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ATKINS

Local Sustainable Transport Fund Case Study Evaluation – Impact of Sustainable Transport Measures on Town Centres

HEADLINE REPORT

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Table of contents

Chapter	Pages
Executive Summary	4
1. Introduction	8
1.1. Study purpose and context	8
1.2. Evaluation aims and research questions	8
1.3. High level programme and study timescales	9
2. Methodology	10
2.1. Introduction	10
2.2. Overall approach	10
2.3. Overview of evidence base	12
3. Case Study Descriptions	14
3.1. Introduction	14
3.2. Telford Case Study	14
3.3. Redhill Case Study	17
4. Key Findings - Outcomes	21
4.1. Introduction	21
4.2. Key Findings - Perceptions	22
4.3. Key Findings - Transport Behaviour	36
4.4. Key Findings - Retail Perception and Behaviour	51
4.5. Key Findings - Retail Economy	56
4.6. Updated logic maps	59
4.7. Consequences of not delivering the LSTF package	59
4.8. Transferability of findings	60
4.9. Lessons learned	60
Appendices	63
Appendix A Detailed logic maps setting out <u>intended</u> theory of change (prior to implementation)	
Appendix B Detailed logic maps setting out <u>observed</u> change (post implementation)	
Supporting Documents	
A. Supporting Technical Appendices	
B. Telford Case Study – Maps and Photos Location of scheme elements. Before and after photos.	
C. Redhill Case Study – Maps and Photos Location of scheme elements. Before and after photos.	

Executive Summary

Study purpose and context

The 2011 White Paper, 'Creating growth, cutting carbon', set out a vision for a sustainable local transport system to support the economy and reduce carbon emissions. A total of £600 million was made available through the Department for Transport's (DfT's) Local Sustainable Transport Fund (LSTF) to deliver this vision, with funding delivered to 96 sustainable transport packages between 2011 and 2015.

This particular study is one of four detailed case study research projects undertaken to address gaps in the research evidence regarding the benefits of sustainable transport measures. The overall aim of the research was to **determine the impact of sustainable transport measures on town centres, and whether LSTF type initiatives help town centres develop economically**, using Redhill and Telford as case studies.

Both Telford and Redhill were the focus for LSTF projects which sought to support the economic vitality and growth of town centres. Both towns:

- are medium sized centres of sub-regional importance;
- comprise a defined pedestrianised retail area surrounded by a major ring road or strategic route, which constrained growth of the town centre economy; and
- are the focus for significant wider regeneration investment.

The Telford scheme (£9.6 million LSTF funding, predominantly capital) comprised a package of infrastructure measures aimed at transforming the three lane busy one way inner ring road known as the 'Box Road' to enable expansion in the town centre. The scheme also included a range of behaviour initiatives (infrastructure, travel planning and promotion) intended to target the largest trip generators within Telford, including the town centre, Town Park, rail station, major employers, and schools.

The Redhill scheme (£4.1 million LSTF funding, ~40% capital, 60% revenue) comprised a mix of public realm, wayfinding, walking / cycling routes, and bus enhancements primarily in the town centre and the northern corridor; and supporting travel information, marketing, and business and community engagement measures, to promote sustainable transport and tackle congestion.

The research was undertaken by Atkins Limited and Accent Market Research Agency, working with Surrey County Council and Telford & Wrekin Council. It addresses evidence gaps regarding the role of sustainable transport measures in influencing transport perceptions and behaviour, and the impact of these types of interventions on the retail economy of a town centre. The report is intended to aid local practitioners in designing and implementing sustainable transport measures in a town centre context. The evidence will also be used by the Department for Transport to inform future policy making and demonstrate to HM Treasury the value that has been derived from the LSTF programme of investment.

Methodology

The evaluation is structured around a 'before' and 'after' comparison of outcomes, informed by a generic 'theory of change' model setting out the relationship between scheme development, implementation, and change on the ground; along with consideration of barriers and enablers to delivery, and wider contextual factors. The methodology adopted is more robust than the majority of existing evaluations in this area, which typically rely on retrospective surveys.

The key evidence sources in each location comprised:

- Town centre user questionnaires (before and after)
- Residents panel questionnaires (before and after)
- Focus groups (before and after)
- Retailer interviews (after only)
- Stakeholder interviews (before, interim, after) with the LSTF Delivery Team, Local Authority Economic Development Officers, Shopping Centre Managers, local interest representatives, and key developers / trip attractors

- Pedestrian and cycle video counts in each of the town centres
- Secondary data from Outcome Monitoring Reports prepared by each of the local authorities.

The evidence collected tests three broad hypotheses:

- A. LSTF investment within and on key corridors into the town centre has improved perceptions about access by sustainable modes, in terms of ease of journey, attractiveness of environment, safety and security.
- B. Change (improvement) in perceptions regarding access by sustainable modes is associated with an overall change in mode use (greater use of sustainable modes).
- C. Change (improvement) in perceptions regarding access by sustainable modes is associated with improved perceptions regarding the attractiveness of the town centre as a retail, service and leisure destination; which leads to an increase in frequency of visits, and strengthens the retail economy.

Key findings

The overall aim of the research is to determine the impact of sustainable transport measures on town centres. The evidence suggests that the LSTF initiatives in Telford and Redhill were generally viewed positively, and improved perceptions about town centre accessibility. The initiatives also improved perceptions about the attractiveness of the town centre as a retail, service, and leisure destination, and had a positive impact on the town centre retail economy, to varying degrees.

A. Changes in perceptions regarding access by sustainable modes

The evidence suggests that the majority of both residents and town centre users were aware of the transformation to the public realm, the reallocation of road space in favour of active modes and the measures to reduce severance. The scale of the improvements in and around both centres was substantial, involving a long construction period in a central location, and significant disruption to traveller routines; and in Telford the works were linked to major multimillion pound investment in the retail centre which attracted significant media coverage.

In both Telford and Redhill, LSTF-funded changes within the town centre were generally viewed positively – more so in Telford (where the physical changes to the environment were substantial and very visible) than in Redhill (where investment comprised a more balanced mix of capital and revenue initiatives).

However, there is no evidence to suggest that corridor-based initiatives in Redhill¹ had a stronger impact on perceptions in the Northern Corridor (where most of the corridor-based initiatives were focused), compared with elsewhere in Redhill. This may reflect the focus on capital works in the town centre, and the postponement of the London Road Cycle Scheme² which also meant that corridor-focused marketing and promotion initiatives were delivered on a smaller scale than anticipated. The corridor improvements were less visible than those in town centre locations and less disruptive during the construction period; and the size of the population impacted much smaller.

In terms of understanding the impact of LSTF interventions on actual travel behaviour, it is important to understand how these positive perceptions influenced perceptions about general levels of accessibility relating to the whole journey. Looking at this issue, the results were more mixed and do not fully reflect the positive LSTF-related perceptions - although there was some evidence of improved perceptions regarding:

- walking in both locations (with the % describing access as 'easy' increasing by up to 12 percentage points in Telford and 8 percentage points in Redhill between the before and after surveys); and
- cycling in Telford (with the % describing access as 'easy' increasing by up to 17 percentage points).

¹ Including upgrades to cycle and walking routes, bus stop enhancements, and the installation of real time passenger information screens at East Surry College and East Surrey Hospital.

² This would have been a very visible scheme which would have addressed issues on one of the key routes into Redhill.

Poor perceptions of whole journey accessibility by sustainable modes and lack of familiarity with the options available, along with deficiencies in the wider networks, are likely to continue to be a barrier to increased use of these modes.

B. Change in travel behaviour and use of sustainable modes

It is often suggested that relatively modest investments designed to improve the attractiveness of walking and cycling can have a significant impact on mode split. These results did not find support for this conclusion, at least over the short term (six month) and in these circumstances.

The above section shows that improvements in perceptions of general whole journey accessibility are primarily confined to an increase in the % describing access by walking as 'easy' or 'very easy' of up to 12 percentage points in Telford and 8 percentage points in Redhill. The impact on mode use is therefore likely to be small.

The study finds no evidence that a significant proportion of survey respondents wholly transferred to non-car modes, or that a higher proportion were using sustainable modes, six months post implementation. In Telford, the Box Road changes were perceived to have made it quicker and easier to drive to town centre destinations, and this appears to have encouraged a broader proportion of visitors from within Telford and beyond, to drive. Similarly, at the time of the after surveys, Redhill appeared to be attracting new visitors who saw the town centre as a more attractive destination than previously, but may have been less familiar with the environment and transport options available and therefore more likely to travel by car.

Nevertheless, survey evidence shows net increases in frequency of use of bus, train, and especially walking, amongst users of these modes - as well as increased car use. The results for both locations also show that the biggest change was in the frequency of walking trips; which is consistent with the small improvement in perceptions regarding access by foot, identified above. The extent to which the reported increases in use was because respondents were making more trips, or because they had changed modes for some trips, is unclear, but is likely to have been due to a combination of these factors.

There is evidence that some of this change can be attributed to LSTF investment. Regression analysis undertaken for both case studies shows that:

- those who perceived LSTF interventions to have had a positive impact on town centre accessibility (across all modes, including car) were more likely to have reported using sustainable modes more often as a result of the recent transport investment; and
- those who perceived the changes to have been more effective in delivering the intended outcomes were more likely to have reported using sustainable modes more often as a result of the recent transport investment.

However, there is no evidence to suggest that additional investment in the Northern Corridor led to greater use of sustainable modes than elsewhere in Redhill.

These results are consistent with those of a recent study to evaluate the effects of the Connect2³ initiative, which measured the impact of new infrastructure at 79 sites across the UK, on walking, cycling, and physical activity levels. The study found that infrastructure interventions may increase walking and cycling (i.e. frequency of use) when delivered in high 'doses'; but smaller interventions may be used without necessarily increasing total activity. Lack of continuity, segregation, consistency and legibility are all factors which effectively reduce the effectiveness of the intervention, and hence the scale of the likely benefits.

In Redhill, one key investment in the Northern Corridor had not taken place at the time of the after survey, and this is expected to have reduced the effectiveness of the LSTF package and limited the potential for mode shift (and the value of the counterfactual analysis).

In both locations there were also a range of factors within the town centre which appear to have reduced the effectiveness of the walking and cycling infrastructure. Residents and town centre users in both towns indicated that the changes to the network have generally improved the flow of vehicles and made it more

³ <https://travelwest.info/project/ee-walking-and-cycling-build-it-and-will-they-come>

attractive to drive to the centre; while in Telford a new 600 space multi-storey car park opened in May 2014, associated with the new shopping centre – encouraging more travel from further afield by car.

The results suggest that in order to achieve significant mode shift in the short-term, a stronger emphasis on improvement along the corridors in question, increased awareness of the benefits of these routes for walking and cycling, and substantial demand management was probably required.

Finally, for this study, the after surveys were undertaken six months post implementation (reflecting the funding timescale for the study), and did not allow time for habits to be broken and behaviour changes to evolve over time.

C(i). Perceptions regarding the attractiveness of the town centre as a retail, service and leisure destination, and frequency of visits.

In both locations, transport and environment changes in the town centre were identified by at least half of survey respondents, as having helped promote the town centre as a destination. However, in both cases, this factor was secondary to wider investment in the leisure offering within the town centre - the Southwater Development and Town Park improvements in Telford and the Memorial Park in Redhill.

In Telford, there was some evidence that users of all modes were making more frequent journeys, and more visitors were travelling from further afield. This was in contrast to a stagnant or declining trend in the preceding years. LSTF investment appears to have played a role in this, although improvements in the retail and leisure offering appear to have been the main cause.

In Redhill, the LSTF investment appears to have encouraged some visitors to make more trips – ‘improvement in ease of travelling into the town centre’ was identified as a key reason by 26% of town centre users visiting more frequently. However; it is unclear whether frequency increased overall. This is probably because the scale of investment was much smaller than in Telford, the visible transformation less apparent, and there had not yet been a similar step change in the retail / leisure offering – if anything, it appears to have continued to deteriorate.

The research has not identified any causal link between mode use and length of stay.

C(ii). Economic impacts

In both locations, the LSTF and associated investment was believed to have had a positive impact on the retail economy, in the short-term – more so in Telford (where the changes are more visible and were delivered at the same time as a major leisure development).

In Telford, the role of the LSTF investment in improving the quality of the town centre environment and perceptions about accessibility was very much part of the mix of factors driving retail confidence and growth in the town centre; and was identified as an important enabler of recent and planned retail / leisure development. The infrastructure improvements are expected to become more important as new developments are completed - in terms of providing sustainable access and creating a more conventional and integrated town centre.

In Redhill, retailers were less able to identify short-term tangible benefits of the LSTF investment, but the dominant view was that the retail economy would be worse if the investment hadn't taken place. In addition, the investment of government funding in the town, along with visible changes on the ground, was felt to have sent a positive message to developers and provided reassurance that Redhill is the right place to invest. The real benefits for the economy are expected to be realised over time.

1. Introduction

1.1. Study purpose and context

The 2011 White Paper, 'Creating growth, cutting carbon', set out a vision for a sustainable local transport system to support the economy and reduce carbon emissions. A total of £600 million was made available through the Department for Transport's (DfT's) Local Sustainable Transport Fund (LSTF) to deliver this vision. In total, DfT awarded funding to 96 sustainable transport packages from 77 local authorities between 2011 and 2015. Along with local contributions provided by all funded project teams, over £1 billion was invested in local sustainable travel.

A proportionate approach to evaluating the LSTF programme was developed, involving Annual Output Reports (produced by all 77 project teams) and Outcome Monitoring Reports (produced by project teams delivering larger projects). In addition, a small number thematic case studies were used to inform detailed research projects on specific gaps in the evidence base regarding sustainable transport outcomes.

This particular study is one of four detailed research projects undertaken. The overall aim of the research is to **determine the impact of sustainable transport measures on town centres, and whether LSTF initiatives have helped town centres develop economically**, using Redhill and Telford as case studies.

Both Telford and Redhill were the focus for LSTF projects which sought to support the economic vitality and growth of town centres. Both towns:

- are medium sized centres of sub-regional importance;
- comprise a defined pedestrianised retail area surrounded by a major ring road or strategic route which, at the time the LSTF was launched, was constraining growth of the town centre economy; and
- are the focus for significant wider regeneration investment.

In addition, the level of LSTF-related investment in both locations is substantial – £9.6 million in Telford and £4.1 million in Redhill – and changes in transport outcomes (perceptions and behaviour) were expected to be significant.

The research was undertaken by **Atkins Limited** and **Accent Market Research Agency**, working with **Surrey County Council** and **Telford & Wrekin Council**. The report is intended to aid local practitioners in designing and implementing sustainable transport measures in a town centre context. The evidence will also be used by the Department for Transport to inform future policy making and demonstrate to HM Treasury the value that has been derived from the LSTF programme of investment.

1.2. Evaluation aims and research questions

At the start of the study, the Department for Transport identified the following research questions to be addressed:

1. a. Has the perception of town centre accessibility improved?
b. Do town centre users perceive that the LSTF measures have increased the attractiveness of walking and cycling into the town?
2. a. What modal shift, away from the car, has been generated in town centres as a result of the LSTF programme?
b. Has the number of people walking and cycling into / within the town increased? If so, on what days and during what time of the day has the change occurred?
3. a. Have changes in transport perceptions resulted in town centre users changing where they choose to shop and access services?
b. What impact has the use of sustainable modes had on the dwell time of those visiting the town centre?
4. a. What positive economic impacts have LSTF measures had on town centre activities and retail businesses, within the timescales of the research? Has the footfall increased? Has retail business confidence increased as a result of LSTF initiatives thereby helping to retain or attract businesses?

1.3. High level programme and study timescales

Work to develop an evaluation approach began in Spring 2013, with Atkins involvement commencing in November 2013.

Baseline ('before') surveys were undertaken in March to May 2014, at the end of Year 2 of the LSTF period. While this was late in the overall LSTF timeframe, the majority of implementation in both Telford and Redhill focused on Year 3. Baseline data therefore reflects an 'early implementation scenario', close to the 'before' situation.

Post implementation ('after') evidence was primarily collected between September and November 2015; six to nine months post investment, to reflect the availability of funding for the study. **The study therefore focused on short term outcomes rather than medium to longer term impacts.**

2. Methodology

2.1. Introduction

This chapter describes the study methodology, including the overall approach and the evidence base. Further information, including data limitations, is provided in the **Supporting Technical Appendices**.

2.2. Overall approach

Before and after study, informed by a Theory of Change model and contributory analysis

The evaluation is structured around a 'before' and 'after' comparison of outcomes, informed by a 'theory of change' model (Figure 1). This methodology is more robust than the majority of existing evaluations in this area, which typically rely on retrospective surveys.

The 'theory of change' describes the *assumed* process or logic by which LSTF investment in Redhill and Telford was expected to deliver changes in transport perceptions and behaviour, and associated retail benefits. In doing so, it sets out the hypotheses to be 'tested' in order to address the research questions. It is based on a core input-output-outcome/impact model (which represents the relationship between scheme development, implementation, and change on the ground); along with consideration of barriers and enablers to delivery, and wider contextual factors.

The theory of change model was used to identify data collection requirements, inform questionnaire design and topic guides, and define the structure of this report. The evidence collected tests three broad hypotheses:

- A. LSTF investment within and on key corridors into the town centre has improved perceptions about access by sustainable modes, in terms of ease of journey, attractiveness of environment, safety and security. (See **Chapter 4.2** for key findings)
- B. Change (improvement) in perceptions regarding access by sustainable modes is associated with an overall change in mode use (greater use of sustainable modes). (See **Chapter 4.3** for key findings)
- C. Change (improvement) in perceptions regarding access by sustainable modes is associated with improved perceptions regarding the attractiveness of the town centre as a retail, service and leisure destination; which leads to an increase in frequency of visits, and strengthens the retail economy. (See **Chapter 4.4 and 4.5** for key findings)

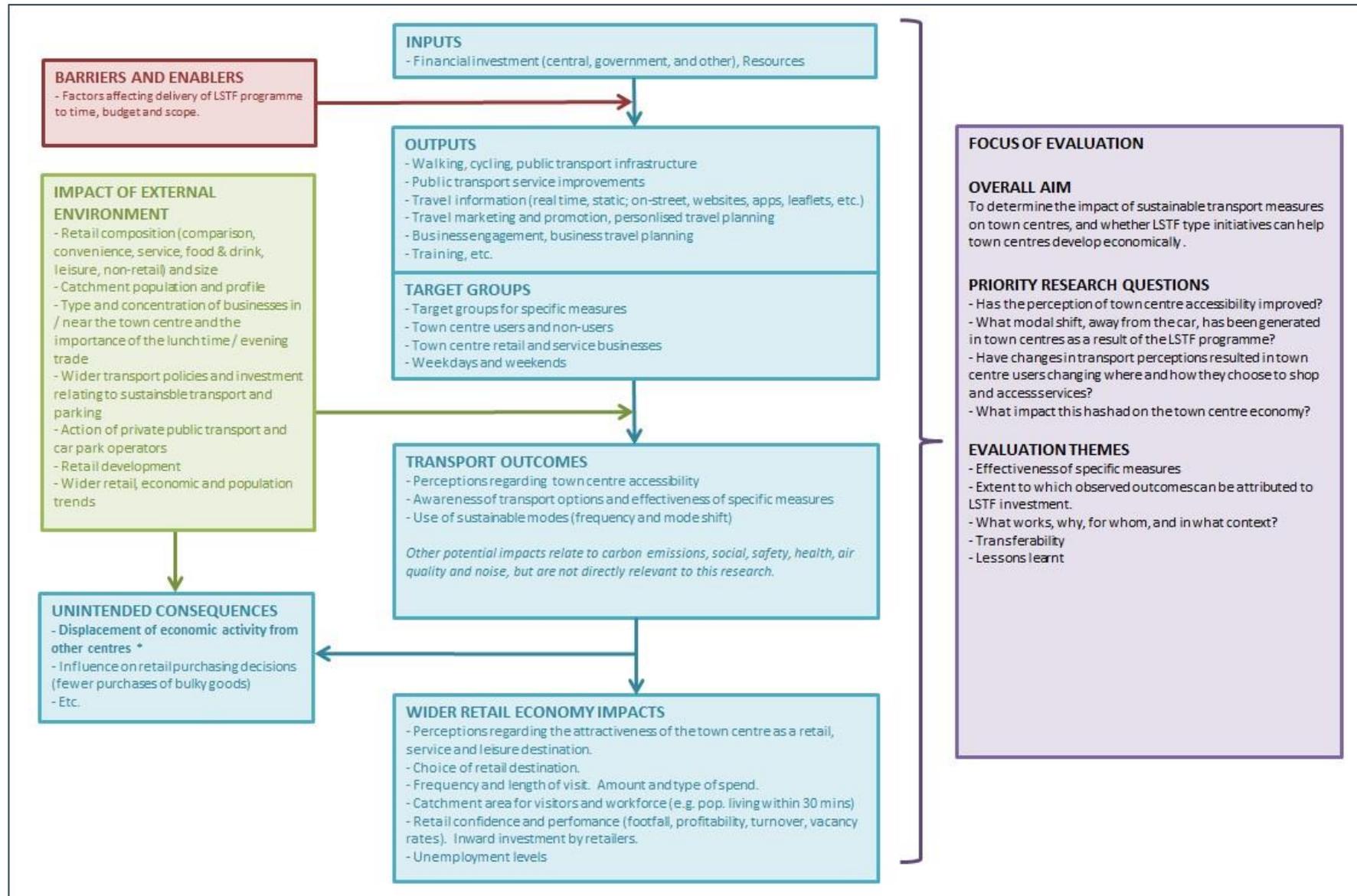
These hypotheses are examined within the context of the wider environment; alongside an understanding of the rationale and objectives for the LSTF investment, and the extent to which the schemes were delivered as intended, in terms of scope, programme and budget (**Chapter 3**).

The extent to which change can be attributed to LSTF investment is based on:

- questions about the impact of specific LSTF elements in the questionnaires and topic guides;
- statistical analysis of the town centre questionnaire results, including regression analysis to identify the relative influence of LSTF investment alongside other socio-demographic, behavioural and attitudinal variables – recognising that this approach identifies levels of correlation rather than causality;
- corridor-based counterfactual analysis in Redhill (discussed below); and
- consideration of the relative contribution of other drivers within the wider environment.

However, it is recognised that isolating the specific impact of LSTF investment from the influence of the wider environment (including town centre regeneration, other transport investment, and broader economic trends) is particularly challenging, and that any conclusions drawn are indicative, based on the body of evidence available.

Figure 1. Theory of Change Evaluation Framework



Counterfactual approach

Within Redhill, the LSTF measures comprised town centre and area-wide interventions aimed at benefitting residents across the area; and walking and cycling investment designed to provide added benefits for residents to the north of the town centre.

Residents living in the Northern Corridor were therefore expected to experience a higher level of exposure to LSTF measures than those living elsewhere - *although, in practice, the investment was lower than anticipated due to the postponement of the London Road cycle scheme.*

This provided the opportunity for a corridor-based comparison between areas of high and lower exposure to LSTF measures. Consideration was given to using other town centres as controls, but was rejected due to difficulties finding genuine comparators, and the likelihood of the difference in contextual environments overshadowing any change due to LSTF investment.

