



Walkable Catchments Analysis at Auckland Train Stations: New Lynn, Glen Innes and Mt Albert – 2012

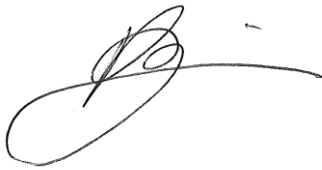
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Walkable Catchments Analysis at Auckland Train Stations: New Lynn, Glen Innes and Mt Albert – 2012

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Executive Summary

In 2010, the Auckland Regional Transport Authority (ARTA, now Auckland Transport) commissioned a survey to examine if an 800 metre radius from Papatoetoe train station was representative of the walking distance for rail passengers. The findings from the Papatoetoe survey showed that the median walking distance to the train station was 1200 metres rather than the assumed 800 metres.

Based on the survey findings, Auckland Council's Research, Investigations and Monitoring Unit sought to test for more evidence if an 800 metre radius walkable catchment area was representative of the walking distance for other train stations in Auckland.

Using a similar research methodology as the Papatoetoe train station survey, passengers arriving at New Lynn, Glen Innes and Mt Albert train stations were surveyed in March 2012.

The results of the three train station surveys show that:

- more than 50 per cent of respondents walked further than 800 metres to get to a train station;
- more than 15 per cent of respondents walked further than 1500 metres to get to a train station; and
- walking is the most significant mode of travel for trips less than 2000 metres.

Overall, the results from the surveys show that an 800 metre radius underestimates the actual walking distance for the New Lynn, Glen Innes and Mt Albert train stations and is not representative of their walkable catchment areas.

Based on these findings, it is recommended that:

- Further surveys be carried out to test for more evidence if an 800 metre radius is representative of the walkable catchment area of other train stations in Auckland; and
- The data collected in the surveys is used to develop a typology of walkable catchments for train stations in Auckland.

1 Introduction

1.1 Walkable catchments and centres

A walkable catchment is the area covered by the walking distance that an average person will walk to get to meaningful destinations before considering other modes of transport.

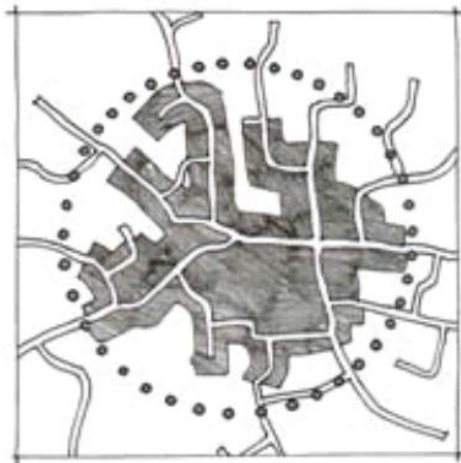
A walkable catchment with a 400 metre radius is usually associated with a five minute walk to a town or neighbourhood centre and an 800 metre radius is associated with a 10 minute walk to a regional centre or a place with a major transport service such as rail.

There is no definitive authority on why a walkable catchment should be 400 or 800 metres or any other distance, but what is commonly agreed is that the walkable catchment area is an easy walk for the average person.

Based on these distances, walkable catchments are usually drawn and represented as a perfect 400 metre or 800 metre circle over a centre, but in practice walkable catchments have irregular shapes because they cover the actual on-the-ground distance and not the linear (as the crow flies) distance as shown in figure 1.

Figure 1:

Example of a walkable catchment



(Urban Design Toolkit, Ministry for the Environment 2009)

The concept of walkable catchments is a widely recognised and used planning concept in New Zealand and overseas (Calthorpe 1993; Duany and Plater-Zyberk 1991; Ministry for the Environment 2009).

In the context of urban planning in Auckland, the 2012 Auckland Plan identifies a network of centres to accommodate the future population and employment growth in the region. In the plan, the centres will provide the focal points for communities, foster economic activity, support the public transport system and maximise investment in infrastructure. A centre is a defined area that comprises a concentrated mix of public and private activities, and is supported and sustained by a surrounding residential area that is within an easy 10 minute walking distance to these activities (Auckland Council 2012).¹

¹ As a guide, the Auckland Plan identifies a 10 minute walk as an example of an easy walking distance, but notes that there will be variations on this based on the size, role and function of different centres in the region. When detailed planning is undertaken in these centres, the actual walkable catchment (which will be influenced by subdivision, street and block pattern, and topography) is refined to reflect any constraints to accessibility to these centres.

1.2 Findings from the 2010 Papatoetoe train station survey

To better understand walking to public transport hubs, ARTA (now Auckland Transport) commissioned a project in 2010 to test for evidence through a pilot survey if an 800 metre radius walking distance was representative of the walkable catchment area for rail public transport at Papatoetoe train station (Beca Infrastructure Ltd 2010).

Papatoetoe train station was identified as the sample train station and the survey was conducted on Tuesday 22 June 2010, 7am- 7pm. A total of 120 valid responses were obtained from people walking to the train station, which translates to a response rate of 11 per cent².

Table 1:

Papatoetoe train station – 50th (median) and 85th percentile walking distances

Train Station	Walking distance for 50% (median) of respondents	Walking distance for 85% of respondents
Papatoetoe	1200 metres	2180 metres

Table 1 shows the 50th (median) and 85th percentile walking distances to Papatoetoe train station. From the survey results, the median walking distance to Papatoetoe train station was calculated at 1200 metres. That is, 50 per cent of respondents walked more than 1200 metres to get to Papatoetoe train station. To further understand how far people were walking to Papatoetoe train station, the 85th percentile was also calculated and was found to be 2180 metres. That is, 15 per cent of respondents walking to the train station walked more than 2180 metres to get to the train station.

Table 2:

Mode of travel to Papatoetoe train station

Mode of Travel	Total	
Car (driver)	33%	51%
Car (passenger)	18%	
Walk	45%	
Bus	2%	
Cycle	2%	
Total	100%	

Base: n=120

² A valid response is where a respondent provided an answer on how they got to the station (mode of travel) and the location (address) of where they left before coming to the station. The address is critical, as it determines the distance travelled to the train station.

Table 2 shows the mode of travel (or transport mode share) results for Papatoetoe train station. The predominant mode of travel to the train station was by car (51%), either as a driver or as a passenger. Walking (45%) was the second most popular mode of travel to Papatoetoe train station, and people arriving by bus and cycle made up the remainder (4%).

The findings of the Papatoetoe train station survey show that:

- more than 50 per cent of respondents walked further than 800 metres to get to a train station;
- more than 15 per cent of respondents walked further than 2180 metres to get to a train station;
- 45 per cent of people walked to the station; and
- walking is the most significant mode of travel for trips less than 2000 metres.

The overall results of the 2010 Papatoetoe train station survey found that the current commonly used walking distance of 800 metres significantly underestimates the actual walkable catchment area for the Papatoetoe railway station.

The Research, Investigations and Monitoring Unit (RIMU) set out to further test for evidence if 800 metres is representative of the walkable catchment areas for other train stations in Auckland given that:

- the findings from Papatoetoe train station were based on a pilot survey;
- the findings from Papatoetoe train station provided some evidence about a disposition to walk further than previously considered;
- train stations in the region vary in size, role and function and these differences may provide a range of walkable catchments;
- Auckland Transport is providing substantial investment in rail transport; and
- Auckland Transport and Auckland Council are working together so that the transport network closely integrates with land-use to ensure that transport links support growth centres as described in the 2012 Auckland Plan.

2 Methods

2.1 Methodology

This section outlines the methodology used to gain an understanding of the mode and distance travelled by people using rail transport. The approach for the 2012 survey is similar to that used for the Papatoetoe train station survey to enable a comparison of results.

Identifying train stations to survey

The first task was to identify the train stations to survey. The focus was on relatively high-patronage stations but which has a mix of surrounding land-use conditions. Together with Papatoetoe, the basis for selecting any station was to build up a list of results for a cross-section of station types in Auckland. The three stations selected - New Lynn, Glen Innes and Mt Albert - were agreed in conjunction with Auckland Council's Transport Strategy Unit.

Questionnaire

A questionnaire with nine questions was developed to gain an understanding of the distances walked by pedestrians to Papatoetoe train station. A copy of the 2010 Papatoetoe train station survey questionnaire is in Appendix 1. For the 2012 survey, changes were made to the original questionnaire to simplify and reduce the time taken to complete a questionnaire, whilst still obtaining the critical information to identify the mode of transport and distance travelled to the station. The revised questionnaire was adopted after a successful trial at New Lynn Train Station in November 2011. An example of a 2012 survey questionnaire for New Lynn train station is in Appendix 2.

Permission to survey

Permission to survey passengers at train stations was required from Auckland Transport for safety and operational reasons. Auckland Transport gave consent to survey at all three train stations based on the following conditions:

- the survey has to be conducted behind the yellow line (away from the train tracks);
- the survey should not obstruct any passengers; and
- the safety of both passengers and surveyors at a train station is paramount.

Train station site visit

A site visit of the three stations was conducted prior to the survey to gather information about the characteristics of each station. This included the size and location of the station platforms, and the location and the number of entry and exit points to and from the station platforms. This information was used to determine the number of surveyors required for each station.

Survey date

The 2012 survey was undertaken on two separate weekdays in March for 12 hours from 7am to 7pm³. All surveys were conducted on a fine day, so that poor weather would not influence the results. In terms of the actual survey dates, Mt Albert and Glen Innes were surveyed on Tuesday 6 March 2012 and New Lynn was surveyed on Wednesday 7 March 2012.

Face to face interview

The technique employed to gather data for the project is essentially an intercept survey, whereby people are stopped (intercepted) and asked if to participate in the survey. If the respondent is willing, they are asked for a response to all the questions in the survey.

The survey aims to obtain two critical pieces of information from a respondent (note that respondents who got off a train were not included in the results). The first is “how did you get to the station?” and the second question is “what is the address that you left from before coming to the train station?” Answers to these two questions would make it possible to identify how passengers travelled to the train station and the distance they travelled.

Measuring the distance to a station

All valid responses are entered into an Excel spreadsheet and the 50th (median) and 85th percentile walking distances are calculated. The data is then processed by Auckland Council’s Geospatial Team to generate the walkable catchment maps using Network Analyst.

³ Conducting transport surveys in March is common, as it is traditionally a high patronage period as there are no public holidays in March, all students are back at school or tertiary institutions and most people are back at work.

3 Results and Discussion

3.1 Survey response rate

A total of 475 responses were collected during the survey; 193 from New Lynn, 171 from Glen Innes and 111 from Mt Albert. Table 3 below summarises the number of responses and the control count numbers for people walking to the train stations. A response rate of 8.5 to 10.5 per cent was achieved for the surveys. This low sample rate is partly due passengers not wanting to participate in the survey and the exclusion of responses that did not include an address.

Table 3:

Survey responses for New Lynn, Glen Innes and Mt Albert train stations

Mode of Travel	New Lynn	Glen Innes	Mt Albert
Car	76	90	31
Walking	64	59	79
Bus	51	20	1
Cycle	2	2	0
Response rate	193	171	111
Total control count	1843	2003	1276
Sample rate	10.5%	8.5%	8.7%

3.2 Walking to the station

The information in this section is only based on the respondents who walked to a train station. All other modes of transport to the stations have been excluded so the analysis only focuses on people walking to a train station.

Table 4 shows the 50th (median) and 85th percentile walking distances for all three stations surveyed in 2012 along with the 2010 Papatoetoe train station survey data for comparison.

