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Research Report Prepared for
Auckland Transport

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2013 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].

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:

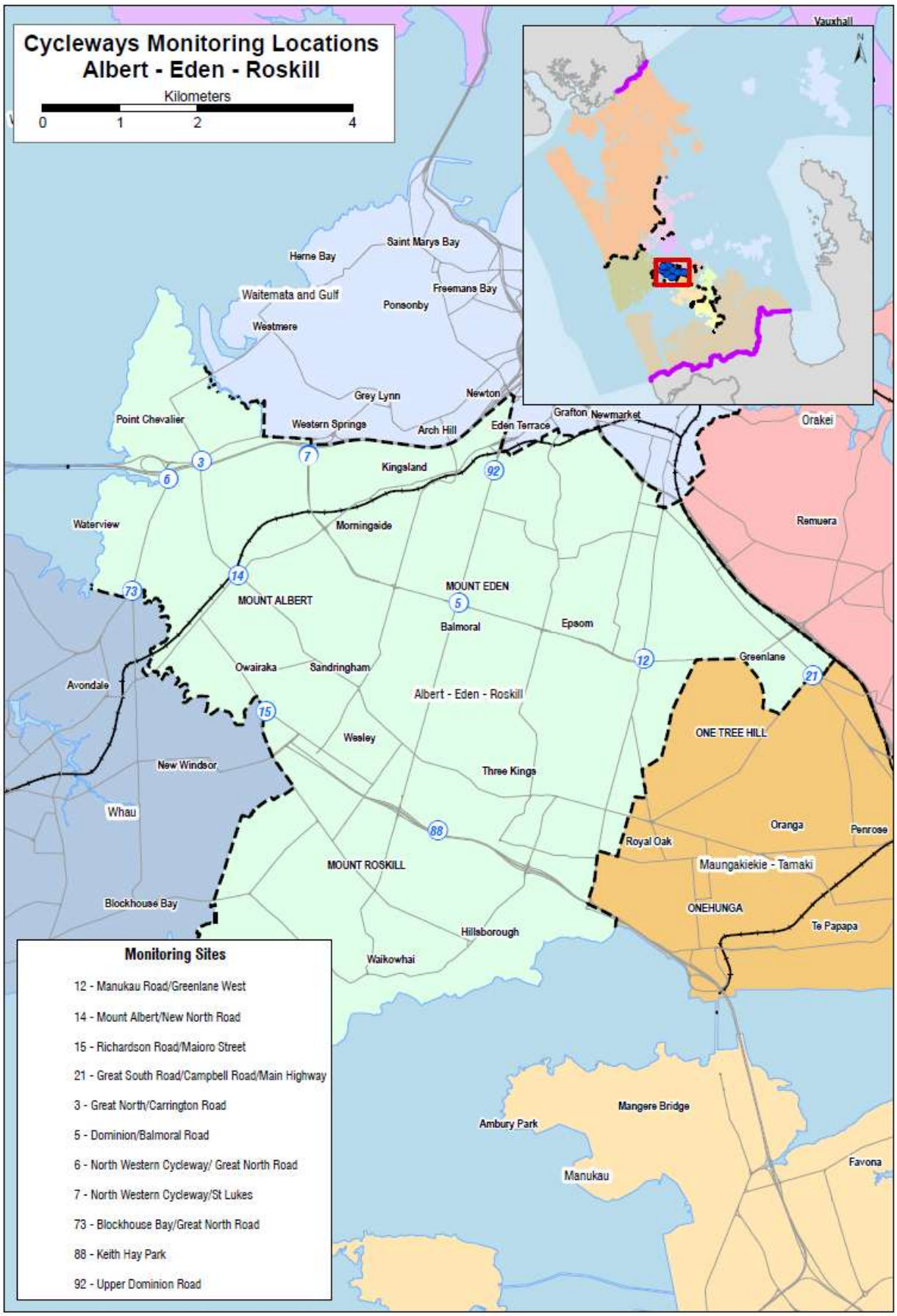
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 11 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 previous years, comparative results are provided.

Important Note: This report provides the results of manual cycle monitoring conducted at 11 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: 2013 Cycle Monitoring Locations in Albert-Eden-Roskill Ward



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 85 different sites throughout the region. Sites were distributed by ward as follows:

- Albany 15 sites
- Albert-Eden–Roskill 11 sites
- Franklin 2 sites
- Howick 5 sites
- Manukau 10 sites
- Manurewa-Papakura 4 sites
- Maungakiekie-Tamaki 7 sites
- North Shore 8 sites
- Orakei 3 sites
- Waitakere 13 sites
- Waitemata and Gulf 10 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 5th of March and be conducted on the first three fine days of the 5th, 6th, 7th, 12th, 13th, or 14th of March.

Counts were conducted on the following days:

• Tuesday 5th March	Albany, North Shore, Waitakere
• Wednesday 6th March	Howick, Franklin, Manukau, Waitemata & Gulf
• Thursday 7th March	Whau, Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki

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

Weather and Daylight Conditions

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 four count days in 2013 was as follows:

Tuesday 5th March

- Sunrise: 7:10am; Sunset: 7:55pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with a few sites experiencing light drizzle in the morning and cloud in the evening.

Wednesday 6th March

- Sunrise: 7:11am; Sunset: 7:53pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with clear sky in the morning and evening shifts.

Thursday 7th March

- Sunrise: 7:12am; Sunset: 7:52pm.
- Highest temperature: 26.0 degrees Celsius.
- Mostly fine weather with some clouds for some sites in 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).
- Onehunga Harbour Road (Site 17, Maungakiekie-Tamaki 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].

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.

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[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).

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].

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].

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

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.

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=306) 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 5th 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 2013, 283 responses were received, a response rate of 92 per cent. (This compares with 74 per cent in 2012).

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.

1.2 Summary of Results

This summary contains the aggregated results of the 11 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 Twelve of this report.

Note: Surveying in the Albert-Eden-Roskill ward was undertaken on Thursday 7th March, 2013. Note: Sunrise: 7:12am; Sunset: 7:52pm. Highest temperature: 26.0 degrees Celsius.

1.3 Morning Peak Summary Results

Environmental Conditions

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

Key Points

- A total of 1,261 cyclist movements were recorded across the 11 sites in the morning peak period in 2013. Two per cent (n=29) of the total cycle movements in the morning peak were observed made by those cycling in groups. This compares with two per cent (n=17) in 2012.
- Of the 10 pre-existing sites in this ward, the total number of morning cycle movements has increased by 14 per cent over the last 12 months – from 1,021 in 2012 to 1,164 this year.
- The average volume of morning cyclists across all 11 sites in Albert-Eden-Roskill was 115 cycle movements.
- Of the 11 sites monitored, the busiest in the morning peak continued to be the North Western Cycleway at St Lukes (277 cycle movements), whereas the Richardson Road/Maioro Street site has the lowest volume of morning cyclists (25 movements).
- All sites except two recorded increases in cycle movements this year compared to 2012. The most notable increases were at:
  - Keith Hay Park/Somerset Rd/ Bridge – up 61 per cent; and
  - Dominion/Balmoral Road – up 32 per cent.
- The two sites which experienced declines in cycle volume were:
  - Mount Albert/New North Road – down 26 per cent; and
  - Richardson Road/Maioro Street – down 14 per cent.

Table 1.1: Summary Of Morning Cyclist Movements

2007-2013 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13	Change 07-13
7	North Western Cycleway/St Lukes	152	156	155	222	240	222	**277**	**25%**	**82%**
6	North Western Cycleway/Great North Road	98	156	145	244	204	201	**258**	**28%**	**163%**
5	Dominion/Balmoral Road	114	90	85	91	99	97	**128**	**32%**	**12%**
3	Great North/Carrington Road	114	95	97	150	103	112	**112**	**0%**	**-2%**
12	Manukau Road/Greenlane West	103	92	84	130	120	110	**99**	**10%**	**-4%**
21	Great South Road/Campbell Road/Main Highway	89	53	64	69	60	68	**77**	**13%**	**-13%**
14	Mount Albert/New North Road	75	68	59	91	97	94	**70**	**-26%**	**-7%**
	Average per site (7 sites since 2007)	**106**	**101**	**98**	**142**	**132**	**129**	**146**	**13%**	**38%**
	Total (7 sites since 2007)	**745**	**710**	**689**	**997**	**923**	**904**	**1021**	**13%**	**37%**
73	Blockhouse Bay/Great North Road	-	57	57	66	56	60	**73**	**22%**	**-**
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	28	29	28	**45**	**61%**	**-**
15	Richardson Road/Maioro Street	-	-	8	14	15	29	**25**	**-14%**	**-**
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites in 2010)	**-**	**96**	**84**	**110**	**102**	**102**	**117**	**15%**	**-**
	Total (8 sites in 2008, 9 sites in 2009, 10 sites in 2010)	**-**	**767**	**754**	**1105**	**1023**	**1021**	**1164**	**14%**	**-**
92	Upper Dominion Road/Eden Terrace	-	-	-	-	-	-	**97**	-	-
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites in 2010-2012, 11 sites in 2013)	-	-	-	-	-	-	**115**	-	-
	Total (8 sites in 2008, 9 sites in 2009, 10 sites in 2010-2012, 11 sites in 2013)	-	-	-	-	-	-	**1261**	-	-

- Morning cyclist characteristics this year were similar to those reported in 2012. Ninety-two per cent of cyclists this year were adults (up slightly from 89 per cent in 2012).
- Almost all morning cyclists were wearing a helmet (97 per cent, up from 91 per cent in 2012).
- The majority of morning cyclists were male (84 per cent, up 3 percentage points from last year).
- Riding on the road continued to be the most common (46 per cent, up slightly from 43 per cent last year).

Table 1.2: Summary of Morning Cyclist Characteristics

2007 – 2013 (%)

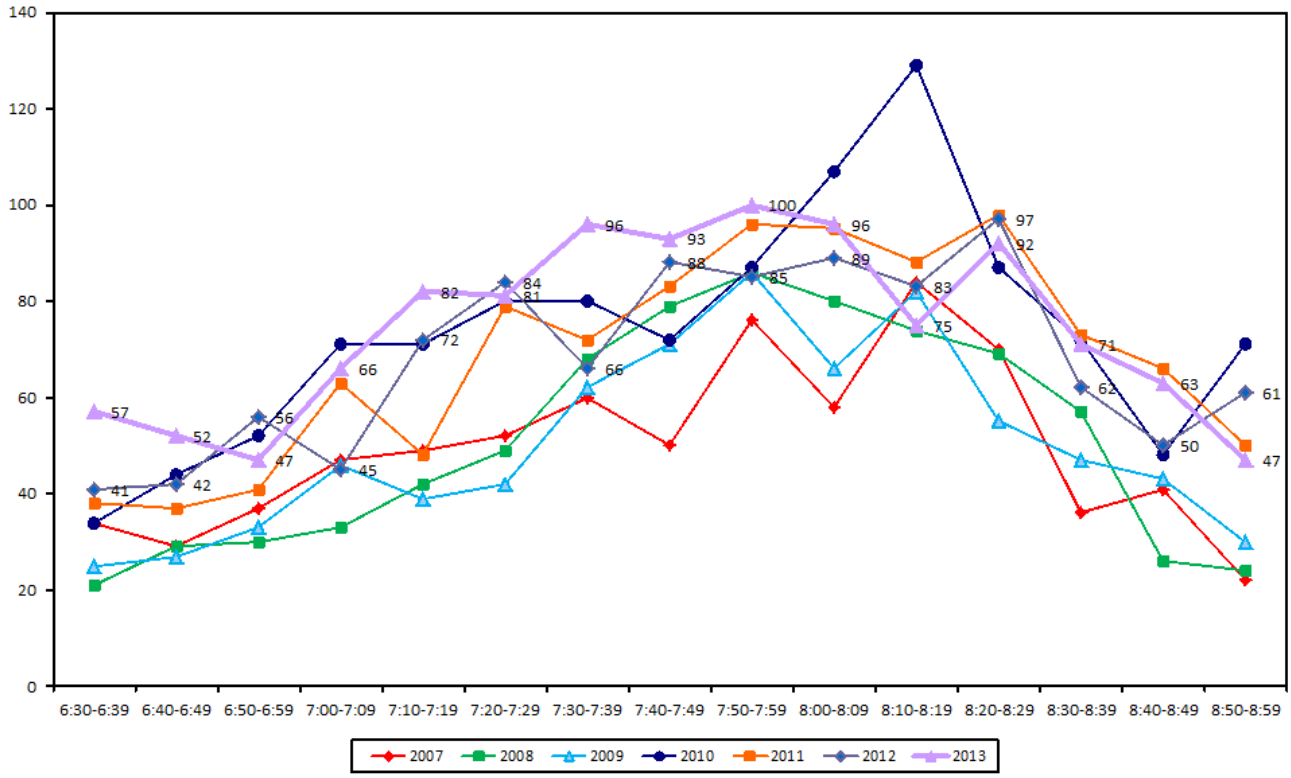
	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type								
Adult	87	87	87	88	89	89	**92**	**3**
School child	13	13	13	12	11	11	**8**	**-3**
Helmet Wearing								
Helmet on head	95	95	94	94	94	91	**97**	**6**
No helmet	5	5	6	6	6	9	**3**	**-6**
Gender								
Male	-	-	-	-	78	81	**84**	**3**
Female	-	-	-	-	18	17	**15**	**-2**
Can't tell	-	-	-	-	4	2	**1**	**-1**
Where Riding*								
Road	81	81	54	48	45	43	**46**	**3**
Footpath	19	19	14	16	16	17	**16**	**-1**
Off-road cycleway	0	0	32	36	39	40	**38**	**-2**
Base:	***745***	***767***	***754***	***1105***	***1023***	**1021**	**1261**	

** Note: Prior to 2009, cyclists riding on the North-Western Cycleway were categorised as road riders.*

- Figure 1.2 showed the overall pattern of morning cyclist volumes recorded at the 11 sites monitored in 2013. Morning cyclist numbers followed an increasing trend from 6:50am to a peak between 7:50am and 7:59am (100 cyclists), after which the number of movements declined over the remainder of the morning period. This pattern is similar to that observed in previous years.

Figure 1.2: Total Cyclist Frequency

Morning Peak 2007 – 2013 (n)



1.4 Evening Peak Summary Results

Environmental Conditions

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

Key Points

- A total of 1235 cyclist movements were recorded across the 11 sites in the evening peak period in 2013. Three of the total cycle movements in the evening peak were made by those cycling in groups.
- Of the 10 pre-existing sites, the total number of evening cyclists has increased by 20 per cent over the last twelve months (from 943 to 1128).
- The average volume of evening cyclist movements across all 11 sites in the Albert-Eden-Roskill ward was 112 cycle movements.
- Of the 11 Albert-Eden-Roskill sites, the volume of evening cyclists was lowest at the Keith Hay Park/Somerset Road/Bridge site (14 cycle movements recorded), whereas the North Western Cycleway/St Lukes site continued to be the busiest in terms of evening cyclists' activity, with 270 movements recorded.
- Seven of the ten pre-existing sites have recorded increase in evening cycle movements this year compared to 2012. The increases were most noticeable at:
  - Mount Albert/New North Road – up 32 per cent
  - North Western Cycleway/St Lukes – up 30 per cent.
- The three sites which have recorded a decline in evening cyclist volumes this year were:
  - Keith Hay Park/Somerset Road/Bridge – down 26 per cent
  - Richardson Road/Maioro Street – down 4 per cent; and
  - Blockhouse Bay/Great North Road – down 1 per cent.

Table 1.3: Summary of Evening Cyclist Movements

2007 – 2013 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13	Change 07-13
7	North Western Cycleway/St Lukes	172	175	155	210	273	207	**270**	**30%**	**57%**
6	Northwestern Cycleway/Great North Rd	134	213	141	241	282	204	**261**	**28%**	**95%**
3	Great North/Carrington Road	121	136	96	164	129	94	**116**	**23%**	**-4%**
5	Dominion/Balmoral Road	123	111	98	114	98	91	**107**	**18%**	**-13%**
12	Manukau Road/Greenlane West	122	113	92	127	107	95	**100**	**5%**	**-18%**
14	Mount Albert/New North Road	81	96	83	118	104	76	**100**	**32%**	**23%**
21	Great South Road/Campbell Road/Main Highway	85	61	87	102	78	64	**69**	**8%**	**-19%**
	Average per site (7 sites since 2007)	**120**	**129**	**107**	**154**	**153**	**119**	**145**	**22%**	**21%**
	Total (7 sites since 2007)	**838**	**905**	**752**	**1076**	**1071**	**831**	**1023**	**23%**	**22%**
73	Blockhouse Bay/Great North Road	-	60	62	75	73	69	**68**	**-1%**	**-**
15	Richardson Road/Maioro Street	-	-	13	25	22	24	**23**	**-4%**	**-**
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	25	40	19	**14**	**-26%**	**-**
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**121**	**92**	**120**	**121**	**94**	**113**	**20%**	**-**
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**965**	**827**	**1201**	**1206**	**943**	**1128**	**20%**	**-**
92	Upper Dominion Road/Eden Terrace	-	-	-	-	-	-	**107**	-	-
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites in 2010-2012, 11 sites in 2013)	-	-	-	-	-	-	**112**	**-**	**-**
	Total (8 sites in 2008, 9 sites in 2009, 10 sites in 2010-2012, 11 sites in 2013)	-	-	-	-	-	-	**1235**	**-**	**-**

- Evening cyclist characteristics this year were similar to those reported in 2012. In particular, 96 per cent of evening cyclists this year were adults (stable from 94 per cent in 2012).
- Most cyclists were wearing a helmet in the evening (93 per cent, stable from 91 per cent in 2012).
- The majority of the cyclists recorded over the evening monitoring period were male (84 per cent).
- Riding on the road continued to be the most common for evening cyclists (46 per cent, up 3 percentage points from 2012), and there has been a decrease in the use of off-road cycleway (down 4 percentage points from 2012).

Table 1.4: Summary of Evening Cyclist Characteristics

2007 – 2013 (%)

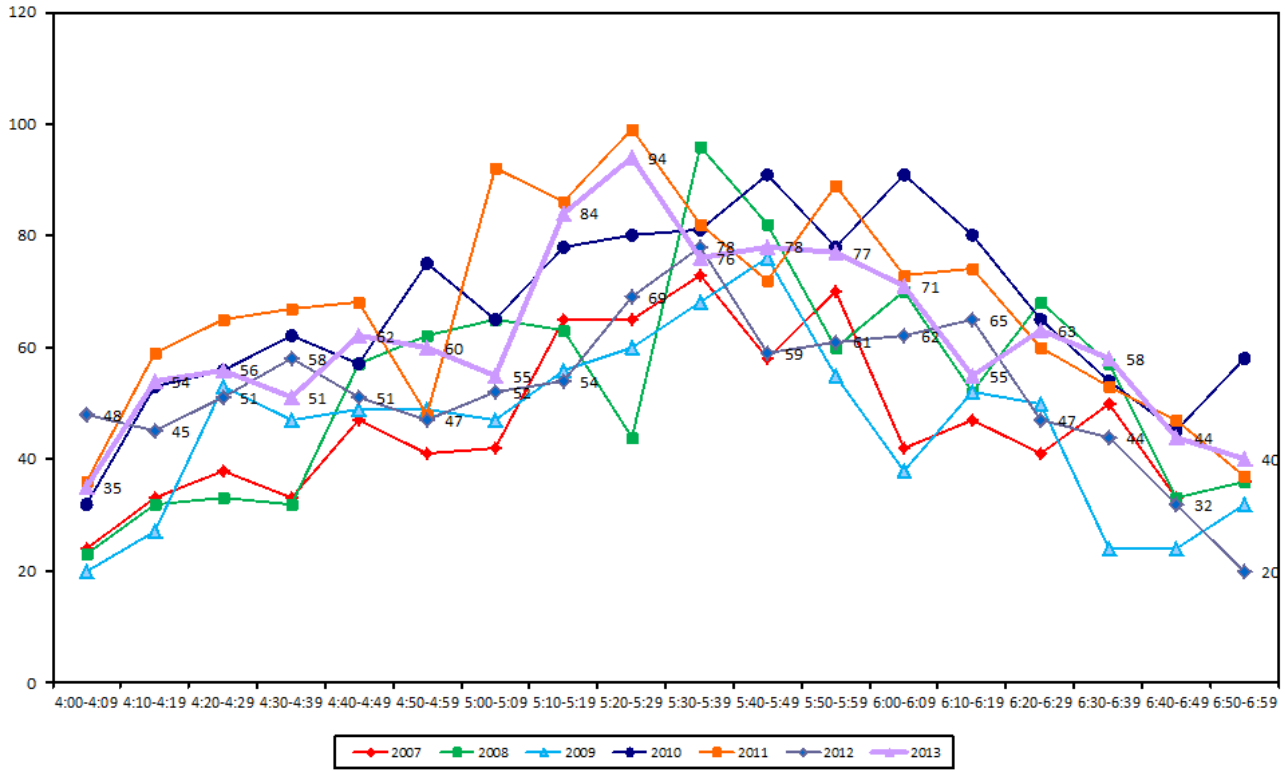
	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type								
Adult	93	90	95	93	92	94	**96**	**2**
School child	7	10	5	7	8	6	**4**	**-2**
Helmet Wearing								
Helmet on head	93	92	92	90	92	91	**93**	**2**
No helmet	7	8	8	10	8	9	**7**	**-2**
Gender								
Male	-	-	-	-	84	84	**84**	**0**
Female	-	-	-	-	14	15	**16**	**1**
Can't tell	-	-	-	-	2	1	**0**	**-1**
Where Riding*								
Road	80	82	54	48	42	43	**46**	**3**
Footpath	20	18	15	19	16	16	**17**	**1**
Off-road cycleway	0	0	31	33	42	41	**37**	**-4**
Base:	***838***	***965***	***827***	***1201***	***1206***	***943***	***1235***	

** Note: Prior to 2009, cyclists riding on the North-Western Cycleway were categorised as road riders.*

- The overall pattern of evening cyclist volumes derived from the 11 sites in the Albert-Eden-Roskill ward has been illustrated in Figure 1.3. Evening cyclist numbers started off at a moderate level, increasing to a peak between 5:20pm and 5:29pm (94 movements). After this the traffic continued to decline throughout the remainder of the monitoring period. This pattern is similar to that observed in previous years.

Figure 1.3: Total Cyclist Frequency

Evening Peak 2007 – 2013 (n)



1.5 Aggregated Total Summary Results

- Overall, a total of 2,496 cyclist movements were recorded across the 11 sites monitored in 2013 – among which one per cent (n=32) were made by pelotons. This compares with 1 per cent (n=17) cycling in groups in 2012.
- Of the 10 pre-existing sites, total cycle movements have increased by 17 per cent over the last 12 months – up from 1,964 in 2012 to 2496 this year.
- In the Albert-Eden-Roskill ward, the busiest site continued to be North Western Cycleway/St Lukes Road with a total of 547 movements, while Richardson Road/Maioro Street has the fewest cyclists (48 movements).

