Reallocation of road space
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Abbreviations and acronyms

ADT	average daily traffic
AT	Auckland Transport
BCR	benefit–cost ratio
CAN	Cyclists Advocate Network
CCC	Christchurch City Council
CSR	community street review
DfE	Department for Education
EBOP	Environment Bay of Plenty
ECan	Environment Canterbury
KCDC	Kapiti Coast District Council
KSI	killed or seriously injured
LTCCP	long-term council community plan
NZHTS	New Zealand Household Travel Survey
ORC	Otago Regional Council
TCC	Tauranga City Council
TDM	travel demand management
NZTA	New Zealand Transport Agency
VTPI	Victoria Transport Policy Institute

Contents

Executive summary

Over the last 40 years, transport and land use policies have been predominantly focused on meeting the needs of private car travel. As a direct result of this approach, we have seen increased mobility where people travel further to reach goods and services. To tackle the problems associated with this approach, a policy paradigm shift is occurring, where road space is increasingly being valued in terms of the movement of people and person journey time, rather than just vehicle numbers and journey time efficiencies alone.

> *Road Space Reallocation involves shifting more road space to specific transportation activities and managing roadways to encourage more efficient and equitable transportation* (Victoria Transport Policy Institute 2008)

Road space reallocation schemes often face significant opposition in local shopping areas. International research is available, which indicates that people who walk, cycle and use public transport have a positive impact on local shopping areas. However, there is a lack of evidence on the economic impact of such shoppers in New Zealand.

The study aimed to investigate the economic impact of transport choice and road space allocation on retail activity in shopping areas located in central cities and along major road corridors in New Zealand cities. To achieve this, the research focused on three key research areas. The research aim and three core research questions were:

- Identify relevant New Zealand and overseas research/case studies on economics and road space allocation.
- Assess the economic impact of users by transport mode in New Zealand shopping areas.
- Investigate how road space allocation/street design influences use of shopping areas.

Identification of overseas research and case studies

A literature review of relevant research into the economic impact of transport users and wider benefit of promoting active travel was undertaken. Some of the headline findings from the literature review are outlined below.

- The urban design of an area has a significant impact on how an area is used by people. Studies show that good street design often results in economic benefits for retailers (CABE 2007).
- On average, business owners overseas overestimate car use by their customers by approximately 20% and underestimate walking trips to local shopping areas by 13 to 19% (Sustrans 2006).
- The removal of traffic lanes does not necessarily result in increased traffic congestion and results in a significant reduction in crashes. The reallocation of road space to other modes of transport also provides benefits for the wider community (Burden et al 1999).
- The retention of on street car parking is often a stated priority for retailers, although parking is a relatively low priority for shoppers (type of shops available is the priority followed by an attractive and comfortable environment) (Sustrans 2006; Edinburgh City Council 2002).
- Although these studies have provided useful evidence indicating that the impact of car trips and the need for associated nearby parking is widely overestimated, we still need to provide local evidence to support the results of these international studies.

Economic impact of transport users in New Zealand

The economic value of different transport modes to shopping trade was evaluated through quantification of average spend and frequency of trips of shoppers by mode of transport. A total of nine shopping areas in Auckland, Christchurch and Wellington were selected, located along arterial corridors and in central city locations. The Christchurch surveys were undertaken before the Canterbury earthquake events occurred.

- A total of 1744 shopper surveys and 144 retailer surveys were completed.
- The overall results of the economic survey show:
  - the average total spend was $42 per person over all sites
  - a higher spend of $44 per person was observed on arterial sites
  - a spend of $38 per person was observed at central city sites.

The data from this study shows that sustainable transport users account for 40% of the total spend in the shopping areas. It also shows that pedestrians and cyclists contribute a higher economic spend proportionately to the modal share and are important to the economic viability of local shopping areas.

The data collected from the nine shopping areas in New Zealand shows that car drivers spend the most across all shopping areas. Sustainable transport users include shoppers who travel by the following transport choices: walking, cycling, public transport and scooters/mobility scooters and skateboarders. These users spend higher amounts in arterial shopping areas than in central city sites (but less than car occupants). The data indicates that cycle trips account for the highest sustainable transport spend in central locations and only account for 2% of total travel. Overall, the sustainable transport average spend per visit (including 'other') was $34 per person, compared with the driver average spend per visit (including car drivers and passengers) of $47 per person. This equates to only a $12 difference in the average spend per person per visit.

One of the possible reasons for the higher average spends in overseas comparative studies, is that more sustainable transport choices are available and a higher proportion of high-income earners use sustainable transport. In addition, the ease with which sustainable transport modes can be used for shopping trips compared with private vehicles is higher overseas than it is in New Zealand, due to the layout of New Zealand cities, transport infrastructure, etc. The other factor to be considered is that trips undertaken by sustainable transport modes are more frequent.

It is likely that the average spend will increase as the proportion of sustainable transport users with higher disposable incomes increases. While these users spend less money per trip than car drivers and passengers, whose bulk buying results in higher spends per trip, the longer-term spending by sustainable users is likely to be higher than that of private vehicle users. The sustainable transport users also spend more time in the area compared with the car drivers.

The mode share of transport users in the survey sample shows that the majority of users are private vehicle drivers and passengers, while sustainable transport users account for 37% of all shoppers.

The actual travel data set for New Zealand examples compared relatively well with the retailer estimation of shopper travel. Retailers underestimated the amount of car travel and slightly overestimated the amount of walking and public transport. This is contrary to overseas studies, where retailers typically underestimate the impact of sustainable transport users. This shows that the retailers who did engage in the study understand the importance of sustainable transport users. It is important to note that those retailers who engaged in the survey represented 26% of the retailers in the study areas.

The importance of parking

The surveys showed that the majority of shoppers, especially in arterial shopping areas, intended to visit the centre, ie as a primary journey purpose and hence 'passing trade' trips were relatively low, representing less than 30% of total trade. Many customers used available off-road parking where it was provided nearby. The feedback from workshops indicated there was support for good crossing facilities and high-quality pedestrian environments. Shoppers understand that limited space is available to achieve these objectives and, as a result, the ability to park outside the shop they want to visit is no longer expected by many customers. However, retailers still consider the need for on and off-street parking is a priority. The findings of this study indicate that customer parking expectations are significantly different from the need for parking perceived by retailers.

The importance of design

The results of the focus groups and retailer survey clearly indicate there are some common themes when considering design elements. The shopper results reflect the views of 65 people (only the Colombo Street shopper surveys in Christchurch and focus groups undertaken in Wellington engaged with shoppers regarding their views on transport and urban design in shopping areas). It is acknowledged that the study represents a small sample of the population but still provides a snapshot of the views of the general public. The sample size of the retailer survey includes responses from 144 retailers. This small sample size reflects the fact that it is often difficult to engage with the local business community.

The need for safe crossing points and good urban design was of primary concern to shoppers and is reflected in the following quote:

> *I would choose a centre where it is easy to get from one side of the street to the other, and that movement is easy once you're there.*

Retailers generally over-estimate the importance of parking but do acknowledge the need for wide footpaths and safe crossings. However, the evidence from the shoppers is that they would be willing to forgo or walk further to parking at the shopping area, to ensure that a safe and attractive shopping experience is provided.

One of the most interesting outcomes from the study is that transport and urban design considerations appear to be secondary to the availability of particular types of shops, as exemplified by this quote from the shopper workshop. 'I don't go to the shops because of the parking; I go because there might be a quirky antique shop. You go to an outside shopping district because of a particular shop'.

Although this finding was not a fundamental part of the research, it does indicate that a comprehensive approach to the development of economically successful shops is required. The provision of high-quality transport and urban design features alone will not contribute to the economic vitality of shopping areas. Although the survey did not provide statistically valid data, it does reflect the level of feedback that may be achieved from the local community in individual schemes. The interest in this area is expected to increase internationally and the findings from this report will contribute to a growing body of evidence on the impacts of transport and urban design on economic activity in retail areas. Further research into the impact of the types of shops and links to transport choice is required to better understand how to contribute to creating economically successful shopping areas. The study also highlighted the need to research transport choice and availability and how this factor impacts on the economic spend in shopping areas.

Abstract

This research project investigated the economic impacts of transport and road space reallocation in shopping areas located in central cities and along major transport corridors in New Zealand. It focused on three research questions. The first being to understand the retail spending of transport users; resulting in data that provides an average $ spent per user and primary mode of transport. The second element focused on identifying the road space allocation and design elements important to retailers and shoppers. Finally, a case study compendium was developed.

The data shows that sustainable transport users account for 40% of the total spend in the shopping areas and account for 37% of all shoppers who completed the survey. The data indicates the pedestrians and cyclists contribute a higher economic spend proportionately to the modal share and are important to the economic viability of local shopping areas.

The study also identified that retailers generally overestimate the importance of on-street parking outside shops. Shoppers value high-quality pedestrian and urban design features in shopping areas more than they value parking and those who drive are willing to walk to the shopping precinct from other locally available parking areas.

1 Introduction

1.1 Background

In many towns and cities, there has been an increase in mobility and people are travelling further to reach goods. To meet the needs of the existing land use in urban centres, the design of our transport networks has often focused on the provision of safe and efficient travel times for motor vehicle travel. This type of approach has resulted in a reduction in the amount of space available for other road users and degradation of some local shopping areas. Businesses have often been located along primary 'traffic' routes, although the type of facility that is offered has changed. The aim for retailers has remained the same – to meet the needs of users and of course make money!

Local communities have built up around shopping areas, which have contributed to creating economically successful neighbourhood centres and attractive places to live and work in. In the earlier part of the 20th century travel to these local centres was primarily on foot or by bike. However, the way we travel has changed significantly as a result of the mass take-up of the private motor vehicle from the 1970s onwards. Land-use and transport planning has adapted to reflect this increased use of cars. Although the development of these policies and change in land-use 'design' has provided greater mobility, several problems have been created as a result of this type of 'predict and provide' planning approach. The issues that are integral to this study are: the use of shopping areas; the role of car parking; and the impact on travel choice and local communities.

As provision for motor vehicles has increased, local shopping areas have become less popular with people choosing to use out-of-town centres instead. In the local shopping areas retailers have relied more on the perceived benefits of passing trade. To tackle these and other common problems, eg congestion, a policy paradigm shift is occurring, where road space is increasingly being valued in terms of the movement of people and person journey time, rather than just vehicle numbers and journey efficiency.

One of the tools available to address the problems outlined above is the concept of road space reallocation.

1.2 Road space reallocation

> *Road Space Reallocation involves shifting more road space to specific transportation activities and managing roadways to encourage more efficient and equitable transportation* (Victoria Transport Policy Institute 2008)

Many land-use policies have created environments that do not encourage social interaction or a 'sense of place', as exemplified by the photo of Urbana, Illinois in figure 1.1. The photograph on the right is the same location after road space reallocation; this example shows how all users of the environment can be catered for while achieving a balance for through route vehicles.

Figure 1.1 Before and after example of road space reallocation, city of Urbana, Illinois (VTPI 2013)

As the photographs show, space has been reallocated in favour of modes which can help create safer and more attractive environments. This can be delivered in several ways. There are several concepts that have been employed in New Zealand and internationally to allocate space equitably. Popular types of road space reallocation include improved pedestrian facilities, cycle lanes and bus corridors and high-quality urban design.

1.3 Road space reallocation – challenging perceptions

Even with policies changing to reflect the need for improved accessibility and more equitable space provision for all users of the shopping area, road space reallocation schemes often face significant opposition, particularly from local retailers. One of the reasons is that there is an overestimation of the retail impact (ie spending habits) of car users and an underestimation of the impact of sustainable transport users. International research indicates that people who walk, cycle and use public transport have a positive economic impact. This is true in areas that have invested in high-quality walking and cycling facilities both in New Zealand and overseas.

There is only limited space available along a 'transport corridor', in which we need to provide for everybody using the space. There is no question that the car is the most popular mode of transport and is an extremely important part of our present day lifestyle. However, the demand on the transport network is increasing and the use of local areas along arterial routes has changed dramatically. There is an increasing expectation to provide high-quality transport and urban design for people living within the residential communities, as well as activity centres located close to these local shopping areas.

1.4 Aims and objectives of the research

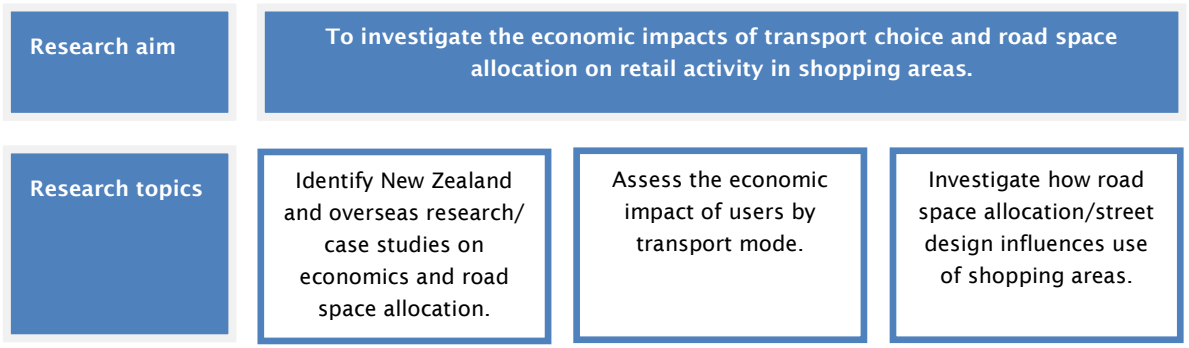
The results from economic studies conducted overseas have provided valuable evidence to support the economic impact of pedestrians and cyclists. However, there is a lack of comparable evidence on the economic impact of shoppers in New Zealand urban centres. The key challenges to achieving successful reallocation of road space projects are:

- the lack of good understanding of retail activity by mode in local shopping areas, based on evidence
- how to best allocate space in local shopping areas
- how to challenge the perception of the need for on-street parking in local shopping areas

- how to engage with retailers and local business owners
- how to quantify the benefits of providing for pedestrians, cyclists and public transport.

Therefore, this research aimed 'to investigate the economic impacts of transport and road space allocation on retail activity in central and arterial shopping areas'. The study was conducted by evaluating three key research questions, which are outlined in figure 1.2.

Figure 1.2 Aims and objectives of the research project



A key aim of the project was to work proactively with local business owners to discover the perceived and actual economic impact of different transport users on their local areas and to address the key issues that are often barriers to creating an economically sustainable local shopping area.

It is acknowledged that the body of research is growing and further international evidence has been published since this study began. Although the data from this study is New Zealand specific, the findings are useful for an international audience and contribute to the growing body of evidence on the economic impact of transport users on shopping areas.

1.5 Structure of the report

Chapter 2 provides an outline of the methodology used for the study. Copies of the tools developed as part of the study are also included in this chapter.

Chapter 3 describes the basic concepts associated with reallocation of road space. This is followed by an Australasian and international literature review (chapter 4) which outlines the results of research projects undertaken to understand the value of users and space. The literature review also outlines the policy framework, which supports the development of reallocation of road space schemes.

Chapter 5 presents an introduction to the study sites followed by the results from the economic data set in chapter 6. The results of the business owner and shopper workshops are provided in chapter 7.

Chapter 8 provides a summary of the New Zealand and relevant international case studies included in this study.

Chapter 9 gives a summary of the study's key conclusions and key findings.

The appendices contain a suite of documents (toolkit) available for use by anyone who wishes to conduct similar research in local centres; a case study compendium and a data analysis of the New Zealand case studies.

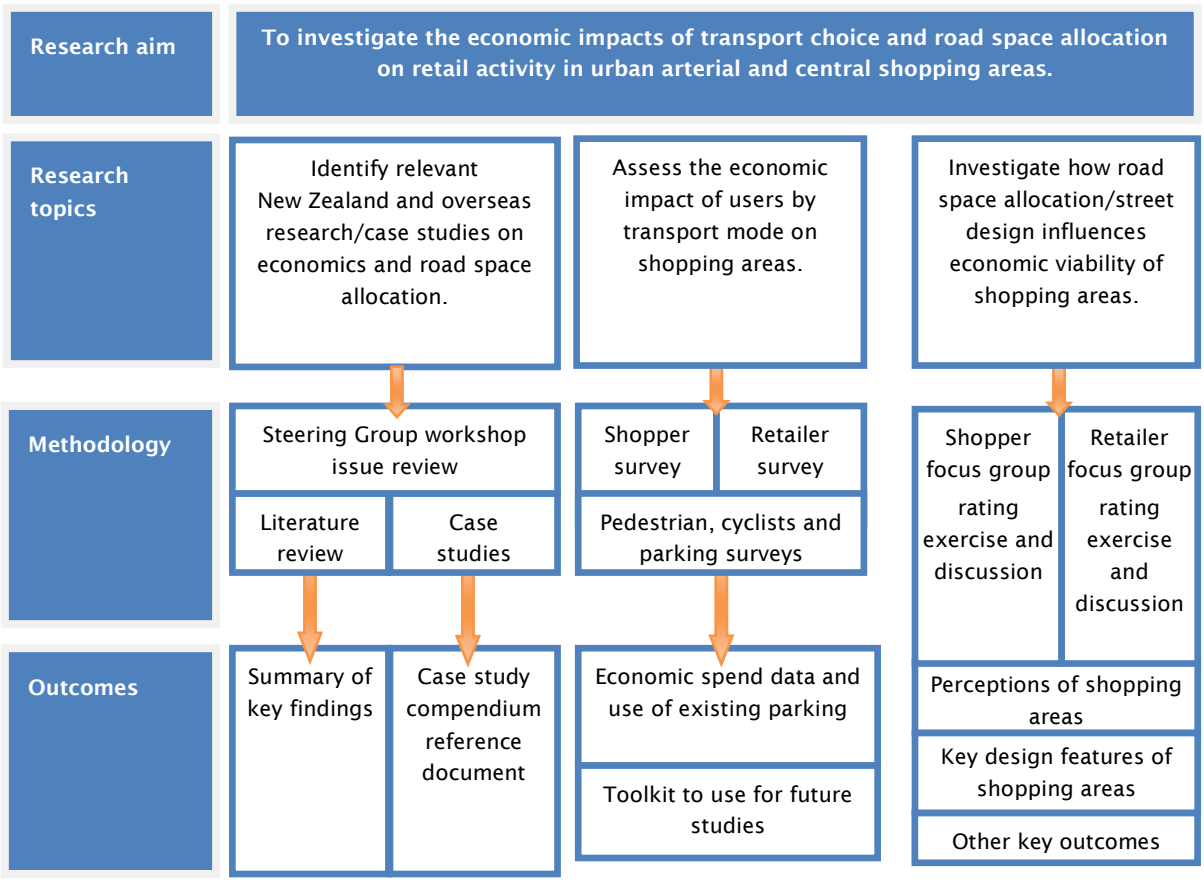
A case study database in Excel format is published together with this report.

2 Methodology

2.1 Overview

This study aimed to investigate the economic impact of transport choice and road space allocation on retail activity in shopping areas located in central cities and along major road corridors in New Zealand cities. To achieve this, the research focused on three key research areas. The overall aim of the study and its methodology are outlined in figure 2.1.

Figure 2.1 Overall study aims and methodology



The remainder of this chapter provides a more detailed breakdown of the methodology used in the delivery of this project and outlines the final toolkit developed as a result of this study.

2.2 Identify economics and road space allocation research

The key elements of the study methodology were:

- a steering group to identify the key issues and expected outcomes
- a literature review to identify existing knowledge
- the development of a case study compendium.

2.2.1 The steering group

The first task in the project was to engage with the steering group. The steering group consisted of transport planning/engineering professionals who were directly involved in the policy, planning and implementation of road space allocation of schemes. The large steering group represented a range of organisations in the public sector at a local, regional and national level. The steering group met in September 2009 and members participated in a workshop. The two peer reviewers also attended the meeting. The workshop was conducted using video conferencing over four Beca offices, which due to a reduced time commitment for stakeholder group members enabled more people to participate.

The session was focused on identifying the key barriers and issues faced when implementing road space reallocation projects, understanding the knowledge gaps and identifying the key barriers to road space reallocation projects.

A number of changes to the methodology were adopted as a result of the stakeholder workshop. A consensus reached within the focus group was that the economic data collected in New Zealand should be focused on central city/town locations and shopping areas along urban arterial routes, as these are the typical areas where resistance to schemes is found. In terms of outcomes the collection of New Zealand data was considered paramount along with the collection of relevant international research to complement and compare with the study findings. Additional feedback from the steering group is also provided in chapter 3 as part of the context of why road space reallocation is considered important.

2.2.2 Literature review

The literature review was undertaken using a variety of methods. International papers were primarily sourced using an internet search of journal publications. Relevant research and projects were also provided by members of the steering group and other interested parties who attended the Living Streets Conference 2010 in Wellington.

The literature review is presented in two chapters of the report. The first part of the literature review sets the context of road space reallocation features including why road space reallocation is required and justified. The results of this part of the review are presented in chapter 3.

The second part of the literature review (chapter 4) involved a review of relevant Australasian and international research and sets out the policy frameworks developed to support road space reallocation. In addition, it includes the relevant literature on the economic benefits of sustainable transport users for economic vitality in shopping areas. A plethora of research has been conducted on the economic impact of transport users. The research has been summarised into the following categories:

- **Valuing the environment** – presenting research findings on the value of good urban design and creating environments that encourage increased pedestrian activity. The research indicates that encouraging more walking in shopping areas contributes to the economic viability of local shopping areas (CABE 2007).
- **Value of road safety** – presenting the findings of road safety research that would have a positive benefit in shopping areas located in central cities and along major transport corridors.
- **Economic impact of shoppers** – a review of a number of studies undertaken in Europe and the UK that investigated the actual and perceived impact of transport choice on retail activity in local shopping areas (Sustrans 2006).
- **Value of pedestrians** – a number of studies have been conducted that show the benefit of encouraging more pedestrian activity for central city and arterial shopping areas (CABE 2007; Tolley 2003).

- **Value of cyclists** – much of the existing research is based on evaluating the benefits of cycling and focus on reflecting a more realistic benefit of cycling than the traditional cost–benefit transport scheme analysis process. The results are not specifically formulated for retail areas but can be used with economic analysis for reallocation of road space schemes in retail areas.
- **Value of public transport** – studies have been conducted that show the benefit of public transport (in a suitable location) extends to improving staff punctuality, in addition to encouraging increased economic activity in locations where new public transport links are implemented (Millward Brown IMS 2006).
- **Valuing drivers and parking** – includes a review of the research on the value of driving trips and parking needs within local shopping areas.

2.2.3 Case study compendium

The tasks undertaken to achieve the development of the case study compendium are outlined below:

- identification of what information is required from the case studies
- development of a standard pro-forma to collate relevant case studies
- collection of case study data from New Zealand and relevant international sources
- preparation of a case study compendium
- development of a case study data base.

The original proposal outlined some of the key data requirements for the case study data collection. The topics are highlighted in the left-hand column of table 2.1 below.

Table 2.1 Identification of data requirement from case studies

Original proposed data requirements	Additional requirements
• Key aims of the schemes • Location • Type of facilities provided, eg widened footpath • Cost of facility/funding parties • Economic benefit analysis (if available) • Pedestrian/traffic count data (if available) • Political decisions (if available) • Policy background • Barriers to development • Consultation process	Key success factors Key learnings/outcomes from schemes Scheme plans Strategic and local policies that support the development of reallocation of road space Road classification in the scheme location Typical traffic flows on roads in the scheme area Characteristics of the local area Assessment of the scheme and improvements for sustainable transport users

The additional requirements, presented on the right-hand column of table 2.1 are based on feedback from the steering group. In particular, the data on road classification, traffic flows and type of scheme will provide case studies, which can assist in the development of new reallocation of road schemes in New Zealand.

There are several sources of information in terms of gathering data of implemented schemes. The steering group was a valuable resource for the provision of New Zealand based case studies. The steering group was invited to provide information regarding schemes they had been involved in and to circulate the request for case studies to relevant people within their own organisations. In addition, the invitation to contribute was also sent to other authorities/council staff who had expressed interest in the project.

A wider promotion of the project was undertaken with the publication of a one-page spread in the *Local Government News*. This asked people to provide relevant case studies and a wider group of people to contact.

The literature review revealed several case studies that were relevant for the case study compendium. Some of these examples were included in the final case study compendium.

The data provided creates a useful resource to compare with new schemes within New Zealand. It is hoped that this compendium will become a 'living resource' which will be added to over time and can provide a one-stop reference shop for those involved in the reallocation of road space.

The case studies have been collated into themed topics based on the outcomes of the literature review. The topics are as follows:

- supporting strategies and policies
- relevant research
- pedestrian schemes
- cycling schemes
- public transport schemes
- urban design schemes
- mixed use schemes/road safety.

The case study compendium is presented in appendix B, while a summary of the relevant key trends and findings is provided in chapter 8.

2.3 Assess the economic impact of users by transport mode

Key elements of the study methodology that were undertaken to assess the economic impact of users were:

- site selection – including the development of a site audit tool and snapshot pedestrian/cycle counts
- development of a retailer questionnaire
- development of a shopper survey
- pilot survey data collection
- survey methodology
- data analysis.

The remainder of this section outlines the methodology undertaken for each of these steps.

2.3.1 Site selection

The study resulted in the selection of nine New Zealand case study sites for data collection. Site selection was guided by the steering group. The initial outcome indicated that it was important to identify sites in central cities and arterial roads. Table 2.2 outlines the initial list of possible sites which resulted from the workshop session.

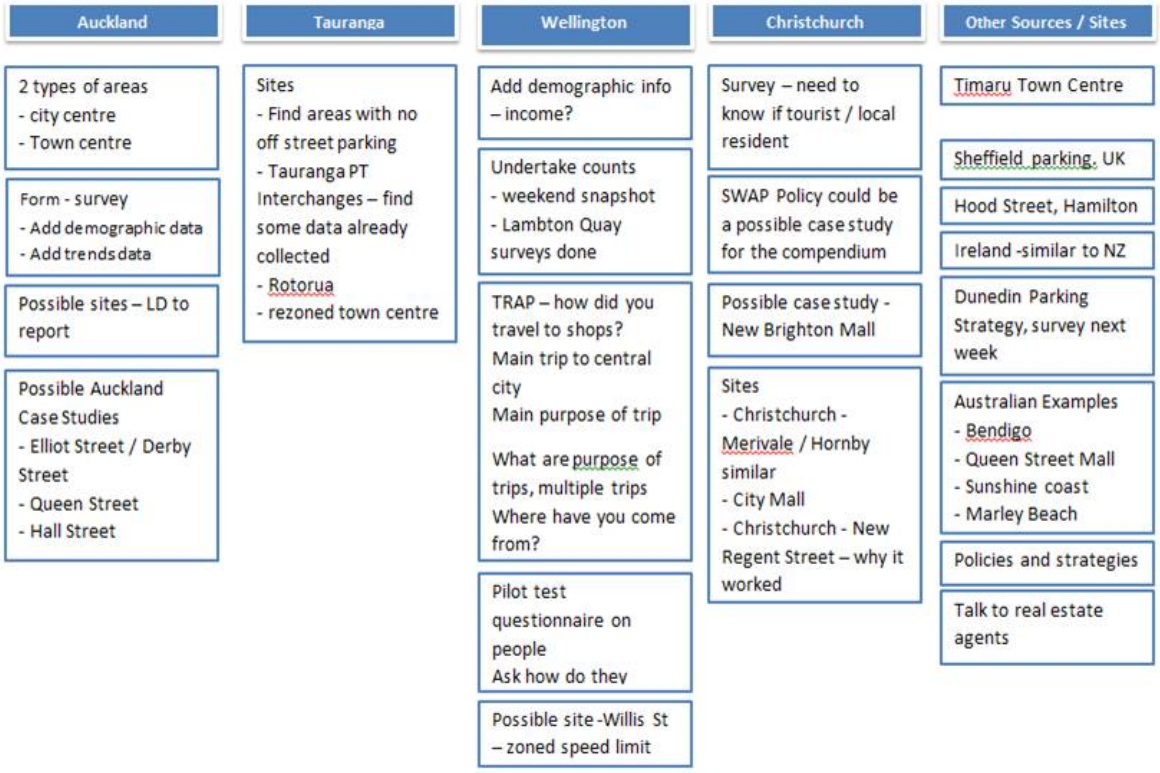
Table 2.2 Initial list of possible sites for economic data collection

Auckland sites	Wellington sites	Christchurch sites	Other sites
Browns Bay	Jackson Street	City Mall	Hood Street, Hamilton
Albany Village	Lambton Quay	Hereford Street	George Street, Dunedin
Dominion Road	Manners Mall	South Colombo Street	Tauranga Bus exchange
Henderson	Willis Street	New Regent Street	Rotorua town centre
Britomart	Newtown	Merivale	Queenstown town centre
Northcote	The Terrace	Hornby	Timaru town centre
Elliot Street	Courtenay Place	Riccarton	Alexandra town centre
Derby Street	Cuba Street	New Brighton Mall	Greymouth town centre
Hall Street	The Golden Mile		Lower Herbert Street, Ashburton Temuka
Karangahape Road			
Takapuna			

Note that all Christchurch sites were selected before the Canterbury earthquakes began.

Figure 2.2 provides the results of the initial steering group discussions regarding the development of the economic impact surveys.

Figure 2.2 Initial site selection 'think tank' results



Following the brain-storming session at the initial steering group meeting, additional meetings were held with representatives of Auckland City Council, Christchurch City Council and Wellington City Council. These meetings were intended to identify the three most appropriate sites in each location. Some of the potential sites identified early in the process were not considered suitable for inclusion in the study. To ensure the sites selected included characteristics that were identified as important in the literature review, a preliminary analysis of each site was conducted. An example of the Wellington data is shown in table 2.3. This process was undertaken using aerial photography.

Table 2.3 Characteristics of possible sites

Location	Central site – city centre	Major arterial	General appearance vibrancy	Total no. of traffic lanes	Bus lanes	Tram	Marked cycle lane	On-street parking	Off-street parking – public in the vicinity	Off-street parking – private in the vicinity	Peds only	Close to bulk scale retail mall/ supermarket	School nearby?	Suitable site	Included in data collection
Wellington															
Golden Mile – Manners Mall	✓	X	High	0	✓	X	X	Zero in parts	✓	✓	✓			N – construction commenced in mid-May and is ongoing	N
Cuba Street	✓	X	Medium	2	X	X	X	✓	✓	✓	X	X	X	N – construction commenced in mid-may and is ongoing	Yes
Courtenay Place	✓	X	High	2	X	X	X	✓	✓	✓	X	X	X	Yes	Yes
Newtown – Riddiford Street	X	✓	Medium	2	X	X	X	✓	✓	✓	X	Yes – New World	✓	Yes	Yes
The Terrace	X	✓	Medium	2	X	X	X	✓	✓	✓	X	Yes – central city malls	X	Yes	Yes

In many cases, as with Wellington, this process identified the most appropriate locations. In the situation where a number of sites were valid, we had further consultations with representatives from local councils to identify preferential sites from a council perspective.

In addition, a site audit tool was developed to undertake observations on site. This provided the research team with the opportunity to assess critical components of the site to identify the preferred sites for data collection. A copy of the site audit tool is available in appendix A (section A1).

The site audit tool was also used on chosen sites to ensure that full data sets of the existing characteristics of the site were identified. A snapshot pedestrian and cycle count was also completed at this stage. A one-hour count was undertaken by the surveyor to provide a brief overview of pedestrian and cycle activity in the shopping area. The results are reported in a site-by-site analysis in appendix C.

2.3.2 Retailer survey development

One of the key aims of this study was to compare the retailer perception of use with actual use of local shopping areas. To achieve this, shoppers and retailers were engaged as part of the study.

The retailer survey was distributed using two different methods. The first was hand delivery of the survey with covering letters. This method was useful as staff in shops provided informal feedback on their understanding of shopper behaviour and retailer concerns about the availability of parking. The second method was postal delivery of the surveys. This method was chosen where there was a high volume of shops in the survey area.

The retailers had several options for returning the survey. These included pick up of completed surveys, or postal returns to the research team in reply-paid envelopes. Some the retailers opted to email completed surveys direct to the research team. The most effective method was collection of the surveys by Beca staff.

The retailer survey was formulated to provide retailer perception of:

- where changes in land use and transport have had both positive and negative contributions to the economic vitality of the area
- the main factors that attract shoppers to the shopping area
- the impact of local and passing trade

- the proportion of users travelling by different modes – this question was added following the pilot survey process
- the availability and utilisation of parking in the shopping area
- the importance of transport and urban design in local shopping areas.

In addition, the survey collected information from retailers about:

- the length of time the retailer had been in business
- distance travelled to work by the retailer
- mode of travel chosen by the retailer
- if they drove to work, where did they park
- average rental rates for the property.

A copy of the survey form is provided in appendix A (section A3).

2.3.3 Shopper survey

The steering group identified a number of extra issues to be addressed in the development of the shopper survey. These included:

- addition of demographic data to the survey
- consideration of conducting weekend snapshot surveys
- consideration of how to phrase the travel to the shopping area question – provide the opportunity to record travel to the central city and travel to the shopping area
- addition of a question to capture multi-purpose trips in the survey
- addition of a question to assess if the respondent was a tourist or local resident.

To ensure that all aspects of the research questions and issues highlighted above were covered, the original shopper survey consisted of four pages.

2.3.4 Pilot survey data collection analysis

The aim of the pilot study was to test the survey process and to investigate the optimum time to conduct surveys. The pilot survey was completed in Colombo Street, Christchurch in November 2009. It comprised the following:

- Paper questionnaires and cover letters for business occupants were hand delivered and collected on same day, with the option of a freepost return.
- Questionnaires were given to shoppers to complete themselves or with the assistance of an on-street interviewer. This was conducted over a 12-hour period on the survey day by two interviewers.
- Snapshot pedestrian and parking surveys were conducted over a 12-hour period.

While developing the pilot shopper survey, a key consideration was how to address the 'how did you travel here' question. The approach taken in the pilot survey was to ask two questions. One question asked was, 'How did you travel for the main purpose of your trip?' The second was 'If your visit to the shopping area was part of a multi-purpose trip, how did you travel to the shopping area?' The wording of the questions was amended in the final shopper survey by asking how people travelled to the centre and to the shop.

Another question tested in the pilot survey was assessing how much money people spent in different shops in the area. A plan showing the layout of all shops in the shopping area was provided and people indicated the amount spent in specific shops using five pre-determined spending brackets. There was a relatively low response rate to this question due to a lack of understanding of the layout and/or the question aim. This question was amended in the revised survey.

To allow for the fact that some people regularly shopped in the area, but may not have on the survey date, there was a section in the survey which allowed them to specify how much they spent on average per trip in the area. The survey methodology was amended for the remainder of the study, so this question was not required.

The results of the pilot survey revealed some interesting observations about surveying in shopping areas. The key observations that needed to be considered in the main study were as follows:

- Retailers were genuinely interested in the project and its outcomes (only 1 out of 30 did not want to be involved in the project).
- It was hard however to get retailers to complete the questionnaire, despite their interest in the project.
- The shopper survey was time consuming to complete. Some of the surveys were partially completed.
- People were often not shopping on the day of the survey and were only passing by.
- People did not always complete the more complicated questions.
- The main question on the purpose of travel and travel mode for this trip was not well understood by shoppers.
- The question asking people if they were local (living within 2km of the shopping area) or a city resident from another area was not clearly understood.
- The surveyors were frustrated with the long process of the on-street interviewing and general lack of consumer interest.
- The response rate was low given the duration of survey and despite the number of interviewers.
- Following the collection of the completed pilot data, it was considered that the size of survey and survey methodology had to be revised. The changes are outlined below.

2.3.5 Economic survey methodology

As outlined in the pilot survey section, the length of the shopper survey was a significant deterrent for people to complete the surveys and many shoppers did not want to respond to the surveyors who approached them in the shopping centres. As a result, three key changes in the survey methodology were made:

1 The survey was reduced in size and the questionnaire changed to focus on collecting economic data.

2 The survey period was extended to two weeks and the shopper surveys were hosted in local shops.

3 Data from shoppers on urban design and transport infrastructure was now to be collected through the focus groups. The methodology for the focus group mirrored the questions asked in the retailer survey.

The key aim of the revised shopper survey was to collect data on how much money and time the shopper had spent in the shopping centre, how they travelled to the centre, if they had parked a car, and if so, where they had parked.

The survey methodology was revised and streamlined. The revised process is as follows:

- Conduct a site audit – complete a desk top study and follow this with a one-hour site visit.
- Approach the local businesses – the best approach is to send letters introducing the project and study process to business owner surveys in advance of approaching businesses about assisting with displaying shopper surveys.
- Distribute shopper surveys to shops willing to host the survey for two weeks.
- Conduct a 60-minute pedestrian/cycle/traffic survey to provide snapshot data (if required).
- Distribute the survey forms to retailers.
- Conduct shopper surveys over a two-week period – collect completed responses at the end of week 1 and the remainder at the end of week 2.
- Analyse results.

Some optional extras that could be included in this survey methodology are a 12-hour on-street/off-street parking survey and longer-term pedestrian/cycle counts.

2.3.6 Survey methodology – arterial corridors

The survey form is shown in appendix A (section A2).

The new methodology for collecting economic data from shoppers relied on the cooperation of retailers. Rather than employing surveyors to collect responses, the revised methodology involved retailers hosting the survey for a two-week period, with the survey being located as close to the point of sale as possible. A box was provided for the completed surveys to ensure confidentiality. Completed surveys were collected at the end of week 1 and week 2 of the survey period. The survey could only be completed by somebody who had spent money in the shop on the day of the survey.

As an incentive to participate, a number of prizes were offered including three iPod shuffles, warehouse vouchers and a digital camera. This procedure did ensure a higher volume of responses in the shopping areas. The prizes were won by respondents from Auckland and Wellington and were selected using a random sampling technique. To test the methodology, a second pilot survey was conducted along Riccarton Road in Christchurch before the surveys were rolled out across the country.

2.3.7 Survey methodology – central city sites

Although the basic methodology did not change for central city sites, the shopper survey was modified to provide extra data on:

- the main mode of travel to the shopping area
- any secondary modes of travel (eg walking) to the shop.

This allowed for the possibility that people had travelled to the city for work by a different mode than was used to travel to the shop (eg car trip to the central city followed by a walking trip to the shop). The questionnaire is provided in appendix A (section A7).

2.3.8 Data analysis

As with most surveys of this type, the findings are based on a sample of the population. Therefore the confidence in the results depends on the number of completed surveys as a proportion of all shoppers and how representative the sample is of the population of shoppers.

It is known that some shopper types (eg young, busy professionals) are less likely to fill in such surveys bringing bias to the results. Also, the surveys were completed in shops where retailers had given permission to host the surveys. Certain types of shops/retailers are more likely to participate in this type of study (eg cafes) resulting in a bias survey response. To understand the effect of the bias in the data set and its limitations, an analysis of how the sample set compares to national trends was completed. The results are provided in section 6.1.

2.4 How road space allocation and street design influence economic success

This part of the research involved engaging with the retailers and shoppers to identify which elements of the transport system and urban design infrastructure are important in local shopping areas This involved data collection for three sources:

- a retailer survey
- a retailer workshop
- a shopper workshop.

The following section outlines the methodology used for each of these tasks.

2.4.1 Retailer survey

The retailer survey included questions on additional topics not covered in the shopper survey. These questions focused on:

- specific transport and urban design elements
- the effects of changes to the transport and urban design landscape in local shopping areas involved in the study.

The design elements retailers were asked to rate are specified in table 2.4.

Table 2.4 Transport and urban design elements question in retailer survey

	1 Very unimportant	2 Unimportant	3 Neutral	4 Important	5 Very important
Pedestrian facilities					
Wide footpaths					
Pedestrian crossings					
Cycle facilities					
Bicycle parking					
Provision of cycle lanes					
Bus users					
Bus stops					
Frequent bus services					
Parking					
Availability of on-street parking					
Availability of off-street car parks					
Parking restrictions (time/cost)					

	1 Very unimportant	2 Unimportant	3 Neutral	4 Important	5 Very important
Urban design					
Outdoor public seating					
Landscaping, eg planting, sculptures etc					
Space for outside dining seating					

The second question focused on the topic of changes to the local environment. In one of the case study sites, a bus corridor scheme had recently been implemented. This question was aimed at receiving feedback from retailers on the impact the implementation of these measures had on trade in the local area. Table 2.5 provides detail of the information requested from retailers.

Table 2.5 Effects of changes in the transport and urban design features in local shopping areas

	Change occurred? Approx year?	Impact on your business trade?				
		1 Very negative impact	2 Negative	3 Neutral	4 Positive	5 Very positive impact
Pedestrian facilities						
Wider footpaths						
Better lighting						
Traffic speed lowered						
New/improved pedestrian crossings						
Cycle facilities						
New bicycle lanes						
Improved cycle lanes						
New cycle parking						
Public transport facilities						
New bus lanes						
New bus stops						
More bus services						
Parking						
Removal of on-street parking spaces						
New on-street parking spaces/bays						
Urban design						
More/new landscaping, eg planting, sculptures						
More/better outdoor public seating						
More/better space for outside dining						
Others (please describe						

The data analysis is presented in chapter 6.

2.4.2 Shopper and retailer workshops

Shopper and retailer workshops were undertaken in Newtown and central Wellington. The shoppers and retailers who completed the retailer survey and expressed an interest in being involved in the workshop were contacted by telephone to invite them to the workshops. The shopper surveys were held as a 1½ hour workshop during a lunchtime period. One of the shopper workshops was held in the central city and one was held in Newtown. Incentives of shopping vouchers were offered to encourage attendance.

Only one retailer workshop was undertaken due to a lack of interest from local retailers.

2.4.3 Workshop methodologies

The workshop format was as follows:

- welcome and introductions
- presentation outlining urban design and transport definitions
- rating exercise – urban design of shopping areas
- rating exercise – importance of different elements of transport and urban design facilities
- focus group discussion– including key questions to solicit user opinions.

The aim of the first part of the workshop was to introduce the definitions of transport infrastructure and urban design features. A power point presentation showed examples of how the key themes and measures are used in local shopping areas across the country and worldwide.

For the shopper workshops, two types of exercises were undertaken by all those who attended. These were:

- rating existing shopping areas – see appendix A (section A6) for the worksheet
- rating different types of design elements.

Figure 2.3 Photographs rated in the workshops

Photo 1	Photo 2	Photo 3
		
Photo 4	**Photo 5**	
		

The photographs presented to the focus groups included a range of shopping areas in New Zealand and overseas. The key aim of the exercise was to gain an understanding of which shopping areas attract retailers and shoppers. The rating was based purely on the look and feel of the shopping area, rather than focusing on what types of shops were available. The photographs presented to the focus group participants show shopping areas with a range of different design features.

Some of the shopping areas provide pedestrian crossings, seating and wide footpaths with coloured surfacing. Others have a more car-dominated environment with fewer urban design features.

The first rating exercise was to rate five photographs on a scale of 1 to 5 (1 very bad and 5 very good) purely on initial perceptions of each individual photo.

The second exercise was to rate preferred shopping areas. This was scored by allocating a position for each photo from 1 to 5 (1 indicating worst shopping area and 5 indicating the preferred shopping area). The results of this exercise are reported in chapter 8.

The final exercise was to rate the transport and urban design elements. These were the same as those rated by retailers – see table 2.4.

The aim of the exercise was to understand the impact of different features in shopping areas.

Once the rating exercise was completed, a general focus group was held to drill down further into the issues that retailers and shoppers believed had an impact on the choice to shop. A number of questions were used to encourage discussion and are outlined below. The tone of the questions was amended in the retailer workshop to reflect their thoughts about shoppers' use of shopping areas.

- What is the main reason you choose to use the shopping area (s) you use most regularly?
- What are the most important features for you to get around local shopping areas?
- Think about the design of a shopping area, what makes a shopping area attractive to you?
- Is it important for shopping areas to be attractive for walking?
- Supplemental – how can this be achieved? Think of examples where you think this is done well.
- Is it important for shopping areas to be attractive for cycling?
- Supplemental – how can this be achieved? Think of examples where you think this is done well.
- What are the most important aspects of car parking in local shopping areas?
- What is good about the local shopping areas in the ___district/area?
- What improvements could be made to improve your shopping experience in the ___district/area?

The discussion was recorded using a video camera, after receiving permission from the group. This was undertaken to ensure that all the details were adequately recorded. The outcomes of the workshops are provided in chapter 7.

2.5 The survey toolkit

The methodology resulted in the production of a suite of documents (toolkit) that is available for use by anyone who wishes to conduct similar research in local centres. The toolkit in appendix A contains the following documents:

1 Site audit form

2 Shopper survey form – for arterial and central city sites

3 Retailer questionnaire

4 Design elements rating exercise (from workshops)

5 Focus group questions (from workshops)

6 Shopping centre rating exercise (from workshops)

7 Shopper survey form – for central city sites – to be completed for any new schemes.

Questions can be added as required and tailored to the needs of each individual survey.

3 The need for reallocation of road space

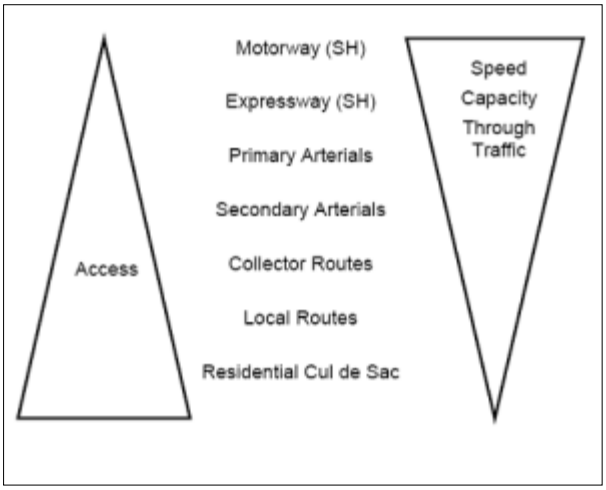
3.1 The existing situation

The demand on the transport network and what is expected in local areas along arterial routes have changed dramatically. There are multiple demands on the 'road space corridor' which must be considered when designing the future transport environment in local shopping areas. These include:

- The highway authority needs to maintain the strategic function of the road.
- The designated and actual land use can impact on the availability of space to create reallocation of road space.
- Traffic needs have to be balanced with the needs of local communities/shopping areas located along the arterial road network.

Therefore it is important to understand the roading function where shopping areas are located. Although there may be slight differences in the terminology used in different New Zealand authorities and globally, shopping areas are likely to be located on routes that fall into the road functions highlighted in figure 3.1.

Figure 3.1 The road hierarchy – road use and function (Source: Quality Planning 2011)



3.2 Why consider road space reallocation in shopping areas?

The emphasis is changing regarding road function, as seen in the *Christchurch strategic transport plan* (CCC 2013), where road space is valued in terms of the activity that is expected along the corridor and in providing for multi-modal corridors. This is a step change, rather than simply seeing the roading network as a traffic corridor.

3.2.1 Existing problems in typical shopping areas

In most instances, where shopping areas are located in central cities with road access (not pedestrianised) and along major transport corridors, congestion for local and through traffic is a significant issue. The provision and use of on-street parking in these shopping areas often creates conflict with through traffic

and results in increased crash risk for pedestrians, cyclists and vehicles. Many of the other negative impacts of urban traffic growth currently experienced in shopping areas are shown in figure 3.2.

Figure 3.2 Main problems associated with urban traffic congestion (Source: European Commission 2004)

Many, if not all of these impacts, are experienced in shopping areas. One of the key issues for anyone walking around a local shopping area on an arterial corridor is the lack of good crossing facilities. In addition, increased car ownership and use has resulted in a decrease in the use of active travel modes and a shift to travelling further to out-of-town shopping areas. Ultimately one of the key drivers in local shopping areas is the expectation of a 'right to drive' and a 'right to park'.

This has created environments that, in many instances, are not attractive or easy for shoppers to travel to (by any travel mode). In combination with the availability of out-of-town shopping areas providing wider choice and often cheaper goods, many central shopping areas have become run down and are struggling to achieve economic success. Figure 3.3 provides an example of a typical shopping area in decline.

Figure 3.3 Local shopping area in decline

Although there have been many positive advancements with increased mobility, those who do not have the option or choose not to drive have often been disadvantaged. This is one of the primary areas where road space reallocation can have a positive impact on creating a 'sense of place' and a community based around a local shopping/activity centre.

3.2.2 Future considerations

A number of wider issues that may influence the way we wish to design shopping areas located on major transport corridors are highlighted below.

- The need to plan for an increasingly ageing population (the proportion of people aged 65 or over is also set to increase to 26% (equivalent to 1.33 million people (Statistics New Zealand 2004)). People are more likely to be reliant on local services and to walk to local shopping areas. This would contribute to the economic success of local shopping areas.
- The need to reduce the level of obesity in New Zealand. A MoH (2008) study revealed that one in four adults was obese, equivalent to 26.5% of the population, and 21% of children were overweight. Reallocation of road space in local retail areas could play a key role in encouraging physical activity by creating more accessible local neighbourhood retail and activity centres and would also contribute to the economic success of local shopping areas.
- Increased congestion (the negative impacts of congestion are clearly set out in figure 3.2) caused by increased traffic flows would see further negative impacts in local shopping areas on major transport corridors if not managed effectively. Providing space to attract people by other modes would assist in reducing traffic congestion and would also contribute to the economic success of local shopping areas.

3.3 The benefits of road space reallocation

There are many positive gains that can be achieved from road space reallocation that not only benefit pedestrians, cyclists and public transport but also help to combat many of the problems highlighted in section 3.2. A summary of the benefits includes:

- safety benefits for active mode and car users
- reduced congestion resulting from people switching to active modes
- more money spent in the area benefiting the economic vitality of shopping areas

- improved attitudes about the retail area if more space is dedicated to creating wider and safer facilities for pedestrians and to a lesser extent cyclists and the areas are subject to urban design improvements
- greater health benefits for the community.

Another key consideration in justifying the reallocation of road space is that the sense of community and sense of place has reduced dramatically in residential areas located along key traffic generators.

The most compelling argument for the implementation of reallocation of road space schemes is the success of existing schemes already implemented in New Zealand. The key success drivers in these locations include the provision of shops that people wish to visit, good pedestrian crossing facilities, attractive environments and often reallocation of road space (while still providing on and off-street parking). The Merivale shopping area in Christchurch and thriving coffee and restaurant industry in Newtown (Wellington) are good examples of where this has been achieved. Figure 3.4 shows a photograph of two different locations at the Merivale shopping centre.

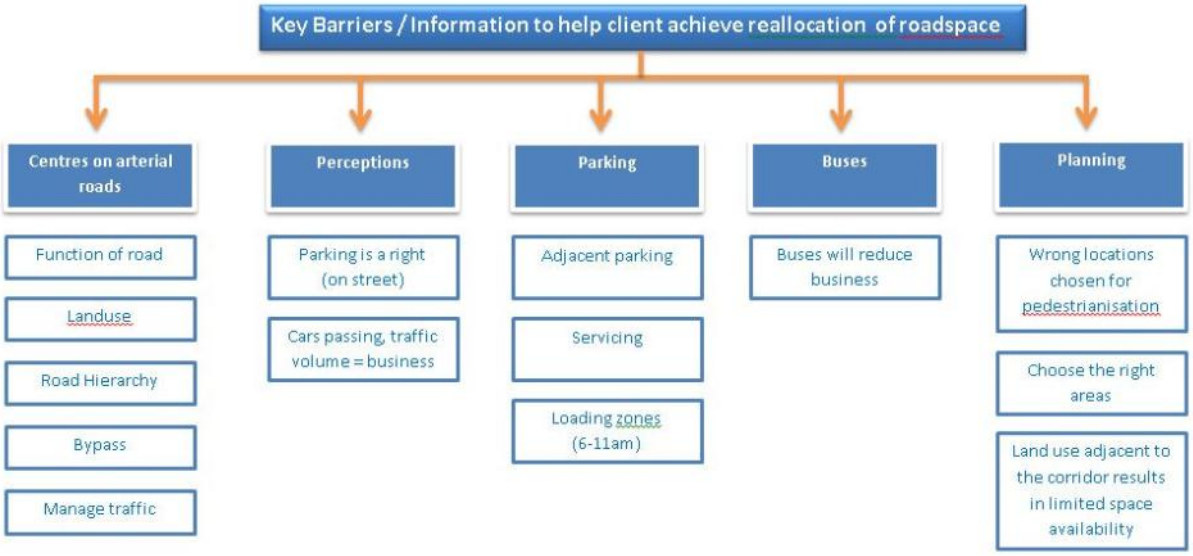
Figure 3.4 Successful shopping areas

3.4 Barriers to the implementation of road space reallocation in shopping areas

As part of this research, consultation was undertaken with the research steering group to identify the key barriers to implementing projects involving road space reallocation in shopping areas, for those working 'at the coal face' here in New Zealand.

The steering group, which represented a cross section of people working in the public sector and also representatives from the Cyclists Advocate Network, identified five distinct themes that represent the key barriers to reallocation of road space schemes. They are highlighted in figure 3.5.

Figure 3.5 Key barriers to road space reallocation in shopping areas



As figure 3.5 indicates, the group identified a number of issues that create barriers from a planning and policy perspective. New Zealand rules and regulations often cause conflicts in achieving policy objectives and aims. For example a road space reallocation scheme may not align with the designated function of the road. Land use of the adjacent areas is a significant factor in the success or failure of a road space reallocation scheme; ensuring that the right scheme is located in the right area is vital.

Parking provision is considered to be one of the major barriers in any road space reallocation scheme. This is primarily due to retailers perceiving convenient and inexpensive (free) parking spaces to be vital to the success of their business. The steering group understood that international research showed this was not always the case and it was essential to have New Zealand based data.

3.5 Types of road space reallocation

There are several ways to reallocate space more equitably, depending on the specific aims of the individual schemes. Some of the types of schemes/concepts that could include reallocation of road space include:

- living streets
- shared streets
- complete streets
- road diets
- bus priority
- pedestrian improvements
- provision of cycle lanes.

3.5.1 Living streets (Europe and UK)

> *Living streets give priority to pedestrians and cyclists, and create safe places for people to walk, cycle, play and meet friends.* (livingstreets.org.uk; VTPI 2010a)

Living streets are a further development of the original 'woonerf' (homezone) concept. They often involve reducing traffic speeds, landscaping and redistribution of space to pedestrians and cyclists. The concept began in Holland and spread across Europe and to the UK.

3.5.2 Shared streets (Europe, UK and New Zealand)

A shared space is 'a street or place accessible to both pedestrians and vehicles that is designed to enable pedestrians to move freely by reducing traffic management features that tend to encourage users of vehicles to assume priority' (MVA 2009). The MVA study (2009) indicated that the development of shared streets served the purpose of achieving the following aims:

- improving the urban environment
- giving people freedom of movement rather than instruction and control
- improving the ambience of an area
- enhancing the economic vitality of an area.

Shared streets are being designed and implemented in the Greater Auckland region. There are many variations of shared space including the concept of 'naked streets', which focus on removing obstructions. The aim of these projects is to create an environment where all transport users can use the space but nobody has priority.

Figure 3.6 provides a before and after image of Darby Street in Auckland, which is one of the first shared space schemes in New Zealand.

Figure 3.6 Darby Street shared space scheme, Auckland

Before (Source:Google Street view 2009)

After

Overseas, there have been significant concerns raised by the disabled community as the design of shared streets removes the delineation footpaths, which can cause problems for independent travel for some people with a sensory impairment. These issues must be taken into consideration when designing shared streets.

3.5.3 Complete streets (USA)

Complete streets are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and public transportation users of all ages and abilities are able to safely move along and across a complete street (complete streets.org).

The typical measures that can be found on a complete street include:

- sidewalks
- bike lanes (or wide paved shoulders)
- special bus lanes
- comfortable and accessible transit stops
- frequent crossing opportunities
- median islands.

The complete streets phenomenon has been developed and implemented within the US. Forty-five jurisdictions adopted policies in 2009, and nine were completed in 2010. In total, 130 jurisdictions have adopted policies or have made written commitment to do so. The process for developing complete streets involves the creation of a policy to support the implementation of schemes.

The fact that so many US authorities have signed up for the project is positive but schemes may not yet have been implemented in many cases. The complete streets website has more information on the project. The concept of providing for all transport users as exemplified by complete streets has been adopted by many local authorities globally.

Figure 3.7 indicates the wide spread uptake of the concept.

Figure 3.7 The extent of complete streets development in the US (source: complete streets.org)

3.5.4 Road diets (USA)

Road diets are projects that reduce the number of traffic lanes and lane width on existing roads with road layouts comprising four traffic lanes (adapted from Burden and Lagerwey 1999). The space is often reallocated to provide wider pedestrian facilities, cycle and bus lanes, parking bays and flush medians. The implementation of road diets is most prevalent in the US, where wide and multiple-lane roads are commonplace. Often, these projects face opposition from local residents because of the perceived traffic delay that may result from the reduction in traffic lanes. Figure 3.8 gives an indication of the types of treatments that have been implemented and the effects on road traffic.

Figure 3.8 Examples of road diet treatments and impacts of the schemes on traffic flows

Lane Reductions of Select Street Conversions-- Volume Changes

Roadway Section	Change	ADT (Before)	(After)	Notes
1. Lake Washington Blvd., Kirkland, Washington South of 83	4 lanes to 2 + TWLTL + bike lanes	23,000	25,913	
2. Lake Washington Blvd, Kirkland, Washington Near downtown	4 lanes to 2+ TWLTL + bike lanes	11,000	12,610	
3. Electric Avenue, Lewistown, Pennsylvania	4 lanes to 2 + TWLTL + bike lanes	13,000	14,500	
4. Burcham Road, East Lansing, Michigan	4 lanes to 2 + TWLTL + bike lanes	11-14,000	11-14,000	
5. Grand River Boulevard, East Lansing, Michigan	4 lanes to 2 + TWLTL + bike lanes	23,000	23,000	
6. St. George Street, Toronto, Ontario, Canada	4 lanes to 2 + bike lanes + wide sidewalks	15,000	15,000	
7. 120th Avenue, NE Bellevue, Washington	4 lanes to 2 + TWLTL	16,900	16,900	
8. Montana (commecial street) Bellevue, Washington	4 lanes to 2 lanes + TWLTL 4 lanes to 2 + median + bike lanes	18,500	18,500	
9. Main Street Santa Monica, California	4 lanes to 2 lanes + TWLTL 4 lanes to 2 + median + bike lanes	20,000	18,000	

The results provided in figure 3.8 show that traffic flows are similar in the before and after studies, thus providing valuable evidence to critics that road diets do not have a negative impact on traffic flows and dramatically improve the environment for other road users. As highlighted by Burden and Lagerwey (1999) candidates for road diets should comply with the following criteria:

- moderate volumes (8000–15,000 average daily traffic (ADT))
- roads with safety issues
- transit (or public transport) corridors
- popular or essential bicycle routes/links
- commercial reinvestment areas
- scenic roads
- entertainment districts.

3.5.5 Bus priority/bus corridors

Bus priority measures are techniques used to give buses priority over general traffic. 'Priority measures' is the collective term used for a range of traffic management measures where the delays and unreliability to public transport caused by physical constraints and other vehicles are removed or significantly reduced. Bus corridor schemes often consider the needs of other vulnerable road users and provide facilities for

pedestrians and cyclists. Some of the measures that can be introduced to create bus priority include the following:

- mid-block bus lanes
- bus lanes at signalised intersections (a technique used overseas)
- use of in-vehicle technology (through GPS) to provide bus priority at signals
- installation of wide bus lanes or separate cycle lanes to provide for cyclists
- improved pedestrian crossings
- use of technology to provide real-time bus information to passengers.

There is an increase in the development of bus priority measures in New Zealand, which often face opposition from the local community during the consultation and design stage of the scheme. The primary reason for this is that they often result in the removal of on-street parking. This is a particular issue in shopping areas. An example of an implemented bus priority measure is provided in figure 3.9.

Figure 3.9 Example of a bus priority measure – Christchurch, New Zealand

3.5.6 Pedestrian improvements

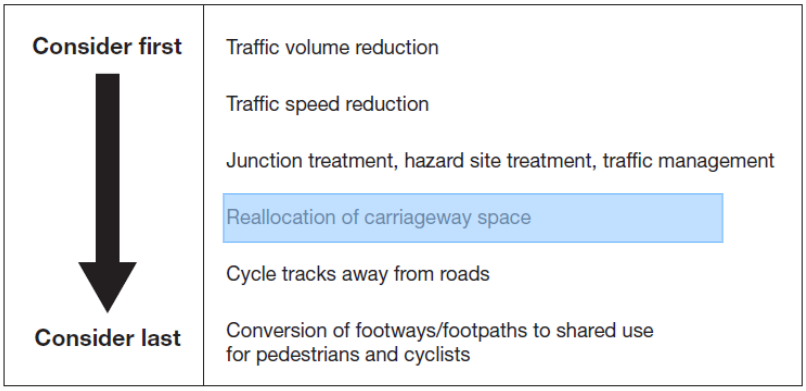
Many of the pedestrian improvements that can be implemented have been discussed in the earlier concepts. An example of a pedestrian priority scheme, in the form of pedestrianisation of the central area of Christchurch is provided in figure 3.10. The most common forms of pedestrian improvements to be implemented in reallocation of road space schemes are footpath widening and additional pedestrian crossings.

Figure 3.10 Example of pedestrian priority in Christchurch, New Zealand

3.5.7 Provision of cycle lanes

The priority when designing for cyclists is to reduce traffic volumes and traffic speeds first, before installing specific cycle facilities. This is outlined in the hierarchy of provision (DfT 2008a) which is presented in figure 3.11.

Figure 3.11 The hierarchy of provision (DfT 2008a)



This philosophy has been adopted in Australia and New Zealand. Cycle lanes are now commonplace both in New Zealand and overseas. They provide a dedicated space for people to cycle along roads with high traffic volumes and speeds. Cyclists are also catered for in wide bus lanes. Accompanying measures include provision for cyclists at signalised intersections, eg advanced bike boxes. Recent research for Austroads (Turner et al 2010) used crash data from Christchurch, New Zealand and Adelaide, Australia to assess the actual safety of cycle facilities. The key finding of this process showed that painted facilities provide improved safety, and wide cycle lanes also provide a safety benefit. Narrow cycle lanes have safety disbenefits, even though they may be perceived to be safer.

3.6 Summary

This chapter has provided the basis of why reallocation of road space is required. However, as described previously, there is often strong opposition to implementing reallocation of road space. The final chapter of the literature review provides the next step in the process, by presenting evidence of how providing for active modes and reallocating road space can have positive economic and social impacts for local shopping areas.

4 Literature review

There is an abundance of qualitative evidence and learnings from our past mistakes that justify the need to review the way we plan our towns and cities. Although there is a strong justification to distribute space more equitably, there is a lack of good quality and relevant evidence at the local level to convince local business owners and community of the validity of these schemes in retail areas.

The literature review provides an overview of the research that has been undertaken in New Zealand, Australia and overseas to provide evidence of the benefits and value of road space reallocation. The literature review includes the following topics.

- **Valuing the environment** – presents research findings on the value of good urban design and creating environments that encourage increased pedestrian activity. The research indicates that encouraging more walking in shopping areas contributes to the economic viability of local shopping areas.
- **Value of road safety** – presents the findings of road safety research that would have a positive benefit in shopping areas located in central cities and along major transport corridors.
- **Economic impact of shoppers** – reviews a number of studies that have investigated the actual and perceived impact of transport choice on retail activity in local shopping areas in Europe and the UK.
- **Value of pedestrians** – a number of studies show the benefit of encouraging more pedestrian activity in central city and arterial shopping areas.
- **Value of cyclists** – much of the existing research is based on evaluating the benefits of cycling with the focus on reflecting a more realistic benefit of cycling in a traditional cost-benefit transport scheme analysis process.
- **Value of public transport** – studies show the benefit of public transport (in a suitable location) extends to improving staff punctuality, in addition to encouraging increased economic activity in locations where new public transport links are implemented.
- **Valuing drivers and parking** – includes a review of the research on the value of driving trips and parking needs within local shopping areas.
- **Policy and planning** – outlines the policy framework that supports reallocation of road space in New Zealand and overseas.

4.1 Valuing the environment

4.1.1 Urban design and land use

Land-use planning, urban design and the design of transport infrastructure are all disciplines that influence the design of the urban form in which we live and work. However, there was previously limited understanding of the economic and social value of investing in good urban design. Inversely, there was also a limited understanding of the economic impact of the transport infrastructure on land use in retail centres. The following papers provide an insight on the benefits of creating attractive environments, which often involve the reallocation of road space to pedestrians.

The New Zealand Ministry for the Environment commissioned research by McIndoe et al (2005) to establish if there was a persuasive case for the economic, environmental and social benefits of urban design. The research was effectively a literature review of relevant papers to identify where benefits have

been assessed in overseas research. Although this was a piece of qualitative research, the evidence available suggests that high-quality urban design will:

- attract highly skilled workers and high-technology businesses
- potentially add to the value of housing and retail property
- encourage walking and cycling – leading to health benefits
- contribute to economic success over time.

The research highlighted that one of the key problems of creating areas with high-quality urban design is the need for developers to minimise the cost of new developments and their limited appreciation of the wider benefits of good quality urban design. Often, the benefits of good urban design are not realised in the short term and therefore do not immediately benefit the developer. This can create a situation where 'the market will provide poorer urban design than is socially optimal' (McIndoe et al 2005). Therefore, the introduction of policies to ensure that quality urban design is considered in new designs is vital.

Traditionally in New Zealand, low density housing has been provided to cater for the 'lifestyle block' market. Higher density housing is available in central cities but not often linked to local shopping areas. Although relatively uncommon in New Zealand, mixed use developments and medium density housing are now being considered in our major cities. This is reflected in the development of guidance documents such as the North Shore City *Good solutions for mixed-use development in town centres* (North Shore City Council 2005).

4.1.2 Value of pedestrian space in urban design

A study commissioned by the Washington State Department for Transport aimed to assess the effects of site density design on pedestrian travel in mixed use and medium density environments. The study by Mouden et al (1997) evaluated the effects of land use and population density, amongst other factors, on pedestrian travel patterns in 12 neighbourhood areas in Puget, Washington State. The sites chosen for the study represented both urban and suburban centres.

The study identified that the sites located in more urban/central areas were more conducive for walking trips. A key factor reported in the study was that on average a more coherent pedestrian network was provided in urban centres than in suburban areas. The lack of regular pedestrian crossings was also noted. The study provided results that indicate there are three times as many pedestrians in areas with mixed use compared with suburban areas and if more walking is to be encouraged in suburban areas, more space must be allocated to pedestrians.

The Transport Research Laboratory developed the Pedestrian Environment Review System (PERS) software application which can assess the quality of pedestrian environments. This software was used in the UK report by CABE (2007) which aimed to develop techniques that would enable the calculation of the extra financial value of good street design. This study selected 10 London High Streets and involved undertaking surveys of pedestrians and their environment, an analysis of housing prices and the use of the PERS system to compare the data. The pedestrian surveys were conducted during the am, lunchtime and pm peaks. The data was analysed using regression models and the key results from the study were:

- On average, pedestrians were willing to pay more for better streets.
- Pedestrians using streets with a lower standard of urban design were willing to pay for streets with good urban design.
- Better streets resulted in higher market prices.
- An achievable improvement in street design quality could add an average of 4.9% to retail rents.
- An achievable improvement in street design quality could add an average of 5.2% to residential prices.

4.1.3 The link between urban design and travel behaviour

The link between urban form, travel behaviour and use of shopping areas has been researched over time, with more than 70 studies published during the 1990s that explored the relationship (Handy et al 2002). The overwhelming conclusion of these studies was the need for a holistic approach to ensure our built environments encourage active travel. Handy et al (2002) identified the following factors to be important:

- Changes in the urban environment influence the price and quality of the environment.
- Geographic scale matters.
- Measures of the built environment must be refined to evaluate the benefits.
- More complete data on walking behaviour must be developed.

The concepts are not new; the Appleyard and Lyntell study (1986) discovered that social interaction perception of community reduced as traffic volumes increased (Tolley 2003). This coupled with the findings of other studies indicating that 'Streets that are busy with bicyclists and walkers are considered human scaled environments and foster a sense of neighbourhood and community' (Strawser 2004) create a case for creating an attractive environment to encourage walking and cycling.

RELEVANCE TO THIS RESEARCH

The studies into the impact of urban design indicate that creating a 'sense of place' and provision of high-quality pedestrian and cycle facilities are more likely to attract people to an area. The principles outlined in these studies can be applied to shopping areas and assist to create economically successful businesses. In the case of the CABE (2007) study in London the value of retail space increased in areas with good quality urban design.

KEY OUTCOMES

This research project included investigation of the perceived benefit of urban design measures and pedestrian facilities in New Zealand shopping areas from both a shopper and retailer perspective.

4.2 Value of road safety

General, road safety is a priority for the New Zealand government and other road controlling authorities globally. One of the 'selling points' of reallocation of road space schemes is that it can reduce the occurrence and severity of road user crashes. The EEM provides typical crash reduction rates for measures, which are often design elements of road space reallocation schemes. Some of the benefits that can be claimed for such schemes are provided in table 4.1, below.

Table 4.1 Safety benefits of typical reallocation of road space measures

Measure	Effect on safety
Removal of on-street parking on both sides of the road	20% reduction of mid-block crashes. There is little evidence on banning parking on only one side of a street only, but some research indicates that crashes may increase
Road diets (eg reducing from four to two lanes)	30% to 40% reduction of all crashes
Flush medians	Reduction of 10% to 25% of all crashes
Pedestrian refuges and kerb extensions	30% reduction of all crashes involving pedestrians

Measure	Effect on safety
Mid-block traffic signals	45% reduction of crashes involving pedestrians. However, an increase of motor vehicle crashes may occur if no crossing facility has previously been installed
Installation of cycle lanes	10% reduction of cycle crashes

All the measures presented in table 4.1 could have safety benefits in shopping areas. In particular, they would increase safety for pedestrians and cyclists and contribute to creating a more attractive destination for shoppers.

Road diet schemes (where the number of traffic lanes along a corridor are reduced, eg four lanes to two lanes) in the US have resulted in significant reduction in crashes.

Figure 4.1 presents the results of road diet schemes implemented in the US.

Figure 4.1 US road diet schemes - before and after crash data (Source: Burden and Lagerwey 1999)

			CAR & CAR		Sub tot-al			Sub total	CAR & PED		Sub total	TOTAL	% CHA-NGE	FATAL		TOTAL	INJURIES		TOTAL	% CHAN-GE
			I	M-B		I	M-B		I	M-B				I	M-B		I	M-B		
1	Greenwood Ave N & N 80 Street	BEFORE	19	5	24	0	0	0	0	0	0	24	-58.3	0	0	0	10	5	15	-20.0
		AFTER	5	4	9	0	1	1	0	0	0	10		0	0	0	6	6	12	
2	N 45 Street & Wallingford Av N	BEFORE	6	37	43	0	0	0	1	1	2	45	-48.9	0	1	1	2	5	7	+14.3
		AFTER	11	12	23	0	0	0	0	0	0	23		0	0	0	3	5	8	
3	8 Ave NW & NW 65 Street	BEFORE	8	7	15	2	0	2	0	1	1	18	-61.1	0	0	0	6	2	8	-37.5
		AFTER	5	1	6	0	0	0	1	0	1	7		0	0	0	4	1	5	
4	ML King Jr Wy & Yesler Way	BEFORE	8	7	15	0	0	0	0	0	0	15	-60.0	0	0	0	4	6	10	-80.0
		AFTER	4	2	6	0	0	0	0	0	0	6		0	0	0	2	0	2	
5	Dexter Ave N & Roy Street	BEFORE	12	4	16	1	0	1	2	0	2	19	-15.8	0	1	1	6	1	7	+114.3
		AFTER	9	7	16	0	0	0	0	0	0	16		0	0	0	6	9	15	
6	24 Ave NW & NW 80 Street	BEFORE	11	3	14	0	0	0	0	0	0	14	-28.6	0	0	0	9	1	10	+60.0
		AFTER	5	4	9	0	0	0	1	0	1	10		0	0	0	10	6	16	
7	Madison Street & Boren Avenue	BEFORE	12	15	27	0	0	0	0	1	1	28	0	0	0	0	9	7	16	-37.5
		AFTER	9	18	27	0	0	0	1	0	1	28		0	0	0	5	5	10	
8	Gilman Ave W & W Emerson Pl	BEFORE	5	1	6	0	0	0	0	0	0	6	0	0	0	0	0	2	2	-100.0
		AFTER	3	3	6	0	0	0	0	0	0	6		0	0	0	0	0	0	
9	12 Avenue & Cherry Street	BEFORE	5	8	13	1	0	1	2	0	2	16	0	0	0	0	5	1	6	+16.7
		AFTER	4	11	15	1	0	1	0	0	0	16		0	0	0	3	4	7	
	TOTAL	BEFORE	86	87	173	4	0	4	5	3	8	185	-34.1	0	2	2	51	30	81	-7.4
		AFTER	55	62	117	1	1	2	3	0	3	122		0	0	0	39	36	75	

The data shows that the majority of the schemes resulted in a reduction in crashes of between 15% and 60%. In three cases there was no change in the crash rate, due to an increase in traffic volumes along the routes. This range is therefore influenced by changes in traffic volumes.

A further study on the evaluation of 'road diets' was completed by Huang et al (2007), which evaluated the before and after data of eight 'road diet' schemes and 14 comparison sites. The study identified several deficiencies in the available dataset for several other road diet sites due to the lack of crash data and low traffic flows (due to the treatment of short segments of roads). The analysis considered crash frequency, crash rates, crash severity and crash type. The results of this study indicated that a 6% decrease in crashes could be expected on road segments where road diet treatments are introduced. The study indicated that the road diet measures did not affect crash severity or crash type.

The study by Huang et al (2007 provides more conservative estimates of the safety benefits of road diets. Although not tested, the perceived safety for people walking and cycling in the area would have improved with the implementation of the road diet measures. This is an area for further study.

A number of studies have been conducted to investigate the safety benefits of cycle facilities. Turner et al (2009; 2011) conducted a study based on New Zealand cycle facilities and an international literature review of the safety of cycle routes. The study encompassed both on and off-road cycle facilities and the different types of treatments. The key findings of the study were:

- The crash prediction models demonstrated that the addition of a flush median reduced cycle crash rates by 37% to 50%.
- The removal of on-street parking reduced cycle crash rates by 75% in three models.
- The construction of cycle lanes reduced cycle crash rates by 10%, in the before and after studies.

In comparison, other studies that have been conducted internationally in this area provided the following results:

- Conditions for cycling can be improved by reducing motor vehicle volumes and speeds as this reduces potential crashes and improves cyclists' comfort.
- A reduction in motor vehicle speeds is expected to result in a change of -0.1% to 0.3% in cycle crashes for every 1km/h reduced (Wisconsin DOT 1998; Jensen 2000).
- The addition of an advanced limit line for cyclists is expected to lead to a -27% change in cyclist crashes and a -40% change in all crashes. These figures are based upon the amalgamation of research from different countries evaluated by Elvik and Vaa (2004) and provide the best estimates of crash reduction factors.

A study conducted in the UK for the Department for Transport by Gordon et al (20011 evaluated 10 pilot mixed priority road safety demonstration routes. The 10 case studies represented areas across England, all of which had existing safety problems in local shopping areas. The projects were diverse and as such resulted in a number of different measures to address the safety concerns at each individual site. The measures implemented included bus priority, raised tables to reduce speeds, improved pedestrian crossings and the installation of cycle lanes.

All of the schemes resulted in significant safety benefits and provided wider benefits for the community. A summary of the scheme results is provided in figure 4.2. The results again provide good evidence in terms of the wider benefits of the schemes, which are not often the focus of business owners. The results would also be useful in demonstrating benefits to local residents living in the areas.

More detailed information on the road layout of all the schemes can be found in the original resource. The schemes located in Norwich and Oxford have also been included in the case study compendium in appendix B.

Figure 4.2 Results of the mixed priority routes road safety demonstration projects (source: Gordon 2011

MPR all casualties (annual average)			
Scheme	**Before**	**After**	**Change**
Crewe	12	10	-17%
Hull	10.2	10	-2%
Lambeth*	41	18.7	-54%
Leamington	13.6	13.6	0%
Liverpool	50.5	29.8	-41%
Manchester	53.3	38.7	-27%
Norwich	15.3	5.6	-63%
Oxford	20.4	13.4	-34%
St Albans	18.6	11.6	-38%
Southwark	73	54.5	-25%
ICSDP all casualties (annual average)			
Alum Rock Road	24	15	-38%
Coventry Road	22	14	-36%
Independent schemes all casualties (annual average)			
Brighton**	13	7	-46%
Worthing	8.2	3	-63%

*Full after data unavailable at time of writing. Figures based upon 12 months of data.

The results of this review show that the reallocation of road space can have a positive impact on both the actual and perceived safety of the local transport network.

RELEVANCE TO THE RESEARCH

Road safety measures such as removal of on-street parking, providing kerb extensions and pedestrian mid-block signalised crossings have a significant safety benefit and improve the attractiveness of shopping areas for pedestrians and cyclists. These measures are often key elements of road space reallocation schemes and the research indicates there is an overall safety benefit that can be achieved by implementing appropriate measures in shopping areas.

KEY OUTCOME

The most relevant case studies associated with safety have been included in the case study compendium.

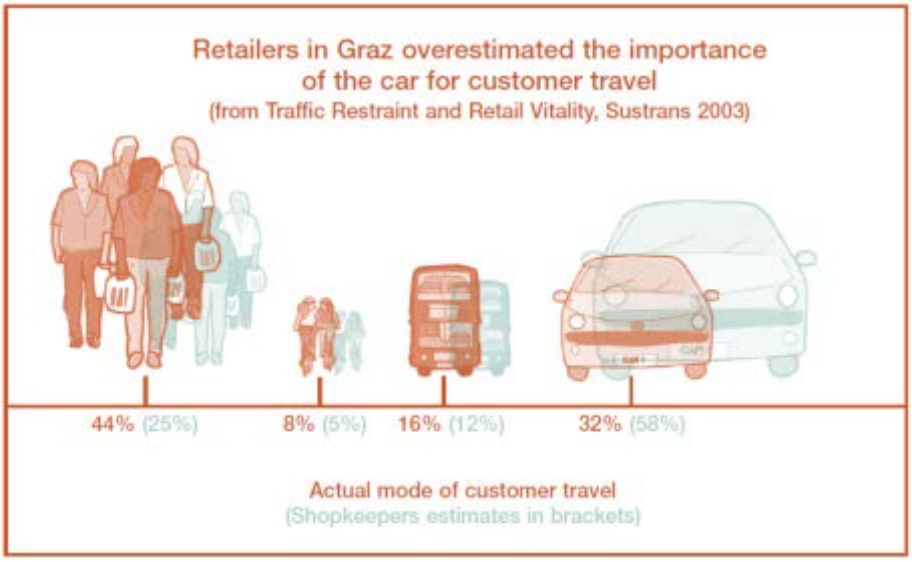
4.3 The economic impact of shoppers

Ultimately, business owners are focused on one thing – revenue. The main objection to road space reallocation projects is that they are perceived to negatively impact on local businesses. To challenge this perception, it is important to understand the existing use of local shopping areas.

4.3.1 Understanding current travel behaviour

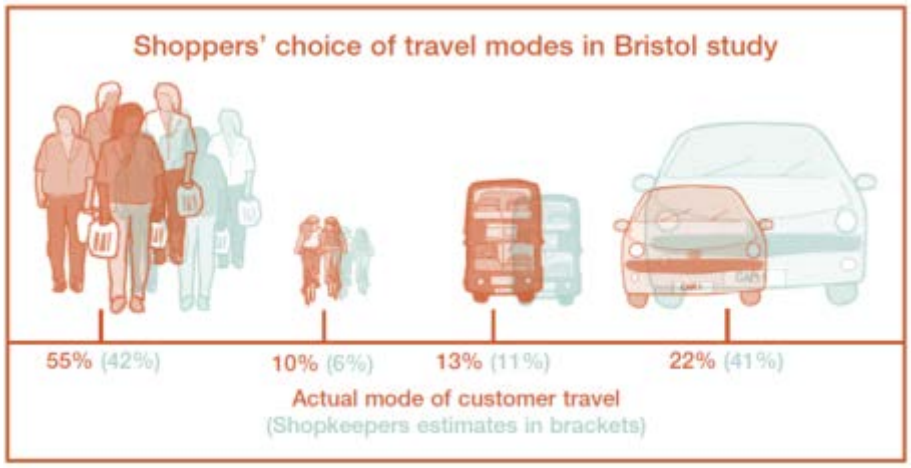
A study conducted in Graz, Austria in 1991 evaluated the reality of how shoppers travelled in Graz, compared with the perception of how business owners thought people travelled. The results showed that business owners underestimated how many customers walked, cycled and used public transport. They also overestimated the need for parking. Figure 4.3 shows the results of the Graz survey.

Figure 4.3 Results of shopper travel surveys – Graz, Austria (source: Sustrans 2003; 2006)



This study was replicated in a local shopping area along an arterial road in Bristol, UK (Sustrans 2006).

Figure 4.4 Results of shopper travel surveys – Bristol, UK (source: Sustrans 2006)



The Bristol study involved interviewing 126 retailers and 840 customers. The results again show that business owners overestimated the impact of car travel. The results are shown in figure 4.4. Unfortunately the results of these surveys do not include data on economic spend.

Other key results from the survey showed that 86% of shoppers lived within two miles, compared with retailers' perceived estimate of local trade being only 12%.

The results of the shopper and retailer surveys show retailers overestimate the requirement of on and off-street parking for shoppers using the area and also overestimate the impact of passing trade.

4.3.2 Understanding shopper needs

Edinburgh City Council (2000) in Scotland felt that understanding the needs of shoppers was critical to maintaining the economic vitality of the city. To this end, they commissioned a research project in 2000 to assess the requirements of visitors to the shopping areas. The shopper surveys were undertaken at nine locations as indicated below:

- Edinburgh city centre (Princes Street/George Street/Shandwick Place/St James Centre/Princes Mall)
- High Street/bridges/old town
- Almondvale (Livingston)
- The Gyle
- Cameron Toll
- Newcraighall (Kinnaird Park/Edinburgh Fort)
- Straiton
- Gorgie/Dalry
- Corstorphine.

The majority of the shopping areas were located within the central city, or along major radial transport corridors.

The available road space along these corridors is limited and in many cases, the Edinburgh City Council is working to provide bus priority on many of these corridors. The sites evaluated in the study are identified in figure 4.5.

Figure 4.5 Edinburgh and Lothian shopping survey study locations (adapted from Edinburgh City Council 2000)

Represented in this selection are suburban locations and Princes Street in Edinburgh city centre. The Princes Street site was subject to a footpath widening scheme, resulting in a loss of parking and traffic lanes for vehicles. Other locations chosen in this study have also been subject to reallocation of road space schemes.

A total of 4578 on-site interviews were completed, complemented by a random sample survey of 12,500 households throughout the Edinburgh and Lothian region. The surveys were supplemented by pedestrian surveys at each of the locations.

The results of the 2000 survey were compared with those of a 1996 shopping survey and revealed a drop in the proportion of shoppers travelling by bus (from 45% to 39%), although this was partly offset by an increase in rail travel (from 8% to 11%). Car travel reduced from 31% to 22%, while the proportion of pedestrians increased from 16% to 25%. The research study concluded that the reallocation of road space to pedestrians and an increase in the residential density in the surrounding inner suburbs contributed to this shift. Perceived difficulties over parking availability, distribution and charges, combined with the availability of parking at edge-of-town centres, were also likely to have deterred car-borne shopping.

The study (Edinburgh City Council 2000) identified that the main concern for shoppers was to ensure there was a good range of shops in an attractive, comfortable environment. Parking was not identified as important (Sustrans 2003). The key issue raised by retailers was that 51% wanted more parking.

This data provides valuable evidence that when alternative travel options for walking, cycling and public transport are available, combined with traffic restraint measures, there can be a positive modal shift to sustainable transport. This case study is particularly relevant to Wellington and Auckland, where there are several public transport options available to the public and more high-density living.

4.3.3 The impact of shared space schemes

A study was undertaken for the UK Department for Transport (MVA 2009) to evaluate shared space schemes such as pedestrianised areas and streets designed to create a shared space where vehicles did not assume priority. Often these schemes resulted in the creation of environments with a level surface for all users. The study also included an evaluation of homezones.

The key aim of the MVA study was to assess the benefits and disadvantages of shared use schemes implemented in the UK and to compare them with data from the Netherlands in terms of the following:

- the impact on visual amenity
- reducing pedestrian delay
- the nature of pedestrian activity
- the impact on traffic speeds
- the impact on crash reduction
- the impact on disabled users.

Overall, the study identified that shared space schemes are beneficial if designed appropriately and in suitable locations. The study found that the most successful schemes are likely to occur in instances where there are relatively low traffic speeds and volumes. The key conflict point which remains is that many pedestrians do not feel comfortable sharing space with traffic and would prefer some delineation of space.

The schemes where more pedestrian activity is experienced are often where traffic is limited in these zones. This is often achieved by creating an area which is not considered as a through route and where more suitable vehicle routes are available adjacent to the shared space.

The study found that the economic benefits of shared space schemes are not well quantified and concluded that, ‘the quality of the environment can contribute to the economic vitality of a town. Shared space may not be responsible for delivering increases in value on its own’ (MVA 2009).

The land use in shared use areas aims to create an environment where no one user has priority, which intrinsically conflicts with the needs of disabled users. A key outcome from this evaluation was the opinion of disabled users. The key concerns reported by visually impaired users were:

- risk from vehicles because of the difficulty of identifying different parts of the street
- difficulty navigating through the space in the absence of a line to follow or clear landmarks
- lack of confidence in appropriate driver behaviour
- lack of clearly defined comfort space free from vehicles in which to rest, re-orient etc.

There are compromises that can be achieved by all parties working together. These considerations should be actively addressed in the development of new shared streets in New Zealand.

The study found there were several key areas where there was a knowledge gap and opportunity for further research to gain a better understanding of shared use schemes. The key knowledge gaps included:

- a lack of understanding of pedestrian behaviour
- a lack of understanding of the interaction between pedestrians and drivers
- how to make shared space more navigable.