2.3. Overview of evidence base

The evidence base for the research comprises a mix of quantitative and qualitative sources, which allow us to:

- identify a range of viewpoints and alternative explanations;
- test for consistency and divergence in the emerging findings;
- undertake in-depth investigation to identify causes behind conflicting evidence and explanations; and
- identify a best fit answer based on the range of evidence available.

The key evidence sources are summarised below:

- **Town centre user questionnaires (before and after)** – On-street surveys in the main retail areas to collect evidence directly from town centre users, including local residents and those from further afield. In total, 1434 responses were achieved in the main Telford Shopping Centre (734 *before*, 704 *after*) and 1384 responses in Redhill (659 *before*, 725 *after*)⁴. In addition, a further 235 interviews were undertaken in the after period only, in the newly opened Southwater retail development in Telford. This now forms a key part of the town centre, with access facilitated by the LSTF investment.

No weighting factors were applied to the data, as there was no robust evidence available on the age and gender characteristics of all town centre users. Furthermore, the use of weights would mean that any 'real' change in the age-gender profile of shopping centre users (e.g. as a result of the opening of the Southwater development in Telford) would not be reflected.

Confidence intervals were calculated to determine whether the differences in the before and after samples represent a statistically significant difference in the wider population. Statistically significant differences are marked with an asterisk (*) or 'sig' in the rest of the report.

- **Residents panel questionnaires (before and after)** – Telephone surveys focused on residents living in the built-up urban areas surrounding each of the town centres (generally within 5kms in Telford and within 3kms in Redhill), who were most likely to change their travel behaviour as a result of the LSTF investment.

The survey was designed to collect longitudinal data, with respondents interviewed in the before survey re-contacted in the after phase, where appropriate permission was given. The number of retained responses achieved was 241 in Telford and 335 in Redhill. The level of attrition between the before and after surveys was much higher than expected in both locations (59% of the original sample in Telford, and 62% in Redhill), due to a high number of refusals and 'telephone numbers not recognised' / 'wrong numbers'. This resulted in a smaller retained sample in each location than anticipated, but still sufficient to provide useful results.

⁴ For references, a sample size of 600 in either the before or after sample ensures a maximum margin of error for a given proportion response rate of $\pm 4\%$ (at the 95% confidence level). In other words, if the proportion of the sample travelling by car is 50%, then there is a 95% likelihood that the true proportion within the total population is within $\pm 4\%$ (46% to 54%).

The data was weighted using a combination of:

- cross-sectional weights (derived from the census) to account for under and over-representation of certain age-gender groups in the initial before sample, and
- non-response bias weights to account for the loss of some respondents during the after wave of surveys (calculated from identified socio-demographic and behavioural predictors of non-response).

The longitudinal panel approach measures 'real' changes in travel behaviour, attitudes, and town centre use, however large or small; rather than change based on comparison of observations pre and post implementation from different samples. Any changes reported represent a real change across the sample of respondents interviewed, weighted to be representative of the wider population.

Nevertheless, the residents' panel still represents a sample of the wider population, and confidence intervals were therefore calculated to understand the likely margin of error relative to the true population⁵.

- **Focus groups (before and after)** – Two groups undertaken in each location in both the before and after phases. In the before phase, separate groups were held with frequent and less frequent town centre users, living in Telford or Redhill. In the after phase, one group was recruited from the town centre user survey. This comprised respondents with positive or negative (rather than neutral) views about the LSTF measures, and those reporting a change in perceptions of accessibility or change in mode use. The second group was recruited separately and included local residents aged under 40, who were under-represented in the town centre and residents questionnaire samples and in the before focus groups.
- **Retailer surveys (after only)** – In-depth telephone interviews were undertaken with a cross-section of retailers in each town centre, during November and December 2015. Twenty interviews were undertaken in each location, with quotas set for size of business, type of business and location.
- **Stakeholder interviews (before, interim, after)** – Face-to-face in-depth interviews were undertaken with the following key stakeholders in each location:
 - LSTF Delivery Team
 - Local Authority Economic Development Officers
 - Shopping Centre Managers
 - Local interest representatives (Local Town Clerks in Telford; Pedestrian Forum in Redhill)
 - Key developers / trip attractors (Southwater Event Group in Telford).

Interviews were undertaken

- before the main phase of implementation – to understand the drivers behind the scheme, the development and delivery process and the expected outcomes;
 - at the end of the LSTF funding period (after) – to understand the extent to which the intended scheme was delivered on the ground, to obtain early views on outcomes, and to identify changes in the external environment which may have impacted on the effectiveness of the scheme; and
 - nine to twelve months post implementation (after) – to further explore the above issues.
- **Pedestrian and cycle video counts** – Undertaken on the approaches to each of the town centres, in May 2014 (prior to the commencement of the main LSTF implementation), and September 2015 (six months after the completion of the majority of capital works in each location) – considered to be broadly comparable months. Both periods covered 5 weekdays and 2 Saturdays, with counts undertaken between 9am and 6pm to capture those visiting the town centres for retail, service or leisure purposes.
 - **Secondary data** – The above data sources have been supplemented with secondary data from the Outcome Monitoring Reports⁶ prepared by each of the local authorities, and data provided by the above stakeholders.

⁵ For reference, a sample size of 300 in either the before or after sample ensures a maximum margin of error for a given proportion response rate of $\pm 5.7\%$ (at the 95% confidence level), when compared to the true population.

⁶ All large LSTF project teams were expected to develop and deliver bespoke monitoring programmes to track changes in key outcome metrics influencing economic growth and carbon. Typical metrics include mode shift, increased bus reliability and patronage, increased number of cyclists and cycle trips, vehicle flow, and change in carbon emissions.

3. Case Study Descriptions

3.1. Introduction

This chapter sets out:

- the background and rationale for each of the LSTF packages (i.e. the **Inputs** to the process);
- the extent to which the packages were delivered to time, budget and quality (i.e. the **Outputs**);
- the potential role of the **External Environment** in enhancing or constraining outcomes.

Further details are provided in the **Supporting Technical Appendices**. The location of scheme elements and before and after photos are included in the separate **Case Study – Maps and Photos Reports**. Detailed logic maps setting out the intended theory of change for each of the case studies (prior to implementation) are presented in **Appendix A** of this document.

3.2. Telford Case Study

3.2.1. Description of scheme area

Telford is an important sub-regional centre within the West Midlands. It was developed as a 'new town' in the 1960s and 70s, and the associated car-orientated philosophy strongly influenced the towns' travel culture and transport infrastructure.

The focus of activity in the town centre is the Telford Shopping Centre, an indoor shopping mall with 92,000 sq.m retail floorspace and home to 160 'high street' outlets. It is located on a strongly defined square of land, surrounded by surface car parking and, until recently, a three lane busy one way inner ring road known as the 'Box Road' (comprising Coach Central, Grange Central, Lawn Central, Woodhouse Central – see Figure 2). The 'Box Road' forms a major through route and provides direct access to the town centre.

3.2.2. LSTF package and rationale

In 2011, Telford & Wrekin Council were successful in receiving £9.6m funding for two packages of measures to support delivery of the Central Telford Area Action Plan:

- Telford Town Centre Transport Scheme (the Box Road Scheme) – A package of infrastructure measures aimed at removing the barrier to expansion in the existing town centre (Figure 2).
- A Key Component Package of supporting travel behaviour initiatives, intended to target the largest trip generators within Telford. This included:
 - improvements to two key cycle routes into the town centre (the 14 mile off-road Silkin Way Multi-User Route and the NCN55 linking Telford and Newport) and the 600m walking and cycling link between the rail station and the town centre;
 - education and training to support walking and cycling to school; and
 - initiatives to support employers wishing to promote sustainable transport.

Together the packages were intended to transform the town centre environment, reduce the dominance of the car around the Box Road, create a more pedestrian and cycle-friendly town centre, encourage greater use of sustainable modes for trips to the centre and other destinations, and create a transport network to support short and long term development within the town centre.

3.2.3. LSTF delivery

The two LSTF packages were both largely delivered as intended, in terms of scope, programme and spend. Inevitably, the works to the Box Road caused considerable disruption to traffic between April 2014 and April 2015, and are believed to have deterred some visitors.

Total spend across the two packages was £15.7 million, comprising £9.6 million LSTF funding, £2.2m of Highways Agency Pinch Point Funding, £1.1m of DfT Local Pinch Point Funding, £750k of ERDF funding, and £2m of local contributions including Council and developer funding (LSTF Outcome Monitoring Report).

Figure 2. Telford Town Centre Transport Scheme (the Box Road Scheme)



3.2.4. Wider context (external environment)

Town centre regeneration – The LSTF investment coincided with significant development and investment in the town centre – expansion of the Telford International Conference Centre (pre-LSTF), refurbishment of the Ice Rink (2013), a new Asda on Coach Central (February 2014), Phase 1 of the Southwater development (Autumn 2014)⁷, and improvements to the Town Park. *These developments increased footfall in the Southwater area, and an evening economy emerged with footfall extending throughout the evening*⁸.



Southwater
Development,
April 2015

Change in use of the town centre – There were significant changes in the profile of visitors and use of the town centre over the course of the research. The town centre user survey shows that, at the time of the after surveys, users were more likely to be travelling from further afield, combining shopping and leisure trips (visiting both the Telford Shopping Centre and the Southwater development), travelling as a group, and spending more than 2 hours in the town centre. Those living in Telford were visiting more frequently than previously. *These factors are all likely to have influenced perceptions regarding transport accessibility and propensity to use sustainable modes.*

Wider transport context – There were also a number of changes to the transport network which *are likely to have affected town centre mode share:*

- A new 600 space multi-storey car-park opened in May 2014 on the Southwater site to cater for demand associated with the above development.
- The main bus operator made significant changes across its network in July 2015 (following completion of the LSTF package, but prior to the questionnaire surveys, retailer interviews and focus groups). Some routes were changed or cut, and some frequencies were reduced.
- Improvements to Forge and Malinslee Roundabouts to remove through traffic from the town centre (part of the original LSTF bid, but funded separately through the Highways Agency Pinch Point Fund and DfT Local Pinch Point Fund programmes).

Evidence from the DfT's Active People Survey shows no significant change in levels of walking and cycling (3 times as week) within Telford (2012/13-2013/14), *suggesting that there would have been no change in use of these modes without the LSTF investment.* At the regional level there was a significant increase in walking (4.2%), but not cycling.

Wider economic trends – Over the period of LSTF investment (2012-2015), there was a general improvement in the borough wide economy, with more business, more jobs and fewer people out of work, increased Gross Value Added and higher employee earnings.⁹ *This is likely to have resulted in an increase in the number of trips to the town centre by all modes.*

⁷ This represented a significant expansion to the town centre offering comprising a range of leisure and community facilities.

⁸ Internal paper provided by T&W Destination Programme Team (April 2015).

⁹ LSTF Outcome Monitoring Report (T&W Council, March 2016).

3.3. Redhill Case Study

3.3.1. Description of scheme area

Redhill town centre is identified as a regional retail hub in Surrey, in part due to its excellent road and public transport connections. The town's strategic location close to Gatwick, the M25 and M23 also means that there are a number of large employers close to the town centre.

Retail activity is focussed around the main pedestrianised High Street which runs from north to south, and Station Road running east to west, with a diverse range of frontages; and The Belfry indoor mall (with over 50 'high street' outlets). The town centre is surrounded by a ring road comprising the A23 and A25, important strategic routes catering for north-south and east-west movements across the region.

At the time the LSTF funding was announced (2011), the town centre was felt to be in decline, with a poor quality built and public urban environment, a limited retail offering focused on lower value operations, a lack of food and leisure floorspace, a high level of vacant units (more than double that of the neighbouring town centres of Reigate and Banstead), and a weak evening economy, especially for young people. The town has good rail links to London, Gatwick and Brighton, which results in a large commuter population; however, the poor evening economy discourages commuters from returning to Redhill for social and leisure activities.

Severance caused by the A23/A25 one way system has historically isolated the town centre from the rail station and neighbouring residential areas, acting as a deterrent to the regeneration of the town, while severe traffic congestion and/or poor accessibility created barriers to economic growth.

3.3.2. LSTF package and rationale

In 2011, Surrey County Council was successful in securing £18 million from the LSTF for its Travel SMART programme, comprising capital improvements and behaviour change initiatives in three of Surrey's largest towns (Guildford, Redhill, and Woking) to promote sustainable transport and tackle congestion.

In Redhill the proposed measures were focused on the town centre, to promote retail and service activities and support the significant regeneration proposed for the town. The specific objectives were:

- To maximise local regeneration benefits from the Redhill town centre redevelopment by improving public transport, walking and cycling connections between Redhill, Reigate and the surrounding area.
- To improve accessibility from areas of deprivation (including Merstham) to emerging job opportunities, in support of Redhill town centre regeneration.
- To reduce severance between Redhill rail station, town centre and bus station, by improving provision for pedestrians and cyclists.
- To help tackle congestion by improving information for car parking and freight deliveries.
- To improve the permeability of Redhill town centre with clear signing.

Intended LSTF measures included:

- Cycle and walking improvements in the Town Centre (*delivery exceeded expectations*)
- Variable message signing in the Town Centre (*not delivered*)
- Cycle and walking improvements in Northern Corridor (*one key element still outstanding at the end of the LSTF period*)
- Bus corridor improvements and multi-modal access points (*delivered broadly as planned*)
- Smart-ticketing (*superseded by the keyGo smartcard initiative introduced by Southern Railways and local bus operators*)
- Travel information – journey planning website and walking / cycling maps (*some elements changed, but not felt to have impacted substantially on outcomes*)
- Active travel marketing and promotion (*delivered on a smaller scale, but proportionate to scale of infrastructure improvements*)
- Business engagement activities (*underspend on allocated funding*)
- Community Transport Hubs and Community Infrastructure Fund targeted at residents in Redhill West, a deprived ward close to the centre of Redhill, and Merstham in the Northern Corridor (*delivered*)

Figure 3. Redhill LSTF and Balanced Network Schemes - town centre measures



One-way system changed to two way operation. Carriageway narrowed to allow paths to be widened. Continuous shared pedestrian and cycleway provided around the town centre.



Shared cycleway through Memorial Park, and continuing north on London Road (not yet delivered).



Cromwell Road / Marketfield Road Junction - Access road to Marketfield Car Park paved. Pedestrian island removed. Shared cycling and walking route provided.



Footway widened outside the station. Guard rail removed. Roundabout made smaller to improve line of sight between station and town centre.



Station Road East pedestrianised.



- Cycle Track
- Town Centre Boundary
- Developments in progress (Site A = Marketfield Way (S); Site C = Sainsburys (N))

Supporting measures included:

- junction / network improvements to the ring road around the town centre and conversion to two-way operation (*funding received for £4 million Balanced Network Scheme in May 2013*); and
- partnership working with JobCentrePlus to up-skill local residents.

The above measures were intended to provide local residents with the right skills and provide the transport infrastructure needed to enable new jobs to be accessed cheaply and safely (on foot, by cycle, or by bus).

3.3.3. LSTF delivery

The LSTF programme for Redhill was largely delivered as intended, in terms of scope and spend.

Delivery exceeded expectations for some elements in the town centre, as a result of funding being secured for the Balanced Network Scheme. This enabled more ambitious cycling and walking improvements to the ring road to be delivered, including a continuous shared cycleway around the town centre. A few elements weren't delivered: car park variable message signing (due to the construction of the Redhill Balanced Network Scheme which changed traffic flow within the town centre and addressed many of the issues the initiative was intended to solve); the proposed Surrey-wide smart ticketing scheme (as Southern Railways launched their own smartcard scheme during the LSTF period); and the cycle lane on London Road (postponed, awaiting availability of developer contributions). **The delay to the London Road cycle scheme is expected to have reduced the scale of the cycling outcomes achieved at the time of the after surveys, particularly in the northern corridor.**

There was some modification to the revenue programme as certain capital elements (particularly those linked with the Balanced Network Scheme) took longer to complete. As a result, revenue funding was backloaded, as capital measures were intended to support the revenue-based behavioural change initiatives.

Inevitably, the LSTF / Balanced Network works caused significant traffic disruption, particularly in the second half of 2014/15, which is expected to have deterred some visitors from making trips to the town centre.

3.3.4. Wider context (external environment)

Town centre regeneration – At the time of the LSTF investment, there were five major opportunity sites in the town centre, expected to create new, lower paid jobs in the retail and leisure sector. Works associated with the re-development of Sainsbury's (Site C) commenced in Summer 2014, and Marketfield Car Park (Site A) closed in 2015 (both during the period between the two survey phases). In addition, the Memorial Park received a £1.4 million makeover in summer 2014. *This development is not expected to have had a substantial impact on frequency and use of the town centre, perceptions of accessibility, or travel patterns over the period of the research; although visitor numbers to the town centre park are likely to have increased.*

Change in use of the town centre – There was a significant change in the profile of town centre users following the LSTF / Balanced Network Scheme investment. Those visiting the town centre at the time of the after survey were more likely to be female, more likely to be aged under 30 (and less likely to be over 60); and more likely to be in full-time work – *all differences which may have influenced perceptions regarding accessibility*. However, there was *no significant change in other characteristics affecting travel behaviour*: distance travelled; access to a car or van; and size of travel group. Almost three-quarters of visitors live within 5kms, i.e. within walking / cycling distance of the town centre. The after survey shows an increase in multi-purpose trips, and evidence of new visitors being attracted to the town centre.

Corridor profile differences (counterfactual analysis) – Town centre users living in the Northern Corridor (with higher exposure to LSTF measures) had similar profile characteristics (in terms of gender, age, working status, access to a car, and size of travel group) to those living elsewhere in Redhill – based on the characteristics of respondents in the 'after' survey. *This suggests that any corridor comparison of outcomes, based on after only results, are unlikely to be driven by profile differences.*

However, the profile characteristics of respondents in the before survey differed significantly between the two geographical areas. The change in age and gender profile described in the above paragraph (*see 'Change in use of the town centre'*), is largely the result of change in the profile of respondents living in the Northern Corridor. Compared with the before period, the after sample for the Northern Corridor comprised

significantly fewer over 60s (37% *before*, 20% *after**) and substantial more female respondents (57% *before*, 68% *after*); compared with relatively little change in the counterfactual corridor to the south and west of the town centre. *These age and gender differences need to be considered when interpreting change in outcomes at a corridor level, as part of any counterfactual analysis undertaken. There were no significant differences between the before and after samples in terms of the factors most likely to influence travel behaviour (e.g. access to a car, and size of travel group), in either corridor.*

Wider transport context – In addition to the Balanced Network Scheme, Marketfield car park (approx. 100 spaces) closed in early 2015, and Southern Railway along with a number of bus operators introduced the keyGo (pay as you go) smartcard in 2014. The DfT's Active People Survey shows evidence of an increasing trend in levels of cycling within the borough (2012/13-2013/14), suggesting that *some increase in town centre cycling would have occurred in Redhill, with or without the LSTF / Balanced Network investment.* However, no significant change in walking was observed within the Borough.

Wider economic trends – There was a general improvement in the local economy during the research period, with a drop in unemployment, an increase in active businesses, and a reduction in commercial property vacancies within the Borough. *This is likely to have resulted in an increase in the number of trips to the town centre by all modes, and a general improvement in the retail economy.*

4. Key Findings - Outcomes

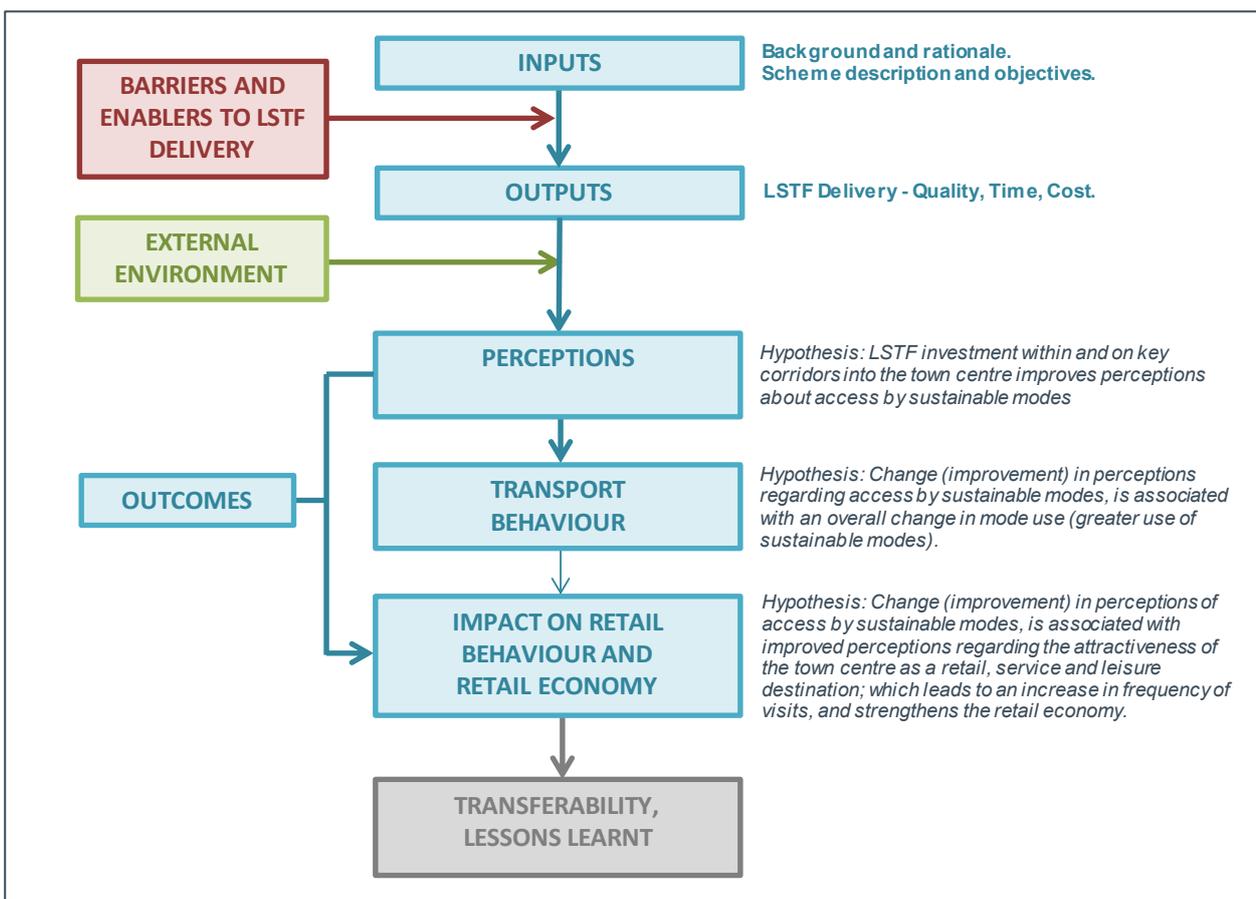
4.1. Introduction

The following sections set out the key outcome findings relating to perceptions, transport behaviour and the retail economy, reflecting the core theory of change elements.

Each section is structured around the core research questions, and concludes with an overall assessment of the evidence in the context of the hypotheses set out in Chapter 2. The role of LSTF delivery and the external environment in influencing outcomes is identified where relevant, along with consideration of issues of attribution (i.e. the extent to which change can be attributed to LSTF investment).

Further detail is provided in the **Supporting Technical Appendices**.

Figure 4. Presentation of evidence around Theory of Change framework



Detailed logic maps setting out the observed change for each of the case studies (post implementation) are presented in **Appendix B** of this document.