Table 1.5: Summary of Total Cyclist Movements

2007 – 2013 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13	Change 07-13
7	North Western Cycleway/St Lukes	324	331	310	432	513	429	**547**	**28%**	**69%**
6	North Western Cycleway/Great North Road	232	369	286	485	486	405	**519**	**28%**	**124%**
5	Dominion/Balmoral Road	237	201	183	205	197	188	**235**	**25%**	**-1%**
3	Great North/Carrington Road	235	231	193	314	232	206	**228**	**11%**	**-3%**
12	Manukau Road/Greenlane West	225	205	176	257	227	205	**199**	**-3%**	**-12%**
14	Mount Albert/New North Road	156	164	142	209	201	170	**170**	**0%**	**9%**
21	Great South Road/Campbell Road/Main Highway	174	114	151	171	138	132	**146**	**11%**	**-16%**
	Average per site (7 sites since 2007)	**226**	**231**	**206**	**296**	**285**	**248**	**292**	**18%**	**29%**
	Total (7 sites since 2007)	**1583**	**1615**	**1441**	**2073**	**1994**	**1735**	**2043**	**18%**	**29%**
73	Blockhouse Bay/Great North Road	-	117	119	141	129	129	**141**	**9%**	-
15	Richardson Road/Maioro Street	-	-	21	39	37	53	**48**	**-9%**	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	53	69	47	**59**	**26%**	-
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	-	**217**	**176**	**231**	**223**	**196**	**229**	**17%**	-
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	-	**1732**	**1581**	**2306**	**2229**	**1964**	**2291**	**17%**	-
92	Upper Dominion Road/Eden Terrace	-	-	-	-	-	-	**204**	-	-
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites in 2010-2012, 11 sites in 2013)	-	-	-	-	-	-	**227**	-	-
	Total (8 sites in 2008, 9 sites in 2009, 10 sites in 2010-2012, 11 sites in 2013)	-	-	-	-	-	-	**2496**	-	-

- Overall, cyclist characteristics this year are similar to those reported in 2012. In particular, 94 per cent of all cyclists this year are adults (up slightly from 91 per cent last year).
- Most cyclists were wearing a helmet (95 per cent, the largest share monitoring began).
- Males made up approximately four in five cyclists (84 per cent).
- Forty-six per cent of cyclists were riding on the road, while 37 per cent were riding on off-road cycleway.

Table 1.6: Summary of Total Cyclist Characteristics

2007 – 2013 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type								
Adult	90	89	91	91	91	91	**94**	**3**
School child	10	11	9	9	9	9	**6**	**-3**
Helmet Wearing								
Helmet on head	94	93	93	92	93	91	**95**	**4**
No helmet	6	7	7	8	7	9	**5**	**-4**
Gender								
Male	-	-	-	-	81	82	**84**	**2**
Female	-	-	-	-	16	16	**15**	**-1**
Can't tell	-	-	-	-	3	2	**1**	**-1**
Where Riding*								
Road	80	82	54	48	43	43	**46**	**3**
Footpath	20	18	15	15	16	17	**17**	**0**
Off-road cycleway	0	0	31	37	41	40	**37**	**-3**
Base:	***1583***	***1732***	***1581***	***2306***	***2229***	***1964***	***2496***	

** Note: Prior to 2009 cyclists riding on the North-Western Cycleway were categorised as road riders.*

1.6 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 (796 daily movements, up from 625 movements in 2012) and the lowest is at Richardson Road/Maioro Street (70 daily movements, down from 77 movements in 2012).
- Four sites experienced volume increases of over 20 per cent since last year:
  - North Western Cycleway/Great North Road – up 28 per cent;
  - Keith Hay Park/Somerset Road/Bridge – up 28 per cent;
  - North Western Cycleway/St Lukes – up 27 per cent; and
  - Dominion/Balmoral Road – up 26 per cent.
- In contrast, only three sites have recorded decreases in total AADT estimates this year compared with 2012:
  - Richardson Road/Maioro Street – down 10 per cent
  - Manukau Road/Greenlane West – down 3 per cent; and
  - Mount Albert/New North Road – down 2 per cent.

Table 1.7: AADT Estimates Based on Morning and Evening Cyclist Movements 2007 – 2013 (n)

Site No.	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	*2012 AADT*	*2013 AADT*	12-13 Change	07-13 Change
7	North Western Cycleway/St Lukes	469	480	451	629	743	625	**796**	**27%**	**70%**
6	North Western Cycleway/Great North Road	335	532	416	705	701	589	**754**	**28%**	**125%**
5	Dominion/Balmoral Road	344	291	265	296	286	274	**343**	**25%**	**0%**
3	Great North/Carrington Road	341	333	281	455	335	301	**331**	**10%**	**-3%**
92	Upper Dominion Road/Eden Terrace	-	-	-	-	-	-	**296**	**-**	**-**
12	Manukau Road/Greenlane West	326	296	255	374	331	299	**289**	**-3%**	**-11%**
14	Mount Albert/New North Road	226	236	205	302	292	249	**245**	**-2%**	**8%**
21	Great South Road/Campbell Road/Main Highway	253	165	218	246	199	192	**213**	**11%**	**-16%**
73	Blockhouse Bay/Great North Road	-	170	173	204	186	187	**205**	**10%**	**-**
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	77	99	69	**88**	**28%**	**-**
15	Richardson Road/Maioro Street	-	-	30	56	53	77	**70**	**-10%**	**-**

1.7 School Bike Shed Count Summary

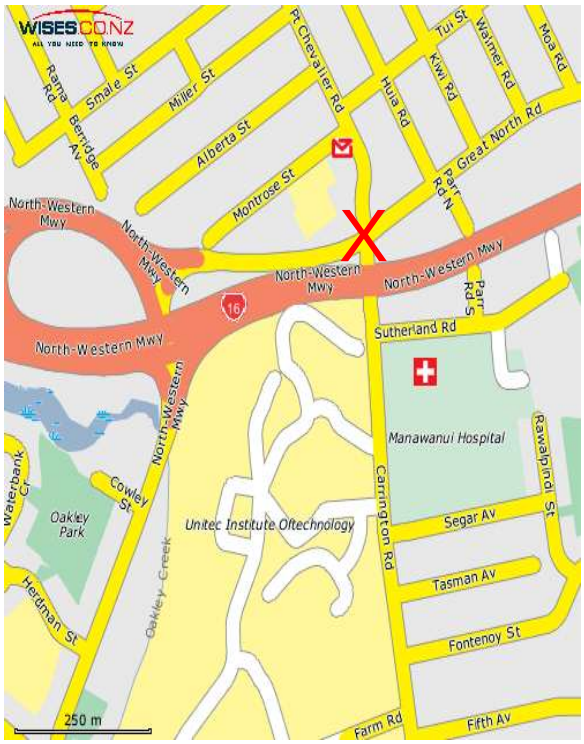
Key Points

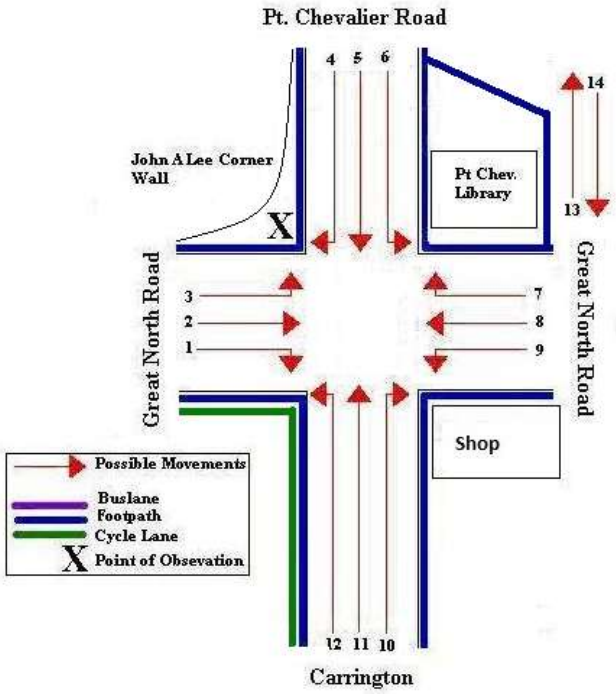
- Of those eligible to cycle, on average two per cent of students are cycling to their schools. This result is unchanged from 2012.
- Across the 19 eligible schools that responded, n=217 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 11 per cent of all eligible students currently cycling (stable from 12 per cent last year).
- Of the 19 eligible schools that responded, 5 (26 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (4 per cent, down from 5 per cent in 2012).

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
2012	112	94	206	301
2013	**112**	**116**	**228**	**331**

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 have remained stable on 112 in 2013.
- The key movements at this intersection were straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 33 cyclist movements) and straight through from Pt Chevalier Road into Carrington Road (Movement 5 = 28 cyclist movements).
- Compared with last year, the volume of morning cyclist movements has increased most notably at Movement 11 (up 17 movements) and decreased most notably at Movement 5 (down 13 movements).

Table 2.1: Morning Cyclist Movements

Great North/Carrington/Point Chevalier 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 11-12
1	0	0	0	2	0	2	**0**	**-2**
2	10	10	9	14	6	10	**3**	**-7**
3	0	5	1	4	3	0	**0**	**0**
4	4	2	3	1	1	0	**2**	**2**
5	23	15	17	24	36	41	**28**	**-13**
6	5	0	0	1	0	0	**1**	**1**
7	4	2	1	1	0	0	**2**	**2**
8	4	2	2	4	1	1	**4**	**3**
9	14	4	7	19	13	13	**11**	**-2**
10	32	36	31	36	18	28	**21**	**-7**
11	17	18	22	44	24	16	**33**	**17**
12	1	1	4	0	1	1	**0**	**-1**
13	-	-	-	-	-	-	**0**	**0**
14	-	-	-	-	-	-	**0**	**0**
Don't know	-	-	-	-	-	-	**7**	**7**
Total	**114**	**95**	**97**	**150**	**103**	**112**	**112**	**0**

Note: The seven unknown movements were made by cyclists who met up at a cycle shop in Point Chevalier (that is, they rode into the intersection but did not have an exit point).

- The majority of cyclists at this intersection were adults (88 per cent, stable from 87 per cent at the previous measure).
- Most cyclists were wearing a helmet (97 per cent, up from 86 per cent in 2012).
- The majority of cyclists continued to be male (86 per cent, up 9 percentage points since 2012).
- Three-quarters (76 per cent) of cyclists were riding on the road (up from 69 per cent last year).

Table 2.2: Morning Cyclist Characteristics

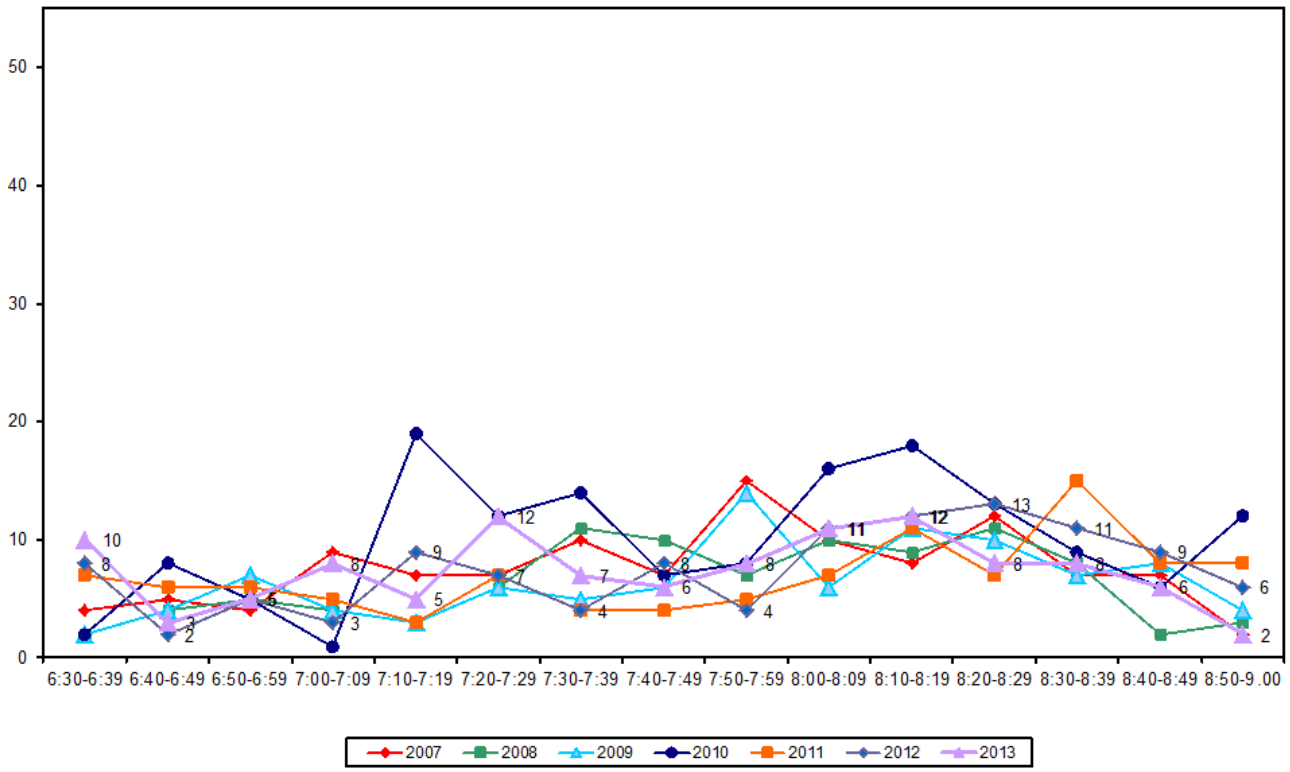
Great North/Carrington/Point Chevalier 2004 – 2013 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type											
Adult	91	84	93	86	84	87	89	89	87	**88**	**1**
School child	9	16	7	14	16	13	11	11	13	**12**	**-1**
Helmet Wearing											
Helmet on head	86	88	88	89	93	91	94	92	86	**97**	**11**
No helmet	14	12	12	11	7	9	6	8	14	**3**	**-11**
Gender											
Male	-	-	-	-	-	-	-	64	77	**86**	**9**
Female	-	-	-	-	-	-	-	21	20	**12**	**-8**
Can't tell	-	-	-	-	-	-	-	15	3	**2**	**-1**
Where Riding											
Road	64	68	75	67	73	68	73	74	69	**76**	**7**
Footpath	36	32	25	33	27	32	27	26	31	**24**	**-7**
Base:	***70***	***57***	***76***	***114***	***95***	***97***	***150***	***103***	***112***	***112***	

- Morning cyclist volumes fluctuated between two and 10 movements for the first hour of the shift, before peaking at 12 movements between 7:20am – 7:29pm. From then the traffic slowed down a little before reaching 12 movements again from 8:10am to 8:19am. Volumes then continued to decrease throughout the remainder of the morning shift.

Figure 2.2: Morning Peak Cyclist Frequency

Great North/Carrington/Point Chevalier 2007 – 2013 (n)



2.3 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

- Evening cyclist movement numbers (114 movements) have increased at this intersection since last year (94 movements).
- The key movements in the evening at this intersection were straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 35 movements), right out of Carrington Road onto Great North Road (Movements 10 = 26 cyclists) and turning left off Great North Road onto Carrington Road (Movement 9 = 23 cyclists)
- The most noticeable increase was at Movement 11 (up 12 movements).

Table 2.3: Evening Cyclist Movements

Great North/Carrington/Point Chevalier 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	1	0	0	1	1	0	**1**	**1**
2	5	5	3	2	3	2	**0**	**-2**
3	0	1	3	1	0	0	**1**	**1**
4	4	10	1	6	3	2	**2**	**0**
5	18	14	18	35	29	12	**18**	**6**
6	4	1	1	1	0	0	**0**	**0**
7	6	4	2	3	0	0	**3**	**3**
8	12	12	12	15	8	6	**5**	**-1**
9	22	29	22	37	31	22	**23**	**1**
10	23	25	15	28	22	26	**26**	**0**
11	26	34	19	35	31	23	**35**	**12**
12	0	1	0	0	1	1	**0**	**-1**
13	-	-	-	-	-	-	**0**	**0**
14	-	-	-	-	-	-	**1**	**1**
Don't know	-	-	-	-	-	-	**1**	**1**
Total	**121**	**136**	**96**	**164**	**129**	**94**	**112**	**18**

Note: There is a DK movement at 6:28pm so the totals of the two tables don't balance.

- Over the evening peak, most cyclists using this intersection were adults (98 per cent, up from 89 per cent in 2012).
- Compared with last year, the share of cyclists wearing a helmet has increased (88 per cent, up from 79 per cent in 2012).
- The majority of cyclists continued to be male (84 per cent).
- Seventy per cent of the cyclists were riding on the road (up 15 percentage points from 55 per cent last year).

Table 2.4: Evening Cyclist Characteristics

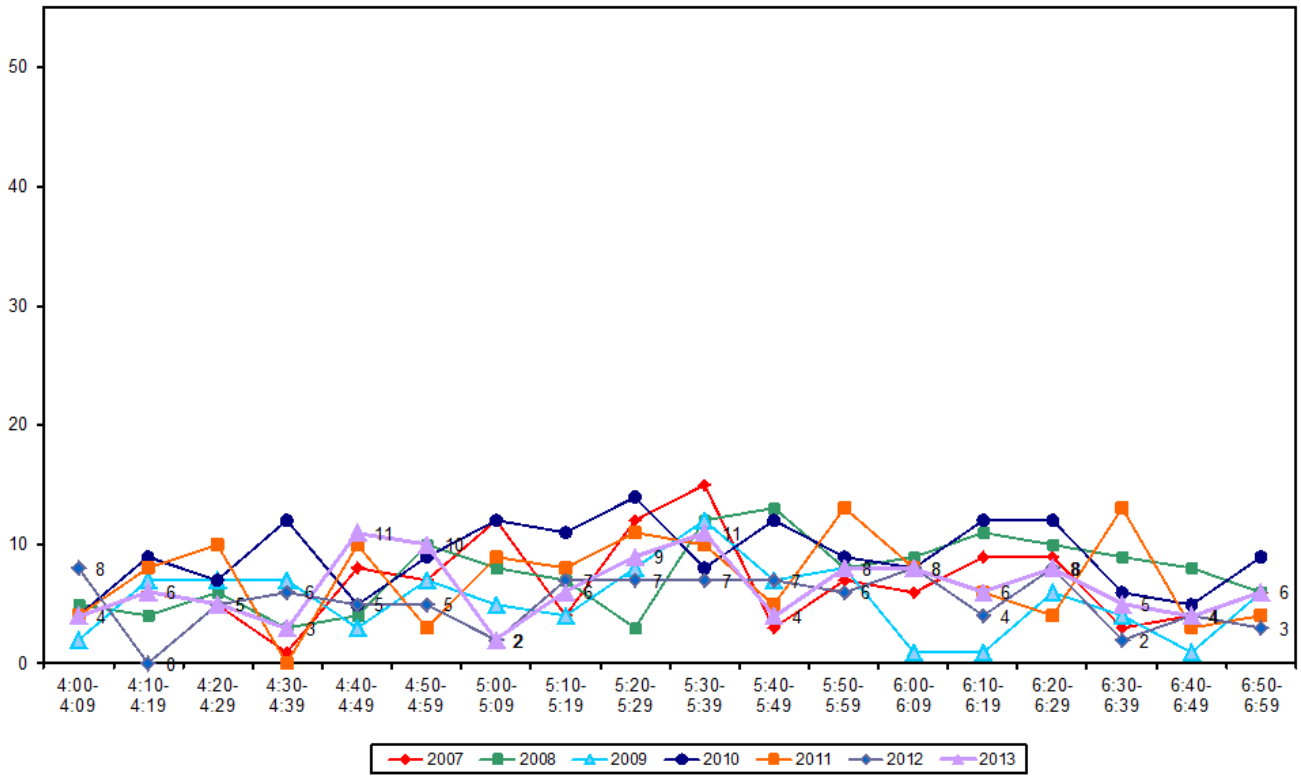
Great North/Carrington/Point Chevalier 2004 – 2013 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type											
Adult	86	89	100	89	96	95	96	91	89	**98**	**9**
School child	14	11	0	11	4	5	4	9	11	**2**	**-9**
Helmet Wearing											
Helmet on head	81	85	84	85	91	91	84	92	79	**88**	**9**
No helmet	19	15	16	15	9	9	16	8	21	**12**	**-9**
Gender											
Male	-	-	-	-	-	-	-	79	88	**84**	**-4**
Female	-	-	-	-	-	-	-	19	12	**16**	**4**
Can't tell	-	-	-	-	-	-	-	2	0	**0**	**0**
Where Riding											
Road	47	66	69	64	71	64	61	64	55	**70**	**15**
Footpath	53	34	31	36	29	36	39	36	45	**30**	**-15**
Base:	***43***	***65***	***45***	***121***	***136***	***96***	***164***	***129***	***94***	***116***	

- Evening cyclist movement volume varied throughout the shift, with no obvious peak periods. The greatest number of cyclists appeared between 4:40pm to 4:49pm and between 5:30pm to 5:39pm (11 movements in each 10 minute period).

Figure 2.3: Evening Peak Cyclist Frequency

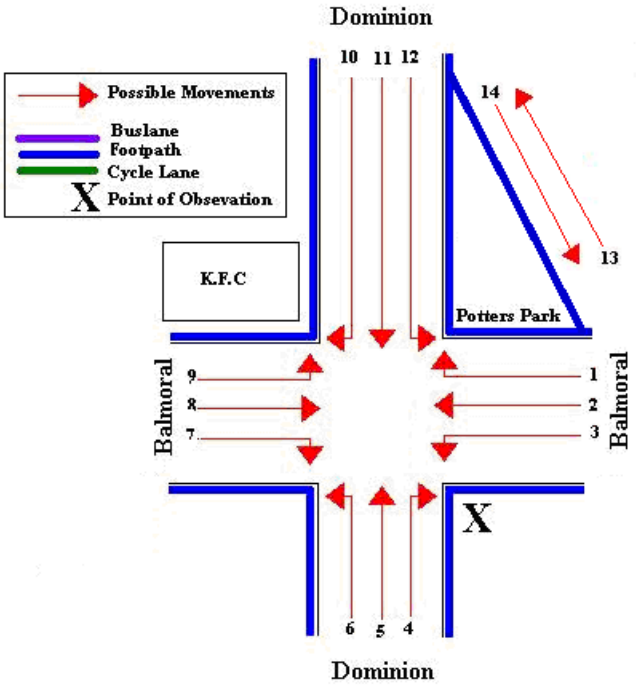
Great North/Carrington/Point Chevalier 2007 -2013 (n)



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
2012	97	91	188	274
2013	**128**	**107**	**235**	**343**

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 by 31 movements (128 movements, compared with 97 movements in 2012).
- The key movement at this site was travelling north along Dominion Road towards the city (Movement 5 = 64 cyclists).
- Movement 5 also showed the most noticeable increase (up 21 cyclists).

Table 3.1: Morning Cyclist Movements

Dominion/Balmoral 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	20	15	10	6	1	5	**7**	**2**
2	11	10	6	7	8	3	**4**	**1**
3	1	0	0	3	0	5	**1**	**-4**
4	1	0	2	1	5	7	**2**	**-5**
5	52	41	35	43	53	43	**64**	**21**
6	4	1	1	3	0	1	**1**	**0**
7	3	0	1	2	1	2	**3**	**1**
8	12	12	15	11	17	13	**13**	**0**
9	4	4	6	4	4	4	**7**	**3**
10	1	1	4	0	1	4	**5**	**1**
11	3	4	4	10	7	6	**17**	**11**
12	2	2	1	1	2	4	**3**	**-1**
13	-	-	-	-	-	-	**1**	**1**
14	-	-	-	-	-	-	**0**	**0**
Total	**114**	**90**	**85**	**91**	**99**	**97**	**128**	**31**

- Most cyclists at this site were adults (95 per cent, up from 89 per cent last year).
- Consistent with previous years, almost all cyclists using this intersection were wearing a helmet (95 per cent, stable from 95 per cent last year).
- Eighty-nine per cent of the cyclists were male.
- Most cyclists were observed riding on the road (88 per cent), a small increase from the 85 per cent observed last year.