Shared spaces are a form of reallocation of road space being implemented in central cities in New Zealand. The findings from these studies are less relevant for arterial shopping areas.

RELEVANCE TO THIS RESEARCH

The UK and European research provided a body of evidence for local authorities to use when developing new reallocation of road space schemes. In addition, the Graz and Bristol studies provided a methodology for collecting retailer and shopper data on travel to retail centres, which was used as part of this study. The Edinburgh City Council study identified the importance of shop type and lack of importance of parking.

KEY OUTCOMES

The methodology to assess the actual and perceived form of travel was used within this study to allow a direct comparison with data from the Graz and Bristol studies.

The study focus groups included questions that would provide New Zealand specific data to compare with the Edinburgh study to evaluate the importance of shop composition and parking in shopping areas.

The overseas studies did not directly provide data on the economic impact of shoppers. This New Zealand based study collected data on both travel choice and economic spend to ensure that a direct comparison between retail activity and travel choice could be undertaken.

4.4 Value of pedestrians

4.4.1 The importance of pedestrians

Walking is the glue that binds the urban fabric together (Tolley 2003)

The importance of walking as part of a healthy lifestyle and as a basic everyday activity is widely accepted and is reflected in the fact that encouraging more walking is embedded in national policies. However, the design of the existing pedestrian environment does not necessarily reflect the importance and prevalence of walking. The Wellington urban design strategy (WCC 1994) reflected the fact that while walking could

still account for half of all journeys made within an urban area, the design of pedestrian facilities often lagged behind the amenity levels provided for those who moved by vehicle.

There are other significant benefits of encouraging walking in local areas for local business owners and operators. These include:

- more activity in the local area reducing the risk of burglary and requirements for additional security measures
- attraction of more business to the area to support the local economy
- space saving! Providing for pedestrians – pedestrians require less space per person. Tolley (2003) shows that pedestrians require only 0.8m^2 compared with 60m^2 per car travelling at 40km/h.

4.4.2 Evaluating the benefit of pedestrian facilities

As noted in the *New Zealand pedestrian profile* (National Pedestrian Project 2000) 'Creating walkable road environments is cost effective in comparison to other transport modes'. For less than the cost of building a single kilometre of motorway, it is possible to achieve a safe, direct and pleasant road environment for pedestrians within an existing urban community of 50,000 people. This is in addition to undertaking the education, enforcement and promotion programmes required to further enhance safety and maximise its use.

Therefore it should be easy to justify schemes that reallocate space for walking trips. As noted by Litman (2009) conventional transport planning undervalues pedestrian improvements because of the low-cost nature of schemes.

Cost–benefit analysis is a process for evaluating the merits of a particular project or course of action in a systematic and rigorous way (Pollock nd). Social cost–benefit analysis incorporates the impact of social factors involved in the implementation of roading schemes. This includes valuing the health, safety and environmental impacts of a new scheme.

In terms of planning the road network, national governments use this system to evaluate and compare schemes based on the benefit–cost ratio (BCR) which is based on the anticipated costs and benefits involved in the development of projects.

Although social cost–benefit analysis does include some benefits for walking and cycling schemes, it is often difficult to justify the economic benefit of walking schemes. The funding procedure for walking and cycling schemes in the EEM was updated in January 2010 to increase the value of benefit per pedestrian (km) to $2.70. The greater part of this value accounts for health benefits. Although this increase in valuing pedestrians has been implemented, it is still often difficult to achieve a BCR because most pedestrian facilities do not often generate high pedestrian volumes and the cost of building facilities counterbalances the benefits. Therefore the approach often taken is to package pedestrian schemes to provide a scheme with an adequate BCR. The pedestrian crossing facility calculation tool was developed to evaluate the benefits and costs of pedestrian facilities including in New Zealand (Land Transport NZ 2007b).

4.4.3 The economic impact of pedestrians

Everybody walks but does that equate to more money spent?

Often walking is undervalued for many reasons including the fact that it is more difficult to measure 'walkability'. As inferred by Tolley (2003) if more urban and suburban areas substituted a small percentage of short car trips there would be a positive impact on the viability of local shopping areas and services.

More people would use these local facilities rather than passing them by using a car trip. The problem is how to quantify what should be less travel and less cost in BCR calculations. Table 4.2 provides possible measuring techniques for the elements of walking most applicable to this reallocation of road space project.

Table 4.2 Walkability economic impacts – description and measuring techniques (Source: Tolley 2003)

	Description	Criteria	Measuring techniques
Accessibility and savings	Ability to reach goods, services and activities.	Degree that walking provides mobility options, particularly for people who are transport disadvantaged.	Travel modelling, analysis of travel options, consumer expenditure.
Liveability	The quality of the local environment and community interactions.	Degree that walking improves the local environment. Reduced vehicle traffic speeds.	Property values, business activities, consumer preference surveys.
Economic development	Effects on the commercial activity and shifts in consumer expenditures toward more locally produced goods.	Degree to which walking makes commercial areas more attractive and reduces consumer expenditures on vehicles and fuel.	Markey surveys and property assessments. Input output table analysis.

Some of the measures highlighted by Tolley (2003) provide evidence that could help justify pedestrian improvements in a wider reallocation of road space to the decision makers.

Market surveys and property assessments would also potentially be useful to provide evidence to organisations such as a local chamber of commerce.

Litman (2009a) built on work aiming to evaluate the value of walking. This study identified eight categories of the economic impact of walking, which are summarised in figure 4.6.

Figure 4.6 Walkability economic impacts (Source: Litman 2009a)

Name	Description	Measuring Techniques
Accessibility	Degree that walking provides mobility options, particularly for people who are transportation disadvantaged.	Travel modeling, analysis of travel options.
Consumer cost savings	Degree to which walking provides consumer transportation cost savings.	Consumer expenditure surveys.
Public cost savings (reduced external costs)	Degree that walking substitutes for vehicle travel and reduces negative impacts.	Determining to what degree walking reduces motor vehicle travel and the economic savings that result.
Efficient land use	Degree that walking helps reduce the amount of land used for roadway and parking facilities, and helps create more accessible, clustered land use.	Identifying the full economic, social and environmental benefits of more pedestrian-oriented land use.
Livability	Degree that walking improves the local environment.	Property values, business activities, consumer preference surveys.
Public fitness and health	Degree that walking provides physical exercise to people who are otherwise sedentary.	Travel and health surveys to determine the number of people who benefit from walking exercise.
Economic development	Degree to which walking makes commercial areas more attractive and shifts consumer expenditures to goods that provide more regional economic activity and employment.	Market surveys and property assessments. Input-output table analysis.
Equity	Degree that walkability helps achieve various equity objectives.	Various indicators of horizontal and vertical equity.

Although, there have been several studies focused on valuing the benefit of walking there is a more limited research base on the spending habits of pedestrians. In a study conducted in SoHo, New York, the shoppers who valued wider sidewalks over parking spent about five times as much money, in aggregate, as those who valued parking over sidewalks. Or, as quoted in the research, 'The people who are willing to forgo parking for sidewalks are the big spenders' (Schaller Consulting 2006).

A study of a pedestrianised street in Bangkok identified that pedestrianisation has a positive economic benefit for the retailing and commercial community by increasing sale volumes (Kumar and Ross 2006). The study revealed that 47% of retailers reported an increase in sale volumes, while 35% indicated sales volumes had not changed. The Kumar and Ross study (2006) also identified that 52% of property rental values did not change and 26% of rental rates increased after the implementation of the pedestrianisation schemes. The reallocation of space to pedestrians was one of the factors that produced this increase. What is evident is that the pedestrianisation did not have a negative effect on the retail trade in the area. Where negative responses from retailers were noted, it was clear that the type of business they operated influenced their views, eg travel agents reported a negative impact.

RELEVANCE TO THE RESEARCH

The studies from New York and Bangkok provided background evidence indicating that for shoppers pedestrian space was valued higher than parking provision and that space reallocation to pedestrians resulted in positive economic growth.

KEY OUTCOME

This research project evaluated the perceived value of pedestrian space from both a shopper and retailer perspective to help identify the importance of pedestrian space in New Zealand.

4.5 Value of cyclists

4.5.1 The importance of cyclists

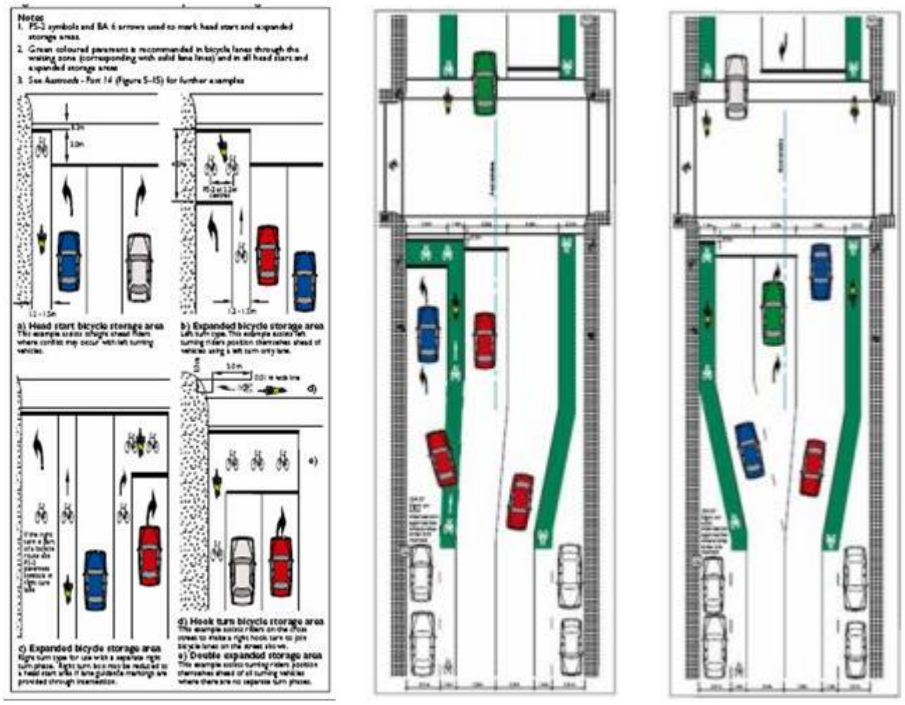
The benefits of cycling as a mode of transport are widely understood and recognised across the globe. As such, cycling forms an integral element of the transport system to provide a genuine alternative travel choice and contributes to healthier lifestyles, benefiting both individuals and society as a whole. Yet, for most, cycling accounts for only a small proportion of all daily travel. Why?

4.5.2 Designing cycle facilities

When creating a transport network that supports and encourages cycling the aim is to provide a high-quality network that is direct, convenient, safe, attractive and comfortable. Although planning for bicycles has become more commonplace over the last three decades, allocating road space for cycling has often not been seen as a priority, and as a result the final design of schemes does not always achieve all of the aims of developing a high-quality cycling network. This in turn can often result in lower levels of cycling.

Case studies where cycle facilities have been implemented and supported by promotion and education have resulted in increased levels of cycling. There are many ways to reallocate space to cyclists. Figure 4.7 provides examples of some of the key ways that space can be relocated at intersections. Many shopping areas may include signalised intersections and the diagrams provide an example of how road space reallocation can be achieved in these instances.

Figure 4.7 Design standards for cycle facilities at signalised intersections (New South Wales Roading Authority 2005)



4.5.3 Economic impact of cyclists

The Otago Rail Trail is an example of a New Zealand success story.

> *Bed and breakfast establishments sprang up where once you couldn't buy a cup of tea.*
> (Taylor 2009)

The Otago Rail Trail is New Zealand's primary off-road cycle route and provides a 150km flat route through Central Otago. The economic impacts of this route have been phenomenal. The quote above shows the impact of the Rail Trail on the local communities located along the route. It is estimated that 12,000 people ride the route every year and on average cycle tourists spend 1.6 times as much as average tourists (Taylor,2009). The positive economic outcomes of the Otago Rail Trail resulted in additional government funding being made available to begin the development of the New Zealand National Cycle Network.

A New Zealand report conducted by Money (2009) concluded that cycling investments as part of wider capacity improvements would help with cost-effective network optimisation in the medium to long term. The report also investigated the economic benefits of cycling at a more strategic level and found it was difficult to quantify the benefits of cycling and particularly to determine the relationship between providing cycle facilities and economic productivity. The study effectively used Land Transport Management Act 2003 assessment criteria, with a more qualitative approach assessing how cycle facilities would achieve the New Zealand GPS targets.

Although the Money (2009) study found it was difficult to quantify the benefits, it found that by developing cycle facilities which led to a reduction in private car trips there would be:

- reduced congestion, leading to improved journey reliability times for other non-cyclist road users
- reduced emissions and noise pollution

- faster journey times for cyclists
- more reliable journey times
- improved health outcomes
- increased access to markets
- connected areas with economic growth potential.

Many of these benefits align with the targets set within the New Zealand *Government policy statement on land transport funding* (MoT 2009). The study focuses on how to tackle the expected increase in congestion in New Zealand cities. The benefits that could be gained when allocating more road space to cyclists compared with providing a new traffic lane are explored in an illustrative example of urban cycle economics. The results of the evaluation comparing the provision of vehicle lanes and cycle lanes are provided in figure 4.8. The case study is based on a site in Wellington, New Zealand.

Figure 4.8 Example of urban cycle economics (source: Money 2009)

	1 extra vehicle lane each way	1 dedicated cycle lane each way
Distance	10km	10 km
Construction cost range per km for two lanes	$20 million[15] Possible cost range: $8 million to $64 million[16]	$1 million[17] (but could be far less if existing road shoulders were used)
Total construction cost	$200 million	$10 million
Potential benefit to car users in terms of time savings.	The car lane represents a significant potential increase in the level of service. However, the "bottleneck" at Ngauranga means there is unlikely to be a significant marginal difference between the travel times associated with increased flows from an additional lane of vehicles (about 2.5 minutes if traffic moves from 60km/h to 80km/h) and the increased flows from a marginal reduction in the number of private motor vehicles using the route	
Maintenance	Cost per KM/lane of reseal: $65,000[18]	Cost per KM/lane of reseal: $32,500[19]
Period of resealing	4-9 years	40+ years
Reseal cost of road over 40 year period	$5.2 million	$650,000
Total construction and maintenance cost[20]	$205.2 million	$10.65 million

The results of this research identified that the provision of two new traffic lanes would not significantly solve the congestion issues and would result in a construction cost of over NZ$200 million. In addition, the installation of two additional traffic lanes would increase the severance experienced by pedestrians along this section of road. In comparison, the installation of cycle lanes represented only 5% of the cost of the road construction and minimised the crossing distances for pedestrians. The construction of the cycle route would not negatively impact on the traffic flows and would provide a high-quality alternative for cyclists.

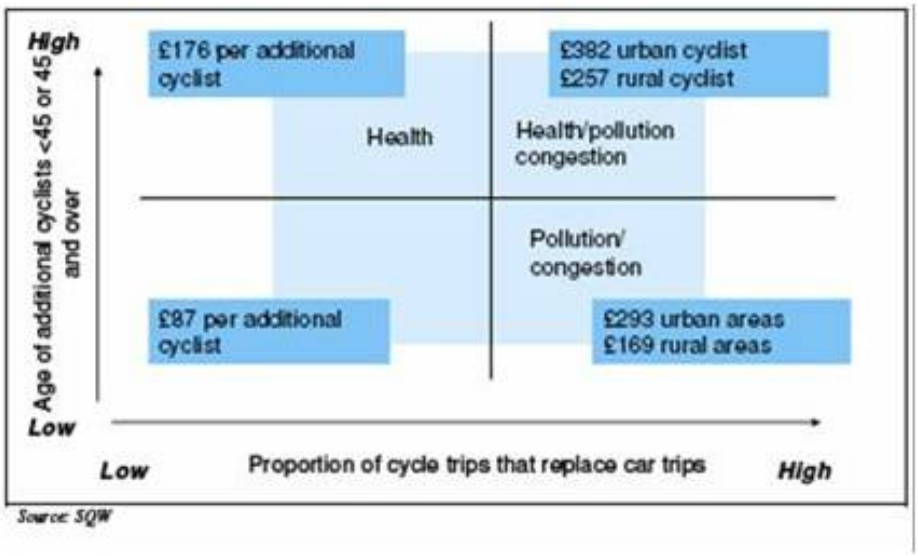
A similar study conducted in the UK (SQW Consulting 2007) aimed at examining the economic benefits of cycling and how it could contribute to policy objectives. The study based the development of savings per cyclist on a detailed breakdown of how they would impact on the following key criteria:

- improving health and fitness

- reducing pollution
- tackling congestion.

A detailed analysis was undertaken to identify the savings in the key criteria areas. The study collated data from several sources for each set of criteria to calculate the value of cyclists. The report examines four examples of cycling intervention, which includes: links to schools; Bike-It Projects (school cycling programmes); the London Cycle Network and cycle training measures. The results of the study provided a saving per type of cyclist. The results are presented in figure 4.9.

Figure 4.9 Matrix of types and value of cyclists (Source: SQW Consulting 2007)



The study calculated that if, by 2015, the proportion of cycle trips returned to the level of 1995, the savings in health, pollution and congestion would be around £500 million. An increase of 50% in the level of cycling – far below the original 1996 target of quadrupling trips by 2012 – would create total savings of more than £1.3 billion. The largest proportion of savings could be attributed to a reduction in congestion.

The other key outcomes from the study were as follows:

- Benefits would vary depending on the profile of new cyclists (eg age) as well as the amount of cycling.
- There were greater benefits in getting previously inactive and older people to cycle.
- The economic value of cycling hinged heavily on two things: the health benefits and replacing car travel.
- The UK Department for Transport established the Cycling England project group in 2005. The aim of the group was to encourage more cycling in the UK. One of the projects the group supported was the development of 'Cycling Demonstration Towns'. Six towns in England were selected to take part in the programme and a variety of measures to encourage cycling was established in each of the selected towns. An evaluation of the project included an assessment of the economic benefits. Cycling England (2009) found that based on an investment of £10 per head per year, that for each £1 invested a benefit of £2.59 (for health benefits) could be achieved. This is likely to be a conservative estimate.

The studies show that if all relevant benefits of cycling are considered in the evaluation of transport schemes, then cycle schemes can have significant savings based on the desired outcomes of national transport policy.

A study conducted in the UK on the economic impact of four long-distance cycle routes in North-East England (Sustrans 2007) found the following key outcomes:

- Route users contributed £9.6 million of direct expenditure to the North-East regional economy in 2006.
- The routes supported 216 jobs in the immediate vicinity.
- Visitors from outside the region contributed £5.9 million to the North-East regional economy.

RELEVANCE TO THE RESEARCH

The provision of cycle facilities and associated increased cycle activity in the right locations results in increased spending activity in shopping areas. The research showed there is a need for more quantitative data on the economic impact of cyclists in urban areas. The research from the UK (Sustrans 2007) showed that the development of cycle routes has a direct and indirect impact on retail. This provides a further piece of evidence to the growing number of studies showing that cycling has a positive impact on retail activity.

KEY OUTCOMES

It was noted that it is important to collect information on the type of preferred cycle facilities and the amount of money spent by cyclists.

4.6 Value of public transport

One of the key purposes of reallocating road space is to provide public transport priority.

4.6.1 Public transport provision

Research conducted by Currie et al (2003) evaluated the approaches to road space reallocation in favour of public transport. The purpose of the report was to 'encourage the development of the new transit priority projects for Melbourne's extensive tram, light rail and bus networks in a manner that is fair to all road users'.

The outcomes of the study by Currie et al (2004) provide useful data on testing public transport treatments and that the case for reallocation of road space to public transport is clear where service and passenger volumes are substantial. The study concluded that on lower volume passenger and bus routes, there are few benefits for public transport and this results in negative impacts on other traffic. The benefits reported in this research report are useful when justifying schemes to funding authorities but do not assist in promoting the schemes to local business owners and residents along those corridors.

A study by Schaller Consulting (2006) in SoHo, New York identified that 51% of people visiting the area arrived by public transport, 29% walked, 5% cycled and only 9% arrived by car. The high proportion of public transport trips would probably be due to the high-quality and regular service provided by the subway system, as only 2% of those using public transport arrived by bus. Although New York is different from New Zealand cities, the principle of creating a walkable neighbourhood demonstrates what can happen when frequent public transport options are available. This could be replicated in specific areas in some of the major New Zealand cities, eg Wellington, Auckland and Christchurch.

4.6.2 Economic benefits of reallocating space to public transport

LUAS is the light rail transport system serving Dublin and the surrounding suburbs, which was opened in 2004. Figure 4.10 shows the routes and an example of the trams operated on the network. The services operate along shared space in the central city and along sections of dedicated routes outside of the central city.

Figure 4.10 The LUAS train system, Dublin Ireland[1]

An after study of the system was conducted in 2006 by Millward Brown IMA for the Dublin Transportation Office. The study incorporated the views of a control group of businesses in other areas of Dublin and businesses located within the vicinity of the LUAS system.

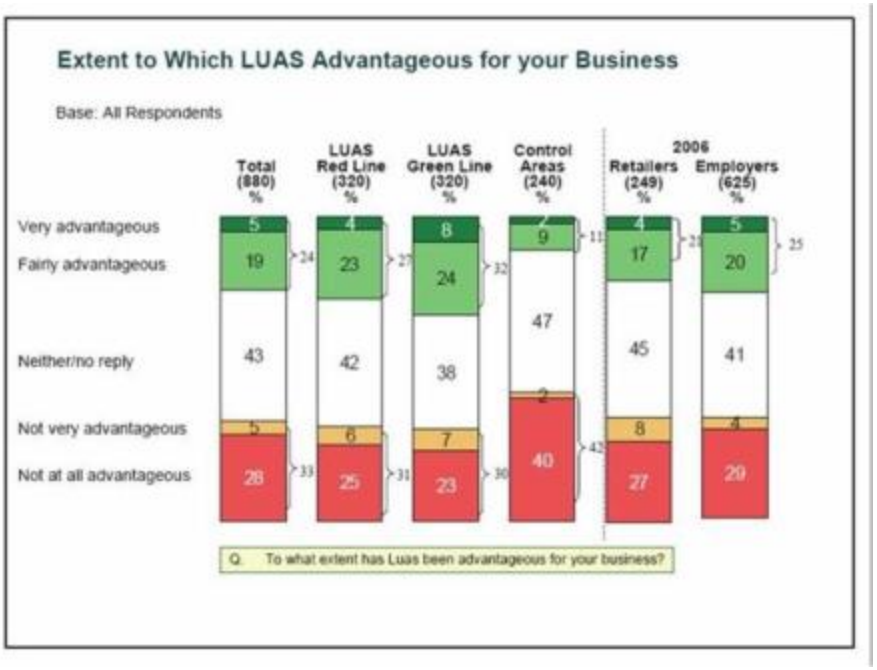
An interesting result from the study showed that businesses located along the red route were more dissatisfied when questioned if the area was a desirable place to be located in. This related particularly to businesses located in Ranelagh. The leasing/purchasing prices increased by 29% after the construction of the LUAS system. In one sense this shows the economic benefit of locating close to public transport. However, several local small business owners struggled with the increased annual costs and were considering relocating to an area with cheaper leasing/purchasing prices.

The study also investigated the impact of traffic and transport issues in the control areas compared with the LUAS catchment areas. There was a slight increase in problems with staff punctuality in the control areas (3% increase) and in business areas along the LUAS red line (1% increase). A reduction in problems with staff punctuality was observed in areas located on the LUAS green line. These results indicate that there were no significant negative effects of the LUAS system, and overall, there was a positive effect for staff punctuality. Although the review found there were significant benefits from installing the LUAS system, 35% of retailers were still concerned with the lack of parking.

The study found that for retailers and businesses located along the LUAS red line the service improved customer access to the areas. When asked specifically if LUAS was advantageous for businesses there was a slightly more negative response, as shown in figure 4.11. The areas with the most significant negative responses were in the control group, where no additional public transport was provided. Although there was a slight bias to the negative response, there was a good proportion of the community who considered LUAS had given an economic advantage. Several businesses found there was no effect or chose not to answer the question.

[1] Source: www.mcawilliams.com/wordpress/wp-content/uploads/2007/11/luas-at-harcourt-street.jpg

Figure 4.11 Results of the LUAS economic impact survey



RELEVANCE TO THE RESEARCH

The research indicated that public transport provision can have a positive impact on retail activity if located in areas with high demand. The research also supported the fact that retailers still consider the removal/reduction of parking an issue, even though they understand and appreciate other benefits that can result from the implementation of a light rail/bus priority scheme.

KEY OUTCOMES

The views of public transport on the type of transport facilities required in shopping retail areas was evaluated from both shopper and retailer perspectives.

Questions were also included in the focus group to better understand the impact of loss of parking for retailers and the value of bus access in retail centres from the shopper perspective.

4.7 Value of drivers and parking

> *To ensure long term economic growth and improvements in environmental quality and social equity we need to progressively decouple economic growth from increase in the use of private cars.* (Victoria DOI 2002)

Although the car is the most popular mode of transport for all journeys, this does not mean that everybody has access to a vehicle. Even if they did, there would not be the capacity on the road network to accommodate all vehicles.

4.7.1 Road capacity

A common perception is that if you reduce road capacity, there will be an increase in travel times and a reduction in the amount of traffic that can travel along the route. This perception relates in particular to areas where it is important to maintain the strategic function of major arterial corridors. Before and after studies of the reallocation of road schemes have shown that, in reality, this does not always happen.

A study conducted by Sustrans (2003) highlighted research conducted in Leicester, UK (Wiggins and Newby 1993) which found there was a strong positive relationship between percentage vacancy rates and motorised traffic flow.

The results make clear that shop vacancy rates increase as the level of traffic increases. The results provided in figure 4.12 show that where there is no traffic, vacant shops account for only 3% of the total available, compared with over 15% on roads carrying over 500 vehicles.

Figure 4.12 Relationship between increased traffic levels and vacant shops in Leicester, UK (source: Sustrans 2003)

The graph quoted from the Wiggins and Newby (1993) study, suggests shop closures occur in areas with traffic flows above 500 vehicles per day. The scale on the graph appears to have recorded traffic volumes at very low thresholds. However, it is likely that the recorded traffic flows would have been much higher than 500 vehicles per day along selected routes. For more details on the traffic flows observed and specific sites in the Leicester study, refer to the original source (Wiggins and Newby 1993). Overall, the study supports the principle that traffic volumes that are too high can be detrimental to retail viability.

Burden and Lagerwey (1999) evaluated five road diet schemes implemented in Toronto. In each case the same volume of traffic was serviced, always at lower, more appropriate speeds. As with four-lane to three-lane conversions, prudent drivers set the speed. Many of these additional roadways operated with 11,000 to 17,000 ADT. This evidence built on the results from an additional before and after study of road diets in Seattle, Washington. The results of these schemes are provided in figure 4.13. They show that in most cases capacity was retained and traffic flows actually increased.

Figure 4.13 Impact of road diet schemes on traffic volumes in Seattle, Washington (source: Burden and Lagerwey 1999)

ROADWAY SECTION	DATE CHANGE	ADT (BEFORE)	ADT (AFTER)	CHANGE
Greenwood Ave. N, from N 80th St. to N 50th St.	April 1995	11872	12427	4 lanes to 2 lanes plus TWLTL plus bike lanes
N 45th Street in Wallingford Area	December 1972	19421	20274	4 lanes to 2 lanes plus TWLTL
8th Ave. NW in Ballard Area	January 1994	10549	11858	4 lanes to 2 lanes plus planted median with turn pockets as needed
Martin Luther King Jr. Way , north of I-90	January 1994	12336	13161	4 lanes to 2 lanes plus TWLTL plus bike lanes
Dexter Ave. N, East side of Queen Anne Area	June 1991	13606	14949	4 lanes to 2 lanes plus TWLTL plus bike lanes
24th Ave. NW, from NW 85th St. to NW 65th St.	October 1995	9727	9754	4 lanes to 2 lanes plus TWLTL
Madison St., from 7th Ave. to Broadway	July 1994	16969	18075	4 lanes to 2 lanes plus TWLTL
W Government Way/Gilman Ave. W, from W Ruffner St. to 31st Ave. W	June 1991	12916	14286	4 lanes to 2 lanes plus TWLTL plus bike lanes
12th Ave., from Yesler Way to John St.	March 1995	11751	12557	4 lanes to 2 lanes plus TWLTL plus bike lanes

4.7.2 Value of parking

As has already been highlighted, retailers often report a perceived need for on and off-street parking in local shopping areas (Edinburgh City Council 2000; Millward Brown IMS 2006). Often, car parking management is simply seen as a way to generate revenue for local councils. Implementing parking management schemes in urban centres can encompass time restrictions, parking charges or removal of on-street parking.

There are many reasons why parking may be limited along arterial route corridors: this may be to create wider footpaths, reduce traffic speeds and road crossing widths or to create cycle and bus lanes. The primary obstacle is that local businesses and the general public may object to these schemes as they perceive that measures that include the removal of parking spaces and road space will reduce business from passing traffic. The general public may also object to schemes requiring major changes to the local environment. Some of the more common objections are highlighted below.

My business will die if there are no on-street parking areas outside my shop.

I have a right to park on street outside my own house.

One of the important considerations is to create a framework, most likely in the form of policy or guidance to identify the purpose of schemes and show where parking is considered a priority and where parking will be limited to create high-quality facilities for other road users.

RELEVANCE TO THE RESEARCH

The availability of parking is a major issue for retailers. Transport professionals need to better understand this point of view and to understand the existing use of parking in retail areas, from both the shopper and retailer perspective. Furthermore, based on the findings of the Schaller Consulting (2006) study, it would be interesting to understand how much shoppers in New Zealand value parking space compared with pedestrian space.

STUDY OUTCOMES

A question was included in the shopper survey to establish where shoppers who drove to the shopping area had parked.

Questions were added to the focus group process to discuss the reliance on parking from the retailer perspective and to establish the views of shoppers on the topic of parking.

4.8 Policy and planning context

Internationally, there has been a shift in policy development to manage travel demand and improve accessibility. An Australasian example of this type of policy is the *Melbourne 2030: planning for sustainable growth* strategy (Victoria DOI 2002). Engrained within these policies is the development of local activity centres and encouragement of more sustainable transport options. In particular, the focus on better future land-use planning should assist in the development of future residential areas that encourage the use of local facilities rather than 'passing by' or travelling to other areas.

The UK has also developed numerous transport-related policies but often the measures that are applicable in many UK cities are enabled through a high level of congestion, which does not normally apply in New Zealand cities. A useful outcome from these strategies is the 'road user hierarchy' developed in 1990 by York City Council. This gave priority to road users in the order:

1 Pedestrians

2 People with disabilities

3 Cyclists

4 Public transport passengers

5 Commercial/business vehicles requiring access

6 Coach-borne shoppers

7 Coach-borne visitors

8 Car-borne long stay commuters and visitors.

Applying this type of hierarchy in transport and land-use policies could meet resistance in New Zealand. In a survey of local authorities in New Zealand (Lee et al 2009) it was found there was still a focus on providing for car users first even though most of the transport and urban design policies vindicated the use of the road user hierarchy. The results of the study indicated there was resistance, particularly from the RMA and strategic planners, to introducing the road user hierarchy formally into New Zealand policies. Transport planners and engineers, on the other hand, were found to promote active modes and public transport and supported the road user hierarchy approach. Still, there is also often little support from elected members for reallocation of road space schemes, even with the evidence in their favour being available as part of the scheme development.

The Smart Roads principles and toolkit (VicRoads 2011) have further developed the concept of a road user hierarchy to inform the planning process. The concept involves adopting a smarter approach to managing the road network. Initially, the tool was developed for use in Victoria, Australia, but is now being adapted for use in New Zealand towns and cities. The tool is used to prioritise the reallocation of road space in shopping areas along major transport corridors. The process involves mapping pedestrian, cycle, public transport and private vehicle routes to create a road user hierarchy, which provides a balanced priority for the use of the transport corridors in and around a local shopping area.

Over recent years, there has been a dramatic increase in the development of local policies and guidance in the fields of transport, land use and urban design policy. All local councils have to develop and implement a long-term community council plan (LTCCP), which serves as the primary strategy to apply for a central government subsidy. The projects outlined in the LTCCP are also funded from local funding sources. In addition, most local councils have developed supporting strategies and policies including:

- district plans
- transport strategies
- walking and cycling strategies
- travel demand management strategies
- urban design strategies
- guidelines on mixed use development.

A review of all the relevant local strategies would constitute a stand-alone research project. However, this literature review provides a review of some local strategies which impact on the type of environment that might be considered in shopping areas located in central cities and along major transport corridors.

The Wellington City Transport Strategy (WCC 2006) focuses on creating a transport network to support the economic, social, cultural and environmental aspirations of its citizens. The strategy aims to make the city:

- more liveable – Wellington will be easy to get around, pedestrian-friendly and offer quality transport choices
- more prosperous – Wellington will have a coherent and efficient transport system that aids economic development
- more sustainable – Wellington will minimise the environmental effects of transport and support the environmental strategy
- better connected – Wellington will have a highly interconnected public transport, road and street system that supports its urban development and social strategies
- healthier – Wellington's transport system will contribute to healthy communities and social interaction
- safer – Wellington will seek to improve the safety and security of its citizens as they move around the city and region.

The Wellington Urban Design Strategy (WCC 1994) integrates the urban design and transport needs comprehensively. A key objective in the strategy is to redress the transport balance and improve the pedestrian environment. To achieve this aim, a number of tools are available which include: the segregation of pedestrians and vehicles through the creation of pedestrian only areas; the increase in space provided for pedestrian movement in city streets; and the adaptation of various traffic control systems to make provision for pedestrians to cross major traffic flows. These two strategies are well

aligned, however, ensuring that schemes are delivered which achieve the aims of these and the many other local and regional strategies which depend upon successful collaboration.

The *New Zealand pedestrian planning and design guide* (Land Transport NZ 2007) was developed to create a framework for the design of the pedestrian network. A number of useful tools were also developed to complement the guide in assisting decision makers and designers.

The New Zealand Urban Design Protocol was published by Ministry for the Environment in 2005. It calls for a significant step up in the quality of urban design in New Zealand and a change in the way we think about our towns and cities and identifies seven essential design qualities:

- **Context**: seeing that buildings, places and spaces are part of the whole town or city.
- **Character**: reflecting and enhancing the distinctive character, heritage and identity of our urban environment.
- **Choice**: ensuring diversity and choice for people.
- **Connections**: enhancing how different networks link together for people.
- **Creativity**: encouraging innovative and imaginative solutions.
- **Custodianship**: ensuring design is environmentally sustainable, safe and healthy.
- **Collaboration**: communicating and sharing knowledge across sectors, professions and with communities.

Although the protocol is not a transport policy document, the guiding principles mirror the key aims of creating an accessible and permeable transport network. The principle of collaboration about communicating and sharing knowledge across sectors is vital.

RELEVANCE TO THE RESEARCH

The planning policies of the last three decades have created local shopping environments that are dominated by the needs of the private motor vehicle rather than those on foot or travelling by bicycle.

More recent policies demonstrate that policy makers are beginning to shift towards providing a more balanced approach to the development of New Zealand cities and shopping areas. If we are to be successful in achieving our aim to revitalise residential areas and associated shopping areas in urban zones, then issues such as accessibility, transport planning, land-use planning and urban design must be considered together with an integrated planning approach.

STUDY OUTCOMES

The policy outcomes identified in the literature review, such as the elements of transport and urban design needed to encourage people to use local shopping areas were tested in the study.

4.9 Summary of the literature review

Much of the previous research on the economic value of reallocation of road space is based on providing evidence that investing in walking, cycling and public transport will achieve wider transport policy objectives to reduce congestion and reduce the adverse impact on health.

However a number of useful outcomes from the review have informed the methodology for this study. The areas identified as a key outcome from the literature review and included in the study are:

- Research has been carried out on the actual needs of shoppers and how this relates to the perceived priorities by retailers.
- Although these studies have provided useful evidence indicating that the impact of car trips and the need for parking is widely overestimated, we still need to provide local evidence to support this.
- The urban design of an area has a significant impact on how an area is used by people and studies show that good street design often results in economic benefits for retailers located in shopping areas with high-quality street design. Further investigation into how this relates to the New Zealand customer market is required.
- On average, business owners overestimate car use by approximately 20% and underestimate walking trips to local shopping areas by 13% to 19%. Understanding the actual travel and retail activity in local shopping areas will assist in making informed decisions about what type of infrastructure is important.
- The retention of on-street car parking is a priority for retailers, although parking is a relatively low priority for shoppers (composition of shops is the priority). Further work to identify the parking needs of shoppers in New Zealand has been undertaken in this study. A significant effort is also required to work with retailers to identify why parking is perceived to be so important to them.
- The literature review informed the methodology for this study. The key outcomes from the review including further investigation into the economic spend by transport choice, availability and use of parking, and evaluating the impact of urban design were incorporated into the study methodology.

5 New Zealand case study sites

The primary aim of this study was to provide New Zealand based data on the economic impact of transport users. To achieve this objective, data was collected from nine shopping areas in the three largest cities in New Zealand: Auckland, Wellington and Christchurch.

As outlined within the methodology, the composition of the sites selected represented arterial and central locations. Overall, the study included data from three central city locations and six arterial shopping areas. The sites are detailed below.

5.1 Auckland sites

Three Auckland sites were selected. The composition of the sites included two shopping areas located on arterial roads and one in a central location. The shopping areas involved in the project were:

- Balmoral, Dominion Road (arterial)
- Eden Valley, Dominion Road (arterial)
- Hurstmere Road, Takapuna (central).

The geographical location of each site within Auckland is provided in figure 5.1.

Figure 5.1 Auckland selected shopping areas

Two of the sites selected in Auckland are located along Dominion Road near the intersections with Valley Road and Balmoral Road. The third Auckland site is located along Hurstmere Road between Anzac Street and Lake Road in central Takapuna.

Dominion Road is a key arterial route in Auckland carrying both regional and local traffic. Dominion Road is also a key corridor for public transport services. Dominion Road features two vehicle traffic lanes in both directions, and in places on-street parking and peak hour bus lanes. Dominion Road traverses three shopping areas: Mt Roskill, Balmoral and Eden Valley shops.

5.1.1 Balmoral, Dominion Road, Auckland

The Balmoral shopping area is located south of the intersection of Dominion Road and Balmoral Road. The shopping area serves the local residential area of Balmoral and neighbouring areas of Sandringham, Mt Albert and Mt Roskill. In addition, Dominion Road serves as a major commuter route and some passing trade is expected in the shopping area. There are also several other local shopping areas located along Dominion Road and the surrounding road network that compete with Balmoral for shoppers.

The shopping area is well known for a large variety of Asian restaurants which attract people from the wider Auckland area. This provides a niche market for the shopping area compared with its competitors.

As a result of the varied retail activity in the shopping area, it is used throughout the day and the characteristics of the people using the area change during this period. During peak commuter times, there is a strong demand for efficient movement of through traffic while creating a safe environment for those walking and cycling within and through the area. There are requirements for both on and off-road car parking into the evening and the lighting in the area is important to encourage pedestrian and cycle activity in the evenings when people visit the local restaurants.

A total of two mid-block pedestrian crossings are provided (as seen in figure 5.2) and pedestrian facilities are provided at the signalised intersection of Balmoral Road and Dominion Road. Dominion Road is a key public transport corridor and will be subject to upgrades of public transport facilities.

The extent of the Balmoral shopping area is shown in figure 5.2, together with photographs of its layout and typical facilities provided in the shopping area.

Figure 5.2 Balmoral shopping area, Auckland

No specific urban design features are provided within the shopping area. In addition to the economic surveys, on-street parking surveys were also undertaken in the shopping area.

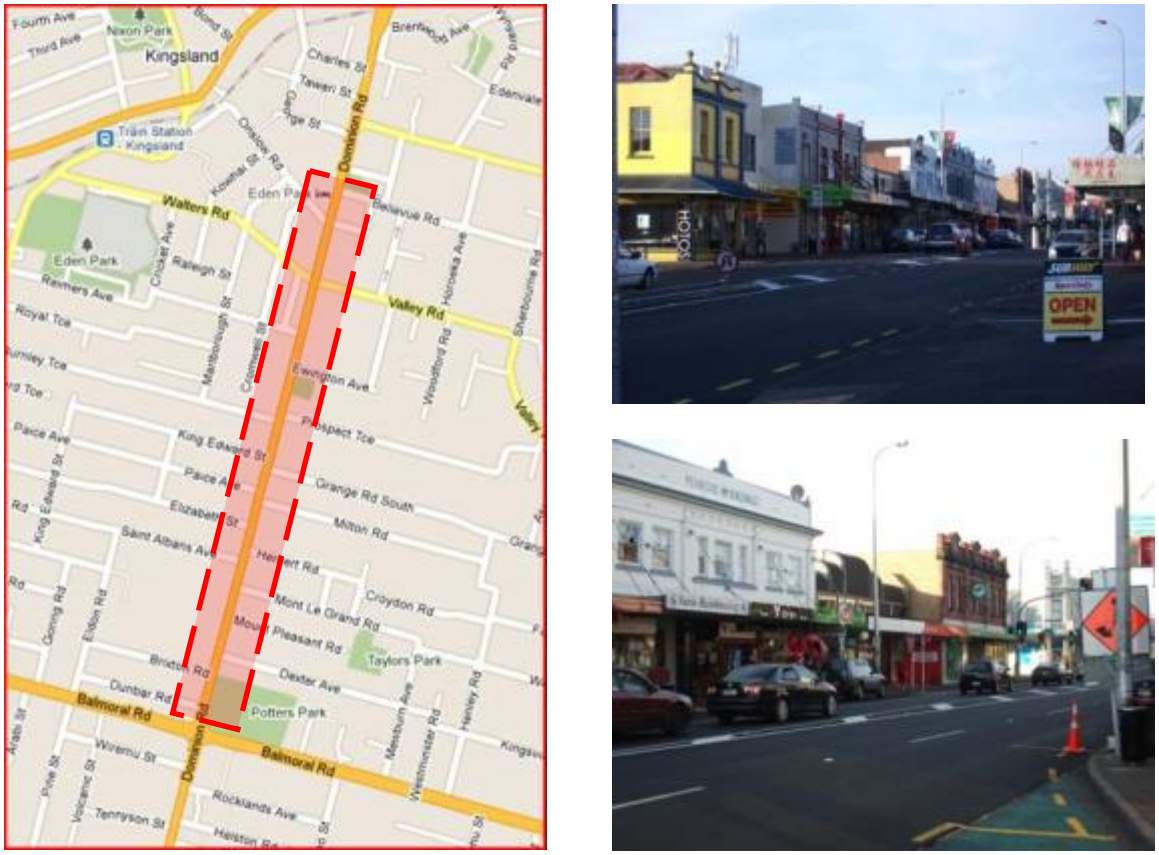
5.1.2 Eden Valley, Dominion Road, Auckland

Eden Valley is located along the Dominion Road corridor, just to the north of the intersection of Dominion Road and Balmoral Road. Balmoral is adjacent to the shopping area to the south. As such the shopping areas compete for business from the same residential areas.

The key attraction in Eden Valley is the local supermarket, along with other key services including local bank branches. On and off-street car parking is provided within the shopping area and a dedicated off-street car park is available for supermarket shoppers. Pedestrian phases are provided at existing signalised intersections, but there are limited formal crossing opportunities in this busy road, and often visibility of on-coming traffic can be limited as a result of on-street parking. A flush median has been provided with some pedestrian islands to assist mid-block crossing movements. There are currently no dedicated cycle routes in the shopping area.

The extent of the study area and photographs showing the shopping area layout are provided in figure 5.3.

Figure 5.3 Eden Valley shopping area



In addition to the economic surveys, on-street parking surveys were also undertaken in the shopping area.

5.1.3 Hurstmere Road, Takapuna, Auckland

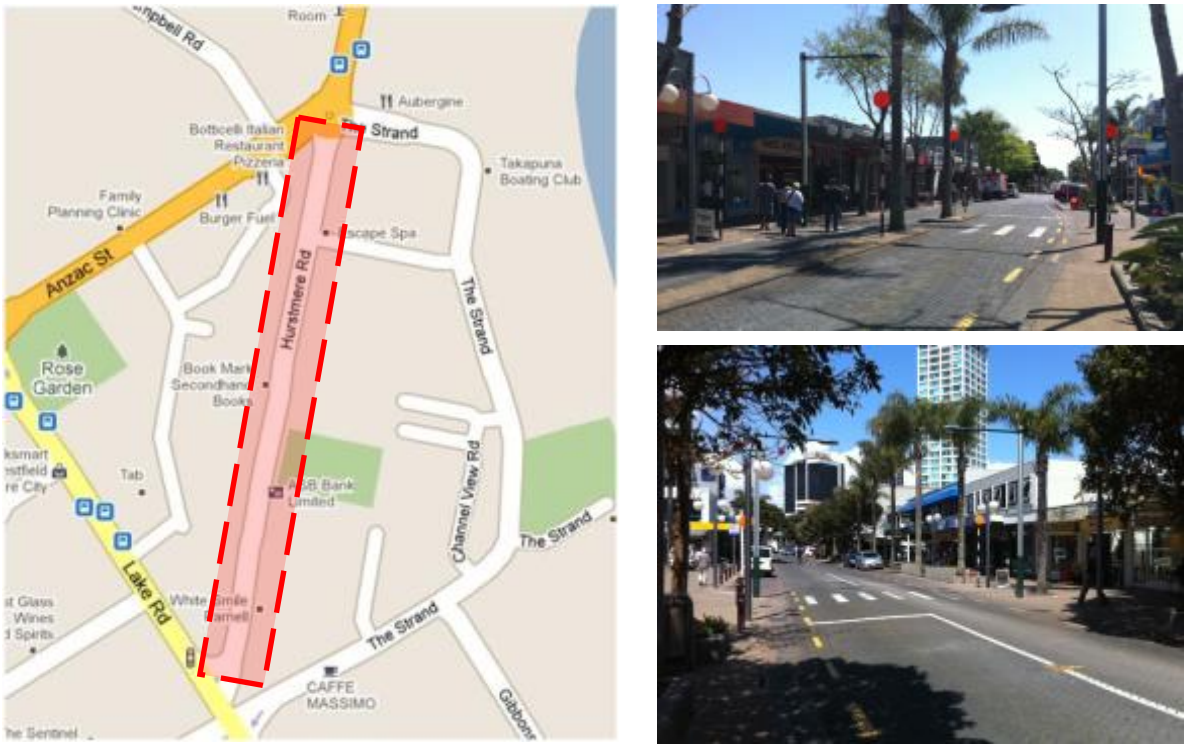
Takapuna is the largest shopping area on the North Shore of Auckland city. It is currently the main business centre for the North Shore district and is a key public transport node for people travelling to and from central Auckland. It is anticipated that Albany will become the largest district centre in the future.

Hurstmere Road is located in central Takapuna and has been designed as a public transport hub. In addition, there has been significant investment in the urban design and landscaping of the area including provision of roading and pedestrian focused lighting. There is a good mix of pedestrian amenity and provision for on and off-road car parking. Although dedicated cycle lanes are not provided, slow traffic speeds and urban design encourage safer cycling opportunities through the centre. Parking restrictions are in place within the centre.

The shopping area has a 'high street' feel with anchor shops such as a post office and banks being provided in addition to high street clothing stores. A number of niche shops are also provided in the form of book shops and photographic shops. There is also a high proportion of cafes located within the centre.

The extent of the study area and photographs showing the shopping area layout are provided in figure 5.4. Urban design features include landscaping, innovative lighting, tree planting and pedestrian areas adjacent to the main street.

Figure 5.4 Hustmere Road, Takapuna



5.2 Christchurch sites

Three Christchurch sites were selected. The composition of the sites included two shopping areas located on arterial roads and one in a central area. The shopping areas involved in the project were:

- Colombo Street, Christchurch (central)

- Merivale, Papanui Road, Christchurch (arterial)
- Riccarton, Riccarton Road, Christchurch (arterial).

Colombo Street was the pilot study location and the Riccarton Road site served as the pilot location for the amended survey methodology which involved engaging with retailers who hosted the shopper surveys for a two-week period. Overall, the Christchurch sites had a smaller number of shops located in each of the centres, compared with the sites in Wellington and Auckland.

The sites are shown geographically in figure 5.5.

Figure 5.5 Christchurch case study locations

5.2.1 Colombo Street, Christchurch

Colombo Street is one of the longest streets in Christchurch and, prior to the Canterbury earthquakes, hosted a number of local shopping areas. The section of Colombo Street used in this study is a central city location between Armagh Street and Gloucester Street. It must be noted that this area has seen significant changes since the 22 February 2011 Canterbury earthquake, which caused significant damage to the central city. All data and reporting in this study is based on pre-earthquake conditions.

The shopping area is located on the tourist walking route to Cathedral Square and as a result, has a high proportion of tourist gift shops. The area also provides key attractors including a post office and a variety of bank outlets.

Although many of the shops cater for the tourist trade, the shopping area is located in the central business district and also provides for the many office workers in the immediate vicinity. The types of shops catering for local users include cafes, Starbucks, bakeries and dairies.

The location has a high level of pedestrian activity throughout the day but becomes a less popular destination after 6pm. Although dedicated cycle facilities are not provided, the traffic flows and speeds are low enough to encourage cycling. The major deterrent for cycling in the area is the risk of 'car door' crashes. A number of bus routes use the area and bus stops are provided for services accessing both northern and southern suburbs. The study area provides both on and off-street car parking opportunities.

The extent of the study area and photographs showing the shopping area layout are provided in figure 5.6.

Figure 5.6 Colombo Street, Christchurch

5.2.2 Merivale, Papanui Road, Christchurch

Papanui Road is one of the primary arterial corridors in Christchurch traversing the northern suburbs of Christchurch. The Papanui Road corridor had a bus priority scheme installed in 2009 which incorporated several elements of design to provide bus priority along the entire route. The design of the bus lanes ensures a 4m wide bus lane with painted markings at intersections with local roads. The bus lanes terminate for the extent of the Merivale Mall shopping centre.

Merivale Mall was the survey site along Papanui Road. As part of the bus corridor route, the Merivale shopping area design includes the addition of a dedicated painted cycle lane through the shopping area and the retention of on-street car parking. The bus stops are located just outside the shopping area on the dedicated bus lanes at the approach and exit of the centre, but not within the centre. A signalised pedestrian crossing has been retained in the shopping area. In addition to the on-street parking provision, there is a large off-street car park available for shoppers at the rear of the mall.

Merivale is comprised of several elements. There is a shopping mall, which hosts a Fresh Choice supermarket, several high-end designer fashion outlets and restaurants and bars. The shops located outside the mall offer a range from child clothing stores to well-established local restaurants.

It must be noted that this area has seen significant changes since the Canterbury earthquakes occurred. Although Merivale sustained some damage, the shopping area has generally seen a dramatic increase in use since the earthquake. All data and reporting is based on pre-earthquake conditions.

The extent of the study area and photographs showing the shopping area layout are provided in figure 5.7.

Figure 5.7 Merivale shopping mall, Papanui Road

5.2.3 Riccarton, Riccarton Road, Christchurch

Riccarton Road is a key arterial route in Christchurch located in the western suburbs of the city. The Riccarton Westfield shopping mall is also located along the route adjacent to the study site. The road already has significant congestions problems and is one of several Christchurch arterial routes where bus priority measures are proposed in the local LTCCP.

The shopping area includes shops with frontages onto Riccarton Road and provides for more niche shopping requirements. The study site is to the east of the Strowan Road intersection. The shops located in the shopping area include a school uniform shop, a vacuum repair centre and Korean health specialists. The local pharmacy and Windmill Centre with restaurants and small bookshops provide complementary services and a dedicated off-road car park for customers.

The area does not have wide footpaths and the only dedicated pedestrian crossing is at the signalised intersection of Strowan Road. Dedicated painted cycle lanes are provided through the study site outside on-street parking bays.

It must be noted that this area experienced some damage and significant change as a result of the Canterbury earthquakes. All data and reporting is based on pre-earthquake conditions.

The extent of the study area and photographs showing the shopping area layout are provided in figure 5.8.

Figure 5.8 Riccarton Road, Christchurch

In addition to the standard research methodology a car parking survey was undertaken at the Riccarton Road site.

5.3 Wellington sites

Three Wellington sites were selected: two shopping areas located on arterial roads and one in a central location. The shopping areas involved in the project were:

- Courtenay Place, Wellington (central)
- Riddiford Street (Newtown high street), Wellington (arterial)
- The Terrace, Wellington city centre (arterial).

The sites are shown geographically in figure 5.9.

Figure 5.9 Wellington case study locations

5.3.1 Courtenay Place, Wellington

Courtenay Place is one of four streets commonly referred to collectively as the Golden Mile in central Wellington. The Golden Mile is Wellington's main shopping area. A restoration programme by Wellington City Council has been underway for some time to upgrade provisions along the route.

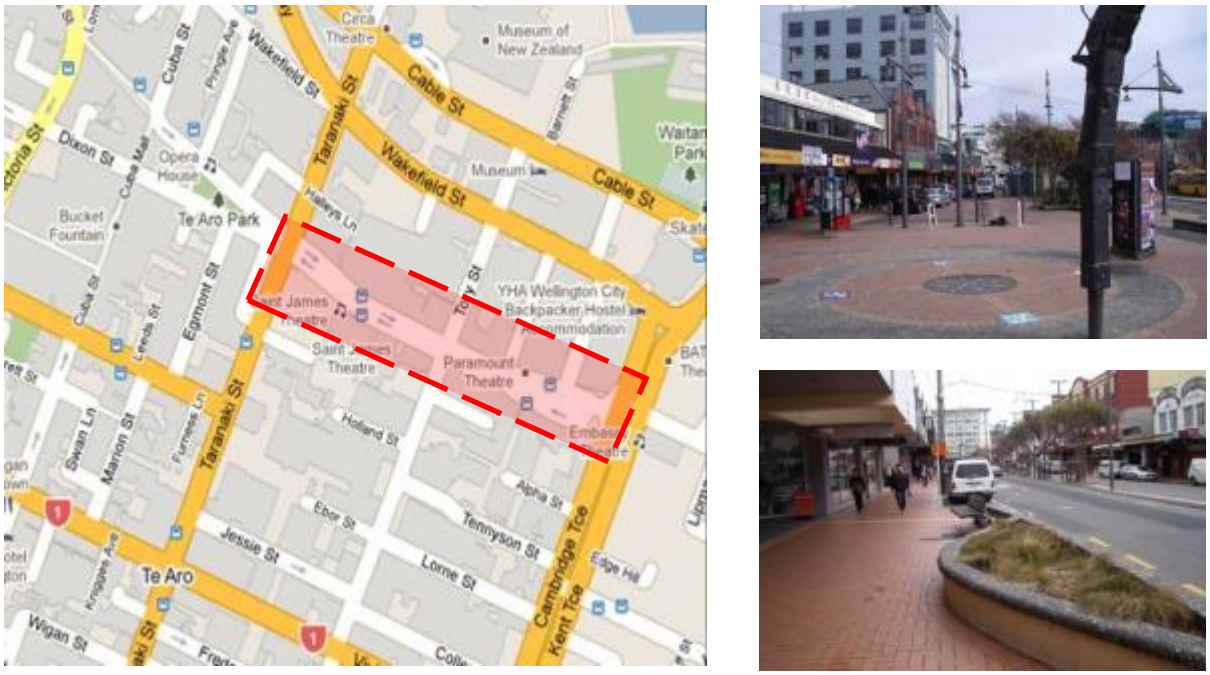
Currently wide footpaths feature heavily along Courtenay Place due to the substantial numbers of pedestrians using the area both day and night. While cycle parking is present no dedicated cycle lanes are provided. Courtenay Place is made up of single lane two-way general vehicle traffic lanes, bus lanes and on-street parking. Bus services are very frequent and signalised intersections assist pedestrians in crossing intersecting roads.

As part of the restoration programme, there has been significant investment in the urban design and landscaping of Courtenay Place. Distinctive red bricks clearly define the pedestrian area and tactile paving is provided at appropriate locations. In addition, public art is provided in the design of the paving along the route and as stand-alone features. The area also has tree planting separating traffic lanes and providing attractive features for people walking through the centre.

The retail activity is focused on the provision of entertainment and cafes/restaurants/bars in the study area.

The survey area covered the full length of Courtenay Place from its intersection with Cambridge Terrace to its intersection with Taranaki Street. The extent of the study area and photographs showing the shopping area layout are provided in figure 5.10.

Figure 5.10 Courtenay Place, Wellington



5.3.2 Riddiford Street, Newtown, Wellington

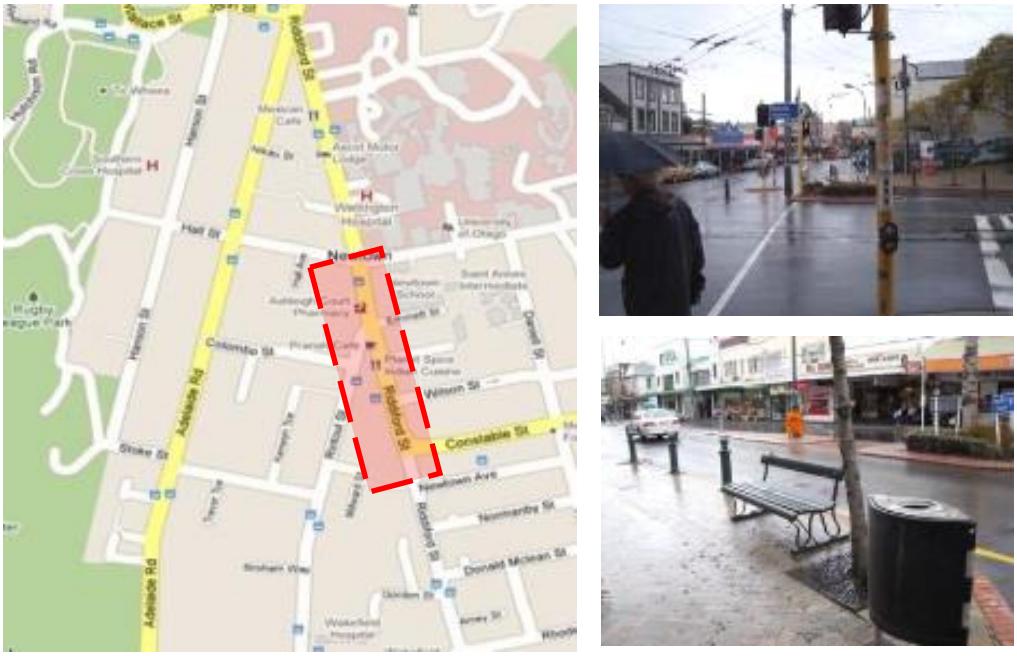
The second Wellington site was Riddiford Street which is the 'high street' through the suburban centre of Newtown. Riddiford Street within the survey area (between Hall Street and Constable Street) is classified as a collector road. It links two principal roads to the north and south.

Newtown is a bustling suburban centre known for its annual street festival and restaurants. Bus frequencies are high along Riddiford Street. The Newtown shops are located close to the large Wellington Regional Hospital site at the northern end of the survey area, and south of the Newtown New World supermarket.

The speed limit along this section of Riddiford Street has been reduced to 40km/h. Riddiford Street for the most part features two-way traffic and on-street parking. Where side streets intersect, pedestrian platforms are present across the side streets. In the section from Wilson Street to Constable Street traffic lanes are reduced to single lanes with on-street parking. No dedicated cycle lanes are provided.

The extent of the study area and photographs showing the shopping area layout are provided in figure 5.11.

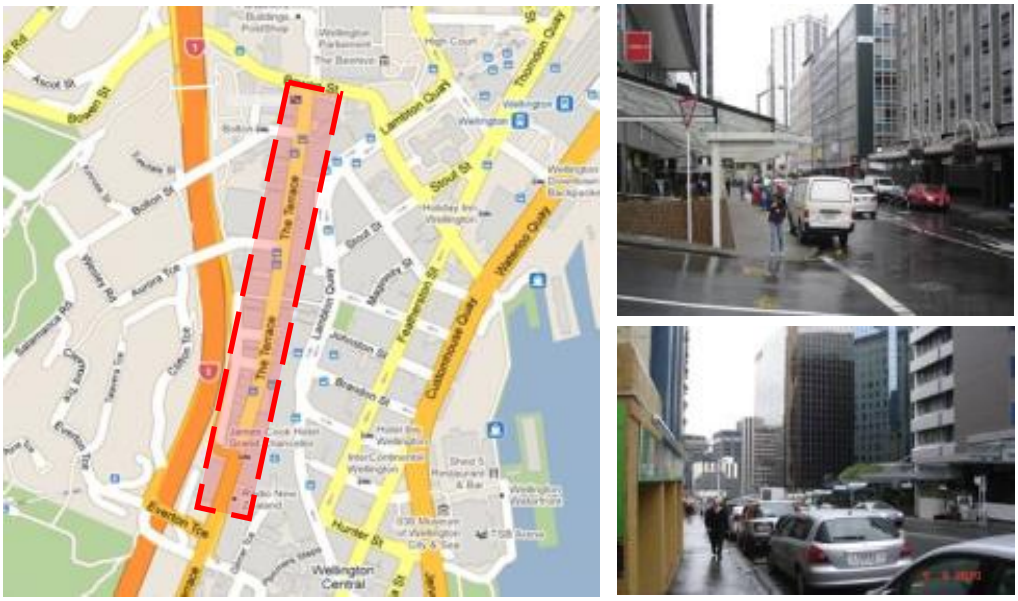
Figure 5.11 Riddiford Street, Newtown, Wellington



5.3.3 The Terrace, Wellington

The Terrace is located within Wellington central city but serves as an employment centre and arterial through route in Wellington central city. There is also a high volume of pedestrians crossing The Terrace. The extent of the study area and photographs showing the shopping area layout are provided in figure 5.12.

Figure 5.12 The Terrace, Wellington



The Terrace is classified as a collector road in the Wellington City Council hierarchy of roads. Principal roads sit between the arterial and local road network. For the purposes of this study the site is considered to be located in an arterial type environment (a road of strategic through-flow importance, but with limited width).

The area is characterised by single lane traffic lanes in either direction with on-street car parking on both sides. A high pedestrian footfall was observed and priority controlled and signalised intersections feature along The Terrace. The land use is predominantly office, hotel and residential high-rise buildings with clusters of retail units on the ground floor.

6 Data analysis

This chapter outlines the results from the economic survey for the aggregated data from all nine shopping areas in New Zealand. Table 6.1 provides a summary of the completed surveys by site.

Table 6.1 Total survey response rate for all sites

Site	Type	Response rate					
		Returned retailer surveys	% retail response rate	No. of retailer hosts	% host	Total no. of shops	Shopper surveys
Balmoral, Dominion Road, Auckland	Arterial	26	27%	28	29%	97	365
Eden Valley, Dominion Road, Auckland	Arterial	32	21%	60	40%	151	550
Hurstmere Road, Takapuna, North Shore	Central	20	22%	42	45%	93	283
Colombo Street, Christchurch	Central	3	20%	0*	0%	15	61
Merivale, Papanui Road, Christchurch	Arterial	8	23%	2	6%	35	27
Riccarton, Riccarton Road, Christchurch	Arterial	4	29%	7	50%	14	36
Courtenay Place, Wellington	Central	13	28%	12	26%	47	170
Riddiford Street, Newtown, Wellington	Arterial	20	40%	14	28%	50	96
The Terrace, Wellington	Arterial	18	40%	13	29%	45	156
All arterial sites		108	28%	124	32%	392	1230
All central sites		36	23%	54	35%	155	514
Total		**144**	**26%**	**178**	**33%**	**547**	**1744**

*No retailers were approached to host shopper surveys in the pilot survey. Shoppers were engaged using an on-street interview process.

6.1 Data profile

6.1.1 Sample size

This study used the data collected from nine shopping areas across New Zealand. In total, as shown in table 6.1, over 1700 shopper surveys and 144 retailer surveys were completed. The completed retailer surveys represented returns from only 26% of retailers. Although this is a typical response rate for a postal survey, a higher rate of engagement with retailers would have been preferred.

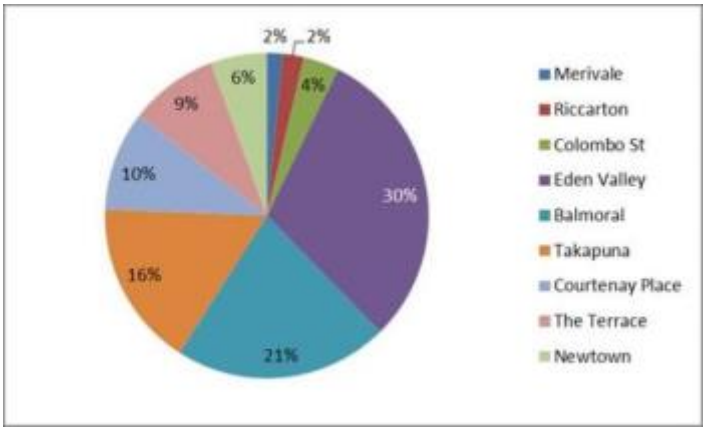
A detailed analysis of the shopper response rates showed that not all respondents completed every question in the survey. On average the response rate for the shopper survey ranged between 95% and 99% of the total survey responses. The only questions that resulted in lower response rates were:

- Time of day survey completed? – 93%
- Is this your usual mode of transport? – 90%
- If you drove, where did you park? – 60%.

The actual number of responses for the questions still provides a robust data set to analyse. For the time of day survey, the data set included 1622 responses out of a total 1744 responses. The usual mode of transport question had a 90% response rate and accounted for 1561 responses. The final question only related to those who had parked in the area, so a lower overall response rate was expected.

The sample size of the shopper survey ranged from 1560 to 1740 completed responses. Therefore, the data set provided adequate data for this size of project. This sample size is comparable to a similar study in Bristol, UK (Sustrans 2006), which was based on a sample size of 840 customers across two neighbourhood shopping areas in Bristol. Based on these results, the average shopper survey response in the Bristol study was 420 per site. The average response rate for our study was 192 completed surveys per site. This is less than the Bristol study, primarily because the study sites were smaller and had less retail activity than the UK study sites. As shown in figure 6.1, the majority of the shopper surveys were completed at the Auckland sites.

Figure 6.1 Distribution of shopper survey results



This data set included 550 surveys completed in Eden Valley, 365 in Balmoral and 283 in Takapuna. The survey area was extended in Auckland, which accounted for a higher response rate at these sites. The survey response rate in these locations provided a data set which was not influenced by small changes in travel mode and economic spend as much as in the smaller data sets.

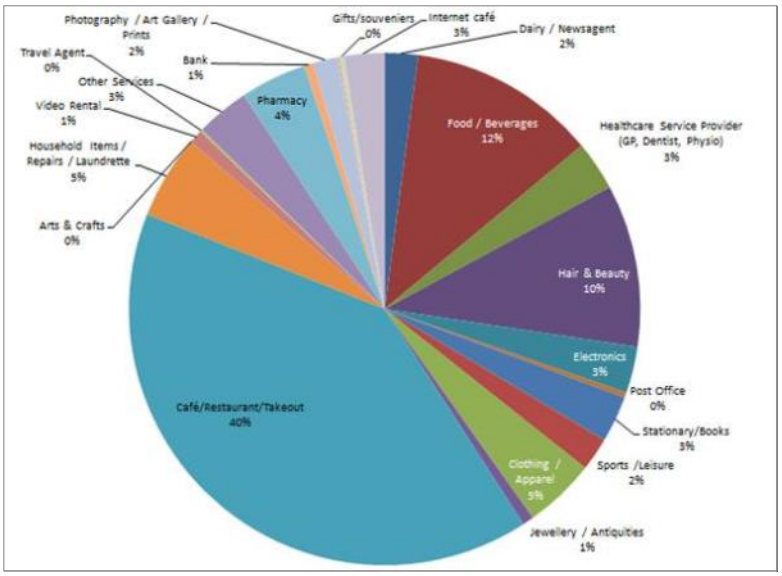
Another factor contributing to the higher retailer response rate in Auckland is that the city is the most densely populated region of New Zealand and as a result more activity was expected compared with Wellington and Christchurch, where the population size is smaller. The total number of surveys provided a substantial data set which was comparable to the Bristol study.

Individually, the data collected from the smaller sites was susceptible to 'spikes' caused by high economic spends from a small number of users. Therefore, to minimise the risk of any anomalies, the data was aggregated across all nine sites to analyse the complete data set.

6.1.2 Shop category distribution

It is clear from the data presented in figure 6.2 that the most responses were received from the cafes and restaurants, representing 40% of the total responses (from shoppers). Other food and beverage outlets (cafes and restaurants) and hair and beauty service providers also accounted for a high proportion of the responses received.

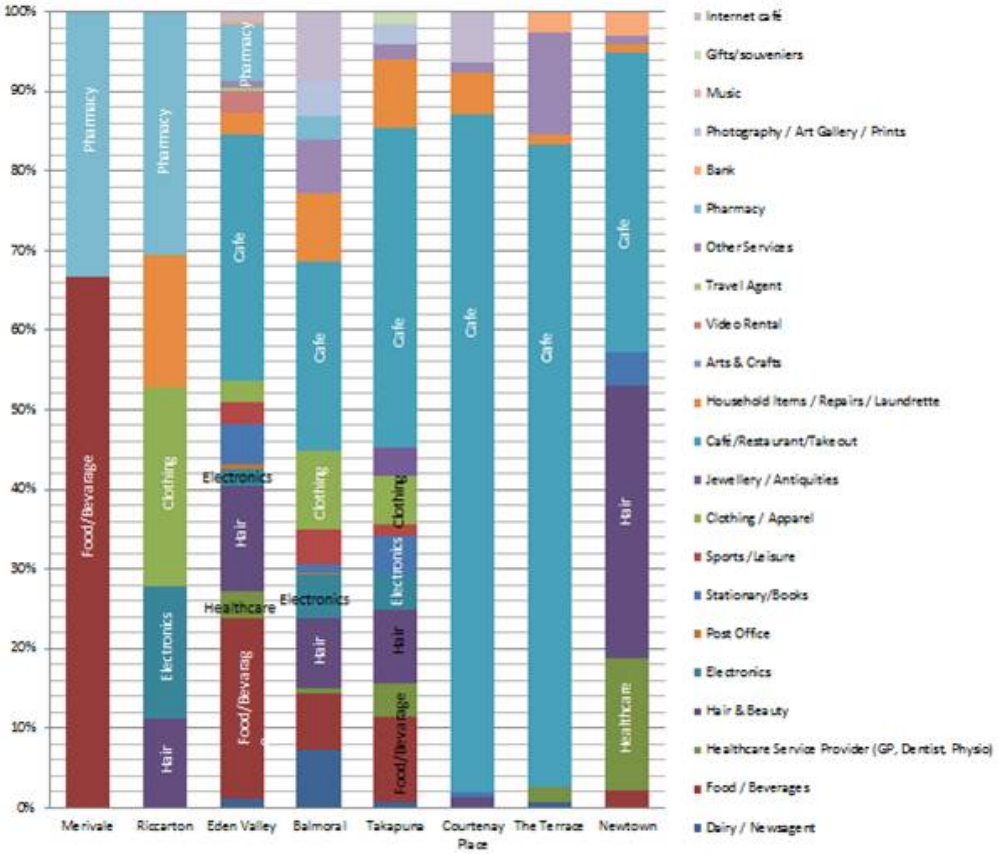
Figure 6.2 Total shopper survey response by shop category



Surprisingly dairies accounted for a very small proportion of the responses.

Most of the higher responding categories of host shops required a significant waiting period for customers, and this gave an opportunity for the surveys to be completed. Based on feedback from the distribution of surveys, clothing and national chain stores were the least likely retailers to participate. To better understand the patterns, figure 6.3 provides details by site on the types of shop in which each of the shopper surveys was completed.

Figure 6.3 Category of shops hosting the survey by site



Without question, the majority of responses were received from cafes across all sites.

The most responses were received from Eden Valley. Almost half of the shops in Eden Valley hosted the survey, returning 550 forms. The interesting result is that only 29% of shops hosted surveys in Balmoral, yet 365 forms were completed. A reason that these two areas produced a higher response rate appears to be the good mix of shops which provided a variety of responses.

A total of 98% of the retailers indicated the shop category, equating to 1710 valid responses. Of these, 631 (40%) were collected from cafes. The individual response rate for each response is noted in the analysis within this section.

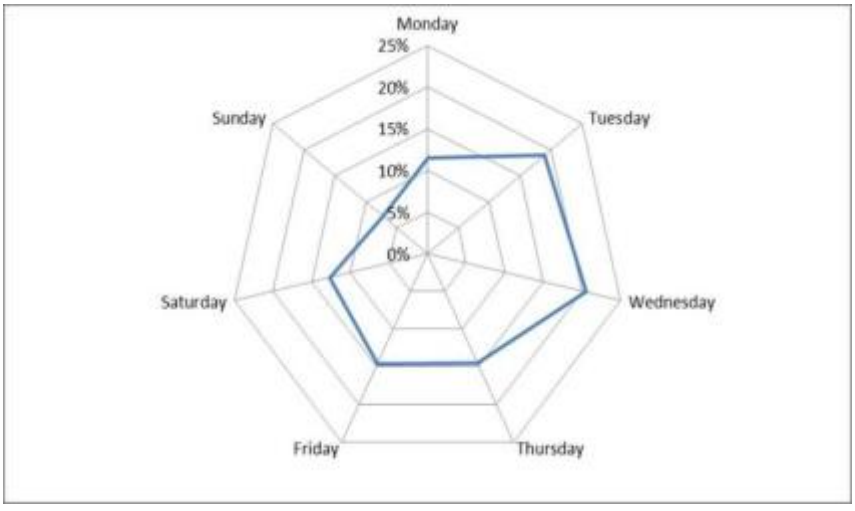
6.1.3 Sample selection

It was important to collect data that was representative of 'typical' shopping areas without misrepresenting the use of the shopping areas. To assess if this objective was achieved the distribution of the sample selection has been analysed below.

Data was collected from the shopping areas over a two-week period (excluding the pilot study). This ensured that information was collected over a longer shopping period rather than providing 'snapshot' data.

An analysis of the days the shopper survey took place is available in figure 6.4. The data shows a total of 1640 valid responses, representing 94% of the completed forms. The data shows that the highest number of forms were completed on a Wednesday, closely followed by Tuesday, with Sunday accounting for the least responses.

Figure 6.4 Shopper survey completion day

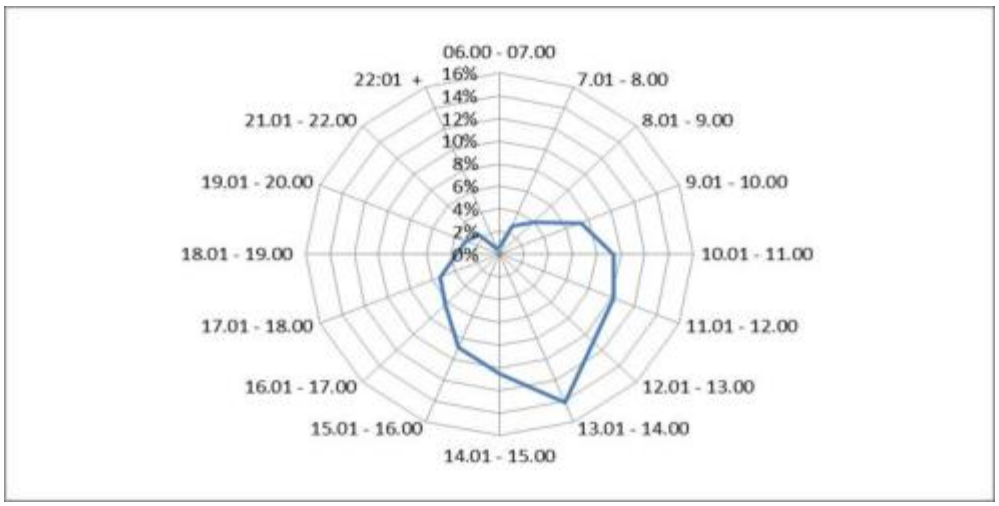


Overall, the spread of data provided a good balance over the weekdays and presented a good distribution with the expected busiest shopping periods for arterial and central city sites.

It was also important to ensure that the surveys were completed across different periods. The results of this part of the survey are provided in figure 6.5. A total of 93% respondents provided data, equating to 1614 responses.

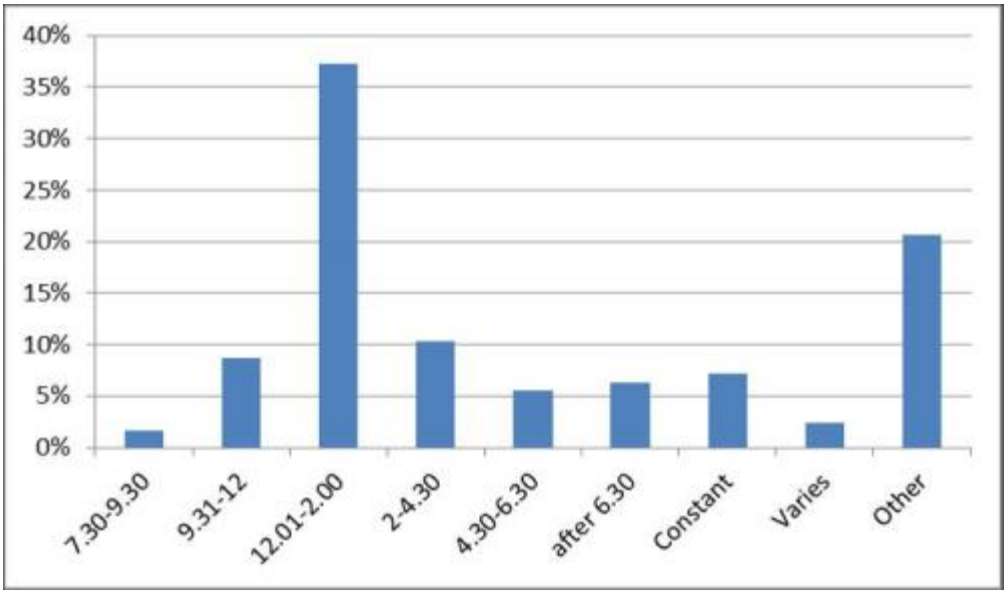
The results indicate that the highest number of responses were completed between 1pm and 2pm and the lowest number of responses completed after 6pm.

Figure 6.5 Shopper survey completion time



This was a fairly typical pattern for arterial and central sites and was also reflected in data collected from retailers, which shows the busiest period for retailers is the lunchtime period. The data is presented in figure 6.6.

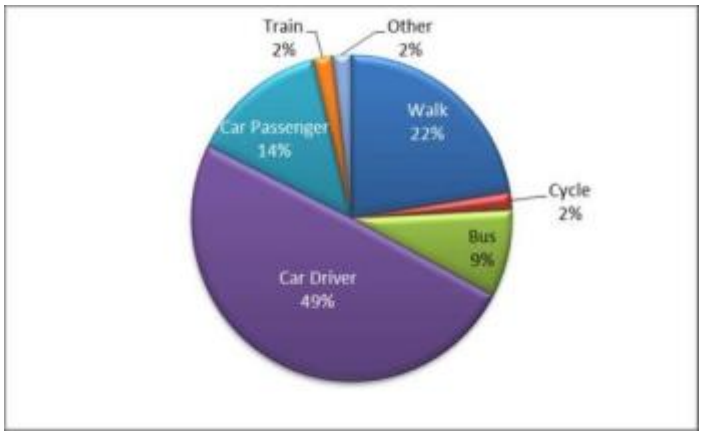
Figure 6.6 Retailer: busiest times



The data also reflects the composition of the shops, with 40% of the completed forms coming from cafes and food outlets. As expected these types of shops experience higher volumes of shoppers during the lunchtime period.

A final analysis of the sample selection was to assess the travel patterns of the shoppers compared with national travel trends. The travel mode results, which included 1733 valid responses (99% of the total data set), are presented in figure 6.7.

Figure 6.7 Total modal share: all sites



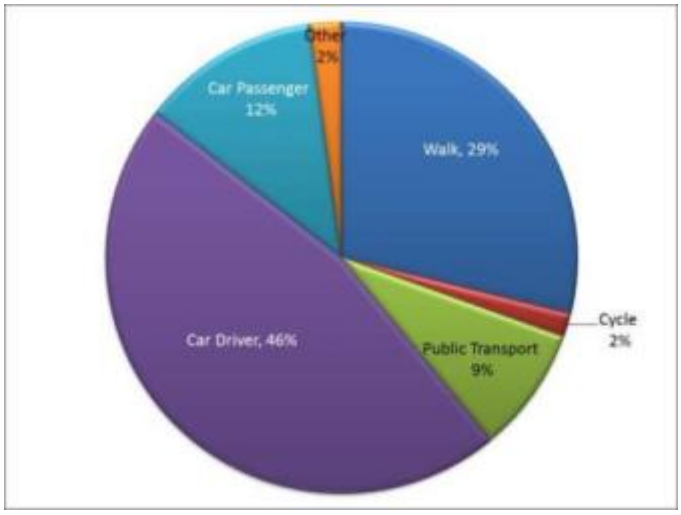
The majority of survey respondents (63%) travelled by car, either as a passenger or as a driver. The sustainable transport users (pedestrians, cyclists, public transport users, users of scooters and mobility scooters, wheelchair users and skateboarders) accounted for the remaining 37% of travel. This is broken down as follows:

- walking – 22% of travel
- bus – 9% of travel
- train – 2% of travel
- cycling – 2% of travel
- other (including skateboards and scooters) – 2% of travel.

The shopper data set compared well with the retailer estimation of shopper travel. The results reflected a total of 108 retailer survey responses (75% of the total data set). Car travel was estimated at less than the actual travel data and the amount of walking was overestimated.

This is contrary to overseas studies, where retailers typically underestimate the impact of sustainable transport users. This shows that the retailers who engaged in the study understood the importance of sustainable transport users. It is important to note that these retailers represented only 26% of the retailers in the study area. Although this was a typical response rate for a postal survey, a higher rate of engagement with retailers would have been preferred.

Figure 6.8 Retailer estimate of shopper main mode of travel

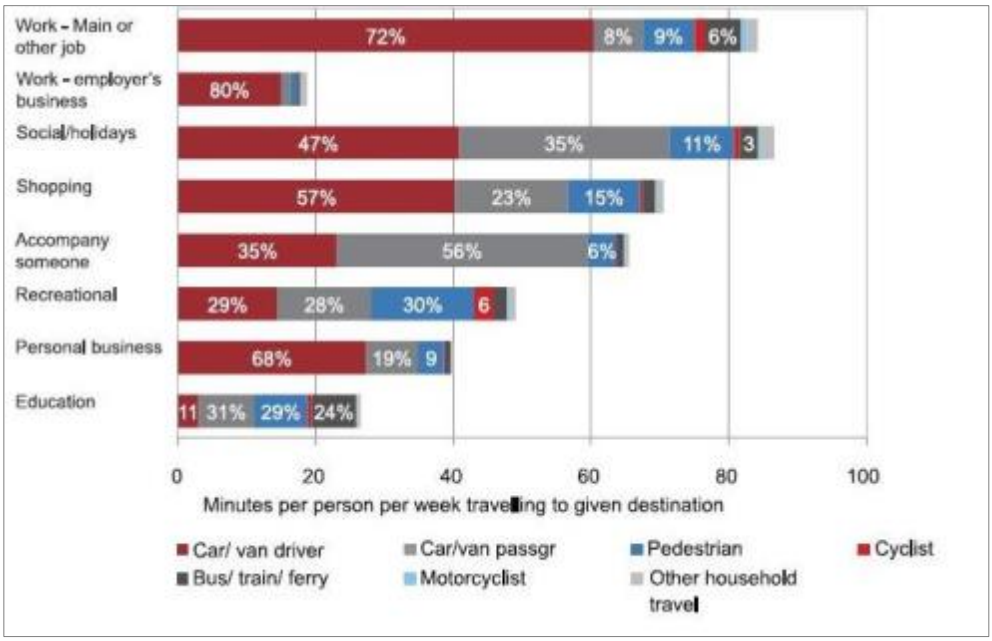


How do the travel patterns compare with national statistics? Figure 6.9 shows the total travel by hours from the New Zealand Household Travel Survey (NZHTS) for the three-year period between 2004 and 2008. This data shows that the majority of people travelled by car, which accounted for 78% of all travel. Therefore active and sustainable transport accounted for 22% of the remaining travel. This is broken down as follows:

- walking – 13% of travel
- public transport – 5% of travel
- cycling – 2% of travel
- other (including skateboards and scooters) – 2% of travel.

Figure 6.9 indicates that car travel accounted for a slightly higher proportion (80%) of shopping trips, and walking trips increased to 15% of the mode share.

Figure 6.9 Why and how people travel– mode share of time spent travelling (2004–08, MoT 2009b)



The data from the research showed there was a slightly higher proportion of walking and public transport use than the national average. One of the main reasons for the higher proportion of public transport was that many of the surveys were completed on popular public transport routes. The reason why the data differed is discussed further in the analysis of typical travel patterns in section 6.2.

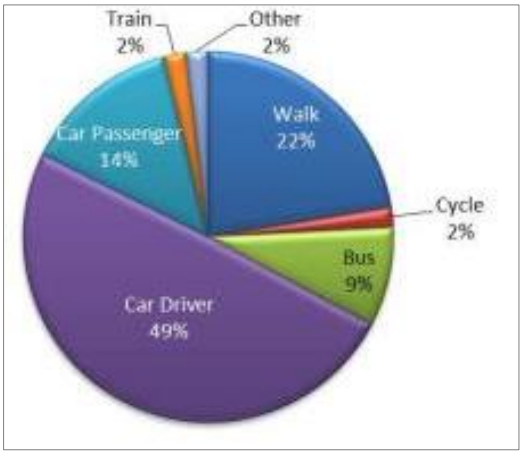
6.1.4 Validity of the data set

An analysis of the data set indicated that it provided a good cross section of the available time periods and was representative of typical travel patterns. The data set, which covered a range of shops in the study sites, was considered to be sufficiently large for analytical purposes. Although a complete data set for each of the study sites did not eventuate, there was useful baseline data for the typical use of shopping areas along arterial corridors and in central city locations.

