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Research Report Prepared for
Auckland Transport

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2011 Auckland Region Manual Cycle Monitor

- Albert-Eden-Roskill Ward -

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1.1 Introduction

The Need For Reliable Cycle Trip Data

Monitoring cycle movements and cycle traffic is important to Auckland Transport, to identify where investment may be needed to improve infrastructure for cycling. Cycle traffic data will also help Auckland Transport prioritise future funding through the Auckland Land Transport Programme[1].

Cycle traffic data will help inform a major programme of improvements for cycling in the Auckland region. In 2007, over $100 million was planned to be invested in building over 50% of the Regional Cycle Network by 2016. By mid 2009, 21% of the Regional Cycle Network had been built. Comprehensive cycle data assists with the development of the region's cycle network and prioritisation of projects.

This cycle monitoring gives precise cycle traffic information for a number of locations across the region, which can guide investment in infrastructure and other programmes. It also allows Auckland Transport to track progress against a quality baseline over the coming decade.

Manual Cycle Monitoring

Historically, manual cycle monitoring had been carried out in four of the seven Auckland region Territorial Authorities (TAs). However, each monitor had been undertaken using a different methodology[2]. This variability prevented the possibility of comparing the relative popularity of different sites across TA boundaries. In addition, each monitor programme took place at different times of the year, preventing comparability from location to location since factors such as weather, school/tertiary education holidays, seasonal variations and daylight savings each have an impact on the numbers of cyclists. Even within TAs, inconsistencies as to when counts took place from year to year prevented robust comparability over time.

Through the Regional Cycle Monitoring Plan, it was proposed that these manual counts be regionally aligned to ensure better regional consistency. Ideally, cycle count monitoring would be carried out at the same time each year across the region, applying a standard methodology.

[1] Auckland Regional Transport Authority (2006) *Regional Cycle Monitoring Plan (Provisional Guidelines)*

[2] For example, Manukau and North Shore cities' monitors took place at the same morning and evening peak times, while Auckland city's differs by one hour for the evening peak, and Waitakere's differs for both peaks.

As outlined in the Regional Cycle Monitoring Plan, a consistent methodology would ensure that:

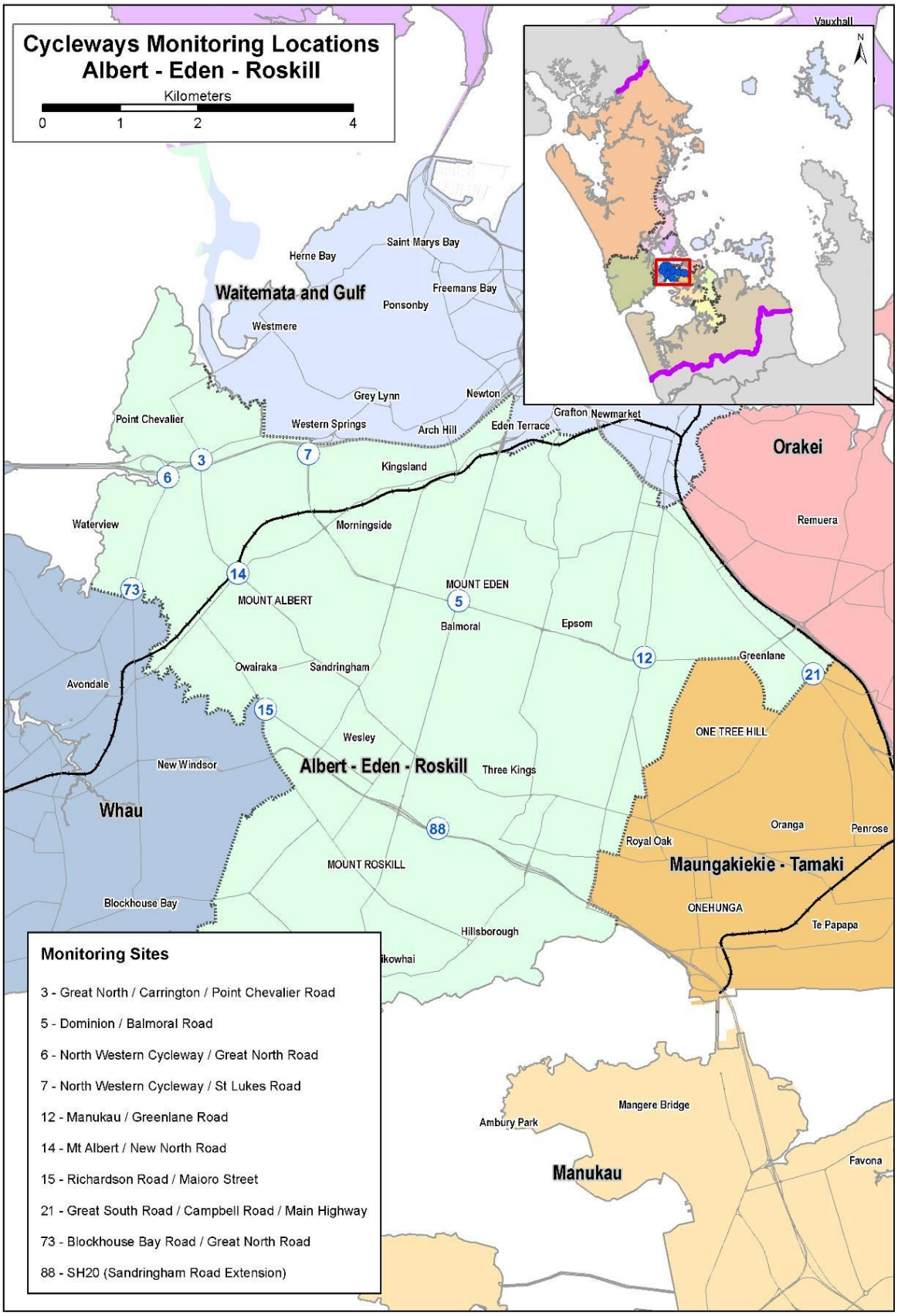
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and weekends would be made at the outset;
- a consistent set of times are used for monitoring, for the morning, evening and inter-peak periods; and
- a consistent method is used for monitoring direction and location of cyclists, including monitoring how many are on the footpath.

This report presents results from manual cycle counts conducted at 10 sites in the Albert-Eden-Roskill ward following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a ward and region level. For sites also monitored in 2007, 2008, 2009 and/or 2010, comparative results are provided.

Important Note: This report provides the results of manual cycle monitoring conducted at 10 pre-determined sites in the Albert-Eden-Roskill ward only. Site-by-site results and ward summaries for all other Auckland region wards have been provided in separate documents. It is strongly recommended that this report be read in conjunction with the Regional Summary document, which provides aggregated data for the region, as well as a regional comparison of results.

Figure 1.1 shows the locations of the monitoring sites in the Albert-Eden-Roskill ward. Note that two sites (Blockhouse Bay/Great North Road in Avondale (Site 73) and Richardson Road/Maioro Street in Mt Roskill (Site 15) lie on the border with the Whau ward. Consequently results for these sites have been included in both ward reports. Similarly, the Great South/Campbell Road/Main Highway site (Site 21) lies on the border with the Maungakiekie-Tamaki ward and has been included in both ward reports also.

Figure 1.1: 2011 Cycle Monitoring Locations in Albert-Eden-Roskill Ward



1.2 Methodology

Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below.

Choice of Sites

Decisions as to which sites were chosen for cycle counts were guided by the planned developments for the Regional Cycle Network.

Manual counts were undertaken at 82 different sites throughout the region. Sites were distributed by ward as follows:

- Albany 15 sites
- Albert-Eden–Roskill 10 sites
- Franklin 2 sites
- Howick 5 sites
- Manukau 10 sites
- Manurewa-Papakura 4 sites
- Maungakiekie-Tamaki 7 sites
- North Shore 8 sites
- Orakei 2 sites
- Waitakere 13 sites
- Waitemata and Gulf 9 sites
- Whau 4 sites

(Note: Seven sites lie on the border of two wards. These sites have been included in both ward reports).

Monitoring Times

Time Of Day

Manual counts in the morning peak were conducted between 6:30 and 9:00 am, with manual counts in the evening peak conducted between 4:00pm and 7:00pm.

Day Of Week

Previous experience conducting cycle and other traffic manual counts has found that these counts are best undertaken on either a Tuesday, Wednesday or Thursday as travel patterns on Mondays and Fridays tend to be more variable.

Time Of Year

To ensure consistency throughout the region, standard monitoring days were selected and agreed upon by Auckland Transport. In selecting the days, consideration was given to:

- the timing of school and tertiary holidays/the commencement of term time for tertiary institutions;
- the timing of statutory holidays (particularly Easter);
- the timing of Bikewise Month; and
- daylight saving times.

It was agreed that manual counts would commence on Tuesday the 8th of March and be conducted on the first three fine days of the 8th, 9th, 10th, 15th, 16th, or 17th of March.

Counts were conducted on the following days:

• Tuesday 8th March	Albany, Manukau, Manurewa-Papakura, Franklin
• Wednesday 9th March	North Shore, Waitemata and Gulf, Whau, Albert-Eden-Roskill
• Thursday 10th March	Maungakiekie-Tamaki, Howick, Orakei, Waitakere

Note: Counts in the morning and evening peaks took place on the same day for each site.

Weather and Daylight Conditions

Auckland city's 2006 cycle monitor provides a clear example of the impact of weather conditions on the validity of the data collected. During the (fine) morning peak, 1579 cyclists were recorded across the twelve monitoring sites. By comparison, in the (wet) evening peak on the same day, only 1050 cyclists were counted, demonstrating that only 66% of those who cycled during the morning peak were counted again in the evening. Such a significant drop in cycle numbers was not observed in previous years, when weather was comparable in the morning and evening peak.

To reduce the impact of weather conditions on cycle numbers, manual counts were conducted on predominantly fine days. In addition, if it rained during the morning peak, monitoring in the evening peak on that same day was also postponed, irrespective of the weather (as it can be assumed that cyclists' travel behaviour in the evening peak will have been influenced by decisions they made earlier in the day – for example, the decision to leave their bike at home and use public transport instead). Care was taken to ensure that all manual counts were conducted prior to the conclusion of daylight saving.

The weather on the three count days in 2011 was as follows:

Tuesday 8th March

- Sunrise: 7:12am; Sunset: 7:51pm.
- Highest temperature: 20.1 degrees Celsius.
- Fine weather for all sites in both the morning and evening shifts.

Wednesday 9th March

- Sunrise: 7:13am; Sunset: 7:50pm.
- Highest temperature: 22.5 degrees Celsius.
- Fine weather for all sites in the morning shifts. In the evening shift, showers were observed at some sites from 6.00pm until the end of the monitoring period.

Thursday 10th March

- Sunrise: 7:14am; Sunset: 7:48pm.
- Highest temperature: 21.7 degrees Celsius.
- Fine weather for all sites in both the morning and evening shifts.

Conducting The Manual Counts

Scoping Visit

Gravitas visited each of the sites prior to the first monitoring shift. This scoping visit was used to map the roading network and to identify and map the range of directions that cyclists could travel through the site. This visit was also used to identify any particular features (such as designated cycle ways) or potential hazards that surveyors needed to be aware of when monitoring at the site. As part of the scoping visit, a recommended observation point was identified and mapped (this point chosen on the basis of offering the best trade-off between visibility and safety). The maps prepared for each site have been included in this report – just prior to the count results for each site.

As part of the scoping visit, a small number of sites were identified as requiring two or more surveyors to accurately capture all cycle movements (due predominantly to the complexity of the roading/cycleway network at the site or poor visibility at the intersection). Two surveyors were used at:

- Great South Road/Campbell Road/Main Highway, Greenlane (Site 21; Maungakiekie-Tamaki/Albert-Eden-Roskill wards).
- Beach Road/Browns Bay Road, Mairangi Bay (Site 45; Albany ward).

Three surveyors were used at the ferry terminal site (Site 22; Waitemata and Gulf ward).

Briefing Session

Prior to their monitoring shift, all surveyors participated in a briefing session. The session covered:

- the overall aims of the Regional Cycle Monitoring Plan and how the manual monitoring fits with this Plan;
- the aims and purpose of the cycle monitoring and the process to be used;
- review of all materials supplied – how to interpret and use the maps, how to accurately record data on count sheets etc;
- health and safety issues; and
- general administration – shift times, collection and return of materials etc.

This session was interactive, with surveyors being encouraged to ask questions and seek further explanation on issues they were unsure about. Surveyors were also provided with a copy of the briefing notes for reference during their shifts. During the briefing session, all surveyors were also required to conduct a "practice count" for 20 minutes at the Ponsonby Road/Karangahape Road site.

Conducting The Manual Counts

Each site was assigned to a surveyor, who was issued with a map that showed the range of movements a cyclist could make through that site. In addition to the map, surveyors were issued with a clipboard, a safety vest and a letter identifying them as a member of a Gravitas research team[3].

During their shift the surveyor collected data on:

- The total number of cyclists[4] passing through the intersection;
- The direction in which cyclists are travelling (using the numbers on the map provided);
- The time at which cyclists pass through the intersection (to the nearest minute);
- Whether cyclists are school children or adults (determined by whether they are wearing a school uniform or clearly of school age);
- Whether cyclists are wearing a helmet;
- Gender of the cyclist *(collected for the first time in 2011)*; and
- Whether cyclists are riding on the road, footpath or designated off- road cycleway[5].

[3] This letter also contained contact details for Auckland Transport and Gravitas Research and Strategy for any member of the public or local business owners who had queries about the work being undertaken.
[4] To ensure consistency across all surveyors, a "cycle" was defined as being non-motorised, with one or two wheels and requiring pedalling to make it move. Note that this definition did not include scooters.
[5] Note: For the purpose of this project, an off-road cycleway is defined as designated off-road path for cycles. This includes exclusive cycle paths, separated paths (such as the footpath on Tamaki Drive) and shared-use paths (available to cyclists and pedestrians). It excludes on-road cycle lanes (that is, designated lanes marked on the road).

Since 2009, surveyors have been required to indicate those cyclists riding together in groups of three or more. To be consistent with previous years, each member of these 'pelotons' has been included in the site-level analysis as a separate cyclist movement. However, where pelotons were observed, the number of cyclists and the time they passed through the site have been given in the report, along with a percentage figure indicating what share of all cyclists at the site were riding as groups.

In addition, where cyclists were recognisable, surveyors were instructed to record each cyclist no more than three times during a single shift, irrespective of how many movements they actually made through the site. Surveyors noted where and when this occurred.

Data was collected on the weather and daylight conditions at the site. Surveyors were also encouraged to record any information that may have affected cycle numbers or cycle movements at the site – for example, construction or maintenance works being conducted on the cycle way or road works at the intersection.

A team of supervisors checked that surveyors were in the correct position and recording data accurately.

Data Analysis

Upon their return to Gravitas, all count sheets were checked for completeness. The raw data was then entered into Excel for logic checking, analysis and graphing.

Annual Average Daily Traffic (AADT) Analysis

It is acknowledged that the number of cyclists using a site varies by time of day, day of the week and week of the year, and therefore it is not valid to simply multiply manual count data collected over a certain (relatively brief) period out to represent a full day, week or year. However, according to Land Transport New Zealand[6], Annual Average Daily Traffic (AADT) analysis can be used to estimate the average annual daily flow of cyclists from manual and automated cycle counts conducted at one point in time. The procedure involves deriving scale factors, which account for the time of day, day of the week, and week of the year (which varies with school holidays and season) as well as weather conditions on the count day. These scale factors are then applied to the count data collected to give an AADT estimate.

Using the manual count figures for each site, it has been possible to provide the average annual daily traffic flow of cyclists (cycling AADT) estimate for each site. AADT scale factors (morning and afternoon) were provided by ViaStrada[7].

[6] http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html
[7] ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.

By applying the scale factor to the manual count data for each morning and afternoon peak, and averaging the two figures, an average annual daily cyclist flow figure has been obtained for each site. *A more comprehensive overview of the methodology used for this analysis is provided in Appendix One.*

Note: ViaStrada acknowledge that, as cycling volumes fluctuate from day to day depending on the weather, this method should be used with caution. They note that ideally an estimate should be achieved based on the average of the results of several counts, rather than counts from a single day, as in this study[8]*.*

School Bike Shed Counts

As stated above, manual cycle counts were undertaken during the morning (6:30am to 9:00am) and evening (4:00pm to 7:00pm) peaks. However, it was noted in the design phase of the project that the timing of the evening peak monitoring would mean that the greatest share of students cycling home from school will be excluded from the counts. This was identified as a potential weakness of the monitoring proposed.

Therefore, it was suggested that information on numbers of students cycling to and from intermediate and secondary schools across the region could be collected by counting the number of bikes in school bike sheds on a pre-determined day. Rates of cycling among students could also be assessed by calculating the number of bikes counted as a share of the school's total roll (or share of the school's roll eligible to cycle).

Initially it was decided that school bike shed monitoring would focus only on intermediate and secondary schools (and composite schools which included children of intermediate and secondary school age), since children travelling to primary schools are considered by many parents (and schools) as too young to cycle to school. Note however that, to ensure all children of intermediate school age cycling to school were captured, full primary schools (those catering for Years 1 to 8) were included in the school bike shed count from 2011.

[8] Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG) (Land Transport New Zealand, 2004)

Methodology

The following process was used to collect the school bike shed count data.

1. Gravitas designed an information sheet that was distributed to most full primary, intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region via email (note a small number of schools were omitted due to the special nature of the students e.g. boarding schools, special needs schools). This sheet was designed in consultation with Auckland Transport to ensure all necessary information was collected.

2. This email was then sent to all eligible schools in Auckland region (n=295) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 8th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).

4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2011, 201 responses were received, a response rate of 68 per cent.

Reporting

The data from the manual counts has been presented at a site-by-site, TA and regional level.

Manual Counts - Site Level Reporting

The following results have been reported for each site:

- Total number of movements through the intersection during each peak;
- Total number of movements through the intersection during each ten-minute interval during each peak;
- Number of cyclists making each directional movement through the intersection during each peak; and
- Share of cyclists through the intersection during each peak who are:
  - adults/school children
  - wearing a helmet/not wearing a helmet
  - male/female
  - riding on the road/riding on the footpath/riding on an off-road path

Manual Counts - Aggregated Reporting

Results have also been reported at an aggregate level (that is, summing up all sites) – by ward and across the region – to show the total number of cycle movements recorded (both overall and by ten-minute intervals) and the characteristics of the cyclists.

Bike Shed Counts

Results have been provided by school (along with notes explaining why counts for some schools may not be representative), as well as at a ward and regional level. Raw cycle numbers and a "cyclists as a share of total school roll" figure have both been provided.

1.3 Summary of Results

This summary contains the aggregated results of the ten sites surveyed in the Albert-Eden-Roskill ward. It is split into four sections – a summary of results for the morning peak period (6:30am to 9:00am), a summary for the evening peak period (4:00pm to 7:00pm), a summary of aggregated results (morning and evening combined) and a summary of the results from the school bike shed counts.

While the summaries in this section are useful in giving an overall picture of cycling behaviour in the Albert-Eden-Roskill ward, they hide much of the specific details of cycling behaviour at individual sites. The site-specific data varies significantly from site to site, and can be found in Sections Two to Eleven of this report.

Note: Surveying in the Albert-Eden-Roskill ward was undertaken on Wednesday 9th of March, 2011.
Note: Sunrise was at 7:13am and sunset at 7:50pm. The highest temperature was 22.5 degrees Celsius.

1.4 Morning Peak Summary Results

Environmental Conditions

- All sites monitored in the Albert-Eden-Roskill ward had fine weather in the morning.
- There were no road works or accidents that may affect cycle counts

Key Points

- A total of 1,023 cyclist movements were recorded across the 10 sites in the morning peak period in 2011. Two per cent (n=16) of the total cycle movements in the morning peak were observed made by those cycling in groups.
- The number of morning cycle movements has declined over the last 12 months –down from 1,105 in 2010 to 1,023 this year, a 7 per cent decrease.
- The average volume of morning cyclists across the 10 sites in Albert-Eden-Roskill is 93 cycle movements. This compares with 100 movements in 2010.
- Of the 10 sites monitored, the busiest in the morning peak is the North Western Cycleway at St Lukes (240 cycle movements, up from 222 movements in 2010), whereas the Richardson Road/Maioro Street site has the lowest volume of morning cyclists (15 movements).
- Five sites recorded increases in cycle movements this year compared to 2010. The most notable increases are at:
  - Dominion/Balmoral Road – up 9 per cent; and
  - North Western Cycleway/St Lukes – up 8 per cent.
- In contrast, the remaining five sites recorded declines. The most notable decreases are at:
  - Great North/Carrington Road – down 31 per cent;
  - North Western Cycleway/ Great North Road – down 16 per cent; and
  - Blockhouse Bay/Great North Road – down 15 per cent.

Table 1.1: Summary Of Morning Cyclist Movements

2007-2011 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	Change 09-11	Change 07-11
7	North Western Cycleway/St Lukes	152	156	155	222	**240**	8%	58%
6	North Western Cycleway/Great North Road	98	156	145	244	**204**	-16%	108%
12	Manukau Road/Greenlane West	103	92	84	130	**120**	-8%	17%
3	Great North/Carrington Road	114	95	97	150	**103**	-31%	-10%
5	Dominion/Balmoral Road	114	90	85	91	**99**	9%	-13%
14	Mount Albert/New North Road	75	68	59	91	**97**	7%	29%
21	Great South Road/Campbell Road/Main Highway	89	53	64	69	**60**	-13%	-33%
	Average per site (7 sites since 2007)	**106**	**101**	**98**	**142**	**132**	**-7%**	24%
	Total (7 sites since 2007)	**745**	**710**	**689**	**997**	**923**	**-7%**	24%
73	Blockhouse Bay/Great North Road	-	57	57	66	**56**	-15%	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	28	**29**	4%	-
15	Richardson Road/Maioro Street	-	-	8	14	**15**	7%	-
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**96**	**84**	**100**	**93**	**-7%**	-
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**767**	**754**	**1105**	**1023**	**-7%**	-

- Morning cyclist characteristics this year are similar to those reported in 2010. Ninety-nine per cent of cyclists this year are adults (stable from 88 per cent in 2010). Of the ten sites monitored, the proportion of morning cyclists who are school children is highest at Keith Hay Park/Somerset Road/Bridge (72 per cent)
- Almost all morning cyclists are wearing a helmet (94 per cent in 2011, stable from 2010).
- The majority of morning cyclists are male (78 per cent).
- Riding on the road is still most common (45 per cent, down slightly from 48 per cent last year).