Table 3.2: Morning Cyclist Characteristics

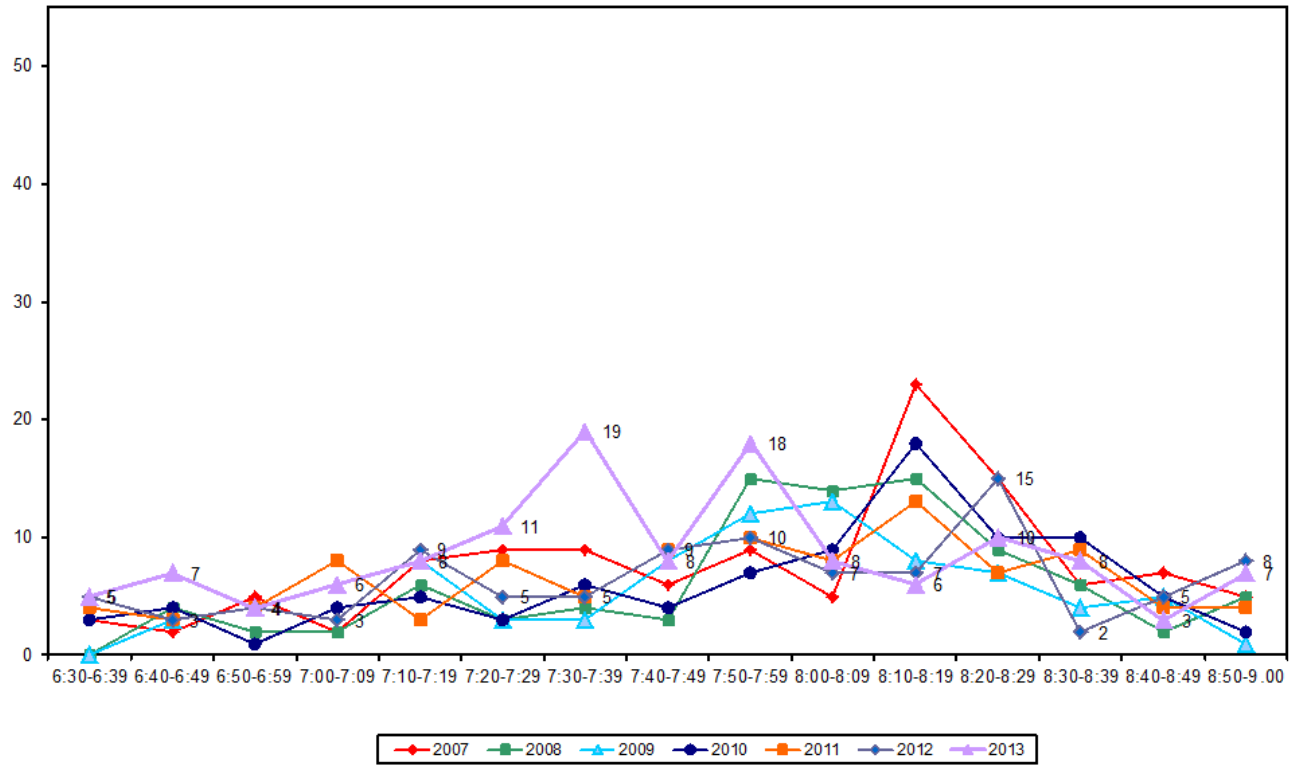
Dominion/Balmoral 2004 – 2013 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type											
Adult	67	81	75	71	74	87	78	95	89	**95**	**6**
School child	33	19	25	29	26	13	22	5	11	**5**	**-6**
Helmet Wearing											
Helmet on head	93	97	98	96	96	96	97	94	95	**95**	**0**
No helmet	7	3	2	4	4	4	3	6	5	**5**	**0**
Gender											
Male	-	-	-	-	-	-	-	75	80	**89**	**9**
Female	-	-	-	-	-	-	-	21	19	**9**	**-10**
Can't tell	-	-	-	-	-	-	-	4	1	**2**	**1**
Where Riding											
Road	67	69	67	65	67	100	70	92	85	**88**	**3**
Footpath	33	31	33	35	33	0	30	8	15	**12**	**-3**
Base:	***76***	***94***	***92***	***114***	***90***	***85***	***91***	***99***	***97***	***128***	

- The volume of morning cyclist movements was the greatest between 7:20am to 8:09am. Two clear peaks could be seen during this time frame, with 19 and 18 cyclists respectively.

Figure 3.2: Morning Peak Cyclist Frequency

Dominion/Balmoral 2007 – 2013 (n)



Note: A group of eight cyclists (6 per cent of the morning cycle traffic at this site) rode past at 7:35am.

3.3 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

- The volume of evening peak cyclist movements recorded at the Dominion/Balmoral Road intersection in 2013 has increased since last year to 107 (from 91 in 2012).
- The key movement at this site was straight along Dominion Road heading south (Movement 11 = 47 movements).
- The most noticeable change since last year in terms of evening cyclist volumes was at Movement 1 (up 7 movements).

Table 3.3: Evening Cyclist Movements

Dominion/Balmoral Road 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	3	7	2	3	3	2	**9**	**7**
2	23	22	18	19	11	15	**14**	**-1**
3	3	2	1	2	4	4	**3**	**-1**
4	1	0	1	5	1	0	**0**	**0**
5	10	10	9	15	14	11	**12**	**1**
6	3	4	2	5	4	1	**0**	**-1**
7	5	4	3	1	2	2	**0**	**-2**
8	8	13	4	5	5	4	**7**	**3**
9	2	0	1	0	1	2	**3**	**1**
10	8	2	7	7	4	7	**8**	**1**
11	51	44	48	47	45	43	**47**	**4**
12	5	3	2	5	4	0	**4**	**4**
13	-	-	-	-	-	-	**0**	**0**
14	-	-	-	-	-	-	**0**	**0**
Total	**123**	**111**	**98**	**114**	**98**	**91**	**107**	**16**

- Almost all cyclists using the Dominion/Balmoral intersection were adults (98 per cent, stable from 97 per cent in 2012).
- The majority of cyclists wore a helmet (94 per cent, stable from 93 per cent in 2012).
- Most cyclists were male (78 per cent).
- Seventy-nine per cent of the cyclists were riding on the road, consistent with previous years.

Table 3.4: Evening Cyclist Characteristics

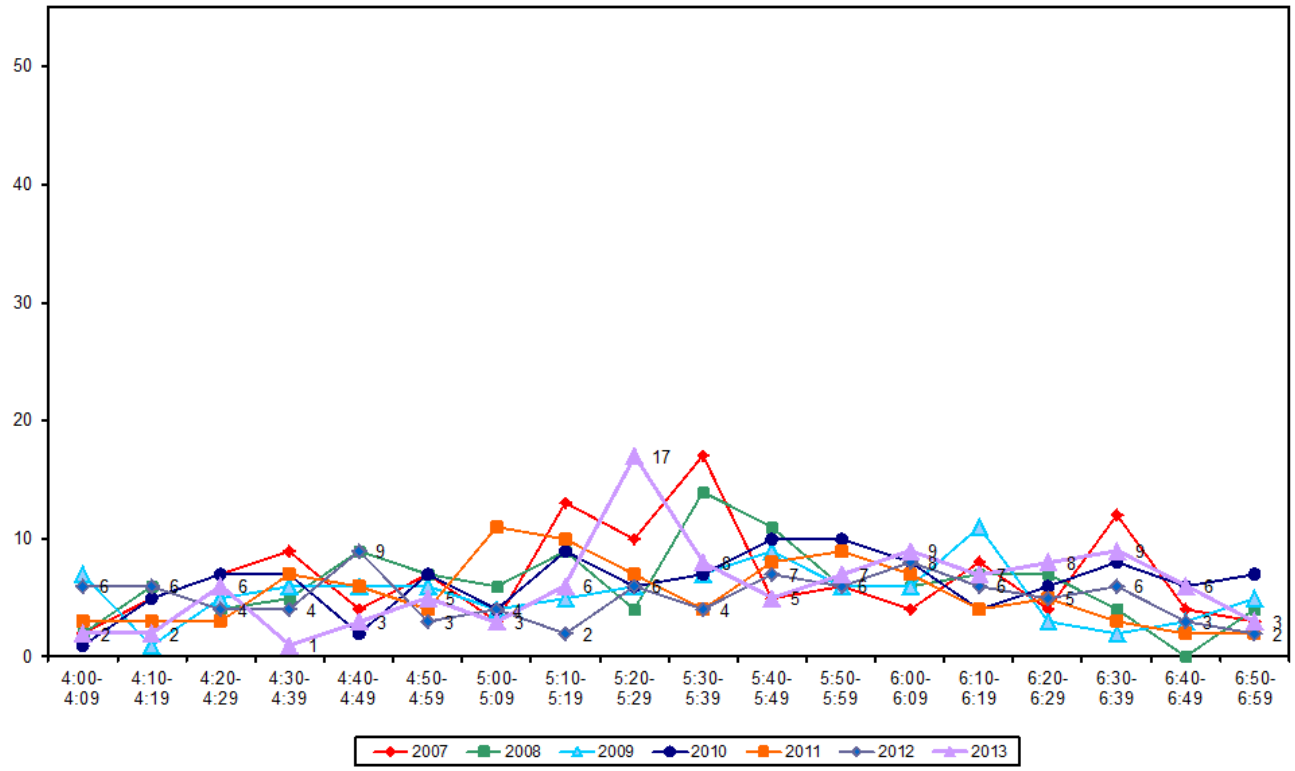
Dominion/Balmoral 2004 – 2013 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 11-12
Cyclist Type											
Adult	81	89	100	93	79	92	86	91	97	**98**	**1**
School child	19	11	0	7	21	8	14	9	3	**2**	**-1**
Helmet Wearing											
Helmet on head	82	84	92	89	86	96	86	90	93	**94**	**1**
No helmet	18	16	8	11	14	4	14	10	7	**6**	**-1**
Gender											
Male	-	-	-	-	-	-	-	84	80	**78**	**-2**
Female	-	-	-	-	-	-	-	15	19	**21**	**2**
Can't tell	-	-	-	-	-	-	-	1	1	**1**	**0**
Where Riding											
Road	70	70	92	78	68	100	82	80	80	**79**	**-1**
Footpath	30	30	8	22	32	0	18	20	20	**21**	**1**
Base:	***73***	***74***	***64***	***123***	***111***	***98***	***114***	***98***	**91**	**107**	

- Cyclist volume remained relatively stable in the evening. There was a peak between 5:20pm to 5:29pm (17 movements). With the except of this peak, cycle counts remained below 10 throughout the monitoring period.

Figure 3.3: Evening Peak Cyclist Frequency

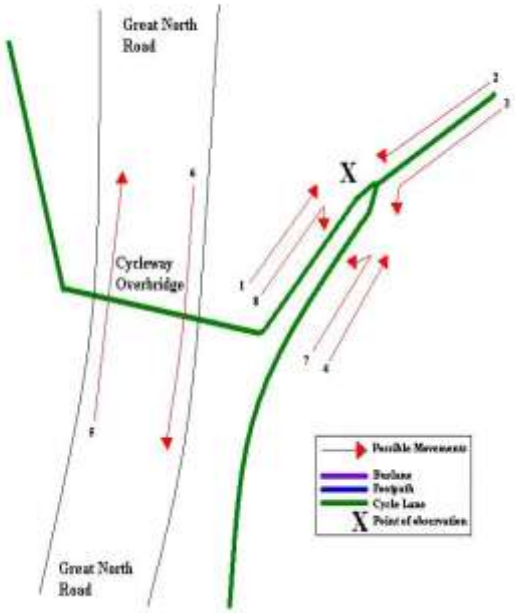
Dominion/Balmoral 2007 – 2013 (n)



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
2012	201	204	405	589
2013	**258**	**261**	**519**	**754**

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 movements recorded at Great North Road/North Western Cycleway have increased from 201 movements last year to 258 this year.
- This year experienced the highest traffic volume since monitoring began in 2007.
- The key morning movement was across Great North Road away from the UNITEC overbridge heading north (Movement 1 = 157 movements).
- Noticeable increases in cycle numbers were evident at Movement 1 (up 38 movements) and at Movement 4 (up 30 movements). The biggest decrease occurred at Movement 5 (down 11 movements)

Table 4.1: Morning Cyclist Movements

Great North Road/North Western Cycleway 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 11-12
1	-	82	75	133	117	119	**157**	**38**
2	-	30	28	55	32	26	**29**	**3**
3	-	5	9	11	10	10	**8**	**-2**
4	-	27	13	28	34	28	**58**	**30**
5	-	10	9	12	6	12	**1**	**-11**
6	-	1	6	4	3	4	**1**	**-3**
7	-	1	1	1	2	2	**1**	**-1**
8	-	0	4	0	0	0	**3**	**3**
Total	**98**	**156**	**145**	**244**	**204**	**201**	**258**	**57**

- Consistent with previous years, most cyclists this year were adults (97 per cent, stable from 96 per cent last year).
- Almost all cyclists were wearing a helmet (99 per cent, a small increase from 96 per cent last year).
- The greatest share of morning cyclists continued to be male (86 per cent).
- Nearly all cyclists were riding on the off-road cycleway (99 per cent, up 6 percentage points from last year).

Table 4.2: Morning Cyclist Characteristics

Great North Road/North Western Cycleway 2006 – 2013 (%)

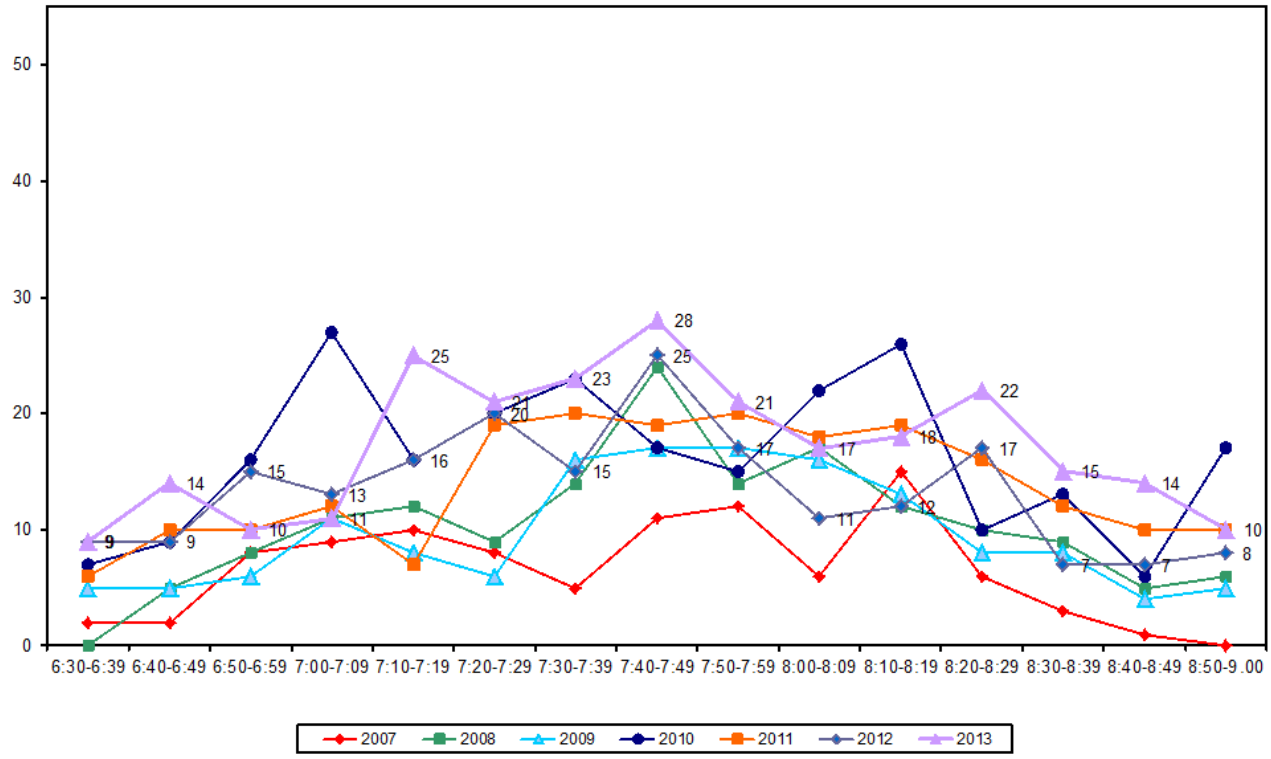
	2006	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type									
Adult	97	91	95	90	93	93	96	**97**	**1**
School child	3	9	5	10	7	7	4	**3**	**-1**
Helmet Wearing									
Helmet on head	94	99	97	97	94	95	96	**99**	**3**
No helmet	6	1	3	3	6	5	4	**1**	**-3**
Gender									
Male	-	-	-	-	-	81	86	**86**	**0**
Female	-	-	-	-	-	16	14	**14**	**0**
Can't tell	-	-	-	-	-	3	0	**0**	**0**
Where Riding*									
Road	100	100	100	9	5	5	7	**1**	**-6**
Off-road cycleway	-	-	-	91	95	95	93	**99**	**6**
Base:	***127***	***98***	***156***	***145***	***244***	***204***	***201***	***258***	

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2013 results are only comparable with results from 2009 onwards.*

- Traffic was low at the start of the monitoring period, then it reached a peak between 7:40am and 7:49am (28 movements) then slowed down towards the end of the period. Smaller peaks were visible approximately every twenty minutes.

Figure 4.2: Morning Peak Cyclist Frequency

Great North Road/North Western Cycleway 2007 – 2013 (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

- The number of evening cyclists has increased this measure, from 204 last year to 261 movements this year.
- The dominating movements at this site in the evening were straight across Great North Road (via the overbridge) in both directions (Movement 2 = 131 cyclists; Movement 1 = 44 cyclists) and coming from the east on the cycle lane and continuing south along Great North Road (Movement 3 = 63 cyclists).
- The most noticeable increase was at Movements 2 (up 26 from 2012).

Table 4.3: Evening Cyclist Movements

Great North Road/North Western Cycleway 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	-	59	25	55	57	25	**44**	**19**
2	-	94	70	113	142	105	**131**	**26**
3	-	40	29	42	49	53	**63**	**10**
4	-	7	7	11	5	8	**11**	**3**
5	-	6	5	9	9	5	**2**	**-3**
6	-	5	5	9	13	7	**1**	**-6**
7	-	1	0	0	1	0	**2**	**2**
8	-	1	0	2	6	1	**7**	**6**
Total	**134**	**213**	**141**	**241**	**282**	**204**	**261**	**57**

- Almost all cyclists in the evening peak were adults (99 per cent, stable from last year).
- Almost all cyclists were wearing helmets (97 per cent, up from 92 per cent last year).
- The greatest share of cyclists continued to be male (85 per cent).
- Almost all cyclists (99 per cent) were riding on the cycleway, up five percentage points from 2012.

Table 4.4: Evening Cyclist Characteristics

Great North Road/North Western Cycleway 2006 – 2012 (%)

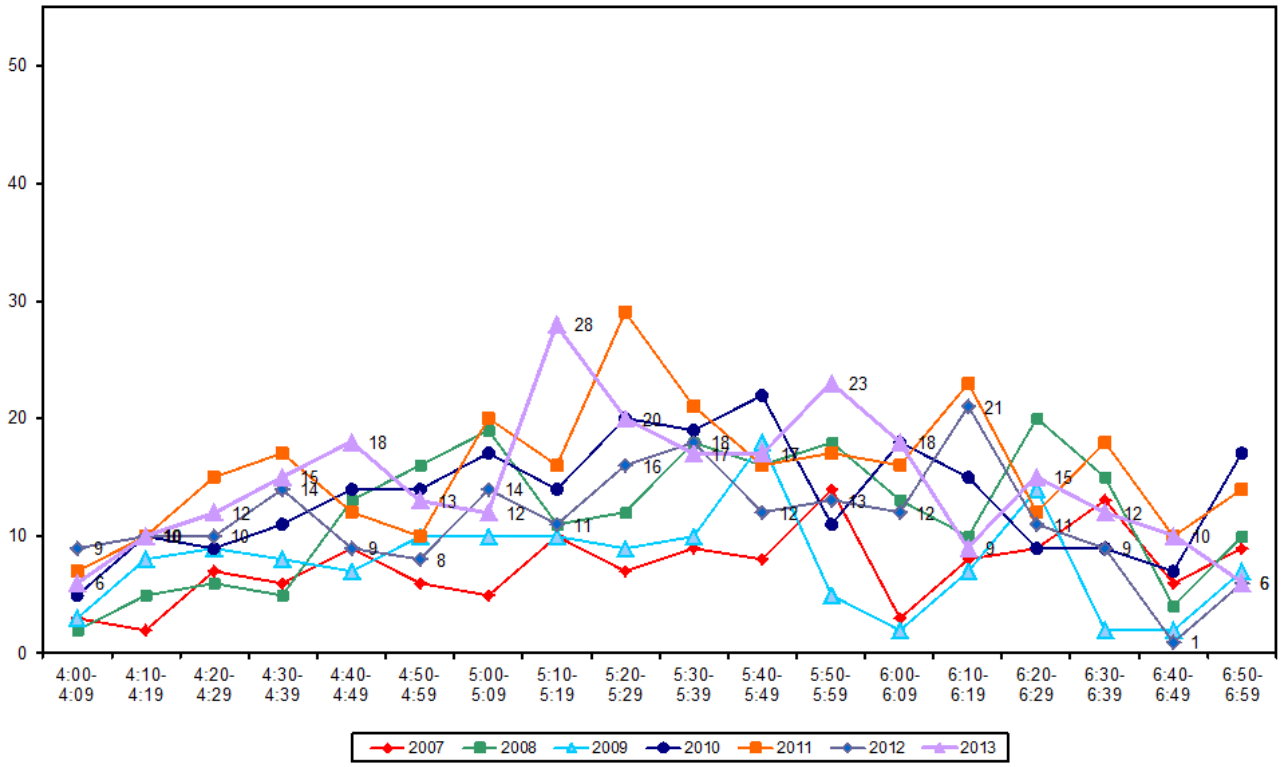
	2006	*2007*	*2008*	*2009*	*2010*	*2011*	2012	2013	Change 11-12
Cyclist Type									
Adult	100	93	100	97	98	96	99	**99**	**0**
School child	0	7	0	3	2	4	1	**1**	**0**
Helmet Wearing									
Helmet on head	95	98	97	95	95	96	92	**97**	**5**
No helmet	5	2	3	5	5	4	8	**3**	**-5**
Gender									
Male	-	-	-	-	-	82	89	**85**	**-4**
Female	-	-	-	-	-	15	11	**15**	**4**
Can't tell	-	-	-	-	-	2	0	**0**	**0**
Where Riding*									
Road	100	100	100	7	7	8	6	**1**	**-5**
Off-road cycleway	-	-	-	93	93	92	94	**99**	**5**
Base:	***94***	***134***	***213***	***141***	***241***	***282***	***204***	***261***	

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2013 results are only comparable with results from 2009 onwards.*

- The volume of evening cyclists varied over time, with a peak between 5:10pm and 5:19pm (28 movements). Smaller peaks were visible approximately every half an hour.