The results show that the 50th (median) and 85th percentile walking distances for Papatoetoe and New Lynn are very similar, and Glen Innes is comparable to Mt Albert train station.

Mt Albert had the lowest median walking distance at 862 metres. That is, 50 per cent of the people who walked to Mt Albert train station walked less than 862 metres, and the other 50 per cent walked more than 862 metres.

The median walking distances to Papatoetoe and New Lynn were both approximately 200-300 metres further than Mt Albert at 1100-1200 metres.

Overall, the 85th percentile of all responses show that 15 per cent of all respondents were walking more than 1500 metres to get to a train station, with 15 per cent of respondents at Papatoetoe and New Lynn train station walking more than 2100 metres.

Table 4:

Median (50th) and 85th percentile walking distances to train stations

Train station	Walking distance for 50% (median) of respondents	Walking distance for 85% of respondents
Papatoetoe	1200m	2180m
New Lynn	1125m	2116m
Glen Innes	943m	1526m
Mt Albert	862m	1617m

Table 5 below shows the mean walking distance to the train stations. All three surveys found that respondents on average walked between 952 to 1347 metres to get to a train station.

Table 5:

Mean walking distance to train stations

Train Station	Mean walking distance
Papatoetoe	1072m
New Lynn	1347m
Glen Innes	1015m
Mt Albert	952m

3.3 Comparing New Lynn, Glen Innes and Mt Albert train stations

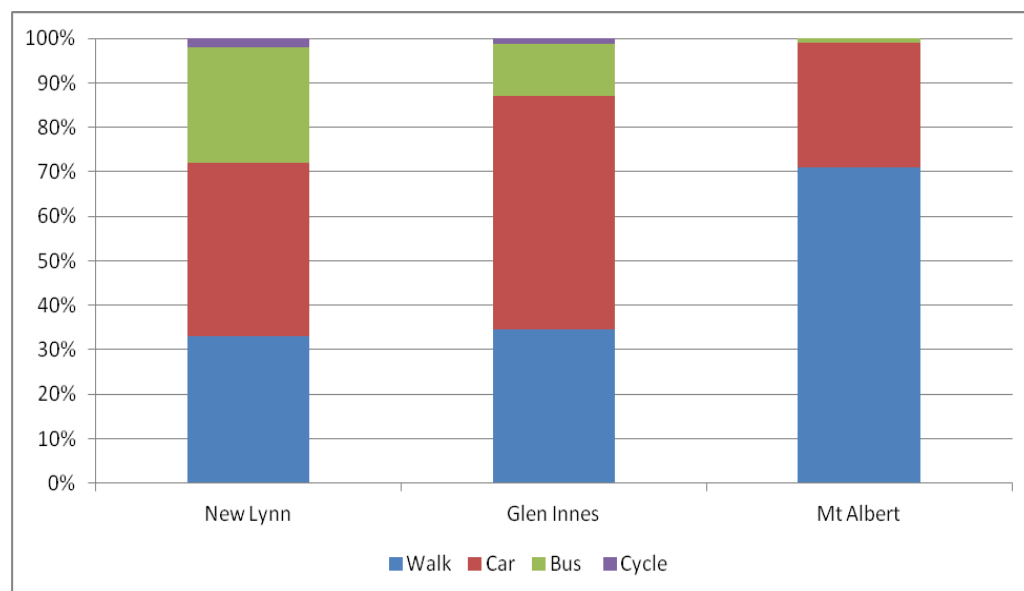
The following section provides a general comparison of the three train stations. Detailed results of the individual stations are presented in sections 3.5 - 3.7.

Figure 2 and table 6 shows the mode of travel used to get to a train station. Some significant findings of the 2012 results show that:

- Mt Albert had the highest proportion of respondents walking to the station (71%) with both New Lynn and Glen Innes showing similar proportions of people walking (33-35%).
- Glen Innes had the highest proportion of people arriving in a car (53%) followed by New Lynn (39%). Interestingly, respondents arriving by car to Mt Albert made up almost the rest of respondents (28%).
- New Lynn had the highest proportion of respondents arriving by bus (26%) followed by Glen Innes (12%).

Figure 2:

Mode of travel to New Lynn, Glen Innes and Mt Albert train stations



Base: n=475

Table 6:

Mode of travel to train stations

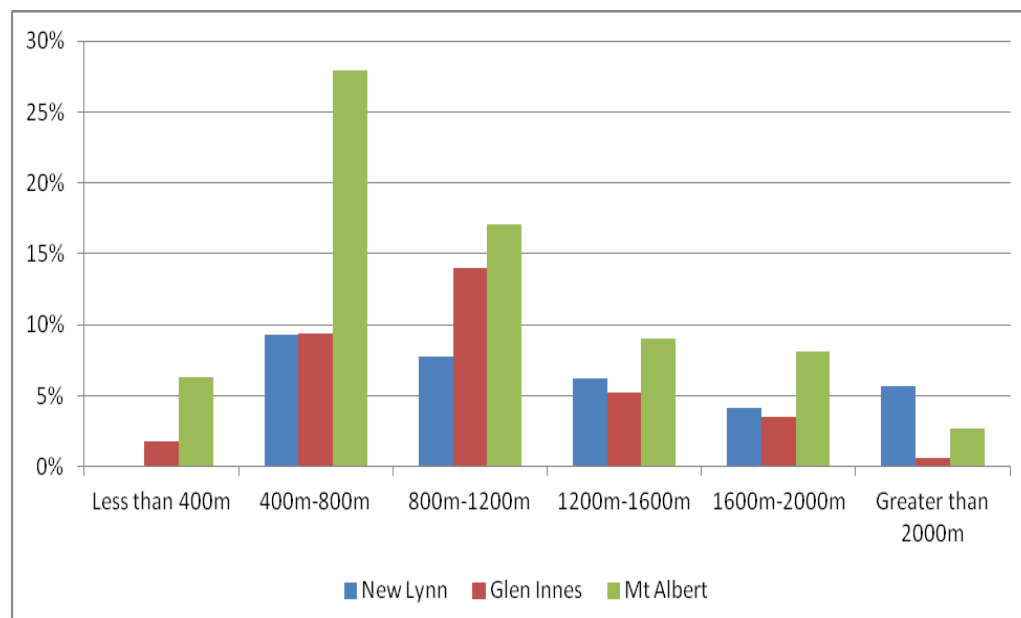
Mode of travel to train station	Papatoetoe	New Lynn	Glen Innes	Mt Albert
Walk	45%	33%	35%	71%
Car driver	51%	39%	53%	28%
Bus	2%	26%	12%	1%
Cycle	2%	1%	1%	0%

Base: n=595

Figure 3 shows the distance walked by respondents to the surveys. For all three stations, most of the respondents walked between 400 – 1200 metres. It also shows that Mt Albert had the highest proportion of respondents (28%) walking between 400-800 metres to get to a station which is a 5-10 minute walk and that few respondents indicated that they walked less than 400 metres (a five minute walk), and those that did were only recorded at Glen Innes (2%) and Mt Albert (6%) train station.

Figure 3:

Distance walked to get to New Lynn, Glen Innes and Mt Albert train stations



Base: n=202

3.4 Mode of travel for trips less than 2km

Figure 4 and table 7 show the proportion of trips that were less than two kilometres to a train station. Any distance greater than 2000 metres has been excluded in this analysis.

Overall, for trips less than 2000 metres to any one of the three train stations, walking was the most popular mode of travel.

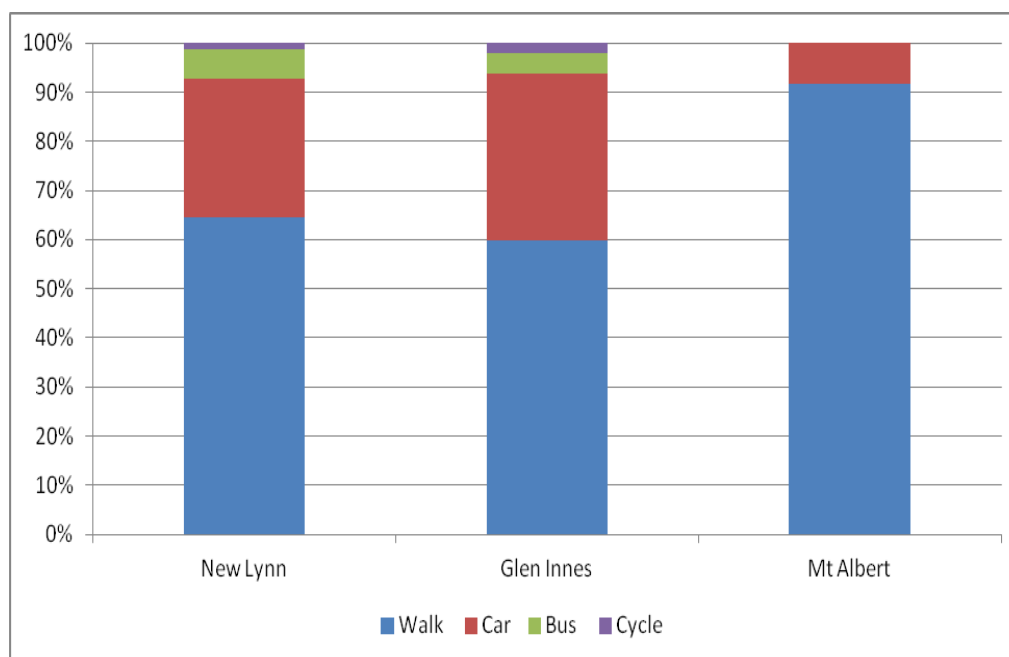
The results for Mt Albert show that nearly all of the respondents (92%) walked to the train station, with the remaining respondents arriving by car (8%).

Walking to the train station was also the most popular mode of transport for respondents arriving at New Lynn and Glen Innes with both recording similar proportions of walkers (60%-65%).

The proportion of respondents arriving by car to New Lynn and Glen Innes train stations was also very similar (28%-34%).

Figure 4:

Mode of travel for trips less than 2km to New Lynn, Glen Innes and Mt Albert train stations



Base: n=262

Table 7:

Mode of travel to train stations for trips less than 2km

Mode of travel	New Lynn	Glen Innes	Mt Albert
Walk	65%	60%	92%
Car	28%	34%	8%
Bus	6%	4%	0%
Cycle	1%	2%	0%
Total	100%	100%	100%

Base: n=262

3.5 New Lynn train station survey results

This section analyses the results from the New Lynn train station survey.

New Lynn train station is on the western line of the Auckland railway network (Plate 1) and is located approximately 11 kilometres west of the city centre.

The station is part of the New Lynn Transit Oriented Development programme which encompasses an integrated approach to transport and land use. An example of this integration is the construction of the New Lynn Transport Interchange for rail and bus passengers, which was completed and opened in September 2010. Based on these improvements, the station is now easily accessible from a variety of transport modes (bus, walking, cycling and car).

The train station is located inside the New Lynn metropolitan centre. In the Auckland Plan, the role of a metropolitan centre is to serve regional catchments and to have strategic roles within the region. They also provide a diverse range of shopping, business, cultural, entertainment and leisure activities, together with high density residential and mixed-use environments.

In terms of transport, metropolitan centres good transport access and are expected to be a major hub to provide high-frequency public transport and have a destination function but also be a place that is expected to generate a high number of trips.