Town centre users have been abbreviated to 'tcu' and residents to 'res' in some locations, in order to present the results in a clear and succinct manner.

4.2. Key Findings - Perceptions

4.2.1. Introduction

This section considers whether LSTF investment within and on key corridors into the town centres improved perceptions about access by sustainable modes (Hypothesis A). In particular, it examines:

- whether town centre users perceived the LSTF measures to have increased the attractiveness of walking and cycling into the town;
- how effective specific LSTF measures were at delivering transport improvements and changing perceptions; and
- whether general perceptions of town centre accessibility improved.

In order to address these issues, survey participants were asked:

- 'In general, how easy would you say it is to access the town centre by the following modes? (very easy ... very difficult)' - *Asked first, to estimate changes in general accessibility, without reference to the LSTF investment.*
- 'What impact have the recent transport schemes had on access to the town centre, by the following modes? (easier, no change, more difficult)' - *To estimate the causal effect of LSTF investment on the reported change in general accessibility.*
- 'To what extent do you agree or disagree with the following statements regarding the transport changes in the town centre and the surrounding area? (strongly agree ... strongly disagree)' - *To determine the effectiveness of specific LSTF measures, which may explain the above results.*

Participants were also asked:

- 'How do you rate walking and cycling for the following attributes (covering attractiveness of routes, safety, information, etc.)?' - *Results only presented where sample sizes were sufficiently large.*

4.2.2. Telford results

a) Did town centre users perceive that the LSTF measures increased the attractiveness of walking and cycling into the town?

Yes – Both town centre users and residents reported that the LSTF investment had resulted in a net improvement in access into the town centre by walk and cycle. However, the proportions agreeing were substantially less than the proportions agreeing that access by car had improved.

A **net proportion** of survey respondents (% easier - % more difficult) felt that the LSTF investment had a positive impact on town centre access for both:

- walking (+25% for town centre users, +11% for residents); and
- cycling (+6% for town centre users, +16% for residents).

For context, respondents also reported a substantial net improvement in:

- access by car (+55% for town centre users, +46% for residents); and
- to a lesser extent access by bus (+25% for town centre users, +11% for residents).

However, very few felt access by train had changed (96% of town centre users and 94% of residents reported 'no change' or 'don't know').

b) How effective were specific LSTF measures at delivering transport improvements?

Changes within the town centre itself were generally viewed positively. The Box Road scheme was perceived to have:

- *made it quicker to drive to destinations in the town centre,*
- *created better conditions for walking and cycling,*
- *reduced the severance effect of the Box Road,*
- *helped integrate the Southwater Development into the town centre, and*
- *improved the look and feel of Coach Central, and created a more vibrant community space.*

However, there were concerns that the new shared space environments were intimidating for pedestrians and created uncertainty for drivers.

When asked about specific LSTF measures, town centre users, residents, stakeholders and focus group participants were **generally positive** (with survey respondents reporting net agreement scores¹⁰ of at least 40% for most elements, see Table 1), suggesting that the various transport schemes and initiatives were successful in influencing attitudes and perceptions.

Overall, residents were less likely to agree with the various statements than those interviewed in the town centre, suggesting that they were generally less positive towards the changes or less likely to have recognised any benefits – and therefore less likely to change mode. Telford Shopping Centre users were more positive than those visiting Southwater. The latter group included a higher proportion of visitors from further afield, less familiar with the old town centre environment, and potentially less able to identify the scale of change.

Infrastructure changes to the Box Road

In general, town centre users and residents (as well as stakeholders and focus group participants) **agreed** that the LSTF investment had:

- improved the operation of the Box Road for traffic;
- created a safer environment for pedestrians and cyclists, creating the right conditions for more walking and cycling;
- improved the quality of the public realm on Coach Central; and
- helped integrate the Southwater Development with the town centre.

Town centre users also agreed that the changes had reduced the dominance of traffic in the town centre; but residents were **less convinced** on this issue, and traffic dominance may continue to be a barrier for some visitors in terms of frequency of trips and use of sustainable modes.

Both groups (but particularly town centre users) raised **concern** that the **new shared space environment** on Coach Central was intimidating for pedestrians and created uncertainty for drivers; with similar concerns raised about the shared pedestrian / cycle routes around the Box Road¹¹. There was little sense within the focus groups that priority was being shared between different user groups, with cars retaining overall priority. These views may change with time and familiarity.

Stakeholders noted that the network changes had resulted in queuing on certain parts of the network such as St Quinten Gate, resulting in access issues for the Telford International Conference Centre and Telford Shopping Centre.

Views about whether Coach Central had become a vibrant community space were mixed, with residents being less convinced than town centre users.

¹⁰ Survey respondents were asked to what extent they agreed or disagreed with a number of statements regarding the various sustainable transport measures which had been delivered. To help keep the survey to a manageable length, the interviewer randomly selected a sub-sample of statements to ask each respondent. To help compare responses, net levels of agreement have been calculated as % agreeing - % disagreeing with statement. For example, 58% agreed, 17% neither agreed or disagreed, and 6% disagreed that 'Drivers are now more aware of pedestrians and cyclists'; 19% said don't know. This gives a net agreement of +52%.

¹¹ The proportion of respondents disagreeing with the associated statements exceeded the proportion agreeing, but only by a small margin. The question was negatively framed, perhaps leading participants to provide a critical answer.

Table 1. Net levels of agreement (% agreeing - % disagreeing) with statements regarding transport and environment changes to the Box Road and surrounding area

	Telford Shopping Centre and Southwater Development	Residents
General transport changes to the Box Road		
The new two way operation on the Box Road means that it is quicker to drive to destinations in the town centre	64% (very strong)	61% (very strong)
The changes to the Box Road have created a safer environment for pedestrians and cyclists	54% (strong)	52% (strong)
Drivers are now more aware of pedestrians and cyclists	52% (strong)	42% (strong)
The Box Road changes are helping to reduce the dominance of traffic in Telford town centre	56% (strong)	30% (moderate) [!]
Specific transport changes to Coach Central		
Vehicles on Coach Central now travel at slower speeds	51% (strong) [!]	42% (strong) [!]
It is now easier and safer for pedestrians and cyclists to cross Coach Central at street level	56% (strong) [!]	43% (strong)
Some vehicles now give way to pedestrians to allow them to cross	57% (strong)	52% (strong)
The new shared space environment (with low kerbs and informal crossings) is intimidating for pedestrians (negatively framed)	-13% (net disagreement) [!]	-27% (net disagreement)
The new shared space environment creates uncertainty for drivers (negatively framed)	12% (low) [!]	-5% (net disagreement) [!]
There are now more pedestrians and cyclists on Coach Central	35% (moderate) [!]	38% (moderate) [!]
Other transport changes in the town		
Vehicles now travel at slower speeds on Woodhouse, Lawn and Grange Central	41% (strong) [!]	42% (strong)
The shared pedestrian/cycle routes around the Box Road create an intimidating environment for pedestrians (negatively framed)	-13% (net disagreement) [!]	-36% (net disagreement) [!]
I am now more likely to cross the Box Road at street level rather than using underpasses and overbridges	50% (strong) [!]	58% (strong)
There has been an improvement in the quality of the pedestrian route between the town centre and the station.	40% (strong) [!]	29% (moderate) ^{!!}
Access to the town centre via the Town Park and Silkin Way is now better for pedestrians and cyclists.	40% (strong) [!]	49% (strong) [!]
Look and feel of the town centre		
Recent changes have improved the look and feel of Coach Central	68% (very strong)	64% (very strong)
The area around Coach Central has become a vibrant community space	57% (strong)	41% (strong)
The changes have helped integrate the Southwater Development with the town centre	75% (very strong)	69% (very strong)

Net agreement scores (% agreeing - % disagreeing with statement) have been colour coded as follows:

> 60% (V strong net agreement)	40% – 60% (Strong net agreement)	20% - 40% (Moderate net agreement)	0% - 20% (Low net agreement)	< 0% (Net disagreement)
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% of don't know responses: !! 40-59%; ! 20-39%; blank if lower.

Infrastructure changes elsewhere

Away from the Box Road, town centre users and residents **agreed** that:

- there had been an improvement in the quality of the pedestrian and cycle route between the town centre and the station; and
- that access to the town centre via the Town Park and Silkin Way was better for pedestrians and cyclists.

The level of agreement is lower than for other statements. However, there are a high proportion of 'don't knows' (see below) and very few respondents disagreeing; suggesting high net levels of agreement amongst those who were aware of the improvements (+61% and +62% net agreement for town centre users, respectively).

Levels of awareness

It is worth noting that while the majority of town centre respondents were aware of the changes to the Box Road (>60%), the same individuals were much less aware of changes elsewhere. Only 47% were aware of the improvements to the route between the town centre and the station, and just 44% were aware of the improvements to the Silkin Way. This reflects the more peripheral nature of the locations, but is also likely to be a symptom of the car dominated mode share, and the fact that more respondents were coming from further afield and unlikely to have local knowledge of key route schemes. The results might suggest a need for further work in raising awareness of these new facilities.

c) Did general perceptions of town centre accessibility improve?

Comparison of before and after results for perceptions about general accessibility shows:

- access by bus was perceived more favourably than by walk and cycle in both the before and after periods;

- no evidence of a general improvement in access into the town centre by bus, amongst those familiar with this option (i.e. excl. don't knows);

- access for walking and cycling was perceived to have improved overall amongst town centre users who were familiar with these modes as an option (the proportions describing access as 'easy' increased by 12 percentage points for walking and 17 percentage points for cycling), but not amongst residents;

- an increase in 'don't know' responses in the after survey (possibly due to a reluctance to participate in the survey and / or new visitors who may have been unfamiliar with these modes), resulting in an overall deterioration of perceptions across all respondents.

Most capital elements of the LSTF package were concentrated in the town centre, benefiting the end points of trips only. Residents across Telford were encouraged to use active modes more through journey planning and awareness initiatives, but these initiatives were not specifically targeted at trips to the town centre where the major improvements were delivered. Consequently, the changes were only expected to deliver a small improvement in access into the town centre, with the priority instead focused on access within the town centre.

The above sections suggest that the LSTF investment had a positive impact in terms of increasing the attractiveness of walking and cycling within the town centre, and the measures were generally viewed as being effective in delivering transport improvements. This section looks at whether this translated into an improvement in perceptions of general town centre accessibility. The survey results presented below are based on responses provided prior to any reference in the questionnaire to the LSTF investment, to avoid influencing the answers given.

Perceptions prior to sustainable transport investment

Town centre users and residents had mixed views regarding general town centre accessibility prior to the recent investment, but generally viewed access by bus more favourably than by foot and cycle (Table 2).

However, a substantial number of respondents felt that they had insufficient knowledge to comment, particular regarding cycling (a third of respondents stated 'don't know'). This suggests that lack of awareness of the options available was a significant barrier to sustainable mode use.

Table 2. In general, how easy would you say it is to access the town centre by the following modes? (Telford – prior to sustainable travel investment)

	Town centre user survey (unweighted)			Residents survey (weighted)		
	Bus – within 5kms	Cycle – within 5kms	Walk – within 3kms	Bus	Cycle	Walk
Very (5) or fairly easy (4)	76%	36%	57%	54%	35%	41%
Neither easy or difficult (3)	5%	12%	9%	6%	13%	15%
Slightly (2) or very difficult (1)	10%	18%	15%	12%	18%	28%
Don't know (0)	9%	34%	19%	27%	33%	15%
Base	425	425	268	242	242	242
Mean perception score¹	3.82	2.21	3.13	2.88	2.18	2.72

1. Shading based on mean score: pale yellow = 1.0-2.0; yellow-green = 2.0-3.0; light green = 3.0-3.5; mid green = 3.5-4.0; etc. 'Don't know' responses excluded from score calculation.

Change in perceptions post investment

Don't know responses – Comparison of before and after results shows an increase in 'don't know' responses across all modes and both surveys^{12,13} - possibly due to new visitors (from further afield or visiting more frequently) who were less familiar with walking and cycling modes (in the case of the town centre user survey), and / or a reluctance to participate in the after phase of the questionnaire surveys (particularly amongst residents)¹⁴. It is also worth noting that amongst the retained sample of residents, different respondents stated 'don't know' in the before and after surveys, suggesting some lack of consistency and accuracy in the responses given.

The increase in 'don't know' responses result in an overall deterioration in perceptions when responses from all survey participants are considered, which is unlikely to fully represent the views of those interviewed. The results presented in the rest of this section therefore exclude 'don't know' responses (for both the before and after surveys), and are assumed to reflect only the views of those familiar enough with the modes in question (bus, walk, cycle) or willing to provide an opinion.

Nevertheless, the high proportion of 'don't know' responses suggests that lack of awareness remains a barrier to the future use of sustainable modes in Telford, and now affects a larger proportion of current town centre visitors.

Access by bus was perceived by survey respondents to have **remained the same or deteriorated** over the period of the research (Table 3). Nevertheless, some focus group participants felt that the new two way operation on Box Road had provided a more direct route to the bus station resulting in shorter journey times. Substantial changes were made to the bus timetable two months before the surveys were conducted, including cuts and route changes, which may have contributed to the negative perceptions amongst respondents, along with disruption due to the construction works.

Table 3. How easy is it to access the town centre by local bus (<5kms)? – excl. don't knows

	Town centre users familiar with bus		Residents familiar with bus	
	Before	After	Before	After
Very (5) or fairly easy (4)	83%	88%	75%	69%
Neither easy or difficult (3)	6%	3%	8%	9%
Slightly (2) or very difficult (1)	11%	9%	17%	22%
Base¹	387	252	137	137
Mean perception score	4.19	4.35	3.97	3.89
Change in perceptions	<i>No significant change.</i>		<i>Small deterioration amongst retained sample of respondents; but not sufficiently large to indicate a significant change in the wider population based on this sample.</i>	

1. The after sample includes a higher proportion from further afield, reducing the number in scope in the after data.

2. Significant differences between before and after results (with respect to the wider population) marked with asterix (*).

¹² From 9% to 23% for bus, 34% to 55% for cycle, and 19% to 29% for walk (Town centre user survey).

¹³ From 27% to 27% for bus, 35% to 54% for cycle, and 15% to 24% for walk (Residents survey).

¹⁴ Respondents may simply have said 'don't know' to get through the interview quickly.

Access by foot was perceived to have improved amongst town centre users familiar with walking as an option (Table 4). Some of the residents panel also reported an improvement, but this was matched by a similar proportion reporting a deterioration. Focus group participants reported an improvement in access through the Town Park and on the Silken Way (both elements of the LSTF package), but felt other corridors had poor links into the town centre.

Table 4. How easy is it to access the town centre by walking (<3kms) – excl. don't knows

	Town centre users familiar with walking		Residents familiar with walking	
	Before	After	Before	After
Very (5) or fairly easy (4)	71%	83%*	54%	60%
Neither easy or difficult (3)	11%	5%	19%	8%*
Slightly (2) or very difficult (1)	18%	12%	27%	32%
Base¹	217	141	162	162
Mean perception score	3.87	4.19*	3.40	3.45
Change in perceptions	Significant improvement.		<i>Polarisation of views amongst retained sample of respondents; sufficiently large to indicate a significant change in the wider population.</i>	

1. The after sample includes a higher proportion from further afield, reducing the number in scope in the after data.

2. Significant differences between before and after results (with respect to the wider population) marked with asterix (*).

Access by cycle was perceived to have improved amongst town centre users familiar with cycling as an option (Table 5). In contrast, the residents panel reported an overall deterioration, although the change was not sufficiently large to indicate a significant change in the wider population. Focus group participants felt that while the recent investment had improved the environment for cyclists in the town centre, the deficiencies in the wider network meant that the start to end journey was still too unattractive for most people to consider cycling as a viable mode.

Table 5. How easy is it to access the town centre by cycling (<5kms) – excl. don't knows

	Town centre users familiar with cycling		Residents familiar with cycling	
	Before	After	Before	After
Very (5) or fairly easy (4)	54%	71%*	63%	54%
Neither easy or difficult (3)	19%	8%*	23%	24%
Slightly (2) or very difficult (1)	27%	21%	14%	22%
Base¹	279	148	90	90
Mean perception score	3.37	3.77*	3.72	3.53
Change in perceptions	Significant improvement.		<i>Deterioration in perceptions amongst retained sample of respondents; but not sufficiently large to indicate a significant change in the wider population based on this sample.</i>	

1. The after sample includes a higher proportion from further afield, reducing the number in scope in the after data.

2. Significant differences between before and after results (with respect to the wider population) marked with asterix (*).

4.2.3. Redhill results

a) Did town centre users perceive that the LSTF measures increased the attractiveness of walking and cycling into the town?

Partially – Both town centre users and residents reported that the recent transport investment (including the Balanced Network Scheme) had resulted in a net improvement in access into the town centre by walk; and residents also reported a net improvement in access by cycle. However, there is no evidence to suggest that the corridor-based initiatives had a stronger impact on perceptions in the Northern Corridor, compared with elsewhere in Redhill.

A **net proportion** of survey respondents (% easier - % more difficult) felt that the LSTF investment had a small positive impact on town centre access for both:

- walking (+17% for town centre users, +16% for residents); and
- cycling (+0% for town centre users, +17% for residents).

For context, respondents also reported a net improvement in:

- access by car (+15% for town centre users, +20% for residents); and
- to a lesser extent access by bus (+11% for town centre users, +4% for residents).

However, most respondents (at least four-fifths) stated 'no change' or 'don't know'. Very few felt access by train had changed (90% of town centre users and 93% of residents reported 'no change' or 'don't know').

Counterfactual analysis shows that the proportion describing access for walking as easier was significantly lower amongst those living in the Northern Corridor (17%) compared with elsewhere in Redhill (26%). Although the question was intended to capture the whole journey, these results may be more strongly influenced by positive perceptions regarding the changes within the town centre itself. Nevertheless, the **results do not support the hypothesis that LSTF investment in the Northern Corridor improved perceptions of walking to the town centre more than elsewhere**. This may be due to the postponement of the London Road cycle scheme, which formed a key element of the proposals for the corridor.

There were no significant corridor differences in the results for access for cycling.

b) How effective were specific LSTF / Balanced Network Scheme measures at delivering transport improvements?

Views about the changes within the town centre were generally more positive than negative. The changes were perceived to have:

- made it quicker to drive to destinations in the town centre,
- generally created a better environment for walking and cycling, and
- reduced the severance effect of the ring road.

However, views were more mixed on whether the measures had reduced the dominance of the car. There were also concerns about pedestrian safety relating to the new shared pedestrian / cycle paths, the location of some of the crossings, the removal of guard railing, and the introduction of two-way flow requiring pedestrians to check for traffic in both directions.

When asked about specific sustainable transport interventions, the responses provided by town centre users and residents survey respondents were generally **more positive than negative** (Table 6), suggesting that the various transport schemes and initiatives achieved some results in terms of changing attitudes and perceptions. However, net levels of agreement¹⁵ were generally moderate or low (compared to strong or very strong in Telford, indicating a range of views).

¹⁵ Town centre user and residents survey respondents were asked to what extent they agreed or disagreed with a number of statements regarding the various sustainable transport measures which had been delivered. To help keep the survey to a manageable

Table 6. Net levels of agreement (% agreeing - % disagreeing) with the following statements regarding transport and environment changes in Redhill town centre and surrounding area

	Town Centre Users	Residents
Operation of the road network		
The conversion of the one way system to two way operation means that it is quicker to drive to destinations in the town centre	36% (moderate)	37% (moderate)
There is less traffic congestion in the town centre than previously	10% (low)	5% (low)
Walking and cycling environment		
The changes have helped to reduce the dominance of the car in the town centre	7% (low)	-10% (net disagreement)
The changes to the Ring Road have made it easier to cross the road	23% (moderate)	26% (moderate)
The changes to the Ring Road have reduced the severance / barrier between the town centre and the rail station	24% (moderate)	21% (moderate)
The changes to the Ring Road have created a safer environment for walking and cycling	23% (moderate)	8% (low)
The shared pedestrian / cycle routes in the town centre create an intimidating environment for pedestrians (Negatively framed)	7% (low) [!]	-17% (net disagreement)
Public realm		
The look and feel of the area between the rail station and the town centre has improved	50% (strong)	48% (strong)
Information		
There is now more travel and route information available in the town centre	25% (moderate) [!]	31% (moderate) ^{!!}
Corridor initiatives		
The waiting environment at bus stops (outside the town centre) has improved	24% (moderate) [!]	15% (low) ^{!!}
Facilities for pedestrians and cyclists on routes into/out of the town centre have improved	23% (moderate) [!]	40% (strong) [!]

Net agreement scores (% agreeing - % disagreeing with statement) have been colour coded as follows:

> 60% (V strong net agreement)	40% – 60% (Strong net agreement)	20% - 40% (Moderate net agreement)	0% - 20% (Low net agreement)	< 0% (Net disagreement)
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% of don't know responses: !! 40-59%; ! 20-39%; blank if lower.

Overall, residents were less likely to agree with the various statements than those interviewed in the town centre, suggesting that they were generally less positive towards the changes or less likely to have recognised the benefits – and therefore less likely to change mode.

There were no significant differences in the responses given by town centre visitors living within the Northern Corridor, and those living elsewhere in Redhill.

Operation of the ring road – There was moderate net agreement that the two way-operation of the ring road meant that it was quicker to drive to destinations in the town centre, but mixed views and low net agreement that there was less congestion in the town centre. Focus group participants identified narrowing of the carriageway, new / additional pedestrian crossings and traffic light phasing, and disruption associated

length, the interviewer randomly selected a sub-sample of statements to ask each respondent. To help compare responses, net levels of agreement have been calculated as % agreeing - % disagreeing with statement. For example, 43% agreed, 17% neither agreed or disagreed, and 33% disagreed that 'There is less traffic congestion in the town centre than previously'; 7% said don't know. This gives a net agreement of +10%.

with construction works at a number of development sites in the town centre and elsewhere, as contributing to increased congestion.

Quality of the walking and cycling environment – There was **moderate net agreement** that the changes to the ring road had made it easier to cross the road, created a safer environment for walking and cycling, and reduced the severance / barrier between the town centre and the rail station – creating a better environment for walking and cycling, from the perspective of approximately half of town centre users and a third of residents.

However, views were **mixed** on whether the changes had helped reduce the dominance of the car in the town centre (+7% for town centre users and -10% for residents, in terms of net agreement); and whether the shared pedestrian / cycle routes in the town centre created an intimidating environment for pedestrians (+7% for town centre users and -17% for residents, in terms of net agreement).

Focus group participants revealed a lack of awareness about the shared nature of the paths, with some viewing them as exclusively for pedestrians and others perceiving some sections to be dedicated cycle lanes. Focus group participants were also concerned about pedestrian safety due to the location of some of the crossings, the removal of guard railing particularly outside the train station, and the introduction of two-way flow requiring pedestrians to check for traffic in both directions. Some of these concerns may change with time and with familiarity.

Public realm – There was **strong agreement** regarding the public realm benefits, principally in relation to the look and feel of the area between the station and the town centre, with 65% of town centre users and 67% of residents agreeing that the changes had improved the area. This statement achieved the highest level of support, but less than corresponding statements for Telford.