Figure 4.3: Evening Peak Cyclist Frequency

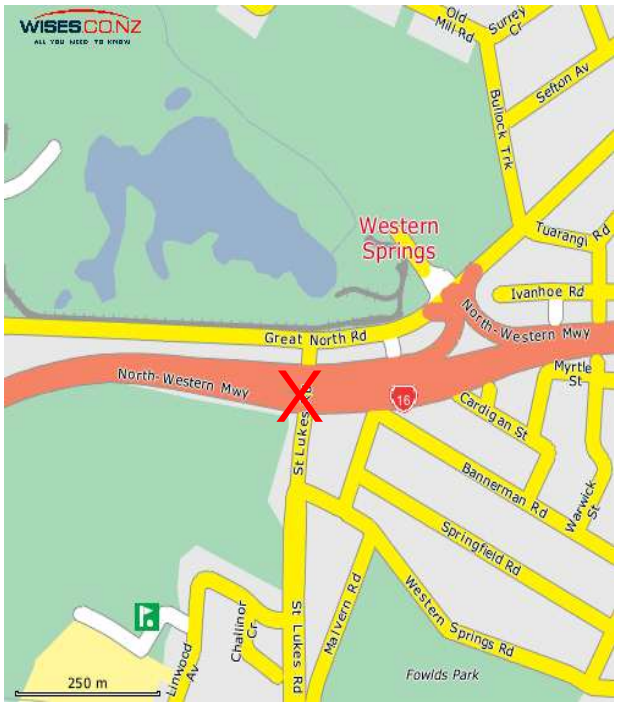
Great North Road/North Western Cycleway 2007 – 2013 (n)

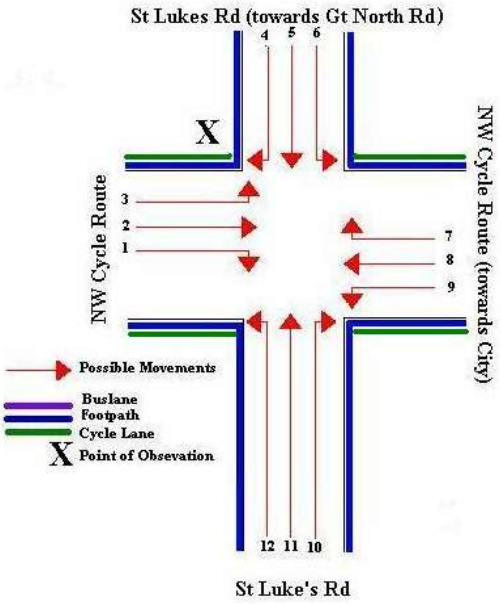


5. NORTH WESTERN CYCLEWAY/ST LUKES ROAD, WESTERN SPRINGS (SITE 7)

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
2012	222	207	429	625
2013	**277**	**270**	**547**	**796**

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 2013 have increased from 2012 (277 movements, compared with 222 last year).
- The key morning movement at this site was straight along the North Western cycleway towards the city (Movement 2 = 162 cyclists).
- The most notable changes in movements were the increases seen at Movement 2 (up 38 movements) and at Movement 11 (up 12 movements).

Table 5.1: Morning Cyclist Movements

North Western Cycleway/St Lukes Road 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	8	6	9	12	13	14	**14**	**0**
2	60	63	59	83	120	124	**162**	**38**
3	10	10	11	6	4	4	**7**	**3**
4	7	3	5	5	2	4	**1**	**-3**
5	6	4	7	11	9	2	**2**	**0**
6	3	2	0	8	7	7	**7**	**0**
7	15	7	4	7	14	15	**15**	**0**
8	9	16	15	20	16	21	**22**	**1**
9	0	2	4	0	0	3	**5**	**2**
10	7	14	4	13	18	15	**18**	**3**
11	21	23	29	40	30	8	**20**	**12**
12	6	6	8	17	7	5	**4**	**-1**
Total	**152**	**156**	**155**	**222**	**240**	**222**	**277**	**55**

- The greatest share of cyclists was adults (96 per cent, unchanged from last year).
- Most cyclists were wearing a helmet (98 per cent, stable from 96 per cent in 2012).
- The majority of cyclists continued to be male (81 per cent).
- The majority of cyclists (68 per cent, a noticeable decline from 80 per cent in 2012) were cycling on the off-road cycleway, while 19 per cent were riding on the footpath.

Table 5.2: Morning Cyclist Characteristics

North Western Cycleway/St Lukes Road 2004 – 2013 (%)

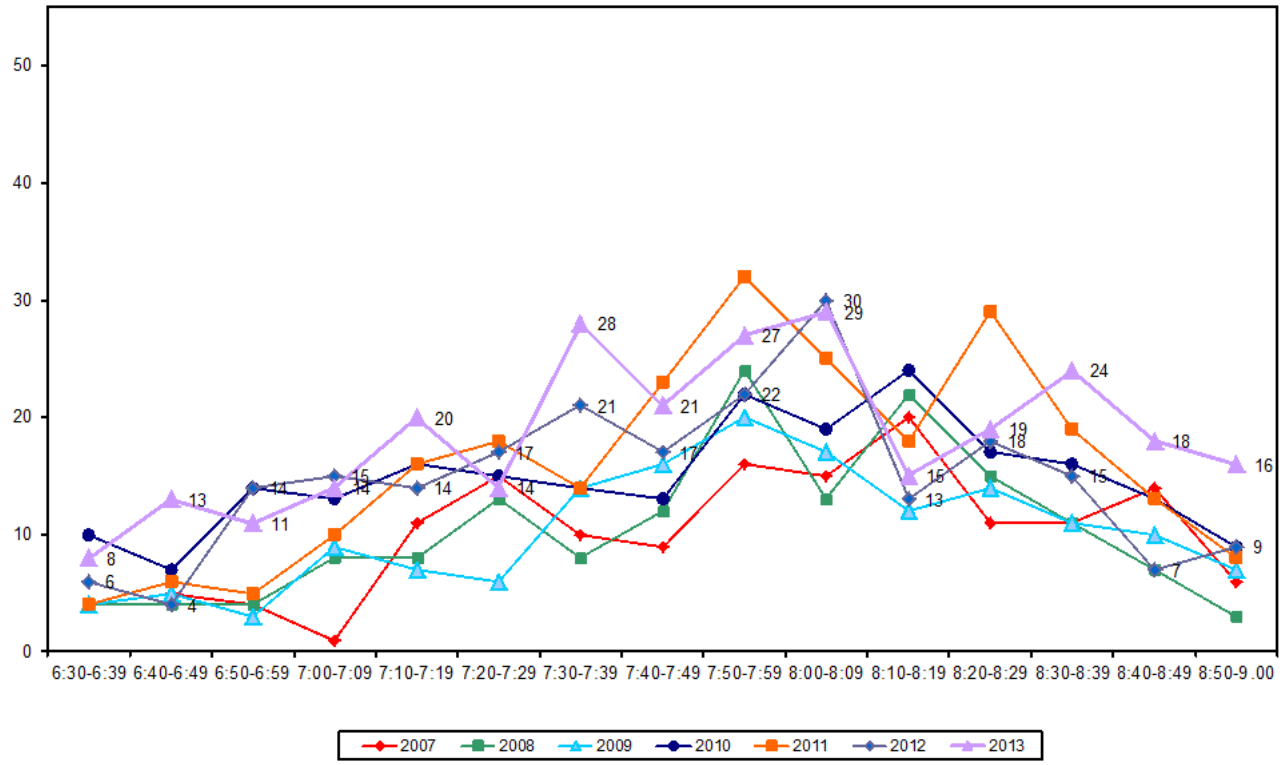
	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type											
Adult	75	92	97	82	85	89	86	91	96	**96**	**0**
School child	25	8	3	18	15	11	14	9	4	**4**	**0**
Helmet Wearing											
Helmet on head	99	95	98	97	94	95	94	95	96	**98**	**2**
No helmet	1	5	2	3	6	5	6	5	4	**2**	**-2**
Gender											
Male	-	-	-	-	-	-	-	80	78	**81**	**3**
Female	-	-	-	-	-	-	-	16	18	**18**	**0**
Can't tell	-	-	-	-	-	-	-	4	4	**1**	**-3**
Where Riding											
Road	89	76	78	87	94	20	21	9	10	**13**	**3**
Footpath	11	24	22	13	6	10	15	20	10	**19**	**9**
Off-road cycleway*	-	-	-	-	-	70	64	71	80	**68**	**-12**
Base:	***95***	***130***	***133***	***152***	***156***	***155***	***222***	***240***	***222***	***277***	

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2013 results are only comparable with results from 2009 onwards.*

- As in 2012, traffic was relatively low at the start of the monitoring period, then it reached a peak and slowed down towards the end of the period. Morning cycle movement volumes in 2013. Smaller peaks could be seen approximately every half an hour.

Figure 5.2: Morning Peak Cyclist Frequency

North Western Cycleway/St Lukes Road 2007 – 2013 (n)



5.3 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

- Evening cyclist numbers have increased noticeably since last year (270 movements compared to 207 last year).
- In the evening peak, the key route was along the North Western cycleway away from the city (Movement 8 = 152 cyclists).
- Of the 12 movements possible at this site, the biggest change since last year was at Movement 8 (up 31 movements).

Table 5.3: Evening Cyclist Movements

North Western Cycleway/St Lukes Road 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	11	13	9	11	8	5	**8**	**3**
2	8	20	12	28	28	22	**22**	**0**
3	7	7	5	5	4	3	**2**	**-1**
4	11	13	13	16	12	6	**11**	**5**
5	27	7	18	24	23	9	**15**	**6**
6	5	4	1	1	1	6	**4**	**-2**
7	5	4	3	10	10	10	**11**	**1**
8	69	60	64	80	149	121	**152**	**31**
9	6	11	2	8	18	7	**14**	**7**
10	1	1	1	1	1	2	**5**	**3**
11	18	22	13	14	16	11	**9**	**-2**
12	4	13	14	12	3	5	**17**	**12**
Total	**172**	**175**	**155**	**210**	**273**	**207**	**270**	**63**

- Consistent with previous years, adults comprised the greatest share of cyclists (99 per cent, stable from 2012).
- Most cyclists were wearing a helmet (96 per cent, a slight decrease from the previous measure).
- The majority of cyclists continued to be male (84 per cent, up 4 percentage points increase since 2012).
- The greatest share of cyclists (66 per cent, down from 76 per cent in 2012) were cycling on the off-road cycleway, while 22 per cent were riding on the footpath.

Table 5.4: Evening Cyclist Characteristics

North Western Cycleway/St Lukes Road 2004 – 2013 (%)

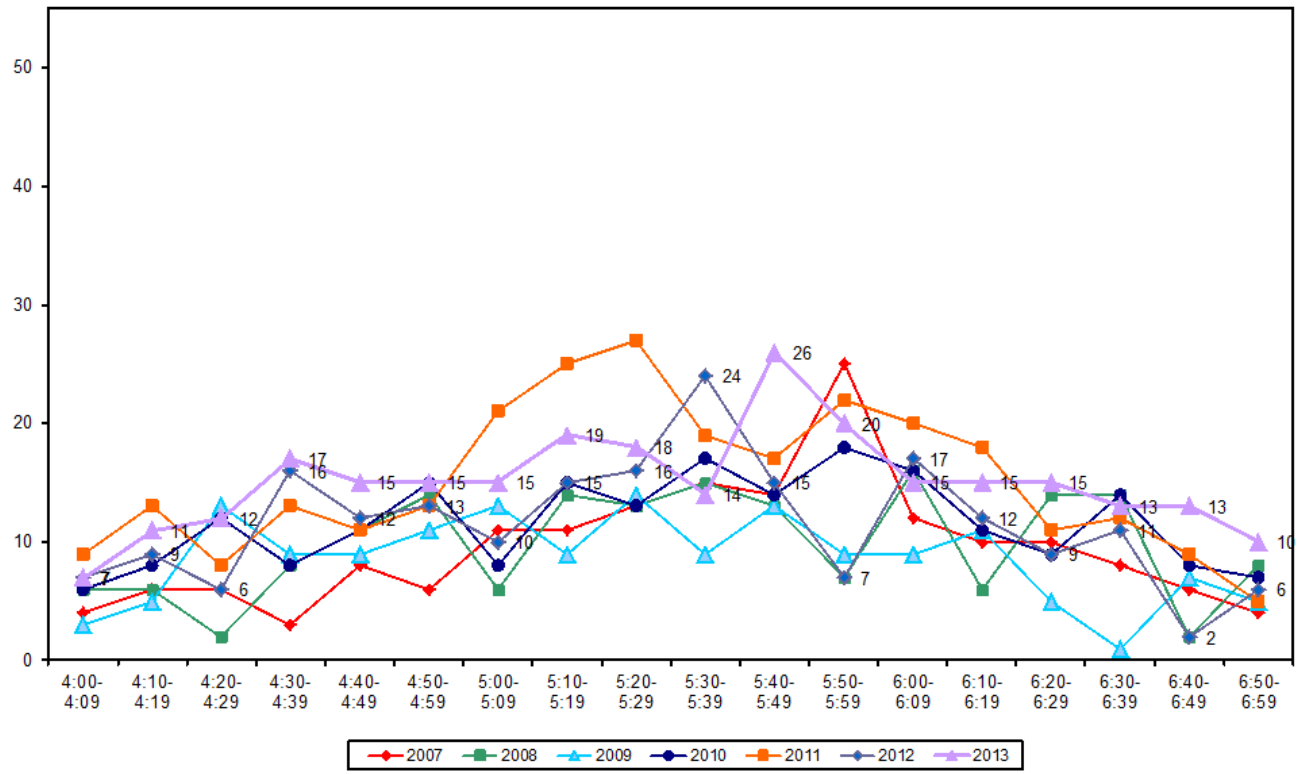
	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	**Change 11-12**
Cyclist Type											
Adult	93	98	100	96	88	100	95	98	98	**99**	**1**
School child	7	2	0	4	12	0	5	2	2	**1**	**-1**
Helmet Wearing											
Helmet on head	97	92	98	97	91	93	93	96	96	**93**	**-3**
No helmet	3	8	2	3	9	7	7	4	4	**7**	**3**
Gender											
Male	-	-	-	-	-	-	-	84	80	**84**	**4**
Female	-	-	-	-	-	-	-	12	18	**16**	**-2**
Can't tell	-	-	-	-	-	-	-	4	2	**0**	**-2**
Where Riding*											
Road	98	87	98	85	89	15	16	15	10	**12**	**2**
Footpath	2	13	2	15	11	5	20	13	14	**22**	**8**
Off-road cycleway*	-	-	-	-	-	80	64	72	76	**66**	**-10**
Base:	***87***	***108***	***80***	***172***	***175***	***155***	***210***	***273***	***207***	***270***	

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2013 results are only comparable with results from 2009 onwards.*

- Evening cyclist movements slowly increased throughout the monitoring period to peak between 5:40pm and 5:49pm (26 movements). From there, volumes gently decreased through to the end of the period. This was similar to last year's cycle traffic, except the peak occurred 10 minutes later and with more cyclists this year.

Figure 5.3: Evening Peak Cyclist Frequency

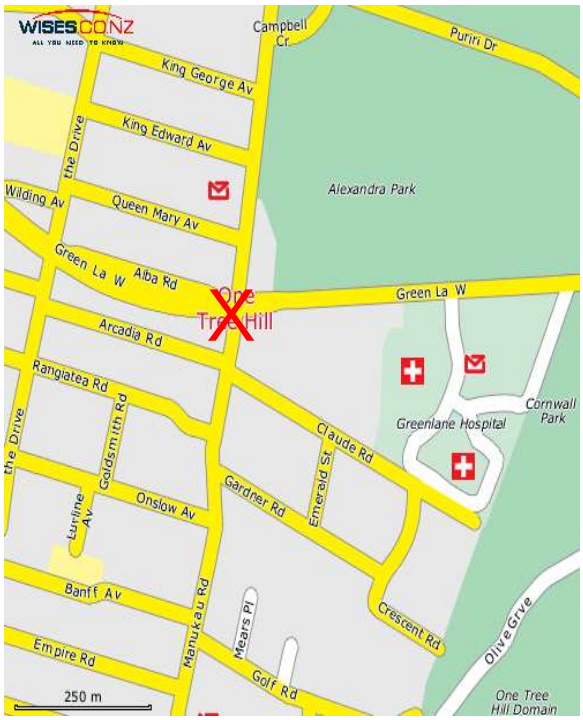
North Western Cycleway/St Lukes Road 2007 –2013 (n)

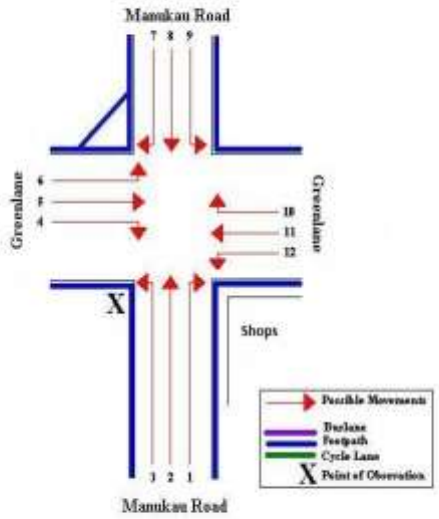


6. MANUKAU/GREENLANE ROAD, EPSOM (SITE 12)

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
2012	110	95	205	299
2013	**99**	**100**	**199**	**289**

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 2013 decreased slightly from 2012 (down by 11 movements to 99).
- As in previous years, the most common morning movement at this intersection was north along Manukau Road towards the city (Movement 2 = 32 movements).
- The largest change in cyclist movements was observed at Movement 8 (down 10 movements).

Table 6.1: Morning Cyclist Movements

Manukau/Greenlane West 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	4	6	1	4	4	4	**1**	**-3**
2	27	26	30	48	48	30	**32**	**2**
3	4	2	4	7	5	3	**3**	**0**
4	1	5	2	1	7	8	**5**	**-3**
5	20	15	16	20	20	15	**21**	**6**
6	1	6	4	8	5	8	**6**	**-2**
7	4	4	1	4	3	2	**1**	**-1**
8	22	14	14	16	16	20	**10**	**-10**
9	9	4	1	3	3	7	**3**	**-4**
10	2	2	2	5	0	0	**5**	**5**
11	7	7	9	11	9	10	**12**	**2**
12	2	1	0	3	0	3	**0**	**-3**
Total	**103**	**92**	**84**	**130**	**120**	**110**	**99**	**11**

- Almost all of the morning cyclists at the Manukau/Greenlane West intersection were adults (90 per cent, compared with 84 per cent last year).
- Almost all cyclists were wearing a helmet (94 per cent, stable from 95 per cent last year).
- The majority of cyclists continued to be male (81 per cent).
- The proportion of cyclists riding on the road has increased by 3 percentage points to 78 per cent this year.

Table 6.2: Morning Cyclist Characteristics

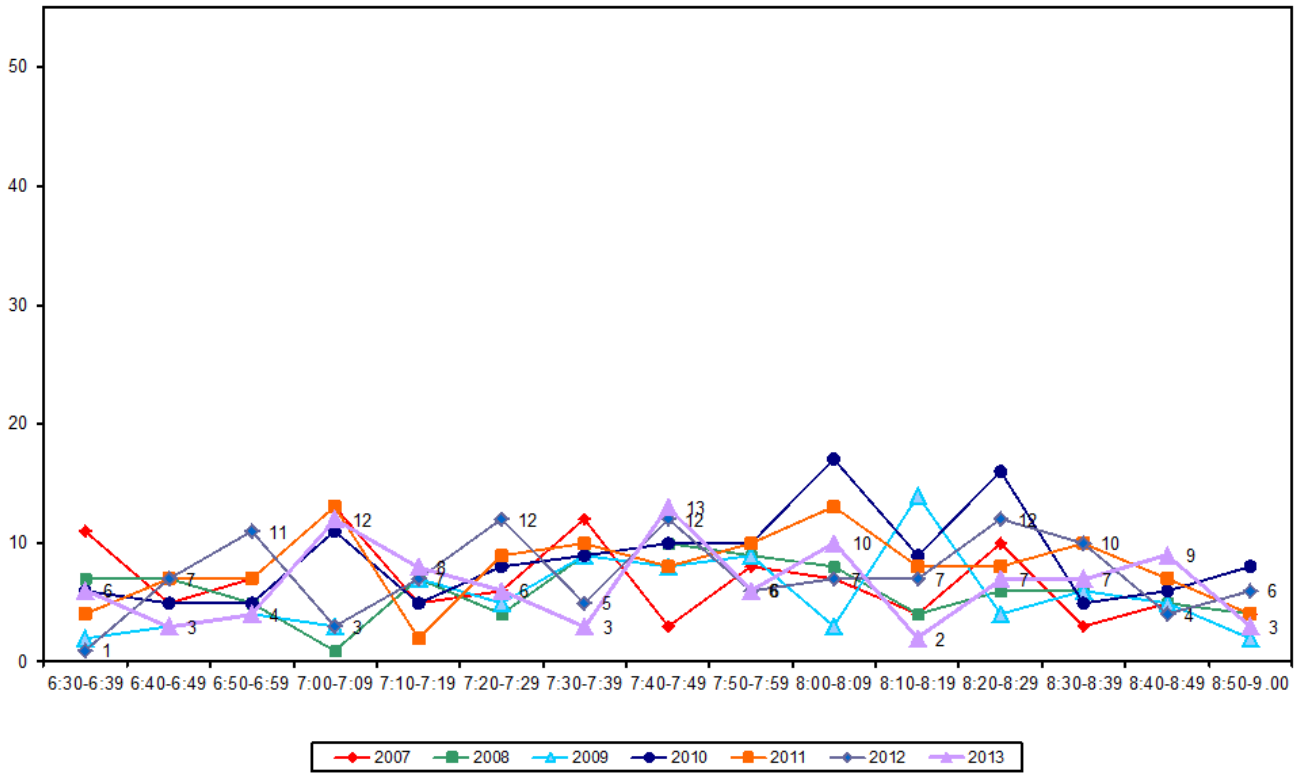
Manukau/Greenlane West 2004 – 2013 (%)

	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	**Change 12-13**
Cyclist Type											
Adult	71	89	87	95	87	87	97	87	84	**90**	**6**
School child	29	11	13	5	13	13	3	13	16	**10**	**-6**
Helmet Wearing											
Helmet on head	92	99	93	95	99	95	99	98	95	**94**	**-1**
No helmet	8	1	7	5	1	5	1	2	5	**6**	**1**
Gender											
Male	-	-	-	-	-	-	-	74	71	**81**	**10**
Female	-	-	-	-	-	-	-	23	24	**18**	**-6**
Can't tell	-	-	-	-	-	-	-	3	5	**1**	**-4**
Where Riding											
Road	71	71	74	78	79	73	88	75	75	**78**	**3**
Footpath	29	29	26	22	21	27	12	25	25	**22**	**-3**
Base:	***66***	***92***	***89***	***103***	***92***	***84***	***130***	***120***	***110***	***99***	

- The volume of morning cyclists fluctuated over the entire monitoring period, but with no more than 13 cyclist movements per 10 minute interval. Small peaks could be observed approximately every half hour.