6.2 Typical travel patterns

Initially, the data was interrogated to assess the typical travel patterns observed in the shopping areas. A number of questions were asked of both shoppers and retailers to assess typical travel patterns to shopping areas. Figure 6.10 reiterates the overall travel patterns within the study sample set. The data shows that overall, a total of 63% of users travelled by car (either as a driver or passenger) to the shopping areas. This is less than the national average for shopping travel data presented in figure 6.9 by 17%. The car trips are replaced with a higher proportion of walking and public transport trips in the sample data set.

Figure 6.10 Overall travel trends



The factors that may have increased the proportion of sustainable travel in the data set include:

- The NZHTS accounts for the main preferred mode of travel for shopping trips and could under-represent the amount of walking and cycling trips.
- When people considered 'shopping' in the NZHTS, mall shopping may have been the primary consideration where car travel is the primary mode of choice.
- Potentially, car drivers and passengers had less time available to complete surveys than pedestrians, cyclists and bus users.
- The surveys were hosted at shops that potentially encourage more local walking and cycling trips, eg cafes and dairies.

What the results do show is that pedestrians, cyclists and bus users account for a significant proportion (37%) of the sample set. The results also include scooters, mobility scooters and skateboards, all of which are sustainable transport modes.

For the purpose of this study, taxis were counted as car trips as they still require a parking space on arrival at the shopping area. It is, however, recognised that taxis provide a valuable service for people who use other sustainable transport modes and may be included as a sustainable transport option in future studies.

A further analysis of the typical travel patterns by type of shopping area is provided in figure 6.11. The results represent 99% of the total responses. The data indicates that driving trips are less prevalent in central cities, which reflects the fact that there is a greater travel choice in central city locations. Interestingly, bus travel represents a smaller proportion of total travel in arterial shopping areas and walking and cycling rates are consistent across all areas. The data for central city locations in the following graphs represents the main mode of travel to the shopping areas.

Figure 6.11 Typical shopper travel patterns by type of shopping area

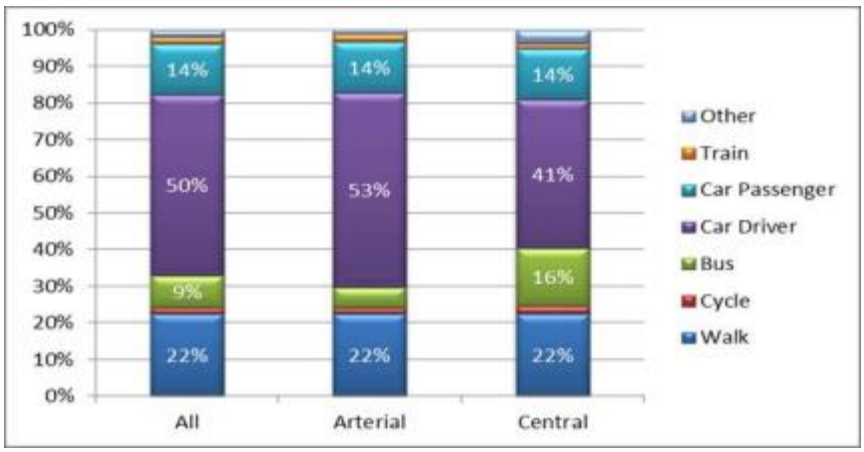
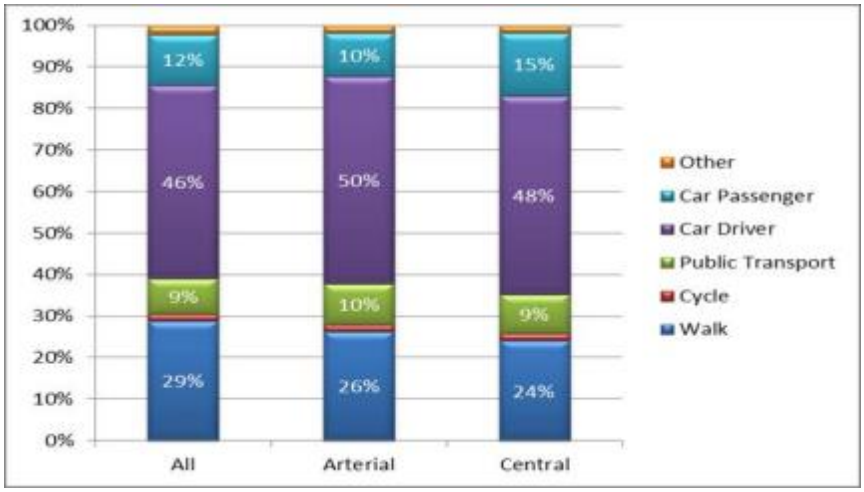


Figure 6.11 shows the results of the retailer estimates, which indicate how well retailers understand shoppers' travel patterns. A comparison of the data in figures 6.11 and 6.12 shows that retailers overestimate the amount of pedestrian activity and underestimate the use of public transport in central city shopping areas. On arterial roads they overestimate the use of public transport and pedestrian activity.

Figure 6.12 Retailer estimation of shopper travel patterns



It is important to note that the data represents 75% of the retailer survey (108 responses). The results indicate that the retailers who engaged in the study understand the impact of pedestrians and public transport users in particular.

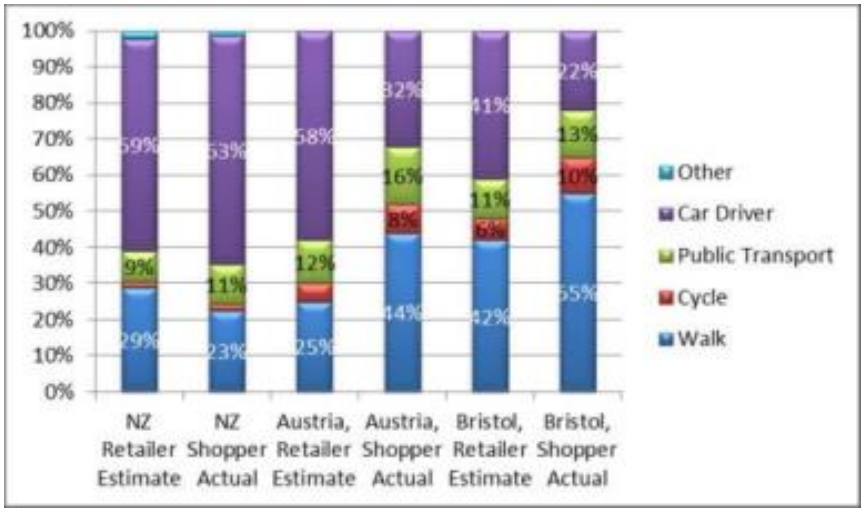
Finally on shopper travel patterns, it was important to understand if the travel recorded in the survey represented typical travel patterns for the shoppers. Figure 6.14 provides the results of this question. The data shows that the majority (79%) of users always use the same mode of transport. Of the remaining 21% of users the most popular alternative transport options are:

- walking – 6%
- driving – 4%
- mixture of modes – 4%.

The data set represents 1661 (95%) of total completed shopper surveys. Therefore, based on the sample set, it can be concluded that walking trips should always account for over 20% of the travel to these shopping areas. The results also show that 66 of the respondents cycle for some trips to the shopping areas.

The data set collected from shoppers and retailers was compared with the results from two European studies which collected data on typical travel patterns to the local shopping areas. These studies have been referenced in the literature review. The two studies were reported by Sustrans (2003; 2006): one study was of two shopping areas in Bristol, UK and the other was conducted in Graz, Austria. The purpose of this exercise was to benchmark the New Zealand data with these studies and understand any similarities or differences in the data sets. The observed New Zealand shopper travel patterns, retailer estimations and European study travel are plotted in figure 6.13.

Figure 6.13 Retailer mode share estimate vs actual shopper mode share (comparing New Zealand data with Graz and Bristol studies)



The results indicate that the New Zealand retailers estimated similar travel patterns to those retailers who participated in the Austrian study. Overall, the New Zealand pedestrian and cycling activity is less than that experienced in the European studies. The public transport use is similar, with the European case studies showing the highest public transport use in Austria. There was only a 2% difference in public transport use between the New Zealand and Bristol studies.

The evidence from the European studies shows that the retailers underestimate the impact of pedestrians and cyclists and overestimate car use. In contrast, the New Zealand study results indicate that the retailers who engaged in the study have a good understanding of the needs of local users.

In addition, it should be noted that in Bristol and Graz, the travel patterns were influenced more by the availability of alternative transport choices including cycling and public transport. European policies have supported the growth of cycling and public transport in particular, for many years. Bristol is also home to the organisation, Sustrans, and benefits from the development of a comprehensive cycle network and environment which encourages cycling. Austria also has a long history of implementing transport policy which supports the growth of walking and cycling in central city areas. Policies and schemes developing walking, cycling and public transport infrastructure are generally less developed in New Zealand than in Europe.

Traffic congestion in the study areas also influences travel choice. In general, traffic congestion in New Zealand is not experienced as much as in the European study areas. Overall, it is not surprising that New Zealand has higher levels of car use in shopping areas located on arterials and in central cities compared with European countries.

6.2.1 Central city travel patterns

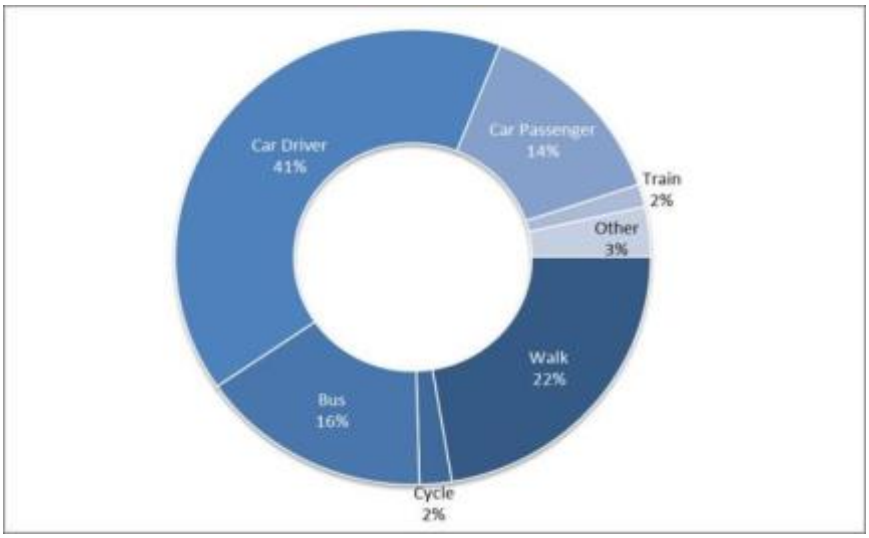
In addition to analysis of the aggregated travel patterns, further analysis was undertaken regarding travel to central city locations. Two distinct questions were asked in the central city locations:

- How did you travel in to the **city centre** today?
- How did you travel to **this shopping area** today?

The aim was to understand the patterns of travel to and within central city shopping areas on multi-purpose trips, eg travel to work as the primary reason of travel with additional trips to the shopping area during the course of the day.

Figure 6.14 provides an overview of the general travel behavior for the main mode of travel to the central city.

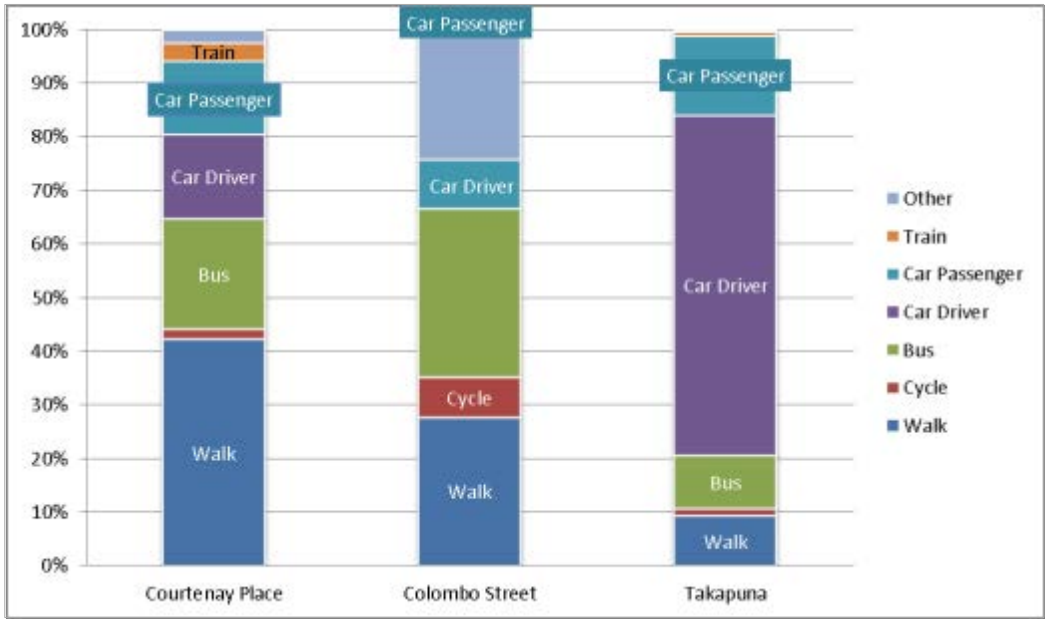
Figure 6.14 Mode of travel to central city shopping areas



Car travel to central city shopping areas accounts for 12% less travel than to shopping areas along arterial roads. This travel is redistributed to bus and train travel. Figure 6.15 shows the results for each of the central city sites individually.

The result of this further analysis shows that walking trips are the primary mode of transport in Courtenay Place, with public transport (both bus and train) the second most popular choice. Bus travel is the primary mode of travel in Colombo Street, with walking and other (scooters, skateboards etc) following closely. Cyclists account for a large proportion of users in Christchurch.

Figure 6.15 Main mode of travel to the central city



Perhaps the most interesting result is that car travel is the most popular travel choice in Takapuna, Auckland. This is the case study site which has undergone significant urban design and landscaping and has the most defined public transport exchange. It may also be due to the history of the area, which in the past has had poor public transport links and has not been particularly pedestrian friendly. It is also a secondary town centre to Auckland central city.

Figure 6.16 shows the travel patterns for travel within the central city shopping areas (second stage of a multi-purpose trip, rather than the main mode of travel). This shows a very different outcome from the initial question. The results show that walking trips remain the primary travel choice to the shops in Courtenay Place, while they become the most important in Takapuna.

Figure 6.16 Travel to the shop in central shopping areas

No responses for mode of travel to the shopping area were recorded for Christchurch. There is a good range of travel activity in the Colombo Street site in Christchurch. Cycling accounts for 6% of travel in the data set and shows that the majority of those who cycle to the central area also cycle to the shops. This relatively high proportion of cycling is most likely a result of the more developed cycle infrastructure and cycling activity in Christchurch, A free bus was also operating within central Christchurch, which provided

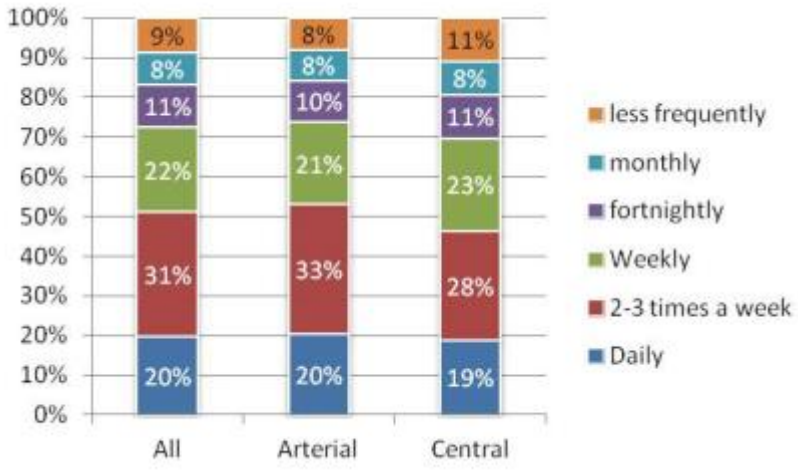
people with a good incentive to use public transport. In addition, Colombo Street also acted as a small transport interchange and access to most bus services travelling north and south which would also account for the higher public transport use. Christchurch central city was linear in nature (pre-earthquake) and many people worked around the central focus of Colombo Street and Manchester Street. At times, the travel distance when walking would reduce the amount of time available for lunch breaks. Therefore, it is not unexpected that the alternative modes are also used at this site. Please note that the data for this site only accounts for a small proportion of users.

The travel patterns to the shops in Takapuna (North Shore, Auckland) are also very different again from the other central city sites. Walking and car travel account for the majority of trips to the shops in Takapuna. It is anticipated that the higher proportion of car travel to the shops is due to the historical reliance on car travel in the North Shore area and potentially the fact that the shopping trip is part of a multi-purpose trip.

6.2.2 Frequency and duration of trips

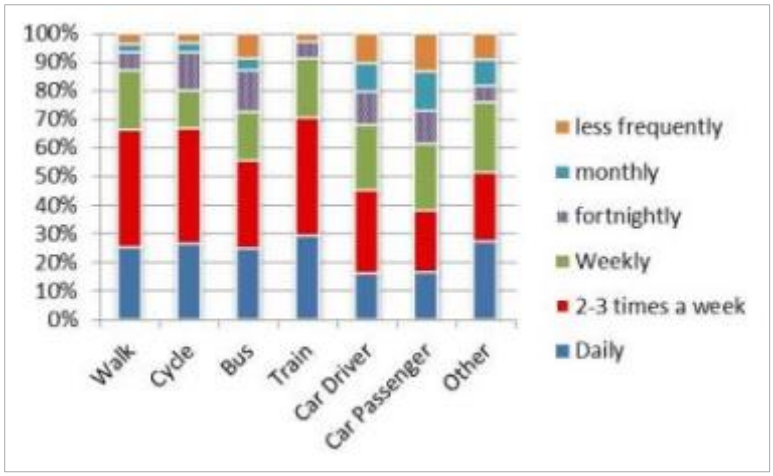
To further understand the impact of the travel patterns to New Zealand shopping areas, shoppers were asked to provide details of how frequently they visit the shopping area and how long they spend in the shopping areas. Figure 6.17 provides the results of the analysis of the frequency of visits to arterial and central shopping areas. The results indicate that around half the users visit the shopping area at least two to three times a week.

Figure 6.17 Frequency of total shopper trips



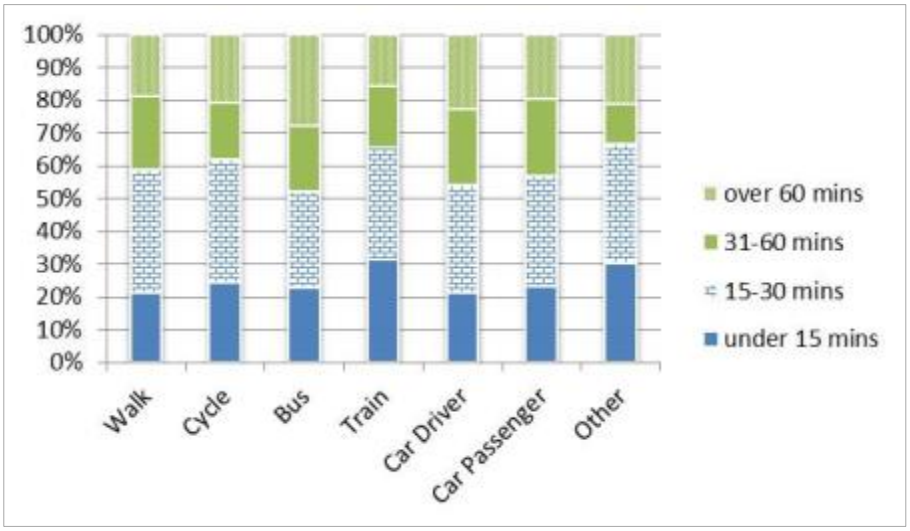
A more detailed analysis of the frequency of visit by mode of travel is presented in figure 6.18. The data shows that pedestrians, cyclists and public transport passengers visit shopping areas more frequently than car drivers and passengers. Public transport users, in particular, tend to visit shopping areas if bus stops are located in the vicinity.

Figure 6.18 Frequency of shopper trips by mode



When this data is compared with the amount of time spent in the area, more evenly distributed results are observed. Figure 6.19 provides the results of this analysis. The data shows the duration of visit by travel choice and represents 97% (1692) of valid responses. The majority of users spend less than 30 minutes in the area. Bus users spend the most time in the area.

Figure 6.19 Duration of shopper trips

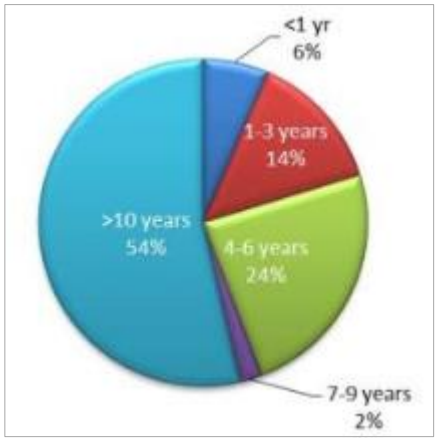


The data on duration was only collected from shoppers. No data on the perception of retailers is available from this study.

6.2.3 Retailer travel patterns and presence in the area

The results of the retailer survey (for retailers and in certain instances members of staff who completed the survey on behalf of the business owner) show that the majority of retailers (80%) have been located in the shopping areas for at least four years, with 54% of businesses established for over 10 years. The full results are provided in figure 6.20. The retailers who have been located in the shopping areas the longest often have a better understanding of customer travel patterns.

Figure 6.20 Presence of retailers in local shopping area



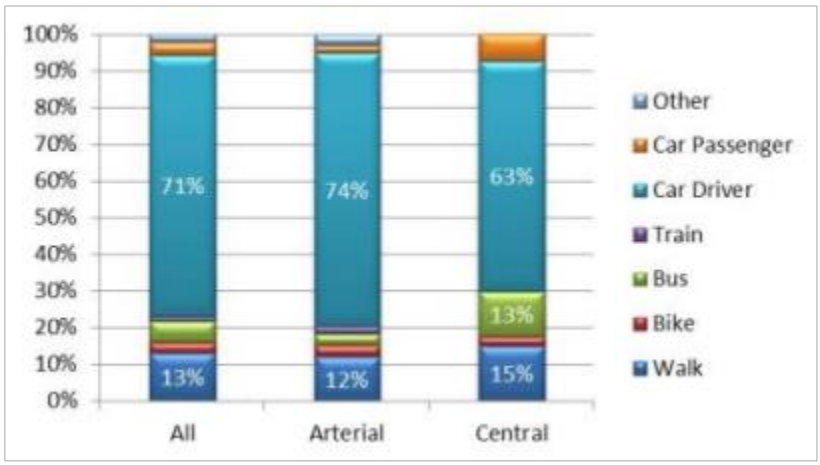
The data also shows the following age profile of retailers:

- no respondents under 18
- 6% were between the ages of 18 and 24
- 21% were aged between 25 and 34
- 22% were aged between 35 and 44
- 34% were between the ages of 45 and 54
- 18% were over 55 years of age.

This profile shows that the largest proportion of retailers were aged between 45 and 54. The remainder of the respondents were evenly distributed across the age categories from 25 years of age or older. A smaller proportion of the respondents were under the age of 24. Gender data was not collected as part of this study.

In addition to this basic profiling of the retailers involved in the study, data was collected on the travel choice and distances travelled to their place of work. The data for travel patterns is provided in figure 6.21.

Figure 6.21 Retailer travel patterns

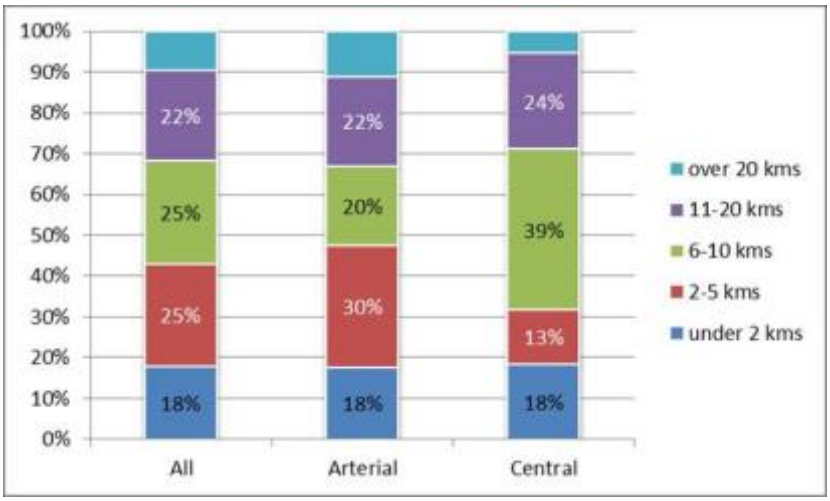


The results clearly indicate that car travel is the predominant travel choice for retailers. A higher proportion of retailers drive to work in arterial centres than in central city sites. Bus travel accounts for a larger proportion of travel in central sites compared with arterial shopping areas.

When considering the perceptions retailers had of shopper travel, retailers located in central sites anticipated more walking trips than were actually observed. This, in part, could reflect that 15% of retailers walk to the workplace and have similar expectations of customers. What is clear from this data is that car travel is the favoured travel mode of retailers.

A further analysis of retailer travel patterns is provided in figure 6.22. This data presents the distance travelled by retailers. The headline result from this analysis is that 48% of retailers in arterial shopping areas live within 5km and 68% live within 10km of their business. Even with 48% of people living within 5km, the results show that the majority of those retailers still choose to drive the shorter distances.

Figure 6.22 Retailer travel distances



It is important to gather the retailer travel profile to assess if there is any bias or consistency between actual retailer travel patterns and the perceptions of shopper travel. It is clear from the data collected in this study that retailers often live in relatively close proximity to their shops in arterial shopping areas. Without investigating further, we do not know if all retailers surveyed require the use of the car during the day. However, the informal feedback received from people working in the shops is that they just use their vehicle for travel to and from the workplace.

6.3 The economic impact of transport users

The spending patterns of various transport users in these local shopping areas is an important matter for the business owners and should influence their interest in improving shopping areas to attract customers. To make the case for reallocation of road space, we need to demonstrate the economic importance of non-car users to their business.

A number of factors were considered in the economic analysis of shoppers by travel mode in this study. Where data had been collected from retailers, it was interrogated and compared with the observed spending patterns. The key issues of interest in this process were:

- the importance of passing trade
- the average user spend per trip
- a comparison of the economic spends from sustainable transport users and car drivers and passengers
- the spending profile by travel mode per trip.

The remainder of this section outlines the headline outcomes of this economic analysis at an aggregated level, which includes data from all nine sites. The economic profile for each individual site is available in appendix B.

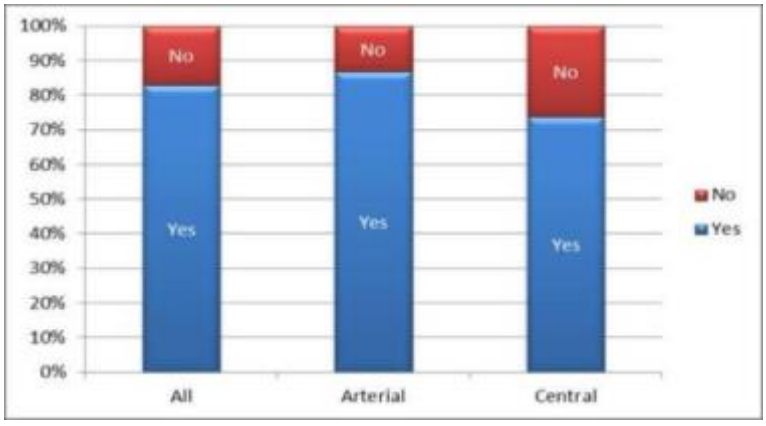
6.3.1 Passing trade

One of the most common perceptions raised by retailers in consultation is the importance of passing trade. The survey methodology engaged both shoppers and retailers to better understand the impact of passing trade in New Zealand retail centres.

Shoppers were asked if they had intended to visit the shop prior to their initial trip from home, or whether they were just 'passing through' on their way to or from somewhere else. The results are shown in figure 6.23 and are based on 99% of the total valid responses (1718 responses). The data indicates that across all sites, 83% of shoppers intended to visit the shopping area. This value is higher in arterial shopping areas with 87% of shoppers intentionally shopping there.

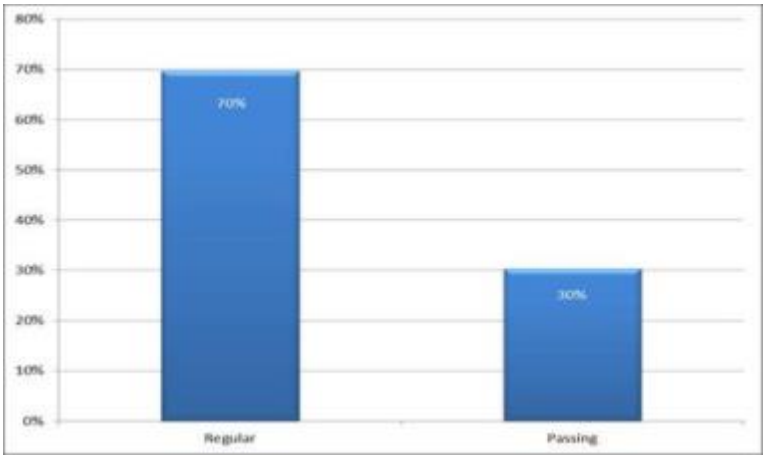
The data from central sites indicates that only 73% of people intended to visit the area. This is typical of central shopping areas due to the fact that people often visit central cities for other reasons, such as for work or recreational purposes.

Figure 6.23 Shopper: Did you intend to visit the shopping area today?



Retailers were asked to assess the importance of passing trade and the results are shown in figure 6.24. These indicate that retailers slightly underestimate the importance of regular trade in arterial shopping areas (70% compared with the 83% in central city locations).

Figure 6.24 Retailer perceptions of the importance of passing trade



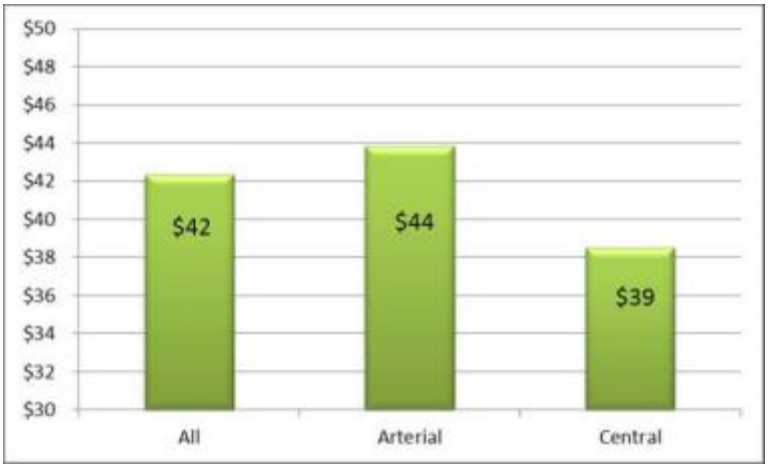
The overall results from the retailers surveyed show they do not perceive an over-reliance on passing trade. The importance of passing trade is likely to vary between different shops and the mix of shops provided in shopping areas. This needs to be considered in the development of reallocation of road space schemes.

6.3.2 Average economic spend

The headline results from this survey provide valuable economic data about economic spend in local shopping areas in New Zealand. The aggregate data set provides the average spend per trip by type of shopping area. The results are shown in figure 6.25.

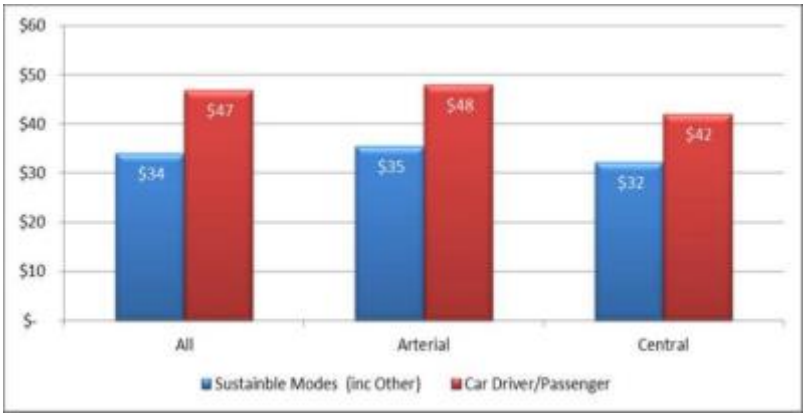
The study found that the average user spend per trip was $42, with a higher average spend in arterial shopping areas than in central shopping areas.

Figure 6.25 Shopper: average total trip expenditure



To understand the role of sustainable transport users in the economic vitality of shopping areas, further analysis was completed to identify their average spend. The results are provided in figure 6.26. The data for sustainable transport modes represents walking, cycling, public transport and other categories.

Figure 6.26 Shopper: trip spend (category median assumed) by travel mode – categorised by sustainable and motorised modes

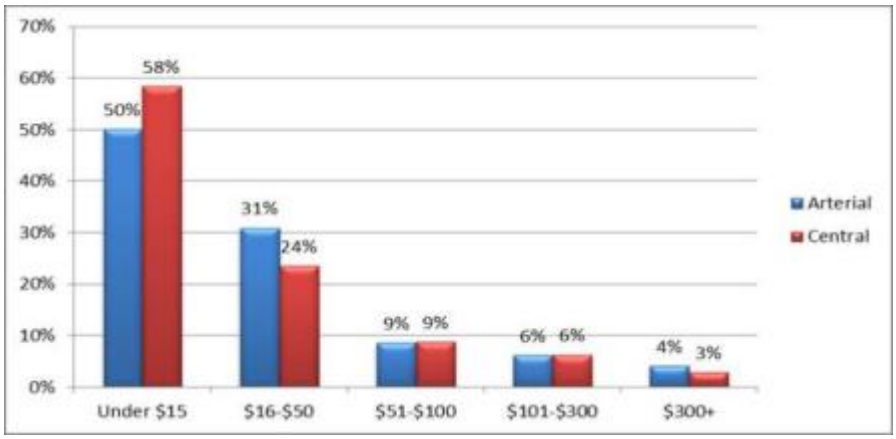


The data shows that car drivers spend more per trip than people travelling by sustainable transport (public transport, walking, cycling, scooters, mobility scooters and skateboards). However, sustainable transport users spend only $13 less per trip than car-based trips and account for approximately 40% of the total revenue in the sample data set and represent 37% of the travel to shopping areas. The conclusion drawn

from this data is that sustainable transport users certainly contribute to the economic vitality of an area, even though they represent less than a quarter of the shoppers.

The data presented above includes the total spend in the shopping area, including money spent in the shop where the survey was completed. This approach results in a higher average spend per user. Figure 6.27 shows how much each user spends in arterial and central shopping areas.

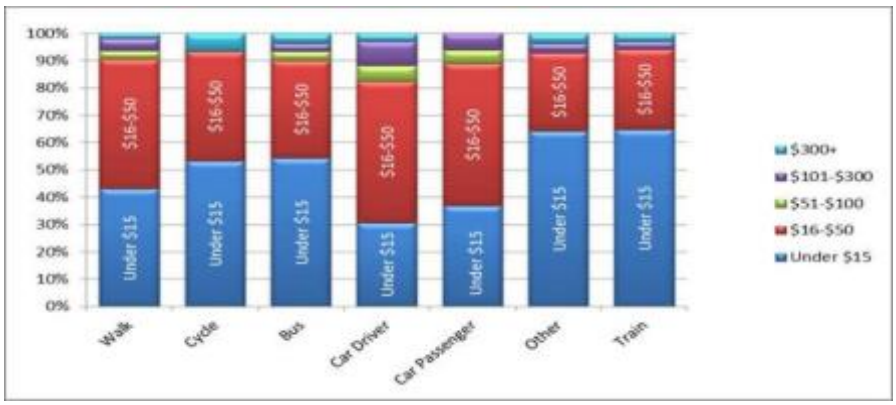
Figure 6.27 Shopper: trip spend (category) – categorised by spend in arterial and central sites



The data does not include the total spend of each shopper. However, for the spend profile in one shop, the data shows that the majority of shoppers tend to spend less than $15 per shop. Only 10% of shoppers spend over $100 in one shop. This trend represents the characteristics of the shop profile well. The majority of shops where the surveys were hosted would expect smaller and more frequent spends, eg daily coffee/lunch purchases. The trends for arterial and central sites are comparable.

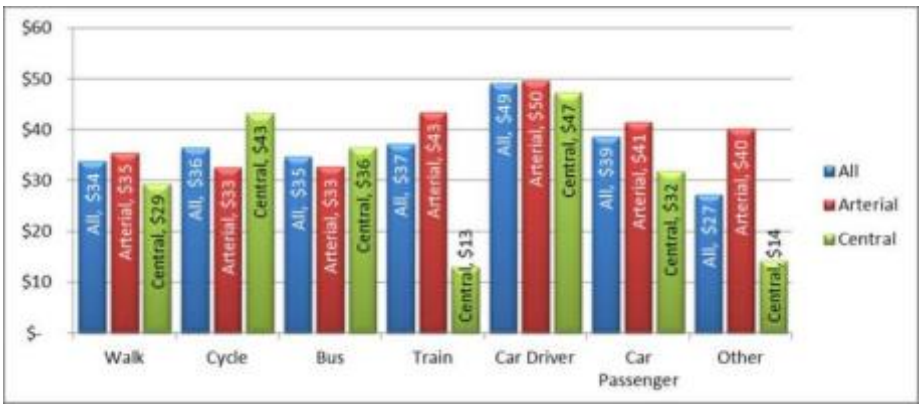
The spend profile was also analysed by travel mode. The results shown in figure 6.28 provide the total spend per transport mode. The profile in this data set follows the trends set for shopping areas, with the majority of people spending less than $50. Car drivers account for the most varied results, with almost 20% of drivers spending above $50. The results also show that over $300 was spent in all categories, except by car passengers.

Figure 6.28 Shopper trip spend (category) by travel mode



A finer analysis of the median shopper spend by travel mode is presented in figure 6.29. This data presents the most interesting finding of the study in providing details of spend in different types of shopping areas.

Figure 6.29 Shopper trip spend (category median assumed) by travel mode



Several findings in this data provide insights into the economic impact of transport users. This is discussed below.

- The data shows a high spend by the 'other' category users with $40 spend per person in arterial shopping areas. This is one of the most surprising results of the study. The use of scooters/skateboards for school trips has become fashionable and as the arterial shopping areas are located on routes to and from school, this could be a reason why the spend was so high. Also, the prizes available for completing the survey (an iPod and a camera) would most likely attract the younger market to complete the survey.
- Train users tend to spend more in arterial shopping areas. Although they account for a relatively small proportion of the sustainable transport users, train users account for the highest average spends in this category. These results would seem to indicate that train users spend at the beginning and end of the journey rather than in a central shopping area.
- Cyclists have the second highest average spend for sustainable transport users. Cyclists spend only $4 less per trip than car drivers in central city locations. The key thing to note is that cyclists only account for 2% of the users in the study sample selection, but provide spending power.
- Pedestrians spend more in arterial shopping areas. Pedestrians spend $6 more per person in arterial shopping areas than in the central city. This could be as a result of the shopping areas being more conveniently located for homeward bound journeys and are within close proximity to home. Central city locations often involve longer walks and would often require people to use other modes of transport, unless living within the central city.
- Car driver and car passenger spend is consistent across all shopping areas. The data shows that car drivers spend, on average, $10 more than car passengers. This is likely to be because car drivers have flexibility to carry more than car passengers. The critical factor for car passengers is when that car trip is available (eg is the shopping area at the end of the car journey followed by a walking trip?).

6.4 Parking use and availability

The survey provided more than simple economic data by collecting information from both shoppers and retailers about the parking available at the shopping areas. The data presented in this section provides details on parking availability, including parking for cyclists and motorists, as well as the use of parking at the local shopping areas in the study.

6.4.1 Parking availability

The information on the availability of parking was gathered using data from the retailer survey, as seen in figure 6.30. Overall, across the nine sites, a variety of car parking options were available.

Figure 6.30 Availability of car parking within the vicinity of the shopping areas

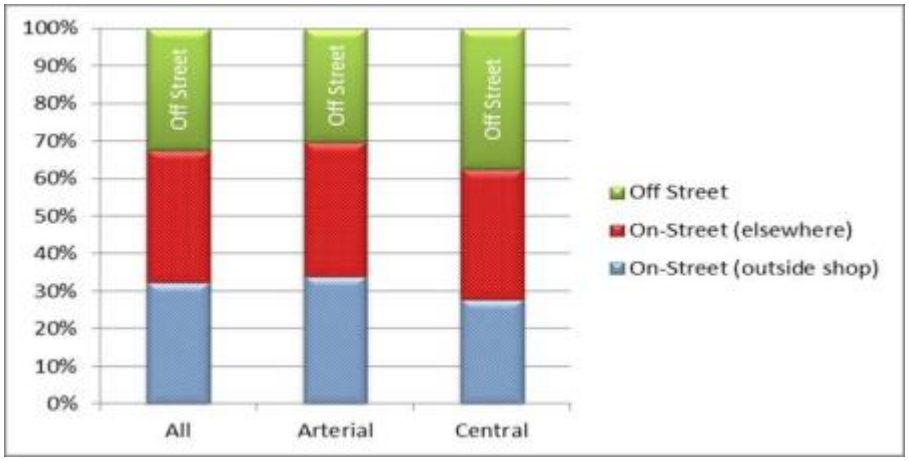
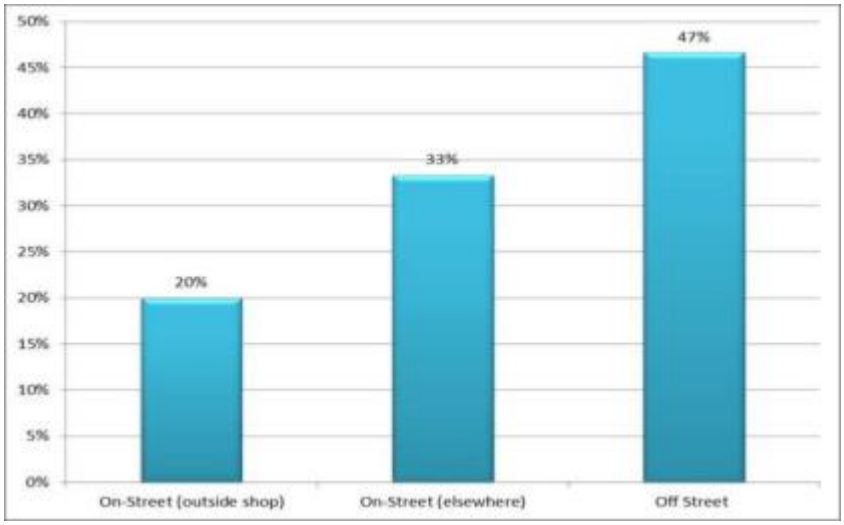


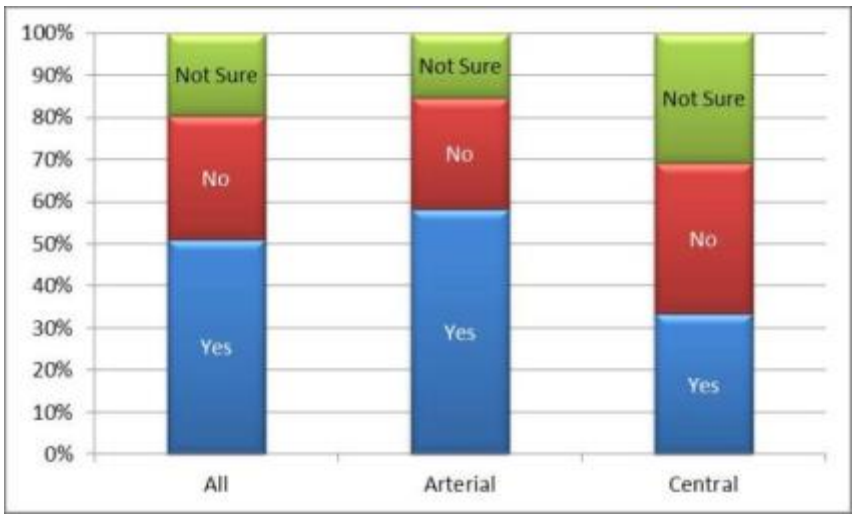
Figure 6.31 provides an example of the parking provision at one of the study sites, Merivale in Christchurch. This shows that less on-street parking is available at this location and the majority of parking is associated with the Merivale Mall and other private off-street parking within easy walking distance of the shopping area. These patterns do vary by site and more detailed breakdowns of the parking provision at each site are available in appendix D.

Figure 6.31 Car parking availability at Merivale Mall, Christchurch



The full data set for all sites is presented in figure 6.32.

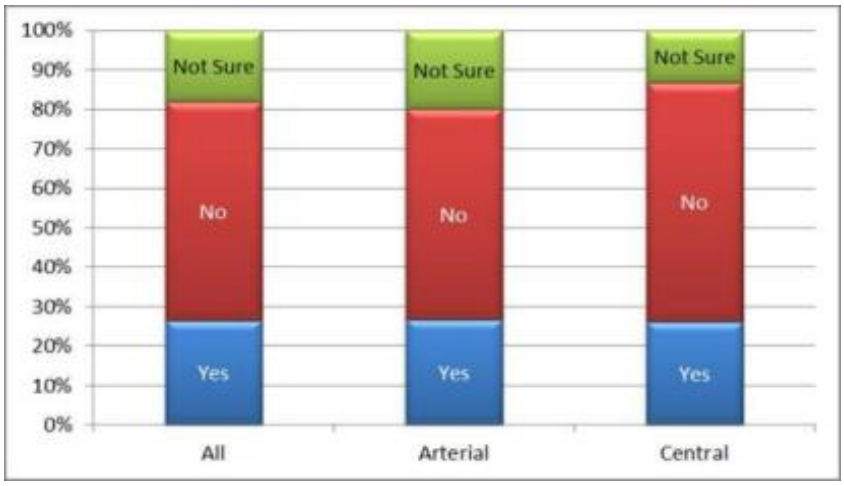
Figure 6.32 Is car parking available for customer use?



When retailers responded to the question about cycle parking availability, only 24% said that cycle parking was available at all. The results of this response are provided in figure 6.33. This trend is similar in both arterial and central shopping areas.

It would be expected that cycle parking should be more widely available, particularly in central city shopping areas. These results may reflect the fact that the majority of retailers drive to work and do not necessarily know about cycle parking within the local area.

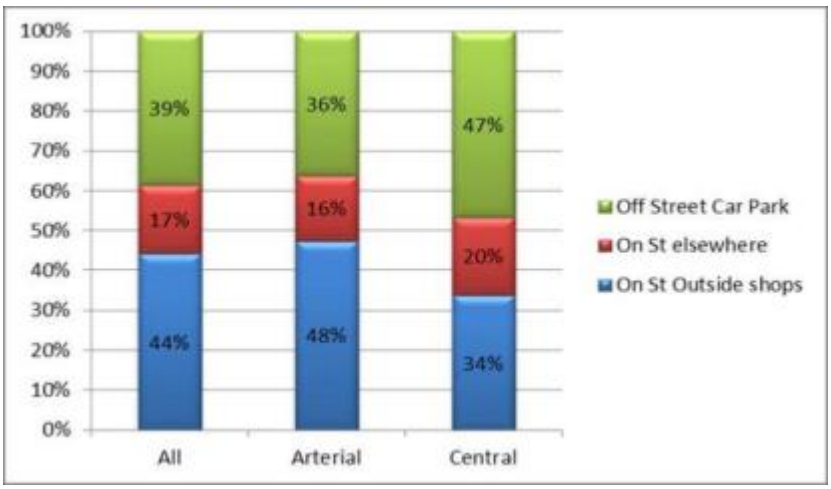
Figure 6.33 Availability of cycle parking in shopping areas



6.4.2 Parking use

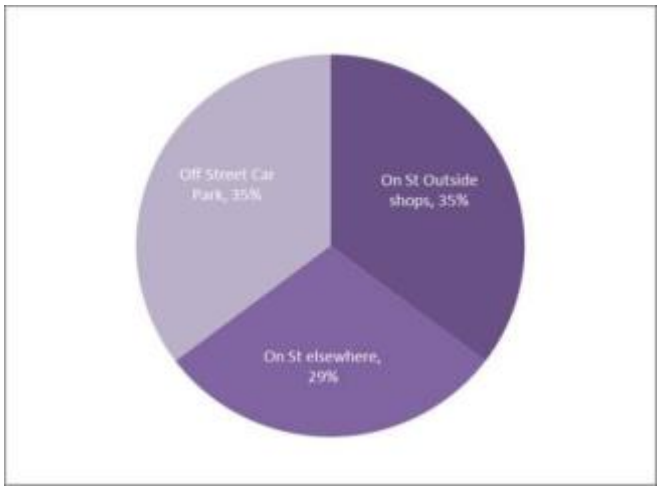
Data collected from shoppers recorded the actual use of parking in the shopping areas and the results are presented in figure 6.34. Note that these results only represent the results from 1055 survey forms (60% response rate). This lower figure accounts for only those who drove and completed the question.

Figure 6.34 Shopper use of available car parking



The data shows that the majority parked on the street in arterial shopping areas. This pattern is reversed in central city locations. This is primarily because on-street parking is more limited in central city locations. Again, looking at the individual results from Merivale in figure 6.35 we can see there was an even split from the results showing where people parked.

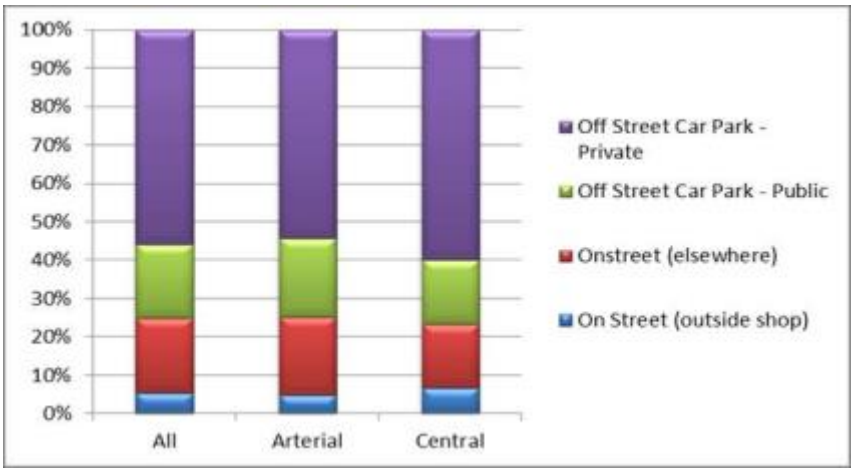
Figure 6.35 Shopper parking habits in Merivale, Christchurch



The use of parking is usually based on what is available and on how visible the parking and signage is. On-street parking is available at all sites within the study and within many shopping areas across New Zealand. Therefore, what this data provides is a snapshot of how the current parking is used and does not necessarily consider what shoppers want. The discussion on demand for parking is available in chapter 7.

Finally, the parking habits of retailers were recorded. The results are shown in figure 6.36. As discovered earlier in this chapter, most retailers drive to work. Therefore, it is important to understand where retailers park and if they compete with shoppers for space.

Figure 6.36 Retailer parking habits



Over 20% of retailers park on the street within walking distance of the shopping area, equating to 57 retailers across the nine sites. Approximately 5% of those choose to park off-street outside the shop. When retailers use these parking spaces, the spaces are not available to shoppers for the entire time the shop is open. Overall, the majority of retailers parked in private off-street parking spaces.

6.5 Summary of data analysis

The data analysis provided a large data set which resulted in interesting outcomes and allowed a better understanding of the existing travel patterns, economic impact of users and the value of parking in New Zealand shopping areas. This provided useful comparisons with international studies of similar issues.

The analysis of the typical travel patterns resulted in some interesting outcomes. Overall, sustainable transport (walking, cycling and public transport) accounted for 37% of shopper travel in the sample data set. The proportion of walking and cycling was consistent in both arterial and central areas (accounting for 22% and 2% of total travel respectively.) Cyclists also accounted for up to 6% of the total sample set in Christchurch, which is well known as the cycling city of New Zealand.

Research findings indicated that the majority of shoppers (79%) always use the same travel mode to travel to the shopping areas. Not surprisingly, the travel patterns to central city shops differed significantly between Christchurch, Wellington and Auckland. This is primarily because there are more public transport options available in Auckland and Wellington with the presence of local rail networks. Travel by rail was popular, particularly in Wellington.

When considering frequency of visit, the results show that pedestrians, cyclists and public transport users visit shopping areas more frequently than car drivers and passengers. The analysis of the time spent in the area indicated that over half the shoppers spend less than 30 minutes in the shopping area in one trip. A further analysis revealed there was an even distribution of time spent in the area by travel mode.

Retailers were also engaged to gain a better understanding of their perceptions and knowledge about travel behaviour in their own shopping area. One of the key findings from the study is that the majority of retailers have been located in these shopping areas for over 10 years. Other headline outcomes from this part of the retailer analysis are outlined below.

A key finding from the research was that retailers who did participate in the study understood shopper patterns relatively well compared with retailers in comparative European studies. However, there was a low overall response rate from the business community.

The results of the survey show that retailers slightly overestimated the importance of walking trips in central city sites. In addition, there was an overestimation of public transport use in arterial sites and underestimation of public transport use in central city locations.

The analysis of retailer travel patterns showed that the majority (71%) of retailers drive to work in central city areas. Even though 48% of retailers in arterial shopping areas live within 5km of work, a slightly higher proportion of 74% of retailers choose to drive to work. Over 20% of retailers park on-street within walking distance of the shopping area, only a small proportion park on-street outside the shop. This parking requirement directly competes with parking space available for paying customers. This data reveals that some of the parking available in the shopping area and surrounding area is used to cater for long-term retailer parking, rather than being available for shoppers.

The research found that the average spend was $42 per person per trip (regardless of mode choice). The highest average spends for car users (including car drivers and passengers) was $46 compared with $34 per person for sustainable transport users (pedestrians, cyclists, public transport users and others). The results indicate there is only $12 difference in the spending rate; this, however, is offset by the fact that sustainable transport users visit more frequently. Although cyclists only account for 2% of the sample data set they spend the second highest amount of all sustainable transport users and only $4 less than car drivers per trip. Overall, sustainable transport users account for 40% of the total spend in the shopping area and represent only 37% of the total people spending in the area.

To understand the importance of passing trade, questions were posed to both shoppers and retailers. The results of the survey showed that passing trade accounts for less than 30% of the total trade in the study sites. This compared well with the results of the retailer survey, where respondents considered local trade was the bulk of the trade for their business.

Parking is often considered vital to retailers in shopping areas around the world. The data collected from our nine New Zealand case studies provided the following results on the use of existing car and cycle parking in the shopping areas. Overall, there is a variety of parking options available in the nine centres, but the options vary from site to site. All sites have both on and off-street parking available. Currently, the majority of shoppers use on-street parking. However, as highlighted previously, this analysis does not account for what shoppers want from parking. The results of the shopper workshops revealed more useful data on the parking demand. Conversely, limited cycle parking is available in local shopping areas and retailers showed a general lack of awareness of cycle parking locations.

Overall, the data provides a useful baseline to build upon for a better understanding of the use of local shopping areas.

7 The importance of design features

7.1 Introduction

This chapter outlines the results of the study which relate to the design and perceived perceptions of shopping areas. The data is drawn from several data sets collected from retailers and shoppers in the nine shopping areas involved in the study. The data collection methods are presented in table 7.1.

Table 7.1 Design feature data collection methodology

Source	Type of data	Data analysis
Retailer survey	Rating of transport and urban design elements	Results of the survey were presented to the retailers at the retailer workshop.
Pilot shopper survey (Colombo Street site only)	Rating of transport and urban design elements	Shoppers rated the same design elements as retailers and results of the process were presented to retailers.
Shopper surveys	Study shopping area ratings.	The individuals were asked to rate the shopping area where they completed the study survey.
Shopper workshops	Urban design and space allocation discussion and rating exercises.	Shoppers completed exercises rating different shopping areas and explored some of the key issues highlighted during the workshop.
Retailer workshops	Urban design and space allocation discussion and rating exercises.	Retailers completed the same exercise as shoppers and were then presented with the results of the shopper surveys. The workshop element of the workshop explored any differences in the shopper and retailer perspectives.

7.2 Workshop results and profile

A series of four workshops were undertaken in Wellington, two in Newtown, which is an arterial shopping area and one of the study survey sites. The second series of workshops were held in central Wellington. The results of the attendance at each workshop are presented in table 7.2.

Table 7.2 Workshop attendance rates

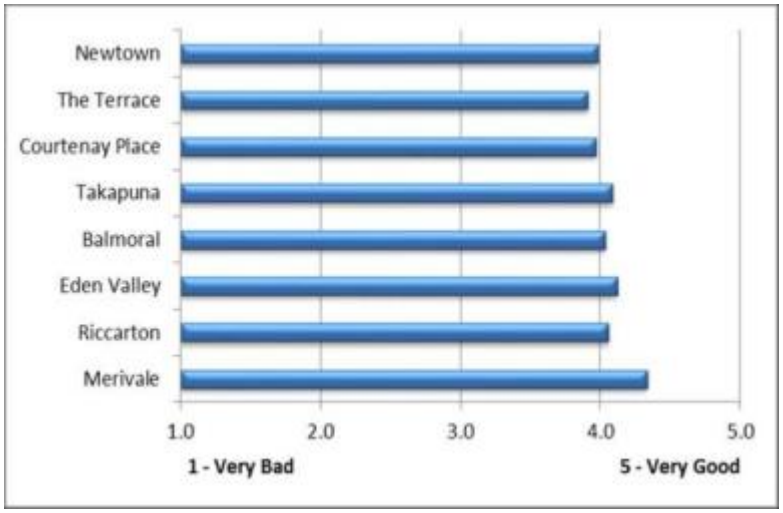
	Shopper workshop	Retailer workshop	Total
Newtown	5	3	**8**
Central Wellington	6	0	**6**
Totals	**11**	**3**	**14**

A total of 11 people attended the shopper workshops. Although, the specific age of users was not recorded, there was a diverse age range within the group and good representation of both male and female participants. The statistics show that 60% (9) of the participant were female and 40% (6) were male. Only three people attended the retailer workshops. It was difficult to engage with the business community, despite them often being very vocal on individual reallocation of road space schemes.

7.3 Shopping area ratings

Shoppers who completed the survey were asked to rate the quality of each of the shopping areas involved in the study. The results are shown in figure 7.1. The exercise provides little variance on the perception of each of the centres.

Figure 7.1 Case study sites rating exercise



The highest rated shopping area was the Merivale shopping area in Christchurch. Merivale was upgraded in 2010 as part of the Papanui Road bus corridor, which involved the retention of on-street car parking and the addition of on-road cycle lanes through the shopping area. The other key characteristics of the shopping area are:

- provision of a signalised pedestrian crossing
- wider footpaths – but still lots of shop signage, which reduces the available space
- availability of a large off-street car park
- cycle parking available in the off-street car park
- attractive planting and landscaping
- glass frontages
- covered walkways.

In addition, the shopping area has a small supermarket, cafes and restaurants, pubs and specialist shops, such as photography shops, health food shops and florists. This makes the area attractive to different types of users and guarantees activity in the shopping area throughout the day.

7.3.1 Understanding the main attractions of shopping areas

To explore what key features attract shoppers and retailers to shopping areas, a series of exercises were completed in the workshop sessions to rate five unidentified shopping areas. Prior to undertaking the evaluation of the five selected sites, the participants were given a brief presentation on the main transport and urban design features that can be found in local shopping areas. The photographs evaluated by the group are shown in figure 7.2.

Figure 7.2 Photographs and results of initial rating exercise

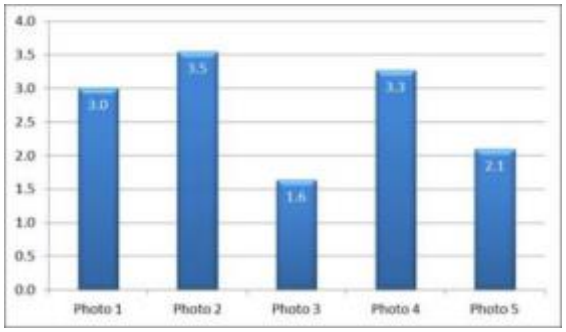
Photo 1	Photo 2	Photo 3
		
Photo 4	**Photo 5**	
		

The first exercise involved the rating of each shopping area shown in figure 7.2. Individual participants rated each photograph on a 1 to 5 scale, 1 being very bad and 5 being very good. The overall shopper rating of each individual photo was based on the 'gut instinct' looking at the photographs. The group was encouraged to rate the shopping area on how much they liked the area by looking at what was provided and if it would attract them to shop in the area.

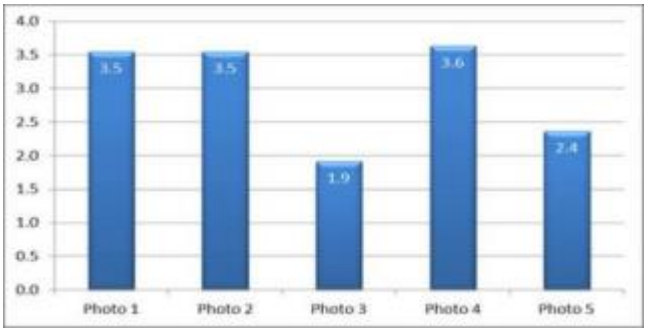
To further interrogate the views, a similar exercise was undertaken rating the shopping areas against each other. This involved ranking the photographs by indicating which was the favourite and least favourite by rating each photo from 1 to 5 (1 being worst and 5 being best). The averaged results are shown in figure 7.3.

Figure 7.3 Shopper rating averaged results

Individual 'gut instinct' rating



Ranking of shopping areas

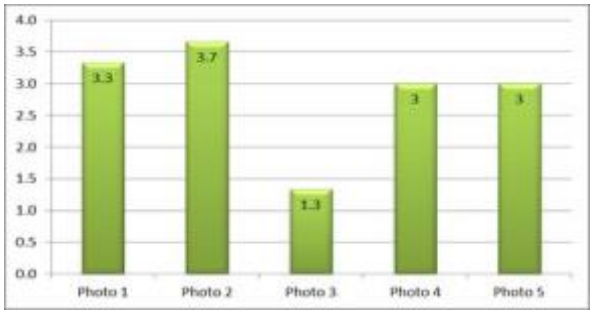


The results of the shopper survey showed that photograph 2 was the favourite image in the initial 'gut instinct' exercise. Following the ranking process, photograph 4 was ranked as the most popular site, closely followed by photographs 2 and 3. The ratings for the lower ranked photographs 3 and 5 did not change significantly in the process.

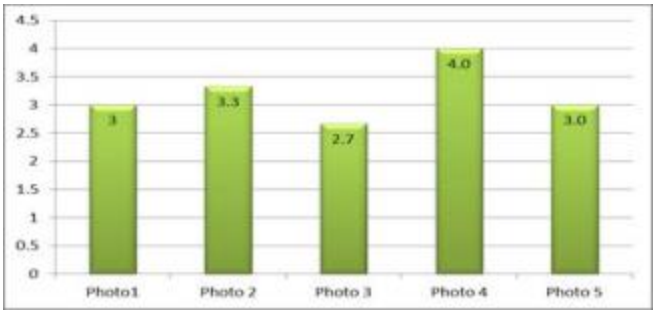
The retailers involved in the workshop process also rated the same photographs and the results are presented in figure 7.4.

Figure 7.4 Retailer average rating – individual photos

Individual 'gut instinct' rating



Ranking of shopping areas



The retailers provided a more varied response. Photograph 2 is most popular in the first exercise, with the more considered ranking process photograph 4 is the preferred site.

A key outcome from the findings is that the more car-dominated environments were least popular. Photograph 3 was the least preferred of all the shopping areas. Overall, the most preferred sites were photograph 4 and 2, closely followed by photograph 1.

A discussion of why these areas were preferred revealed that a number of urban design and transport measures made them more attractive. The provision of a dedicated pedestrian crossing was popular in photograph 1. The most popular factor was the wide footpath available in photograph 2. The coloured paving also made the area more attractive in photographs 2 and 4. The provision of trees, central refuge and crossing facility in photograph 4 made the area more attractive than other photographs, particularly for the shoppers. The retailers group appreciated the landscaping but did mention the lack of parking as a concern.

A summary of the overall results is provided in figure 7.5. The favoured images are shaded in blue and the least favourite in red.

Figure 7.5 Summary of exercise ratings

Photo 1		**Photo 2**		**Photo 3**	
					
Individual photo rank	Comparison ranking	Individual photo rank	Comparison ranking	Individual photo rank	Comparison ranking
Shopper (3)	Shopper (joint 2nd)	Shopper (1)	(Joint 2nd)	Shopper (5)	Shopper (5)
	Retailer (2)	Retailer (2)	Retailer (1)	Retailer (5)	Retailer (5)

Photo 4		Photo 5	
			
Individual photo rank	Comparison ranking	Individual photo rank	Comparison ranking
Shopper (2)	(Joint 2nd)	Shopper (4)	Shopper (4)
Retailer (1)	Retailer joint 3rd	Retailer (joint 3rd)	Retailer joint 3rd

The results of this process were then used to inform the discussion about the qualities that attracted workshop participants to the shopping areas.

7.4 Design elements rating exercise results

7.4.1 Design elements considered

Following the initial rating exercise, further investigation was undertaken into the importance of specific transport and urban design elements that could be implemented in local shopping areas. The following design features were considered:

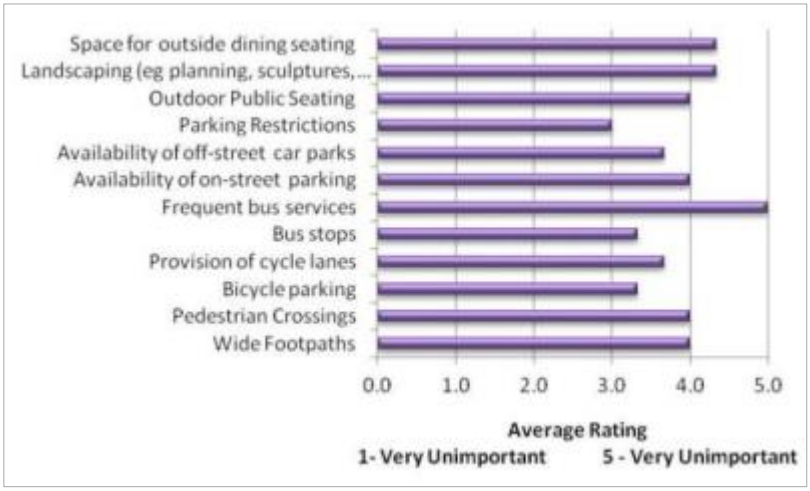
- pedestrian facilities
  - wide footpaths
  - pedestrian crossings
- cycle facilities
  - bicycle parking
  - provision of cycle lanes
- bus users
  - bus stops
  - frequent bus services
- parking
  - availability of on-street and off-street parking
  - parking restrictions
- urban design
  - outdoor public seating
  - landscaping, eg planting
  - space for outside seating for dining.

A total of 12 participants completed this exercise in the shopper workshops. Additional retailer views were available using data extracted from the retailer survey results.

The aim of the exercise was to understand which features affected the participants' judgement of shopping areas. The overall results of the shopper exercise are provided in figure 7.6. The results show that four of the design elements gain an overall rating above 4 (in a scale of 1 to 5). These are:

- landscaping
- frequent bus services
- bus stops
- pedestrian crossings.

Figure 7.6 Shopper design elements rating exercise



The retailers who were involved in the workshops also undertook a similar exercise. The results of this are provided in figure 7.7.

Figure 7.7 Retailer design elements rating results

The results of this process indicated that the elements that gained a rating of more than four were:

- frequent bus services

- space for outside dining space
- landscaping.

It is important to note that these results only reflect the views of three people and one of those was pro-travel choice. To supplement this information, the data collected from the retailer survey is presented in figure 7.8.

Figure 7.8 Retailer: How important are these design features in maintaining and supporting your business trade?

These results support the information found in other studies, that retailers are most concerned about the availability of parking. Retailers were also supportive of the creation of pedestrian crossings.

The top three items for shoppers and retailers from this exercise were:

Retailers – top 3	**Shoppers – top 3**
1 Availability of on-street parking	1 Landscaping
2 Availability of off-street parking	2 Frequent bus services
3 Pedestrian crossings	3 Pedestrian crossings

7.5 Qualitative focus group findings

Once the rating exercise was completed, a focus group was undertaken. The questions explored in the workshop are outlined below.

- What is the main reason you choose the shopping area(s) you use most regularly?
- What are the most important features for you to get around local shopping areas?
- Think about the design of a shopping area, what makes a shopping area attractive to you?
- Is it important for shopping areas to be attractive for walking?
- Supplemental – how can this be achieved? Think of examples where you think this is done well.

- Is it important for shopping areas to be attractive for cycling?
- Supplemental – how can this be achieved? Think of examples where you think this is done well.
- What are the most important aspects of car parking in local shopping areas?
- What is good about the local shopping areas in the district/area?
- What improvements could be made to improve your shopping experience in the district/area?

The results of the workshops provided useful qualitative data about what is important to shoppers and particularly on what they are willing to compromise on to achieve their ultimate outcomes.

Figure 7.9 provides a summary of the key finding from the shopper workshops.

Figure 7.9 Common themes from the shopper workshops

The following key topics gained the most comment from shoppers:

- what attracts shoppers to local shopping areas
- the availability and importance of parking
- ideas about what makes a good shopping area.

7.5.1 Attractions to local shopping areas

Initially shoppers were asked what attracts them to the shopping areas they use. One of the first responses from the shopper focus group was simply that they want to go to a specific shop, whether that was to buy lunch or to buy specific items, eg the best coffee in New Zealand (located in Newtown, Wellington). These views align with the international research that indicates the type of shop is the most important consideration for shoppers. This is best exemplified by the following quote.

> *I don't go to the shops because of the parking; I go because there might be a quirky antique shop. You go to an outside shopping district because of a particular shop.*

7.5.2 Availability of parking

The outcomes from the shopper and retailer workshops provided a split viewpoint. The headline results from the shopper workshops regarding parking are outlined below.

- On-street parking directly outside shops is not essential to shoppers.
- Good and simple signage to parking is needed.
- Shoppers need an area where they can be picked up and dropped off.
- Free parking would encourage people from outside the neighborhood to come to a shopping area.
- Locals do not care about car-parking because they can walk to the shops.
- Availability of parent car-parks is important, although this depends on the age of children and individual circumstances.

Retailers on the other hand, even having heard the evidence from local shoppers, were still concerned about the provision of parking. It is clear from the workshop process that more evidence from areas with more limited parking and yet showing positive economic impacts would be required to convince retailers.

7.5.3 What makes a good shopping venue?

The shoppers provided some interesting ideas for what could make a good shopping venue, as set out below:

- consider later opening times
- presence of shops attracting local and wider populations
- lighting: areas need to be well lit from a point of view of security. Good lighting is crucial to the success of shopping areas. It tends to keep vagrants away
- clean and tidy shopping areas
- graffiti affects the image of an area
- good transport options
- being well served by a bus service makes a big difference to the use of the shops. Can dictate what you have for dinner. The bus service is so frequent I don't look at the timetable.

8 Case study compendium

8.1 Introduction

The case studies in appendix B provide information on the application of reallocation of road space schemes and other relevant concepts for transport and planning professionals and other stakeholders (including retailers and shoppers).

A database of the case studies is presented in the accompanying Excel document (see appendix B for further information).

8.2 Details of the case studies

Appendix B is categorised into specific topics that outline some of the different types of schemes and policies that have involved elements of road space reallocation or provide evidence that supports the implementation of these types of schemes. The appendix comprises two distinct types of case studies:

- **Site-specific case studies** (sections B2 and B3) – specific schemes that have included footpath widening, complete re-landscaping and bus corridor schemes. Section B2 contains case studies of New Zealand projects and section B3 looks at a number of relevant overseas projects.
- **Supporting strategies and policies** (section B4) –supporting strategies and policies, relevant research and the economics of reallocation of road space.

A summary of each of the topics is provided below.

8.2.1 Site-specific case studies

The following is a summary of the types of schemes referred to in the site-specific case studies.

Pedestrian schemes: A relatively small number of pedestrian-specific projects have been included in the compendium. This is primarily because pedestrian facilities are usually included along with improvements for other transport modes (mixed-use schemes). One New Zealand case study refers to the development of shared spaces in Auckland; another is a more typical pedestrian-specific design – pedestrianisation. The case studies outline the key successes of each scheme, including economic data (where available).

Cycling schemes: Cycling infrastructure is now commonplace in New Zealand. When these schemes are implemented, they often result in the removal of on-road car parking spaces, which frequently meets with disapproval. The case studies presented in the compendium provide evidence of successful cycling schemes, which have benefits for cyclists and the wider community.

Public transport schemes: Work has been undertaken to improve public transport in central city areas and implement bus corridors along arterial routes in and around New Zealand. Some have been planned but have not yet been implemented.

Urban design schemes: These provide details on projects with significant urban design improvements.

Mixed-use schemes: A variety of mixed-use schemes have been presented in the compendium including shared streets. All the case studies are located in areas where there is retail activity and involve some reallocation of road space in favour of sustainable transport modes.

Road safety schemes: A number of schemes that benefit pedestrians and cyclists are justified as casualty reduction schemes. The schemes often have benefits for all road users and in many cases provide innovative solutions, which often create a change in the 'feel' of shopping areas.

8.2.2 Supporting strategies and policies

These are categorised into the following topics and summarised below:

- policy and planning
- relevant research
- economics.

Policy and planning: The strategies and policies presented in this document provide some evidence of how international and local policies have evolved from a 'predict and provide' approach to a demand management approach. Although reallocation of road space is not always directly referred to, the policies support the promotion and development of walking, cycling and public transport. To create space for these users in a more equitable distribution often results in the reallocation of road space.

Many of the transport policies and strategies refer to economic vitality and sustainability. The supporting evidence shows that urban design and transport policies are aligned. Policies that support reallocation of road space are also becoming more commonplace.

Relevant research: This part of a case study provides details on the outcomes of research studies that support the implementation of reallocation of road space schemes. The research presents evidence that the reallocation of space in favour of cycle facilities provides positive outcomes for a relatively low investment cost. Additional research also provides valuable data on the urban design and transport features that encourage walking and cycling.

Economics: Seven case studies are provided in the case study compendium, all of which investigate the economic impact of active modes and public transport. Most of these case studies focus on the traditional cost–benefit analysis benefit streams. The results of several studies were used as evidence to increase the amount of benefit allocated to cycling activity in the UK transport appraisal process (WEBTAG).

The studies also refer to the wider social and health benefits of promoting active transport. Evidence about the impact of different types of streetscapes on retail rental values is also explained in a UK study. The case studies, overall, provide a variety of ways to value the benefits of reallocation of road space. They also represent the 'tip of the iceberg'. More detail on additional case studies valuing transport needs and urban design is available in the literature review.

9 Conclusions and recommendations

9.1 Conclusions

The most significant opposition that councils face to reallocation of road space schemes in shopping areas is often from the business community which feels it will be negatively affected by changes. A key issue, particularly in central city and suburban retail centres (along arterial routes), is the perceived importance of on-street car parking. The challenge is to understand existing retail activity, how people currently travel and what attracts people to these shopping areas. The overarching aim is to achieve a balance of meeting through-traffic needs and contributing to sustaining an economically successful and attractive shopping area.

A methodology was developed to collect data on retail spend by travel mode and to assess the need for on and off-road parking and urban design/transport design features, eg cycle lanes, landscaping. Data was collected from nine shopping areas located in central cities and along major transport corridors in Auckland, Wellington and Christchurch. The study resulted in the development of a toolkit, providing an evidence-based approach which councils and local communities can use to evaluate the existing use of local shopping areas. The results of this research will assist national and local government and local communities to identify the key design elements of local shopping areas that contribute to creating vibrant areas where people want to spend time and money.

The results indicate that sustainable transport users, or those who take public transport, walk, cycle or skateboard, accounted for 40% of the total spend in the shopping areas included in the study. The data also showed that sustainable transport users are likely to visit the shopping areas more frequently and spend more time in the area, compared with car drivers. The study showed that people travelling by sustainable transport modes contribute significantly to both the retail and social activity in central city and local shopping areas.

While sustainable transport users spent on average $34 per trip, $12 less than the average spend per trip for car drivers and passengers, they visited shops more frequently and made significant contribution to the economic vitality of those shops. In the New Zealand context, where car travel is the dominant travel choice for many, there is enough evidence to show that sustainable transport users make a higher proportional economic contribution (40%) than their mode share (37%). This suggests that, in many cases, the benefit of encouraging more sustainable transport journeys to shopping centres outweighs the cost of reallocating space and improving the urban design in shopping centres. Although data collection was not included in this study, it is likely that a significant proportion of the people using sustainable transport now may be transport disadvantaged (eg the young and elderly) and spend less than more affluent users. Equally, international evidence and other New Zealand studies have shown, in particular, that people choosing to cycle are high spenders. Therefore, there is great potential to increase the economic spend and modal share of sustainable transport in local New Zealand shopping areas by increasing cycling facilities in these centres and removing barriers to cycling in New Zealand.

A comparison with European studies shows that a key difference in transport choice in New Zealand is the lower level of pedestrian and cycling activity and retail spend in New Zealand compared with that reported in the European studies. It should be noted that in the European case studies, travel patterns are influenced by the greater availability of more transport choices, including cycling and public transport. The cities in these studies also have higher population densities living and working within the immediate vicinity and surrounding area of local shopping centres.

European policies have also supported the growth of cycling and public transport. Policies that encourage walking, cycling and public transport infrastructure are generally less developed in New Zealand. Compared with New Zealand, it is more likely that people are *choosing* to use sustainable forms of transport in the European centres.

The evidence from the European studies shows that retailers underestimate the impact of pedestrians and cyclists and overestimate car use. In contrast, the New Zealand study results indicate that the retailers who engaged in the study have a good understanding of the proportion of people travelling by various modes to their shops.

The study found that the type of shops located in a shopping area is the primary consideration for shoppers. All transport and design considerations are secondary. If the shops provide a service that is required, the shoppers will come. A clear outcome from the study is that the shopping areas must differentiate themselves from out-of-town suburban malls to compete economically. The results from the survey indicate that the most successful shopping areas in central cities and along arterial routes comprise a selection of 'niche' shops and anchor shops, such as a small supermarket, bank or post office. The presence of chain stores would not necessarily attract additional shoppers. Although the composition of shop types in shopping areas is often outside the control of local councils, the research does provide justification for getting the mix of shops right. Councils should work with the local business community in regeneration projects to encourage the right type of retail activity for specific shopping areas.

The key difference between the retailer and shopper groups in the survey was the importance of parking. The retailers consider parking as the most important design feature to attract shoppers. However, the evidence from the shoppers is that the majority indicated they would be willing to forgo parking in shopping centres, to ensure they had a safe and attractive shopping experience. Shoppers placed a higher importance on the availability of pedestrian crossings, wide footpaths and frequency of bus services. The availability of on-street parking in particular, would not necessarily encourage people to a shopping area. The need for a simple and clear parking signage strategy was identified during the study. Ultimately, the research shows that both sustainable transport users and car drivers who shop at local shopping areas value a safe and attractive environment within the shopping area. However, further work is required to inform retailers that on-street parking is not required as much as they might think.

One argument put forward for the provision of on-road parking outside shops, especially in arterial shopping areas, is that 'passing by trade' is less likely to stop if parking is not readily available outside the shops. The results of this research showed that the majority of people who shopped in arterial shopping areas in New Zealand intended to visit the area anyway, with passing trade accounting for less than 30% of all purchases. The data collected from the retailers who engaged in the study also indicates that these retailers understand that the majority of trade is sourced from the local population. Therefore, the study findings would suggest that if well signed off-street and side road parking is provided, on-street parking directly outside the shops is not an essential feature to attract passing or local trade.

Another key finding from the study is that the majority of retailers themselves live within 10km of the shopping areas and choose to drive to work. This results in the retailers using valuable parking space within the shopping area that could be used for shopper parking. Understanding this pattern provides opportunities to work with local traders to investigate alternative travel options and maximise the use of local shopper parking in the immediate vicinity of shopping areas.

New Zealand and international research indicate that good urban design is more likely to attract people to shopping areas. The key issue is that the benefits of good quality urban design are not realised immediately to the developer. Even with the presence of appropriate guidance, like the New Zealand Urban Design Protocol, the development of good urban design is not guaranteed. As demonstrated overseas, as New Zealand cities grow an even greater proportion of sustainable transport users would be expected. Hence, reallocation of road space to encourage such users to a local shopping area is going to be increasingly important in the future. Many councils have created urban design panels to assist in the review of scheme designs for the inclusion of urban design elements. This is a positive measure to ensure that good urban design is considered in reallocation of road space schemes.

This research has resulted in the development of:

- a baseline data set to identify the retail activity by transport choice and the use of existing parking in local New Zealand central city and arterial shopping areas (travel and spend survey)
- a toolkit to gather further information on the use of other local shopping areas (focus groups with retailers and shoppers)
- a relatively cheap and effective way to engage with the local community for councils and provide an evidence-based approach for future transport and urban design schemes
- a method for local retailers and business communities to better understand the needs of local shoppers.

This withstanding, the sample size and techniques can be further developed to provide a stronger evidence-based approach to understanding the use of local shopping areas across the country.

The results of this study have provided a tool that can be used on any project, which can then be used to present evidence on the existing use of shopping areas and inform the design process. The use of focus groups with local shoppers and retailers was found to be the most potentially effective evidence-based approach. The data collected from this type of workshop directly relates to the use of specific shopping areas and can be used to engage with local retailers and the wider business community to address key issues, eg availability of parking, when developing concept and detailed designs for streetscape projects.

Early consultation with the local community and key stakeholders, presenting the findings of such research is more likely to result in the development of a successful project with community backing. It is recommended that when further research is undertaken, that additional data is collected and tailored to the needs of the specific study. This would include undertaking parking surveys to understand the use of on and off-street parking in the area, as part of the economic surveys.

The findings from this study show that to create a successful shopping area, a holistic approach is required. Infrastructure and urban design improvements alone will not attract shoppers. Ultimately, an individual's choice is limited to the options that are provided by decision makers. This includes ensuring that alternative transport is considered throughout the planning process and effective transport systems are created.

Ensuring that centres have the right type of shop to attract shoppers is critical to creating economically successful shopping areas. Although this was beyond the scope of the study, it has provided a very pertinent finding from the research, which can be used in future planning consideration and research. However, ensuring that wide footpaths, safe crossings and high-quality urban design feature in the centre would also attract shoppers to the area. Although cycle use was relatively low in the case study examples, cyclists represent a high average total spend in the shopping areas. Therefore, if dedicated

cycle infrastructure is developed that encourages better cycle access to shopping areas and more cycle parking, there is potential for higher activity. The availability of frequent public transport was also an important consideration to enable people to use shopping areas with cafes and restaurants.

This research has provided evidence that sustainable transport users are an important part of the economic activity in local shopping areas. Thus, creating more dedicated facilities for sustainable transport would most likely have a further positive economic impact. There is no 'one design fits all'. Reallocation of road space must be appropriate to the area and align with the wider objectives along the transport corridor and for the community.

9.2 Recommendations for further research

Further research should also include more data collection identifying why people are using sustainable transport in New Zealand. Is it because they do not have access to a vehicle, or do they have a vehicle and choose to travel by sustainable transport for specific trips? It would also be useful to collect more data on the type of infrastructure, socio-economic data and provision and availability of public transport in each of the shopping areas. It would also be useful to undertake before and after evaluations of reallocation of road space schemes to understand the impact on retail spending activity and to evaluate the reaction of shoppers and retailers.

Further research is required on how to effectively engage with the business community. The findings from this study were positive, with the retailers engaged in the study understanding the importance to retail activity of sustainable transport users. However, there was a relatively low overall response rate from the retailers who operated in the local shopping areas in this study. It was also extremely difficult to engage retailers for the workshop element of the study. It is anticipated that the retail business community is likely to object to transport and urban design schemes. Developing a toolkit/approach that would engage the more difficult to reach retailers would help improve the relationship between the business community and local councils. It would also have the benefit of engaging retailers in a positive way to influence a more holistic review of local shopping areas.

Further work is required with New Zealand developers to identify benefits for the developer, ie if they have high-quality environments, can they charge higher rental/sale values? It would also be useful to link any future New Zealand research to other international work that has tracked the rental values against an improved shopper environment.

There is also the potential to widen the research to identify any long-term consequences of 'food deserts' in urban areas, ie shopping areas offering fresh food that can only be accessed by car – hence the people with limited or no access to vehicles (either by choice or necessity) cannot easily access them. In addition, further work to identify the retail activity by transport choice in provincial towns and smaller cities would be extremely useful.