Plate 1:

New Lynn train station

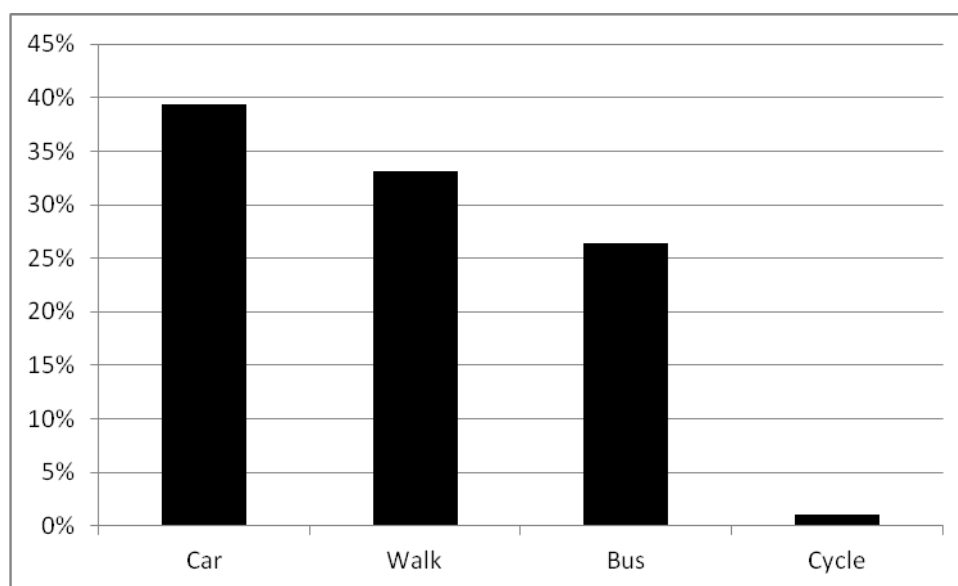


(Photo: Ken McLeod, Auckland Transport)

Figure 5 shows how respondents got to New Lynn train station. The main mode of travel to New Lynn train station was by car (39%) followed closely by walking (33%). New Lynn had the highest proportion of respondents arriving by bus (26%) and this could be attributed to the recently completed construction work to integrate the bus and train station. The remaining 1 per cent of respondents cycled to the train station which is low given that this is a metropolitan centre and that there is ample cycle parking facilities at the train station.

Figure 5:

Mode of travel to New Lynn train station



Base: n=193

Table 8 shows the difference in how people got to the station on the day of the survey and how they normally get to the station. The results show that on a normal day, there are fewer respondents (less 4%) arriving by car and slightly more respondents walking, arriving by bus and cycling.

Table 8:

Mode of travel to New Lynn train station – today and normally

Mode of travel	How I got to the train station today	How I normally get to the train station	Difference
Car (driver)	15%	14%	-1%
Car (passenger)	24%	21%	-3%
Walk	33%	35%	+2%
Bus	26%	28%	+2%
Cycle	1%	2%	+1%
Total	100%	100%	

Base: n=193

Figure 6 shows the all the modes of transport and the distance travelled to New Lynn train station. At the lower end scale, there were no respondents travelling less than 400 metres (a five minute walk). At the higher end of the scale, respondents travelling more than 2400 metres are either arriving by car (25%) or by bus (22%).

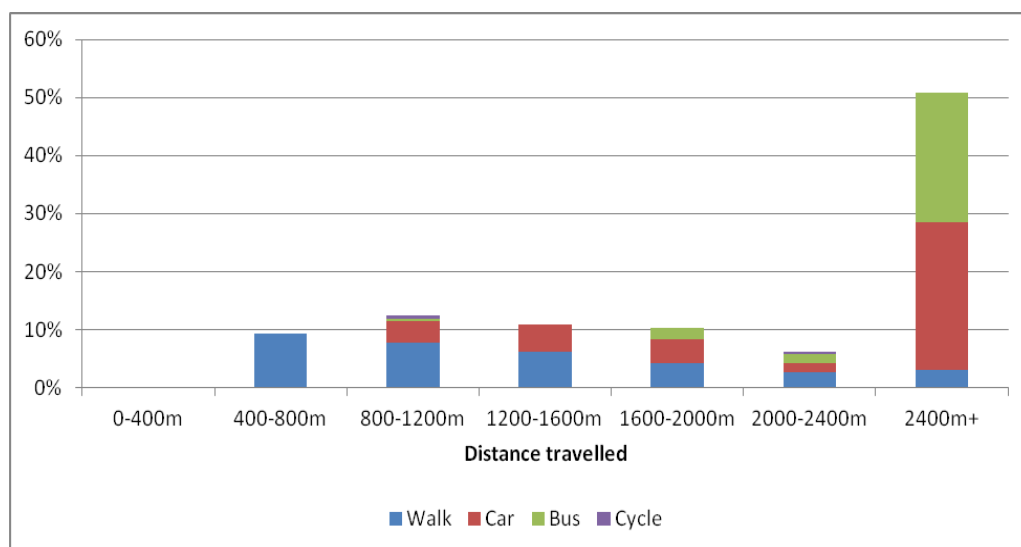
Within a walkable catchment of 800 metres (a ten minute walk), all of the respondents (9%) indicated that they walked to the station.

Up to a distance of 1600 metres, the results show that walking (23%) is nearly three times more popular than arriving by car (8%). Extending the distance to 2000 metres and the proportion of respondents that walked to the station (27%) is still more than twice as popular as those arriving by car (12%).

When the distance to the station is greater than 2000 metres, the results are reversed with respondents indicating that they choose to arrive at the station by car (27 %) or bus (24%), with walking (6%) not a popular mode.

Figure 6:

Mode and distance travelled to New Lynn train station



Base: n=193

New Lynn Walkable Catchment Map

The responses from people walking to New Lynn train station have been collated and mapped to identify their walkable catchment (see New Lynn Train Station Walkable Catchment Map in Appendix 3).

The map shows the 400 metre, 800 metre, 50th (median) and 85th percentile walking isochrones distances and where the respondents left before walking to the train station.

Based on the data on the map:

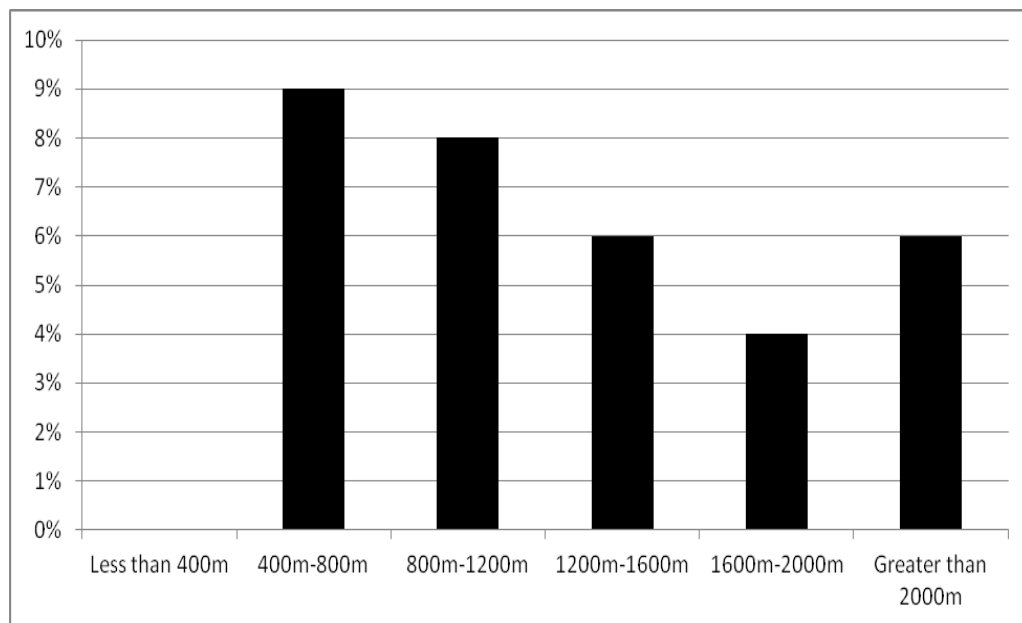
- no one walked less than 400 metres (or a five minute walk) to get to the train station;
- at 800 metres from the train station there was noticeable cluster of respondent's north-west of the train station;
- fifty per cent of respondents walked up to 1125 metres which is the median walking distance for New Lynn train station. Most of these respondents were located north-west and south of the train station with very few respondents coming from the eastern and north-eastern direction;
- the median walking distance for New Lynn is similar to that of Papatoetoe train station (1200 metres), even though the size and composition of these town centres are very different;
- the 85th Percentile for New Lynn was 2116 metres. That is, 85 per cent of all respondents walked up to 2116 metres to get to the train station;
- 15 per cent of respondents walked more than 2116 metres to get to the train station. These findings are very similar to the results from the 2010 Papatoetoe train station survey (2180 metres); and
- most of the respondents that walked more than 2116 metres were coming from the southern direction of the train station.

Figure 7 shows the results for respondents that walked to New Lynn train station. From the survey results, no one walked less than 400 metres, but nearly a quarter (23%) of respondents walked between 400-1600 metres.

By extending the walking distance out to 2000 metres, 27% of the respondents are included.

Figure 7:

Distance walked to New Lynn train station

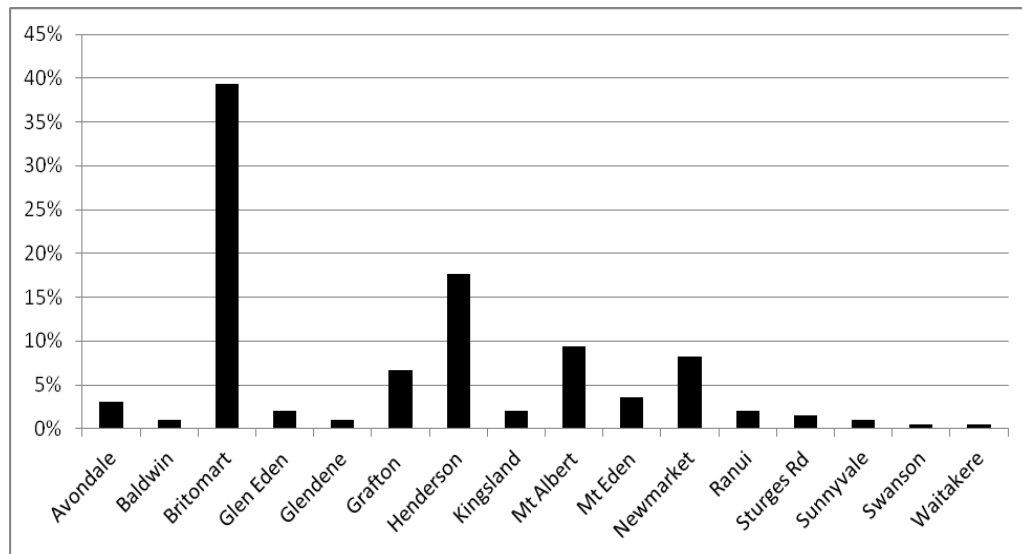


Base: n=193

Figure 8 shows the station where respondents got off after boarding a train at New Lynn station. Most respondents were heading towards the CBD and got off the train at Britomart (39%). The majority of respondents that were travelling westbound got off at Henderson train station (18%).