Figure 6.2: Morning Peak Cyclist Frequency

Manukau/Greenlane West 2007 – 2013 (n)



6.3 Evening Peak

Environmental Conditions

- The weather was fine for the evening shift.
- 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 increased (100 movements, up from 95 movements last year).
- The two key movements in the evening at this intersection were straight along Manukau Road heading south (Movement 8 = 31 cyclists) and west along Greenlane West (Movement 11 = 17 cyclists).
- The most noticeable change in cycle movement numbers occurred at Movement 8 (up 6 movements).

Table 6.3: Evening Cyclist Movements

Manukau/Greenlane West 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	4	1	2	6	3	3	**2**	**-1**
2	16	17	5	17	8	8	**6**	**-2**
3	4	4	3	4	5	7	**6**	**-1**
4	6	7	5	7	8	9	**8**	**-1**
5	9	11	8	11	3	3	**6**	**3**
6	1	1	5	0	6	4	**0**	**-4**
7	5	3	3	3	1	6	**8**	**2**
8	26	37	33	36	36	25	**31**	**6**
9	6	0	2	4	3	2	**4**	**2**
10	11	4	3	6	5	9	**9**	**0**
11	30	25	17	29	24	15	**17**	**2**
12	4	3	6	4	5	4	**3**	**-1**
Total	**122**	**113**	**92**	**127**	**107**	**95**	**100**	**5**

- The greatest share of cyclists continued to be adults (87 per cent, down from 95 per cent in 2012).
- The share wearing a helmet remained reasonably high (93 per cent, down from 97 per cent in 2012).
- The majority of cyclists continued to be male (88 per cent, up from 74 per cent last year).
- The proportion of cyclists riding on the road has decreased from 2012, down from 90 per cent to 77 per cent. Twenty-three per cent of cyclists were riding on the footpath.

Table 6.4: Evening Cyclist Characteristics

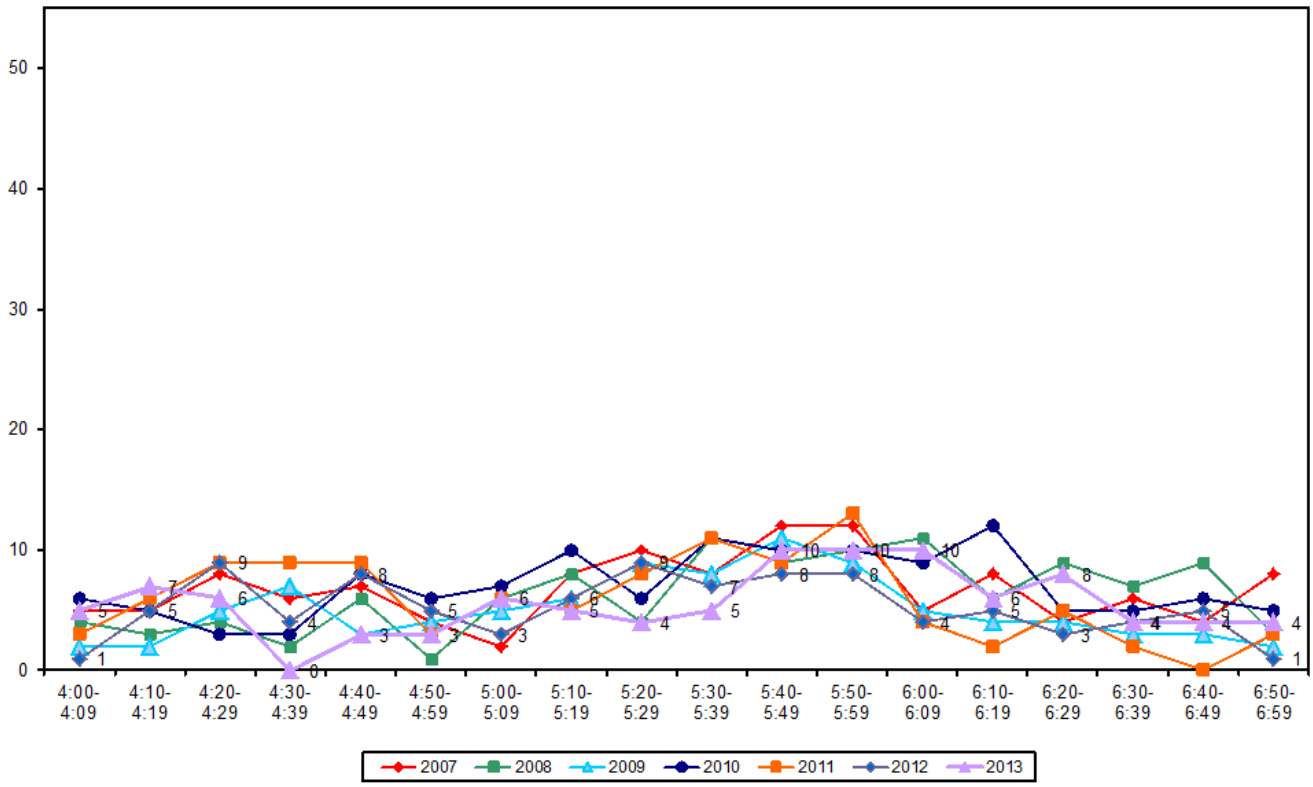
Manukau/Greenlane West 2004 – 2013 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type											
Adult	78	96	95	88	81	91	94	84	95	**87**	**-8**
School child	22	4	5	12	19	9	6	16	5	**13**	**8**
Helmet Wearing											
Helmet on head	90	98	98	95	94	93	98	91	97	**93**	**-4**
No helmet	10	2	2	5	6	7	2	9	3	**7**	**4**
Gender											
Male	-	-	-	-	-	-	-	84	74	**88**	**14**
Female	-	-	-	-	-	-	-	16	23	**11**	**-12**
Can't tell	-	-	-	-	-	-	-	0	3	**1**	**-2**
Where Riding											
Road	73	87	86	76	78	84	74	74	90	**77**	**-13**
Footpath	27	13	14	24	22	16	26	26	10	**23**	**13**
Base:	***60***	***55***	***56***	***122***	***113***	***92***	***127***	***107***	***95***	***100***	

- In the evening, cyclist movement volume remained low but steady, with no more than 10 movements at any 10 minute interval. Traffic was at the lowest between 4:30pm to 4:39pm (no movements recorded), and highest between 5:40pm to 6:09pm (10 movements recorded in each 10 minute interval).

Figure 6.3: Evening Peak Cyclist Frequency

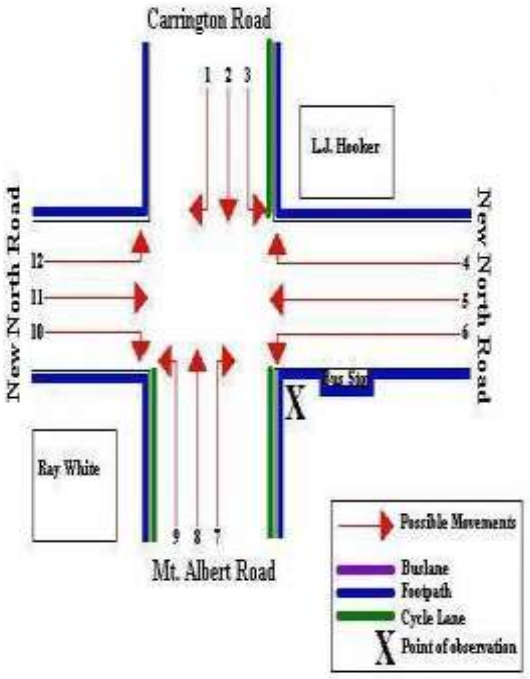
Manukau/Greenlane West 2007 – 2013 (n)



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
2012	94	76	170	249
2013	**70**	**100**	**170**	**245**

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 declined (70 movements, down from 94 movements in 2012).
- The most common movement in the morning was straight along New North Road heading northeast (Movement 11 = 24 movements).
- The greatest change in morning cyclist movement volumes occurred at Movement 2 (down 8 movements).

Table 7.1: Morning Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	1	3	1	2	2	3	**3**	**0**
2	11	10	11	19	26	18	**10**	**-8**
3	3	2	2	4	5	3	**5**	**2**
4	3	3	1	2	0	5	**3**	**-2**
5	5	3	5	6	9	7	**3**	**-4**
6	0	0	0	0	2	1	**1**	**0**
7	2	3	2	1	1	5	**3**	**-2**
8	14	14	6	22	19	19	**15**	**-4**
9	1	3	1	0	4	2	**0**	**-2**
10	6	4	3	1	0	2	**1**	**-1**
11	25	23	25	32	26	25	**24**	**-1**
12	4	0	2	2	3	4	**2**	**-2**
Total	**75**	**68**	**59**	**91**	**97**	**94**	**70**	**-24**

- Over the morning peak, most cyclists using the Mount Albert/New North Road/Carrington Road intersection were adults (91 per cent, up from 80 per cent in 2012).
- Helmet-wearing seemed to be more widespread (96 per cent, up from 79 per cent in 2012).
- The majority of cyclists were male (84 per cent).
- The proportion of cyclists riding on the road at this site has increased over the last 12 months – up 19 percentage points to 87 per cent. The remaining 13 per cent rode on the footpath.

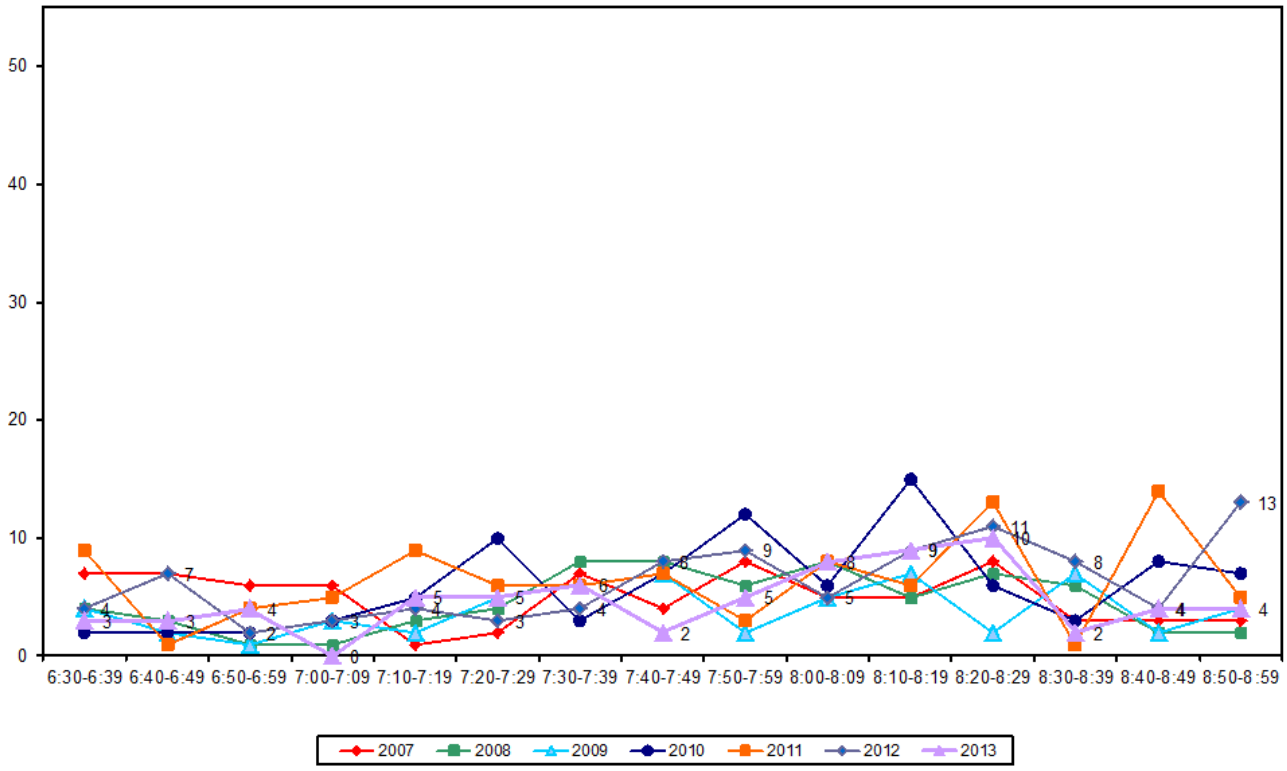
Table 7.2: Morning Cyclist Characteristics

Mount Albert/New North Road/Carrington Road 2007 – 2013 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type								
Adult	95	91	92	87	94	80	**91**	**11**
School child	5	9	8	13	6	20	**9**	**-11**
Helmet Wearing								
Helmet on head	91	91	86	90	91	79	**96**	**17**
No helmet	9	9	14	10	9	21	**4**	**-17**
Gender								
Male	-	-	-	-	85	89	**84**	**-5**
Female	-	-	-	-	13	9	**16**	**7**
Can't tell	-	-	-	-	2	2	**0**	**-2**
Where Riding								
Road	84	85	90	81	84	68	**87**	**19**
Footpath	16	15	10	19	16	32	**13**	**-19**
Base:	***75***	***68***	***59***	***91***	***97***	***94***	***70***	

- The volume of morning cycle movements started off low and gradually increased to a peak between 8:20am to 8:29am (10 movements). The number of cycle movements then declined until the end of the monitoring period.

Figure 7.2: Morning Peak Cyclist Frequency
Mount Albert/New North Road/Carrington Road 2007 – 2013 (n)



7.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- There were no road works, accidents or events 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 increased, from 76 in 2012 to 100 movements in 2013.
- The key evening movement was straight along New North Road in a south-westerly direction (Movement 5 = 26 cyclists).
- Evening cyclist volume has increased most notably at Movement 11 – travelling along New North Road towards Auckland CBD (up 9 movements).

Table 7.3: Evening Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 11-12
1	3	5	2	2	4	1	**3**	**2**
2	13	16	17	23	20	11	**12**	**1**
3	3	5	1	5	2	5	**5**	**0**
4	5	3	4	5	8	6	**6**	**0**
5	28	31	34	34	21	23	**26**	**3**
6	2	2	3	1	1	2	**3**	**1**
7	3	1	3	1	1	2	**1**	**-1**
8	9	8	9	16	19	13	**16**	**3**
9	1	2	0	12	10	2	**8**	**6**
10	3	4	1	7	7	3	**6**	**3**
11	7	10	6	8	9	3	**12**	**9**
12	4	9	3	4	2	5	**2**	**-3**
Total	**81**	**96**	**83**	**118**	**104**	**76**	**100**	**-24**

- The majority of cyclists using this intersection were adults (89 per cent, stable from 2012).
- Helmet-wearing has been more widespread this year (91 per cent, up from 82 per cent last year).
- The majority of cyclists were male (88 per cent).
- Four in five cyclists were riding on the road (81 per cent, up 15 percentage points from 2012).

Table 7.4: Evening Cyclist Characteristics

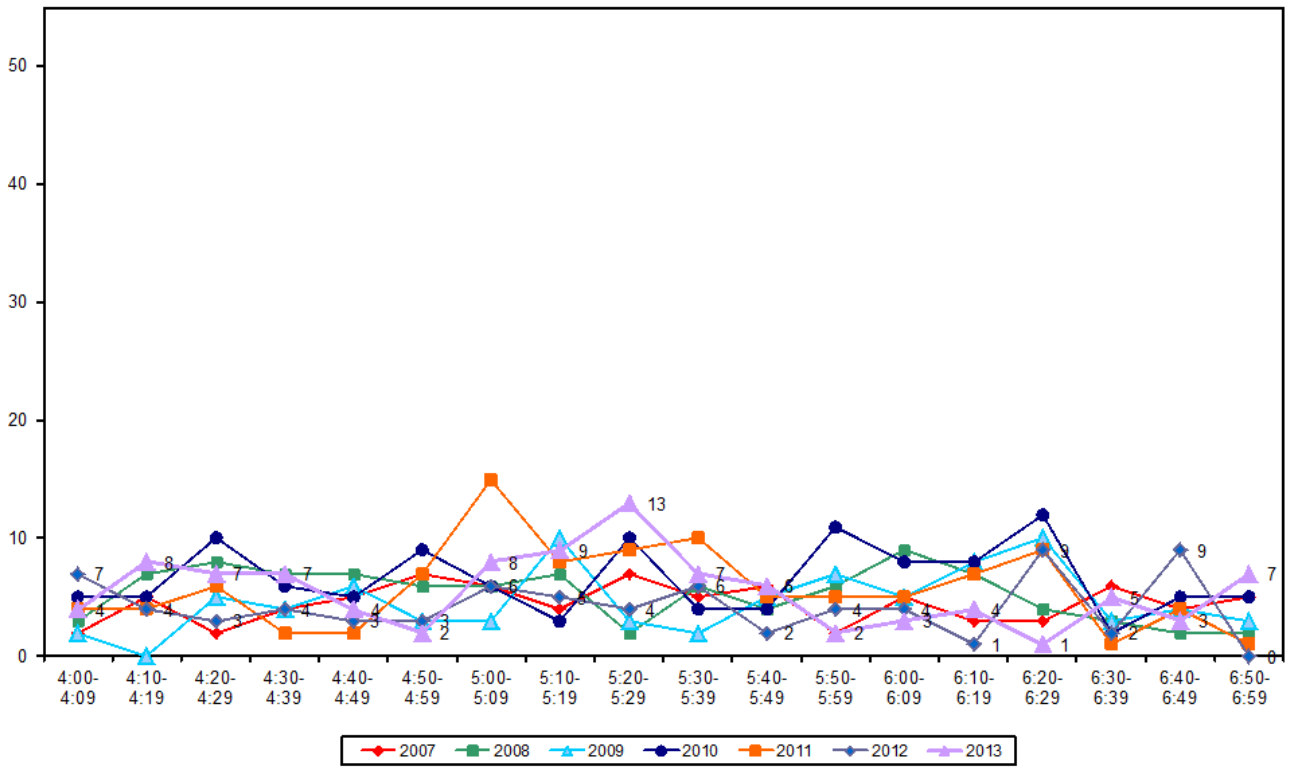
Mount Albert/New North Road/Carrington Road 2007 – 2013 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type								
Adult	94	85	98	84	88	88	**89**	**1**
School child	6	15	2	16	12	12	**11**	**-1**
Helmet Wearing								
Helmet on head	90	90	86	81	83	82	**91**	**9**
No helmet	10	10	14	19	17	18	**9**	**-9**
Gender								
Male	-	-	-	-	90	90	**88**	**-2**
Female	-	-	-	-	10	9	**11**	**2**
Can't tell	-	-	-	-	0	1	**1**	**0**
Where Riding								
Road	63	78	75	73	70	66	**81**	**15**
Footpath	37	22	25	27	30	34	**19**	**-15**
Base:	***81***	***96***	***83***	***118***	***104***	***76***	***100***	

- The volume of cycle movements varied throughout the evening shift, but generally remained low. A peak occurred between 5:20pm and 5:29pm (13 movements).

Figure 7.3: Evening Peak Cyclist Frequency

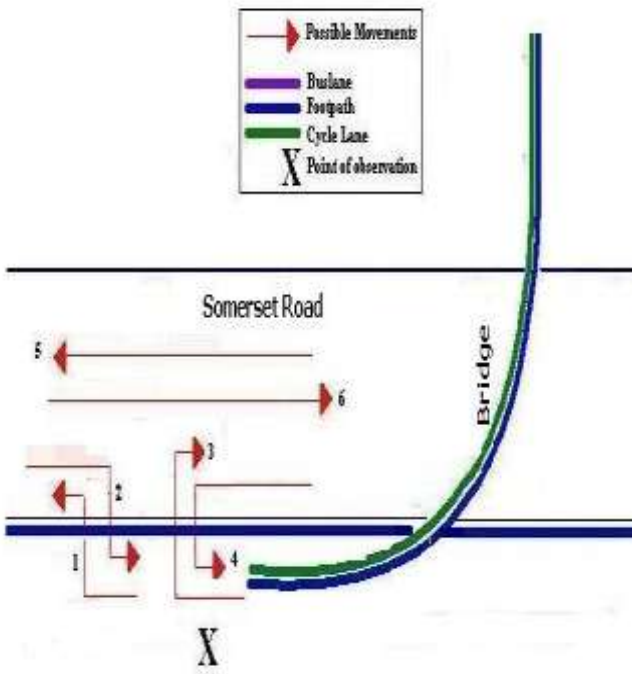
Mount Albert/New North Road/Carrington Road 2007 – 2013 (n)



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
2012	28	19	47	69
2013	**45**	**14**	**59**	**88**

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

- Forty-five cycle movements were recorded at this site in 2013, 17 more than last year.
- The key morning movement has changed from Movement 1 to Movement 5 – travelling towards the west along Somerset Road (41 movements).
- The greatest increase in cyclist number occurred at Movement 5 (up 39 cyclists), while the biggest decline was observed at Movement 1, the predominant movement in previous years.

Table 8.1: Morning Cyclist Movements

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2013 (n)

Movement	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	22	22	19	**0**	**-19**
2	3	1	1	**1**	**0**
3	0	1	1	**1**	**0**
4	0	1	2	**0**	**-2**
5	1	2	2	**41**	**39**
6	2	2	3	**2**	**-1**
Total	**28**	**29**	**28**	**45**	**17**

- Over the morning peak, the majority of cyclists were school children (64 per cent, compared with 71 per cent in 2012).
- The majority of cyclists were wearing a helmet (80 per cent, up from 68 per cent in 2012).
- The majority of cyclists were male (87 per cent).
- There has been a noticeable (51 percentage point) decrease in the share of cyclists riding on the cycleway, while riders on the footpath has increased by 47 percentage points.