Table 1.2: Summary of Morning Cyclist Characteristics

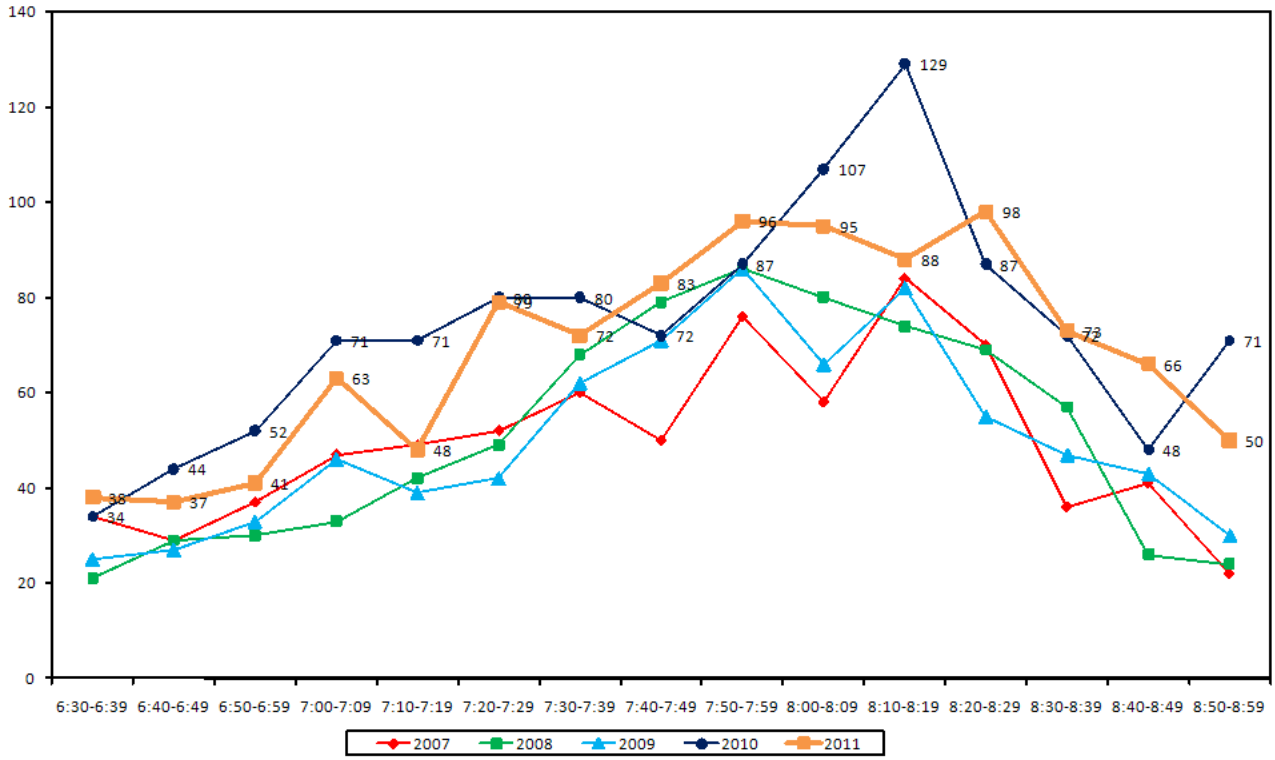
2007 -2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	87	87	87	88	89	1
School child	13	13	13	12	11	-1
Helmet Wearing						
Helmet on head	95	95	94	94	94	0
No helmet	5	5	6	6	6	0
Gender						
Male	-	-	-	-	78	-
Female	-	-	-	-	18	-
Can't tell	-	-	-	-	4	-
Where Riding*						
Road	81	81	54	48	45	-3
Footpath	19	19	14	16	16	0
Off-road cycleway	0	0	32	36	39	3
Base:	***745***	***767***	***754***	***1105***	***1023***	

** Note: Prior to 2009, cyclists riding on the North-Western, Waikaraka, Onehunga Harbour Road cycleways, and the designated side of the footpath on Tamaki Drive are categorised as road riders.*

- Figure 1.2 shows the overall pattern of morning cyclist volumes recorded from the 10 sites monitored in 2011. Morning cyclist numbers follow a steady increasing trend from 6:30am to a peak between 8:20am and 8:29am (98 cyclists), after which the number of movements decline gradually over the remainder of the morning period.

Figure 1.2: Total Cyclist Frequency – Morning Peak 2007-2011



1.5 Evening Peak Summary Results

Environmental Conditions

- All sites had fine weather until 6:00pm. Between 6:00pm and the end of the shift, light drizzle was observed at most sites, with some experiencing heavy showers around 6:30pm.
- All sites had no road works or accidents that may have affected cycle counts.

Key Points

- A total of 1,206 cyclist movements were recorded across the 10 sites in the evening peak period in 2011. One per cent (n=11) of the total cycle movements in the evening peak were made by those cycling in groups.
- The number of evening cycle movements has remained stable over the last 12 months (1,201 movements recorded in 2010 compared with 1,206 this year).
- The average volume of evening cyclist movements across the 10 sites in the Albert-Eden-Roskill ward is 110 cycle movements. This is stable from 109 movements in 2010.
- Of the 10 Albert-Eden-Roskill sites, the volume of evening cyclists is lowest at the Richardson/Maioro Street site (22 cycle movements recorded), whereas the North Western Cycleway/Great North Road site continues to be the busiest in terms of evening cyclists' activity, with 282 movements recorded.
- Three sites recorded increases in evening cycle movements this year compared to 2010, the most notable being at Keith Hay Park/Somerset Road/Bridge – up 60 per cent.
- Seven sites recorded a decline in evening cyclist volumes this year compared to 2010. These decreases were most notable at:
  - Great South Road/Campbell Road/Main Highway – down 24 per cent;
  - Great North Road/Carrington Road – down 21 per cent; and
  - Manukau Road/Greenlane West – down 16 per cent.

Table 1.3: Summary Of Evening Cyclist Movements 2007-2011 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11	Change 07-11
6	Northwestern Cycleway/Great North Rd	134	213	141	241	**282**	17%	110%
7	North Western Cycleway/St Lukes	172	175	155	210	**273**	30%	59%
3	Great North/Carrington Road	121	136	96	164	**129**	-21%	7%
12	Manukau Road/Greenlane West	122	113	92	127	**107**	-16%	-12%
14	Mount Albert/New North Road	81	96	83	118	**104**	-12%	28%
5	Dominion/Balmoral Road	123	111	98	114	**98**	-14%	-20%
21	Great South Road/Campbell Road/Main Highway	85	61	87	102	**78**	-24%	-8%
	Average per site (7 sites since 2007)	**120**	**129**	**107**	**154**	**153**	**0%**	28%
	Total (7 sites since 2007)	**838**	**905**	**752**	**1076**	**1071**	**0%**	28%
73	Blockhouse Bay/Great North Road	-	60	62	75	**73**	-3%	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	25	**40**	60%	-
15	Richardson Road/Maioro Street	-	-	13	25	**22**	-12%	-
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**121**	**92**	**109**	**110**	**0%**	-
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**965**	**827**	**1201**	**1206**	**0%**	-

- Evening cyclist characteristics this year are similar to those reported in 2010. In particular, 92 per cent of evening cyclists this year are adults (stable from 93 per cent in 2010). Of the 10 sites in Albert-Eden-Roskill, in the evening, the site at Keith Hay Park has the highest proportion of cyclists who are school children (53 per cent).
- Most cyclists are wearing a helmet in the evening (92 per cent, up slightly from 90 per cent in 2010).
- The majority of the cyclists recorded over the evening monitoring period were male (84 per cent).
- Equal proportions of evening cyclists are riding on the road and on off-road cycleways (42 per cent each, down 6 per cent and up 9 per cent from 2010 respectively). The remaining 16 per cent of evening cyclists are riding on the footpath.

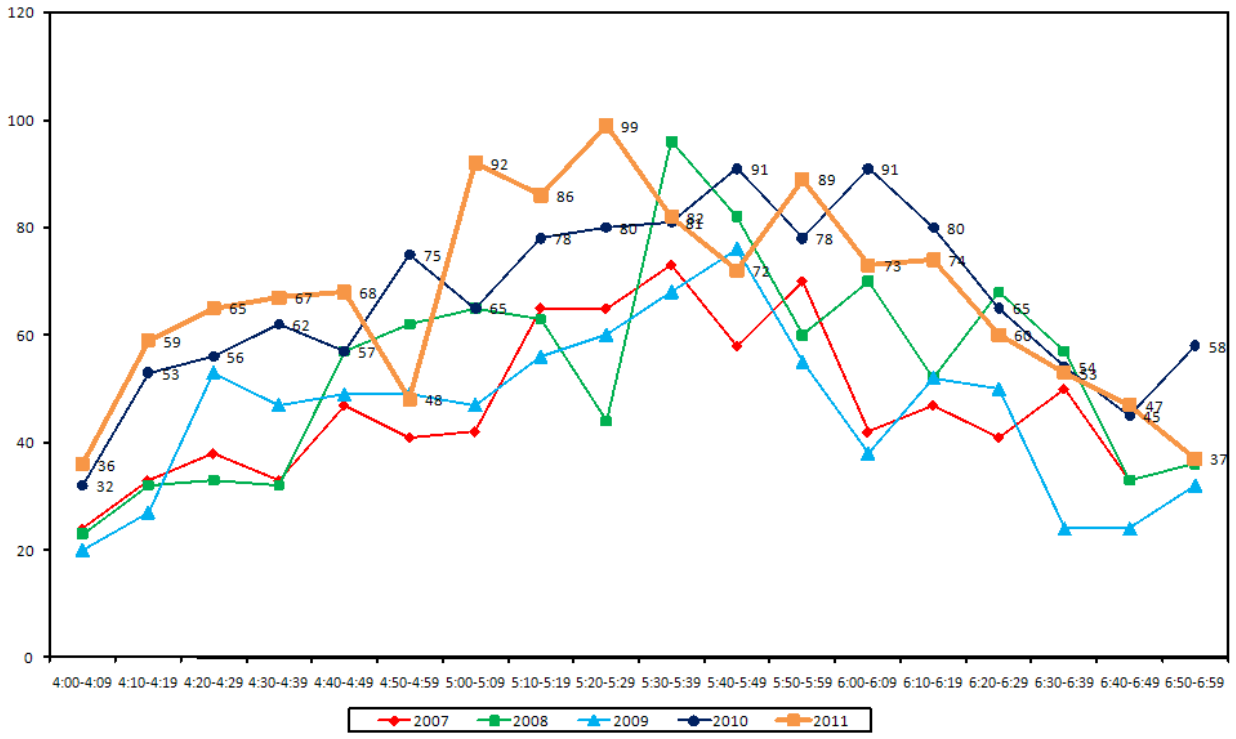
Table 1.4: Summary of Evening Cyclist Characteristics
2007 -2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	93	90	95	93	92	-1
School child	7	10	5	7	8	1
Helmet Wearing						
Helmet on head	93	92	92	90	92	2
No helmet	7	8	8	10	8	-2
Gender						
Male	-	-	-	-	84	-
Female	-	-	-	-	14	-
Can't tell	-	-	-	-	2	-
Where Riding*						
Road	80	82	54	48	42	-6
Footpath	20	18	15	19	16	-3
Off-road cycleway	0	0	31	33	42	9
Base:	***838***	***965***	***827***	***1201***	***1206***	

** Note: Prior to 2009, cyclists riding on the North-Western, Waikaraka, Onehunga Harbour Road cycleways, and the designated side of the footpath on Tamaki Drive were categorised as road riders.*

- The overall pattern of evening cyclist volumes derived from the 10 sites in the Albert-Eden-Roskill ward is illustrated in Figure 1.3. Evening cyclist numbers start off relatively low, increase to a peak between 5:20pm and 5:29pm (of 99 movements), and then decrease steadily through to the end of the monitoring period.

Figure 1.3: Total Cyclist Frequency – Evening Peak 2007-2011



1.6 Aggregated Total Summary Results

- Overall, a total of 2,229 cyclist movements were recorded across the 10 sites monitored in 2011 - 1 per cent (n=27) observed as cycling in groups.
- Total cycle movements have declined over the last 12 months – down from 2,306 in 2010 to 2,229 in 2011, a 3 per cent decrease.
- Of the 10 sites in the Albert-Eden-Roskill ward, the busiest site is North Western Cycleway/St Lukes with a total of 513 movements, while Richardson/Maioro Street continues to have the fewest number of cyclists (37 movements).

Table 1.5: Summary Of Total Cyclist Movements 2007-2011 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11	Change 07-11
7	North Western Cycleway/St Lukes	324	331	310	432	**513**	19%	58%
6	North Western Cycleway/Great North Road	232	369	286	485	**486**	0%	109%
3	Great North/Carrington Road	235	231	193	314	**232**	-26%	-1%
12	Manukau Road/Greenlane West	225	205	176	257	**227**	-12%	1%
14	Mount Albert/New North Road	156	164	142	209	**201**	-4%	29%
5	Dominion/Balmoral Road	237	201	183	205	**197**	-4%	-17%
21	Great South Road/Campbell Road/Main Highway	174	114	151	171	**138**	-19%	-21%
	Average per site (7 sites since 2007)	**226**	**231**	**206**	**296**	**285**	-4%	26%
	Total (7 sites since 2007)	**1583**	**1615**	**1441**	**2073**	**1994**	-4%	26%
73	Blockhouse Bay/Great North Road	-	117	119	141	**129**	-9%	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	53	**69**	30%	-
15	Richardson Road/Maioro Street	-	-	21	39	**37**	-5%	-
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**217**	**176**	**231**	**223**	-3%	-
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**1732**	**1581**	**2306**	**2229**	-3%	-

- Overall, cyclist characteristics this year are similar to those reported in 2010. In particular, 91 per cent of all cyclists this year are adults (unchanged from 2010).
- Most cyclists are wearing a helmet (93 per cent, stable from 92 per cent in 2010).
- Males made up approximately four in five cyclists (81 per cent).
- A slightly greater proportion of cyclists are riding on the road (43 per cent) than on off-road cycleways (41 per cent, up from 37 per cent last year). The remaining 16 per cent of cyclists are riding on the footpath.

Table 1.6: Summary of Total Cyclist Characteristics

2007 -2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	90	89	91	91	91	0
School child	10	11	9	9	9	0
Helmet Wearing						
Helmet on head	94	93	93	92	93	1
No helmet	6	7	7	8	7	-1
Gender						
Male	-	-	-	-	81	-
Female	-	-	-	-	16	-
Can't tell	-	-	-	-	3	-
Where Riding*						
Road	80	82	54	48	43	-5
Footpath	20	18	15	15	16	1
Off-road cycleway	0	0	31	37	41	4
Base:	***1583***	***1732***	***1581***	***2306***	***2229***	

** Note: Prior to 2009 cyclists riding on the North-Western, Waikaraka, Onehunga Harbour Road cycleways, and the designated side of the footpath on Tamaki Drive were categorised as road riders.*

1.7 Average Annual Daily Traffic (AADT) Estimate

Note: A discussion of Average Annual Daily Traffic Estimates is provided in Section 1.1. A full description of the tool, the calculation used, and the limitations of the estimates are provided in Appendix One. Readers are encouraged to review these sections in conjunction with the data presented here.

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at the North Western Cycleway/St Lukes site (743 daily movements, up from 629 movements in 2010) and the lowest is at Richardson/Maioro Street (53 daily movements, down slightly from 56 movements in 2010).
- Only two sites have recorded increases in total AADT estimates this year compared with 2010:
  - Keith Hay Park/Somerset Road/Bridge – up 29 per cent; and
  - North Western Cycleway/St Lukes – up 18 per cent.
- In contrast, the number of total cyclists recorded at seven sites was lower than last year. These declines were most notable at:
  - Blockhouse Bay/Great North Road – down 26 per cent; and
  - Great North/Carrington Road – down 26 per cent.

Table 1.7: AADT Estimates Based on Morning and Evening Cyclist Movements 2007-2011 (n)

Site Number	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	10-11 Change	07-11 Change
7	North Western Cycleway/St Lukes	469	480	451	629	**743**	18%	58%
6	North Western Cycleway/Great North Road	335	532	416	705	**701**	-1%	109%
3	Great North/Carrington Road	341	333	281	455	**335**	-26%	-2%
12	Manukau Road/Greenlane West	326	296	255	374	**331**	-11%	2%
14	Mount Albert/New North Road	226	236	205	302	**292**	-3%	29%
5	Dominion/Balmoral Road	344	291	265	296	**286**	-3%	-17%
21	Great South Road/Campbell Road/Main Highway	253	165	218	246	**199**	-19%	-21%
73	Blockhouse Bay/Great North Road	-	170	173	204	**186**	-26%	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	77	**99**	29%	-
15	Richardson Road/Maioro Street	-	-	30	56	**53**	-5%	-

1.8 School Bike Shed Count Summary

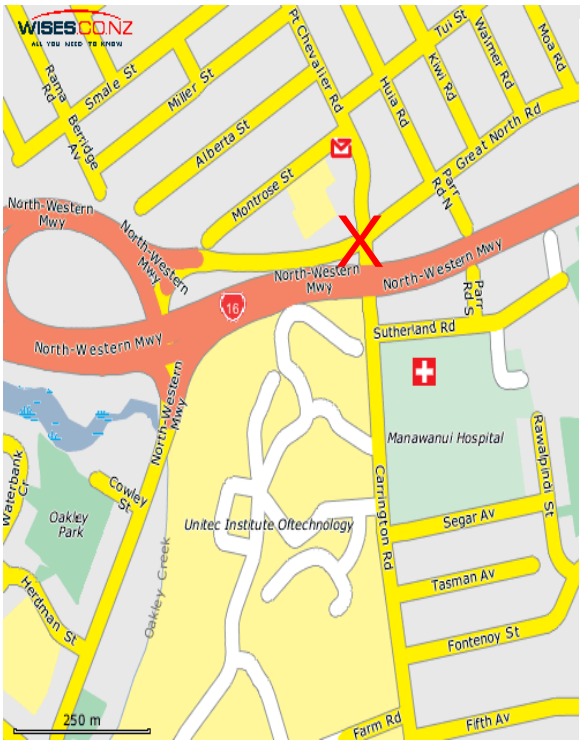
Key Points

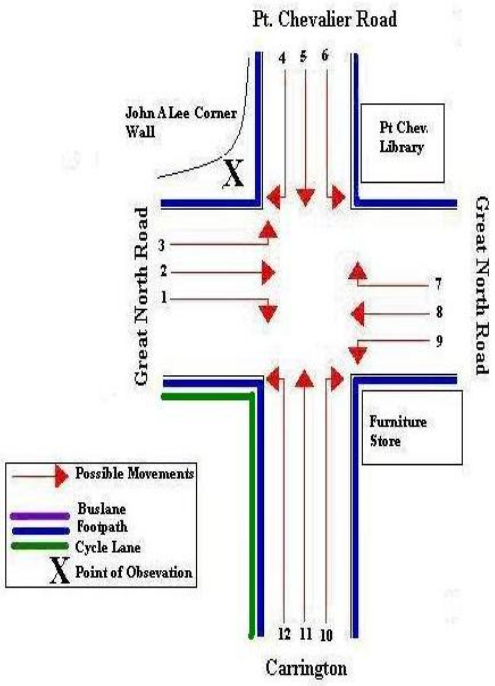
- Of those eligible to cycle, on average two per cent of students are cycling to their schools.
- Across the 16 eligible schools that responded n=238 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 22 per cent of all eligible students currently cycling (down from 26 per cent last year).
- Of the 16 eligible schools that responded, 5 (29 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (7 per cent, down from 9 per cent in 2010), while other levels of schools have fairly constant cycling rates.

2. GREAT NORTH/CARRINGTON/POINT CHEVALIER ROAD, POINT CHEVALIER (SITE 3)

Figure 2.1 shows the possible cyclist movements at this intersection.

Figure 2.1: Cycle Movements: Great North/Carrington/Point Chevalier





2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	114	121	235	341
2008	95	136	231	333
2009	97	96	193	281
2010	150	164	314	455
2011	**103**	**129**	**232**	**335**

2.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cyclist movements recorded at the Great North/Carrington/Point Chevalier Road intersection in 2011 have decreased from 150 in 2010 to 103.
- The key movements at this intersection are straight through from Pt Chevalier Road into Carrington Road (Movement 5 = 36 cyclist movements), straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 24 cyclist movements), and right out of Carrington Road onto Great North Road (Movement 10 = 18 cyclist movements).
- Compared with last year, the volume of morning cyclist movements has decreased most notably at Movement 11 (down 20 movements) and Movement 10 (down 18 movements) while increasing most notably at Movement 5 (up 12 movements).

Table 2.1: Morning Cyclist Movements

Great North/Carrington/Point Chevalier 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	0	0	0	2	**0**	-2
2	10	10	9	14	**6**	-8
3	0	5	1	4	**3**	-1
4	4	2	3	1	**1**	0
5	23	15	17	24	**36**	12
6	5	0	0	1	**0**	-1
7	4	2	1	1	**0**	-1
8	4	2	2	4	**1**	-3
9	14	4	7	19	**13**	-6
10	32	36	31	36	**18**	-18
11	17	18	22	44	**24**	-20
12	1	1	4	0	**1**	1
Total	**114**	**95**	**97**	**150**	**103**	**-47**

- The majority of cyclists at this intersection were adults (89 per cent, unchanged from last year).
- Most cyclists were wearing a helmet (92 per cent, stable from 94 per cent in 2010).
- The majority of cyclists were male (64 per cent).
- Just less than three-quarters (74 per cent) of cyclists were riding on the road (almost unchanged from the 73 per cent observed last year).

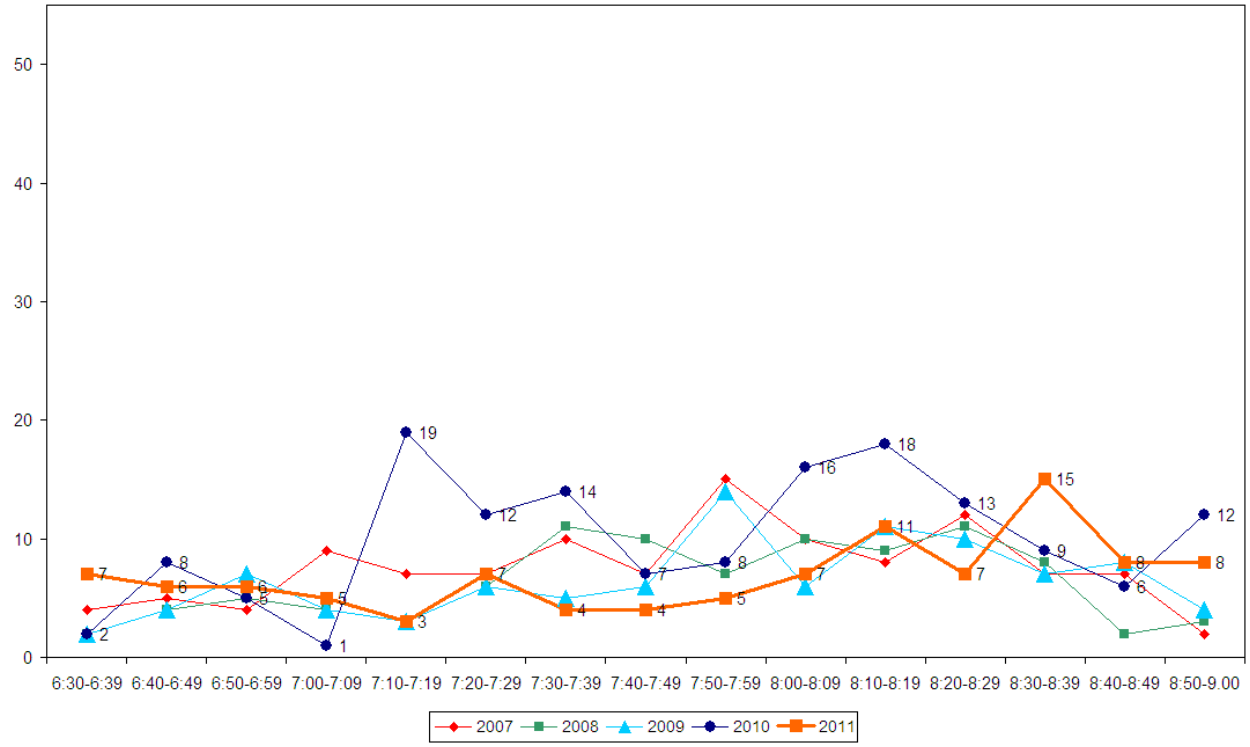
Table 2.2: Morning Cyclist Characteristics

Great North/Carrington/Point Chevalier 2004-2011 (%)

	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type									
Adult	91	84	93	86	84	87	89	**89**	0
School child	9	16	7	14	16	13	11	**11**	0
Helmet Wearing									
Helmet on head	86	88	88	89	93	91	94	**92**	-2
No helmet	14	12	12	11	7	9	6	**8**	2
Gender									
Male	-	-	-	-	-	-	-	**64**	-
Female	-	-	-	-	-	-	-	**21**	-
Can't tell	-	-	-	-	-	-	-	**15**	-
Where Riding									
Road	64	68	75	67	73	68	73	**74**	1
Footpath	36	32	25	33	27	32	27	**26**	-1
Base:	***70***	***57***	***76***	***114***	***95***	***97***	***150***	***103***	**47**

- Morning cyclist movements slightly peak between 7:20am and 7:29am (7 movements), again at 8:10 and 8:19 (11 movements, the same time as the 18 movement peak last year), and reach the greatest peak between 8:30am and 8:39am (15 movements).