Figure 8:

Station where New Lynn passengers got off the train

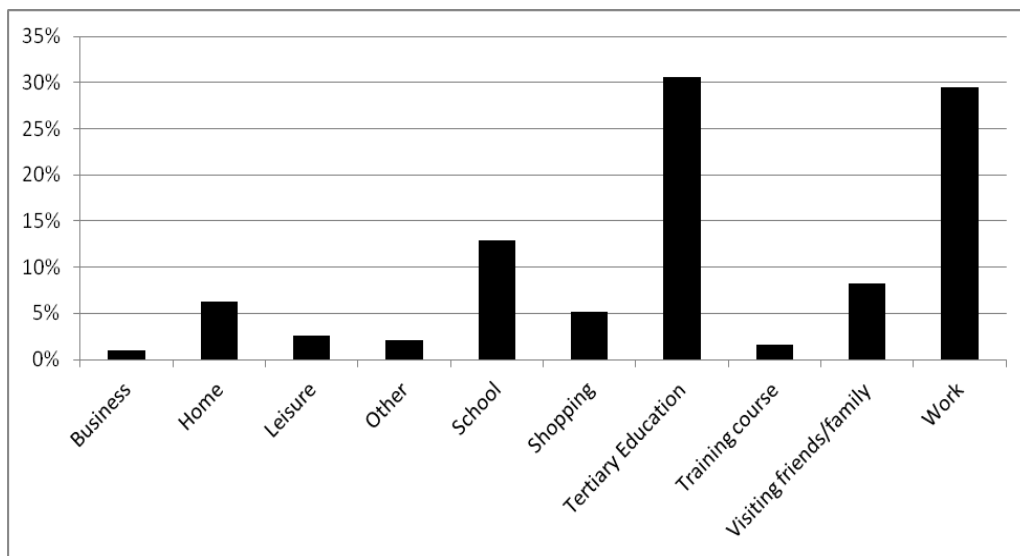


Base: n=193

Figure 9 shows the trip purpose for the respondents at New Lynn train station. The main trip purpose is for tertiary education (31%) followed closely by work (30%). Thirteen per cent of respondents indicated that they were going to school. Catching a train for educational purposes accounts for 44 per cent of all trips from New Lynn.

Figure 9:

Trip purpose of New Lynn passengers



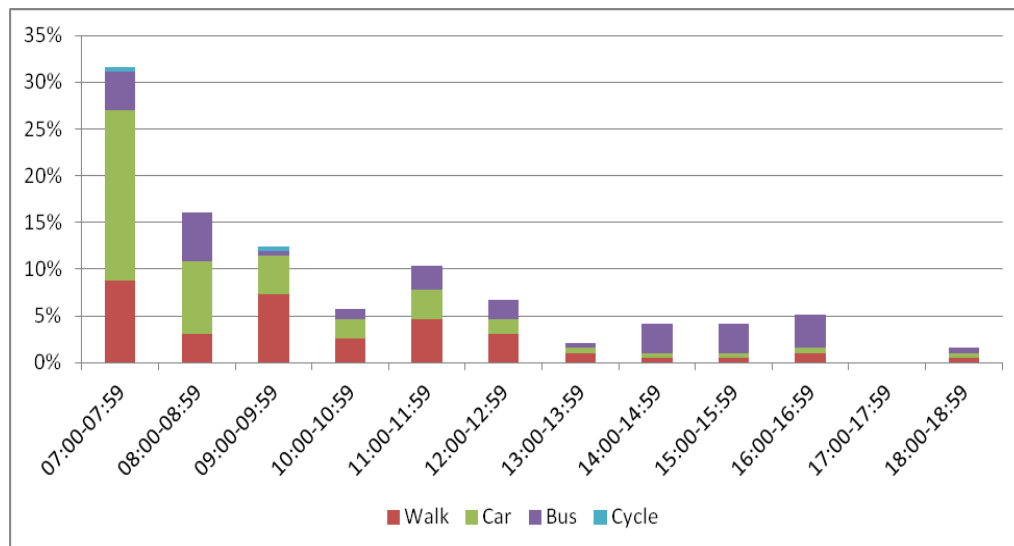
Base: n=193

Figure 10 shows how the respondents got to New Lynn train station and their arrival time. Almost half of the respondents (48%) arrived at the train station in the morning peak period between 7-9am with most of the respondents (76%) getting to the train station before 12pm. The midday peak (11am-1pm) accounted for 17 per cent of respondents and the evening peak (4-6pm) had a low 5 per cent of respondents.

Looking at the morning peak figures and how respondents got to the station, the majority of respondents (26%) arrived by car, followed by people walking (12%), and bus (9%) and finally on a bicycle (1%).

Figure 10:

Mode and time of travel to New Lynn train station



Base: n=193

3.6 Glen Innes train station survey results

This section analyses the results from the Glen Innes train station survey.

Glen Innes train station is located on the eastern line of the Auckland railway network (Plate 2). The train station is located approximately 9 kilometres east of the city centre.

The train station is located inside Glen Innes town centre and is surrounded by large social housing areas to the northeast, east and southeast of the station.

The University of Auckland Tamaki Innovation Campus is located south of Glen Innes train station. The station is within walking distance to the university campus.

In the Auckland Plan, the role of town centres is to act as local hubs for communities, providing a wide range of retail and business services, community facilities and residential living options, including mixed-used and higher-density options.

In terms of transport, town centres are generally accessible by high-frequency public transport services and have a walkable catchment of 800 metres.

The main access to the station platform is at the northern end through a pedestrian underpass and a controlled (alarmed) pedestrian crossing. At the southern end there is also a controlled crossing point to provide a link to the Tamaki Campus.

Plate 2:

Glen Innes train station platform

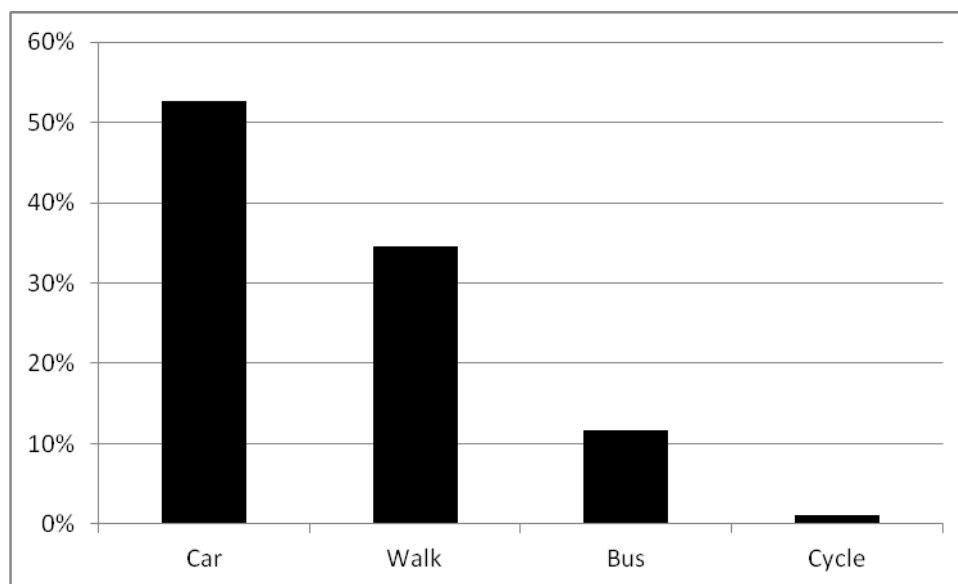


(Photo: Ken McLeod, Auckland Transport)

Figure 11 shows the how respondents got to the station on the day of the survey. Most respondents arrived by car (53%) or by walking (35%), with people arriving by bus (12%) making up most of the remaining responses.

Figure 11:

Mode of transport to Glen Innes train station



Base: n=171

Table 9 shows the responses of passengers arriving at the station on the day of the survey and how they would normally travel to the station. The results for Glen Innes show that slightly less people would arrive by car and slightly more people would arrive by walking. There was little or no change to the bus and cycle proportions.

Table 9:

Mode of transport to Glen Innes train station – today and normally

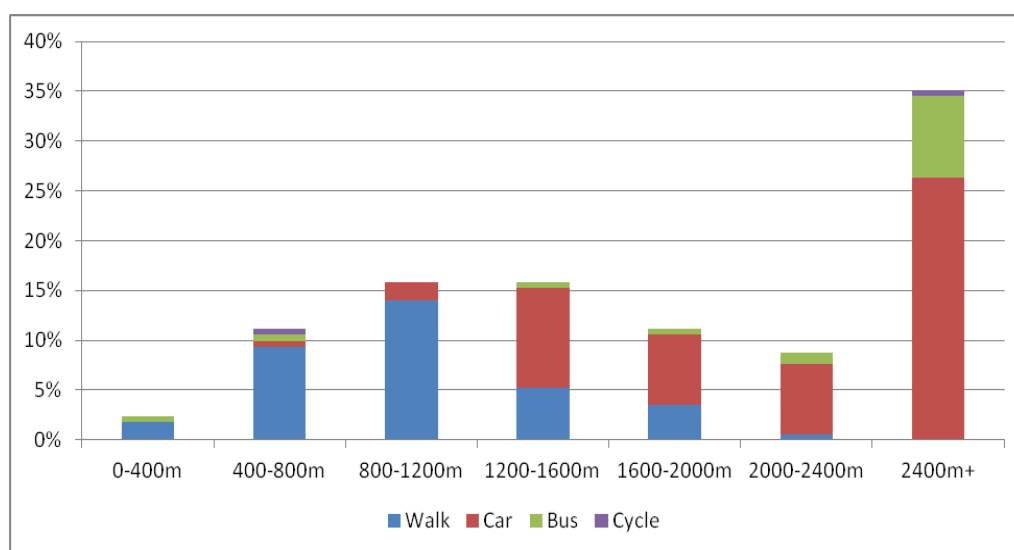
Mode of travel to train station	How I got to the train station today	How I normally get to the train station	Difference
Car (driver)	28%	29%	+1%
Car (passenger)	25%	20%	-5%
Walk	35%	39%	+4%
Bus	12%	11%	-1%
Cycle	1%	1%	0%
Total	100%	100%	

Base: n=171

Figure 12 shows the mode of transport and the distance travelled to Glen Innes train station. Up to a distance of 1200 metres, walking to the station is the most popular method with 25 per cent of respondents choosing this mode. Anything over 1200 metres and arriving at the station by car starts to become the preferred option. While walking was still an option for people up to a distance of 2400 metres, no one surveyed walked more than 2400 metres. Distances more than 2400 metres were dominated by people arriving by car (26%) and the bus (8%).

Figure 12:

Mode and distance travelled to Glen Innes train station



Base: n=171

Glen Innes Walkable Catchment Map

The responses from people walking to Glen Innes train station have been collated and mapped to identify a walkable catchment map (see Glen Innes Train Station Walkable Catchment Map in Appendix 4).

The map shows the 400 metre, 800 metre, 50th (median) and 85th percentile walking isochrones distances and where the respondents left before arriving at the train station.