Information – Just over a third of respondents agreed that there was more travel and route information available in the town centre, resulting in **moderate net agreement**. However, two-thirds did not agree or didn't know, indicating a need for further investment in this area (e.g. more information, wider distribution of paper-based materials, or additional promotion of the journey planning website and real time passenger information screens). Focus group participants praised the real time information screen provided at the bus station, and the online journey planning website, but some participants preferred hard copies of maps and timetables.

Corridor interventions – Views were mixed regarding the corridor impacts, and there was a high proportion of don't know responses (due to their location). However, there was **net agreement** that:

- the waiting environment at bus stops outside the town centre had improved (**low / moderate net agreement**); and
- facilities for pedestrians and cyclists on routes into/out of the town centre had improved (**moderate / strong net agreement**).

Focus group participants identified the proposed London Road shared pedestrian and cycle path as a key missing piece in the cycle network. This was originally intended to be implemented as part of the LSTF package, but was postponed.

Levels of awareness

It is worth noting that the majority of those surveyed in the town centre (at least 60%) were aware of the main physical changes to the ring road; but were less aware of interventions on routes into the town centre, affecting a smaller proportion of town centre users and less visible to car users who account for around half of visitors. This included the new walking and cycling routes to the north of the town centre (42% aware); and bus stop improvements on routes into the town centre (45% aware).

Awareness was even lower regarding the various information and awareness initiatives (< 35% in each of these cases), including those relating to the Travel SMART campaign. This suggests that the level of publicity and the scale of the initiatives had not been sufficient (at the time of the survey) to reach the majority of town centre users (most of whom live in Redhill).

c) Did general perceptions of town centre accessibility improve?

Comparison of before and after results for perceptions about general accessibility shows:

- access by foot was perceived more favourably than by bus or cycle, in both the before and after periods;
- no evidence of a general improvement in access into the town centre by bus, amongst those familiar with this option (i.e. excl. don't knows) - either across the whole town or in particular corridors;
- a positive shift in people's perceptions of the general quality of the walking environment for trips into the town centre, primarily amongst those who already felt that access was 'fairly easy', but no significant change in perceptions on key corridors;
- no evidence to suggest that overall access by cycle improved;
- an increase in 'don't know' responses in the after survey (possibly due to a reluctance to participate in the survey and / or new visitors unfamiliar with these modes), resulting in an overall deterioration of perceptions for some modes based on results for all respondents (i.e. incl. 'don't knows').

The above sections suggest that the LSTF investment had a positive impact in terms of increasing the attractiveness of walking and to a lesser extent cycling; and the measures were generally viewed as being effective in delivering transport improvements. This section looks at whether this translated into an improvement in perceptions of general town centre accessibility. The survey results presented below are based on responses provided prior to any reference to the LSTF investment in the questionnaires, to avoid influencing the answers given.

Perceptions prior to sustainable transport investment

Town centre users and residents had mixed views regarding town centre accessibility prior to the recent investment, but generally viewed access by foot more favourably than by bus or particularly cycle.

However, a substantial number of respondents felt that they had insufficient knowledge to comment, particularly regarding cycling (almost half of town centre users stated 'don't know'). This suggests that lack of awareness of the options available was a significant barrier to sustainable mode use.

Table 7. In general, how easy would you say it is to access the town centre by the following modes? (Redhill – prior to sustainable transport investment)

	Town centre user survey (unweighted)			Residents survey (weighted)		
	Bus – within 5kms	Cycle – within 5kms	Walk – within 3kms	Bus	Cycle	Walk
Very (5) or fairly easy (4)	67%	34%	74%	49%	51%	73%
Neither easy or difficult (3)	7%	10%	4%	8%	9%	6%
Slightly (2) or very difficult (1)	11%	13%	12%	10%	10%	12%
Don't know (0)	14%	43%	9%	33%	29%	10%
Total	100%	100%	100%	100%	100%	100%
Base	413	416	354	336	336	336
Mean perception score¹	3.47	2.05	3.79	2.65	2.74	3.70

1. Shading based on mean score: pale yellow = 1.0-2.0; yellow-green = 2.0-3.0; light green = 3.0-3.5; mid green = 3.5-4.0; etc. 'Don't know' responses excluded from score calculation.

Change in perceptions post investment

Don't know responses – As for Telford, comparison of before and after results shows an increase in 'don't know' responses across all modes and both surveys^{16,17} - possibly due to new visitors who were less familiar with walking and cycling modes (town centre user survey), and / or a reluctance to participate in the after phase of the questionnaire surveys (particularly amongst residents)¹⁸. It is also worth noting that amongst the retained sample of residents, different respondents stated 'don't know' in the before and after surveys, suggesting some a lack of consistency and accuracy in the responses given.

The increase in 'don't know' responses resulted in an overall deterioration in perceptions for some modes based on responses for all survey participants, which is unlikely to fully represent the views of those interviewed. The results presented in the rest of this section therefore exclude 'don't know' responses (for both the before and after surveys), and are assumed to reflect only the views of those familiar enough with the modes in question (bus, walk, cycle) or willing to provide an opinion.

Nevertheless, the high proportion of 'don't know' responses suggests that lack of awareness remains a barrier to the future use of sustainable modes in Redhill, and now affects a larger proportion of current town centre visitors.

Access by bus - Overall, there is **no evidence to suggest that town centre users or residents perceived there to have been a general improvement** in access by bus, either across the whole town or in the particular corridors analysed as part of the counterfactual analysis. Survey results show no significant change in perceptions between the two survey periods. Lack of public transport information, or lack of awareness of the information available, was identified by focus group participants as a key barrier to greater bus use.

Table 8. How easy is it to access the town centre by local bus (<5kms)? – excl. don't knows

	Town centre users familiar with bus		Residents familiar with bus	
	Before	After	Before	After
Very (5) or fairly easy (4)	79%	77%	76%	77%
Neither easy or difficult (3)	8%	8%	13%	10%
Slightly (2) or very difficult (1)	13%	15%	11%	13%
Base¹	356	315	175	175
Mean perception score	4.06	4.09	4.11	4.09
Change in perceptions	<i>No significant change.</i>		<i>Very little change amongst retained sample of respondents.</i>	

1. Significant differences between before and after results (with respect to the wider population) marked with asterix (*).

Access by foot - In terms of access by foot, the survey evidence suggests that there was a **positive shift in people's perceptions of the general quality of the walking environment** into the town centre, amongst those familiar with walking as an option. Access by foot was already perceived to be easier than by bus or cycle, and the improvement was primarily amongst those who already felt that access was already 'fairly easy' (increasing significantly from 58 to 66% amongst town centre users, and from 52% to 60% amongst all residents). The impact on actual behaviour change may therefore have been limited. Focus group participants felt that while pedestrian facilities had generally improved within the town centre, more investment was needed across the rest of Redhill.

Counterfactual analysis shows no significant differences in perceptions amongst town centre users living in the two corridors analysed, based on sample sizes of between 130 and 202 respondents. The results **do not therefore support the hypothesis that additional LSTF investment in the Northern Corridor improved perceptions of walking to the town centre more than elsewhere**. The results may have been affected by the postponement of the London Road cycle scheme, which meant that in practice, the level of investment in the Northern Corridor was lower than anticipated.

¹⁶ From 14% to 26% for bus, 43% to 48% for cycle, and 9% to 8% for walk (Town centre user survey).

¹⁷ From 33% to 34% for bus, 29% to 40% for cycle, and 10% to 17% for walk (Residents survey).

¹⁸ Respondents may simply have said 'don't know' to get through the interview quickly.

Table 9. How easy is it to access the town centre by walking (<3kms) – excl. don't knows

	Town centre users familiar with walking		Residents familiar with walking	
	Before	After	Before	After
Very (5) or fairly easy (4)	82%	82%	84%	83%
Neither easy or difficult (3)	5%	7%	6%	6%
Slightly (2) or very difficult (1)	13%	11%	10%	11%
Base¹	323	334	268	268
Mean perception score	4.16	4.29	4.23	4.29
Change in perceptions	<i>No significant change, but masks a significant increase in 'very easy' responses (58% to 66%).</i>		<i>No change amongst the retained sample of respondents, but masks an increase in 'very easy' responses (52% to 60%) and a significant decrease in 'fairly easy' responses (32% to 23%) – indicative of a significant change in the wider population.</i>	

1. Significant differences between before and after results (with respect to the wider population) marked with asterisk (*).

Respondents who had walked to the town centre in the 12 months prior to the before and / or after survey were asked to rate a number of walking-related attributes. The results show **improvements** in the rating scores for the following attributes relating to key elements of the LSTF / Balanced Network package:

- 'quality of environment within the town centre' (residents only; surprising given public realm investment);
- 'quality of routes on approaches to town centre' (town centre users and residents);
- 'risk of accident' (improvement amongst town centre users; but a decline amongst residents - see comments below regarding removal of guard railing); and
- 'signage' (improvement amongst residents; but a decline amongst town centre users - surprising given wayfinding investment).

Table 10. Experience ratings for walking – How would you rate walking for the following? (Very good to very poor)

	Town centre users	Residents
Quality of environment (within the town centre)	<i>No significant change</i> % good = 77% (before), 83% (after)	Significant improvement % poor = 24% (before), 8% (after)*
Quality of routes (approaches to town centre)	Significant improvement % good = 74% (before), 85% (after)*	Significant improvement % poor = 26% (before), 13% (after)*
Risk of accident	<i>Significant decrease in % neutral, and overall improvement in perceptions</i> % good = 52% (before), 62% (after)	<i>Increase in neutral responses amongst retained sample, resulting in overall decline (not significant in the wider population).</i>
Personal security	<i>No significant change</i> % good = 79% (before), 89% (after)	<i>Very little change amongst retained sample of respondents.</i>
Signage	Significant deterioration % poor = 5% (before), 9% (after)*	Significant improvement % good = 56% (before), 72% (after)*

Access by cycle – Overall, there is **no evidence to suggest that town centre users or residents perceive there to have been a general improvement in access by cycle**, with perceptions remaining low or worsening in the after period. Focus group participants felt that while additional cycling facilities had been provided within the town centre (and viewed favourably by existing cyclists), cycling routes into the town centre were limited (including in the Northern Corridor where LSTF corridor investment was focused), and this continues to represent a barrier to increased cycling.

Furthermore, corridor analysis does not support the hypothesis that LSTF investment in the Northern Corridor improved perceptions of cycle access to the town centre. The proportion of town centre users describing access as 'very difficult' increased by +17% in the Northern Corridor compared with +6% in the Other Corridors', although the sample sizes are small (varying from 73 to 112 respondents by corridor) and these changes are not statistically significant.

Table 11. How easy is it to access the town centre by cycling (<5kms) – excl. don't knows

	Town centre users familiar with cycling		Residents familiar with cycling	
	Before	After	Before	After
Very (5) or fairly easy (4)	60%	61%	76%	71%
Neither easy or difficult (3)	18%	8%*	15%	13%
Slightly (2) or very difficult (1)	22%	31%*	9%	16%
Base¹	239	218	163	163
Mean perception score	3.57	3.37*	4.04	3.53
Change in perceptions	Significant deterioration		<i>Small deterioration amongst retained sample of respondents; but not sufficiently large to indicate a significant change in the wider population based on this sample</i>	

1. Significant differences between before and after results (with respect to the wider population) marked with asterix (*).

4.2.4. Conclusions

Hypothesis A: LSTF investment within and on key corridors into the town centre has improved perceptions about access by sustainable modes.

In both locations, LSTF-funded changes within the town centres were generally viewed positively – more so in Telford than in Redhill. However, there is no evidence to suggest corridor-based initiatives in Redhill had a stronger impact on perceptions in the Northern Corridor, compared with elsewhere in Redhill.

Despite the positive views regarding the LSTF investment, the perceptions about general whole journey accessibility were more mixed and do not fully reflect the positive LSTF-related perceptions – although there was some evidence of improved perceptions regarding walking and cycling in Telford and walking in Redhill. However, poor perceptions of general accessibility by sustainable modes and lack of familiarity with the options available, along with deficiencies in the wider networks, are likely to continue to be a barrier to increased use of these modes.

In both locations, LSTF investment had a positive impact on perceptions of town centre access by sustainable modes, and increased the attractiveness of walking¹⁹ and cycling²⁰ – more so in Telford (where the physical changes to the environment were substantial and very visible) than in Redhill (where the visible changes were less marked, and investment comprised a more balanced mix of capital and revenue initiatives). The survey questions asked about access to the town centre, but in both locations capital works were primarily focused within the town centre, and it is likely that responses reflect this and may not fully represent whole journeys by foot and cycle.

In addition, specific LSTF measures were generally viewed as having been effective in delivering transport improvements – with strong levels of net agreement²¹ in Telford, and moderate or low net agreement in Redhill. Concerns were raised about the shared space elements in both towns – whether the shared pedestrian / cycle routes created a safe environment for pedestrians or were seen as intimidating or confusing, and whether the new shared space environment in Telford created uncertainty for drivers – but these views may change with time and familiarity.

However, there is no evidence to suggest corridor-based initiatives in Redhill had a stronger impact on perceptions in the Northern Corridor, compared with elsewhere in Redhill. This may reflect the focus on capital works in the town centre, and the postponement of the London Road Cycle Scheme²² which also

¹⁹ % saying 'easier' - % saying 'more difficult' as a result of the recent transport investment = +11% for town centre users in Telford, +24% for residents in Telford, +19% for town centre users in Redhill, +17% for residents in Redhill.

²⁰ % saying 'easier' - % saying 'more difficult' as a result of the recent transport investment = +6% for town centre users in Telford, +16% for residents in Telford, +17% for town centre users in Redhill, +0% for residents in Redhill.

²¹ % agreeing - % disagreeing to statements about the outcomes associated with specific LSTF measures.

²² This would have been a very visible scheme which would have addressed issues on one of the key routes into Redhill.

meant that corridor-focused marketing and promotion initiatives were delivered on a smaller scale than anticipated.

In terms of understanding the impact of LSTF interventions on actual travel behaviour, it is important to understand how these positive perceptions influenced perceptions about general levels of whole journey accessibility. Looking at this issue, the results are more mixed and do not reflect the positive LSTF-related perceptions:

- Results for Telford show some evidence of improved perceptions of walking and cycling access²³. This is likely to be at least partly associated with LSTF investment, but there is no firm evidence of a causal link.
- Results for Redhill show some evidence of improved perceptions of walking access²⁴, but it is unclear whether this is related to the LSTF investment. Perceptions were already relatively positive (despite severance issues in the town centre), and the impact on levels of walking may have been limited.
- There was no evidence of an improvement in access by bus in either location – despite bus priority measures, bus stop enhancements, and additional real-time and static information in Redhill.

Potential reasons for the mixed response regarding general accessibility include the following:

- A focus of investment in the town centre, and smaller scale corridor-based delivery.
- Lack of familiarity and awareness of sustainable options, and insufficient promotion of new facilities delivered outside the core town centre area:
 - In both locations, lack of familiarity remains a barrier to the future use of sustainable modes - a large proportion of survey respondents felt unable to comment when asked about accessibility to the town centre by sustainable modes. This appeared to affect a larger proportion of town centre visitors in the after phase, possibly due to an overall increase in those from further afield and / an increase in visits by those who used to visit infrequently, and likely to be less familiar with the travel options available.
 - While the majority of those surveyed in both locations were aware of the physical changes in the town centre, they were much less aware of changes elsewhere. The results might suggest a need for further work in raising awareness of these new facilities, in order to improve general perceptions of those living nearby or even elsewhere in the town. Awareness and recognition of the various information and awareness initiatives in Redhill, including those relating to the Travel SMART campaign, was particularly low (< 35%). This suggests that the level of publicity and the scale of the initiatives was not sufficient (at the time of the survey) to reach the majority of town centre users.
- A need for further investment in the wider walking and cycling network:
 - Feedback from focus group participants suggests that while pedestrian and cycling facilities had been improved at specific locations within the town and on specific access routes, deficiencies in the wider pedestrian and cycle network continue to act as a barrier, negatively affecting views on walking and cycling.
- The lag effect of disruption during the period of construction. In both locations, but especially Telford, the works caused significant disruption, which may have influenced responses in the after survey.

These factors, along with the perceived improvements in access by car, exceeding or matching perceived improvements for sustainable modes in both locations, are likely to have **limited mode shift outcomes**.

²³ The % of town centre users describing access as 'easy' increased by +12 percentage points for walking and +17 percentage points for cycling, but residents did not report an overall improvement.

²⁴ The % describing walking access as 'very easy' increased by +8 percentage points for town centre users and +8 percentage points for residents.

4.3. Key Findings - Transport Behaviour

4.3.1. Introduction

This section considers whether change (improvement) in perceptions regarding access by sustainable modes was associated with an overall change in short-term mode use (greater use of sustainable modes) (Hypothesis B). In particular, it examines:

- what mode shift away from car was generated in town centres as a result of the LSTF programmes, based on questions about:
 - mode use on the survey day or most frequently used mode (see Supporting Technical Appendices),
 - modes used in the last 12 months*,
 - change in frequency of mode use, in general and as a result of LSTF investment*; and
- whether the number of people walking and cycling within the towns increased.

The question about modes used in the last 12 months captures new users of sustainable modes (even if the mode was only used for one trip), but mode shift away from car is only be captured where respondents wholly switched from car to non-car modes. Supplementary questions were therefore asked about change in frequency of mode use.

Evidence presented earlier in this report suggests mode shift is likely to have been limited, for the following reasons:

- mixed perceptions regarding general accessibility by sustainable modes;
- a need for further investment across the wider walking and cycling network, and further promotion of initiatives;
- substantial improvements in perceived accessibility by car in both locations as a result of the new two-way operation of the respective ring roads;
- an increase in visitors from further afield (in Telford) who were likely to be less familiar and less likely to use sustainable modes.

4.3.2. Telford results

Baseline mode use

Results from the town centre user and residents' surveys show that, prior to the LSTF investment:

- car was by far the dominant mode (used by 64% of town centre users and 81% of residents in the previous 12 months);
- followed by bus (used by 40% of town centre users and 30% of residents).

Levels of walking were much lower (13% for town centre users, 17% for residents), with levels of cycling very low (0% for town centre users, 4% for residents).

Q2a. What mode shift away from car was generated in the town centre, as a result of the LSTF programme?

Modes used in the previous 12 months – Respondents were first asked to identify all modes used in the 12 months prior to the before and after surveys. There is no evidence to suggest that a significant proportion of survey respondents wholly transferred from car to non-car modes, or that a higher proportion used a sustainable mode in the 12 months prior to the after surveys. The Box Road changes were perceived to have made it quicker and easier to drive to town centre destinations, and this appears to have encouraged a broader proportion of visitors from within Telford and beyond, to have driven. Furthermore the overall profile of visitors changed between the two survey periods, with the town centre attracting more visitors from further afield in the after phase, more likely to drive.

Change in frequency of mode use – Respondents were then asked “compared with a couple of years ago, do you use the following means of travel more or less...?”. The survey evidence shows net increases (% more - % less) in frequency of bus use (particularly for town centre users, +21%) and walking (particularly for residents, +46%), amongst existing users.

There is also evidence to attribute some of this change to LSTF investment, based on:

- a significantly more stable trend in frequency of mode use prior to the changes in the town centre;
- similar reported change in frequency of bus and walking use when specifically asked “as a result of the recent transport schemes ..., to what extent do you use the following modes of travel more or less ...?”;
- regression analysis which shows that town centre users who perceived LSTF investment positively were more likely to have reported using sustainable modes more often as a result of the recent investment.

The extent to which this increase was due to respondents making more trips, or because they changed modes for some trips, is unclear, but is likely to have been due to a combination of these factors.

Respondents were only asked about modes they had used in the last 12 months. However, presenting the reported changes as a percentage of all respondents shows that the overall increase in frequency of car use was similar or greater than for other modes, suggesting no overall shift away from car as a result of the LSTF investment.

Conclusion – There is no evidence that the LSTF investment generated an overall mode shift away from car; but the survey responses and regression analysis suggests that LSTF investment contributed to a net increase in frequency of bus use and walking amongst users of these modes.

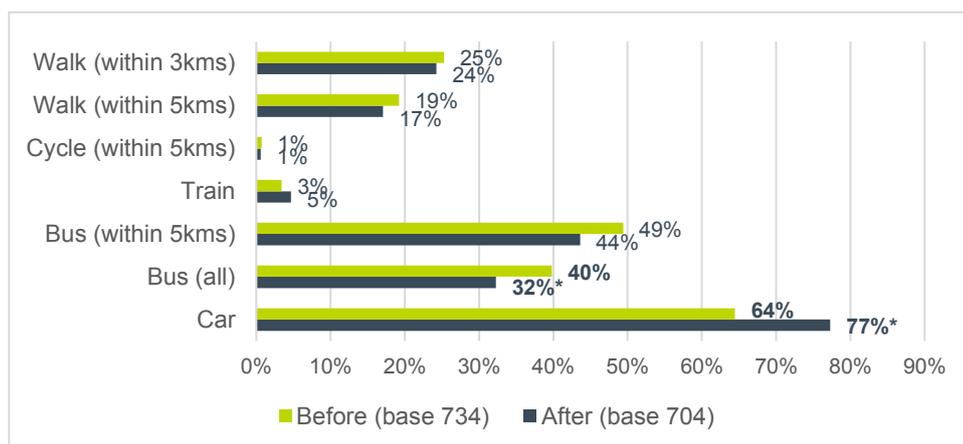
* The survey questions focused on travel into the town centre. However, the LSTF measures were mainly focused around improving the pedestrian and cycling environment within the town centre, only influencing part of respondents’ trips.

Modes used in previous 12 months

Town centre users - Comparison of results for town centre users in the before and after samples shows:

- a **significant increase in car use** (64% before, 77% after); accompanied by
- a **significant reduction in bus use** (40% before, 32% after); and
- no significant change in walking and cycling (amongst those living within 3 and 5kms).

Figure 5. All modes used to travel into the town centre in the last 12 months - Town centre users



Significant differences in before and after results marked with asterix (*)

Across the whole sample (including those living locally and further afield), the results show:

- a **significant reduction in the overall proportion walking or cycling** (13% before, 9% after²⁵), or using any sustainable mode (50% before, 39% after).

However, regression analysis shows that this is likely to be due to socio-demographic (age, access to a car) and behavioural (distance, frequency of visits, dwell time, journey purpose) differences between the two samples. **There is no robust evidence from the analysis undertaken to suggest that the recorded decrease in sustainable mode use was due to the LSTF intervention.** Between the two survey periods, the town centre appears to have attracted new visitors from further afield, and the profile of visitors changed. The after sample comprised a higher proportion of visitors travelling more than 10kms (reducing the attractiveness of walking and cycling); a higher proportion travelling as a group; a higher proportion spending more than two hours in the town centre; and visitors were more likely to be combining shopping and leisure trips. This resulted in greater dependence on the car. See Section A.4.1 and A.4.2 in Supporting Technical Appendices for detailed regression results.