Figure 2.2: Morning Peak Cyclist Frequency
Great North/Carrington/Point Chevalier (n)



2.3 Evening Peak

Environmental Conditions

- Light drizzle was evident at the beginning of the shift and continued intermittently throughout the shift. A heavy rain shower was observed at 6:40pm, which cleared to light drizzle by the end of the shift at 7:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Evening cyclist movement numbers (129 moments) have decreased at this intersection since last year (164 movements).
- The key movements in the evening at this intersection are straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 31 movements), turning left off Great North Road onto Carrington Road (Movement 9 = 31 cyclists) and straight through from Pt Chevalier Road into Carrington Road (Movements 5 = 29 cyclists).
- All movements other than Movement 1 (no change) and Movement 2 (up 1 movement) saw a decrease from last year in number of cyclist movements, most notably Movement 8 (down 7) and Movements 5, 9, and 10 (all down 6).

Table 2.3: Evening Cyclist Movements

Great North/Carrington/Point Chevalier 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	1	0	0	1	**1**	0
2	5	5	3	2	**3**	1
3	0	1	3	1	**0**	-1
4	4	10	1	6	**3**	-3
5	18	14	18	35	**29**	-6
6	4	1	1	1	**0**	-1
7	6	4	2	3	**0**	-3
8	12	12	12	15	**8**	-7
9	22	29	22	37	**31**	-6
10	23	25	15	28	**22**	-6
11	26	34	19	35	**31**	-4
12	0	1	0	0	**1**	-1
Total	**121**	**136**	**96**	**164**	**129**	**-35**

- Over the evening peak, most cyclists using this intersection were adults (91 per cent, down slightly from 96 per cent in 2010).
- Compared with last year, the share of cyclists wearing a helmet has increased (92 per cent, up from 84 per cent in 2010).
- The majority of cyclists were male (79 per cent).
- Nearly two thirds of cyclists were riding on the road (64 per cent, up slightly from 61 per cent last year).

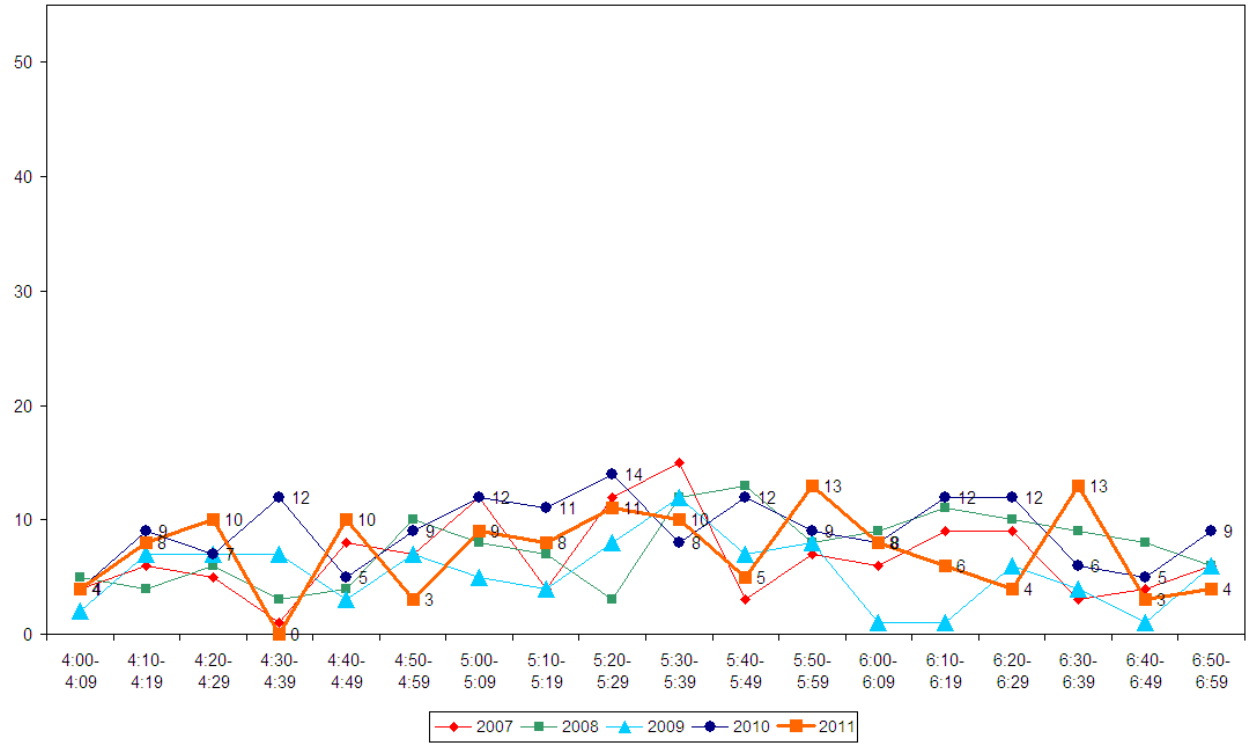
Table 2.4: Evening Cyclist Characteristics

Great North/Carrington/Point Chevalier 2004-2011 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type									
Adult	86	89	100	89	96	95	96	**91**	-5
School child	14	11	0	11	4	5	4	**9**	5
Helmet Wearing									
Helmet on head	81	85	84	85	91	91	84	**92**	8
No helmet	19	15	16	15	9	9	16	**8**	-8
Gender									
Male	-	-	-	-	-	-	-	**79**	-
Female	-	-	-	-	-	-	-	**19**	-
Can't tell	-	-	-	-	-	-	-	**2**	-
Where Riding									
Road	47	66	69	64	71	64	61	**64**	3
Footpath	53	34	31	36	29	36	39	**36**	-3
Base:	***43***	***65***	***45***	***121***	***136***	***96***	***164***	***129***	

- Evening cyclist movement volumes vary throughout the observation period, seeing the greatest volume between 5:50pm and 5:59pm (13 movements) and again between 6:30pm and 6:39pm (13 movements).

Figure 2.3: Evening Peak Cyclist Frequency
Great North/Carrington/Point Chevalier (n)

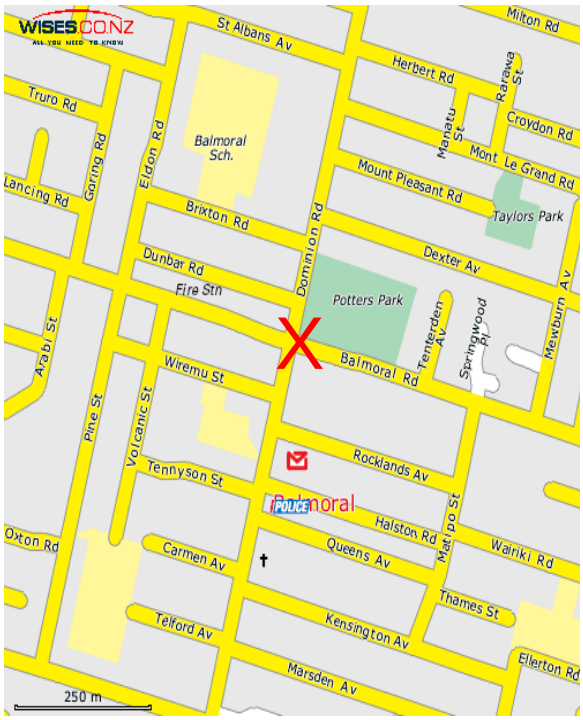


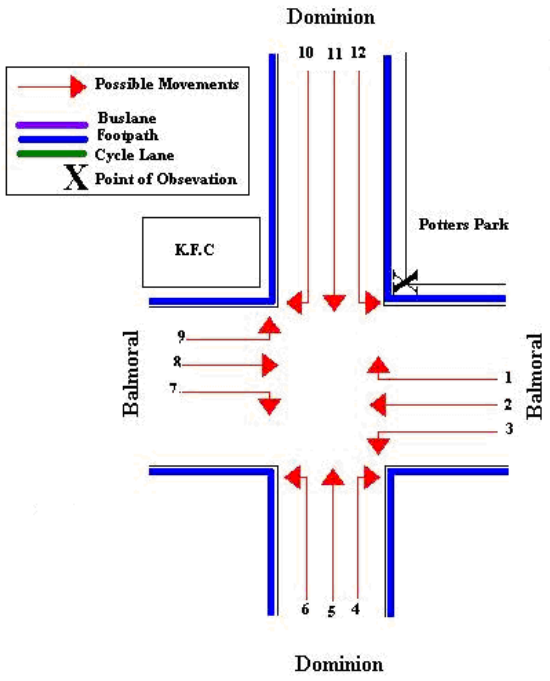
Note: A group of five cyclists were observed riding together at this site at 6:36pm. This equates to 4 per cent of all evening peak cycle movements.

3. DOMINION/BALMORAL ROAD, BALMORAL (SITE 5)

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movement: Dominion/Balmoral





3.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	114	123	237	344
2008	90	111	201	291
2009	85	98	183	265
2010	91	114	205	296
2011	**99**	**98**	**197**	**286**

3.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of morning cyclist movements at the Balmoral/Dominion Road intersection has increased slightly from last year's result (99 movements, compared with 91 movements in 2010).
- The key movement at this site is travelling north along Dominion Road towards the city (Movement 5 = 53 cyclists).
- Movement 5 showed the most notable increase (up 10) while Movement 1 saw the largest decrease (down 5 movements).

Table 3.1: Morning Cyclist Movements

Dominion/Balmoral 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	20	15	10	6	1	**-5**
2	11	10	6	7	8	**1**
3	1	0	0	3	0	**-3**
4	1	0	2	1	5	**4**
5	52	41	35	43	53	**10**
6	4	1	1	3	0	**-3**
7	3	0	1	2	1	**-1**
8	12	12	15	11	17	**6**
9	4	4	6	4	4	**0**
10	1	1	4	0	1	**1**
11	3	4	4	10	7	**-3**
12	2	2	1	1	2	**1**
Total	**114**	**90**	**85**	**91**	**99**	**8**

- Most cyclists at this site were adults (95 per cent, up notably from 78 per cent last year).
- Consistent with previous years, almost all cyclists using this intersection were wearing a helmet (94 per cent, down slightly from 97 per cent in 2010).
- Three quarters of the cyclists were male (75 per cent).
- Almost all cyclists were observed riding on the road (92 per cent), a notable increase from the 70 per cent observed in 2010.

Table 3.2: Morning Cyclist Characteristics

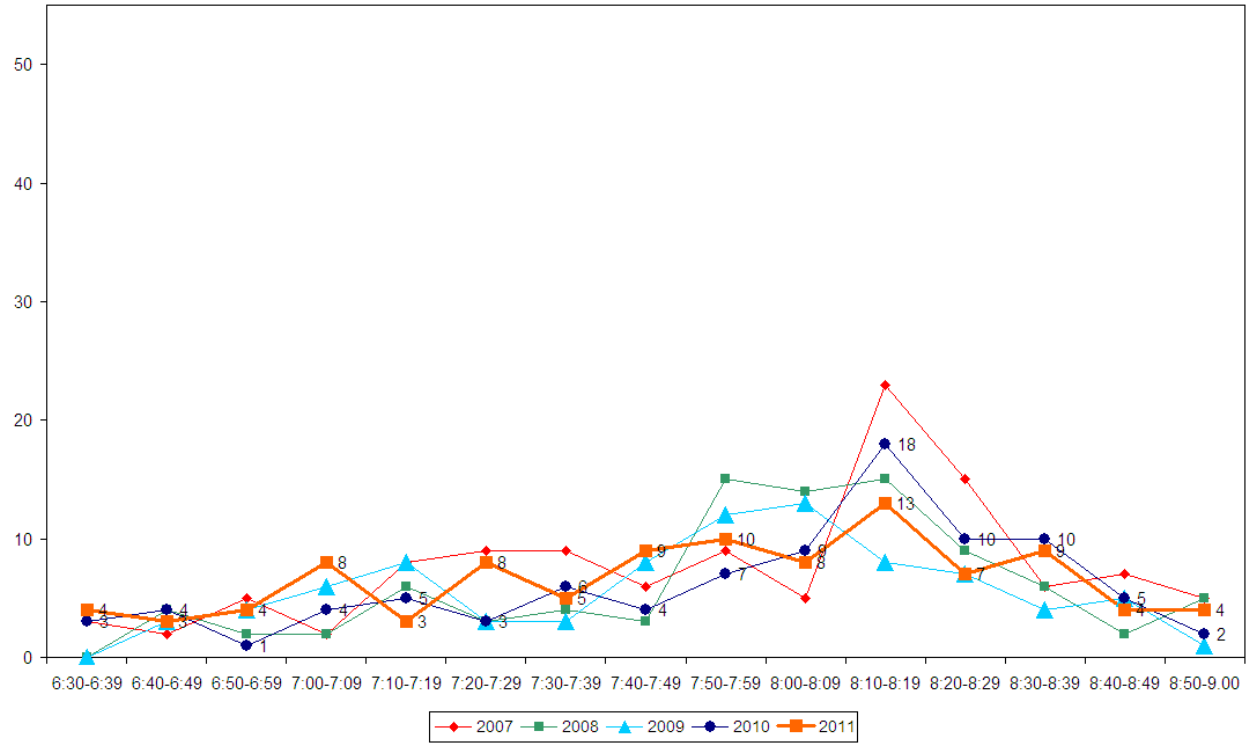
Dominion/Balmoral 2004-2011 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	2010	2011	Change 10-11
Cyclist Type									
Adult	67	81	75	71	74	87	78	95	**17**
School child	33	19	25	29	26	13	22	5	**-17**
Helmet Wearing									
Helmet on head	93	97	98	96	96	96	97	94	**-3**
No helmet	7	3	2	4	4	4	3	6	**3**
Gender									
Male	-	-	-	-	-	-	-	75	**-**
Female	-	-	-	-	-	-	-	21	**-**
Can't tell	-	-	-	-	-	-	-	4	**-**
Where Riding									
Road	67	69	67	65	67	100	70	92	**22**
Footpath	33	31	33	35	33	0	30	8	**-22**
Base:	***76***	***94***	***92***	***114***	***90***	***85***	***91***	***99***	

- The volume of morning cyclist movements varies over the monitoring period, reaching the greatest peak between 8:10am and 8:19am (13 movements). The timing of this peak is consistent with previous years.

Figure 3.2: Morning Peak Cyclist Frequency

Dominion/Balmoral (n)



3.3 Evening Peak

Environmental Conditions

- The weather was overcast at the start of the shift, with intermittent light drizzle evident from 6:05 pm. A heavy rain shower was observed at 6:30pm, which cleared to light rain by the end of the shift at 7:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of evening peak cyclist movements recorded at the Dominion/Balmoral Road intersection in 2011 has decreased since last year to 98 (from 114 in 2010).
- The key movement at this site is straight along Dominion Road heading south (Movement 11 = 45 movements).
- The most notable changes since last year in terms of evening cyclist volumes are at Movement 2 (down 8 movements) and Movement 4 (down 4 movements).

Table 3.3: Evening Cyclist Movements

Dominion/Balmoral Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	3	7	2	3	3	**0**
2	23	22	18	19	11	**-8**
3	3	2	1	2	4	**2**
4	1	0	1	5	1	**-4**
5	10	10	9	15	14	**-1**
6	3	4	2	5	4	**-1**
7	5	4	3	1	2	**1**
8	8	13	4	5	5	**0**
9	2	0	1	0	1	**1**
10	8	2	7	7	4	**-3**
11	51	44	48	47	45	**-2**
12	5	3	2	5	4	**-1**
Total	**123**	**111**	**98**	**114**	**98**	**-16**

- Almost all cyclists using the Dominion/Balmoral intersection were adults (91 per cent, up slightly from 86 per cent in 2010).
- The majority of cyclists wore a helmet (90 per cent, up slightly from 86 per cent in 2010).
- Most cyclists were male (84 per cent).
- The number of cyclists riding on the road is similar to that observed last year (80 per cent, stable from 82 per cent in 2010)

Table 3.4: Evening Cyclist Characteristics

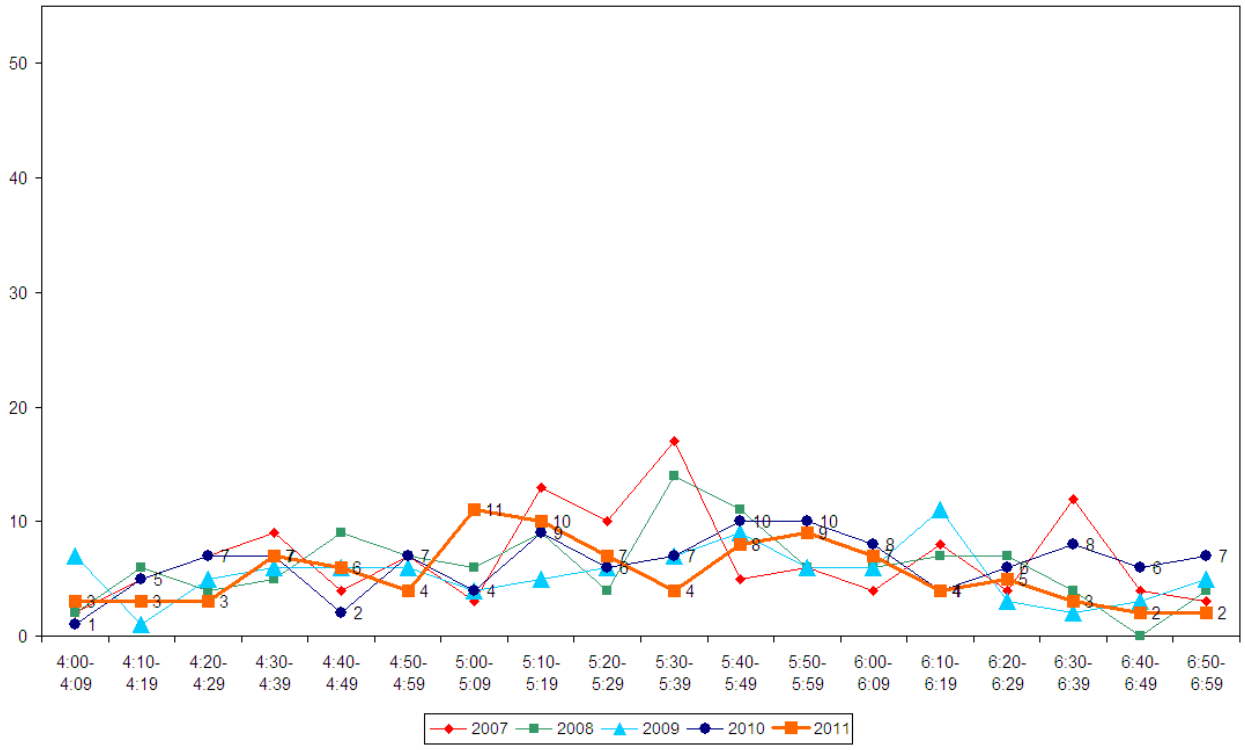
Dominion/Balmoral 2004-2011 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	2010	2011	Change 10-11
Cyclist Type									
Adult	81	89	100	93	79	92	86	91	**5**
School child	19	11	0	7	21	8	14	9	**-5**
Helmet Wearing									
Helmet on head	82	84	92	89	86	96	86	90	**4**
No helmet	18	16	8	11	14	4	14	10	**-4**
Gender									
Male	-	-	-	-	-	-	-	84	**-**
Female	-	-	-	-	-	-	-	15	**-**
Can't tell	-	-	-	-	-	-	-	1	**-**
Where Riding									
Road	70	70	92	78	68	100	82	80	**-2**
Footpath	30	30	8	22	32	0	18	20	**2**
Base:	***73***	***74***	***64***	***123***	***111***	***98***	***114***	***98***	

- Evening cyclist volumes peak between 5:00pm and 5:09pm (11 movements) – approximately 30 minutes earlier than 2010's first peak.

Figure 3.3: Evening Peak Cyclist Frequency

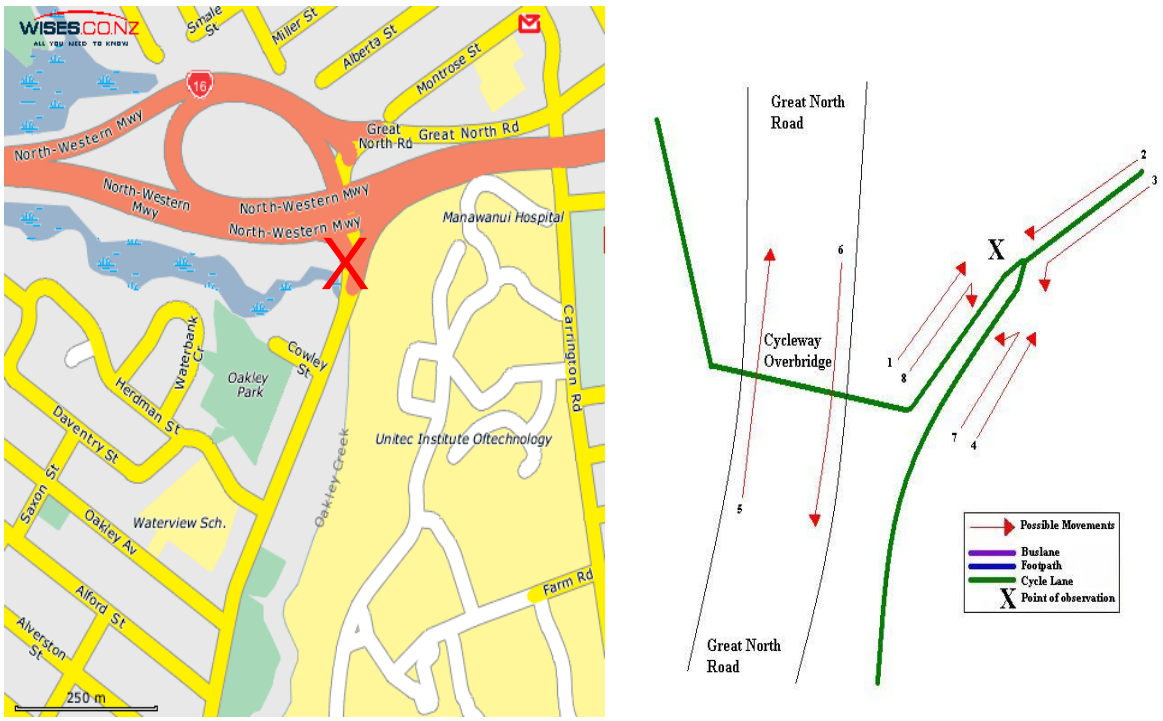
Dominion/Balmoral (n)



4. NORTH WESTERN CYCLEWAY/GREAT NORTH ROAD, WATERVIEW, (SITE 6)

Figure 4.1 shows the possible cyclist movements at this intersection. *Note: A revised map was used for this site from 2008 onwards. The movements monitored now more accurately reflect what is visible from a single observation point, and focus predominantly on cycle movements on the North Western Cycleway. As a result, movement data collected this year can only be compared with data collected from 2008 onwards.*

Figure 4.1: Cycle Movements: Great North Road/North Western Cycleway



4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007				335
2008	156	213	369	532
2009	145	141	286	416
2010	244	241	485	705
2011	**204**	**282**	**486**	**701**

4.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cyclist volumes recorded at Great North Road/North Western Cycleway in 2011 have decreased since the previous measure (204 movements recorded this year, down from 244 movements in 2010).
- The key morning movement is across Great North Road away from the UNITEC overbridge heading north (Movement 1 = 117 movements).
- Notable declines in cycle numbers are evident at Movement 1 (down 16) and Movement 2 (down 23).

