



greater WELLINGTON  
REGIONAL COUNCIL  
Te Pane Matua Taiao

# State of Walking Report: Wellington Region



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# 1. Introduction

## 1.1 Background – the importance and prevalence of walking in the Wellington region

Every day, most people walk somewhere. People walk for many different purposes and for a wide range of distances. The purposes for walking trips include getting from home to work or school or an educational facility and making the return trips; from the car park to the ultimate destination; from meeting to meeting; and to go to social or leisure activities, or shopping or to personal appointments. Trips may also be made for their own sake for fitness and enjoyment reasons. The distance walked can vary widely, for example from short trips such as a short walk to the dairy, to a 3km walk to work or school, or a 20km recreational walk at the weekend. Frequency of walking trips will also vary between people depending on their level of physical activity and their work and life situations.

Walking is an attractive mode of transport as it is convenient and reliable – there is no need to worry about parking, you are unlikely to get caught in congestion, you do not need to wait for public transport services, and you generally know how long your walk will take. It is also an easy and cheap way of staying fit.

The Household Travel Survey produced on an ongoing basis by the Ministry of Transport, shows that in the years 2011-2014, 23% of all trips in the Wellington region were walking trips. The data from the surveys show that walking is the second most popular form of transport, in terms of the numbers of trips made, after the private car. This implies that more walking trips are made than public transport trips.<sup>1</sup>

Increasing the numbers of people walking can play a critical role in achieving a number of positive outcomes for the Wellington region, such as promoting mobility, creating healthy lifestyles, reducing traffic congestion and emissions, and generating economic activity.

With these advantages in mind, since the mid-2000s, efforts have been made in New Zealand by government agencies such as the Greater Wellington Regional Council (GWRC), to increase the number of trips made by active modes – cycling and walking – through pedestrian and cycle safety programmes and infrastructure projects, such as re-designing public spaces and town centres to make them more pedestrian/cycle friendly and working with schools to create pedestrian/cycle friendly routes to school.

With the population of the Wellington region forecast to rise by 10.4% between 2011 and 2031 (source: GWRC Wellington Regional Strategy team [WRS]), an increasing degree of strain will be placed on the roading and public transport network by a growing demand for the use of public and private vehicles. Notwithstanding any future roading and public transport improvements designed at addressing such issues, growing the active mode share will help to limit increases in congestion whilst at the same time promoting a healthy lifestyle.

The potential for increasing the active mode share is compelling; in 2007 around 54% of all car trips within New Zealand in the two-hour morning peak period (7am to 9am) were less than 2km in length (NZTA) and could be conceivably be undertaken on foot or by bicycle. Reducing the number of short car trips would increase capacity on the roading network for car users and public transport users for whom walking/cycling is not a viable alternative.

On the rail network, in 2011 around 55% of passengers drove to the station and around 40% chose to walk. Whilst for some passengers driving is the only option, for others walking is a viable alternative to driving.

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<sup>1</sup> This is to be expected since most people walk to and/or from stops for public transport services.

Whilst school travel plans have resulted in an increase in the number of trips to school made by foot, 2010-2014 results show that 58% of such trips were still made by private car for students aged 5-12, and 37% for ages 13-17 (source: Ministry of Transport Household Travel Survey). Walking may be a viable alternative for a large number of these trips.

Congestion on the roading network is triggered when the use of the network exceeds an 'equilibrium' point, whereby a small number of additional vehicles produce a disproportionate increase in delays and travel times. Whilst promoting active modes might only remove a small proportion of car trips, at peak periods in particular this could result in a significant decrease in congestion and improvement in the overall level of service across the network.

## **1.2 Purpose of this report**

This report attempts to bring together and analyse all available walking data for the Wellington region. The aim is to provide a comprehensive picture of walking patterns and recent trends in the region to understand the nature of walking activity, to help measure the progress and effectiveness of policies that promote active modes, and to continue to achieve positive results in the future.

The aims of this report may be summarised as follows:

- to look at how walking behaviour across the region has changed through time, drawing data from a number of sources
- to look at people's perceptions of walking, how they have changed through time and identify areas where these perceptions are negative or differ from reality
- to determine to what extent pedestrian safety has improved over the period since 2001
- to analyse the nature of walking activity associated with use of the rail network
- to summarise the trends and perceptions, identify problems and opportunities, and suggest what could be done to further increase the number of walking trips made across the region

## 2. Data sources

Data for this report have been drawn from a variety of sources – this section provides an overview of these data sources.

### 2.1 Household Travel Survey

The New Zealand Household Travel Survey (HTS) is an annual survey undertaken by the Ministry of Transport that has been running since 2003.

The survey gathers information about daily personal travel patterns across New Zealand. Respondents report all of their personal travel across all modes. While the results cover the whole of New Zealand, this report uses only the data relating to the Wellington region.

The data are generally reported as five-year moving averages, assisting in the analysis of changes in travel patterns over time.

The following information from the survey is used in this report:

- mode share of travel
- walking trips by frequency, purpose, time and distance

### 2.2 New Zealand Census

A plethora of transport statistics is available from the New Zealand Census, the most recent being the 2013 Census.

The 2013 method of travel to work data, focused on the Wellington region, is used in this report to look at the walk-to-work mode share.

### 2.3 Transport Perceptions Survey

The Transport Perceptions Survey (TPS) is a telephone and online survey of 1,000 residents aged 13+ in the Greater Wellington region.

It was first run in June 2003, with subsequent surveys undertaken in 2004, 2006, 2008 and 2012.

It is a detailed survey covering a small sample of the population. Data used for this report include:

- the breakdown of all travel by mode over the preceding three months
- the main mode used to travel to work/study

- the potential of walking to work/study
- perceptions about the ease of travel by walking, about safety, and the level of service for pedestrians (discussed in section 6.2)

### 2.4 Short Trip Active Mode Research report

The Short Trip Active Mode Research report, using survey data, was first conducted in 2004 and further updates to the survey were carried out in 2006 and 2009.

The survey was carried out through telephone interviews with 800 randomly selected Wellington region residents over 16 years in age. Questioning focused on their short trip behaviour in the preceding 24 hours.

The information presented from this survey includes:

- walking trips under 2km made in the preceding 24 hours relative to all trips made
- the perceived barriers to making more walking trips under 2km in the preceding 24 hours

### 2.5 School Travel Plan data

The School Travel Plan (STP) programme is a joint partnership between schools, local councils and GWRC that supports school communities in developing and implementing action plans that improve road safety and promote active and sustainable travel to and from school.

The programme has received funding from the New Zealand Transport Agency (NZTA), formally Transit New Zealand, since 2006.

Schools involved in the STP programme participate in data collection and monitoring progress in establishing the plans. The programme uses baseline surveys given to students and parents to benchmark current school travel patterns, barriers and road safety concerns. Once travel plan activities are implemented, students and parents are re-surveyed typically a year after implementation.

Data from the STP surveys provide information relating to how school children’s mode of travelling to school might change through time.

## 2.6 GWRC rail and bus surveys

GWRC commissioned rail and bus surveys in the second half of 2011, primarily to inform the development of a new public transport model for the Wellington region, called the Wellington Public Transport Model (WPTM), and to assist the GWRC in analysis and planning of long-term transport needs.

During 2011, rail survey forms were handed out at all stations on the metropolitan network (excluding the Wairarapa line) in the two-hour morning (AM) peak (between 7am and 9am) and two-hour inter-peak period (11am to 1pm) for commuters to complete on the train. They were asked about their mode of travel to the station, from their end station to their destination, which type of ticket they use and some other statistical questions.

Boarding and alighting counts were undertaken at the same time at all stations so that the completed survey forms could be adjusted to develop a complete daily ‘snapshot’ of rail travel patterns within the region.

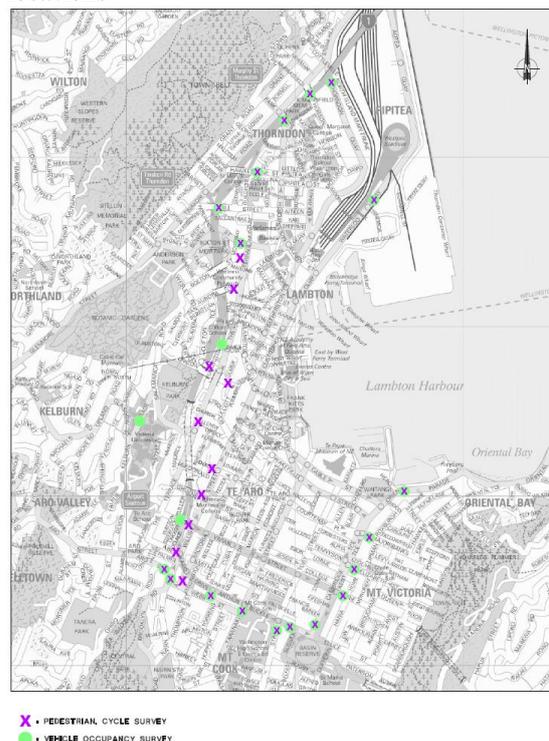
For the bus surveys, forms were handed out to passengers travelling on 28 selected routes across the network, to complete on the bus, the purpose being to capture a cross section of travel patterns across the region. Unlike the rail surveys, boarding and alighting counts were not undertaken at the same time and the survey is therefore only a ‘sample’ of travel patterns.

Information relating to the mode used and distance travelled between a person’s place of origin (e.g. home) and boarding stop/station was obtained. Similar data were also collected relating to the destination of a person’s journey, i.e. what mode do they use to travel between the alighting stop and final destination.

## 2.7 Wellington City CBD cordon counts

Wellington City Council (WCC) commissions annual counts of pedestrians, cyclists and motor vehicles crossing the Wellington City CBD cordon, the location of which is shown in **Figure 1**.

**Figure 1 Wellington City CBD cordon survey locations**



Source: WCC

GWRC also undertakes public transport counts across the Wellington City CBD cordon around the same time of year as WCC undertakes the pedestrian, cycle, and motor vehicle counts.

Both datasets provide a powerful means of identifying changes in travel patterns across modes and through time.

### 3. Walking trips

This section looks at the data sets described above and assesses how walking travel patterns have changed through time. Specifically it looks at:

- mode share – has the walking mode share increased through time?
- mode share – has the number of people walking to work increased?
- mode share – how does the walk-to-work mode share vary between TAs (Territorial Authorities)?
- trips to school – how has the walking mode share changed through time?
- trips to school – does the walking mode share differ between primary and secondary school pupils?
- distance walked – how has walking distance, as a percentage of total distance travelled, changed through time?
- distance walked – how has the average distance walked per trip changed through time?
- distance walked – how does walking frequency and distance vary by age group and by journey purpose?
- Wellington City CBD cordon trips – what are the trends for walking into the CBD versus other modes?
- short trip mode – what is the mode split for trips under 2km?

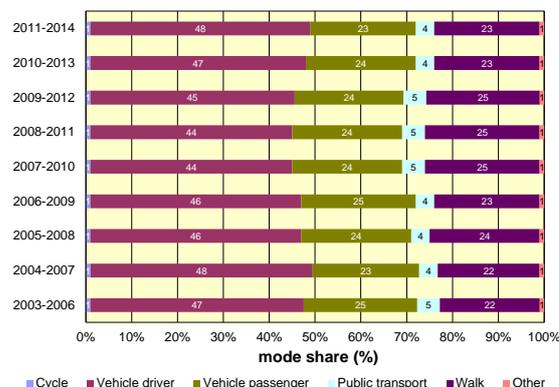
#### 3.1 Walking mode share

##### 3.1.1 All trips

The breakdown of all trips in the Wellington region by mode, obtained from the HTS, is presented in **Figure 2** in a series of four-year time bands between 2003-2006 and 2011-2014.

The proportion of people walking initially rose from 22% in 2003-06 to 25% in 2007-10, later falling back to 23% in the 2011-14 period.

**Figure 2 Mode share of all trips, Wellington region, 2003-06 to 2011-14**



Source: HTS

Between 2003-06 and 2007-10 the motor vehicle driver mode share for all trips across the Wellington region fell from 47% to 44% but the trend then reversed, with the share rising to 48% in the 2011-14 period. Over the whole data period, the mode share for vehicle passengers fell from 25% to 23%.

Public transport and cycle mode share remained fairly static.

One reason for this trend could be Global Financial Crisis, which encouraged people to use less costly modes of transport during a downturn in economic activity and confidence in the state of the economy. This trend then reversed as confidence and economic activity showed signs of recovery.

