



greater WELLINGTON
REGIONAL COUNCIL

Analysis of the Rail Survey data 2011/12

FOR FURTHER INFORMATION

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1 Introduction

In 2011 customer travel survey data were collected for the railway lines that feed into Wellington City. The data were collated into a report produced by Opus and Arup for GWRC.¹

2 Purpose of this paper

This report presents the survey data collated for, and analysed in, the Opus/Arup study in alternative ways to highlight behavioural patterns of people using these railway routes. This includes: the purpose of the trip and likely time of day; station origin and destination of trips; whether or not passengers have access to a car and the transport modes they use to access the train and complete their trip.

3 The rail survey

3.1 Survey Data

Rail intercept surveys were carried out by the Traffic Design Group Limited (TDG) and Research New Zealand as part of GWRC's Wellington Public Transport Model (WPTM) development project. The data helped to inform the development of the WPTM.

Data were collected for the four railway lines that feed into Wellington City, and the dates of collection were as follows:

- Hutt Valley Line – surveyed 26–27 October 2011;
- Kapiti Line – surveyed 26–27 October 2011;
- Melling Line – surveyed 15–19 August 2011; and
- Johnsonville Line – AM peak services surveyed June 2011, interpeak services surveyed 15–19 August 2011.

The morning or 'AM' peak is defined as 7am to 9am; and the interpeak is defined as 11am to 1pm. For inbound trips to Wellington, the time period was allocated according to the scheduled arrival time of the train at Wellington station. For outbound trips, the time period was allocated according to the departure time of the train from Wellington station.

Data analysis is for peak trips only unless otherwise stated.

3.2 The Wellington rail network

The four lines are shown in the map in Figure 1. The Wairarapa section of line was not included in this survey.

¹ 'Wellington Transport Models: TN5B : Rail Intercept Survey Analysis', December 2012, report produced for the GWRC by Opus and Arup.

Figure 1: Network of railway lines to Wellington City



The time of journey from the origin stations to Wellington City and the number of stops (including the end stops) are shown in Table 1 for the morning peak, according to the Metlink timetables.² Note that for Hutt Valley and Kapiti lines there are services that originate part way along the lines as well as the origin for the whole line. For the Hutt Valley Line there are services that also originate at Taita, and for the Kapiti Line services also originate at Plimmerton and Porirua. The number of stops is given for each of the trips and the time taken in the peak.

Note that in the peak, the trains from Upper Hutt to Wellington City stop at 10 stations only, the remainder being serviced by the Taita line, with Taita, Waterloo and Wellington all serviced by both. The Kapiti Line train that starts at Waikanae stops at a total of nine stations (including Waikanae) – stopping at all stations until Porirua, then express to Wellington City. Both the service starting at Plimmerton and the service starting at Porirua stop at every subsequent station to Wellington City.

Table 1: Origin stations and travel times for surveyed railway lines

Line	Origin station	Number of stops (including origin station)	Travel Time (scheduled) for peak (minutes)
Hutt Valley	Upper Hutt	17 (stops at 10)	38
Hutt Valley	Taita	9	26-27
Kapiti	Waikanae	14 (stops at 9)	56-57
Kapiti	Plimmerton	10	29
Kapiti	Porirua	7	21
Melling	Melling	5	18-19
Johnsonville	Johnsonville	9	21

Notes: Times for peak include the times at the start and end of the period, i.e. 7.00am and 9.00am. None of the Hutt Valley Line services stop at Ngauranga in the peak, only the Melling service stops there.

² Metlink timetables available online at <http://www.metlink.org.nz/timetables/train/>.

Stations on each line (bold stations are serviced by more than one train line, excluding Wellington as the destination station):

- Hutt Valley Line – 17 stations: **Upper Hutt**, Wallaceville, Trentham, Heretaunga, Silverstream, Manor Park, Pomare, Taita, Wingate, Naenae, Epuni, **Waterloo**, Woburn, Ava, **Petone**, **Ngauranga**, Wellington.
- Kapiti Line – 14 stations: Waikanae, Paraparaumu, Paekakariki, Pukerua Bay, Plimmerton, Mana, Paremata, Porirua, Kenepuru, Linden, Tawa, Redwood, Takapu Road, Wellington.
- Melling Line – 5 stations: Melling, Western Hutt, **Petone**, **Ngauranga**, Wellington.
- Johnsonville Line – 9 stations: Johnsonville, Raroa, Khandallah, Box Hill, Simla Crescent, Awarua Street, Ngaio, Crofton Downs, Wellington.

3.3 Frequency, duration and speed of services

Table 2 shows the frequency of services in the morning peak for each line. For the Melling and Johnsonville lines, the frequency is the same for each station on the line, i.e. five and seven, respectively. Due to there being more than one origin station on the Hutt Valley and Kapiti lines, the frequency for each station varies.

Table 2: Frequency of services by line and origin station, morning peak

Line	Origin station	Number of services
Hutt Valley	Upper Hutt	5
Hutt Valley	Taita	6
Kapiti	Waikanae	4
Kapiti	Plimmerton	4
Kapiti	Porirua	4
Melling	Melling	5
Johnsonville	Johnsonville	7

Note that the Wairarapa Line from Masterton to Wellington (which is not modelled here) also stops at three of the stations in the four lines surveyed. Those stations are: Upper Hutt, Waterloo and Petone. There are three services during the morning peak, so for those stations this added frequency is a significant improvement in the overall level of service. The extra three services to Wellington City bring the total number of services in the morning peak to 38 (the total in Table 2 plus the three from Masterton).

The combined services give the frequency for the station to Wellington City trips in the peak in Table 3. It can be seen that each station on the four lines has between four and 14 services in the morning peak that go into Wellington City. Waterloo has the highest number at 14, and Porirua has the second highest at 12, followed by Taita with 11 and Petone with nine. The lowest regularity are for the longest distances travelled, i.e. the first four stops on the Kapiti Line – Waikanae to Pukerua Bay inclusive, all with four services per hour.

Table 3: Frequency of services by station, Hutt Valley and Kapiti lines

Line and station	Origin station				Total
	Upper Hutt	Taita	Masterton (Wairarapa Line)	Melling	
Hutt Valley Line					
Upper Hutt	5		3		8
Wallaceville	5				5
Trentham	5				5
Heretaunga	5				5
Silverstream	5				5
Manor Park	5				5
Pomare	5				5
Taita	5	6			11
Wingate		6			6
Naenae		6			6
Epuni		6			6
Waterloo	5	6	3		14
Woburn		6			6
Ava		6			6
Petone		6	3		9
Ngauranga				5	5
Wellington	5	6	3		14
Kapiti Line	Waikanae	Plimmerton	Porirua		Total
Waikanae	4				4
Paraparaumu	4				4
Paekakariki	4				4
Pukerua Bay	4				4
Plimmerton	4	4			8
Mana	4	4			8
Paremata	4	4			8
Porirua	4	4	4		12
Kenepuru		4	4		8
Linden		4	4		8
Tawa		4	4		8
Redwood		4	4		8
Takapu Road		4	4		8
Wellington	4	4	4		12

Table 4 shows the total scheduled times and distance from the end stations into Wellington railway station in the morning peak (the peak times are the best case scenario with no delays and the fastest scheduled peak journey time). The implied average speeds are shown in the last column. This is an important element of the journey to understand since people will factor the total time to take a trip (and thus the average speed) into their choice of mode. As may be expected, in general, the longer the distance the higher the average speed. For example, the average speed from Waikanae to Wellington (the longest trip) is 90.8kph compared to just 23.7kph for the shortest trip from Johnsonville to Wellington.

Table 4: Average speeds on lines

Line	Origin station	Peak trip time (scheduled; minutes)	Distance (km)	Implied average speed (kph)
Hutt Valley	Upper Hutt	38	34.3	54.2
Hutt Valley	Taita	26	20.6	47.5
Kapiti	Waikanae	56	84.7	90.8
Kapiti	Plimmerton	29	24.5	50.7
Kapiti	Porirua	21	17.7	50.6
Melling	Melling	18	13.5	45.0
Johnsonville	Johnsonville	21	10.5	30.0

3.4 Station groupings

The stations along the four lines are grouped as shown in Table 5. This grouping assists in observing patterns in the travel data.

Table 5 Grouping of stations by line

Railways lines and groupings	Number of stations	Stations in each group
Hutt Valley Line		
AW	2	Ava and Woburn
Waterloo	1	Waterloo
Middle Hutt	6	Manor Park, Pomare, Taita, Wingate, Naenae and Epuni
UHS	5	Upper Hutt, Wallaceville, Trentham, Heretaunga and Silverstream
Kapiti Line		
Tawa Basin	5	Kenepuru, Linden, Tawa, Redwood and Takapu Road
Porirua	1	Porirua
MPP	3	Plimmerton, Mana and Paremata
WPP	4	Waikanae, Paraparaumu, Paekakariki and Pukerua Bay
Melling Line		
Melling	1	Melling
Western Hutt	1	Western Hutt
Petone	1	Petone
Johnsonville Line		
Johnsonville	1	Johnsonville
Other JV	7	Raroa, Khandallah, Box Hill, Simla Crescent, Awarua Street, Ngaio and Crofton Downs

3.5 Survey method

The survey respondents were approached at their boarding station and asked to complete a survey questionnaire and hand it in once they reached their destination station. A total of 4,420 surveys were received, of which 3,534 (80% of the total) related to travel in the morning peak and the remainder in the interpeak. The data were ‘cleaned’ by Opus and Arup, i.e. only the usable responses were retained.

The number of surveys by line and time period are shown in Table 6. It can be seen that the Kapiti Line commuters completed the largest number of surveys, followed by those on the Hutt Valley Line, accounting for 74% of the total.

Table 6: Rail surveys completed and returned, by line and time period

Line	Morning peak	Interpeak	Total number of surveys by line
Hutt Valley	1,024	458	1,482
Kapiti	1,507	285	1,792
Melling	231	14	245
Johnsonville	772	129	901
Total	3,534	886	4,420

The questions that respondents were asked in the survey related to the following subject areas:

- Starting point – ‘home’ – and ultimate destination of the trip
- Origin and destination stations of the trip
- Access and egress time and mode
- Trip purpose
- Gender; age group; whether have a driver’s licence; car availability
- Ticket type (single/multi trip/monthly pass/concession)

The 15 questions asked in the survey (with the exact wording) are given in Table 7.

Table 7: Survey questions

Survey questions
Where did you come from before catching the train?
Where is that place? - please provide an address OR intersection nearby
What time did you start your trip from that place?
How did you get to the train station where you got on this train?
At which station will you get off this train?
This train trip is part of your journey to what destination?
Where is that place? - please provide an address OR intersection nearby
How will you finish your journey when you get off this train?
How long will it take you to reach your final destination after getting off this train?
What ticket are you using for this train trip today?
Gender?
Which age category are you in?
Do you have a drivers licence?
Was a car available to you as an alternative to taking the train for this trip?
Will this train take you to your final destination? (pilot only)

4 Overview of trip patterns

This section presents an overview of trip patterns for the peak and interpeak travellers in the survey, for the whole sample (all lines combined). Figures 2 to 5 show the patterns of responses to the survey questions relating to the trip origin (starting point) and destination, which is determined by the trip purpose. Figures 6 to 9 show the access mode to the origin station and the egress mode from the end station to the ultimate destination.

It is clear from Figure 2 that nearly everybody who answered the survey in the morning peak had started their journey from home (98.3%). The destination (trip purpose)³ was primarily the workplace (80.0%) as shown in Figure 3, followed by education (17.4%). Just 1.8% of those surveyed were going shopping and less than 1% were on their way home.

By contrast, just 62.2% of people in the interpeak started their journey from home, with 17.9% starting from their place of education, 10.6% from the workplace and 9.1% from a place of personal business. The trip purpose was largely personal (48.9%), with 21.3% going home, 17.5% travelling to their workplace and 12.2% travelling for the purpose of education. Trip purpose is analysed further by station groupings in section 9.

³ Origin and destination (determined by trip purpose) have been categorised into four groups: home; workplace (includes any trip that is business related); education (includes school, polytechnic or university); personal (includes social, sport, recreational, shopping, and personal business).