Based on the data on the map:

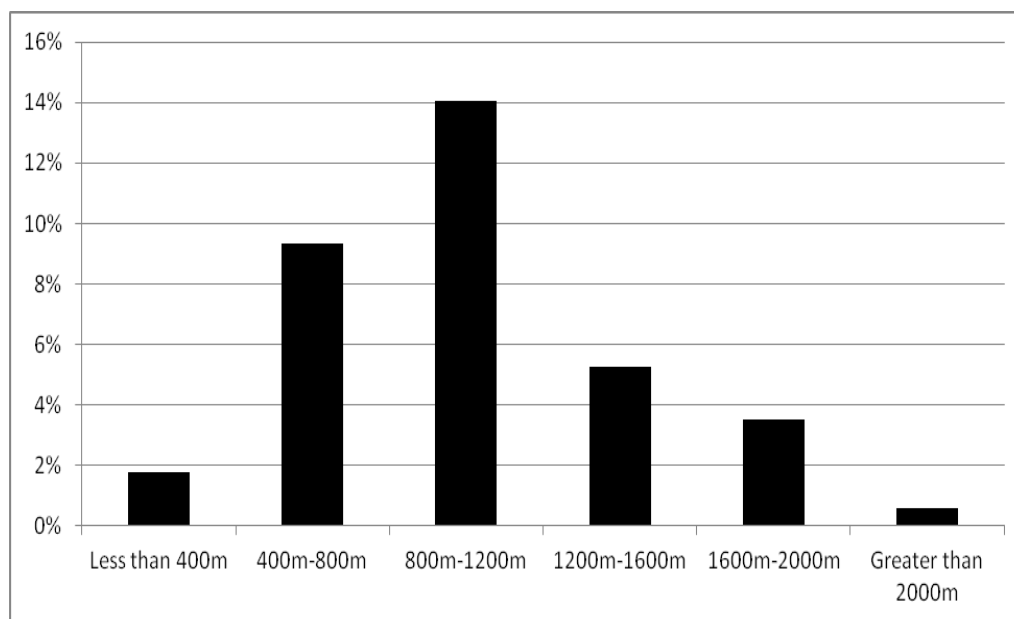
- very few respondents walked less than 400 metres (a five minute walk) to the train station;
- at 800 metres there was a noticeable cluster of respondents east and south east of the train station, with most of the respondents coming from the eastern side of the station. Few respondents were walking from the western direction of the train station;
- the median walk distance to Glen Innes train station was calculated as 943 metres. That is, 50 per cent of respondents walked more than 943 metres to reach the railway station with most of these respondents coming from the eastern side of the train line;
- the 85th Percentile walking distance for Glen Innes was 1526 metres. That is, 15 per cent of respondents walked more than 1526 metres to get to the train station. At this distance, the majority of respondents were coming from the eastern direction of the train station; and
- beyond the 85th percentile walking distance (1526 metres) the majority of respondents were coming from the south-western direction of the train station.

Figure 13 shows how far respondents walked to get to Glen Innes train station. Most of the respondents (23%) walked between 400-1200 metres.

By extending the walking distance even further to 1600 metres, 30 per cent of respondents are included, and extending the walking distance out to 2000 metres includes 34 per cent of respondents.

Figure 13:

Distance walked to Glen Innes train station

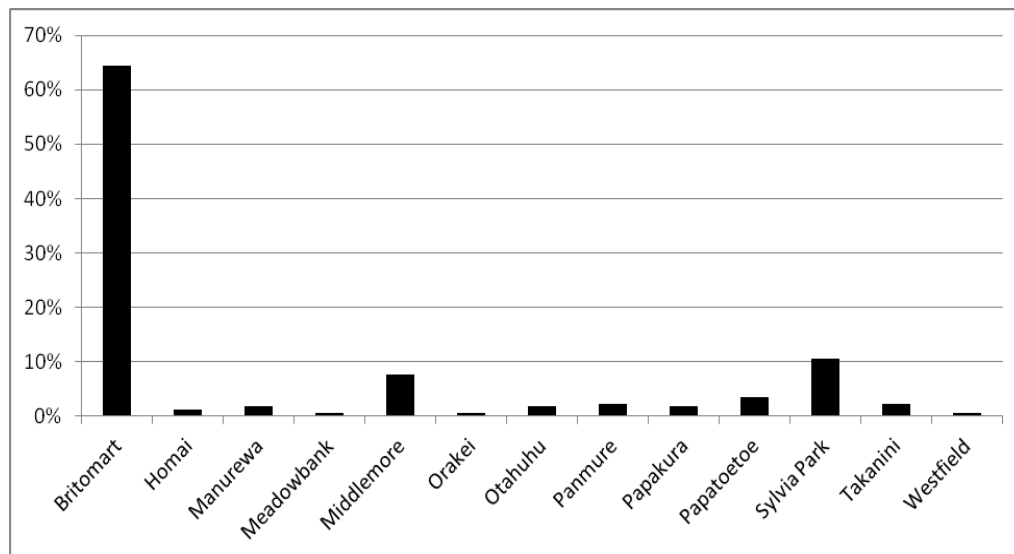


Base: n=171

Figure 14 shows the train station that respondents got off after boarding a train at Glen Innes station. The majority of trips were heading towards the CBD with just under two thirds of respondents getting off at Britomart (65%). Most respondents heading south got off at Sylvia Park (11%) and Middlemore (8%) train stations.

Figure 14:

Station where Glen Innes passengers got off the train

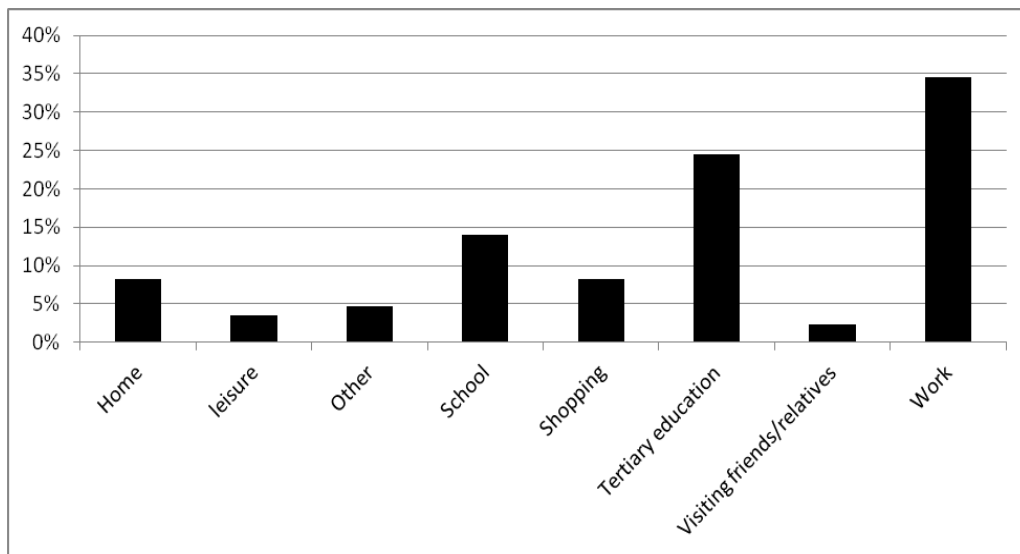


Base: n=171

Figure 15 shows the trip purpose of the respondent. Most respondents (35%) indicated that their trip purpose was for work reasons. The second most popular trip purpose was for tertiary education which made up a quarter of responses (25%). If the school responses are included with the tertiary responses, the people catching the train for 'educational' purposes accounts for 39 per cent of all trips.

Figure 15:

Trip purpose of Glen Innes passengers



Base: n=171

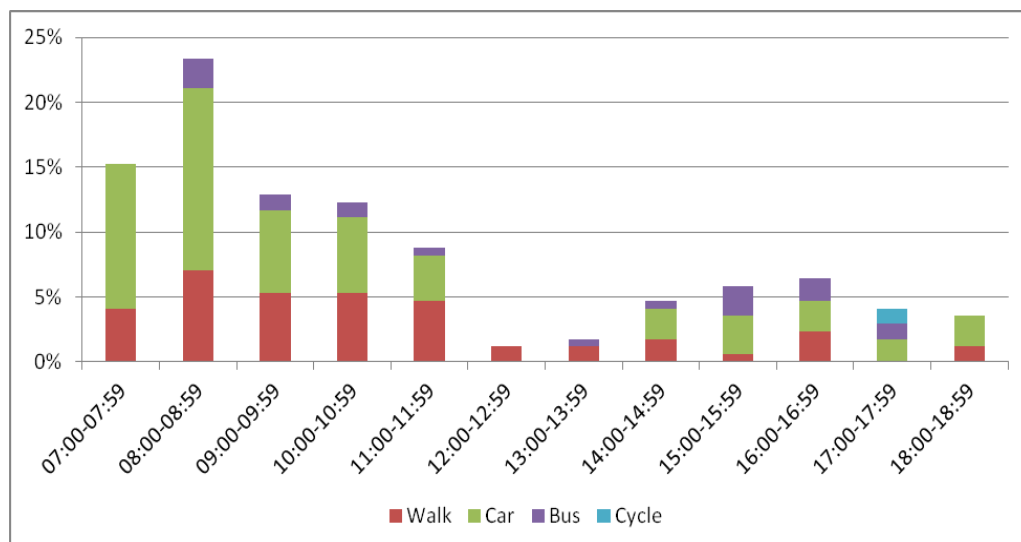
Figure 16 shows the mode and time of travel to Glen Innes train station. Around two-fifths of the respondents (39%) arrived and boarded a train in the 'morning peak' period between 7-9am with most of the respondents (73%) arriving before 12pm.

The midday peak (11am-1pm) accounted for 10 per cent of respondents and the evening peak (4-6pm) had a similar figure with 11 per cent of respondents.

Looking at the morning peak (7-9am) and how respondents got to the station, a quarter of respondents (25%) arrived by car and 11% walked and 3 per cent arrived at the station by bus in the morning peak. These figures are similar to New Lynn.

Figure 16:

Mode and time of travel to Glen Innes train station



Base: n=171

3.7 Mt Albert train station survey results

This section analyses the results from the Mt Albert train station survey.

Mt Albert train station is on the western line of the Auckland railway network (Plate 3) and is approximately 7 kilometres away from the city centre. The train station is scheduled for a full station upgrade in August 2012.

Mt Albert train station is located inside Mt Albert town centre and Unitec Institute of Technology is located north of the train station, approximately 1.5 kilometres away.

In the Auckland Plan, the role of town centres is to act as local hubs for communities, providing a wide range of retail and business services, community facilities and residential living options, including mixed-used and higher-density options.

In terms of transport, town centres are generally accessible by high-frequency public transport services and have a walkable catchment of 800 metres.

The main access to the station platform is by ramp from the Carrington Road overbridge. There is also access at the western end through a pedestrian underpass that provides links to Wilcott Street and New North Road.