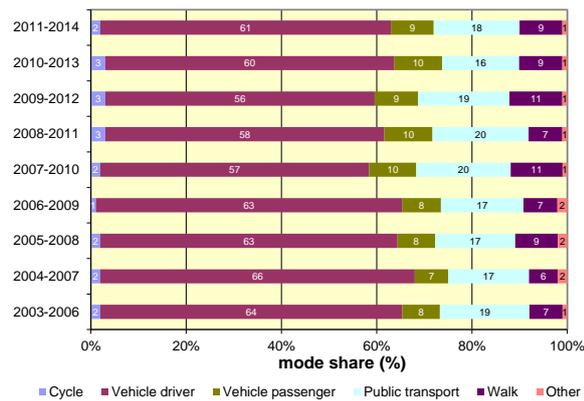
##### 3.1.2 HTS – Journeys to work

**Figure 3** shows the journey-to-work mode share for the Wellington region, obtained from the HTS, for the same periods as in **Figure 2**, 2003-06 to 2011-14.

It can be seen that the walking-to-work mode share was much smaller, at 9% in 2011-14, than the walking mode share for all trips as illustrated in **Figure 2**, where the share was 23% for the same period.

There was an increase over the period from 2003-06 when 7% of trips to work were made by foot, to a peak of 11%, before falling back to 9%.

**Figure 3 Mode share<sup>2</sup> of travel to work**



Source: HTS

One reason why the share of all trips made by foot may be notably higher than the proportion of journeys to work, is that work trips tend to be relatively long, and people are less likely to travel longer distances by foot. The distribution of houses and workplaces in Wellington is such that jobs tend to be concentrated in the Wellington City CBD, while residences tend to be distributed more widely around the region.

For shorter distance trips to local amenities (e.g. shops, leisure centres, neighbours' houses) walking is a more attractive proposition. In the Wellington city centre, workplaces are also within walking distance of some residences, making them a 'local amenity' as well, so it is more attractive for people in these circumstances to walk to work.

### 3.1.3 Census – Travel to work

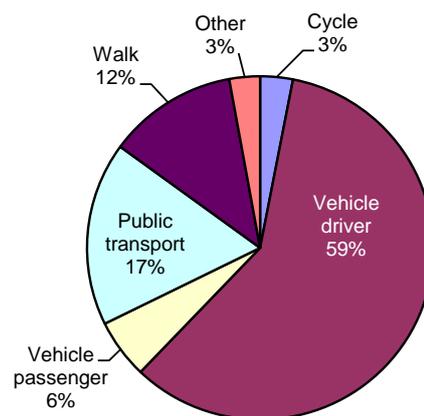
**Figure 4** shows the shares of modes of travel to work in the Wellington region in 2013, obtained from the New Zealand census.

It shows that the majority (59%) of people across the region drove a motor vehicle to work, and 6% were motor vehicle passengers, while 12% walked to work. 17% took public transport.

The 12% of people walking to work shown by the census data is higher than the 9% figure obtained from the HTS. The true picture may lie somewhere between these two figures.

<sup>2</sup> Data from the HTS in the categories 'drive' and 'drive + walk' were combined to make the 'vehicle driver' category. 'Passenger' and 'passenger + walk' were combined to make the 'vehicle passenger' category. 'PT/walk or PT' and 'PT/car or 'PT/car/walk' were combined to make the 'public transport' category.

**Figure 4 Mode share of travel to work**

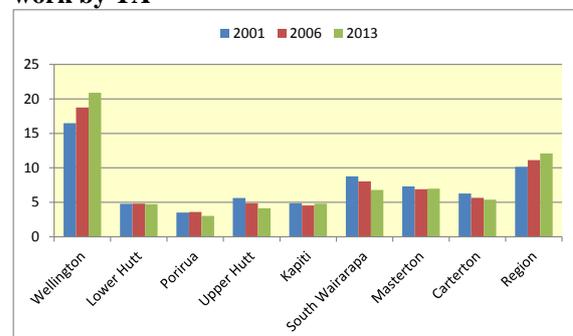


Source: NZ Census 2013

### 3.1.4 Census – Journey to work mode share by territorial authority

**Figure 5** shows the walking mode share of journeys to work, for the region and by territorial authority (TA), according to the 2001, 2006 and 2013 census data.

**Figure 5 Walking mode share of journeys to work by TA**



Source: NZ Census 2001, 2006 and 2013

Between 2001 and 2013 the share of walking in journey-to-work trips decreased or stayed relatively flat for every TA except Wellington City where the share notably increased from 16% to 21%. This may be due in part to the growth in the number of city centre apartment dwellings, making it convenient for those residents to walk to work.

### 3.1.5 Trips to school

Although travelling to school made up only 4% of all trips in 2010-2014 (Ministry of Transport, 2015), the health implications for children and the timing of school travel within the congested

morning peak means that promoting active modes for trips to school could provide a number of significant benefits across a number of user groups.

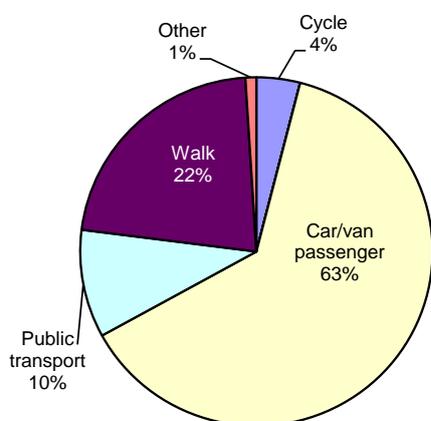
**Figure 6** shows the mode share of travel to school for primary school-aged children (ages 5-12) during the period 2005-09, using data from the HTS.

Walking accounted for 22% of trips to school and the other active mode, cycling for another 4%. The majority of 63% of trips to school were by vehicle as passengers, while public transport accounted for 10%.

It may be considered likely that most primary school children live within walking distance of their school. The relatively low walking mode share could be due to:

- safety concerns about letting young children walk unattended to school; or
- the convenience for parents to drop children off by car on their way to work

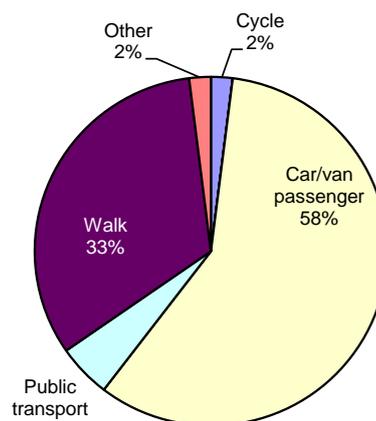
**Figure 6 Mode share of travel to school – ages 5-12, 2005-09**



Source: HTS

**Figure 7**, also based on HTS data, shows that during the period 2010-14, the share of trips for primary school children getting to school by vehicle was significantly lower at 58%, and by public transport was down to 5%, while the share of the walking mode had risen sharply to 33%. This increase in walking from the preceding five-year period could be partly attributed to the increase in popularity of push scooters.

**Figure 7 Mode share of travel to school – ages 5-12 years, 2010-14**



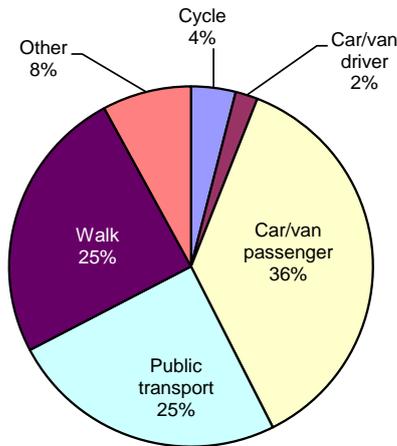
Source: HTS

**Figure 8** shows the mode share of travel to school for secondary school pupils (ages 13-17) for the period 2005-09.

The pattern differs to that seen for primary school pupils as follows:

- As there are fewer secondary schools compared to the number of primary schools, children tend to have to travel further to get to school. Special bus services are provided to service most secondary school catchments – as a consequence, 25% of pupils took public transport to school.
- 36% were driven to school, a much lower percentage than that of primary school students. This could be because parents feel more comfortable letting older children cycle or take public transport on their own.
- 25% of secondary students walked to school (similar to primary students). It is likely that most secondary pupils walking to school do so unaccompanied, whereas primary school children probably walk to school accompanied by an adult (neither survey provides this information).

**Figure 8 Mode share of travel to school – ages 13-17, 2005-09**



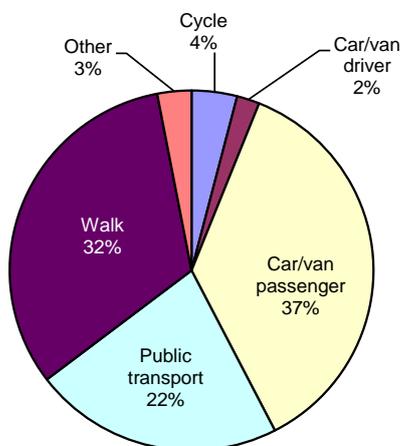
Source: HTS

**Figure 9** shows the mode share of travel to school for secondary school pupils for the period 2010-14.

For these pupils there was a major change in mode share between the two five-year periods.

- The walking mode share grew strongly from 25% to 32%. The other active mode, cycling, was unchanged.
- Public transport use decreased by 3%, 'other' trips have decreased by 5%, and car/van driver trips were marginally higher.

**Figure 9 Mode share of travel to school – ages 13-17, 2010-14**



Source: HTS

### 3.2 Distance walked

This section presents the percentage of total distance travelled that was undertaken by foot in the Wellington region for three-year periods between 2003-05 and 2012-14. Data for this section were obtained from the 2014 HTS.

**Figure 10** indicates that the percentage of distance travelled by walking in the region was around 2% in 2003-05, peaked in 2009-11 at 3.2% and then fell back to around 2% in 2012-14. Walking as a share of all trip distance has thus been declining since the 2009-11 period.

**Figure 10 Share of total distance travelled by foot, Wellington region, 2003-05 to 2012-14**

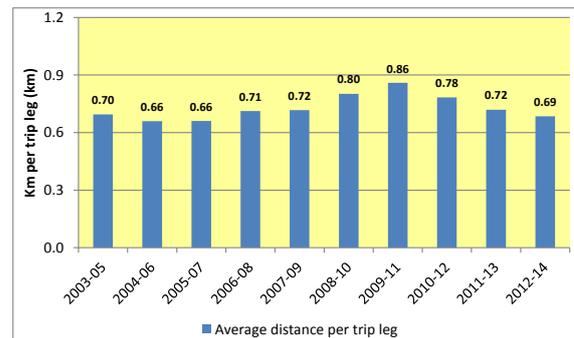


Source: HTS

#### 3.2.1 Distance travelled per walking trip

Data for the distances travelled per walking trip are collected as part of the HTS. **Figure 11** shows this average for each of the three-year periods from 2003-05 and 2012-14.

**Figure 11 Average distance walked per trip, Wellington region, 2003-05 to 2012-14**



Source: HTS

It can be seen that the average walking trip length in 2003-05 was 0.70km. After a relatively stable period, the distance increased to peak at 0.86km in 2009-11, before falling

back to 0.69km in 2012-14, 10m lower than in 2003-05.

### 3.2.2 Distance walked, by age group

**Figure 12** shows the share of total distance travelled by foot for the Wellington region, using data from the Ministry of Transport., broken down by age group over the period 2004-08 to 2010-14.

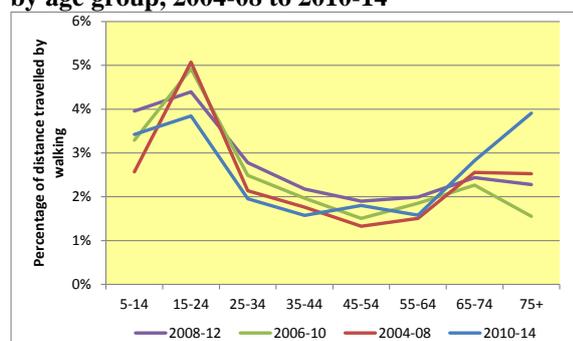
The chart shows that walking was most popular amongst people over retirement age. This is due to slightly lower levels of car availability, combined with the fact that retirees tend to make more short distance leisure or shopping trips than persons of working age. Due to their nature, such trips are more likely to be made by foot than longer distance commuting trips, explaining the increasing popularity of walking for people in this age group.

Walking is also popular amongst teenagers. This is to be expected as this section of the population tend to be highly mobile, have relatively low car availability and low levels of disposable income. Students tend to live close to their place of study and may lack access to funds to pay for car ownership, making walking the most attractive mode for many journeys.