Figure 2: Origin of trip, morning peak

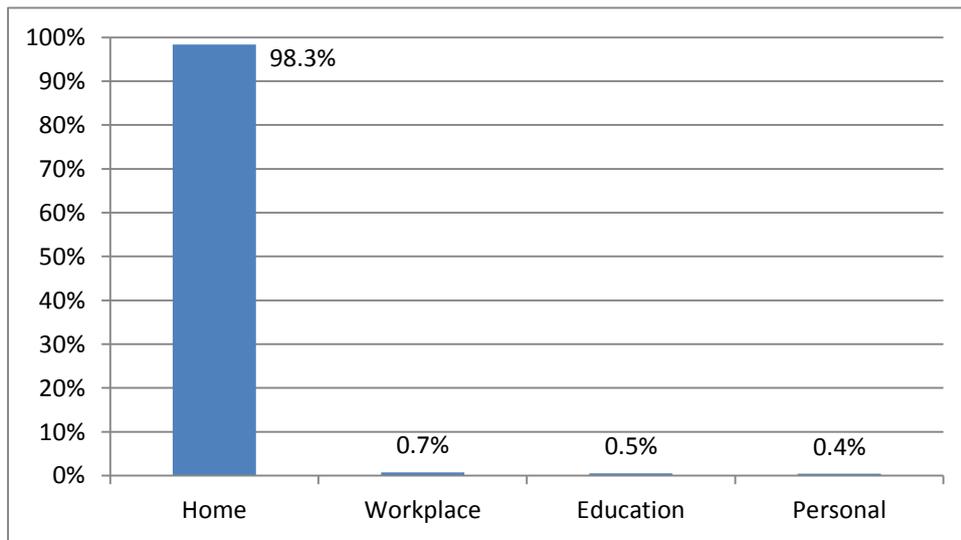


Figure 3: Purpose of trip, morning peak

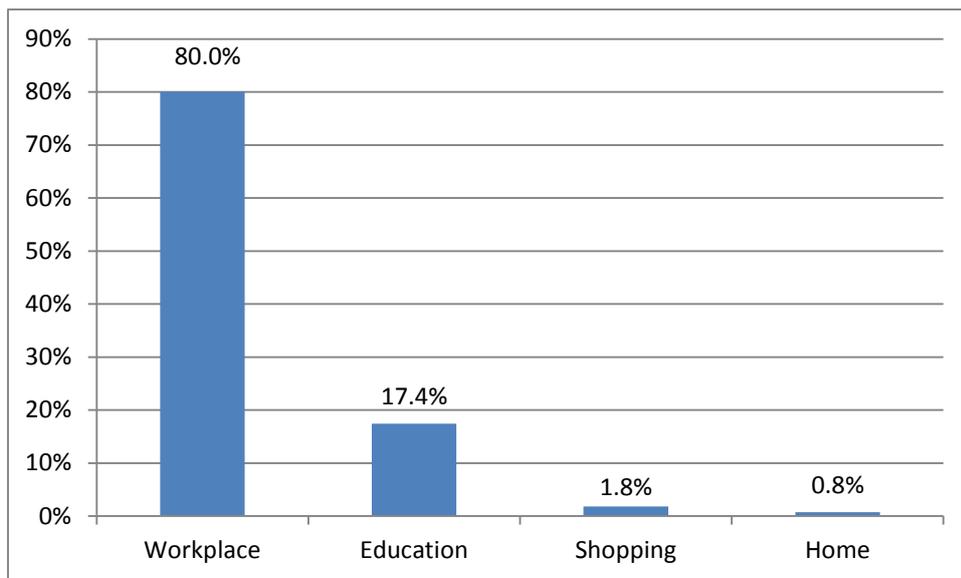


Figure 4; Origin of trip, interpeak

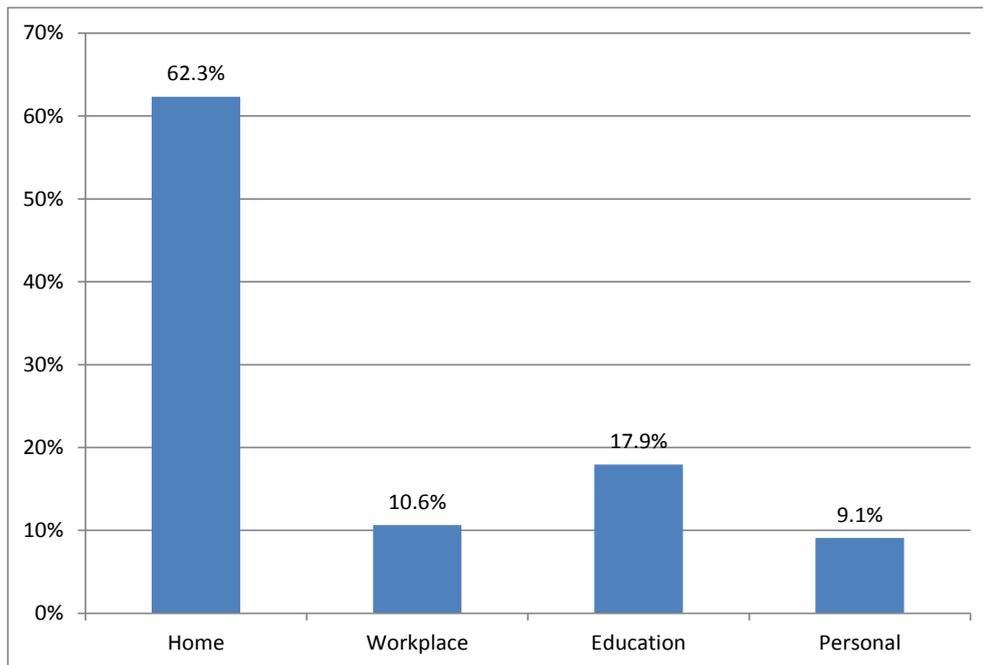
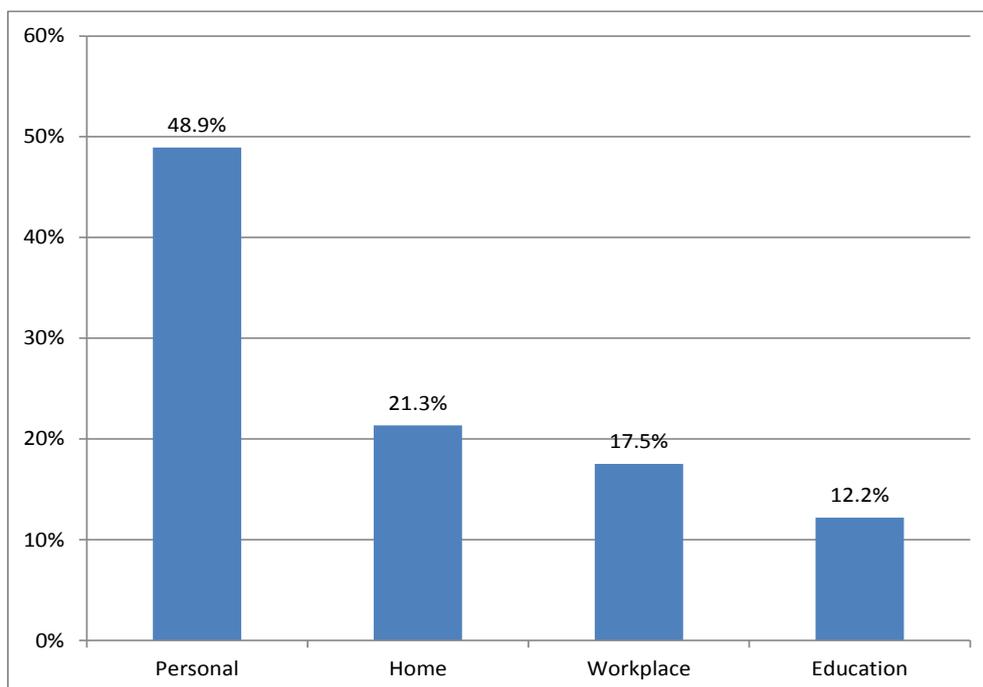


Figure 5: Purpose of trip, interpeak



Figures 6 to 9 show the patterns of access to origin stations and egress modes from end stations to the final destination. Note that the modes are categorised into car (includes driver, passenger and taxi); short walk (less than five minutes); longer walk (five minutes or more); bus, bike, train or taxi.

In the morning peak, 47.1% of respondents travelled to the origin station by car and 46.6% by walking. Just 5.2% got the bus and less than 1% went by bike, train or taxi. On reaching their end station, the dominant egress mode was walking, at 89.5%, with 47.2% walking for five minutes or more and 42.6% having a walk of less than five minutes. Just 6.5% took a bus, and only 2.4% used a car. Again, less than 1% went by bike, train or taxi.

In the interpeak the patterns were notably different. Car use was less prevalent as the access mode at 31.0%, while walking was by far the dominant mode at 58.6%. Other modes were marginally more popular than in the morning peak, together accounting for 10.4%. The egress mode was again dominated by walking, but less than in the peak, at 74.7%. Bus, car and train all figured more strongly than in the morning peak, at 9.1%, 8.5% and 2.2%, respectively.

Figure 6: Access mode to station, morning peak

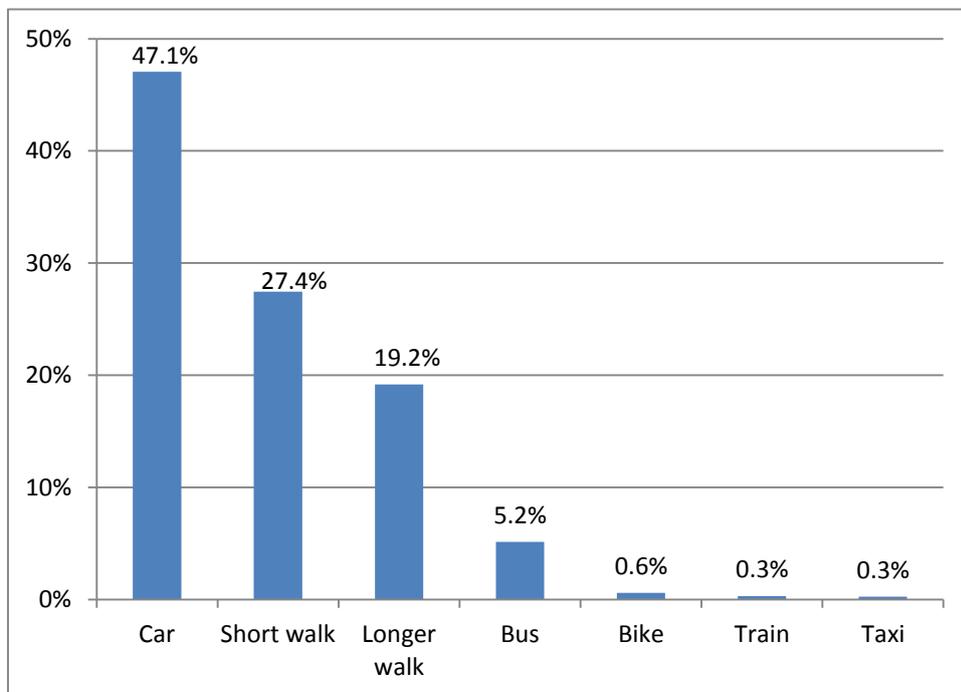


Figure 7: Egress mode from station, morning peak

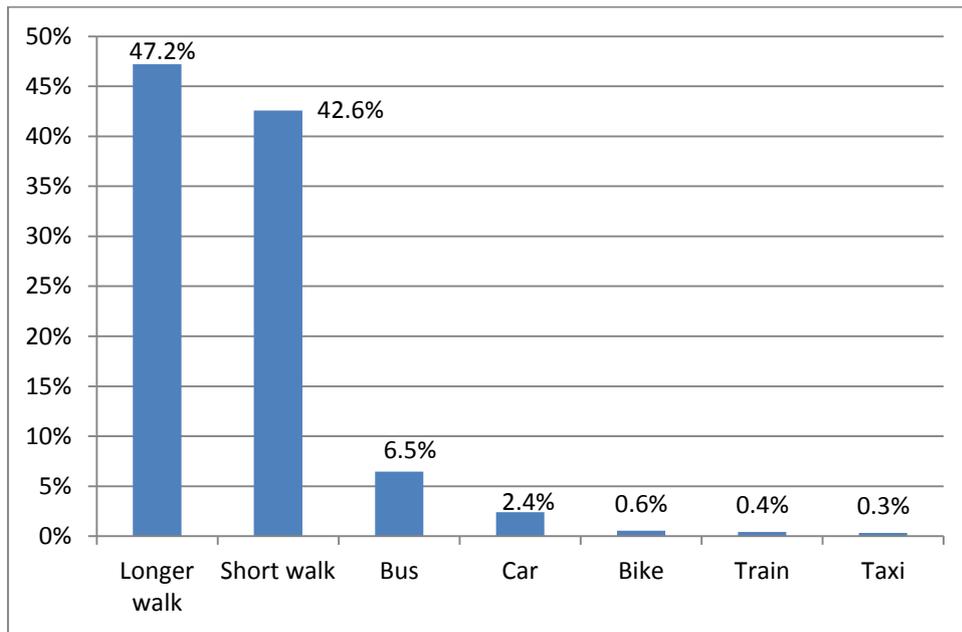


Figure 8: Access mode to station, interpeak

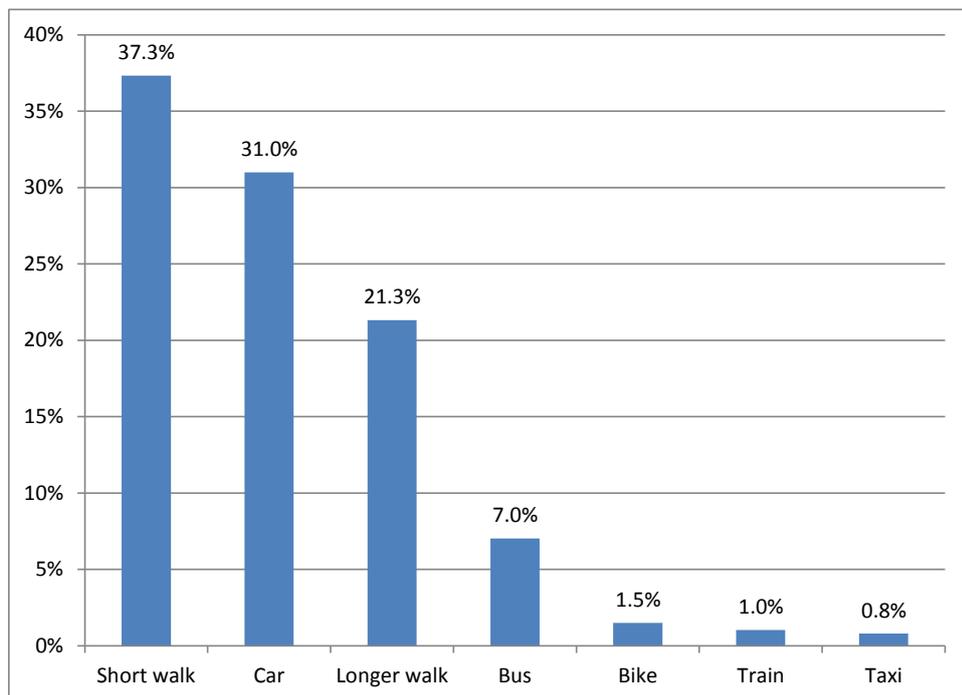


Figure 9: Egress mode from station, interpeak

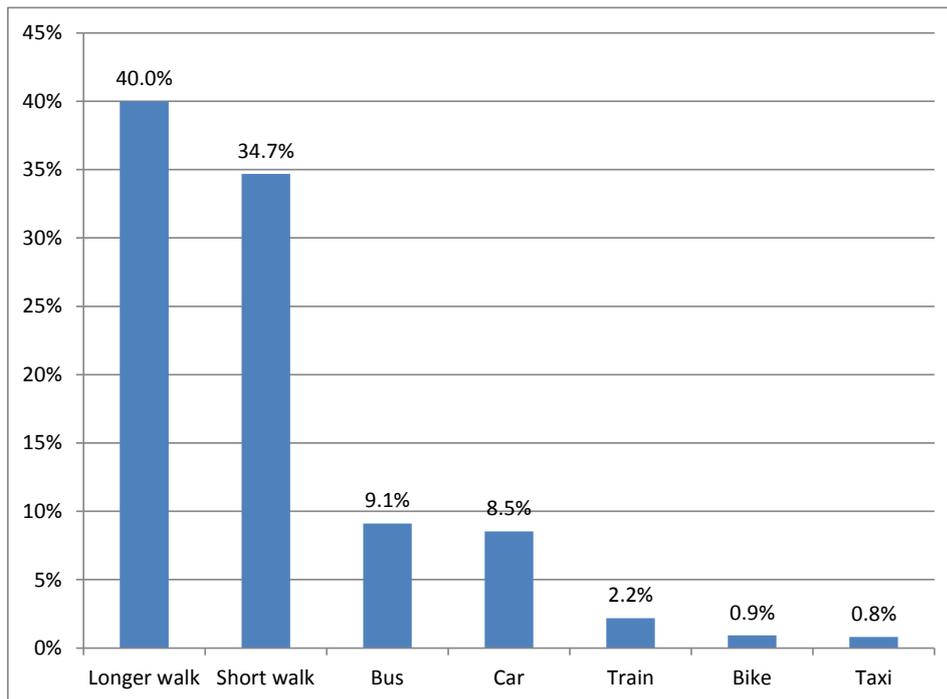
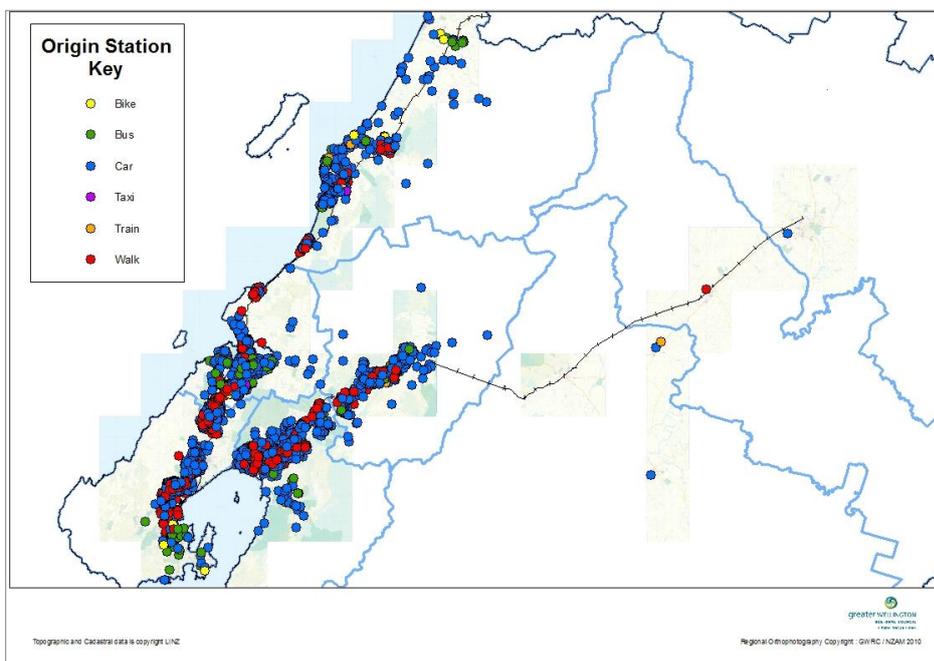


Figure 10 below maps the access mode of train users during the AM peak period. In general, driving and walking (long and short walks) are the common modes used to access stations across the Wellington region, followed by bus. As expected, origin points close to rail stations tend to be made more by foot, while trips from further away origins tend to be made by car or bus. Hills also seem to affect the mode choice, with those in hilly areas having higher car and bus use and lower walking and cycling use. Almost all access trips from far away rural areas seem to be made by car.

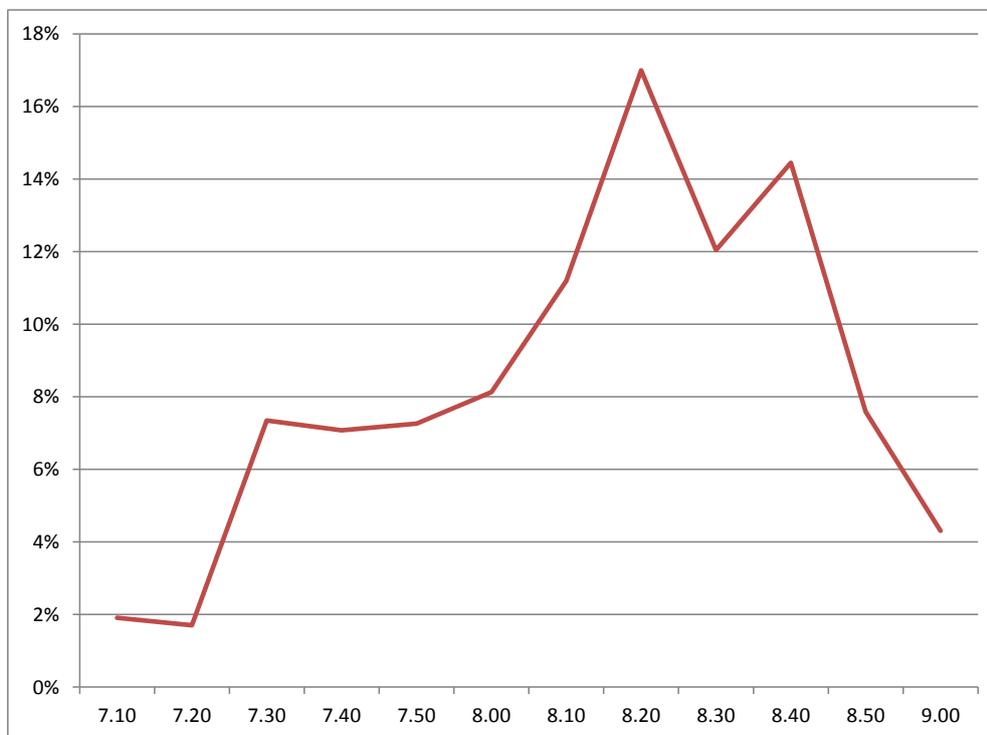
Figure 10: Journey Origins by Access Mode



5 Arrival times into Wellington railway station

The arrival times into Wellington railway station in the morning peak, between 7.00am and 9.00am at 10 minute intervals, are shown in Figure 10. These data were collected for the GWRC working paper, entitled ‘Wellington CBD Cordon Data Overview’, 2014.⁴ The figure shows that 55% of rail passengers surveyed for the cordon data study arrived into Wellington railway station between 8.10am and 8.40am, with 12% after this period and 33% before. The single busiest time was at 8.20am, followed by 8.40, 8.30 and 8.10, respectively. It is interesting to note that there was a relatively constant flow of arrivals between 7.30am and 8am of around 45% of the 8.20am peak count, and a similar number at 8.50am. Either side of these times the numbers significantly drop off.