10 References

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Appendix A: Survey toolkit

A1 Site audit

Quality assurance		
Street:		Site photo
City:		
Auditor:		
Date:		
Comments:		

Part 1: Site characteristics

Desktop site audit – please circle correct response						
1		What type of road is the shopping centre located on?	Major arterial	Minor arterial	Collector	Other
		Specify other				
2		What are the approximate AADT traffic flows along the route?	Over 10,000	6000–10,000	2000–6000	<2000
3		Is the shopping centre located along a designated cycle route? *If yes, please attach a map/plan to the audit form*	Yes		No	
4	a	Are there any cycle lanes?	Yes		No	
	b	If yes, are the cycle lanes painted?	Yes		No	
5		Is the shopping centre located along a designated bus route? *If yes, please attach a map/plan to the audit form*	Yes		No	
6		How many bus services operate along the route?				
7		Which is the most frequent service, and what is the frequency?				
8		Is there any on-street parking available outside shops?	Yes		No	
9		Is there off-street parking available within 100m of the site?	Yes		No	
10		Are there any parking restrictions and/or parking fees?	Yes		No	
11		Are there any dedicated pedestrian crossing facilities?	Yes		No	
12		Have there been any recent landscaping/urban design enhancements in the area?	Yes		No	
13		Is there a supermarket/mall within 300m of the site?	Yes		No	

Part 2: Shop composition

Site plan – sketch:	**Store category (tally frequency)**	
	Banking	
	Beauty	
	Books	
	Café/restaurant	
	Chemist/pharmacy	
	Electronics	
	Fashion	
	General retail	
	Hairdressers	
	Hardware	
	Health	
	Jewellery	
	Mobile phones	
	Photographic	
	Sports & outdoors	
	Supermarkets	
	Travel	
	Other	

Part 3: Transport and urban design data

Intersections				
How many site access intersections surround the shopping centre? (please circle)	1	2	3	4

	Intersection number							
Answer a, b, c, d etc	**1**		**2**		**3**		**4**	
What form does the intersection take? *a) Uncontrolled b) Priority c) Signalised*								
What are the pedestrian facilities at the intersections? *a) ped. refuse; b) signalised ped. phase c) kerbed build outs d) other*								
What is the width of the pedestrian footways?								
Is there a dedicated cycle lane?	Y	N	Y	N	Y	N	Y	N
If yes, are they well painted?	Y	N	Y	N	Y	N	Y	N
If yes, what is the lane width?								
Is any cycle parking available within 100m of the intersection?	Y	N	Y	N	Y	N	Y	N
If yes, how many spaces?								
If yes, what type are the stands? *a) Sheffield b) Slots c) Other*								
Are there any bus lanes provided?	Y	N	Y	N	Y	N	Y	N
If yes, what is the width of the bus lanes?								

Accessibility		
Are there on street parking facilities?	Yes	No
If yes, what is the cost per hour?	$	
If yes, what are the time restrictions?		
If yes, how many spaces are available?		
If yes, how many are designated as disabled bays?		
Do bus services pass the site?	Yes	No
If yes, how frequent are the services?		
If yes, please state the districts accessible by bus from the site		
If yes, what distance is the closest bus stop to the site?	m	

Landscaping		
What lighting is available?	*Mark on plan*	
Is there any pedestrian specific lighting? Where is it located?		
Are there any seating areas?	Yes	No
If yes, where are they located?	*Mark on plan*	
If yes, how many seats are there?		
What evidence is there of street clutter? *Signage/bins etc*		

Other notes

Overall location plan – note any key features, eg location of bus stops, pedestrian crossings, cycle parking. The route of bus lanes and cycle lanes through the centre with indicative widths

A2 Shopper survey form – for arterial and central city sites

Win an iPod – Take 2 mins to fill in this shopper survey

Shop? _____ Day? _____ Time? _____

1) Did you intend to visit this shopping area/centre today?
Yes ☐ No ☐

2) How much did you spend in this shop today?
Under $15 ☐ | $16 to $50 ☐ | $51 to $100 ☐ | $101 to $300 ☐ | $300 + ☐

3) How did you travel to this shop today?
Walk ☐ | Cycle ☐ | Bus ☐ | Car Driver ☐ | Car Passenger ☐ | Other ☐
If Other please specify.....

4) Do you always travel to this shopping area/centre using the same transport choice?
Yes ☐ No ☐
If yes, go to Q5 If no, answer below
If no, please indicate your usual transport choice (please tick one).
Walk ☐ | Cycle ☐ | Bus ☐ | Car Driver ☐ | Car Passenger ☐ | Other ☐
If Other please specify.....

5) If you drove today where did you park?
On Street Outside Shops ☐ | On Street Elsewhere ☐ | Off Street Car Park ☐ | Didn't drive ☐
Please specify.....

6) Did you (or will you) visit any other shops in this shopping centre/ area today?
Yes ☐
No ☐ If no, go to Q8

7) If yes, approximately how much did you (or will you) spend at these **other shops in total**?
I only spent $ in this shop ☐ | Under $15 ☐ | $16 to $40 ☐ | $41 to $100 ☐ | $101 to $300 ☐ | $300 + ☐

8) How much time did you spend in this shopping area/centre today?
Under 15 minutes ☐ | 15 – 30 minutes ☐ | 31-60 minutes ☐ | Over 60 minutes ☐

9) How often do you visit this shopping area/centre?
Daily ☐ | 2-3 times a week ☐ | Weekly ☐ | Fortnightly ☐ | Monthly ☐ | Less frequently ☐

10) How would you rate this overall shopping area/centre?
Very bad ☐ | Bad ☐ | Ok ☐ | Good ☐ | Very Good ☐

Turn over now to enter the iPod competition

You have a chance to tell us more about your shopping centre?

If you want to be in with a chance of winning an iPod please provide your contact details below. The prize draw will take place on **Monday 29th November 2010**. Winners will be informed after that date.

Name: ……

Address (optional): ……

……..

E-Mail: ……

Contact Tel no: ……

Rules

- You are eligible to complete a survey if you have made a purchase during your shopping trip.
- You may complete more than one questionnaire over the survey period, but each must represent a separate journey/trip to the shopping area.
- Your answers to the survey questions are confidential and will be used for the purposes of this research project only. The New Zealand Privacy Act 1993 applies to this survey.

This survey is part of a national research project on the economic impact of transport choice and urban design in local shopping areas. We are aiming to identify the key factors that attract people to local shopping areas, how they travel to and then use them. The project is funded by the New Zealand Transport Agency and the outcomes of the survey will be of use to a variety of policy and planning professionals along with local business owners.

As part of the research we will be holding workshops with shoppers from your local area. We would be keen to hear your views as well on what makes an attractive shopping centre.

As an incentive we are offering a $10 voucher for people who attend this interactive workshop.

☐ **If you would like to find out more or participate in a workshop in your area please tick here and provide your contact details below.**

Name: …… E-Mail: …….. Contact Tel no: ……. ….

Administration Only: City Code…….. Shopping Centre Code…….. Shop Code……..

A3 Retailer questionnaire

Shopping centre code:	City code:

Economic impact of transport users
Retailer questionnaire

The shopping centre that your business is located in has been selected as a case study area for this project. Therefore, we are asking for your assistance to collect data from you and your customers. **Please complete the survey and return to a Beca employee or return to Beca in the pre paid envelope which will be provided by our Beca staff. Contact Tracy Allatt on 03 363 3461 or tracy.allatt@beca.com**

Your answers will remain confidential and will only be used for the purposes of the research project. The New Zealand Privacy Act 1993 applies to this survey.

SECTION A: YOUR BUSINESS

1) What is the name of your shop?

……

2) What type of services does your shop provide? Please circle one of the following:

(1) Dairy (5) Electronics (9) Clothing/apparel

(2) Food/beverages (6) Post office (10) Jewellery/antiquities

(3) Healthcare (7) Stationary/books (11) Café/ restaurant

(4) Hair/beauty (8) Sports/leisure (12) Financial services

(13) Other (please describe)……

3) What are the daily opening hours for your shop?

……

4) How long has the business been operating in this area? Please circle one of the following:

(1) Under 1 year (2) 1 to 3 years (3) 4 to 6 years (4) Over 10 years (5) Not sure

5) In your opinion, what are the busiest time periods for your business? Please circle one of the following:

(1) 7.30am to 9.30am (2) 9.31am to 12pm (3) 12pm to 2pm

(4) 2pm to 4.30pm (5) 4.30pm to 6.30pm (6) After 6.30pm

(7) Other (please describe)……

6) Please estimate how much of your trade is from regular customers and passing trade? Eg 80% 20%

(1) Regular customers……% (2) Passing trade ……%

SECTION B: YOUR LOCAL SHOPPING CENTRE

7) Please indicate how you think your shoppers currently travel to your shop, please indicate the percentage of people travelling by each travel option – must add up to 100%.

Walk	Cycle	Public transport	Drive	Car passenger	Other
 %	 %	 %	 %	 %	 %
eg 20%	5%	10%	65%	0%	0%

TOTAL = 100%

8) What car parking is available for your customers? Please circle all that apply:

(1) On-street spaces (directly outside the shop) (2) On-street spaces (elsewhere) (3) Off-street car park

9) Do you think that these spaces generally available for your customers to use?

Please circle one of the following:

(1) Yes	(2) No	(3) Not Sure
Please go to question 10	Please go to question 9	Please go to question 10

10) If no, please explain the reasons why you think this is?

.....

.....

.....

11) Are there any cycle parking (bike stands) within the vicinity of your property for customers to use? Please circle one of the following:

(1) Yes (2) No (3) Not Sure

12) Do you think these spaces are generally available for your customers to use? Please circle one of the following:

(1) Yes	(2) No	(3) Not Sure
Please go to question 13	Please go to question 12	Please go to question 13

13) If no, please explain the reasons why you think this is?

.....

.....

The look and feel of a local shopping area can be a vital part whether people shop there and how much time and money they spend in shopping centres. As an example, the photographs below are of the same shopping centre before and after a design change.

The following question seeks to find out what characteristics are important to you as a business owner.

14) How important do you perceive the following design features are in **maintaining and supporting** your business trade? On a scale of 1 to 5 rank the following:

	(1) Very Unimportant	(2) Unimportant	(3) Neutral	(4) Important	(5) Very important
Pedestrian facilities					
Wide footpaths					
Pedestrian crossings					
Cycle facilities					
Bicycle parking					
Provision of cycle lanes					
Bus users					
Bus stops					
Frequent bus services					
Parking					
Availability of on-street parking					
Availability of off-street car parks					
Parking restrictions (time/cost)					
Urban design					
Outdoor public seating					
Landscaping, eg planting, sculptures					
Space for outside dining seating					

SECTION C: CHANGES TO YOUR AREA

Only complete if changes have taken place in the last 5 years

15) To your knowledge have there been any changes recently or in the past to the street and its design that have impacted on the look and feel of the area? Please circle one of the following:

(1) Yes	(2) No	(3) Not Sure
Please go to question 15	Please go to Section D	Please go to Section D

16) If yes, please complete the following table to describe the changes and the impact on your business trade?

	Change occurred? Approx year?	Impact on your business trade?				
		(1) Very negative impact	(2) Negative	(3) Neutral	(4) Positive	(5) Very positive impact
Pedestrian facilities						
Wider footpaths						
Better lighting						
Traffic speed lowered						
New/improved pedestrian crossings						
Cycle facilities						
New bicycle lanes						
Improved cycle lanes						
New cycle parking						
Public transport facilities						
New bus lanes						
New bus stops						
More bus services						
Parking						
Removal of on-street parking spaces						
New on-street parking spaces/bays						
Urban design						
More/new landscaping, eg planting, sculptures						
More/better outdoor public seating						
More/better space for outside dining						
Others (please describe						

SECTION D: ABOUT YOU

Completion of the following questions is optional. All information will remain confidential and be used for the purposes of this research project only.

17) What is your role in the business? Please circle all that apply:

(1) Business owner | (2) Business manager | (3) Building owner | (4) Other (please specify .....

18) How far away do you live from the business? Please circle one of the following:

(1) Under 2km (2) 2 to 5km (3) 6 to 10km (4) 11 to 20km (5) Over 20km

19) How do you most often travel to work? Please circle one of the following:

(1) Walk (2) Bike (3) Bus (4) Train (5) Drive (6) Car passenger

(7) Other (please describe).....

20) If you drive to work, where do you park? Please circle one of the following:

(1) On street (directly outside the shop) | (2) On street (elsewhere) | (3) Off street car park – public. Please specify ..... | (4) Off street car park-- private. Please specify .....

21) What is the current rental value ($) per month? Please circle one of the following:

(1) Under $5000 | (2) $5001 to $10,000 | (3) $10,001 to $25,000 | (4) $25,001 to $40,000 | (5) Over $40,000

22) Please indicate which of the following age group is applicable to you.

(1) Under 18 (2) 18-24 (3) 25-34 (4) 35-44 (5) 45-54 (6) Over 55

23) Do you have any other comments?

.....

.....

.....

.....

.....

.....

Thank you for taking the time to complete this survey, we appreciate your participation in this research study. There are two ways in which you can continue to be involved, please tick as applicable and provide your contact details below.

☐ I wish to receive any future information on the **outcomes** of this study

☐ I am interested in attending a …….. with other business owners on this topic area

Name	
Address	
Tel	
Email	

A4 Design elements rating exercise

Name:_____ Date:_____

How important do you perceive the following design features in encouraging you to spend time and money in local shopping centres? On a scale of 1 to 5 rank the following:

	(1) Very Unimportant	(2) Unimportant	(3) Neutral	(4) Important	(5) Very important
Pedestrian facilities					
Wide footpaths					
Pedestrian crossings					
Cycle facilities					
Bicycle parking					
Provision of cycle lanes					
Bus users					
Bus stops					
Frequent bus services					
Parking					
Availability of on-street parking					
Availability of off-street car parks					
Parking restrictions (time/cost)					
Urban design					
Outdoor public seating					
Landscaping, eg planting, sculptures					
Space for outside dining seating					
Other (please state)					

A5 Urban design and transport workshop – focus group questions

Use the questions most applicable for your specific shopping centre.

- What is the main reason you choose to use the shopping centre(s) you use most regularly?
- What are the most important features for you to get around local shopping centres?
- Think about the design of a shopping centre, what makes a shopping centre attractive to you?
- Is it important for shopping centres to be attractive for walking?
- Supplemental – how can this be achieved? Think of examples where you think this is done well.
- Is it important for shopping centres to be attractive for cycling?
- Supplemental – how can this be achieved? Think of examples where you think this is done well.
- What are the most important aspects of car parking in local shopping centres?
- What is good about the local shopping centres in the xxx district/area?
- What improvements could be made to improve your shopping experience in the xxx district/area?

A6 Shopping centre rating exercise

Name:_____ Date:_____

1) How would you rate these shopping centres?

	(1) Very Bad	(2) Bad	(3) OK	(4) Good	(5) Very Good
Photo 1					
Photo 2					
Photo 3					
Photo 4					
Photo 5					

2) Please rank these shopping centres in order of preference (1 = Worst, 5 = Best).

Photo 1	
Photo 2	
Photo 3	
Photo 4	
Photo 5	

A7 Shopper survey form – for central city sites (final)

Win an iPod – Take 2 mins to fill in this shopper survey

Shop? _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Day? _ _ _ _ _ _ _ _ _ Time? _ _ _ _ _ _ _ _ Area:

1) How did you travel **into the City Centre** today?

Walk ☐ Cycle ☐ Bus ☐ Car Driver ☐ Car Passenger ☐ Other ☐

If Other please specify……

2) Did you intend to visit **this shopping area** today?

Yes ☐ No ☐

3) How much did you spend in **this shop** today?

Under $15 ☐ $16 to $50 ☐ $51 to $100 ☐ $101 to $300 ☐ $300 + ☐

4) How did you travel to **this shop** today?

Walk ☐ Cycle ☐ Bus ☐ Car Driver ☐ Car Passenger ☐ Other ☐

If Other please specify……

5) Do you always travel to **this shop** using the same transport choice? Yes ☐ No ☐

If no, please indicate your usual transport choice (please tick one).

Walk ☐ Cycle ☐ Bus ☐ Car Driver ☐ Car Passenger ☐ Other ☐

If Other please specify……

6) If you drove to **this shop** today where did you park?

On Street Outside Shops ☐ On Street Elsewhere ☐ Off Street Car Park ☐ Didn't drive ☐

Please specify……

7) Did you (or will you) visit any other shops in this **shopping area** today?

Yes ☐ If yes, go to Q8

No ☐ If no, go to Q9

8) If yes, approximately how much did you (or will you) spend at these **other shops in total**?

I only spent $ in this shop ☐ Under $15 ☐ $16 to $40 ☐ $41 to $100 ☐ $101 to $300 ☐ $300 + ☐

9) How much time did you spend in **this shopping area** today?

Under 15 minutes ☐ 15 – 30 minutes ☐ 31-60 minutes ☐ Over 60 minutes ☐

10) How often do you visit **this shopping area**?

Daily ☐ 2-3 times a week ☐ Weekly ☐ Fortnightly ☐ Monthly ☐ Less frequently ☐

11) How would you rate this overall **shopping area**?

Very bad ☐ Bad ☐ Ok ☐ Good ☐ Very Good ☐

How to Win An iPod and more…..

If you want to be in with a chance of winning an iPod please provide your contact details below. The prize draw will take place on Winners will be informed in due course.

Name: ……

Address (optional): ……

……

E-Mail: ……

Contact Tel no: ……

Rules

- You are eligible to complete a survey if you have made a purchase during your shopping trip.
- You may complete more than one questionnaire over the survey period, but each must represent a separate journey/trip to the shopping area.
- Your answers to the survey questions are confidential and will be used for the purposes of this research project only. The New Zealand Privacy Act 1993 applies to this survey.

You have a chance to tell us more about your shopping centre?

As part of the research we will be holding workshops with shoppers from your local area. We would be keen to hear your views as well on what makes an attractive shopping centre.

As an incentive we are offering a $40 voucher for people who attend this interactive workshop.

☐ If you would like participate in a workshop in your area please tick here and provide your contact details below.

Name: …… **E-Mail:** ……

Contact Tel no: ……

Administration Only: City Code…….. Shopping Centre Code…….. Shop Code……..

Appendix B: Case studies and supporting evidence

B1 Introduction

The case studies provide a source of information on the application of reallocation of road space schemes and other relevant concepts for transport and planning professionals and other stakeholders (including retailers and shoppers).

B1.1 Case study categories

This appendix is categorised into specific topics that outline some of the different types of schemes and policies that have involved elements of road space reallocation or provide evidence that supports the implementation of these types of schemes. There are two distinct types of case studies: site-specific case studies and supporting strategies and policy.

B1.1.1 Site-specific case studies

These are specific schemes that have included footpath widening, complete re-landscaping and bus corridor schemes. Section B2 contains case studies of New Zealand projects and section B3 looks at a number of relevant overseas projects.

The following is a brief summary of the types of schemes referred to in the case studies.

Pedestrian schemes: A relatively small number of pedestrian-specific projects have been included in the compendium. This is primarily because pedestrian facilities are usually included along with improvements for other transport modes (mixed-use schemes). One New Zealand case study refers to the development of shared spaces in Auckland; another is a more typical pedestrian-specific design – pedestrianisation. The case studies outline the key successes of each scheme, including economic data (where available).

Cycling schemes: Cycling infrastructure is now commonplace in New Zealand. When these schemes are implemented, they often result in the removal of on-road car parking spaces, which frequently meets with disapproval. The case studies presented in the compendium provide evidence of successful cycling schemes, which have benefits for cyclists and the wider community.

Public transport schemes: Work has been undertaken to improve public transport in central city areas and implement bus corridors along arterial routes in and around New Zealand. Some have been planned but have not yet been implemented.

Urban design schemes: These provide details on projects with significant urban design improvements.

Mixed-use schemes: A variety of mixed-use schemes have been presented in the compendium including shared streets. All the case studies are located in areas where there is retail activity and involve some reallocation of road space in favour of sustainable transport modes.

Road safety schemes: A number of schemes that benefit pedestrians and cyclists are justified as casualty reduction schemes. The schemes often have benefits for all road users and in many cases provide innovative solutions, which often create a change in the 'feel' of shopping areas.

B1.1.2 Supporting strategies and policies (section B4)

These are categorised into the following topics and summarised below:

- policy and planning

- relevant research
- economics.

Policy and planning: The strategies and policies presented in this document provide some evidence of how international and local policies have evolved from a 'predict and provide' approach to a demand management approach. Although reallocation of road space is not always directly referred to, the policies support the promotion and development of walking, cycling and public transport. To create space for these users in a more equitable distribution often results in the reallocation of road space.

Many of the transport policies and strategies refer to economic vitality and sustainability. The supporting evidence shows that urban design and transport policies are aligned. Policies that support reallocation of road space are also becoming more commonplace.

Relevant research: This part of a case study provides details on the outcomes of research studies that support the implementation of reallocation of road space schemes. The research presents evidence that the reallocation of space in favour of cycle facilities provides positive outcomes for a relatively low investment cost. Additional research also provides valuable data on the urban design and transport features that encourage walking and cycling.

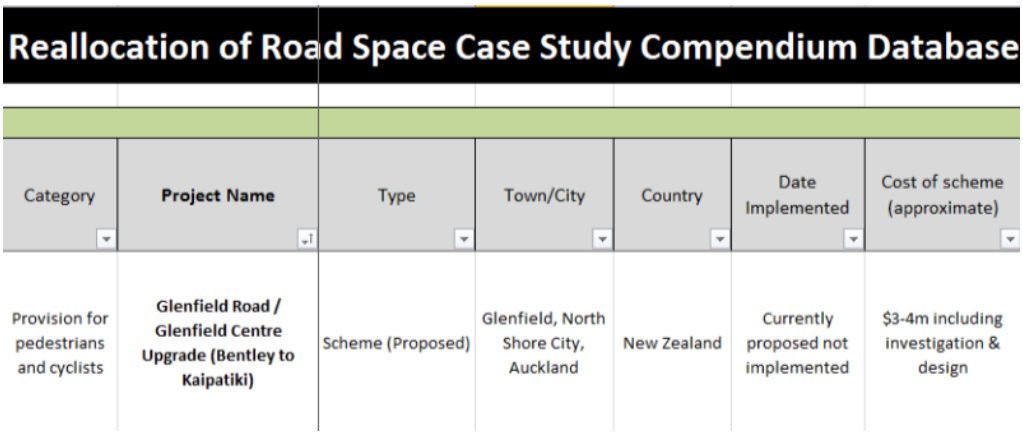
Economics: Seven case studies are provided in the case study compendium, all of which investigate the economic impact of active modes and public transport. Most of these case studies focus on the traditional cost–benefit analysis benefit streams. The results of several studies were used as evidence to increase the amount of benefit allocated to cycling activity in the UK transport appraisal process (WEBTAG).

The studies also refer to the wider social and health benefits of promoting active transport. Evidence about the impact of different types of streetscapes on retail rental values is also explained in a UK study. The case studies, overall, provide a variety of ways to value the benefits of reallocation of road space. They also represent the 'tip of the iceberg'. More detail on additional case studies valuing transport needs and urban design is available in the literature review.

B1.2 Case study database

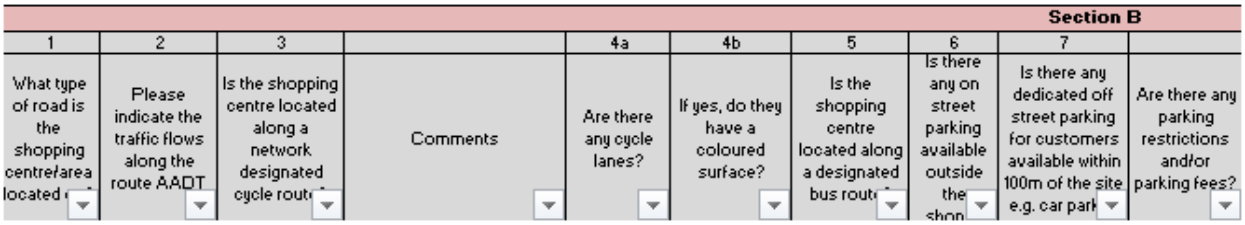
The accompanying *Reallocation of road space case study database* allows the user to filter any of the headline topics to find the most relevant schemes for a specific location. Figure B.1 shows the database fields that can be changed and the arrows indicate that all fields can be filtered to find schemes.

Figure B.1 Category analysis in the case study compendium spread sheet



When specifically looking for schemes, additional data can be sorted by referring to the transport features included in the design of existing case studies. An example of this data is provided in figure B.2.

Figure B.2 Analysis of schemes by transport features



									Section B
1	2	3		4a	4b	5	6	7	
What type of road is the shopping centre/area located	Please indicate the traffic flows along the route AADT	Is the shopping centre located along a network designated cycle route	Comments	Are there any cycle lanes?	If yes, do they have a coloured surface?	Is the shopping centre located along a designated bus route	Is there any on street parking available outside the shop	Is there any dedicated off street parking for customers available within 100m of the site e.g. car park	Are there any parking restrictions and/or parking fees?

Record the relevant case study number and refer to the full details in this appendix for more information.

B2 New Zealand case studies

B2.1 Bus corridor with pedestrian and cycle facilities – Papanui Road, Christchurch

Section A – Summary						
Name	Papanui Road retail area					
Type	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	X
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Christchurch					
Country	New Zealand					
Date implemented	November 2009					
Cost of scheme (approximate)	n/a					
Reference	The data was supplied by CCC not as part of a research report. Published information on bus corridors in Christchurch – Christchurch City Council (2010) *Bus corridor with pedestrian and cycle facilities*.					

Existing or previous site description/context

The shopping area is along Papanui Road, which is a minor arterial on the boundary between the older inner suburbs (Merivale etc) and newer outer suburbs. Below are useful statistics regarding the area:

- Papanui Road: annual average daily traffic (AADT) 21,000
- Main North Road AADT 32,000
- Cycle volume and pedestrian flows are not available.
- Northlands Shopping Centre: mixed retail, restaurants, cafes, travel agents, etc.
- There has been some earthquake damage in this area, some of which was severe.

Existing or previous problem/issues

General traffic congestion impacts on the reliability of most if not all of Christchurch's bus services. The current traffic volume along Main North Road is between 21,000 and 32,000 vehicles per day. The main areas of congestion in the afternoon peak period are where Papanui Road intersects with St Albans Road, Aikmans Road, Innes Road, Blighs Road and Harewood Road, and where Main North Road intersects with Langdons Road, Sawyers Arms Road, Cranford Street and QEII Drive.

Increasing congestion has a detrimental impact on bus travel time reliability. One of the ways to reduce the growth in traffic is to promote the use of passenger transport. The more unreliable travel time by bus becomes, the less attractive it is to use. The congestion and unreliability along the Main North Road corridor is caused by high traffic volumes on intersecting roads that reduce the amount of green time available for Papanui Road/Main North Road traffic. Delays to vehicles in the traffic lane are also caused by vehicles entering and exiting from on-street car parking outside shops. The unreliability makes timetabling difficult and frustrates bus users.

Description and objectives of scheme/policy

Bus lanes were installed for 4.7km along Papanui Road and Main North Road in late 2009. The infrastructure improvements, which included B-signals, intersection and signal improvement, as well as cycle lanes and pedestrian facility improvements, were located on the arterial road. The infrastructure that makes up this bus priority corridor comprises road markings, white and coloured (green); road signs on side roads and adjacent to the bus lanes; traffic signals (completely new signals for bus gates; signalised pedestrian crossings; and new signal heads with white B symbols and cycle symbols. Where the old road width was insufficient, the old kerb and channel were replaced by a new realigned kerb and channel and small widths of new carriageway.

The aims and objectives of the project were to

- increase bus patronage within the city of Christchurch, while at the same time reducing private vehicle traffic congestion
- reduce the variation in bus journey times along the route from one day to the next so that services could be relied on by passengers
- reduce excess bus journey time to at least 125% of that for a car
- ensure monthly average speeds of buses during the peak period were not below 26km/h on high passenger demand corridors.

The measures were aimed at protecting bus services from the effects of traffic growth and variations in the levels of congestion. This was to allow the bus to move efficiently along the route and the bus trip to remain consistent from one day to the next.

The project was supported by local policy. Policy 1.3 of the *Canterbury regional land transport strategy 2008–2018* (RLTS) (Environment Canterbury 2008) seeks to support greater use of public passenger transport by providing traffic management schemes that give priority to public passenger transport services over private motor vehicles in areas of traffic congestion, particularly on high-demand transport corridors. The key result areas in this section of the RLTS look to implement the Regional Passenger Transport Plan and the Metro Strategy. This bus priority corridor is one of 10 identified by the Christchurch City Council and Environment Canterbury (2004) in the *Citywide public transport priority plan*, the LTCCP 2009/19 (Environment Canterbury 2009) and the *Greater Christchurch metro strategy 2010–2016* (Metro 2009) as needing bus priority measures implemented along them.

The RLTS seeks to provide transport options other than motor vehicles, with cyclists, pedestrians and public transport passengers accounting for a significant number of trips in urban centres. These modes are healthy, cheap and environmentally sustainable. They also help reduce congestion and provide mobility for the significant proportion of society without access to a private motor vehicle or those who choose to travel by walking, cycling, riding a 50cc motor-scooter or using public passenger transport. The relevant policies of the RLTS in relation to this project are:

- Policy 1.1 Support greater use of walking. This is achieved through the location and design of infrastructure improvements such as bus stops and shelters.
- Policy 1.2 Support greater use of cycling ... this is achieved by providing for cycle routes and cycle priority measures in infrastructure projects, ie bus priority infrastructure.
- Policy 1.3 Support greater use of public passenger transport. This is achieved by provision of traffic management schemes that give priority to public passenger transport services over private motor vehicles in areas of traffic congestion, particularly along high-demand transport corridors.
- Policy 2.1 Progressively reduce the number and severity of crashes in Canterbury. This is achieved by supporting infrastructure improvements along the bus priority corridor that improve road safety, especially at intersections.
- Policy 2.3 Support the maintenance and development of the road's strategic road network. This is achieved by providing bus priority infrastructure, traffic management and enforcement measures that improve the safety of the region's strategic road network. This project also helps to develop and maintain the region's strategic road network to provide for the safe, sustainable and efficient movement of people and freight.
- Policy 4.2 Design and programme developments and related infrastructure to support sustainable transport choices, improve interchange between modes and to reduce the need to travel, especially by private motor vehicle. This is achieved by planning for the needs of all modes in the development and infrastructure provision for each bus priority project.

Full public consultation on the Papanui Road corridor was carried out from 15 Oct 2007 to 17 Dec 2007, in accordance with the consultation principles set out in section 82 of the Local Government Act 2002. Two hundred and fifty-three responses were received through various media such as phone, email, feedback forms and Have Your Say submissions, as well as from workshops and meetings. The consultation leaflets were distributed widely around the community, and the information was posted on the 'Have Your Say' section of the council's website. A contact email address and phone number were included with all correspondence. A separate website was set up to provide information on the project www.buspriority.co.nz. Workshops, seminars and meetings were held with additional meetings set up on request. All responses received during the consultation period were collated and reported back to the project team for consideration and implementation, where possible. A summary of the consultation was presented to the relevant community boards and council as part of the reporting and decision-making process.

The majority of the 253 respondents (66%) were in support of the proposals. The key issues raised during consultation were in relation to the location of bus lanes, bus stop locations, congestion, local businesses, congestion, the Merivale Mall area, Papanui shops area, pedestrian crossing points, footpath design, flush median, Papanui Road, Main North Road and Selwyn House.

Economic analysis/justification

The benefit-cost ratio was estimated at 4.5.

Key success factors

Bus travel time:

- 7am to 9am: 2 min (18.3%) decrease in travel time
- 3pm to 5pm: 3 min (21.7%) decrease in travel time

Bus travel speed

- 7am to 9am: 3.5km/h (16.8%) increase in travel speed
- 3am to 6pm: 4.0km/hr (23.8%) increase in travel speed

Lessons learnt

General issues:

1 Parking enforcement

During the afternoon operating period, a number of parked vehicles were observed in the northbound bus lanes. Some were not cleared by tow trucks for at least 1.5 hours. Having vehicles parked in the bus lane means buses have to pull out into traffic at a random location. The bus lane was probably not designed to have buses leave the lane at these locations and car drivers who are familiar with the layout would not expect the bus to pull out until the end of the bus lane which is designed for this movement. As well as being unsafe, parked vehicles detract from the efficiency of the bus lane.

Southbound morning bus lanes did not appear to have a problem with parked vehicles to the same degree.

The project team considered that greater emphasis should be placed on immediate clearance of parked vehicles from lanes as soon as these start operating as bus lanes, particularly in the afternoon period. Due to the length of the bus lane scheme, more than one towing vehicle might be required. The team did not observe a significant problem with vehicles parking during operating hours; rather the vehicles were already parked from the start of the operating period.

Specific safety issues

1 Bealey Avenue cycle lane alignment

The team observed that most northbound drivers entering the Bealey Avenue intersection from Victoria Avenue veered left across the end of the cycle lane so they could avoid the right-turn lanes that are marked in the intersection. This could be a problem to a cyclist who is approaching the intersection at speed from the south, particularly if there is a vehicle stopped in the left-turn lane leaving nowhere for the cyclist to go. The team considered that the lane markings on the Victoria Avenue approach to the intersection should be realigned with a curve to direct the northbound traffic through the intersection more naturally and alleviate this conflict. This might require the kerb on the south western quadrant to be realigned to allow the improved alignment.

2 Holly Road pedestrian signals

On the southbound approach to the pedestrian signals north of Holly Road, drivers can see only the primary signal aspect from about 60m from the limit line to about 40m from the limit line. The secondary and tertiary signals are obscured by the signal poles and by the signals aspects for the northbound approach. This is the critical distance when drivers are making their decisions about stopping for the signals or continuing through. If these aspects failed or were obscured by a vehicle in front, drivers could run through the red signal.

The team noted that the plans showed a set of overhead traffic signals that were not erected. If these were erected, the team considered the problem would be more or less alleviated. If the overhead

aspects could not be erected, an additional set of aspects should be erected on the western side of the crossing on pole 1 facing southbound traffic.

3 Mays Road/Normans Road interaction

The team observed considerable interaction with vehicles driving between Mays Road and Normans Road. Vehicles turning left from Mays Road then right into Normans Road appeared reluctant to use the flush median and most queued in the traffic lane. Southbound through vehicles then had to pass a right turner using the bus lane.

The length of the queue of right-turning vehicles into Normans Road was often so long that a vehicle intending to turn right into Mays Road from Papanui Road could not access the flush median and also had to stop in the traffic lane.

The team considered that the confusion created and the lack of capacity in the flush median in the section between Mays Road and Normans Road might not be readily solved. This should be the subject of a separate investigation to address the issues that are evident. Potential solutions are:

a Close Mays Road at the intersection and change the roading hierarchy east of Papanui Road.

b Erect a raised median to prevent right-turn manoeuvres at either Mays Road, Normans Road or both.

c Erect traffic signals. (Note: these signals could then allow coordination with existing signals at Innes Road/Heaton Street, Aikmans Road, St. Albans, Blighs Road and Harewood Road/Horner Street intersections.)

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	2	3	4	5
Encourages more walking			X		
Encourages more cycling				X	
Encourages more public transport use				X	
Change in local trade			X		
Change in passing trade			X		
Change in retail unit rental values					
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/ attractiveness			X		
Public perception of safety		X			
Actual safety, eg CAS			X		

Section C – Supplementary information

Assisting economic development

The bus priority measures will have minor improvements for general traffic flow, assisting with freight movement and mobility. Creating a modal shift from cars to buses increases the potential number of people who can access the city at any time due to reduced congestion levels. If the increasing number of cars entering the city can be controlled, the need for new roads, road widening and four-laning etc is reduced.

Assisting safety and personal security

An improvement in the safety of motorists, cyclists and all road users can be realised through the use of bus priority measures. For this project it will be achieved through the addition of clearly marked traffic lanes, separation of general traffic and buses that need to stop and start frequently to drop off and collect passengers, and the use of bus lanes by cyclists. Bus priority is an early step towards creating a culture change within the road user population. A change in culture will eventually reduce the ever increasing risks which are faced in the transport sector. This project is an important contribution towards the safety and personal security of the road user.

Improving access and mobility

The bus lanes will provide reliable travel times for passengers. This will increase the attractiveness of the bus service and will provide a better level of service for those who presently rely on buses. Bus stop rationalisation and the increase in reliability and frequency of the bus service will make travel easier for the physically disabled, encumbered and elderly users. Cycles and 50cc scooters are included in the bus lanes which makes the city more accessible for non-car users, particularly along the arterial routes.

Protect and promote public health

This has been enhanced through making allowances for cyclists and 50cc scooter riders within the bus lanes. The level of vehicle emissions should reduce due to slower congestion growth. A successful modal shift from car to bus has potential to reduce the level of atmospheric and noise pollution within and around the city. Potential passengers will also have to walk to and from the bus stops which contributes to their recommended daily exercise. The introduction of additional cycle lanes increases the opportunity to promote active transport and encourage the public to take more exercise.

Ensuring environmental sustainability

The passenger payload of a bus is greater than that of a car. A successful trend of modal shift from cars will potentially reduce the pollution caused by noise, gases and light. The introduction of additional cycle lanes increases the opportunity to promote active transport and alternate transport lanes for 50cc scooters. In many cases, each cycle or 50cc scooter could be a reduction of one car. This is a considerable reduction in atmospheric, light and noise pollution as cycles create zero emissions and 50cc scooters create emissions much lower than those of a car.

If the transport disadvantaged are defined as those without access to a private car, then bus priority puts them first. Bus stop locations have been rationalised to ensure they are more accessible from all areas, with specific attention paid to the locations of the elderly, disabled population and non-car owners, eg children below the legal car ownership age.

Others

One of the main objectives of the bus priority project was to ‘maintain or enhance the safety of all road users’. An improvement in the safety of motorists, cyclists and all road users can be realised through the use of bus priority measures. With regards to this project, this was achieved through the addition of clearly marked traffic lanes, separation of general traffic and buses that need to stop and start frequently to drop off and collect passengers and the use of bus lanes by cyclists.

The provision of bus priority lanes has a positive social effect in that they are responsive to concentrations of population and development along arterial routes. It does, however, currently limit some on-street parking.

B2.2 Provision for pedestrians and cyclists – Glenfield, Auckland

Section A – Summary						
Name	Glenfield Road/Glenfield centre upgrade (Bentley to Kaipatiki)					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)	X	Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Glenfield, North Shore City, Auckland					
Country	New Zealand					
Date implemented	Currently proposed but not yet implemented					
Cost of scheme (approximate)	$3–4m including investigation and design					
Reference	North Shore City Council pers comm					

Existing or previous site description/context

Some example characteristics of the schemes are listed below, these will vary depending on the scheme or policy type.

Is the shopping area based in a central city, town or on a major arterial?

Suburban town centre in North Shore City on an arterial road (Glenfield Road)

What is the approximate use – traffic, cyclist and pedestrian flows?

Major arterial; currently car dominated. On a bus route. Bus stops include bus-bays upgraded on eastern side of road in September 2010. Few cyclists. Pedestrians using town centre but suspect not walking to/through it.

What is the retail/services mix in the area? Are properties vacant?

One huge Westfield mall, a drive-through McDonalds, other single shops such as a Hammer Hardware, Civic Video, bakery. Several real estate agents and banks.

No street cafes or restaurants (probably due to lack of pedestrian amenity and car-dominated environment)

Existing or previous problem/issues

Poor pedestrian environment – lack of pedestrian crossing facilities at key pedestrian desire line and currently no northbound footpath on public land (there is a footpath but it is on private land). Also road reserve dominated by traffic lanes and car park spaces.

Poor cycle facilities – constrained southbound cycle lane and no northbound cycle lane.

Poor safety at service lane exit.

Poor safety at mall vehicular entrance with conflicting users and movements.

Competing world views; town centre vs. major arterial (people vs. cars).

Description and objectives of scheme/policy

The following are possible options being considered:

- provision of northbound cycle lane
- some pedestrianisation/closure of slip lane and provision of western footpath within road reserve
- introduction of mid-block pedestrian crossing
- closure of free left turn into mall and inclusion of movement with signals
- changes to lane configuration on Bentley Ave approach and creation of larger pedestrian crossing island
- removal of on-street parking and provision of separate off-road car park.

Economic analysis/justification

Economics were calculated on a previous option which resulted in a B/C <1.

Key success factors

The key outcomes from this project are that:

- More space is dedicated to sustainable travel modes
- Better crossing facilities are provided for pedestrians

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport use				X	
Change in local trade				X	
Change in passing trade				X	
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/ attractiveness			X		
Public perception of safety			X		
Actual safety, eg CAS			X		

B2.3 Onehunga principal centre precinct plan

Section A – Summary						
Name	Onehunga principal centre precinct plan					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)	X	Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Auckland					
Country	New Zealand					
Date implemented	–					
Cost of scheme (approximate)	n/a					
Reference	Auckland City Council (2010) *Future planning framework version 3.0* Available at www.itsmybackyard.co.nz/resources/FPFPublicationVersion3.pdf					

Existing or previous site description/context

Onehunga is identified in the citywide spatial framework as a principal centre, designed to form a main hub for future development. These hubs across the city are to be connected to the rest of the city by a high-quality public transport network.

Existing or previous problem/issues

n/a

Description and objectives of scheme/policy

Onehunga as a principal centre will:

- attract a large number of residents, employees and visitors
- become a focal point for public transport
- provide good quality local social and community infrastructure
- have frequent rail service connections to the CBD, airport and Avondale which integrates with a bus interchange
- be supported by improved east to west road connections designed to relieve current road network congestion and inefficiency.

Economic analysis/justification

In the short term, the project aims to extend the brand exposure of the area and implement a strategy that differentiates Onehunga from other retail centres. In the medium to long term there is going to be a significant reduction of at-grade parking in favour of multi-storey provision, which is a key example in this project of road space reallocation. Safe high-activity pedestrian links will also be introduced around the vicinity of the mall, the community centre and the library.

Key success factors

Delivery of a high-quality urban centre.

Lessons learnt

Through the course of the development, a number of constraints are anticipated. These include:

- the challenge represented by the fragmentation of land holdings and the need for a mechanism to support land assembly
- the possibility of a state highway link joining the southern motorway to SH20 through the Onehunga precinct area.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling				X	
Encourages more public transport use					X
Change in local trade					X
Change in passing trade					X
Change in retail unit rental values					X
Increased the overall amount of people visiting the area					X
Improved perception of overall shopping environment/attractiveness					X
Public perception of safety				X	
Actual safety, eg CAS			X		

B2.4 High Street upgrade, Christchurch

Section A – Summary						
Name	High Street upgrade – Cashel Mall to Lichfield Street					
Type (tick one)	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Christchurch					
Country	New Zealand					
Date implemented	2010					

Section A – Summary	
Cost of scheme (approximate)	n/a
Reference	Christchurch City Council (2009) *High street upgrade.* Available at: www1.ccc.govt.nz/HaveYourSay/pdfs/HighStreetUpgradeWithoutDXPIL.pdf

Existing or previous site description/context

High Street is located to the south-east quadrant of the Christchurch central city. Prior to the upgrade the area was car dominated with no dedicated pedestrian crossing facilities.

Existing or previous problem/issues

High Street is an integral component to the central city area but has not provided a high-quality environment for pedestrians, cyclists and public transport. There are also plans to extend the tram network and creating a feature of High Street will give priority to pedestrians, cyclists and public transport. Existing problems include relatively high perceived traffic speeds, limited visibility due to on-street parking, limited pedestrian crossing facilities and risk of 'car door' crashes for cyclists.

Description and objectives of scheme/policy

- Create a 'slow street' environment.
- Maximise pedestrian links.
- Include provision for a double tram track that links to and supports the surrounding tram network.
- Accommodate necessary on street servicing, car parking, and occasional tour bus and emergency vehicle movements.
- Ensure that streetscape features are consistent with the Central City Revitalisation Strategy (2006).

Key success factors

More space dedicated to sustainable transport modes:

Carriageway width

The carriageway will vary from 8m to 12.3m in width and incorporate two traffic lanes and parallel parking bays against the kerbs.

Tram tracks

A double tram track through this section will link with the overall tram network.

Tram stop

Tram stops are proposed for both directions in the pedestrian area between High Street, Manchester Street and Lichfield Street.

Parking

- To provide the appropriate safety offsets for the tram, the existing 90º parking has been removed and replaced with parallel parking. The proposed parking layout includes P60 pay and display parks, disabled parks, motorcycle parks and P5 parks.
- Four areas for cycle parking are also proposed.
- The change from the 90º parking and the inclusion of street trees has reduced parking in this area by 21 parking spaces.

New street furniture

New street furniture including cycle stands, seats, and rubbish bins have been included in this proposal.

Footpaths and carriageway

The proposed footpaths will vary in width from a minimum of 2.5m to 5.5m. This is wider than the existing footpaths and will enhance the pedestrian link from City Mall to Manchester Street, Lichfield Street and High Street.

Street light upgrade

The street lighting will be upgraded to meet the pedestrian street light standards. Light poles are consistent with those in City Mall.

Street trees

There is a proposal to plant 11 new Fastigate oak trees and remove seven existing trees. The trees proposed for removal were assessed by an arborist, who made a recommendation based on their current condition and life expectancy, to remove and replace them by new plantings.

Lessons learnt

Consultation was undertaken online so that all residents could easily access the information (see attachment in supplementary information below).

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling				X	
Encourages more public transport use				X	
Change in local trade			X		
Change in passing trade					
Change in retail unit rental values					
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness					X
Public perception of safety					X
Actual safety, eg CAS			X		

B2.5 Streetscape upgrade – Cambridge, New Zealand

Section A – Summary						
Name	Streetscape upgrades – Cambridge, New Zealand					
Type	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Cambridge – Waipa					
Country	New Zealand					
Date implemented	June 2010					
Cost of scheme (approximate)	$50,000					
References	Waipa District Council (2009) *Cambridge town concept plan*. Draft analysis. Available at: www.waipadc.govt.nz/our-council/Waipa2050/Documents/Town%20Plans/Cambridge%20background%20analysis%20web.pdf Waipa District Council (2008) Waipa district cycling & walking strategy. Available at: www.waipadc.govt.nz/our-services/transport/Documents/Cycling%20and%20Walking%20Strategy.pdf					

Existing or previous site description/context

This case study outlines in more detail the strategy for the central area of Leamington – a southern suburb of Cambridge. The strategy and content within the town concept plan have formed the basis of discussion with a developer in a pre-consent application stage.

Leamington is the area of Cambridge located south of the Waikato River. Nearly half of the residential development in Cambridge is within Leamington; however, the area is serviced by only a small commercial node and has no local supermarket. As such, all of the predominant shopping needs for Leamington residents require a trip across the two bridges connecting Leamington to Cambridge central. The potential increase in local retail requirements, including large format food retail, has particular relevance with the business area in Leamington a focus of the town concept plans showing the community and council desires for development in the area.

The local centre is strip of retail along the main street (Shakespeare Street), generally on one side with car parks located at the front of the shops. The range of shops includes a veterinary clinic, medical centre, supermarket, petrol station and takeaways.

Behind the strip of retail on Shakespeare Street is an area of land with empty tavern, church and residential sites. It is the remainder of this block that will have a supermarket development in the future.

Existing or previous problem/issues

Urban design aspirations for commercial areas are provided as a series of guidelines with development controls providing the basis on which development is assessed in the district plan. These guidelines do

not have the same weight as development controls. The effect of this is that some developments have been able to gain consent and have been built without regard to the surrounding character.

Translating some of these guidelines into rules is seen as a way to give desired urban design outcomes more weight.

Description and objectives of scheme/policy

Town concept plans were prepared through consultation with the community and elected members prior to the Waipa District Plan review. The town concept plans outlined key objectives and principles derived from the community consultation (evening visioning workshop, presentations to elected councillors) and provided framework plans and strategies by which these objectives could be implemented. Key outcomes from that process include:

A Leamington local area strategy

This strategy seeks to facilitate a safer, more pedestrian-focused neighbourhood centre over the long term. The provision of compact residential development around the periphery of the neighbourhood centre will assist in building a vibrant centre that is commercially viable and a social and cultural asset to the wider community.

B Key strategies

1 Consolidate Leamington centre on an east-west axis.

2 Enhance the centre's strategic connections with the wider community.

3 Establish high amenity shared surface zones at the town centre on Burns and Campbell Streets.

4 Enhance the relationship between commercial land use and adjoining open space.

5 Provide for compact residential on the town centre periphery and adjacent to high amenity open space.

6 Provide opportunity for up to 3000m2 of commercial activity within the central area.

A council hearing process was undertaken before the town concept plans were finalised in December 2009.The Waipa Town Concept Plans provided one of the inputs into the district plan review and were integral in the desire to have a much greater design focus for the urban environments as opposed to the purely effects-based approach of previous plans.

A site analysis statement is required for developments in identified precinct areas. The analysis includes the scale, setback, materials, building width and modulation. Also an outline on how the building will be in keeping with the existing context and character of the streetscape is required. The applications are then assessed against the character statements that have been outlined in schedules within the proposed district plan.

Economic analysis/justification

Economic input into the town concept plans was derived from economic profile statements developed prior to the town concept plan process - this statement outlined the current and future retail, office and industrial land requirements for the district.

Key success factors

A key component of the town concept plans was the graphical overview of the aspirations for Leamington (maps, cross sections and precinct studies). These were useful in conveying to developers the urban design aspects that were seen as appropriate for development in Leamington.

Also critical to the success was the engagement with the community. Charette style, informal workshops at times of the day that suited the community (not just the consultants and council) were imperative to

understanding the constraints and opportunities for Cambridge. This level of interaction resulted in a smooth process through the submissions and hearings phase.

The district plan provided the basis for urban design discussions with developers prior to resource consent being lodged for developments. This allows council's aspirations for the interface before each development and the public realm to be discussed and incorporated early in the design process.

Streetscaping

A streetscaping project on the main street (Shakespeare Street) was completed in 2009. This included pedestrian refuges, footpath upgrade, pedestrian/ street lighting and street trees.

Lessons learnt

More discussion in the town concept plans on the mechanisms by which the objectives and principles could be implemented within the district plan would have been helpful. This would have assisted the team developing the proposed district plan as well as providing the community with more information on how their ideals could be translated into built outcomes. This information was ultimately developed by the town concept plan team through the district plan review phase.

B2.6 Auckland city council shared streets feasibility study terms of reference

Section A – Summary						
Name	Auckland City Council shared streets feasibility study terms of reference					
Type	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use	X	Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Auckland					
Country	New Zealand					
Date implemented	August 2009					
Cost of scheme (approximate)	Study cost: $95,000					
Reference	The information on the shared space projects was provided by Auckland Council representatives (not from published sources).					

Existing or previous site description/context

The Auckland City Council[2] believed that the upgrade of urban street environment would make the Auckland CBD a more attractive place for locals and tourists alike, which would contribute directly toward economic growth. The council proposed the upgrade of Eliot and Darby Streets, Lorne Street and the Fort Street precinct in time for the 2011 Rugby World Cup.

[2] Auckland City Council merged in 2010 with Auckland Regional Council, Manukau City Council,Waitakere City Council, North Shore City Council, Papakura District Council, Rodney District Council and most of Franklin District Council to form Auckland Council,

Existing or previous problem/issues

This proposal sought to identify the suitability of the aforementioned identified streets for shared spaces.

Description and objectives of scheme/policy

The purpose of introducing shared streets was to increase the level of pedestrian connectivity within the local walking network, to create an attractive urban environment and to increase the level of pedestrian priority, particularly in relation to private cars. It was believed that a more attractive environment would bring greater foot traffic which would consequently benefit local businesses. The subsequent aim, therefore, of the proposal was to demonstrate that the reallocation of streets to pedestrians could achieve real economic benefits.

The conceptual design for Eliot Street included the removal of kerbing and pedestrian paving spanning the width of the street, which would provide an attractive and key walking route between Karangahape Road and the city.

Economic analysis/ justification

n/a

Key success factors

The key measures for success were to see greater utilisation of the pedestrian space and an increase in foot traffic.

Lessons learnt

This process paved the way for the development of four shared space schemes in Auckland. Many of the basic aims and topics referred to in the terms of reference document are used to explain the shared space projects on the Auckland Council website.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking				X	
Encourages more cycling			X		
Encourages more public transport			X		
Change in local trade (local shopping trips)				X	
Change in passing trade				X	
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness					X
Public perception of safety			X		
Actual safety, eg CAS			X		

Section C – Supplementary information

The shared spaces schemes that have been implemented (or will soon be) in Auckland are:

- Elliott/Darby Street
- Lorne Street
- the Fort Street Area
- O'Connell Street.

Details on the schemes already implemented and useful information on the use of shared space is available at the following website:

B3 International case studies

B3.1 Reallocation of space for pedestrians

Section A – Summary						
Name	Reallocation of space for pedestrians					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)	X	Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Wolverhampton					
Country	England					
Date implemented	1991					
Cost of scheme (approximate)	?					
Reference	European Commission (2004b) *Reclaiming city streets for people. Chaos or quality of life?* Available at: http://ec.europa.eu/environment/pubs/pdf/streets_people.pdf					

Existing or previous site description/context

Wolverhampton is located 15 miles to the north-west of Birmingham on the fringe of the West Midlands. During the 1980s the city experienced the decline of the manufacturing industry and subsequent high unemployment levels.

The public image of the city as a shopping centre was in decline. Surveys identified traffic congestion and problems of access as having a significant detrimental impact on the retail industry in the city.

Existing or previous problem/issues

The city centre was experiencing worsening environmental conditions due to increasing traffic flows with approximately 8000 through-traffic cars per day, frequent gridlock, decline in the reliability of public transport, reduced access to city centre locations including car parks, and a decline in economic activity due to competition from other shopping centres in the city of Telford to the west, and the Merry Hill complex to the south-east and additional planned retail centres.

Description and objectives of scheme/policy

This case study shows how street space was reallocated for pedestrian and public amenities.

In 1986, the local authority commissioned 'The Black Country Integrated Transport Study' which concluded that building more roads would not solve the growing transport problems. Between 1987 and 1991, a four-phase strategy was introduced with the aim of achieving a major impact not only on travel, but also on the future promotion of Wolverhampton as a sub-regional centre.

Private car through-traffic was gradually removed by closing the central core roads, effectively blocking the main north-south and east-west routes through the city, and rationalising circulation within the town centre while implementing complementary upgrading and refurbishment of city centre streets.

City centre access was restricted to buses, taxis, pedestrians and cyclists, with restricted access for service traffic. Specific parking spaces were provided for street traders and disabled 'orange badge' holders.

The fourth phase was implemented in 1991 and removed through traffic from the town centre. While key to the success of the overall town centre strategy, this phase was also the most contentious. In preparation for the changes, a lengthy and extensive consultation process was undertaken, backed by firm political support.

Economic analysis/justification

The scheme was approved for funding under the Transport Appraisal Scheme in the UK.

Key success factors

- With each phase, after an initial 'adjustment' period, drivers soon became used to the new road layout and any initial congestion was short lived.
- After phase 4 in which all through traffic was removed from the city centre and Queen Square pedestrianised, the data suggests that the traffic absent from the inner ring road cordon (which had fallen by 14% between 1990 before the closure and 1996) appears not to have transferred to the outer ring road, where the cordon count went down by just over 1%. Some of the traffic appears to have 'evaporated'.
- With each phase of the scheme, public transport reliability improved. Public transport increased its modal share of trips from 23% in 1994 to 26% in 2000. The current target is 29% by 2006.
- The project has been a success and has had knock-on effects in the proliferation of public transport opportunities, which were contingent on the closure of the city centre to through-traffic, including a number of priority bus lanes linking the city centre with the city outskirts, and a new city centre connection with Birmingham via the light-rail rapid transit system.
- Initial negative reactions from the local media and some local groups became more favourable as the benefits of the scheme, providing a cleaner, safer and more attractive city with better access became more apparent.
- The improved image of the city and the enhanced shopping and general commercial environment is one of the most positive aspects of the scheme. In 1993, Wolverhampton won the 'Town-centre environment award', awarded by the British Council of Shopping Centres. Wolverhampton was made a city in November 2000. The quality of the centre continues to improve with new investment being attracted and a major phase of expansion of the city's university initiated. These improvements have been contingent upon better city centre access and environmental quality.

Lessons learnt

The principal lessons learnt have been the need to have a clear vision of the future importance of harnessing public support through high-profile publicity and consultation, and when doubts begin, of firm political support.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling				X	
Encourages more public transport use				X	
Change in local trade				X	
Change in passing trade				X	
Change in retail unit rental values					
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety				X	
Actual safety, e.g CAS				X	

Section C – Supplementary information

Wolverhampton city centre

B3.2 Creating a high-quality mixed-use central city

Section A – Summary						
Name	Creating a high-quality mixed-use central city					
Type	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Strasbourg					
Country	France					
Date implemented	1992					
Cost of scheme (approximate)	-					
Reference	European Commission (2004c) *Reclaiming city streets for people. Chaos or quality of life?* http://ec.europa.eu/environment/pubs/pdf/streets_people.pdf					

Existing or previous site description/context

The city of Strasbourg situated on the banks of the River Rhine is characterised by canal and river crossings and historic buildings and monuments. The city centre, located on an island, has been designated a world heritage site by Unesco.

Existing or previous problem/issues

This case study, presented in the document 'Reclaiming the streets for people, chaos or quality of life', provides the outcomes of policies and schemes which have been implemented that reclaim space for pedestrians, cyclists and public transport users.

During the 1980s, the city was facing growing traffic-related problems: frequent congestion, air and noise pollution, and high levels of traffic crashes. The city centre was becoming less attractive to visitors. In addition, the scope for providing more space to accommodate growing numbers of private cars was limited due to the historic street pattern with its monuments and historic buildings.

Description and objectives of scheme/policy

The main aim of the plan was to reduce the dominance of the private car and to increase the use of more sustainable forms of transport, public transport, cycling and walking, in the city centre.

In the early 1990s, a decision was taken to build two new tramlines serving the city centre. However, in order to create the road space required, it was necessary to reallocate highway space from private car traffic to make way for the new tramways.

The first step was taken in 1992, and involved the extension of the traffic-free precinct in central Strasbourg for a trial period. This traffic-free zone was subsequently made permanent and was further extended with the construction of Tramline B.

In addition, through-traffic access to the city centre, which represented almost 40% of general traffic flows, was removed. Access to districts of the city centre and parking facilities has been made possible via a number of 'loops'; however, it is not possible to pass from one district to another. Through traffic is

directed towards large boulevards on the outer circle or bypasses. Provision has been made for restricted local and delivery access in the heart of the city centre. Parking charges have been introduced in the city centre, resulting in a faster turnover, and therefore more efficient use of space.

Cyclists and pedestrians have free access to all areas.

The first tramline, Tramline A, was opened in 1994, followed by Tramline B which was completed in 2000. Park-and-ride sites have been built along the new tramway lines; the parking ticket is also the tram ticket for all parked car passengers. Provision for mobility-impaired passengers has been made at tram stations and on tram trains.

Economic analysis/ justification

n/a

Key success factors

- The project has not resulted in any significant loss in income for retailers. On the contrary, some businesses have seen an increase in their trading figures with some traders and certain local residents asking for pedestrianisation or for parking charges in their streets.
- Pedestrianisation increases property values and parking charges stimulate a faster turnover of parked cars resulting in improved business.
- The removal of cars from the city centre to allow space for pedestrians and cyclists has improved the quality of life for everyone, for those living and working in the city, and for tourists. Kleber Square, the historical heart of the city, where once 50 000 vehicles per day passed through, has been restored as a major attraction.
- Pedestrians are able to enjoy quieter, cleaner and safer car-free spaces, where only trams and bicycles may enter (with the exception of delivery hour periods and emergency vehicles).
- The predicted traffic chaos did not occur. After an initial settling-in period drivers adjusted to the new road layout.
- Public transport services have clearly benefited. Tramline A carried over 68,000 passengers/day during its first year of operation, and it is estimated that the tram led to a 17% reduction in traffic entering the greater Strasbourg area. Park-and-ride use has increased.
- There has been a significant shift in modal split from the private car to more sustainable modes: in 1989, 72.5% of all trips were made by private car and 11% by public transport; in 1999, 60% of all trips were made by private car and 30% by public transport.
- The number of trips made by bicycle has increased.
- The success of the strategy to date has provided the stimulus for a further two tramlines to be completed by 2010.

Lessons learnt

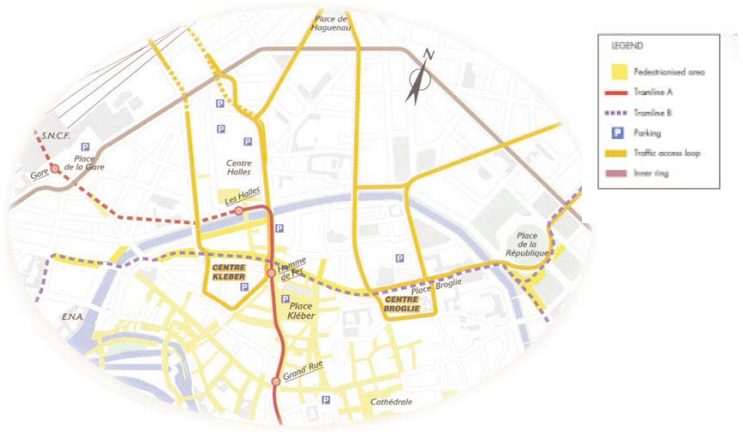
It is necessary to:

- have a strong political vision and commitment to finding more sustainable solutions even in the face of opposition
- carry out a comprehensive consultation exercise
- provide clear and regular information about the progress of the project
- provide tangible ‘benefits’ when taking away road space from car drivers.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport use					X
Change in local trade (local shopping trips)				X	
Change in passing trade				X	
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety				X	
Actual safety, eg CAS			X		

Section C – Supplementary information

Strasbourg city centre map



The case study and other similar projects can be viewed in the source document at: http://ec.europa.eu/environment/pubs/pdf/streets_people.pdf

B3.3 Pedestrian casualty reduction, Norwich

Section A – Summary						
Name	Pedestrian casualty reduction, Norwich					
Type	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Norwich					
Country	England					
Date implemented	2008					
Cost of scheme (approximate)	n/a					
Reference	Department for Transport (2011) *Mixed priority routes - results update and cost review*. Available at: http://assets.dft.gov.uk/publications/pgr-roadsafety-dpp-mpr-resultsupdatecostreview-pdf/resultsupdatereport.pdf					

Existing or previous site description/context

Prince of Wales Road in Norwich is a major road in the city centre just beyond the main shopping area. The road is one way and very wide and had a high traffic casualty rate due to the presence of local cafes and restaurants along it.

Existing or previous problem/issues

A large number of vulnerable user crashes occurred along Prince of Wales Road.

Description and objectives of scheme/policy

This scheme aimed to provide a safe environment for the large number of pedestrians in the area. The project resulted in the installation of several pedestrian crossings across the length of the study site providing constant green signal waves.

Economic analysis/justification

No information available.

Key success factors

The scheme has significantly reduced vehicle speeds to 20mph, by altering the signal phasing of the lights. Footpaths were widened.

Lessons learnt

No information available.

Section B- Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling				X	
Encourages more public transport use				X	
Change in local trade (local shopping trips)				X	
Change in passing trade				X	
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety				X	
Actual safety, eg CAS					X

B3.4 Pedestrian crash reduction, Hull, UK

Section A – Summary						
Name	Pedestrian crash reduction, Hull, UK					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)	X	Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	X
Town/city	Hull					
Country	UK					
Date implemented	2008					
Cost of scheme (approximate)	n/a					
Reference	Tolley R (2003) *Providing for pedestrians: principles and guidelines for improving pedestrian access to destinations and urban spaces*. Available at: www.thinkingtransport.org.au/sites/www.thinkingtransport.org.au/files/PROVIDING_FOR_PEDESTRIANS.pdf					

Existing or previous site description/context

Newland Ave is a local distribution road with a busy shopping area with a variety of independent traders. Other commercial entities are located on the road including schools, churches and residential properties.

Existing or previous problem/issues

The case study is part of the Department for Transport's mixed use demonstration project study.

Description and objectives of scheme/policy

The proposed scheme included the following design elements:

- a 20mph zone
- footway widening
- an urban square
- removal of a pelican crossing
- numerous informal crossings
- improved bus stops
- cycle shelters.

Economic analysis/justification

This stretch of road was targeted by conflicting priorities in an area of social deprivation.

Key success factors

The hope is the scheme will dramatically improve safety and the street environment.

Lessons learnt

The council has been very successful in implementing a large number of 20mph zones with wide public acceptance. The potential to move this concept forward provided great potential for a demonstration project.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport use				X	
Change in local trade				X	
Change in passing trade					X
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety				X	

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Actual safety, eg CAS				X	
Others (please describe)					

B3.5 Crash reduction study, Oxford

Section A – Summary						
Name	Crash reduction study, Oxford					
Type	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research	X	Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	X
Town/city	Oxford					
Country	England					
Date implemented	2008					
Cost of scheme (approximate)	n/a					
Reference	Department for Transport (2011) *Mixed priority routes - results update and cost review*. Available at http://assets.dft.gov.uk/publications/pgr-roadsafety-dpp-mpr-resultsupdatecostreview-pdf/resultsupdatereport.pdf					

Existing or previous site description/context

Cowley Road features a mix of retail, bars, cafes and restaurant creating a busy day and night scene. It is an important bus corridor, with over 650 buses per day and a large cycle population which exceeds 3000 cyclists per day.

Existing or previous problem/issues

There have been an average 21 recorded crashes per year. Cyclists have made up 40% of these crashes with most of the conflicts occurring between cyclists and buses. This was believed to be due to the very narrow carriageway in the centre causing increased conflicts.

Description and objectives of scheme/policy

The scheme aimed to improve the local environment while significantly improving safety for all users.

Economic analysis/ justification

No information available.

Key success factors

The scheme was implemented and dealt with the parking and traffic management issues too.

Lessons learnt

This scheme gained acceptance from local residents and traders providing a considerable challenge to the project team.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport use			X		
Change in local trade (local shopping trips)				X	
Change in passing trade				X	
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety					X
Actual safety, eg CAS					X
Others (please describe)					

B3.6 Road danger reduction scheme

Section A – Summary						
Name	Road danger reduction scheme					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	X
Town/city	Kingston-upon-Hull					
Country	United Kingdom					
Date implemented	1994–2010					

Section A – Summary	
Cost of scheme (approximate)	£6–7 million (British pounds)
Reference	Department for Transport (2011) *Mixed priority routes - results update and cost review*. Available at http://assets.dft.gov.uk/publications/pgr-roadsafety-dpp-mpr-resultsupdatecostreview-pdf/resultsupdatereport.pdf

Existing or previous site description/context

Traffic calming schemes have been implemented across the UK, with a major example of the application of road danger reduction principles found in the City of Kingston-Upon-Hull, UK, which has achieved dramatic results in reducing road casualties.

Existing or previous problem/issues

The UK's Social Exclusion Unit has highlighted the link between deprivation and road casualties. Hull is ranked as the 13th most deprived council area in England in the Government's Indices of Deprivation (2000). However, the Council believes that the mass introduction of 20mph zones has gone some way to breaking the link.

The city still has comparatively high levels of casualties compared with more affluent areas of the country but it hoped to meet the national target of a 40% reduction in total killed or seriously injured (KSI) crashes by 2010 against the 2000 baseline in 2004, six years earlier.

Description and objectives of scheme/policy

At the heart of Hull's policies has been the widespread introduction of 20mph (30kph) zones across the city's mixture of Victorian terraces and 1960s council housing estates. At present 26% (191km) of the city's roads are subject to 20mph speed restrictions. The council has an ambition to make it 60%, covering all residential areas by 2010. At the time of writing 120 zones, covering 500 streets, had been implemented. The 60% target requires the creation of another 180 zones at a cost of £6–7m ($NZ11–13m) Casualty figures support Hull's initiative. Hull's efforts are not just relevant to the road safety agenda.

Economic analysis/justification

A reduction in casualties has a direct influence on the economic prosperity of a town, as falling casualties result in increased health care savings.

Key success factors

Between 1994, when the first 20mph scheme was implemented, and 2001, Hull saw a 14.3% decrease in all road casualties, against a 1.5% increase in the surrounding Yorkshire and Humberside area. Pedestrian casualties decreased by 36.3% compared with a 16.8% reduction for Great Britain as whole. Child casualties decreased by 23.5% in the same period and child pedestrian casualties decreased by 38.5% compared with 17.2% in the whole of Great Britain over the same period. In the 20mph zones, the reductions were even greater. According to the council, total accidents typically decreased by 56%; killed or seriously injured (KSI) by 90%; pedestrian casualties by 54%; child casualties by 64%; and child pedestrian casualties by 74%. A study estimated that the council had prevented over 1000 minor injuries and 200 KSI.

The scheme has resulted in:

- a better environment to encourage more local walking and cycling trips to local shops
- improvements for pedestrian connectivity with slower traffic environment – the schemes could also discourage rat running through these locations

- dramatic reductions in casualties in the areas that have been treated
- the construction of gateways to complement traffic calming schemes.

Lessons learnt

Lower traffic speeds have a benefit for all users.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking				X	
Encourages more cycling				X	
Encourages more public transport use			X		
Change in local trade (local shopping trips)				X	
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety				X	
Actual safety, eg CAS					X
Others (please describe)					X

B3.7 Main square upgrade, Kajaani, Finland

Section A – Summary						
Name	Main square upgrade, Kajaani, Finland					
Type	Scheme (Installed)		Cycling	X	Economics	
	Scheme (proposed)	X	Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Kajaani					
Country	Finland					
Date implemented	1998					
Cost of scheme	–					

Section A – Summary	
Reference	European Commission (2004a) *Reclaiming city streets for people. Chaos or quality of life?* Available at: http://ec.europa.eu/environment/pubs/pdf/streets_people.pdf

Existing or previous site description/context

Kajaani lies 570 km to the north of Helsinki in north-east Finland. The city dates from the 17th century and is the cultural, industrial, administrative and commercial centre of its region.

During the early 1990s Kajaani city centre was in decline due to a combination of factors including:

- traffic congestion in the main high street and associated problems of air and noise
- pollution
- competition from hypermarkets
- net migration of population from the city
- high level of empty properties leading to urban decay.

Existing or previous problem/issues

Prior to the road reallocation scheme, approximately 13,000 vehicles per day drove through the main square which created serious traffic congestion and a decline in pedestrians due to the associated problems of traffic congestion such as air pollution and noise.

Description and objectives of scheme/policy

An active strategy to regenerate the city centre was initiated in 1996 by the local authority, as part of a national initiative 'Better town centres' financed by the Ministry of Environment, the Ministry of Transport and the Ministry of Commerce.

Central to the strategy was the pedestrianisation of a section of the congested main high street and main city square in 1998. Exclusion of car traffic from the main square had been the subject of heated debate for over 20 years. It was finally made possible in 1996 with the support of an alliance of the local authority, developers, shopkeepers and residents (formalised in 1998 with the establishment of the 'city-centre society') in the realisation that action was needed to stem the decline of Kajaani city centre.

The project area has now been upgraded. The whole area is paved with stone; there are new trees, benches, lighting, a performance stage and a fountain. The integrated strategy also included active marketing of the city centre, the development of new shopping yards, and residential properties above shops along the main street, the promotion of public transport services, some replacement parking outside the pedestrian zone, and the development of new cycle paths both to and within the town centre.

Economic analysis/ justification

n/a

Key success factors

- A partnership approach: the formation of a 'coordinating group' and a 'city-centre society' representing stakeholders (the city authorities, developers, shopkeepers and residents) to provide active support for the strategy was the key success factor in this case study.
- Clear political vision and commitment by the city council to solving problems of traffic congestion and urban decline, including the difficult decision to prioritise funding for the initiative over competing demands.

- Some of the traffic seemed to disappear or 'evaporate'. There has been an increase in pedestrian journeys to and within the city centre.
- An opinion poll[3] established that local residents felt the town centre was prettier, more comfortable and safer than it was before. The main square is now the place which is shown to visitors and of which the inhabitants are proud. Local people now think that the best way to improve the city centre is to enlarge the pedestrianised area.

Lessons learnt

- The integrated regeneration strategy including road reallocation, improvement of urban environment and a marketing strategy for the city worked successfully.
- The public should be involved in surveys before and after the implementation of a project.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport use					X
Change in local trade (local shopping trips)				X	
Change in passing trade				X	
Change in retail unit rental values					
Increased the overall amount of people visiting the area					X
Improved perception of overall shopping environment/attractiveness					X
Public perception of safety					X
Actual safety, eg CAS			X		

[3] Two hundred on-street interviews were carried out in 1998 and 2000. In addition, 500 questionnaires were sent by post to inhabitants in 1977 (269 responses) and in 2000 (124 responses).

B3.8 Reallocation of road space for cyclists

Section A – Summary						
Name	Reallocation of road space for cyclists					
Type	Scheme (installed)	X	Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Hull					
Country	UK					
Date implemented	2004					
Cost of scheme (approximate)	n/a					
Reference	Department for Transport (2011) *Mixed priority routes - results update and cost review*. Available at: http://assets.dft.gov.uk/publications/pgr-roadsafety-dpp-mpr-resultsupdatecostreview-pdf/resultsupdatereport.pdf					

Existing or previous site description/context

This project involved the reallocation of road space from motor vehicles to cyclists, by introducing on-road cycle lanes on a large number of roads in Hull.

Existing or previous problem/issues

n/a

Description and objectives of scheme/policy

The total length of the new cycle lanes was initially 24km, over seven separate routes. After only three years, before and after comparisons of accident statistics and cycle flows highlighted outstanding results.

The schemes are all on major roads, with traffic volumes of around 10,000 to 20,000 vehicles per day and cycle flows between 500 and 900 per day. Generally the schemes involve removal of one traffic lane in each direction and replacing this with marked car parking bays and a cycle lane separated from these by a margin strip. Advanced stop lines have also been introduced at signalised intersections.

Economic analysis/ justification

n/a

Key success factors

Building on the success of this work, similar cycle facilities are being introduced along other routes in the city. The positive outcomes from this project include:

- increased cycle flows. Of the six sites monitored, one increased cycling by 138%, three by between 20% and 30%, and two were unchanged
- 45% reduction in cycle casualties

- 11% reduction in pedestrian casualties.

Lessons learnt

n/a

B3.9 St Mark's Road contraflow, Bristol

Section A – Summary						
Name	St Mark's Road contraflow, Bristol					
Type	Scheme (installed)	X	Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Bristol					
Country	UK					
Date implemented	2004					
Cost of scheme	n/a					
Reference	Department for Transport (2011) *Mixed priority routes - results update and cost review*. Available at. http://assets.dft.gov.uk/publications/pgr-roadsafety-dpp-mpr-resultsupdatecostreview-pdf/resultsupdatereport.pdf					

Existing or previous site description/context

St Mark's Road is a 400m long street, at the centre of a suburban shopping area in Bristol. Contraflow cycling was introduced on a 100m long section, which forms a key route for cyclists.

Existing or previous problem/issues

Two-way cycling along one-way streets generally offers the most direct journey, and is commonplace in many European countries. Originally, all streets were two-way and the rise in traffic volumes led to one-way systems, which often inconvenienced cyclists and exposed them to unpleasant traffic conditions.

Before the scheme was introduced, abuse of the one-way order by cyclists was high, reflecting the importance of the route.

Description and objectives of scheme/policy

Segregation from motor vehicles is provided for cyclists on entry to the scheme, at a kerbside build-out. Short sections of the advisory cycle lane are provided at several locations, otherwise no segregation for cyclists is provided. Parking is permitted on the with-flow side for part of its length, but is prohibited on the contraflow side, where pavement parking is prevented by bollards on the footway. The road carries 600 to 700 motor vehicles a day, but speeds are very low.

Economic analysis/justification

n/a

Key success factors

The outcomes from the project are as follow:

- Contraflow cycling increased from 26 per day to 51 per day.
- With flow cycling remained at the same level

Lessons learnt

n/a

B4 Supporting strategies and policy

B4.1 The pedestrian planning and design guide

Section A – Summary						
Name	The pedestrian planning and design guide					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)	X	Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Nationwide					
Country	New Zealand					
Date implemented	Published 2007					
Cost of scheme	n/a					
Reference	NZTA (2007) *Pedestrian planning and design guide*. Available at www.nzta.govt.nz/resources/pedestrian-planning-guide					

Existing or previous site description/context

This guide outlines actions for improving the walking environment within New Zealand, and outlines a process for deciding on the types of provision that should be made for pedestrians. It also provides design advice and standards.

Existing or previous problem/issues

The Austroads road design guides were previously the primary source of material for pedestrian design. New Zealand-specific design guides were previously limited.

Description and objectives of scheme/policy

The guide was developed to create a resource for designers of the pedestrian environment in New Zealand.

Listed below are relevant policies extracted from the guide which refer to the reallocation of road space away from vehicles and towards more sustainable transport modes:

- Motorised traffic speed is managed by design and regulation, taking pedestrian needs into account. In areas of high pedestrian importance or density, traffic speed is determined by pedestrians, or alternative pedestrian routes are specifically designed to provide a higher level of safety and convenience.

- Land owners should be encouraged to provide a comparable level of service to that on public road corridors. All new and improved developments should be required to have a high-quality pedestrian environment as an integral part of all resource consent applications, unless there is good reason. When the local authority is the land owner, such as for parks and reserves, it should lead by example by setting a high standard of provision.
- A hierarchy for considering solutions to providing improved pedestrian provision is included within the document and is as follows (with highest priority given to the first solution):
  - Reduce traffic volumes on the adjacent roadway.
  - Reduce the traffic speed on the adjacent roadway.
  - Reallocate space in the road corridor to pedestrians.
  - Provide direct at-grade crossing treatments.
  - Improve pedestrian routes on existing desire lines.
  - Provide new pedestrian route alignments and grade separation.

The reallocation of road space is seen as an effective measure as consequential effects are to both reduce traffic speed and volumes along adjacent roads.

The guide also provides details regarding the provision of shared spaces. Advantages are seen to be that the urban environment is improved through better air quality, lower noise levels and the visual amenity generated from landscaping. While social interaction is increased, security is improved through natural surveillance and hence crash rates decrease. These are, however, recommended only for areas with a low demand for through traffic.

The documentation also provides a tool for assessing an appropriate crossing type for particular locations.

Economic analysis/justification

Minor arterial roads within cities are generally straddled by strips of retail, commercial and community activities and have conflicting traffic and pedestrian movements which need to be managed. Sharing the main street means adapting it to improve the safety and the quality of the road environment for all its users. Key advantages are seen to be that the quality of the road environment is improved for all users and that there is an enhancement of the economic performance of the commercial operators along the frontage. Main street adaptations are seen to represent better value for money than residential area traffic calming.

Key success factors

There is now a dedicated New Zealand resource to pedestrian planning. The document is recognised worldwide as a high-quality resource for pedestrian planning.

Lessons learnt

The guide provides good practice design which can be used to ensure high-quality and appropriate design for pedestrians in new reallocation of road space schemes.

Section B -- Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X

Section B -- Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more public transport use					X
Change in local trade				X	
Change in passing trade				X	
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness					X
Public perception of safety				X	
Actual safety, eg CAS				X	
Others (please describe)			X		

B4.2 North Shore City walking strategy 2009, New Zealand

Section A – Summary						
Name	North Shore City walking strategy 2009					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)	X	Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Auckland					
Country	New Zealand					
Date implemented	2009					
Cost of scheme	n/a					
Reference	North Shore City Council (2009) *North Shore City walking strategy 2009* Available at www.aucklandtransport.govt.nz/improving-transport/strategies/TransportStrategies/Documents/Original/nscc-walking-strategy-2009.pdf This document was developed before the 'Auckland Super City (Auckland Transport)' was formed. As a result please note that mode share initiatives are also now part of the Auckland Transport Strategy.					

Existing or previous site description/context

There is a lack of a dedicated policy document which provides a framework for the provision of walking within North Shore. It is also more difficult to access the level of transport funding for walking facilities without having a walking strategy in place. Given the many benefits of walking and the contribution to environmental sustainability, there is significant potential for the level of walking to increase as a means of transport across the city. Every trip made by car or bus involves a walking component. Current information regarding walking as the primary means of travel within North Shore City suggests that on any given day, up to 3000 people are likely to walk to work, with 15,000 students walking to school. In addition, up to 15,000 people will walk into town centres during the mid-afternoon period while over 50,000 may walk for recreational exercise during the day.

Existing or previous problem/issues

The following 10 issues are policy aim categories which relate to walking across the North Shore:

- pedestrian safety
- personal safety
- planning and policy
- built environment
- walking infrastructure and facilities
- information and communication
- funding
- coordination and integration
- influencing travel choices
- advocacy and partnerships

Description and objectives of scheme/policy

This strategy has been developed for the following reasons:

- North Shore City Council wishes to improve the environment for walking (including convenience and safety) and to encourage more people to walk more often for transport, recreation and physical activity. How the council plans to do this is described in the strategy.
- The strategy calls for better integration and coordination across the many divisions of the council which play a role in the development, maintenance and promotion of walking.

The following local targets for walking have been set:

- Increase the proportion of walking for primary school commuters to 30% by 2019 (currently about 25%).
- Increase the proportion of walking for secondary school commuters to 50% by 2019 (currently about 45%).
- Increase the proportion of walking to work journeys to 7% by 2019 (currently 3%).
- Reduce pedestrian deaths and serious injuries, with the total not to exceed 12p/a by 2019.
- Customers are more than 70% satisfied with the overall condition of footpaths.
- Customers are more than 60% satisfied with the condition of assets such as walking surfaces, seats, litter bins and other features in business areas.
- Preserve the condition of the footpath network at more than 85% defect-free to ensure long-term sustainability.

- Provide new footpath facilities that comply 100% with council design standards and maintain existing standards for renewal activities.

Economic analysis/justification

Local communities with an approved walking strategy will find funding easier to gain if the economic analysis and justification process is undertaken.

Key success factors

Feedback from consultation recorded that interested parties were supportive of the walking strategy, with respondents agreeing with the proposed vision statements and desired outcomes.

Much of the feedback received indicated areas where further detail and emphasis was wanted. Information was also received about the work organisations already promoting and providing for walking.

Lessons learnt

It should be noted that local authorities who have a walking strategy backed up by an implementation plan are more likely to attract funding for walking projects.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling				X	
Encourages more public transport use					X
Change in local trade (local shopping trips)				X	
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS					X

B4.3 Good solutions guide for mixed-use development in town centres, New Zealand

Section A – Summary						
Name	Good solutions guide for mixed-use development in town centres					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use	X	Public transport	
	Research		Policy (adopted)	X	Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	North Shore City, Auckland					
Country	New Zealand					
Date implemented	2005					
Cost of scheme	n/a					
References	www.mfe.govt.nz/publications/urban/urban-design-case-studies-may08/html/page5.html www2.northshorecity.govt.nz/your_neigbourhood/Urban-design/Design-guidelines/Mixed-use www.aucklandtransport.govt.nz					

Existing or previous site description/context

Mixed-use development in New Zealand dates back to the 19th century, when trams were an important mode of transport, and shops with dwellings above them grew naturally around the tram stops. Many of the older Auckland town centres such as Queen Street, Ponsonby, Newmarket, Devonport and Howick have contained mixed-use buildings since their earliest times. These original mixed-use areas have stood the test of time and continue to attract businesses and residents.

Existing or previous problem/issues

The recent resurgence of mixed-use developments may be attributed to changes in the way people currently live and work, including:

- a desire to live nearer to one's workplace
- a rise in the number of people working from home
- a preference for easy access to entertainment, recreation, and services usually found in town centres
- an increasing awareness that commuting by car exacerbates road congestion and pollution
- a growing elderly population, many of whom no longer drive
- a desire for low maintenance living spaces.

Developing a mixed-use project is often seen to be more complex than developing a single-use project. This can lead to some developers being more reluctant to take on an unfamiliar type of development. Common concerns include perceived complexity and cost, uncertainty of demand, and the supposed

difficulty of managing mixed-use developments. Similarly, potential occupants may be uncertain about living or working in close proximity to commercial establishments.

Description and objectives of scheme/policy

Recently in western countries there has been a move away from the division of cities into single-use areas of residence, commerce and industry, and towards a more diverse, complex and dense arrangement of use. Moreover, regional authorities and councils in New Zealand, are encouraging 'centres based' development. This consolidation is obvious in New Zealand's larger cities where residential development is moving back into city and town centres.

The aim of this document is to encourage more mixed-used development within the North Shore area.

Economic analysis/justification

Mixed use development may have a number of economic and social advantages over single-use development, such as:

- meeting increased demand for accommodation close to town centre amenities and services
- creating an interesting, vibrant street life by bringing together a diverse range of people and activities
- increasing demand and support for local businesses
- reducing transport costs in terms of time, money and energy consumption
- creating a safer environment by combining facilities used at different times of the day
- catering to people's changing life/work needs.

Key success factors

By coordinating a development's design with public transportation and ensuring that the development serves pedestrians and cyclists, mixed use development may help reduce the amount of traffic on the roads and the amount of air pollution in our urban areas.

Lessons learnt

The document provides for transport provision at residential and commercial properties.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking				X	
Encourages more cycling			X		
Encourages more public transport use				X	
Change in local trade (local shopping trips)				X	
Change in passing trade				X	
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area				X	

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety			X		
Actual safety, eg CAS			X		

Section C – Supplementary information

This document was developed before the 'Auckland Super City (Auckland Transport)' was formed. As a result please note that the policy consideration will be developed as part of the Auckland Transport Programme.

B4.4 Melbourne 2020 strategy, Australia

Section A – Summary						
Name	The city of Melbourne transport strategy 2020: moving people and freight					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)	X	Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Melbourne					
Country	Australia					
Date implemented	2006					
Cost of scheme	n/a					
Reference	Melbourne City Council (2012) *Transport strategy 2012: Planning for future growth.* This is the updated version of the 2006 strategy. Available at www.melbourne.vic.gov.au/AboutCouncil/PlansandPublications/strategies/Pages/transportstrategy.aspx Melbourne City Council (2006) *Transport Strategy 2006–2020: moving people and freight*. Available at: www.melbourne.vic.gov.au/AboutCouncil/PlansandPublications/strategies/Documents/Melbourne_Transport_Strategy_2006-2020.pdf					

Existing or previous site description/context

The metropolitan centre of Melbourne has experienced residential significant growth since 1992 and is expected to see another 50,000 additional residents by 2020. These figures are however dwarfed by the growth in visitor numbers that the city welcomes every day.

Existing or previous problem/issues

Melbourne's existing transport network is under significant pressure. At peak times, much of the arterial road system is congested, the rail system is struggling to meet demand and the tram network is crowded, with its efficient operation further hampered by commuter traffic.

Description and objectives of scheme/policy

The strategy covers the period 2006–20. The strategy has a strong bastion that aims to develop 'a transport network which is convenient, equitable and sustainable, ensuring a thriving and sustainable city, and which meets the diverse needs of our residents, workers, tourists, visitors and businesses'. The policy has a strong emphasis on promoting walking, cycling, public transport and appropriate road space reallocation and predicts a decrease in crashes due to reduced private vehicles on the network.

