Local Sustainable Transport Fund
Case Study Evaluation

Strategic Employment Sites and Business Parks

Summary Report

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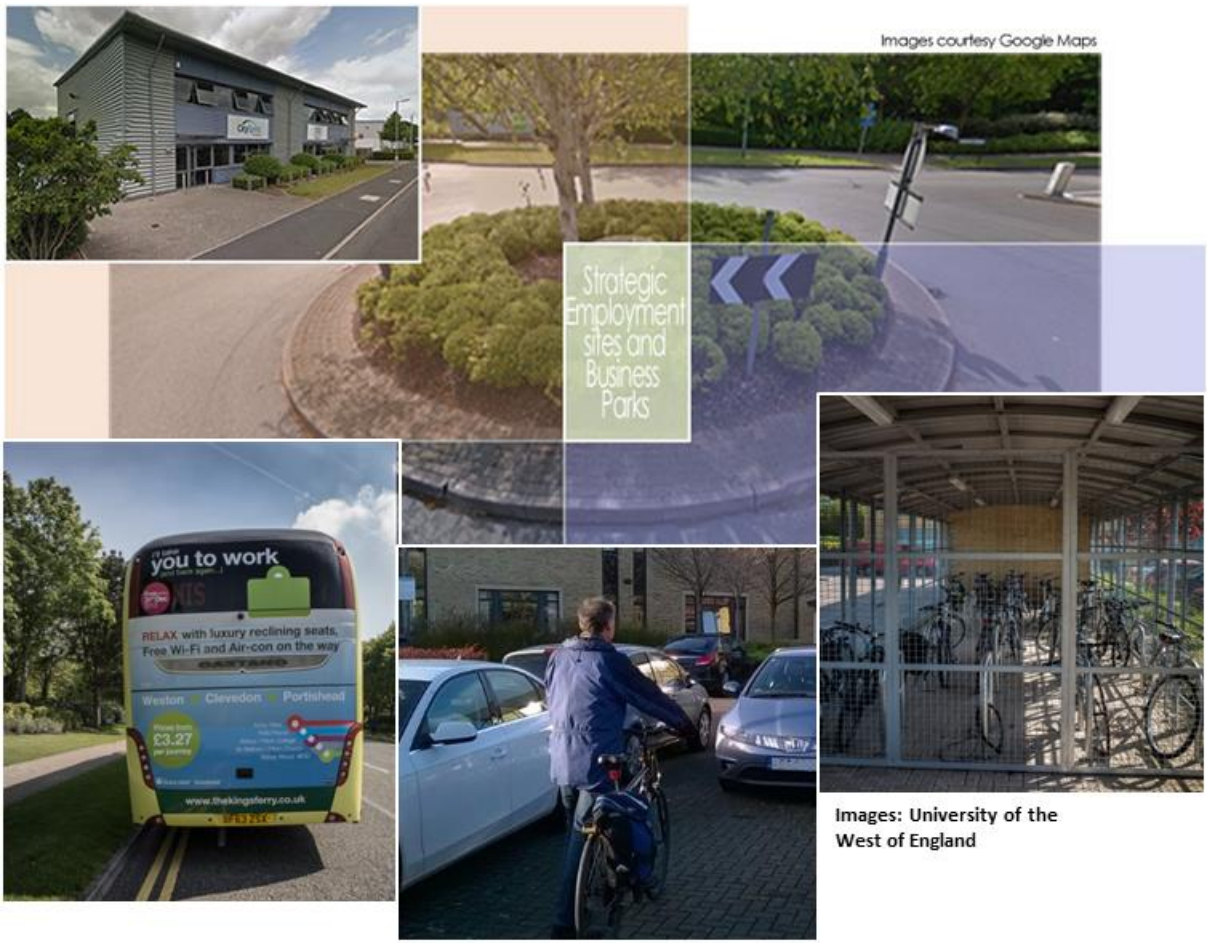

Images: University of the West of England

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Executive Summary

Purpose and design of the case study

i. In 2013 the UK Department for Transport commissioned a number of 'Case Study evaluations' of the impacts of Local Sustainable Transport Fund (LSTF) investment. One of these was an evaluation of LSTF impacts on Strategic Employment Sites and Business Parks. The study was carried out between late 2013 and early 2016 by a research team led by Hertfordshire County Council and comprising: the University of Hertfordshire; the University of the West of England, Bristol (UWE); the West of England local authorities; and Atkins.

ii. The aims of the evaluation were: to establish the impact of sustainable transport measures on commute mode use at selected strategic employment sites and business parks; to assess the impacts of these measures on the business performance of employers located at the sites; and to review the effectiveness of the LSTF delivery process.

iii. The employment sites and business parks chosen for evaluation were:

- The Bristol North Fringe area, West of England;
- The Bristol Ports area, West of England;
- Maylands Business Park, Hemel Hempstead, Hertfordshire;
- Western Trading Estates, Slough, Berkshire;
- Hatfield Business Park, Hatfield, Hertfordshire (comparator site, not in receipt of LSTF).

iv. Overall, the West of England local authorities (Bath and North East Somerset, Bristol City, North Somerset and South Gloucestershire Councils) were awarded nearly £34m from the LSTF between 2011/12 and 2015/16. Hertfordshire County Council received £11.7m between 2011/12 and 2014/15 and Slough Borough Council was awarded £5.2m between 2012/13 and 2015/16. Expenditure on business engagement measures at each of the employment sites varied (e.g. estimated at £650,000 in the Bristol North Fringe in 2014/15 - 2015/16; and £274,000 at Maylands Business Park in 2013/14 - 2014/15).

v. The main research methods used were: employee travel surveys; in-depth semi-structured interviews with senior managers; structured telephone surveys with senior managers; and bus passenger surveys. All were conducted in 2014 (Phase 1) and repeated in 2015/16 (Phase 2).

Key findings: Impacts of LSTF funding on commute mode share

vi. In the Bristol North Fringe, the mode share for single occupancy car-use ('car-alone') for commuting fell by 2.3 percentage points (and total car mode share by 4.8 percentage points), and at the Western Trading Estates in Slough it fell by 3.4 percentage points (and total car mode share by 5.1 percentage points). In the Bristol North Fringe, mode share increases were observed for bus use, cycling and walking. In Slough, there was an increase in rail use. No indication of a change in car alone mode share was observed in the two other intervention areas (the Bristol Ports area and Maylands Business Park) or the Hatfield site, which did not benefit from LSTF funding.

vii. The fall in car mode share in the Bristol North Fringe is striking when compared with background trends in the South West region, which saw an increase of 1.4% in total car mode share for commuting between 2013 and 2015. Various sources of evidence have been used to explain the modal shift in the Bristol North Fringe. These show that reduction in parking availability was the primary factor for reduced car alone commuting in the Bristol North Fringe, with LSTF measures facilitating individuals using alternatives to car commuting in this context.

viii. High awareness and use of cycling-related measures were apparent in the Bristol North Fringe, and of the ML1 bus link in Maylands and Great Western Railway (GWR) fare discounts in Slough. These results are consistent with observed mode share changes and passenger growth on the bus/rail services.

ix. For small numbers of people, specific LSTF measures appeared to have improved the sustainable transport offer, encouraged people to travel more sustainably more often, or maintained existing levels of sustainable transport use (e.g. specific bus services, cycling improvements, rail discounts).

x. Satisfaction levels with commuting deteriorated in the Bristol North Fringe and Maylands and were unchanged elsewhere. This appears to be related to worsening traffic conditions associated with major roadworks. Maintained high levels of satisfaction among cyclists and pedestrians and increased levels of satisfaction among bus users indicate that LSTF had a positive role in enhancing alternatives to car use.

Key findings: Impacts of LSTF funding on business performance

xi. Senior managers perceived transport issues as important to their business performance in terms of both employee access (commuting) and operational transport (deliveries and logistics; business travel; client/visitor access). The importance of different operational transport issues varied according to the nature of the business, but staff commuting was a consideration for all businesses. In particular, the quality of the commuter travel experience was seen as an important contributor to staff satisfaction, with improvements to the commute thought to bring about productivity gains by enhancing staff wellbeing. Within this context, sustainable transport options were perceived as part of the 'mix' of transport investments required to ensure smooth business operations and support the recruitment, retention and productivity of appropriately skilled staff.

xii. Attitudes among senior managers to the contribution of LSTF funding by Phase 2 of the evaluation were mixed. In the two Bristol areas, most were either positive or neutral about the role of the LSTF in increasing cycle use by staff and improving bus services, whilst in Maylands and Slough the majority were either negative or neutral in this respect. Overall, attitudes to the LSTF were most positive in the Bristol North Fringe.

xiii. By Phase 2, many interviewees in the North Fringe believed that business benefits (albeit indirect and unquantifiable) were starting to accrue from sustainable transport improvements. However, it was also felt that more time and greater investment in transport infrastructure and services was needed to make a substantial difference. In the Bristol Ports area, some employers thought that a new bus service was starting to make a positive difference by widening access to jobs, but it was too soon to be able to detect any direct impact.

xiv. Senior managers in Maylands and Slough were less negative and more neutral about the LSTF in Phase 2, compared with their expectations of the Fund in Phase 1, but no improvements in satisfaction with transport provision and access to the workforce were evident. The majority did not believe that the LSTF had encouraged modal shift or impacted positively upon business performance in terms of logistical accessibility or workforce availability. Employers at Maylands maintained the opinion that the business park was geared much more to car-use than to public transport, cycling or walking.

xv. However, by Phase 2, the majority of employers at Maylands were aware of the LSTF-funded ML1 bus service from Hemel Hempstead rail station. This service was successful in widening labour market access and attracting workers to the business park who had not previously made the journey. Patronage increased after a strong marketing campaign, in which employers participated. In all areas, there was a wish for dedicated bus services to serve their areas and connect them to railway stations and other key locations.

xvi. Those employers who had engaged actively with the LSTF in the Bristol North Fringe and Ports areas saw publically funded investment as part of a collaboration in which they also bore a responsibility. These employers regarded LSTF as useful 'leverage' for sustainable transport measures they wished to undertake themselves. LSTF grants could, for example, also lend weight to arguments within an organisation for investment in sustainable transport measures at a time when employers faced competing financial pressures.

xvii. The implementation of LSTF measures was facilitated in some areas by the involvement of business networks, through which employers collaborated on local transport issues. These networks were observed to have played an important part in developing and maintaining contacts between local authorities and individual employers, providing an effective channel for the delivery of LSTF measures. When collaboration was most effective, joint action through the networks gave employers an opportunity not only to receive information (and funding), but also to help shape local transport policies and measures.

Conclusions

xviii. The results confirm findings from previous research that 'pull factors' are unlikely to bring about significant changes in commuter travel behaviour without measures which also 'push' people into reducing their car-use[1]. In the case of the Bristol North Fringe, the only one of the four intervention areas which saw a statistically significant fall in car-alone mode share, the need to enforce parking restraints was a key issue for many employers. Statistical analysis showed that reduction in car parking availability was the primary factor leading to reduced car alone commuting.

xix. Nonetheless, there was evidence from both surveys and interviews that LSTF measures assisted individuals in using alternatives to the car once they had been prompted to do so by 'push factors' such as parking restraints, traffic congestion or personal factors. LSTF measures to support cycling stood out in the Bristol North Fringe as attracting high levels of awareness

[1] For example: Cairns, S., Newson, C. and Davis, A. (2010). Understanding successful workplace travel initiatives in the UK. Transportation Research Part A: Policy and Practice. 44 (7), pp. 473-494.

among both senior managers and employees, and relatively high levels of use among employees.

xx. It is notable that in Slough, car-alone mode share fell without noticeable pressures on parking availability. However, traffic congestion was likely to have served as a 'push factor'. Here, the greatest change in mode use was from car to rail. The innovative GWR discount ticket scheme, supported but not directly funded by the LSTF, appeared to be instrumental in this regard, having been used by 10% of respondents to the Phase 2 employee survey. This, together with the successful ML1 bus service at Maylands, was easily identifiable and strongly marketed, which may have contributed to its relative success.

xxi. The importance of 'push factors' also applied to employers' engagement with sustainable transport issues, which tended to be prompted by a specific transport 'problem'. This was particularly true in the Bristol North Fringe and Ports areas, where employers adversely affected by congestion, limits on parking, recruitment difficulties, etc. perceived a need for greater investment in sustainable transport. When faced with pressures such as the above, they were more willing to engage with the local authorities and other businesses on sustainable transport, which in turn created a 'virtuous circle' whereby they also accrued greater benefit from the LSTF.

xxii. Finally, it should be noted that the level of LSTF investment in the West of England was higher than in Hertfordshire and in Slough. Within the West of England, the Bristol North Fringe had received greater LSTF investment by Phase 2 than the Bristol Ports area, and was also benefitting from a legacy of previous funding programmes. Therefore, despite the multiple factors which contributed to the different outcomes in the four intervention areas, the straight-forward issue of levels of investment should not be over-looked.

1. Introduction and background

1.1. The Eddington Transport Study in 2006 highlighted that economic growth could be constrained by congested traffic conditions. In response, the UK Government released a White Paper and, to support its delivery, the Department for Transport (DfT) established the Local Sustainable Transport Fund (LSTF). The LSTF awarded funding to a mixture of capital and revenue projects to local authorities in England (outside London), geared to supporting improved access to employment, training and business by effectively tackling the problems of congestion, improving the reliability and predictability of journey times, and facilitating economic investment.

1.2. All LSTF-funded local authorities were required to undertake monitoring and evaluation of their LSTF programmes, but in 2013 the UK Department for Transport commissioned a number of separate 'Case Study evaluations' of the impacts of LSTF investment. One of these was an evaluation of LSTF impacts on Strategic Employment Sites and Business Parks (referred to subsequently as strategic employment sites) between late 2013 and early 2016. The purpose of this case study was to fill an evidence-gap on the impact of sustainable transport measures on travel behaviour and business activity in large, out-of-town employment areas which have typically relied on access by car. It was important to understand how interventions aimed at promoting sustainable transport can help tackle transport challenges and support economic growth in such areas.

1.3. Hertfordshire County Council led a research team from: the University of Hertfordshire; the University of the West of England, Bristol (UWE); the West of England local authorities; and Atkins, to evaluate the impact of travel behavioural change measures delivered through the LSTF programme at five strategic employment site locations in England which had varying characteristics with regard to business sector composition, transport connectivity and proximity to population.

1.4. The objectives of the case study evaluation were:

1) To establish the impact of a package of sustainable transport measures on modal shift in strategic employment sites, and understand which interventions were most effective in different contexts.
2) To assess the impacts on business performance, including access for existing and potential employees, of implementing sustainable transport measures in strategic employment sites.
3) To review the effectiveness of the process of delivering sustainable transport measures in strategic employment sites.

1.5. The research findings are summarised in sections 3 and 4 of this report. Full details of the case study methods and findings are provided in the West of England Final Report[2] and the Hertfordshire and Slough Final Report[3], which are Annexes to this report.

1.6. The employment sites selected for the case study evaluation were located in three local authority areas: Hertfordshire County Council, the West of England Authorities (led by Bristol City Council) and Slough Borough Council, all of which were awarded LSTF funding.

Allocations of LSTF funding to the case study locations

1.7. The West of England local authorities (Bath and North East Somerset, Bristol City, North Somerset and South Gloucestershire Councils) were awarded nearly £30m by the Department for Transport for two separate but integrated project programmes: the 'Key Commuter Routes' programme, implemented in 2011/12 and 2012/13[4]; and the West of England Sustainable Travel (WEST) 'Large Project' programme, implemented from 2012/13 to 2014/15. They were subsequently awarded further funding of £4 million for an extension year, concluding in March 2016. Of this, expenditure on the LSTF business engagement programme between 2014/15 and 2015/16 totalled over £2.2 million. Approximately 35% of this total was spent on business engagement in the two strategic employment sites selected for the case study (5% in the Bristol Ports area and 30% in the Bristol North Fringe)[5]. Both areas also benefitted from improvements to bus services and cycle paths, funded from other parts of the WEST LSTF programme, although most of the improvements in the Ports area did not start until 2015/16.