Figure 10: Arrival time into Wellington railway station, morning peak



6 Ticket type

The ticket types that were bought in the morning peak and interpeak are shown in Figures 11 and 12. The patterns are starkly different. In the morning peak, passengers predominantly use pre-paid regular rail passes, with multi trip tickets and monthly passes accounting for 92% of tickets used, and cash accounting for just 8%. In the interpeak, cash dominates at 61%, with regular passes only accounting for 39%.

⁴ The Wellington CBD Cordon Data Overview presents counts of rail passengers arriving into Wellington railway station in the two-hour morning peak, 7am to 9am, over a five weekday period in March 2014. The rail passenger total was 14,644 passenger trips.

Figure 11: Ticket type, morning peak

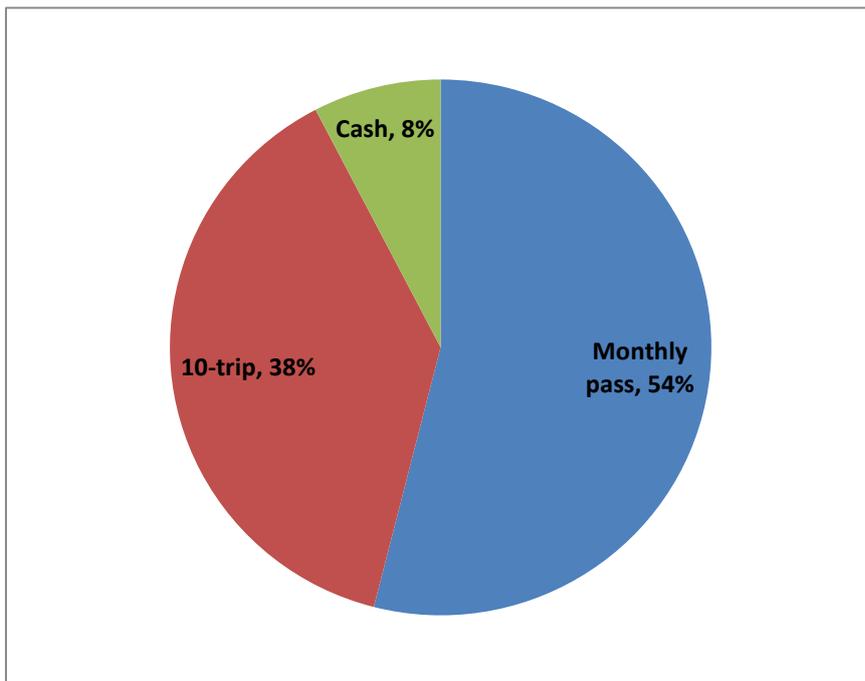
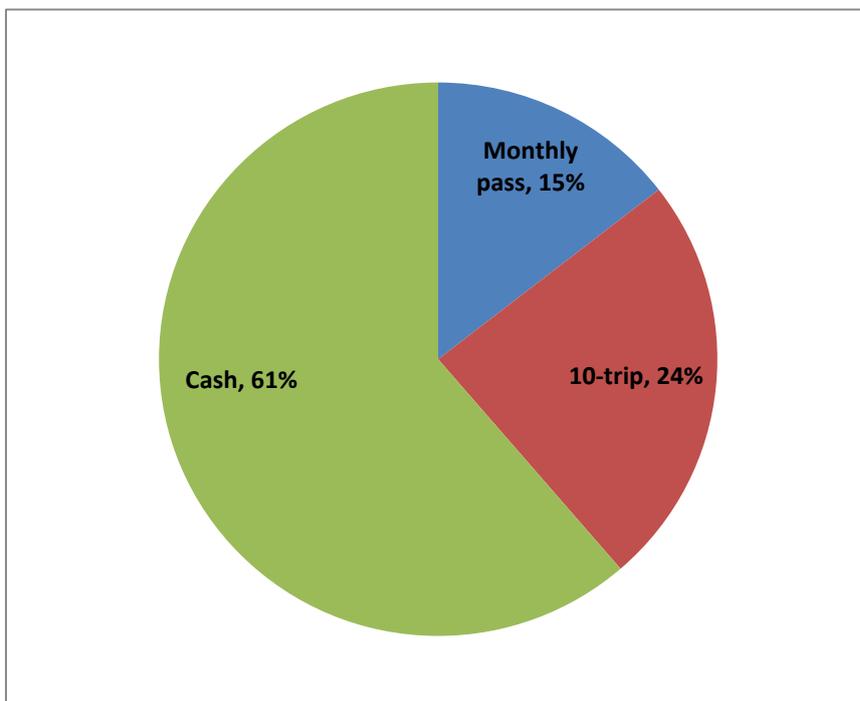


Figure 12: Ticket type, interpeak



7 Age groups

Figures 13 and 14 show the age group distributions for the surveyed passengers in the morning peak and interpeak. In the peak there is a concentration of people travelling by train who are in the 26–59 year age groups. In the interpeak these age groups are less prevalent and 16–25 year olds and over 60s dominate.

Figure 13: Age groups of sample, morning peak

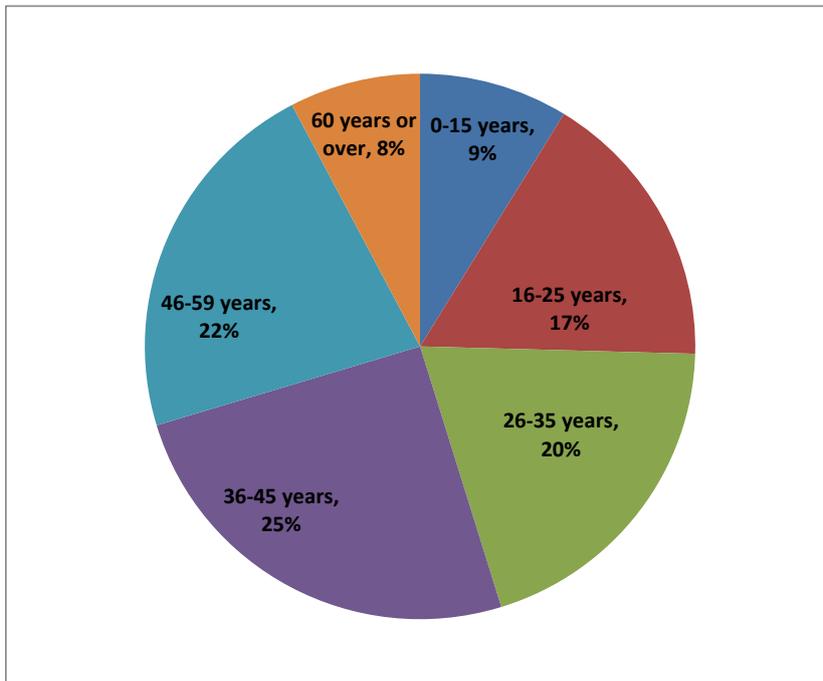
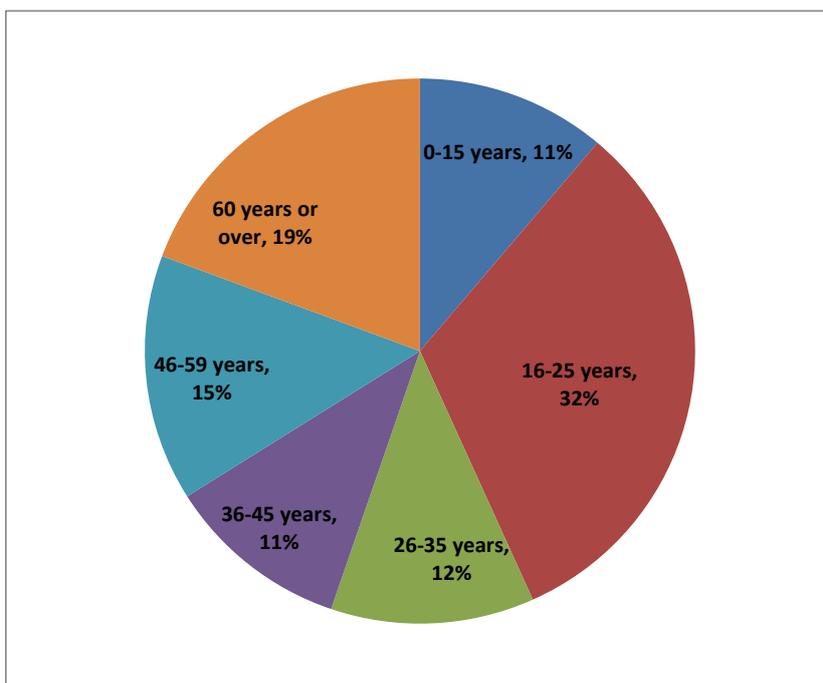


Figure 14: Age groups of sample, interpeak



8 Boardings by railway line

Figures 15 to 22 show the patterns of boardings at stations in the morning peak, by line and for each individual station on each line. Boardings at stations are ranked from highest to lowest and then shown for each station in the correct geographical order along each line.

On the Hutt Valley Line, 18.5% of passengers got on at Waterloo and the second most popular station was Upper Hutt with 12.4%, followed by Ava with almost 10%. There were relative peaks of around 8% at Woburn, Naenae, Taita and Silverstream, and then the shares drop to 5% or less.

On the Kapiti Line, the most popular station was Porirua, with 15.5% of boardings. Tawa was second with nearly 13%, followed by Paremata with 10%. There are another five stations with around 8%. The least used were Kenepuru, Mana and Pukerua Bay, respectively.

On the Johnsonville Line, Awarua Street received 18.0% of boardings, closely followed by Crofton Downs and Johnsonville with 17.4% and 16.3%, respectively. Least used were Box Hill and Raroa.

On the Melling Line, Petone accounted for 42.9% of boardings. Melling and Western Hutt took the remainder with 27.3% and 24.2%, respectively. No one got on at Ngauranga.

Maps showing the station where respondents initially boarded vs their place of origin can be found in Appendix part E, F and G. The maps show station catchments for the Hutt Valley, Johnsonville and Kapiti lines.

Figure 15: Hutt Valley Line, boardings at stations, highest to lowest, share of total (%)

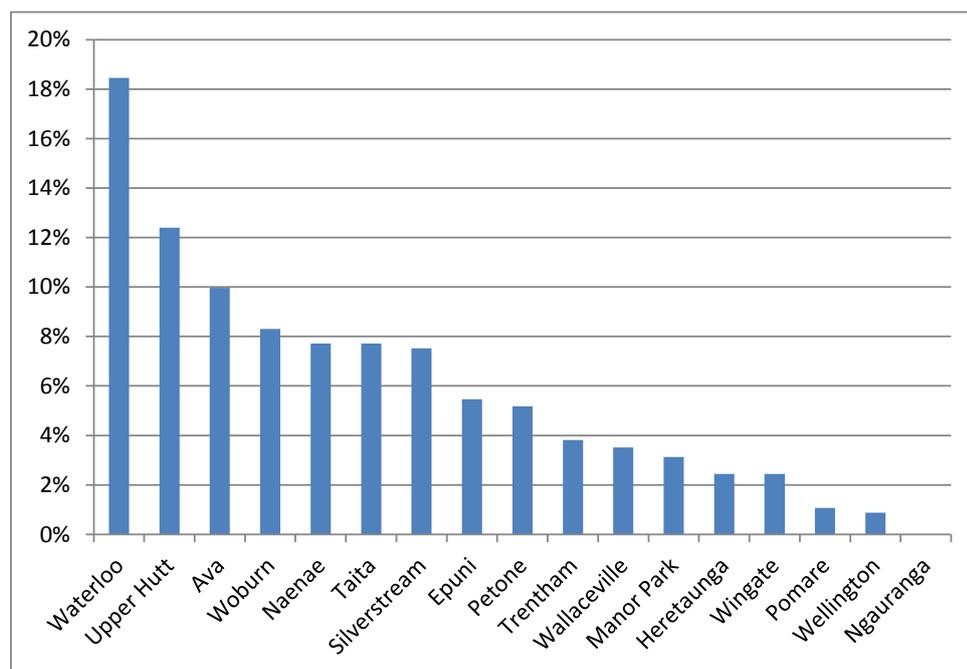


Figure 16: Hutt Valley Line, boardings at stations along the line (correct order), share of total (%)

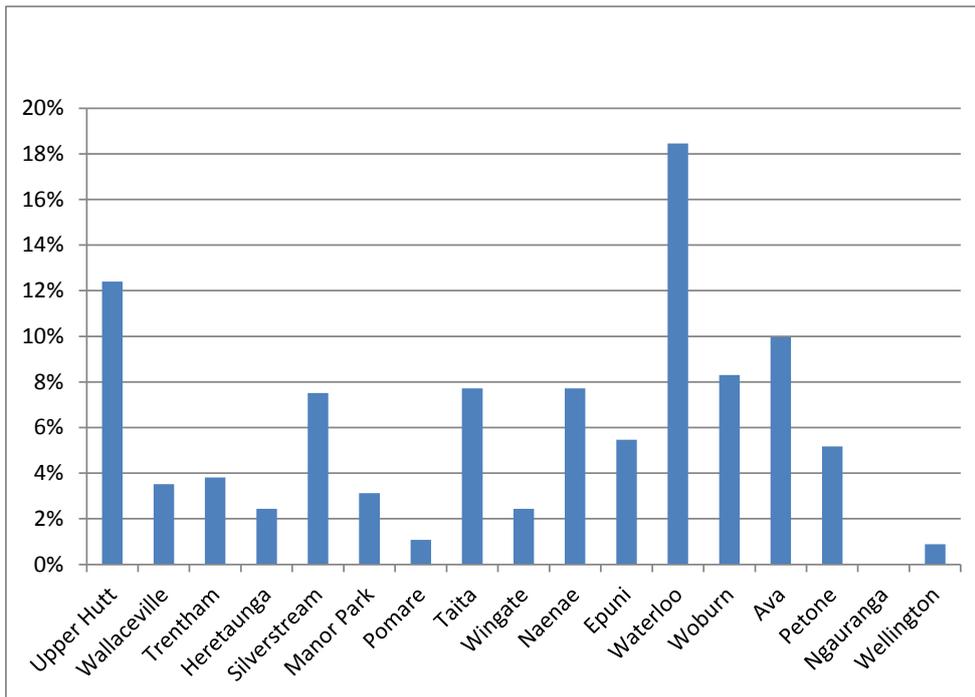


Figure 17: Kapiti Line, boardings at stations, highest to lowest, share of total (%)

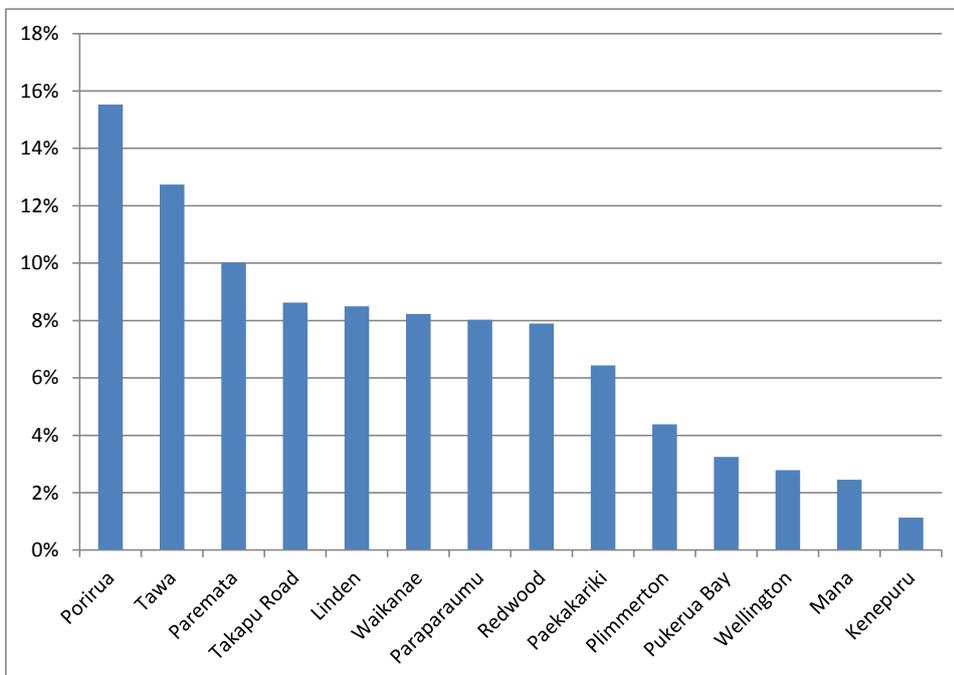


Figure 18: Kapiti Line, boardings at stations along the line (correct order), share of total (%)