Persons of working age, on the other hand, generally walk less as they are more mobile, have higher levels of car availability and higher disposable incomes (relative to other age groups).

Over the time periods shown, it appears that teenagers have shown reduced walking activity while most other age groups, particularly retirees, have seen an increase.

**Figure 12 Share of distance travelled by walking, by age group, 2004-08 to 2010-14**

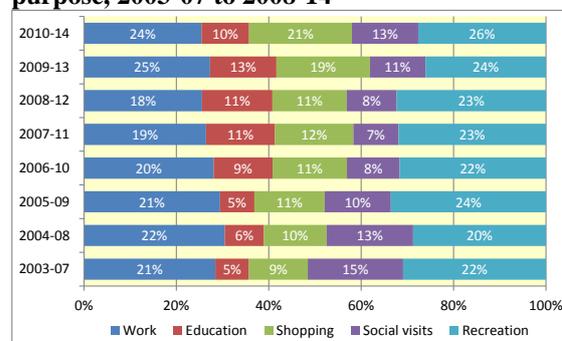


Source: Ministry of Transport

### 3.2.3 Walking by trip purpose

**Figure 13** shows the share of total distance walked in the Wellington region, by trip purpose, for the periods 2003-07 to 2010-14.

**Figure 13 Share of total distance walked by trip purpose, 2003-07 to 2008-14**



Source: Ministry of Transport

In the period 2010-14, work (24%) and recreation (26%) were the dominant purposes for walking trips, measured by distance travelled. The share of total walking distance accounted for by going to work was up from 21% in 2003-07, while recreational trips were up by 4%.

Between 2003-07 and 2010-14, the share of distance walked to destinations related to education (such as schools and universities) increased from 5% to 10%. This could be because more school children were walking to school, more students were walking to university, and/or student numbers increased.

By contrast, the share of walking distance for shopping trips increased significantly over the same period from 9% to 21%.

### 3.3 Trips to Wellington City CBD

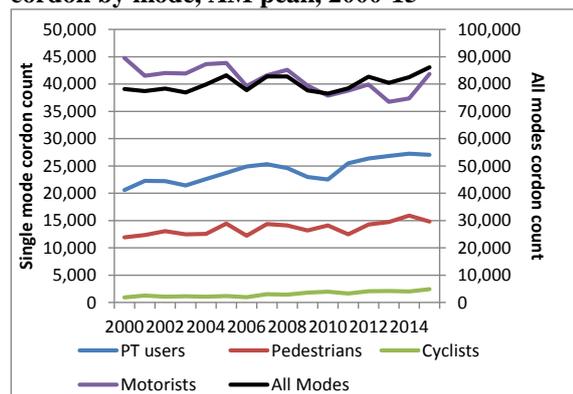
Wellington City Council (WCC) does an annual count of the number of pedestrians and cyclists heading into and out of Wellington City CBD between 7am and 9am (the AM peak) during a weekday in March. This analysis covers the period from 2000 to 2015.

Motor vehicle counts are also undertaken at broadly the same locations on the same day.

GWRC also undertakes an AM peak Wellington City CBD cordon survey every March to determine how many bus and rail passengers enter the CBD.

**Figure 14** shows the number of people entering Wellington City CBD in the two-hour AM peak, by mode and for all modes, between 2000 and 2015. The number of walking (pedestrian) trips increased from 11,919 in 2000 to 14,809 in 2015. Public transport trips showed the strongest increase, from 20,602 to 27,045. Motorists were the only road user type to shrink in numbers from 44,778 in 2000 to 41,872 in 2015.

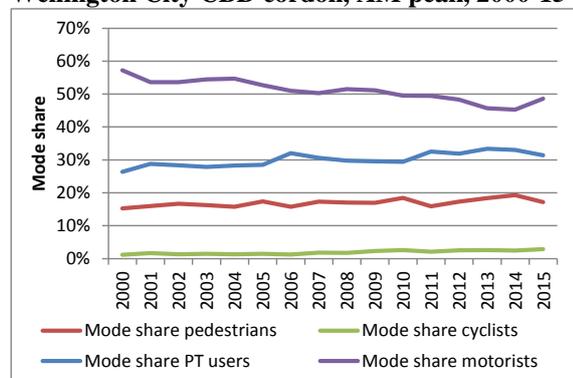
**Figure 14 Count crossing Wellington City CBD cordon by mode, AM peak, 2000-15**



Source: GWRC and WCC

**Figure 15** shows the mode share of trips based on the cordon counts given in **Figure 14**. It shows a similar trend for vehicle mode share to the vehicle counts. From 2000 to 2015, the mode share for pedestrians went from 15% to 17%, public transport’s mode share increased from 26% to 31%, and driving’s mode share (based on people, not vehicles) shrank from 57% to 49%. These results show that since 2010 motorists no longer comprise the majority of morning commuters into the Wellington City CBD.

**Figure 15 Mode share of people crossing Wellington City CBD cordon, AM peak, 2000-15**



Source: GWRC and WCC

**Table 1** details the absolute and percentage change in cordon counts in the AM peak or each mode and for all modes for the seven-year periods 2001-08 and 2008-15, and the 14-year period from 2001 to 2015.

**Table 1 Trends in Wellington CBD cordon counts by mode, AM peak, 2001-15**

Mode	Absolute change			% change		
	2001-2008	2008-2015	2001-2015	2001-2008	2008-2015	2001-2015
Pedestrians	1,762	707	2,469	14%	5%	20%
Cyclists	164	1,007	1,171	13%	70%	92%
PT users	2,330	2,424	4,754	10%	10%	21%
Motorists	1,081	-747	334	3%	-2%	1%
<b>All modes</b>	<b>5,337</b>	<b>3,391</b>	<b>8,728</b>	<b>7%</b>	<b>4%</b>	<b>11%</b>

Source: GWRC and WCC

Table 1 shows that walking increased by 20% or 2,469 trips over the 14-year period. This increase was seen primarily in the 2001-08 period. Cycling had the largest percentage increase of 92% over the whole period, with the increase occurring mostly in the latter years, but this equates to a relatively small increase in absolute numbers (1,171). Public transport counts increased the most in absolute terms (4,754 trips over 14 years), and in 2015 was up 21% from 2001. Numbers of motorists increased during the period 2001-08, but declined slightly from then to 2015, resulting in a net change for the whole period of just 1%.

The overall trend has been an increase of 8,728 trips, or 11% for the whole period. Total numbers of trips by all modes increased over the whole period.

These results tell us that the number of commuters into Wellington City CBD has been increasing and that increase is composed of mostly public transport users, followed by pedestrians, cyclists and a small number of motorists.

### 3.4 Short trips

The Regional Land Transport Strategy (RLTS) promotes walking and cycling as an alternative to travel by private vehicle for short and medium length trips.

Nationally it has been found that almost half of household car trips are less than 6km long

(MoT, 2009). The RLTS contains the objective to encourage people to make such trips, where possible, by active modes, i.e. walking (including running) and cycling.

The Short Trip Active Mode Research report completed for the GWRC in 2004, 2006 and 2009 collected information on short trip travel undertaken in the preceding 24 hours across the Wellington region.

**Table 2** shows the percentage of survey respondents who made any short trips, defined as less than 2km, in the preceding 24 hours.

**Table 2 Share of respondents that made short trips in the preceding 24 hours**

Year (%)	All modes	Walking
2004	81	36
2006	89	44
2009	79	48

Source: Short Trip Active Mode Research report

Table 2 shows that while the percentage of all short trips of less than 2km declined between 2004 and 2009, the proportion of respondents that made walking trips increased steadily between 2004 and 2009.

Of the short trips that were walked, most of them were for the purpose of returning home (19%), catching public transport (16%), visiting shops (14%) and going to a place of work or study (12%).

Unfortunately, results more recent than 2009 do not exist for this survey.

### 3.5 Summary

Walking activity in the Wellington region has generally increased since 2001. The major theme between 2004 and 2014 appears to be a relative decline in motor vehicle mode share and a compensating increase in walking mode share. The following observations can be made:

- 9% of trips to work were made by foot between 2011 and 2014, compared to only 7% between 2003 and 2006.
- Between 2001 and 2013 the walk-to-work mode share decreased or stayed flat for every TA except Wellington City where the share increased.
- The proportion of trips to school by foot were about the same for secondary school pupils as primary school pupils;

and the share of walking trips to school in both age groups increased between 2005-09 and 2010-14.

- There was little to no change in the distance walked between 2003-05 and 2012-14.
- The average walking trip length decreased by around 10m between 2003-05 and 2012-14.
- Walking is most popular for those in their late teens/early 20s, due to low levels of car availability and relatively low disposable income.
- Work (18%) and recreation (23%) were the dominant trip purposes in 2008-12, accounting for 41% of all walking distance travelled.
- Wellington City CBD cordon data show that the number of people walking into the CBD in the AM peak increased from 11,919 in 2000 to 14,809 in 2015 (24%).
- Of the short trips that were walked less than 2km, walking trips increased from 36% of trips in 2004 to 48% of trips in 2009.

## 4. Pedestrian safety and risk

Walking is one of the safest modes of travel and has the second lowest risk of death or injury per time unit travelled on New Zealand roads (Ministry of Transport, 2012).

This section presents pedestrian crash data from the NZTA Crash Analysis System (CAS) and analyses how actual and perceived pedestrian safety has changed through time for the Wellington region.

This section aims to answer these questions:

- Are pedestrian injury crashes decreasing through time?
- How has the pedestrian injury crash rate by age group changed through time?
- Are any age groups safer than others?
- Are the region's roads becoming safer for pedestrians?
- Do people perceive the region's roads to be becoming safer?
- Do people believe that personal safety when walking has been improving?
- Are parents becoming more likely to let their children walk to school? Do they believe that the walking environment is becoming safer?

### 4.1 Pedestrian injury crashes by severity

Information looking at pedestrian injury crashes between 2001 and 2014, categorised by severity, was extracted from the CAS system and is presented in **Figure 16**.

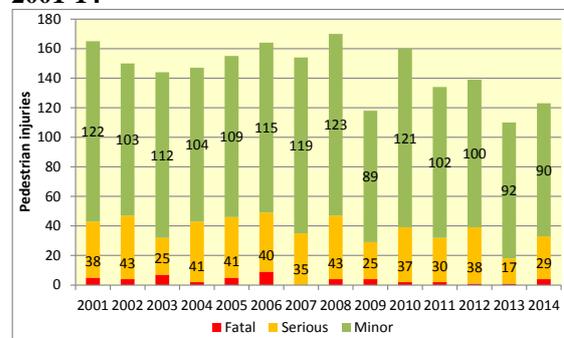
The trend through time shows an overall decrease in the number of pedestrian injury crashes through time.

The number of crashes categorised as 'minor' fluctuated between 2001 and 2008 within the range 103 to 123 (average 113), then fell sharply in 2009 to 89, and fluctuated around a notably reduced average of 99 in the period 2009 to 2014.

Given the relatively small number of fatal and serious crashes, there is considerable variation

in figures from one year to the next. The overall trend, however, is one of a reduction in both serious and fatal crashes.

**Figure 16 Pedestrian crashes by injury severity, 2001-14**

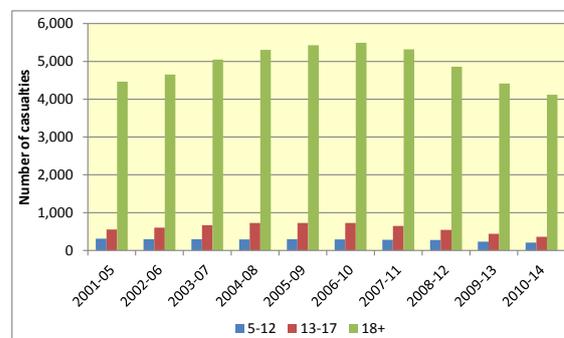


Source: CAS

### 4.2 Pedestrian injury crashes by age group

The number of pedestrian casualties on Wellington's roads, broken down by age group and categorised into rolling five-year time bands, is shown in **Figure 17**.

**Figure 17 Pedestrian casualties on the road by age group, 2001-05 to 2010-14**



Source: CAS

The number of primary school age (5-12 years) pedestrian casualties on the region's roads decreased slightly over the 14-year period from 314 in 2001-05 to 207 in 2010-14. The number of secondary school age (13-17 years) pedestrian casualties also decreased over the same periods, from 556 to 363.

The number of adult pedestrian casualties, making up around 85% of casualties by virtue of being the largest age band, decreased by a smaller degree of 8% from 4,465 to 4,117 over the same periods.