Plate 3:

Mt Albert train station platform

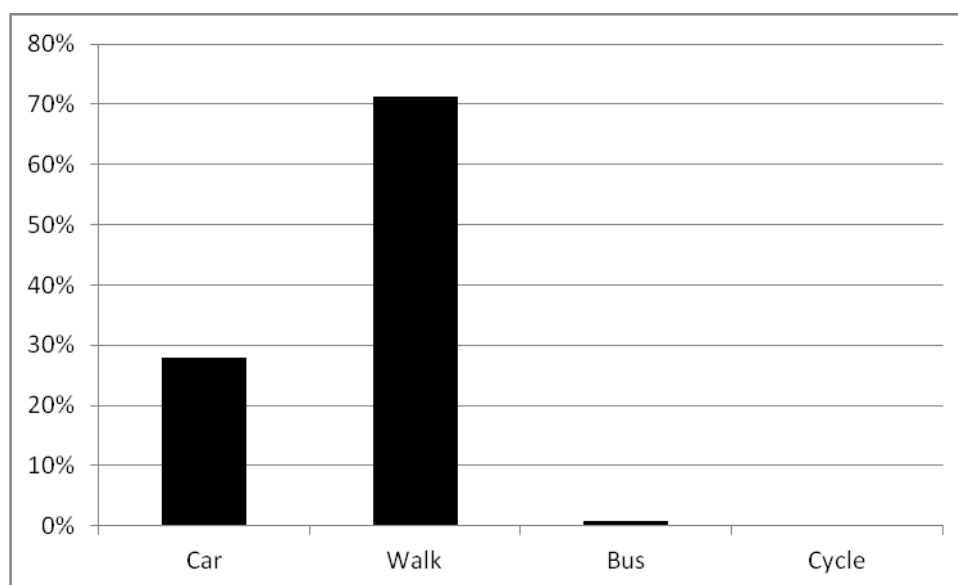


(Photo: Ken McLeod, Auckland Transport)

Figure 17 shows how the respondents arrived at Mt Albert train station. Most respondents said they walked (71%). Arriving by car was the second most popular transport mode to the station (28%), with the remaining respondents (1%) arriving by bus.

Figure 17:

Mode of transport to Mt Albert train station



Base: n=111

When respondents were asked how they would normally travel to the station, the results for Mt Albert in table 10 show an even greater proportion of people walking to the station (77%) and less people arriving by car (19%). There was little or no change to the bus and cycle proportions.

Table 10:

Mode of travel to the train station – today and normally

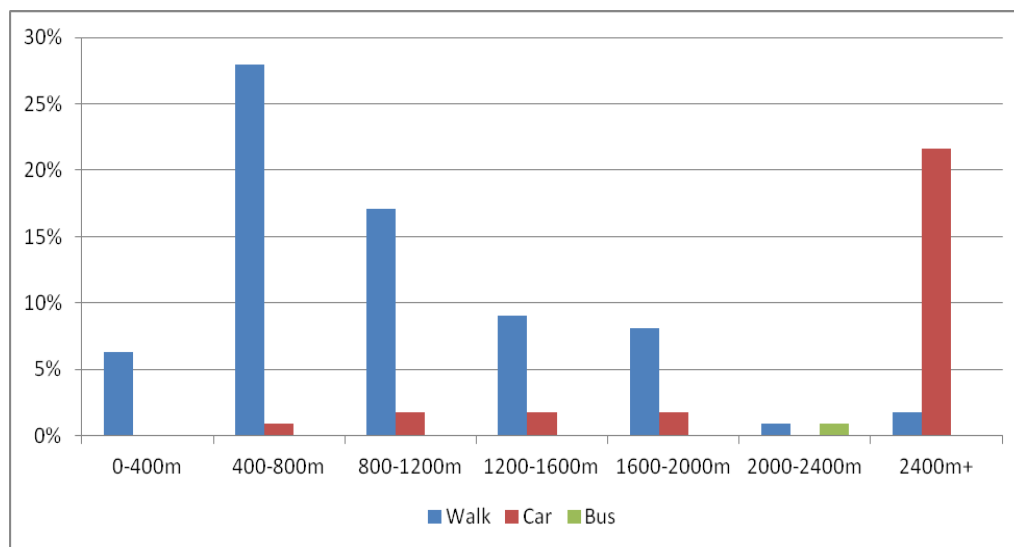
Mode of travel to train station	How I got to the train station today	How I normally get to the train station	Difference
Car (driver)	6%	5%	-1%
Car (passenger)	22%	14%	-8%
Walk	71%	77%	+6%
Bus	1%	2%	+1%
Cycle	0%	1%	+1%
Total	100%	100%	

Base: n=111

Figure 18 shows the mode of transport and the distance travelled to Mt Albert train station. Walking to the station is the most popular mode of travel up to a distance of 2000 metres with 68 per cent of respondents choosing this mode. Any distance more than 2400 metres is dominated by the car with 22 per cent choosing this mode.

Figure 18:

Mode and distance travelled to Mt Albert train station



Base: n=111

Mt Albert Walkable Catchment Map

The responses from people walking to Mt Albert train station have been collated and mapped to identify a walkable catchment map (see Mt Albert Train Station Walkable Catchment Map in Appendix 5).

The map shows the 400 metre, 800 metre, 50th (median) and 85th percentile walking isochrones distances and where the respondents left before arriving at the train station.

Based on the data on the map:

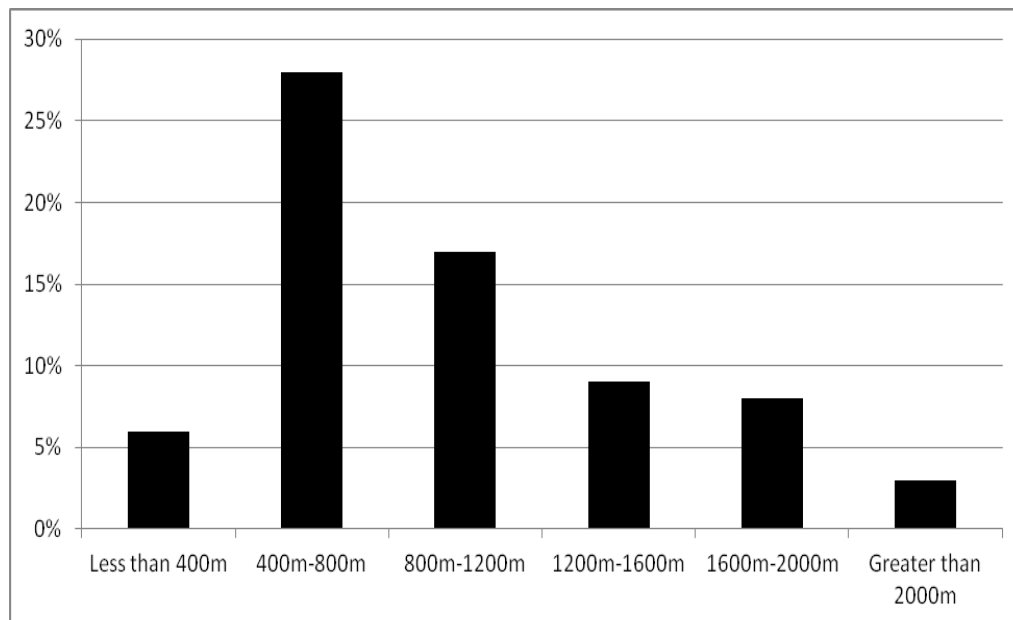
- there are quite a few respondents west of the train station walking less than 400 metres to the train station;
- at 800 metres from the train station, the map begins to show that most of the respondents are walking from the west and south-west direction of the train station;
- the median walking distance to Mt Albert train station is 862 metres, which suggests that 50 per cent of respondents walked more than 862 metres to reach Mt Albert train station. There is very little difference in the number of respondents between the 800 metre and median walking distance;
- the 85th percentile walking distance for New Lynn train station is 1617 metres. That is, 85 per cent of all respondents walked up to 1617 metres to get to the train station and the remaining 15 per cent of respondents walked more than 1617 metres;
- at the 85th percentile walking distance, the majority of respondents were still walking in from the south-west and southern direction of the train station; and
- respondents walking greater than the 85th percentile distance (1617 metres) were mainly found to be coming from the southern direction of the train station.

Figure 19 shows how far respondents walked to get to Mt Albert train station. Surprisingly, only 6 per cent of respondents walked less than 400 metres with the majority (28%) walking between 400-800 metres. An 800 metre walkable catchment for Mt Albert train station captures just under a third (34%) of respondents.

If the walking distance was extended out to 1200 metres, just over half (51%) of respondents would be captured. By extending the walking distance to 1600 metres, 60 per cent of respondents are included and having a walking distance up to 2000 metres includes 68 per cent of all respondents.

Figure 19:

Distance walked to Mt Albert train station

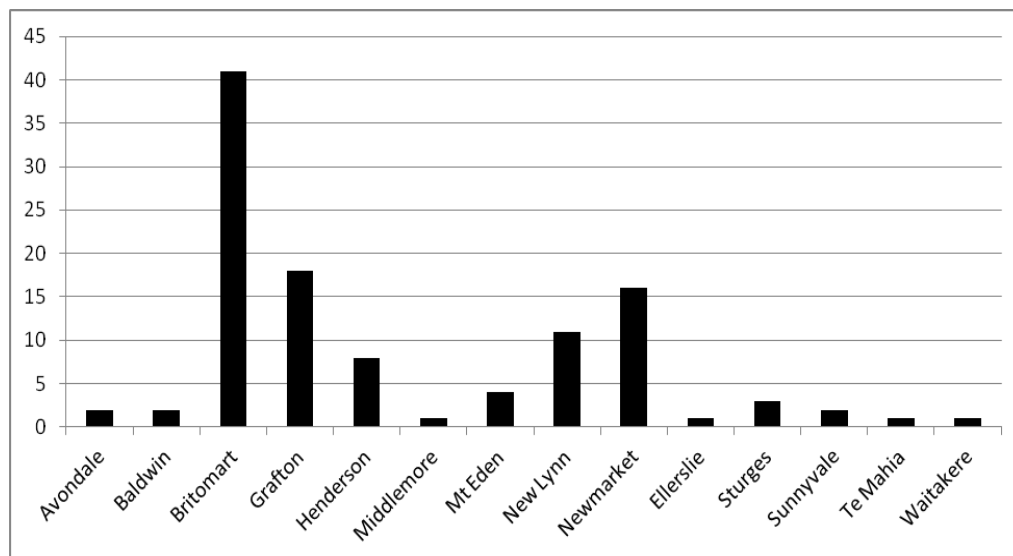


Base: *n*=111

Figure 20 shows the station that respondents got off after boarding a train at Mt Albert station. The majority of the trips are eastbound or heading towards the CBD with most respondents indicating that they were getting off at Britomart (37%), followed by Grafton (16%), then Newmarket (14%). For respondents heading west, 10 per cent of respondents indicated that they were getting off at New Lynn and 7 per cent at Henderson train station.

Figure 20:

Station where Mt Albert passengers got off the train

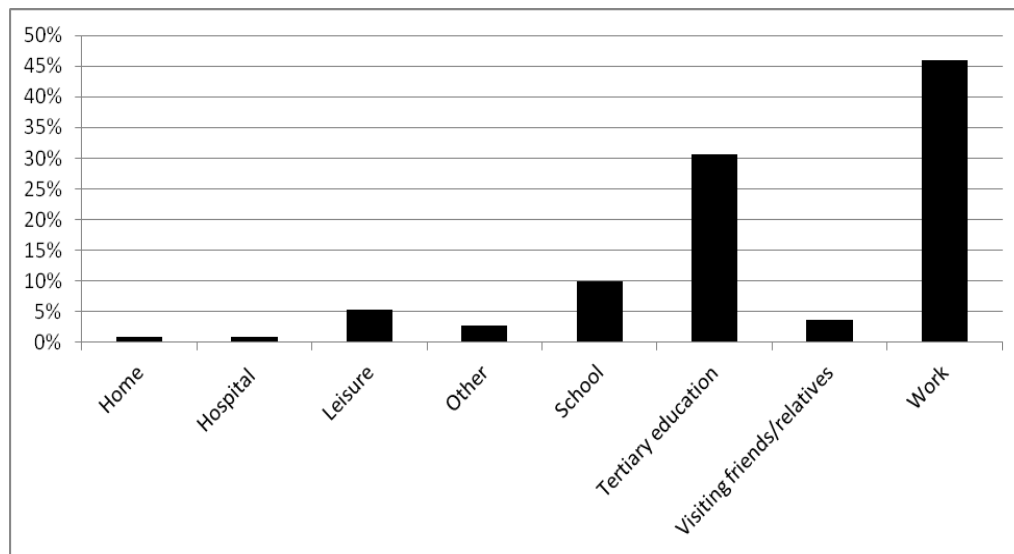


Base: n=111

Figure 21 shows the trip purpose of the respondent. The main purpose for respondents at Mt Albert train station is for work (46%). Catching a train to go to a tertiary institution was the second most popular reason (31%). If the 'school' responses are included with the 'tertiary education' responses, the total proportion of trips related to an educational purpose is 41 per cent. This figure is similar to those gathered from New Lynn and Glen Innes train stations.