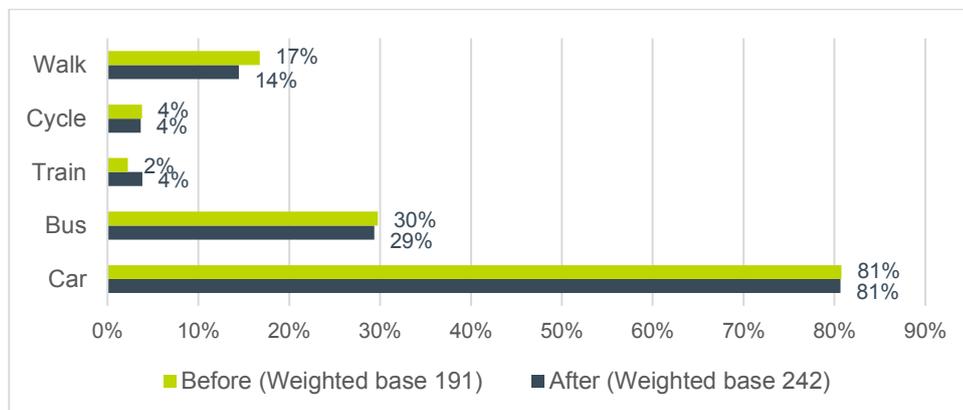
The results for just those living within Telford (the core LSTF market) also show:

- a **significant increase in the proportion travelling by car** in the previous 12 months (57% before, 70% after); but
- no significant change in the proportions living within 3 and 5kms reporting to have used bus, walk or cycle within the previous 12 months.

Residents - Comparison of before and after responses from the residents survey, representing real change within a retained sample of respondents, shows marginal changes only in the modes used in the previous 12 months: car 0%, bus -1%, train +2%, walk -3%, cycle 0%; suggesting no significant change in the wider population.

In terms of their most frequently used mode, the majority of residents (86%) reported no change; and nearly all of the remaining respondents shifted between car and sustainable modes, with a very small net shift towards sustainable modes (+3 out of 191 residents).

Figure 6. All modes used to travel into the town centre in the last 12 months - Residents



Significant differences between before and after results (with respect to the wider population) marked with asterisk (*).

Change in frequency of mode use (and the role of the LSTF investment)

a) In general (existing mode users only) - The above findings relate to the range of modes used in the 12 months prior to the before and after surveys; but do not take account of any changes in the frequency with which each mode was used (for all or part of a journey). Survey respondents were therefore asked 'Compared with a couple of years ago, do you use the following means of travel more or less, for trips into

²⁵ Surprisingly, the biggest change in the % walking occurs amongst those living beyond 5kms. These respondents are expected to have walked to the town centre from another destination in Telford (e.g. office) rather than home.

the town centre'. No specific reference was made to any of the sustainable travel measures at this stage in the questionnaire. Respondents were only asked about the modes they had used in the past 12 months²⁶.

A large proportion of users of car, bus, and walking reported 'no noticeable change' (the results for train and cycling are not reported here due to the very small sample sizes involved):

- car (66% tcu, 61% res), bus (59% tcu, 40% res), walk (49% tcu, 35% res)²⁷.

The remaining users reported **net increases**²⁸ in the use of:

- **car (+14% tcu, +4% res), bus (+21% tcu, +5% res) and walking (+16% tcu²⁹, +46% res).**

Those using these modes did so more frequently in the after survey, than previously. Bus use amongst town centre users, and walking amongst residents increased most – 46% of residents said that they walked into the town centre more than before. The extent to which this increase is due to users making more trips, or because they changed modes for some of these trips in the after period, is unclear – but is likely to have been due to a combination of these factors.

Corresponding results from the before survey, show a more stable trend in terms of mode use prior to the changes in the town centre, i.e. more people seem to have changed their behaviour following scheme completion, compared to the trend a couple of years previously. Significantly more town centre users reported 'no noticeable change' in use of bus and walking in the before survey: bus (80% *before*, 59% *after**), and walk (80% *before*, 49% *after**). A similar trend was also evident in the residents' sample. This suggests a real change in the use of these modes, post LSTF investment.

b) As a result of the sustainable transport investment (existing mode users only) – The same respondents were then asked 'As a result of the recent transport schemes in Telford, to what extent do you use the following modes of travel more or less, for trips into the town centre'.

For most modes, the change is broadly similar to that reported above, with **net increases** in use of:

- **car (+20% tcu, +12% res), bus (+20% tcu, +18% res), and walk (+28% tcu, +48% res).**

The results highlight some inconsistencies in the responses given to this and the previous question. Some respondents reported that they had used a particular mode more frequently in the past 12 months as a result of the recent transport investment, but reported a lower level of use in general; which is the opposite way round to a logical outcome (see Section 8.5.2 in Supporting Technical Appendices for further information).

Nevertheless, despite the above caveat, the results do suggest that the LSTF changes were a driver behind increased frequency of use of: car (particularly amongst town centre users); bus (particularly amongst town centre users) and walking (particularly amongst residents).

A number of focus group participants commented that they were using their car more for trips to the town centre due to the introduction of two-way operation on the Box Road, which had improved access to town centre destinations. This is reflected in the results presented above. Reasons given by survey respondents for greater use of walking included change in circumstances, and concerns about health and fitness, but were based on a small sample only.

Regression analysis shows that while there is no robust evidence to suggest that the overall difference in mode use between the before and after samples was due to the LSTF intervention, there is **evidence of an association between the various measures and intensity of use of sustainable modes (bus, walk and cycle)**:

²⁶ Sample sizes varied for each mode, as follows: car (495 tcu, 191 res), bus (226 tcu, 71 res), walk (65 tcu, 71 res).

²⁷ %s relate to town centre users and residents respectively.

²⁸ % more frequently - % less frequently.

²⁹ This figure increases to +27% for just town centre users living within 3kms; covering the same catchment area as the residents survey.

- Town centre users who perceived LSTF investment to have had a positive impact on town centre accessibility across all modes (see Section 4.2.2b) were more likely to have reported using sustainable modes more often as a result of the LSTF investment.
- Similarly, town centre users who perceived the transport changes more positively in terms of their effectiveness (see Section 4.2.2c) were more likely to have reported using sustainable modes more often as a result of the LSTF investment.

See Section A.4.3 in Supporting Technical Appendices for detailed results.

c) As a result of the sustainable transport investment (all respondents) – While respondents were only asked about modes they had used in the previous 12 months, it is useful to present the results as a percentage of all respondents, to estimate the scale of behaviour change. The above results (in part b) are based on different sample sizes for each mode (see earlier footnote), but presenting the results against a common base (675 for town centre users, and 242 for residents) gives an indication of the impact on mode share³⁰. For example, while 27% of existing bus users said they were using bus more as a result of the LSTF investment, this is only 61 respondents. In the context of the overall sample, the proportion using bus more is much smaller.

The corresponding stated **net increases** in use of car, bus, and walk, as a result of the LSTF are:

- **car (+15% tcu, +9% res), bus (+8% tcu, +4% res), and walk (+4% tcu, +16% res).**

The increase in frequency of car use was similar or greater than for other modes. In the absence of information about the number of additional trips made by each mode, it seems likely that there was not an overall shift away from car, as a result of the LSTF investment.

Q2b. Did the number of people walking and cycling within the town increase?

- **Pedestrian activity on Coach Central** – Pedestrian counts and survey results suggest an increase in pedestrians using Coach Central. While this increase is likely to reflect the recent development in the area (Southwater and the new Asda), some of these pedestrians will have derived safety, amenity and time-saving benefits from the new environment (funded through the LSTF). However, at the time of the after survey, Coach Central was not functioning as a fully shared space environment where pedestrians felt safe crossing at any location.
- **Pedestrian and cycle activity on Woodhouse Central** – Use of the new shared path and street level crossing is estimated to have been low at the time of the after surveys, with many pedestrians and cyclists continuing to use the old path and underpass which continues to provide a convenient option for many trips. However, this was expected in the short-term. The changes were part of a longer term objective to increase levels of cycling in Telford (to the town centre and more generally), and create a more pedestrian friendly environment to support future development around the Box Road.
- **Town Park and Silkin Way** – Manual one day counts show evidence of a large increase in cycle activity in the Town Park, from less than 100 per day between 2006 and 2013, to 185 in 2014 and 365 in 2015. Pedestrian activity also increased between 2013 and 2015, returning to the levels observed between 2008 and 2010. There is also some evidence of an increase in pedestrian and cycle flow on the section of the Silkin Way to the west of Legges Way (5kms from the town centre); but not a Stirchley Lane (2.5kms from the town centre).
- **Conclusion** – The evidence suggests that, at the time of the after survey, pedestrians were using and benefiting from the new environment on Coach Central, but use of the new infrastructure on Woodhouse Central (and possibly other arms) is likely to remain low until further development or investment in the wider network occurs. After survey respondents said that they were more likely to cross at street level (50-58% net agreement); but levels of cycling around the Box Road remained very low.
There does appear to have been an increase in pedestrian and cycling on the Silkin Way, particularly through the Town Park. Some of this is likely to relate to leisure activities, rather than trips to the town centre.

³⁰ For example, while 27% of existing bus users said they were using bus more as a result of the recent transport investment, this is only 61 respondents. In the context of the overall sample, the proportion using bus more is much smaller.

The above section relates to travel into the town centre, however, the LSTF measures were mainly focused on improving the pedestrian and cycling environment within the town centre or on specific access routes. While it was not possible to obtain a detailed picture of the numbers walking and cycling within the town, evidence was collected regarding use of specific routes.

Coach Central

Pedestrian counts undertaken in 2015 (monitoring the zebra crossing, the adjacent courtesy crossing, and points in between) showed substantially more pedestrians in this part of the Box Road than in 2012 and 2013 (when the only facility was a signal controlled crossing) – see Figures 2 (Chapter 3) and 7 (below). This finding is supported by results from the questionnaire surveys which show moderate net agreement with the statement “There are now more pedestrians and cyclists on Coach Central” (town centre users 35%, residents 40%).

While the increase in pedestrian activity is likely to reflect the recent development in the area (Southwater and the new Asda), these pedestrians will have derived amenity and safety benefits from the new environment.

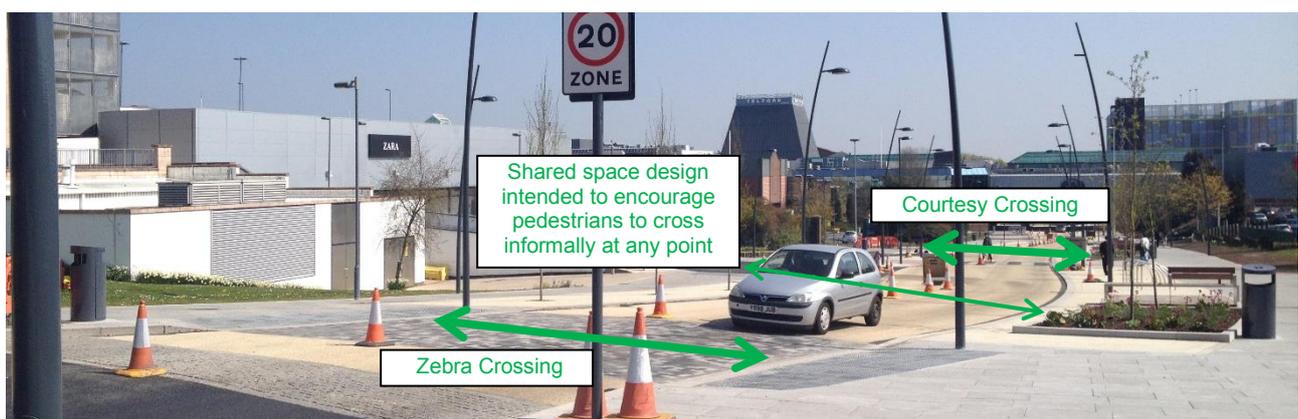
At the time of the after surveys, the majority of pedestrians (four-fifths) were using the zebra crossing, rather than crossing informally, suggesting that Coach Central was not, at that time, functioning as a fully shared space environment where pedestrians felt safe crossing at any location. Nevertheless, the courtesy crossing (opposite Zara) provides a shorter and safer route than would previously have been possible, benefitting around 400-500 pedestrians a day (based on pedestrian counts undertaken at the time).

The overbridge was still the preferred means of crossing Coach Central (59% of town centre respondents had used the overbridge on the day of survey, compared with 28% crossing at grade). This is not surprising as it provides the most direct route between the Southwater Development and nearby car-parks and the Shopping Centre, during the day. However, there was strong net agreement (town centre users 50%, residents 58%) with the statement, ‘I am now more likely to cross the Box Road at street level rather than using the underpasses and overbridges’.

Informal crossing facilities at street level on Coach Central are expected to become more important in future years, following the completion of the Southern Quarter development and the improvement of the street level entrance to the Shopping Centre.

The numbers of cyclists counted was very low: 10 per day on weekdays and 15 per day on Saturdays. Cyclists therefore account for less than 1% of walking and cycling activity in the area.

Figure 7. New crossing facilities on Coach Central – count locations



**Note – The above photo was taken prior to the zebra crossing being implemented.*

Woodhouse Central Shared Path

The total number of pedestrians using the new Shared Use Path are currently low; with a substantial number estimated to be continuing to use the parallel old path which is separated from the road by vegetation and provides more direct access between Lime Green Car Park and Telford Shopping Centre (via the two underpasses) – see Figure 2 (Chapter 3).

At the time of the after surveys, the total number of cyclists using the new Shared Use Path was very low; typically 25 per day on weekdays and 18 per day on Saturdays. Count data suggests that the works did not result in a large increase in cyclists on this section of the Box Road in the six months following completion of the scheme, but it is difficult to draw further conclusions given the data available.

In the short-term it is expected that pedestrian / cycle movements along Woodhouse Central will be low, as for many daytime trips it is easier to walk through the shopping centre, instead of around the Box Road. However, changes to the road environment were part of a longer term objective to increase levels of cycling in Telford (to the town centre and more generally), and create a more pedestrian friendly environment to support future development around the Box Road.

Woodhouse Central Crossing

The total number of pedestrians using the new 'at grade' crossing (Figure 2, Chapter 3) was also low at the time of the after surveys; typically 95 per day on weekdays and 146 on Saturdays.

Count data suggests that the majority of pedestrians (approximately 4 out of 5) continued to use the underpass below Woodhouse Central which provides a convenient option to/from the car parks on the outside of the Box Road.

In the short term, the numbers crossing at street level are expected to remain low. While the questionnaire surveys show strong net agreement (town centre users 50%, residents 58%) with the statement, 'I am now more likely to cross the Box Road at street level rather than using the underpasses and overbridges'; this is only likely to be the case if crossing at grade provides a more convenient option. However, those now crossing at grade are doing so in a safer environment.

Town Park and Silkin Way

The LSTF package included upgrading a seven mile stretch of the Silkin Way Multi-User Route, and funding for a Cycle Hub in the Town Park (contributing to a £3m improvement project funded through the National Lottery).

Manual one day counts show evidence of a large increase in cycle activity in the Town Park, from less than 100 per day between 2006 and 2013, to 185 in 2014 and 365 in 2015. Pedestrian activity also increased between 2013 and 2015, returning to the levels observed between 2008 and 2010.

There is also some evidence of an increase in pedestrian and cycle flow on the section of the Silkin Way to the west of Legges Way (5kms from the town centre), but not on Stirchley Lane (2.5kms from the centre).

One day counts can be highly variable from year to year, so these results need to be considered with caution.

4.3.3. Redhill results

Baseline mode use

Results from the town centre user and residents' surveys show that, prior to the investment in sustainable transport measures:

- car was the dominant mode (used by 58% of town centre users and 72% of residents in the previous 12 months);
- bus (used by 37% of town centre users and 21% of residents) and walking (used by 34% and 47% respectively) also accounted for a considerable amount of usage; but,
- levels of cycling were much lower, with 4% of town centre users and 5% of residents having cycled in the previous year.

It is worth noting that levels of walking and cycling were higher in Redhill than Telford.

Q2a. What mode shift away from the car was generated in the town centre, as a result of the LSTF programme?

Modes used in the previous 12 months – Respondents were first asked to identify all modes used in the 12 months prior to the before and after surveys. There is no evidence to suggest that a significant proportion of survey respondents wholly transferred from car to non-car modes. At the time of the after surveys, Redhill appeared to be attracting new visitors (locals and those from further afield) who saw the town centre as a more attractive destination than previously, but may have been less familiar with the environment and transport options available and therefore more likely to travel by car. In addition, the LSTF / Balanced Network changes were perceived to have made it quicker and easier to drive to town centre destinations.

Change in frequency of mode use – Respondents were then asked “compared with a couple of years ago, do you use the following means of travel more or less...?”. The survey evidence shows that where users were familiar and had experience with sustainable travel modes there was a net increase (% more - % less) in frequency of bus use (amongst town centre users, +21%), train (amongst town centre users, +26%), and especially walking (town centre users +38%, residents +20%).

There is also evidence attributing some of this change to LSTF investment, based on:

- a significantly more stable trend in levels of walking and train use in the before survey (i.e. more people changed their travel behaviour post scheme completion), but conflicting evidence about trends in bus use);
- broadly similar reported change in frequency of bus, train and walking use when specifically asked “as a result of the recent transport schemes ..., to what extent do you use the following modes more or less...?”;
- identification of LSTF-related outcomes as reasons for walking more, by survey respondents:
 - ‘changes in the town centre have made walking more attractive’ (identified by 26% of town centre users who reported that they were walking more frequently), and
 - ‘new routes and crossing facilities on the way into town have made this mode more attractive’ (identified by 13% of users),after concerns about health and fitness, which were identified by about half of relevant respondents;
- regression analysis which shows that town centre users who perceived LSTF investment positively were more likely to have reported using sustainable modes more often as a result of the transport investment.

The extent to which these increases were due to respondents making more trips, or because they changed modes for some trips, is unclear, but is likely to have been due to a combination of these factors.

Respondents were only asked about modes they had used in the last 12 months. However, presenting the reported changes as a proportion of all respondents (to indicate the overall change in behaviour), suggests that the overall proportion of trips on foot may have increased.

Conclusion – The survey responses suggest that there was a net increase in walking amongst existing users, which may have increased the overall proportion of trips undertaken on foot. There is some evidence suggesting a link with LSTF investment, but it is not possible to establish the level of attribution. There is no evidence to suggest that additional investment in the Northern Corridor led to greater use of sustainable modes than elsewhere in Redhill.

* The survey questions focused on travel into the town centre. However, the LSTF measures were mainly focused around improving the pedestrian and cycling environment within the town centre, only influencing part of respondents’ trips.

Modes used in previous 12 months

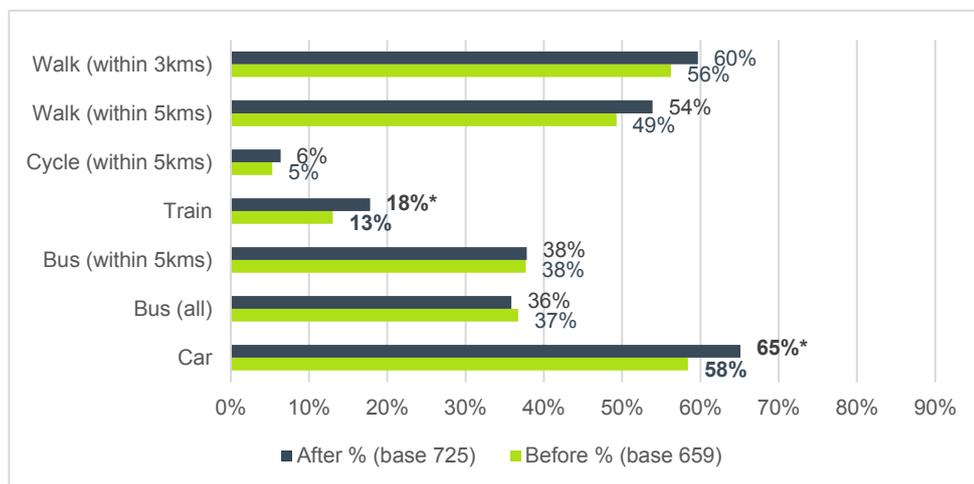
Town centre users - Comparison of results for town centre users in the before and after samples shows:

- a **significant increase in car use** (58% before, 65% after) – with the biggest increase amongst those living more than 5kms away;
- a **significant increase in train use** (13% before, 18% after) – primarily amongst those living within Redhill (<3kms);

- a significant increase in walking (34% before, 40% after), with similar increases amongst those living within 3kms (+3%) and 5kms (+5%), but not found to be statistically significant for the associated sample sizes³¹ - regression analysis shows that the increase is likely to be due to changes in the socio-demographic and behavioural characteristics of town centre users;
- no significant change in use of bus and cycling.

No modes showed a significant fall in usage, suggesting that visitors interviewed in the after period were using a wider range of modes.

Figure 8. All modes used to travel into the town centre in the last 12 months - Town centre users



Significant differences in before and after results marked with asterix (*)

At the time of the after period, Redhill appeared to be attracting new visitors (locals and those from further afield) who saw the town centre as a more attractive destination than previously. There is no significant difference between the two samples in terms of the proportion travelling more than 5kms. However, in the after period, there were more people visiting on a more infrequent basis who may have been less familiar with the environment and transport options available, and therefore more likely to travel by car.

The increase in rail use was primarily focused in the Northern Corridor (served by two local stations) where the increase was 10% (6% before, 16% after*)³². Rail use was promoted through the LSTF marketing and information initiatives, and improvements to the public realm between Redhill Station and the town centre, but planned leaflet drops in the corridor did not take place. It is unclear how much the observed increase in usage was due to the LSTF investment, but the introduction of the keyGo smartcard and regional trends are also likely to have been key drivers behind the change.

Across the whole sample (including those living locally and further afield), the results show a significant increase in walking and cycling combined (37% before, 43% after)³³. Contrary to expectations, further analysis shows that the increase was only significant in areas other than the Northern Corridor. However, once socio-demographic and behavioural characteristics have been controlled for using regression analysis, the before and after LSTF intervention effect is no longer significant, suggesting that the increase was likely to have been due to socio-demographic (age, mobility impairment) and behavioural (distance, frequency of visits, dwell time, journey purpose) differences between the two samples. **There is therefore no robust evidence from the analysis undertaken to suggest that the observed increase in walking and cycling combined was due to the LSTF intervention.** See Section A.5.1 and A.5.2 in Supporting Technical Appendices for detailed regression results.

Residents - Comparison of before and after responses from the residents survey, representing real change within a retained sample of respondents also shows an increase in car use (+5%); but a decline in the

³¹ Surprisingly, the biggest increase in the % walking occurs amongst those living beyond 5kms. These respondents are expected to have walked to the town centre from another destination in Redhill (e.g. office) rather than home.

³² Compared to 7% before and 11% after in other areas of Redhill (outside the Northern Corridor).

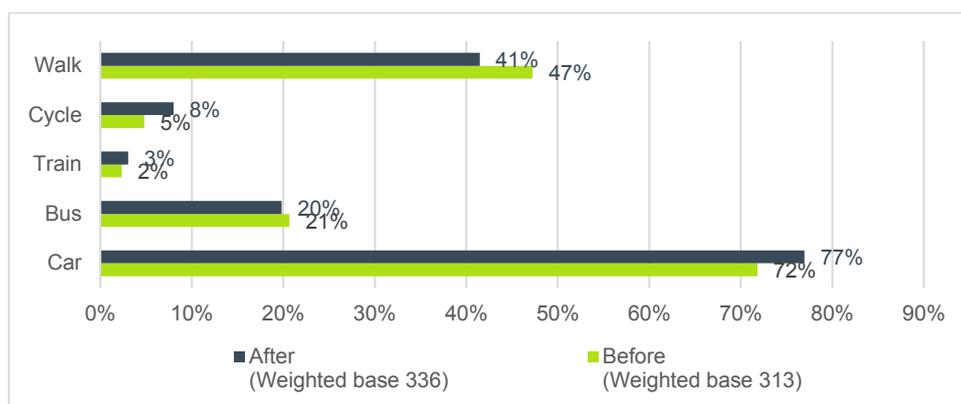
³³ Surprisingly, the biggest change in the % walking occurs amongst those living beyond 5kms. These respondents are expected to have walked to the town centre from another destination in Telford (e.g. office) rather than home.

proportion walking within the previous year (-6%); and small changes in the use of bus (-1%), train (+1%) and cycle (+3%). The changes are not significant, and suggest no significant change in the wider population.

