to their travel characteristics not just their socio-demographics. However, the importance both of immediate, less tangible factors (such as, say, town-wide enthusiasm about becoming a sustainable travel town), and broader cultural factors (from, say, a reduction in national support for school travel) should not be discounted. For travel behaviour change programmes, the whole will frequently be more than the sum of the parts, and it is important to avoid a reductionist approach to evaluation which ignores such wider effects. One of the most important recurring themes in this area is the value of consistent and integrated programmes which provide a coherent message across all travel options in order to encourage sustainable travel behaviour change.



## 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.

This main report is accompanied by separate appendices (PPR776a).

### Other titles from this subject area

Cairns S, Jones M, York I, Greenshields S, Torkington C, Ball S and Rahman S (2016). *Sustainable travel towns: an evaluation of the longer term impacts – appendices*. Report for the Department for Transport, PPR776a, 978-1-910377-58-1.

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.

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