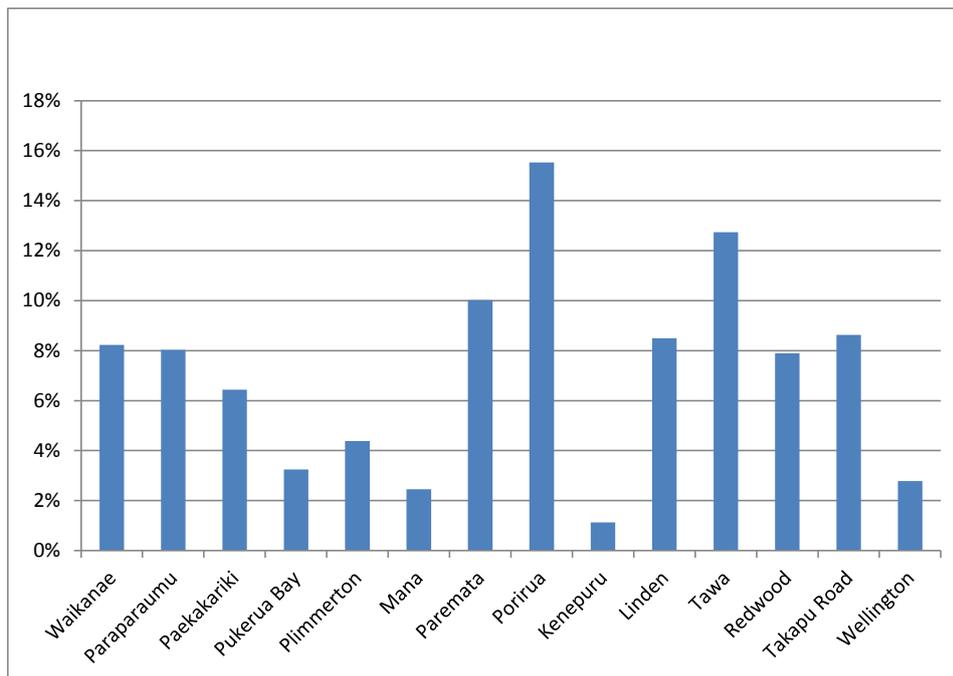


Figure 19: Melling Line, boardings at stations, highest to lowest, share of total (%)

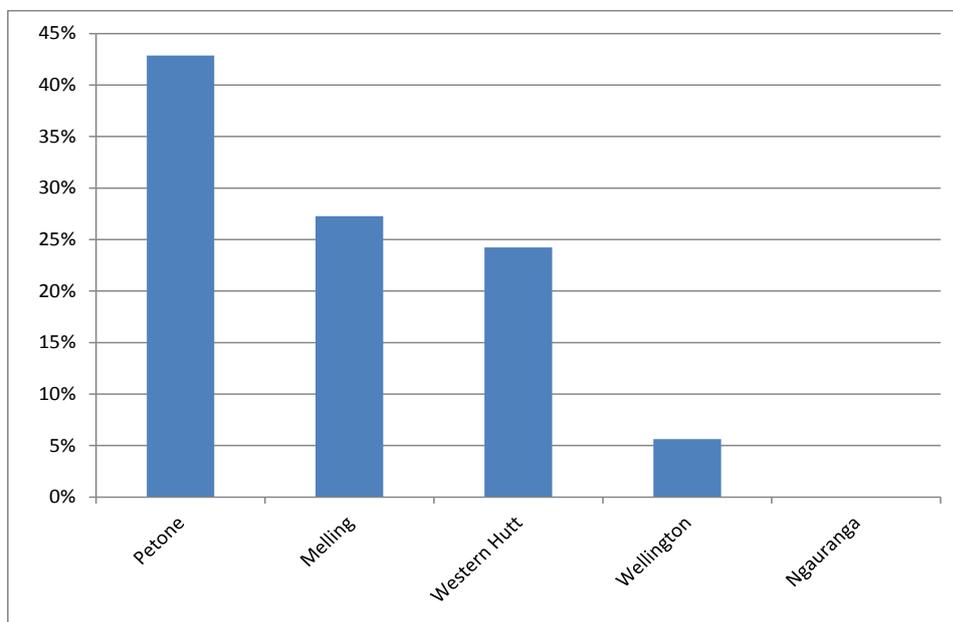


Figure 20: Melling Line, boardings at stations along the line (correct order), share of total (%)

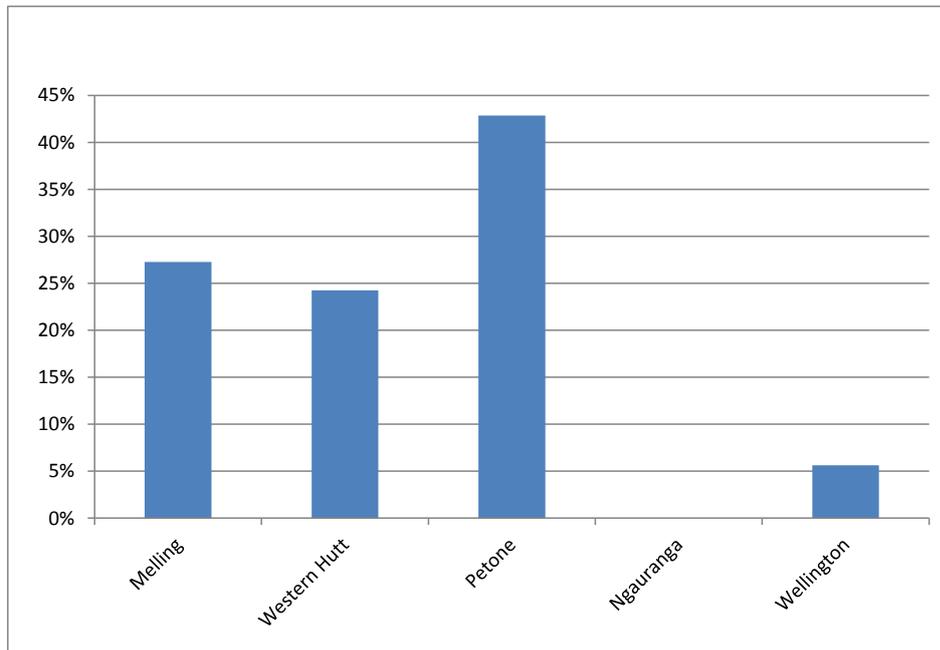


Figure 21: Johnsonville Line, boardings at stations, highest to lowest, share of total (%)

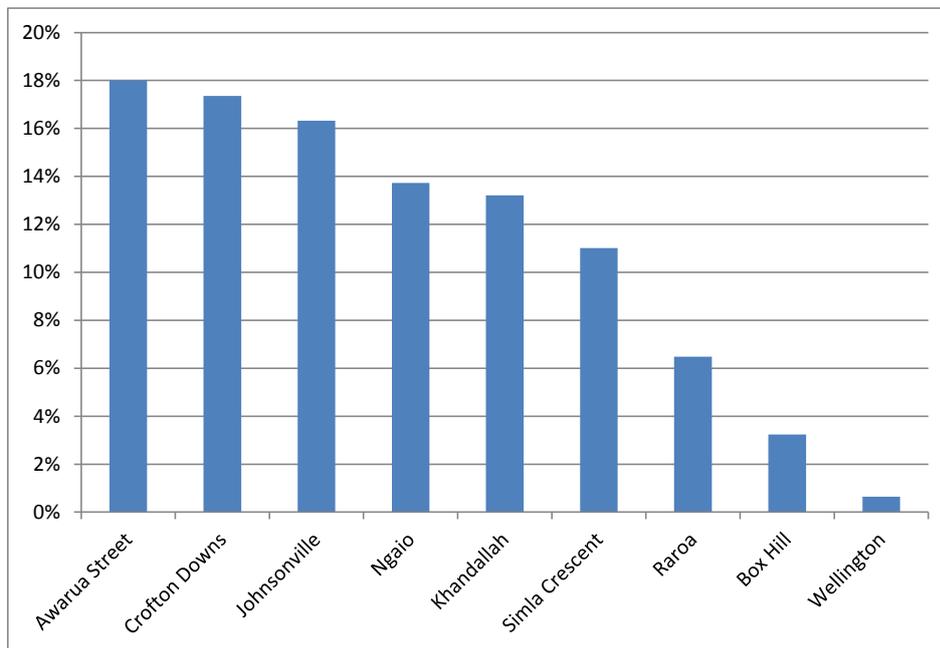
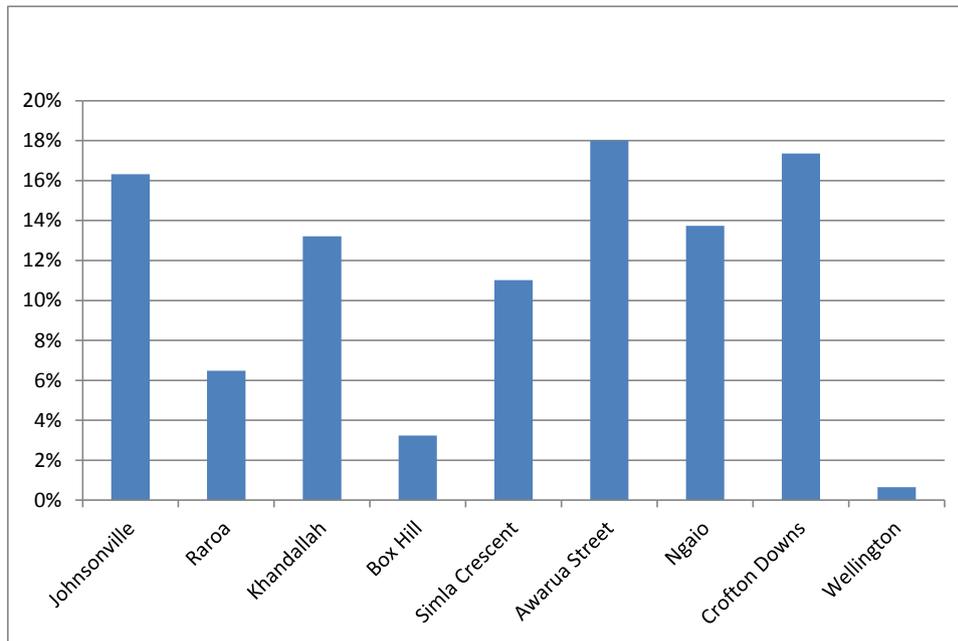


Figure 22: Johnsonville Line, boardings at stations along the line (correct order), share of total (%)

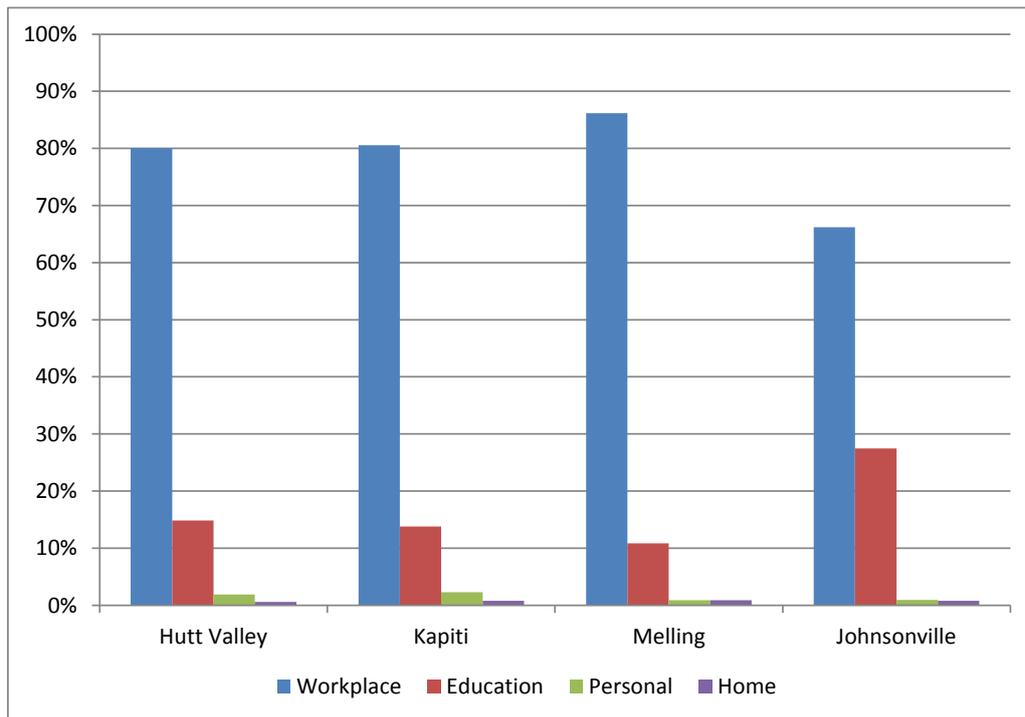


9 Trip purpose

Figures 23 to 25 show the trip purpose for people surveyed, by line and by four trip purpose groupings: workplace (including any travelling for work); education (including school, polytechnic and university); personal (including shopping, sport, recreation, social, and any personal business); and home.

Figure 23 shows that the vast majority of commuters in the morning were on their way to work and most of the others were going to a place of education. The pattern was similar across the Kapiti, Hutt Valley and Melling commuters, with 80% or more going to work. The pattern for travellers on the Johnsonville Line was not quite the same, with a smaller percentage going to their workplace (66%) and a larger proportion going to a place of education (27%).

Figure 23: Trip purpose by line, morning peak



In the interpeak, there is far less consistency across patterns of trip purpose on each line. In general, personal reasons are the main purpose cited, at between 29% and 67% of the totals for each line, with the highest share for Hutt Valley Line passengers. Going home is between 12% and 39%. Work ranges between 11% and 31% and education is between 8% and 15%.

The breakdown of personal trips is shown in Figure 25. The Hutt Valley Line pattern is notably different in both charts, with a relatively high share of personal trips, and within this, a relatively high share of trips for social, sport and recreational purposes. Personal business and shopping was more prevalent for the other lines.

Figure 24: Trip purpose by line, interpeak

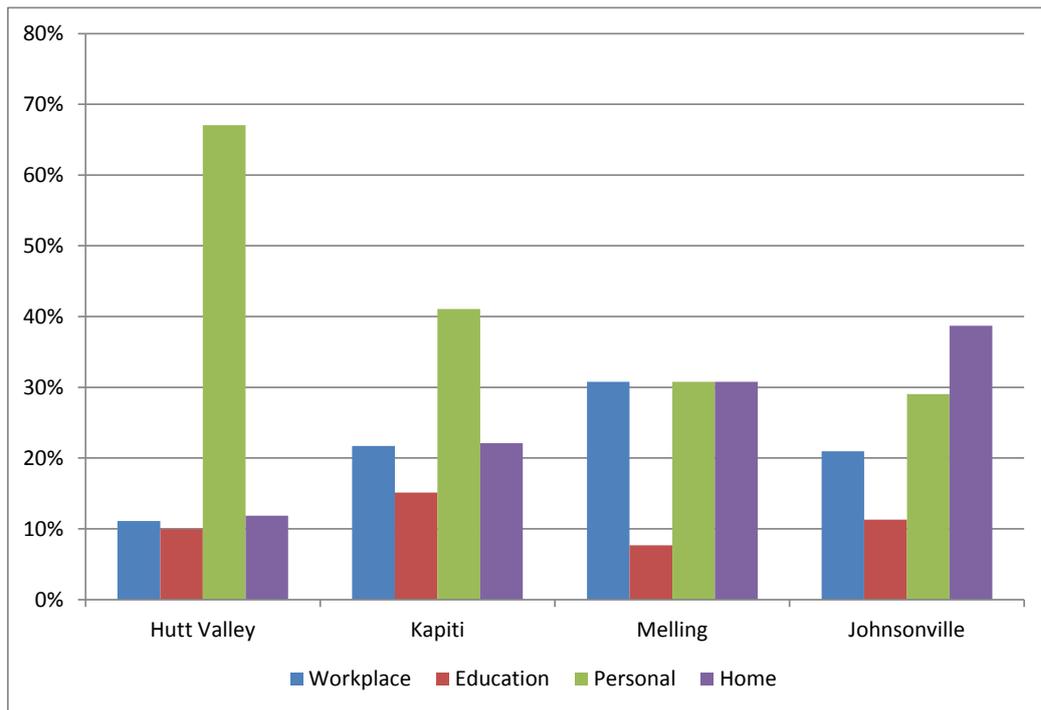
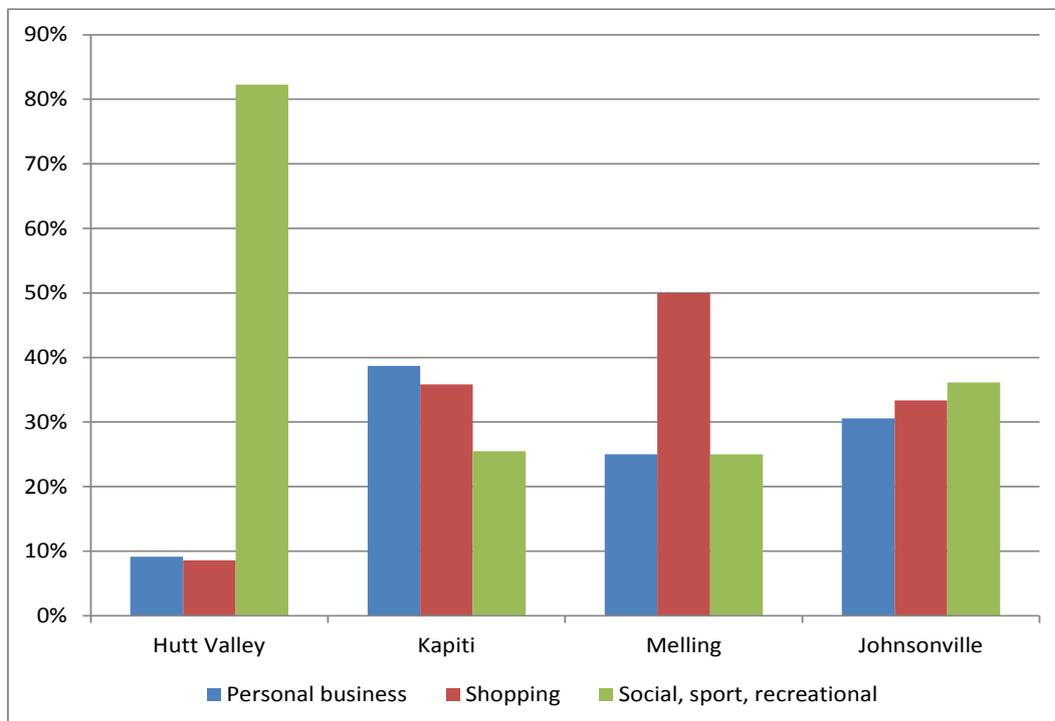