Table 8.2: Morning Cyclist Characteristics

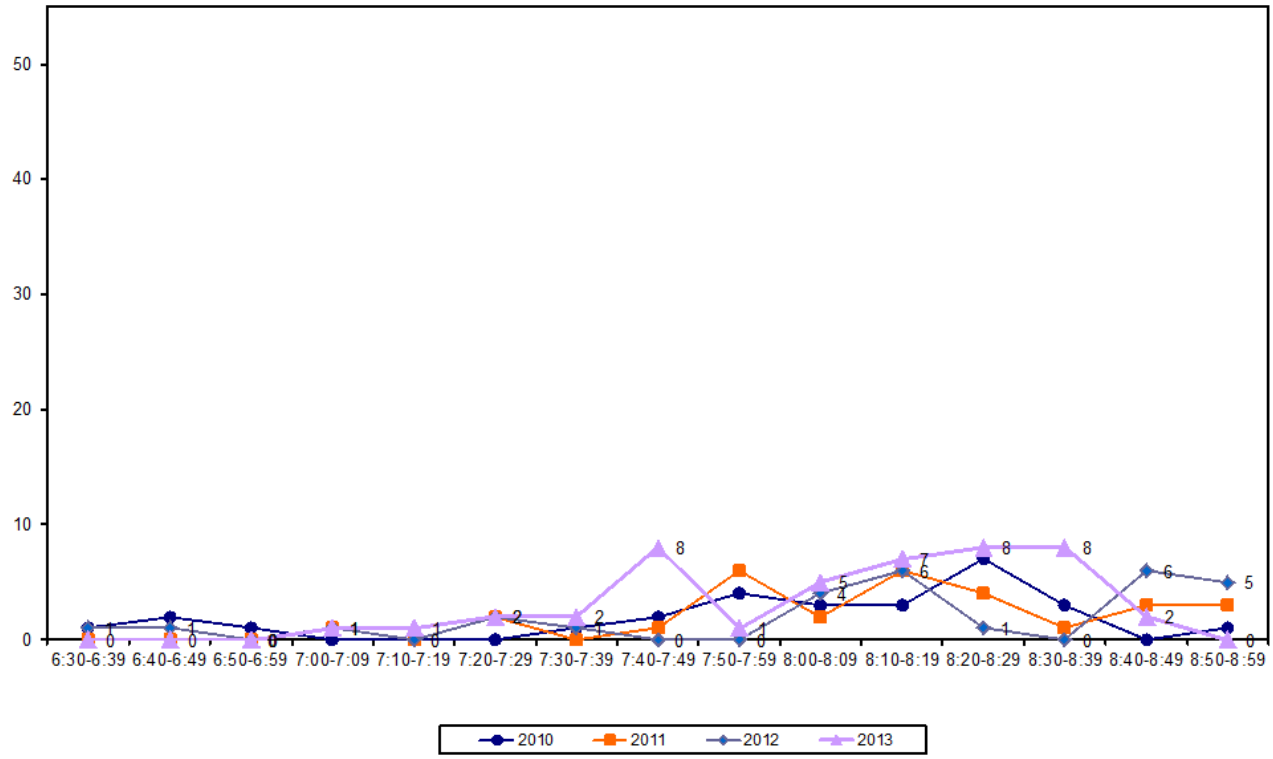
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2013 (%)

	2010	*2011*	*2012*	*2013*	Change 11-12
Cyclist Type					
Adult	25	28	29	**36**	**7**
School child	75	72	71	**64**	**-7**
Helmet Wearing					
Helmet on head	82	83	68	**80**	**12**
No helmet	18	17	32	**20**	**-12**
Gender					
Male	-	86	89	**87**	**-2**
Female	-	14	11	**13**	**2**
Can't tell	-	0	0	**0**	**0**
Where Riding					
Road	7	14	18	**22**	**4**
Footpath	4	0	0	**47**	**47**
Off-road cycleway	89	86	82	**31**	**-51**
Base:	***28***	***29***	***28***	***45***	

- Like last year, morning cycle volume was low throughout the shift. However, two peaks could be seen clearly. The first peak was a sudden increase in volume (8 cyclists) from 7:40am to 7:49am, the second peak was formed more gradually and occurred between 8:00am to 8:39am.

Figure 8.2: Morning Peak Cyclist Frequency

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2013 (n)



Note: Twenty-four per cent of the morning cycle volume of this site was made by pelotons. Three or more cyclists were observed travelling in groups at this site at the following times:

- *8 cyclists at 7:42am*
- *3 cyclists at 8:06am.*

8.3 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

- Fourteen cyclist movements were recorded at this site this year, the lowest recorded since monitoring began in 2010.
- The most common movement in the evening was turning off Somerset Road onto the overbridge heading east (Movement 2 = 7 movements).
- The biggest decrease was at Movement 1 - turning off the overbridge into Somerset Road heading west (down 7 movements).

Table 8.3: Evening Cyclist Movements

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2013 (n)

Movement	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	8	13	**7**	**0**	**-7**
2	7	17	**5**	**7**	**2**
3	0	0	**2**	**0**	**-2**
4	4	2	**2**	**0**	**-2**
5	4	4	**0**	**3**	**3**
6	2	4	**3**	**4**	**1**
Total	**25**	**40**	**19**	**14**	**-5**

- Half of cyclists were school children (50 per cent, slightly down from 53 per cent in 2012).
- Helmet wearing by cyclists has decreased significantly since 2012 (57 per cent, compared with 89 per cent in 2012).
- The majority of cyclists were male (79 per cent).
- Sixty-four per cent of cyclists were riding on the cycleway (down from 84 per cent in 2012), while 29 per cent were riding on the footpath (up from 0 per cent last year).

Table 8.4: Evening Cyclist Characteristics

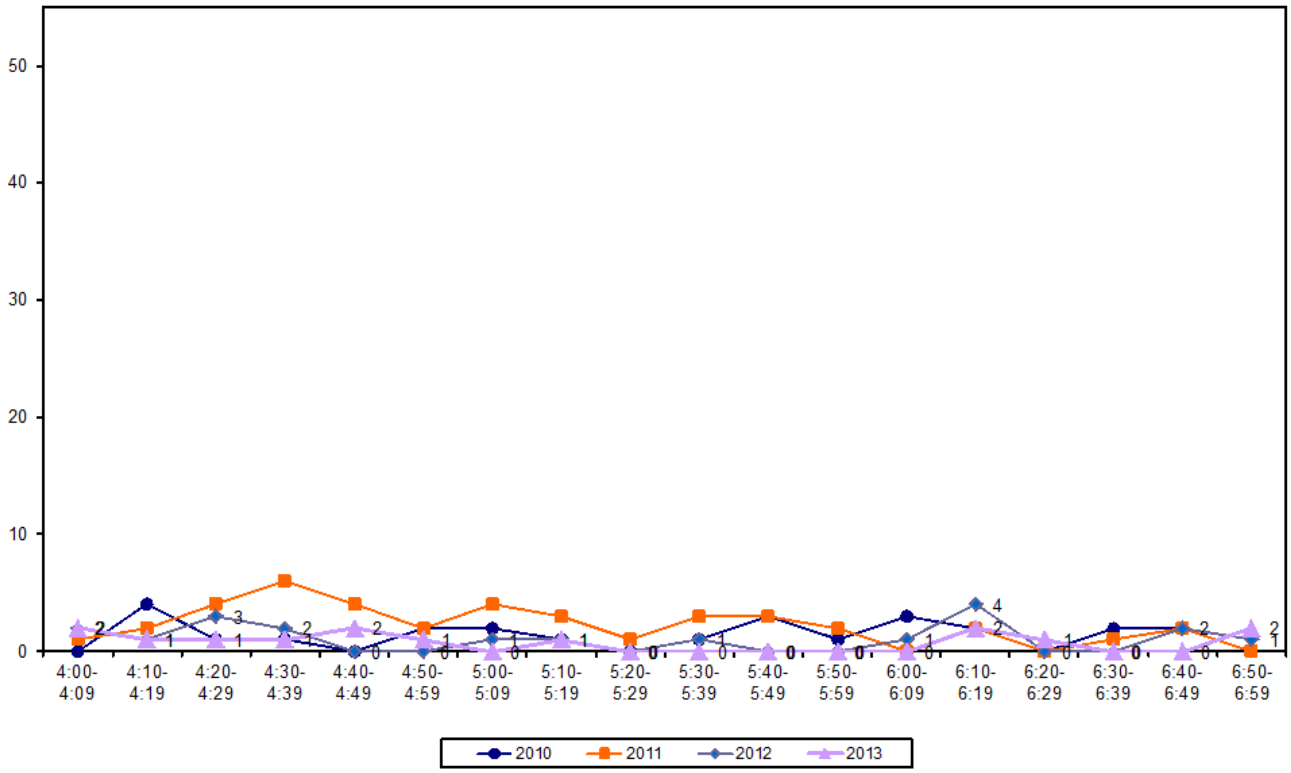
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2013 (%)

	2010	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type					
Adult	72	48	53	**50**	**-3**
School child	28	53	47	**50**	**3**
Helmet Wearing					
Helmet on head	76	58	89	**57**	**-32**
No helmet	24	43	11	**43**	**32**
Gender					
Male	-	95	84	**79**	-5
Female	-	5	16	**21**	5
Can't tell	-	0	0	**0**	0
Where Riding					
Road	20	20	16	**7**	**-9**
Footpath	4	0	0	**29**	**29**
Off-road cycleway	76	80	84	**64**	**-20**
Base:	***25***	***40***	***19***	***14***	

- Evening cyclist volume was very low throughout the monitoring period, with no more than two cyclists during all but one 10 minute interval.

Figure 8.3: Evening Peak Cyclist Frequency

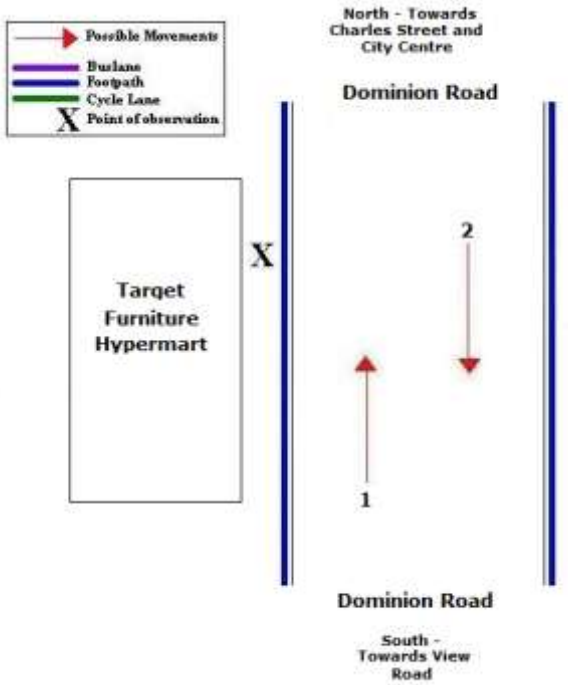
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2013 (n)



9. UPPER DOMINION ROAD, EDEN TERRACE (SITE 92)

Figure 9.1 shows the possible cyclist movements at this intersection.

Figure 9.1: Cycle Movements: Upper Dominion Road, Eden Terrace



Note: This site is monitored for the first time in 2013. Consequently no comparative results are available.

9.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2013	**97**	**107**	**204**	**296**

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

- The number of morning cycle movements recorded at this site was 97.
- The key morning movement was riding straight along Dominion Road towards the city centre (Movement 1 = 87 cyclists).

Table 9.1: Morning Cyclist Movements

Upper Dominion Road, Eden Terrace 2013 (n)

Movement	*2013*
1	**87**
2	**10**
Total	**97**

- Over the morning peak, almost all cyclists were adults (99 per cent).
- The majority of cyclists were wearing a helmet (99 per cent).
- Eighty-four per cent cyclists were male.
- Riding on the road was the most common at this site (96 per cent).

Table 9.2: Morning Cyclist Characteristics

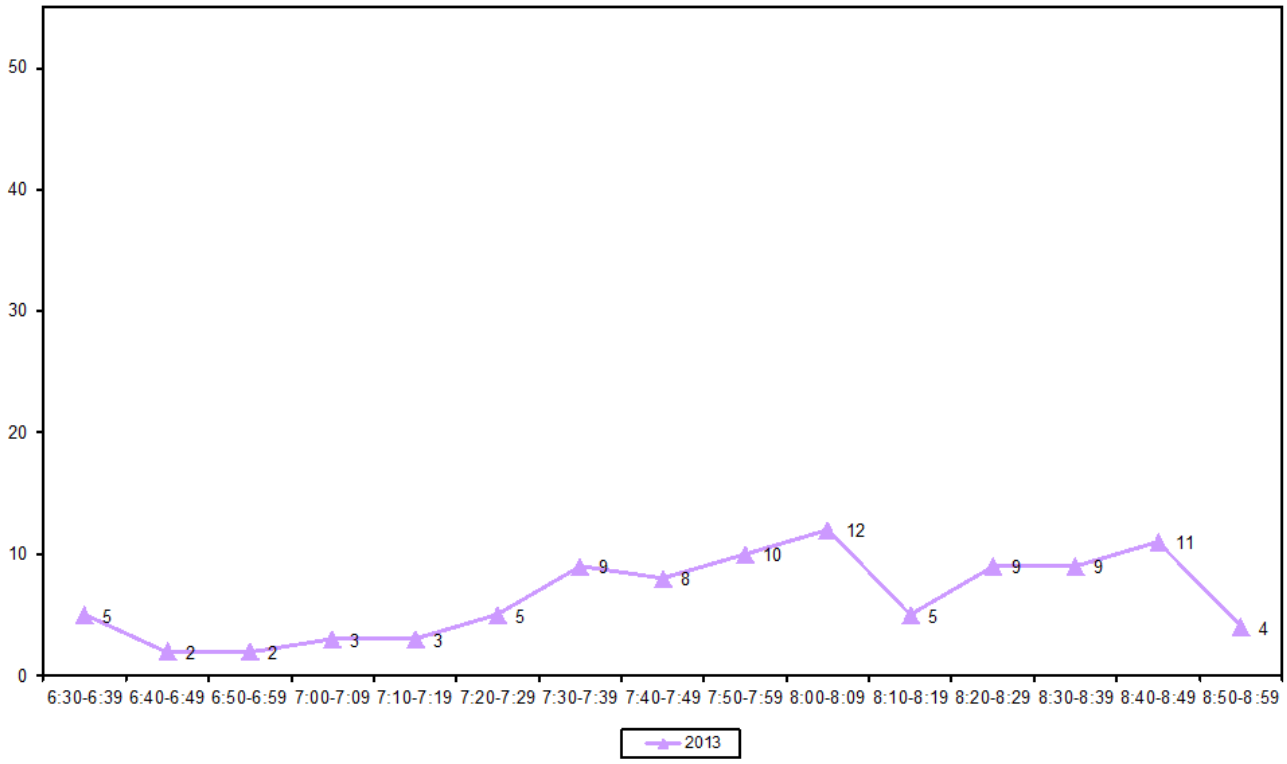
Upper Dominion Road, Eden Terrace 2013 (%)

	2013
Cyclist Type	
Adult	**99**
School child	**1**
Helmet Wearing	
Helmet on head	**99**
No helmet	**1**
Gender	
Male	**84**
Female	**15**
Can't tell	**1**
Where Riding	
Road	**96**
Footpath	**4**
Off-road cycleway	**0**
Base:	***97***

- Morning cycle volume started off low but rose to a peak of 12 cyclists between 8:00am to 8:09am. Cycle volume then declined to five cyclists before rising up again to another peak half an hour later (8:40am – 8:49am with 11 cyclists).

Figure 9.2: Morning Peak Cyclist Frequency

Upper Dominion Road, Eden Terrace 2013 (n)



9.3 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

- The number of evening cycle movements during the evening shift was 107.
- The key evening movement was riding straight along Dominion Road heading south (Movement 2 = 83 cyclists).

Table 9.3: Evening Cyclist Movements

Upper Dominion Road, Eden Terrace 2013 (n)

Movement	*2013*
1	**24**
2	**83**
Total	**107**

- Nearly all cyclists were adults (99 per cent).
- Ninety-six per cent of the cyclists were wearing a helmet.
- The greatest share of cyclists was male (78 per cent).
- Riding on the road was the most common at this site (87 per cent).

Table 9.4: Evening Cyclist Characteristics

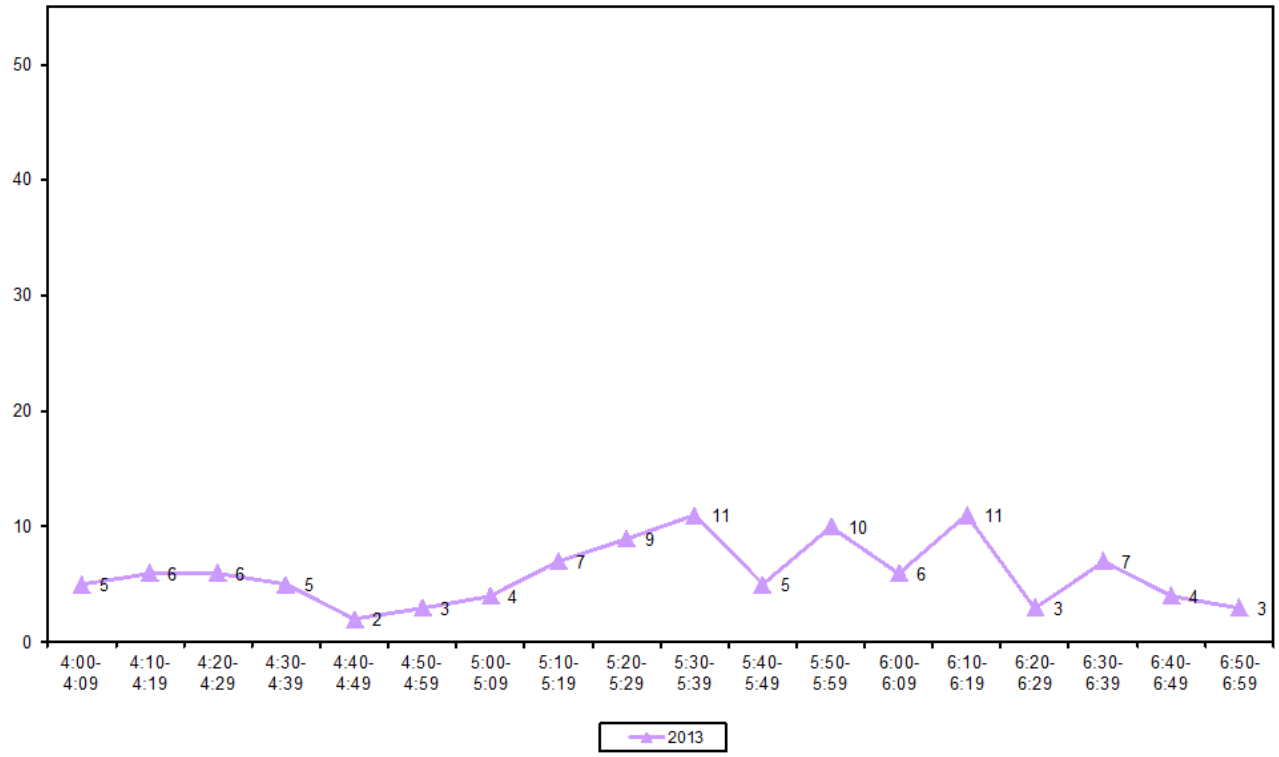
Upper Dominion Road, Eden Terrace 2013 (%)

	2013
Cyclist Type	
Adult	**99**
School child	**1**
Helmet Wearing	
Helmet on head	**96**
No helmet	**4**
Gender	
Male	**78**
Female	**22**
Can't tell	**0**
Where Riding	
Road	**87**
Footpath	**13**
Off-road cycleway	**0**
Base:	***107***

- Evening cyclist volume was low but steady during the first half of the monitoring period with no more than 10 cyclists during any 10 minute interval. From 5:30pm until the end of the shift, cyclist volume varied between 3 and 11 movements every 20 minutes.

Figure 9.3: Evening Peak Cyclist Frequency

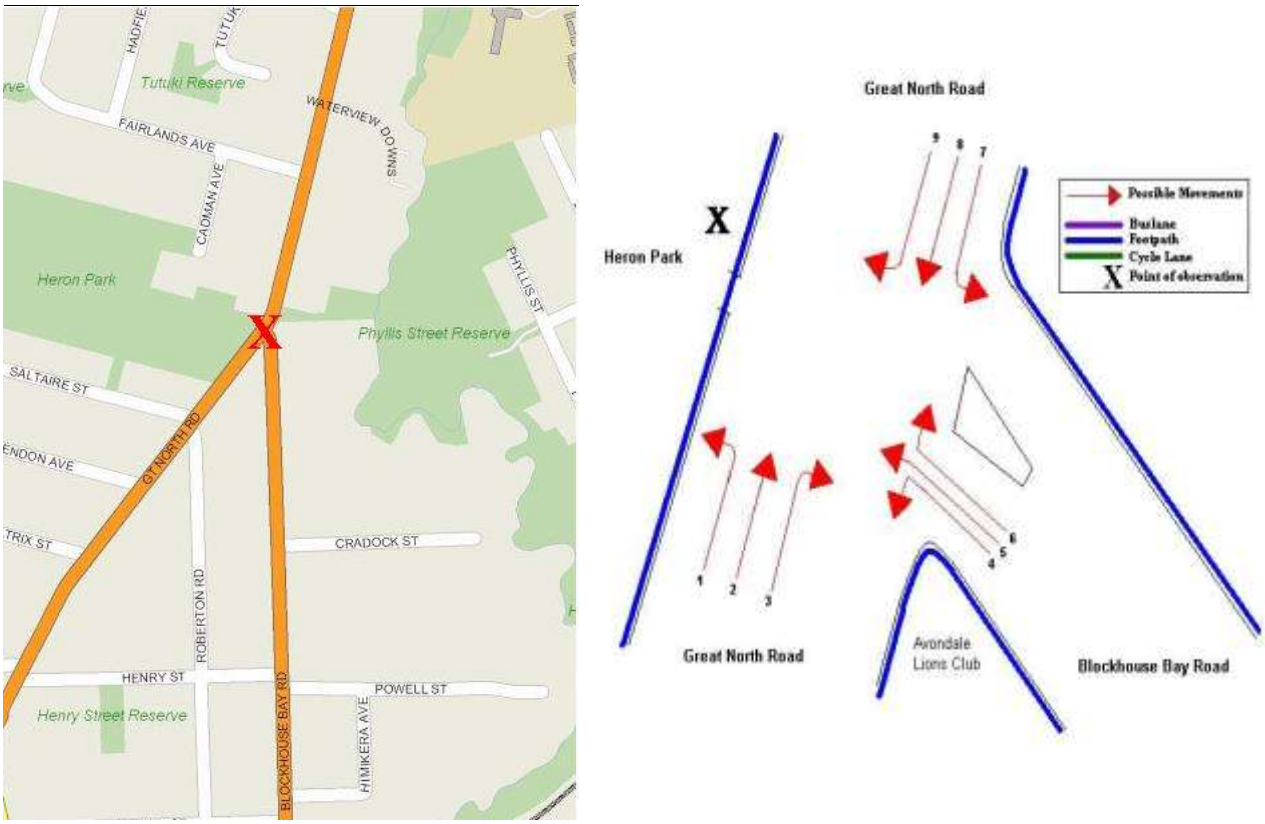
Upper Dominion Road, Eden Terrace 2013 (n)



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

Figure 10.1 shows the possible cyclist movements at this intersection.

Figure 10.1: Cycle Movements: Blockhouse Bay/Great North Road



10.1 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
2012	60	69	129	187
2013	**73**	**68**	**141**	**205**

10.2 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

- Seventy-three movements were recorded at the Blockhouse Bay/Great North Road site. This number was the highest count since monitoring began in 2008.
- The key morning movements were straight through Great North Road (Movement 2 = 34 cyclists), the right turn out of Blockhouse Bay Road into Great North Road (Movement 6 = 19 cyclists) and heading south along Great North Road (Movement 8 = 12 movements).
- The most notable increases in cyclist movements in the morning at this site were at Movement 6 and at Movements 8 (up 8 and 6 cyclists respectively).

Table 10.1: Morning Cyclist Movements

Blockhouse Bay/Great North Road 2008 – 2013 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	0	0	0	0	0	**0**	**0**
2	29	28	33	23	36	**34**	**-2**
3	0	0	2	0	0	**1**	**1**
4	0	1	1	0	1	**0**	**-1**
5	0	0	0	0	0	**0**	**0**
6	16	14	16	21	11	**19**	**8**
7	3	4	2	4	4	**7**	**3**
8	9	10	12	8	6	**12**	**6**
9	0	0	0	0	0	**0**	**0**
Total	**57**	**57**	**66**	**56**	**58**	**73**	**15**

- Over the morning peak, most cyclists were adults (86 per cent, a decrease from 93 per cent in 2012).
- There has been an eight percentage point increase in helmet-wearing over the last 12 months (96 per cent, compared with 88 per cent last year).
- Most cyclists were male (91 per cent).
- Fifty-six per cent of cyclists were observed riding on the footpath, an increase from 43 per cent last year.