Table 4.1: Morning Cyclist Movements

Great North Road/North Western Cycleway 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10 - 11
1	-	82	75	133	117	**-16**
2	-	30	28	55	32	**-23**
3	-	5	9	11	10	**-1**
4	-	27	13	28	34	**6**
5	-	10	9	12	6	**-6**
6	-	1	6	4	3	**-1**
7	-	1	1	1	2	**1**
8	-	0	4	0	0	**0**
Total	**98**	**156**	**145**	**244**	**204**	**-40**

- Consistent with previous years, most cyclists this year are adults (93 per cent, stable from last year).
- Almost all cyclists are wearing a helmet (95 per cent, stable from 94 per cent last year).
- The greatest share of morning cyclists are male (81 per cent).
- Almost all cyclists (95 per cent) are riding on the cycleway, this result unchanged from 2010.

Table 4.2: Morning Cyclist Characteristics

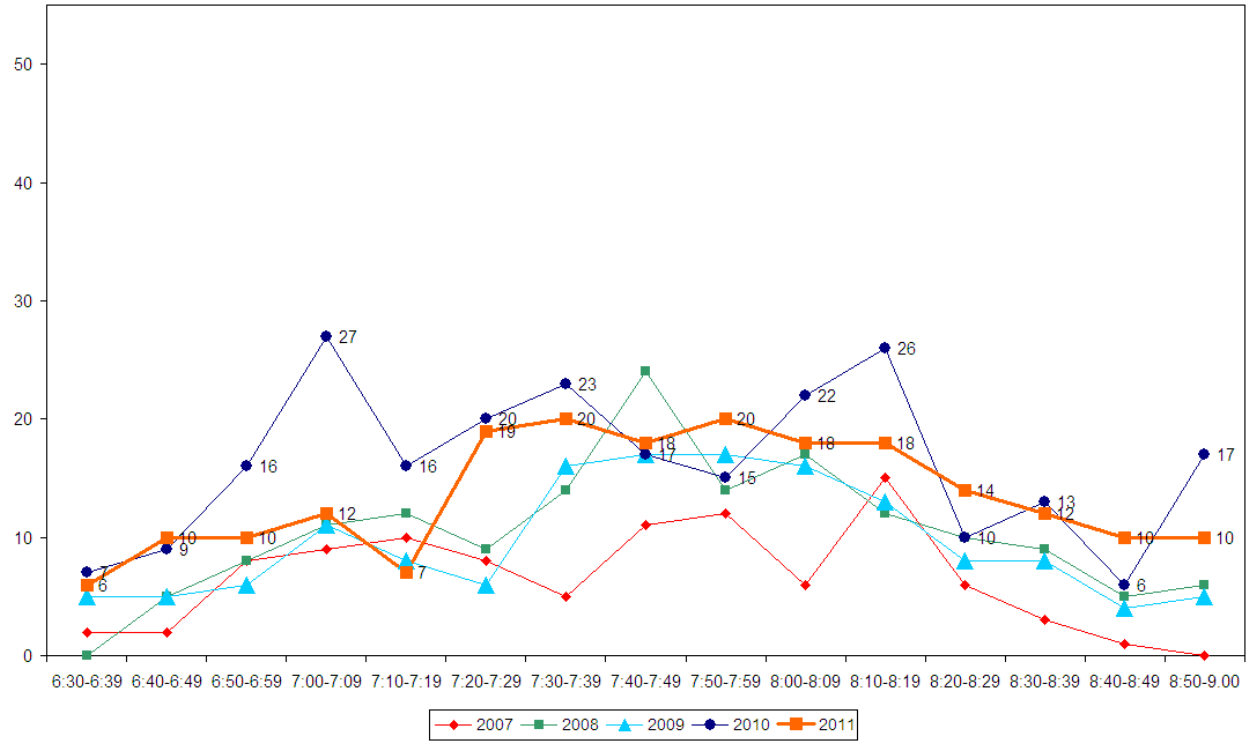
Great North Road/North Western Cycleway 2006-2011 (%)

	2006	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type							
Adult	97	91	95	90	93	93	**0**
School child	3	9	5	10	7	7	**0**
Helmet Wearing							
Helmet on head	94	99	97	97	94	95	**1**
No helmet	6	1	3	3	6	5	**-1**
Gender							
Male	-	-	-	-	-	81	-
Female	-	-	-	-	-	16	-
Can't tell	-	-	-	-	-	3	-
Where Riding*							
Road	100	100	100	9	5	5	**0**
Off-road cycleway	-	-	-	91	95	95	**0**
Base:	***127***	***98***	***156***	***145***	***244***	***204***	

** In 2009 and 2010, riding on the road was split into riding on off road cycleway and road. Therefore, 2010 results are only comparable with 2009 results.*

- Morning cycle movements peaked between 7:30am and 7:39am (20 movements) and remained fairly consistent until a steady decline from 18 movements at 8:10am and 8:19am to 10 movements by the end of the shift.

Figure 4.2: Morning Peak Cyclist Frequency
Great North Road/North Western Cycleway (n)



4.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- In contrast to the morning peak, the number of evening cyclists has increased, from 241 in 2010 to 282 movements in 2011.
- The key movements at this site in the evening are straight across Great North Road (via the overbridge) in both directions (Movement 2 = 142 cyclists; Movement 1 = 57 cyclists) and coming from the east on the cycle lane and continuing south along Great North Road (Movement 3 = 49 cyclists).
- The most notable increase is at Movement 2 (up 29 from 2010).

Table 4.3: Evening Cyclist Movements

Great North Road/North Western Cycleway 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	-	59	25	55	57	**2**
2	-	94	70	113	142	**29**
3	-	40	29	42	49	**7**
4	-	7	7	11	5	**-6**
5	-	6	5	9	9	**0**
6	-	5	5	9	13	**4**
7	-	1	0	0	1	**1**
8	-	1	0	2	6	**4**
Total	**134**	**213**	**141**	**241**	**282**	**41**

- Almost all cyclists in the evening peak are adults (96 per cent, stable from 98 per cent recorded in 2010).
- Almost all cyclists are wearing helmets (96 per cent, stable over the last five years).
- The greatest share of cyclists are male (82 per cent).
- Almost all cyclists (92 per cent) are riding on the cycleway.

Table 4.4: Evening Cyclist Characteristics

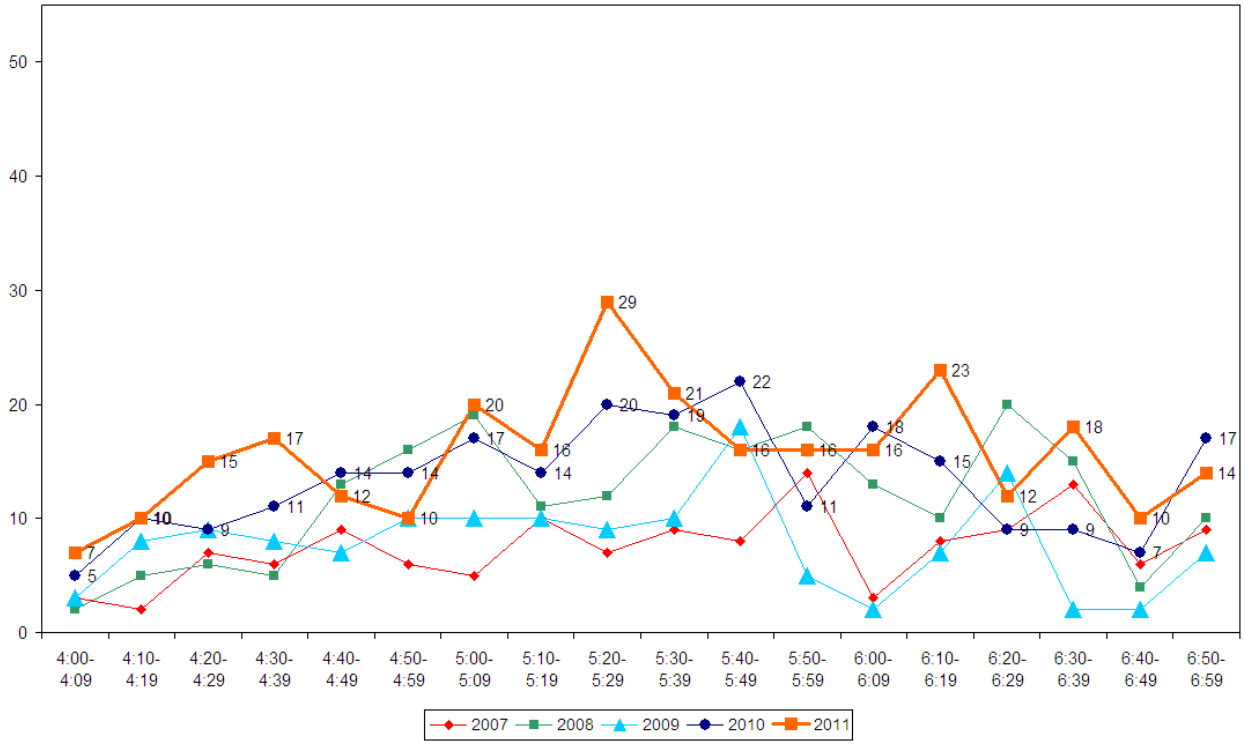
Great North Road/North Western Cycleway 2006-2011 (%)

	2006	***2007***	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type							
Adult	100	93	100	97	98	96	**-2**
School child	0	7	0	3	2	4	**2**
Helmet Wearing							
Helmet on head	95	98	97	95	95	96	**1**
No helmet	5	2	3	5	5	4	**-1**
Gender							
Male	-	-	-	-	-	82	-
Female	-	-	-	-	-	15	-
Can't tell	-	-	-	-	-	2	-
Where Riding*							
Road	100	100	100	7	7	8	**1**
Off-road cycleway	-	-	-	93	93	92	**-1**
Base:	***94***	***134***	***213***	***141***	***241***	***282***	

** In 2009 and 2010, riding on the road was split into riding on off road cycleway and road. Therefore, 2010 results are only comparable with 2009 results.*

- The volume of evening cyclists varied over time, with several peaks, including the most notable occurring at 5:20pm and 5:19pm (29 movements). By comparison, 2010's largest peak occurred approximately 20 minutes later than it did this year (5:40 pm and 5:49pm = 22 movements).

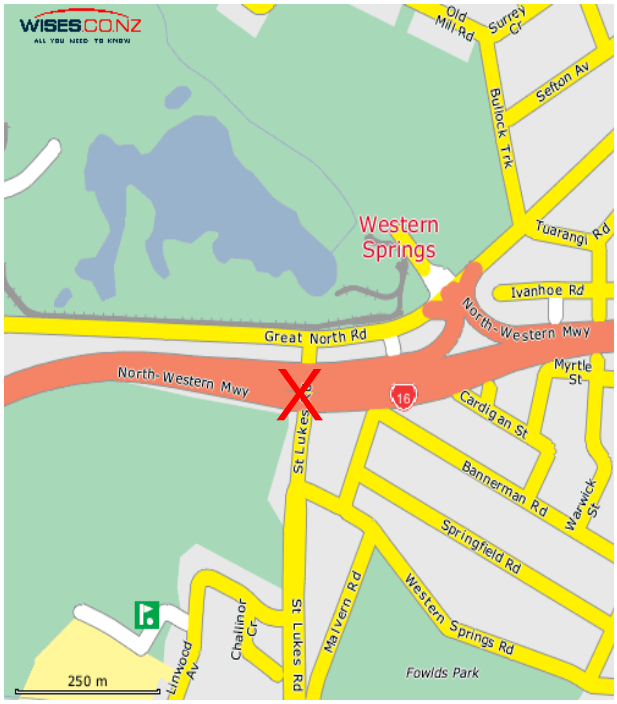
Figure 4.3: Evening Peak Cyclist Frequency
Great North Road/North Western Cycleway (n)

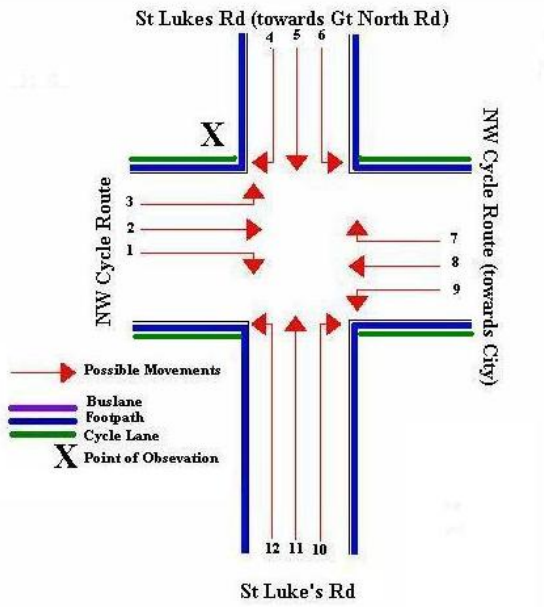


5. NORTH WESTERN CYCLEWAY/ST LUKES ROAD, WESTERN SPRINGS (SITE 7)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: North Western Cycleway/St Lukes Road





5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	152	172	324	469
2008	156	175	331	480
2009	155	155	310	451
2010	222	210	432	629
2011	**240**	**273**	**513**	**743**

5.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cyclist movements recorded at the North Western Cycleway/St Lukes Road site in 2011 have increased from 2010 (240 movements, compared with 222 last year).
- The key morning movement at this site is straight along the North Western cycleway towards the city (Movement 2 = 120 cyclists).
- The most notable change in movements is the increase seen at Movement 2 (up 37 movements). Also notable is the decrease in movements observed at Movements 11 and 12 (both down 10 movements)

Table 5.1: Morning Cyclist Movements

North Western Cycleway/St Lukes Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	8	6	9	12	13	**1**
2	60	63	59	83	120	**37**
3	10	10	11	6	4	**-2**
4	7	3	5	5	2	**-3**
5	6	4	7	11	9	**-2**
6	3	2	0	8	7	**-1**
7	15	7	4	7	14	**7**
8	9	16	15	20	16	**-4**
9	0	2	4	0	0	**0**
10	7	14	4	13	18	**5**
11	21	23	29	40	30	**-10**
12	6	6	8	17	7	**-10**
Total	**152**	**156**	**155**	**222**	**240**	**18**

- As in 2010, the greatest share of cyclists were adults (91 per cent, up slightly from 86 per cent).
- Most cyclists were wearing a helmet (95 per cent, stable from 94 per cent in 2010).
- The majority of cyclists were male (80 per cent).
- The majority of cyclists (71 per cent, up slightly from 64 per cent in 2010) were cycling on the off-road cycleway, while 9 per cent were riding on the road.

Table 5.2: Morning Cyclist Characteristics

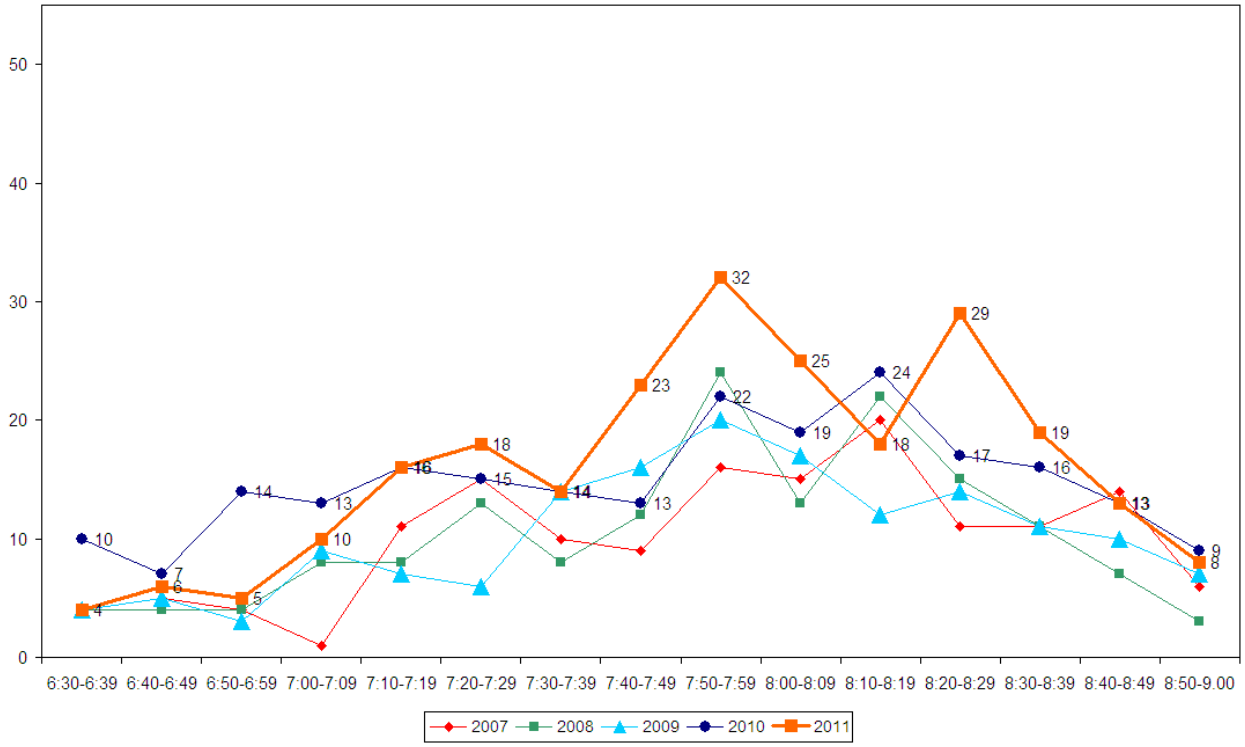
North Western Cycleway/St Lukes Road 2004-2011 (%)

	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type									
Adult	75	92	97	82	85	89	86	91	**5**
School child	25	8	3	18	15	11	14	9	**-5**
Helmet Wearing									
Helmet on head	99	95	98	97	94	95	94	95	**1**
No helmet	1	5	2	3	6	5	6	5	**-1**
Gender									
Male	-	-	-	-	-	-	-	80	**-**
Female	-	-	-	-	-	-	-	16	**-**
Can't tell	-	-	-	-	-	-	-	4	**-**
Where Riding									
Road	89	76	78	87	94	20	21	9	**-12**
Footpath	11	24	22	13	6	10	15	20	**5**
Off-road cycleway*	-	-	-	-	-	70	64	71	**7**
Base:	***95***	***130***	***133***	***152***	***156***	***155***	***222***	***240***	

** In 2009 and 2010, riding on the road was split into riding on off road cycleway and road. Therefore, results are not comparable with previous years.*

- Morning cycle movement volumes in 2011 peak between 7:50am and 7:59am (32 movements, the same time as last year) and again between 8:20am and 8:29am (29 movements, approximately 10 minutes later than the peak in previous years).

Figure 5.2: Morning Peak Cyclist Frequency
North Western Cycleway/St Lukes Road (n)



5.3 Evening Peak

Environmental Conditions

- The weather was overcast but fine for most of the shift. However heavy rain was observed from 6:16pm. This cleared to light drizzle by the end of the shift at 7:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Evening cyclist numbers have increased notably since last year (273 movements compared to 210 last year), the highest since the monitor began.
- In the evening peak, the key route is along the North Western cycleway away from the city (Movement 8 = 149 cyclists).
- Of the twelve movements possible at this site, the most notable increase since last year is at Movement 8 (up 69 movements).

Table 5.3: Evening Cyclist Movements

North Western Cycleway/St Lukes Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	11	13	9	11	8	**-3**
2	8	20	12	28	28	**0**
3	7	7	5	5	4	**-1**
4	11	13	13	16	12	**-4**
5	27	7	18	24	23	**-1**
6	5	4	1	1	1	**0**
7	5	4	3	10	10	**0**
8	69	60	64	80	149	**69**
9	6	11	2	8	18	**10**
10	1	1	1	1	1	**0**
11	18	22	13	14	16	**2**
12	4	13	14	12	3	**-9**
Total	**172**	**175**	**155**	**210**	**273**	**63**

- Consistent with previous years, adults comprised the greatest share of cyclists (98 per cent, up slightly from 95 per cent in 2010).
- Most cyclists were wearing a helmet (96 per cent, up slightly from 93 per cent in 2010).
- The majority of cyclists were male (84 per cent).
- The greatest share of cyclists (72 per cent, up from 64 per cent in 2010) were cycling on the off-road cycleway, while 15 percent were riding on the road.

Table 5.4: Evening Cyclist Characteristics

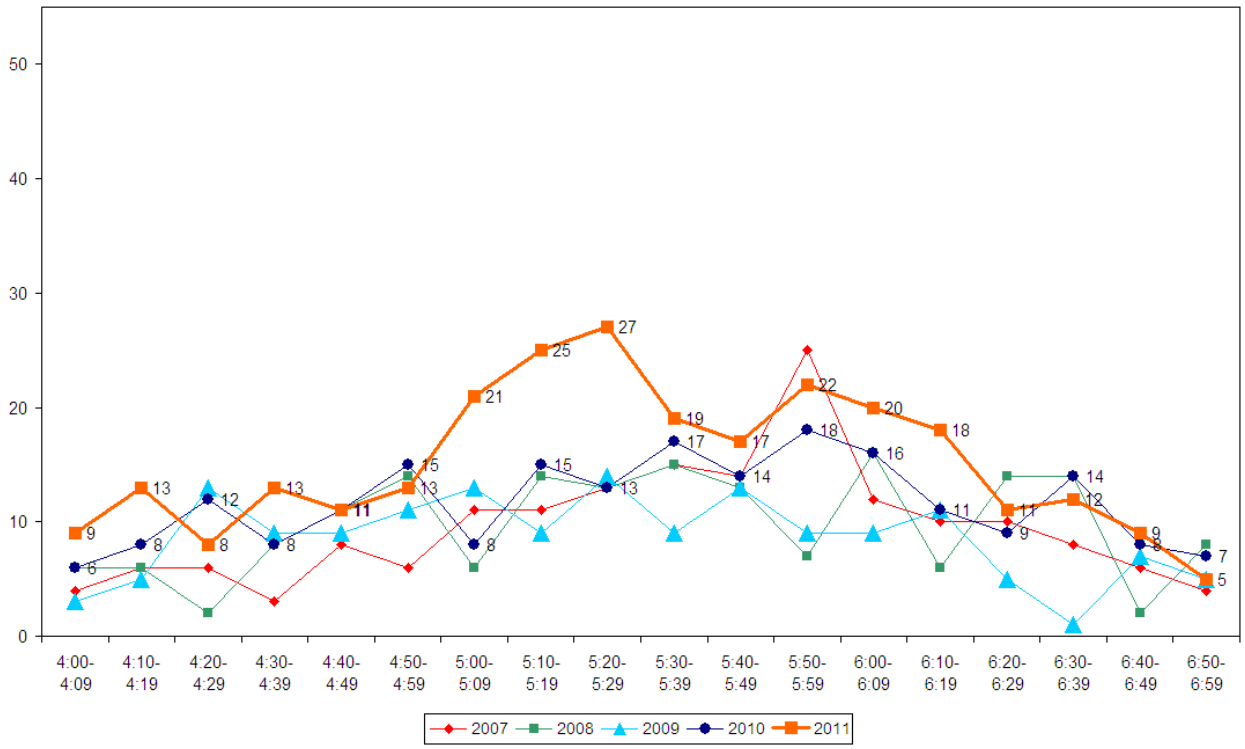
North Western Cycleway/St Lukes Road 2004-2011 (%)

	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type									
Adult	93	98	100	96	88	100	95	98	**3**
School child	7	2	0	4	12	0	5	2	**-3**
Helmet Wearing									
Helmet on head	97	92	98	97	91	93	93	96	**3**
No helmet	3	8	2	3	9	7	7	4	**-3**
Gender									
Male	-	-	-	-	-	-	-	84	**-**
Female	-	-	-	-	-	-	-	12	**-**
Can't tell	-	-	-	-	-	-	-	4	**-**
Where Riding*									
Road	98	87	98	85	89	15	16	15	**-1**
Footpath	2	13	2	15	11	5	20	13	**-7**
Off-road cycleway*	-	-	-	-	-	80	64	72	**8**
Base:	***87***	***108***	***80***	***172***	***175***	***155***	***210***	***273***	

** In 2009, 2010 and 2011, riding on the road was split into riding on off road cycleway and road. Therefore, results are not comparable with previous years.*

- As opposed to last year's more consistent cyclist movement volumes, this year saw a more variable timeline of movement volumes. The first peak occurred at 5:00pm and 5:09pm, with movement volume rising to reach the highest peak observed (5:20pm and 5:29pm = 27 movements). Another peak was seen at 5:50pm and 5:59pm (22 movements), coinciding with last year's highest peak of 18 movements.