In terms of their most frequently used mode, the majority of residents (83%) reported no change. A small number of respondents shifted between car and sustainable modes (12%), with a **net shift away from sustainable modes**, towards car, van or motorcycle (+3%, +9 residents). This supports the findings from the town centre user survey which suggests an increase in car use.

Only four residents described cycling as their main mode in the before survey, increasing to eleven in the after survey. In addition, the proportion reporting to have cycled in the last year increased from 5% to 8%. The DfT's Active People Survey shows evidence of an increasing trend in levels of cycling across the Borough (up 1.3% between 2012/13 and 2013/14) suggesting some of this increase is likely to have occurred anyway.

Figure 9. All modes used to travel into the town centre in the last 12 months – Residents



Significant differences between before and after results (with respect to the wider population) marked with asterisk (*).

Change in frequency of mode use (and the role of the LSTF / Balanced Network investment)

a) In general (existing mode users only) - The above findings relate to the range of modes used in the 12 months prior to the before and after surveys; but do not take account of any changes in frequency or intensity with which different modes were used (including main and secondary choices). Survey respondents were therefore asked 'Compared to a couple of years ago, do you use the following means of travel more or less, for trips into the town centre?'. No specific reference was made to any of the recent sustainable travel measures at this stage in the questionnaire. Respondents were only asked about the modes they had used in the past 12 months³⁴.

A substantial proportion of survey respondents reported 'no noticeable change' (the results for train use by residents, and cycling, are not reported here due to the very small sample sizes involved):

- car (57% tcu, 67% res), bus (45% tcu, 45% res), train (35% tcu, -), and walk (49% tcu, 51% res)³⁵.

The remaining respondents reported **net increases**³⁶ in the use of all sustainable modes:

- particularly walk (+38% tcu³⁷, +20% res) but also bus (+21% tcu³⁸, 0% res) and train (+26% tcu, -) to varying degrees;

and in use of **car (+5% tcu, 5% res)**.

Those using walk, bus and train (town centre users only) at the time of the after survey, did so more frequently than previously. Walking amongst town centre users increased the most, with 45% reporting to be

³⁴ Sample sizes varied for each mode, as follows: car (452 tcu, 257 res), bus (257 tcu, 64 res), walk (287 tcu, 139 res).

³⁵ %s relate to town centre users and residents respectively.

³⁶ % more frequently - % less frequently.

³⁷ +35% for just town centre users living within 3kms; covering the same catchment area as the residents survey.

³⁸ +14% for just town centre users living within 5kms.

walking more frequently than before. The extent to which this is because they were making more trips, or because they changed modes is unclear – but is likely to have been due to a combination of these factors.

Corresponding results from the before survey demonstrate a more stable trend prior to the LSTF investment. Significantly more town centre users reported 'no noticeable change' in use of bus, train and walking in the before survey: bus (65% *before*, 45% *after**), train (58% *before*, 35% *after**), and walk (63% *before*, 49% *after**). Similar trends were also evident in the residents sample. Before respondents also reported smaller net increases in use of bus, train and walk (with the exception of residents who reported a more positive trend in bus use prior to the LSTF investment).

The *after* results suggest that the trend towards increasing frequency of walking amongst existing walkers continued to grow post LSTF investment, as did the positive trend in train use, and the positive trend in bus use amongst town centre users; but amongst residents, the growth in bus use stabilised and was not maintained by the LSTF investment.

b) As a result of recent transport investment (existing mode users only) – The same respondents were then asked 'As a result of the recent transport schemes in Redhill, to what extent do you use the following modes of travel more or less, for trips into the town centre?'

For most modes, the reported change is similar or exceeds the **net increases** reported above:

- **car (+15% tcu, +5% res), bus (+17% tcu, +8% res), train (+13% tcu, -), walk (+33% tcu, +27% res).**

As for Telford, the results highlight some inconsistencies in the responses given to this and the previous question, with some respondents reporting high levels of use, as a result of the recent transport investment, than they reported overall.

Nevertheless, the results do suggest that the recent transport changes were a factor behind the increased frequency of use of: car (both user groups); bus (mainly amongst town centre users); train (amongst town centre users); and **particularly walking** (amongst both groups).

When asked why they were walking more, concerns about health and fitness were identified as a factor by almost half of survey respondents. This was one of the themes of the TravelSmart campaign, but is also likely to have been a reflection of wider trends and messages within society in general. Other reasons relating to the LSTF investment were identified as a factor by a smaller but notable number of respondents – *although the extent to which they are causal rather than associated factors is difficult to determine*:

- 26% of town centre users (but only 5% of residents) agreed that 'changes in the town centre have made walking more attractive', and
- 13% of town centre users (but only 2% of residents) agreed that 'new routes and crossing facilities on the way into the town centre have made this mode more attractive', but,
- only 4% of town centre users and 7% of residents said that they were walking more because they were now more aware of the options.

Drivers behind increased train use are discussed above. The reported net increase in train use of +13% amongst town centre users, suggests that the LSTF investment had an influence, but is unlikely to have been the main driver.

Comparison of results for those interviewed in different corridors within Redhill show similar net increases in use of bus (+9% Northern Corridor, +13% Other Corridors), and walk (+29% Northern Corridor, +28% Other Corridors), but much larger increases (statistically significant) in use of car in the Northern Corridor (+22%) compared with Other Corridors (+2%). This is contrary to expectations, given the additional LSTF investment in the Northern Corridor.

Regression analysis shows that while the difference in mode use between the before and after sample was found to be due to socio-demographic and behavioural differences between the two samples rather than any LSTF / Balanced Network intervention impact, **there is evidence of a link between the various measures and the intensity of use of sustainable modes (bus, walk, cycle)**:

- Town centre users who were aware of the LSTF schemes (see Section 4.2.3c) were more likely to have reported using sustainable modes more often following the transport investment.
- Those who perceived LSTF interventions to have had a positive impact on town centre accessibility across all modes (see Section 4.2.3b) were more likely to have reported using sustainable modes more often as a result of the transport investment.
- Those who perceived the recent transport changes to have been more effective in delivering the intended outcomes (see Section 4.2.3c) were more likely to have reported using sustainable modes more often as a result of the transport investment.

In addition, those who perceived walking and cycling to be easier were more likely to have walked or cycled in the past year (in either the before or after period). Similarly, those who believed it was easier to use any of the sustainable modes were more likely to have used any of these modes in the past year (in either the before or after period).

See Section A.5.3 in Supporting Technical Appendices for detailed results.

c) As a result of recent transport investment (all respondents) – While respondents were only asked about modes they had used in the last 12 months, it is useful to present the results as a percentage of all respondents, to estimate the scale of behaviour change. The above results are based on different sample sizes for each mode, but presenting the results against a common base (719 for town centre users, and 336 for residents) gives an indication of the impact of mode share³⁹.

The corresponding stated changes in use of car, bus, train, and walk, as a result of the transport investment schemes are:

- **car (+9% tcu, +1% res), bus (+5% tcu, -2% res), train (-1% tcu, -5% res) and walk (+18% tcu, +12% res).**

In the absence of information about the actual number of additional trips made by each mode, these results suggest that the overall proportion of trips on foot may have increased, post LSTF investment. *Note – the DfT's Active People Survey shows no significant change in levels of walking within the borough.*

Q2b. Did the number of people walking and cycling into / within the town centre increase?

*Video counts undertaken at three key access points to the town centre show no significant change in the total number of pedestrians and cyclists entering the town centre via the three approach routes between May 2014 and September 2015 overall. However, there was a significant increase in **cycling** (+20%) across all survey days - albeit against a low cycling base. This is consistent with the wider trend observed within the Active People Survey (2014/15 and 2015/16), suggesting that the recent transport investment is only one of several factors contributing to the observed increase in cycling; alongside the legacy effect of the London 2012 Olympic Games, for example.*

Pedestrian and cycle activity to / from the town centre

Video counts undertaken at three key access points to the town centre show that the vast majority of those entering / exiting the pedestrianised area of the town centre, in both survey periods, were pedestrians. Only 1% of those counted were cyclists (either pushing or on a bike). These results are consistent with the questionnaire survey results which show very low levels of cycling.

There was no significant change⁴⁰ in the total number of pedestrians and cyclists entering the town centre via the three approach routes between 2014 and 2015 overall. However, these results mask some significant changes:

- There was a **significant increase in cycling (+20%) across all survey days** - albeit against a low cycling base. This is consistent with the wider trend observed within the Active People Survey (2014/15 and 2015/16), suggesting that the recent transport investment is only one of several factors contributing to

³⁹ See Telford section for further explanation.

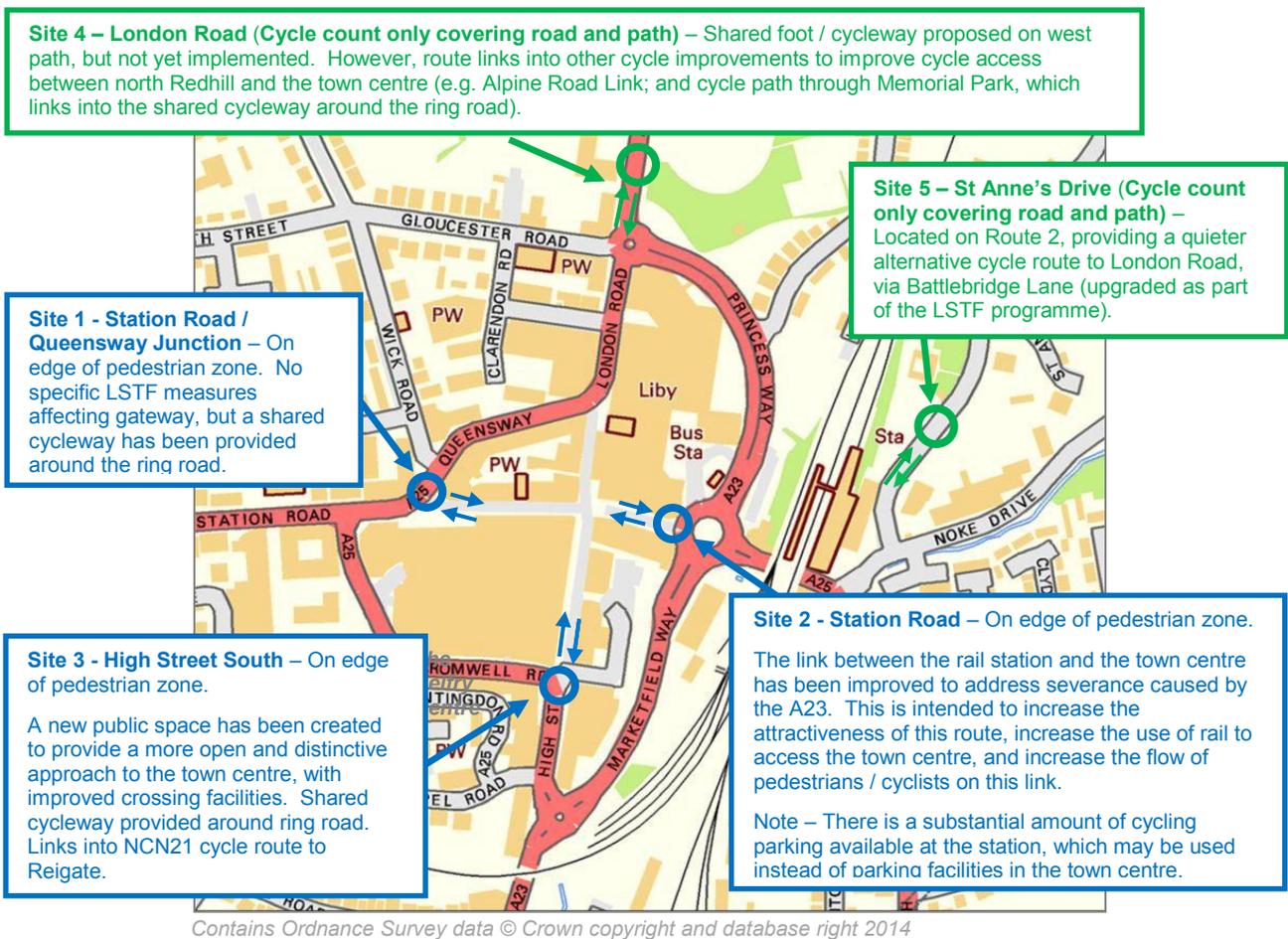
⁴⁰ Significance testing was undertaken using paired t-tests (two-tail) to examine differences by mode, day, time period, and count site.

the observed increase in cycling; alongside the legacy effect of the London 2012 Olympic Games, for example.

- There was also a **significant increase in pedestrian / cycle flow (combined) into the town centre on Saturdays**. The majority of the additional flow was via the eastern approach, where there was significant investment in the public realm. The increase in use of the eastern approach may partly reflect an increase in use of train – the town centre survey after results show that 18% of visitors had used the train to travel into the town centre in the last 12 months, compared with 13% in the before survey. However, the counts suggest that the recent transport investment has made this approach a more attractive route to/from the town centre; and may have contributed to the increase in usage, particularly on Saturdays.

The profile of pedestrian movements by day of week and time periods was similar in both years. The low numbers of cyclists means that it is difficult to draw robust conclusions about the profile of cycle movements throughout the day or by day of week.

Figure 10. Pedestrian and cycle video counts in Redhill town centre



Pedestrian and cycle activity north of the town centre

Counts undertaken at two sites to the north of the town centre (London Road and St Anne's Drive) show:

- a significant decrease in cycling at both locations on weekdays;
- a large significant increase on Saturdays at St Anne's Drive, but little change on London Road (not statistically significant).

These results suggest that certain sectors of the population (i.e. weekend cyclists) were making use of the new cycle links via St Anne's Drive, at the time of the after counts; however, this is not replicated amongst the weekday population. The delay to the implementation of the London Road shared use cycle path meant that a large increase at this site was not expected.

4.3.4. Conclusions

Hypothesis B: Change (improvement) in perceptions regarding access by sustainable modes, was associated with an overall change in mode use (greater use of sustainable modes).

As shown in Section 4.2, improvements in perceptions of whole journey accessibility were primarily confined to an increase in the % describing access by walking as 'easy' or 'very easy', of up to 12 percentage points in Telford and 8 percentage points in Redhill. The impact on mode use is therefore likely to have been small.

Nevertheless, evidence from the regression analysis undertaken for both case studies shows:

- Those who perceived LSTF interventions to have had a positive impact on town centre accessibility (across all modes, including car) were more likely to have reported using sustainable modes more often as a result of the recent transport investment.*
- Those who perceived the transport changes to have been more effective in delivering the intended outcomes were more likely to have reported using sustainable modes more often as a result of the recent transport investment.*

The survey results for both locations also show that the biggest change appears to have been in the frequency of walking trips; which is consistent with the small improvement in perceptions regarding access by foot, identified above. The extent to which the reported increases in use were because respondents were now making more trips, or because they changed modes for some trips, is unclear, but is likely to have been a combination of these factors.

It is often suggested that relatively modest investments designed to improve the attractiveness of walking and cycling can have a significant impact on mode split. These results cast some doubt on this conclusion, at least over the short term (six month) and in these circumstances.

The above section shows that improvements in perceptions of general whole journey accessibility were primarily confined to an increase in the % describing access by walking as 'easy' or 'very easy', of up to 12 percentage points in Telford and 8 percentage points in Redhill. The impact on mode use is therefore likely to have been small.

The study finds no evidence that a significant proportion of survey respondents wholly transferred to non-car modes, or that a higher proportion were using sustainable modes, six months post implementation. In Telford, the Box Road changes were perceived to have made it quicker and easier to drive to town centre destinations, and this appears to have encouraged a broader proportion of visitors from within Telford and beyond, to drive. Similarly, at the time of the after surveys, Redhill appeared to be attracting new visitors who saw the town centre as a more attractive destination than previously, but may have been less familiar with the environment and transport options available and therefore more likely to travel by car.

Nevertheless, survey evidence shows net increases in frequency of use of bus, train, and especially walking, amongst users of these modes - as well as increased car use. The results for both locations also show that the biggest change was in the frequency of walking trips; which is consistent with the small improvement in perceptions regarding access by foot, identified in Section 4.2. The extent to which the reported increases in use were because respondents were making more trips, or because they changed modes for some trips, is unclear, but is likely to have been due to a combination of these factors.

There is evidence that some of this change can be attributed to LSTF investment. Regression analysis undertaken for both case studies shows that:

- those who perceived LSTF interventions to have had a positive impact on town centre accessibility (across all modes, including car) were more likely to have reported using sustainable modes more often as a result of the recent transport investment; and
- those who perceived the recent transport changes to have been more effective in delivering the intended outcomes were more likely to have reported using sustainable modes more often as a result of the recent transport investment.

However, there is no evidence to suggest that additional investment in the Northern Corridor led to greater use of sustainable modes than elsewhere in Redhill.

These results are consistent with those of a recent study to evaluate the effects of the Connect2⁴¹ initiative, which measured the impact of new infrastructure at 79 sites across the UK, on walking, cycling, and physical activity levels. The study found that infrastructure interventions may increase walking and cycling (i.e. frequency of use) when delivered in high 'doses'; but smaller interventions may be used without necessarily increasing total activity. Lack of continuity, segregation, consistency and legibility are all factors which effectively reduce the effectiveness of the intervention, and hence the scale of the likely benefits.

In Redhill, one key investment in the Northern Corridor had not taken place at the time of the after survey, and this is expected to have reduced the effectiveness of the LSTF package and limited the potential for mode shift (and the value of the counterfactual analysis).

In both locations there were also a range of factors within the town centre which appear to have reduced the effectiveness of the walking and cycling infrastructure. Residents and town centre users in both towns indicated that the changes to the network had generally improved the flow of vehicles and made it more attractive to drive to the centre; while in Telford a new 600 space multi-storey car park opened in May 2014, associated with the new shopping centre – encouraging more travel from further afield by car.

The results suggest that in order to achieve significant mode shift in the short-term, a stronger emphasis on improvement along the corridors in question, increased awareness of the benefits of these routes for walking and cycling, and substantial demand management was probably required.

Finally, for this study, the after surveys were undertaken six months post implementation (reflecting the funding timescale for the study), and did not allow time for habits to be broken and behaviour changes to evolve over time.

⁴¹ <https://travelwest.info/project/ee-walking-and-cycling-build-it-and-will-they-come>

4.4. Key Findings - Retail Perception and Behaviour

This chapter examines whether change (improvement) in perceptions regarding access by sustainable modes, was associated with:

- improved perceptions regarding the attractiveness of the town centre as a retail, service and leisure destination; and
- an increase in frequency of visits to the town centre (Hypothesis C).

It also examines what impact use of sustainable modes had on the dwell time of those visiting the town centres, to determine whether an increase in use of sustainable modes is likely to have a positive or negative impact on the retail economy.

4.4.1. Telford

Q3a. Did changes in transport perceptions result in town centre users changing where they chose to shop and access services?

At the time of the after surveys, there was widespread acknowledgement amongst stakeholders and focus group participants that Telford had become a more attractive retail destination. This was primarily due to the opening of Southwater and other development in the area, but two-thirds of survey respondents also identified the LSTF measures as helping to promote the town.

Visitors to the town centre were found to be making more frequent trips during the daytime and evening than previously – with a higher proportion of daytime visitors coming from further afield. This was mainly due to:

- *the improvement in the offering of shops, services and leisure facilities in the town centre; and*
- *change in personal circumstances, or other miscellaneous factors.*

However, the changes funded through the LSTF were identified as having had a positive impact in encouraging more than 10% of town centre users and more than 23% of residents to visit more frequently.

Attractiveness of town centre

At the time of the after surveys, there was widespread acknowledgement amongst stakeholders and focus group participants that **Telford had become a more attractive retail destination**.

The Southwater Development is perceived to have had the most impact. However, it is also significant that the transport changes to the Box Road were perceived to have had a positive influence by around two-thirds of survey respondents, particularly in terms of integrating the Southwater Development into the town centre and improving the look and feel of the outside spaces. These changes were seen as nearly as influential as non-transport changes such as the improvements to the Town Park and the new Asda.

Table 12. To what extent do you think the following have helped to promote Telford Town Centre as a destination? (% Positive – a lot, a little)

	Telford Shopping Centre and Southwater Development	Residents
The changes to the Box Road	65%	68%
The new Southwater leisure development – new restaurants, lmax cinema, Southwater, etc.	90%	93%
The Town Park improvements	72%	74%
The new Asda on Coach Central	69%	73%

Impact of transport investment on frequency of visit

At the time of the after surveys, visitors to the town centre were making more frequent trips during the daytime than previously – with a higher proportion of visitors coming from further afield. This was in contrast to a stagnant or declining trend during the period before the LSTF works commenced. The Southwater Development appears to have attracted new visitors, who also visited the Telford Shopping Centre and nearby Asda. Overall, after survey respondents were more likely to be travelling as a group, staying for longer, and combining retail and leisure trips – all positive impacts for the local retail economy.

The after survey results also show an increase in evening visits amongst those living within Telford⁴²; and sales of evening extensions to car park tickets were also reported to be higher. Focus group participants acknowledged that an evening economy had emerged in the town centre, which did not previously exist; although the closure of the Telford Shopping Centre in the evening was still felt to be a limitation.

The main reasons for visiting more were:

- the improvement in the offering of shops, services and leisure facilities in the town centre (identified by 34% of town centre users and 57% of residents visiting more frequently); and
- change in personal circumstances or other miscellaneous factors.

However, the **specific changes funded through the LSTF had a positive impact on encouraging some people to visit the town centre more frequently**. Between 10 and 25% of respondents stated that they were visiting more due to the improvement in:

- the ease of travelling into the town centre (town centre users 10%, residents 9%);
- the look and feel of the outside spaces (town centre users 7%, residents 23%);
- the Town Park facilities and amenities (town centre users 9%, residents 22%)⁴³.

This suggests that the transport schemes/initiatives and public realm improvements had a positive impact on encouraging some people to visit the town centre more frequently, alongside other factors.

However, a notable proportion of residents (up to a third depending on the form of question), reported a reduction in frequency of visits in both the daytime and evening. Some may have been deterred by the traffic disruption in the town centre during the main period of works, and not returned since. In addition, some focus group participants reported incidents of queuing on St Quentin Gate (Figure 2) and on the approaches to certain car parks following completion of the Box Road works, which may also have deterred some visitors. Only two or three people said that they were visiting less because the look and feel of the town centre had deteriorated – reflecting the widespread acknowledgement that the quality of the public realm had improved.

Q3b. What impact did the use of sustainable modes have on the dwell time of those visiting the town centre?