Figure 25: Personal trips by type and by line, interpeak

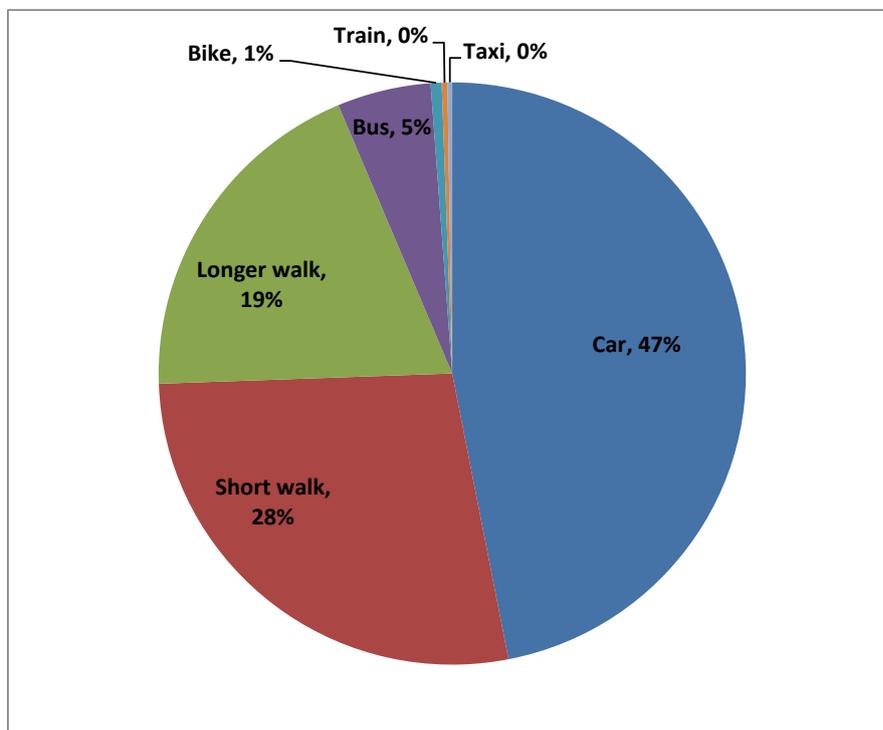


10 Access to the railways stations by mode

This section shows access to the railways stations by mode in the morning peak, split into seven categories: car (including driver, passenger and picked up categories); short walk (defined as taking less than five minutes); longer walk (defined as a walk of five minutes or more); bus; train; bicycle (or bike); and taxi. The data are presented for all modes and all lines (Figure 26); by station grouping and main modes (Figures 27 and 28); and by line and each mode (Figures 29 to 32).

Figure 26 shows the access to all stations by mode in the morning peak. The car and walking (short walk plus longer walk) are shown to be the dominant modes, each accounting for 47% of access trips. Bus trips account for 5% of the access trips, while train, taxi and bike are 1% or less.

Figure 26: Access by mode, all lines



Figures 27 and 28 show the shares of car and walking as modes to access the main station groupings in the morning peak.

The shares of access trips accounted for by car use range between 68% for Johnsonville station and 24% for Ava and Woburn (AW) on the Hutt Valley Line. Petone, serviced by both the Melling and Hutt Valley lines, has the next highest rates of car trips, after Johnsonville, with cars accounting for 63% and 62% of access modes, for the services on the Melling and Hutt Valley lines, respectively. Porirua is next highest at 57%. Also over 40% are the clusters of WPP and MPP (Kapiti Line), UHS and Waterloo (Hutt Valley Line).

The share of walking as the access mode varies between 71% at AW and 10% at Porirua. There is a stark contrast for the Johnsonville Line, between having the highest car share at

Johnsonville station, and for the rest of the Johnsonville Line stops (Other JV) it has the second highest share of walking (60%). The next highest share of walking is for Middle Hutt at 59%, followed by Tawa Basin and Western Hutt. Petone, WPP and Porirua have the lowest levels of walking access.

Figure 27: Access by car, station grouping

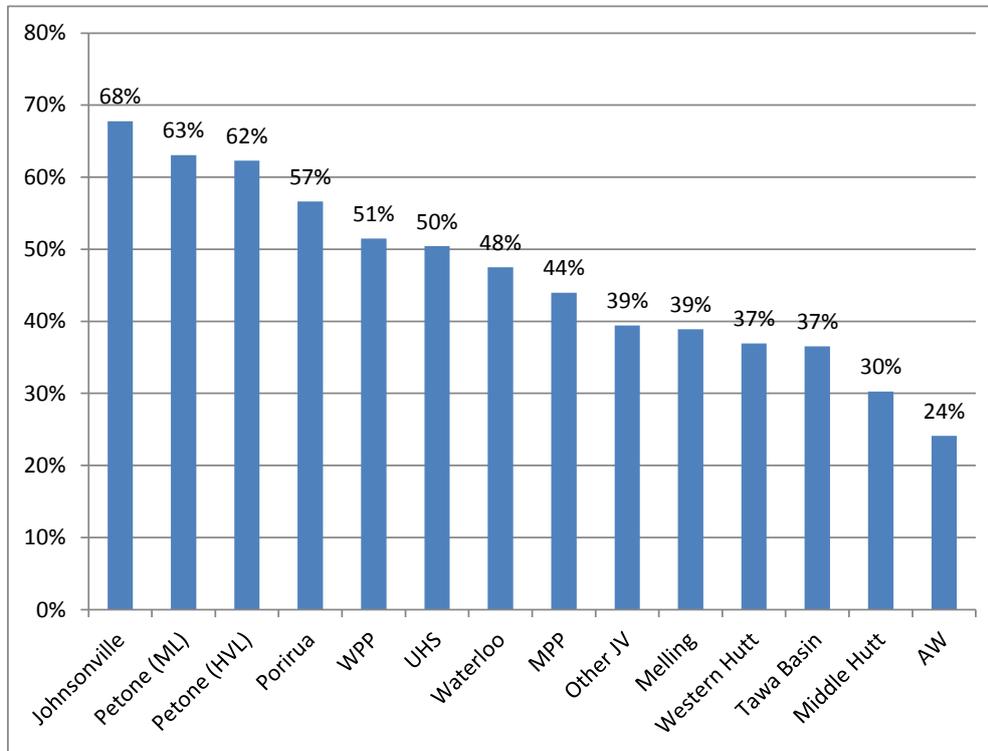
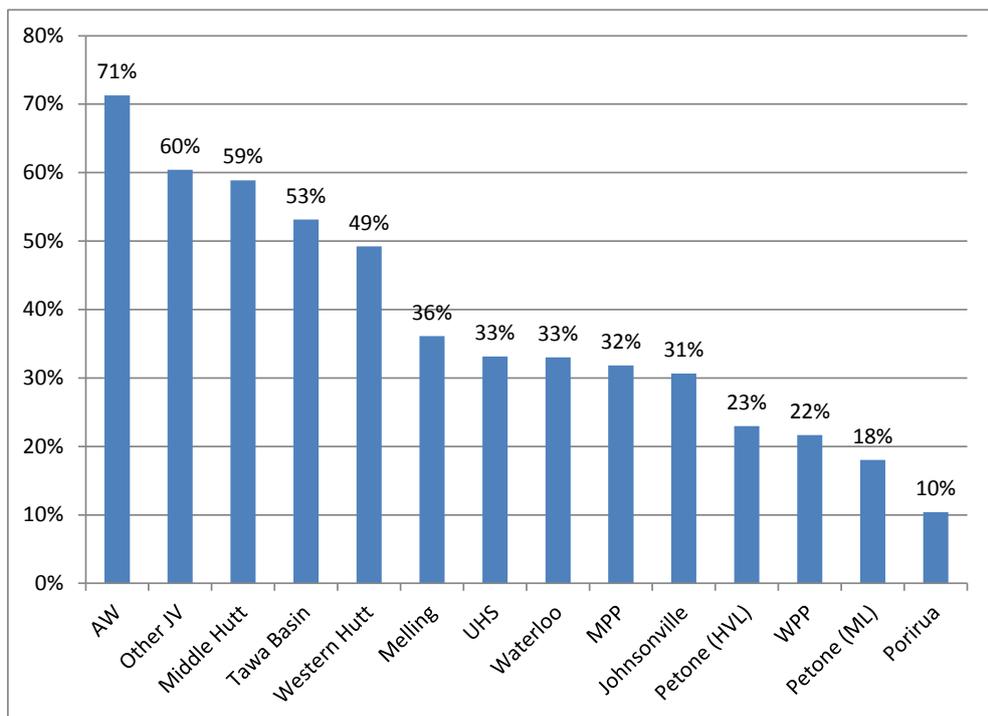


Figure 28: Access by walking, station grouping



Access to each of the station groupings by mode and by line are shown in Figures 29 to 32 and provide more detail around the data presented in Figures 27 and 28. For example most people walking to the Other JV stations, have a relatively short walk of less than five minutes. There is virtually no other form of access to the Johnsonville Line stations other than car or walking. By contrast, the other lines have a significant proportion of access by bus. The highest use of bus as an access mode is for the Kapiti Line groupings of MPP and WPP, which are the seven stations the furthest distance from Wellington, from Waikanae to Paremata.

Figure 29: Access by mode, Hutt Valley Line

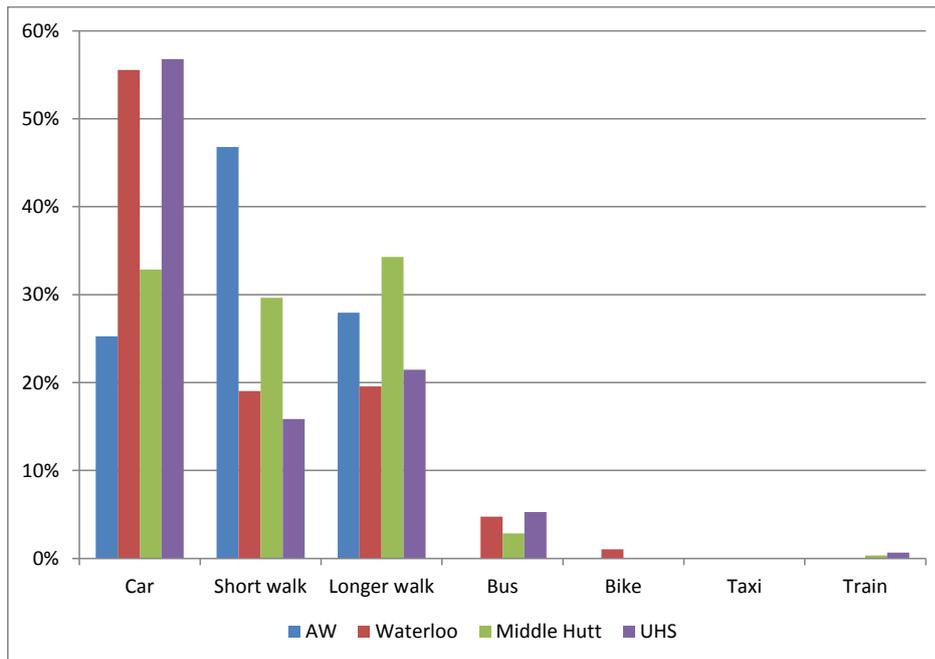


Figure 30: Access by mode, Kapiti Line

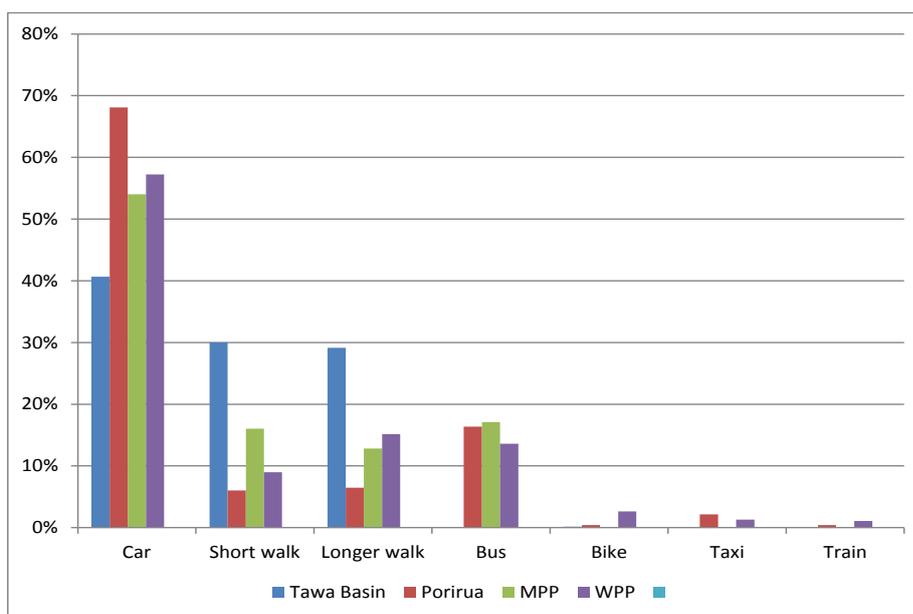


Figure 31: Access by mode, Melling Line

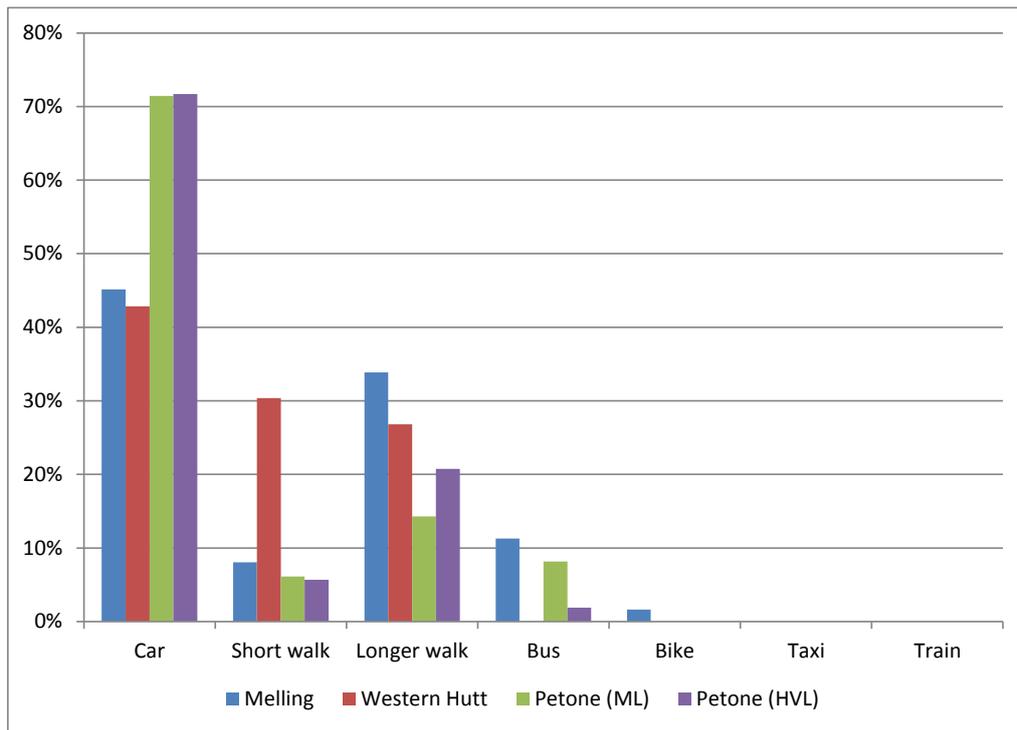


Figure 32: Access by mode, Johnsonville Line



Maps showing the access mode for the above groupings of stations for each line are shown in Appendix A-D.