### 4.3 Casualty rates

Whilst pedestrian injury crash figures on their own are useful, data relating to how much walking is undertaken are required in order to assess whether roads are becoming safer in the Wellington region. This section presents walking casualty data from the Ministry of Transport's HTS.

**Table 3** shows the region's walking casualties, expressed in terms of casualties per 100 million km travelled and 100 million hours travelled, respectively.

**Table 3 Walking casualties per 100 million km and 100 million hours**

	Casualties per 100 million	
	Km	Hours
2003-07	131	4.8
2004-08	128	4.7
2005-09	114	4.2
2006-10	110	4.1
2007-11	100	3.9
2008-12	98	3.9
2009-13	95	3.8
2010-14	96	3.7

Source: HTS

Walking casualties per 100 million km and per 100 million hours decreased steadily over the period shown, by 27% and 21%, respectively.

As highlighted in **Figure 16**, while pedestrian injury crashes decreased by about 14% between the period 2001-08 and 2009-14, **Table 3** adds the context of an increasing number of walking trips in total (both in terms of distances and hours walked).

Therefore, the data show that walking has been becoming safer across the region. This may be due to a number of factors, such as pedestrians becoming more responsible, a change in the location of walking trips (for example, more undertaken in low road traffic speed, pedestrian friendly environments such as Wellington City CBD), the impact of school safety programmes and improvements to the streetscape that make the walking environment safer.

### 4.4 Perceptions of safety

Data suggest that the urban environment is becoming safer for pedestrians.

While this might statistically be the case, people's perceptions of safety are also important to understand, as these perceptions will influence whether people walk more or less.

The term 'safety' is open to interpretation. On one hand it may relate to the interaction between pedestrians and motor vehicles; on the other hand it could refer to personal safety late at night or, in the case of school children, the safety associated with walking to and from school unattended.

This section draws data from the GWRC Transport Perceptions Survey (TPS) to present general perceptions of safety and then, more specifically, personal safety and safety for school children.

#### 4.4.1 General perceptions

The TPS collects information relating to people's perceptions of various transport-related issues and topics. One such topic is pedestrian safety.

**Figure 18** presents responses to the question: 'How safe or unsafe do you think people in the Wellington region generally are when they walk?' for the specific years that the survey was carried out between 2003 and 2012.

**Figure 18 Perceptions of pedestrian safety, Wellington region, selected years.**



Source: TPS

In 2012, 72% of respondents thought that walking in the Wellington region was either safe or very safe, compared to 70% in 2003.

At the other end of the scale, around 11% thought it was unsafe or very unsafe in 2012, compared to 10% in 2003.

Given the level of sampling error normally associated with such surveys, the results show that people do not perceive pedestrian safety to have changed significantly between 2003 and 2012.

This is slightly at odds with the reality that shows pedestrian safety having improved between 2003 and 2012.

#### 4.4.2 Personal safety

An important component of safety relates to personal safety. This is based on asking people whether they feel safe in their neighbourhood after dark.

The Quality of Life Survey was commissioned by GWRC and has been used to monitor feelings of safety for Hutt City, Porirua City, Wellington City (among others) and all of New Zealand. One question asks people to rating their experience in their local neighbourhood after dark. In all TAs and New Zealand as a whole, feelings of neighbourhood safety reduced overall from 2006 to 2014. However, results for 2014 show that Wellington City feels the safest, followed by Porirua City, Hutt City and, finally, the NZ average. While safety feelings have fallen, respondents in the Wellington region generally feel safer after dark than respondents in New Zealand as a whole.

#### 4.4.3 Safety of school children

**Table 4**, taken from the TPS, asks respondents whether they would, or do, let a child (under the age of 12) walk unsupervised in the vicinity of their home or to/from school for the selected years of the TPS between 2003 and 2008.

**Table 4 Percentage of respondents who would let a child (under the age of 12) walk unsupervised in the vicinity of their home or to/from school**

	In vicinity of home	To/from school
2003	84	54
2004	84	52
2006	88	59
2008	88	62

Source: TPS

Between 2003 and 2008 there has been an increase in parents willing to let their child

walk unsupervised in the vicinity of home (84% to 88%) and to/from school (54% to 62%).

This implies that overall, parents perceive the walking environment to have improved slightly between 2003 and 2008.

Of those who would not let a child walk unsupervised in the vicinity of their home or to/from school the main reason mentioned in the survey was ‘stranger danger/child molesters/abduction’.

Other reasons included:

- too young to walk by himself/herself
- accompanied by parent/need supervision
- distance/too far/depends how far
- too much traffic/major roads/have to cross road
- too young/not mature enough
- dangerous/safety unspecified

Parents of children at schools that signed up to the region’s School Travel Plan programme in 2011 were asked to provide some safety information.

In 2011, 73% of parents surveyed agreed that children were safe walking to their school.

Whilst this information can neither be benchmarked nor directly compared against the TPS findings, it further demonstrates that the majority of parents believe a safe walking environment exists for their child to walk to/from school in the Wellington region.

## 4.5 Summary

The data presented in this section suggest that over the periods presented (stated in each section, varying in coverage between 2001 and 2014):

- The number of pedestrian injury casualties fell slightly.
- The casualty rate, expressed in terms of casualties per distance and hours walked, declined by 26% and 19%, respectively.
- Adults in general perceived the walking environment in 2012 to be as safe/unsafe as it was in 2003.

- Between 2003 and 2008 the general trend was one of parents feeling safer at letting their children walk to/from school.
- The underlying trend indicates that the walking environment is becoming safer, although people's perceptions of the safety of the walking environment has not notably changed.

## 5. Walking: Stages of change

Information presented in sections 3 and 4 has shown how walking trends and people's perceptions of pedestrian safety have changed through time.

In broad terms the picture is one of increasing levels of walking and a safer pedestrian environment. Interestingly, however, there is a 'gap' between people's perceptions of safety and the reality.

In order to further increase the number of walking trips within the region, people's behaviour needs to change in the hope that they will break habits and decide to walk instead of driving or taking the bus.

Research shows that behavioural change is a process rather than an event and involves progress through a series of stages (Prochaska et al., 1994<sup>3</sup>). An individual's stage of change is particularly useful for developing and monitoring walking promotional strategies. This is because different strategies are necessary to move people to the next stage depending on their level of behavioural readiness (Gatersleben and Appleton, 2007<sup>4</sup>).

This section looks at the following questions:

- What percentage of people consider walking to be a feasible option for a few, some or all trips?
- How likely are people to change their behaviour to walk more?
- What are the key barriers to walking?
- What are the key factors that make walking attractive?

### 5.1 Feasibility of walking

The TPS collects information on whether residents considered walking was a good option for the trips they made to get to a place of work or study.<sup>5</sup>

<sup>3</sup> Prochaska, James O.; Marcus, Bess H., Dishman, Rod K. (Ed), The transtheoretical model: Applications to exercise. (1994).

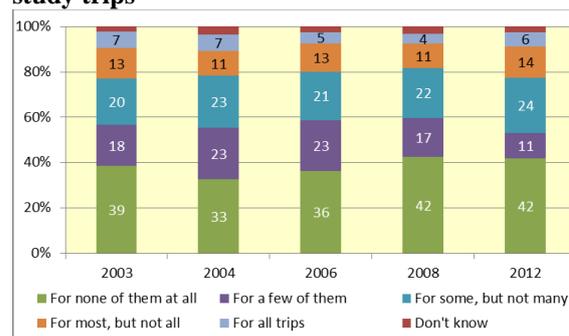
<sup>4</sup> Gatersleben, B. and Appleton, K.M. (2007). Contemplating cycling to work; attitudes and perceptions in different stages of change.

<sup>5</sup> Information relating to shopping and leisure trips was not collected in the 2012 survey.

**Figure 19** shows the extent to which respondents consider walking to be a good option for trips to work or study.

The five response categories over the period 2003 to 2012 provide a progression of behavioural change in relation to the feasibility of walking trips.

**Figure 19 Feasibility of walking for work and study trips**



Source: TPS

Between 2003 and 2012, the percentage of people for whom walking was deemed not feasible for any trip increased from 39% to 42%.

At the other end of the spectrum, the percentage of people for whom walking was a feasible option for some, most or all trips has also increased from 40% (2003) to 44% (2012).

These findings provide context for any measures or policies designed to increase walking activity. The key point to draw may be that more than half of all trips for work and study purposes could be undertaken on foot, with varying degrees of feasibility, and this proportion was relatively stable over the decade to 2012.

### 5.2 Stage of change measurement

Walking stages of change, i.e. the stage at which people are in terms of considering walking as a mode – was captured by the 2012 TPS and is shown in **Table 5**.

Analysis of walking 'stages of change' presented in **Table 5** shows that some inertia exists amongst the regional population concerning how likely they might be to choose walking as a mode in order to access their place of work or study.

**Table 5 Walking stages of change for travel to work or study, 2012**

Stage of change	
I would not even consider walking or running to work/study (pre-contemplation)	49%
Sometimes I think about walking or running, but never actually do it (contemplation)	11%
I think about the pros and cons of walking or running, but rarely do it (ready for action)	7%
I walk or run on some occasions (action)	16%
I walk or run about half the time (maintenance)	6%
I almost always walk or run to work/study (maintenance)	10%
Don't know	1%

Source: TPS

In the 2012 TPS, 49% of respondents said that they would not consider walking, whilst around 16% of those surveyed said that they walked half or most of the time. Another 16% said they walked or ran on some occasions.

The other 18% (excluding the 1% who said they don't know) said they had thought about it but had not made it a habit.

By identifying the categories of respondents in this way it is helpful to understand the stage of change of people in terms of their walking and running activity and the size of each of the groups. It can then be used as a guide to see which portion of the population could be targeted to be influenced to walk or run more often.

### 5.3 Motivation, perceived benefits and barriers

The 2012 TPS found that the top three reasons people walked to their place of work or study were:

- exercise/fitness (42%)
- cost/to save money (23%)
- convenience/quicker (11%)

It is interesting to note that fitness is the top reason (42%) why people walk with convenience or speed ranking third with 11%.

## 5.4 Summary

The data show that for over 40% of trips made by Wellington residents, walking is a feasible option.

Given that the walking mode share, depending on the source, mostly been found to be around 20%, the data indicate that there is considerable potential to further increase the number of walking trips undertaken across the region should appropriate policies be pursued.

In summary:

- Walking for a few, some or all trips was a feasible option for 55% of people in 2012.
- 49% of the population would not consider walking to work or study, which represents a sizeable portion that could be targeted.
- 42% of respondents stated that exercise and fitness were their main reasons for choosing to walk to their place of work or study.

## 6. Walking conditions

People are more likely to be willing to walk if, alongside other factors, the pedestrian environment is attractive and conducive to walking.

Simple initiatives such as introducing pedestrian crossings, improving lighting and creating safe walking routes will all help to encourage people to walk more.

Such schemes and projects are, however, dependent on funds being available from local and national agencies.

As part of an integrated transport plan, small levels of investment in walking can provide good rates of return and can result in spin-offs, such as reduced congestion on the road network.

This section of the report looks at walking conditions and assesses whether they have changed through time. Using data from the TPS and NZTA, it aims to answer the following questions.

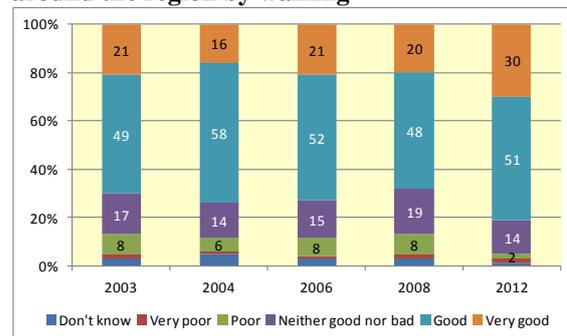
- Is it becoming less of a hassle to walk around the region?
- How do people perceive the quality of the walking environment ('level of service')?
- How have the levels of funding for walking facilities changed over the period that was surveyed (2003-12)?
- What are the key factors that make walking attractive?

### 6.1 Ease of travel

People's perceptions regarding the ease of walking around the region can affect their propensity to walk and also to take public transport, as walking is an important access mode to the public transport network.

The TPS collects information on the ease of travelling around the region. **Figure 20** shows the survey responses to the question: 'How hassle free is it for a person to travel around the region by foot? Would you rate it as...?'

**Figure 20 Rating of how hassle free it is to travel around the region by walking**



Source: TPS

The figure shows that in 2012 the vast majority of respondents thought that walking was hassle free, with 81% of responses categorised as good or very good. Only 5% rated it as being poor or very poor.