Survey results show a significant increase in the proportion of town centre users spending more than two hours in the town centre (41% *before*, 57% *after*), and a similar increase amongst residents (22% *before*, 33% *after*).

In both the before and after periods, those that walked to the town centre stayed for a significantly shorter length of time than those that travelled by car. The relative proportions staying more than two hours were:

- before period (car 44%, bus 35%*, walking 23%*);
- after period (car 58%, bus 55%, walking 38%*)⁴⁴.

It is unclear from the data whether there is a causal relationship between mode used and length of stay. It is

⁴² Although there is little change in frequency of visits amongst those living further afield.

⁴³ The Town Park has benefitted from significant investment in recent years with new facilities such as a new Visitors Centre, a high ropes course, crazy golf, and creation of an outdoor arena area for concerts and major events. LSTF initiatives include a Bike Hub and improvements to the Silkin Way multi-user route.

⁴⁴ Asterix indicates a significant difference compared with car.

possible that those walking lived close by and were able to visit the town easily when needed, and so made more frequent but shorter visits.

4.4.2. Redhill

Q3a. Did changes in transport perceptions result in town centre users changing where they chose to shop and access services?

Focus group participants expressed negative or neutral views about whether Redhill had become a more attractive destination in recent years. However, transport and environment changes in the town centre were perceived to have had a positive influence by about half of town centre users (49%), and 60% of residents.

In terms of frequency of visits, the town centre user and residents surveys provided contradictory evidence, and it is unclear whether the overall frequency of trips increased in the after surveys.

Nevertheless, there is evidence that the LSTF investment encouraged at least some visitors to make more trips, with 'improvement in ease of travelling into the town centre' identified as a key reason by 26% of town centre users (but only 5% of residents) visiting more frequently. It is unclear whether respondents were referring to vehicle access around the ring road, the improvements for pedestrians and cyclists in the town centre, or the corridor enhancements. However, a corridor-based comparison of results from the town centre user survey suggests that the transport investment in the Northern Corridor was not a significant factor behind the observed increase in frequency of visits.

While the public realm benefits were generally perceived positively (see Section 4.2), they only encouraged a small proportion of respondents (>10%) to consider visiting more frequently.

Attractiveness of town centre

In contrast to Telford, focus group participants expressed negative or neutral views about whether Redhill had become a more attractive destination in recent years, referring to the poor retail, eating, and night-time economy (which were still perceived to be declining). However, the perceptions of some participants were tempered by their awareness of the recent works within the town centre.

When asked about the role of various transport and non-transport changes in promoting Redhill as a destination, the improvements to the Memorial Park were perceived to have had the most impact. However, it is also notable that **transport and environment changes were perceived to have had a positive influence** by about half of town centre users (49%), and 60% of residents. Smaller proportions felt that travel information, marketing and promotion initiatives had had a positive impact (37% of town centre users, 45% of residents).

Table 13. To what extent do you think the following have helped to promote Redhill Town Centre as a destination? (% Positive – a lot, a little)

	Town Centre Users	Residents
The transport and environment changes in the town centre	49%	60%
Travel information, marketing and promotion initiatives	37%	45%
The improvements to Memorial Park	55%	78%

Impact of recent transport investment on frequency of visit

The town centre survey suggests there was a small increase in frequency of visits, as a result of more occasional visitors who saw the town centre as a more attractive destination than previously. However, the residents survey provides contradictory evidence, suggesting there was a net decrease in frequency of visits:

- A net proportion of town centre users surveyed in the after period⁴⁵ (+19%) reported that they were visiting the town centre more frequently than a couple of years ago (with similar results obtained for those living within and beyond 3kms). In comparison, the period prior to the recent investment showed a

⁴⁵ % more frequent responses - % less frequent responses

more stagnant trend, with most visitors reporting no noticeable change (73% *before*, 55% *after*), and a net change in the proportion visiting more frequently of just +3%.

Those who used to visit often before the transport changes continued to do so after, but the number visiting on a more occasional basis increased – up to three times a month for those living within 3kms, and up to once a month for those living further afield.

Corridor comparison (to inform the counterfactual analysis) shows that this trend was confined to those living in those parts of Redhill outside the Northern Corridor; with those living in the Northern Corridor reporting no significant change. This suggests that the transport investment in the Northern Corridor was not a significant factor behind the observed increase in frequency of visits.

- However, results from the residents survey (based on a retained sample) were less positive, with only marginal overall change. When asked directly, some 57% reported no change, but a net proportion (-4%) reported a decrease. Comparison of responses given in the before and after surveys to the question 'how often do you visit Redhill town centre during the day?' shows little change across the three categories of frequency analysed, with 75% of respondents providing the same response in both surveys.

The majority of survey respondents visiting more or less frequently cited 'change in circumstances' or 'miscellaneous other' factors as the reason for their change in behaviour; with positive / negative factors relating to the retail and leisure offering also being key drivers.

'Improvement in ease of travelling into the town centre' was also a key reason (for 26% of town centre users, but only 5% of residents visiting more frequently), suggesting that **the transport investment had a positive impact in terms of encouraging more frequent visits amongst town centre users**. However, a small proportion of town centre users visiting less frequently (12%) identified this as a reason for visiting less frequently – potentially reflecting frustration with the traffic disruption during the LSTF works and other more recent development activity in the town centre.

While the public realm benefits were generally perceived positively (see Section 4.2), they only encouraged a small proportion of respondents to consider visiting more frequently (town centre users 8%, residents 9%).

Q3b. What impact has the use of sustainable modes had on the dwell time of those visiting the town centre?

Survey results show that time spent in the town centre has remained the same over the period of research, with no significant differences observed between the two survey periods⁴⁶. The most common dwell time was 1-2 hours.

In both the before and after periods, those that travelled by bus to the town centre stayed for a longer time than those that travelled by car. The relative proportions staying more than two hours were:

- before period (car 37%, bus 51%*, walking 36%);
- after period (car 36%, bus 45%, walking 32%)⁴⁷.

It is unclear from the data whether there was a causal relationship between mode used and length of stay, and how this relates to frequency of visit or total spend.

⁴⁶ Note - the Shopping Centre Manager reported an increase in length of stay at The Belfry Car Park, but no data was provided to demonstrate the scale of change.

⁴⁷ Asterix indicates a significant difference compared with car.

4.4.3. Conclusions

Hypothesis C: Change (improvement) in perceptions regarding access by sustainable modes, is associated with improved perceptions regarding the attractiveness of the town centre as a retail, service and leisure destination; which leads to an increase in frequency of visits.

In both locations, transport and environment changes in the town centre were identified by at least half of survey respondents as having helped promote the town centre as a destination. However, in both cases, this factor was secondary to wider investment in the leisure offering within the town centre - the Southwater Development and Town Park improvements in Telford and the Memorial Park in Redhill.

In Telford, there were some signs that users of all modes were making more frequent journeys, and visitors were travelling from further afield. This was in contrast to a stagnant or declining trend in the preceding years. LSTF investment appears to have played a role in this, although improvements in the retail and leisure offering appear to be the main cause.

In Redhill, the LSTF investment appears to have encouraged some visitors to make more trips – ‘improvement in ease of travelling into the town centre’ was identified as a key reason by 26% of town centre users visiting more frequently. However, it is unclear whether frequency increased overall. This is probably because the scale of investment was much smaller than in Telford, the visible transformation less apparent, and there had not yet been a similar step change in the retail / leisure offering – if anything, it appears to have continued to deteriorate.

4.5. Key Findings - Retail Economy

Finally, this chapter examines the overall impact of the LSTF investment on the retail economy (Hypothesis C), focusing on:

- what positive economic impacts LSTF measures had on town centre activities and retail businesses; and whether retail business confidence increased as a result of LSTF initiatives, thereby helping to retain or attract businesses.

4.5.1. Telford

Q4a. What positive economic impacts did LSTF measures have on town centre activities and retail businesses? Did short-term retail business confidence increase as a result of LSTF initiatives thereby helping to retain or attract businesses?

The retail economy in the town centre showed positive signs post LSTF investment and the opening of the Southwater development. The role of the LSTF investment in contributing to these trends is difficult to isolate, but feedback from stakeholders, focus groups and town centre visitors suggests that the transport improvements were very much part of the mix of factors.

Just over half the retailers said the transport changes had helped attract new businesses into the town centre or encouraged businesses to stay or expand; and the changes to the Box Road were perceived by the Telford International Conference Centre owners to have contributed to substantial revenue growth in recent years.

The Box Road Scheme was identified as a requirement in the Central Telford Area Action Plan (CTAAP) to support future development in the town centre. It played a key role in the Telford Shopping Centre Masterplan coming forward in the format and timescales published during the LSTF delivery phase; and also helped drive proposals for new hotel accommodation and further eating establishments.

Impact of recent transport investment on local retail economy

The retail economy in the town centre showed positive signs post LSTF investment and the opening of the Southwater development. People visited more frequently, in larger groups and stayed longer. Occupancy levels within the Telford Shopping Centre remained high and all units in the Southwater development were quickly occupied; and footfall remained stable following the relocation of Asda, bucking UK and regional trends for the period 2014-15. The role of the LSTF investment in contributing to these trends is difficult to isolate, but feedback from stakeholders, focus groups and town centre visitors suggests that the transport improvements were very much part of the mix of factors.

In general, the 20 retailers interviewed had mixed views regarding the state of the local retail economy. However, they were generally positive about the recent transport changes, and approximately half thought that the transport changes had helped boost retail performance and confidence, as a result of better access by car and public transport and a more pedestrian friendly environment. Nevertheless, there was opposition from a few retailers due to the **disruption to trade during the works, and a perception that it had become more difficult to access the car-parks**. These factors may have been used as justification for poor performance by some retailers⁴⁸.

Just over half the retailers said the transport changes had helped attract new businesses into the town centre or encouraged businesses to stay or expand. Many cited Southwater as evidence of new businesses, but reference was also made to new stores in the Telford Shopping Centre, with one pop-up retailer reporting that they had decided to stay due to their improved confidence in their location.

There was a positive outlook from the business sample with respect to the expected impact of the recent transport changes on the future prosperity and health of the town centre. Over half the responses were related to increased footfall, growth or prosperity – as a result of better access, a more attractive looking centre, and a better retail / leisure offering.

⁴⁸ Footfall and car park data presented in the Supporting Technical Appendices (Chapter 6) suggests that customers lost during the works have come back, or have been replaced by new visitors.

Between 2013 and 2015, revenue at the Telford International Conference Centre (TICC) increased by approximately 50%, with knock-on benefits for the wider food, leisure, and hotel sectors. During this period, the TICC expanded by 20% (in 2013), the Southwater Development opened (Summer 2015), and transport changes were implemented on the Box Road (April 2015). All of these factors were identified as having contributed to the TICC's success. The **changes to the Box Road were perceived by the TICC owners to be very much part of this mix**, contributing to the promotion of Telford as a destination and the re-messaging of what Telford is about, and creating the sense of a more integrated and connected town centre.

Contribution of recent transport investment to town centre developments

Although LSTF funding was not in place at the time the Southwater Development received the go-ahead, improvements to the Box Road were identified as a requirement in the Central Telford Area Action Plan (CTAAP).

Confirmation of LSTF funding for the Box Road Scheme played a key role in the Telford Shopping Centre Masterplan (outlining proposals for the expansion of the Centre by up to 80%⁴⁹) coming forward in the format and timescales published during the LSTF delivery phase. In particular, the public realm changes were seen as crucial in the context of the consideration of outward facing frontages and a new pedestrian entrance on Coach Central. As of January 2016, works had started on both the Southern and Northern Quarters, and funding had been secured for the relocation of the bus station. The level of developer interest in units in the Southern and Northern Quarter developments was good, with interest coming from retailers not already present in Telford or in some cases the sub-region, i.e. they were not just relocations.

At the time of the after interviews, the Southwater Events Group was proposing a new 150 bed hotel and eating venue, close to the TICC. This had been facilitated by the recent growth in TICC revenue, and confidence in the future of the town centre – of which the Box Road improvements were identified as an important contributor.

Elsewhere, interest had been expressed in a development plot on Rampart Way. After several years with no interest, a developer came forward in 2014/15 with proposals for a new pub – believed to be a reflection of the improved pedestrian access around the Box Road and strengthening of retailer confidence.

Furthermore, the two way operation on Box Road and associated roundabout improvements were reported by stakeholders and focus group participants to have improved access to the Forge and Wrekin Retail parks (0.5kms from the Shopping Centre). A major national retailer had recently reported that they would be building a new outlet store at Forge Retail Park, demonstrating confidence in connectivity to this site.

4.5.2. Redhill

Q4a. What positive economic impacts did LSTF measures have on town centre activities and retail businesses? Has short-term retail business confidence increase as a result of LSTF initiatives thereby helping to retain or attract businesses?

In general, retailers had mixed views regarding the state of the local retail economy. Amongst those businesses in Redhill describing retailer confidence as improving (8 out of 20), the recent transport and public realm changes, the positive influence of development in the town centre and across the rest of the town, and the growth in the national economy were all identified as important contributory factors.

The investment of Government funding in the town, along with visible changes on the ground, was felt to have sent a positive message to developers and provided them with the reassurance that Redhill is the right place to invest. None of the developments identified in the Redhill Area Action Plan (Sites A to E) were dependent on the delivery of the LSTF / Balanced Network Schemes. However, the investment delivered the supporting infrastructure set out in the Plan as necessary to enable the proposed development, and will lessen future impacts on traffic levels and congestion. Furthermore, the measures were perceived by Council representatives to have contributed to progress at three of the sites.

⁴⁹ See Supporting Technical Appendices (Section 6.2.3).

Impact of recent transport investment on local retail economy

In general, retailers had mixed views regarding the state of the local retail economy. Amongst those businesses describing retailer confidence as improving (8 out of 20), the recent transport and public realm changes, the positive influence of development in the town centre (e.g. the redevelopment of Sainsbury's which started in Summer 2015) and across the rest of the town (e.g. new housing developments), and the growth in the national economy were all identified as important contributory factors.

Almost half the businesses (9 out of 20) predicted a negative impact on the town centre economy if the changes had not been made - the one way system and the poor quality of the public realm would have continued to have adversely impacted on the economy, and more shops would have closed down.

However, there was opposition from a few retailers, with four identifying the changes as having had a negative impact on their business. This appears to largely relate to the perceived disruption to trade during the implementation of LSTF / Balanced Network Scheme, and further traffic disruption associated with the redevelopment of Sainsbury's.

Contribution of recent transport investment to town centre developments

None of the developments identified in the Redhill Area Action Plan (Sites A to E) were dependent on the delivery of the LSTF / Balanced Network Schemes. However, the investment delivered the supporting infrastructure set out in the Plan as necessary to enable the proposed development, and will lessen future impacts on traffic levels and congestion.

Furthermore, the measures were perceived by Council representatives to have contributed to progress at Marketfield Way (Site A), Cromwell Road (Site B) and Warwick Quadrant North / Sainsburys (Site C). Without the transport changes, the development proposals would still have been in place, but may not have progressed to the same extent. The investment of Government funding in the town, along with visible changes on the ground, is felt to have sent a positive message to developers and provided reassurance to developers that Redhill is the right place to invest.

In the longer term, this in turn, is expected to influence other potential investors considering locating or expanding retail, services and office-based businesses in Redhill. The willingness of Government and other key organisations (such as Sainsbury's, Waitrose, and Network Rail) to invest in Redhill is expected to make the decision easier for other businesses considering Redhill as a location for investment.

4.5.3. Conclusions

Hypothesis C: Change (improvement) in perceptions regarding access by sustainable modes, is associated with improved perceptions regarding the attractiveness of the town centre as a retail, service and leisure destination; which leads to an increase in frequency of visits, and strengthens the retail economy.

In both locations, the LSTF and associated investment is believed to have had a positive impact on the retail economy – more so in Telford (where the changes were more visible and delivered at the same time as a major leisure development).

In Telford, the role of the LSTF investment in improving the quality of the town centre environment and perceptions about accessibility was very much part of the mix of factors identified as driving retail confidence and growth in the town centre; and an important enabler of recent and planned retail / leisure development. The infrastructure improvements are expected to become more important as new developments are completed - in terms of providing sustainable access and creating a more conventional and integrated town centre.

In Redhill, retailers were less able to identify short-term tangible benefits of the LSTF investment, but the dominant view was that the retail economy would be worse if the investment hadn't taken place. In addition, the investment of government funding in the town, along with visible changes on the ground, is felt to have sent a positive message to developers and provided reassurance that Redhill is the right place to invest. The real benefits for the economy are expected to be realised over time.

4.6. Updated logic maps

The above findings are summarised in updated logic maps setting out the observed results based on the various evidence sources used for the research (see Appendix B, Figures B.1 and B.2). The maps highlight the linkages between the various elements of the theory of change, and the extent to which change can be attributed to the LSTF intervention.

4.7. Consequences of not delivering the LSTF package

4.7.1. Telford

The LSTF scheme is seen as having played a key role in driving forward the regeneration of Telford. The Southwater Development, improvements to the Town Park, and expansion of the TICC, supported by the LSTF investment, helped strengthen the attractiveness of Telford and improved its role in the sub-region. Stakeholders identified the following consequences of not delivering the LSTF package:

- If development had gone ahead without the shared space scheme on Coach Central, the road would have acted as a significant barrier to integration of the Southwater Development into the town centre, particularly in the evening. Modelling results undertaken for the original bid showed significant queuing without the LSTF scheme (and junction improvements at Forge and Malinslee Roundabouts) in place.
- The town centre public realm wouldn't have been improved to the same extent. There may have been pressure from developers to do something, but this would have been very small scale.
- The Telford Shopping Centre would have had very limited opportunities for growth.
- The Southern and Northern Quarter developments may not have been delivered, and funding for the relocation / reconfiguration of the bus station is unlikely to have been secured. The Council, as the highway authority, and Highways England would have been very concerned about the impact of development traffic on the network, which may have resulted in formal refusal of planning permission.
- The opportunity for Telford International Conference Centre to attract new events would have been limited, due to the poor quality of the walking route to/from the station and the lack of leisure and hotel facilities.
- Long term development would have been restricted. The changes to Coach Central provided the scope to link the Southwater Development, the existing retail area, and the planned Southern Quarter development, in a way that wouldn't have been possible without the LSTF scheme. Pedestrian and cycling improvements elsewhere in the town centre have opened up opportunities for development in other areas of the town centre.

4.7.2. Redhill

Stakeholders in Redhill (Council officers and the Shopping Centre Manager) identified the following consequences of not delivering the LSTF Package in terms of travel and use of the town centre:

- Congestion would have continued to grow and would have created further barriers to growth and investment in Redhill.
- Without the pedestrianisation of Station Road East and the improvements to the gateways, the perception of the town centre as a through route, rather than as a destination, would have perpetuated and the town centre would have continued to stagnate.
- The town would have continued to have declined in the eyes of the public.
- Confidence among job seekers in the Merstham area would be lower as hundreds of people benefitted from training offered as part of the community funding initiatives (funding grants to community groups to promote sustainable transport and improve access to jobs and skills).

- The wider and longer term benefits of improving community cohesion would not have been realised in Merstham, and while an unforeseen outcome, this is felt to be one of the legacies of the LSTF programme.
- Community engagement (via Live Smart Centre, the Bikes Revived Hub, and Community Infrastructure Funds) was viewed very positively and played an important role in building a better Redhill. This wouldn't have occurred without the LSTF project.

4.8. Transferability of findings

Both Telford and Redhill were the focus for LSTF projects which sought to support the economic vitality and growth of town centres. Both towns:

- are medium sized centres of sub-regional importance;
- comprise a defined pedestrianised retail area surrounded by a major ring road or strategic route, which severed the town centre from the surrounding development and constrained growth of the town centre economy; and
- are the focus for significant wider regeneration investment.

Both sets of investments concentrated heavily on improving the central area from the point of view of walking and cycling, but also appear to have improved conditions for motorists as well.

Conclusions about the success of the particular investments made can only really be applied to similar situations elsewhere. However, some of the findings relating to specific elements, such as the concerns about the shared space environments, are likely to be relevant to a wider range of contexts.

4.9. Lessons learned

This study has identified a number of lessons, in terms of both delivery and evaluation of sustainable transport packages.

4.9.1. Delivery-related lessons

The local authorities concerned identified a number of lessons from the delivery of the two packages, which are likely to be relevant to others involved in funding and delivering similar schemes:

- **Tailoring the package design to the funding available** – The scheme proposed by Telford & Wrekin Council in the original LSTF bid assumed a £9 million funding contribution from the Department for Transport, and was designed accordingly. If it had been known that only £6 million funding would be made available then a different scheme design would have been proposed. If funding for highway capacity improvements to the wider network (Forge and Malinslee Roundabouts) had not been secured, the integrity and viability of the Box Road Scheme would have been undermined. Fortunately the funding gap was met, but the issue created significant uncertainty at the start of the LSTF period.
- **Partnering frameworks** – Partnering frameworks with consultants and contractors enabled the authorities to commence work quickly once funding had been secured.
- **Negotiations with contractors** – The publicity associated with the bid submissions / funding decisions meant that contractors knew how much funding was available, which put them in a strong negotiating position when agreeing a fee with the Council. Detailed scrutiny and challenge of price quotes from contractors was therefore required.
- **Public consultation and engagement prior to and during delivery** – Helped secure public buy-in, particularly during the construction period.
- **Member input** – Local knowledge and input from Members helped inform detailed design, and minimise challenges from the public.

- **Lead in time for behaviour change measures** – Both authorities reported that the lead in time for many of the behaviour change initiatives was substantial; due to procurement, legal, design and piloting processes, developing a forum for engaging with businesses and organisations (if not already available), and the need for infrastructure elements to be in place to maximise the benefits of the initiatives. By Year 3, initiatives were starting to be effective but only had a year left to run. Telford & Wrekin secured LSTF Revenue Funding for 2015/16 and were able to continue the initiatives for a further year, but Surrey County Council (SCC) were not.

SCC reported that the timeframe for both the Business Forum and Community Infrastructure Fund initiatives were particularly challenging. Setting up a group, deciding on projects and implementing them in the funding period took longer than expected. A longer programme would have been beneficial, allowing time to first raise awareness, then undertake projects over a period of months or years, allowing habits to form over time.

- **Identification of behaviour change initiatives** – SCC also reported that both the Business Forum and local community groups found it easier to identify suitable capital projects, but struggled to propose revenue-based initiatives. As a result, initiatives such as bike lockers at certain key employment sites received a greater proportion of funding than anticipated.
- **Promoting sustainable travel to different types of business** – Telford & Wrekin developed different approaches for different types of businesses. For SMEs the emphasis was on demonstrating the financial and productivity benefits, while larger businesses were found to have more flexibility to focus on wider health and environmental benefits.