Table 10.2: Morning Cyclist Characteristics

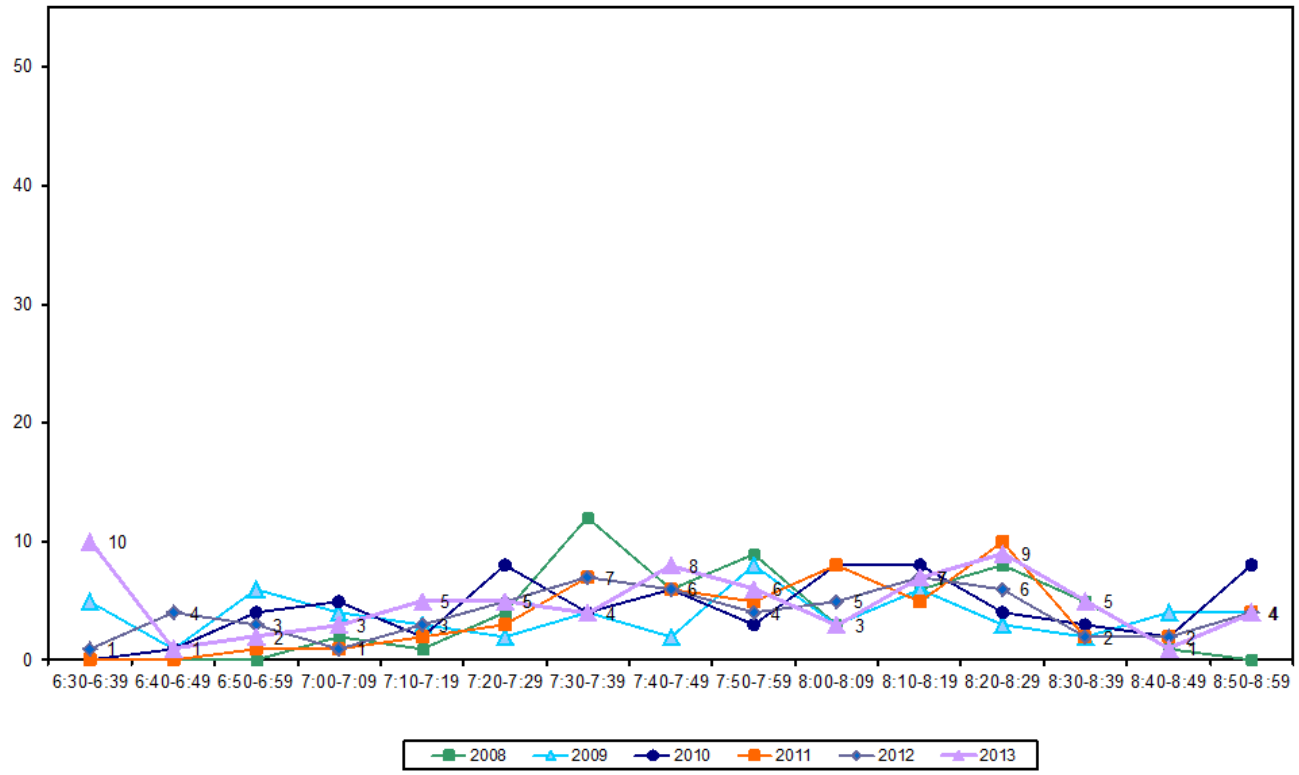
Blockhouse Bay/Great North Road 2008 – 2013 (%)

	2008	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type							
Adult	89	65	92	82	93	**86**	**-7**
School child	11	35	8	18	7	**14**	**7**
Helmet Wearing							
Helmet on head	93	88	95	98	88	**96**	**8**
No helmet	7	12	5	2	12	**4**	**-8**
Gender							
Male	-	-	-	86	85	**91**	**6**
Female	-	-	-	5	13	**8**	**-5**
Can't tell	-	-	-	9	2	**1**	**-1**
Where Riding							
Road	44	65	62	50	57	**44**	**-13**
Footpath	56	35	38	50	43	**56**	**13**
Base:	***57***	***57***	***66***	***56***	***60***	***73***	

- Morning cycle volumes started with a peak of ten movements but dropped notably in the next ten minutes. From there, cycle traffic gradually increased to two smaller peaks between 7:40am – 7:49am (8 movements) and between 8:20am - 8:29am (9 movements).

Figure 9.2: Morning Peak Cyclist Frequency

Blockhouse Bay/Great North Road 2008 – 2013 (n)



Note: A group of seven cyclists (10 per cent of the morning cycle traffic at this site) rode past at 6:35am.

10.3 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

- The total number of evening peak cycle movements recorded at the Blockhouse Bay/Great North Road site was the same as last year (68 movements).
- The most common movement in the evening was straight through Great North Road in a south-westerly direction (Movement 8 = 44 cyclists). This number was also its highest record since first monitored in 2008.
- Cyclist volumes over the evening period have increased most notably at Movement 8 (up 5 cyclists).

Table 10.3: Evening Cyclist Movements

Blockhouse Bay/Great North Road 2008 – 2013 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	0	0	0	0	0	**0**	**0**
2	14	15	17	15	10	**7**	**-3**
3	0	0	2	1	2	**0**	**-2**
4	0	1	0	0	1	**0**	**-1**
5	0	2	0	0	0	**0**	**0**
6	1	2	4	6	5	**5**	**0**
7	15	13	15	20	10	**12**	**2**
8	30	28	37	27	39	**44**	**5**
9	0	1	0	4	1	**0**	**-1**
Total	**60**	**62**	**75**	**73**	**68**	**68**	**0**

- Over the evening peak, almost all cyclists at this site were adults (99 per cent, stable from 100 per cent last year).
- Most cyclists at this site were wearing a helmet (93 per cent, stable from 94 per cent at the previous measure).
- The majority of cyclists were recorded as male (91 per cent, up 4 percentage points from last year).
- Seventy-two per cent of cyclists were riding on the road, down slightly from 75 per cent in 2012.

Table 10.4: Evening Cyclist Characteristics

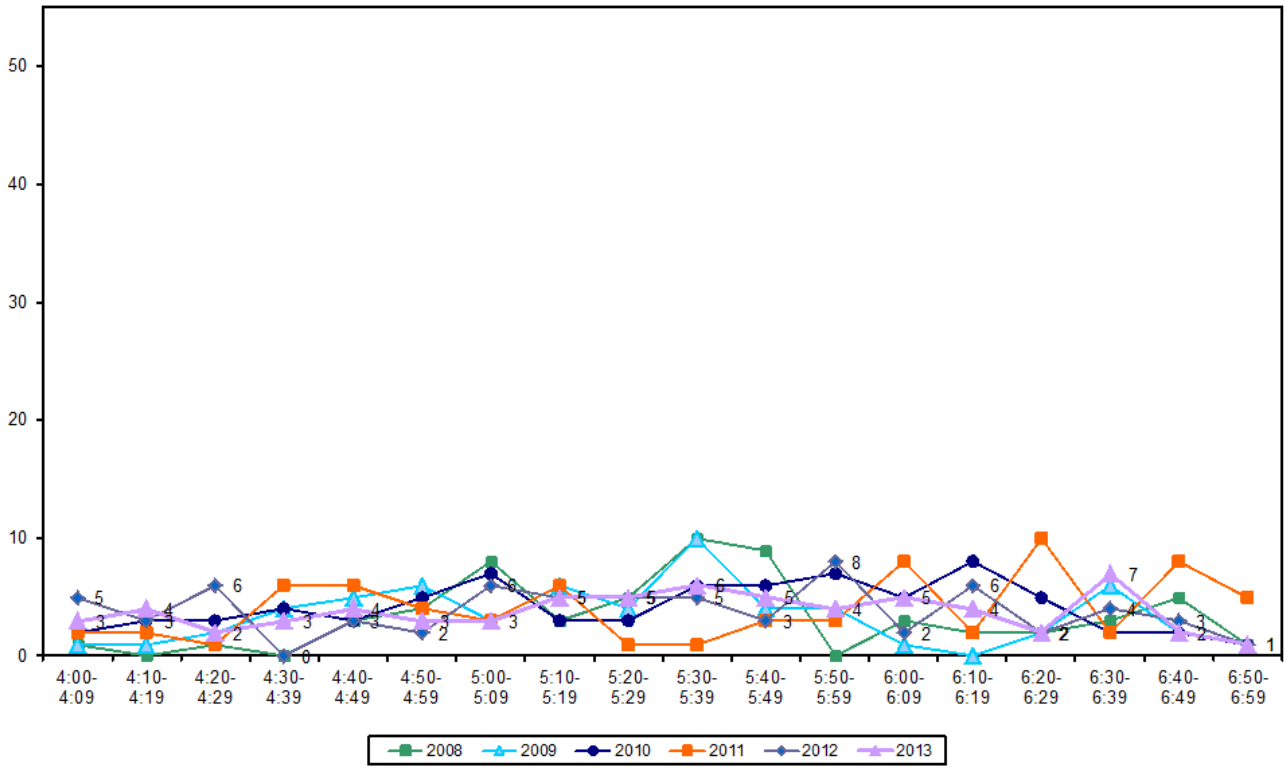
Blockhouse Bay/Great North Road 2008 – 2013 (%)

	2008	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type							
Adult	90	76	96	95	100	**99**	**-1**
School child	10	24	4	5	0	**1**	**1**
Helmet Wearing							
Helmet on head	87	81	93	89	94	**93**	**-1**
No helmet	13	19	7	11	6	**7**	**1**
Gender							
Male	-	-	-	86	87	**91**	**4**
Female	-	-	-	12	12	**9**	**-3**
Can't tell	-	-	-	1	1	**0**	**-1**
Where Riding							
Road	67	56	72	70	75	**72**	**-3**
Footpath	33	44	28	30	25	**28**	**3**
Base:	***60***	***62***	***75***	***73***	***68***	***68***	

- Evening cycle volumes were relatively steady and low throughout the monitoring period. The maximum number of cyclists during any ten minute interval was seven (between 6:30pm to 6:39pm).

Figure 10.3: Evening Peak Cyclist Frequency

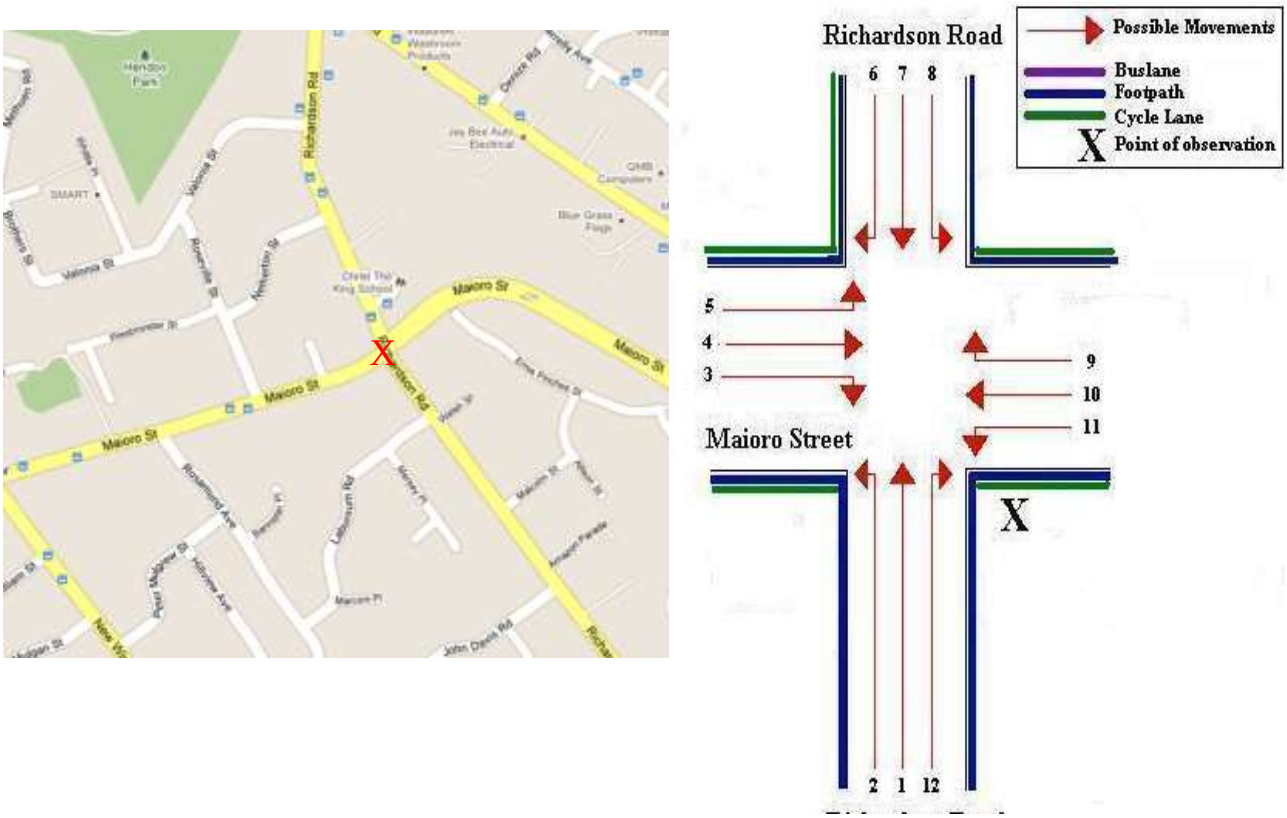
Blockhouse Bay/Great North Road 2008 – 2013 (n)



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

Figure 11.1 shows the possible cyclist movements at this intersection.

Figure 11.1: 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.

11.1 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
2012	29	24	53	77
2013	**25**	**23**	**48**	**70**

11.2 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 has decreased this year, with 25 cycle movements recorded (4 movements down from last year).
- The key movement was travelling straight along Maioro Street travelling east (Movement 4 = 9 cyclists).
- The most noticeable changes occurred at Movement 1 – travelling straight along Richardson Road heading north (down 3 movements) and at Movement 5 – left turn from Maioro St. to Richardson Road heading north as well (down 3 movements).

Table 11.1: Morning Cyclist Movements

Richardson/Maioro Street 2009 – 2013 (n)

Movement	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	2	4	1	4	**1**	**-3**
2	1	1	1	2	**1**	**-1**
3	2	1	0	2	**1**	**-1**
4	0	3	0	9	**9**	**0**
5	0	0	0	5	**2**	**-3**
6	1	0	0	0	**1**	**1**
7	2	1	1	1	**1**	**0**
8	-	2	1	0	**1**	**1**
9	-	0	1	0	**0**	**0**
10	-	2	10	6	**8**	**2**
11	0	0	0	0	**0**	**0**
12	-	0	0	0	**0**	**0**
Total	**8**	**14**	**15**	**29**	**25**	**-4**

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

- Ninety-two per cent of the cyclists were male (23 percentage point increase from last year).
- The majority of cyclists were wearing helmets (88 per cent, up from 79 per cent in 2012).
- Most of the cyclists were male (84 per cent, up from 76 per cent at the previous measure).
- The majority of cyclists were riding on the off-road cycleway (68 per cent, up from 62 per cent last year). The remaining 32 per cent were riding on the road (down from 38 per cent in 2012).

Table 11.2: Morning Cyclist Characteristics

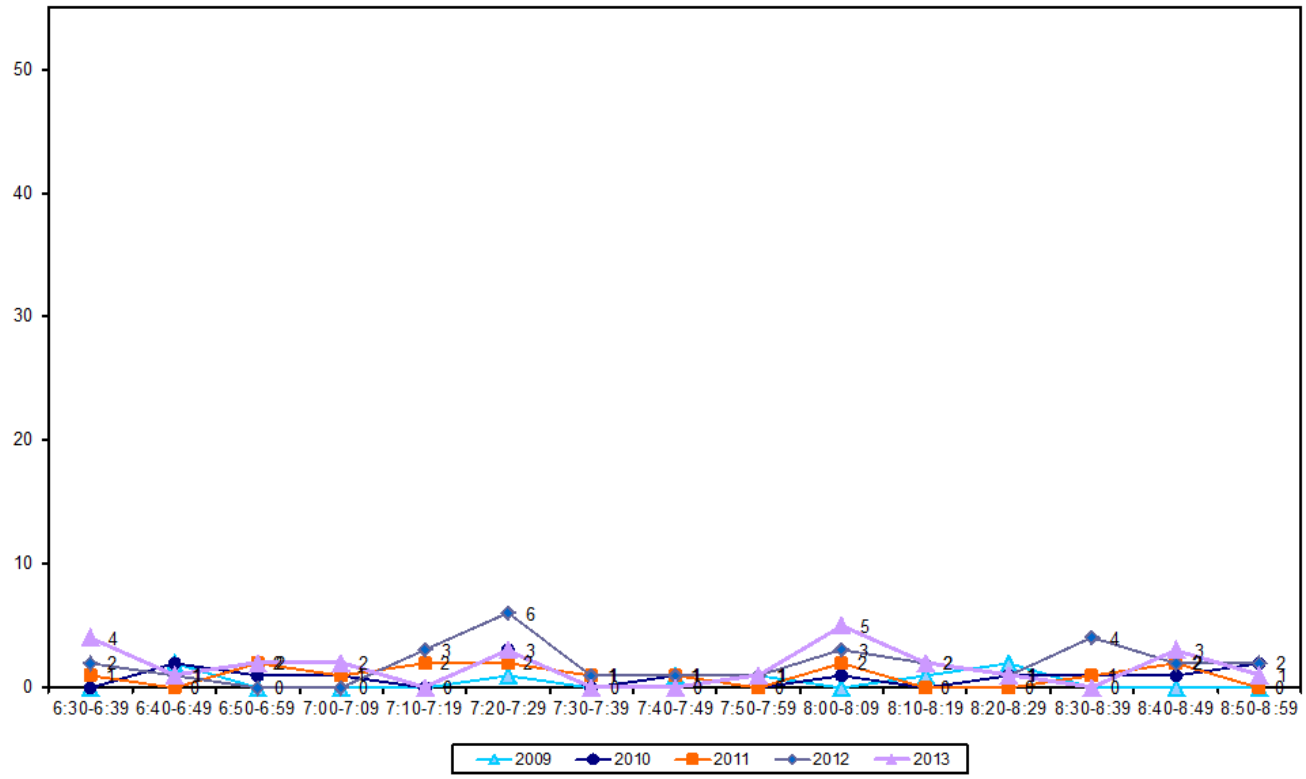
Richardson/Maioro Street 2009 – 2013 (%)

	2009	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type						
Adult	100	100	93	69	**92**	**23**
School child	0	0	7	31	**8**	**-23**
Helmet Wearing						
Helmet on head	100	93	87	79	**88**	**9**
No helmet	0	7	13	21	**12**	**-9**
Gender						
Male	-	-	80	76	**84**	**8**
Female	-	-	20	24	**16**	**-8**
Can't tell	-	-	0	0	**0**	**0**
Where Riding						
Road	88	57	47	38	**32**	**-6**
Footpath	12	14	13	0	**0**	**0**
Off-road Cycleway	-	29	40	62	**68**	**6**
Base:	***8***	***14***	***15***	***29***	***25***	

- Consistent with previous years, morning cycle volume was low throughout most of the morning monitoring period, with the peak of cyclist movements occurring between 8:00am and 8:09am (5 movements). Smaller peaks could be seen approximately every 40 minutes.

Figure 11.2: Cyclist Frequency

Richardson/Maioro Street 2009 – 2013 (n)



Note: A group of three cyclists (12 per cent of the morning cycle volume of this site) rode past at 6:31am.

11.3 Evening Peak

Environmental Conditions

- The weather was throughout 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 was 23 (stable from 24 movements last year).
- The key movement in the evening was going straight along Maioro Street eastwards (Movement 4 = 6 cyclists).
- Movement 2 experienced the greatest change across all sites (down 5 movements). It was the left turn from Richardson Road to Maioro Street heading west.

Table 11.3: Evening Cyclist Movements

Richardson/Maioro Street 2009 – 2013 (n)

Movement	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	0	6	1	1	**1**	**0**
2	4	2	1	6	**1**	**-5**
3	1	1	2	3	**2**	**-1**
4	1	1	9	2	**6**	**4**
5	1	0	1	0	**1**	**1**
6	1	1	0	0	**0**	**0**
7	4	5	3	4	**1**	**-3**
8	-	0	3	0	**1**	**1**
9	-	3	1	1	**1**	**0**
10	-	4	1	4	**7**	**3**
11	1	2	0	3	**2**	**-1**
12	-	0	0	0	**0**	**0**
Total	**13**	**25**	**22**	**24**	**23**	**-1**

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

- All cyclists passing by this site were adults (an increase of 25 percentage points since 2012).
- All cyclists were wearing a helmet (up from 75 per cent last year).
- The majority of cyclists continued to be male (87 per cent).
- Seventy per cent of the cyclists were riding on the off-road cycleway (up 16 percentage points from 2012).

Table 11.4: Evening Cyclist Characteristics

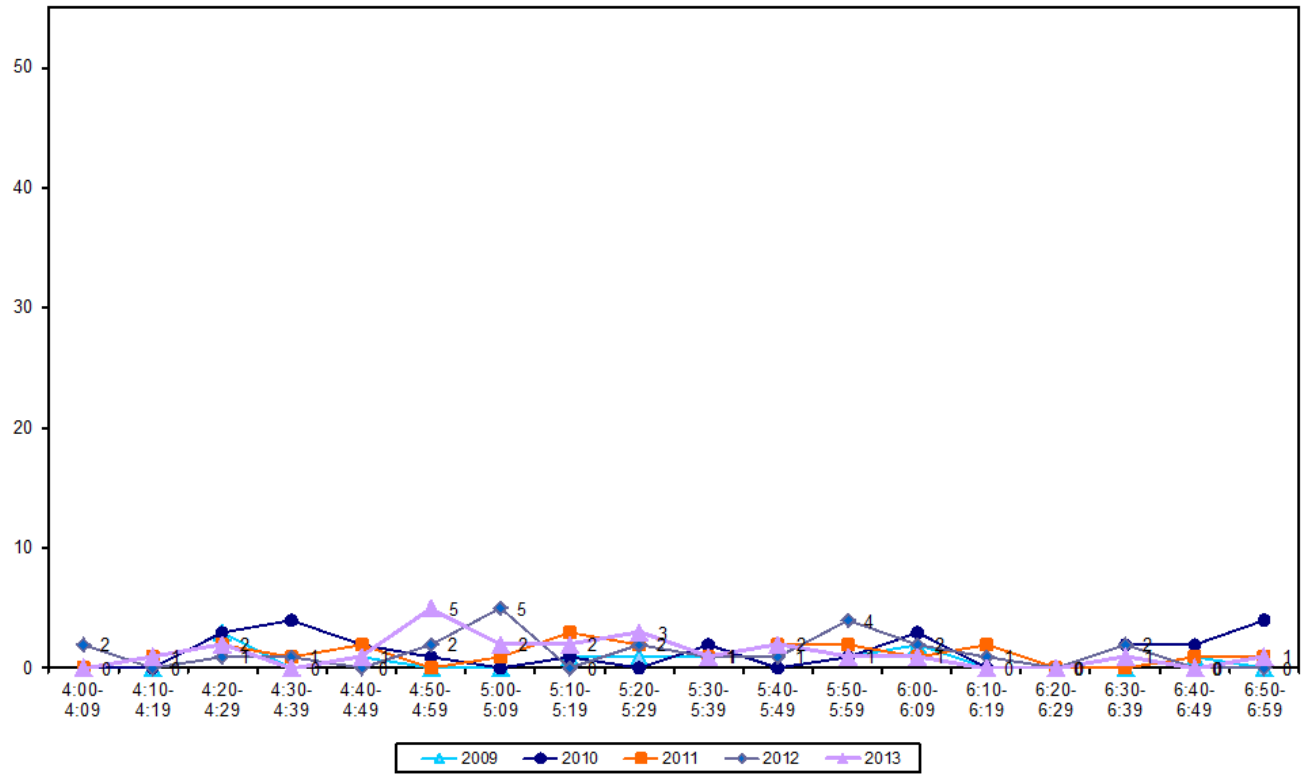
Richardson/Maioro Street 2009 – 2013 (%)

	2009	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type						
Adult	100	80	91	75	100	**-25**
School child	0	20	9	25	0	**25**
Helmet Wearing						
Helmet on head	85	76	77	75	100	**-25**
No helmet	15	24	23	25	0	**25**
Gender						
Male	-	-	86	92	87	**-5**
Female	-	-	9	8	13	**5**
Can't tell	-	-	5	0	0	**0**
Where Riding						
Road	46	16	32	46	30	**-16**
Footpath	54	16	14	0	0	**0**
Off-road cycleway	-	68	54	54	70	**16**
Base:	***13***	***25***	***22***	***24***	***23***	

- The volume of cycle movements remained relatively low over the entire evening peak, with no more than three cyclists recorded during all but two of the 10 minute intervals. The exception was the small peak between 4:50pm and 4:59pm (5 movements).