Economic analysis/justification

Strong justification for the reallocation of road space and integrated land use and transport policy is supported by the findings of user surveys. The City of Melbourne's *Central city users survey* (2006) found that the weekday primary mode of transport to the central city was recorded as follows:

- 51% trains
- 21% trams
- 19% cars
- 9% other (including cycling).

After 9:30am, most trips within the city are made on foot and account for almost 80% of trips during the lunch hour peak. The data shows that sustainable transport users account for a high proportion of total travel within the city.

The strategy notes that tourism and retail activity plans a vital role for both the city's vibrancy and economic prosperity. In order to sustain, and indeed to experience further benefits, the public transport within the city could be made more convenient for shoppers and tourists in order to better suit their needs.

Key success factors

Parking and vehicle access has been managed in such a way that it has positively influenced transport choice, with greater take-up of sustainable transport options by city residents, workers and other visitors, while the viability of business continues to be assured.

Short-term actions have been implemented to improve the walking environment and include an introduction of a 40km/h speed limit in the CBD and around the Queen Street Market.

Areas of road space are to be reallocated to allow improvement to the cycle network. Consultation is to take place with cycle users and other stakeholders to identity new on and off-road routes within the city.

As a means of making public transport the first choice for longer journeys within the city, initiatives include the introduction of further tram and bus priority routes together with intersections which give priority to public transport ahead of cars.

Lessons learnt

Signage issues which note the newly implemented speed limits are to be rectified to ensure that roads users are fully aware of the new changes.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport use					X
Change in local trade (local shopping trips)			X		
Change in passing trade				X	
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area					X
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS				X	

B4.5 The Australian national cycling strategy 2005–10

Section A – Summary						
Name	The Australian national cycling strategy 2005–10					
Type	Scheme (installed)		Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)	X	Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Nationwide					
Country	Australia					
Date implemented	2005–10					
Cost of scheme	n/a					
Reference	Austroads (2005) *The Australian national cycling strategy*. Available at: http://sydney.edu.au/medicine/public-health/cpah/pdfs/ANCS_2005-2010.pdf					

Existing or previous site description/context

The vision for the *The Australian national cycling strategy* is to enhance the well-being of Australians through the increase in cycle participation and improvement in cycle safety.

Existing or previous problem/issues

Australia State of the Environment 2001 identified 'increased transport use' as one of the key issues facing Australian towns and cities, with emissions from transport being the fastest growing source of greenhouse gas emissions in Australia.

Description and objectives of scheme/policy

The key priorities outlined in section 4 of the strategy are as follows:

- Include cycling as an essential component in integrated transport and land use planning in all spheres of government. This includes developing guidance which promotes the provision of off-road cycle paths, on-road cycle lanes and end-of-trip facilities as part of new subdivisions and redevelopments.
- Create infrastructure and facilities that support increased cycling.
- Enable and encourage safe cycling.
- Develop the skills needed to undertake actions that will increase cycling.

Economic analysis/justification

The strategy has adopted research undertaken by The Norwegian Institute of Transport Economics which calculated that the investments in a continuous cycle network in three towns would yield a new benefit of over three times the cost. It is also estimated that the cost savings to society of substituting bicycle trips for short car trips can be of the order of $0.60 per km.

In the long term the existence of a substantial cycling infrastructure in Australian towns and cities, and a well-developed cycling culture, will be of great value to communities facing the reality of pressure on global oil supplies. Furthermore any reduction of Australia's reliance on imported fossil fuels will have economic benefits for the nation.

Key success factors

Since the publication of 'Australia cycling: the national strategy 1999–2004', bicycle networks have expanded significantly and cycling infrastructure has improved as a result of the effectiveness of urban planning and design.

Lessons learnt

A five-stage consultation process was undertaken in the development of this strategy. This involved discussions with executive stakeholders, obtaining feedback from those previously involved in implementing strategy, stakeholder workshops, obtaining feedback on the draft outline and finally inviting public submissions.

Promoting cycling has been seen by some as supporting a relatively dangerous activity, and the major barriers to increasing cycling trips lies in the perceptions of the general public. Any action plans must therefore include targeted marketing activities as an essential element in tackling these impediments.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling					X
Encourages more public transport use				X	
Change in local trade (local shopping trips)			X		
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS			X		

B4.6 Safety in numbers: a cycling strategy for South Australia 2006–10

Section A – Summary						
Name	Safety in numbers: A cycling strategy for South Australia 2006–10					
Type	Scheme (installed)		Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)	X	Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	South Australia					
Country	Australia					
Date implemented	2006–10					
Cost of scheme	n/a					
Reference	Government of South Australia (2006) *Safety in numbers: a cycling strategy for South Australia*. Available at: www.sa.gov.au/upload/franchise/Transport,%20travel%20and%20motoring/cycling_strategy.pdf					

Existing or previous site description/context

The State Government recognises the importance of cycling in contributing towards a number of the strategic plan's targets. This strategy is designed to ensure that cycling is a viable means of transport which delivers health, environment, social and economic benefits.

Existing or previous problem/issues

Research shows that many people avoid cycling due to safety perceptions. This means the challenge lies in improving not only the safety of existing cyclists but the perception of safety for those not currently cycling.

Description and objectives of scheme/policy

Cycling contributes to the policies within South Australia's Strategic Plan which include the following:

- By growing the prosperity of the region, partly through improved cycle facilities and routes, will lead to an increase in visitor numbers, length of stays and an increase in tourist spending which will directly impact upon local retail revenues.
- Increasing investment in strategic area of infrastructure such as transport and the integration between transport modes will help achieve targets within the state strategic plan.

Objective 1 of the strategy states that there is a need to develop land use policies that recognise the benefits of cycling and to plan future developments better to meet the needs of cyclists.

Research has shown that over a third of all adults would cycle more if the number of bicycle lanes and off-road paths were increased. Strategy 2.1 states that action should be taken to prioritise and invest in a connected network of bicycle lanes on the majority of metropolitan arterial roads that focus on major urban centres.

Economic analysis/justification

If the reduction in cycle crashes is achieved, this will assist the economic analysis justification of the scheme when application for funding is made.

Key success factors

The reduction of urban speed limits and the improvement of cycle facilities helped to create a safer cycling environment. Metropolitan Adelaide now has a principal bicycle network of over 2100km of mapped and signed bicycle routes. Improvements to the network are made each year through the removal of missing links and the upgrade of facilities.

Lessons learnt

n/a

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling					X
Encourages public transport use				X	
Change in local trade (local shopping trips)			X		

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS			X		

B4.7 Providing a level of service for pedestrians – New Zealand-wide research

Section A – Summary						
Name	Predicting walkability					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research	X	Policy (adopted)		Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Auckland, Wellington, Christchurch, Gisborne					
Country	New Zealand					
Date implemented	n/a					
Cost of scheme	n/a					
Reference	Abley, S and S Turner (2011) Predicting walkability. *NZ Transport Agency research report 452*. Available at: www.nzta.govt.nz/resources/research/reports/452/docs/452.pdf					

Existing or previous site description/context

Urban designers and many other professionals, including many transport professionals, acknowledge that walking is a very important mode of transport in most urban areas and that the amount of walking that takes place is closely related to how liveable a city or town is considered to be. Walkability is a term that is used to specify 'the extent to which the built environment is walking friendly'. In New Zealand the community street review (CSR) process has been developed to assess the level of walkability of footpaths and road crossings. This method involves taking a group of pedestrians along a route consisting of a number of footpath sections and road crossings and asking them to rate across a number of factors (eg

safe from falling and safe from traffic) how they felt on a scale of 1 to 7. Based on the ratings across the group and each factor, each section is given an average walkability score.

Existing or previous problem/issues

While there have been a number of CSR undertaken across New Zealand and it remains an effective means to measure walkability, transport professionals are interested in quantifying what elements of the walking environment and walking experience lead to high levels of walkability and hence more walking. From this they can develop walking environments that are more attractive for walking.

Description and objectives of scheme/policy

This study looked at the linkage between the walkability scores from CSRs and the physical and operational characteristics of a footpath and road crossing. In addition to layout information, such as width of footpath and road crossing distance, it considered road noise, urban design features, amount of greenery and even the temperature and amount of wind. In total 107 variables were considered across each of the regression models and 17 variables were found to be important.

Economic analysis/justification

n/a

Key success factors

The most important factors affecting the walkability of a path were footpath condition, quantity of greenery, presence of comfort features, deviation in path and adjacent vehicle speed.

Footpath condition and presence of comfort features were the two biggest factors in reducing the risk of falling on a path, while greenery, footpath condition, weather (wind) and presence of comfort features significantly affected its pleasant nature.

Crossing type, vehicle speed, visibility to traffic and footpath condition were the most important factors affecting walkability of road crossings, and featured in all models except those for zebra crossings and delay. The coefficient for crossing type suggests that traffic signals are considered to be more walkable as compared with zebra or uncontrolled crossings. The presence of a central island was also shown to positively affect the walkability of a crossing.

Reduction in vehicle speeds and improved visibility result in pedestrians feeling safer while crossing. Signalised crossings were found to be safer and had less delay than zebra and uncontrolled crossings.

Lessons learnt

- Trees and wide footpaths are important to the pedestrian.
- The sample set used in this study did not include a sufficient number of sites at levels of service (LOS) D, E and F to enable closer assessment and prediction of walkability scores for these sites. Future studies should focus on data collection from a broad range of sites, including an adequate number of sites having low pedestrian LOS ratings.
- The data used for developing the walkability prediction models was obtained from CSR surveys that were held at various times during the day. Future studies could look at examining the walkability of sections by time of day, especially in busy CBD areas where the walking environment can differ markedly between peak and non-peak times.
- Further research is also recommended on analysis of walkability for able-bodied pedestrians and those with physical impairments.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling			X		
Encourages more public transport use			X		
Change in local trade				X	
Change in passing trade				X	
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area					X
Improved perception of overall shopping environment/attractiveness					X
Public perception of safety				X	
Actual safety, eg CAS			X		

Section C – Supplementary information

The figure below depicts the rating scale used to rate the walkability of a site in the CSRs, along with the implied LOS categories.

Community street review – level of service

Opinion	Score	Pass/Fail	Numerical Grade #	Level of Service	Represented by Colour
☺ Very Good	7	Pass	>=6	A	Green
Good	6		>=5 and <6	B	Green
Slightly Good	5		>4 and <5	C	Green
😐 Neutral	4		=4	N	White
Slightly Bad	3	Fail	>=3 and <4	D	Yellow
Bad	2		>=2 and <3	E	Blue
☹ Very Bad	1		<2	F	Red

B4.8 Cycle safety: reducing the crash risk

Section A – Summary						
Name	Cycle safety: reducing the crash risk					
Type (tick one)	Scheme (installed)		Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research	X	Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Christchurch, Hamilton and Palmerston North					
Country	New Zealand					
Date implemented	2009					
Cost of scheme	n/a					
Reference	Turner, SA et al (2009) Cycle safety: reducing the crash risk. *NZ Transport Agency research report 389.* Available at: www.nzta.govt.nz/resources/research/reports/389/					

Existing or previous site description/context

Policy documents and design guides include recommendations or requirements for cycle facilities but little is known about how these facilities impact on the safety of cyclists.

Existing or previous problem/issues

Cycle safety data is difficult to find and the reported rates of cycle crashes are less documented than those of motor vehicles.

An area of difficulty in regards to cycle safety is the difference between perceived and actual safety. Perceived safety relates to how the cyclist feels regarding a facility, and actual safety uses historic crash data to quantify the level of safety of the facility. There is a potential disconnection between these two ideas and a facility may be perceived as safe, but may cause higher levels of crashes.

Description and objectives of scheme/policy

This study aimed to quantify the actual safety effects on cycle lanes, car parking and other improvement measures (including flush medians). Statistical methods were used to determine the level of safety for cyclists. Sites from three cities in New Zealand were used in this research.

Economic analysis/justification

The results of this study may be used to determine the safety benefit (or cost) of a particular facility and used in standard cost benefit scheme analysis.

Key success factors

This study has led to the development of a toolkit which can be used by road designers to determine how a cycle facility can impact the actual safety of cyclists at an intersection.

Lessons learnt

The following conclusions were found in the research:

- Flush medians provide improved cyclist safety. It is believed that the added lane width of the flush median contributes to more space between motor vehicles and cyclists.
- Removing parking greatly improves cyclist safety.
- Cycle lanes are neutral in regards to safety, but rather the quality of the lanes has a greater impact than the presence of a cycle line.
- Shared-use paths are unsafe in relation to other on/off-road facilities.
- Reducing the volume of traffic crossing a cycle path improves cycle safety.
- Off-road segregated cycle routes are often perceived as being safe by novice cyclists. These types of routes tend to have the most potential for conflicts.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling					X
Encourages more public transport			X		
Change in local trade			X		
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS					X

B4.9 Effectiveness and selection of treatments for cyclists at signalised intersections

Section A – Summary						
Name	Effectiveness and selection of treatments for cyclists at signalised intersections					
Type	Scheme (installed)		Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research	X	Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	

Section A – Summary			
Town/city	Christchurch, New Zealand and Adelaide, Australia		
Country	New Zealand		
Date implemented	2011		
Cost of scheme	n/a		
Reference	Turner, S et al (2011) *Effectiveness and selection of treatments for cyclists at signalised intersections.* Available at: www.austroads.com.au/abc/effectiveness-and-selection-of-treatments-for-cyclists-at-signalised-intersections		

Existing or previous site description/context

Signalised intersections include provisions for cyclists, typically in the form of advanced stop lines or bike boxes.

Policy documents and design guides include recommendations or requirements for cycle facilities, but are not always based on evidence on the safety of cycle schemes.

Existing or previous problem/issues

Determining the impact of different types of facilities on actual cycle safety is not fully understood. Some of the key problems in this area are:

- Limited cycle crash data is available.
- An area of difficulty in regards to cycle safety is the difference between perceived and actual safety. Perceived safety relates to how the cyclist feels regarding a facility, and actual safety is based on crash data to quantify the level of safety of the facility.
- There is a potential disconnection between these two ideas and a facility may be perceived as safe, but may cause higher levels of crashes.
- Locations where signalised intersections are implemented have a variety of layouts including situations where cyclists must cross three lanes of traffic or more to include complete manoeuvres.

Description and objectives of scheme/policy

This study aimed to quantify the actual safety effects of different cycle facilities at signalised intersections. Statistical methods were used to determine the level of safety the facility had to the cyclists' safety. Sites from New Zealand and Australia were used in this research.

Economic analysis/justification

The results of this study may be used to determine the safety benefit (or cost) of a particular facility and used in standard cost benefit scheme analysis.

Key success factors

This study resulted in the development of a toolkit which can be used by road designers to determine how the design of cycle facilities can impact on the actual safety of cyclist intersections.

Lessons learnt

The study resulted in the following key findings:

- Cycle lanes 1.5m to 1.8m wide appear to have safety benefits.

- If space is limited at traffic signals, rather than creating narrow cycle lanes (which can have a safety disbenefit) consider other options to provide easy movement for cyclists including wide kerbside traffic lanes.
- Painted cycle facilities are substantially safer than standard facilities.
- Cyclists at shared left-turns and through lanes may benefit from coloured cycle lanes and advanced storage boxes.
- The design standard of a 4m depth cycle box appears to have safety benefits.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling					X
Encourages more public transport use			X		
Change in local trade			X		
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS					X

B4.10 Traffic restraint and retail vitality

Section A – Summary						
Name	Traffic restraint and retail vitality					
Type	Scheme (installed)	X	Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Graz, Leicester and Edinburgh					
Country	Austria, England and Scotland					
Date implemented	Leicester (1994); Edinburgh (2002)					

Section A – Summary			
Cost of scheme	Various		
Reference	Sustrans (2003) *Traffic restraint and retail vitality*. Available at: www.polisnetwork.eu/uploads/Modules/PublicDocuments/sustrans_ff39.pdf		

Existing or previous site description/context

Customers travel to shops in the inner city to purchase goods. Routes to shops have focused on access and space for motor vehicles. This focus has led to streets becoming noisy, polluted and unpleasant.

Existing or previous problem/issues

Little is known about the impact these roads have on the customers and retailers who rely on them. Furthermore, information of what customers want in terms of streetscape is needed to draw increased numbers to the areas.

Description and objectives of scheme/policy

This study uses an approach known as 'know your customers' to try and determine how customers actually travel to the cities and what their preferences are in regards to mobility and accessibility to retail areas. The perceptions of retailers will be compared with the perspectives of customers.

Economic analysis/justification

Although this data does not directly feed into the economic analysis, it is useful for providing evidence which is vital for consultation with local retailers.

Key success factors

This research methodology has the potential to assist streetscape designers with ideas that will draw customers to areas. It was also be used as tool for consultation with retail owners.

Lessons learnt

The research provides evidence that traffic volumes actually cause a decrease in economic activity on high-volume sustainable transport roads and that retailers underestimate the benefits of traffic restraint.

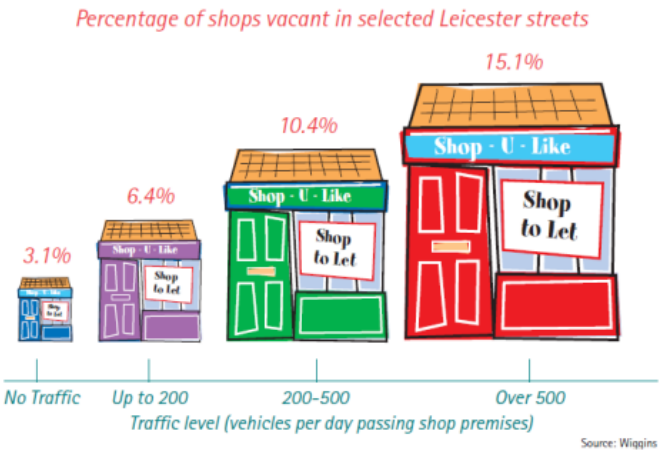
This study concludes with the following key ideas:

- People are driven away by fast or heavy vehicles.
- A mix of retail options and other uses (besides malls) make successful trading streets.
- Most shoppers travel to shopping areas by foot, bike or bus.
- Bus access is important and locating bus stops closer to key shopping points is preferable to shoppers.
- Priority to pedestrians over motor vehicles is important. Routes to shopping areas need to be well designed with good signage.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling				X	
Encourages more public transport use				X	
Change in local trade			X		
Change in passing trade					X
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area					X
Improved perception of overall shopping environment/attractiveness					X
Public perception of safety					x
Actual safety, eg CAS				X	

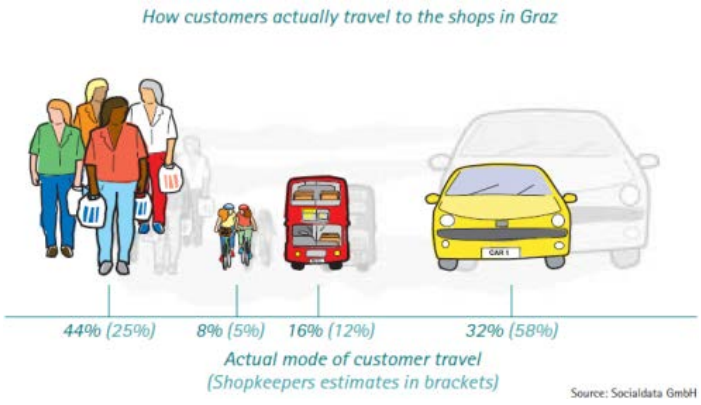
Section C – Supplementary information

The following figure relates the level of traffic with the percentage of vacant shops in Leicester, England (Wiggins and Newby (1993).



The above graph suggests shop closures occur in areas with traffic flows above 500 vehicles per day. The scale on the graph appears to have recorded traffic volumes at very low thresholds. However, it is likely that the recorded traffic flows would have been much higher than 500 vehicles per day along selected routes. For more details on the traffic flows observed and specific sites in the Leicester study, refer to the original source (Wiggins and Newby 1993). Overall, the study supports the principle that traffic volumes that are too high can be detrimental to retail viability.

The following figure relates how shoppers travel to shops and the proportion of modes the retailers believed their shoppers travelled in Graz, Austria.



The following figure outlines shopper concerns and retailer concerns in regards to streetscape.

Note that the results of this study show the most important factor for shoppers is a good selection of shops. The study also showed that retailers are more concerned with increasing the amount of parking, which is contrary to the transport options chosen by customers.

B4.11 Analysis and synthesis of evidence on the effects of investment in six cycling demonstration towns

Section A – Summary						
Name	Analysis and synthesis of evidence on the effects of investment in six cycling demonstration towns					
Type	Scheme (installed)	X	Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Aylesbury, Brighton & Hove, Darlington, Derby, Exeter and Lancaster with Morecambe					
Country	England					

Section A – Summary	
Date implemented	2009
Cost of scheme	n/a
Reference	Department for Transport (2009) *Analysis and synthesis of evidence on the effects of investment in six cycling demonstration towns.* Available at: www.transportforqualityoflife.com/u/files/Analysis%20and%20Synthesis%20Nov%202009.pdf

Existing or previous site description/context

Cycling in towns is believed to provide health benefits and improve the streetscape of the town. For these reasons, many town planners wish to increase the number of people using cycles.

Existing or previous problem/issues

A big issue relating to increasing cycle numbers is the potentially large financial investment. Also, towns without a 'cycle culture' believe any setup costs will not achieve as many cyclists as in other towns.

Description and objectives of scheme/policy

This study looks at cycle investment in six towns in England over a period of five years. Each town received around £5 per head of population per year. The report evaluates the cycle numbers at the end of the period.

Economic analysis/justification

A cost/benefit analysis was conducted of the investment vs future cost relating to mortality. It was found that for every £1 of cycle invested, the value of decreased mortality was £2.59.

Key success factors

This study shows a large increase in cyclist numbers after the five-year period. It verifies that increased investment in cycle facilities did increase the numbers that would use them, even if a 'cycle culture' did not originally exist in the town.

Lessons learnt

The following conclusions from this experiment were:

- The number of cyclists increased, regardless of how frequently they cycled prior to the five-year period.
- £10 of investment per head of population seemed to be sufficient for the towns chosen.

Therefore the study showed that there was a good rate of return for a relatively low investment cost.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling					X
Encourages more public transport use			X		
Change in local trade (local shopping trips)			X		

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS			X		

B4.12 Valuing the health benefits of active transport modes, New Zealand

Section A – Summary						
Name	**Valuing the health benefits of active transport modes**					
Type	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research	X	Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	n/a					
Country	New Zealand					
Date implemented	2008					
Cost of scheme	n/a					
Reference	Genter JA et al (2008) Valuing the health benefits of active transport modes. *NZ Transport Agency research report 359.*					

Existing or previous site description/context

There is a growing awareness that traditional economic evaluation methods tend to undervalue the wider public health benefits provided by active transport modes, which include walking, cycling, and their variants, such as skates and scooters.

Existing or previous problem/issues

The travel survey data on walking and cycling leads to two well-founded conclusions:

- When people do walk and cycle for transport they are on average active enough to meet the recommended daily minimum of 30 minutes of activity.

- This further supports the conclusion that active transportation presents a good opportunity to accumulate physical activity. Thus there is significant scope to maintain and increase moderate activity levels in the New Zealand population by investing in projects that will maintain and increase the active transport mode share.

Description and objectives of scheme/policy

The objective of this project was to determine the monetary value of the health benefits of active transport modes, in order to include it in cost-benefit analyses for transport and other government sectors.

Economic analysis/justification

The study found the following results on the economic benefit of different transport users:

Scenario	Annual benefit	Per km walking	Per km cycling	Per km skateboarding	Per km roller skating
Low	$3,112	$3.53	$1.77	$2.37	$3.53
Medium	$3,765	$4.27	$2.14	$2.86	$4.27
High	$4,417	$5.01	$2.51	$3.36	$5.01

Key success factors

There is a significant range in the level of health benefits that can be ascribed to walking and cycling. Research commissioned to investigate the value of health benefits in New Zealand has established the following per-km values, which are comparable to those applied overseas, particularly to those used by the World Health Organisation to evaluate the health benefits of cycling projects. These values, which include the costs of morbidity and mortality attributable to inactivity, in addition to associated public and private health sector costs, are as follows:

- per km walking – $4.27
- per km cycling – $2.14.

Note: There may be additional benefits due to reduced air pollution exposure and productivity gains that have not been included in these values.

Lessons learnt

Areas for further research were identified as follows, in order of relative priority:

1 Develop models that predict how specific changes to walking and cycling conditions, and specific education and promotion programmes, affect active transport engagement in a particular situation, with special attention to changes in physical activity and fitness by the people who are most at risk from sedentary living.

2 Investigate the value of potential injury and crash reduction benefits that would result from increased volumes of active transport mode users.

3 Ascertain the air pollution exposure for people using active modes in various rural and urban New Zealand locations, also relative to other modes, and provide guidance for developing non-motorised facility networks that minimise exposure to air pollution.

4 Establish a quantifiable relationship between active transport modes and the incidence or treatment of musculoskeletal conditions, in order to quantify the benefits that could be realised from increased use of active modes.

5 Establish a causal relationship between increased physical activity and a reduction in morbidity and health sector costs related to COPD and URTI (respiratory diseases).

6 Investigate the relationships between physical activity, mental health and human happiness.

7 Establish the relationship between active transport mode use and increased workplace productivity.

8 Investigate the stress people experience from various transport modes, as well as the health impacts of stress.

9 Develop better tools for quantifying and monetising the impact that improved walking and cycling facilities may have on indirect health benefits, such as increased community cohesion (positive social interactions among people in a community), improved transportation affordability (which can reduce emotional stress) and improved access to medical services.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport use				X	
Change in local trade (local shopping trips)			X		
Change in passing trade				X	
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety				X	
Actual safety, eg CAS			X		

B4.13 The importance of making best use of existing networks in promoting productivity

Section A – Summary						
Name	The importance of making best use of existing networks in promoting productivity – a value for money approach					
Type	Scheme (installed)		Cycling		Economics	X
	Scheme (proposed)		Mixed use		Public transport	X
	Research		Policy (adopted)		Urban design	

Section A – Summary						
	Pedestrian		Policy (proposed)		Road safety	
Town/city	n/a					
Country	New Zealand					
Date implemented	2009					
Cost of scheme	n/a					
Reference	Money, C (2009) *The importance of making best use of existing networks in promoting productivity: a value for money approach.*					

Existing or previous site description/context

There is a known relationship between transport and economic productivity growth but it is difficult to quantify. A study commissioned by the UK government found that productivity benefits were related to the efficiency of the transport network, rather than the total amount invested.

The *New Zealand government policy statement* (GPS) focuses on productivity and economic development, potentially centring policy on road space for private motor vehicles and freight.

Existing or previous problem/issues

Cycling is considered as a low priority measure in roading schemes and due to the relatively low level of cycling in New Zealand, projects can often be under funded.

There is increased pressure on the New Zealand urban transportation network. This is primarily due to:

- population growth: greater numbers on the network
- expanding urban limits: people traveling further and spending more time on the network
- reduction in cost of private vehicles: reducing barriers to private vehicle ownership, leading to increased numbers on the network.

Description and objectives of scheme/policy

The GPS has outlined objectives to try and tackle productivity and increased economic growth. The table below outlines these objectives and identifies which ones relate to improving public choices of transport and reducing transaction costs (considered a response to barriers in the transportation market).

The study aimed to understand the impact of cycling investment in achieving the GPS target.

GPS Objective	Promoting choice to the travelling public	Reducing transactions costs
Improving transport efficiency	✓	✓
Improvements in journey reliability time	✓	✓
Easing severe congestion		✓
Improvements in road safety	✓	
More efficient freight supply chains		✓
Providing better access to markets, employment and areas that contribute to economic growth	✓	

The key finding of this paper is a focus on network optimisation (addressing network flows and efficiencies), as opposed to investment in private motor vehicle roading infrastructure. This approach would complement the GPS objectives and lead to an improved network.

Economic analysis/justification

The paper looks at a case study of how the role of cycling has on productivity. By reducing private motor vehicle and replacing them with cyclists, the network would experience:

- reduced travel times (see section D)
- reduced congestion
- reduced emissions and noise pollution.

This would lead to a contribution to productivity in the following areas:

- improved journey times
- improved reliability of journey times (due to reduced congestion)
- safer trips for cyclists due to 'safety in numbers' phenomenon.

These three outcomes are directly related to the GPS objectives.

Key success factors

Cycling activities should be focused and prioritised as a means of improving productivity and efficiency of the network. These initiatives are also in line with the GPS targets.

This case study has shown that by changing a single occupancy private motor vehicle user with other modes of transport, there is the potential for increased capacity in the transport network. This would lead to gains outlined in the GPS.

Lessons learnt

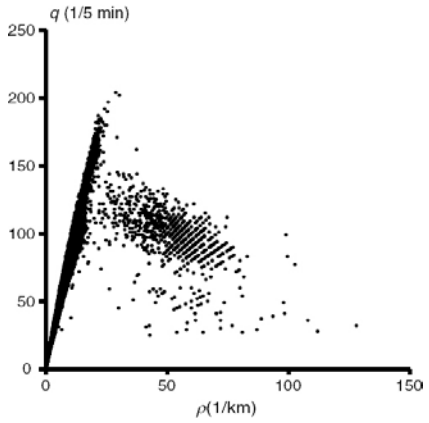
Cycling is an integral component to achieving the GPS targets.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking		X			
Encourages more cycling					X
Encourages more public transport use				X	
Change in local trade (local shopping trips)			X		
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness			X		

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Public perception of safety			X		
Actual safety, eg CAS				X	

Section C – Supplementary information

Analysis by Sugiyama et al (2008) looked at data from a Japanese highway and compared the travel flow q (vehicles per five-minute density) and traffic density p (vehicles per kilometre). The figure below outlines their findings:



Congestion was found to begin at the critical density of 25 vehicles per km. When density is below the critical value, traffic resembles a free flow environment, but after the critical density, any additional traffic will reduce the travel times.

B4.14 Evaluating public transit benefits and costs – best practice guidebook

Section A – Summary						
Name	Evaluating public transit benefits and costs – best practice guidebook					
Type (tick one)	Scheme (installed)		Cycling		Economics	X
	Scheme (proposed)		Mixed use		Public transport	X
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Various					
Country	Australia					
Date implemented	2009					

Section A – Summary	
Cost of scheme	n/a
Reference	VTPI (2013) *Evaluating public transit benefits and costs – best practice guidebook.* Available at: www.vtpi.org/tranben.pdf

Existing or previous site description/context

n/a

Existing or previous problem/issues

Current transportation evaluation practices tend to overlook and undervalue many transit benefit categories. Most benefits depend upon the utilisation of transit options, how well the service responds to users' needs and preferences and the amount that private car use is removed.

Description and objectives of scheme/policy

This guidebook describes how to create a comprehensive framework for evaluating the full impacts of a particular transit service. It discusses best practices for transit evaluation and identifies common errors that can distort results. Furthermore it describes ways to optimise transit benefits by increasing system efficiency, increasing ridership and creating more transit-oriented land use.

Economic analysis/justification

Transit can support economic development in the following ways:

- Direct expenditure. Transit expenditures tend to provide a greater number of jobs (approximately 19%) and local business activity than alternative transportation projects.
- Consumer expenditure. Transit supports economic development by shifting consumer expenditures. It has been shown that residents in cities with quality transit system tend to spend less on transportation overall meaning they have more disposable income to spend at retail outlets.
- Land use efficiencies. Transit tends to create higher density and more accessible land use patterns which increases regional productivity. However these impacts are difficult to measure.
- Property values. These tend to increase in areas served by quality transit.
- Productivity gains. An increase in economic productivity can be seen by improving access to education and employment, reducing road traffic congestion, road and parking facility costs, accident and pollution.

Key success factors

n/a

Lessons learnt

The results of the study demonstrated how a well-managed transit system could provide large economic benefits.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking				X	
Encourages more cycling				X	
Encourages more public transport use					X
Change in local trade					
Change in passing trade				X	
Change in retail unit rental values				X	
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety				X	
Actual safety, eg CAS			X		

B4.15 Economic value of walkability

Section A – Summary						
Name	Economic value of walkability					
Type (tick one)	Scheme (installed)		Cycling		Economics	X
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Various					
Country	Australia/worldwide					
Date implemented	February 2011					
Cost of scheme	n/a					
Reference	VTPI (2011) *Economic value of walkability.* www.vtpi.org/walkability.pdf					

Existing or previous site description/context

This paper describes ways to evaluate the value of walking and walkability conditions.

Existing or previous problem/issues

Walking and walkability provide a wide range of benefits which include basic mobility, consumer cost savings, efficiency of land use, economic development and overall community liveability. However, the current transportation planning practices tend to undervalue walking.

Description and objectives of scheme/policy

This paper provides a review of the research that has been undertaken on the topic of walking economics.

Economic analysis/justification

n/a

Key success factors

Greater appreciation of the full benefits of walking could change planning priorities. It is concluded in the paper that additional government funding to walking facilities and shifting road space from traffic and parking lanes to sidewalks and paths as well as policies to create more walkable land use patterns would be economically beneficial.

Lessons learnt

Listed below are several reasons why walking and walkability are undervalued:

- Walking tends to be more difficult to measure than vehicle travel. Travel surveys often collect little information on total walking activity and, relatively speaking, it is easier to count vehicles.
- Walking is generally considered a lower status activity compared with motorised travel.
- Walking tends to be overlooked as it is so inexpensive and as a result there is little dedicated funding.
- Benefits such as fitness, public health and enjoyment of walking and cycling are often undervalued.
- Walking and cycling are often given a low priority as it is always possible to walk (such as alongside roads without pavements), despite how unattractive a route may be.

The value of walkability can be incorporated into transport planning decisions in a variety of ways:

- Proportional share. It is considered by many that the most efficient and fair way to allocate transport resources is based on the modal split. Conventional surveys undercount walking, particularly as many do not take into account walking as part of journeys undertaken through other modes such as public transport or the private car, and so resourcing for walking is often undervalued.
- Cost allocation. The paper notes that when all impacts are considered, motorists generally underpay their share of costs, while walking receives less than its fair share of resources.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling			X		
Encourages more public transport			X		
Change in local trade				X	

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 - significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety			X		
Actual safety, eg CAS			X		

B4.16 Quantifying the benefits of non-motorised transportation for achieving mobility management objectives

Section A – Summary						
Name	Quantifying the benefits of non-motorised transportation for achieving mobility management objectives					
Type	Scheme (installed)		Cycling		Economics	X
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Various					
Country	Canada					
Date implemented	30/11/04					
Cost of scheme	n/a					
Reference	VTPI (2009) *Quantifying the benefits of non-motorised transportation for achieving mobility management objectives.* www.vtpi.org/nmt-tdm.pdf					

Existing or previous site description/context

This paper investigates the ability of non-motorised travel to help achieve transportation planning objectives such as congestion reduction, road and parking facility cost savings, consumer cost savings and various environmental and social benefits.

Existing or previous problem/issues

Conventional planning and evaluation practices tend to undervalue many non-motorised transport benefits, and therefore more comprehensive evaluation methods are needed.

Conventional travel surveys find that only about 2% of total travel is by non-motorised modes, which implies that it is unimportant. These surveys however undercount non-motorised travel because they ignore short trips, non-work travel, travel by children and recreational travel. It is believed that non-motorised travel is approximately six times greater than the aforementioned surveys suggest.

Description and objectives of scheme/policy

Non-motorised transport plays an important role in the transport system providing health, enjoyment, basic mobility benefits, as well as easy connections between other transport modes.

Economic analysis/justification

Methods and measures such as congestion relief values, road and parking facility cost savings, consumer cost savings, energy conservation, emissions reductions and reduced accident risk to other road users are all commonly used economic evaluation measures used by transport agencies that can be applied for non-motorised road users.

Other benefits are more difficult to monetise, such as health and fitness benefits, improved mobility for non-drivers, support for strategic land-use objectives, economic development, user enjoyment and environmental benefits.

The analysis in the study suggests that each mile of increased non-motorised transport reduces about seven vehicle miles.

The table below shows the monetised benefits of shifts from automobile to non-motorised travel. These benefits also do not take into account un-monetised benefits.

	Urban peak	Urban off peak	Rural
Total per mile	>$2.75	>$1.43	>$0.76
Average walking trip	>$1.68	>$0.86	>$0.46
Average cycling trip	>$5.60	>$2.86	>$1.52

Key success factors

The study showed that walking and cycling do have a positive economic and social impact.

Lessons learnt

Although most communities are implementing some of sustainable transport strategies, few are implementing all that are justified. As most strategies only affect a portion of the total travel, their impacts appear small and therefore they are not considered the most effective solution to achieving congestion relief and economic benefits. However with all benefits considered and multiple measures introduced, cycling and walking are receiving far greater support.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking					X
Encourages more cycling					X
Encourages more public transport					X

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Change in local trade			X		
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety			X		
Actual safety, eg CAS			X		

B4.17 Paved with gold: the real value of good street design

Section A – Summary						
Name	Paved with gold: the real value of good street design					
Type	Scheme (installed)		Cycling		Economics	X
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	X
	Pedestrian		Policy (proposed)		Road safety	
Town/city	London					
Country	England					
Date implemented	2007					
Cost of scheme	n/a					
Reference	Commission for Architecture and the Built Environment (CABE) (2007) *Paved with gold: the real value of good street design.*					

Existing or previous site description/context

This study aims to calculate the extra financial value that can be achieved through good street design. Average and poor designs were chosen and the extra benefits were analysed using 10 London-based high streets as samples. A pedestrian environmental review system was adopted from a previous study to evaluate pedestrian provisions.

Existing or previous problem/issues

Retailers often do not understand the transport preferences of many of their customers, therefore underestimating the economic impact of pedestrians, cyclists and public transport users.

Description and objectives of scheme/policy

This study aimed to establish a connection between the quality of the pedestrian environment (see section C for details), retail activity and market value of commercial rental rates. By finding a mathematical connection relating the two, a financial value of achieving a good design can be found.

Economic analysis/justification

The study provided economic data on the market retail volume and related this to the type of environment provided. It provides a good building block for assigning economic values to street design.

Key success factors

From the study, the following points were identified for a high-quality street:

- dropped kerbs
- tactile paving and colour contrast
- smooth, clean, well-drained surfaces
- high-quality materials
- high standards of maintenance
- pavements wide enough to accommodate all users
- no pinch points
- potential obstructions placed out of the way
- enough crossing points in the correct places
- traffic levels not excessive
- good lighting
- sense of security
- no graffiti or litter
- no signs of anti-social behaviour
- signage, landmarks and good sightlines
- public spaces along the street
- a street that is a pleasant place to be.

The above points lead to an environment which will make the urban space more desirable and hence increase the rental value of retail properties.

Lessons learnt

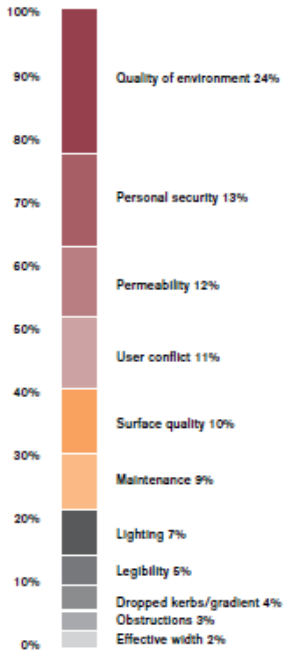
Some types of higher-quality pedestrian environments often have properties with higher rental values, particularly those located within urban centres.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling					X
Encourages more public transport use				X	
Change in local trade (local shopping trips)					X
Change in passing trade			X		
Change in retail unit rental values					X
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness				X	
Public perception of safety			X		
Actual safety, eg CAS				X	

Section C – Supplementary information

The assessment system used in this study is known as the pedestrian environment review system.

The headline categories and their contribution to the final score are shown in the figure to the right.



B4.18 Valuing the benefits of cycling

Section A – Summary						
Name	Valuing the benefits of cycling					
Type	Scheme (installed)		Cycling	X	Economics	X
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Nationwide					
Country	England					
Date implemented	June 2007					
Cost of scheme	n/a					
Reference	SQW (2007) *Valuing the benefits of cycling: A report to Cycling England.* www.teespublichealth.nhs.uk/Download/Public/1012/DOCUMENT/5803/Valuing%20the%20benefits%20of%20cycling.pdf					

Existing or previous site description/context

The value of cycling is unique as no other mode of transport simultaneously improves general fitness, reduces pollution and CO_2 emissions and helps tackle congestion. This study calculates a value for economic loss which is directly attributable to the decline in cycling trips between 1995 and 2005.

Existing or previous problem/issues

The extent to which new cycle trips can replace car journeys is a key determinant to the impact of pollution and congestion on the roads. It is also important not just to focus on changing the level of cycle participation amongst adults. Influencing the attitudes of children at an early age will have a significant benefit in future years for the individual and the economy as a whole.

Description and objectives of scheme/policy

This study, commissioned by Cycling England, examines the economic benefits of cycling and the ways in which it can contribute to government objectives.

Economic analysis/justification

The cumulative cost in terms of health, pollution and congestion is around £600m. However, if by 2015 the number of cycle trips returned to the level of 1995, the savings in health, pollution and congestion would be around £500m. In 2007 only 1.5% of all trips were by bicycle across England. If this was increased to just over 2% (which is still below the original 2012 target determined in 1996), it would create total savings of more than £1.3bn.

The study notes that the value of each additional cyclist varies, depending on the profile of the cyclist, up to a maximum of £382/year.

The conclusions from the study have highlighted the potential economic benefits that cycling can generate. Therefore the provision of improved cycle infrastructure, in large part through the reallocation of road space to the cyclist, can generate large economic savings.

Key success factors

The study has been used to develop a matrix which brings together the two key variables of age and the proportion of cycle trips that replace car trips. The matrix provides a framework through which the value of specific investments in cycling can be assessed.

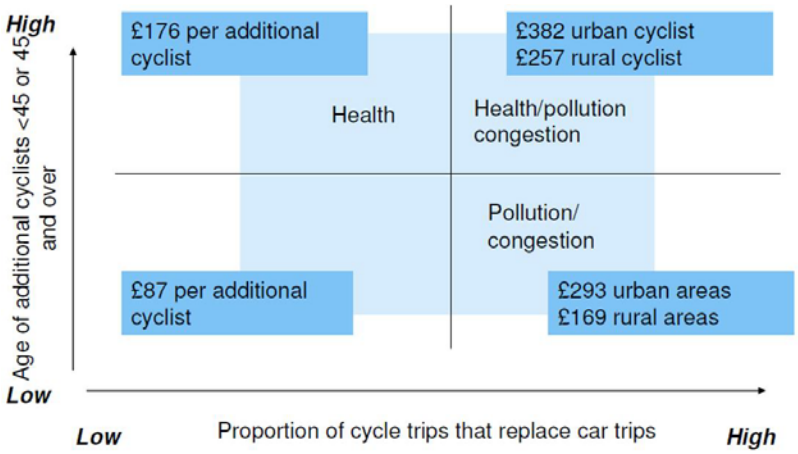
Lessons learnt

The level of benefit allocated to new cyclists in economic evaluation should be increased.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling					X
Encourages more public transport use			X		
Change in local trade			X		
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area			X		
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety			X		
Actual safety, eg CAS			X		

Section C – Supplementary information

Cycle economic matrix



B4.19 Pedestrian and bicycle information center: case study compendium

Section A – Summary						
Name	Pedestrian and bicycle information center: case study compendium					
Type (tick one)	Scheme (installed)	X	Cycling	X	Economics	
	Scheme (proposed)		Mixed use		Public transport	
	Research		Policy (adopted)		Urban design	
	Pedestrian	X	Policy (proposed)		Road safety	
Town/city	Various					
Country	North America					
Date Implemented	January 2009					
Cost of scheme	n/a					
Reference	Pedestrian and Bicycle Information Center (2010) *Case study compendium.* www.trb.org/PedestriansAndBicyclists/Blurbs/Pedestrian_and_Bicycle_Information_Center_Case_Stu_160893.aspx					

Description

This compendium of case studies contains numerous examples of schemes which have been implemented across North America and cover pedestrian and bicycle projects and programmes including engineering, education, enforcement, encouragement, planning, health promotion and comprehensive safety initiatives. The intent of the document is to provide ideas and develop thinking around potential activities communities can implement for further supporting bicycling and walking. Each case study provides a context in which the programme or project takes place, a description of the pedestrian and/or bicycle issues faced, as well as how the community sought to address their concerns through various measures. Finally, a results section describes the successes and lessons learned from the planning or implementation of the activity.

B4.20 Public transport network planning: a guide to best practice in New Zealand cities

Section A – Summary						
Name	Public transport network planning: a guide to best practice in New Zealand cities					
Type (tick one)	Scheme (installed)		Cycling		Economics	
	Scheme (proposed)		Mixed use		Public transport	X
	Research		Policy (adopted)	X	Urban design	
	Pedestrian		Policy (proposed)		Road safety	
Town/city	Auckland, Wellington and Christchurch					
Country	New Zealand					

Section A – Summary	
Date implemented	2009
Cost of scheme	n/a
Reference	Mees, P et al (2009) Public transport network planning: a guide to best practice in New Zealand cities. *NZ Transport Agency research report 396*.

Existing or previous site description/context

The 2006 New Zealand census found that 8% of households did not have their own car. This equated to 113,000 households nationally, with most living in urban areas. Without effective public transport, many may have accessibility issues with travelling around town, and some may even have mobility issues if they are located far from the nearest public transport stop.

Existing or previous problem/issues

Auckland, Wellington and Christchurch are the three largest urban areas in New Zealand. Current public transport systems in New Zealand are reliant on private vehicles. This car dependency leads to higher social and economic costs as well as environmental impacts.

The cities' relatively small and dispersed populations create a dependency on private vehicle use as public transport has not been seen as a viable alternative.

Description and objectives of scheme/policy

This research looks at network planning and identifies ways in which cities can significantly improve their public transport facilities without requiring major investment.

Economic analysis/justification

The three New Zealand cities were compared with three foreign cities with well-run and effective public transportation. The comparison was done to see how they differ and how the New Zealand cities could improve their services.

Auckland was compared with Vancouver, Wellington with Zurich and Christchurch with Schaffhausen.

Key success factors

Comparisons between cities found three key areas where public transport service planning could be improved.

Appropriate institutions and public processes:

- Establish a single public agency to plan the whole public transport around the urban network.
- Develop a well-designed public education and consultation programme to manage change.
- Prevent penalties due to transfers through a simple and understandable fare structure.

Network structure:

- Provide a simple and stable network of lines throughout the day.
- Provide different mode choices for different lines, where appropriate.
- Locate suburban interchanges on the basis of predicted travel patterns and vehicle operations.

Network operations (key ideas):

- simplicity and directness
- speed and reliability

- frequency
- location of stops and access to services
- marketing for first-time and occasional users.

Lessons learnt

This research identifies the need for local authorities to consider an integrated efficient public transport system that meet the ideas posted above.

Section B – Evaluation of impacts					
Assessment criteria	**Qualitative rating** *(1 – negative impact/decrease to 5 – significant impact/increase)*				
	1	**2**	**3**	**4**	**5**
Encourages more walking			X		
Encourages more cycling			X		
Encourages more public transport use					X
Change in local trade (local shopping trips)			X		
Change in passing trade			X		
Change in retail unit rental values			X		
Increased the overall amount of people visiting the area				X	
Improved perception of overall shopping environment/attractiveness			X		
Public perception of safety			X		
Actual safety, eg CAS			X		

Section C – Supplementary information

The following table outlines the general results from the research. Cities being compared are situated next to each other.

	Auckland	Vancouver	Wellington	Zurich	Christchurch	Schaffhausen
Total population (millions)	1.3	2.1	0.45	1.3	0.35	0.044
Population density (people per ha)	18.9	17.1	22.0	37.6	17.0	36.7
Jobs in CBD (% of total jobs in the urban region)	13.5	12.6	22.0	12.2	16.6	n/a
Share of work trips by: - public transport - walk, cycle - car	 7.0 5.6 87.4	 16.5 8.0 74.4	 17.1 13.4 69.6	 40.7 12.1 47.2	 5.2 12.3 82.5	 40.7 14.9 44.4
Public transport boardings (millions of 'unlinked' trips)	52	283	34	542	16	13
Boardings per capita	40	135	77	417	46	289
Public transport service-km (all modes – millions)	42.3	116.2	24.5	71.9	18.8	2.7
Service-km/capita	32	55	61	57	59	61
Subsidy per boarding[a]	2.54	1.10	1.70	0.45	1.62	1.05

B5 References

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Appendix C: New Zealand case studies – data summary by centre/site

C1 New Zealand case studies: Auckland sites

C1.1 Auckland sites: summary

C1.1.1

Two of the sites selected in Auckland were located on Dominion Road near the intersections with Valley Road and Balmoral Road. Dominion Road is a major arterial route for vehicle traffic and public transport services and its ongoing form and function has attracted significant political and local stakeholder attention over time. The third Auckland site was located on Hurstmere Road between Anzac St and Lake Road in central Takapuna.

The purpose of this section is to present the key results of the data collected from retailers and shoppers in the Balmoral, Mt Eden and Takapuna shopping areas. In addition to the standard reallocation of road space (RoRS) research methodology a car parking survey was also undertaken on Dominion Road and a summary of the results is included in this appendix.

For Eden Valley the response rates were 32 returned retailer questionnaires and 550 shopper questionnaires completed (from the 60 survey host shops). For Balmoral the response rates were 26 retailer questionnaires returned and 365 shopper questionnaires completed (from the 28 survey host shops).

For Takapuna the response rates were 20 retailer questionnaires returned and 283 shopper questionnaires completed (from the 93 survey host shops).

A number of key findings from these surveys and their respondents are as follows:

- Retailers overestimated the importance of passing trade. The vast majority of shopping trips were intentional by regular users of the area.
- The vast majority of retailers drove to work despite a significant proportion of them (especially in Eden Valley) residing within 5km of their workplace.
- Retailers in each area were asked how important they thought a variety of urban and street design features were in maintaining and supporting their business trade. Of these the availability of on-street and off-street parking was considered the most important, with pedestrian crossings also featuring highly. An initial comparison based on these findings with the pilot study area in central Christchurch (Colombo Street) and other focus groups undertaken for the larger RoRS project (undertaken in Wellington) indicates the presence of some strongly contrasting views between what shoppers say is important to them, and what some retailers think is important for their business/customers:
    - Shoppers' priorities when choosing an area to visit lie first with the shops (and their trip purpose), then the shopping experience (influenced by urban design and infrastructure design such as footpath width and crossings) followed last by parking availability.
    - The physical location of available parking was generally not a concern to shoppers in deciding which shopping area to visit. Many were of the view that as long as parking areas were well signed, their physical location (either on or off-street) was largely irrelevant to them. In fact they commented that when using the area that their shopping experience (visually and in terms of aspects such as

perceived safety and enjoyment) was improved where there were fewer cars travelling through the area, where speeds were lower and where fewer parked vehicles were present.

- Retailers were asked to rate any street design changes that they could recall in terms of the impact on business trade. Of those listed Eden Valley retailers viewed improvements to lighting, decreases in traffic speed and improvements to outdoor seating/dining spaces positively. In general the majority of design changes were viewed as having a neutral or positive impact on their business trade, although removal of on-street parking spaces was viewed slightly negatively.
- Balmoral retailers rated most street design changes as having a neutral to slightly positive impact on business trade. The provision of new on-street parking spaces was observed to be the most positively viewed historic change, followed by improvements to lighting. Removal of on-street parking spaces was again viewed slightly negatively at this location as was the introduction of bus lanes.
- Takapuna retailers regarded the provision of improved bus infrastructure (in terms of bus stops, lanes and more services), wider footpaths and new or improved pedestrian facilities as having the most positive impact. This was followed by improvements to outdoor public seating and lowering of traffic speeds. Most other design changes were viewed as having a neutral or positive impact. Removal of on-street parking was seen to have a slightly negative impact.
- Results of expenditure by travel mode led to some contrasting findings. Respondents shopping in Eden Valley saw shoppers irrespective of collective mode (car-based or sustainable transport) spending similar amounts ($44) per trip. However, the respondents for the Balmoral area believed that on average car drivers/passengers spent more than pedestrians, cyclists and bus users. Respondents from Takapuna saw an average total spend of pedestrians comparable to, and slightly higher than, that of car drivers and passengers, while that of cyclists and bus users was slightly lower.
- In terms of understanding the interaction between trip frequency and travel mode choice and trip duration and travel mode choice, the survey results do not show any particular trends of note at this stage. The average duration of shopping trips for the Eden Valley and Balmoral sites was one hour or less, although this was slightly higher for Takapuna.
- The parking survey of Dominion Road recorded a low occupancy rate throughout the day, which never exceeded 60%. This may be a result of the existing bus lane that operates within the area and people misunderstanding that they can be used for parking outside of the designated clearway times. Irrespective of this, the survey indicated that car parking was currently oversupplied for the area.
- The bunching of restaurants towards the northern end of the study area causes an increase in the occupancy rate of car parking from 6pm within the surrounding streets (including Dominion Road).
- In rating the areas for their overall experience, 78% of shoppers rated Eden Valley very good/good and 72% and 77% respectively gave the same rating to Balmoral and Takapuna.

It is important to note that the findings of these individual survey locations are based on a small sample of the population and therefore the confidence that can be placed on their significance is in parts limited. They serve as an indication though of current retailer and shopper perceptions and characteristics. The RoRS research report findings are based on the analysis of the collective dataset from nine New Zealand sites.

C1.2 Auckland sites: overview of survey locations

Dominion Road is a key arterial route in Auckland carrying both regional and local traffic. Dominion Road is also a key corridor for public transport services. Dominion Road features two vehicle traffic lanes in both directions, and in places on-street parking and peak hour bus lanes. Dominion Road traverses three

shopping areas: Mt Roskill, Balmoral and Eden Valley. These shopping areas have generally formed over time at the intersections with other main roads.

Takapuna is the largest shopping area on the North Shore of Auckland city. It is the main business centre for the North Shore district and is a key public transport node for people travelling to and from Auckland central. Hurstmere Road is located in central Takapuna and has been designed a public transport hub.

C1.3 Auckland sites: headline results, Eden Valley shopping area

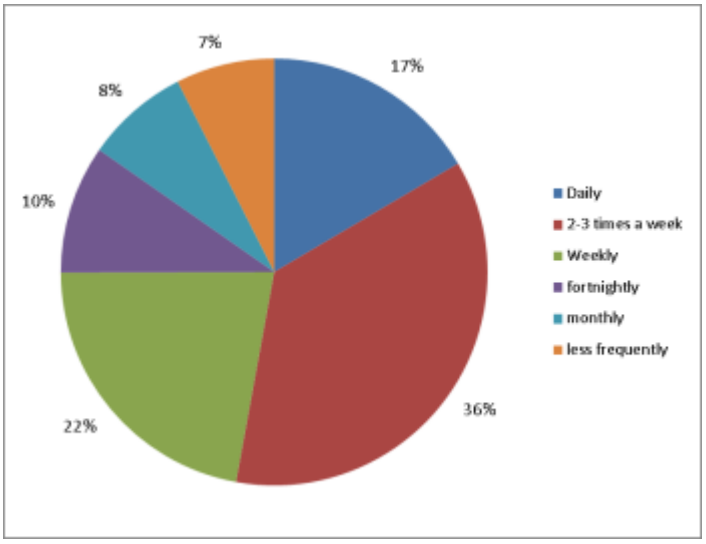
C1.3.1 Retailer perception of passing trade

Retailers were asked to estimate what percentage of their customer base comprised regular customers as opposed to passing traffic. The results for the Eden Valley retailers show that retailers viewed passing trade to account for 28% of their customer base, on average.

The shopper survey respondents indicated that the majority of visits to the Eden Valley shopping area (86%) were by customers who intended to visit the area. The remaining 14% said they had not intended to shop in the area, ie they were passing trade.

Those who were shopping in the area were also regular users, in fact 76% of shoppers visited at least weekly or more. This indicates broadly that the respondent retailers on average overestimated the importance of passing trade.

Figure C.1 How often do you visit this shopping area/centre?



C1.3.2 Travel mode

Retailers were asked what their normal travel to work mode choice was. The majority of Eden Valley retailers (80%) drove to work, and 72% of shoppers travelled by car to the area (either as the driver or as a passenger). A second question about where retailers lived revealed that 48% of retailers lived within 5km of the study area. This indicates that there is potential for retailers to vary their travel choices and use the bus, walk or cycle. Reducing the parking demand from retailers presents opportunities for releasing off-street or on-street parking for customers or other uses, eg bus stops, landscape improvements, footpath widening, kerb build outs for pedestrian crossings etc.

Retailers were also asked to estimate the current mode share of their area. They estimated that 78% of shoppers travelled by car, 14% walked, 1% cycled and 5% came by public transport (the remaining 2% was made up of other modes). The mode share of shopper respondents was 72% of shoppers travelled by car,

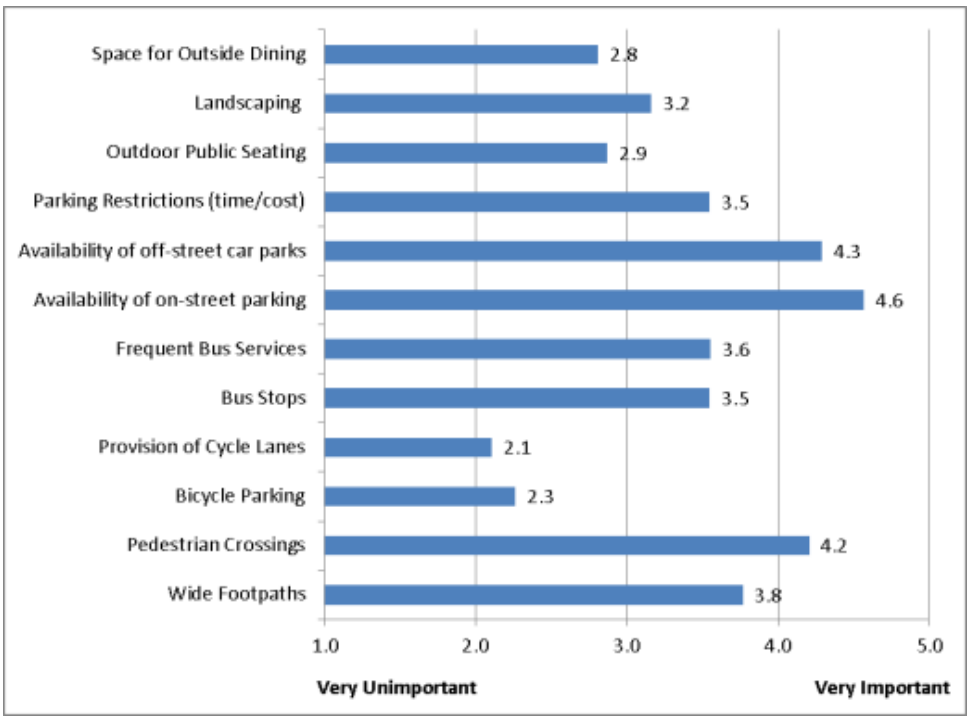
22% walked, 1% cycled and 4% came by public transport (the remaining 1% was made up of other modes). The captured mode share indicates that the retailers underestimated the number of customers walking to Eden Valley as their main mode of travel.

C1.3.3 Design features

Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. Of these design features the availability of on-street parking was considered the most important, closely followed by off-street parking availability. The provision of pedestrian facilities (wide footpaths/crossings) was also rated highly.

The RoRS research project will use focus groups to collect shoppers' views on the importance of these design features to their shopping experiences, and then compare these findings with the perceptions of retailers. Initial results indicate that the type of shops in an area is the primary attraction, followed by the shopping environment in terms of its pleasantness and safeness. The provision of parking often featured last in discussions by participants, who in contrast to retailers considered the availability of parking as a relatively minor factor in their shopping area decisions. To shoppers the location of parking was generally irrelevant to them, ie they were happy to walk to their end destination, as long as some parking was present somewhere and it was well signed. Participants were not concerned if it was located on or off street, or even if it was directly outside or behind the shop. Participants often commented that the fewer cars that were parked or present the more pleasant their shopping experience became.

Figure C.2 Retailer: How important is 'x' in maintaining and supporting your business trade?



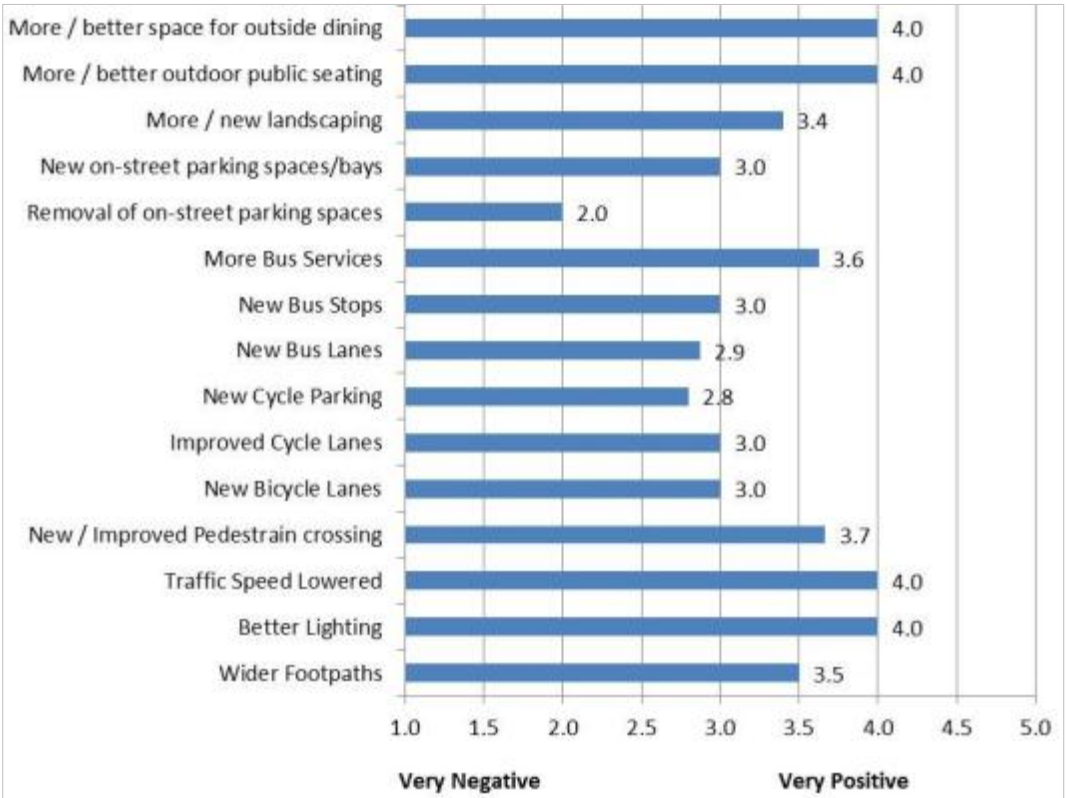
C1.3.4 Design changes

Retailers were also asked whether any design changes had occurred in the area, and if so, whether this had resulted in a negative or positive impact on their business trade.

The most positively viewed changes for Eden Valley retailers were improvements to outdoor seating/dining spaces, decrease in traffic speed and improvements to lighting. In general the majority of design changes were viewed as having a neutral or positive impact, although removal of on-street parking

spaces was viewed negatively. The bus lanes ranked somewhat neutrally with the average leaning towards a slightly positive overall impact at 2.9.

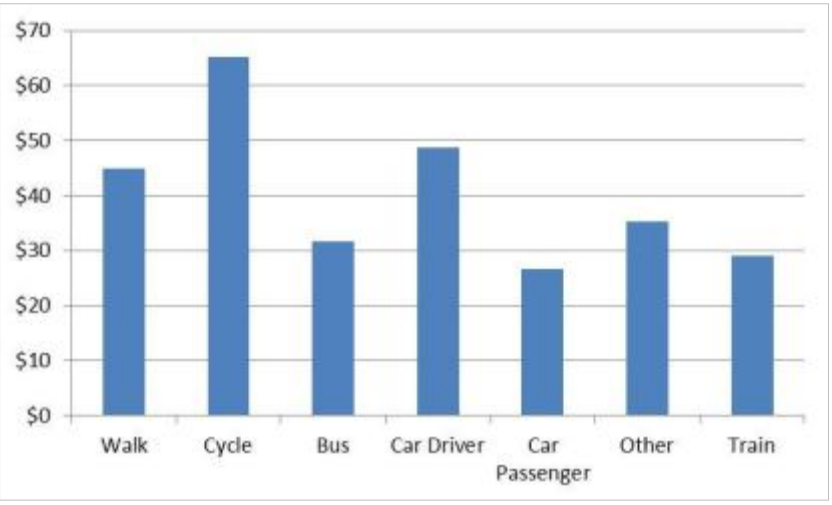
Figure C.3 What changes have there been to the area and what impact has this had on your business trade?



C1.3.5 Shopper spend by mode of travel

Respondents were asked to indicate their level of spending in the shop where they completed the questionnaire and their spending (planned or undertaken) in other shops for that trip. This information was cross tabulated by their mode of travel to calculate an average spend per mode of travel.

Figure C.4 Shopper total spend by mode of travel



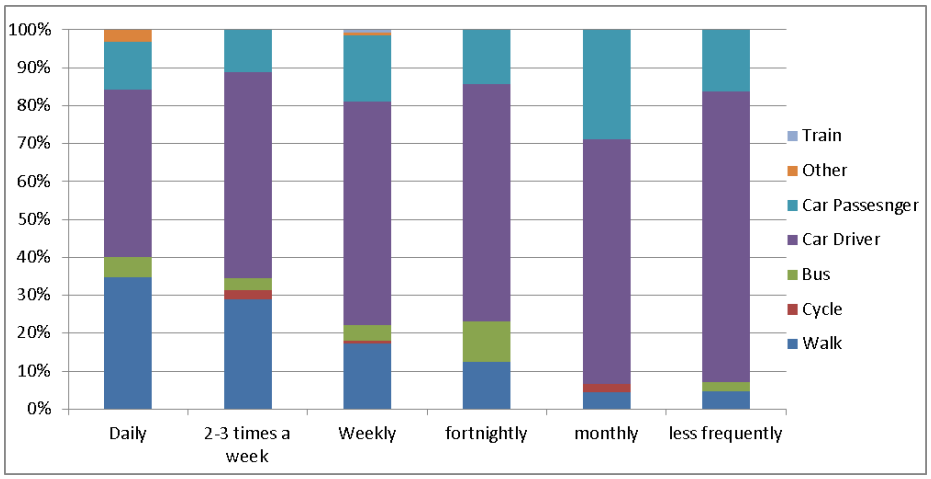
Responses from Eden Valley shoppers showed that the average shopping visit spending by walkers and car drivers was similar. It was noted that cyclists were the biggest spenders (average spend of $65), while those travelling as a car passenger spent the least ($27). Although there was a low sample size for cyclists, one respondent was responsible for the proportionally higher spend.

Overall, when combining the spending of those who walked or cycled with that of public transport users the average was $44. In comparison with car drivers and passengers, who also on average spent $44, this indicates that for this survey area people travelling by sustainable transport modes were likely to spend at a level comparable, on average, to that of car drivers/passengers and therefore should be designed for accordingly in terms of their access to and experiences within shopping areas across New Zealand.

C1.3.6 Frequency of shopping trips

Shoppers were asked how often they visited an area. The majority of Eden Valley respondents (53%) visited the shopping area either daily or two to three times a week. This information was compared with the main mode of travel by these respondents.

Figure C.5 Shopper trip frequency by mode of travel



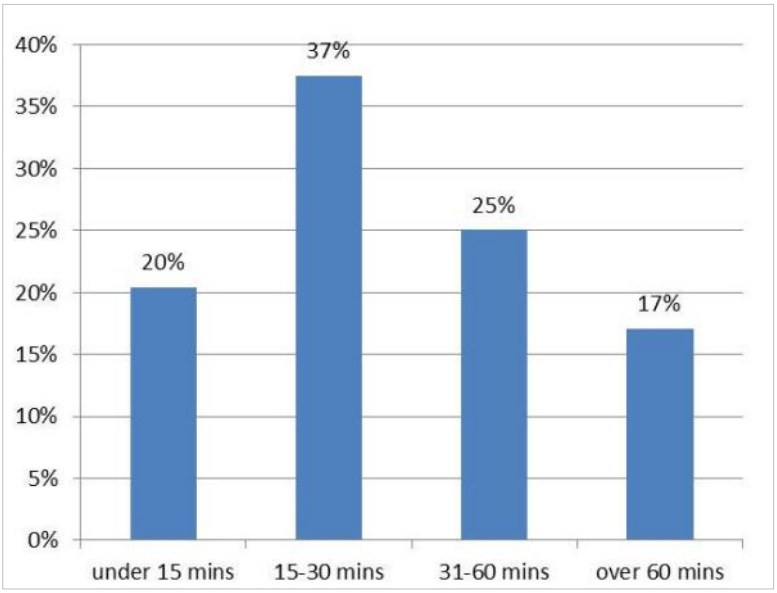
In terms of the interaction between trip frequency and mode, the data indicates that sustainable transport users collectively (walking, cycling and public transport) were generally frequent visitors to the shopping area (ie daily, two to three times a week, weekly). Car drivers/passengers also visited frequently, but proportionally they made up a large amount of those shoppers visiting monthly or less.

In order to draw clear conclusions from this relationship, a larger RoRS dataset is required.

C1.3.7 Duration of shopping trips

Shoppers were asked how long they spent in the shopping areas they had visited. The data shows that in general Eden Valley shoppers spent one hour or less in the area. The majority of shoppers spent 15-30 minutes there.

Figure C.6 Shopper trip duration



The survey results did not show any particular differences between trip duration and travel mode choice. In general, people travelling by each mode spent approximately half an hour on average in the area.

C1.3.8 Overall area rating by shoppers

Shoppers were also asked to rate the overall shopping area. Seventy-eight percent rated the Eden Valley shopping area to be either good or very good.

C1.4 Auckland sites: headline results, Balmoral shopping area

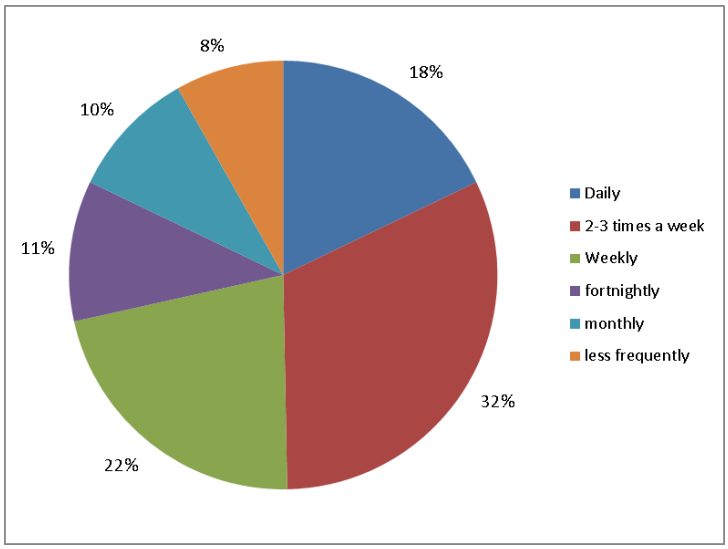
C1.4.1 Retailer perception of passing trade

The results for retailer perception of passing trade for Balmoral were similar to those of Eden Valley, with retailers assessing passing trade to account for 26% of their customer base, on average.

The shopper survey results indicated that 89% of shoppers intended to visit the area. The remaining 11% of shoppers indicated that they had not intended to visit the shopping area, ie they were passing trade who decided to stop while they were driving through the area.

Those who were shopping in the area were also regular users, in fact 72% of shoppers visited at least on a weekly basis or more. This broadly indicates retailers overestimated the proportion of their customer base that was effectively passing trade.

Figure C.7 How often do you visit this shopping area/centre?



C1.4.2 Travel mode

The proportion of Balmoral retailers driving to work (96%) was higher than for Eden Valley (80%). Responses from the retailer survey also indicated that 36% of retailers lived within 5km of the study area.

Among shoppers, the recorded mode share was 72% travelled by car (as either the driver or as a passenger), 23% walked, 4% travelled by bus and 1% cycled.

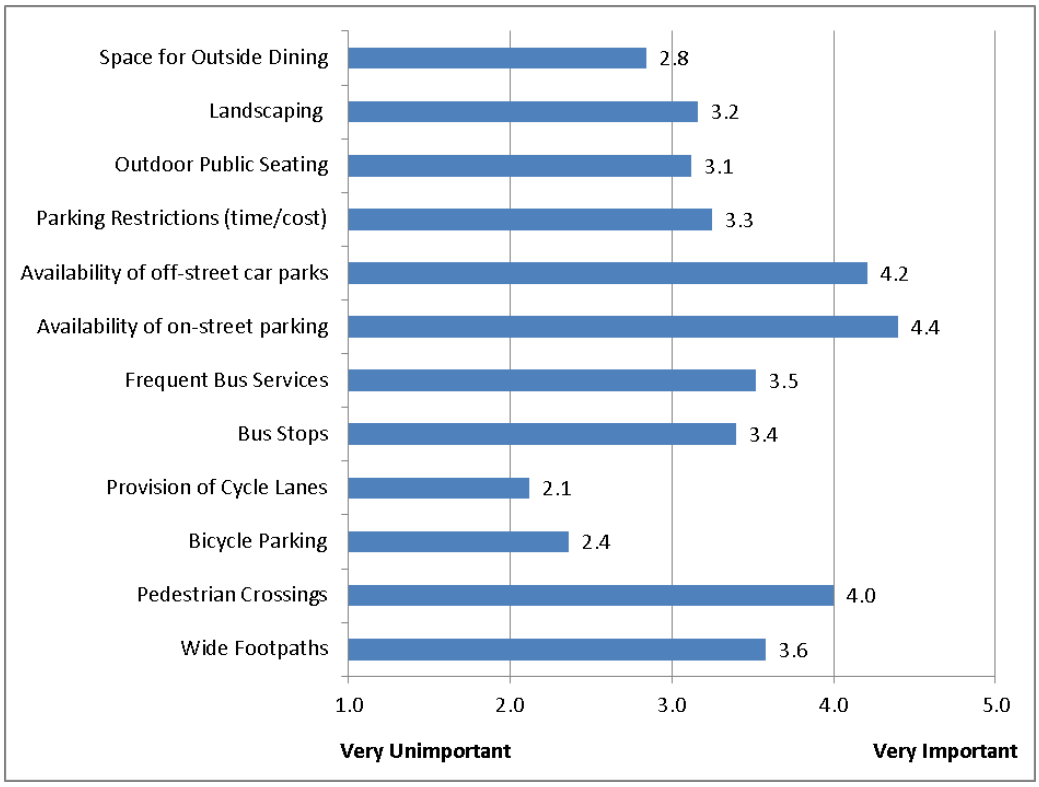
Retailers were also asked to estimate the current mode share of shoppers for the area. For Balmoral the average mode share estimate was 85% for travel by car, 8% for walking, 1% for cycling and 4% by public transport (remaining 1% made up of other modes).

Comparing the retailer mode share estimate with the recorded shopper mode share indicated that retailers underestimated the number of shoppers walking to the shopping area.

C1.4.3 Design features

Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. As was the case in Eden Valley, the availability of on-street and off street parking was considered the most important, with pedestrian facilities also rating highly.

Figure C.8 Retailer: How important is 'x' in maintaining and supporting your business trade?

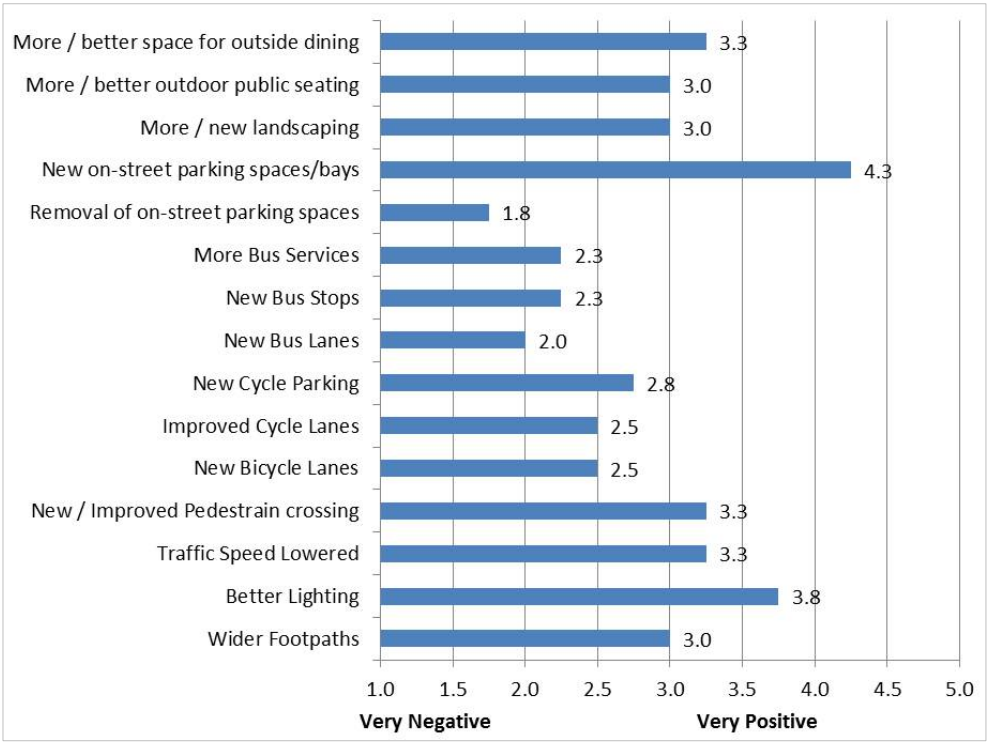


C1.4.4 Design changes

Retailers were asked whether they recalled any design changes that had occurred in the area, and if so, whether these changes had resulted in a negative or positive impact on their business trade.

Provision of new on-street parking spaces was observed to be the most positively viewed change for Balmoral, followed by improvements to lighting. Most other design changes were viewed as having a neutral or slightly positive or negative impact. In this area the bus lanes were considered to have had a slightly negative impact.

Figure C.9 What changes have there been to the area and what impact has this had on your business trade?

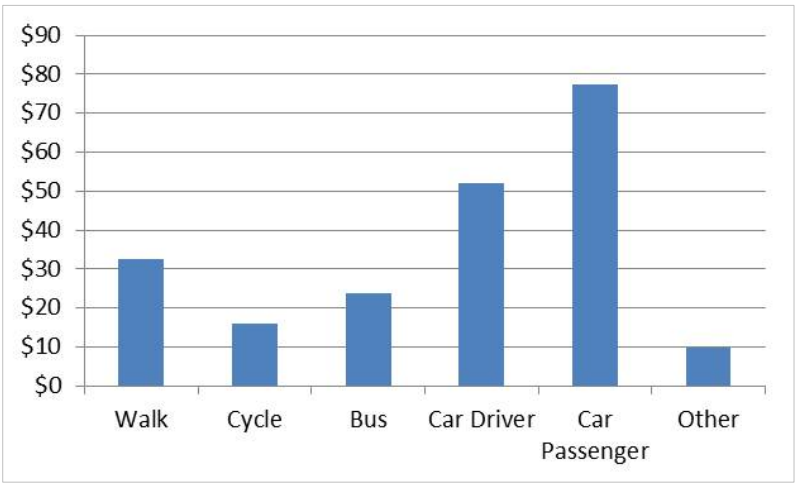


C1.4.5 Shopper spend by mode of travel

Responses from Balmoral shoppers showed the average total spend of car drivers and passengers was more than that of pedestrians, cyclists and bus users.

While the sample set of cyclists (two responses) and bus users (14 responses) was again quite limited compared with 79 and 235 for pedestrians and car drivers/passengers respectively, the data does indicate a difference in the average spends of car drivers and passengers ($55 and $73 respectively) and pedestrians and bus users ($34 and $24 respectively). The larger RoRS data set analysis at this stage indicates that largely, sustainable transport users as a group spent marginally less than car drivers/passengers, but some variation to this general trend was recorded.

Figure C.10 Shopper total spend by mode of travel

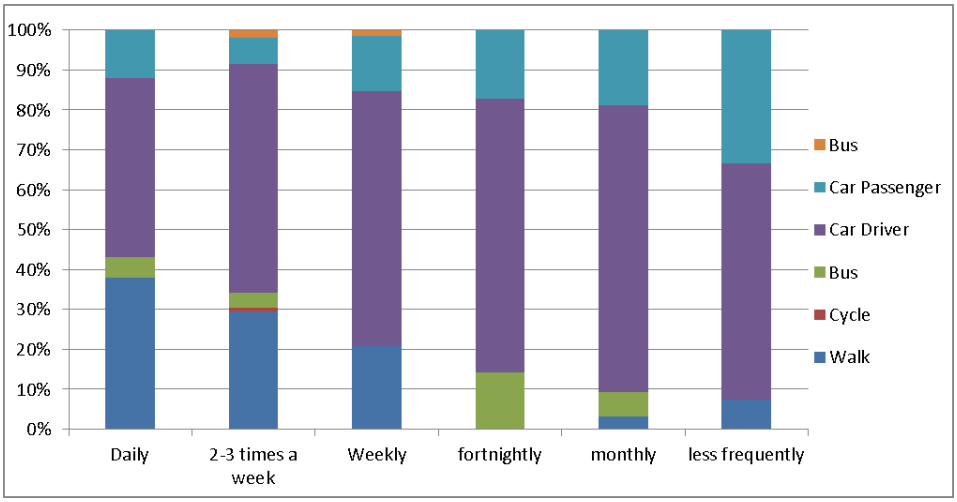


C1.4.6 Frequency of shopping trips

A significant proportion of Balmoral respondents (54%) visited the shopping area either weekly or two to three times a week. The results for interaction between trip frequency and mode are also seen to be similar to those of Eden Valley, with sustainable transport users (walking, cycling and public transport) constituting a higher proportion of frequent (ie daily, two to three times a week, weekly) visitors.

The need for a larger dataset must again be emphasised in order to draw additional conclusions and relationships from these results.

Figure C.11 Shopper trip frequency by mode of travel



C1.4.7 Duration of shopping trips

The duration of shopping trips for Eden Valley and Balmoral was quite similar, with 40% of Balmoral shoppers spending 15–30 minutes in the area. No inference could be made regarding the relationship between trip duration and travel mode choice from these results.

C1.4.8 Overall area rating by shoppers

Shoppers were also asked to rate the overall shopping area. Seventy-two percent of shoppers rated the Balmoral shopping area to be either good or very good, while 25% gave it a neutral rating.

C1.5 Auckland sites: headline results, Takapuna shopping area

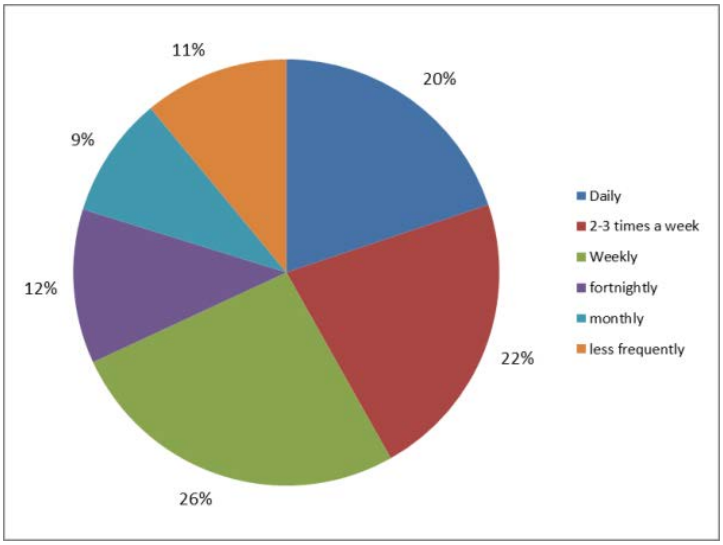
C1.5.1 Retailer perception of passing trade

Retailer perception of passing trade for Takapuna was again similar to that of Eden Valley and Balmoral, with retailers assessing passing trade to account for 32% of their customer base, on average.

The shopper survey results indicated that 84% of shoppers intended to visit the area. The remaining 11% of shoppers indicated that they had not intended to visit the shopping area, ie they were passing trade who just happened to decide to stop while they were driving through the area.

The majority of shoppers visiting this area were regular users, with 68% of shoppers visiting one or more times a week. This broadly indicates retailers overestimated the proportion of their customer base that was effectively passing trade.

Figure C.12 How often do you visit this shopping area/centre?



C1.5.2 Travel mode

The proportion of Takapuna retailers driving to work was significantly lower at 70% than for Eden Valley (80%) or Balmoral (96%). Responses from the retailer survey also indicated that 25% of retailers lived within 5km of the study area.

Among shoppers, the recorded mode share was 78% travelled by car (as either the driver or as a passenger), 10% walked, 10% travelled by bus and 1% cycled.