1.8. Hertfordshire County Council was awarded £1.99m for its Key Component project in 2011/12 and £9.7m for the period 2012/13 to 2014/15 for its 'BigHertsBigIdeas' project - a package of complementary transport measures which aimed to improve the local economy and reduce carbon emissions in Watford, St Albans and Hemel Hempstead. Within the 'BigHertsBigIdeas' LSTF programme in Hertfordshire, a total of £274,000 was spent between 2013/14 and 2014/15 on an area travel plan for the Maylands business park (the site selected for the case study) and a bus link connecting Maylands with the rail station. Businesses at the park also benefitted from other elements of the LSTF programme covering the wider area, such as business travel planning, and marketing campaigns.

1.9. Slough Borough Council received £4.53m from the DfT for its LSTF programme for the period 2012/13 to 2014/15 with further funding of £0.64 million for an extension year. The programme aimed to tackle congestion by achieving a mode shift away from car use within its key employment areas (including the Western Trading Estates) and town centre.

1.10. The West of England LSTF 'Large Project' programme was predicted overall to lead to an annual reduction in car trips of 0.85% across the Greater Bristol area, associated with a

[2] LSTF Case Study Evaluation - Strategic Employment Sites and Business Parks Final Report: West of England.
[3] LSTF Case Study Evaluation - Strategic Employment Sites and Business Parks Final Report on the Findings of the Phase 1 and Phase 2 Research Programme (Hertfordshire and Slough).
[4] All dates in this section refer to financial years.
[5] Figures estimated by LSTF Business Engagement officers. Ports: approximately £108,000 (£33,000 from BCC plus £75,000 for Portside ATP from SGC budget), and North Fringe approximately £650,000 in 2014/15 and 2015/16 financial years.

reduction in vehicle kilometres of 2% and travel time of 3% in peak periods. Within the Hertfordshire County Council LSTF programme, the business case for Maylands Business Park forecasted a 10% reduction in car trips to and from the site by 2015. The Slough LSTF package was predicted to reduce the number of vehicle trips by over 5,000 per day (2.5% of all car journeys to, from or within Slough) by the end of 2014/15.

1.11. Measures funded by the LSTF business engagement programmes in the three areas are shown below.

Figure 1-1: LSTF business engagement measures

All three areas

- Area/employer travel plans
- New bus/coach services
- Improvement of cycling and walking infrastructure
- Business network engagement work
- Travel promotion, marketing and communication

Hertfordshire

- Travel Plan Co-ordinator for Maylands Business Park
- Dedicated lift share website
- Improvements in quality and ticketing for commercial bus services
- Cycle hire scheme, cycle hub and employer cycle parking grants
- Intensive workplace behavioural change programme

Slough

- Cycle hire scheme and Cycle Hub at Slough station
- Intelligent Traffic Management System
- Discounted rail tickets
- Free cycle repair 'surgeries' and 'Dr Bike' repair sessions
- Car share schemes and promotions
- Employer grants for sustainable travel facilities
- Tailored travel information for workplaces
- Personalised travel planning

West of England

- Employer grants (50% funding for, e.g. on-site cycle facilities)
- Sustainable travel 'Roadshows' (travel advisors visiting employer sites to offer information and advice to employees)
- 'Dr Bike' repair sessions
- Cycle repair kits for use by employees
- Cycle loans for employees
- Electric pool vehicles
- Electric vehicle recharging points on employer sites
- Sustainable travel awards for employers
- Lift-share partnering services

1.12. Implementation of the LSTF business engagement programmes was led by designated local authority officers. In the West of England, employers in the Bristol North Fringe area were engaged by the South Gloucestershire Business Engagement Account Manager (BEAM). The Bristol Ports area had a dedicated, full-time BEAM until July 2014, after which the businesses in the area received support from engagement officers from the three unitary authorities which the area spanned. As LSTF funding in the West of England continued until March 2016, BEAMs were in post throughout the full period of the evaluation. Two local business networks also were also active in engaging with employers on sustainable transport issues: North Bristol SusCom (North Fringe) and SevernNet (Ports area). Each network was run by a part-time coordinator, both of whom had built up effective working relationships with local businesses prior to 2014.

1.13. In Hertfordshire Implementation was undertaken by a Business Travel Engagement officer and a Maylands Travel Plan Coordinator until the end of the Hertfordshire LSTF programme in March 2015 (one year before the end of the evaluation period).

1.14. In Slough implementation was undertaken by Atkins staff seconded in to the Slough Borough Council office (SBC). The team of staff worked on the LSTF business engagement programme from Autumn 2012 to March 2016 and was approximately two Full Time Equivalent (FTE) staff. The Atkins team worked closely with other LSTF projects and officers at SBC, as well as the Economic Development team and others within the authority.

Employment sites and business parks selected for the evaluation

1.15. The employment sites and business parks chosen for the evaluation were:

- Bristol North Fringe, West of England;
- Bristol Ports area, West of England;
- Maylands Business Park, Hertfordshire;
- Western Trading Estates, Slough;
- Hatfield Business Park, Hertfordshire (comparator site, not in receipt of LSTF).

1.16. The sites were chosen because each (with the exception of Hatfield) was a focal point for LSTF business engagement interventions in the Hertfordshire, Slough and West of England LSTF programmes, and because each was located on the periphery of an urban centre. They represented a mix of different transport challenges, employment types, and local economic conditions. The areas also benefitted from existing business networks and/or travel forum partnerships between the employers and the local authorities. The locations of the two West of England employment areas are shown in Figure 1-2, whilst the locations of the three business parks in Hertfordshire and Slough are shown in Figure 1-3.

Figure 1-2: Location of Bristol North Fringe and Ports strategic employment areas

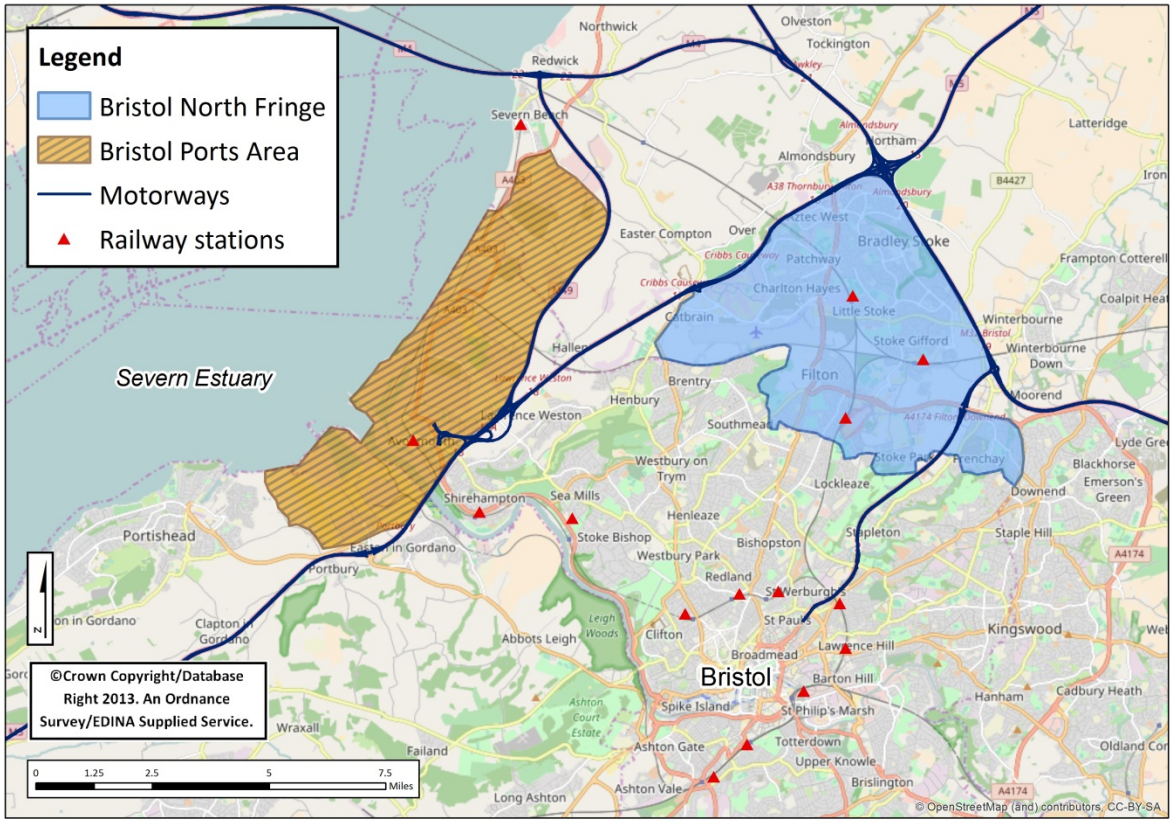
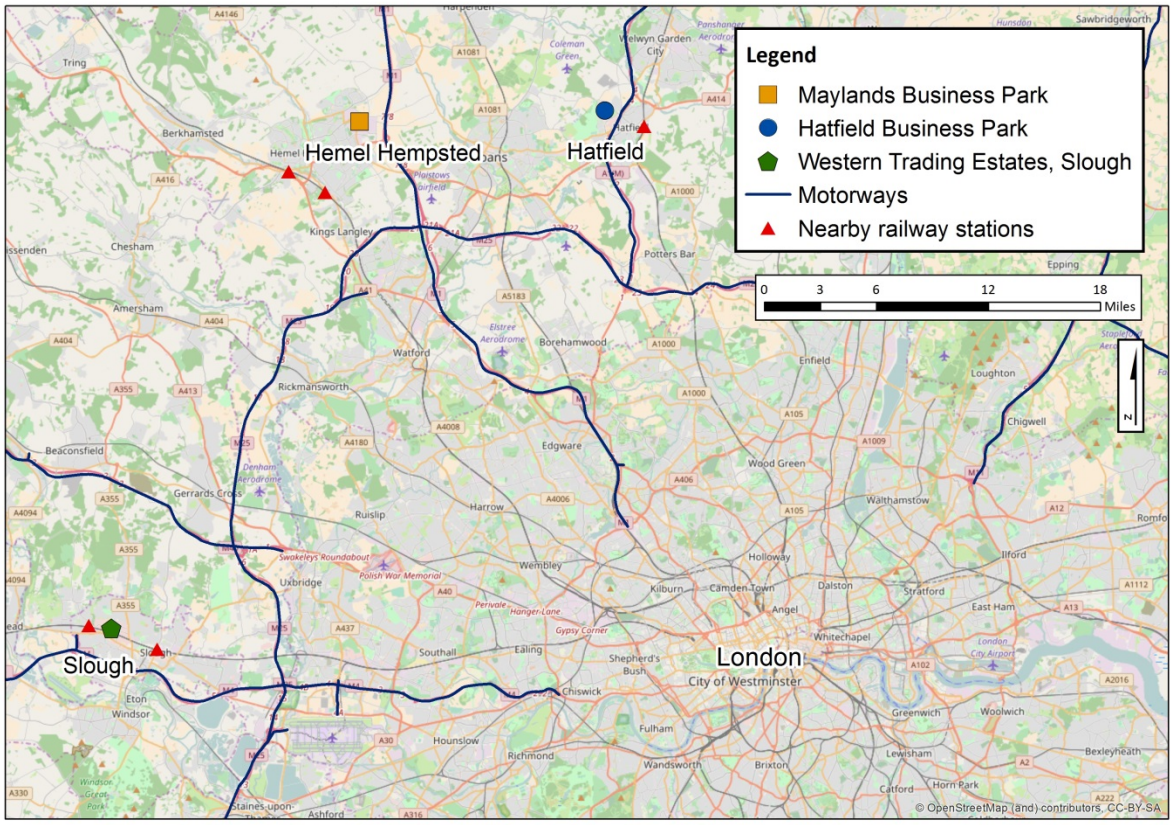


Figure 1-3: Location of Maylands, Hatfield and Slough strategic employment sites



1.17. Over 80,000 people work in the Bristol North Fringe, with additional transport demand created by 30,000 students. It has a preponderance of large companies in the engineering, aerospace, ICT and financial services sector, as well as a science park and business park housing smaller hi-tech companies, a university, a large hospital and a large government agency. Around 30,000 people are employed in the Bristol Ports area. It is characterised by storage and distribution centres for retail operations, chemical and other manufacturers, and hundreds of businesses of various sizes, many connected with shipping, logistics, energy and waste.

1.18. Over 16,000 employees work at Maylands Business Park on the eastern periphery of Hemel Hempstead. Audits of companies undertaken for the case study showed that 503 businesses were located there in late 2013, and 565 in late 2015. Employers range from one-person businesses and SMEs to large employers such as Amazon and Royal Mail. The audits showed that major changes occurred in the companies located at Maylands over the two years.

1.19. The Western Trading Estates, located in the west of the borough of Slough, are home to over 17,000 employees working in a diverse range of businesses in terms of size and sector, some 350 businesses in total. These include European headquarters for blue chip companies such as O2 Telefonica, Reckitt Benckiser, RIM and UCB Celltech, as well as large and small manufacturers and distribution companies.

1.20. Hatfield Business Park is located on the western periphery of Hatfield. It did not receive LSTF investment, and therefore served as a comparator site in the evaluation. The site has direct car access onto the strategic highway network and towards the towns of St Albans to the west and Stevenage to the north. The site was re-developed as a mixed use development from its former use as Hatfield Aerodrome in the early 2000s. It has approximately 3.5 million square feet of business space, with approximately 13,000 employees. Additionally, the park features approximately 2,000 dwellings, 18 retail units, a private members gym and the University of Hertfordshire campus.

2. Evaluation approach

Introduction

2.1. This section outlines both the overall evaluation approach and the specific research methods used.

Case study evaluation methodology

2.2. Each of the five employment sites was treated as a separate and distinctive sub-case for analysis in which multiple research methods were used to address the research objectives. The employment areas differed from one another with regard to attributes such as public transport links, proximity to residential areas, business sectors represented and engagement with LSTF measures. The interpretation of the results therefore involved careful consideration of the distinctive features of each area, in addition to wider contextual factors, such as trends in local traffic levels. Hatfield Business Park was significantly different from the other four in that it did not benefit from LSTF funding, and therefore served as a comparator site, providing an indication of what might have happened in the other areas had they not received LSTF funding. The results across the different areas were compared and contrasted with one another.

Evaluation methods

2.3. Employee travel surveys, site cordon counts and bus passenger surveys were used in all five areas. Research was conducted with senior managers through face-to-face, semi-structured interviews in the Bristol North Fringe and Ports areas, and structured telephone surveys in Maylands, Slough and Hatfield. In addition, a panel survey was run in the Bristol North Fringe and Ports areas, which tracked the commuting behaviour of a sample of commuters every three months over an 18-month period. At Maylands Business Park, the research also examined labour market catchment area indicators. The different research methods and the relationships between them are shown in Figure 2-1.

2.4. The collection of new data for the specific purpose of the case study commenced in 2014, hence the evaluation primarily covers the period March 2014 to March 2016. However, the main period of LSTF funding ran from April 2012 to March 2016 in the West of England and Slough, and from April 2012 to March 2015 in Hertfordshire. Hence, the research was conducted during the implementation phase of the LSTF programme without any baseline measurement before the programme started and with the possibility that further impacts will have occurred after the evaluation study. The dates of data collection are shown in Figure 2-2.