Figure 11.3: Evening Peak Cyclist Frequency

Richardson/Maioro Street 2009 – 2013 (n)

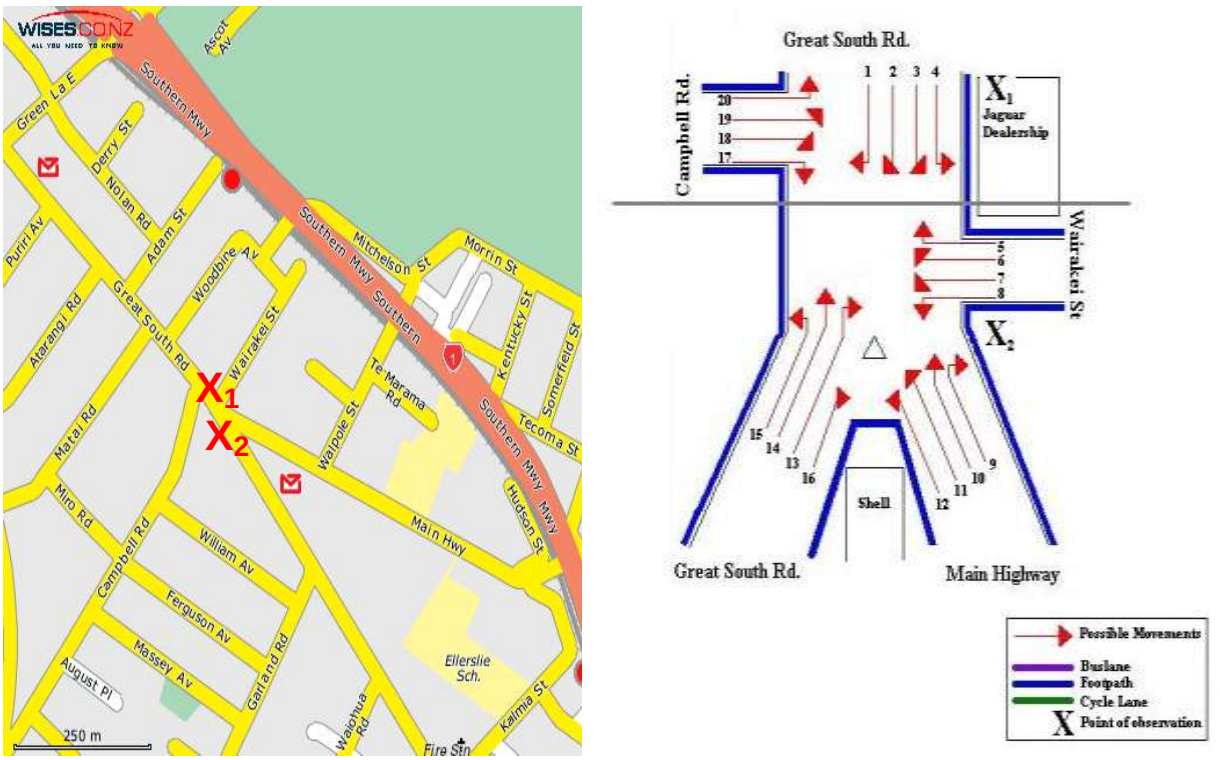


Note: A group of three cyclists (13 per cent of the morning cycle volume of this site) rode past at 4:51pm.

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

Figure 12.1 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 12.1: Cycle Movements: Great South/Campbell Road



12.1 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
2012	68	64	132	192
2013	**77**	**69**	**146**	**213**

12.2 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 increased, from 68 movements last year to 77 this year.
- Key morning movements were travelling from Main Highway to Great South Road northwards (Movement 10 = 19 cyclists), straight along Great South Road heading south (Movement 2 = 18 cyclists), and straight along Great South Road heading north (Movement 14 = 15 cyclists).
- The most noticeable increase was at Movement 10 (up 11 cyclists).

Table 12.1: Morning Cyclist Movements

Great South/Campbell Road 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	3	1	2	5	1	0	**2**	**2**
2	20	9	19	3	19	15	**18**	**3**
3	14	7	9	8	6	13	**12**	**-1**
4	2	0	0	7	0	0	**0**	**0**
5	2	0	1	0	0	1	**2**	**1**
6	0	0	0	0	0	0	**0**	**0**
7	0	0	0	4	2	3	**2**	**-1**
8	1	0	0	0	0	0	**0**	**0**
9	0	0	0	0	0	0	**0**	**0**
10	15	12	8	11	10	8	**19**	**11**
11	1	0	0	2	2	2	**1**	**-1**
12	1	0	2	3	0	0	**1**	**1**
13	0	0	0	0	1	0	**0**	**0**
14	15	9	12	17	11	17	**15**	**-2**
15	2	4	0	0	1	2	**0**	**-2**
16	2	0	0	0	0	0	**0**	**0**
17	1	1	1	1	2	1	**0**	**-1**
18	5	1	2	4	2	3	**1**	**-2**
19	3	4	2	0	0	0	**0**	**0**
20	2	5	6	4	3	3	**1**	**-2**
Don't know	-	-	-	-	-	-	**3**	**3**
Total	**89**	**53**	**64**	**69**	**60**	**68**	**77**	**9**

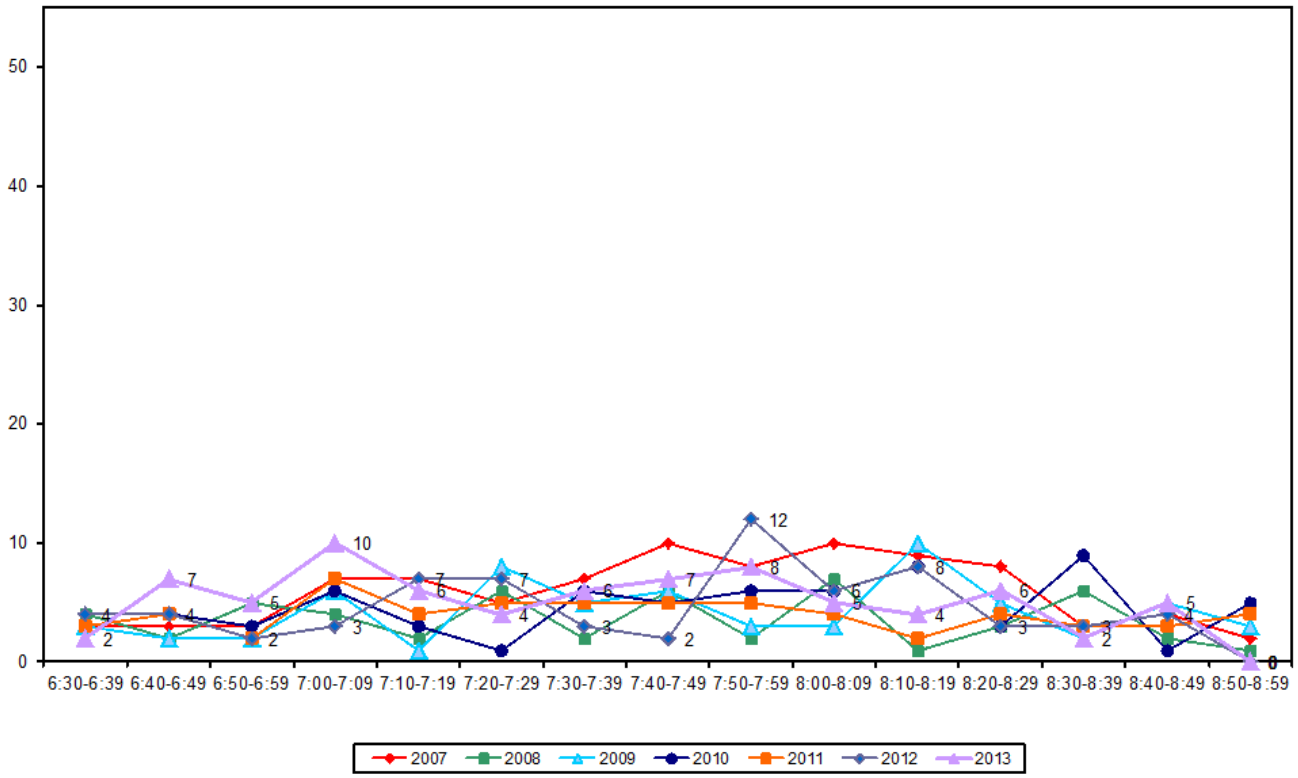
- Over the morning peak, adults comprised the greatest share of cycle movements (92 per cent, down from 97 per cent in the previous year).
- Nearly all cyclists were wearing a helmet (99 per cent, stable from 97 per cent in 2012).
- The greatest share of cyclists continued to be male (73 per cent), but proportion of female cyclists has continued to increase since 2011.
- The majority of cyclists were riding on the road (84 per cent, up from 81 per cent in 2012).

Table 12.2: Morning Cyclist Characteristics
Great South/Campbell Road 2007 – 2013 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
Cyclist Type								
Adult	94	92	88	93	95	97	**92**	**-5**
School child	6	8	12	7	5	3	**8**	**5**
Helmet Wearing								
Helmet on head	97	94	95	96	95	97	**99**	**2**
No helmet	3	6	5	4	5	3	**1**	**-2**
Gender								
Male	-	-	-	-	84	79	**73**	**-6**
Female	-	-	-	-	13	18	**22**	**4**
Can't tell	-	-	-	-	3	3	**5**	**2**
Where Riding								
Road	87	68	84	83	82	81	**84**	**3**
Footpath	13	32	16	17	18	19	**16**	**-3**
Base:	***89***	***53***	***64***	***69***	***60***	***68***	***77***	

- Morning cyclist volumes remained low throughout the monitoring period, with a peak of 10 cyclist movements between 7:00am and 7:09am. This compared with a peak last year between 7:50am and 7:59am (12 cyclists).

Figure 12.2: Morning Peak Cyclist Frequency
Great South/Campbell Road 2007 – 2013 (n)



12.3 Evening 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 evening cyclists at the Great South/Campbell Road intersection has increased – up from 64 in 2012 to 69 cycle movements this year.
- Key movements were straight along Great South Road heading north (Movement 14 = 24 cyclists) and left from Great South Road into Main Highway heading south-east (Movement 3 = 17 cyclists).
- The most noticeable decrease in cyclist movements was at Movement 2 – going along Great South Road southwards (down 7 cyclists). Meanwhile the biggest increase happened at Movement 14 (up 7 movements).

Table 12.3: Evening Cyclist Movements

Great South/Campbell Road 2007 – 2013 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	Change 12-13
1	2	3	5	5	1	3	**1**	**-2**
2	14	7	13	14	16	16	**9**	**-7**
3	16	8	10	19	14	15	**17**	**2**
4	1	0	4	2	0	1	**1**	**0**
5	0	0	0	1	0	0	**0**	**0**
6	0	0	0	0	0	0	**0**	**0**
7	0	0	2	0	0	1	**0**	**-1**
8	0	0	0	1	0	1	**2**	**1**
9	0	0	0	1	0	1	**1**	**0**
10	14	7	8	12	7	3	**3**	**0**
11	4	5	4	6	3	2	**3**	**1**
12	1	0	0	1	0	1	**1**	**0**
13	0	0	1	0	1	0	**0**	**0**
14	15	13	28	34	30	17	**24**	**7**
15	5	8	2	1	3	0	**2**	**2**
16	3	1	1	1	0	0	**1**	**1**
17	2	2	1	0	0	0	**0**	**0**
18	4	1	5	0	0	1	**1**	**0**
19	0	3	0	0	1	0	**0**	**0**
20	4	3	3	4	2	2	**0**	**-2**
Don't know	-	-	-	-	-	-	**3**	**3**
Total	**85**	**61**	**87**	**102**	**78**	**64**	**69**	**5**

- Over the evening peak, almost all cyclists using this intersection were adults (91 per cent, down from 97 per cent last year).
- Most cyclists at this site were wearing a helmet (97 per cent, up from 92 per cent in 2012).
- The greatest share of evening cyclists continued to be male (74 per cent).
- Most cyclists (74 per cent) were riding on the road, this share down slightly from 2012 (77 per cent).

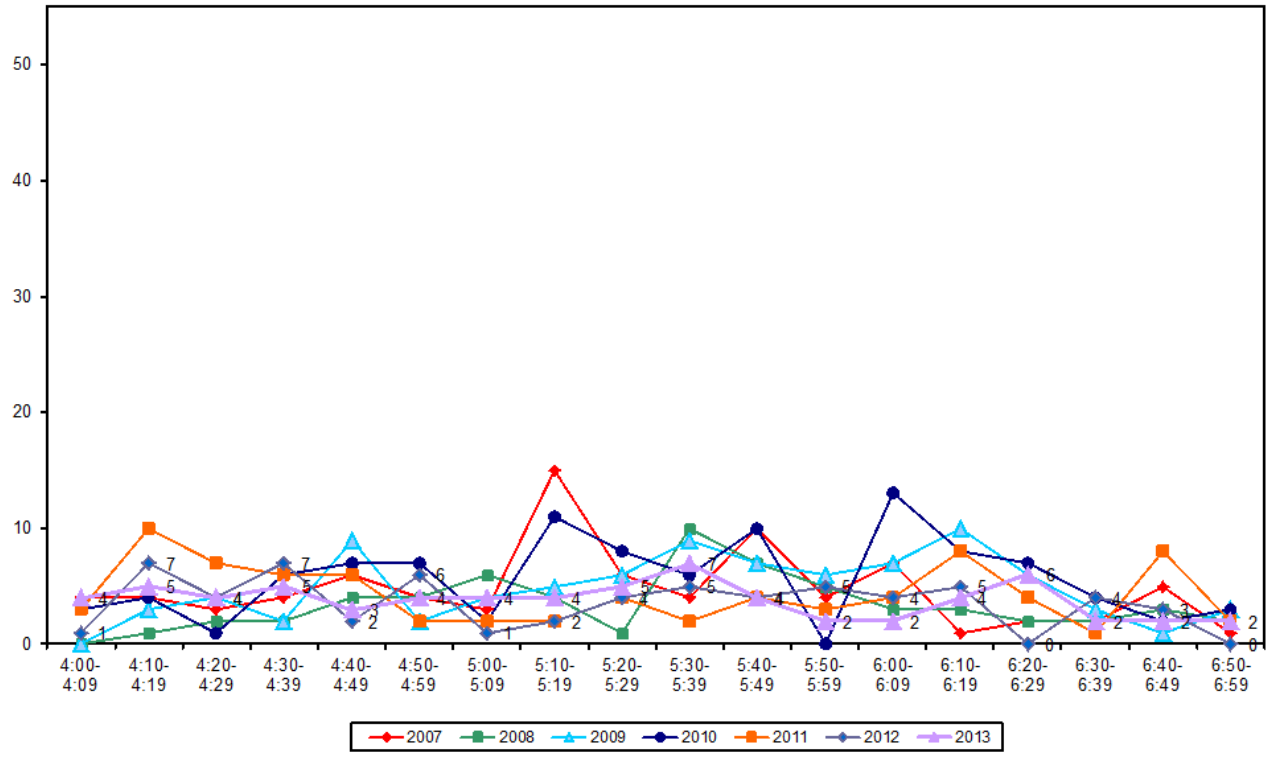
Table 12.4: Evening Cyclist Characteristics

Great South/Campbell Road 2007 – 2013 (%)

	2007	*2008*	*2009*	2010	2011	*2012*	*2013*	Change 12-13
Cyclist Type								
Adult	100	97	97	95	97	97	**91**	**-6**
School child	0	3	3	5	3	3	**9**	**6**
Helmet Wearing								
Helmet on head	95	89	98	92	99	92	**97**	**5**
No helmet	5	11	2	8	1	8	**3**	**-5**
Gender								
Male	-	-	-	-	82	83	**74**	**-9**
Female	-	-	-	-	17	14	**23**	**9**
Can't tell	-	-	-	-	1	3	**3**	**0**
Where Riding								
Road	87	82	83	89	85	77	**74**	**-3**
Footpath	13	18	17	11	15	23	**26**	**3**
Base:	***85***	***61***	***87***	***102***	***78***	***64***	***69***	

- Evening cycle volume was low but steady, with no more than seven cyclists recorded during any 10 minute intervals. There were two small peaks. The first occurred between 5:30pm to 5:39pm (7 cyclists), the second one between 6:20pm and 6:29pm (6 cyclists).

Figure 12.3: Evening Peak Cyclist Frequency
Great South/Campbell Road 2007 – 2013 (n)



13. 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 20 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. ***Note that the summary tables below will exclude Dilworth School for aggregate analysis.***
- Most schools did not report any events or issues that may affect cycle counts[9].
- Of the schools that responded to the survey, most did not have policies that restrict students cycling to school[10].
- The designated count day was Tuesday 5th of March 2013[11].

Key Points

- Of those eligible to cycle, on average, two per cent of students are cycling to their schools. This result is unchanged from 2012.
- Across the 19 eligible schools that responded n=217 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 11 per cent of all eligible students currently cycling (down from 12 per cent last year).
- Of the 19 eligible schools that responded, 5 (26 per cent) had no students cycling to school.

[9] The following schools reported events or issues that had an effect on the cycle count:
- Auckland Normal Intermediate *"Two Year 8 classes at camp"*
- Balmoral School *"All our Year 5/6 students are out at camp this week so the number counted today is less than usual"*
- Waikowhai Intermediate School *"Two Year 8 classes of 30 students are at Beach Ed at Muriwai"*

[10] The following schools have policies surrounding which students can ride to school:
- Balmoral School *"Our recommendations are that students from Year 5 can independently ride to school on bikes, unless there is a particular request from a parent. Younger children are permitted to ride bikes when they are with their parents"*
- Ficino School *"Years 6,7,8 are allowed to cycle to school"*
- Kohia Terrace School *"It is a procedure with the guideline that students 10 years of age or over can cycle without an adult to school"*

[11] The following schools undertook counts on alternative days:
- Balmoral SDA School – 13th March 2013
- Christ the King Catholic School – 13th March 2013
- Epsom Girls' Grammar – 13th March 2013
- Ficino School – 13th March 2013
- Our Lady Sacred Heart (Epsom) – 14th March 2013
- St Cuthbert's College – 13th March 2013
- St Therese School (Three Kings) – 13th March

- Of the 17 schools that participated in the count in both 2012 and 2013, three (18 per cent) reported a increase in the share of students cycling:
  - Kohia Terrace School (7 per cent, up from 2 per cent)
  - Hebron Christian College (5 per cent, up from 1 per cent)
  - St Cuthbert's College (4 per cent, up from less than 1 per cent).
- Of the 17 schools that participated in the count in both 2012 and 2013, 9 (53 per cent) reported a decrease in the share of students cycling.

Table 13.1 shows the results of the 19 schools surveyed in the Albert-Eden-Roskill ward.

Table 13.1: Summary Table Of School Bike Count

2007 – 2013 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[12]						
				2013	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Pasadena Intermediate School	Intermediate	302	32	**11%**	12%	22%	26%	17%	12%	18%
Kohia Terrace School	Full Primary	170	12	**7%**	2%	-	-	-	-	-
Hebron Christian College	Composite	135	7	**5%**	1%	-	-	-	-	-
Waikowhai Intermediate School	Intermediate	390	17	**4%**	6%	5%	3%	4%	3%	3%
St Cuthbert's College	Composite	1400	50	**4%**	<1%	-	-	-	-	-
Auckland Normal Intermediate	Intermediate	726	25	**3%**	4%	7%	7%	6%	5%	7%
Our Lady Sacred Heart School (Epsom)	Full Primary	232	6	**3%**	-	-	-	-	-	-
Balmoral School	Full Primary	456	13	**3%**	4%	4%	0%	-	-	-
Kowhai Intermediate School	Intermediate	385	7	**2%**	3%	5%	5%	6%	6%	6%
Mt Roskill Intermediate School	Intermediate	650	15	**2%**	3%	2%	4%	-	2%	2%
Mount Albert Grammar School	Secondary	2650	25	**1%**	2%	-	-	-	-	-
Diocesan School for Girls	Composite	1395	2	**<1%**	<1%	<1%	<1%	0%	<1%	0%
Lynfield College	Secondary	1892	5	**<1%**	<1%	<1%	<1%	1%	<1%	1%
St Therese School (Three Kings)	Full Primary	117	0	**0%**	-	0%	-	-	-	-
Balmoral SDA School	Full Primary	85	0	**0%**	2%	2%	-	-	-	-

[12] 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.

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[12]						
				2013	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Epsom Girls' Grammar School	Secondary	2200	1	**0%**	<1%	0%	<1%	0%	<1%	-
Christ the King Catholic School	Full Primary	149	0	**0%**	0%	0%	-	-	-	-
Ficino School	Full Primary	45	0	**0%**	0%	0%	-	-	-	-
Marcellin College	Intermediate/Secondary	670	0	**0%**	0%	<1%	0%	0%	1%	-
Total		**14049**	**217**	**2%**	2%	2%	-	-	-	-

- Table 13.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (4 per cent, down from 5 per cent in 2011), and lowest for secondary (0 per cent) and intermediate/secondary (0 per cent) schools.

Table 13.2: Summary Table Of School Bike Count by School Type

2007 – 2013 (%)

School Type	*Number of Schools Responded in 2013 (n)*	*Cyclists as share of those eligible*							Change 12-13
		2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	
Intermediate	5	7%	6%	8%	9%	7%	5%	**4%**	**-1%**
Full Primary	7	-	-	-	-	2%	2%	**3%**	**1%**
Composite	3	0%	<1%	0%	<1%	<1%	<1%	**2%**	**1%**
Secondary	3	2%	<1%	1%	<1%	1%	1%	**1%**	**0%**
Intermediate/Secondary	1	-	1%	0%	<1%	<1%	0%	**0%**	**0%**

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[13] 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)[14], 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.

[13] Annual average daily traffic

[14] 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%