Figure 21:

Trip purpose of Mt Albert passengers



Base: n=111

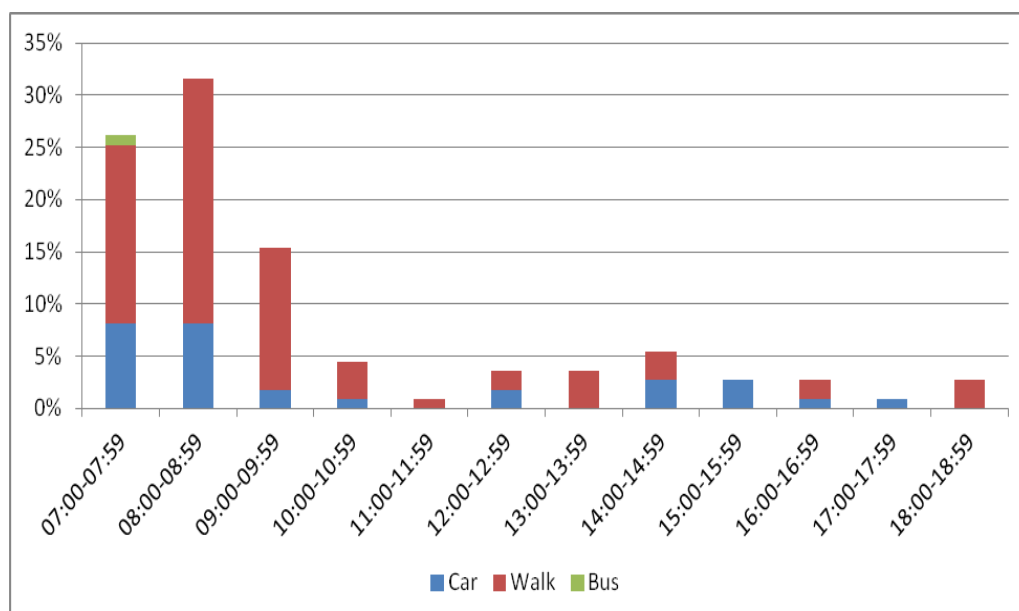
Figure 22 shows the mode and time of travel to Mt Albert train station. Over half (58%) of respondents arrived at the train station in the morning peak between 7-9am with most of the respondents (78%) arriving at the train station before 12pm.

The midday peak (11am-1pm) only accounted for 5 per cent of respondents and the evening peak (4-6pm) had a similar figure with 4 per cent of respondents.

Looking at the morning peak figures and the mode of transport to the station, there were only two dominant modes. Most of the respondents walked (42%) walked, and the remaining 16 per cent arrived by car.

Figure 22:

Mode and time of travel to Mt Albert train station



Base: n=111

Note: on the day of the survey, there were no recordings of people cycling to Mt Albert train station.

4 Summary and Recommendations

The purpose of this research was to test for evidence if an 800 metre radius is representative of the walkable catchment area for three train stations in Auckland and compare the findings with those in the 2010 Papatoetoe Train Station Survey.

The results of the three train station surveys show that:

- more than 50 per cent of respondents walked further than 800 metres to get to a train station;
- more than 15 per cent of respondents walked further than 1500 metres to get to a train station; and
- walking is the most significant mode of travel for trips less than 2000 metres.

Mt Albert returned the lowest median walking distance to a train station with 862 metres. Glen Innes recorded a slightly higher median walking distance with 943 metres and New Lynn had the highest median walking distance with 1125 metres.

Despite the median walking distances to Mt Albert and Glen Innes train stations being close to the 800 metre radius distance, more than half of the respondents were walking greater distances than 800 metres to get to the train station.

Overall, the results from the surveys show that an 800 metre radius underestimates the actual walking distance for New Lynn, Glen Innes and Mt Albert train stations.

While the results to date are not conclusive in terms of an 800 metre walking distance being representative of a walkable catchment area for a train station in Auckland, the findings from the surveys do show that those currently using rail transport are prepared to walk further than 800 metres to get to a train station.

Due to only four train stations being surveyed, and given the generally low response rate of these surveys, additional research should be conducted to further test for evidence that an 800 metre radius is representative of the walkable catchment area for a train station in Auckland.

Any additional survey data will be useful for developing a typology of walkable catchments for train stations in Auckland. This typology would essentially be used to classify and group the train stations based on a set of characteristics. An example of these characteristics may include the location, surrounding land use, topography, availability of parking and accessibility issues for each station.

Walkable catchments for centres are not fixed and should not be, as over time the centres will evolve and change. When this happens, there are opportunities for research similar to that described in this report to help inform and guide future policy approaches that determine these walkable catchments.

Based on these findings, it is recommended that:

- Further surveys be carried out to test for more evidence if an 800 metre radius is representative of the walkable catchment area of other train stations in Auckland; and
- The data collected in the surveys is used to develop a typology of walkable catchments for train stations in Auckland.

5 Acknowledgements

Thanks to Auckland Transport for enabling the surveys to be undertaken at the train stations, and the Auckland Council Geospatial team for assistance in the production of the walkable catchment maps.

6 References

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7 Appendix 1 – Papatoetoe train station questionnaire

1. Where have you come from? <i>(please provide your full address or mark on the map provided)</i>			
2. How did you arrive at the train station today?			
a) Car	☐	b) Bus	☐
c) Cycle	☐	d) Walk	☐
e) Other (please specify):			
3. Where have you parked your car or got off the bus? <i>(please provide your full address or mark on the map provided)</i>			
4. Is this how you usually travel to the train station?			
Yes	☐	No	☐
5. If not, how do you usually travel to the station?			
a) Car	☐	b) Bus	☐
c) Cycle	☐	d) Walk	☐
e) Other (please specify):			
6. How often do you catch the train?			
a) 5 days a week or more			☐
b) A couple of times per week			☐
c) About once a week			☐
d) Less than once a week			☐
7. Which of the following age group do you belong to?			
a) 15 and under	☐	b) 16-19	☐
c) 20-29	☐	d) 30-39	☐
e) 40-49	☐	f) 50-59	☐
g) 60-64	☐	h) 65 and older	☐
8. Are you:			
a) Employed full time	☐	b) employed part time	☐
c) School student	☐	d) tertiary student	☐
e) retired	☐	f) not working	☐
g) Other (please specify):			
9. Gender:			
a) Female	☐	b) Male	☐

Appendix 2 – 2012 Train station survey questionnaire



New Lynn Train Station Pedestrian Catchment Survey – Wednesday 7 March 2012, 7am-7pm

Survey of people getting **ON** a train

Auckland Council is doing this survey to find out the average distance that people are prepared to travel to and from New Lynn train station. The survey is confidential and the information collected in this survey will help plan for the future transport network. A minute of your time would help you and us greatly. If you provide your full address details and answer all questions in this survey, you could win a regional monthly rail pass (valued up to \$255).

- How did you get to the train station today? *(Show Card A) (Code in Col A)*
- How do you normally travel to this station? *(Show Card A) (Code in Col B)*

	COL A	COL B
a) Car (drove self)	1	1
b) Car (as passenger).....	2	2
c) Bus	3	3
d) Cycle	4	4
e) Walk.....	5	5
f) Other (Write in)		
Q1:	6	6
Q2:		

- Which station will you be getting off today?
- What is the purpose of your trip today? *(Show Card B) (Circle below)*
 - Work.....1
 - Tertiary education.....2
 - School.....3
 - Leisure.....4
 - Shopping.....5
 - Visiting friends/relatives.....6
 - Other (please specify).....7
- What is the address of your destination? (i.e. the address of where you are going? e.g. address of work, shopping, etc). An address will help us determine the average distance people travel from the train station to their destination.
.....
- What is the address you left from before coming to the train station this morning? An address will help us determine the average distance people travel from their home to the train station.

Read out: If you give your full address you will be included in the draw to win the regional monthly rail pass. If you win, we will send out the prize to this address. If you do not want to provide your street number, please indicate a "street number range to the nearest 10 or 20". Thank you for your time.

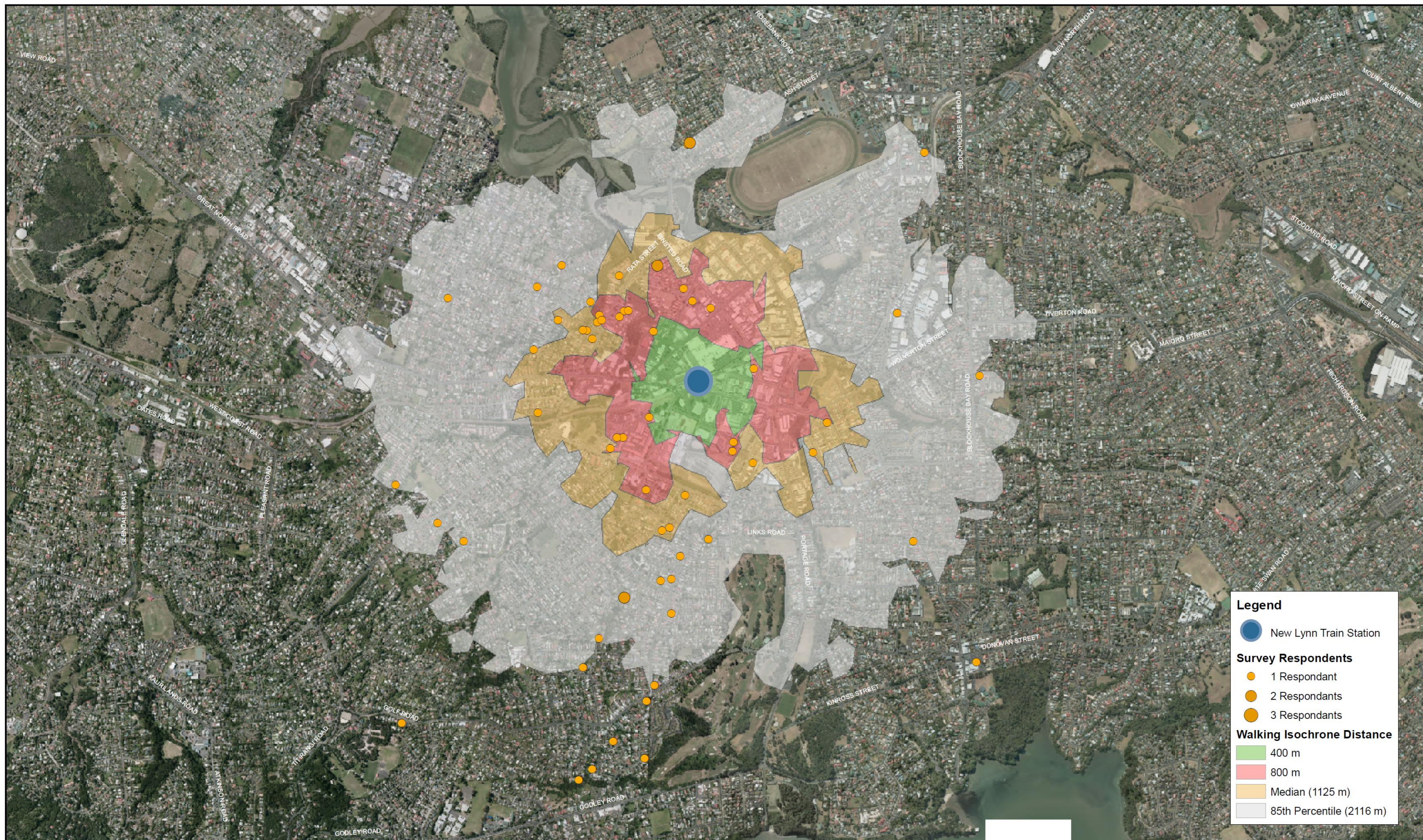
.....