Figure 2-1: Overview of data collection methods

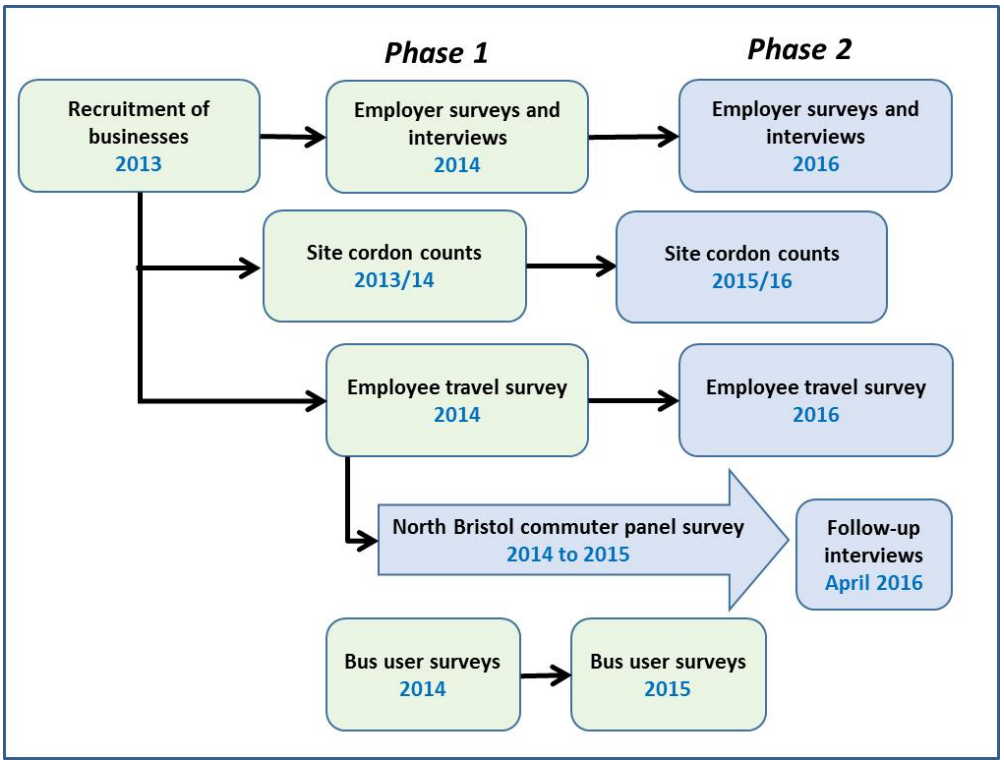


Figure 2-2: Dates of data collection exercises

Data collection method	Phase 1				Phase 2			
	Bristol North Fringe and Ports	Maylands	Slough	Hatfield	Bristol North Fringe and Ports	Maylands	Slough	Hatfield
Employer interviews	Jan to April 2014				Dec '15 to Mar '16			
Employer surveys		Feb to Mar 2014	Feb to Mar 2014	March 2014		Dec '15 to Feb '16	April to May '16	Feb to April '16
Employee surveys	March 2014	Feb to Mar 2014	Feb to Mar 2014	June to July '14	March 2016	Dec '15 to Feb '16	April to June '16	Feb to April '16
Cordon counts	March 2014	March 2013	May 2014	Feb 2014	March 2016	Oct 2015	May 2016	May 2016
Bus user surveys	March 2014	Jan 2014			March 2015	Jan 2015		
Panel survey	July '14 to Oct '15							
Panel interviews					April 2016			

The employer samples[6]

2.5. In the West of England, a mixture of surveys, interviews and cordon counts were used to obtain in-depth data from 25 employer organisations across the Bristol North Fringe and the Bristol Ports employment areas. To ensure that a mix of different employers was represented in the study, employers were selected according to a number of criteria: size, industry sector, level of engagement with LSTF, and location within the North Fringe or Ports area. Each employer was requested to take part in senior manager interviews and encourage their staff to participate in employee surveys in both Phase 1 and Phase 2. Twenty of the employers took part in both Phases of the research, whilst five were able to contribute at only one of the time points.

2.6. Fifteen employers in the Bristol North Fringe participated in Phase 1, and 14 employers in Phase 2. Three were public sector employers, employing between 2,800 and 10,000 people (health, education and government). The remainder were private companies representing the aerospace, engineering, IT, construction, financial services and retail sectors, varying in size from 40 to 4,000 employees. In the Bristol Ports area, nine businesses participated in Phase 1, and seven in Phase 2 – all private companies in the distribution, manufacturing, energy and waste recycling sectors, employing between 55 and 865 people. The sample of employers was not intended to be fully representative of all employers in the area. The wider applicability of results for these employers is inferred by considering the contextual factors present.

2.7. At Maylands, Slough and Hatfield, larger numbers of employers were recruited to achieve representative samples, which allowed statistical generalisation to be used within each area (e.g. Maylands). However, as in the West of England, contextual factors were used to consider the applicability of results to other locations. The sampling frames for the employer surveys at Maylands and Hatfield were generated via an audit of companies to ensure that a representative, independent sample was selected at each site in each phase. For Slough, pre-existing database samples were used by the LSTF team to contact employers to participate.

2.8. A total of 177 firms in Maylands, Slough and Hatfield participated in Phase 1, while for Phase 2 this rose to 257 firms. The employer survey samples in each area comprised the following numbers of firms in Phases 1 and 2 respectively: Maylands - 101 and 105 (a sampling fraction of approximately 20% in each case); Slough - 55 and 76 (sampling fractions of 16% and 22% respectively); Hatfield - 21 and 76 (sampling fractions of 34% and 75% respectively). Each of the employer representatives interviewed was requested to encourage staff to respond to the employee travel survey.

[6] Full details of the sampling strategies and research methods are provided in the two Final Reports for the West of England and Hertfordshire and Slough, which are Annexes to this report.

3. Findings: Modal shift

Introduction

3.1 The first objective of the case study was *to establish the impact of a package of sustainable transport measures on modal shift in strategic employment sites and understand which interventions are most effective in different contexts.*

3.2 This section summarises the changes in commute mode share which occurred at the strategic employment sites between Phase 1 and 2, and the relationship between these changes and the different LSTF measures which were put in place in all case study sites except Hatfield. It then outlines the extent to which changes in satisfaction with the journey to work and attitudes towards low carbon travel alternatives occurred among employees working for businesses at the employment sites.

3.3 The principal source of data for analysing modal shift was the employee travel surveys. These were supplemented where appropriate by analysis of data from: cordon counts; bus user surveys; and the North Bristol Commuter panel survey.

Mode share changes across employment areas

3.4 To address the modal shift objective, the first research question was: *What changes in modal share are found to occur in the strategic employment sites and how does this vary depending on the amount of exposure to LSTF interventions?*

Comparison of results

3.5 Table 3-1 presents results on mode share obtained from the employee travel surveys in the five employment areas. These are based on survey respondents' answer to the question 'How did you travel to work today?'. The results are briefly discussed next taking each employment area in turn and paying particular attention to any changes that were found to be statistically significant at the 95% confidence level.

3.6 Bristol North Fringe – this employment area had the lowest base car alone mode share of 51.3% at Phase 1 and the highest base cycle and bus mode shares (12.3% and 6.1% respectively). The large sample sizes obtained in the Phase 1 and 2 surveys (amongst staff working for employers who participated in the study) enabled a good degree of certainty to be obtained in the mode share estimates and the changes between Phase 1 and 2. There was a statistically significant decrease in car alone mode share of 2.3 percentage points, as well as a decrease in car share mode share of 2.4 percentage points. This represents a statistically significant decrease in the total car mode share of 4.8 percentage points. There were statistically significant increases in cycling mode share (2.0 percentage points), walking mode share (1.1 percentage points) and bus mode share (2.6 percentage points).

3.7 Bristol Ports – this employment area had a base car alone mode share of 66.5% and the highest base car share mode share of 21.0%. It had a low base share of alternatives to the car.

No reduction in car alone mode share was found (instead a 2.5 percentage points increase)[7]. There were decreases in car share mode share of 3.2 percentage points and cycling mode share of 2.1% percentage points). Small increases in bus and rail mode share were found (1.5 and 2.1 percentage points respectively).

3.8 Maylands – this employment area had a base car alone mode share of 75.4% with low base mode shares of alternatives to car. The small sample size obtained in the Phase 1 survey made it difficult to have any certainty about the base mode split and any changes in mode share. No statistically significant changes in mode share were identified to occur between Phase 1 and 2, apart from for the 'other' category. Evidence on modal shift from other sources is considered subsequently.

3.9 Slough - this employment area had the highest base car alone mode share of 78.8%. There was a reduction in car alone mode share of 3.4 percentage points and in car share mode share of 1.7 percentage points. When considering car alone and car share together, the reduction in the total car mode share was 5.1 percentage points (statistically significant). The increase in rail mode share of 3.7 percentage points was also statistically significant.

3.10 Hatfield - this employment area had a base car alone mode share of 69.3% and a relatively high base rail mode share of 9.8%. No statistically significant changes are identified, apart from a reduction in car share mode share. Evidence on modal shift from other sources is considered subsequently.

3.11 The changes in car commuting in the employment areas can be contrasted with national and regional trends. According to the Labour Force Survey, the trend between 2013 and 2015 for car total mode share for commuting in England was a reduction of 0.4%[8]. This suggests there was negligible change in car driver mode share or car total mode share across England during the period of interest.

3.12 When looking at the Labour Force Survey trends in the regions in which the employment areas are located, the trend for the South West region (in which the Bristol employment areas are located) was an increase in car total mode share for commuting of 1.4%, while for the East of England region (in which the Maylands and Hatfield employment areas are located) there was a decrease in car total mode share of 2.1% and for the South East region (in which the Slough employment areas is located) a decrease in car total mode share of 1.7%.

3.13 From the results in Table 3-1 the most robust indication of a reduction in car mode share between Phase 1 and 2 was for Bristol North Fringe (decrease in car alone mode share of 2.4 percentage points and in car total mode share of 4.8 percentage points, both significant at 99% confidence level). For Slough there was a reduction in car total mode share of 5.1 percentage points (significant at 95% level). The 4.8 percentage point decrease in total car

[7] Tests of statistical significance were based on the assumption that samples were drawn from large (infinite) populations but in the case of Bristol Ports area a high proportion of the target population staff responded to the surveys, so the tests are conservative in this case.

[8] Source: DfT Statistics Table TSGB0109, derived from Labour Force Survey 'usual method of travel to work' collected annually in October-December. Separate figures not available for car alone and car share.

mode share in the Bristol North Fringe area is even more notable given the South West regional trend of an increase of 1.4%.

Table 3-1: Mode share based on employee surveys

		Bristol North Fringe	Bristol Ports area	Maylands Business Park, St Albans	Western Trading Estates, Slough	Hatfield Business Park
Car alone	Phase 1	51.3%	66.5%	75.4%	78.8%	69.3%
	Phase 2	49.0%	69.0%	75.3%	75.4%	75.0%
	Change	-2.3%**	+2.5%	-0.1%	-3.4%	+5.7%
Car share	Phase 1	14.7%	21.0%	10.1%	3.3%	11.8%
	Phase 2	12.2%	17.8%	13.3%	1.6%	4.8%
	Change	-2.4%***	-3.2%	+3.2%	-1.7%	-7.0%*
Cycle	Phase 1	12.3%	5.6%	1.4%	5.3%	2.0%
	Phase 2	14.3%	3.5%	1.2%	5.2%	1.0%
	Change	+2.0%***	-2.1%	-0.2%	-0.1%	-1.0%
Walk	Phase 1	6.5%	2.0%	7.2%	6.3%	2.5%
	Phase 2	7.5%	2.2%	3.9%	5.0%	2.9%
	Change	+1.1%*	+0.3%	-3.3%	-1.3%	+0.4%
Bus	Phase 1	6.1%	0.7%	0%	1.1%	4.1%
	Phase 2	8.7%	2.2%	3.2%	2.0%	4.8%
	Change	+2.6%***	+1.5%*	+3.2%	+0.9%	+0.7%
Rail	Phase 1	5.1%	1.8%	0.0%	4.6%	9.8%
	Phase 2	4.4%	3.9%	0.5%	8.3%	9.6%
	Change	-0.7%	+2.1%*	+0.5%	+3.7%*	-0.2%
Other	Phase 1	4.1%	2.3%	5.7%	0.7%	0.4%
	Phase 2	3.9%	1.3%	1.1%	2.2%	2.0%
	Change	-0.2%	-1.0%	-4.6%**	+1.5%	+1.6%
Car combined	Phase 1	66.0%	87.5%	85.5%	82.1%	81.1%
	Phase 2	61.2%	86.8%	88.6%	77.0%	79.8%
	Change	-4.8%***	-0.7%	+3.1%	-5.1%*	-1.3%
Survey responses	Phase 1	8865	819	69[i]	458	244[ii]
	Phase 2	5304	539	563	556	104[ii]

Key:

i This sample was obtained from top-up survey in 2014, as data for this question was not available from original survey in 2013 (see Hertfordshire and Slough Final Report)

ii These are subsets of total samples to enable like for like comparison (see Hertfordshire and Slough Final Report)

Note: Statistical significance assessed with z-tests (two tailed) assuming random population samples in 2014 and 2016 and equal variances in 2014 and 2016 (p=<0.05*, p=<0.01**, p=<0.001***)

3.14 Additional information on mode share changes was available from responses in Phase 2 employee travel surveys to questions asking respondents to retrospectively report their commuting mode two years earlier or to make a comparison of their mode use now and two years ago.

3.15 In the two Bristol employment areas, respondents were directly asked whether, compared with two years ago, they were using transport modes more, the same, less, or had not used them. In the Bristol North Fringe a notably higher number (of those who had been working for their employer at least two years) reported cycling more than cycling less (397 compared to 306) and walking more than walking less (402 compared to 235). There was little difference between those driving more and driving less (711 compared to 684), and those using public bus more and less (286 compared to 284). This provides evidence to support modal shift having occurred to cycling and walking. For the Bristol Ports area the numbers reporting change in the amount they cycled, walked and used public bus was low, but more reported driving alone more than less (87 compared to 32). This is consistent with the result shown in Table 3-1 that car alone mode share increased in the Ports area.

3.16 In Maylands, Slough and Hatfield, respondents to the Phase 2 surveys were asked how they normally travelled to work two years ago, as well as how they travelled to work today[9]. Comparison between the responses to the two questions in all three employment areas revealed that the large majority of those who drove alone two years ago were still driving alone (95% for Maylands, 94% for Slough, 89% for Hatfield). In contrast, fewer of those who had previously used alternatives to driving were using the same modes in Phase 2 (for example, 35% of those walking in Maylands, 55% of rail users in Slough, 29% of rail users in Hatfield), with most of the remainder switching to car use. These findings point both to the difficulty of encouraging modal shift from driving alone and maintaining use of alternatives to driving alone.

3.17 Cordon surveys were carried out of the employment areas in Phase 1 and 2 to validate mode share results from the employee surveys. They involved observational counts of movements into the employment areas in the morning peak period. The trends in mode share obtained from the cordon counts were not always consistent with the trends from the employee surveys. Discussions with local authority partners (who organised the counts) led us to believe that efforts made to improve the accuracy of the cordon counts in 2016, learning from issues arising in 2014, unwittingly resulted in systematic differences in results. The methodology used in the employee surveys was consistent between 2014 and 2016 and it is therefore considered that the results from the employee surveys are more valid.