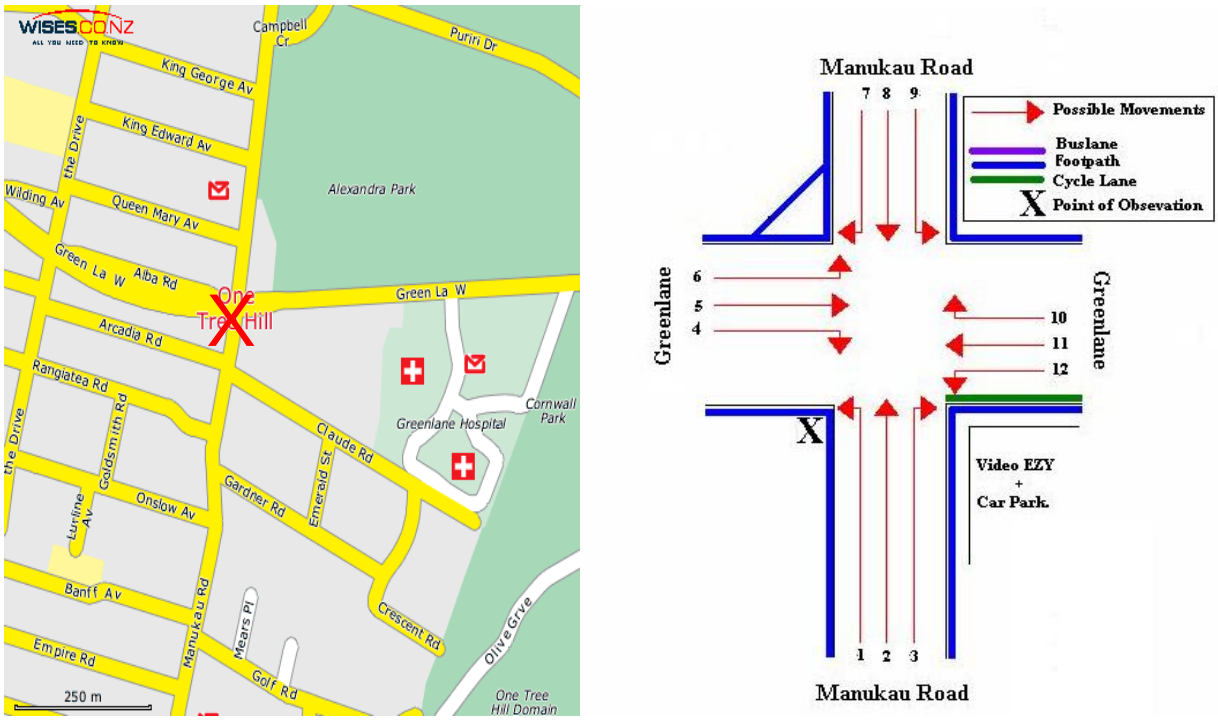
Figure 5.3: Evening Peak Cyclist Frequency
North Western Cycleway/St Lukes Road (n)



6. MANUKAU/GREENLANE ROAD, EPSOM (SITE 12)

Figure 6.1 shows the possible cyclist movements at this intersection.

Figure 6.1: Cycle Movements: Manukau/Greenlane West



6.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	103	122	225	326
2008	92	113	205	296
2009	84	92	176	255
2010	130	127	257	374
2011	**120**	**107**	**227**	**331**

6.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The number of morning cyclist movements recorded at the Manukau/Greenlane West intersection in 2011 decreased slightly from 2010 (120 movements, down from 130 movements last year).
- As in previous years, the most common morning movement at this intersection is north along Manukau Road towards the city (Movement 2 = 48 movements).
- The largest changes in cyclist movements were observed at Movement 4 (up 6 movements) and Movement 10 (down 5 movements).

Table 6.1: Morning Cyclist Movements

Manukau/Greenlane West 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	4	6	1	4	4	**0**
2	27	26	30	48	48	**0**
3	4	2	4	7	5	**-2**
4	1	5	2	1	7	**6**
5	20	15	16	20	20	**0**
6	1	6	4	8	5	**-3**
7	4	4	1	4	3	**-1**
8	22	14	14	16	16	**0**
9	9	4	1	3	3	**0**
10	2	2	2	5	0	**-5**
11	7	7	9	11	9	**-2**
12	2	1	0	3	0	**-3**
Total	**103**	**92**	**84**	**130**	**120**	**-10**

- Almost all of the morning cyclists at the Manukau/Greenlane West intersection were adults (88 per cent, down from 97 per cent last year).
- Almost all cyclists were wearing a helmet (98 per cent, stable from 99 per cent last year).
- Almost three quarters of the cyclists were male (74 per cent).
- The proportion of cyclists riding on the road has decreased since last year to 75 per cent (from 88 per cent in 2010).

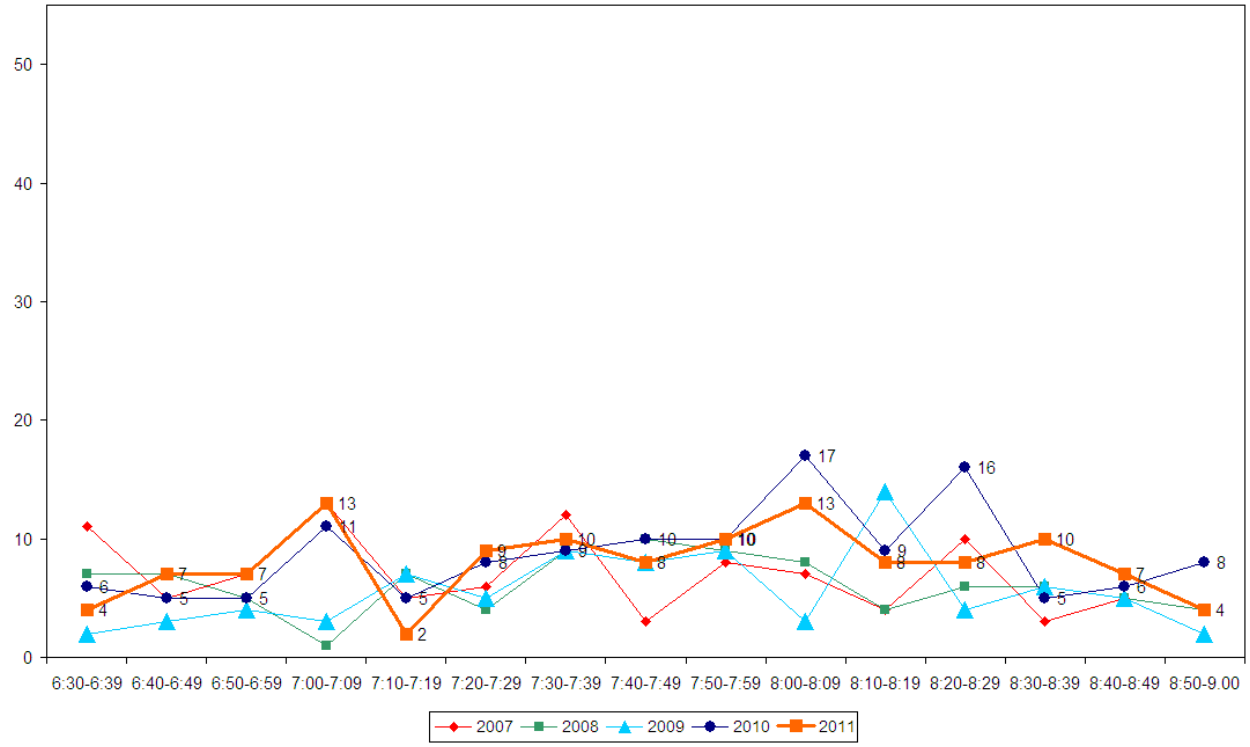
Table 6.2: Morning Cyclist Characteristics

Manukau/Greenlane West 2004-2011 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type									
Adult	71	89	87	95	87	87	97	88	**-9**
School child	29	11	13	5	13	13	3	13	**10**
Helmet Wearing									
Helmet on head	92	99	93	95	99	95	99	98	**-1**
No helmet	8	1	7	5	1	5	1	2	**1**
Gender									
Male	-	-	-	-	-	-	-	74	**-**
Female	-	-	-	-	-	-	-	23	**-**
Can't tell	-	-	-	-	-	-	-	3	**-**
Where Riding									
Road	71	71	74	78	79	73	88	75	**-13**
Footpath	29	29	26	22	21	27	12	25	**13**
Base:	***66***	***92***	***89***	***103***	***92***	***84***	***130***	***120***	

- The volume of morning cyclists remains relatively stable over the entire monitoring period, with a 13 movement peak between 7:00am and 7:09am and another 13 movement peak between 8:00 and 8:09am.

Figure 13.2: Morning Peak Cyclist Frequency
Manukau/Greenlane West (n)



Note: In 2011, five per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Three cyclists at 6:51am*
- *Three cyclists at 7:00am.*

6.3 Evening Peak

Environmental Conditions

- The weather was overcast but fine for most of the shift. However light drizzle was evident from 6:08pm, with heavy rain observed from 6:29pm. This cleared to light drizzle by the end of the shift at 7:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The number of evening cyclist movements recorded at the Manukau/Greenlane West intersection decreased from those recorded in 2010 (107 movements, down from 127 movements).
- The two key movements in the evening at this intersection are straight along Manukau Road heading south (Movement 8 = 36 cyclists) and west along Greenlane West (Movement 11 = 24 cyclists).
- The most notable changes in cycle movement numbers occurred at Movement 2 (down 9 movements), Movement 5 (down 8 movements), and Movement 6 (up 6 movements).

Table 6.3: Evening Cyclist Movements

Manukau/Greenlane West 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	4	1	2	6	3	**-3**
2	16	17	5	17	8	**-9**
3	4	4	3	4	5	**1**
4	6	7	5	7	8	**1**
5	9	11	8	11	3	**-8**
6	1	1	5	0	6	**6**
7	5	3	3	3	1	**-2**
8	26	37	33	36	36	**0**
9	6	0	2	4	3	**-1**
10	11	4	3	6	5	**-1**
11	30	25	17	29	24	**-5**
12	4	3	6	4	5	**1**
Total	**122**	**113**	**92**	**127**	**107**	**-20**

- Although down from last year, the share of adult cyclists remained high (84 per cent, down from 94 per cent in 2010).
- The share wearing a helmet also remained high (91 per cent, down from 98 per cent in 2010).
- The majority of cyclists were male (84 per cent).
- The proportion of cyclists riding on the road remained the same as in 2010 at 74 per cent.

Table 6.4: Evening Cyclist Characteristics

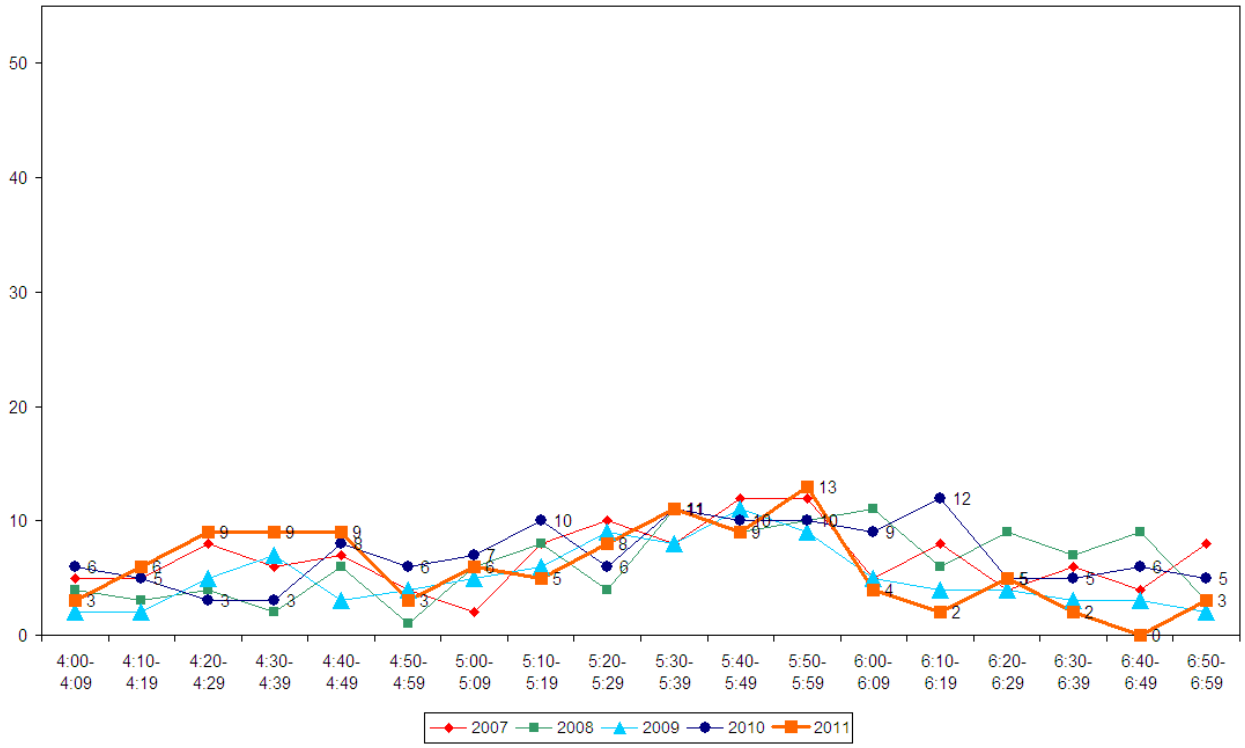
Manukau/Greenlane West 2004-2011 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type									
Adult	78	96	95	88	81	91	94	84	**-10**
School child	22	4	5	12	19	9	6	16	**10**
Helmet Wearing									
Helmet on head	90	98	98	95	94	93	98	91	**-7**
No helmet	10	2	2	5	6	7	2	9	**7**
Gender									
Male	-	-	-	-	-	-	-	84	**-**
Female	-	-	-	-	-	-	-	16	**-**
Can't tell	-	-	-	-	-	-	-	0	**-**
Where Riding									
Road	73	87	86	76	78	84	74	74	**0**
Footpath	27	13	14	24	22	16	26	26	**0**
Base:	***60***	***55***	***56***	***122***	***113***	***92***	***127***	***107***	

- In the evening, cyclist movement volumes first peak, and remain steady, from 4:20 and 4:49 (9 movements) before declining and then reaching the highest volume between 5:50pm and 5:59pm (13 movements). This compares to the highest peak in 2010 between 6:10pm and 6:19 (12 movements).

Figure 6.3: Evening Peak Cyclist Frequency

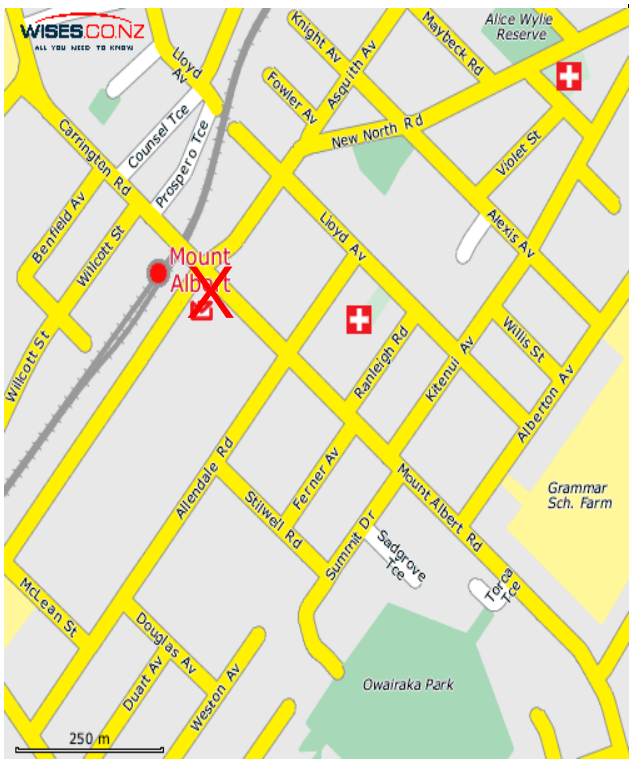
Manukau/Greenlane West (n)

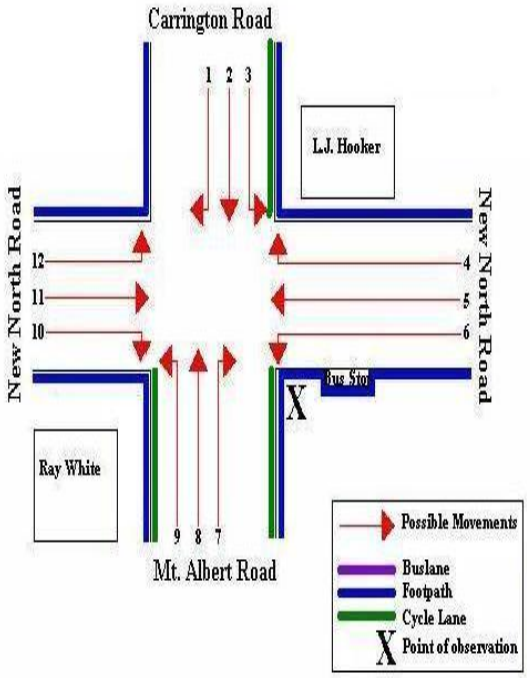


7. MOUNT ALBERT/NEW NORTH/ CARRINGTON ROAD, MT ALBERT (SITE 14)

Figure 7.1 shows the possible cyclist movements at this intersection.

Figure 7.1: Cycle Movements: Mount Albert/New North Road/Carrington Road





7.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	75	81	156	226
2008	68	96	164	236
2009	59	83	142	205
2010	91	118	209	302
2011	**97**	**104**	**201**	**292**

7.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Compared with last year, the volume of morning cyclist movements at the Mount Albert/New North Road/Carrington Road intersection has remained relatively steady (97 movements, up from 91 movements in 2009).
- With equal number of movements, the two most common movements in the morning are straight on Carrington Road onto Mount Albert Road heading southeast (Movement 2 = 26 movements) and straight along New North Road heading northeast (Movement 11 = 26 movements).
- The greatest changes in morning cyclist movement volumes occurred at Movement 2 (up 7 movements) and Movement 11 (down 6 movements).

Table 7.1: Morning Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	1	3	1	2	2	**0**
2	11	10	11	19	26	**7**
3	3	2	2	4	5	**1**
4	3	3	1	2	0	**-2**
5	5	3	5	6	9	**3**
6	0	0	0	0	2	**2**
7	2	3	2	1	1	**0**
8	14	14	6	22	19	**-3**
9	1	3	1	0	4	**4**
10	6	4	3	1	0	**-1**
11	25	23	25	32	26	**-6**
12	4	0	2	2	3	**1**
Total	**75**	**68**	**59**	**91**	**97**	**6**

- Over the morning peak, most cyclists using the Mount Albert/New North Road/Carrington Road intersection were adults (94 per cent, up from 87 per cent in 2010).
- Most cyclists were wearing a helmet (91 per cent, up slightly from 90 per cent in 2010).
- The majority of cyclists were male (85 per cent).
- The greatest share of morning peak cyclists continued to ride on the road (84 per cent, up slightly from 81 per cent in 2010).

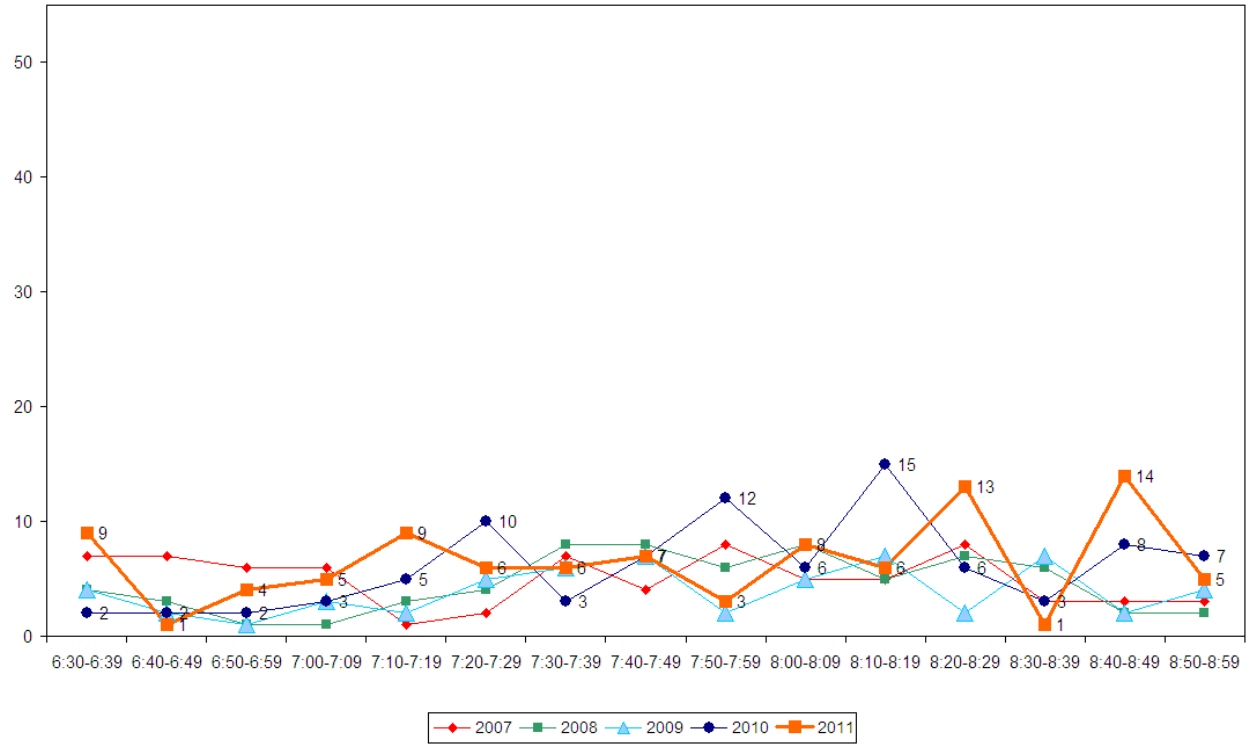
Table 7.2: Morning Cyclist Characteristics

Mount Albert/New North Road/Carrington Road 2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	95	91	92	87	94	**7**
School child	5	9	8	13	6	**-7**
Helmet Wearing						
Helmet on head	91	91	86	90	91	**1**
No helmet	9	9	14	10	9	**-1**
Gender						
Male	-	-	-	-	85	**-**
Female	-	-	-	-	13	**-**
Can't tell	-	-	-	-	2	**-**
Where Riding						
Road	84	85	90	81	84	**3**
Footpath	16	15	10	19	16	**-3**
Base:	***75***	***68***	***59***	***91***	***97***	

- Unlike last year's low volume start (2 movements), the volume of morning cycle movements starts off higher (9 movement), declines then reaches the first peak at 7:10 and 7:19 (9 movements), remaining relatively steady until another peak at 8:20 and 8:29 (13 movements) and a third between 8:40 and 8:49 (14 movements).