11 Access mode and associated car availability

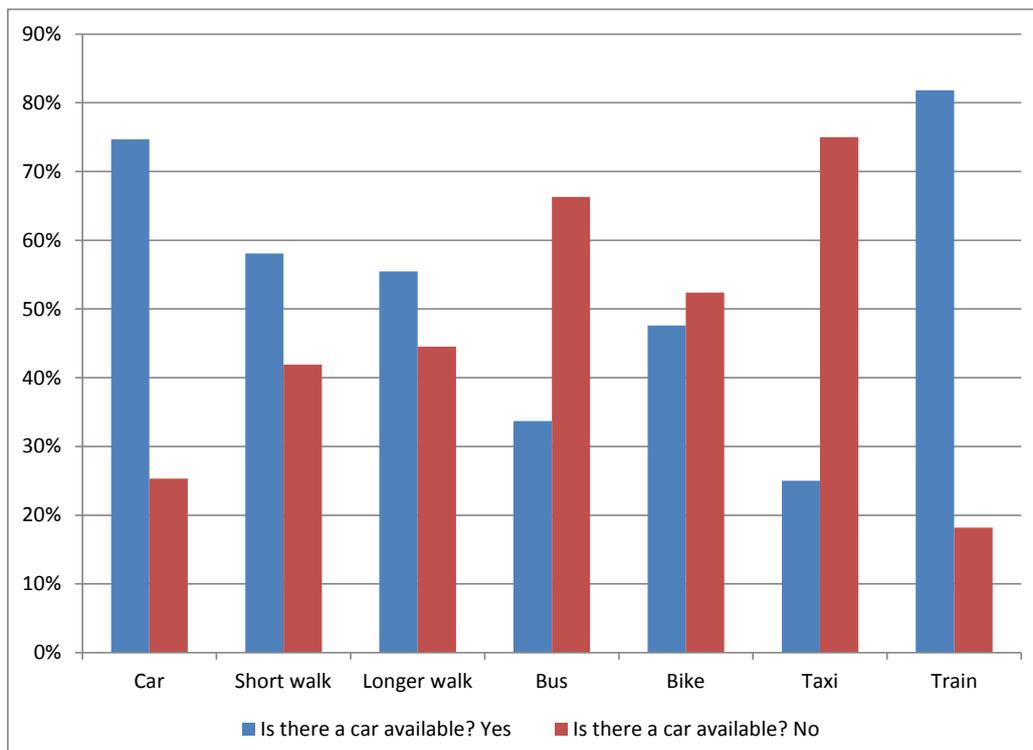
Table 8 and Figures 33–37 show the mode to access the railway stations cross-referenced against whether these people had access to a car as an optional access mode. Table 8 shows this cross-tabulation in the morning peak. A total of 64% of respondents said they had access to a car and 36% did not. It is interesting to note that a higher percentage of people accessing rail stations by another train had access to a car than those accessing a train station by car.

The second highest proportion of those with access to a car is as one would expect the group who use a car as the access mode to the railway station, at 75%. Between 42% and 75% of people using other modes than a car to get to the stations, i.e. public transport, active modes or taxi, did not have access to a car. Figure 33 presents the data that are given in Table 8.

Table 8: Access mode and associated car availability

Access mode	Is there a car available?	
	Yes	No
Car	75%	25%
Short walk	58%	42%
Longer walk	55%	45%
Bus	34%	66%
Bike	48%	52%
Taxi	25%	75%
Train	82%	18%
Total	64%	36%

Figure 33: Access mode and associated car availability



Looking at the availability of a car by line, and by station groupings in Figures 34 to 37, it is clear that roughly two-thirds of passengers across all lines have a car available. The most notable exception is the Middle Hutt grouping on the Hutt Valley Line, with just 44% availability across those six stations. The next lowest is Melling with 54%, followed by Porirua with 58%. All of other groupings reported shares of over 60%, the highest being for Petone with 74%.

Figure 34: Car availability on the Hutt Valley Line, by station groupings

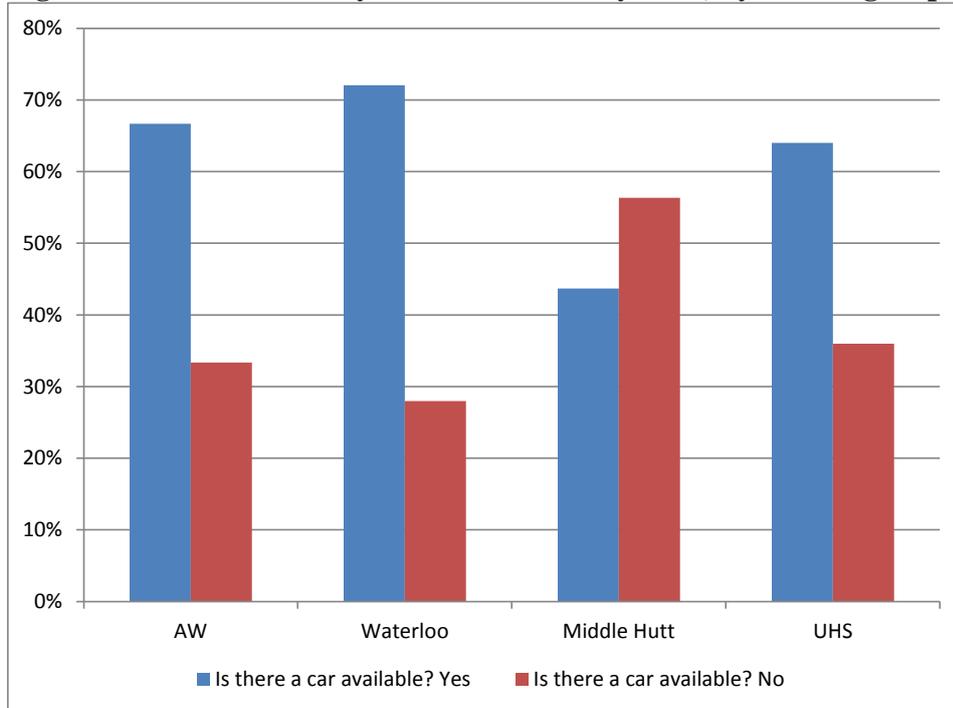


Figure 35: Car availability on the Kapiti Line, by station groupings

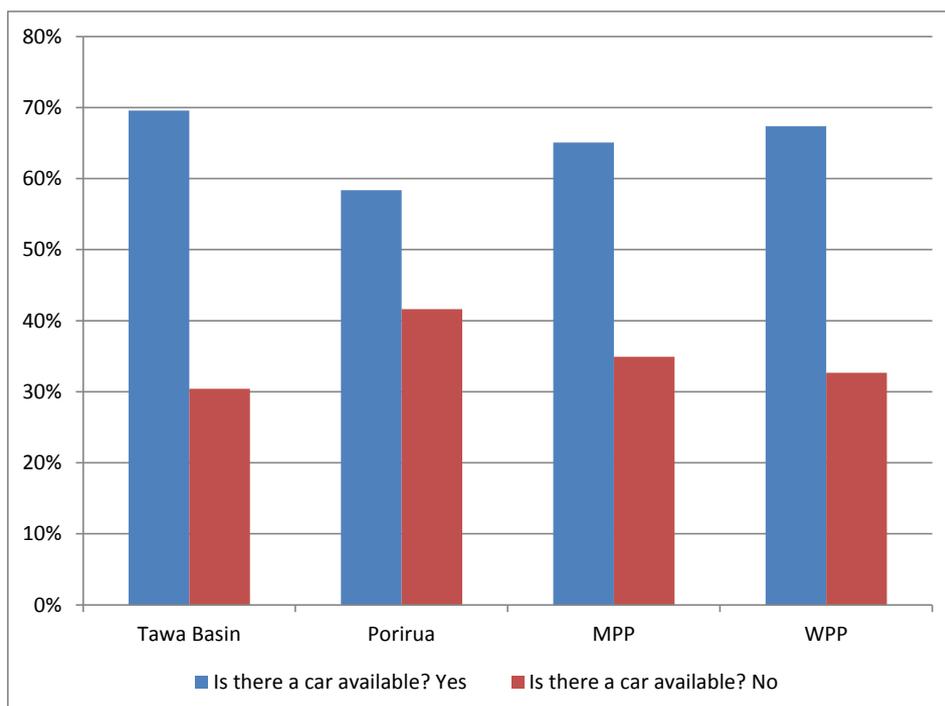


Figure 36: Car availability on the Melling Line, by station groupings

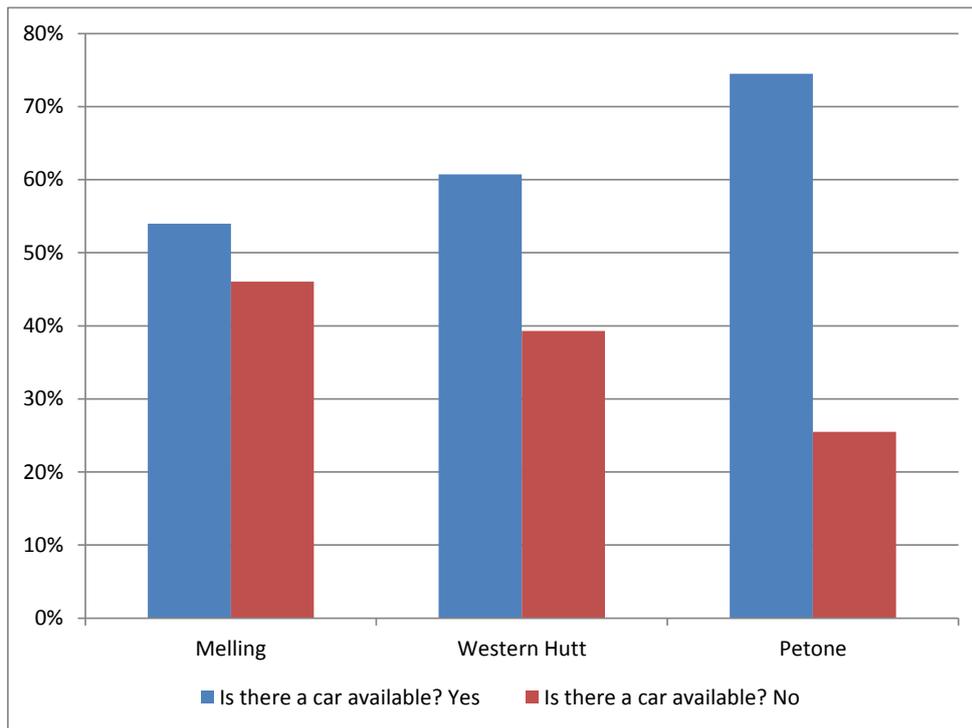
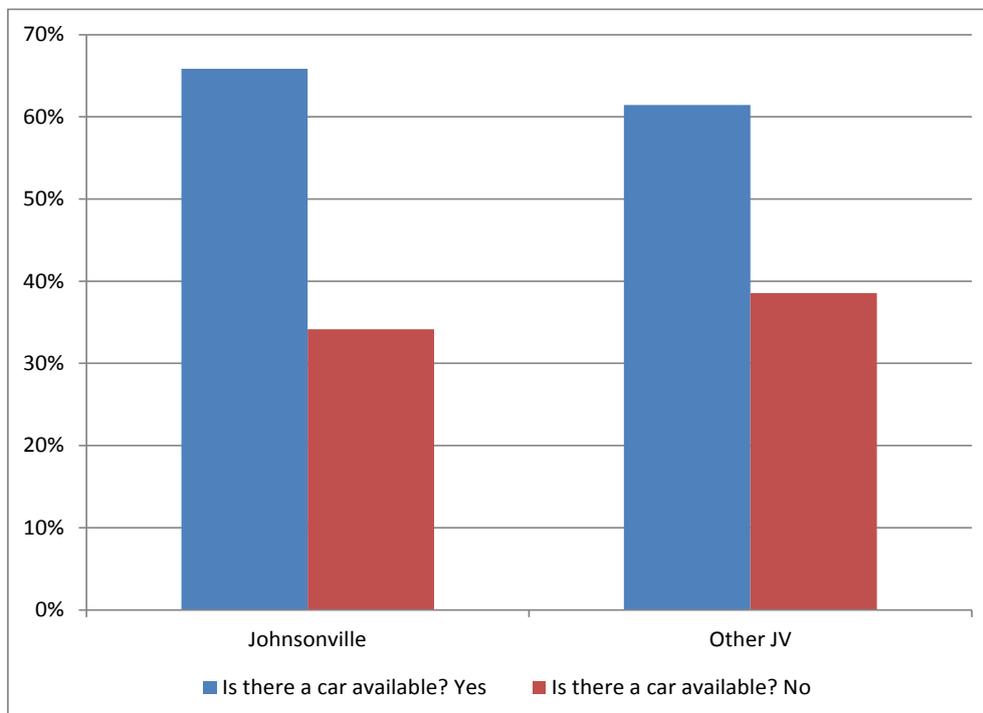


Figure 37: Car availability on the Johnsonville Line, by station groupings



12 Summary

The majority of survey respondents in morning peak were in the 26-59 year age group, they began their journey from home (98%) and their destination was the workplace (80%) or education (17%). Over 90% of respondents accessed the train station either by car or by walking. By contrast those travelling interpeak were less likely to have started from home (62%) and for most, the trip purpose was personal (49%) or going home (21%). Access to the train by these respondents showed that car use was less prevalent (31%) compared to walking (59%) at this time of day. The interpeak group were more likely to be aged between 16-25 years or over 60 compared to morning peak.

The single busiest time for arrivals at Wellington station was 8:20 with a constant stream of arrivals between 7:30 and 8:50. The vast majority of morning peak respondents use pre-paid regular rail passes with very few using cash which contrasts with interpeak where 61% used cash for ticket payments.

Trip purpose patterns across the four lines were consistent with the majority of commuters in the morning peak going to work. Johnsonville line had more commuters going to a place of education (27%) than any other line. On the Hutt Valley line during interpeak, of the personal trips declared by respondents, they were more likely (than other lines) to be travelling for sporting, social or recreational purposes.

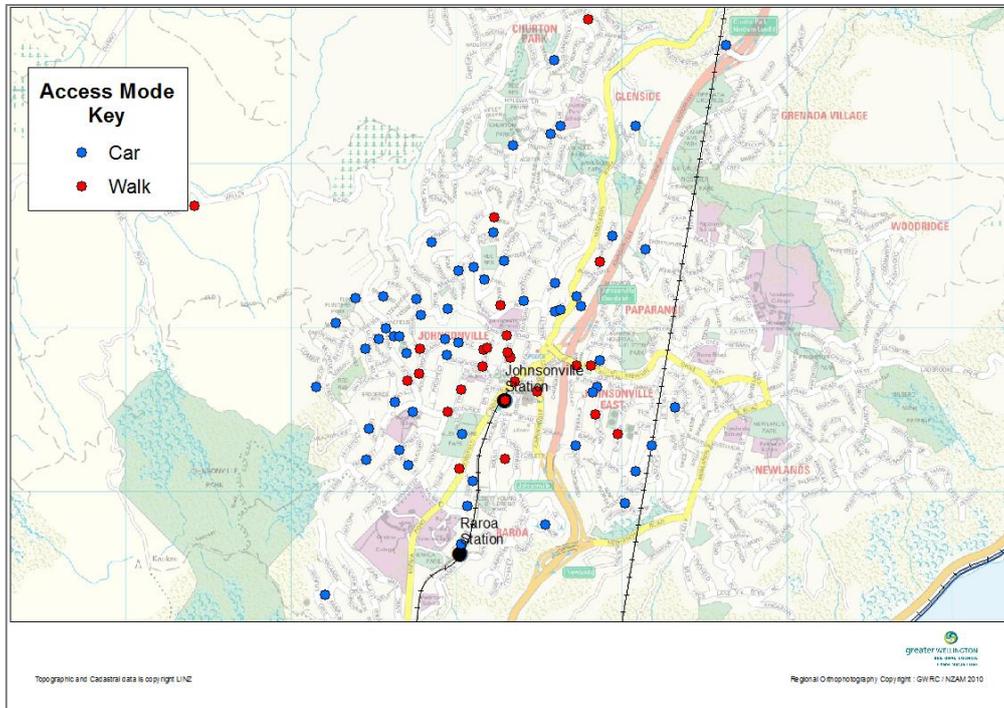
Access to the station by line reflected the general trend with either walking or car as main access mode. On the Kapiti line, Porirua had the lowest walking access share out of all stations (10%) and AW (Hutt Valley line) had the highest share of walking access trips (71%) Kapiti had the highest use of bus as an access mode, 9%. On the Johnsonville line, Johnsonville station had the highest access trips by car (68%) but at other stations on this line walking access trips were second highest.