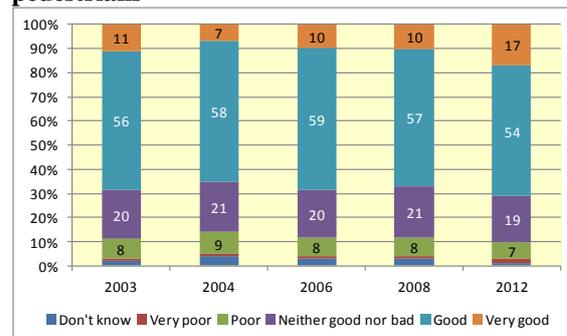
Between 2003 and 2012 there was a marked improvement in the number of people rating walking within the region as hassle free.

The percentage of responses categorising the environment as good or very good rose from 70% to 81%, whilst the percentage categorising it as poor or very poor decreased from 10% (2003) to 5% (2012).

### 6.2 Level of service

**Figure 21** shows people's perceptions of the level of service for pedestrians, again based on TPS data. Level of service in this case refers to how easy, safe and pleasant it is getting around the region's roads. An environment's level of service would be measured according to the prevalence of amenities such as street lighting, places to cross busy roads and pedestrian shelters where needed.

**Figure 21 Perceptions of the level of service for pedestrians**



Source: TPS

The general trend between 2003 and 2012 was similar to the trend in the perceived ease of travel (section 6.1), with an improvement in the walking environment – although the trend was less marked.

Between 2003 and 2012 the percentage of people whose responses were categorised as good or very good increased from 67% to 71%.

The number of responses categorised as poor or very poor was fairly constant at about 9% between 2003 and 2012.

These data, together with data relating to the ease of travel, show that while people believed that walking had become ‘less hassle’, the perception of the improvement in the level of service (quality of the walking environment) had not increased at the same rate.

This suggests that while the walking network is generally good, there are areas where improvements could be made to increase the overall level of service and satisfaction.

### 6.3 Funding

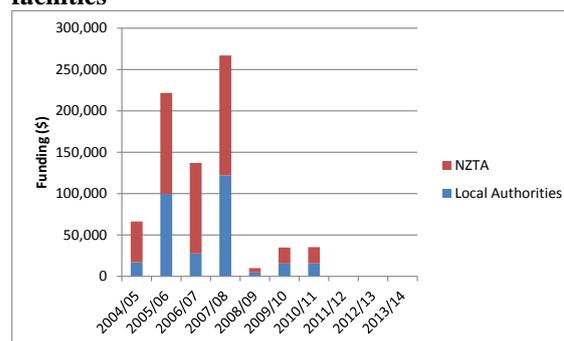
**Figure 22** shows the combined central government (through the NZTA) and local government funding for walking facilities between 2002/03 and 2013/14.

It should be noted that these figures relate to specific walking projects and do not include safety initiatives, school travel plans or roading or public transport projects that may include improvements to the walking network.

The data show that funding levels for walking facilities varied widely over the period 2002/03 to 2013/14. There were very low levels at the start and end of the periods, of between zero and \$267,000 from both sources combined.

There were sharp peaks in 2005/06 and 2007/08, surpassing \$200,000 and \$250,000, respectively. This illustrates the fact that walking facilities are not included as a consistent component of government funding. The funding levels in the most recent years shown in Figure 22 have been very low, falling to no funding from 2011/12 to 2013/14. This elimination of expenditure shows that walking projects are no longer a priority for central and local governments.

**Figure 22 Annual regional funding for walking facilities**



Source: NZTA

### 6.4 Summary

In summary, over the decade to 2012, key findings are:

- The percentage of people who thought walking was hassle free increased from 70% to 81%.
- The percentage of people satisfied with the walking level of service increased from 67% to 71%.
- There has been no funding allocated to walking projects in the Wellington region at a central or regional level since the 2010/2011 fiscal year.

## 7. Walking associated with bus and rail trips

Walking trips can occur in isolation, i.e. a single purpose trip, such as:

- walking to work
- walking to the shop
- walking to school

However, a sizeable number of walking trips are part of a journey including other modes or more than one destination or purpose, such as:

- walking to/from the rail station
- walking to/from the bus stop
- walking from the car to place of work

This section of the report looks at walking trips associated with bus and rail journeys, drawing upon detailed bus and rail survey data.

### 7.1 Background

Over 27,000 people arrive into Wellington City CBD every morning by public transport according to the 2015 Wellington CBD public transport cordon survey. This represents over 31% of total trips to the CBD.

Of these trips, many involve a walk at one or both legs of the journey, referred to as access or egress legs, defined as follows:

- The 'access' leg is from the person's place of origin (e.g. home) to boarding at the public transport stop (bus stop or railway station).
- The 'egress' leg is from someone's alighting stop (bus stop, railway station) to final destination (e.g. work).

The focus in this section is on walking access/egress journeys associated with bus and rail trips. To put the data into context, however, access/egress trips associated with other modes – public transport and private car – are also discussed.

## 7.2 Survey data

As described in section 2.6, in the second half of 2011, surveys were carried out for the GWRC across the bus and rail network to gain an improved understanding of travel patterns.

The purpose of these surveys was to inform the development of the new Wellington Public Transport Model (WPTM).

People were asked about the origin and destination of their trip, and were surveyed during the two-hour AM peak (7am to 9am) and a two-hour inter-peak period (12pm to 2pm).

Data that are captured by the surveys and of relevance to this report include:

- location of origin (specifically home), AM peak
- boarding stop/station
- alighting stop/station
- location of final destination (specifically work), AM peak
- mode used to access bus/rail network
- mode used to egress bus/rail network

Once processed, the following information can be produced from these data:

- access mode split to bus/rail network
- egress mode share for bus/rail network
- average access/egress distance by mode
- how the access/egress mode share varies by station and by line
- estimates of walking catchments to railway stations

## 7.3 Survey specification

This section describes the nature of the bus and rail surveys.

### 7.3.1 Rail survey

The rail survey forms were handed out to passengers boarding all services at stations on the metropolitan network (excluding Wairarapa line and Wellington station) in the AM peak and inter-peak. Boarding and alighting counts were undertaken at the same time at all stations. The completed surveys, representing a sample of around 25% of passengers, were factored up according to boarding and alighting counts to provide a full picture of rail usage on one particular day.

### 7.3.2 Bus survey

The bus surveys were, unlike the rail surveys, only handed out to passengers on selected services in the AM peak and inter-peak. No counts were undertaken to factor up the completed survey records to total boarding alighting data. The bus survey data therefore provide a partial picture of bus usage on a particular day and, whilst representative, the survey results only cover a sample of services and bus passengers (estimated to be around 10% of daily AM peak bus passengers).

### 7.3.3 General

All distances quoted in this report are, unless otherwise stated, straight line (crow fly) distances. Therefore the actual walking distances, following the roading and walking network, will be greater for most trips.

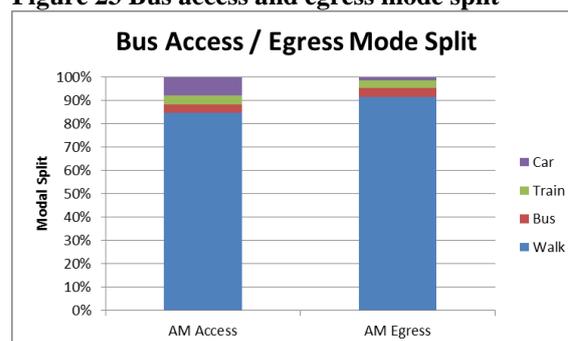
Whilst surveys were undertaken in both the AM peak and inter-peak, the AM peak dataset is the most comprehensive and as a result only these data are included in the report.

## 7.4 Bus access and egress mode split

**Figure 23** shows the bus access and egress mode share in the AM peak for the Wellington region.

**Figure 23** shows that walking was by far the most popular mode for both accessing and leaving bus stops in the Wellington region. 85% of access trips and 92% of egress trips to and from bus stops were made by foot.

**Figure 23 Bus access and egress mode split**



The main reason for this behaviour is that in 2013 82% bus users live or work within 500m of a bus stop, as found in the Wellington region Genuine Progress Index website. With people living or working so close to the bus network, this makes walking the natural choice for accessing the bus network. Parking around bus stops is generally restricted/limited, meaning that this is rarely a feasible option for accessing the network so that walking is more convenient, and brings no issues related to parking.

It should be pointed out that bus surveys were handed out on buses heading into the Wellington City CBD, Queensgate (Lower Hutt) or Porirua. No surveys were handed out at the bus station in Wellington city centre. Therefore persons alighting from rail services at Wellington railway station and making the onward leg of the journey to their final destination by bus from the bus station were not captured by the survey.

This explains why, according to the surveys, there appear to be relatively few rail access trips to the bus network in the AM peak.

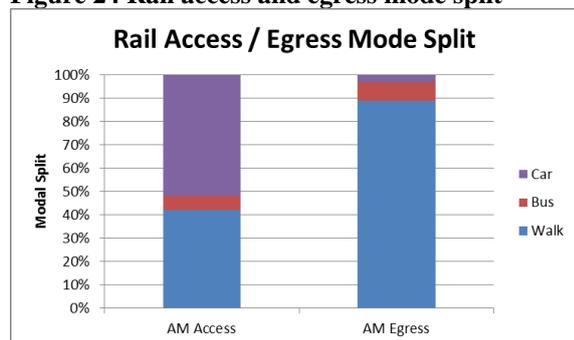
## 7.5 Rail access and egress mode split

**Figure 24** shows the mode share for people accessing and leaving railway stations in the Wellington region. It shows that in the AM peak 89% of rail egress trips were walking trips.

This is to be expected given that most egress trips in the morning peak will be from Wellington railway station to a workplace in Wellington City CBD, a short walk away from the station. Therefore for most trips to the CBD by train, walking is the most convenient mode

for getting from the railway station to the final destination.

**Figure 24 Rail access and egress mode split**



AM peak access trips had a much lower walking mode share (42%) with car being the dominant access mode, accounting for over 50% of trips to stations.

Rail provides a reliable, comfortable and fast service into Wellington City CBD. The station catchment areas are much larger than the catchment areas for bus services, so the commuters living relatively far away may consider that it is too far to walk to the station. Combined with high levels of car ownership and the availability of free parking at all stations (plus informal park and ride [P&R] facilities in the vicinity of stations), this explains why the private car is the most popular mode used to access the rail network.

Only a limited number of stations – mainly Paraparaumu, Porirua and Waterloo – have bus and rail interchange facilities. Combined with the availability of free parking at most stations, no integrated ticketing system and the need to build ‘slack’ into travel patterns in case the bus is late and the commuter then misses their connecting train, the percentage of people accessing the rail network by bus is very low, at 7% in 2011 according to the survey.

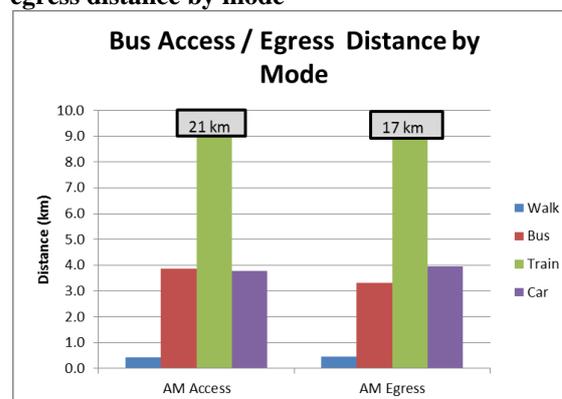
### 7.6 Average bus access and egress distance

The distance between someone’s origin and boarding stop or their alighting stop and final destination is one factor that affects their access and egress mode choice.

**Figure 25** shows the average AM peak access and egress distances for people using bus stops

around the Wellington region, categorised by access and egress mode.

**Figure 25 Average AM peak bus access and egress distance by mode**



**Figure 25** shows that the average walking access distance (440m) was roughly the same as the average walking egress distance (460m).

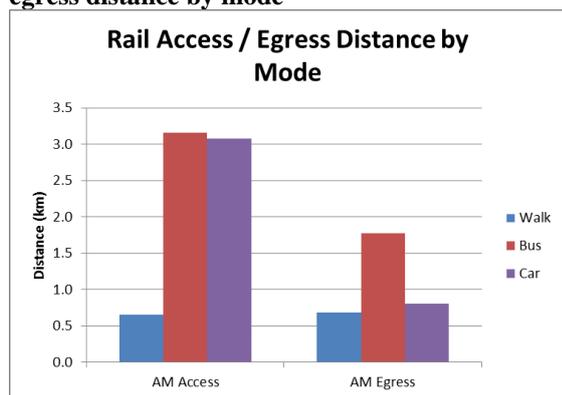
This is fairly intuitive; in the AM peak most bus trips terminate in the Wellington City CBD where employment densities are low and walking distances between someone’s alighting stop and final destination tend to be relatively short. In the suburbs, where population densities are lower, the walking distances to access the bus network tend to vary across a wider range. The net effect is that the average access and egress distance is similar.