Attribution of modal shift in Bristol North Fringe to the LSTF

3.18 The large reduction in car alone commuting (2.3 percentage points) in Bristol North Fringe, and the high level of statistical confidence associated with this result, merited further investigation to consider whether it could be attributed to the WEST LSTF programme. Before seeking attribution, a check was made whether responses to the question 'How do you

[9] Respondents were not asked their normal mode in Phase 2, so the comparison is between normal mode at the time of Phase 1 survey and mode today at the time of Phase 2 survey.

normally travel to work?' gave a similar result for modal shift between Phase 1 and 2 surveys in Bristol North Fringe as the question 'How did you travel to work today?'[10]. A reduction in car alone commuting of 3.4 percentage points was obtained based on normal commute mode. Increases in cycling mode share of 2.7 percentage points and bus of 2.8 percentage points were obtained. The results for normal mode corroborated the results for mode today. Subsequent results return to considering mode today.

3.19 The first type of evidence to help with attribution was time series data. Employee travel surveys have been conducted annually in the Bristol North Fringe and it was possible to assess the annual trend in mode share between 2011, before the WEST LSTF programme commenced, and 2016. This allowed the change in mode share during the period of the WEST programme to be considered with respect to the prior trend.

3.20 The time-series trend for mode share between 2011 and 2016 for employers participating in the case study is shown in Figure 3-1. Car alone mode share increased between 2011 and 2013 followed by a large reduction from 2013 to 2014 from 56.3% to 52.0%, a reduction from 2014 to 2015 from 52.0% to 50.6% and reduction from 2015 to 2016 of 50.6% to 49.6%. This provides evidence there was a break in trend coinciding with the start of the WEST programme and the programme may have had largest impact in the Bristol North Fringe in the first part of the funding period, followed by sustained impact at a lower level.

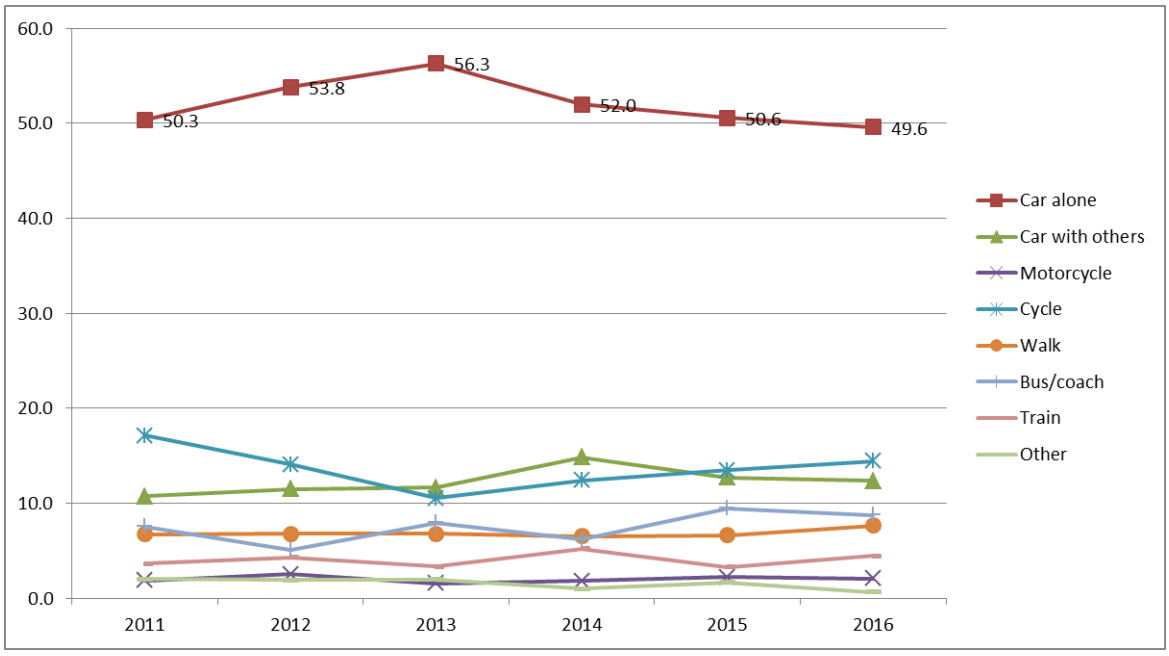
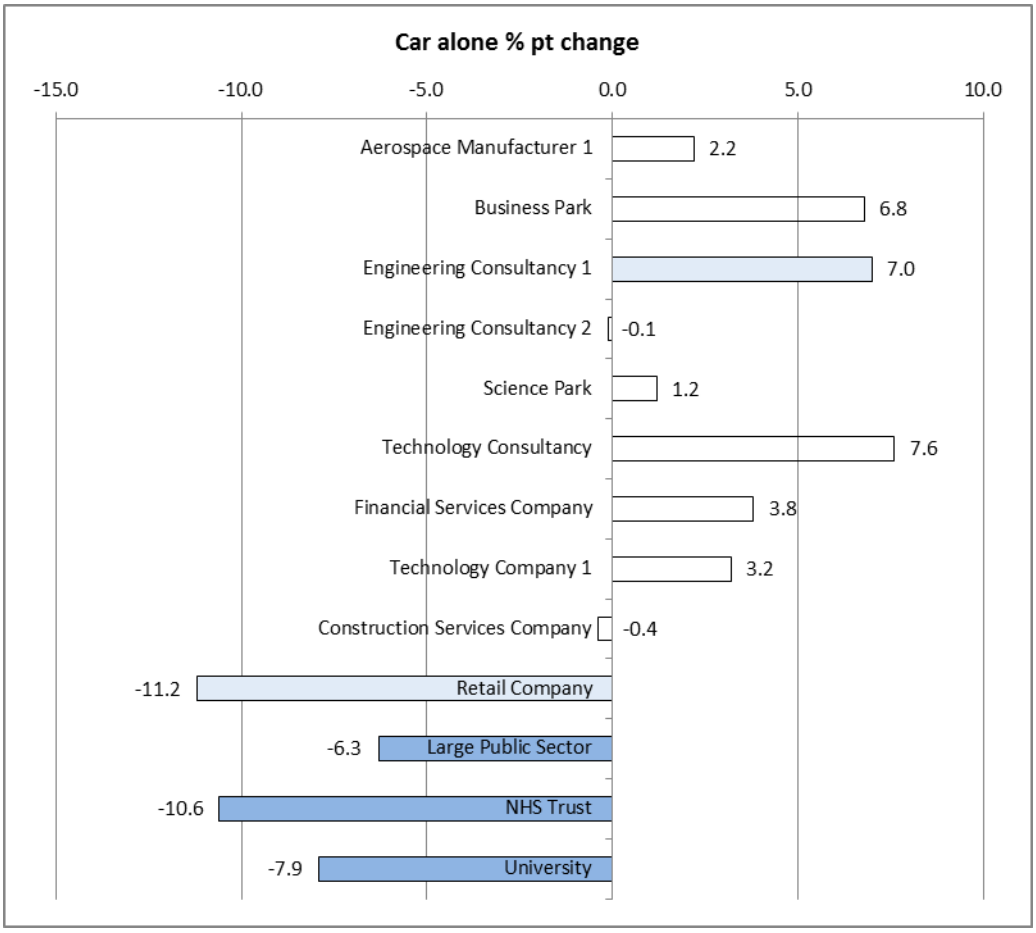


Figure 3-1: Overall mode share percentage points for North Fringe from employee surveys 2011-2016

[10] Both questions were asked in Phase 1 and 2 employee surveys in Bristol North Fringe and Ports area. The mode today question is considered to provide a more objective measure of mode use as modes that are used occasionally (such as bicycle for example) will be under-represented in responses on normal mode. This is acknowledged in DfT's Making Travel Plans Work Research Report (DfT, 2002). However, there is a risk that differences in weather conditions or other conditions may make comparisons between surveys in different years based on mode today problematic.

3.21 The second type of evidence to help with attribution was disaggregation of the mode share changes between Phase 1 and 2 by individual employers. Figure 3-2 shows that statistically significant reductions in car alone mode share at a 99% confidence level occurred at three of the 13 case study employers that participated in the employee surveys in both years. These employers were among the largest employers, in terms of number of employees, and had limited parking availability (less than one space per two employees) in Phase 1 with two of them experiencing reductions in parking availability between Phases 1 and 2. All of them had 'intensively' engaged with the WEST LSTF programme. They each saw increases in mode share of walking and bus use with two of them seeing increases in cycling. These were the modes prioritised in the WEST programme.



Note: Statistical significance at 99% level shown in dark blue and at 90% level shown in light blue.

Figure 3-2: Car alone mode share percentage point changes for North Fringe employers

3.22 The third type of evidence to help with attribution was an analysis carried out at the level of individual survey respondents to seek explanations of their mode choices and how these changed between Phase 1 and Phase 2. This utilised multiple regression analysis and involved three incremental steps. The first step was to assess if there were differences in probability of using a commute mode in 2016 after accounting for differences in sample characteristics in 2014 and 2016 (i.e. distribution of responses by employer, age, distance to work, etc.). This confirmed statistically significant decreases in probability of driving alone (10% less likely) and increases in probability of using bus (35% more likely) in 2016 compared to 2014, but changes

in probability of car sharing, cycling or walking were no longer statistically significant at 95% confidence level (see Table 3-3).

3.23 The second step was to assess if differences in probability of using a commute mode in 2016 were related to level of exposure to LSTF measures at the employer level and/or to changes in parking availability at the employer level. It was found that parking availability provided a strong explanation of changes in mode choice probabilities between Phase 1 and 2 and after accounting for this there were no statistically significant changes in probability of using any of the modes in 2016 (see Table 3-3). The extent of exposure to LSTF measures measured at the employer level[11] was not statistically significant after considering parking availability. These results suggest that changes in parking availability were the primary factor influencing modal shift between Phase 1 and 2.

3.24 The third step was to assess if differences in probability of using a commute mode in 2016 were related to awareness and engagement with LSTF measures at the level of the individual commuter (which was asked in Phase 2 employee survey). There were no statistically significant differences in mode choice probabilities in 2016 for individuals with greater awareness of LSTF measures, but there was decreased probability of car alone commuting and increased probabilities of cycling and bus use for individuals who had engaged with a greater number of LSTF measures. For example, those individuals who engaged with 1-3 LSTF measures (33% of all Phase 2 respondents) had 0.44 times the odds of driving alone in Phase 2 of those individuals who engaged with no LSTF measures (62% of Phase 2 respondents).

3.25 The results from the multiple regression analysis suggest that parking availability was the primary factor for reduced car alone commuting in Bristol North Fringe but also that engagement with LSTF measures increased the likelihood of individuals using alternatives to car commuting. From this it cannot be concluded that the LSTF measures prompted a modal shift – a more plausible interpretation is that restraint on parking or other 'push' factors prompted commuters to use alternatives to car commuting and LSTF measures assisted them in doing this.

[11] Classified as low, medium or high based on how many of following took place: received employer grant, invited sustainable transport roadshow visits (information stands staffed by LSTF travel advisers, offering travel planning and follow-up services) and made improvements to cycle facilities.

Table 3-3: Modal shift results from employee surveys in Bristol North Fringe (N=14169)

	Mode share changes Phase 1 to Phase 2	Odds ratio for changes in probability of mode choice in Phase 2 compared to Phase 1		
		Basic changes in probability	Accounting for sample characteristics	Accounting for sample characteristics & parking availability
Car alone	-2.3%**	0.91**	0.90**	0.93
Car share	-2.4%***	0.81***	0.94	0.93
Cycle	+2.0%***	1.19**	1.08	1.08
Walk	+1.1%*	1.18*	1.12	1.07
Bus/coach	+2.6%***	1.61***	1.35***	1.15

Note: p=<0.05*, p=<0.01**, p=<0.001***

3.26 The fourth type of evidence to help with attribution was the relationship between self-reported changes in use of different modes and the number of LSTF measures reported to have been used (from respondents to the Phase 2 employee survey working for their employer for at least two years). Associations were highly statistically significant (at 99.9% confidence level) between self-reported changes in changes in driving alone, cycling, walking and public bus and the number of LSTF measures used. For example, 63% of the full survey sample in Bristol North Fringe reported not using any LSTF measures, but this proportion was lower among the section of the sample who said they were driving alone less than they were two years ago. Only 52% of this group reported not using LSTF measures.

3.27 The fifth type of evidence to help with attribution is the North Bristol Commuter Panel which tracked the commuting behaviour of a sample of commuters in Bristol North Fringe and Bristol Ports area every 3 months between March 2014 and October 2015. Over 1,000 responses were received at each wave from commuters in Bristol North Fringe. At each wave, panel members were asked their 'normal' commute mode and the reason for it changing since the last wave, if this was the case, and were asked to complete a diary of one week's commuting.

3.28 With respect to 'normal' commute mode, the net percentages for each mode remained relatively stable over the panel duration, although approximately 10% of panel members switched 'normal' mode between each wave. In-depth examination of the reasons for changes of 'normal' mode (based on survey comments and follow-up telephone interviews) showed these often did not involve a complete mode switch but a change in the balance of modes used in weekly commuting routines. Changes were either attributed to life events, day-to-day variations in work or family routines, changes in access to vehicles, season of the year or changes to transport services and systems. In the latter case, this included measures taken by local authorities and employers to discourage driving alone (e.g. parking restrictions) and encourage use of other modes (e.g. cycling information, events and on-site facilities). This supports the view that LSTF measures played a facilitating role in some individuals' decision to

commute more often by sustainable modes, or to maintain existing use, even if they were not the main reason.

3.29 The one-week commuting diaries completed by Bristol North Fringe respondents confirmed that many respondents were commuting by different modes over the course of week. For example, in Wave 1, 38% of respondents drove alone on each of their working days, while 22% drove alone on at least one day and used another mode on at least one day. An analysis of change in mode use showed that individually reported awareness of sustainable transport measures (delivered by the WEST LSTF programme) increased the probability of an individual switching, over time, from car alone commuting to partial car alone commuting by 1.47 times (significant at 95% confidence level), and from partial car alone commuting to no car alone commuting by 1.38 times (significant at 90% confidence level). This suggests that sustainable transport measures assisted commuters in taking incremental steps to reduce their car alone commuting.

3.30 In summary, five different sources of evidence have been used to see if the change in mode share in Bristol North Fringe could be attributed to WEST LSTF programme. Taken together the evidence suggests that reduction in parking availability was the primary factor for reduced car alone commuting with LSTF measures facilitating individuals using alternatives to car commuting in this context.

Impacts of LSTF interventions

3.31 The second research question relating to modal shift was: *What LSTF interventions have the greatest impacts on car alone mode share and how is this affected by context (e.g. characteristics of location, employer, and employees)?*

Awareness and use of LSTF interventions

3.32 Each of the intervention areas ran its own programme of LSTF measures. Figure 3-3 to Figure 3-6 show the proportion of the Phase 2 employee survey samples in each employment area who reported that they were aware of individual LSTF-supported measures, and the proportion who reported that they had used or participated in them. It is subsequently reported to what extent survey respondents reported that LSTF measures influenced how they travelled to work.

3.33 In the Bristol North Fringe and Ports areas, the measure to have attracted the greatest awareness was car-share services (56% and 38% respectively). In Slough, awareness of car-share services was similar to the Bristol Ports (36%), but in Maylands it was lower at 11%. Awareness levels of new bus services directly serving the Bristol North Fringe, Bristol Ports and Maylands Business Park were similar in all three areas (between 23% and 29%). In Slough, the most noticed public transport measure was the discount on rail services, of which 54% of respondents were aware. SEGRO, who own and manage the majority of the Western Trading Estate, were active in publicising the rail discount and other measures in Slough.