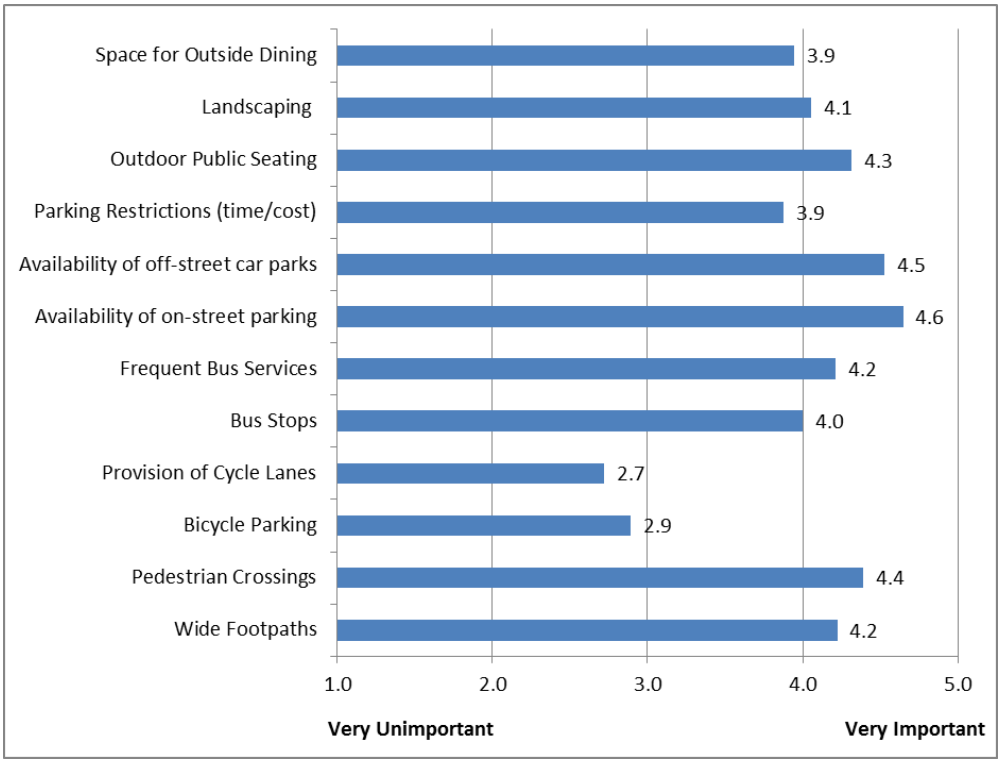
Retailers were also asked to estimate the current mode share of shoppers for the area. For Takapuna the average mode share estimate was 67% for travel by car, 19% for walking, 2% for cycling and 10% by public transport (the remaining 1% was made up of other modes).

Comparing the retailer mode share estimate to the recorded shopper mode share indicates that retailers slightly underestimated the number of shoppers travelling by car to this shopping area.

C1.5.3 Design features

Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. As was the case in Eden Valley and Balmoral, the availability of on-street and off street parking was considered the most important, with pedestrian facilities also rating highly. In addition, the presence of wide footpaths and frequent bus services and outdoor public seating were also considered important.

Figure C.13 Retailer: How important is 'x' in maintaining and supporting your business trade?

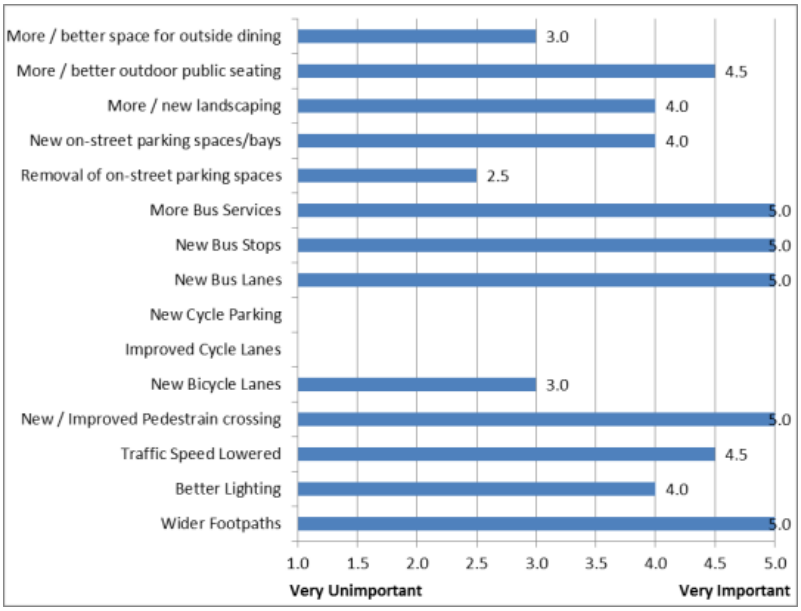


C1.5.4 Design changes

Retailers were asked whether they recalled any design changes that had occurred in the area, and if so, whether these changes had resulted in a negative or positive impact on their business trade.

Provision of improved bus infrastructure (in terms of bus stops, lanes and more services), wider footpaths and new or improved pedestrian facilities were observed to be the most positively viewed changes for Takapuna. These were followed by improvements to outdoor public seating and lowering of traffic speeds. Most other design changes were viewed as having a neutral or positive impact. Removal of on-street parking was seen to have a slightly negative impact.

Figure C.14 What changes have there been to the area and what impact has this had on your business trade?

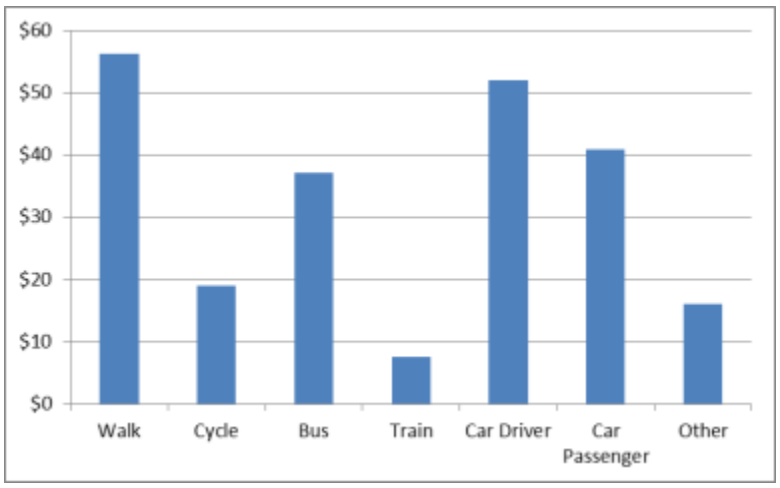


C1.5.5 Shopper spend by mode of travel

Responses from Takapuna shoppers show that the average total spend of pedestrians was comparable to, and slightly higher than, that of car drivers and passengers, while that of cyclists and bus users was slightly lower.

While the sample set of cyclists (four responses), pedestrians (27 responses) and bus users (28 responses) was again quite limited compared with 178 and 42 for car drivers and passengers respectively, the data does indicate a difference in the average spends of car drivers and passengers ($52 and $41 respectively) and pedestrians, bus users and cyclists ($56, $37 and $19 respectively). The larger RoRS data set analysis at this stage indicates that largely, sustainable transport users as a group spent marginally less than car drivers/passenger, but some variation to this general trend was recorded.

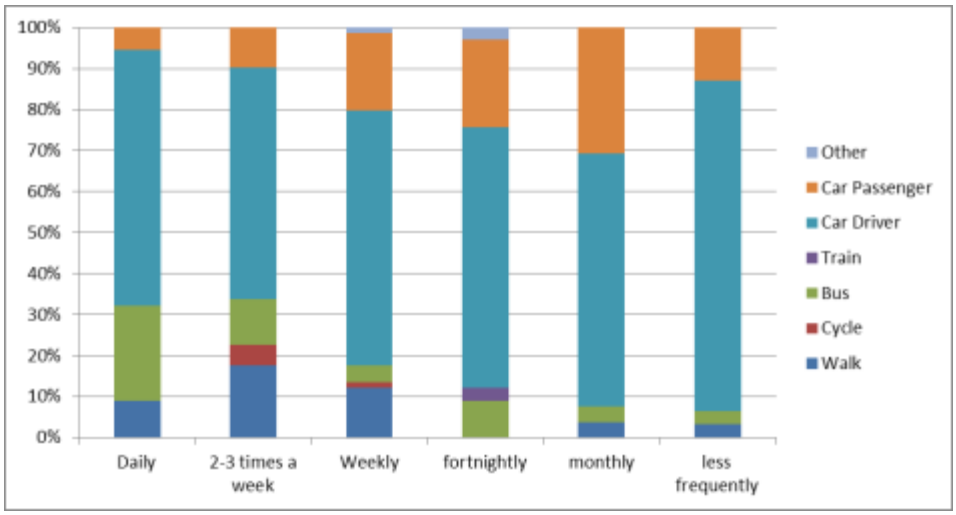
Figure C.15 Shopper total spend by mode of travel



C1.5.6 Frequency of shopping trips

A significant proportion of Takapuna respondents (48%) visited the shopping area either weekly or two to three times a week. The results for interaction between trip frequency and mode are also seen to be similar to those of Eden Valley and Balmoral, with sustainable transport users (walking, cycling and public transport) constituting a higher proportion of frequent (ie daily, two to three times a week, weekly) visitors.

Figure C.16 Shopper trip frequency by mode of travel



C1.5.7 Duration of shopping trips

Thirty-nine percent of Takapuna shoppers spent more than 60 minutes in the area, while another 26% spent between 30 and 60 minutes. No inference could be made regarding the relationship between trip duration and travel mode choice from these results.

C1.5.8 Overall area rating by shoppers

Shoppers were also asked to rate the overall shopping area. Seventy-seven percent of shoppers rated the Takapuna shopping area to be either good or very good, while 21% gave it a neutral rating.

C1.6 Auckland sites: Dominion Road parking survey

This section presents a summary of results from the parking survey undertaken on Dominion Road.

C1.6.1 Shopper questionnaire

Those shoppers who drove to the shopping area were also asked to indicate where they had parked. For Eden Valley shoppers generally parked on-street outside the shops (43%) or in an off street car park (44%). For Balmoral the majority of shoppers parked on-street outside the shops (58%).

Figure C.17 Eden Valley shopper parking location

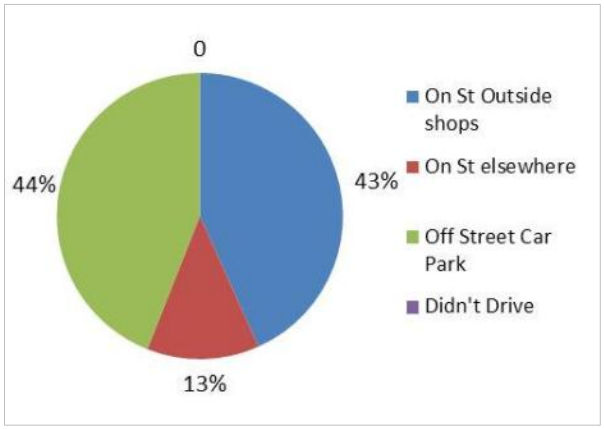
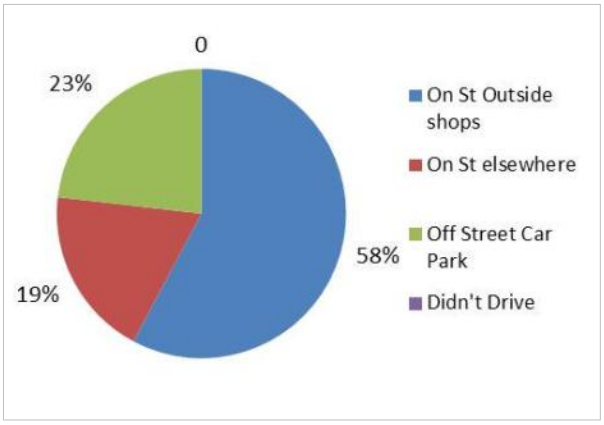


Figure C.18 Balmoral shopper parking location



C1.6.2 Retailer questionnaire

Retailers who drive to work were also asked where they parked.

Survey responses indicate that 84% of Eden Valley retailers parked in a private off-street car park, while 4% parked in on-street car parks outside shops and 4% in public off-street car parks.

On the other hand, 32% of Balmoral retailers parked in a private off-street car park, while 40% parked in public off-street parks.

Retailers were asked if they thought car parking spaces were generally available to their customers. For both sites 71% of retailer thought spaces were available.

Figure C.19 Eden Valley retailer perception of parking availability

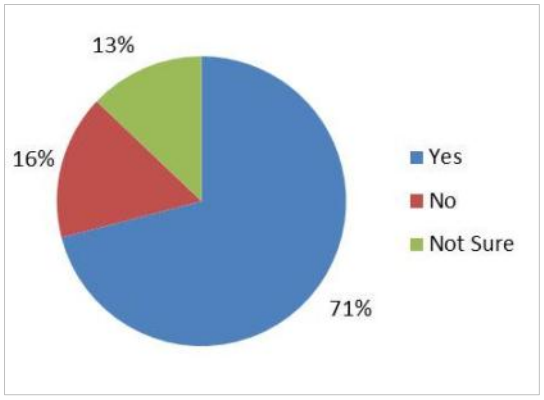
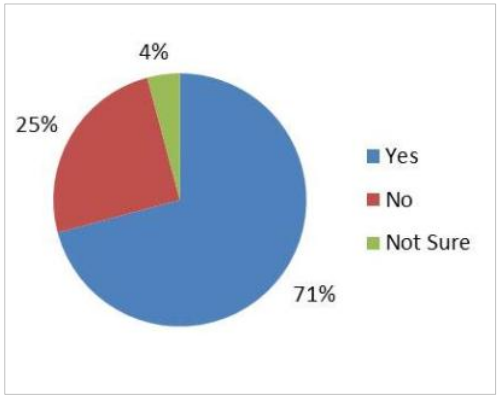


Figure C.20 Balmoral retailer perception of parking availability



C1.6.3 Parking survey results

The existing use of car parks within the study areas was surveyed on Wednesday 24 November 2010 and Thursday 25 November 2010 at the Eden Valley and Balmoral shopping areas respectively. The survey was undertaken for a 12-hour period between 7am and 7pm to capture the use of parking spaces in the area throughout the day.

The areas that experienced the highest occupancy rates in Eden Valley during the day were:

- Grange Road

- Prospect Terrace
- Walters Road
- Burnley Terrace.

The areas that experienced the highest occupancy rates in the Balmoral shopping area during the day were:

- Wiremu Street
- Rocklands Avenue
- Tennyson Street.

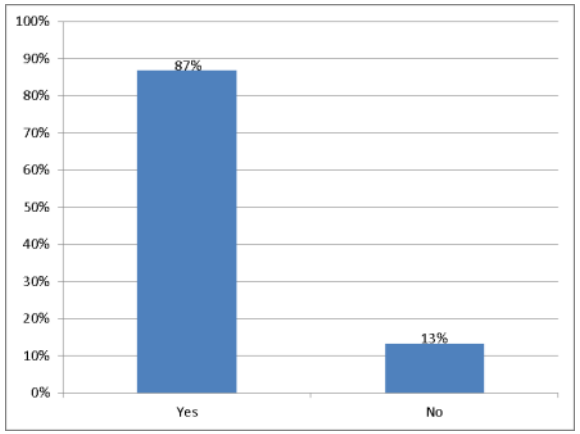
Dominion Road for both areas had a low occupancy rate throughout the day never exceeding 60%. This may be a result of the existing bus lane that operates within the areas. The 'B-line' bus operates on Dominion Road, providing a service in both the inbound and outbound direction approximately every 15 minutes. Users of the area may misunderstand parking regulations in the bus lane outside of the peak period causing them to park elsewhere.

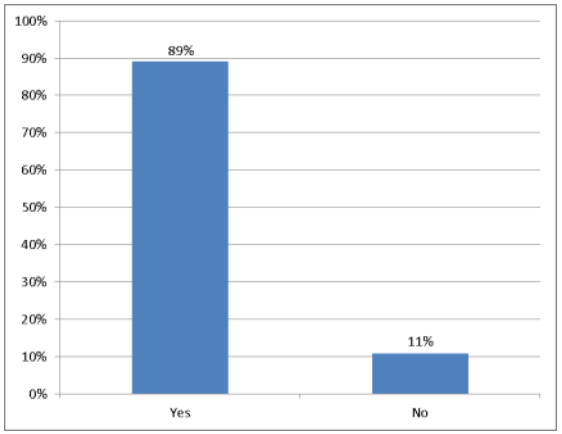
The bunching of restaurants on the northern end of the study areas sees a general increase in the occupancy rate of the parking from 6pm within the surrounding streets including Dominion Road.

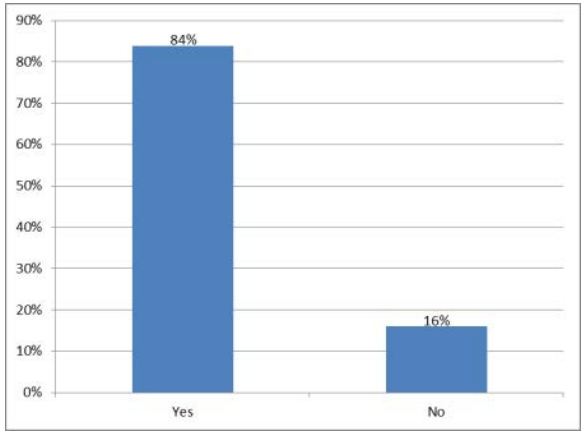
C1.6.4 Shopper survey results

Eden Valley	Balmoral	Takapuna

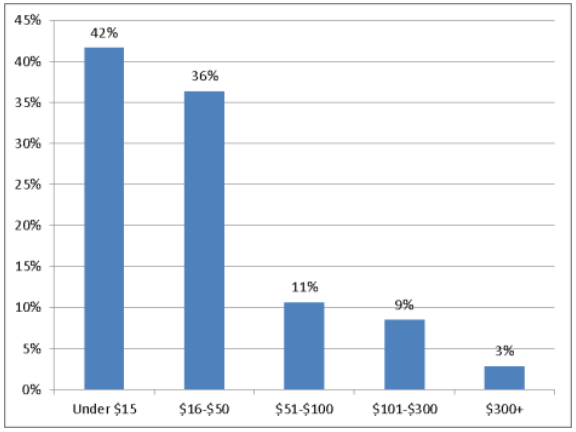
Did you intend to visit this shopping area/centre today?

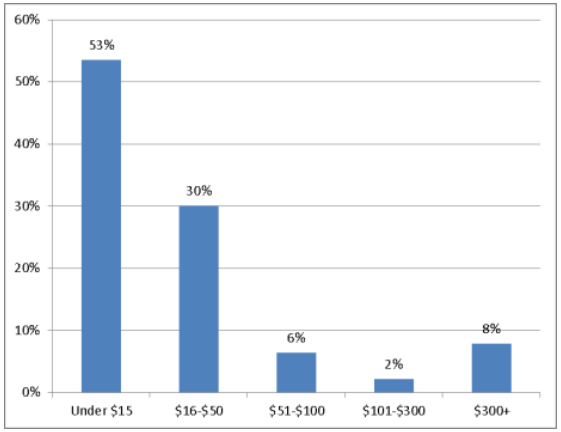


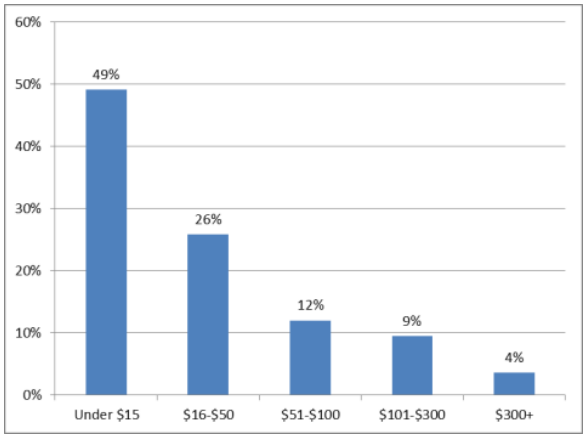




How much did you spend in this shop?

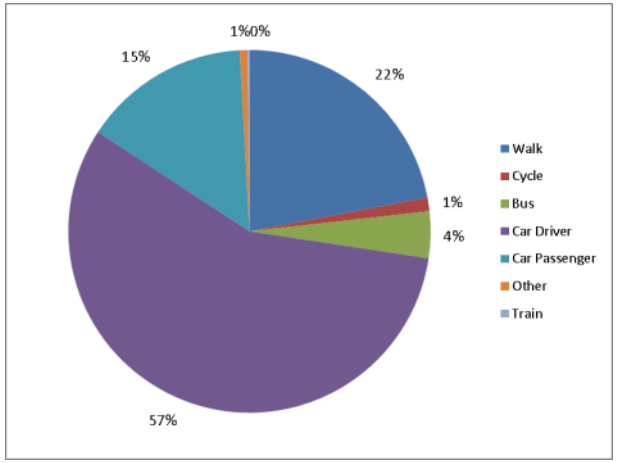


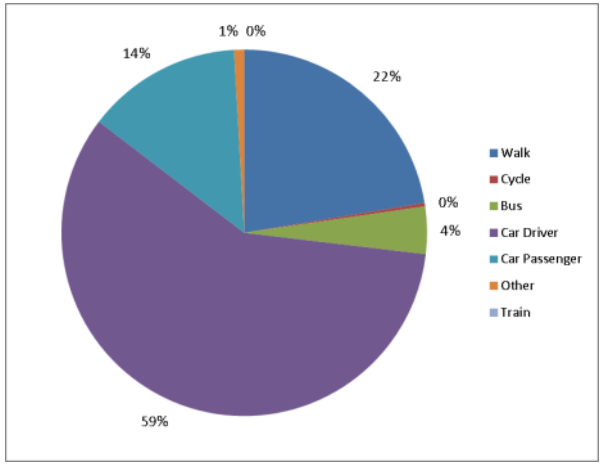


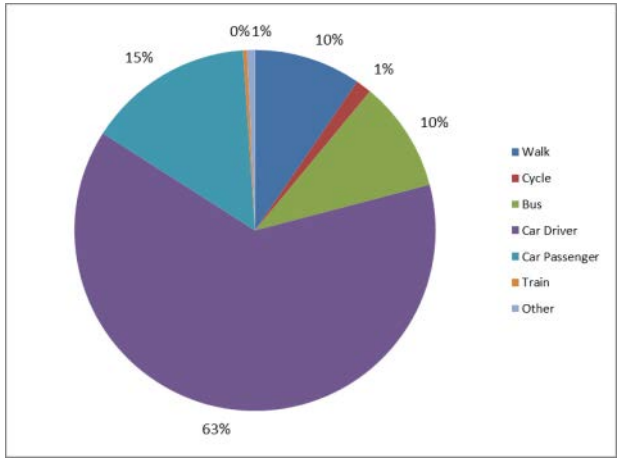


Eden Valley	Balmoral	Takapuna

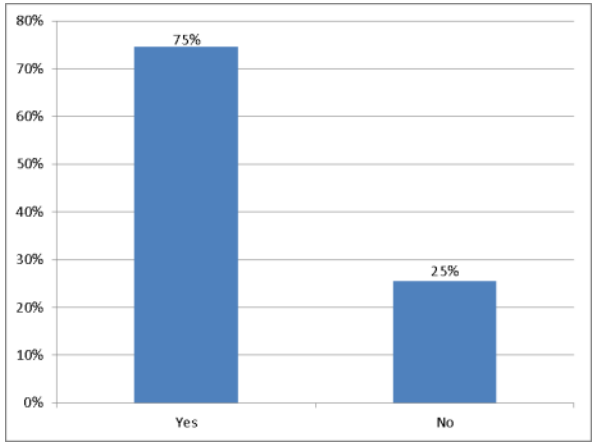
Main mode of travel

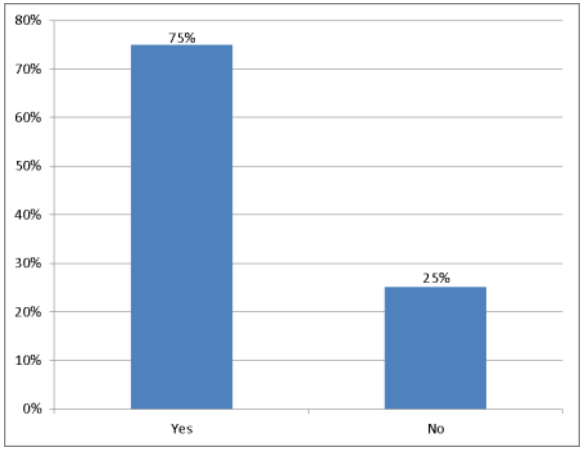


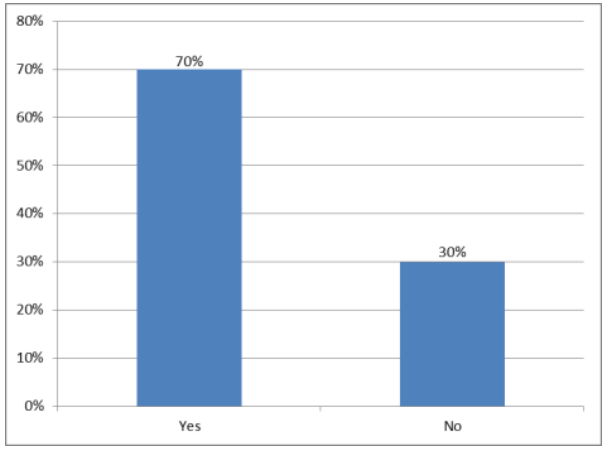




Do you always travel using the same mode of transport?

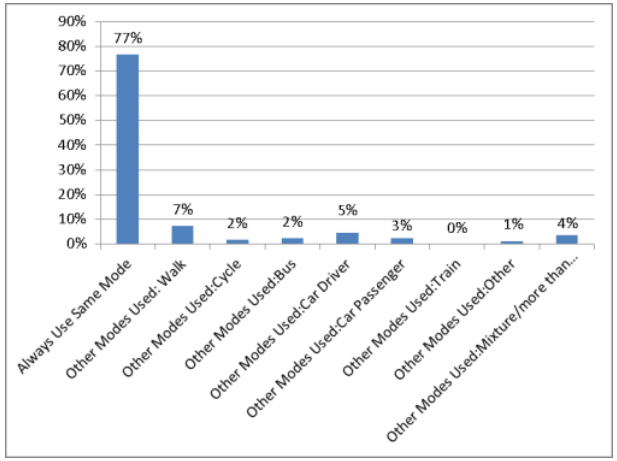


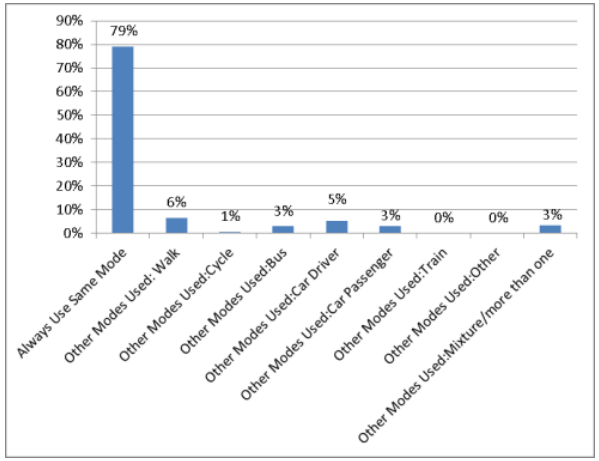


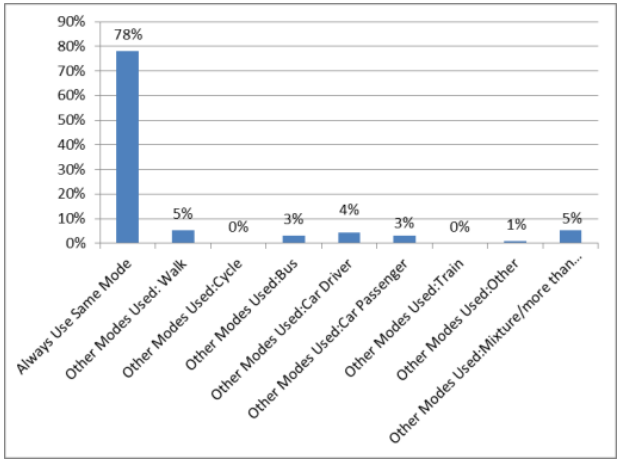


Eden Valley	Balmoral	Takapuna

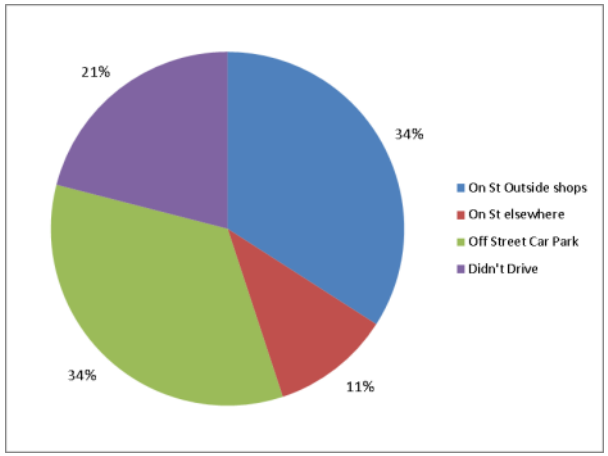
If no, what mode is your usual choice?

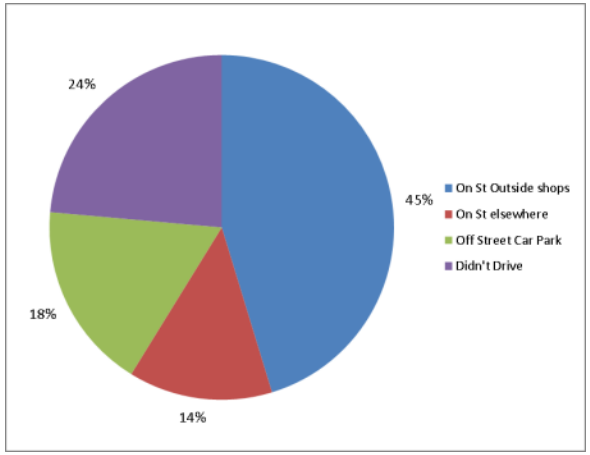


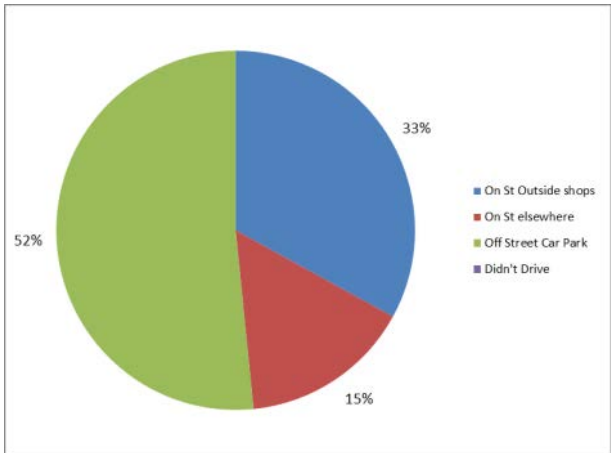




If you drove where did you park?

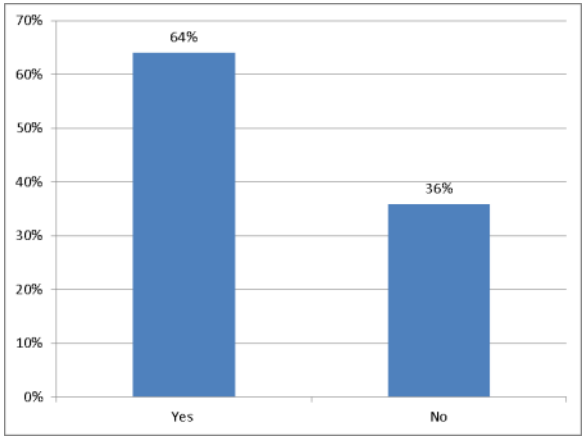


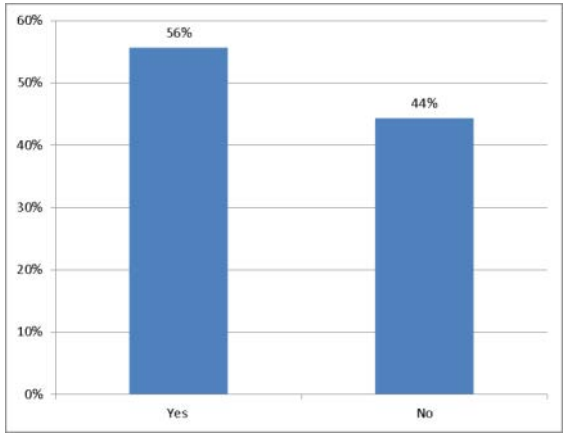


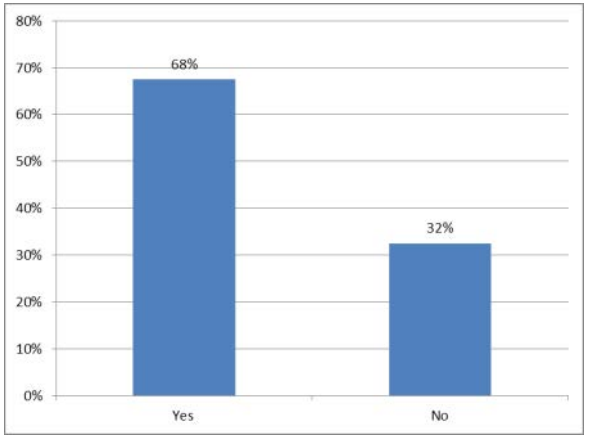


Eden Valley	Balmoral	Takapuna

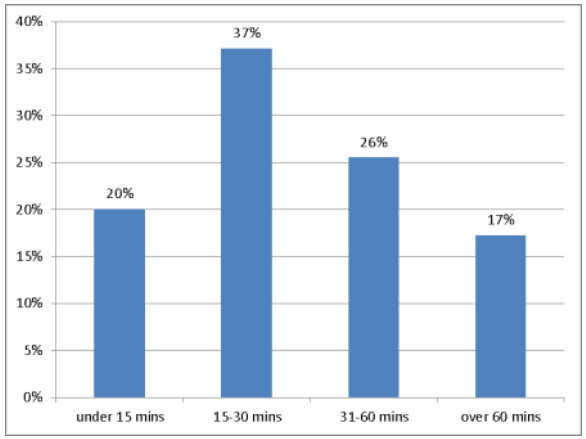
Did you visit any other shops?

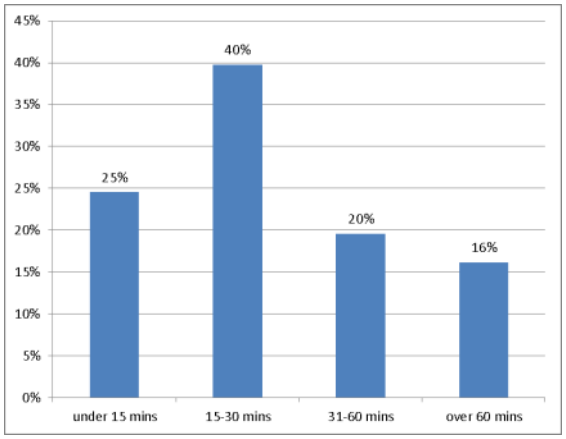


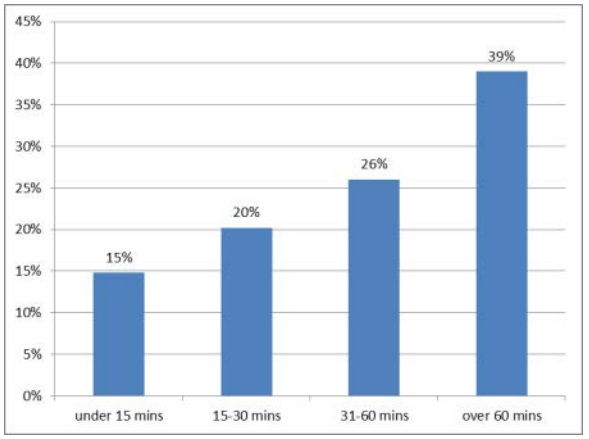




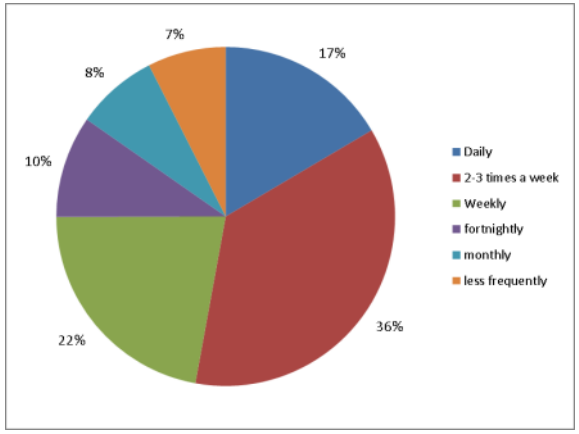
How much time did you spend in this shopping area/area today?

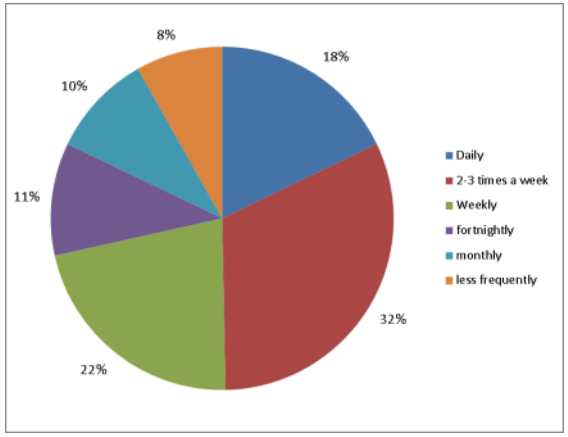


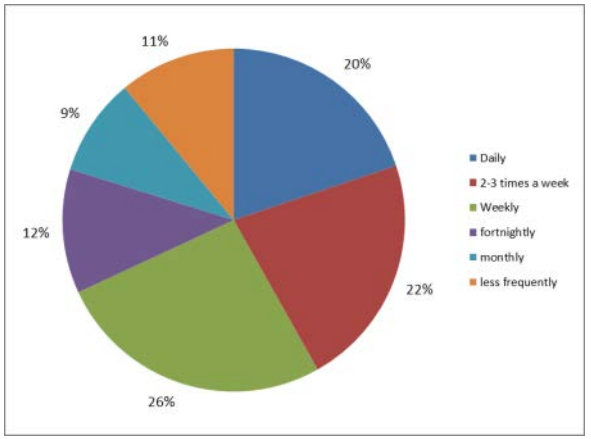




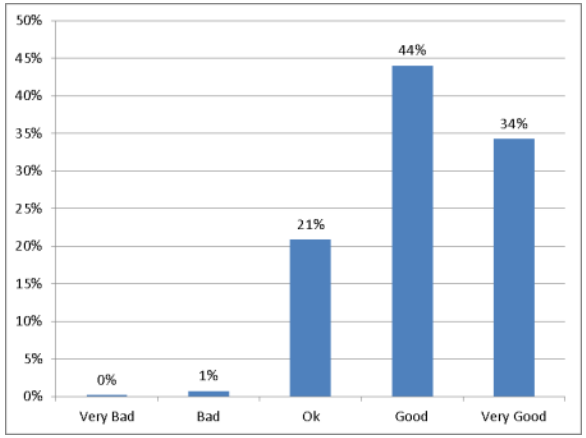
How often do you visit this shopping area/centre?

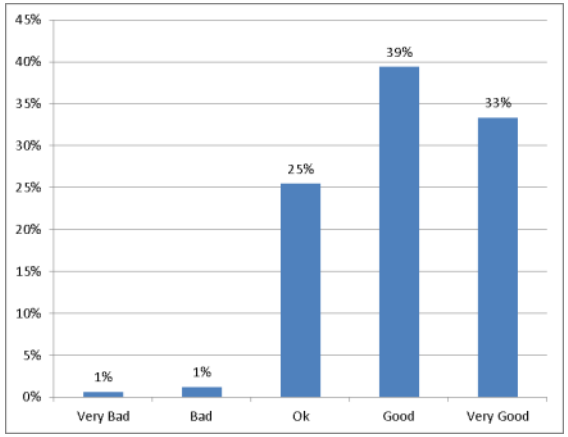


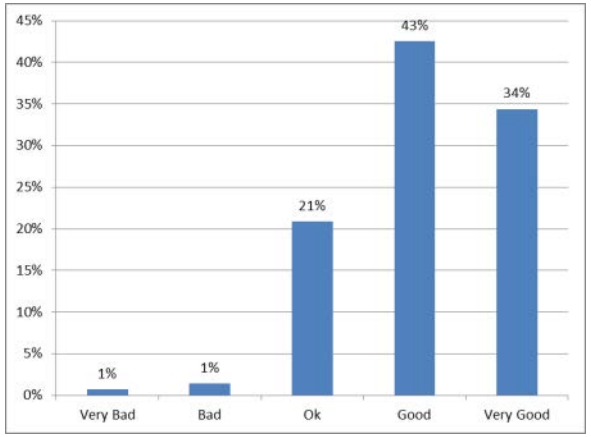




How would you rate this overall shopping area/centre?

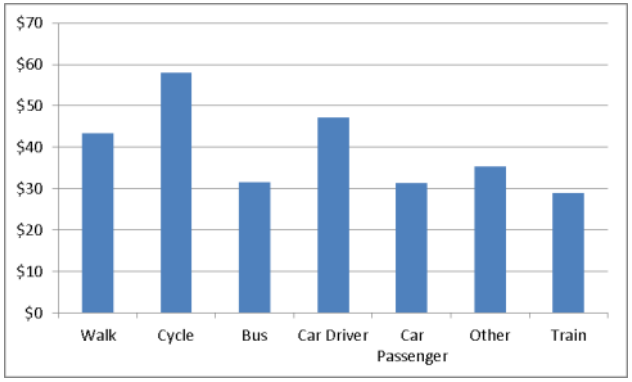


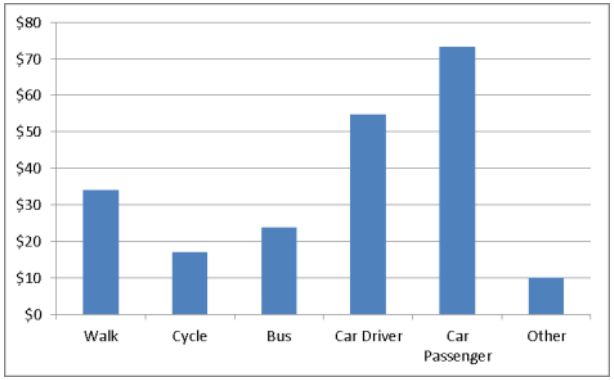


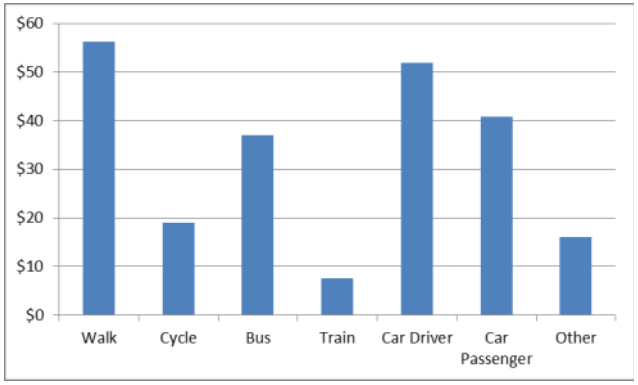


Eden Valley	Balmoral	Takapuna

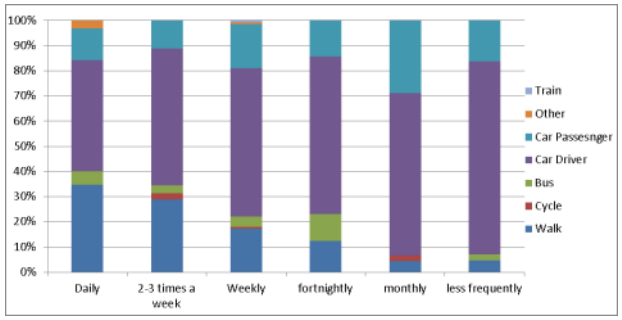
Actual spend by mode

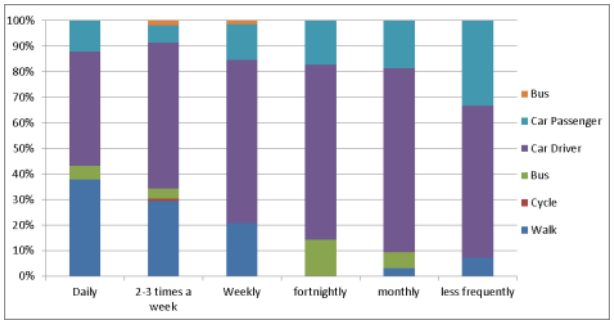


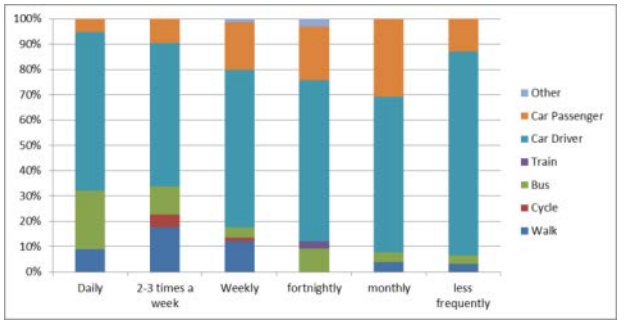




Shopper trip frequency by mode of travel

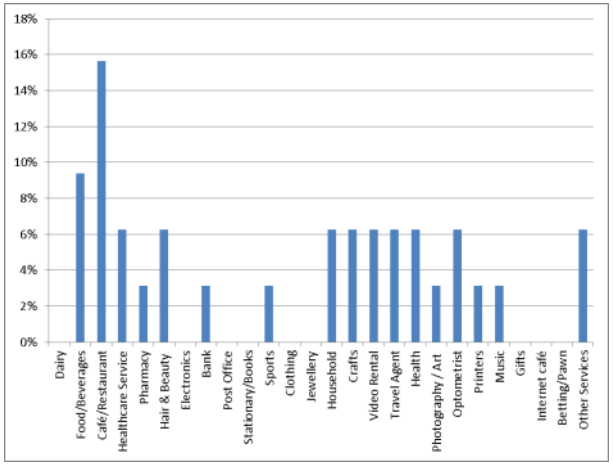


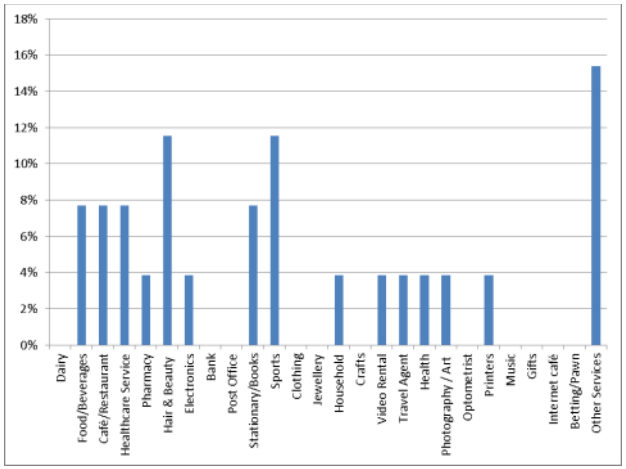


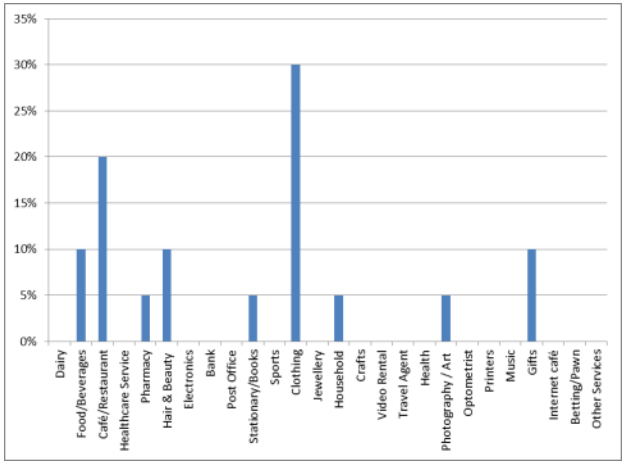


Eden Valley	Balmoral	Takapuna

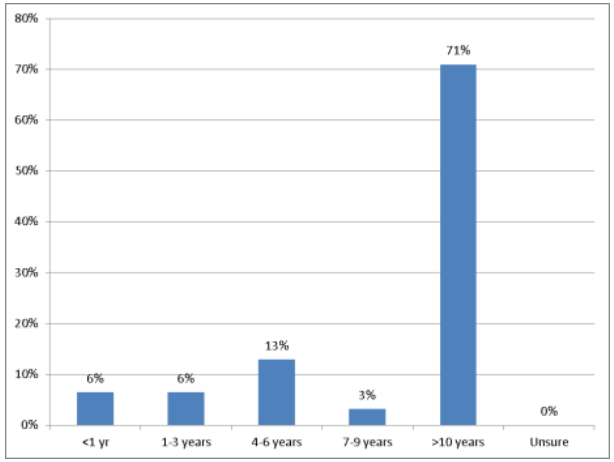
Shop type

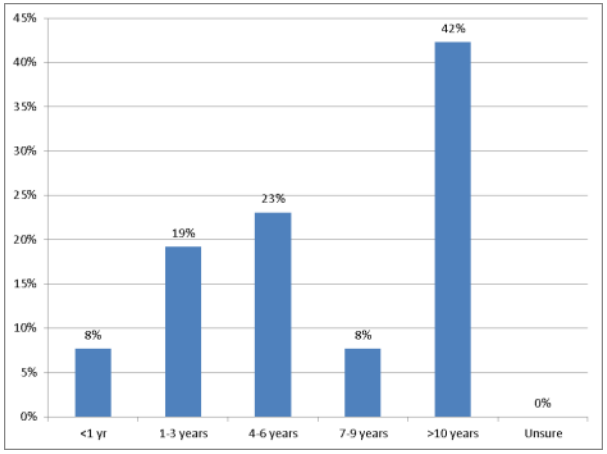


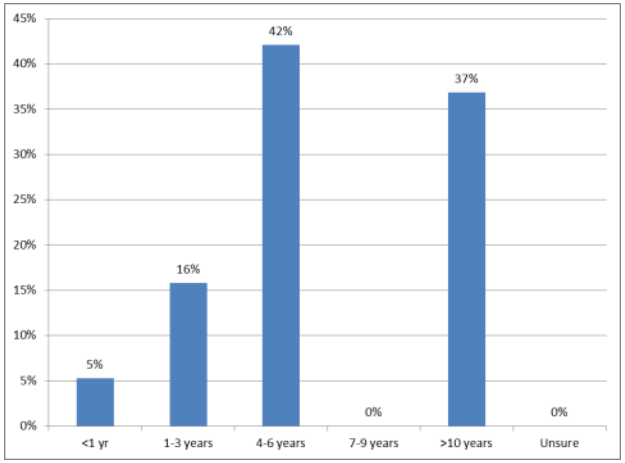




Business age

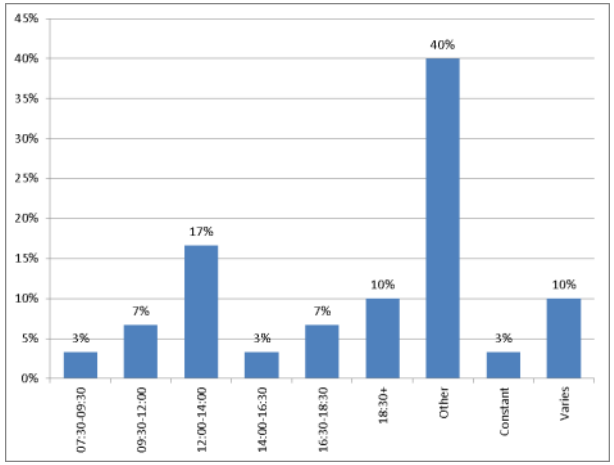


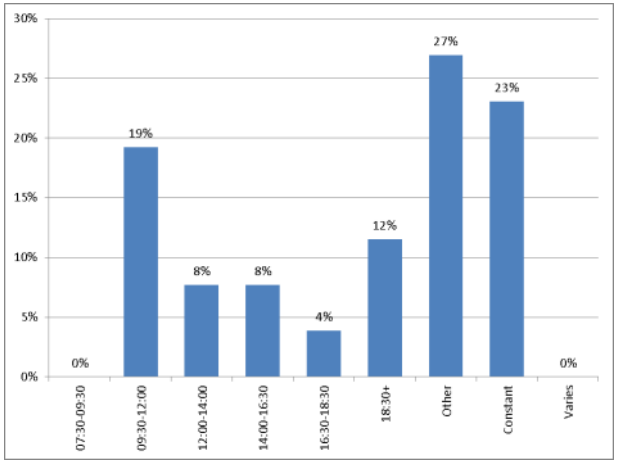


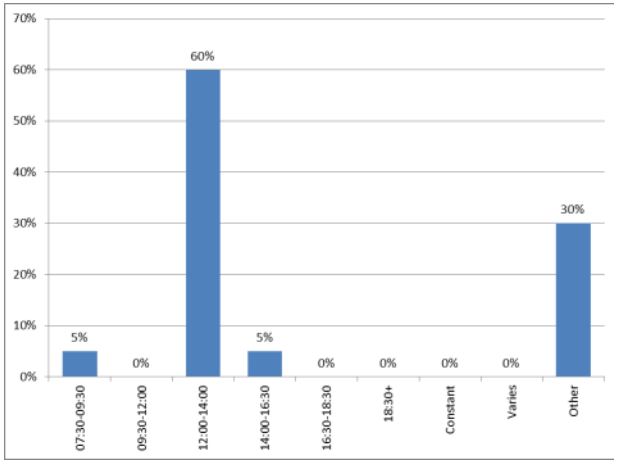


Eden Valley	Balmoral

Busiest times



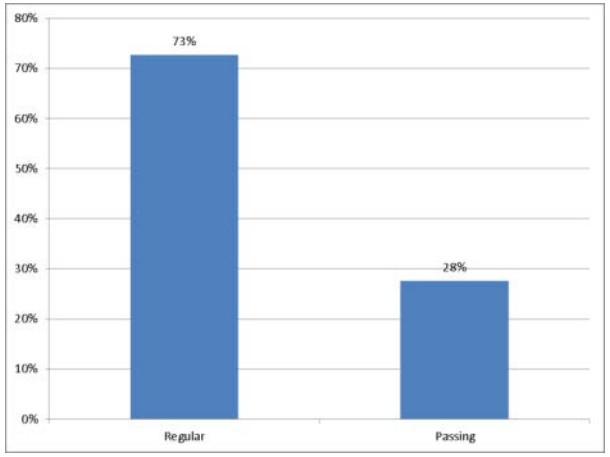


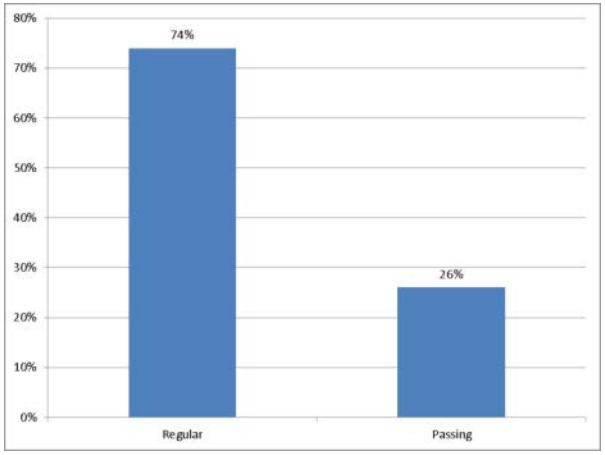


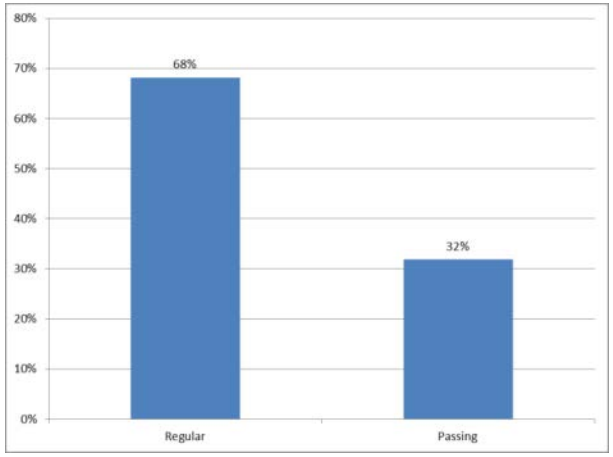
C1.6.5 Retailer survey results

Eden Valley	Balmoral

Passing vs regular customers

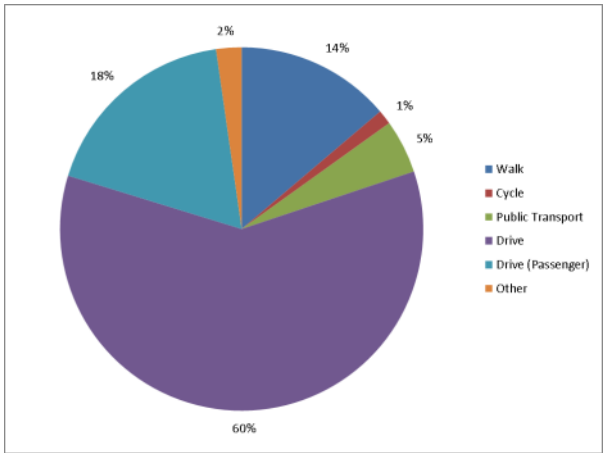


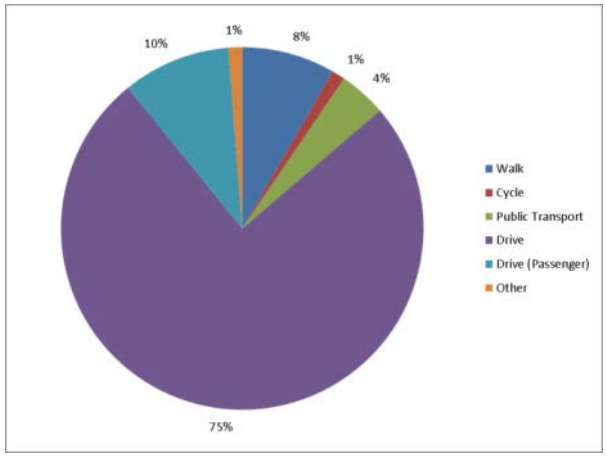


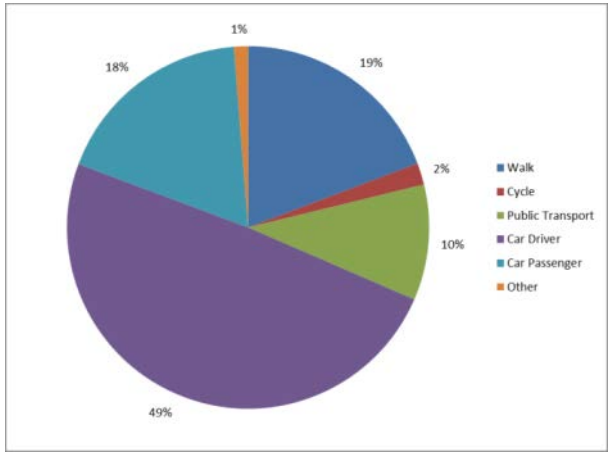


Eden Valley	Balmoral	Takapuna

Estimated mode share average







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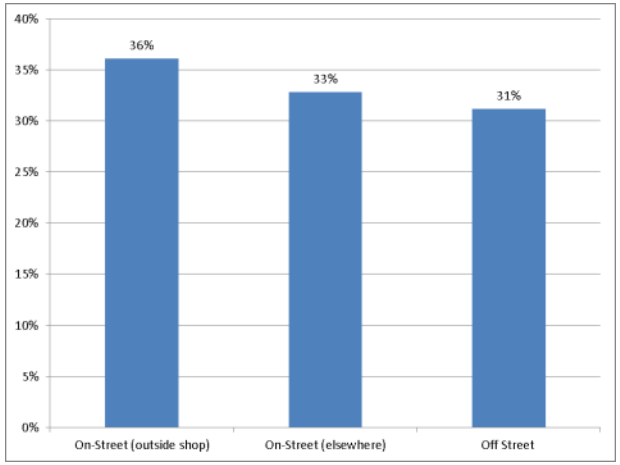
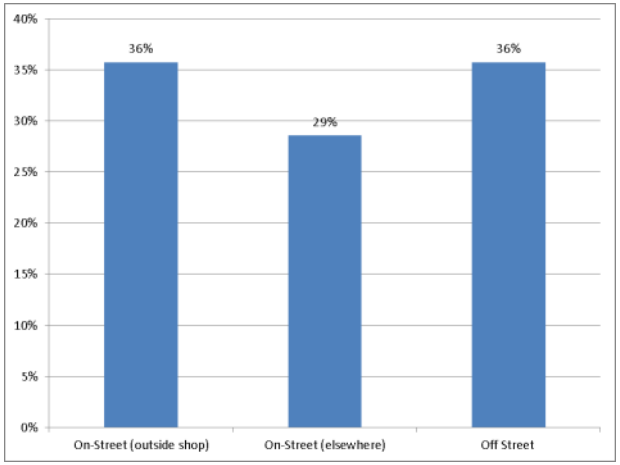
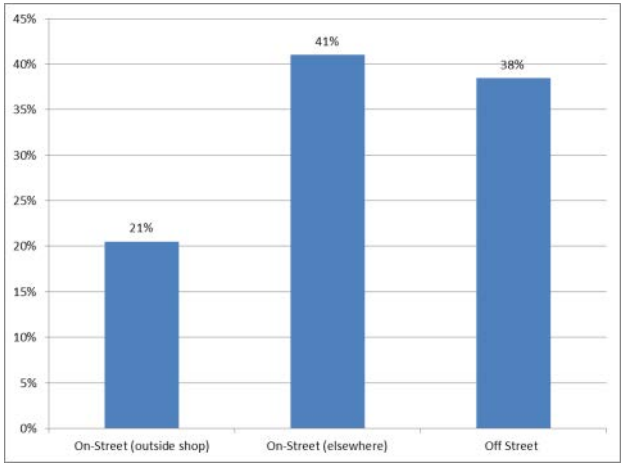
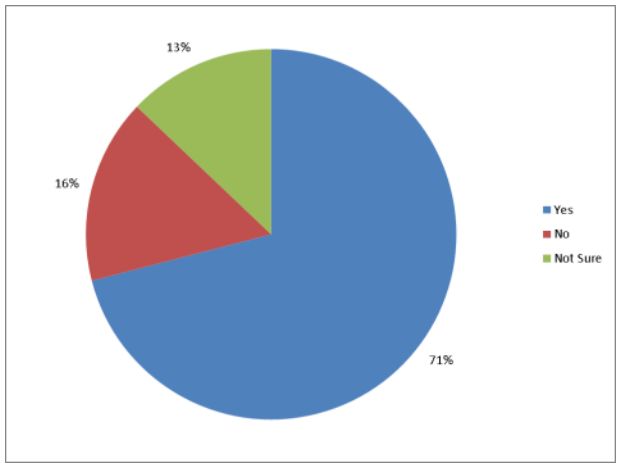


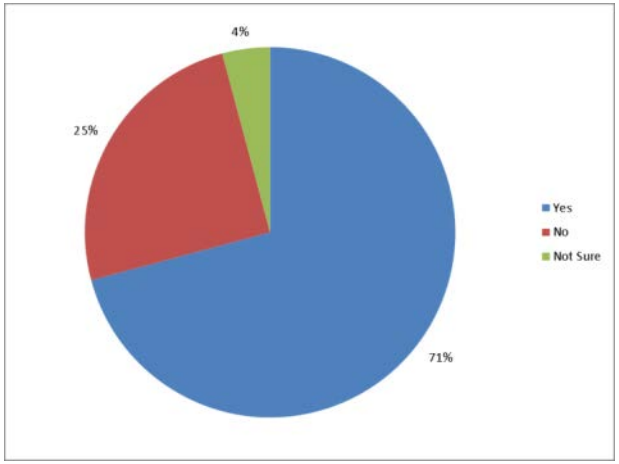


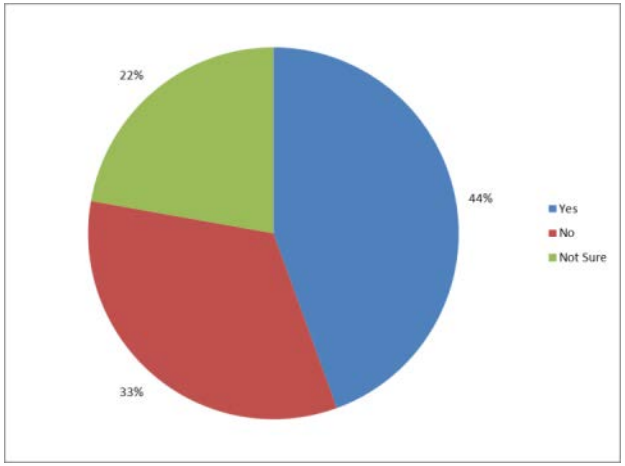


Eden Valley	Balmoral	Takapuna

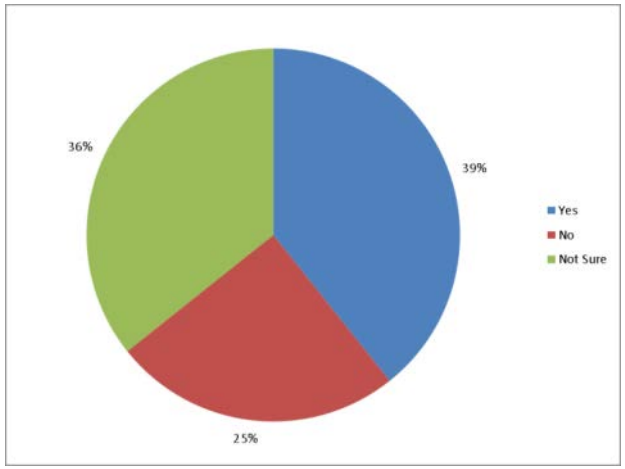
Parking availability

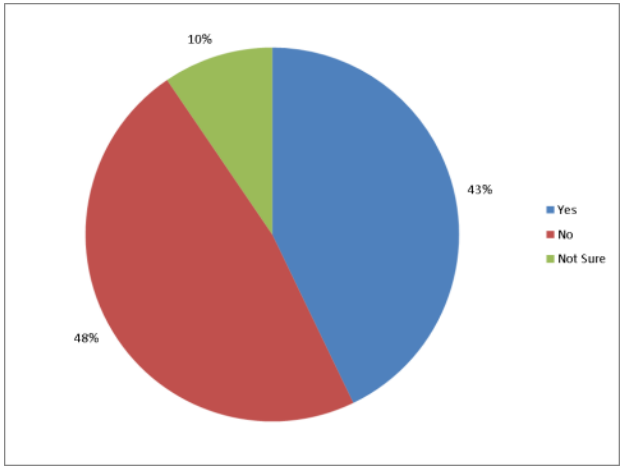


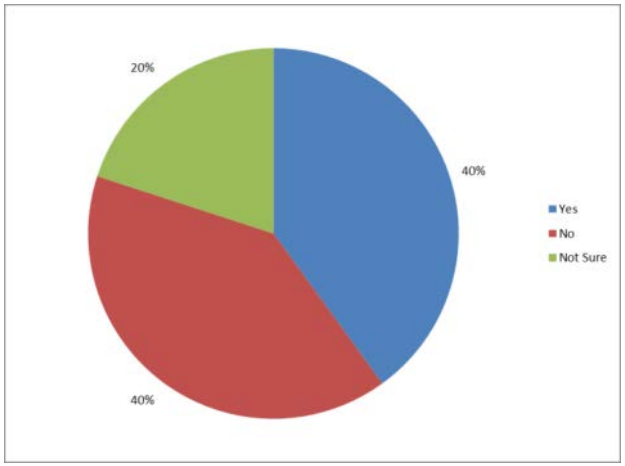




Cycle parking availability

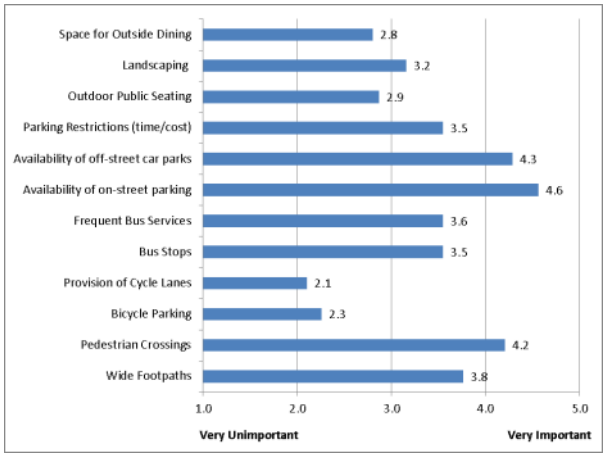


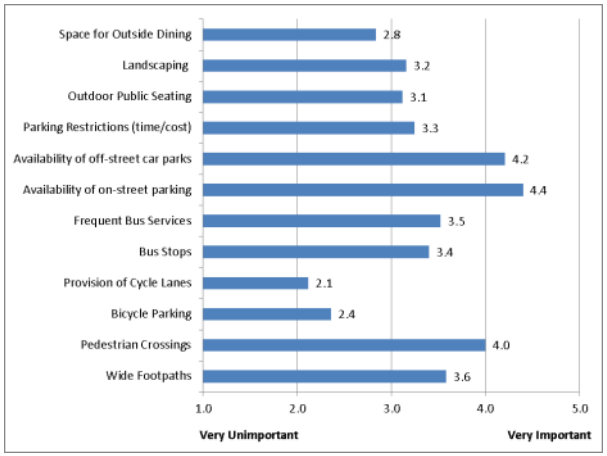


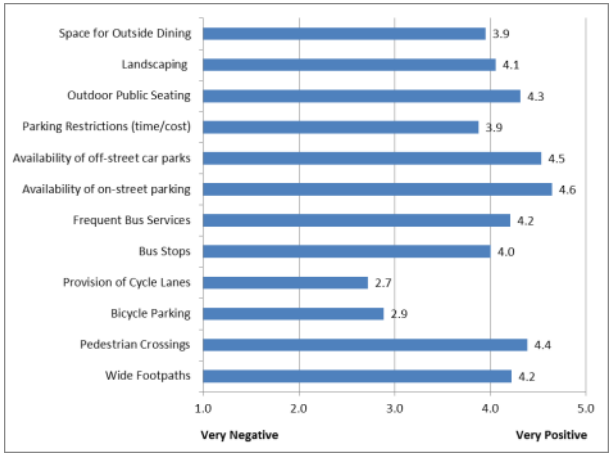


Eden Valley	Balmoral	Takapuna

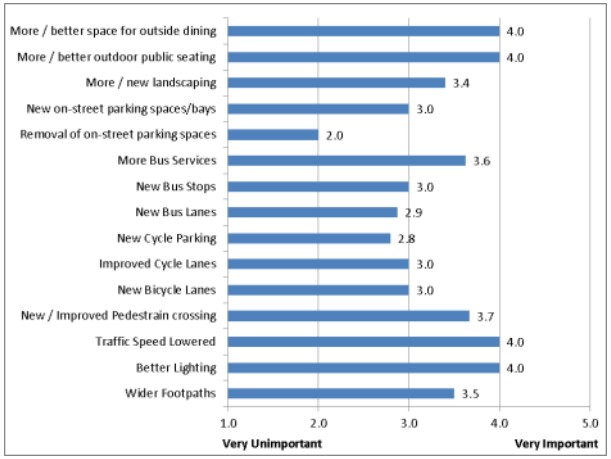
How important are these design features in maintaining and supporting your business trade?

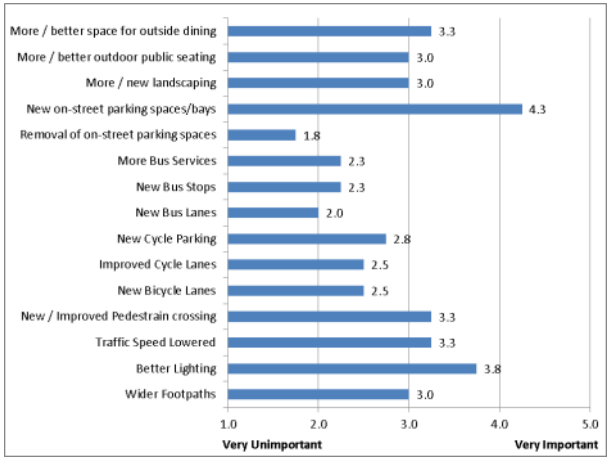


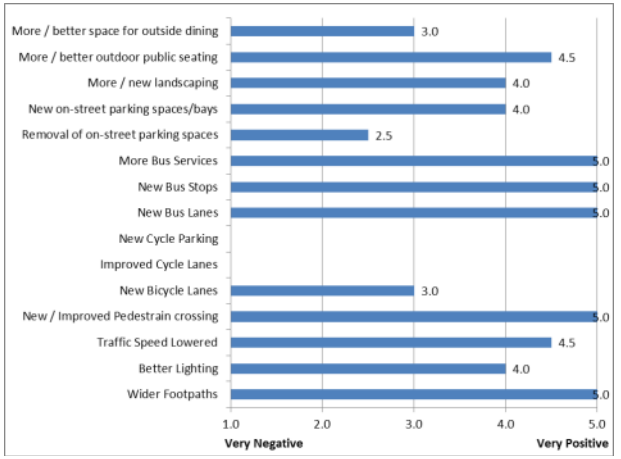




What changes have there been to the area and what impact has this had on your business trade?

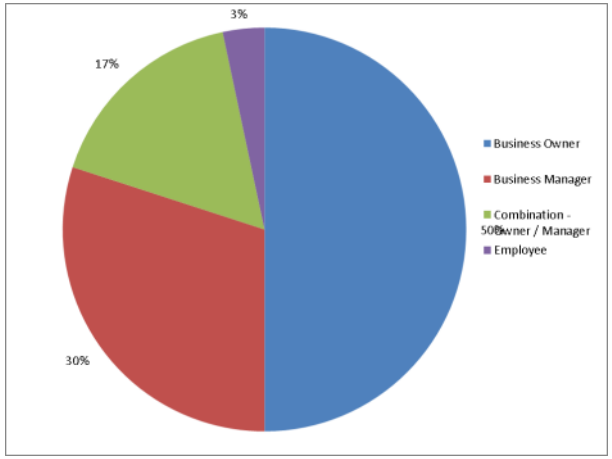


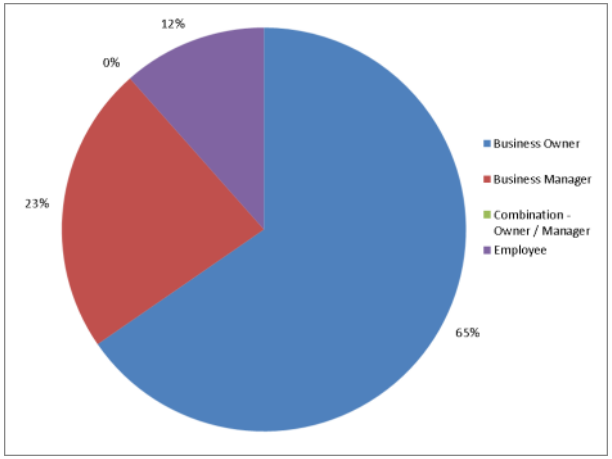


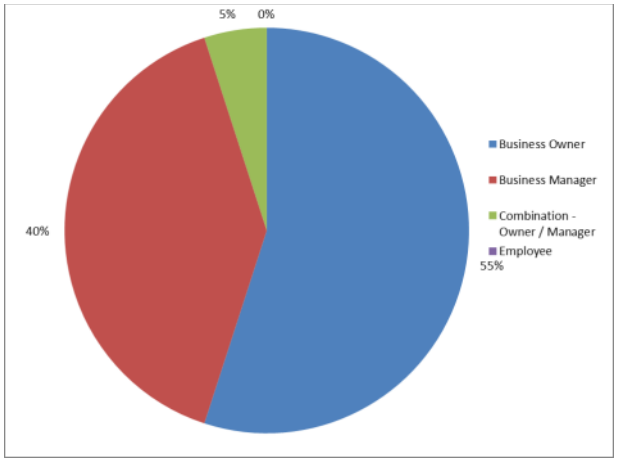


Eden Valley	Balmoral	Takapuna

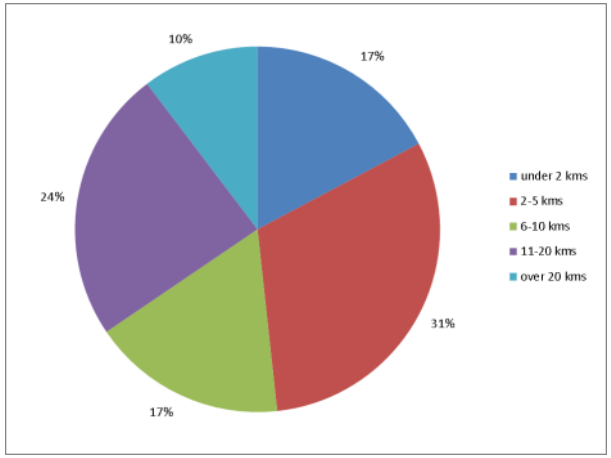
Respondent role

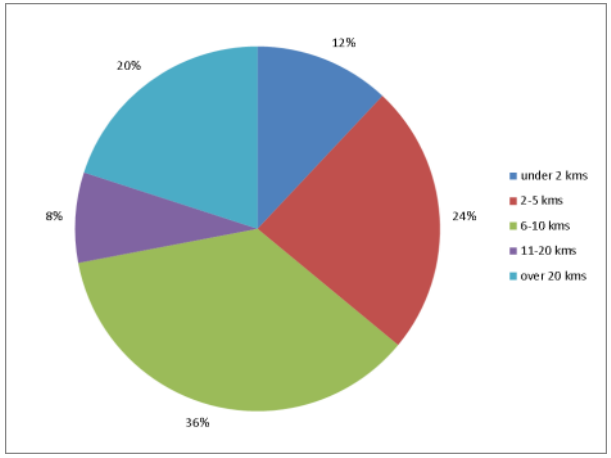


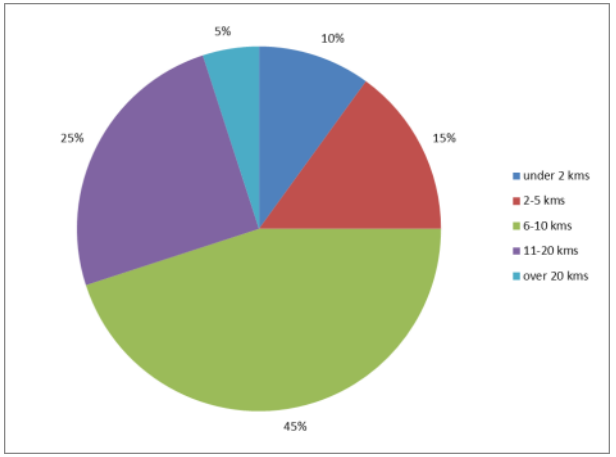




How far do you live from the business?

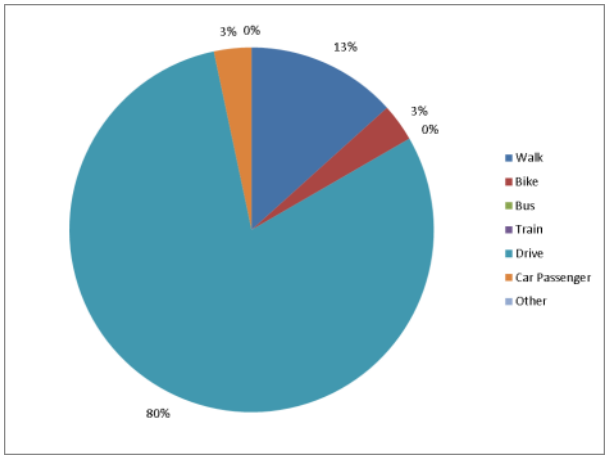


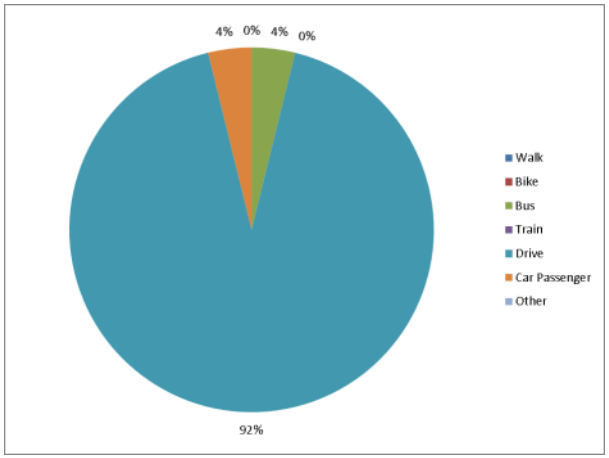


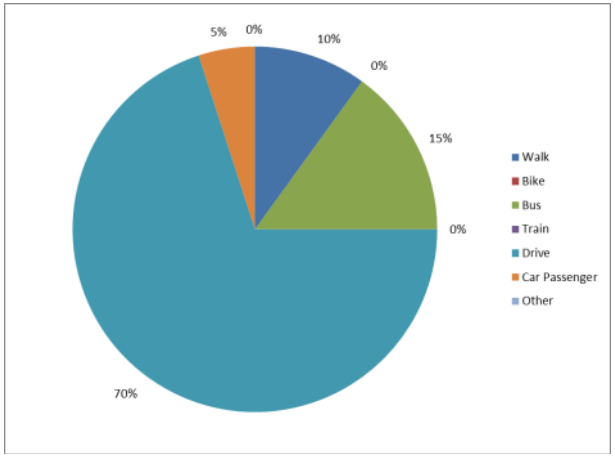


Eden Valley	Balmoral	Takapuna

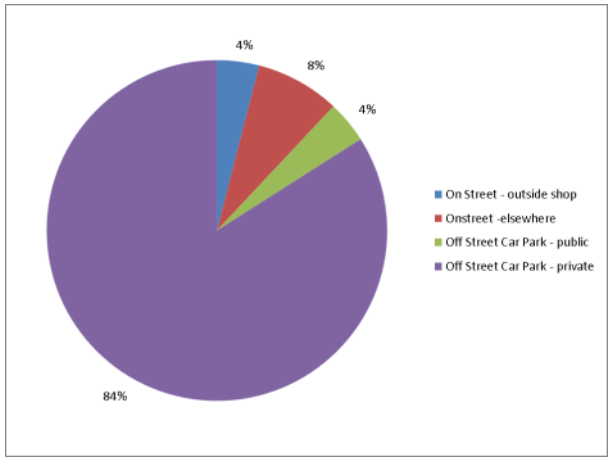
Travel to work

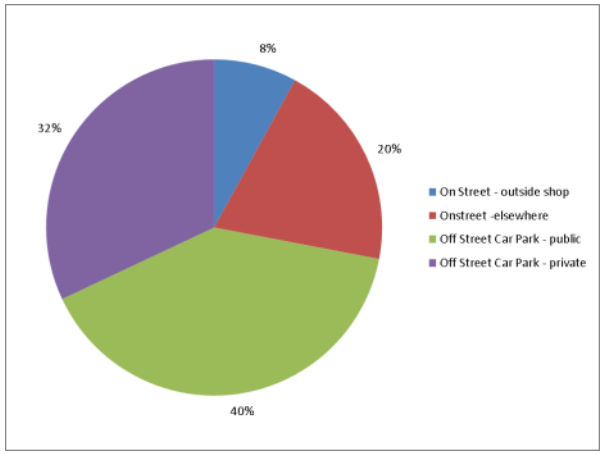


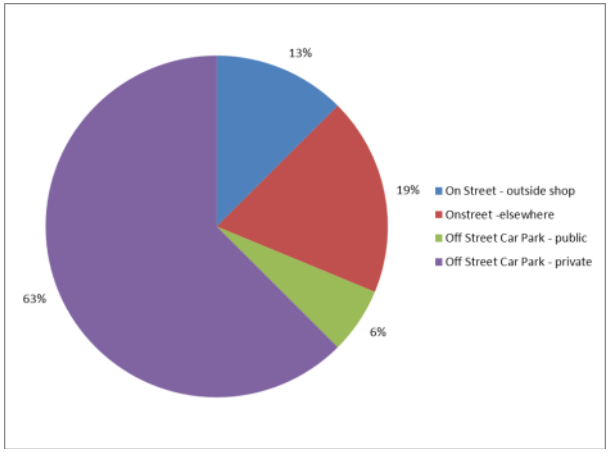




Parking

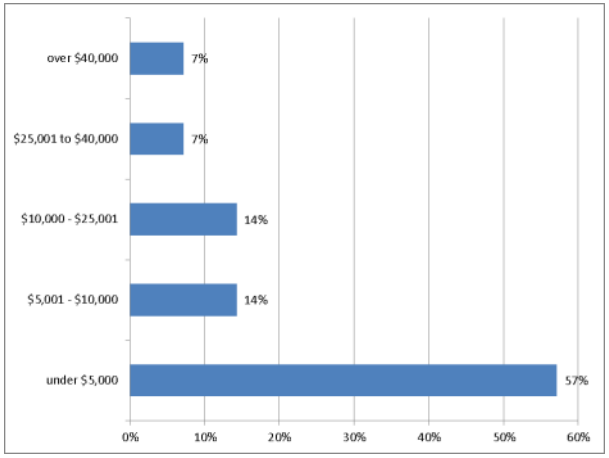


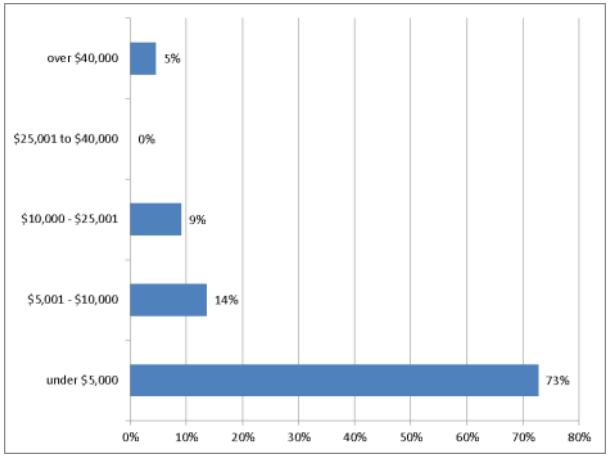


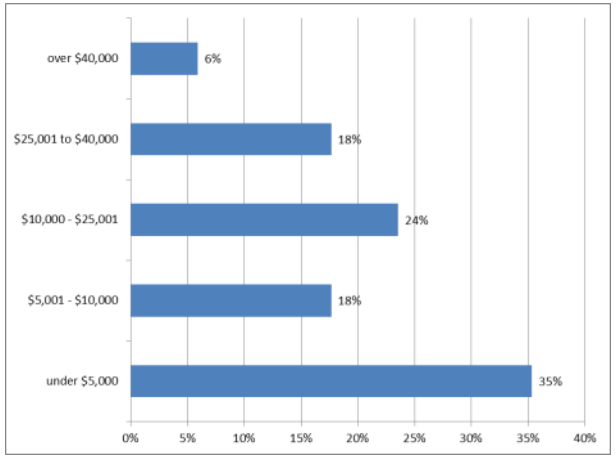


Eden Valley	Balmoral	Takapuna

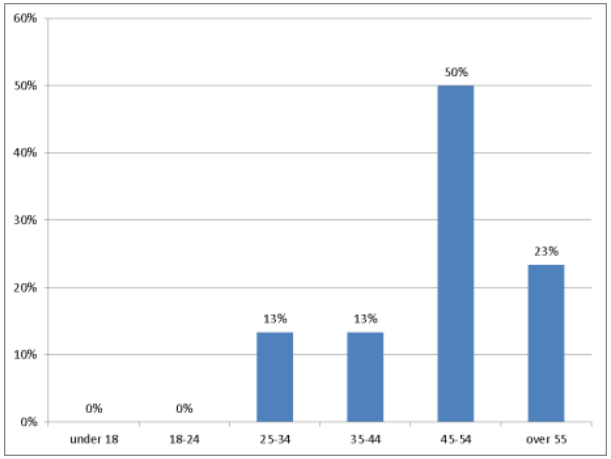
Monthly rental value

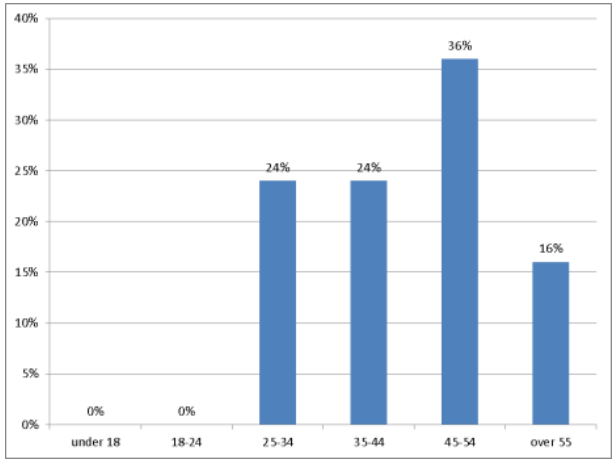


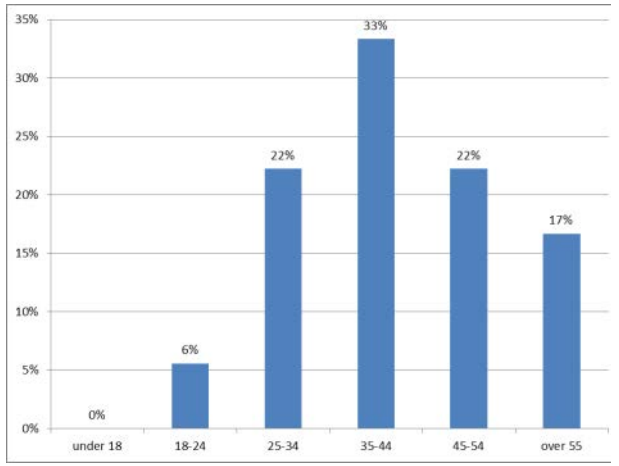




Age of respondents







C1 New Zealand case studies: Wellington sites

C1.1 Wellington sites: summary

The selected sites for the Wellington area were Courtenay Place, The Terrace and Newtown.