The average access distance for bus users accessing the bus network (3.9km) is a little misleading. These are people who transfer from one bus to the next – 3.9km signifies the average trip length for the first bus leg of their journey. As it is to be expected, the train distances are much longer.

### 7.7 Average rail access and egress distance

**Figure 26** shows the rail access and egress distance by mode and time period for the Wellington region.

**Figure 26 Average AM peak rail access and egress distance by mode**



The chart shows that the average distance travelled by users accessing the rail network by bus (3.2km) is greater than the average egress distance for those completing their journey by bus (1.8km).

Suburbs such as Titahi Bay, Whitby, Stokes Valley and Wainouiomata all have feeder bus services connecting to the rail network. These suburbs are at least 3km or 4km from the rail network, explaining the bus access distances.

At the other end of the journey, most people work in Wellington City CBD. Evidence from the survey suggests that relatively few people transfer onto bus services after arriving into Wellington railway station to travel any further than Courtenay Place or Victoria University, both around 2km from the station; and many bus egress trips are even shorter than 2km in length, for example from the station to Willis Street.

This explains why the average bus egress distance is lower than the average bus access distance.

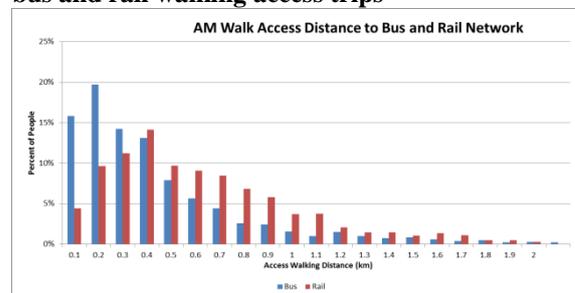
Average walking access (660m) and egress (680m) distances are much lower than both bus and car access and egress distances.

### 7.8 Walking access trip lengths to bus and rail services

**Figure 27** shows the trip length distribution of AM peak bus and rail walking access trips for the Wellington region. The figure shows that in the AM peak, nearly half of all bus users walked 400m or less to access a stop, whereas only about 25% of all train users walked 300m or less. The distribution clearly illustrates that

people walk further on average to access the rail network than they do to access the bus network.

**Figure 27 Trip length distribution of AM peak bus and rail walking access trips**

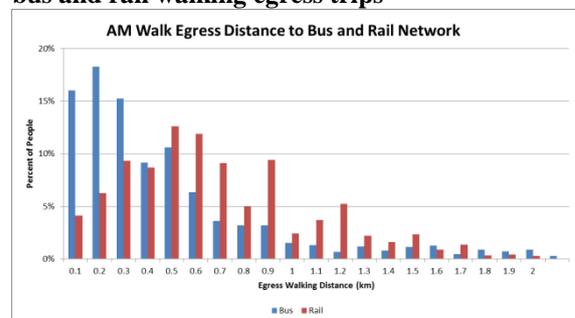


Given that bus stops tend to be no further than 400m apart, whereas railway stations can be any distance from 500m (Johnsonville line) to 3km apart in urban areas, the observed trip length distribution is in accordance with expectations.

### 7.9 Walking egress trip lengths to bus and rail services

**Figure 28** shows the trip length distribution of AM peak bus and rail walking egress trips.

**Figure 28 Trip length distribution of AM peak bus and rail walking egress trips**



**Figure 28** presents a similar picture for egress distances to **Figure 27** for access distances – people generally walk further in the AM peak after alighting from rail services than after alighting from bus services.

In the AM peak, most people who alight from rail services do so at Wellington railway station and walk up to 1.5km into Wellington City CBD to their final destination.

Because the bus network penetrates further into Wellington City CBD than the rail network, with stops approximately every 300m, walking

from their alighting stop to their final destination results in, for most people, a much shorter walk than if walking from Wellington railway station to their final destination. This explains the differences between bus and rail walking egress distances shown in **Figure 28**.

In summary, when comparing walking access and egress trip length distribution it is apparent that walking access/egress trips associated with bus travel are generally slightly shorter than for rail travel. Given that rail journeys are generally longer (both in terms of time and distance) and faster (kph) than bus journeys, it is perhaps unsurprising that people are willing to walk further to board (or after alighting from) rail services.

### 7.10 Access mode split to Wellington rail network

Access to the Wellington rail network, categorised by mode, is presented for key stations on the Wellington rail network in the AM peak. In this section, ‘station’ refers to the railway station unless otherwise stated. To consider whether the walking access mode share, and the car and bus mode shares are relatively high or low or representative for the region, the reader is invited to refer to **Figure 24** for the regional averages.

The data are presented in two ways:

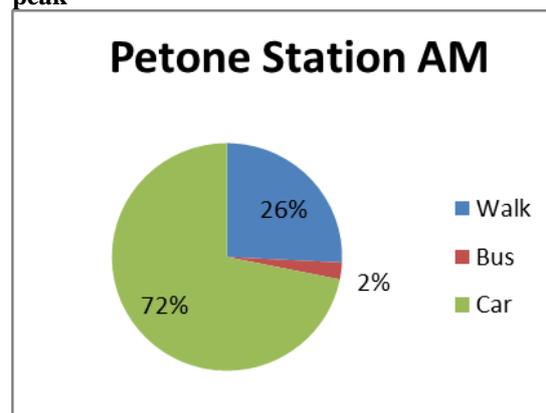
- A pie chart showing the percentage breakdown of trips by access mode; and
- A map that plots the exact location of the origin of people who use the station in question, again categorised by mode.

#### 7.10.1 Petone

**Figure 29** shows the access mode split for Petone station in the AM peak.

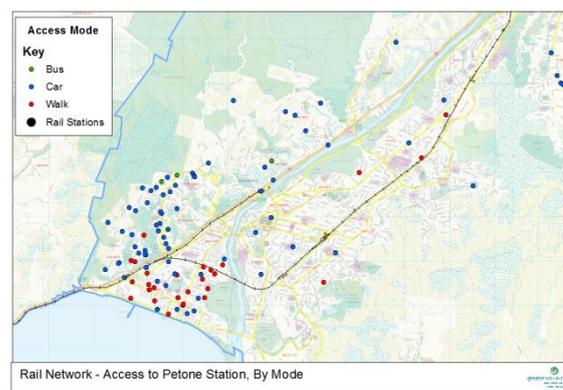
It shows that just over a quarter of passengers accessed this station by foot, with the remainder (72%) accessing it by car.

**Figure 29** Petone station– access mode split, AM peak



**Figure 30** shows the original location of people using Petone station.

**Figure 30** Map of access to Petone station by mode

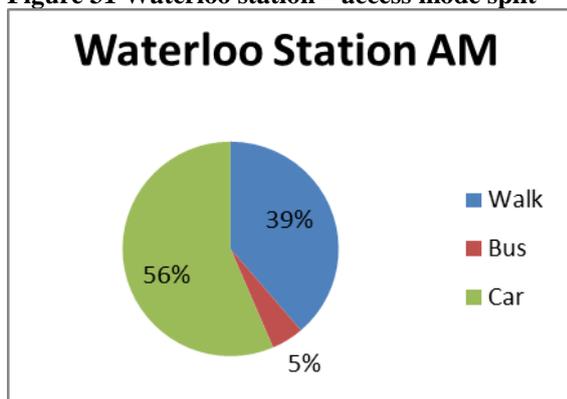


Petone has a low walking access mode share for a number of reasons. Firstly it is located in a predominantly industrial area with relatively little housing within close proximity of the station. Secondly, the station has a sizeable car park with direct access off SH2. Being the closest station to Wellington City (of all stations in the Hutt Valley), combined with its location close to the state highway, the station draws P&R patronage from the Lower Hutt suburb of Korokoro and from areas further north along SH2 (further away from Wellington City).

#### 7.10.2 Waterloo

**Figure 31** shows the breakdown of trips by access mode for Waterloo station.

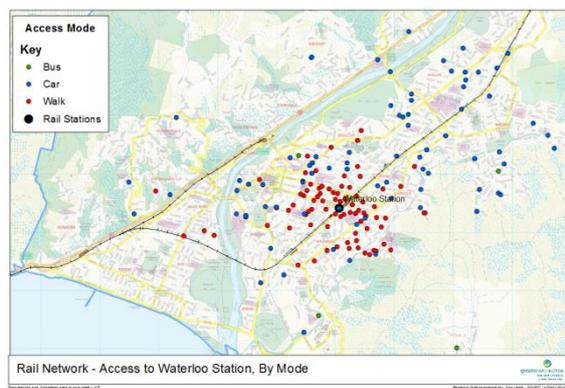
**Figure 31 Waterloo station – access mode split**



It shows that 39% of passengers walked and 56% drove to Waterloo station respectively.

Waterloo has a large area supplied for parking facilities, has comprehensive station amenities and relatively frequent services compared to other stations on the Hutt Valley line. It can therefore be considered a ‘premium’ station with a larger than normal catchment area that overlaps the walking catchment of neighbouring stations, as illustrated in **Figure 32**. As a consequence it is the most heavily used station on the Hutt Valley line.

**Figure 32 Map of access to Waterloo station by mode**

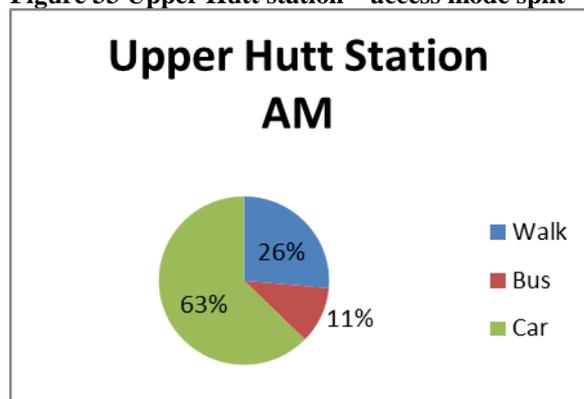


It is predominantly surrounded by residential housing, hence the relatively high walking mode share. It also has a large number of free parking spaces which draw passengers from the immediate catchment and further up the valley.

### 7.10.3 Upper Hutt

**Figure 33** shows the access mode split for Upper Hutt station.

**Figure 33 Upper Hutt station – access mode split**

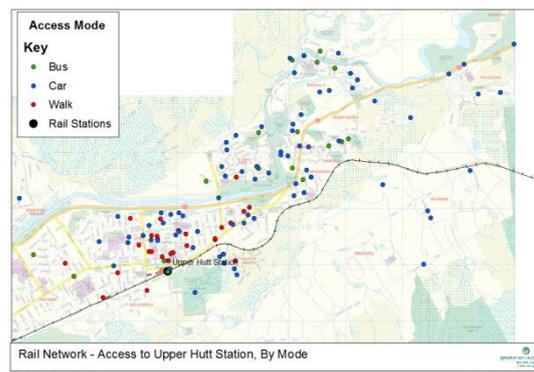


Upper Hutt station had a lower than average proportion of people accessing it by foot and a larger than average proportion accessing it by car and bus.

Upper Hutt station borders Upper Hutt CBD and is centrally located, although it is slightly outside the main residential areas, which will partially explain the relatively low walking mode share.

Since it is at the end of the Upper Hutt line, many people park and ride or access by bus from suburbs further north, such as Totara Park, Clouston Park, Timberlea and Te Marua.

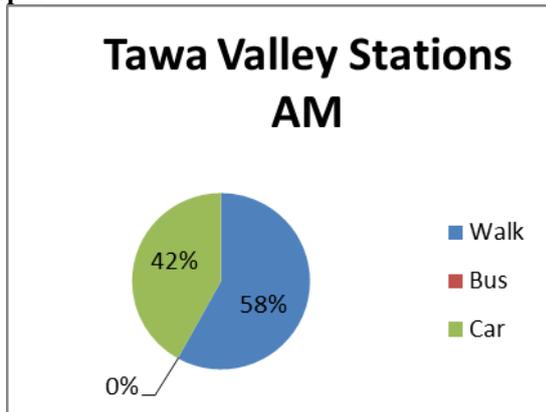
**Figure 34 Map of access to Upper Hutt station by mode**



### 7.10.4 Tawa Valley stations

**Figure 35** shows the access mode split across five stations in the Tawa area that share similar characteristics – Kenepuru, Linden, Tawa, Redwood and Takapu Road. Collectively these stations are referred to as ‘Tawa Valley’.