3.34 Across all four areas, cycling-related measures attracted the highest levels of awareness overall. More respondents in Slough were aware of free cycle repair services (62%) than any of the other listed LSTF measures. Awareness levels of the 'Cycle Hire Slough corporate card

trail' (39%) were also notable. In the Bristol North Fringe, 48% of respondents were aware of the 'Dr Bike' repair services, and the same proportion was aware of improvements to on-site cycle facilities at work. The latter reflected both investments made by employers themselves and LSTF employer grants awarded to support improvements such as new cycle parking, changing facilities and lockers. In the Bristol Ports area, where fewer LSTF grants had been awarded and fewer employees cycled to work, awareness of improvements to on-site facilities was lower at 27%. In the Bristol Ports area, 27% of respondents were aware of recent improvements to local cycle routes, compared with 35% in the Bristol North Fringe (which had benefitted from the building of a more extensive cycle route network over a longer period). By contrast, 7% of Maylands respondents were aware of the LSTF funded walking and cycling route into the town centre and 10% were aware of access improvements to the Nickey Line footpath and cycleway. However, 30% of respondents in Maylands were aware of Cycle Week, similar to the 29% of Slough respondents who were aware of cycle and walking promotion. This was also similar to the 31% of Bristol North Fringe respondents who were aware of the 'Big Commuting Challenge' – an annual competition to encourage all forms of sustainable travel.

3.35 Across all four areas, levels of usage of these measures were considerably lower than levels of awareness. The proportion of respondents who had used individual services or facilities, or participated in an event, varied from 1% to 14 %. Overall, the highest levels of usage occurred in the Bristol North Fringe, and the lowest at Maylands.

3.36 Slightly more respondents, however, had used the ML1 bus service between Maylands and Hemel Hempstead rail station (5%) than had used the new bus services in the Bristol North Fringe and Ports area (4%). It was also notable that 10% of respondents in Slough had used the rail ticket discount, and 11% of respondents in Bristol North Fringe had used improved cycling facilities at work. This is consistent with the previously reported relatively high (and increasing) levels of rail use in Slough, and of cycling in the Bristol North Fringe.

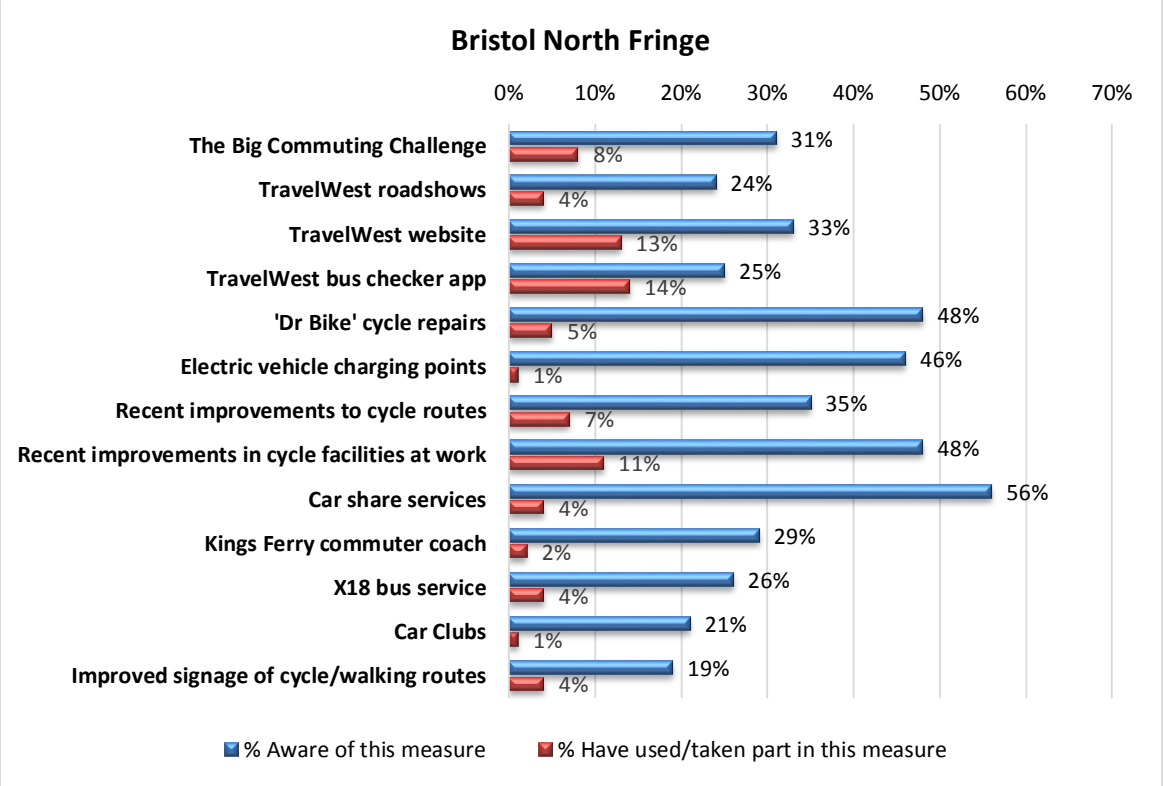


Figure 3-3: Awareness and use of LSTF measures in the Bristol North Fringe (N= 5313)

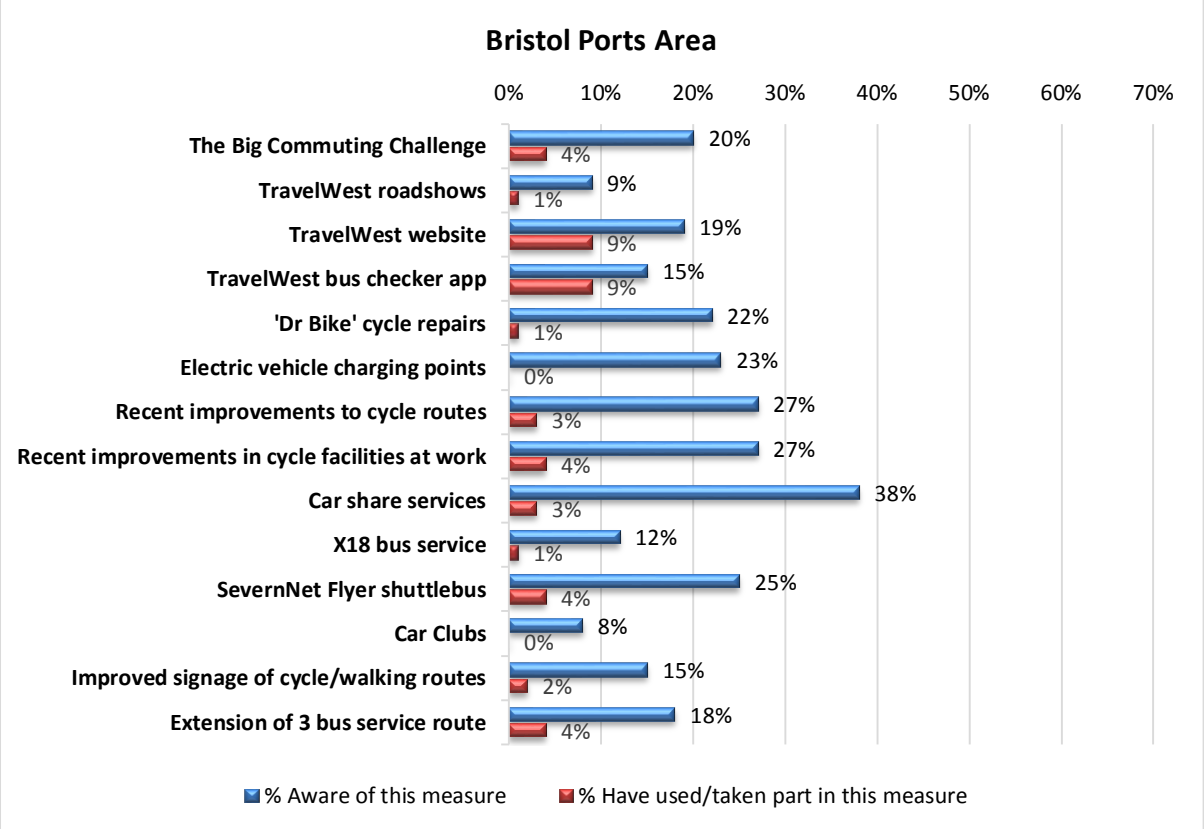


Figure 3-4: Awareness and use of LSTF measures in the Bristol Ports area (N= 543)

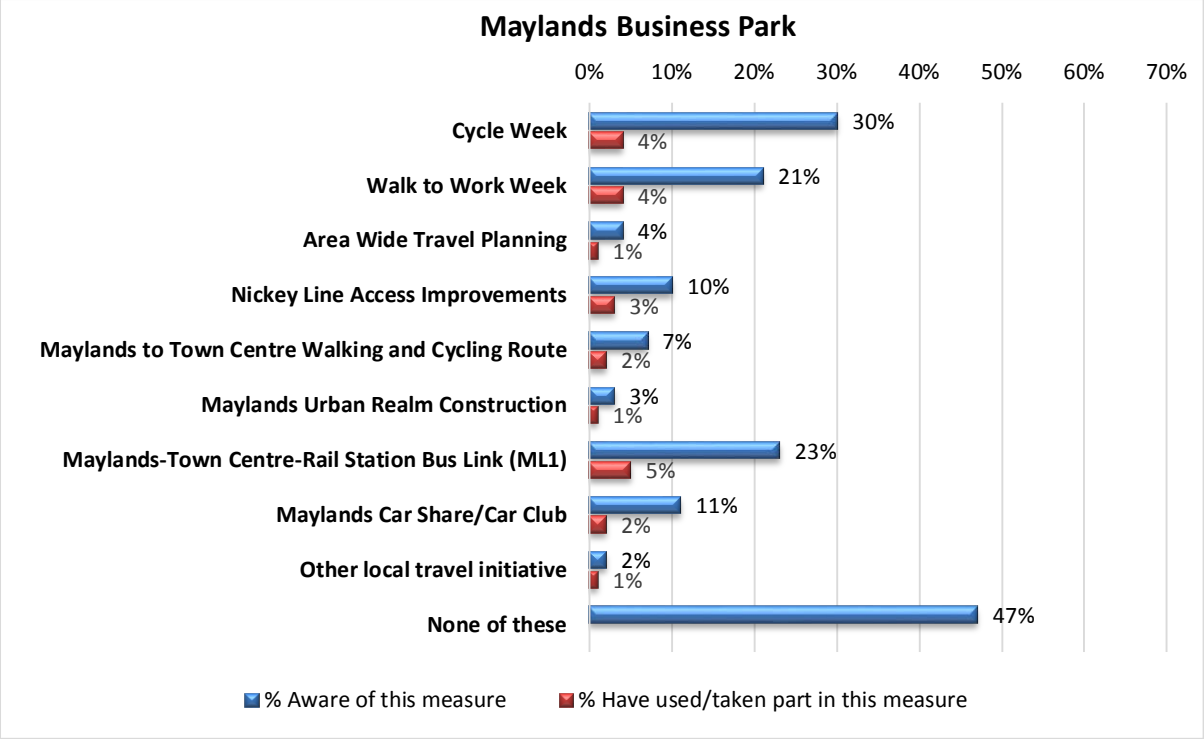


Figure 3-5: Awareness and use of LSTF measures in Maylands (N= 563)

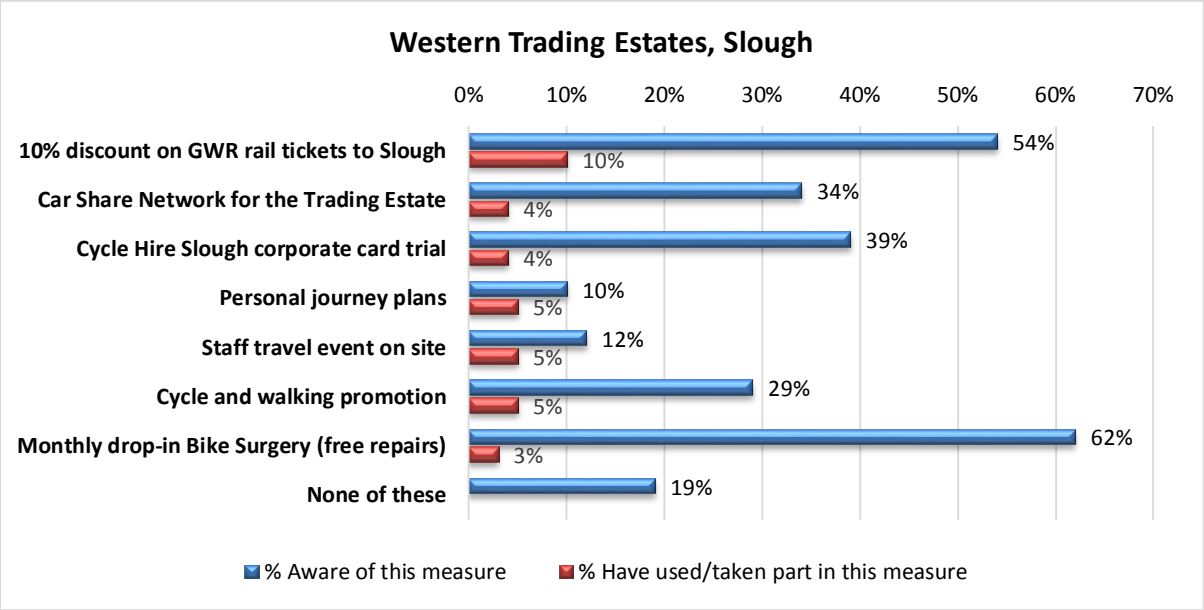


Figure 3-6: Awareness and use of LSTF measures in Slough (N=556)

Impacts of LSTF measures

3.37 Respondents to the Phase 2 surveys in each of the four LSTF intervention areas were directly asked whether LSTF measures had made a difference to the way they travelled to work.

3.38 In the Bristol North Fringe, 3% of the 5191 respondents who answered this question said they had made a large difference and 15% said they had made a little difference. For 674 respondents from Bristol North Fringe who reported driving alone less, compared with two years ago, 38 (6%) said LSTF measures had made a lot of difference and 160 (24%) said they had made a little difference. When examining those who had used specific LSTF measures, a closer relationship was found. For example, among the 119 respondents from the Bristol North Fringe who had used improved on-site cycling facilities and reported driving alone less, 55% said LSTF measures had made a little, or a lot, of difference, compared with only 43% who said they had made no difference. However, 119 people constitute just 3% of the sample providing data for this statistic. This indicates that specific measures had a positive influence on reducing car use among a small proportion of individuals.

3.39 In the Bristol Ports area, 3% of the 529 respondents who answered the question whether LSTF measures had made a difference to the way they travelled to work said they had made a large difference and 10% said they had made a little difference. The small sample of these responses meant relating these to changes in commute mode was not appropriate for the Ports area.

3.40 In Maylands 3% out of 525 respondents said LSTF measures had made a lot of difference to the way they travelled to work and 4% said they had made a little difference. Greater impact of LSTF measures was indicated in Slough with 4% of 556 respondents stating that LSTF measures had made a lot of difference and 12% stating that they had made a little difference.

3.41 It cannot be concluded that these results show causal impacts. Employees with a prior intention to change mode (for whatever reason) might seek out assistance in doing so and become aware of and use LSTF supported measures, or employees may have had no prior intention to change mode until becoming aware and using LSTF measures. However, the results show - at the least - that LSTF measures supported those employees who made changes to their travel to work.