Courtenay Place is a bustling central city shopping street. The survey area from Cambridge Terrace to Taranaki Street is characterised by wide footpaths with high pedestrian flows, high-frequency bus services and vehicle traffic lanes plus on-street parking.

The Terrace is located to the north-east of the core city centre shopping areas and is a relatively narrow street with single lane traffic in either direction with on-street parking. The land use is predominantly office and some residential high-rise buildings with clusters of retail units on the ground floor.

The third site selected was the suburban centre of Newtown. Located in the south of Wellington Newtown is based along Riddiford Street. Newtown is known for its annual street festival organised by local associations to promote the area. While just outside of the immediate survey area, it is worth noting that Wellington Regional Hospital is situated close by.

The purpose of this section is to present the key results of the data collected from retailers and shoppers in the Wellington shopping areas. The standard RoRS methodology was used for all three sites, this being a questionnaire to retailers (handed to the manager/owner) and a questionnaire to shoppers (hosted by retailers themselves and self-completed by shoppers at the point of sale).

For Courtenay Place, the response rates were 13 retailer questionnaires returned (from the 47 retailers approached) and 170 shopper questionnaires completed (from the 12 survey host shops).

For The Terrace, the response rates were 18 retailer questionnaires returned (from the 45 retailers approached) and 156 shopper questionnaires completed (from the 13 survey host shops).

For Newtown, the response rates were 20 retailer questionnaires returned (from the 50 retailers approached) and 96 shopper questionnaires completed (from the 14 survey host shops).

A number of key findings from these surveys and their respondents are as follows:

- The perceptions of retailers as to the importance of passing trade to each area varied. In Courtenay Place retailers perceptions were aligned with the observed shopper data, that is approximately 36% of shoppers were passing trade. For The Terrace and Newtown, however, retailers tended to overestimate the importance of passing trade. In all cases the majority of shopping trips were intentional and by regular users of the area.
- The majority of retailers drove to work despite a significant proportion of them residing within 5km of their workplace. A low car driver/passenger mode share was noted for retailers working on The Terrace.
- Retailers in each area were asked how important they thought a variety of urban and street design features were in maintaining and supporting their business trade. Generally the availability of on-street parking was considered the most important, and cycle lanes/parking was viewed as unimportant.
- Retailers were asked to rate any street design changes that they could recall in terms of the impact on business trade. Of those listed lighting and footpaths featured highly. For The Terrace and Newtown higher-frequency bus services were viewed very positively. The removal of on-street parking spaces was viewed slightly negatively across all sites.

- Shoppers were asked how much they spent in the area and this was cross tabulated with their travel mode. This led to some variable findings, in general sustainable transport users were either spending equal to, or lower (up to $12 lower) than car drivers.
- Courtenay Place
  - car driver/passenger $29
  - sustainable modes $17
- The Terrace
  - car driver/passenger $33
  - sustainable modes $28
- Newtown
  - car driver/passenger $42
  - sustainable modes $32
- In general sustainable mode users travelled to shopping areas most frequently. The average duration of a trip for Courtenay Place and The Terrace was about half an hour. Newtown users spent notably longer shopping in the area.
- Shoppers generally rated each of the Wellington shopping areas well in terms of their overall experience. For Courtenay Place 72%, The Terrace 70% and Newtown 71% of shoppers rated the areas very good/good.

It is important to note that the findings of these individual survey locations are based on a sample of the population and therefore the confidence that can be placed on their significance is in parts limited. They serve though as an estimate of current retailer and shopper characteristics and perceptions. The RoRS research report findings are based on the analysis of the collective dataset from nine New Zealand sites.

C1.2 Wellington sites: overview of survey locations

Courtenay Place is one of four streets commonly referred to collectively as the Golden Mile. The Golden Mile is Wellington's main shopping parade. A restoration programme by Wellington City Council has been underway for some time to upgrade provisions along the route. Currently wide footpaths feature prominently along Courtenay Place due to the substantial numbers of pedestrians using the area both the day and night. While cycle parking is present there were no cycle lanes at the time of the survey. For the most part Courtenay Place is made up of single-lane general vehicle traffic lanes in either direction, bus lanes and on-street parking. Bus services are very frequent and signalised intersections assist pedestrians in crossing intersecting roads. The survey area covered Courtenay Place from its intersection with Cambridge Terrace to its intersection with Taranaki Street. The land use is largely retail, entertainment and cafes/restaurants/bars for this stretch of Courtenay Place.

The Terrace is classified as a principal road in the Wellington City Council hierarchy of roads. Principal roads sit between the arterial and collecton road network. For the purposes of this study the site is considered to be located in an arterial type environment (a road of strategic through-flow importance, but with limited width). The survey area extended from Bowen Street to the SH1 off ramp. The area is characterised by single-lane traffic lanes in either direction with on-street car parking on both sides. A high pedestrian footfall was observed and priority controlled and signalised intersections feature along The Terrace. The land use is predominantly office, hotel and residential high-rise buildings with clusters of retail units on the ground floor.

The third site is Riddiford Street which is the route through the suburban centre of Newtown. Riddiford Street within the survey area (between Hall Street and Constable Street) is classified as a collector road. It links two principal roads to the north and south. Newtown is a bustling suburban centre known for its annual street festival and restaurants. Bus frequencies are high along Riddiford Street. Newtown shops are located close to the large Wellington Regional Hospital site at the northern end of the survey area, and to the south Wellington Zoo and several schools are located close by. The speed limit in the section of Riddiford has been reduced to 40km/h. Riddiford Street for the most part features two-way, two-lane traffic plus on-street parking. Where side streets intersect, pedestrian platforms are present. In the section from Wilson Street to Constable Street traffic lanes are reduced to single lanes with on-street parking. No cycle lanes are marked.

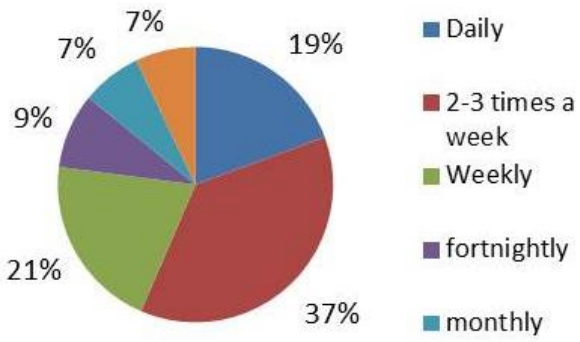
C1.3 Wellington sites: headline results, Courtenay Place

Retailers were asked to estimate what percentage of their customer base comprised regular customers as opposed to passing traffic. The results for Courtenay Place show that retailers viewed passing trade to account for 34% of their customer base, on average.

The shopper survey respondents indicated that the majority of visits to Courtenay Place (64%) were by customers who intended to visit the area. The remaining 36% said they had not intended to shop in the area, ie they were passing trade.

Those who were shopping in the area were also regular users, 77% of shopper visited at least weekly or more. This indicates broadly that the perceptions of respondent retailers, on average, were aligned with the observed level of shopper passing trade.

Figure C.21 How often do you visit this shopping area/centre?



C1.3.1 Travel mode

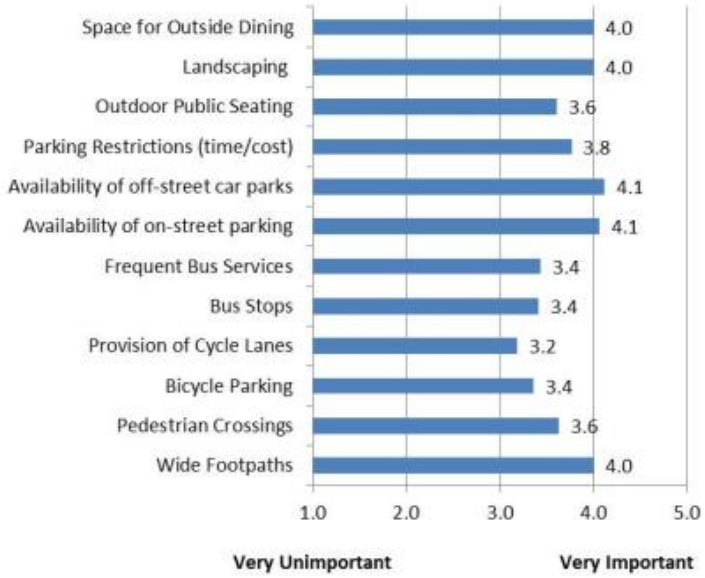
Retailers were asked what their normal travel to work mode choice was. The majority of Courtenay Place retailers (59%) drove to work (or were car passengers), the second largest mode share was for walking to work (24%) followed by public transport (12%) and cycling (6%). A second question about where retailers lived revealed that 46% of retailers lived within 5km of the study area.

Retailers were also asked to estimate what they thought their shoppers' mode share currently was. On average they estimated that 23% of shoppers travelled by car, 60% walked, 4% cycled and 11% came by public transport (with the remaining 2% made up of 'other' modes). Of the respondent shoppers, 30% travelled by car to the area (either as the driver or as a car passenger), 42% walked, 26% travelled by public transport and 2% cycled. The shopper mode share captured indicates that retailers underestimated the number of customers travelling by car (by 7%). Retailers also significantly underestimated the numbers travelling by public transport (by 15%), and they also significantly overestimated those walking (18%).

C1.3.2 Design features

Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. Of these design features, on-street and off-street car parking was considered the most important closely followed by space for outside dining, landscaping and wide footpaths. The most unimportant design features related to cycle lanes and parking and bus stops/service frequency.

Figure C.22 Retailer: How important is 'x' in maintaining and supporting your business trade?

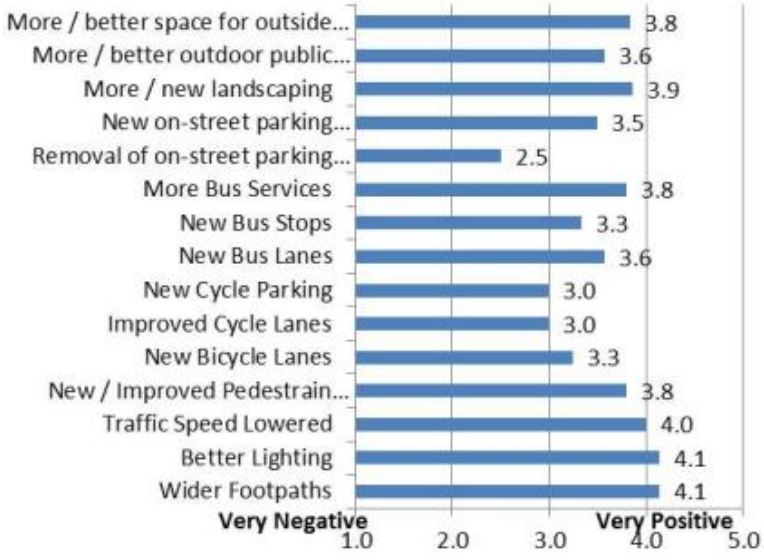


C1.3.3 Design changes

Retailers were also asked whether any design changes had occurred in the area. They were asked if they found this resulted in a negative or positive impact on their business trade.

The most positively viewed changes for Courtenay Place retailers were improvements to lighting and widening of footpaths. In general the majority of design changes were viewed as having a neutral or positive impact, although removal of on-street parking spaces was viewed negatively.

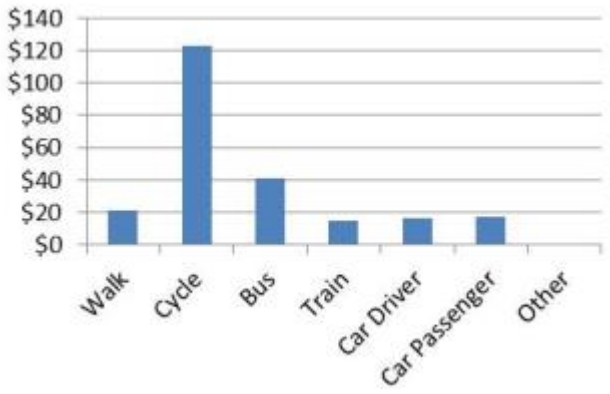
Figure C.23 What changes have there been to the area and what impact has this had on your business trade?



C1.3.4 Shopper spend by mode of travel

Respondents were asked to indicate their level of spending in the shop where they completed the questionnaire and their spending (planned or undertaken) in any other shops for that trip in the area. This information was cross tabulated by their mode of travel to calculate an average spend per mode of travel.

Figure C.24 Shopper total spend by mode of travel



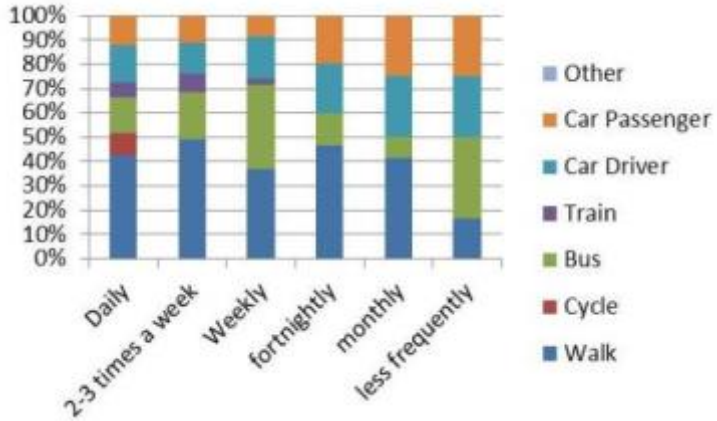
Responses from Courtenay Place shoppers showed that the average shopping visit spending by car drivers, car passengers and walkers was similar. Observed expenditure by cyclists was significantly higher and for bus users was approximately more than double that of car driver/passengers. It was noted that cyclists were the biggest spenders (average spend of $123), while those travelling by train spent the least ($15). Although there was a low sample size for cyclists (three respondents), their proportionally high spend was attributed to one of the three users spending a large amount.

Overall, when combining the walking and cycling mode shares with public transport the average spend was $29. This indicates that in comparison with car driver/passenger trips where the average spend was $17, sustainable transport mode users were likely to spend more.

C1.3.5 Frequency of shopping trips

Shoppers were asked how often they visited an area. The majority of Courtenay Place respondents (56%) visited the shopping area either daily or two to three times a week. This information was also compared to the main mode of travel for these respondents.

Figure C.25 Shopper trip frequency by mode of travel

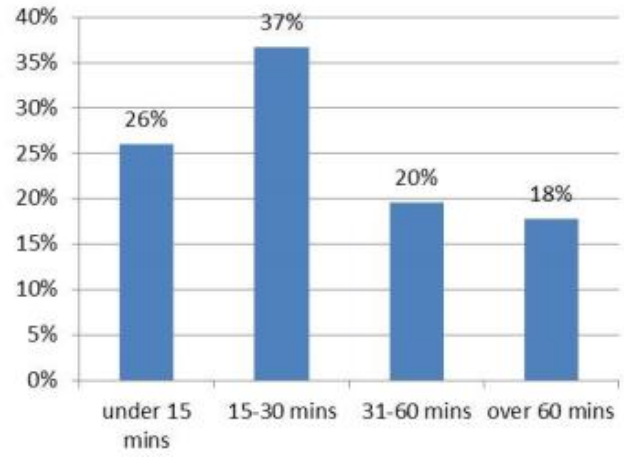


In terms of the interaction between trip frequency and mode, the data indicates that sustainable transport users collectively (walking, cycling and public transport) were the more frequent visitors to the shopping area (ie daily, two to three times a week, weekly). Car drivers/passengers also visited frequently, but proportionally they made up a large amount of those shoppers visiting fortnightly, monthly or less.

C1.3.6 Duration of shopping trips

Shoppers were asked how long they spent in the shopping areas they had visited. The data shows that in general Courtenay Place shoppers (83%) spent one hour or less in the area. The majority of shoppers were spending 15–30 minutes.

Figure C.26 Shopper trip duration



The survey results do not show any particular differences between trip duration and travel mode choice, with the exception of cyclists. In general each mode on average spent approximately half an hour in the area, whereas cyclists spent closer to one hour.

C1.3.7 Overall area rating by shoppers

Shoppers were also asked to rate the overall shopping area. 72% of shoppers rated the Courtenay shopping area to be either good or very good.

C1.4 Wellington sites: headline results, The Terrace

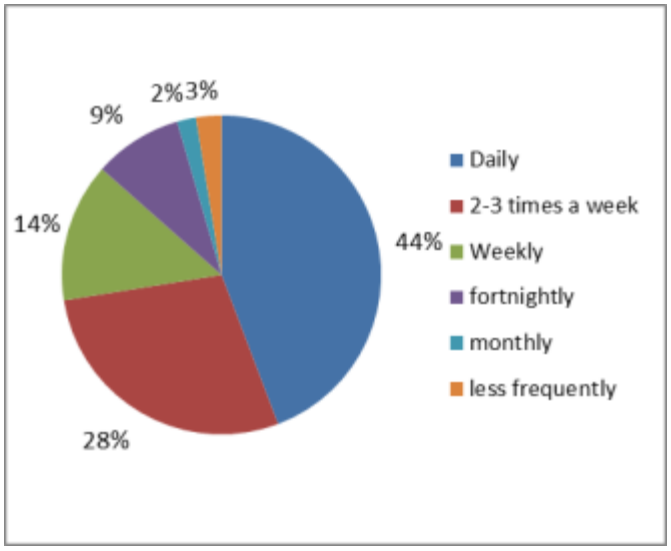
C1.4.1 Retailer perception of passing trade

Retailers where asked to estimate what percentage of their customer base comprised regular customers as opposed to passing traffic. The results for The Terrace show that retailers viewed passing trade to account for 27% of their customer base, on average.

The shopper survey respondents indicated that the majority of visits to The Terrace (80%) were by customers who intended to visit the area. The remaining 20% said they had not intended to shop in the area, ie they were passing trade.

Those who were shopping in the area were also very regular users, in fact 86% of shoppers visited at least weekly or more. This indicates broadly that respondent retailers overestimated the importance of passing trade in this area.

Figure C.27 How often do you visit this shopping area/centre?



C1.4.2 Travel mode

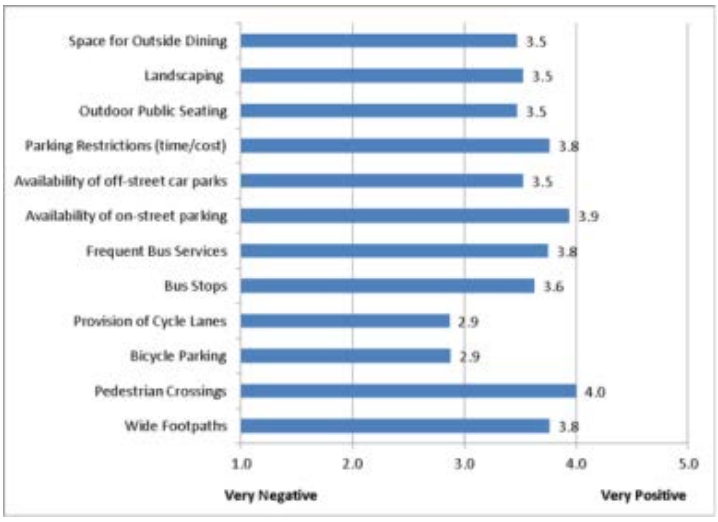
Retailers were asked what their normal travel to work mode choice was. The majority of The Terrace retailers (39%) drove to work, the second largest mode share was for walking to work (22%), followed by public transport (22%) and cycling (6%). A second question about where retailers lived revealed that 39% of retailers lived within 5km of the study area.

Retailers were also asked to estimate what they thought their shoppers' mode share currently was. On average they estimated that 21% of shoppers travelled by car, 61% walked, 1% cycled and 13% came by public transport (with the remaining 4% made up of 'other' modes). Of the respondent shoppers, 40% travelled by car to the area (either as the driver or as a car passenger), 17% walked, 37% travelled by public transport and 5% cycled. The shopper mode share captured indicates that retailers underestimated the number of customers travelling by car (by 19%). Retailers also significantly underestimated the numbers travelling by public transport (by 24%), and they also significantly overestimated those walking (44%).

C1.4.3 Design features

Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. Of these design features the provision of pedestrian crossings, closely followed by the availability of on-street car parking were considered the most important closely followed by space for outside dining, landscaping and wide footpaths. The most unimportant design features related to cycle lanes and parking.

Figure C.28 Retailer: How important is 'x' in maintaining and supporting your business trade?

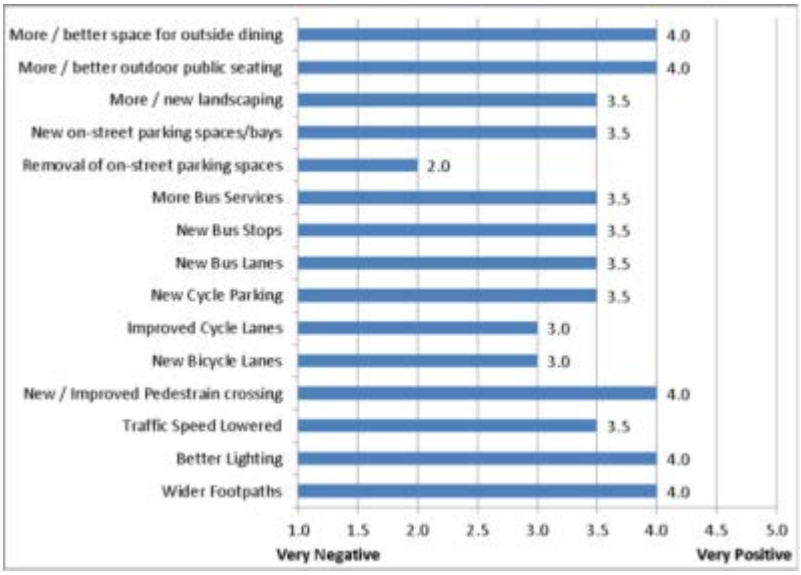


C1.4.4 Design changes

Retailers were also asked whether any design changes had occurred in the area, and if so, whether this resulted in a negative or positive impact on their business trade.

The most positively viewed changes for The Terrace retailers were the increased bus services, landscaping, pedestrian crossings, better lighting, wider footpaths and more space for outside dining. The removal of on-street parking spaces was viewed very negatively.

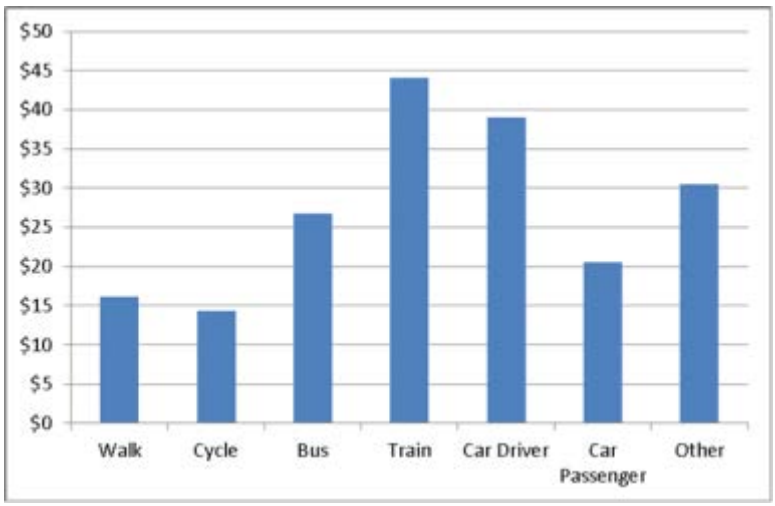
Figure C.29 What changes have there been to the area and what impact has this had on your business trade?



C1.4.5 Shopper spend by mode of travel

Respondents were asked to indicate their level of spending in the shop where they completed the questionnaire and their spending (planned or undertaken) in any other shops for that trip in the area. This information was cross tabulated by their mode of travel to calculate an average spend per mode of travel.

Figure C.30 Shopper total spend by mode of travel



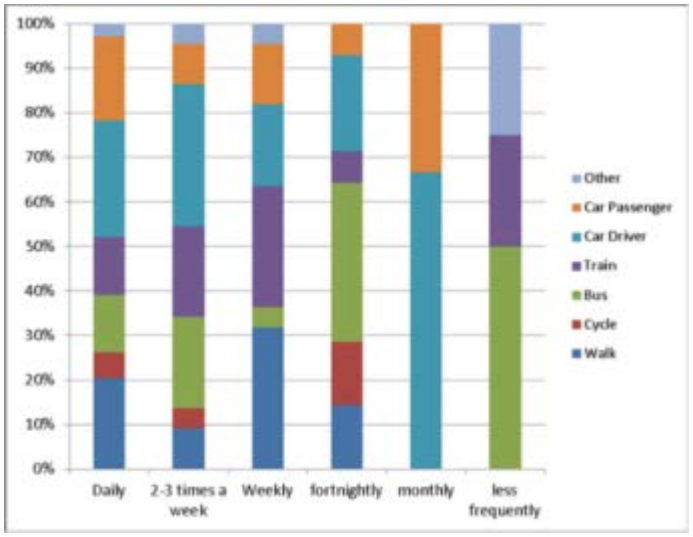
Responses from The Terrace shoppers show that the average shopping visit expenditure by car drivers, and train users was similar at just below $40. Car passenger, pedestrian and cyclist spends were broadly similar at around $20. Bus user expenditure was observed at around $27. The observed expenditure by other modes, which included sustainable modes such as skateboard or skating, was significantly higher. Although the 'other' category had a low sample size with just one respondent, this person was responsible for the proportionally higher spend.

Overall, when combining the walking and cycling mode shares with public transport the average spend was $28. This indicates that in comparison with car driver/passenger trips where the average spend was $33, sustainable transport modes users were likely to be spending at a comparable level.

C1.4.6 Frequency of shopping trips

Shoppers were asked how often they visited an area. The majority of The Terrace respondents (72%) visited the shopping area either daily or two to three times a week. This level of frequency was also compared with the main mode of travel for these respondents.

Figure C.31 Shopper trip frequency by mode of travel

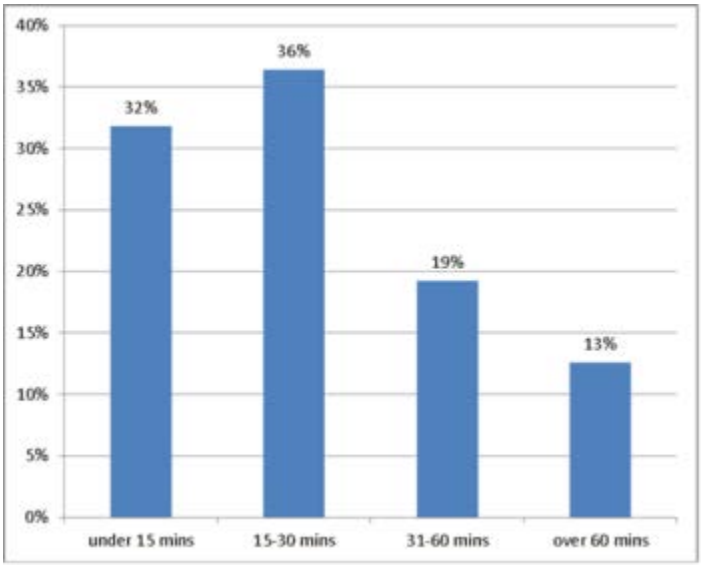


In terms of the interaction between trip frequency and mode, the data shows that sustainable transport users collectively (walking, cycling and public transport) were the more frequent visitors to the shopping area (ie daily, two to three times a week, weekly and fortnightly). Car drivers/passengers also visited frequently, but proportionally they made up a large amount of those shoppers visiting monthly or less.

C1.4.7 Duration of shopping trips

Shoppers were asked how long they spent in the shopping areas they visited. The data shows that in general The Terrace shoppers (87%) spent one hour or less in the area. The majority of shoppers spent 15–30 minutes in the area.

Figure C.32 Shopper trip duration



The survey results do not show any particular differences between trip duration and travel mode choice, as in general people travelling by each mode spent approximately half an hour, on average, in the area.

C1.4.8 Overall area rating by shoppers

Shoppers were also asked to rate the overall shopping area. Seventy percent of shoppers rated The Terrace shopping area to be either good or very good.

C1.5 Wellington sites: headline results, Newtown

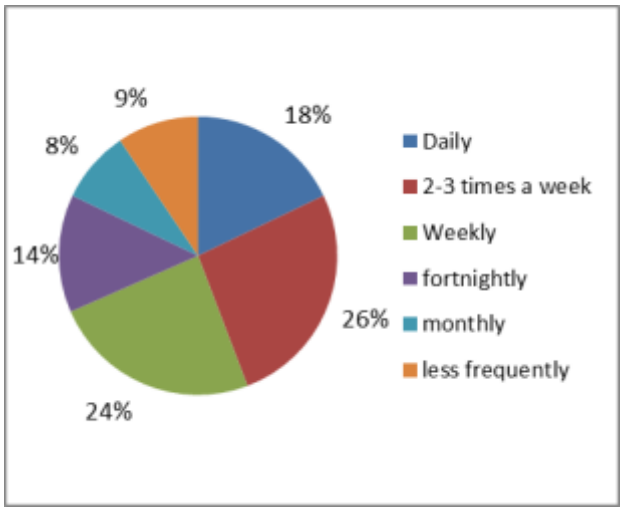
C1.5.1 Retailer perception of passing trade

Retailers were asked to estimate what percentage of their customer base comprised regular customers as opposed to passing traffic. The results for Newtown show that retailers viewed passing trade to account for 40% of their customer base, on average.

The shopper survey respondents indicated that the majority of visits to Newtown (84%) were by customers who intended to visit the area. The remaining 16% said they had not intended to shop in the area, ie they were passing trade.

Those who were shopping in the area were also very regular users, in fact 68% of shoppers visited at least weekly or more. This indicates broadly that the perception of respondent retailers was to overestimate the importance of passing trade in this area.

Figure C.33 How often do you visit this shopping area/centre?



C1.5.2 Travel mode

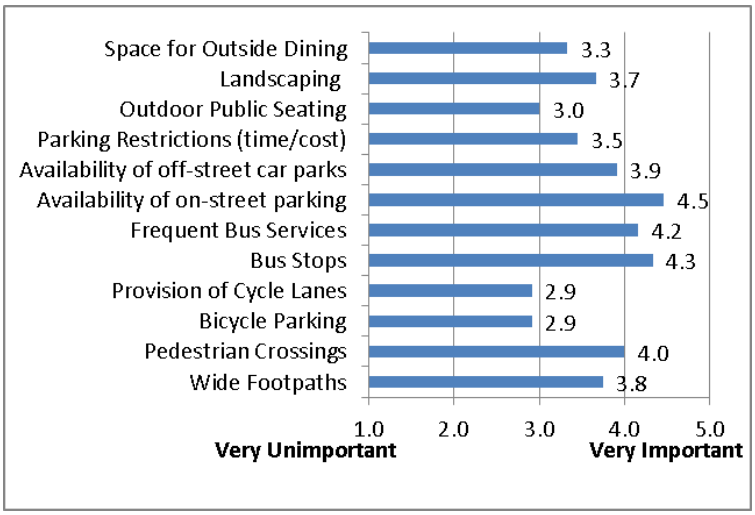
Retailers were asked what their normal travel to work mode choice was. The majority of Newtown retailers (69%) drove to work, the second largest mode share was for walking to work (15%) followed by cycling (8%) with the remainder (8%) made up of other modes. A second question about where retailers lived revealed that 69% of retailers lived within 5km of the study area.

Retailers were also asked to estimate what they thought their shoppers' mode share currently was. On average they estimated that 38% of shoppers travelled by car, 39% walked, 2% cycled and 18% came by public transport (with the remaining 2% made up of 'other' modes). Of the respondent shoppers, 54% travelled by car to the area (either as the driver or as a car passenger), 38% walked, 4% travelled by public transport and 2% cycled. The shopper mode share captured indicates that retailers underestimated the number of customers travelling by car (by 16%). Retailers also significantly overestimated the numbers travelling by public transport (by 14%).

C1.5.3 Design features

Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. Of these design features, the availability of on-street car parking followed by bus stops were considered the most important. The most unimportant design features related to cycle lanes and parking.

Figure C.34 Retailer: How important is 'x' in maintaining and supporting your business trade?

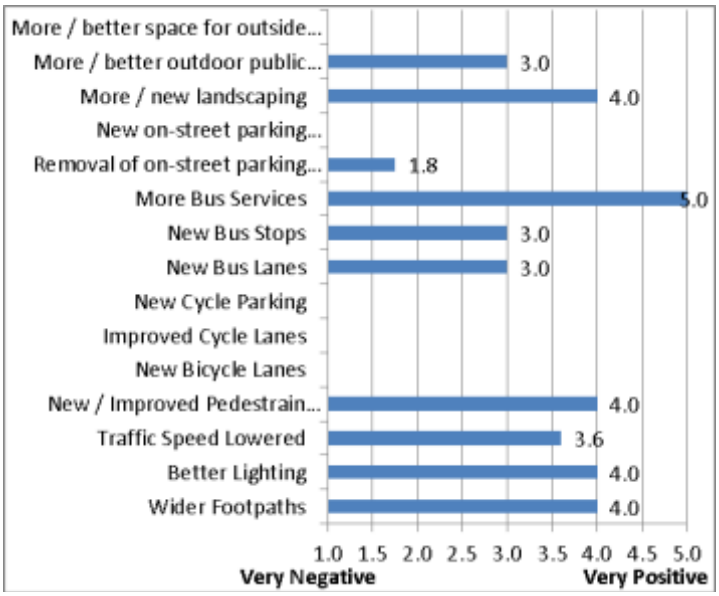


C1.5.4 Design changes

Retailers were asked also whether any design changes had occurred in the area, and if so, whether this resulted in a negative or positive impact on their business trade.

The most positively viewed changes for Newtown retailers were having increased bus services, landscaping, pedestrian crossings, better lighting and wider footpaths. The removal of on-street parking spaces was viewed very negatively.

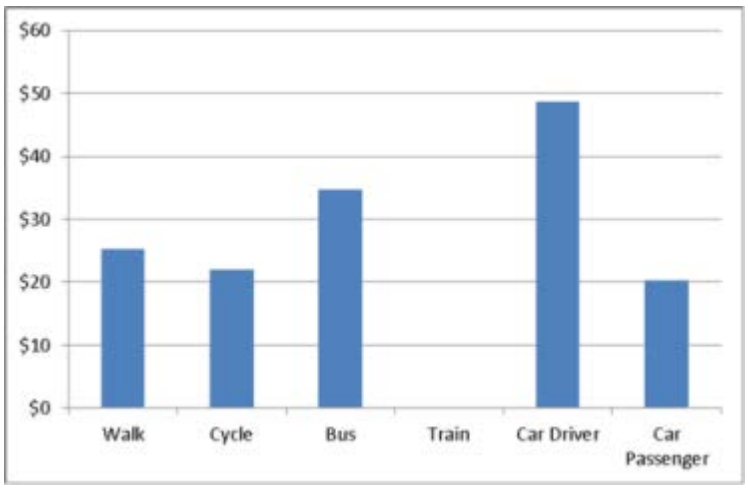
Figure C.35 What changes have there been to the area and what impact has this had on your business trade?



C1.5.5 Shopper spend by mode of travel

Respondents were asked to indicate their level of spending in the shop where they completed the questionnaire and their spending (planned or undertaken) in any other shops for that trip in the area. This information was cross tabulated by their mode of travel to calculate an average spend per mode of travel.

Figure C.36 Shopper total spend by mode of travel



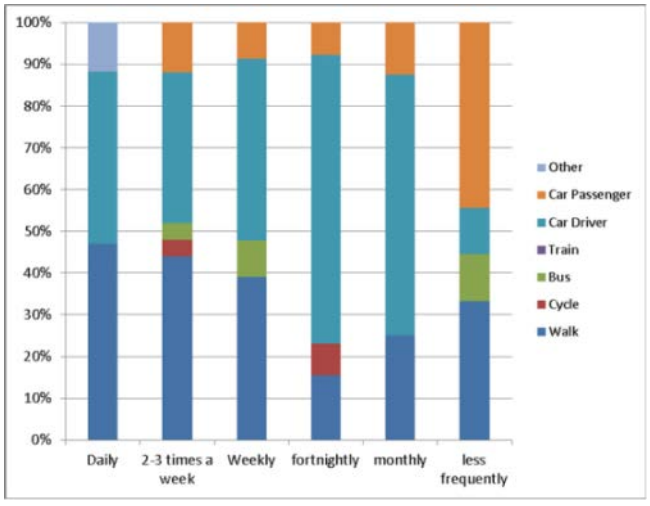
Responses from Newtown shoppers show that the average shopping visit expenditure by car passengers is comparable with that of pedestrians and cyclists at around $20. Car drivers spent on average $50 and bus users $35. The observed expenditure by other modes, which included sustainable modes such as skateboard or skating, was significantly higher. Although the 'other' category had a low sample size with just two respondents, these were responsible for the proportionally higher spend.

Overall, when combining the walking and cycling mode shares with public transport the average spend was $32. This indicates that in comparison with car driver/passenger trips where on average $42 was spent, sustainable transport mode users were likely to spend less.

C1.5.6 Frequency of shopping trips

Shoppers were asked how often they visited an area. The majority of Newtown respondents (50%) visited the shopping area either daily or two to three times a week. The frequency information was also compared with the main mode of travel for these respondents.

Figure C.37 Shopper trip frequency by mode of travel



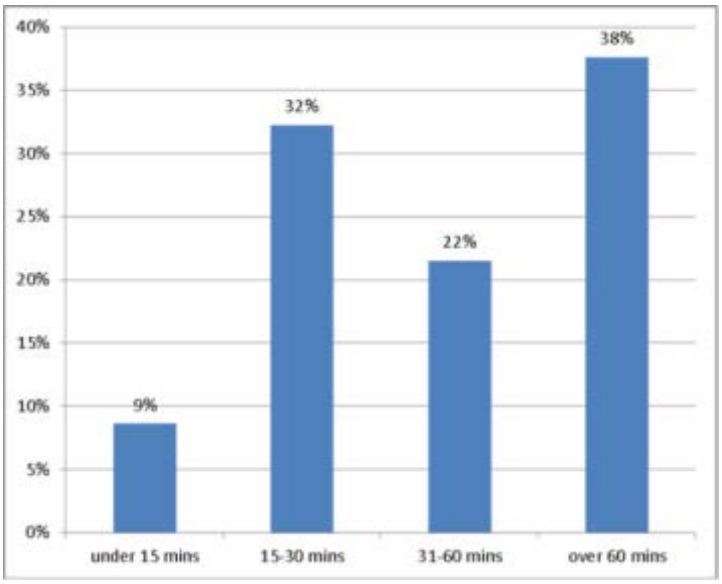
In terms of the interaction between trip frequency and mode, the data shows that sustainable transport users collectively (walking, cycling and public transport) were fairly equal to car drivers/passengers in terms of how frequently they used the shopping area (ie daily, two to three times a week, weekly). Car

drivers/passengers proportionally made up a larger amount of those shoppers visiting fortnightly or monthly.

C1.5.7 Duration of shopping trips

Shoppers were asked how long they spent in the shopping areas they visited. The data shows that in general Newtown shoppers (63%) spent one hour or less in the area. The majority of shoppers spent over 60 minutes in the area.

Figure C.38 Shopper trip duration



The survey results do not show any particular differences between trip duration and travel mode choice. In general, shoppers travelling by each mode spent on average approximately 30–40 minutes in the area (with the exception of cyclists who spent on average 50 minutes).

C1.5.8 Overall area rating by shoppers

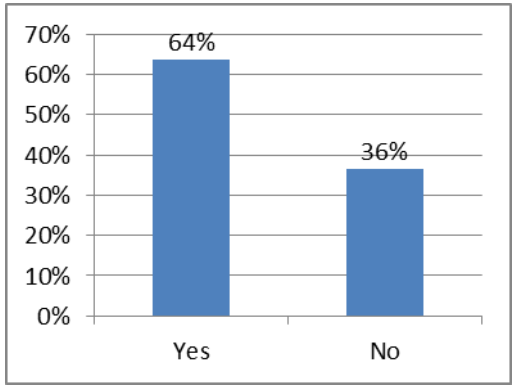
Shoppers were also asked to rate the overall shopping area. Seventy-one percent of shoppers rated Newtown shopping area to be either good or very good.

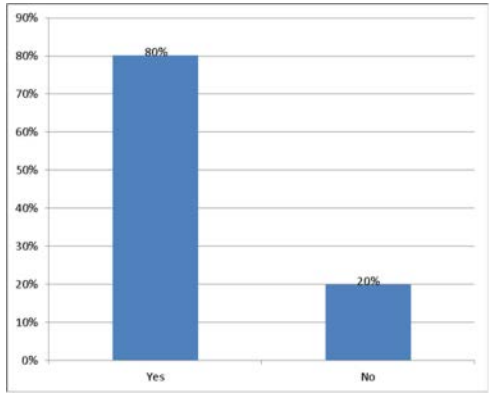
C1.6 Wellington sites: raw data

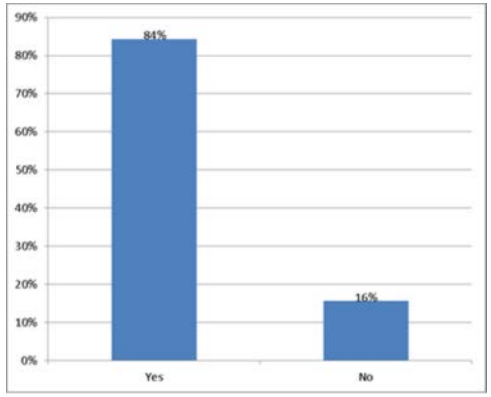
C1.6.1 Shopper results

Courtenay Place	The Terrace	Newtown

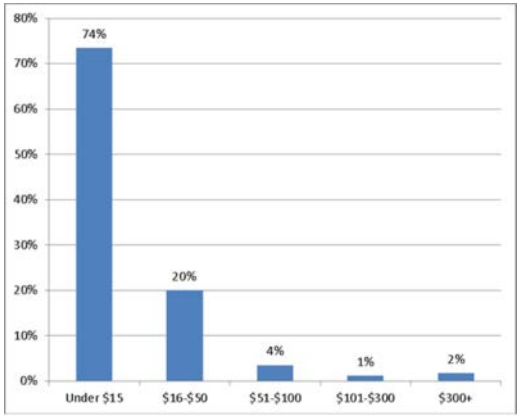
Did you intend to visit this shopping area/centre today?

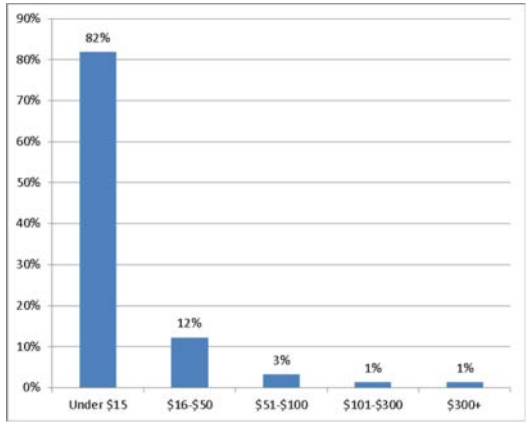


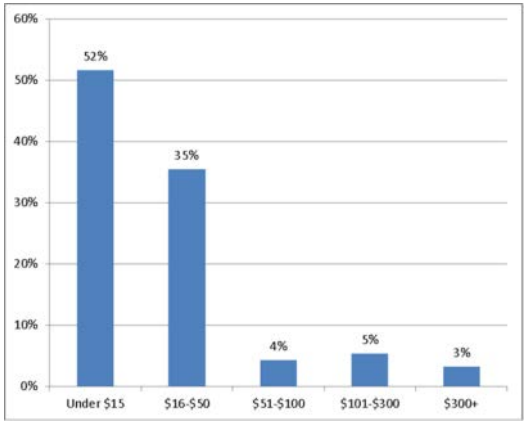




How much did you spend in this shop?

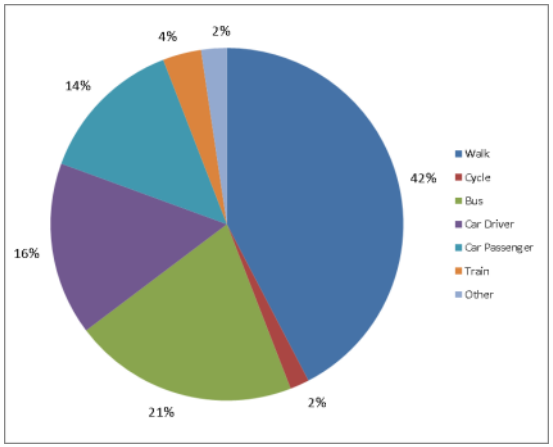


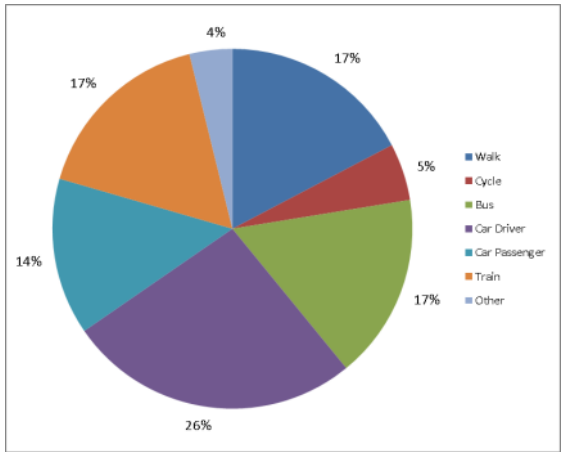


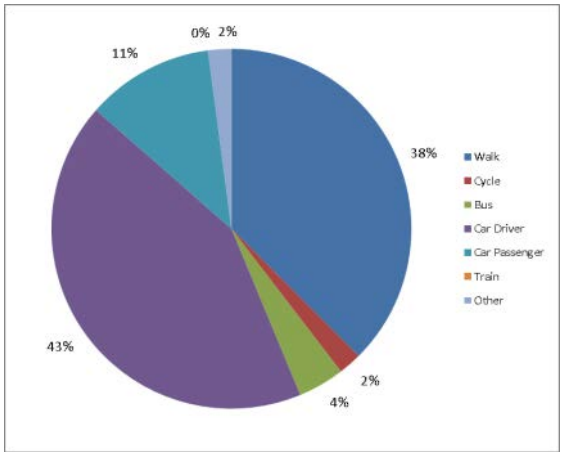


Courtenay Place	The Terrace	Newtown

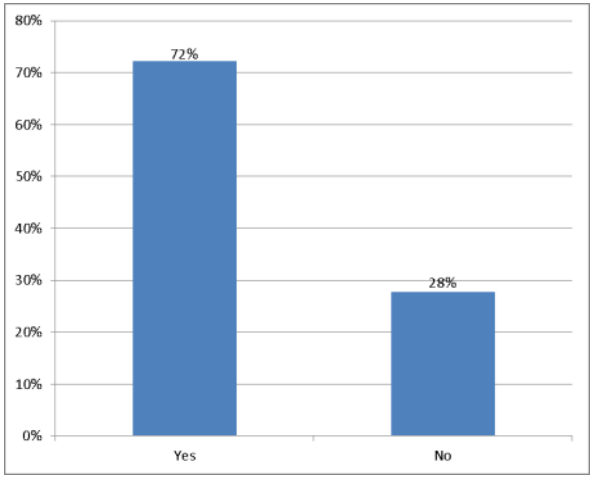
Main mode of travel

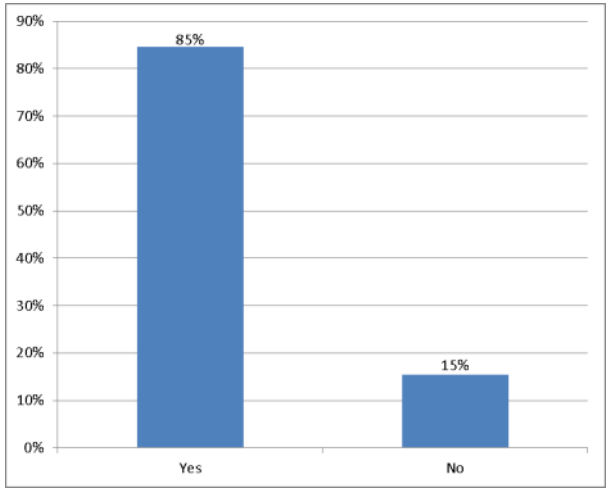


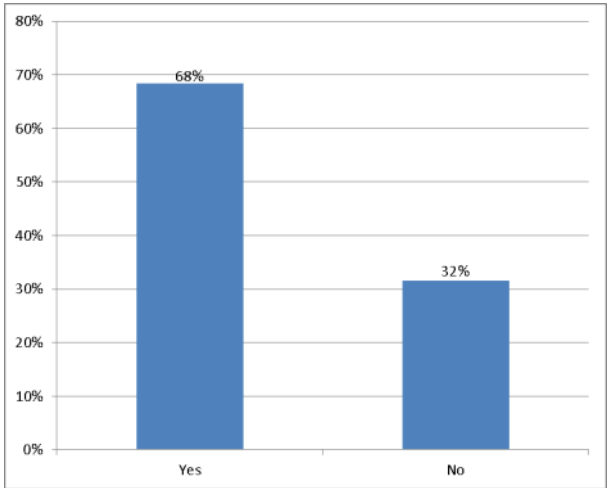




Do you always travel using the same mode of transport?

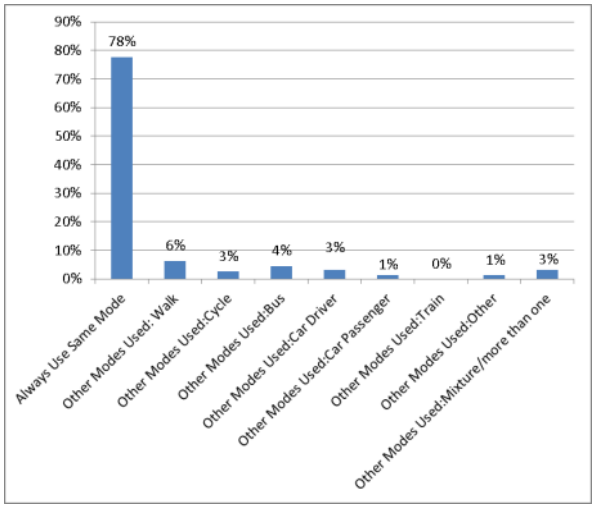


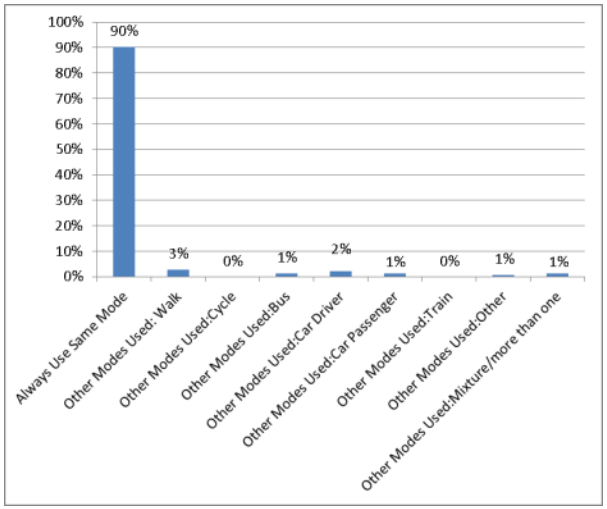


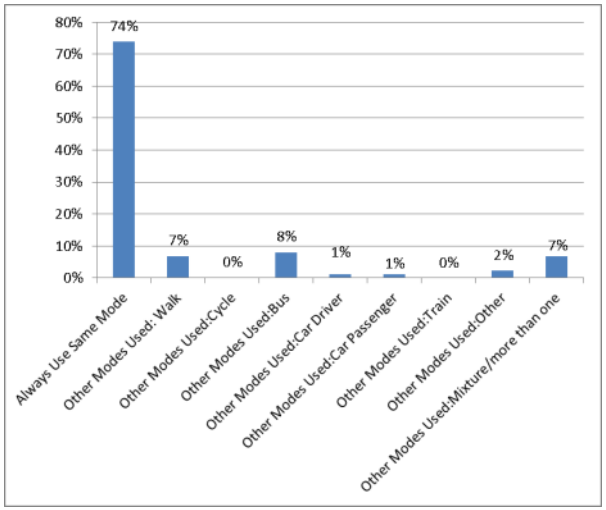


Courtenay Place	The Terrace	Newtown

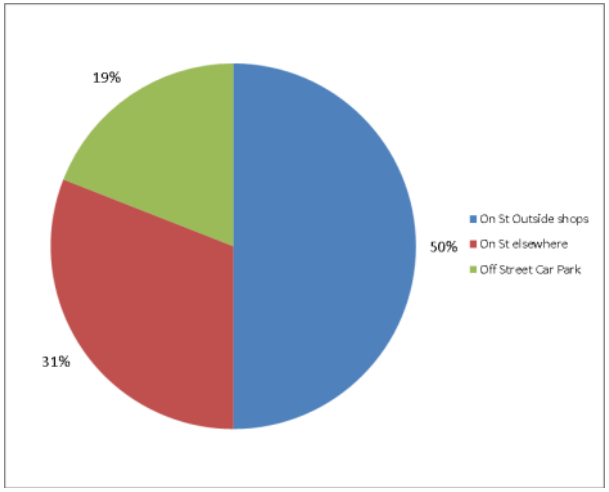
If no, what mode is your usual choice?

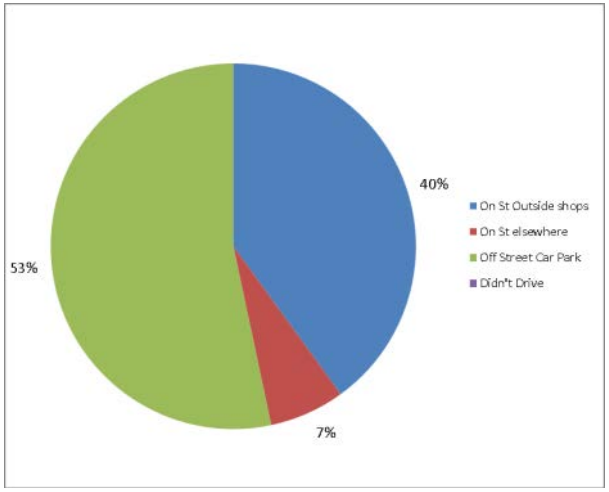


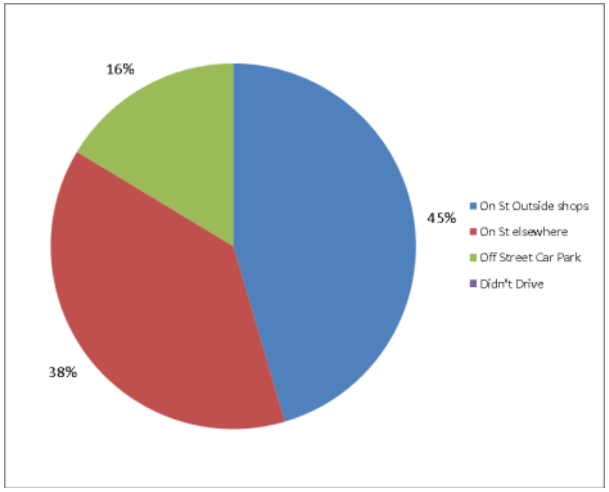




If you drove where did you park?

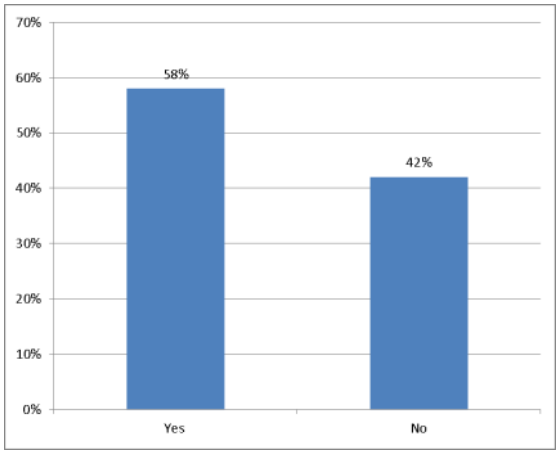


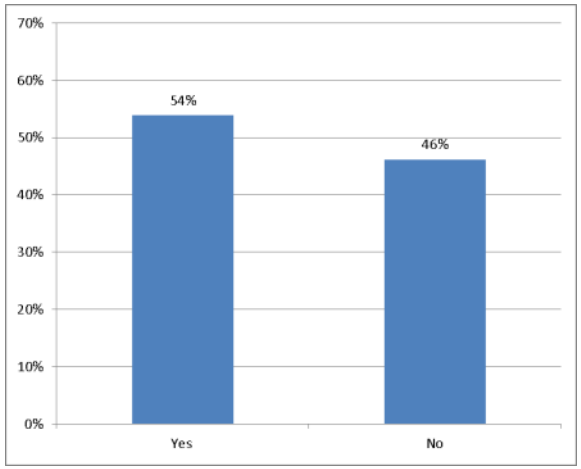


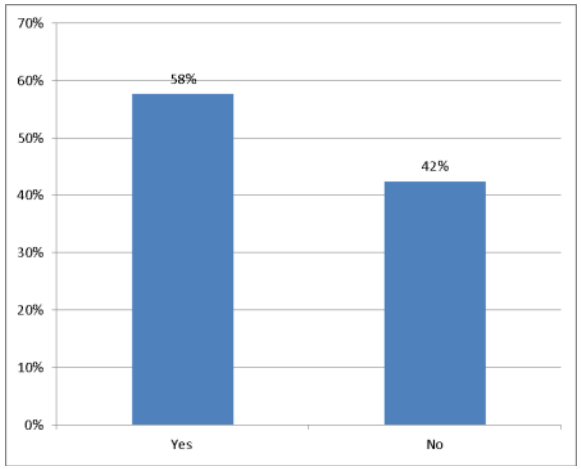


Courtenay Place	The Terrace	Newtown

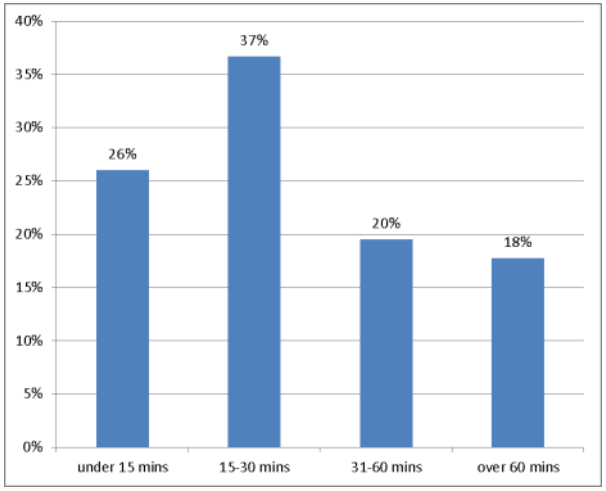
Did you visit any other shops?

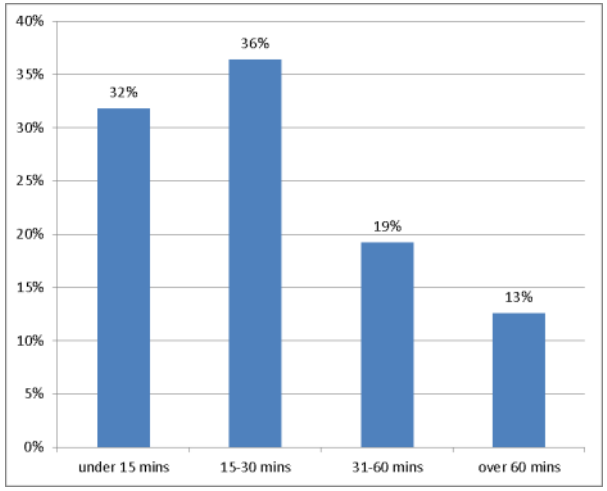


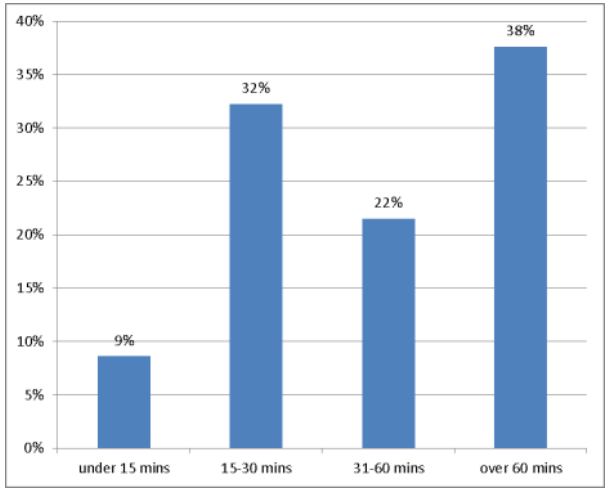




How much time did you spend in this shopping area/area today?

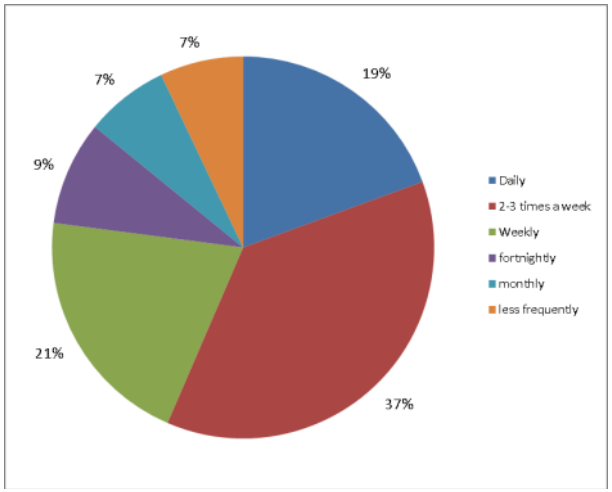


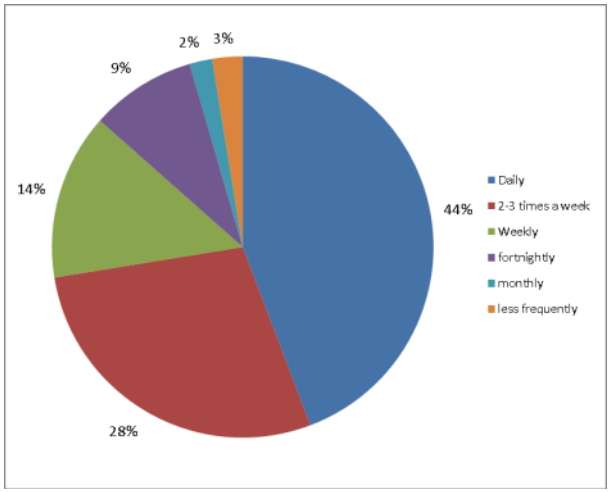


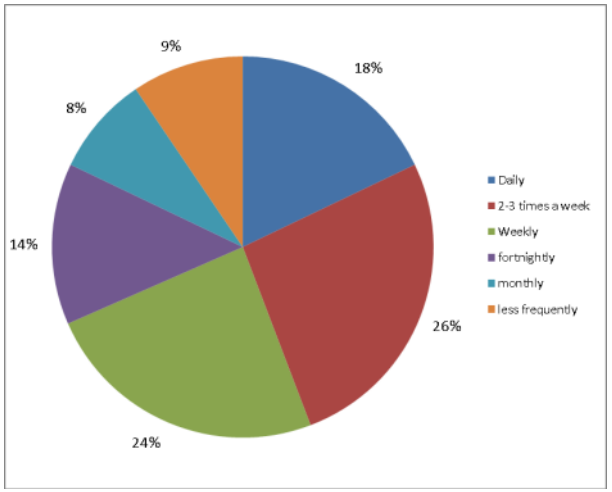


Courtenay Place	The Terrace	Newtown

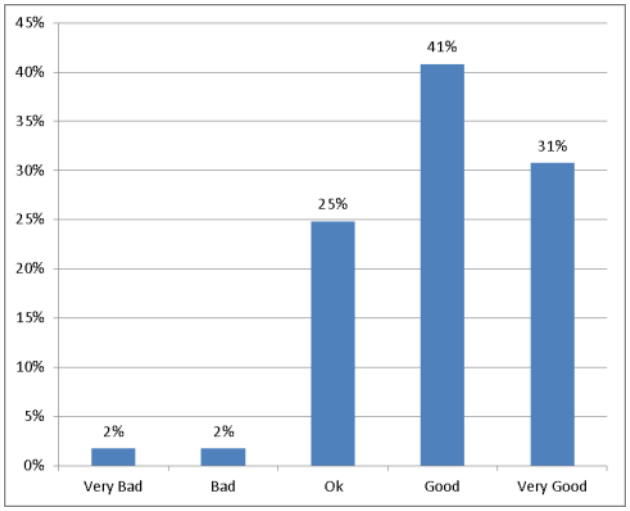
How often do you visit this shopping area/centre?

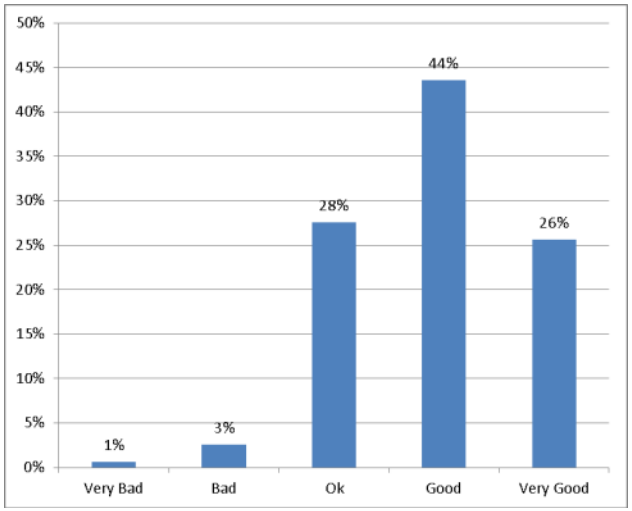


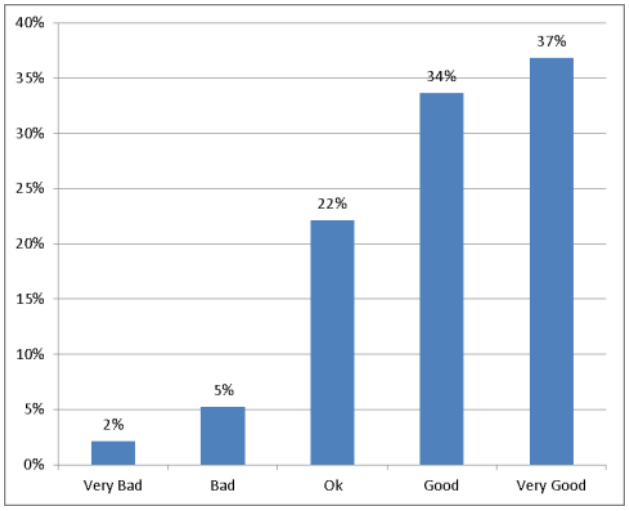




How would you rate this overall shopping area/centre?