4.9.2. Policy-related lessons

The study has also highlighted a number of policy-related lessons for those considering similar types of interventions:

- Investment in LSTF-type interventions in town centres can result in short-term improvements in perceptions about town centre accessibility, and the attractiveness of the town centre as a retail, leisure, and service destination.
- Awareness of mode-specific interventions may be low amongst those who are unfamiliar with using these modes; and substantial promotion may be required to reach new potential users.
- Implementation of shared space environments may be seen as intimidating and confusing by some pedestrians, and create uncertainty for some drivers, at least in the short-term. Views may change with time and familiarity. However, information about the purpose and rationale for these environments, and how they are intended to work, may help alleviate concerns in the short-term.
- Perceptions about whole journey accessibility are likely to continue to be influenced by deficiencies in the wider network, which may continue to act as a barrier to mode shift.
- Strong demand management interventions and awareness-raising / promotion activities may be required to deliver mode shift in the short-term.
- Increasing road capacity within the town centre and improving access to key town centre destinations may reinforce car use for town centre trips; but may also improve the attractiveness of the town centre as a destination.
- Transport improvements can have a positive impact on retailer confidence and performance, when combined with wider development activity.
- The level and type of investment provided through the Local Sustainable Transport Fund was insufficient to achieve actual mode shift in the short-term.

4.9.3. Evaluation-related lessons

Finally, the study has highlighted a number of lessons for consideration in future evaluation studies of sustainable transport interventions:

- **Longitudinal panel survey** – This approach enabled real changes in perceptions and mode use to be captured, but the level of attrition between survey waves was higher than expected (59% of the original sample in Telford, and 62% in Redhill), and the weighting approach was complex requiring specialist knowledge.
- **Measuring mode shift** - Capturing a true picture of mode use and mode shift via a questionnaire survey is challenging. This study sought to do this using three types of questions: (i) mode use on the survey day or most frequently used mode, (ii) all modes used in the previous year (iii) change in frequency of use of each mode. The questions provide evidence on different aspects of mode use, but do not give the comprehensive picture of the number of trips made by each mode over an extended period required to truly estimate mode shift. A complete transfer from car to non-car modes is unlikely in the type of environments examined in this study, and the methodology needs to be able to capture occasional use of different modes and mixed mode trips.
- **Monitoring pedestrian and cycle numbers** - It was not possible to obtain a comprehensive picture of pedestrian and cycle numbers in the town centre. This would have required a large number of count locations over an extended period. Careful consideration should be given to the location of any counts, and particularly whether small changes in route choices will be adequately captured. In complex environments, where there are a multitude of route options, the cost of providing data which is sufficiently comprehensive may be prohibitive.
- **Inconsistency in survey responses** – The questionnaires developed for this study were designed to give a comprehensive picture of perceptions and behaviour, while seeking to identify the extent to which change could be attributed to the LSTF investment. The designs relied on respondents providing representative and consistent responses – between survey waves in the case of the longitudinal panel survey, and across questions addressing similar themes. This was not always the case. For example:
 - Different residents respondents stated ‘don’t know’ in the before and after surveys when asked about ease of access to the town centre;
 - Both sets of respondents tended to give more favourable responses when asked about changes in perceptions or behaviour as a result of the recent sustainable transport investment, compared to responses to earlier questions about change in general (prior to any mention of the interventions).
 - Some respondents stated that they had not used a particular mode in the previous 12 months, but then responded that they had used the mode more frequently in recent years, either generally or as a result of the recent transport schemes.

Careful consideration of these types of issues will be needed in any future studies using similar techniques. Filtering questions, or reminding respondents of previous responses, can provide a useful approach, but increases the length and complexity of the survey.

- **Attribution** – Perhaps the most important lesson arising from this study concerns the methodology around attribution. This study has sought to estimate the extent to which change can be attributed to LSTF investment, based on the following approaches:
 - questions about specific LSTF elements and issues of causality in the questionnaires and topic guides;
 - regression analysis - recognising that this approach identifies levels of correlation rather than causality;
 - corridor-based counterfactual analysis in Redhill; and
 - consideration of the relative contribution of other drivers within the wider environment.

Although the investments were fairly substantial (£15.7m in Telford, and £8+ million in Redhill across the LSTF and Balanced Network schemes), establishing causation remains difficult, and limited evidence of behavioural change due to LSTF has emerged. A thorough consideration of alternative approaches to establishing causation is needed at the start of any future studies.

Appendices

The background of the page is composed of several overlapping geometric shapes. A large, dark teal shape occupies the top-left and top-right portions. Below it, a large, light blue shape extends from the left edge towards the right. In the bottom-left corner, there is a white triangular shape. In the bottom-right corner, there is a smaller, medium-blue triangular shape. The overall aesthetic is modern and minimalist.

Figure A1. Telford LSTF Package (and wider interventions) – Detailed logic map setting out intended theory of change (prior to implementation)

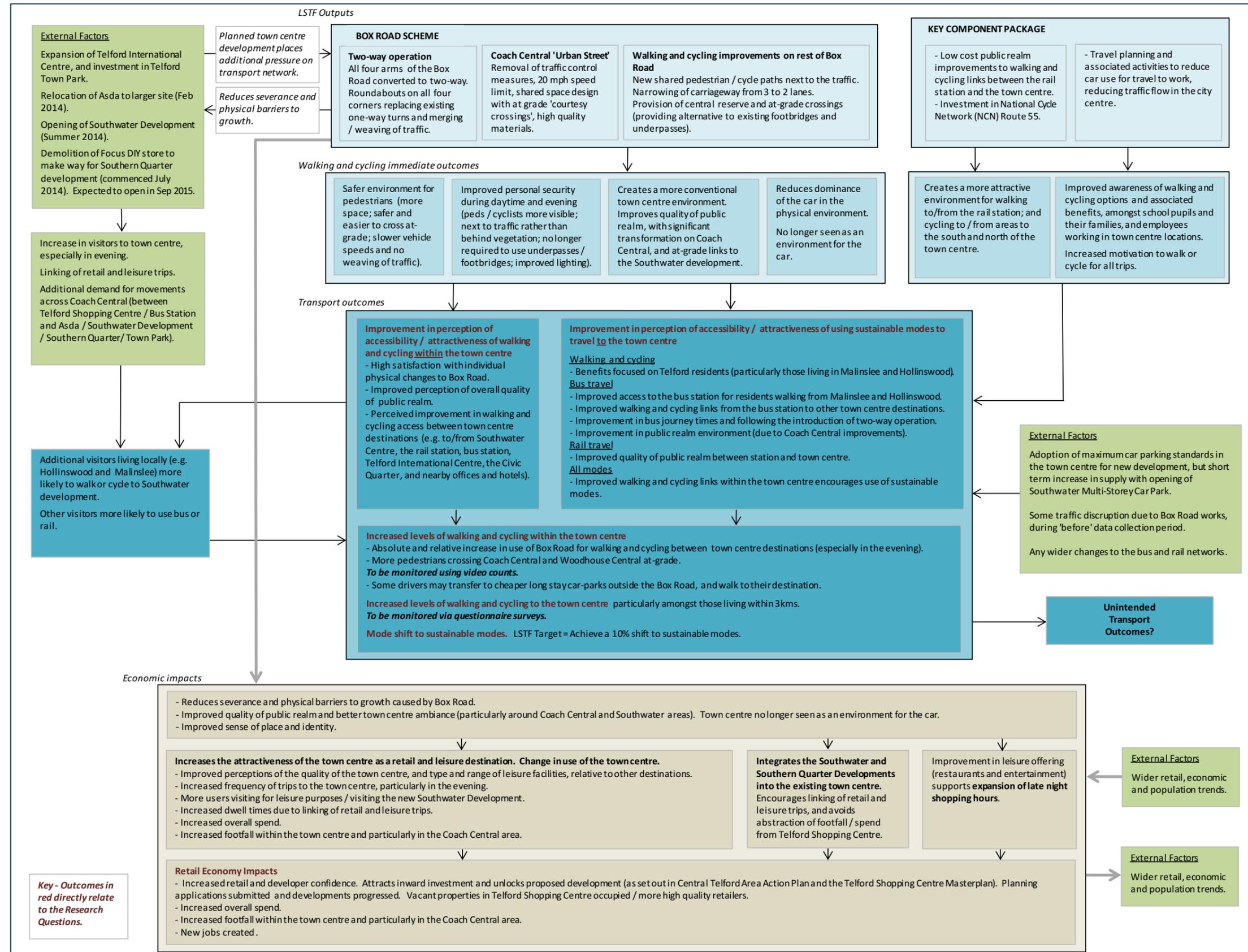


Figure A2. Redhill LSTF Package (and wider interventions) – Detailed logic map setting out intended theory of change (prior to implementation)

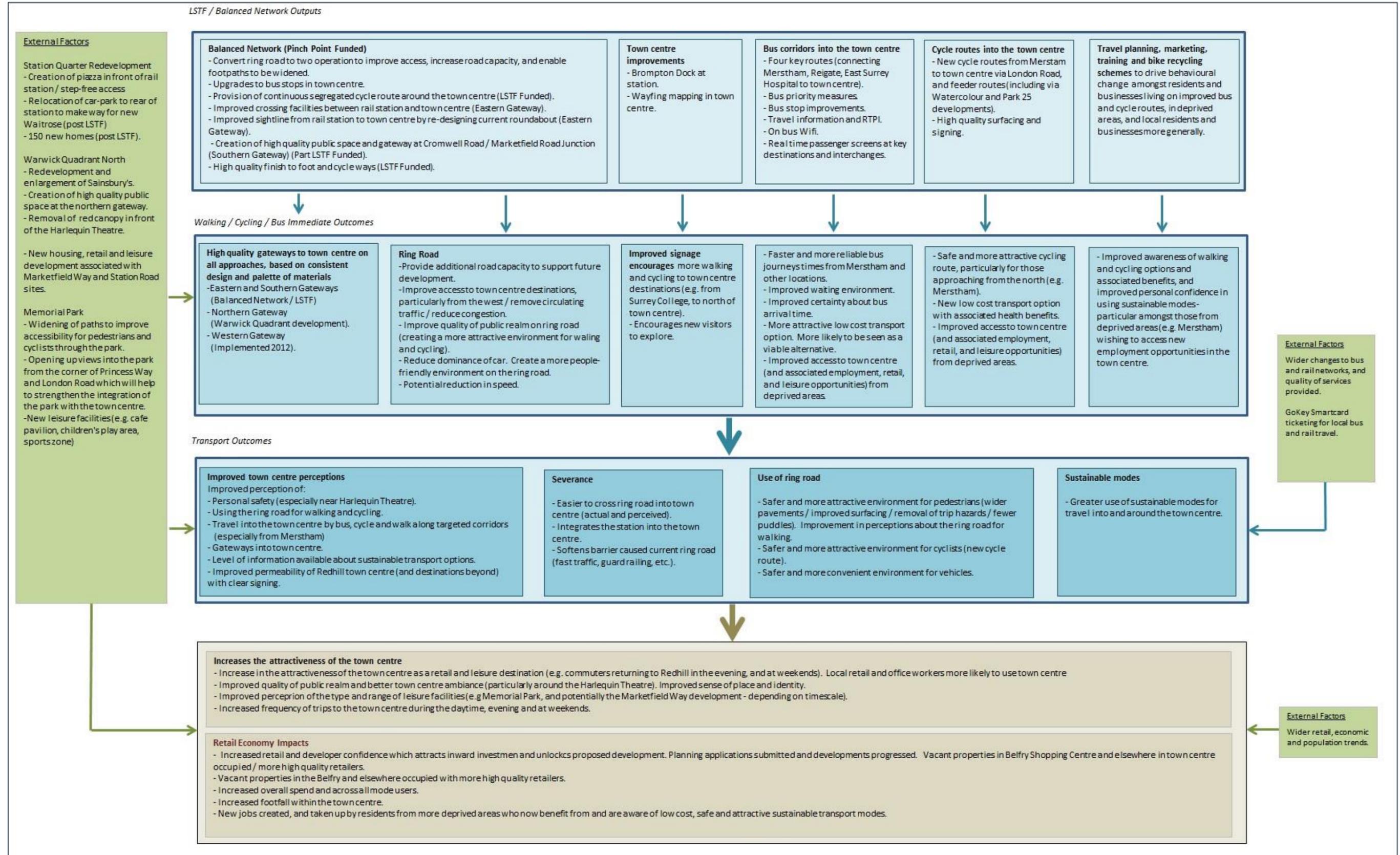
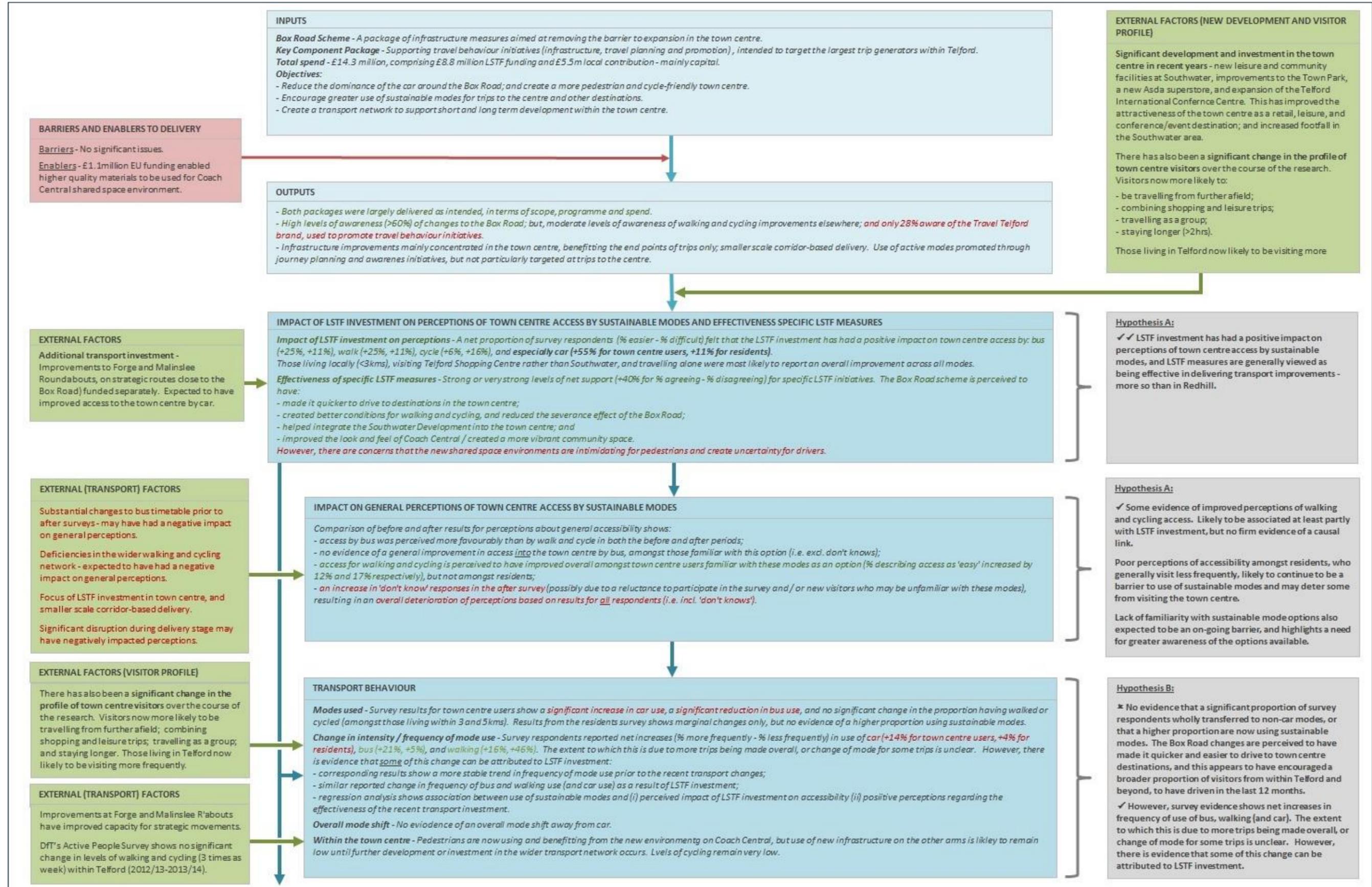
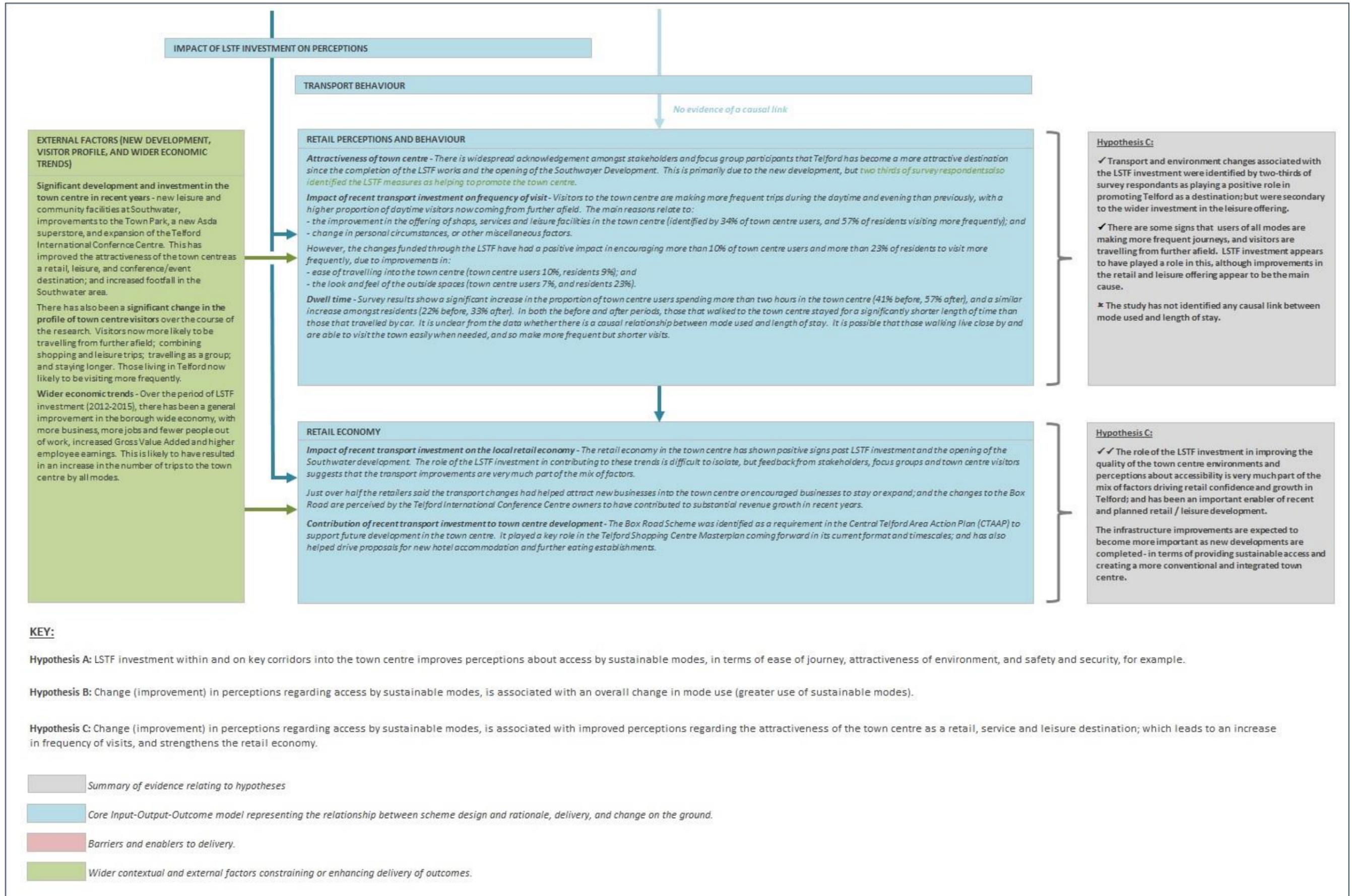
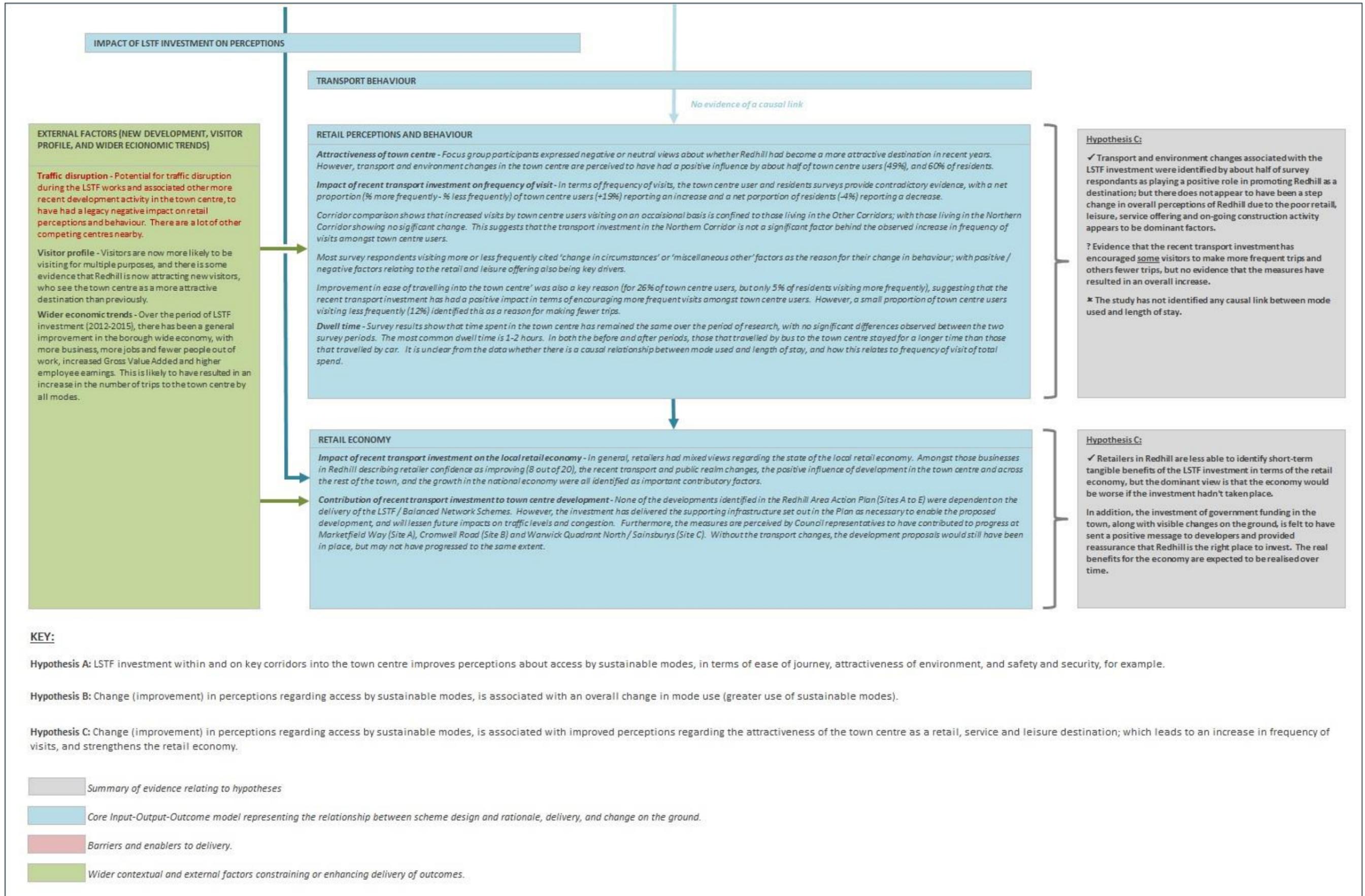


Figure B1. Telford LSTF Package (and wider interventions) – Detailed logic map setting out observed change (post implementation)







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