Impacts of LSTF-supported bus services

3.42 LSTF-supported bus services produced impacts of two kinds: attracting commuters from car-use to public transport and widening access to employment areas for those without a car. Three such services were evaluated - two serving the Bristol North Fringe and one serving Maylands Business Park.

3.43 In the Bristol North Fringe the X18 was introduced in December 2012, and the Kings Ferry Commuter Coach in November 2013. Both linked the North Fringe to residential areas which previously lacked direct public transport access. On-board surveys carried out in 2014 found that 54% of morning peak commuters inbound to the North Fringe reported having previously made the trip by car and 15% had not made the trip previously. This suggests that the services were effective at attracting car users. Similar surveys in 2015 found 33% of respondents had not made the trip previously, implying that the services were helping North Fringe employers to reach a wider employment catchment area. Both services experienced moderate and sustained growth in users over time. Since March 2015, subsidies for both of these bus

services were no longer available and eventually, after some service alterations, they ceased to operate by early 2017.

3.44 The LSTF-supported ML1 Maylands bus service was introduced in February 2013 to enhance public transport access to Maylands Business Park from Hemel Hempstead Railway Station and town centre. The changes to services led to reductions in overall journey times and costs of travel. Linked rail and bus trips were promoted, as well as local bus trips within the immediate catchment area of the route. Bus passenger surveys showed that the percentage of passengers who would previously have made the journey by car rose from 5% in 2014 to 9% in 2015, which suggests that the service was making a modest contribution to attracting people away from car use.

3.45 The proportion of passengers using the ML1 service who had not made the journey previously rose from 32% in 2014 to 48% in 2015, suggesting that the new service was widening labour market access to Maylands. An analysis of access to the Maylands Business Park using census data and travel time analysis software confirmed that the labour catchment areas had increased as a result of the ML1 service. The analysis indicated that there had been a 13% increase in working age population who were located within 0-10 minutes journey time by bus. There was also an increase of 2% in working age population located within the 11-20 minutes cycling catchment area. This may be due to the 'Maylands to Town Centre Walking and Cycling Route improvements' which were implemented with LSTF funding. By comparison, no change was found in the labour market catchment area for Hatfield, which had received no LSTF funding.

Changes in satisfaction with the journey to work and attitudes towards modes

3.46 The third research question relating to modal shift was: *What changes in perceptions and attitudes towards low carbon travel alternatives are found to occur for employees working for businesses in strategic employment sites and how is this affected by exposure to LSTF interventions?* This has mainly been answered by responses obtained on satisfaction with the journey to work. Comparisons of satisfaction responses across the five employment areas are shown in Table 3-4.

3.47 In Maylands, the employee survey results suggest an overall rise in level of dissatisfaction with the journey to work among employees between Phase 1 and 2, although the numbers expressing a neutral opinion on satisfaction remained stable. There was a greater polarisation of opinion in the Bristol North Fringe and Ports areas by 2016, with fewer people remaining neutral. In the North Fringe, there was a 5% increase in the proportion of respondents who were either quite, or very, dissatisfied. The Ports area, by contrast, saw an improvement in levels of satisfaction, with a 7% increase in the proportion of respondents who were either quite, or very, satisfied with their journey to work. Across all five areas, employees in Slough and the Bristol North Fringe were the most dissatisfied in 2016, and employees at the Maylands and Hatfield business parks were the most satisfied.

Table 3-4: Employee surveys - How satisfied are you with your journey to work?

	Bristol North Fringe		Bristol Ports		Maylands		Slough		Hatfield	
	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2	Phase 1	Phase 2
Very Satisfied	16%	17%	17%	19%	23%	24%	N/A	12%	22%	23%
Quite Satisfied	33%	33%	30%	35%	41%	34%	N/A	32%	38%	40%
Neither	26%	20%	33%	25%	23%	23%	N/A	25%	24%	23%
Quite Dissatisfied	19%	21%	15%	14%	10%	14%	N/A	23%	12%	8%
Very Dissatisfied	7%	10%	4%	8%	2%	6%	N/A	8%	4%	6%
Total	100%	100%	100%	100%	100%	100%	N/A	100%	100%	100%
Total sample (N)	8865	5313	819	543	737	565	N/A	556	244	104

3.48 Satisfaction with the journey to work was found to vary considerably depending on the normal mode used. Across the Bristol North Fringe and Ports areas, the most noticeable change was that bus users were more satisfied with their commute journeys in Phase 2 compared with Phase 1. This suggests that the increase in bus mode share in these two areas seen between Phase 1 and 2 may be maintained over time. However, bus users remained the least satisfied group of mode-users overall. At the same time, dissatisfaction among those driving alone had increased by 2016 to almost the same level as bus users. The increased dissatisfaction among drivers may reflect disruption on the road network caused by major roadworks during the evaluation period in both the Bristol North Fringe and Ports areas.

3.49 Those who walked or cycled to work in the Bristol North Fringe were the groups most satisfied with their commutes in both Phase 1 and 2. This might be interpreted as a positive outcome of LSTF interventions to enhance walking and cycling, and as an indication that that the higher mode share in Phase 2 compared with Phase 1 might be maintained into the future. Similarly respondents who walked or cycled to work at Maylands were less likely to be 'not satisfied' with their journey than other respondents.

3.50 In the Bristol North Fringe, an association was found between commute satisfaction and the number of LSTF measures which respondents had used; that is, the proportion of respondents who were quite satisfied or very satisfied with their commute journey was higher for those who reported using more LSTF measures. However, the number who had used more than three LSTF measures was small, and 63% of respondents had not used any measures at all (compared with only 14% who were not aware of any measures).

3.51 Employees in Maylands, Slough and Hatfield were also asked to indicate what would encourage them to adopt more sustainable commuter options. For both Slough and Maylands the evidence indicated hardening of attitudes away from using public transport, this being particularly true for Maylands. Among the specific generic measures tabled in the

questionnaire there was no evidence in either case of anything improving the attractiveness of public transport. Overall, however, satisfaction levels were higher among those using the ML1 bus service, or who were aware of selected LSTF initiatives. In Hatfield the factor identified as most likely to encourage greater public transport use was the provision of direct bus services. This probably reflects the withdrawal of such services at Hatfield during the previous two years, including coach services to/from London and reduced links to/from Hatfield railway station.

Summary

3.52 Key findings on modal shift are:

- In the Bristol North Fringe, car alone mode share for commuting fell by 2.3 percentage points (and total car mode share by 4.8 percentage points), and at the Western Trading Estates in Slough it fell by 3.4 percentage points (and total car mode share by 5.1 percentage points). In the Bristol North Fringe, mode share increases were observed for bus use, cycling and walking. In Slough, there was an increase in rail use. No indication of a change in car alone mode share was observed in the two other intervention areas (the Bristol Ports area and Maylands Business Park) or the Hatfield site, which did not benefit from LSTF funding.
- The fall in total car mode share in the Bristol North Fringe is striking when compared with background trends in the South West region, which saw an increase of 1.4% in total car mode share for commuting between 2013 and 2015. Various sources of evidence have been used to explain the modal shift in the Bristol North Fringe. These show that reduction in parking availability was the primary factor for reduced car alone commuting in the Bristol North Fringe with LSTF measures facilitating individuals using alternatives to car commuting in this context.
- High awareness and use of cycling-related measures were apparent in the Bristol North Fringe, and of the ML1 bus link at Maylands and GWR rail discounts in Slough. These results are consistent with observed mode share changes and passenger growth on the bus/rail services.
- For small numbers of people, specific LSTF measures appeared to have improved the sustainable transport offer, encouraged people to travel more sustainably more often, or maintained existing levels of sustainable transport use (e.g. ML1, cycling improvements, rail discounts).
- Satisfaction levels with commuting deteriorated in the Bristol North Fringe and Maylands, and were unchanged elsewhere. This appears to be related to worsening traffic conditions associated with major roadworks. Maintained high levels of satisfaction among cyclists and pedestrians and increased levels of satisfaction among bus users indicate that the LSTF had a positive role in supporting alternatives to car use.

4. Findings: Economic impacts on employers

Introduction

4.1. The second objective of the case study was *to assess the impacts on business performance of implementing sustainable transport measures in strategic employment sites*.

4.2. This section summarises findings on senior managers' perceptions of the impacts of sustainable transport on their business performance. It presents managers' assessments of the LSTF programmes within the intervention areas, and discusses factors which contributed to differing views amongst businesses and locations. Findings are presented under the following headings:

- Views of the role of transport for business performance;
- Awareness of the LSTF;
- Perceptions of the impacts of LSTF;
- Wider economic impacts; and
- Differences by employer characteristics.

Research methods

4.3 In the Bristol North Fringe and Ports areas, in-depth, semi-structured interviews were used to explore the perceptions of senior managers. In total, 44 face-to-face interviews and one telephone interview were conducted (24 in Phase 1; 21 in Phase 2), each taking approximately 45 minutes to one hour. The Phase 1 and 2 interviews were held with the same individual if he or she was still in post (11 cases), or alternatively with a manager in the same or a similar role. Interviewees included managing directors of several of the large- and medium-sized aerospace, engineering and technology companies located in North Bristol, the aim being to obtain a 'Board level' perspective of transport-related impacts on the business.

4.4 At Maylands, Slough and Hatfield, a structured telephone survey of 25-45 minutes' duration was conducted with senior staff in two independent samples of businesses in the two Phases. The survey elicited information on a range of business performance and transport-related indicators. A total of 177 businesses across the three sites were surveyed in Phase 1, and 227 in Phase 2. An assessment was made to check that the characteristics of the samples in Phase 1 and 2 were similar and this was shown to be the case.

4.5 The number of employers interviewed or surveyed in each of the five areas is detailed in paragraphs 2.6 to 2.8.

4.6 The first research question was: *what are the impacts on business performance (objectively and subjectively measured) of the LSTF programme in terms of: (i) Operational transport issues; (ii) Commuting and staffing issues; and (iii) Productivity?*

4.7 To answer this question, it was helpful first to explore ways in which senior managers considered transport issues in general to affect their business performance. The relevance and role of sustainable transport within this broader context could then be explored.

Views on the role of transport for business performance

4.8 The qualitative interviews in the Bristol North Fringe and Ports areas revealed that staff commuting was considered by the majority of interviewees to be the most significant transport issue affecting their business. Operational transport issues (deliveries and logistics; business travel; client/visitor access) were of less concern than commuter issues to most of the North Fringe employers, although there were exceptions. For example, business travel was of major importance to the consultancy businesses. Similarly, in the Ports area, which has a large number of distribution companies, transport logistics was a significant consideration for many employers. Overall, however, there was a correspondence between employer concerns about commuter travel and the focus which the LSTF business engagement programme in the West of England placed on improving the commute experience. The programme was not focussed on operational transport issues, although some LSTF measures did aim to improve sustainable travel options for local business travel.

4.9 The interviews in the Bristol North Fringe and Ports areas showed that the impacts of commuter travel on business performance were thought to be significant, although indirect and hard to measure. In particular, the quality of the commuter travel experience was seen as an important contributor to staff satisfaction, with improvements to the commute thought to bring about productivity gains by enhancing staff wellbeing. However, attempting to quantify this was not something which employers had considered.

4.10 The quality and ease of the commute was thought to be important for recruiting and retaining staff, particularly those with specialist skills who could 'pick and choose' where to work. The Director of a company in the Bristol North Fringe commented:

"We often interview here and people will decline the…., well, pass through the interview but they'll decline to come and work for us because of the issues of transport, so it has an immediate effect on our ability to recruit into this area".

4.11 At the same time, poor transport access was thought to reduce the pool of potential recruits to jobs at lower skill levels, and could therefore have a direct impact on those businesses with a high proportion of lower-paid staff. Within this context, the availability of quality public transport, cycle and pedestrian access for employees was seen as an asset to employers, because these travel options helped to widen the recruitment pool among those who did not have a car, and therefore no other means of accessing jobs. The latter point was strongly expressed by senior managers in some of the distribution businesses in the Bristol Ports area, which was poorly served by public transport and safe cycle/pedestrian routes.

"Effectively we are deliberately discriminating against anybody that hasn't got their own transport to get to work and when we instruct an agency to find people for us we would state that the person will have to have their own transport."

"And an absolute fact: it is affecting our recruitment (…). Our success as a business will stand and fall on our ability to recruit people. (…) We're a good business and we've made lots of money, and that's really great. But if I carry on growing, we need more people. (….) And we've got to attract them and somehow get them here. (….) The thing that will kill us more than anything is recruitment."

4.12 In particular, many interviewees in the Bristol North Fringe and Ports areas thought that the use of active travel modes (cycling and walking) by employees resulted in productivity benefits to their organisation, not only by way of improved morale, but also by contributing to physical fitness. For example, in 2016, the managing director of a large company in the Bristol Ports area was considering offering bicycles to employees at the company's expense for this very reason.

"We're doing it because it's a good thing to do but, you know, as an aside, there's nearly always a commercial benefit…You get fitter; you feel more committed to (the company) because we literally bought you a bike. It's just a win-win-win".

4.13 Responses to the telephone surveys of employers in Maylands, Slough and Hatfield indicated that positive perceptions of access to the labour market are associated with positive perceptions of road connections. Employers generally had high levels of satisfaction with both of these in the 2014 surveys. However, levels of satisfaction with public transport links and cycling routes were lower.

4.14 In summary, although direct economic impacts of sustainable transport initiatives were difficult for employers to assess, they were in general seen as an important part of the 'mix' of transport investments required to ensure smooth business operations, including efficient business-related travel between collaborating organisations within the area, as well as supporting recruitment, retention and productivity of appropriately skilled staff.

Awareness of the LSTF

4.15 The proportion of interviewees in the Bristol North Fringe and Ports who said they were aware of the LSTF rose from about one third in Phase 1 to one half in Phase 2, but the more senior their position, the less likely they were to have a working knowledge of the Fund. However, all were aware of local transport issues, and some of the measures undertaken by the local authorities. In Maylands and Slough, levels of awareness of the LSTF among interviewees declined from 12% to 6% in Maylands between Phases 1 and 2, and from 18% to 9% in Slough. However, it is acknowledged that these differences between the West of England and other case study sites are likely to reflect, to a degree, differences in the research method. Having committed to a two-year study with multiple data collection activities, the West of England employers were inevitably more aware of the evaluation purpose.

4.16 By Phase 2, cycling-related improvements, both on and off site, were more likely to have come to the attention of the Bristol interviewees than other measures, and elicited the most positive responses. The majority of employers had received support for cycling in the form of repair kits and free cycle maintenance sessions ('Dr Bike'). Moreover, the majority of LSTF employer grants, which 12 of the 25 businesses had received, supported improved on-site facilities such as cycle parking, lockers and changing facilities. Several employers had also benefitted from loan bikes. Many had noticed improvements to cycle lanes, paths and signage in their area. In the case of Slough there was a high level of awareness of the local cycle hire scheme (71% in Phase 1 and 45% in Phase 2).

4.17 With regard to LSTF-supported public transport services and marketing, a high level of awareness (58%) was found amongst Maylands employers in Phase 2 for the ML1 bus service

to/from Hemel Hempstead railway station. In the Bristol North Fringe, the Kings Ferry coach service and related business shuttle service, which had been marketed to employers as executive services, were better known than other LSTF-supported bus services. In Slough, 34% were aware of discounted rail tickets to Slough or Burnham railway station. The latter was also the LSTF measure which employees indicated that they had used the most.

4.18 The results from Maylands and Slough suggest that awareness tends to fall after initial launches of initiatives. The ML1 bus service that links Maylands and Hemel Hempstead station, together with the rail discount scheme at Slough, were both easily identifiable and marketable, which may help to explain their relatively high awareness and perceived effectiveness among firms.