Figure 15.2: Morning Peak Cyclist Frequency
Mount Albert/New North Road/Carrington Road (n)



Note: In 2011, seven per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Three cyclists at 6:36am*
- *Four cyclists at 8:41am.*

7.3 Evening Peak

Environmental Conditions

- The weather was overcast at the start of the shift, with light drizzle evident from 6:00pm through to the end of the shift at 7:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening cycle movements recorded at the Mount Albert/New North Road/Carrington Road intersection has decreased, from 118 in 2010 to 104 movements in 2011.
- The key evening movements are straight along New North Road in a south-westerly direction (Movement 5 = 21 cyclists), straight on Carrington Road onto Mount Albert Road heading southeast (Movement 2 = 20 movements), and straight along Mt Albert Road onto Carrington Road heading northwest (Movement 8 = 19 movements).
- Evening cyclist volumes have decreased most notably at Movement 5 (down 13 movements).

Table 7.3: Evening Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	3	5	2	2	4	**2**
2	13	16	17	23	20	**-3**
3	3	5	1	5	2	**-3**
4	5	3	4	5	8	**3**
5	28	31	34	34	21	**-13**
6	2	2	3	1	1	**0**
7	3	1	3	1	1	**0**
8	9	8	9	16	19	**3**
9	1	2	0	12	10	**-2**
10	3	4	1	7	7	**0**
11	7	10	6	8	9	**1**
12	4	9	3	4	2	**-2**
Total	**81**	**96**	**83**	**118**	**104**	**-14**

- The majority of cyclists using this intersection were adults (88 per cent, up slightly from 84 per cent in 2010).
- The majority of cyclists at this site were wearing a helmet (83 per cent, stable from 81 per cent last year).
- The majority of cyclists were male (90 per cent).
- Seven out of ten peak cyclists rode on the road (70 per cent, down slightly from 73 per cent in 2010).

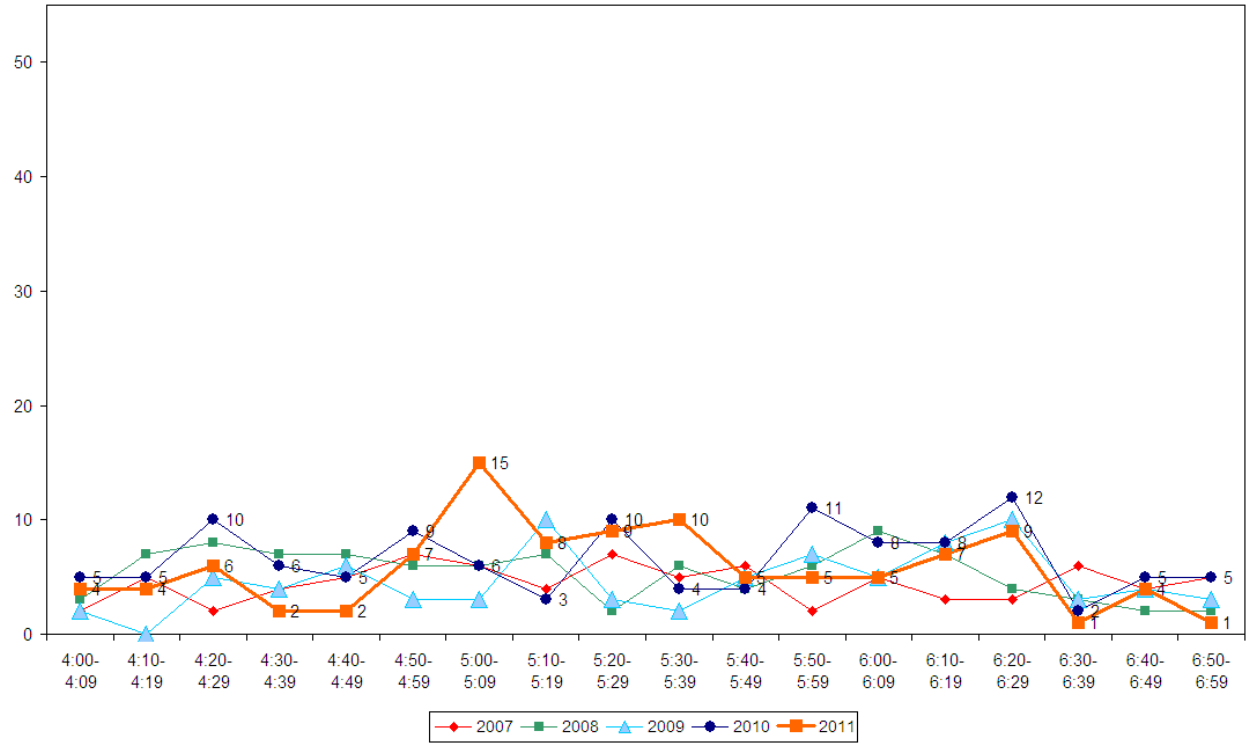
Table 7.4: Evening Cyclist Characteristics

Mount Albert/New North Road/Carrington Road 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	94	85	98	84	88	**4**
School child	6	15	2	16	13	**-3**
Helmet Wearing						
Helmet on head	90	90	86	81	83	**2**
No helmet	10	10	14	19	17	**-2**
Gender						
Male	-	-	-	-	90	**-**
Female	-	-	-	-	10	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	63	78	75	73	70	**-3**
Footpath	37	22	25	27	30	**3**
Base:	***81***	***96***	***83***	***118***	***104***	

- The volume of cycle movements varies throughout the evening shift. A large peak occurs between 5:00pm and 5:09pm (15 movements) and a second peak occurs later at 6:20pm and 6:29pm (9 movements).

Figure 15.3: Evening Peak Cyclist Frequency
Mount Albert/New North Road/Carrington Road (n)

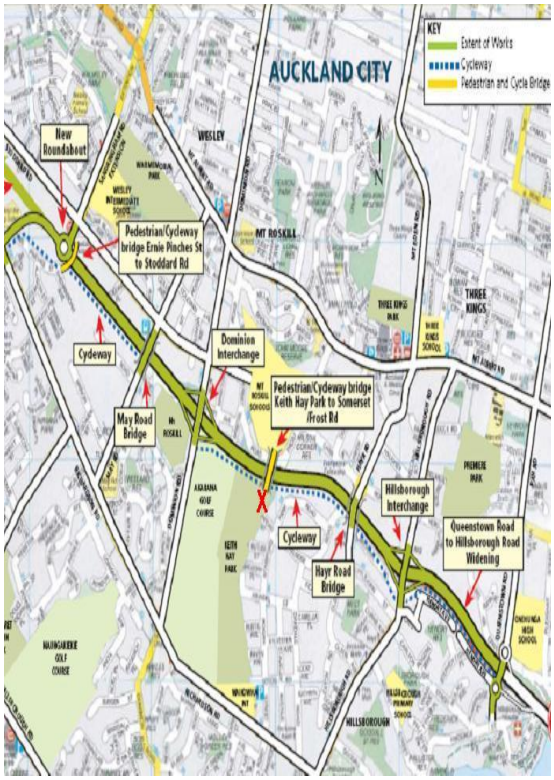


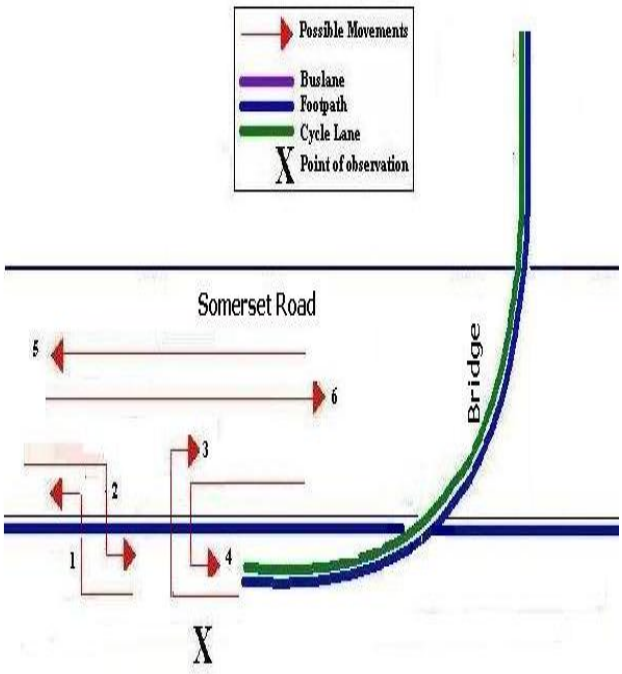
Note: In 2011, six cyclists were observed riding as a group at 6.29pm. This comprises six per cent of the total cycle movements in the evening peak in 2011.

8. KEITH HAY PARK/SOMERSET RD/ BRIDGE, MT ROSKILL (SITE 88)

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill





Note: This site was monitored for the first time in 2010.

8.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2010	28	25	53	77
2011	**29**	**40**	**69**	**99**

8.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Twenty-nine cyclist movements were recorded at this site in 2011, stable from last year (28 movements).
- Like last year, the key morning movement is turning off the over-head bridge into Somerset Road heading west (Movement 1 = 22 movements).
- Results by movement are stable from last year.

Table 8.1: Morning Cyclist Movements

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010-2011 (n)

Movement	*2010*	*2011*	Change 10-11
1	22	22	**0**
2	3	1	**-2**
3	0	1	**1**
4	0	1	**1**
5	1	2	**1**
6	2	2	**0**
Total	**28**	**29**	**1**

- Over the morning peak, the majority of cyclists were school children (72 per cent, decreasing slightly from 75 per cent in 2010).
- Most cyclists were wearing a helmet (83 per cent, stable from 82 per cent in 2010).
- The majority of cyclists were male (86 per cent).
- Almost all cyclists were riding on the off-road cycleway on the bridge (86 per cent, down slightly from 89 per cent in 2010), the remainder of cyclists were riding on the road (14 per cent, up from 7 per cent in 2010).

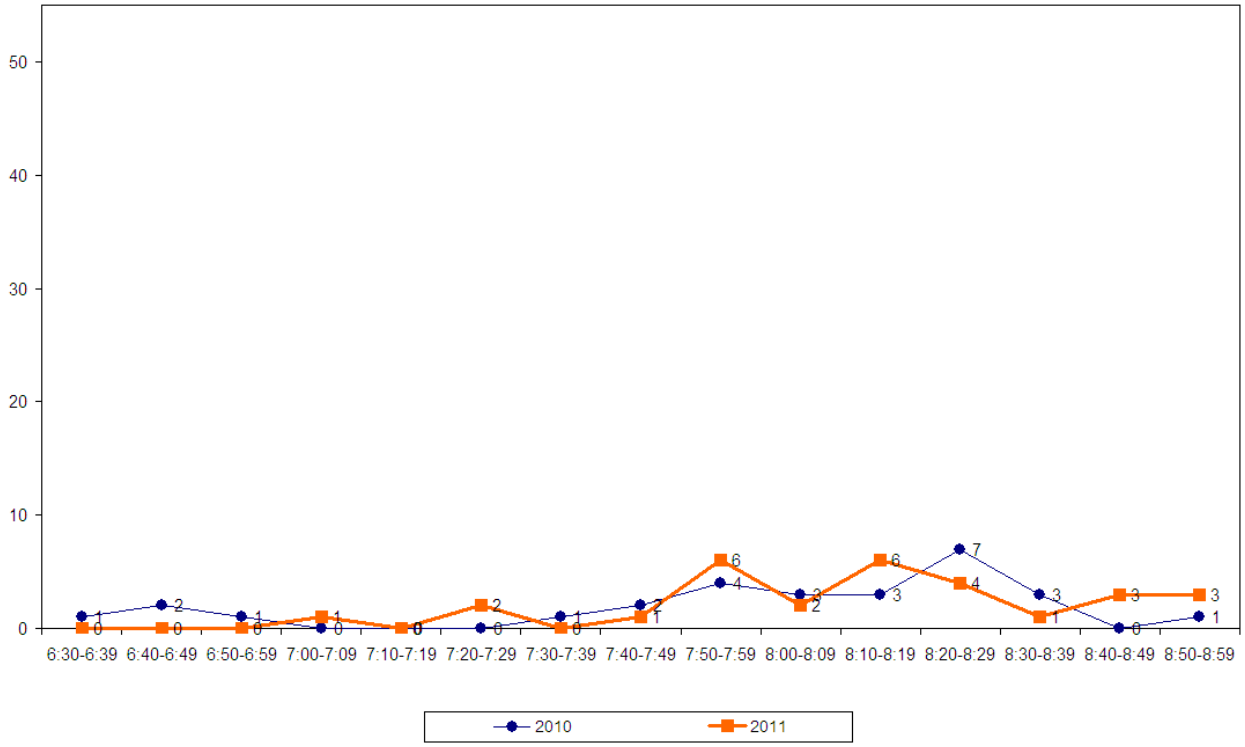
Table 8.2: Morning Cyclist Characteristics

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010-2011 (%)

	2010	***2011***	**Change 10-11**
Cyclist Type			
Adult	25	28	**3**
School child	75	72	**-3**
Helmet Wearing			
Helmet on head	82	83	**1**
No helmet	18	17	**-1**
Gender			
Male	-	86	-
Female	-	14	-
Can't tell	-	0	-
Where Riding			
Road	7	14	**7**
Footpath	4	0	**-4**
Off-road Cycleway	89	86	**-3**
Base:	***28***	***29***	

- Like last year, morning cycle volumes are low throughout the shift. In 2011, peaks occurred between 7:50am to 7:59am (6 movements) and again between 8:10am and 8:19am (6 movements).

Figure 8.2: Morning Peak Cyclist Frequency
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill (n)



8.3 Evening Peak

Environmental Conditions

- The weather was overcast at the start of the shift, with intermittent light drizzle evident from 6:00pm. This increased to rain showers around 6:16pm, then cleared to light drizzle by the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Increasing notably from 2010 observations, 40 cyclists movements were recorded at this site in 2011 (up from 25 movements).
- The most common movements in the evening is turning off Somerset Road onto the over-head bridge heading east (Movement 2 = 17 movements) and turning off the over-head bridge into Somerset Road heading west (Movement 1 = 13 movements).
- Movement 2 saw a notable increase in cyclist volumes (up 10 movements) as did Movement 1 (up 5 movements).

Table 8.3: Evening Cyclist Movements

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010-2011 (n)

Movement	2010	2011	Change 10-11
1	8	13	**5**
2	7	17	**10**
3	0	0	**0**
4	4	2	**-2**
5	4	4	**0**
6	2	4	**2**
Total	**25**	**40**	**15**

- Contrary to last year's observations, a slight majority of cyclists were children (53 per cent, up notably from 28 per cent in 2010).
- Helmet wearing by cyclists decreased in 2011, but the majority still wore helmets (58 per cent, down notably from 76 per cent in 2010).
- The majority of cyclists were male (95 per cent).
- Similar to 2010, four fifths of cyclists were riding on the off-road cycleway (80 per cent, up from 76 per cent in 2010) with the remaining fifth are riding on the road (20 per cent).

Table 8.4: Evening Cyclist Characteristics

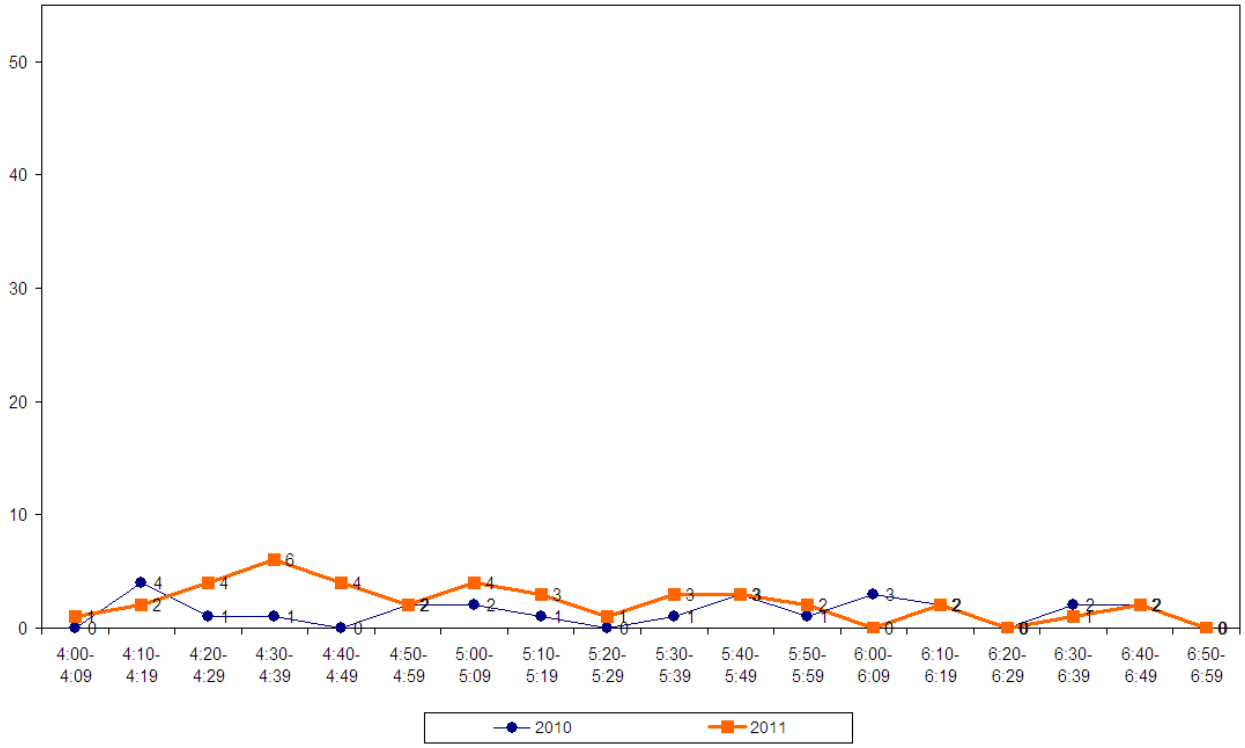
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010-2011 (%)

	2010	***2011***	**Change 10-11**
Cyclist Type			
Adult	72	48	**-24**
School child	28	53	**25**
Helmet Wearing			
Helmet on head	76	58	**-18**
No helmet	24	43	**19**
Gender			
Male	-	95	-
Female	-	5	-
Can't tell	-	0	-
Where Riding			
Road	20	20	**0**
Footpath	4	0	**-4**
Off-road cycleway	76	80	**4**
Base:	***25***	***40***	

- Cyclist movement volume peaks between 4:30pm and 4:39pm (6 movements).

Figure 8.3: Evening Peak Cyclist Frequency

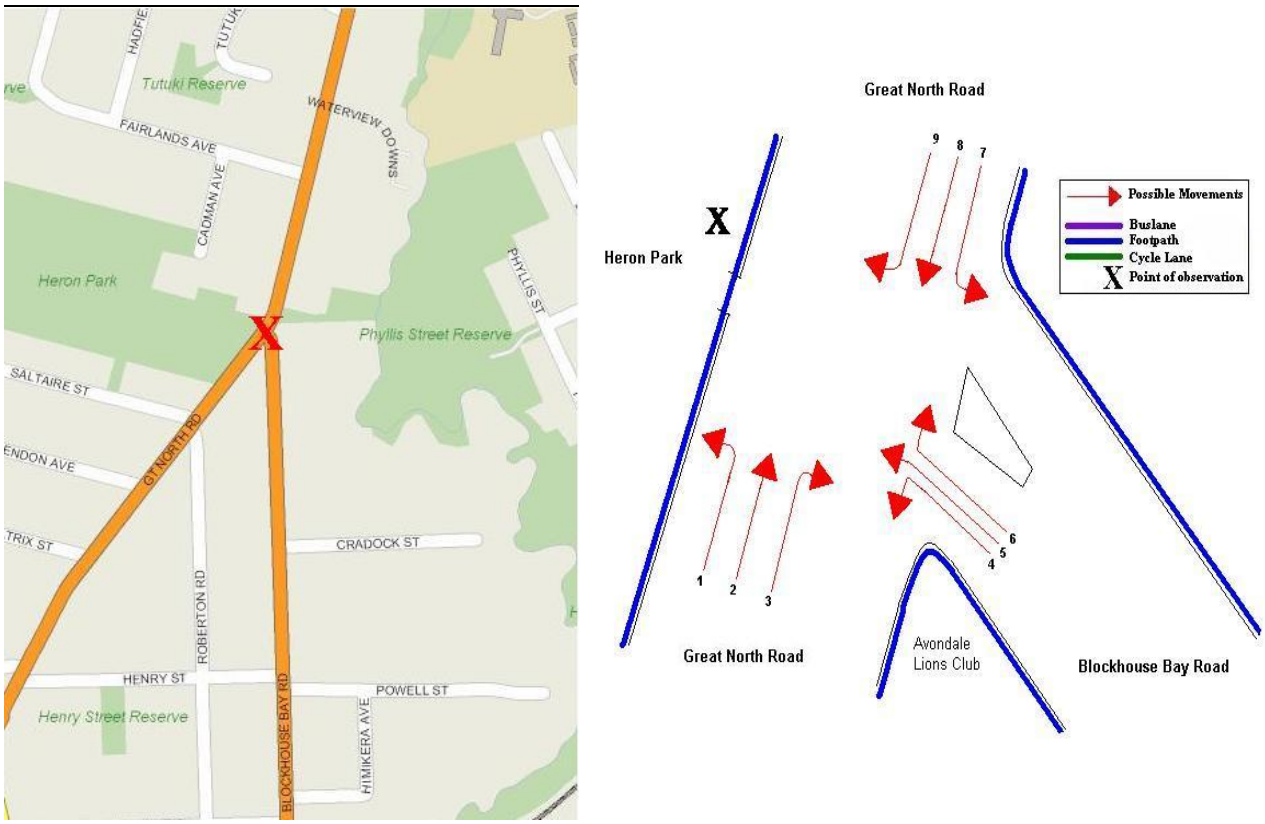
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill (n)



9. BLOCKHOUSE BAY ROAD/GREAT NORTH ROAD, AVONDALE (SITE 73)

Figure 9.1 shows the possible cyclist movements at this intersection.

Figure 9.1: Cycle Movements: Blockhouse Bay/Great North Road



9.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2008	57	60	117	170
2009	57	62	119	173
2010	66	75	141	204
2011	**56**	**73**	**129**	**186**

9.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Fifty-six cycle movements were recorded at the Blockhouse Bay/Great North Road site, down from 66 movements in 2010.
- The key morning movements are straight through Great North Road (Movement 2 = 23 cyclists) and the right turn out of Blockhouse Bay Road into Great North Road (Movement 6 = 21 cyclists).
- The most notable increase in cyclist movements in the morning at this site was at Movement 6 (up 5 cyclists).