**Figure 35 Tawa Valley stations – access mode split**



These characteristics include the fact that all of these stations are surrounded on both sides by residential areas, ensuring that there is a wide walking catchment area.

Furthermore, no bus services connect nearby suburbs to the stations and parking capacity was minimal compared to other stations in the Wellington region.

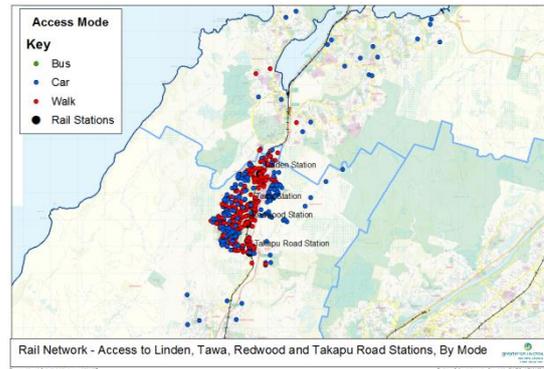
These factors explain why 58% of people accessed the stations by foot. This is the second highest proportion of walking access for the region after travellers on the Johnsonville line, as discussed in section 7.10.10.

The five stations are relatively closely spaced, serve a relatively tight geographic area and are only a 15 minute journey from Wellington City railway station.

**Figure 36** shows that considerable overlap exists between car and walking catchments, suggesting that personal preference and not just distance affects people’s choice of access mode in this part of the network.

The characteristics detailed above mean that the five stations in the catchment area effectively operate like high quality bus stops (with walking the most popular access mode) compared with other stations on the network that are further from Wellington City, have superior parking facilities and serve larger catchment areas.

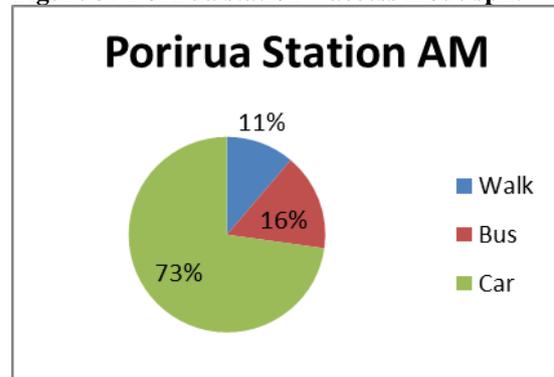
**Figure 36 Map of access to Tawa Valley stations by mode**



### 7.10.5 Porirua

**Figure 37** shows the access mode share for Porirua station.

**Figure 37 Porirua station – access mode split**



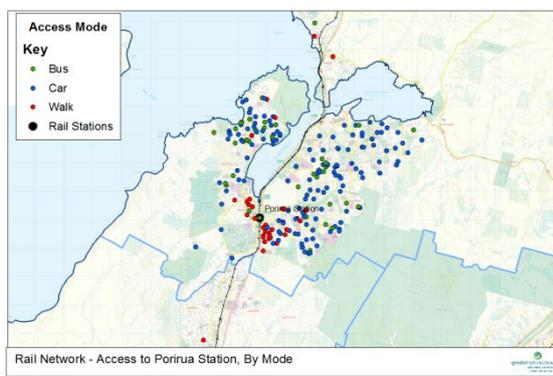
Porirua station had a relatively low walking mode share, due to the location of the train station being quite remote from residential areas, with walking access from the east also restricted by topography and the proximity of SH1, which makes driving access easier but walking access more difficult.

Porirua is considered a premium station and in 2011 had the second highest patronage in the AM peak of all stations in the Wellington region (after Waterloo).

Porirua station has a large car park, with easy access from SH1. **Figure 37** shows that many people drive from the eastern and western suburbs to the station and from areas as far away as Whitby. Service frequencies are superior to those at other stations upstream from Porirua, meaning that it draws patronage from a wide area, similar to Waterloo.

There is also a bus interchange at the station, with services from eastern and western suburbs passing through the station. **Figure 37 and Figure 38** show that a significant number of people use bus services to access the station.

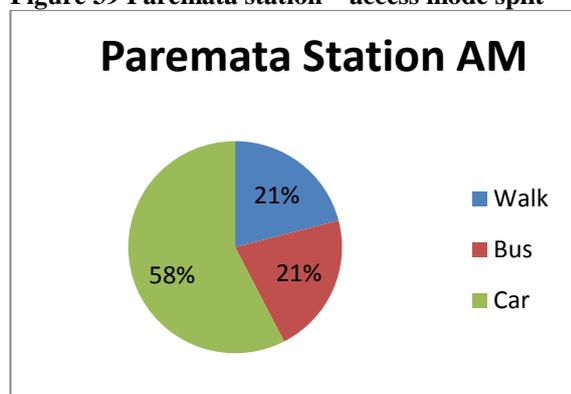
**Figure 38 Map of access to Porirua station by mode**



### 7.10.6 Paremata

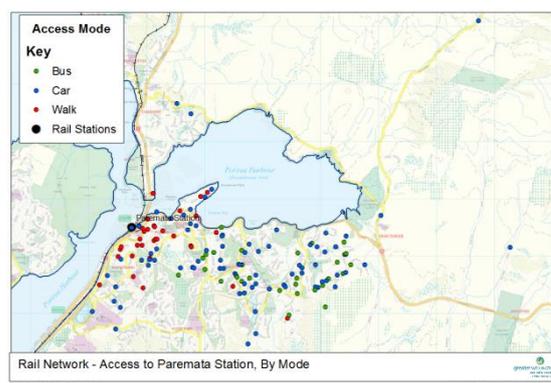
**Figure 39** shows the access mode share for Paremata station. It can be seen that 58% of rail travellers surveyed drove to the station, 21% took the bus and 21% walked.

**Figure 39 Paremata station – access mode split**



**Figure 40** displays the origins of trips to Paremata station.

**Figure 40 Map of access to Paremata station by mode**



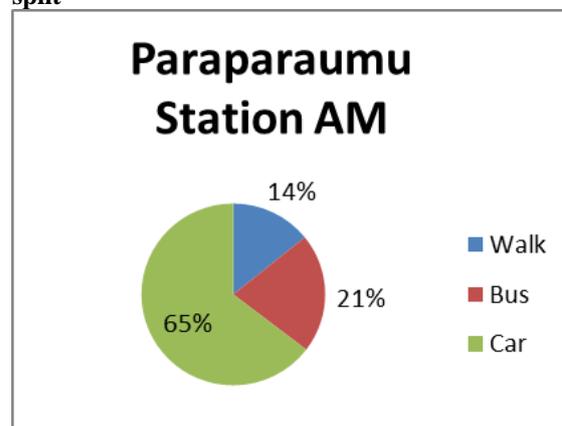
**Figure 40** shows that the walking catchment for Paremata station in 2011 was relatively small, due in part to the station being bordered on two sides by the Porirua Harbour. In addition, the location of SH1 and the topography in the area present further barriers for people wishing to walk to the station.

People tended to drive from Whitby and Paremata to the station, utilising the large station car park. Comparing **Figure 40** with **Figure 38** (Porirua), the overlap between station catchments is apparent – some people drive further to Porirua (better service frequency) whilst others choose to drive a shorter distance to a Paremata.

### 7.10.7 Paraparaumu

**Figure 41** shows the access mode split to Paraparaumu station.

**Figure 41 Paraparaumu station – access mode split**



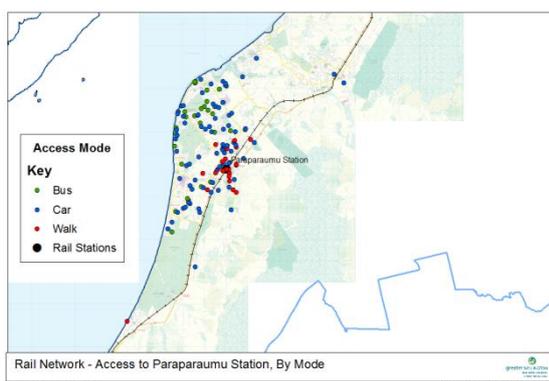
This station showed similar characteristics to Porirua, namely a relatively low walking access mode share (14% compared to 42% for the

region), a relatively high bus access mode share (21%) and dominated by car access trips (65%).

The location of Paraparaumu railway station is on the eastern side of SH1 and Paraparaumu town centre, creating the need to cross SH1 to access the station. Furthermore, the station is not close to most residential areas, which are located on the western side of SH1. These factors help to explain why the walking mode share was low.

The station catchment area, shown in **Figure 42**, includes areas such as Paraparaumu Beach and Raumati that are about 4km from the station. From these suburbs the private car was the access mode of choice, although the bus services linking various suburbs with the station lends itself to a relatively high bus access mode share.

**Figure 42 Map of access to Paraparaumu station by mode**

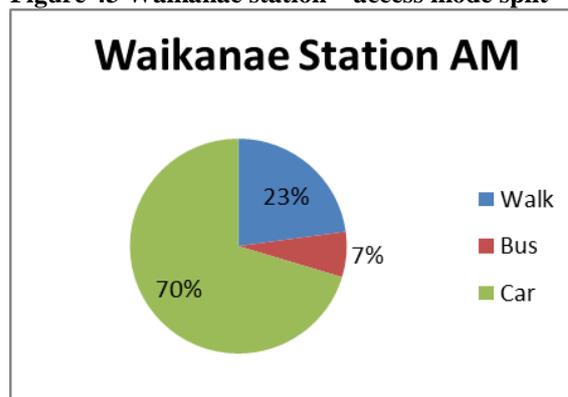


### 7.10.8 Waikanae

**Figure 43** shows the mode split for Waikanae station, the furthest station from Wellington City on the region’s rail network.

It shows that, similar to Paraparaumu, using a car was the dominant access mode, accounting for 70% of access trips to the station. The walking access mode share was only 23%.

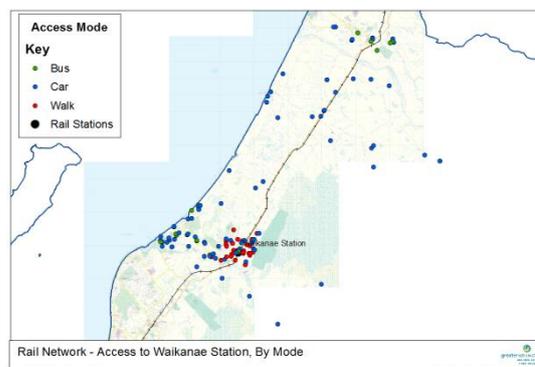
**Figure 43 Waikanae station – access mode split**



Whilst the station is surrounded by residential areas, accounting for some of those people who walk to the station, it also serves a wider catchment area (**Figure 44**) including Waikanae Beach, Te Horo and Otaki. Being the last station on the line, people from Otaki and possibly Levin will drive along SH1, park at Waikanae and catch the train into Wellington City.

Whilst feeder bus services do connect Waikanae Beach and the station, for many people the private car is the most convenient mode for accessing the station.

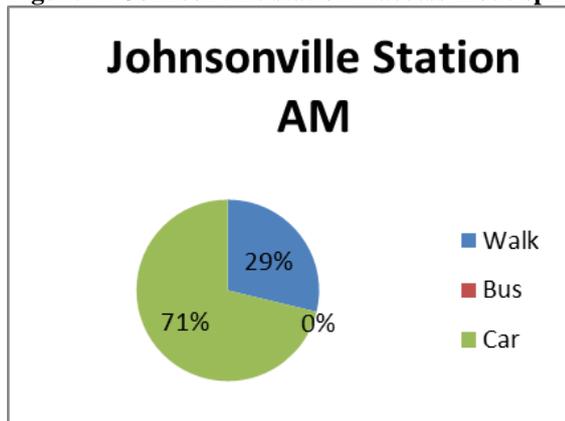
**Figure 44 Map of access to Waikanae station by mode**



### 7.10.9 Johnsonville

**Figure 45** shows the mode split for Johnsonville station.

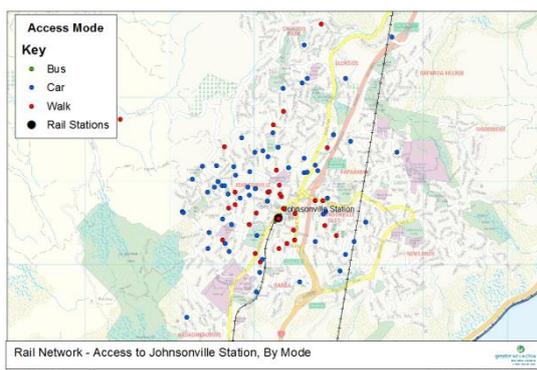
**Figure 45 Johnsonville station – access mode split**



It shows that 29% of people walked to Johnsonville station and 71% accessed the station by car.