For Office Use Only

Name of surveyor: Date of survey: 7 March 2012 Time of survey: am / pm

Note: Incomplete survey forms will not be included in the draw for the prize. All information collected is confidential. The New Zealand Privacy Act 1993 applies to this survey.

9 **Appendix 3 – New Lynn Train
Station Walkable Catchment Map**



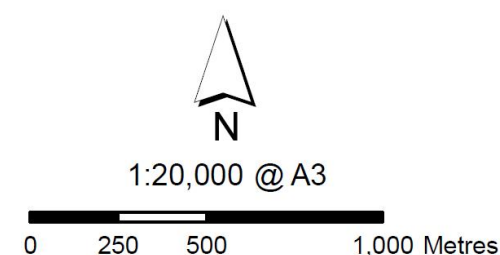
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Date: 30th April 2012

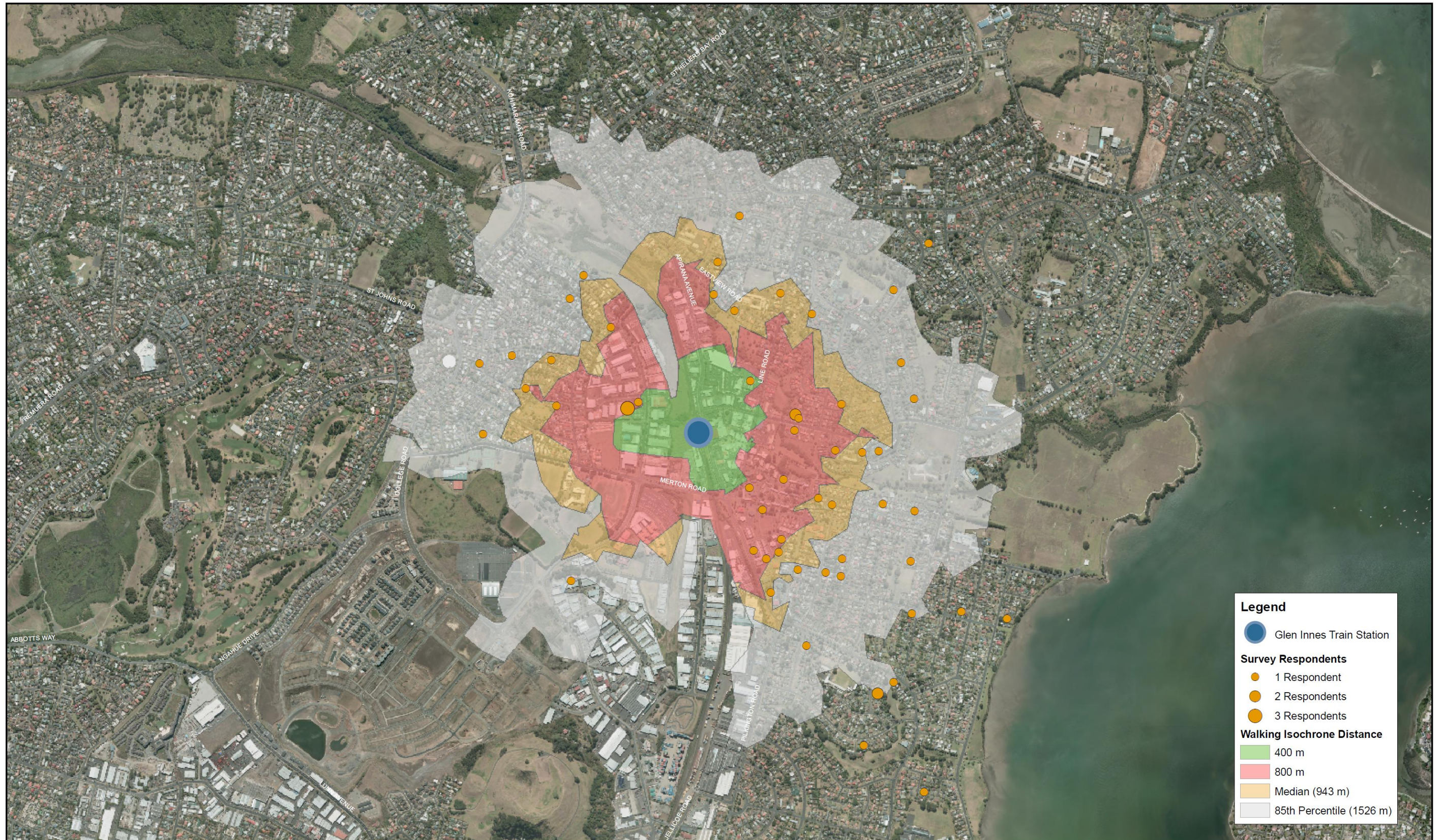
Ref Number: IM158665

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New Lynn Train Station **Walking Isochrone** **Pedestrian Catchment Survey - 7 March 2012** **Source: Auckland Council Research Investigation & Monitoring Unit (RIMU)**



¹⁰ Appendix 4 – Glen Innes Train Station Walkable Catchment Map



Legend

Glen Innes Train Station

Survey Respondents

1 Respondent

2 Respondents

3 Respondents

Walking Isochrone Distance

400 m

800 m

Median (943 m)

85th Percentile (1526 m)

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Date: 30th April 2012

Ref Number: IM158665

Published Name: U:\CFO\Information Services\Enterprise Applications\Geospatial\Projects_Programmes\Logit

Glen Innes Train Station **Walking Isochrone** **Pedestrian Catchment Survey - 6 March 2012** **Source: Auckland Council Research Investigation & Monitoring Unit (RIMU)**

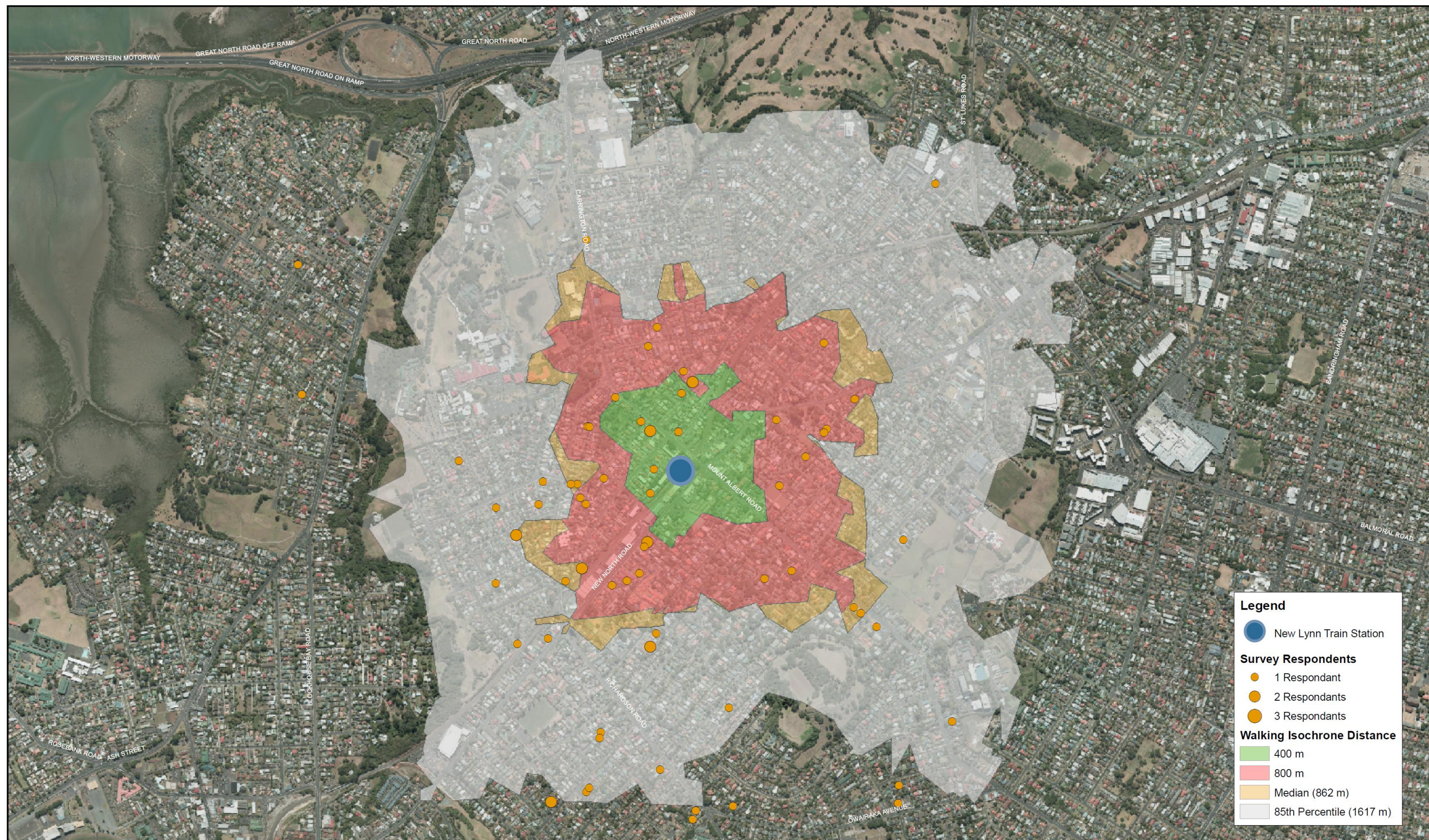


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Auckland Council
 Te Kaunihera o Tāmaki Makaurau

11 Appendix 5 – Mt Albert Train Station Walkable Catchment Map



Legend

- New Lynn Train Station

Survey Respondents

- 1 Respondant
- 2 Respondants
- 3 Respondants

Walking Isochrone Distance

- 400 m
- 800 m
- Median (862 m)
- 85th Percentile (1617 m)

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Date: 30th April 2012

Ref Number: IM158665

Published Name: U:\CFO\Information Services\Enterprise Applications\Geospatial\Projects_Programmes\Logit

Mt Albert Train Station **Walking Isochrone** **Pedestrian Catchment Survey - 6 March 2012** **Source: Auckland Council Research Investigation & Monitoring Unit (RIMU)**



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