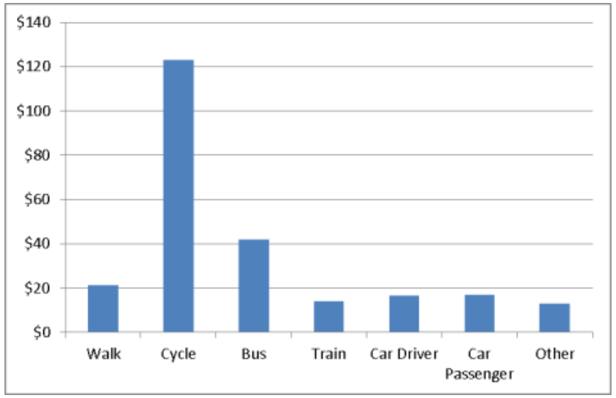


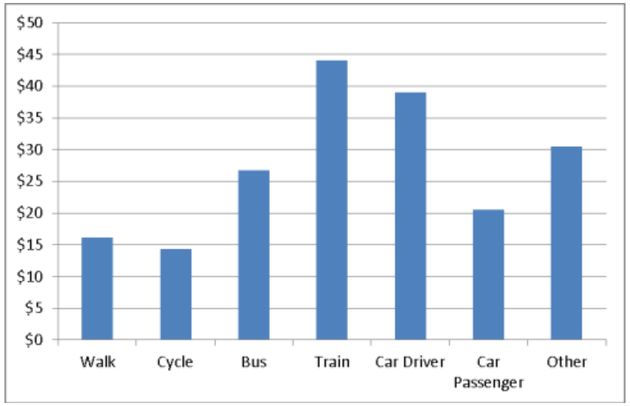


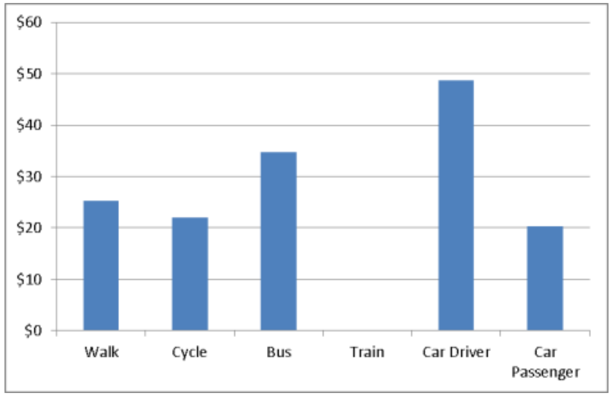


Courtenay Place	The Terrace	Newtown

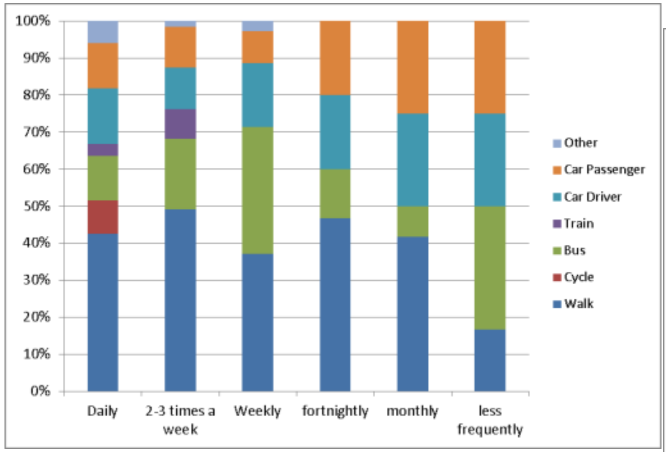
Actual spend by mode

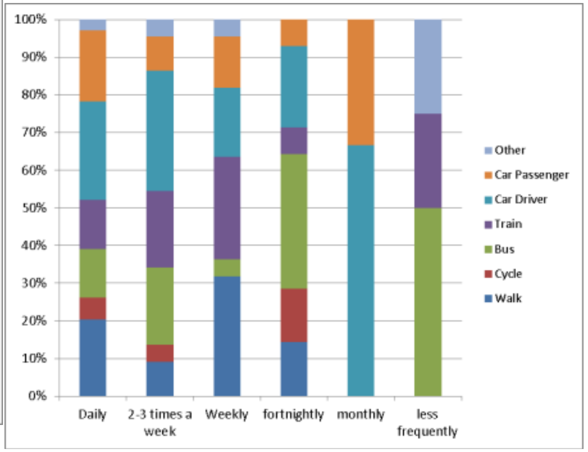


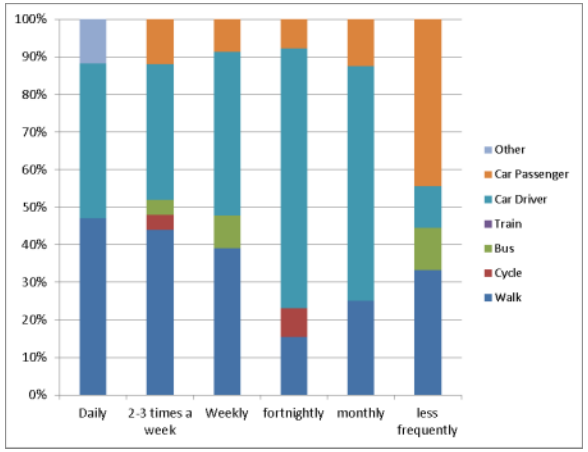




Shopper trip frequency by mode of travel



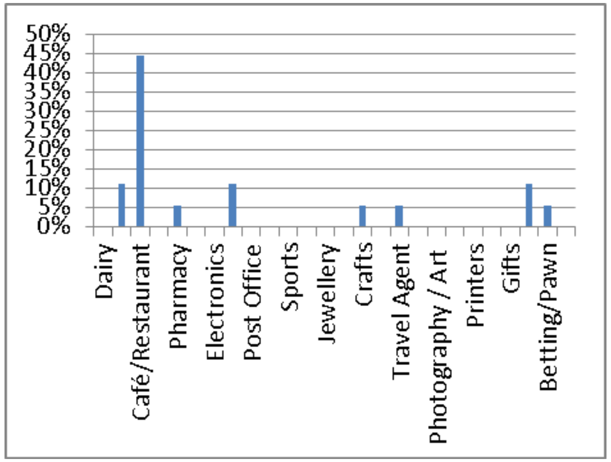


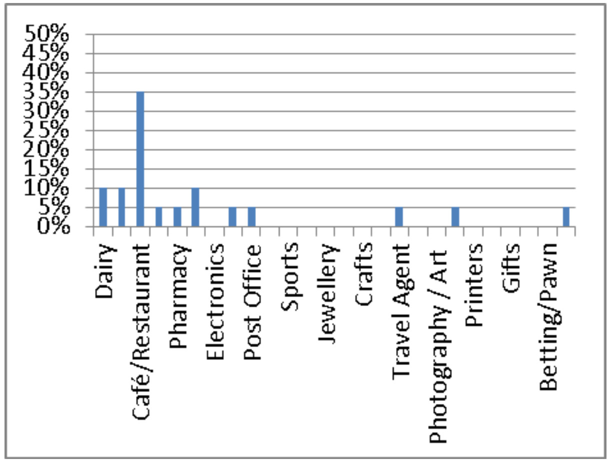


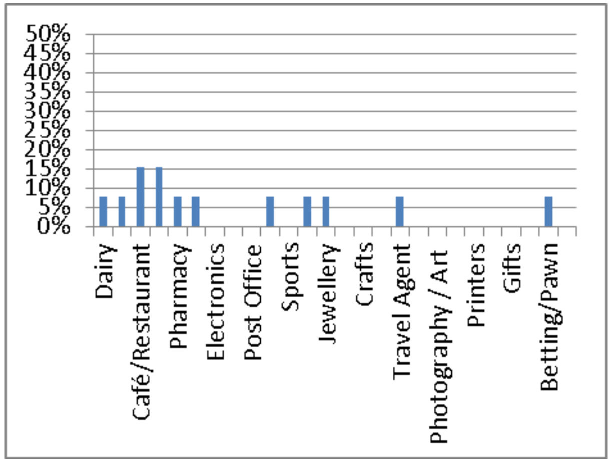
C1.6.2 Retailer results

Courtenay Place	The Terrace	Newtown

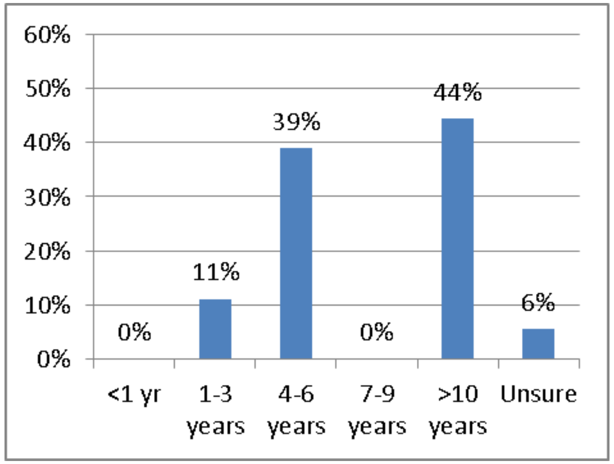
Shop type

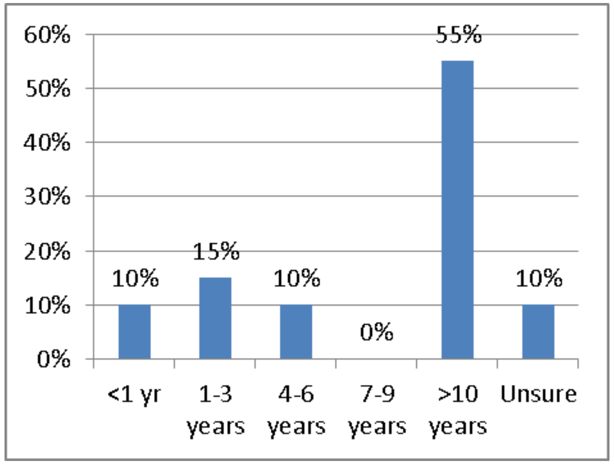


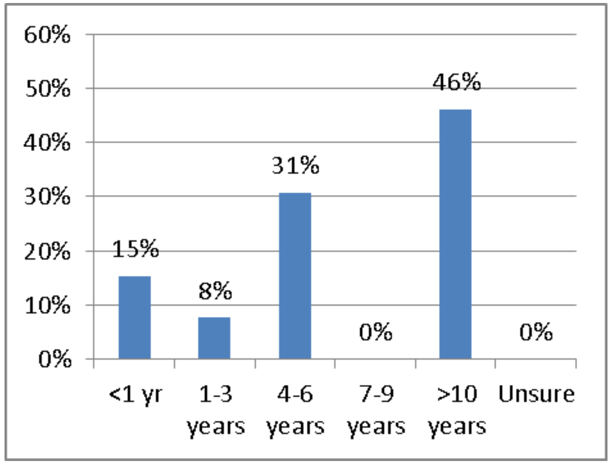




Business age

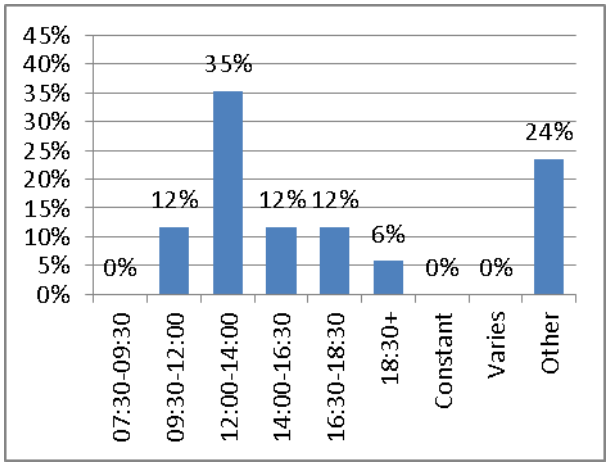


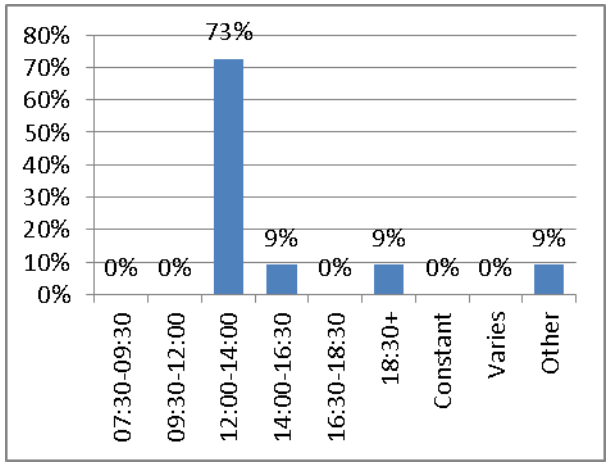


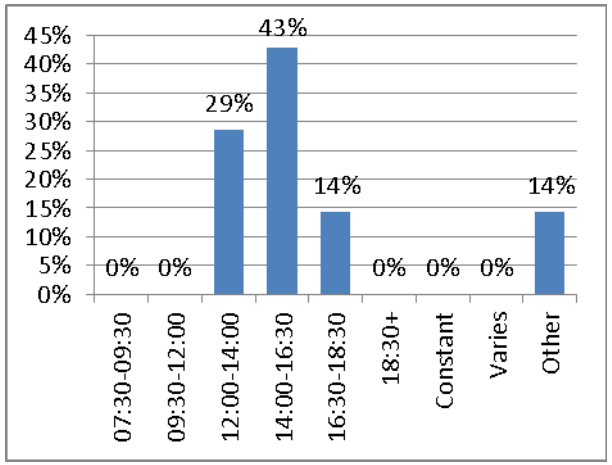


Courtenay Place	The Terrace	Newtown

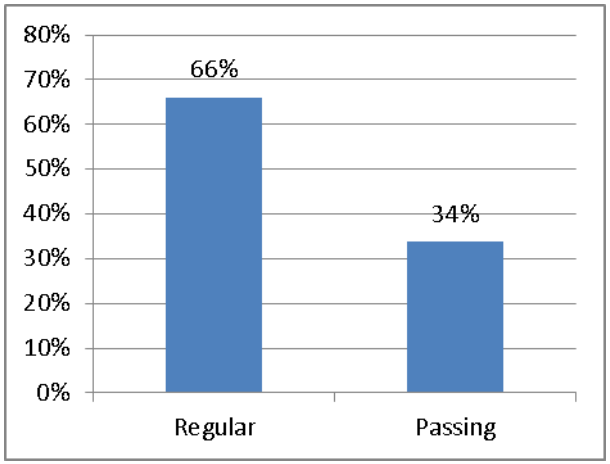
Busiest times

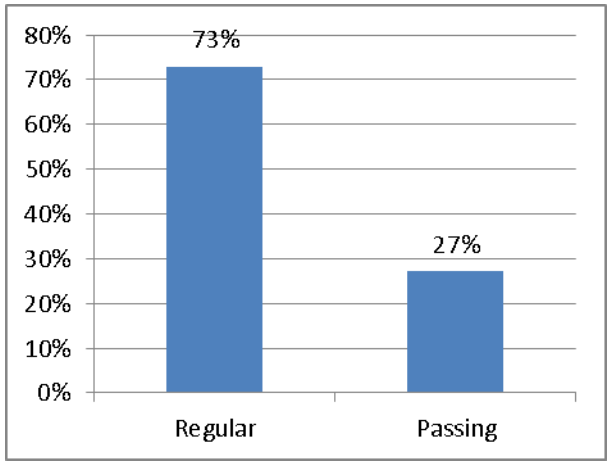


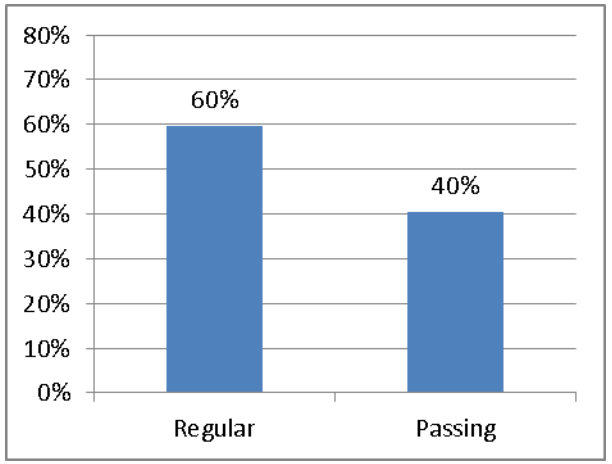




Passing vs regular customers

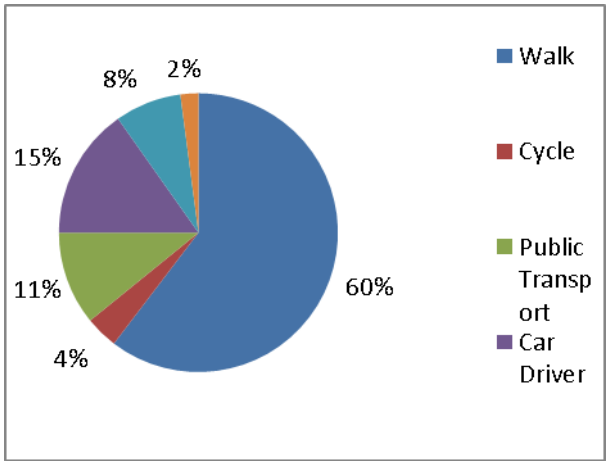


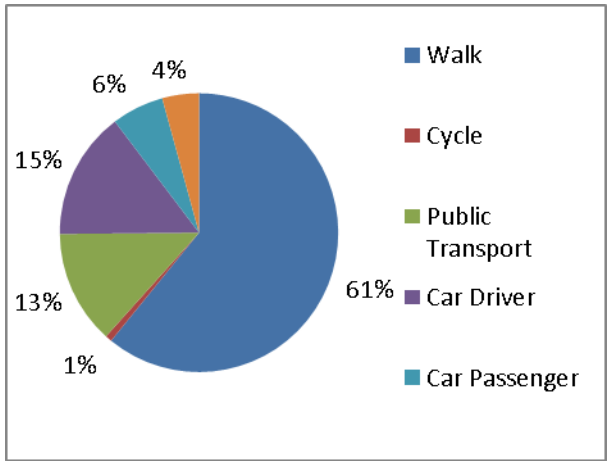


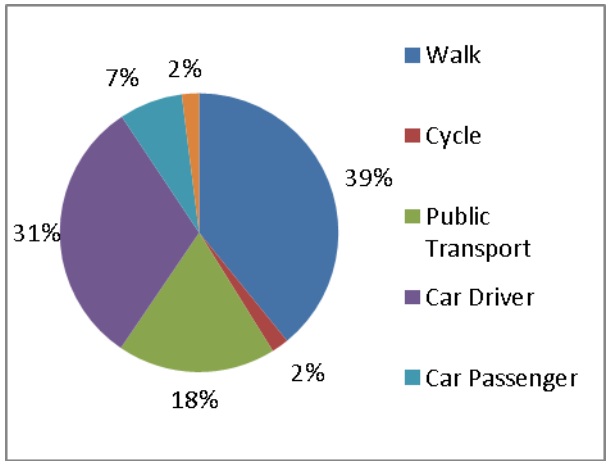


Courtenay Place	The Terrace	Newtown

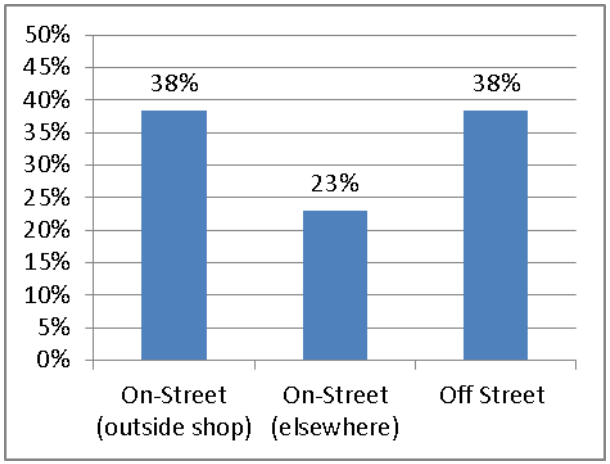
Estimated mode share average

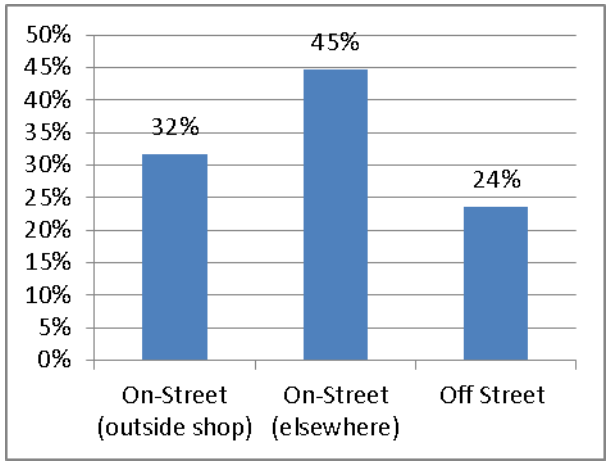


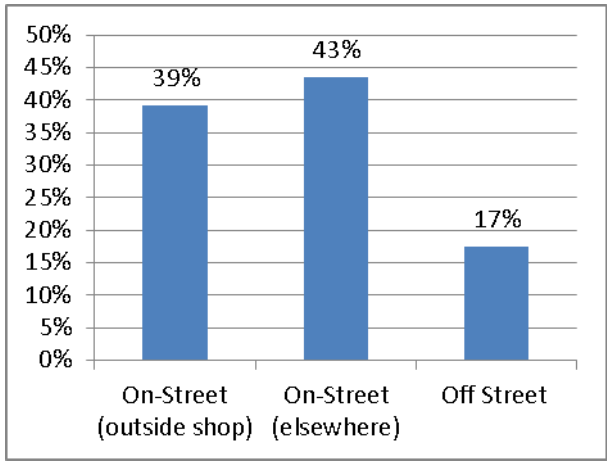




Parking options

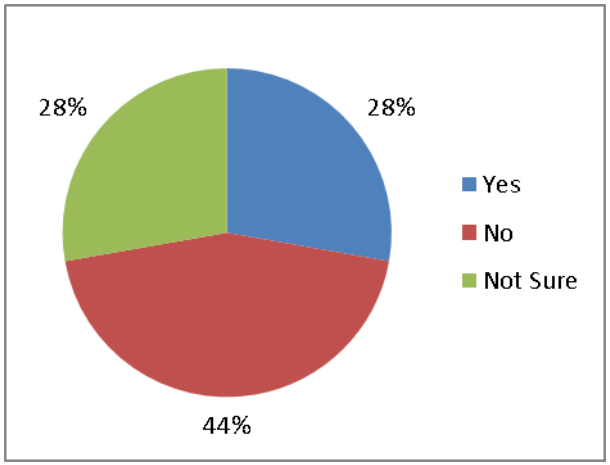


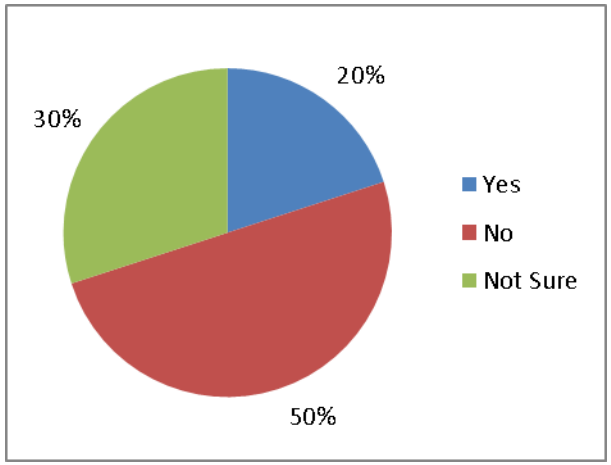


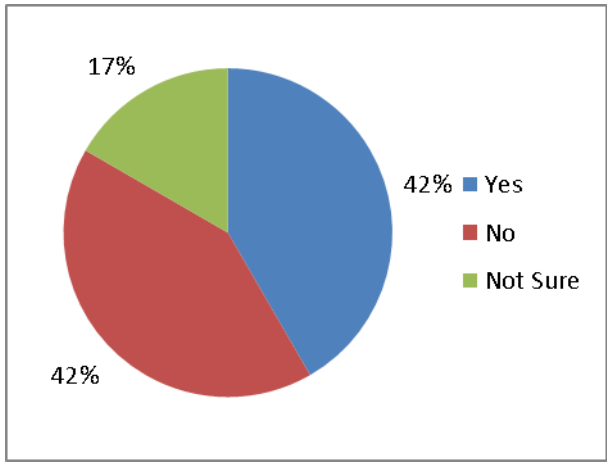


Courtenay Place	The Terrace	Newtown

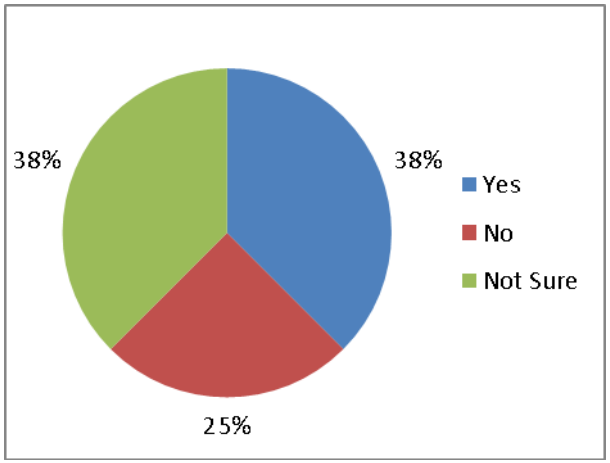
Parking availability

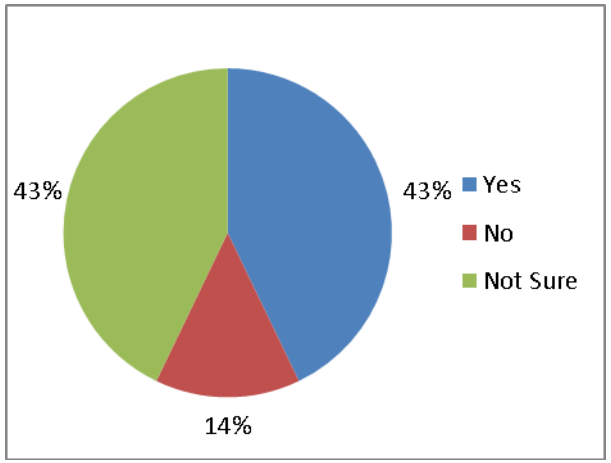


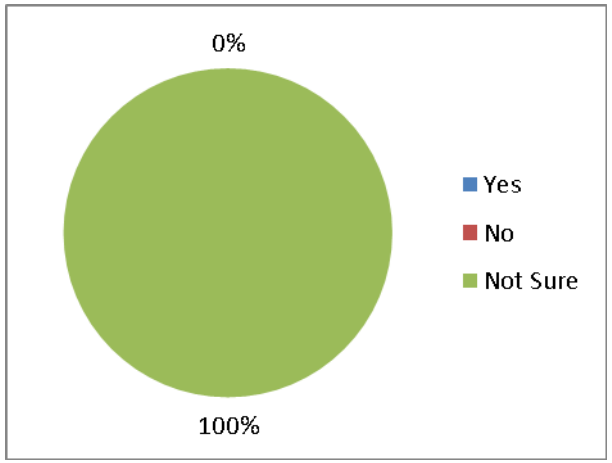




Cycle parking availability

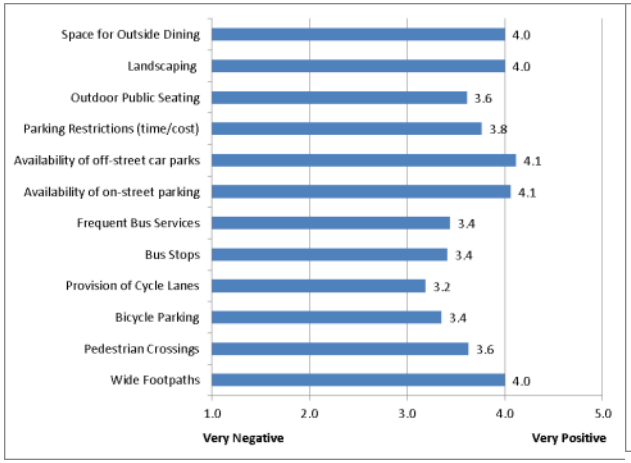


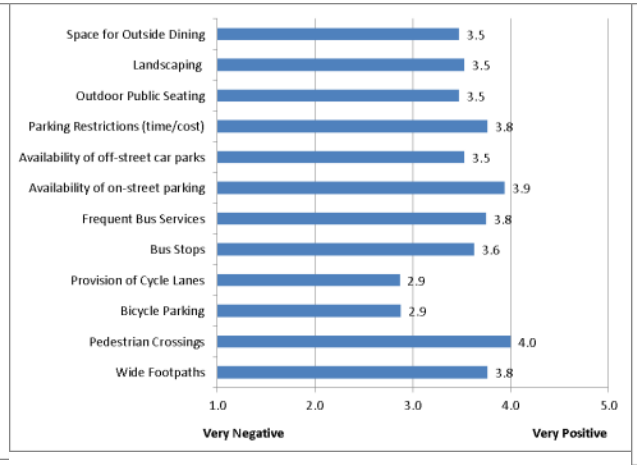


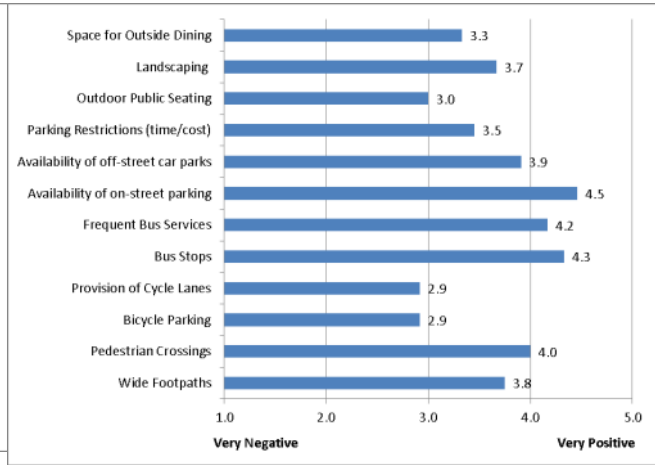


Courtenay Place	The Terrace	Newtown

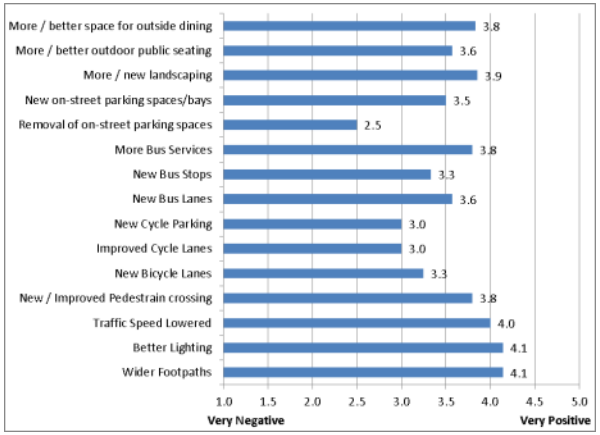
How important are these design features in maintaining and supporting your business trade?

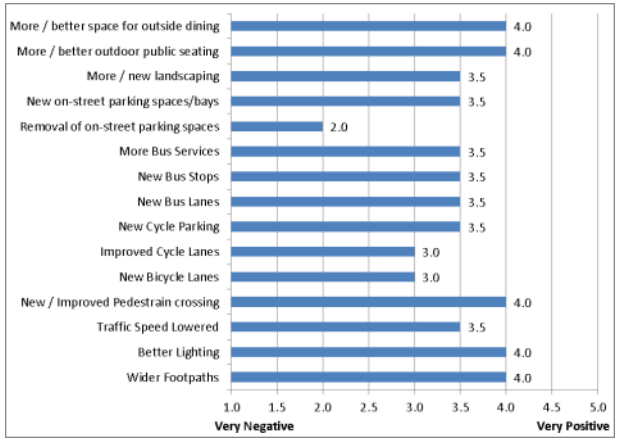


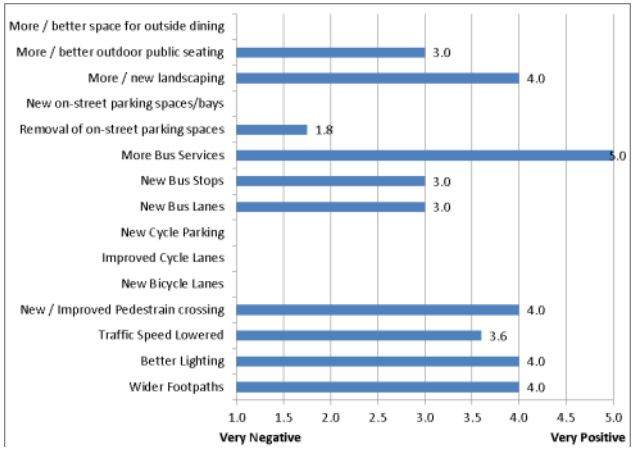




What changes have there been to the area and what impact has this had on your business trade?

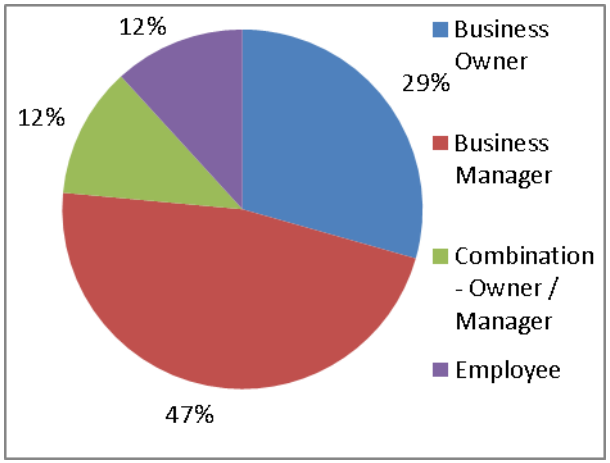


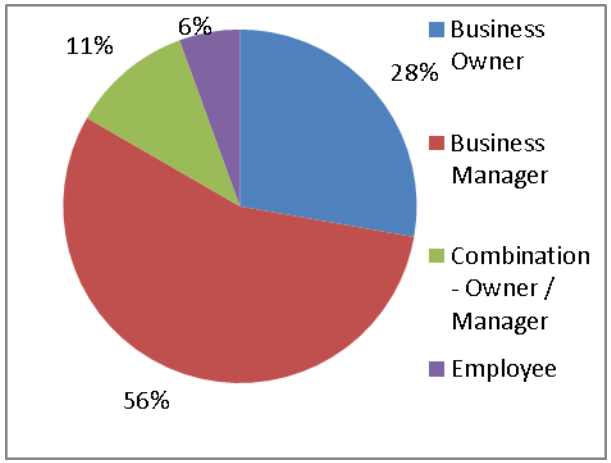


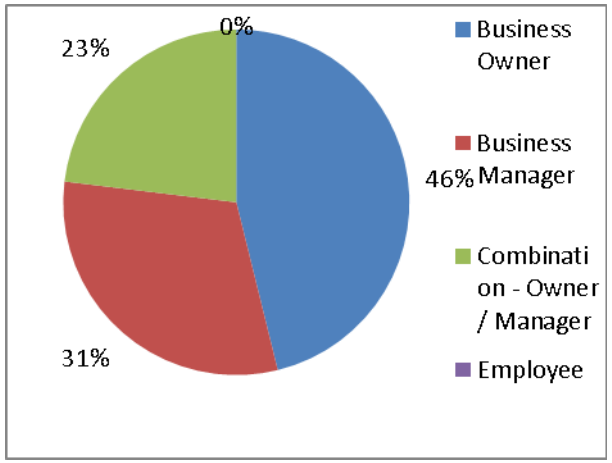


Courtenay Place	The Terrace	Newtown

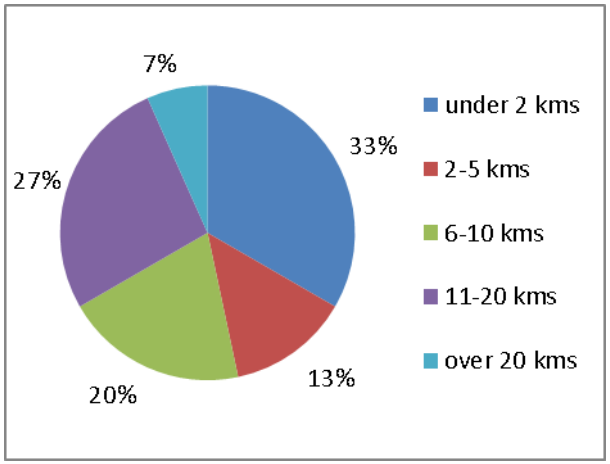
How important are these design features in maintaining and supporting your business trade?

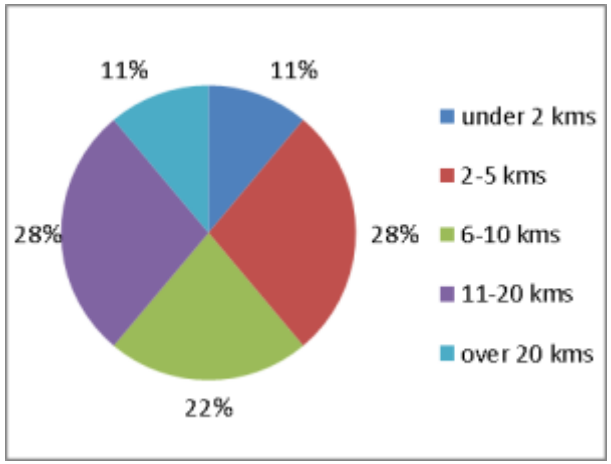


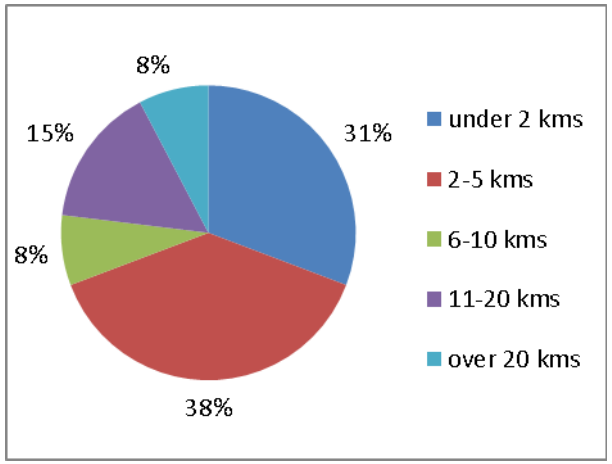




How far do you live from the business?

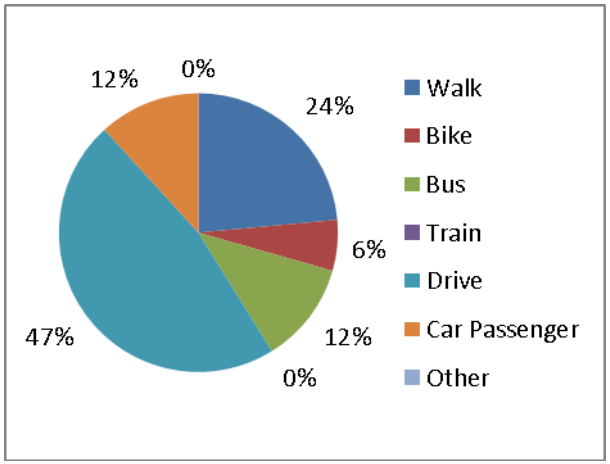


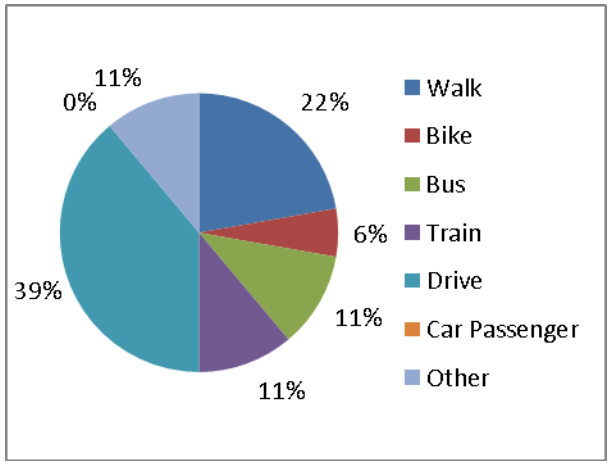


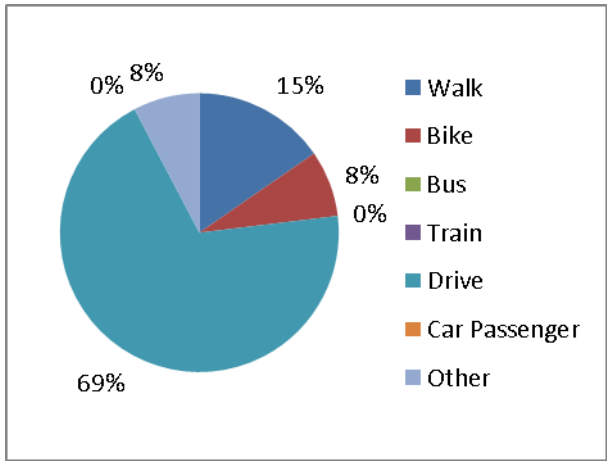


Courtenay Place	The Terrace	Newtown

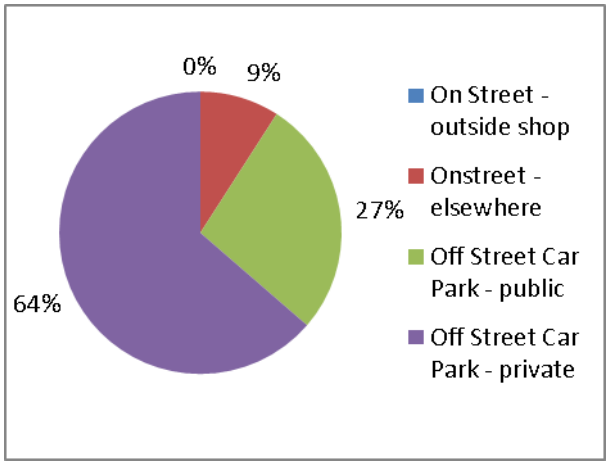
Travel to work

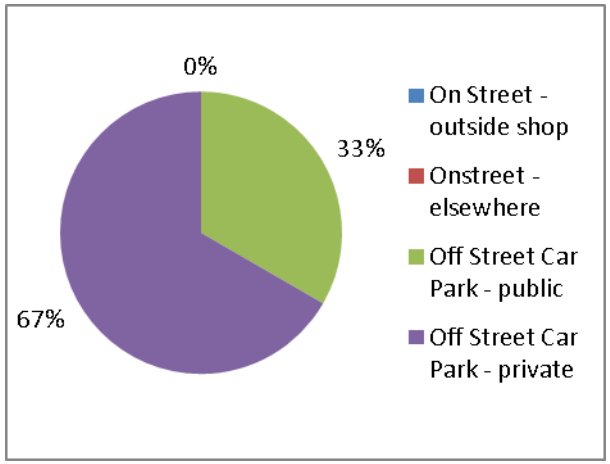


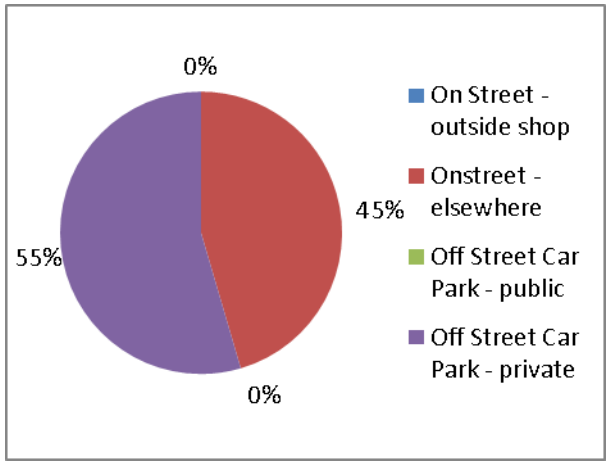




Parking

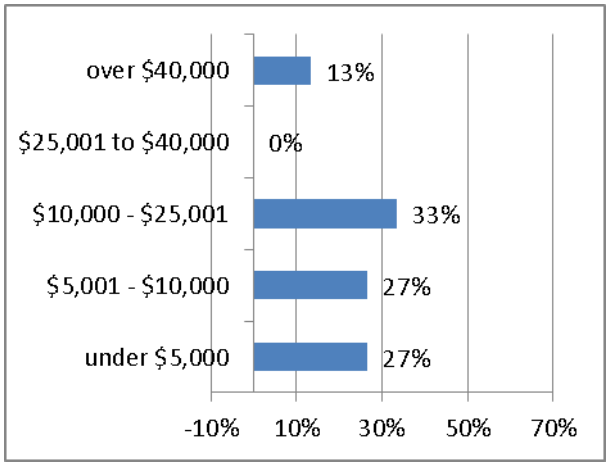


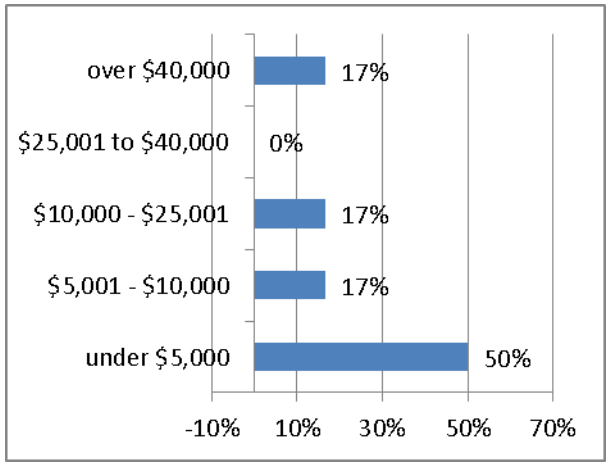


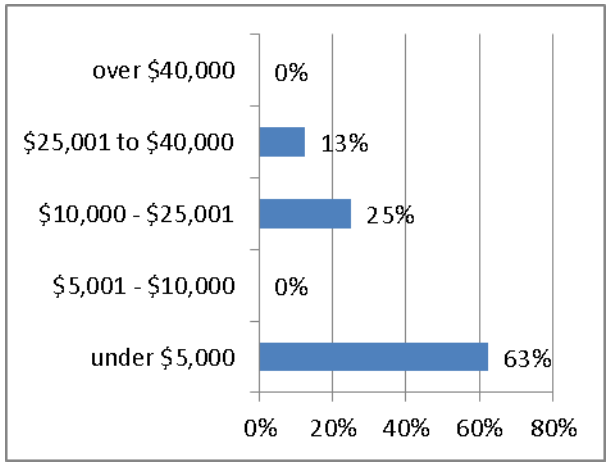


Courtenay Place	The Terrace	Newtown

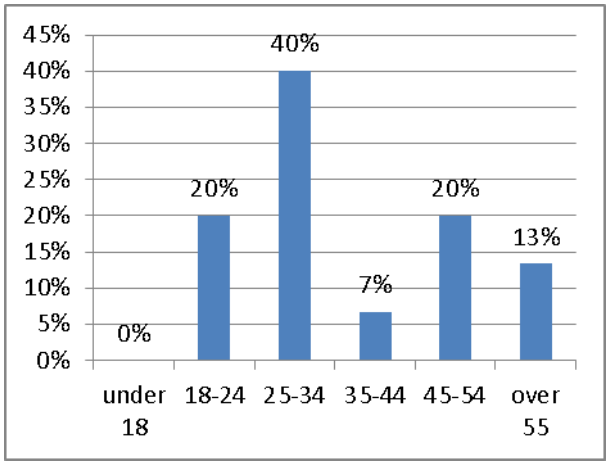
Monthly rental value

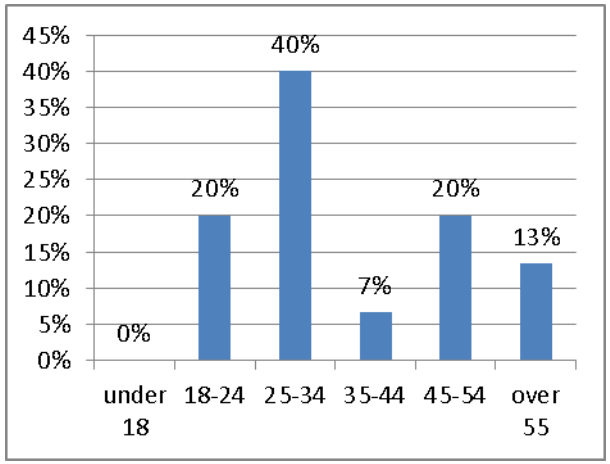


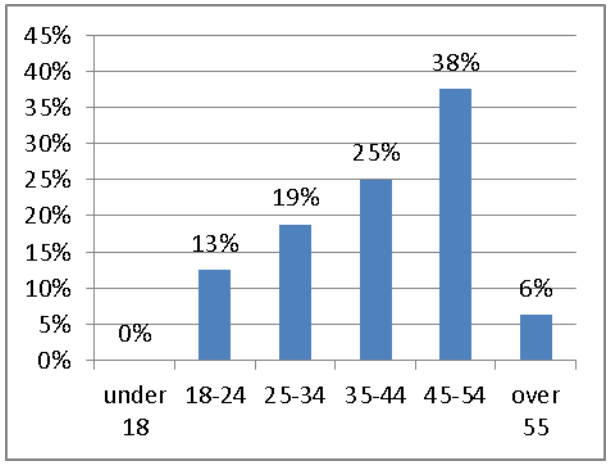




Age of respondents







C2 New Zealand case studies: Christchurch sites

C2.1 Christchurch sites: summary

The selected sites in Christchurch were Papanui Road (Merivale), Riccarton Road and Colombo Street.

A total of 17 shops were identified within the Riccarton Road study area. Three of these were vacant at the time. Of the 14 retailers approached, four returned completed retailer questionnaires and seven agreed to host a shopper survey. Thirty-six shopper surveys were completed.

Of the 35 retailers approached in the Merival study area, eight returned completed questionnaires and two (Dodds and Fresh Choice) agreed to host a shopper survey. Twenty-seven shopper surveys were completed.

In the Colombo Street study area, three retailers returned completed retailer questionnaires. Fifteen retailers agreed to host a shopper survey and 61 valid shopper surveys were collected.

Due to the limited sample set, the data from the three Christchurch sites was combined for the purpose of reporting. It is important to note that the findings of these surveys are based on a very small sample size and therefore the confidence that can be placed on their significance is relatively limited.

Headline results based on this survey are as follows:

- Retailers significantly overestimated the proportion of regular customers.
- Most retailers drove to work despite a significant proportion living within 5km of their workplace.
- Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. The availability of off street parking was considered the most important. On-street parking was also rated highly, as was the provision of pedestrian facilities (wide footpaths/crossings). An initial comparison based on the findings of the pilot study area in central Christchurch (Colombo Street), found that shoppers placed the most importance on parking restrictions (as opposed to availability) and cycling facilities illustrating some contrasting views between what shoppers say is important to them, and what retailers think is important.
- Riccarton parking data indicated that some retailers (and/or staff) were using on-street parking spaces. It was also found that at certain times of day there was a significant oversupply of private off-street parking, and a moderate oversupply of off-street customer car parking.
- For Riccarton the most positively viewed design changes were improvements to outdoor seating, landscaping and footpath widening. In general the majority of design changes were viewed as having a neutral or positive impact.
- In Merivale across all categories, design changes were viewed as having a negative or neutral impact on business trade. The new bus lanes and cycle lanes ranked neutrally overall. The addition of parking spaces/bays and the removal of on-street parking spaces along with new bus stops ranked negatively in terms of impact on business trade. No responses were received from Colombo Street retailers.
- Shoppers were asked how much they spent in the area and this was cross tabulated with their travel mode. The findings overall indicated that individual cyclists, pedestrian and bus users were likely to spend, on average, at a level comparable to car drivers/passengers.
- In terms of understanding the interaction between trip frequency and travel mode choice and trip duration and travel mode choice, the survey results did not show any particular trends of note, although it was observed that the proportion of sustainable transport users (pedestrians, cyclists and bus users) was higher towards the more frequent end of the scale.

It is important to note that the findings of these individual survey locations are based on a small sample of the population and therefore the confidence that can be placed on their significance is in parts limited. They serve as an indication though of current retailer and shopper perceptions and characteristics. The RoRS research report findings are based on the analysis of the collective dataset from nine New Zealand sites.

C2.2 Christchurch sites: overview of survey locations

The selected routes were Riccarton Road, Papanui Road and Colombo Street. Riccarton Road and Papanui Road are major arterial routes for vehicle traffic and public transport services. Colombo Street is a central route connecting key attractions in central Christchurch. It must be noted that this area has seen significant changes since the 22 February 2011 earthquake; however, all data and reporting is based on pre-earthquake conditions. In additional to the standard research methodology a parking survey was undertaken at the Riccarton Road site.

Riccarton Road is one of several Christchurch arterial routes where bus priority measures are proposed in the long-term community council plan (LTCCP). Papanui Road had a bus priority scheme installed in 2009. A section of each route was selected for this study.

C2.3 Christchurch sites: headline results

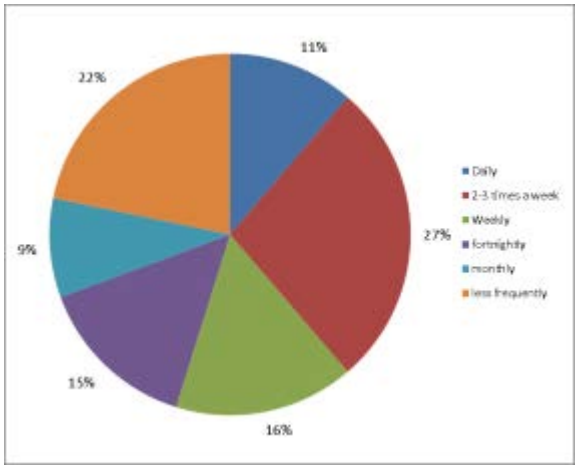
C2.3.1 Retailer perception of passing trade

Retailers were asked to estimate what percentage of their customer base comprised regular customers as opposed to passing traffic. The results for the Riccarton retailers show that retailers assessed passing trade to account for 33% of their customer base, on average. However, a significant amount of variation was observed in the retailers' perceptions.

The shopper survey respondents indicated that on average, the majority of visits to the Riccarton, Merivale and Colombo Street sites (75%) were by customers who intended to visit the area. The remaining 25% said they had not intended to shop in the area, ie they were passing trade. However, this proportion was higher in the case of Colombo Street, with 50% of shoppers identifying themselves as passing through.

Fifty-four percent of shoppers surveyed in Christchurch visited the shopping area one or more times a week. This indicates that the respondent retailers on average significantly overestimated the proportion of regular customers.

Figure C.39 How often do you visit this shopping area/centre?



C2.3.2 Travel mode

Retailers were asked what their normal travel to work mode choice was. Eighty-six percent of surveyed Christchurch retailers drove to work, while the remaining 14% walked. A second question about where retailers

lived revealed that 47% of retailers lived within 5km of the study area. This indicates that there is potential for retailers to vary their travel choices between bus, walking and cycling. Reducing the parking demand from retailers presents opportunities for releasing off-street or on-street parking for customers or other uses, eg bus stops, landscape improvements, footpath widening, kerb build outs for pedestrian crossings.

C2.3.3 Parking

Retailers who drove to work were asked where they parked, as were shoppers who drove to the area. Christchurch retailers were equally spread in their parking choice between on-street – outside shop, on-street – elsewhere, off-street car park – public, and off-street car park – private. In Merivale, retailers tended to park on-street away from the shopping area. One of the Riccarton retailer respondents said they parked on-street outside their shop, despite parking duration restrictions being in place in the area.

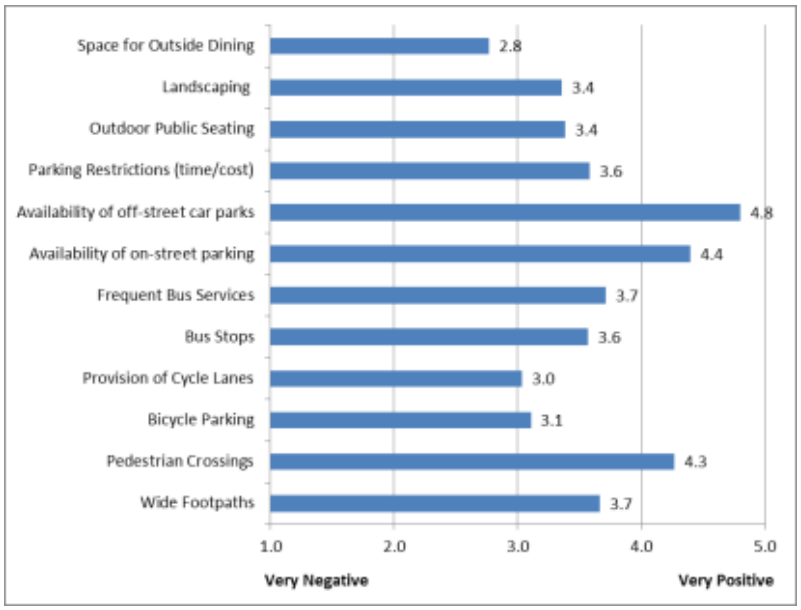
For the Riccarton area, a detailed parking survey was undertaken over a 12-hour period (7am to 7pm). This covered on-street parking in the study area and two off-street car parks. The off-street car park to the north is for privately leased parking, and the car park to the south is for retail customers.

The northern car park had a maximum occupancy of 80% at 7.05am. From 10am till 5.05pm this reduced to between 22% and 37%. From 5.05pm to 7.05pm the occupancy rate increased to 49% and 78%. This indicates that during the majority of the day the northern car park was at around 30% occupancy. It is unusual for the maximum parking occupancy to peak between 7am and 8am and one explanation could be resident parking in this area; another explanation could be a high number of delivery activities during the early part of the morning.

The off-street car park to the south was close to capacity between 7.05am and 8.05am on the survey day. During the remainder of the day the occupancy ranged from 28% to 71%. This suggests that at certain times of day there is a significant oversupply of private parking, and a moderate oversupply of customer car parking.

The on-street car parking survey showed that spaces 1 and 3 had the highest occupancy rate as illustrated in figure C.40.

Figure C.40 On-street parking average occupancy rate



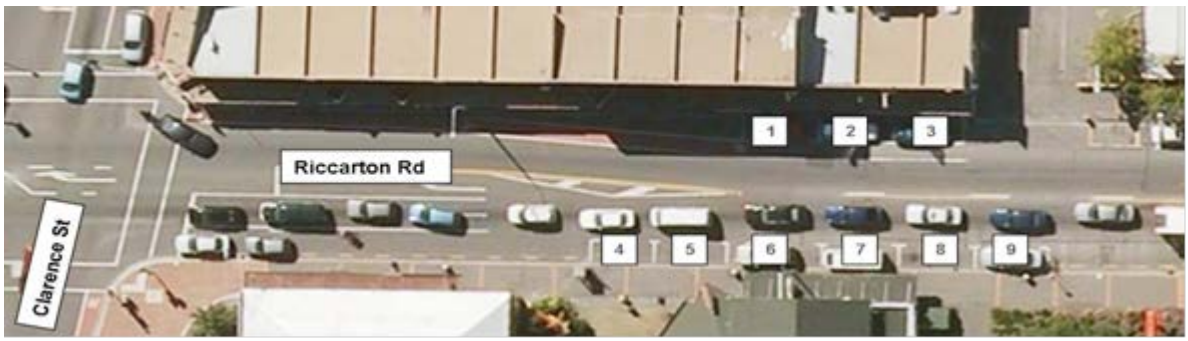
The parking survey also identified that six cars were parked for much longer than the restricted limit of one hour. In consideration of the timing of arrival and length of stay, it is reasonable to assume that at

least four of these vehicles were related to businesses (owners/staff) in the immediate area. This finding indicates that a common concern of retailers around a lack of provision in car parking for customers,may partly be a result of some retailers utilising spaces for much of the day.

C2.3.4 Design features

Retailers were asked how important they thought a variety of design features were in maintaining and supporting their business trade. Of these design features the availability of off-street parking was considered the most important. On-street parking was also rated highly, as was the provision of pedestrian facilities (wide footpaths/crossings). Most other design features were rated as having a slightly positive to neutral impact, except space for outside dining which was rated slightly negatively by retailers in Riccarton and Colombo Street. Provision of facilities for cyclists (cycle lanes and parking) was also rated neutrally or slightly negatively by Merivale and Riccarton retailers.

Figure C.41 Retailer: How important is 'x' in maintaining and supporting your business trade? (1 – very negative impact to 5 – very positive impact)



An initial comparison based on the findings of the pilot study area in central Christchurch (Colombo Street), shows that generally shoppers rated design features as less important, with the two exceptions being parking restrictions (as opposed to availability) and cycling facilities. This illustrates some contrasting views between what shoppers said was important to them, and what retailers thought was important.

C2.3.5 Design changes

Retailers were also asked whether any design changes had occurred in the area and if so, did this result in a negative or positive impact on their business trade.

For Riccarton, retailers recalled changes for each category except one (better lighting). The most positively viewed changes were improvements to outdoor seating, landscaping and footpath widening. In general the majority of design changes were viewed as having a neutral or positive impact. In Merivale across all categories the general change was viewed more negatively or neutrally in terms of impact on business trade. The new bus lanes and cycle lanes ranked neutrally overall. No responses were received from Colombo Street retailers.

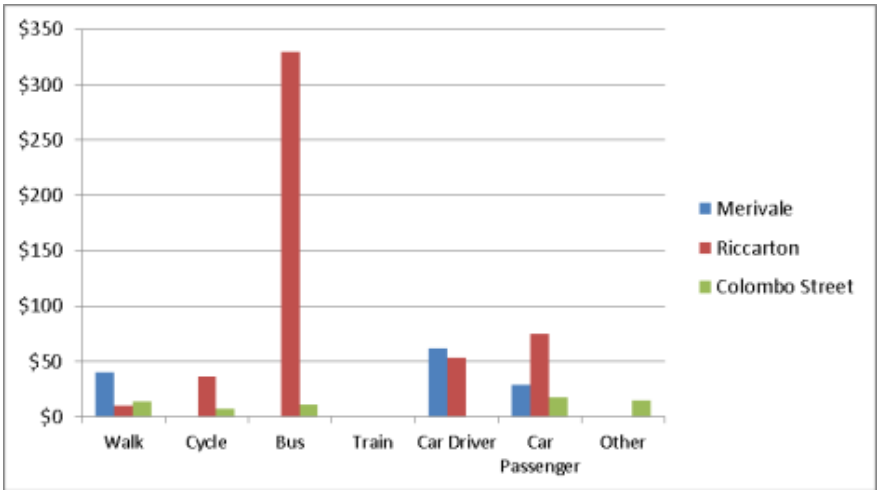
C2.3.6 Shopper spend by mode of travel

For Merivale shoppers who responded to the survey the average spend for pedestrians was comparable to that of car drivers and passengers at around $50. No data was received for cyclists or bus users.

Riccarton cyclists and car drivers showed a relatively equal average spend (approximately $50). Car passengers spent more in the Riccarton area (approximately $75). Walkers spent the lowest average amount and bus users the highest. Note that the bus user average spend (approximately $375) was heavily skewed by the one user who travelled by bus and reported a high expenditure.

The findings overall indicated that individual cyclists, pedestrian and walkers were likely to spend, on average, at a level comparable to car drivers/passengers.

Figure C.42 Shopper total spend by mode of travel

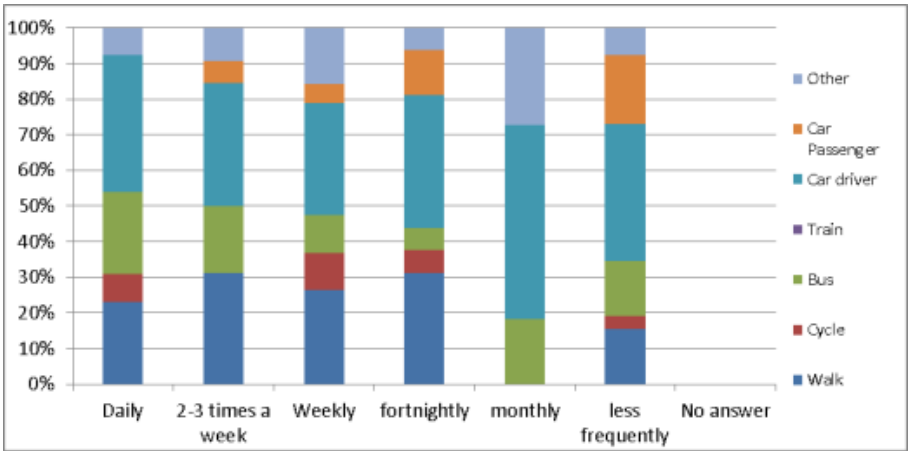


C2.3.7 Frequency of shopping trips

Shoppers were asked how often they visited an area and for Merivale the majority of respondents visited two to three times a week. For Riccarton, the majority of shoppers visited quite infrequently (less often than monthly), while the majority of shoppers in Colombo Street visited one or more times a week.

Overall, it was observed that the proportion of sustainable transport users (pedestrians, cyclists and bus users) was higher towards the 'more frequent' end of the scale. In order to draw stronger conclusions from this interaction a larger dataset is needed.

Figure C.43 Shopper trip frequency by mode of travel



C2.3.8 Duration of shopping trips

Shoppers were asked how long they spent in the shopping areas they visited. For Merivale this showed that shoppers generally spent either 15–30 minutes in the area or more than one hour. In the Riccarton study area the results clearly showed that very few people stayed in the area for more than 30 minutes, while in Colombo Street most shoppers either stayed for less than 15 minutes or for longer than an hour.

In terms of understanding the interaction between trip duration and travel mode choice the survey results do not showing any particular trends of note.

C2.3.9 Overall area rating by shoppers

Shoppers were asked to rate the overall shopping area. The results showed that the majority of shoppers thought that Riccarton and Merivale were either good or very good. No responses were received from Colombo Street shoppers.

C2.4 Survey results – Christchurch

Figure C.44 Parking survey (spaces 1–9) and illegal parking recorded (A–D)

Table C.1 Off-street car parking occupancy rates

	Off-street car park 1 (north/private)	Off-street car park 2 (south/public)
Capacity	**41**	**68**
7.05am	80%	99%
8.05am	61%	99%
9.05am	41%	71%
10.05am	22%	49%
11.05am	27%	43%
12.05pm	29%	44%
1.05pm	34%	25%
2.05pm	32%	28%

	Off-street car park 1 (north/private)	Off-street car park 2 (south/public)
Capacity	**41**	**68**
3.05pm	34%	34%
4.05pm	37%	37%
5.05pm	49%	56%
6.05pm	78%	65%

Figure C.45 On-street parking average occupancy rate

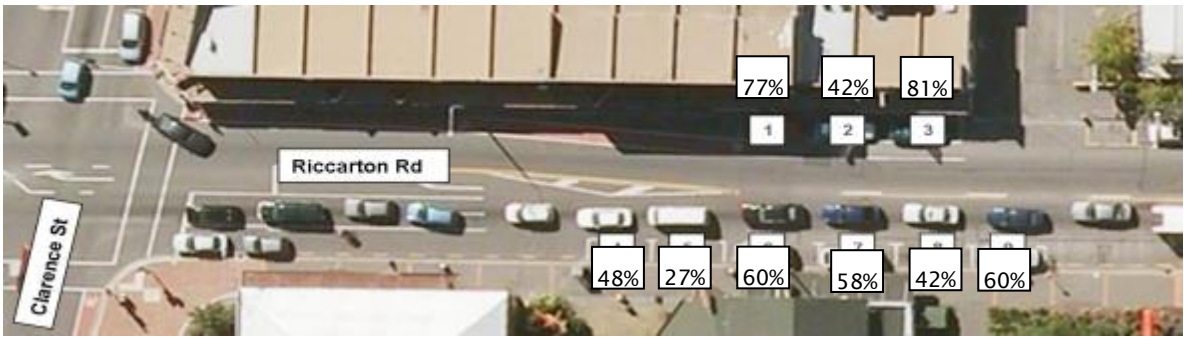
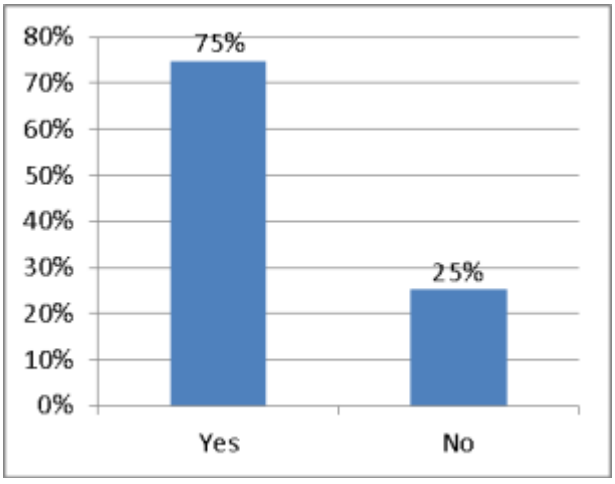


Table C.2 On-street parking duration by parking space

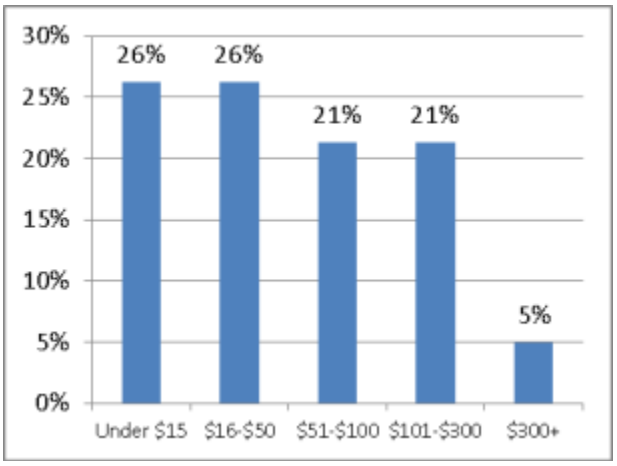
	Parking space									
Duration	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**All**
15 minutes or less	10	10	17	14	5	4	2	8	7	77
15 to 30 minutes	6	1	5	2	2	0	2	2	1	21
30 to 45 minutes	1	1	2	0	1	1	1	0	0	7
46 minutes to 1 hour	1	1	0	1	0	1	0	2	0	6
Over 1 hour	0	0	1	0	0	2	2	0	1	6

C2.4.1 Shopper survey results

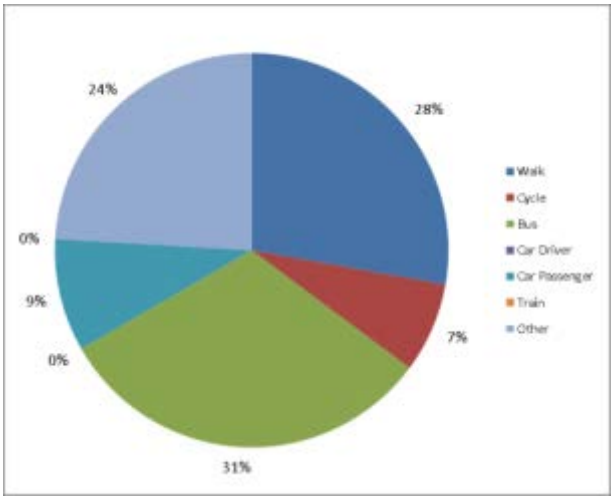
Did you intend to visit this shopping area/centre today?



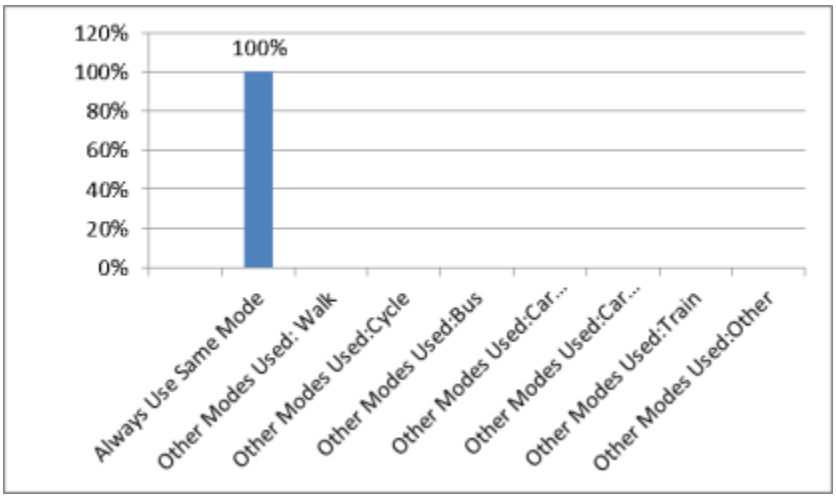
How much did you spend in this shop?



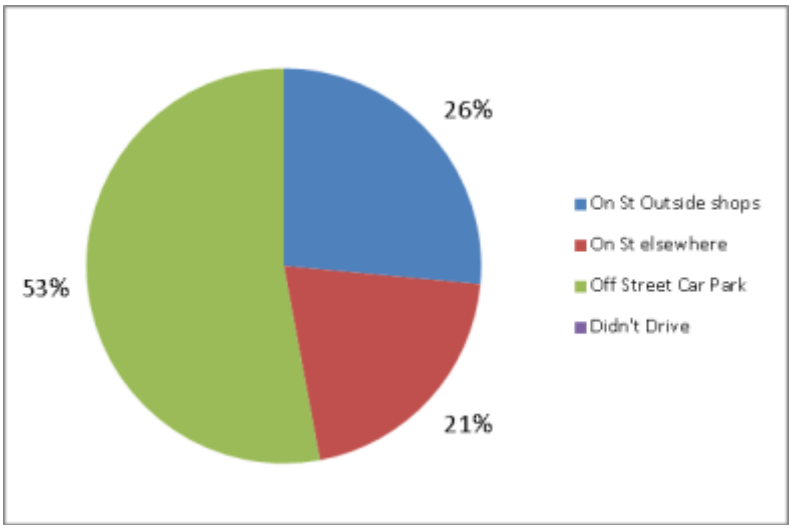
Main mode of travel



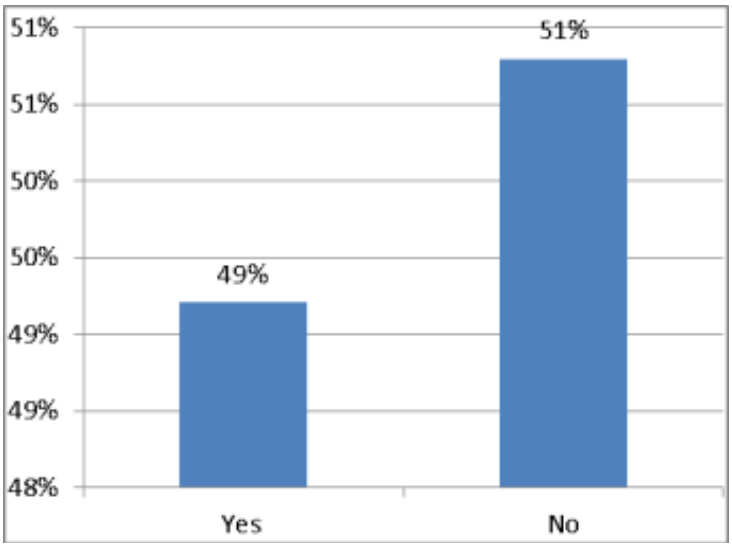
If no, what mode is your usual choice?



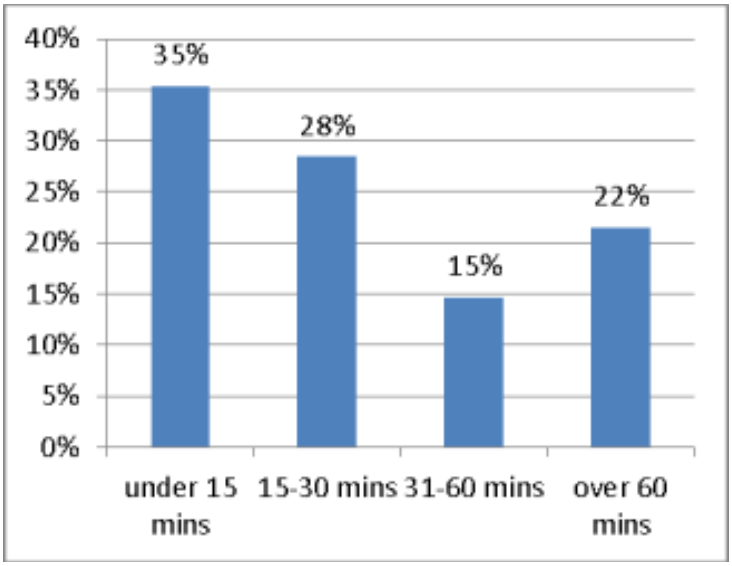
If you drove where did you park?



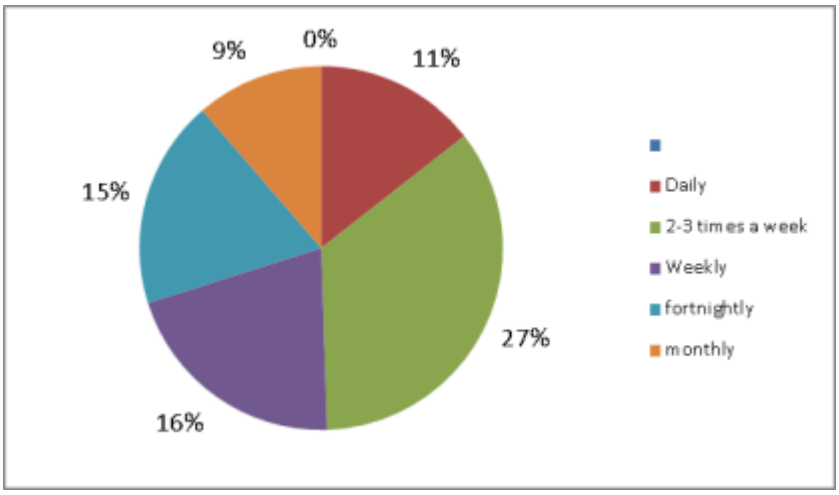
Did you visit any other shops?



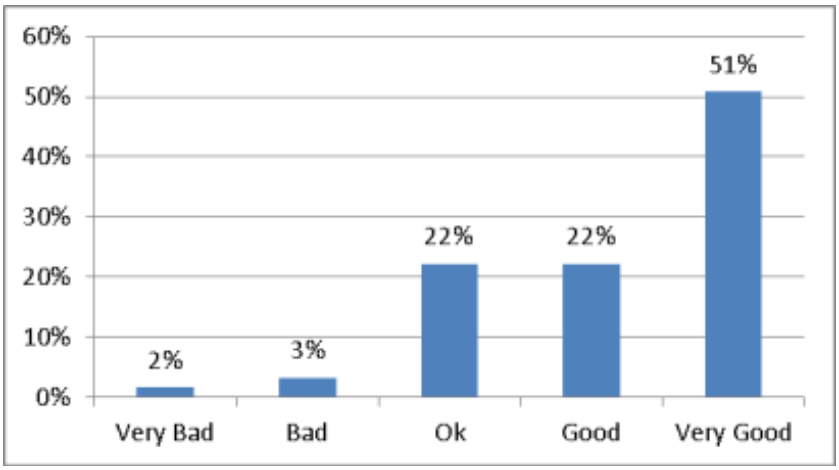
How much time did you spend in this shopping area/area today?



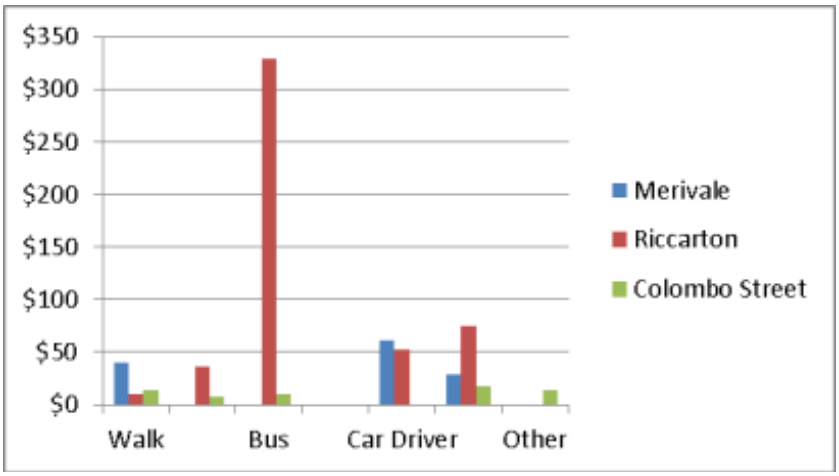
How often do you visit this shopping area/centre?



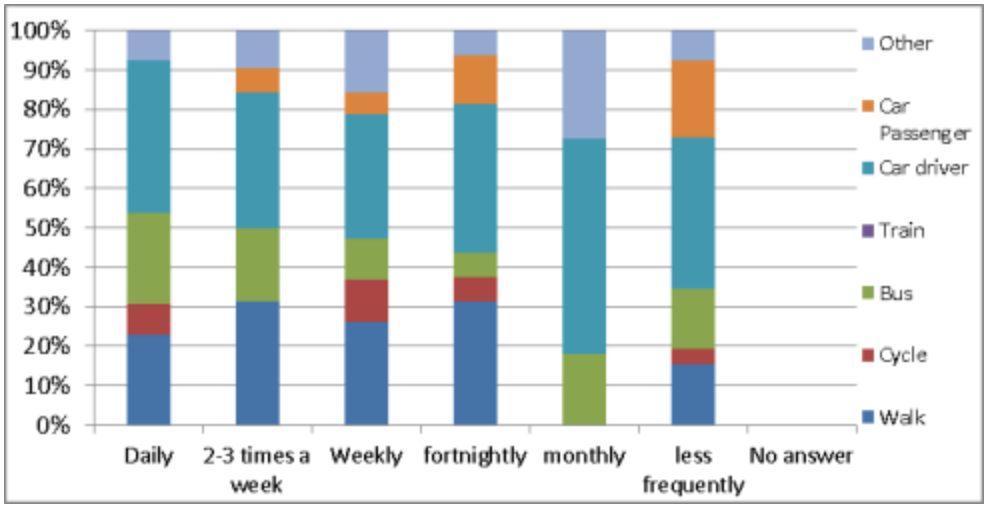
How would you rate this overall shopping area/centre?



Actual spend by mode

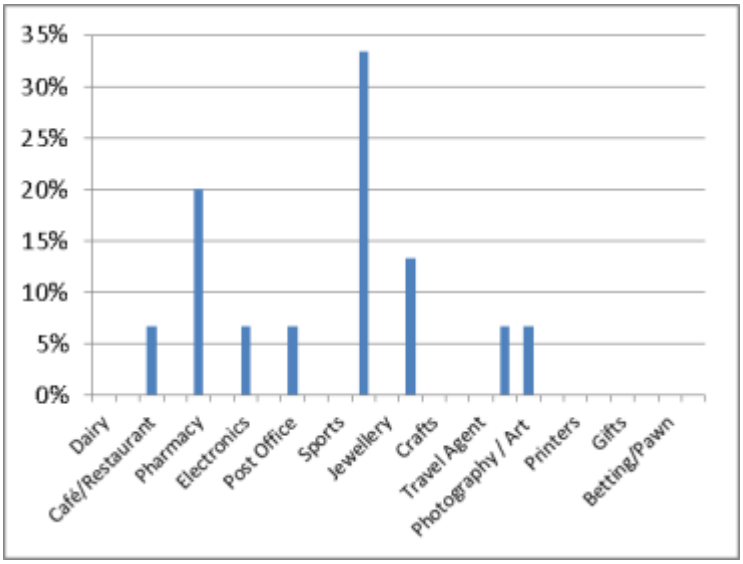


Shopper trip frequency by mode of travel

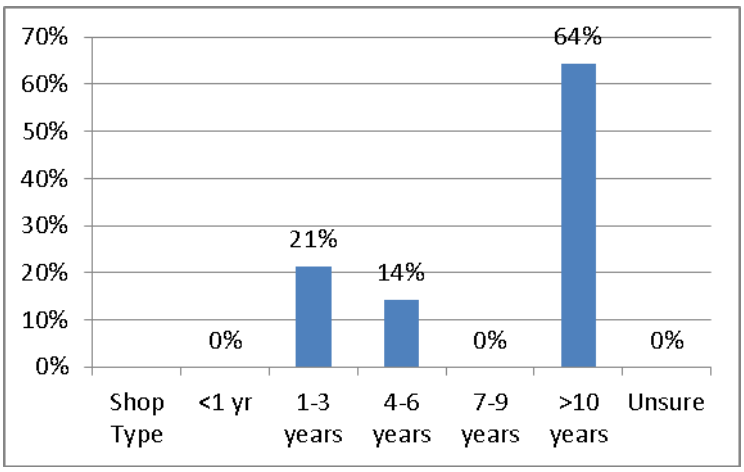


C2.4.2 Retailer survey results

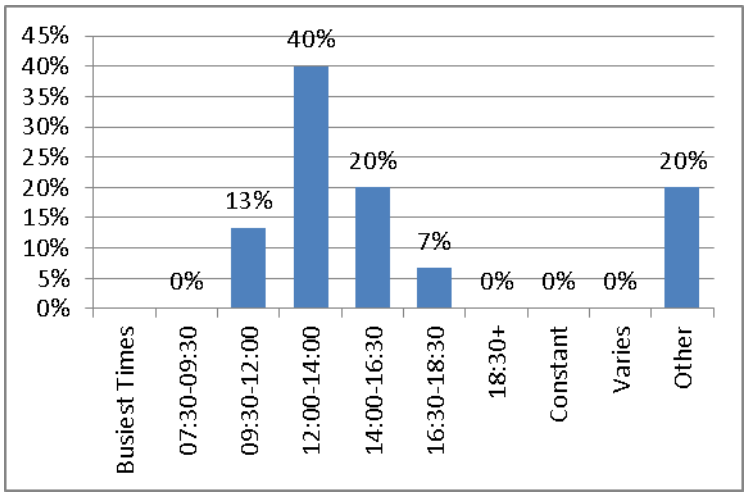
Shop type



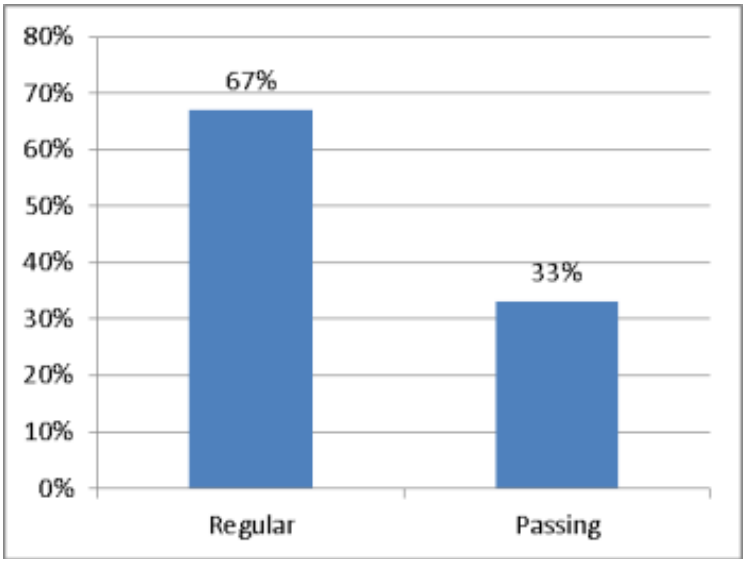
Business age



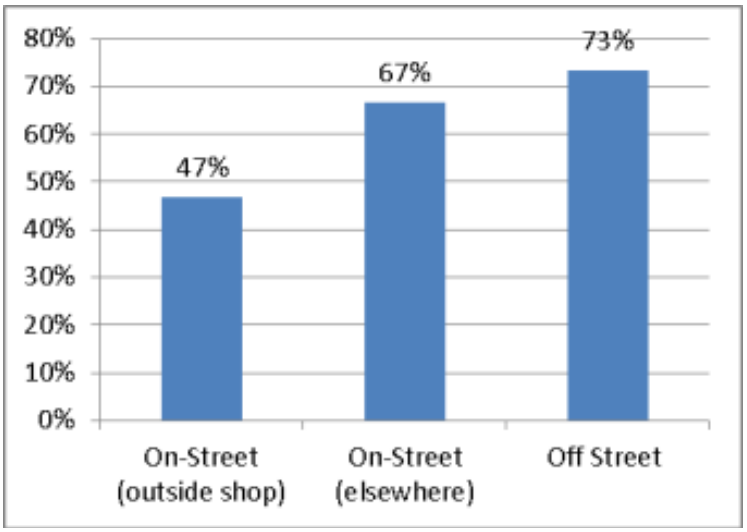
Busiest times



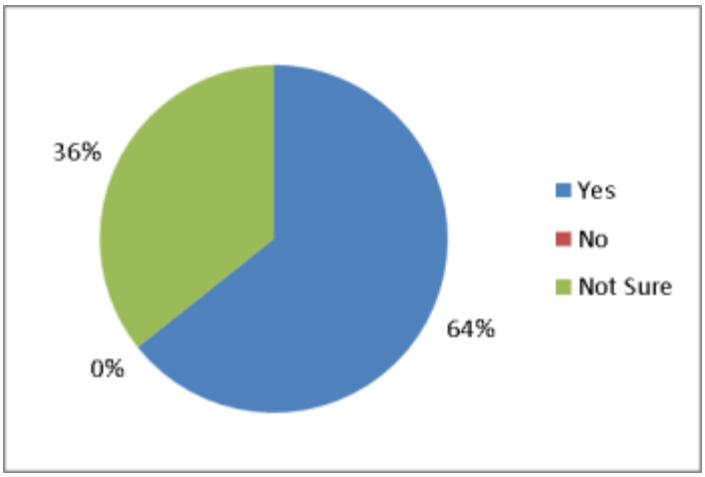
Passing vs regular customers



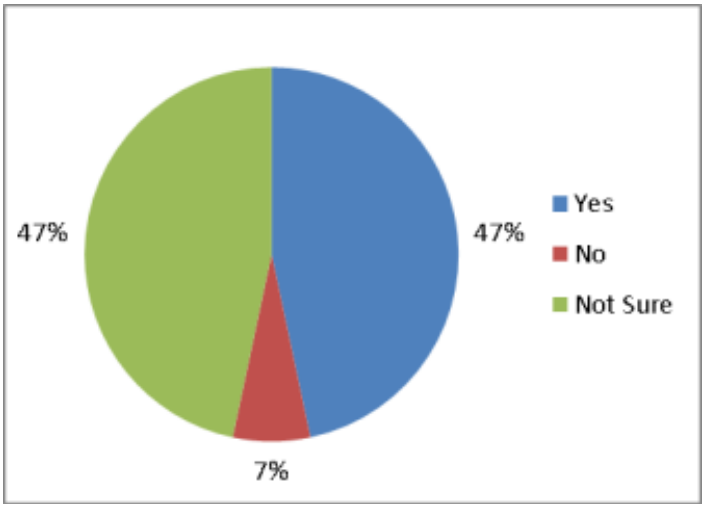
Parking options



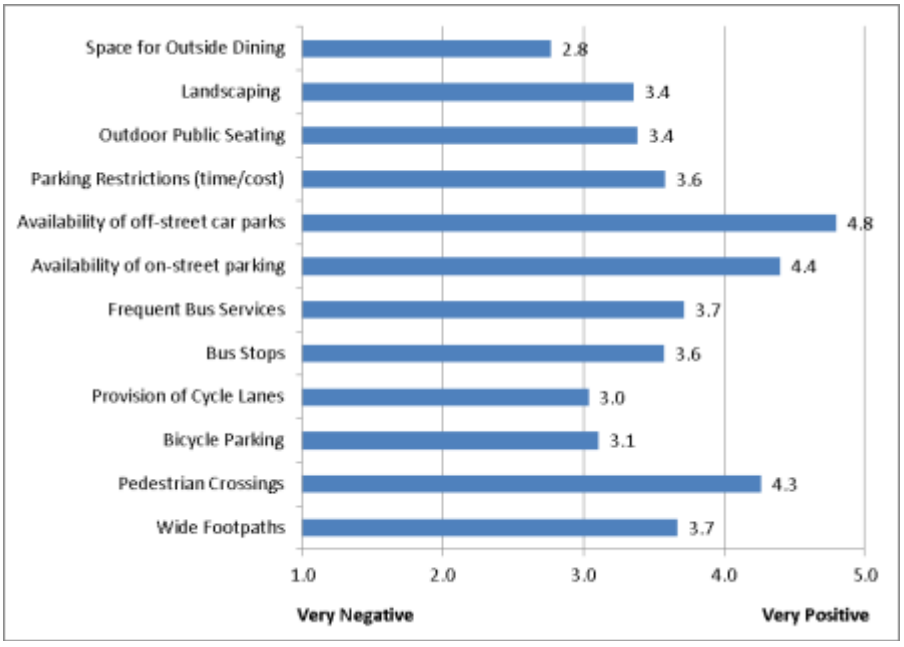
Parking availability



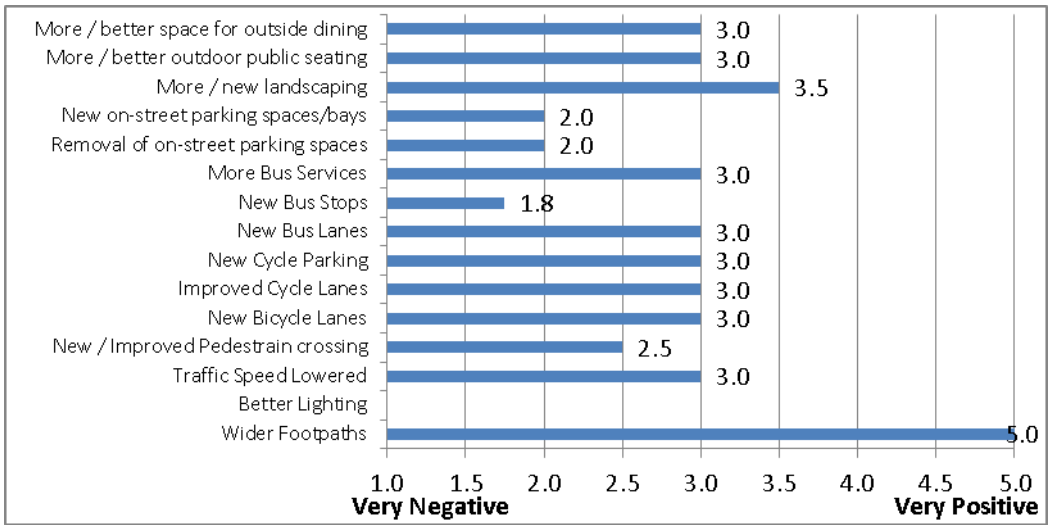
Cycle parking availability



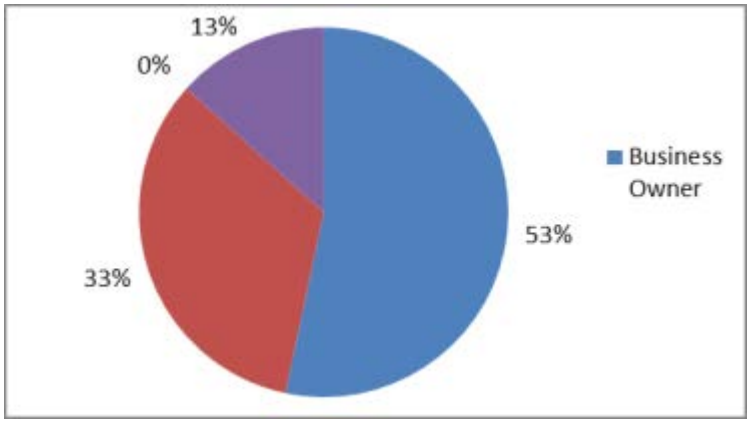
How important are these design features in maintaining and supporting your business trade?



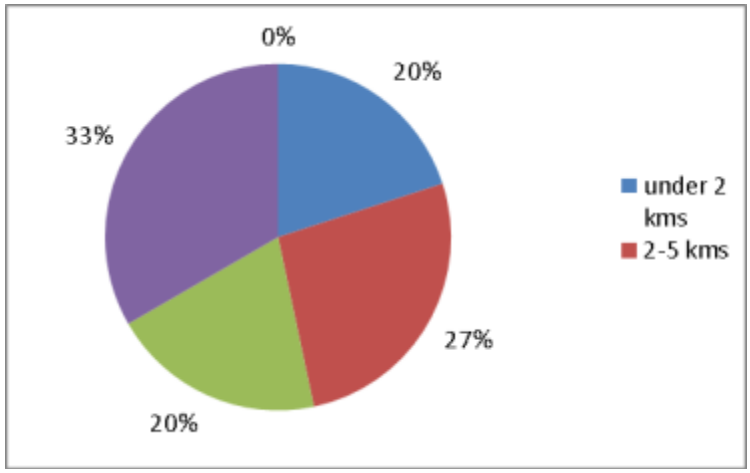
What changes have there been to the area and what impact has this had on your business trade?



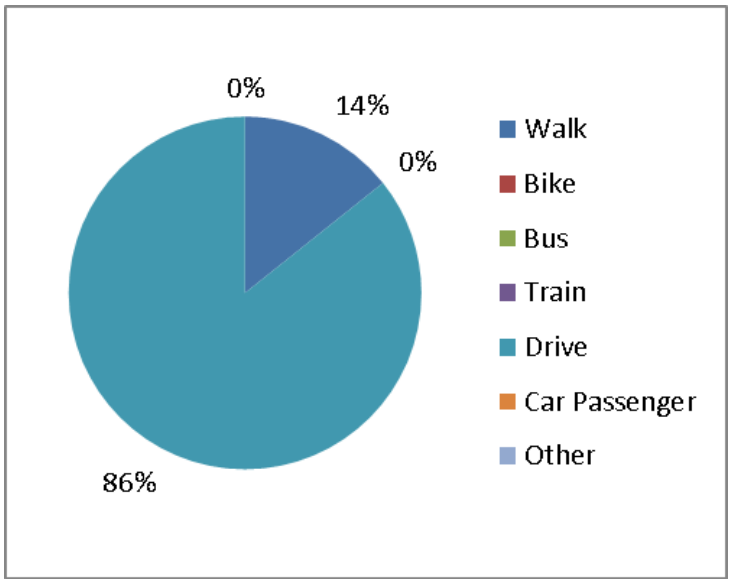
Respondent role



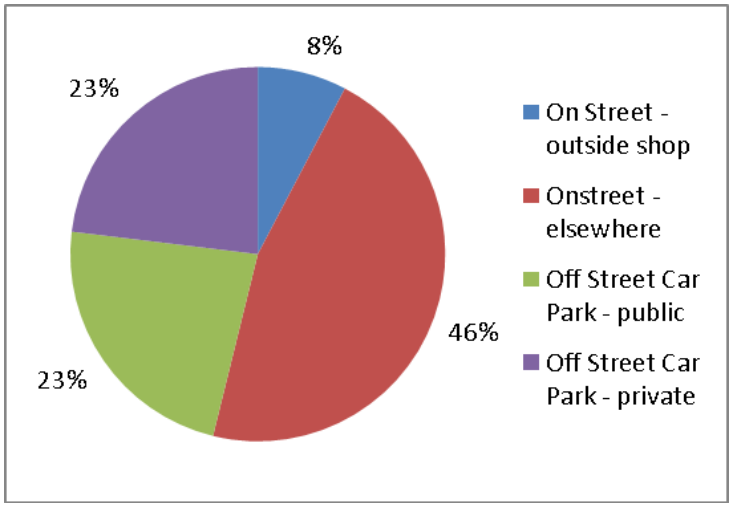
How far do you live from the business?



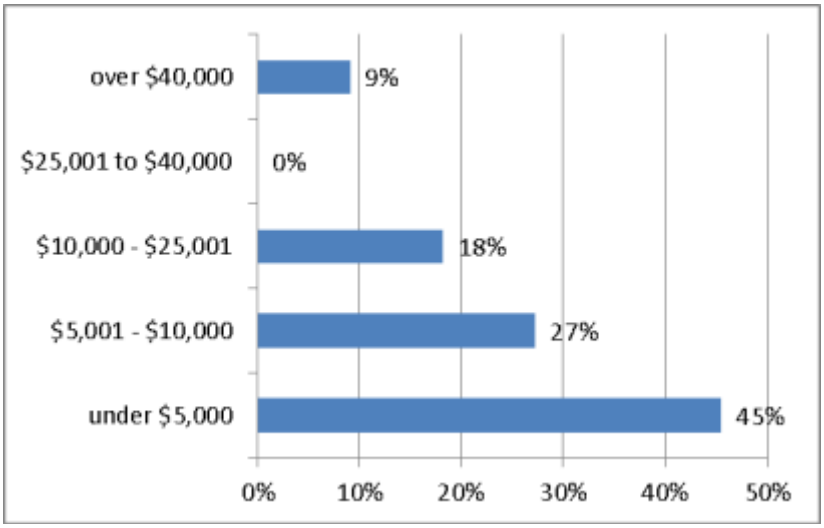
Travel to work



Parking



Monthly rental value



Age of respondents