**Figure 46** shows the walking access catchment areas for Johnsonville station.

**Figure 46 Map of access to Johnsonville station by mode**



**Figure 46** shows that some people who live close to the station walked to catch the train.

For persons living farther afield, particularly Newlands and to the east of SH1, regular bus services run into Wellington City CBD, effectively competing with the train. Therefore for many people the bus is a more convenient proposition. This perhaps explains why most P&R users live to the north and west of Johnsonville – taking the bus into Wellington from these areas would involve passing through Johnsonville Interchange, providing no advantage compared to parking and taking the train. From Newlands, however, buses run direct onto SH1, bypassing Johnsonville and providing a more direct and quicker route into the CBD, explaining why relatively few people

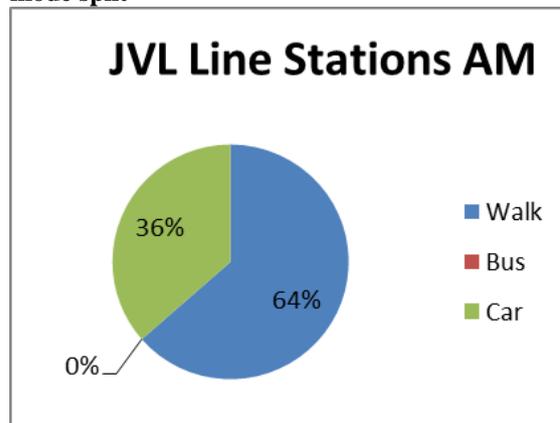
from this area drive to Johnsonville and take the train.

### 7.10.10 Johnsonville line

The remainder of the Johnsonville line comprises seven stations that are closely spaced (~3.5km between Raroa and Crofton Downs) thus operating in a comparable way to a high capacity bus service. Travel speeds are relatively slow and comparable to buses, due to slow track speeds and the need for trains to stop frequently.

**Figure 47** shows the combined access mode split for trips originating from these stations, showing that walking was the dominant access mode.

**Figure 47 Johnsonville line stations – access mode split**

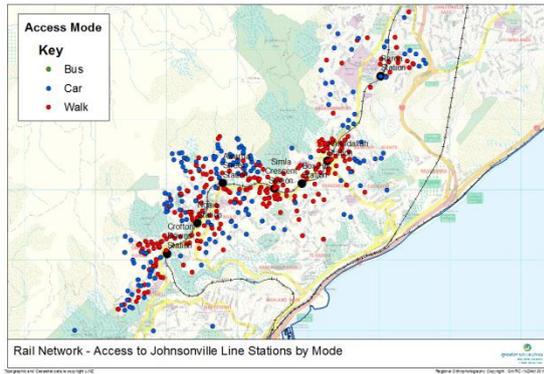


Parking facilities are limited at all stations on the Johnsonville line and, combined with the fact that stations are located in low density residential areas, walking was the dominant access mode, and at 64% was the highest for all of the Wellington region.

**Figure 48** shows the access modes and origins of people going to the Johnsonville line stations.

Some people using the Johnsonville line appear to live to the north of the line. Whilst some people living to the south do use the train, they also have a competing bus services to choose from, explaining why fewer rail users live in these areas.

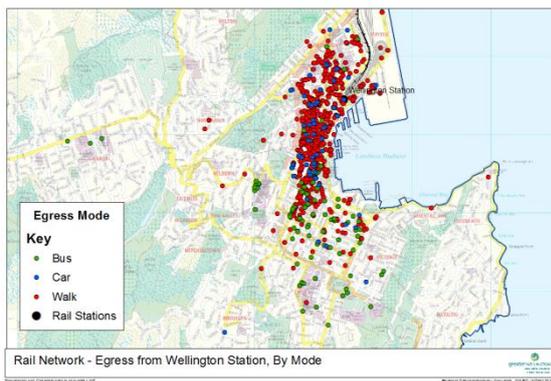
**Figure 48 Johnsonville line stations**



### 7.11 Wellington railway station egress map

Figure 49 shows the final destinations for people alighting from rail services at Wellington City railway station, categorised by egress mode.

**Figure 49 Map of egress from Wellington railway station by mode**



The map shows that most rail users work towards the northern end of the CBD, a short distance from Wellington railway station. Most trips were by foot as shown by the predominance of red spots. Relatively few rail egress trips extend past Cuba Street; of those that do, around half were made by bus.

### 7.12 Potential demand for walking

The data presented in this section show the walking access mode split to the rail network, together with the locations of the origins of people who use selected stations and their access modes.

Walking accounts for around 42% of access trips to the rail network for the Wellington region on average, as shown in section 7.5.

From the access maps shown in this section, however, it can be seen that overlap exists not only between walking and car access catchments for the same station but also between combined (walking and car access) catchments for several stations.

Table 6 shows the number of people within 1km of their nearest railway station. Whilst these catchments are calculated using distance only (they do not take account of the direction of travel, the nature or availability of station facilities, service frequency, etc.) they do give an indication of the population within a set walking distance of each station on the network.

The numbers are ranked in descending order, starting with the station with the greatest number of people within 1km walk of that station. The walking distances are calculated using the actual road/walking network, as opposed to crow fly (straight line) distances.

**Table 6 Population within 1km walk of nearest railway station**

Station	Population within 1km
Eponi Station	4,697
Woburn Station	4,586
Waterloo Station	3,976
Johnsonville Station	3,751
Naenae Station	3,476
Ava Station	3,136
Trentham Station	2,887
Wallaceville Station	2,840
Taita Station	2,692
Wingate Station	2,412
Linden Station	2,268
Silverstream Station	2,081
Khandallah Station	1,987
Waikanae Station	1,871
Upper Hutt Station	1,837
Redwood Station	1,811
Ngaio Station	1,809
Simla Crescent Station	1,793
Pomare Station	1,778
Awarua Street Station	1,739

The catchments are assumed not to overlap – people are only assigned to their closest station, regardless of whether they may live within 1km of more than one station.

**Table 6** shows that the stations with the greatest number of people within 1km of that station are mostly found along the Hutt Valley line and Johnsonville line.

This can be explained by the fact that most of these stations lie in the middle of predominantly residential areas.

The population within 1km of Hutt Valley stations is greater than for Johnsonville line stations because, for the latter, there will be some overlap between station catchments.

This information gives the reader an idea of the stations that have the greatest captive population within walking distance (less than 1km). This information can potentially be used to target stations that have a large number of people living within 1km walk, but with a relatively low walking access mode share, suggesting that measures could be taken to improve walking access to the station and therefore increase the walking access mode share.

## 7.13 Summary

Based on surveys of walking catchments from bus and railway stations, a few general conclusions can be made.

In summary:

- This section of the report looks at walking trips associated with bus and rail journeys, drawing upon detailed rail and bus survey data from 2011.
- In 2015, over 27,000 people arrive into Wellington City CBD every morning by public transport representing over 31% of total trips to the CBD.
- 85% of the region's access trips and 92% of egress trips to/from bus stops were by foot, which aligns with the fact that most bus users live or work within 400m of a bus stop.

- 42% of access trips and 89% of egress trips to/from rail stations were by foot.
- Average walking access and egress distances to/from bus stops were 440m and 460m, respectively.
- Average walking access and egress distances to/from railway stations were 660m and 680m, respectively.
- Nearly half of all bus users walked 400m or less to bus stops, while only 25% of train users walked 300m or less to access a railway station.
- People generally walked further after alighting from rail services than after alighting from bus services, particularly due to Wellington City station locations.
- The mode split for accessing railway stations is affected by station characteristics, terrain and proximity of stations to residences.
- Stations with the highest number of people within 1km of that station were mostly found along the Hutt Valley line and Johnsonville line.

## 8. Conclusion

### 8.1 Outcome of this report

In this report, the GWRC has collated and analysed the available walking data for the Wellington region.

This report provides a detailed picture of walking activity in the region, and this information can be used to help measure progress and effectiveness in terms of policies promoting walking, and inform policy decisions to achieve better results.

### 8.2 Key themes and trends

The key points or themes discussed in this report include:

- Data for this report have been compiled from a variety of sources including the Ministry of Transport's Household Travel Survey, the GWRC's Transport Perceptions Survey, the Short Trip Active Mode Research report, the NZTA, School Travel Plan data, the GWRC's bus and rail surveys, and Wellington City CBD cordon counts (GWRC and WCC).
- Walking in the region has generally increased overall over the period since 2000. The major theme has been a relative decline in motor vehicle mode share and an increase in walking mode share.
- Walking is one of the safest modes of travel on New Zealand roads. The underlying trend is one of a walking environment that is becoming safer, based on perceptions of walking as well as a decline in walking casualties.
- Walking was identified as a feasible option for 55% of people in 2012, compared to 49% of people for whom walking was deemed not feasible for any trip. Exercise and fitness were the most popular reasons for choosing to walk to work or study.
- Between 2001 and 2012, the proportion of people who thought walking was hassle free increased, and the proportion of people satisfied with the walking level of service also increased.

- Funding levels for specific walking projects are variable and since 2011/12 the funding allocation has been zero.
- Individuals tend to walk further to reach railway stations than bus stops.
- The mode split for accessing railway stations is affected by station characteristics, terrain and proximity of stations to residences. Stations with few or no car parking facilities, and those with residential areas close to the station, generate a relatively high proportion of walking trips to the station. Since transferring from a bus to a train service in the Wellington region means paying twice, trips to stations by bus represent a very low percentage of trips.
- The majority of walking egress trips from Wellington railway station are walking trips, while trips further away tend to be made by either foot or bus in similar proportions. This indicates a willingness to walk some distance from Wellington station, which may reflect the pedestrian-friendly nature of Wellington City CBD, and the inconvenience and expense of transferring from rail to bus.
- Increasing the mode share of people walking to public transport stops involves removing the barriers that exist to walking, and providing the right mix of incentives to encourage a greater uptake of walking. This report has shown that walking is already the dominant mode for travel within Wellington City CBD. Some barriers to walking in the suburban areas include hilly terrain, long distances to public transport stops, and the relative convenience of driving a private car.

### 8.3 Discussion

Research shows that walking (and counterpart running) has many potential benefits, both for communities and individuals. Increasing the number of walkers and runners can play a critical role in promoting mobility, creating healthy lifestyles, reducing traffic congestion and emissions, and reducing travel costs.

In order to encourage individuals to walk for some of their transport trips and to realise some

of these potential benefits, pedestrians need a safe and convenient walking environment.

Some ways to promote walking are suggested as follows:

- Adjust signal phasing to give pedestrians a higher priority and reduce waiting time at traffic signals.
- Reintroduce funding for walking infrastructure at a national and/or local level.
- Increase the density and proximity of new housing developments to public transport stations or interchanges.
- Integrate public transport fares to eliminate the financial penalty that effectively exists when transferring between a bus and a train, since under the current system the person has to pay two separate fares.
- Introduce a fee for motorists parking at railway stations to give motorists a financial incentive to access and egress stations by an alternative mode.

Walking is an important part of the transport network, it is an efficient way of making short trips and also as a means to connect between transport modes.

Government agencies realise the importance of a safe, well-connected and integrated walking network and invest in services to increase participation and pedestrian access in the region. As evident by the surveys discussed here, walking behaviour and views on walking, in the Wellington region are regularly measured and monitored.

Walking behaviour does change gradually and people are motivated to change for a variety of reasons. Whether people choose to walk for recreation or as a means to get to work or education there are benefits to gain from these trips for the whole community.

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## Glossary

ACC	Accident Compensation Corporation
CAS	Crash Analysis System
CBD	Central Business District
GWRC	Greater Wellington Regional Council
HCC	Hutt City Council
HTS	Household Travel Survey
MV	Motor Vehicle
NIQS	National Inquiry Query System
NLTF	National Land Transport Fund
NZTA	New Zealand Transport Agency
P&R	Park and Ride
PT	Public Transport
RLTS	Regional Land Transport Strategy
STP	School Travel Plan
TA	Territorial Authority
TPS	Transport Perceptions Survey
WCC	Wellington City Council