4.19 In the Bristol North Fringe, there was also a high awareness among senior managers of the sustainable travel 'roadshows', which had visited all the North Fringe employers at least once, and the annual 'Big Commuting Challenge'. Many of the employers had benefitted from the installation of LSTF-supported electric vehicle charging points, and some saw electric vehicles as the most likely area for growth in sustainable transport in the future. This was linked to the view that many people needed, or wanted, to commute by car due to other 'life factors', such as the decision to live in a rural area. Several larger employers had received support for electric pool cars, normally provided through the car club Co-wheels. However, electric cars were mainly seen as a niche area, and one which did not suit employers whose staff travelled long distances for work.

Perceptions of the impacts of the LSTF

4.20 Table 4-1 to Table 4-4 show managers' assessments of specific measures in each of the four intervention areas in Phase 2. By Phase 2 some interviewees in the Bristol North Fringe expressed the view that benefits accruing from the LSTF and related initiatives were becoming tangible, although more still needed to be done. In the Bristol Ports area, where LSTF expenditure had been lower, employers were more circumspect about its actual impact.

4.21 There was a more positive assessment of bus service changes in the two Bristol areas in Phase 2, with 6 out of 14 agreeing that LSTF had improved bus services in the North Fringe, and 4 out of 7 agreeing in the Ports area. However, the biggest perceived impacts in the Bristol North Fringe related to cycling, with 9 out of 14 believing that the LSTF had increased cycle use by staff – more than in the Ports area and considerably more than at Maylands and in Slough. This corresponds with the much higher cycle mode share in the North Fringe compared with the other areas and the increase seen between Phase 1 and 2.

4.22 Interviewees at Maylands and Slough were also less positive about the impacts of the LSTF than those in the Bristol North Fringe; however Maylands and Slough employers were less negative than they had been in Phase 1, when they were asked what they expected of the programme. It is notable that high proportions of interviewees stated they "didn't know" about impacts of the LSTF. The key findings in Maylands and Slough in Phase 2 were:

- Increase in cycle use by staff – in Maylands only 3% of employers agreed or strongly agreed LSTF had increased cycle use by staff, whilst 52% stated that they disagreed or strongly disagreed. The remainder stated that they neither agreed or disagreed, or did not know; the tables show that the proportions in these categories were relatively

high across all the measures. For Slough only 11% of employers agreed or strongly agreed LSTF had increased cycle use by staff, whilst 51% disagreed or strongly disagreed.

- Improved bus services – in Maylands 9% of employers agreed or strongly agreed LSTF had improved bus services and 27% disagreed or strongly disagreed. For Slough 12% of employers agreed or strongly agreed LSTF had improved bus services and 24% disagreed or strongly disagreed.
- Increase in public transport use – in Maylands only 4% of employers agreed or strongly agreed LSTF had increased public transport use by staff, whilst 51% stated they disagreed or strongly disagreed. In the case of Slough only 3% of employers agreed or strongly agreed LSTF had increased public transport use by staff, whilst 59% stated they disagreed or strongly disagreed.
- Reduced journey time – in Maylands only 1% of employers stated they agreed or strongly agreed that LSTF had reduced journey times. An identical figure was reported for Slough.

4.23 Employers across the four intervention areas were, overall, negative or ambivalent about the role of LSTF measures in facilitating recruitment or retention over the two years. More disagreed than agreed with the statements that the LSTF had made it easier to recruit and retain skilled staff, but many felt that they did not have enough knowledge about these measures to make a sound judgement.

4.24 The vast majority of employers across the sites did not believe that LSTF measures had increased the reliability of deliveries or cut the costs of deliveries. Slightly more thought they had facilitated visitor access, particularly in the Bristol North Fringe (21%) and Slough (20%).

4.25 With regard to business travel, some employers with restricted on-site car parking in the Bristol North Fringe expressed the view in Phase 2 that certain LSTF measures had offered modest benefits. For example, some thought that LSTF support for on-site pool vehicles (some electric) was reducing the need for some mobile staff to use their own cars to commute to their work base. Some employers believed they had received direct benefits from the Kings Ferry Business Shuttle. This was an adjunct to the LSTF-supported Kings Ferry Commuter Coach, whereby the coaches were used between the morning and evening commute periods to shuttle staff between local collaborating employers, and between employers and the rail station for business travel purposes. This had reduced the costs to employers of taxi use for local business travel.

Table 4-1: Employer assessment of LSTF measures, Bristol North Fringe (N=14)

LSTF has:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't Know	Total
Increased cycle use by staff	0%	21%	7%	57%	7%	7%	100%
Improved bus services	7%	7%	21%	43%	0%	21%	100%
Increased public transport use by staff	7%	14%	29%	36%	0%	14%	100%
Reduced journey times	7%	36%	21%	14%	0%	21%	100%
Made it easier to recruit skilled staff	0%	50%	29%	21%	0%	0%	100%
Made it easier to retain skilled staff	0%	57%	36%	7%	0%	0%	100%
Increased the reliability of deliveries	0%	29%	50%	7%	0%	14%	100%
Cut the costs of deliveries	0%	21%	36%	7%	0%	36%	100%
Made our site easier to get to and from for visitors	0%	50%	14%	21%	0%	14%	100%

Table 4-2: Employer assessment of LSTF measures, Bristol Ports area (N=7)

LSTF has:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know	Total
Increased cycle use by staff	0%	0%	57%	29%	14%	0%	100%
Improved bus services	0%	29%	14%	43%	14%	0%	100%
Increased public transport use by staff	0%	43%	14%	14%	14%	14%	100%
Reduced journey times	0%	43%	29%	0%	0%	29%	100%
Made it easier to recruit skilled staff	0%	29%	57%	14%	0%	0%	100%
Made it easier to retain skilled staff	0%	57%	36%	7%	0%	0%	100%
Increased the reliability of deliveries	0%	29%	57%	0%	0%	14%	100%
Cut the costs of deliveries	0%	29%	57%	0%	0%	14%	100%
Made our site easier to get to and from for visitors	0%	43%	57%	0%	0%	0%	100%

Table 4-3: Employer assessment of LSTF measures, Maylands (N= 105)

LSTF has:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know	Total
Increased cycle use by staff	41%	11%	19%	3%	0%	27%	100%
Improved bus services	15%	12%	24%	6%	3%	40%	100%
Increased public transport use by staff	37%	14%	15%	3%	1%	29%	100%
Reduced journey times	31%	16%	17%	1%	0%	35%	100%
Made it easier to recruit skilled staff	16%	19%	35%	3%	0%	27%	100%
Made it easier to retain skilled staff	18%	17%	36%	3%	0%	26%	100%
Increased the reliability of deliveries	17%	16%	31%	1%	0%	35%	100%
Cut the costs of deliveries	27%	11%	25%	1%	0%	37%	100%
Made our site easier to get to and from for visitors	22%	14%	31%	11%	0%	21%	100%

Table 4-4: Employer assessment of LSTF measures, Slough (N=76)

LSTF has:	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Don't know	Total
Increased cycle use by staff	29%	22%	17%	7%	4%	21%	100%
Improved bus services	16%	8%	21%	8%	4%	43%	100%
Increased public transport use by staff	24%	25%	18%	1%	1%	30%	100%
Reduced journey times	30%	24%	21%	0%	1%	24%	100%
Made it easier to recruit skilled staff	28%	17%	20%	5%	1%	29%	100%
Made it easier to retain skilled staff	28%	17%	17%	9%	1%	28%	100%
Increased the reliability of deliveries	22%	16%	25%	1%	0%	36%	100%
Cut the costs of deliveries	28%	25%	12%	1%	0%	34%	100%
Made our site easier to get to and from for visitors	29%	15%	16%	20%	0%	21%	100%

4.26 The modest direct benefits of the LSTF reported above are consistent with the results of a stated preference exercise undertaken as part of the employer surveys (in both Phases 1 and 2) in Maylands and Slough which assessed the willingness to pay for LSTF-style measures via increased business rates. The results indicated that employers were not prepared to pay extra for LSTF-style measures such as dedicated bus services. One exception was found for Maylands in Phase 2 where employers did see value in a bespoke (hypothetical) bus service

from the railway station which would make drop offs and pickups according to demand and be bookable online.

4.27 Another indicator of the direct impact of the LSTF on employers is any change in transport provision they made to their staff. Employers in Maylands, Slough and Hatfield were asked about this in Phases 1 and 2. In Maylands and Slough there was an increase in the proportion of employers who stated they provided parking for cyclists but few other changes in provision, apart from an increase in the proportion who supplied company cars to their staff. The qualitative research in the Bristol North Fringe suggested that a 'company car culture' could make it very difficult to encourage the use of alternative modes, particularly if staff received a fuel allowance, and if on-site parking was sufficient to meet demand. This suggests that company car provision can present an obstacle to the effectiveness of sustainable transport measures, and this might have been one of the factors contributing to the rise of car mode share in Maylands, for example.

Wider economic impacts

4.28 The employer surveys in Maylands, Slough and Hatfield obtained repeated measures of various indicators of business perceptions and performance and these can be used to assess changes occurring over the two-year period and whether these might be related in any way to LSTF.

4.29 Firstly, employers were asked about satisfaction with transport provision and access to the labour market. Employers who were surveyed in Maylands and Slough before the LSTF investment had moderately positive views about public transport links for staff and business and the frequency of bus services, with between a third and half of businesses saying that these were good or very good. These views had not changed significantly in Phase 2 following the investment. Employers in Maylands and Slough reported a decline in satisfaction with the availability of parking and employers in Maylands reported a decline in satisfaction with walking and cycling facilities. Employers in Maylands and Slough also reported small decreases in satisfaction with access to the local road network and in satisfaction with 'access to a suitable workforce' and 'access to specific skills in the workforce' in Phase 2. It should be noted that access to the labour market may be affected by other factors than transport and reduced satisfaction with access to the labour market was also found in Hatfield. Overall, it appears that the LSTF had not helped significantly to address perceptions of transport provision and labour market access.

4.30 Secondly, employers were asked about various aspects of their business performance. While some aspects such as total staff and annual turnover are likely to be largely influenced by factors other than transport, some aspects could plausibly have been affected by transport. At Maylands, more employers reported that their annual turnover had risen in the last year than fallen, but the difference was lower in Phase 2 than 1, indicating a worsening economic climate. In contrast, in Slough more employers reported a rise in turnover in Phase 2 and in Hatfield there was no change. No statistically significant difference in staff absenteeism was reported in Maylands, Slough and Hatfield in Phases 1 and 2. There was a statistically significant reduction in the proportion of deliveries made on time in all three employment areas. No overall conclusions can be drawn on the impact of LSTF on business performance.

Differences by employer characteristics

4.31 The second research question under this heading was: *how do the impacts on business performance vary by type of business, location and site characteristics and exposure to LSTF interventions?*

4.32 The qualitative research for Bristol employment areas showed that differing perceptions among the interviewees regarding transport needs, business performance and role of the LSTF were influenced by factors such as the employer's sphere of activity, the main types of job undertaken by its staff, organisation of the working day, and its geographical location, and (crucially) on-site car parking capacity.

4.33 For many in the Bristol North Fringe, better provision of sustainable transport was seen as an essential requirement to reduce car parking demand; on-site parking was close to, or had already reached, full capacity for several employers in 2014. It was thought that better transport infrastructure, including cycle routes and bus services would contribute to the desirability of their areas in terms of attracting business and skilled employees. By 2016, the pressure on parking at some employer sites had reduced due to either a fall in staff numbers or an increase in the number of parking spaces, but at others it remained an important and costly issue (necessitating for example, a parking manager role in the organisation, or the provision, of an employer bus).

"This park is based around driving…. But then you restrict the ability of people to drive by not giving them parking spaces or not putting the right infrastructure in that allows people to get in and out at the peak times, to kind of throttle it."

Whilst not as serious as in the Bristol North Fringe, the perceived availability of car parking was also falling at Maylands, where the proportion of employers considering parking supply to be poor or very poor rose from 23% in Phase 1 to 44% in Phase 2. It would appear that, at Maylands, the recovery of the economy was putting extra pressure on parking.

4.34 Employers in the Bristol North Fringe experiencing the type of parking and recruitment pressures described above were especially keen to engage with the LSTF, and were positive about the contribution it had made over the two years, even if impacts were thought to be limited so far. This was seen as an argument by senior managers in the North Fringe for greater and more sustained efforts to improve sustainable travel.

"...there may not have been as much impact this time round but I am guessing it's one of those things that takes quite a few years and that there needs to be a constant stream of different initiatives….. I just think it's changing paths and cultures. It's a long term game when you're not in the city centre. So I think there needs to be a sort of continuous effort."

"So we are seeing- starting to see benefits. I think obviously there's still work to be done around the wider area (….). It's all work in progress at the moment. (…) Obviously it's going to get a lot busier in the area as well but I think it's - for the economy, for the northern part of Bristol, I think it's very, very good, really".

"For me I think, it's worthwhile. The only issue, as I've repeatedly said, is that these improvements are generally smaller improvements relative to the bigger degradation due to the intensity of what's going on. So it's almost like the whole thing is getting worse but it just slows it down a touch..... So I think we see a fundamental issue about density in this area. Density of cars, transport infrastructure is, in its totality, inadequate, and, nevertheless we see these as small steps in improvement".

4.35 Employers in the Bristol Ports area tended to believe that LSTF measures offered more to individual employees than to the business directly; this was a typical view among employers who were not experiencing any recruitment difficulties or restrictions on parking. Those employers not facing such pressures were generally less concerned, but regarded LSTF measures as 'good to have' because of their association with staff wellbeing. In considering the benefits of sustainable transport options in 2014, a managing director in the North Fringe said:

"I think it's a cultural benefit; it's a benefit for employees. It's not direct. You know, we don't make more revenue because we do these things, or as far as I'm aware, I haven't seen any correlation there. We do have happier employees and happier employees is a good thing to have".

4.36 Environmental and corporate social responsibility also served as a motivation for some employers to engage with the LSTF and see actual, or potential, benefit from participating.

4.37 The role of the LSTF within a process moving towards more sustainable commuter travel (a 'virtuous circle') is conceptualised in Figure 4-1. Employers in the case study which were adversely affected by issues such as congestion, limits on parking, and recruitment difficulties, tended to perceive a need for greater investment in sustainable transport. Faced with such pressures, they made their own investment in alternative transport options for staff, and were more willing to engage with the local authorities and other businesses on sustainable transport, which in turn meant that they saw more benefits from LSTF business engagement measures. Even without such pressures, employers tended to be in favour of sustainable transport options because they were seen to contribute to staff wellbeing, which indirectly benefits the business. However, for some this was a very marginal concern in the context of a challenging economic environment.

4.38 Factors contributing to positive attitudes among employers to the LSTF from the point of view of operational transport practices were also considered. With the exception of local business travel, LSTF measures were seen as having a lesser impact on business operations than on commuter travel in the two Bristol areas. This is unsurprising given that the LSTF was not targeting transport logistics in the West of England employment areas. Direct economic pressures (fuel costs) were the main driver for maximising efficiency in transport logistics. More sustainable business travel was also motivated by other drivers such as voluntary carbon reduction targets, staff health and safety, and effective use of travel time (e.g. working on the train). Some companies connected sustainable travel practices with new businesses opportunities, in the form of sustainable products (e.g. biofuel for buses), or by contributing to their image as environmentally responsible businesses.