Most respondents had access to a car (64%) and this was evident across all lines. But by station, car availability was more variable. Melling line commuters boarding in Petone have the highest availability to a car (74%) and Middle hutt (Hutt Valley line) respondents have the lowest (44%).

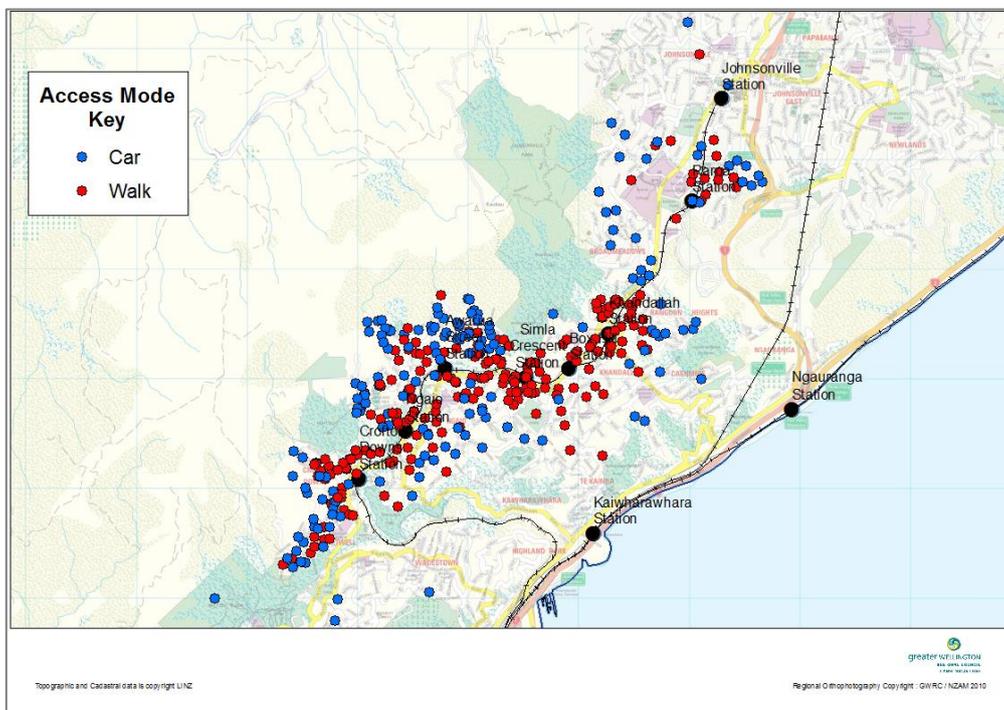
13 Appendix – Station access and catchment maps

13.1 A – Station Access Mode by Origin, Johnsonville Line

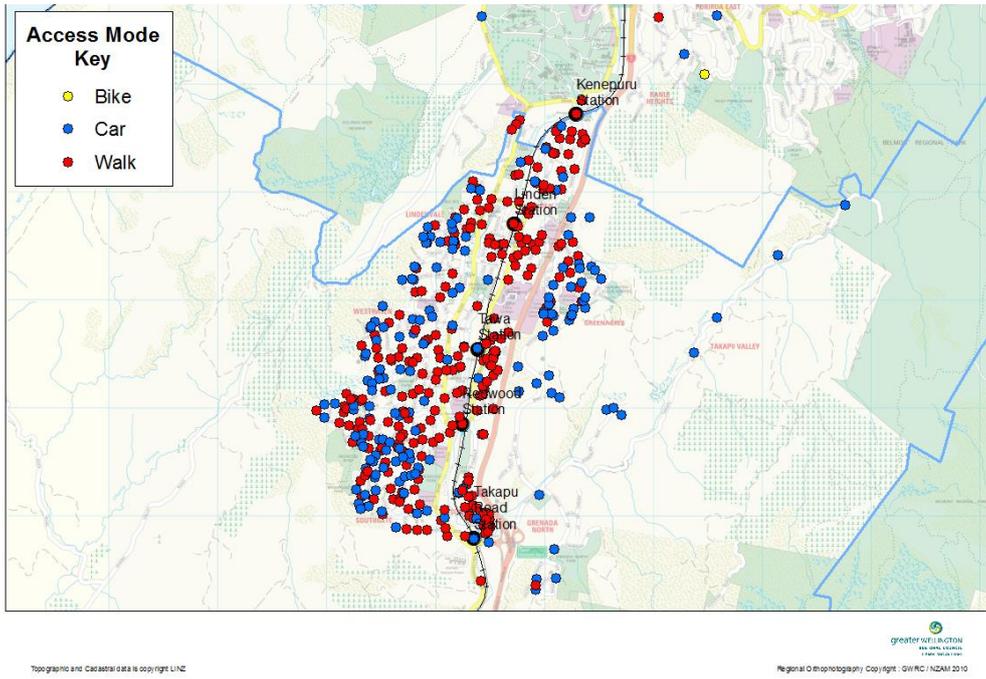
Johnsonville Station



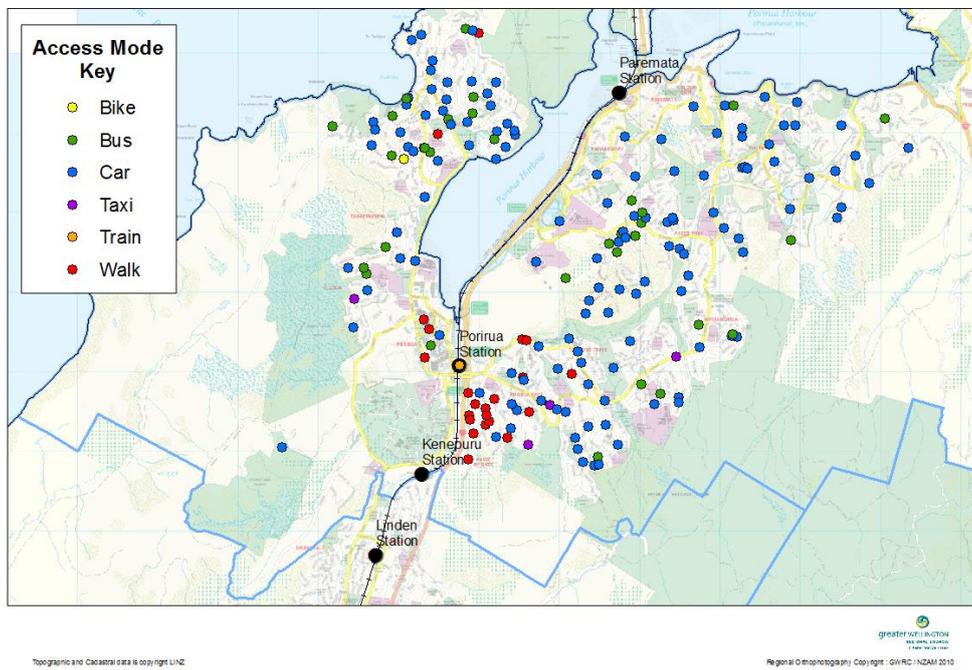
Other Stations on Johnsonville Line



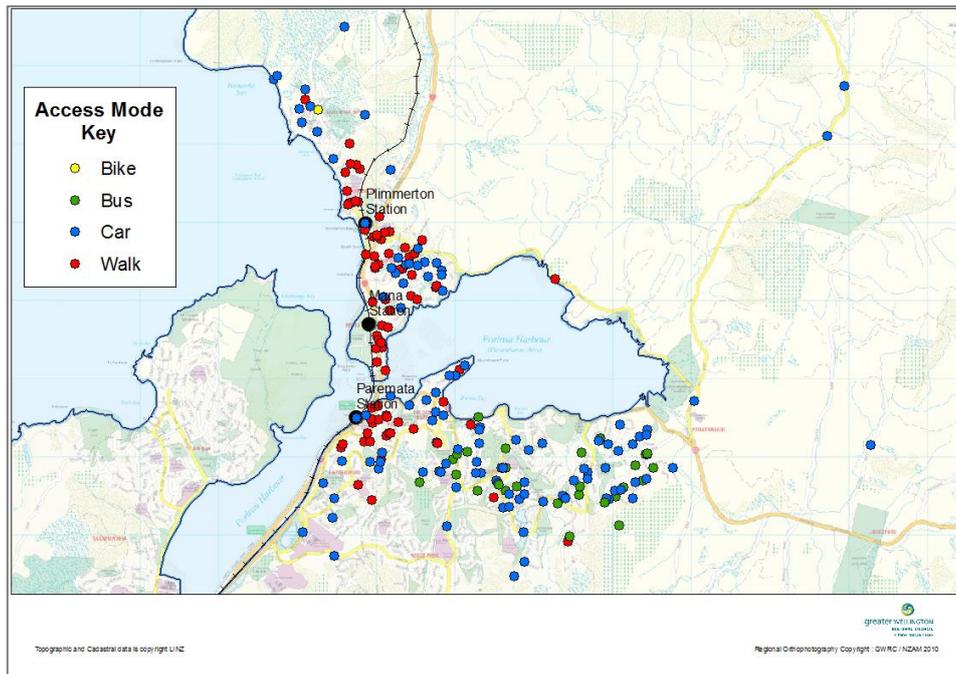
13.2 B – Station Access Mode by Origin, Kapiti Line Tawa Basin Stations



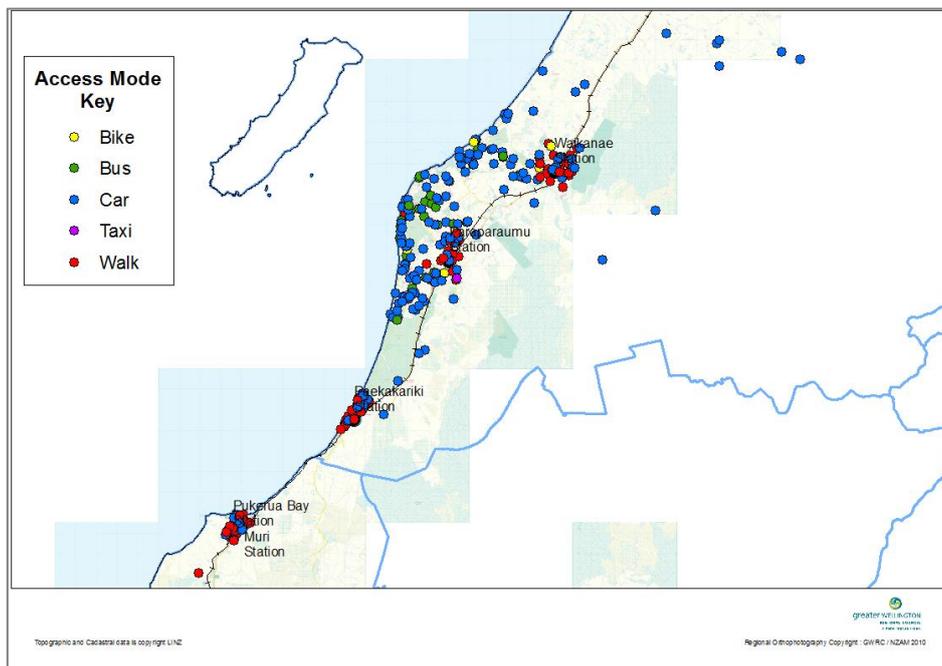
Porirua Station



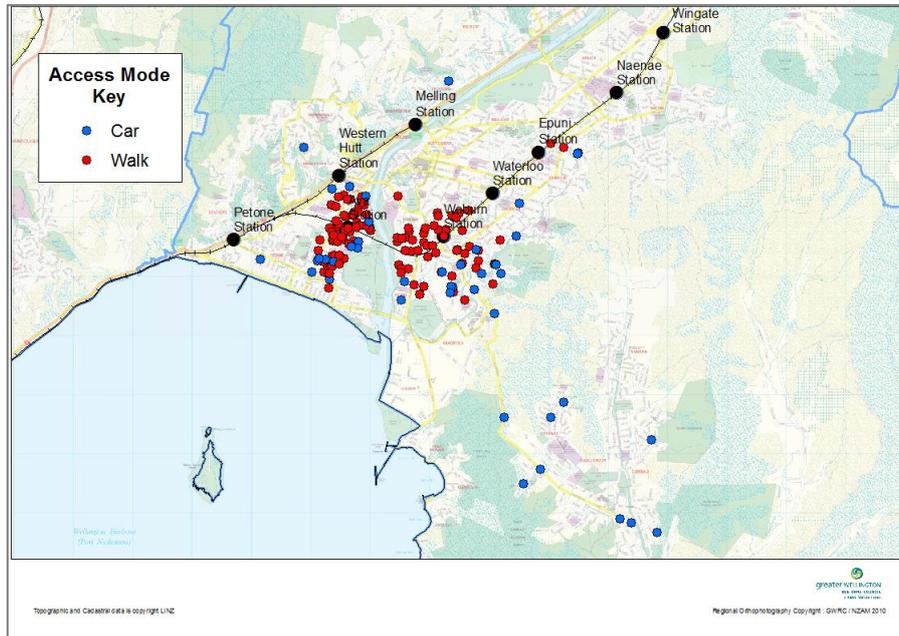
Mana, Paremata and Plimmerton (MPP) Stations



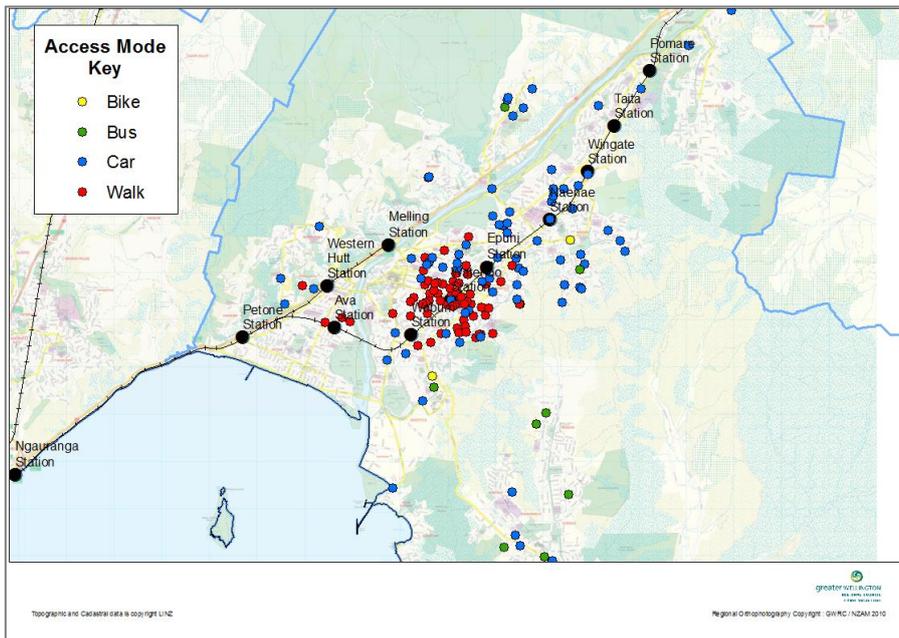
Waikanae, Pukerua Bay, Paekakariki and Paraparaumu (WPPP) Stations



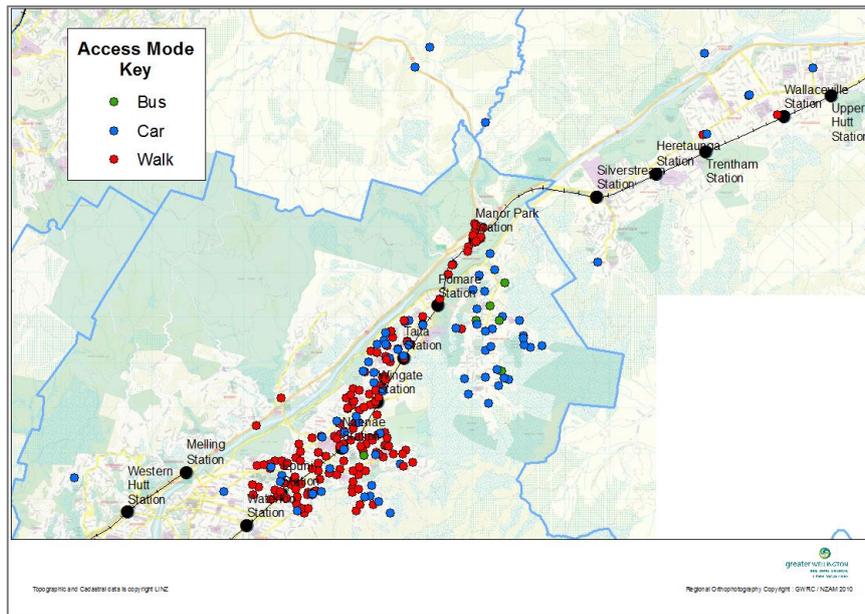
13.3 C – Station Access Mode by Origin, Hutt Valley Line Ava and Woburn Stations