Table 9.1: Morning Cyclist Movements

Blockhouse Bay/Great North Road 2008-2011 (n)

Movement	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	0	0	0	0	**0**
2	29	28	33	23	**-10**
3	0	0	2	0	**-2**
4	0	1	1	0	**-1**
5	0	0	0	0	**0**
6	16	14	16	21	**5**
7	3	4	2	4	**2**
8	9	10	12	8	**-4**
9	0	0	0	0	**0**
Total	**57**	**57**	**66**	**56**	**-10**

- Over the morning peak, most cyclists are adults (82 per cent, a decrease from 92 per cent in 2010).
- Almost all cyclists are wearing a helmet (98 per cent, a slight increase from 95 per cent at the previous measure).
- Most cyclists are male (86 per cent).
- Fifty per cent of cyclists are riding on the road, a decrease from 62 per cent last year.

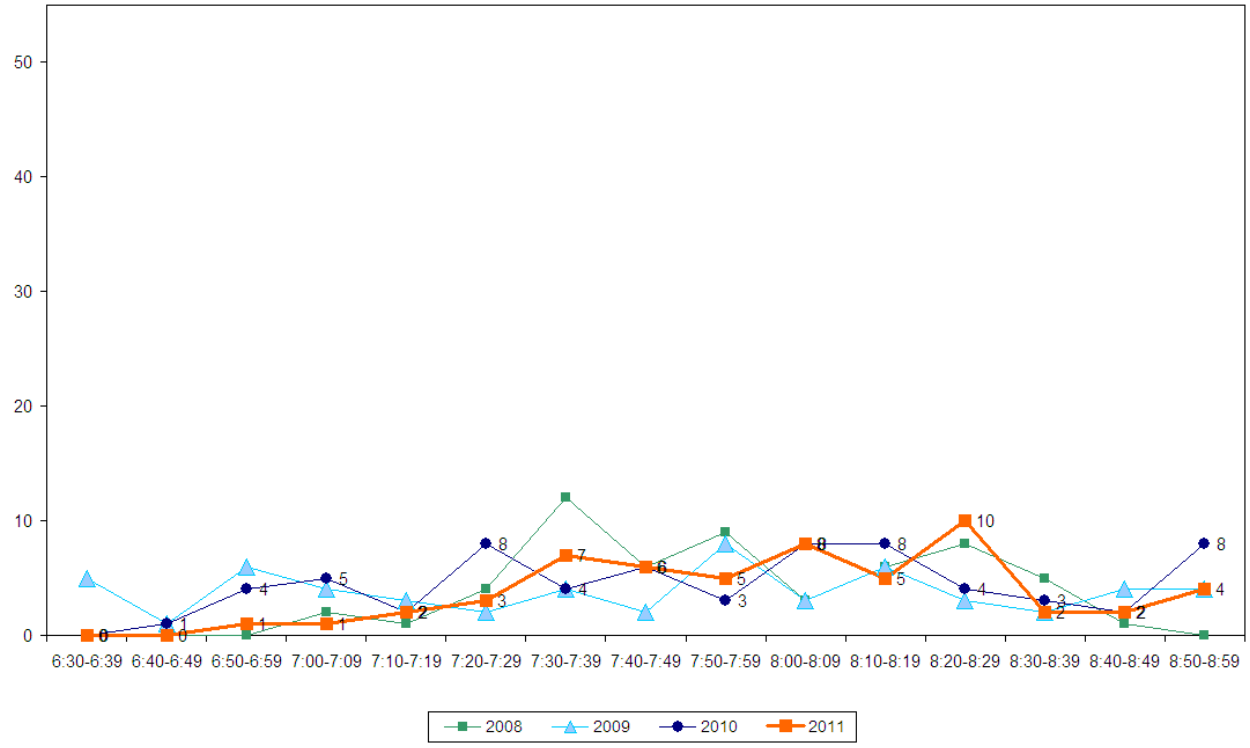
Table 9.2: Morning Cyclist Characteristics

Blockhouse Bay/Great North Road 2008-2011 (%)

	2008	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type					
Adult	89	65	92	82	**-10**
School child	11	35	8	18	**10**
Helmet Wearing					
Helmet on head	93	88	95	98	**3**
No helmet	7	12	5	2	**-3**
Gender					
Male	-	-	-	86	**-**
Female	-	-	-	5	**-**
Can't tell	-	-	-	9	**-**
Where Riding					
Road	44	65	62	50	**-12**
Footpath	56	35	38	50	**12**
Base:	***57***	***57***	***66***	***56***	

- Morning cycle volumes peak slightly between 8:20am and 8:29am (10 cyclists). This compares with slight peaks between 7:20am and 7:29am, 8:00am and 8:19am, and 8:50am and 8:59am (8 cyclists in ten minute intervals) in 2010.

Figure 9.2: Morning Peak Cyclist Frequency
Blockhouse Bay/Great North Road (n)



Note: In 2011, three cyclists were observed riding together at this site at 8:26am. This equates to 5 per cent of all cyclists at this site in the morning peak.

9.3 Evening Peak

Environmental Conditions

- The weather was fine throughout most of the evening shift, with the exception of a rain shower at 6:40pm that lasted through to the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening peak cycle movements recorded at the Blockhouse Bay/Great North Road site is 73, stable from 2010 (75 movements).
- The most common movement in the evening is straight through Great North Road in a south-westerly direction (Movement 8 =27 cyclists).
- Cyclist volumes over the evening period have increased most notably at Movement 7 (up 5 cyclists).

Table 9.3: Evening Cyclist Movements

Blockhouse Bay/Great North Road 2008-2011 (n)

Movement	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	0	0	0	0	**0**
2	14	15	17	15	**-2**
3	0	0	2	1	**-1**
4	0	1	0	0	**0**
5	0	2	0	0	**0**
6	1	2	4	6	**2**
7	15	13	15	20	**5**
8	30	28	37	27	**-10**
9	0	1	0	4	**4**
Total	**60**	**62**	**75**	**73**	**-2**

- Over the evening peak, almost all cyclists at this site are adults (95 per cent, stable from 96 per cent last year).
- Most cyclists at this site are wearing a helmet (89 per cent, down from 93 per cent at the previous measure).
- The majority of cyclists are recorded as male (86 per cent).
- Seventy per cent of cyclists are riding on the road, stable from 72 per cent in 2010.

Table 9.4: Evening Cyclist Characteristics

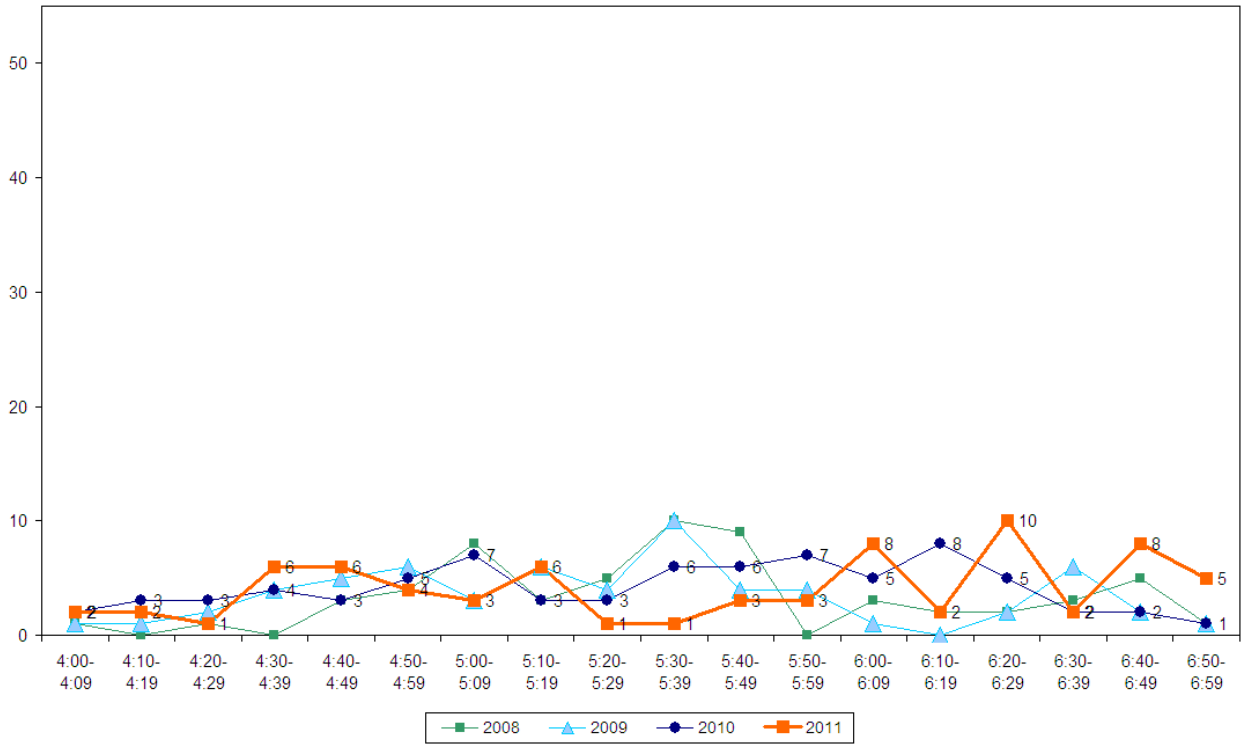
Blockhouse Bay/Great North Road 2008-2011 (%)

	2008	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type					
Adult	90	76	96	95	-1
School child	10	24	4	5	1
Helmet Wearing					
Helmet on head	87	81	93	89	-4
No helmet	13	19	7	11	4
Gender					
Male	-	-	-	86	-
Female	-	-	-	12	-
Can't tell	-	-	-	1	-
Where Riding					
Road	67	56	72	70	-2
Footpath	33	44	28	30	2
Base:	***60***	***62***	***75***	***73***	

- Evening cycle volumes vary throughout the monitoring period to peak between 6:20pm and 6:29pm (10 cyclists), as well as two smaller peaks evident between 6:00pm and 6:09pm, and 6:40pm and 6:49pm (8 cyclists per ten minute interval). This compares to a peak between 6:10pm and 6:19pm (8 cyclists) in 2010.

Figure 9.3: Evening Peak Cyclist Frequency

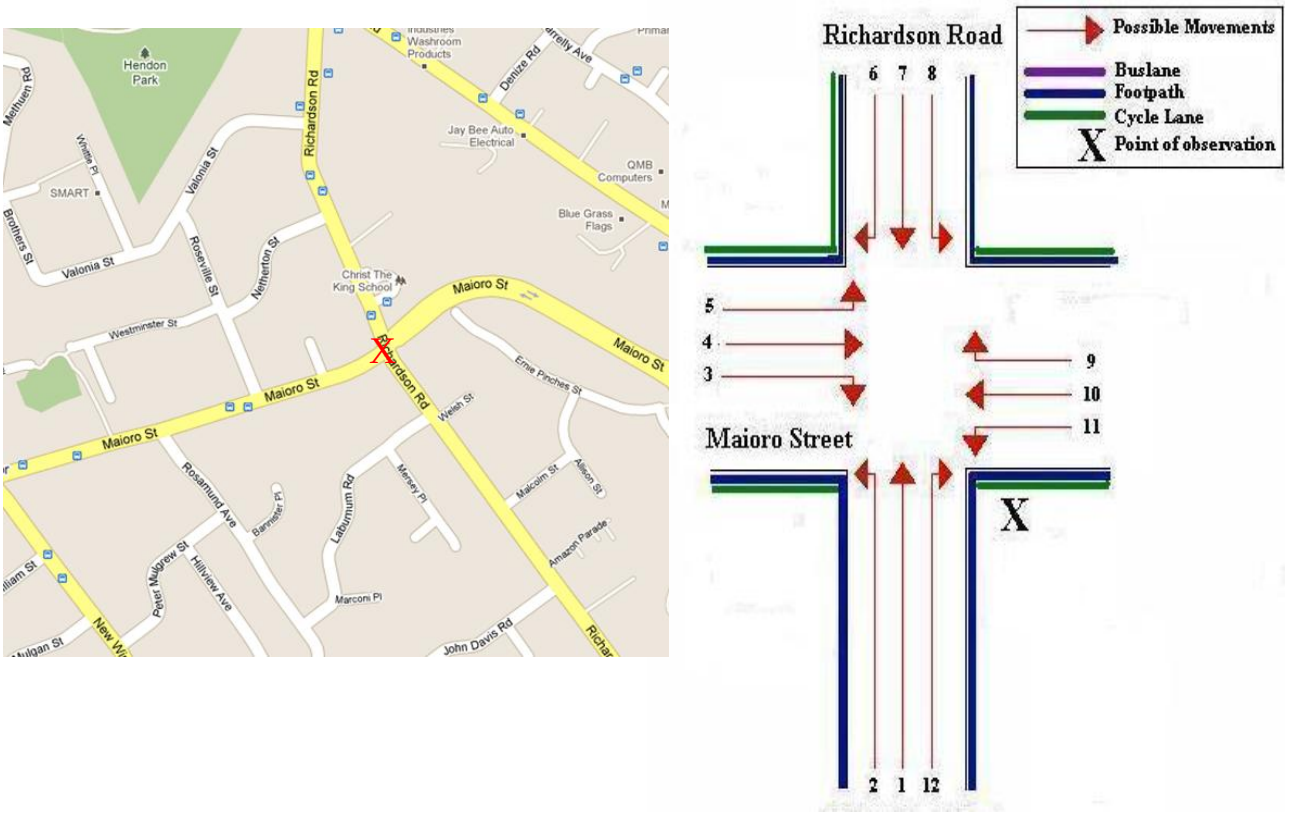
Blockhouse Bay/Great North Road (n)



10. RICHARDSON ROAD/MAIORO STREET, MT ROSKILL (SITE 15)

Figure 10.1 shows the possible cyclist movements at this intersection.

Figure 10.1: Cycle Movement: Richardson Road/Maioro Street



Note: In 2010, the site map for this site was changed to reflect the construction of the southern motorway connection to the Manukau motorway. Consequently, comparative results are indicative only.

10.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2009	8	13	21	30
2010	14	25	39	56
2011	**15**	**22**	**37**	**53**

10.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works that may affect cycle counts.

Key Points

- The volume of cycle movements at the Richardson/Maioro intersection continues to be light, with 15 cycle movements recorded (stable from 14 movements last year).
- The key movement is Movement 10 = 10 cyclists (up from 2 cyclists last year).

Table 10.1: Morning Cyclist Movements

Richardson/Maioro Street 2009 – 2011 (n)

Movement	2009	2010	2011	Change 10-11
1	2	4	1	**-3**
2	1	1	1	**0**
3	2	1	0	**-1**
4	0	3	0	**-3**
5	0	0	0	**0**
6	1	0	0	**0**
7	2	1	1	**0**
8	-	2	1	**-1**
9	-	0	1	**1**
10	-	2	10	**8**
11	0	0	0	**0**
12	-	0	0	**0**
Total	**8**	**14**	**15**	**1**

Note: In 2009, Movements 8, 9, 10 and 12 were not possible.

- Over the morning peak, most cyclists are adults (93 per cent, down 7 percentage points from last year).
- The majority of cyclists are wearing helmets (87 per cent, down from 93 per cent in (2010).
- Eighty per cent of cyclists are recorded as male.
- Just less than half of all cyclists (47 per cent) are riding on the road – down from 57 per cent last year. Forty per cent of cyclists are riding on an off-road cycleway.

Table 10.2: Morning Cyclist Characteristics

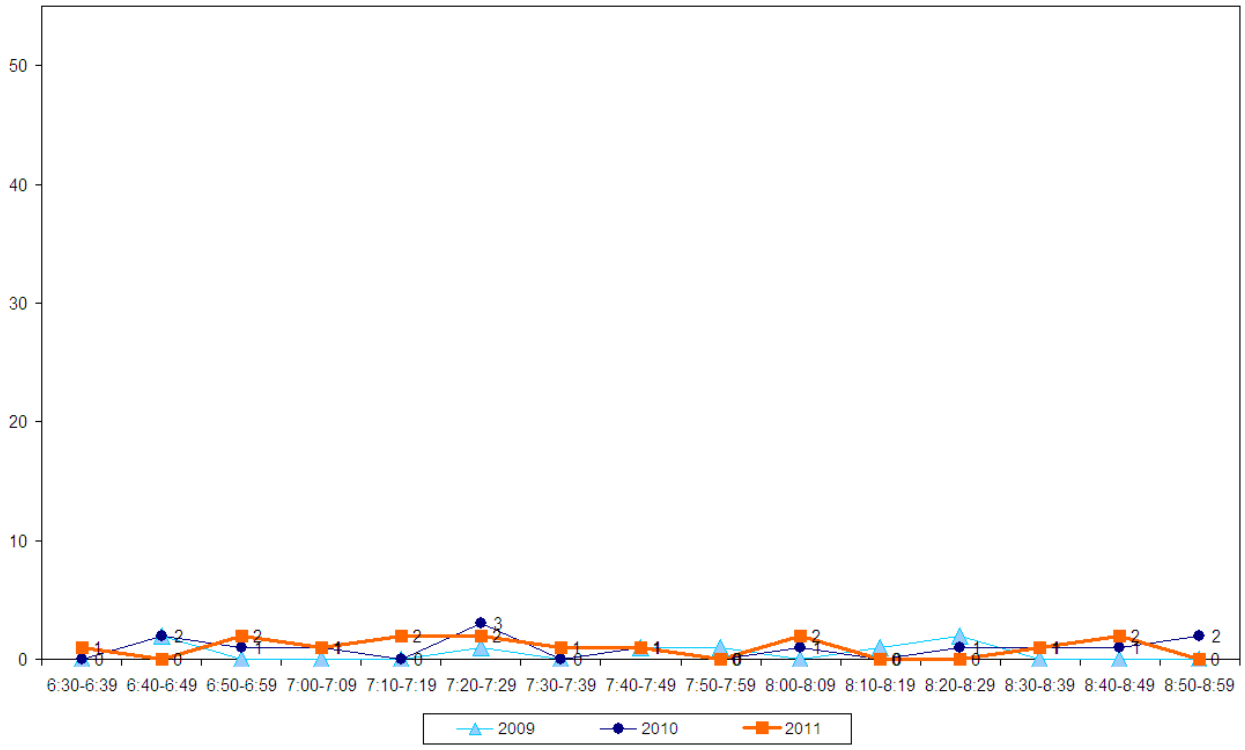
Richardson/Maioro Street 2009 – 2011 (%)

	2009	2010	2011	Change 10-11
Cyclist Type				
Adult	100	100	93	**-7**
School child	0	0	7	**7**
Helmet Wearing				
Helmet on head	100	93	87	**-6**
No helmet	0	7	13	**6**
Gender				
Male	-	-	80	**-**
Female	-	-	20	**-**
Can't tell	-	-	0	**-**
Where Riding				
Road	88	57	47	**-10**
Footpath	12	14	13	**-1**
Off-road Cycleway	-	29	40	**11**
Base:	***8***	***14***	***15***	

- Morning cycle volumes are very low over the entire monitoring period; no more than two cyclists were recorded passing over all ten minute intervals.

Figure 10.2: Cyclist Frequency

Richardson/Maioro Street (n)



10.3 Evening Peak

Environmental Conditions

- The weather was fine but overcast at the start of the shift. Light drizzle was observed from 6:20 pm, with a heavy shower reported between 6:33pm and 6:40pm. The rain cleared by the end of the monitoring period.
- There were no road works that may affect cycle counts.

Key Points

- The total number of evening cycle movements recorded at the Richardson/Maioro Street intersection is 22, down from 25 movements last year.
- The key movement in the evening is straight along Maioro Street heading east (Movement 4 = 9 cyclists, compared with 1 cyclist in 2010).

Table 10.3: Evening Cyclist Movements

Richardson/Maioro Street 2009 – 2011 (n)

Movement	2009	2010	2011	Change 10-11
1	0	6	1	**-5**
2	4	2	1	**-1**
3	1	1	2	**1**
4	1	1	9	**8**
5	1	0	1	**1**
6	1	1	0	**-1**
7	4	5	3	**-2**
8	-	0	3	**3**
9	-	3	1	**-2**
10	-	4	1	**-3**
11	1	2	0	**-2**
12	-	0	0	**0**
Total	**13**	**25**	**22**	**-3**

Note: In 2009, Movements 8, 9, 10 and 12 were not possible.

- The majority of cyclists at this intersection are adults (91 per cent, up from 80 per cent last year).
- Three-quarters of cyclists are wearing a helmet (77 per cent, stable from 76 per cent last year).
- Eighty-six per cent of cyclists are male.
- Over half of the cyclists at this intersection are riding on the off-road cycleway (55 per cent, down from 68 per cent last year).

Table 10.4: Evening Cyclist Characteristics

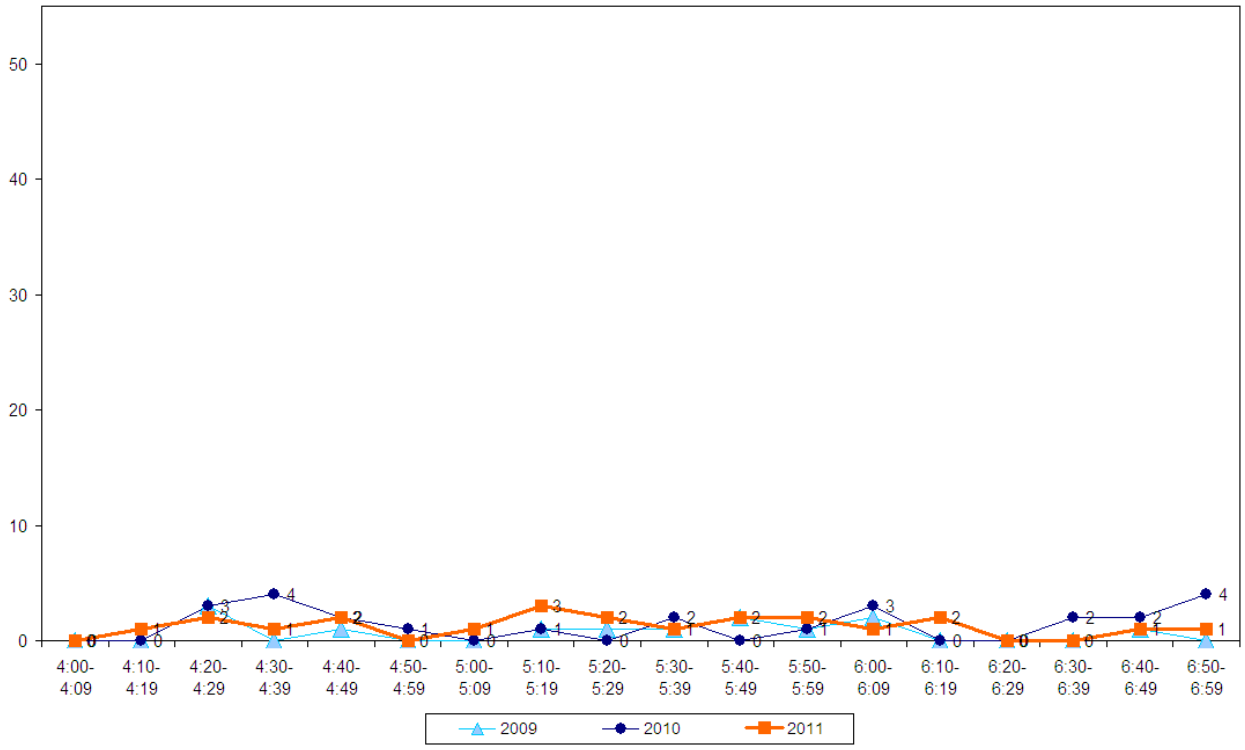
Richardson/Maioro Street 2009 – 2011 (%)

	2009	2010	2011	Change 10-11
Cyclist Type				
Adult	100	80	91	**11**
School child	0	20	9	**-11**
Helmet Wearing				
Helmet on head	85	76	77	**1**
No helmet	15	24	23	**-1**
Gender				
Male	-	-	86	**-**
Female	-	-	9	**-**
Can't tell	-	-	5	**-**
Where Riding				
Road	46	16	32	**16**
Footpath	54	16	14	**-2**
Off-road cycleway	-	68	55	**-13**
Base:	***13***	***25***	***22***	

- The volume of cycle movements remains relatively low over the entire evening peak, with no more than three cyclists recorded during all ten minute intervals.