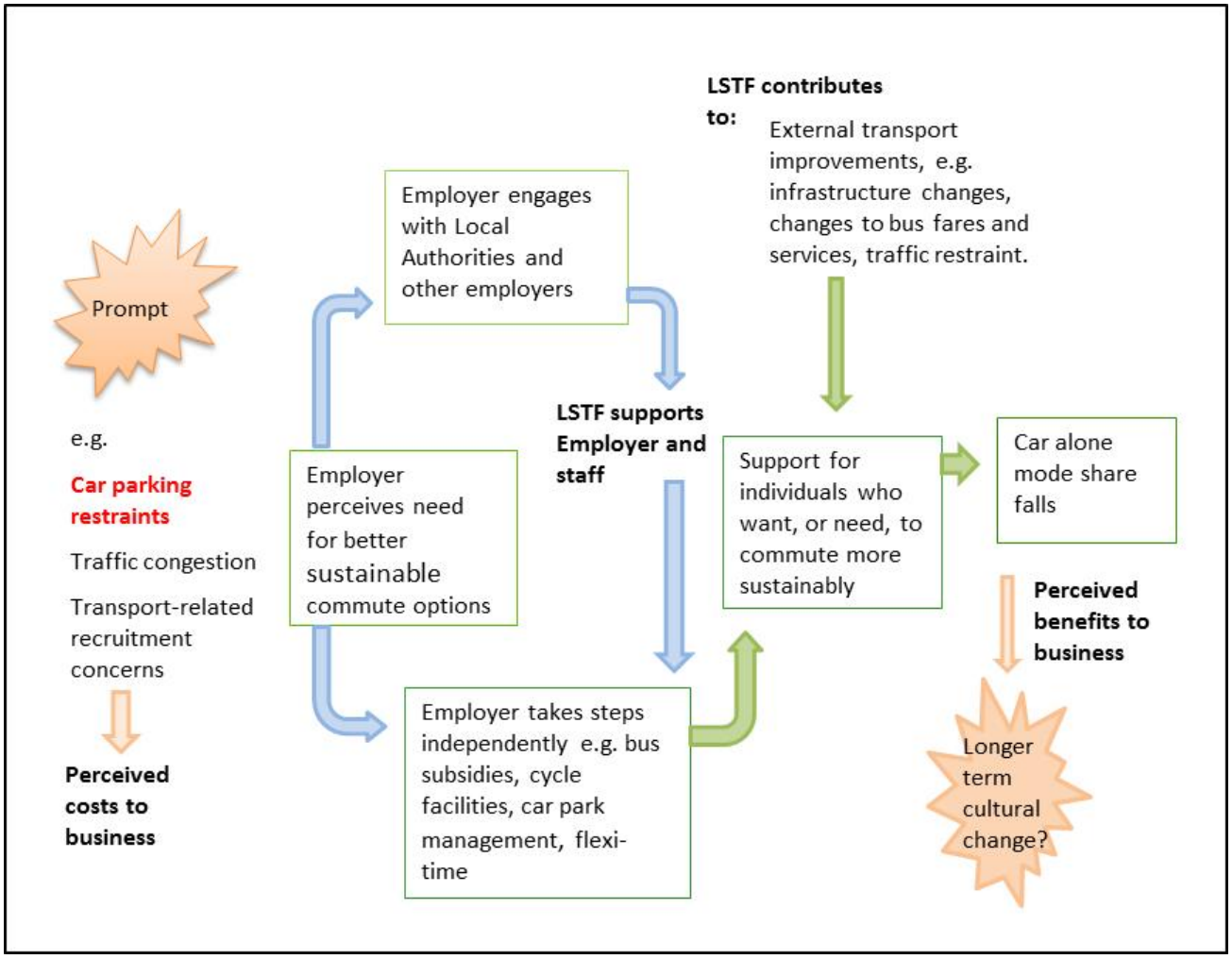


Figure 4-1: The role of LSTF interventions in the process of commute mode change

Summary

4.39 Key findings on impacts of business performance are:

- Senior managers perceived transport issues as important to their business performance in terms of both employee access (commuting) and operational transport (deliveries and logistics; business travel; client/visitor access). The importance of different operational transport issues varied according to the nature of the business, but staff commuting was a consideration for all businesses. In particular, the quality of the commuter travel experience was seen as an important contributor to staff satisfaction, with improvements to the commute thought to bring about productivity gains by enhancing staff wellbeing. Within this context, sustainable transport options were perceived as part of the 'mix' of transport investments required to ensure smooth business operations and support the recruitment, retention and productivity of appropriately skilled staff.

- Attitudes among senior managers to the contribution of LSTF funding by Phase 2 of the evaluation were mixed. In the two Bristol areas, most were either positive or neutral about the role of the LSTF in increasing cycle use by staff and improving bus services, whilst in Maylands and Slough the majority were either negative or neutral in this respect. Overall, attitudes to the LSTF were most positive in the Bristol North Fringe.
- By Phase 2, many interviewees in the North Fringe believed that business benefits (albeit indirect and unquantifiable) were starting to accrue from sustainable transport improvements. However, it was also felt that more time and greater investment in transport infrastructure and services was needed to make a substantial difference. In the Bristol Ports area, some employers thought that a new bus service was starting to make a positive difference by widening access to jobs, but it was too soon to be able to detect any direct impact.
- Senior managers in Maylands and Slough were less negative and more neutral about the LSTF in Phase 2, compared with their expectations of the Fund in Phase 1, but no improvements in satisfaction with transport provision and access to the workforce were evident. The majority did not believe that the LSTF had encouraged modal shift or impacted positively upon business performance in terms of logistical accessibility or workforce availability. Employers at Maylands maintained the opinion that the business park was geared much more to car-use than to public transport, cycling or walking.
- The relatively high awareness among employers of the ML1 bus service to Maylands and the rail discount scheme in Slough may be related to the fact that they were both easily identifiable and benefitted from effective marketing.
- Employers adversely affected by congestion, limits on parking and recruitment difficulties perceived a need for greater investment in sustainable transport. When faced with pressures such as the above, they were more willing to engage with the local authorities and other businesses on sustainable transport, which in turn created a ‘virtuous circle’ whereby they also accrued greater benefit from the LSTF.

5. Conclusions

Overview

5.1 The evaluation took place during a period when driving a car to work in the case study employment areas was becoming more difficult, due to factors such as major roadworks associated with long-term infrastructure improvements, and general traffic growth associated with economic recovery, lower fuel prices, and population growth. Car drivers were becoming increasingly dissatisfied with their commutes. At the same time, improvements in the quality and availability of alternative commuter travel options (included those funded by the LSTF) were starting to be noticed by employers, and were found to be contributing in some areas to modal shift. Levels of satisfaction with commuting by bicycle, on foot, or by bus remained high and/or increased. Employers believed that greater use of sustainable transport offered indirect economic benefits, but that modest changes brought about through the LSTF now needed to be built upon through sustained investment. This was seen as a collaborative endeavour in which both employers and public authorities needed to engage.

Modal shift

5.2 Modal shift towards a greater use of sustainable travel modes for the journey to work was observed at two of the strategic employment sites which had received LSTF funding during the evaluation period (2013/14 - 2015/16). In the Bristol North Fringe, car alone mode share for commuting fell by 2.3 percentage points (and total car mode share by 4.8 percentage points), and at the Western Trading Estates in Slough it fell by 3.4 percentage points (and total car mode share by 5.1 percentage points). No change in car alone mode share was observed in the two other intervention areas: the Bristol Ports area and Maylands Business Park; the same was true of the Hatfield site, which did not benefit from LSTF funding. The fall in car mode share in the Bristol North Fringe is striking when compared with background trends in the South West region, which saw an increase of 1.4% in total car mode share for commuting between 2013 and 2015. We now consider key factors which contributed to changes or stability in mode share in the employment areas evaluated in the case study, and the role which LSTF interventions were seen to play.

5.3 In the Bristol North Fringe, significant mode share increases were observed for bus use, cycling and walking. The high proportion of commute trips made by bicycle in this area is consistent with the focus on cycling measures within the West of England LSTF programme which followed on from previous DfT-funded investments in cycling via the Cycling City and Towns programme and Cycle Ambition Fund. LSTF-funded cycling measures attracted relatively high levels of awareness among both individuals surveyed and senior managers interviewed. In the Bristol North Fringe, these measures were identified as encouraging small numbers of people to cycle more often, or sustain their current cycling levels. Improvements to bus services, some funded by the LSTF, also coincided with growth in bus use and improved satisfaction among bus-users.

5.4 The results confirm findings from previous research that ‘pull factors’ are unlikely to bring about wider changes in travel behaviour without measures which also ‘push’ people into reducing their car-use. In the case of the Bristol North Fringe, the need to enforce parking

restraints was a key issue for many employers. Statistical analysis showed that reduction in car parking availability was the primary factor leading to reduced car alone commuting. Nonetheless, there was evidence from both surveys and interviews that LSTF measures assisted individuals in using alternatives to the car once they had been prompted to do by 'push factors' such as parking restraints, traffic congestion or personal factors. The same principle also applied to employers' engagement with sustainable transport issues, which tended to be prompted by a specific transport 'problem'.

5.5 In Slough, car use fell without noticeable pressures on parking availability. However, traffic congestion served as a 'push factor'. This was partly attributable to road works intended to bring about longer term improvements, such as the Slough Mass Rapid Transit system (SMaRT). Traffic disruption caused by roadworks was also a major issue in the Bristol North Fringe and Ports areas during the evaluation period. Similar to the situation in Slough, major works were underway in the Bristol area to install a new bus rapid transport system (Metrobus). In Slough, the most noticeable change in mode use was not from car to bus or bicycle, but to rail. The innovative GWR discount ticket scheme, supported but not directly funded by the LSTF, appeared to be instrumental in this regard, having been used by 10% of respondents to the Phase 2 employee survey. However, shuttle bus links from the station were in need of further improvement.

5.6 Conversely, commuters to the Maylands Business Park did not enjoy rail discounts, but did benefit from a new bus link from Hemel Hempstead rail station funded by the LSTF. The ML1 service was the LSTF intervention to have attracted the greatest awareness among employers. It was successful in widening labour market access and attracting workers to the business park who had not previously made the journey. Patronage increased after a strong marketing campaign, in which employers participated.

5.7 LSTF-supported bus services in the Bristol North Fringe were also successful in widening access from residential areas which had not previously been directly linked to the employers there, and in attracting commuters who had previously travelled by car. However neither of the Bristol North Fringe services proved to be commercially viable when LSTF subsidies were removed. The ML1 service to Maylands did, however, become commercially viable. Employers in both Maylands and the North Fringe saw value in more flexible (demand responsive) shuttle bus services, for both commuting and business travel.

5.8 The Bristol Ports area was at an earlier stage with regard to the sustainable transport offer, compared with other areas. In Phase 1, there were no direct bus (or rail) services into the employment area, and cycle/pedestrian access was generally considered unsafe. Infrastructure and service improvements were implemented only in the latter part of the evaluation period. Therefore, it is reasonable to conclude that any LSTF impacts may only emerge later.

Business performance

5.9 Senior managers believed that the economic impacts of LSTF and related measures were extremely difficult to quantify, but the majority of those interviewed saw commuter travel issues as an important consideration with regard to their business performance. Managers underlined that, essentially, they needed their staff to be able to get to work, and preferably

without undue stress or delay, as this negatively affected productivity and wellbeing. When this was threatened by factors which made car commuting more difficult, such as traffic congestion or the need to reduce parking, they saw alternative travel modes as essential.

5.10 Employers also wished to be able to recruit and retain the best people for the job, and when transport issues threatened this, they looked for appropriate solutions – including sustainable transport alternatives. Employers in the Bristol case study areas who were adversely affected by issues such as congestion, limits on parking and recruitment difficulties, tended to perceive a need for greater investment in sustainable transport. Faced with such pressures, they made their own investment in alternative transport options for staff, and were more willing to engage with the local authorities and other businesses on sustainable transport, which in turn meant that they saw more benefits from LSTF business engagement measures. Even without such pressures, employers tended to be in favour of sustainable transport options because they were seen to contribute to staff wellbeing, which indirectly benefitted the business. Some also saw a commitment to reducing carbon emissions from transport as part of a corporate environmental ethos. However, for some, sustainable commuting was a marginal concern in the context of a challenging economic environment.

5.11 Senior managers' overall assessment of the LSTF and related measures in the Bristol North Fringe was that these were welcome steps in the right direction, but were insufficient to have made a significant difference thus far. Those employers who had engaged actively with the LSTF saw publically funded investment as part of a collaboration in which they also bore a responsibility. These employers saw LSTF as useful 'leverage' for sustainable transport measures they wished to undertake themselves. LSTF grants could, for example, also lend weight to arguments within an organisation for investment in sustainable transport measures at a time when employers faced competing financial pressures. Overall, there was greater scepticism in the Bristol Ports area, where less LSTF investment had been seen, and in Maylands and Slough, where employers generally did not consider the LSTF to have offered direct benefits.

LSTF delivery

5.12 A key finding with regard to implementation of LSTF measures concerns the role of business networks. In the Bristol North Fringe and Ports areas, business networks were observed to have played an important part in developing and maintaining contacts with employers through which LSTF measures could be delivered by the local authority LSTF Business Engagement officers. Joint action through the networks gave employers an opportunity to help shape local transport policies and measures. Because the networks represented the employers' own interests, they were perceived by the local authorities as offering 'credibility gains' to the work undertaken by LSTF officers - thereby overcoming possible cynicism on the part of some employers towards their local councils. Similarly, in Slough, considerable assistance with implementation was undertaken by SEGRO, the owner of the business park. At Maylands, the Local Authority LSTF Business Engagement officer worked with the Maylands Partnership, a group of large employers, to promote the ML1 to employees and visitors; the ML1 marketing campaign was deemed successful in increasing patronage on the service.

Levels of LSTF investment

5.13 Finally, it should be noted that the level of LSTF investment in the West of England was higher than in Hertfordshire and Slough (West of England: £34m over 5 years; Hertfordshire: £11.7m over 4 years, Slough: £5m over 4 years). Within the West of England, the Bristol North Fringe had received greater LSTF investment by Phase 2 than the Bristol Ports area, and was also benefitting from a legacy of previous funding programmes. The different sizes of the three LSTF programmes reflected the variation in geographical spread and the content of each programme (with business engagement forming only one part). However, it is likely that the greater investment in the West of England contributed, at least in part, to the higher levels of modal shift and more positive attitudes among employers in the Bristol North Fringe than in the other three intervention areas. Slough also saw modal shift away from car-alone use - in this case towards rail. Although Slough had received a lower level of LSTF investment, the funding was concentrated in a smaller area, and the town also benefitted from a complementary rail discount scheme funded by the rail industry. Therefore, despite the multiple factors which contributed to the different outcomes in the four areas, the straight-forward issue of levels of investment should not be over-looked.

Future prospects

5.14 The findings suggest that the gains of the West of England LSTF programme in increasing the share of commuting by alternatives to driving alone can be sustained if promotion of sustainable transport initiatives is continued (for example, to ensure new staff are encouraged to try alternatives as staff turnover occurs) and can be built upon further if it is possible to invest substantially in sustainable transport infrastructure and services (such as the Metrobus system currently being constructed). The evidence from this study shows that reductions in driving alone are most likely to take place where sustainable transport promotion occurs alongside restraints to driving from parking space reductions and congestion.

5.15 In Slough, rail mode share may be increased further if discounts are retained whilst investments are made in solving the problem of ‘the last mile’ through provision of shuttle bus services. The completion of the SMaRT rapid transit system is anticipated to build upon previous modal shift.

5.16 In Maylands and Hatfield, changes in commute mode share over the evaluation period were not apparent, suggesting that use of alternatives to the car can be sustained at broadly current reported levels for each location but is unlikely to exhibit any significant growth in the near term in the absence of significant levels of additional funding and/or financing of new initiatives.