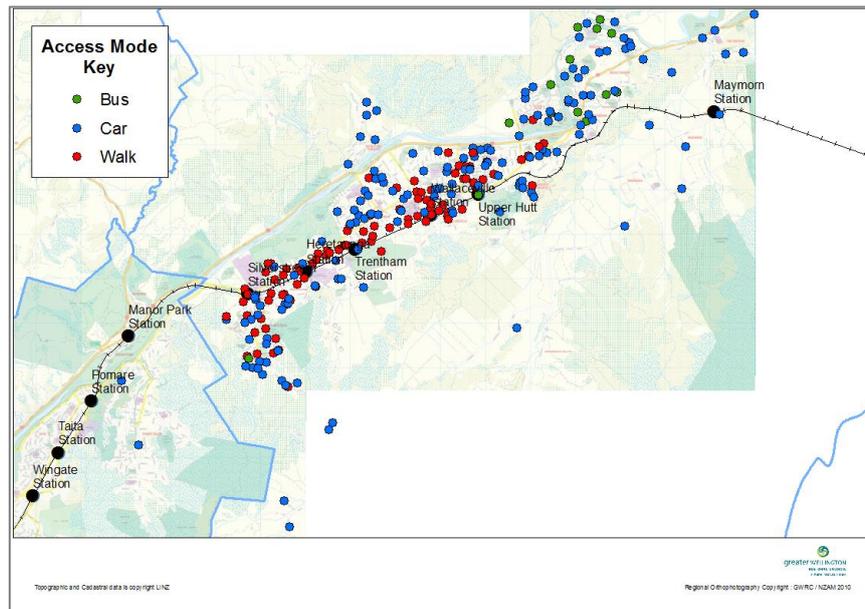
Waterloo Station



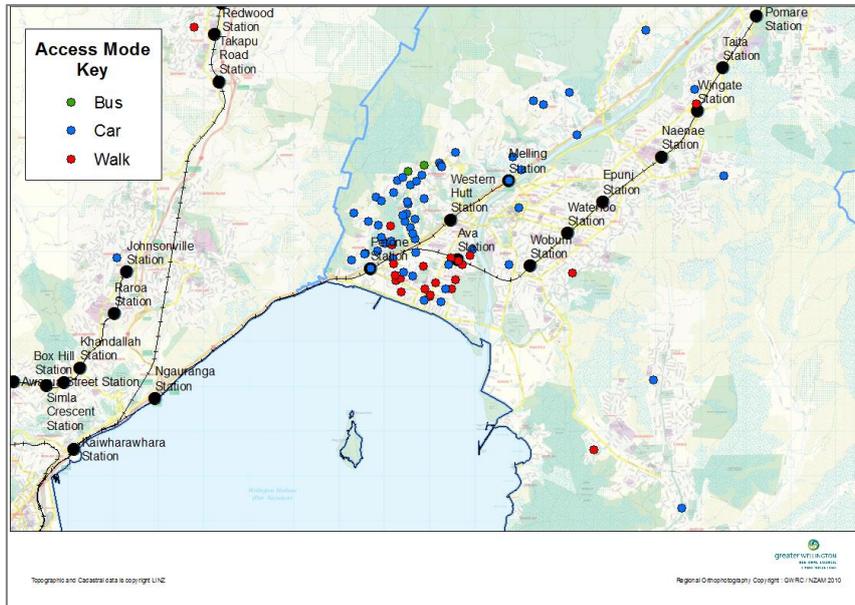
Middle Hutt stations



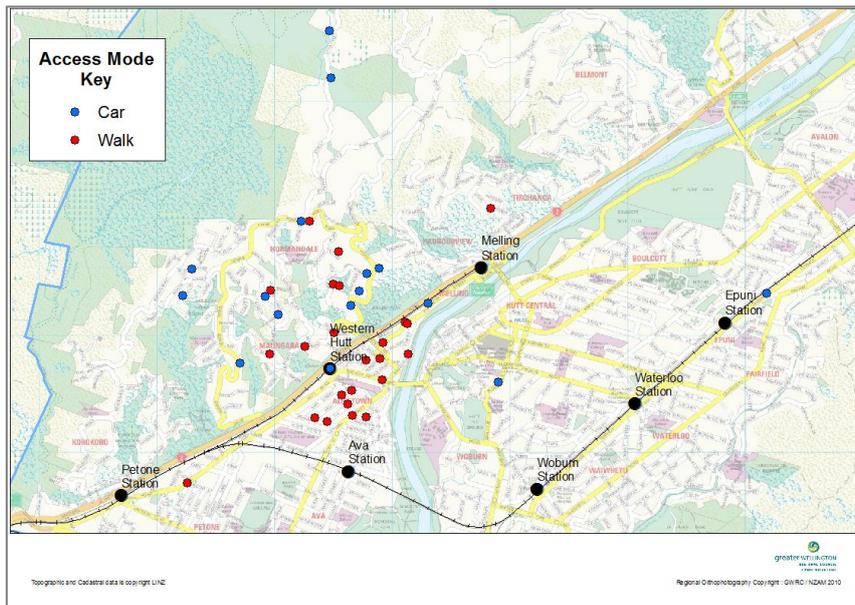
Upper Hutt stations (UHS)



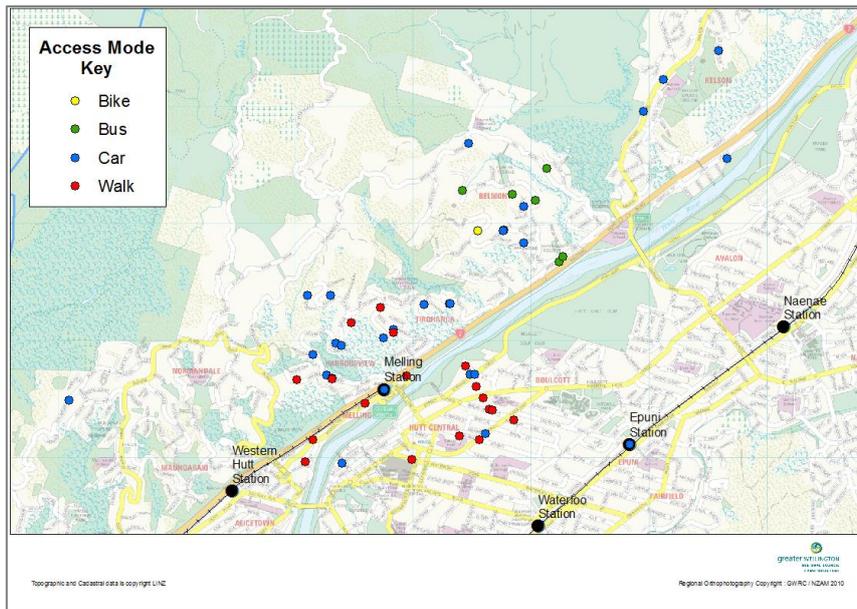
13.4 D – Station Access Mode by Origin, Melling Line Petone Station



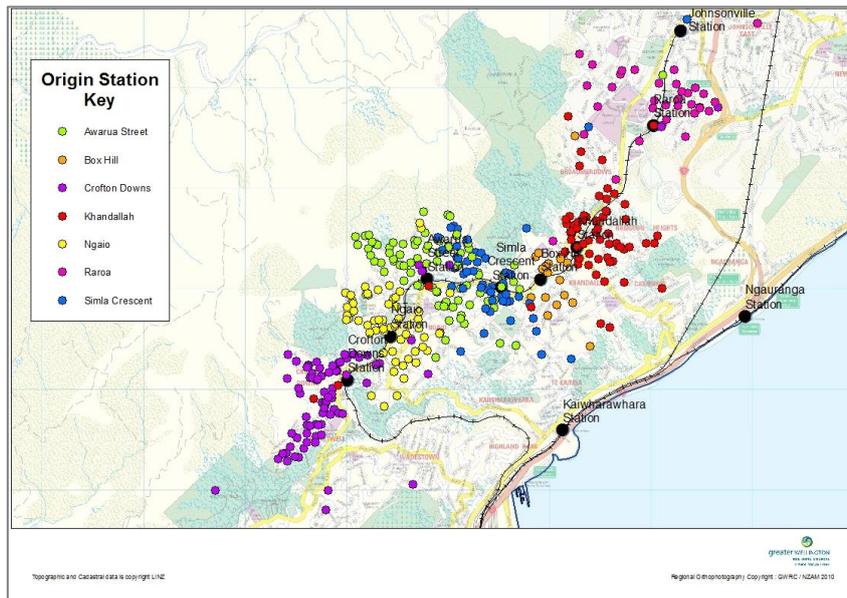
Western Hutt Station



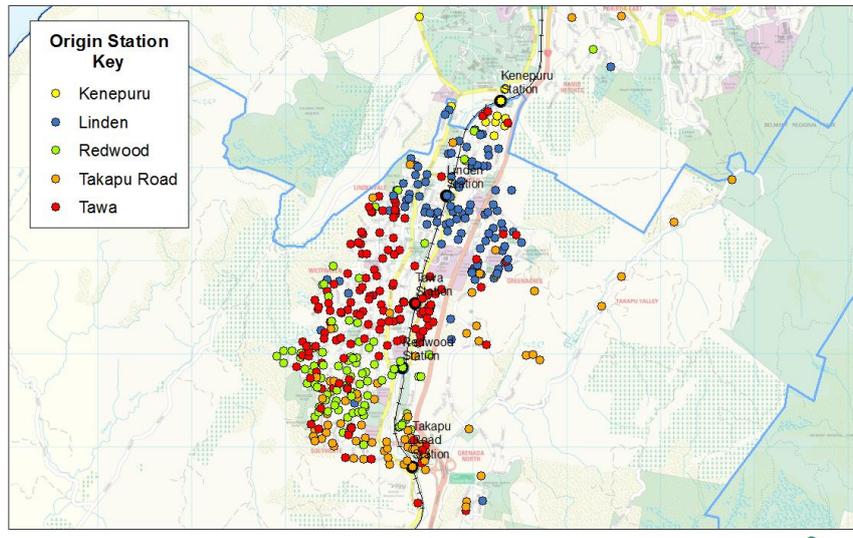
Melling Station



13.5 E – Station Usage by Origin, Johnsonville Line Stations

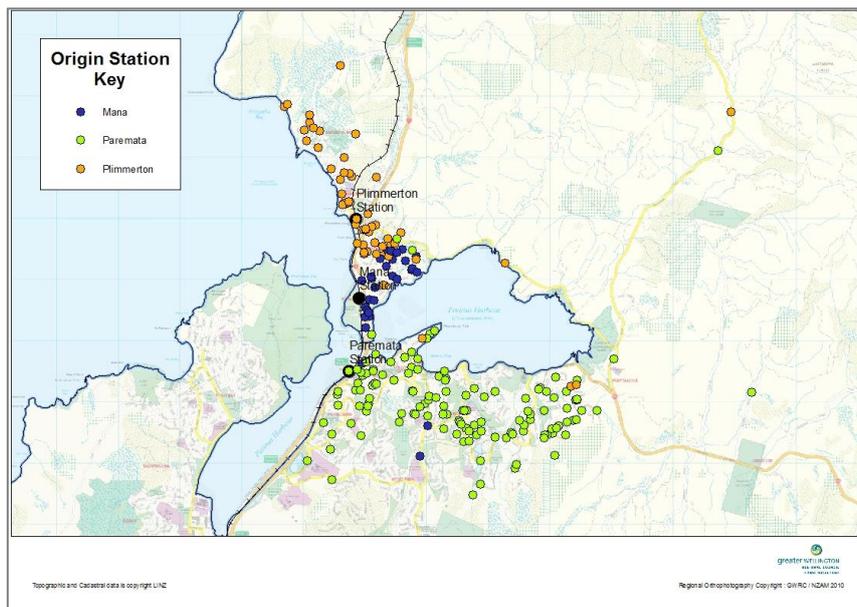


13.6 F – Station Usage by Origin, Kapiti Line Tawa Basin Stations



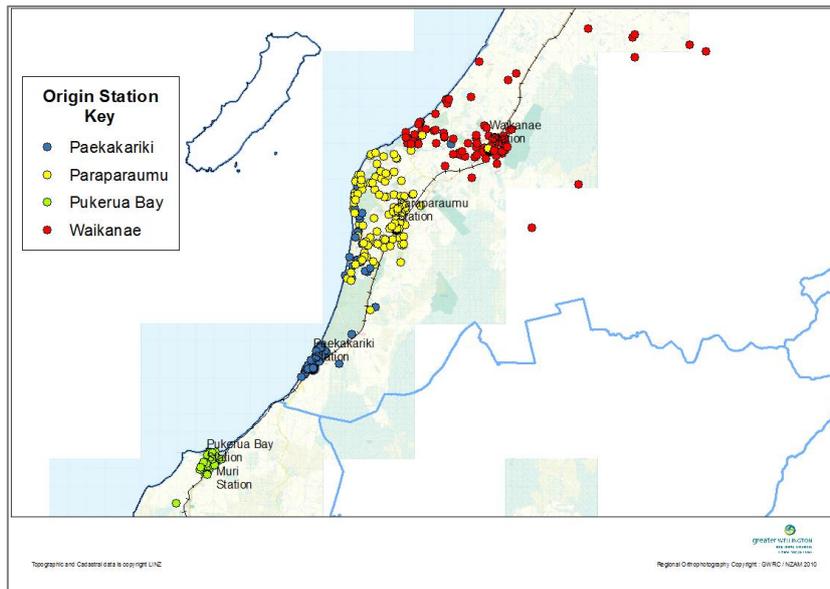
Topographic and Cadastral data is copyright LINZ
 Regional Orthorectography Copyright: GNS/RC/NZMAI 2010

Mana, Paremata and Plimmerton (MPP) Stations

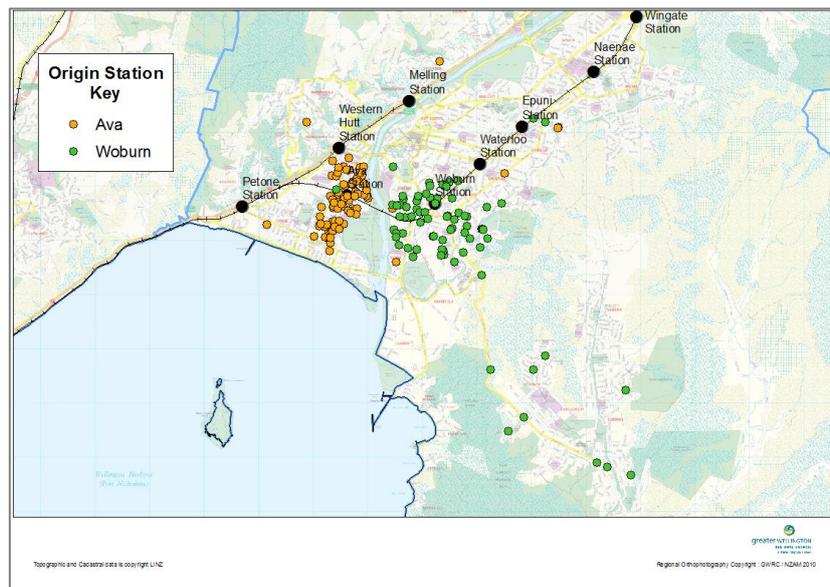


Topographic and Cadastral data is copyright LINZ
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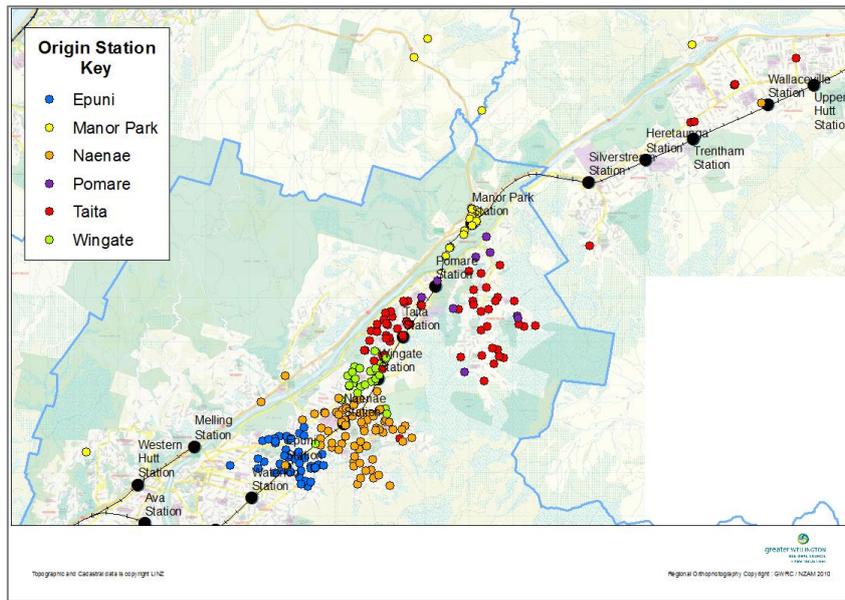
Waikanae, Pukerua Bay, Paekakariki and Paraparaumu (WPPP) Stations



13.7 G – Station Usage by Origin, Hutt Valley Line Ava and Woburn stations



Middle Hutt stations



Upper Hutt stations