Figure 10.3: Evening Peak Cyclist Frequency

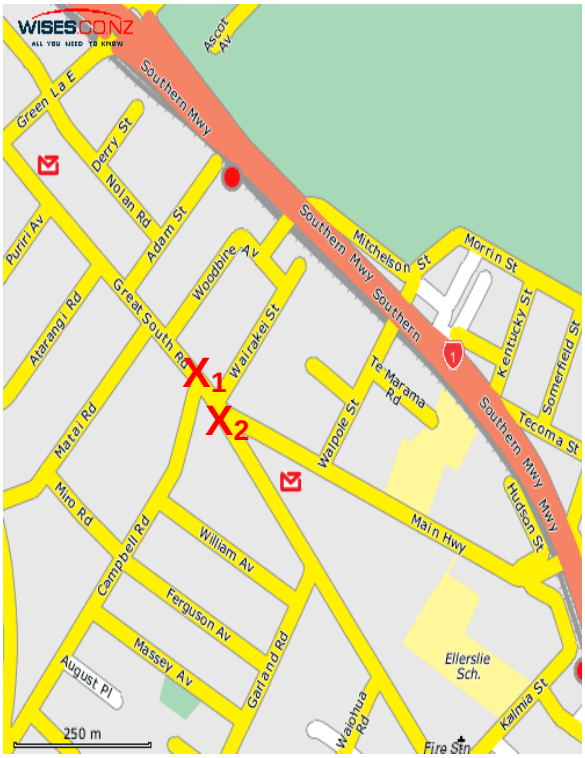
Richardson/Maioro Street (n)

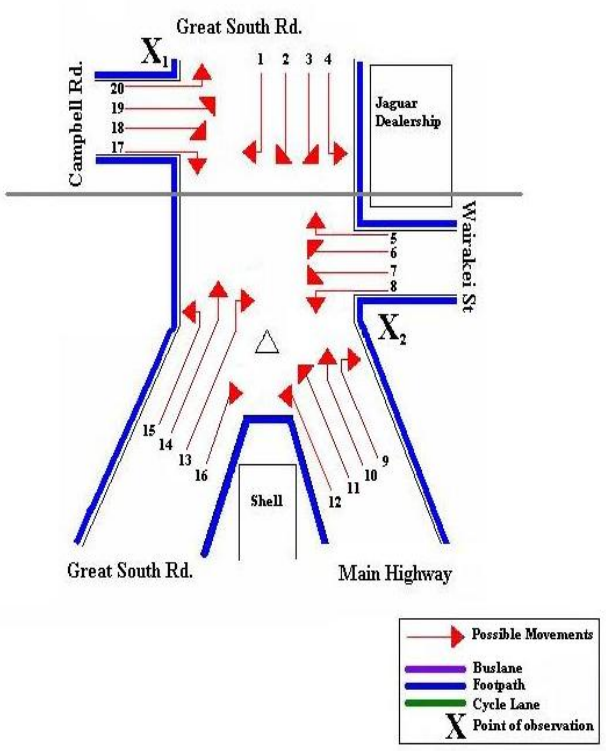


11. GREAT SOUTH ROAD/CAMPBELL ROAD/MAIN HIGHWAY, GREENLANE (SITE 21)

Figure 11.1 shows the possible cyclist movements at this intersection. *Note: Due to the size of this intersection, two surveyors were used to conduct the cycle counts.*

Figure 11.1: Cycle Movements: Great South/Campbell Road





11.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	89	85	174	253
2008	53	61	114	165
2009	64	87	151	218
2010	69	102	171	246
2011	**60**	**78**	**138**	**199**

11.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclists at the Great South/Campbell Road intersection has decreased from last year – down by 9 to 60 movements this year.
- Key morning movements are straight along Great South Road heading south (Movement 2 = 19 cyclists), straight along Great South Road heading north (Movement 14 = 11 cyclists) and right from the main highway into Great South Road heading north (Movement 10 = 10 cyclists).
- The most notable increase has been at Movement 2, an increase of 16 cyclists this year.

Table 11.1: Morning Cyclist Movements

Great South/Campbell Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	3	1	2	5	**1**	-4
2	20	9	19	3	**19**	16
3	14	7	9	8	**6**	-2
4	2	0	0	7	**0**	-7
5	2	0	1	0	**0**	0
6	0	0	0	0	**0**	0
7	0	0	0	4	**2**	-2
8	1	0	0	0	**0**	0
9	0	0	0	0	**0**	0
10	15	12	8	11	**10**	-1
11	1	0	0	2	**2**	0
12	1	0	2	3	**0**	-3
13	0	0	0	0	**1**	1
14	15	9	12	17	**11**	-6
15	2	4	0	0	**1**	1
16	2	0	0	0	**0**	0
17	1	1	1	1	**2**	1
18	5	1	2	4	**2**	-2
19	3	4	2	0	**0**	0
20	2	5	6	4	**3**	-1
Total	**89**	**53**	**64**	**69**	**60**	**-9**

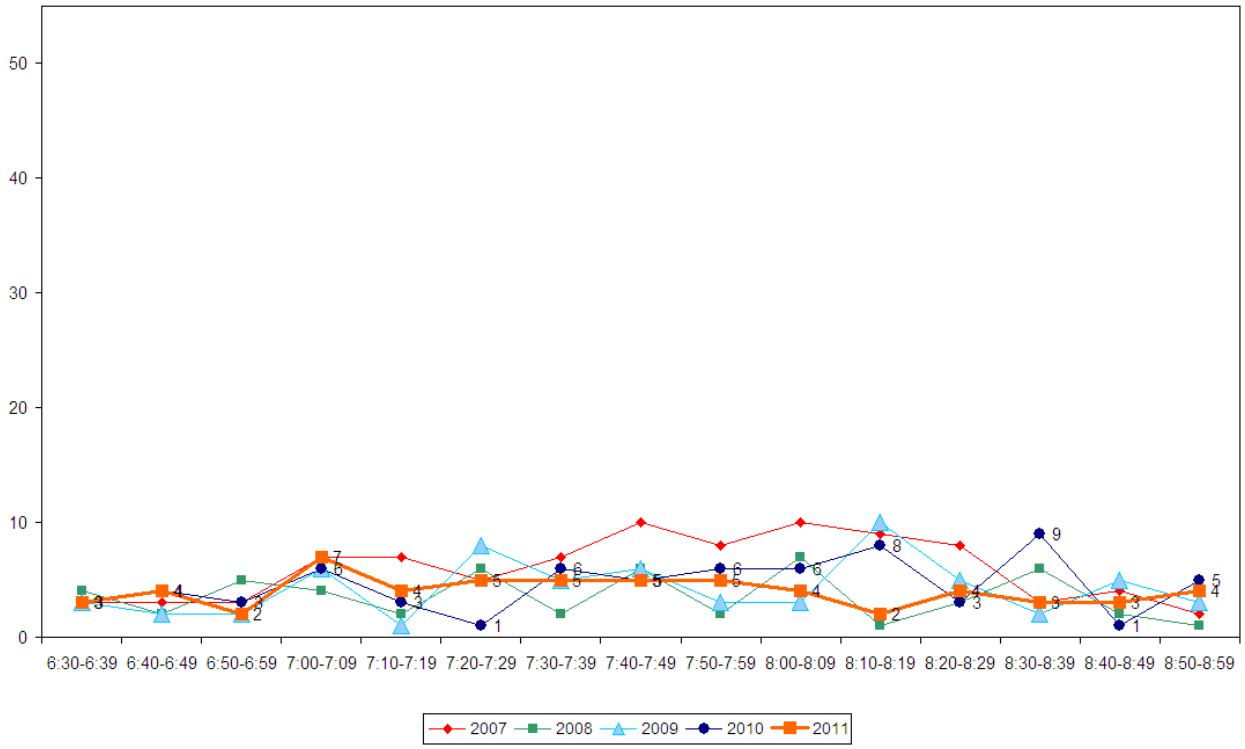
- Over the morning peak, adults comprise the greatest share of cycle movements (95 per cent, stable from 93 per cent in the previous year).
- Most cyclists are wearing a helmet (95 per cent, stable from 2010).
- The greatest share of cyclists are male (83 per cent).
- The majority of cyclists are riding on the road (82 per cent, stable from 2010).

Table 11.2: Morning Cyclist Characteristics
Great South/Campbell Road 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	94	92	88	93	**95**	2
School child	6	8	12	7	**5**	-2
Helmet Wearing						
Helmet on head	97	94	95	96	**95**	-1
No helmet	3	6	5	4	**5**	1
Gender						
Male	-	-	-	-	**83**	-
Female	-	-	-	-	**13**	-
Can't tell	-	-	-	-	**3**	-
Where Riding						
Road	87	68	84	83	**82**	-1
Footpath	13	32	16	17	**18**	1
Base:	***89***	***53***	***64***	***69***	***60***	

- Morning cyclist volumes remain low throughout the monitoring period, with a peak of 7 cyclist movements between 7:00am and 7:09am. This compares with a peak last year between 8:30am and 8:39am (9 cyclists).

Figure 11.2: Morning Peak Cyclist Frequency
Great South/Campbell Road (n)



11.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Consistent with the morning peak, the volume of evening cyclists at the Great South/Campbell Road intersection has also decreased – down from 102 in 2010 to 78 cycle movements this year.
- The most common movement in the evening is straight along Great South Road heading in a northerly direction (Movement 14 = 30 cyclists).
- Of the 20 movements recorded at this site, the most notable decreases are at Movement 3 (down 5 cyclists) and at Movement 10 (down 5 cyclists).

Table 11.3: Evening Cyclist Movements

Great South/Campbell Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	2	3	5	5	**1**	-4
2	14	7	13	14	**16**	2
3	16	8	10	19	**14**	-5
4	1	0	4	2	**0**	-2
5	0	0	0	1	**0**	-1
6	0	0	0	0	**0**	0
7	0	0	2	0	**0**	0
8	0	0	0	1	**0**	-1
9	0	0	0	1	**0**	-1
10	14	7	8	12	**7**	-5
11	4	5	4	6	**3**	-3
12	1	0	0	1	**0**	-1
13	0	0	1	0	**1**	1
14	15	13	28	34	**30**	-4
15	5	8	2	1	**3**	2
16	3	1	1	1	**0**	-1
17	2	2	1	0	**0**	0
18	4	1	5	0	**0**	0
19	0	3	0	0	**1**	1
20	4	3	3	4	**2**	-2
Total	**85**	**61**	**87**	**102**	**78**	**-24**

- Over the evening peak, almost all cyclists using this intersection are adults (97 per cent, stable from 95 per cent last year).
- Most cyclists at this site are wearing a helmet (99 per cent, up from 92 per cent in 2010).
- The greatest share of evening cyclists are male (82 per cent).
- Almost all cyclists (85 per cent) are riding on the road, this share down slightly from 2010 (89 per cent).

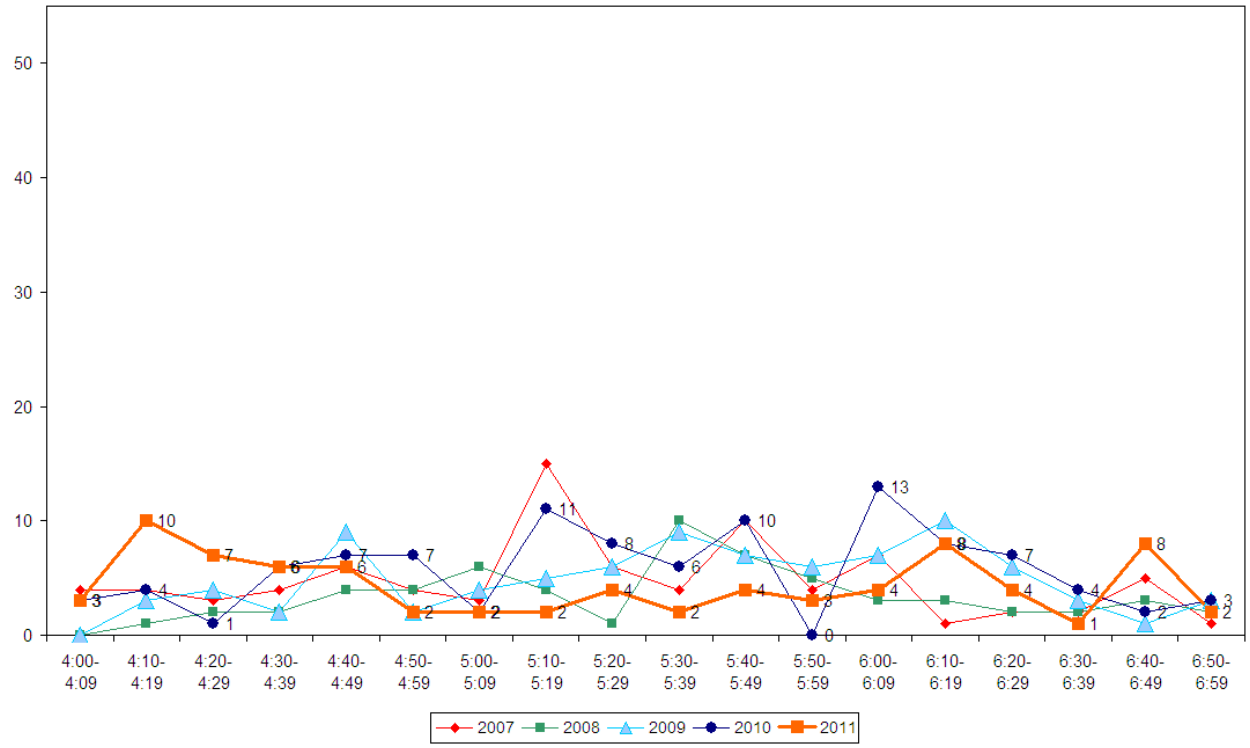
Table 11.4: Evening Cyclist Characteristics

Great South/Campbell Road 2007-2011 (%)

	2007	***2008***	***2009***	**2010**	**2011**	**Change 10-11**
Cyclist Type						
Adult	100	97	97	95	**97**	2
School child	0	3	3	5	**3**	-2
Helmet Wearing						
Helmet on head	95	89	98	92	**99**	7
No helmet	5	11	2	8	**1**	-7
Gender						
Male	-	-	-	-	**82**	-
Female	-	-	-	-	**17**	-
Can't tell	-	-	-	-	**1**	-
Where Riding						
Road	87	82	83	89	**85**	-4
Footpath	13	18	17	11	**15**	4
Base:	***85***	***61***	***87***	***102***	***78***	

- Evening cycle volumes peaked three times during the monitoring period: between 4:10pm and 4:19pm (10 cyclists), between 6:10pm and 6:19pm (8 cyclists), and between 6:40pm and 6:49pm (8 cyclists). This compares with two peaks in 2010 (between 5:10pm and 5:19pm (11 cyclists) and between 6:00pm and 6:09pm (13 cyclists).

Figure 11.3: Evening Peak Cyclist Frequency
Great South/Campbell Road (n)



12. SCHOOL BIKE SHED COUNT

Note: Full primary schools (those taking children through to Year 8) were included in the count for the first time in 2011.

Background Information

- A total of 17 schools from the Albert-Eden-Roskill ward participated in the school bike shed count. However, Dilworth School was deemed ineligible due to all students being boarders.
- Of the schools that responded to the survey, most did not have policies that restrict students cycling to school[9].
- The designated count day was Tuesday 8th of March[10].

Key Points

- Of those eligible to cycle, on average, two per cent of students are cycling to their schools.
- Across the 16 eligible schools that responded n=238 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 22 per cent of all eligible students currently cycling (down from 26 per cent last year).
- Of the 16 eligible schools that responded, 5 (29 per cent) had no students cycling to school.

[9] Note: Balmoral School noted that only students from Years 4 to 8 are permitted to cycle to school. Parental requests for students in Year 3 to cycle are assessed on their merits.

[10] The following schools undertook counts on alternative days:

- Auckland Normal Intermediate, Balmoral SDA, Christ the King Catholic School, Ficino School – Tuesday 29th March
- St Therese School – Thursday 31st March

Table 12.1 shows the results of the 16 schools surveyed in the Albert-Eden-Roskill ward.

Table 12.1: Summary Table Of School Bike Count - 2007-2011 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[11]				
				2011	*2010*	*2009*	*2008*	*2007*
Pasadena Intermediate School	Intermediate	320	70	**22%**	26%	17%	12%	18%
Auckland Normal Intermediate	Intermediate	651	45	**7%**	7%	6%	5%	7%
Kowhai Intermediate School	Intermediate	402	22	**5%**	5%	6%	6%	6%
Waikowhai Intermediate School	Intermediate	388	18	**5%**	3%	4%	3%	3%
Balmoral School	Full primary	533	22	**4%**		-	-	-
Balmoral SDA School	Full primary	88	2	**2%**	-	-	-	-
Mt Roskill Intermediate School	Intermediate	680	16	**2%**	4%	-	2%	2%
Mt Roskill Grammar School	Secondary	2250	31	**1%**	1%	1%	1%	2%
Diocesan School for Girls	Composite	1450	2	**<1%**	<1%	0%	<1%	0%
Lynfield College	Secondary	1982	9	**<1%**	<1%	1%	<1%	1%
Marcellin College	Intermediate/secondary	710	1	**<1%**	0%	0%	1%	-
Christ the King Catholic School	Full primary	130	0	**0%**	-	-	-	-
Epsom Girls Grammar School	Secondary	2193	0	**0%**	<1%	0%	<1%	-
Ficino School	Full primary	120	0	**0%**	-	-	-	-
St Therese School	Full primary	145	0	**0%**	-	-	-	-
Marist College	Intermediate/secondary	750	0	**0%**	<1%	0%	-	-
Total		**12792**	**238**	**2%**				

[11] This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.

Table 12.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (7 per cent, down from 9 per cent in 2010), while other levels of schools have fairly constant cycling rates.

Table 12.2: Summary Table Of School Bike Count by School Type

2007-2011 (%)

School Type	***Number of Schools Responded in 2011***	***Cyclists as share of those eligible***					
		2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Intermediate	5	7%	6%	8%	9%	**7%**	-2
Full primary	5	-	-	-	-	**2%**	-
Secondary	3	2%	<1%	1%	<1%	**1%**	+1
Intermediate/Secondary	2	-	1%	0%	<1%	**<1%**	0
Composite	1	0%	<1%	0%	<1%	**<1%**	0

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APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

Note: This description of the calculation of the Annual Average Daily Traffic Flow of Cyclists has been provided by ViaStrada based on their May 2007 report for ARTA entitled "Development of a Cycle Traffic AADT Tool".

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[12] in the Auckland region from any Gravitas manual count.

Method for Estimating AADT

The methodology is based on that published in Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG)[13], adjusted for Auckland conditions based on data collected during March 2007. The aim was to use the published methodology as much as possible, with any necessary departure from it documented below. The following equation yields the best estimate of a cycling AADT:

$$AADT_{Cyc} = Count \times \frac{1}{\sum H} \times \frac{1}{D} \times \frac{W}{7} \times \frac{1}{R}$$

where *Count = result of count period*

H = scale factor for time of day

D = scale factor for day of week

W = scale factor for week of year

R = scale factor for weather conditions on the count day

If more than one set of count data is available (for example, both a morning count and afternoon count), then **the calculation should be carried out for each set of data, and the estimates derived from each averaged**.

The values for the scale factors (*H, D*, *W* and *R*) have been deduced in the ViaStrada report and are included in this report in Figure 1.

[12] Annual average daily traffic

[13] LTSA, 2004

For the Gravitas counts, the following factors apply:

$\sum H_{AM} = 30$; $\sum H_{PM} = 33.3$; (AM and PM refer to morning and afternoon respectively)

D = 14

W = 0.9

$R_{DRY} = 100$; $R_{WET} = 64$ (DRY and WET refer to fine and rainy conditions respectively)

These can be combined as a single multiplier to convert the manual count to an AADT estimate as follows:

	Morning	Afternoon
Dry weather	**3.06**	**2.78**
Wet weather	**4.78**	**4.35**

Worked Example

If morning and afternoon manual traffic counts are available at a site, the AADT can be calculated using the count summaries for each period. For example, a morning survey of 102 and an afternoon survey of 130 are suggested. It is assumed for this example that the weather was fine in both surveys.

- Thus the AADT from the morning survey is estimated as 3.06 x 102 = 312.
- The AADT from the afternoon survey is estimated as 2.78 x 130 = 359.
- The average of these two estimates is 335; this is the estimate of AADT for this site, based on the two surveys.

Appendix Figure 1: Scale Factors for Auckland Region

Period Starting	Period Ending	Interval (hours)	$H_{Weekday}$ Mon to Fri	$H_{Weekend}$ Sat & Sun
0:00	6:30	6.50	5.5%	1.8%
6:30	6:45	0.25	2.3%	0.8%
6:45	7:00	0.25	2.6%	1.5%
7:00	7:15	0.25	3.2%	1.4%
7:15	7:30	0.25	3.7%	2.1%
7:30	7:45	0.25	3.8%	2.8%
7:45	8:00	0.25	4.0%	3.3%
8:00	8:15	0.25	3.9%	3.2%
8:15	8:30	0.25	3.1%	3.8%
8:30	8:45	0.25	2.3%	3.5%
8:45	9:00	0.25	1.3%	3.5%
9:00	10:00	1.00	4.2%	13.6%
10:00	11:00	1.00	3.4%	11.6%
11:00	12:00	1.00	2.6%	9.1%
12:00	13:00	1.00	2.7%	6.6%
13:00	14:00	1.00	2.7%	5.0%
14:00	14:15	0.25	0.7%	1.9%
14:15	14:30	0.25	0.7%	1.3%
14:30	14:45	0.25	0.6%	1.3%
14:45	15:00	0.25	0.6%	1.2%
15:00	15:15	0.25	0.8%	1.1%
15:15	15:30	0.25	1.0%	0.9%
15:30	15:45	0.25	1.3%	1.4%
15:45	16:00	0.25	1.2%	1.3%
16:00	16:15	0.25	2.1%	1.0%
16:15	16:30	0.25	2.3%	1.7%
16:30	16:45	0.25	2.1%	1.0%
16:45	17:00	0.25	2.5%	1.2%
17:00	17:15	0.25	3.3%	1.2%
17:15	17:30	0.25	3.7%	1.2%
17:30	17:45	0.25	4.0%	1.1%
17:45	18:00	0.25	3.2%	1.1%
18:00	18:15	0.25	3.0%	0.9%
18:15	18:30	0.25	2.7%	0.7%
18:30	18:45	0.25	2.4%	0.8%
18:45	19:00	0.25	2.1%	0.6%
19:00	20:00	1.00	5.6%	2.0%
20:00	0:00	4.00	3.0%	1.5%
		24.00	100.0%	100.0%

Day	D
Monday	14%
Tuesday	14%
Wednesday	14%
Thursday	14%
Friday	14%
Saturday	14%
Sunday	16%

Period	W
Summer holidays	1.0
Term 1	0.9
April holidays	1.0
Term 2	1.0
July holidays	1.2
Term 3	1.1
Sep/Oct holidays	1.2
Term 4	1.0

Weather	R
Fine	100%
Rain	64%