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Research Report Prepared for
Auckland Transport

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2012 Auckland Region Manual Cycle Monitor

- Albert-Eden-Roskill Ward -

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1.1 Introduction

The Need For Reliable Cycle Trip Data

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

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

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

Manual Cycle Monitoring

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

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

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

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

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

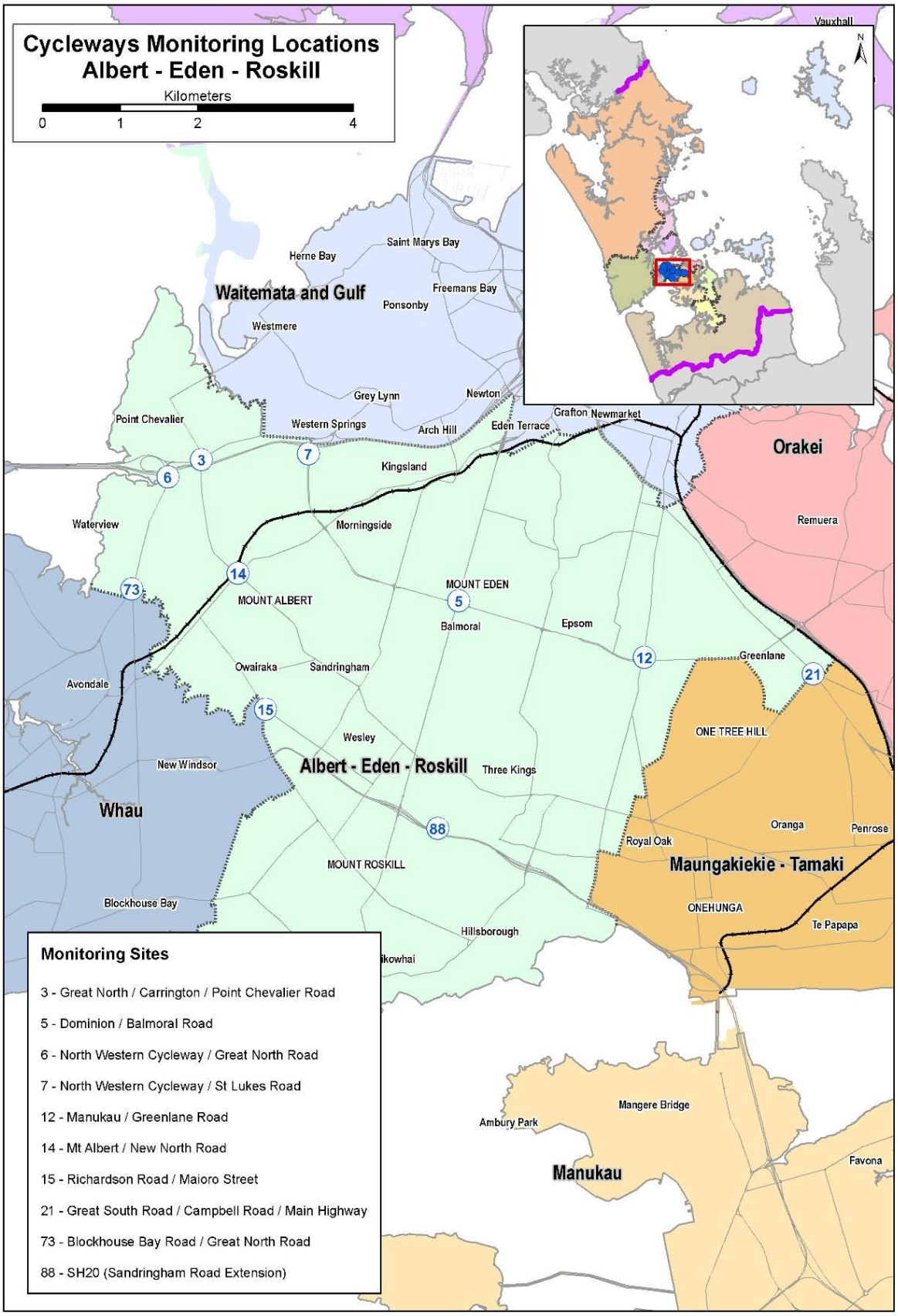
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

This report presents results from manual cycle counts conducted at 10 sites in the Albert-Eden-Roskill ward following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a ward and region level. For sites also monitored in 2007, 2008, 2009, 2010 and/or 2011, comparative results are provided.

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

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

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



1.2 Methodology

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

Choice of Sites

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

Manual counts were undertaken at 83 different sites throughout the region. Sites were distributed by ward as follows:

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

Counts were conducted on the following days:

- Tuesday 6th March — Albany, North Shore, Waitakere
- Wednesday 7th March — Whau, Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki,
- Tuesday 13th March — Howick, Franklin, Manukau, Waitemata & Gulf

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 three count days in 2012 was as follows:

Tuesday 6th March

- Sunrise: 7:11am; Sunset: 7:52pm.
- Highest temperature: 21.3 degrees Celsius.
- Mostly fine weather with some cloud for some sites in the morning and afternoon shifts.

Wednesday 7th March

- Sunrise: 7:12am; Sunset: 7:51pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with some cloud for all sites in the morning, some sites experienced showers intermittently from 16:00 until the end of the evening monitoring period.

Tuesday 13th March

- Sunrise: 7:17am; Sunset: 7:43pm.
- Highest temperature: 21.3 degrees Celsius.
- Mostly fine weather with some cloud for some sites in the morning and afternoon 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].

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

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

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

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

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

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

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

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

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

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

School Bike Shed Counts

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

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

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

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

Methodology

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

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

2. This email was then sent to all eligible schools in Auckland region (n=317) 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 6th 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 2012, 233 responses were received, a response rate of 74 per cent. (This compares with 68 per cent in 2011).

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

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

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

Note: Surveying in the Albert-Eden-Roskill ward was undertaken on Wednesday 7th March, 2012
Note: Sunrise: 7:12am; Sunset: 7:51pm. Highest temperature: 24.0 degrees Celsius

1.4 Morning Peak Summary Results

Environmental Conditions

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

Key Points

- A total of 1,021 cyclist movements were recorded across the 10 sites in the morning peak period in 2012. Two per cent (n=17) of the total cycle movements in the morning peak were observed made by those cycling in groups. This compares with two per cent in 2011.
- The number of morning cycle movements has remained stable over the last 12 months – from 1,023 in 2011 to 1,021 this year.
- The average volume of morning cyclists across the 10 sites in Albert-Eden-Roskill is 102 cycle movements, unchanged from 2011.
- Of the 10 sites monitored, the busiest in the morning peak is the North Western Cycleway at St Lukes (222 cycle movements), whereas the Keith Hay Park/Somerset Road/Bridge site has the lowest volume of morning cyclists (28 movements).
- Four sites recorded increases in cycle movements this year compared to 2011. The most notable increases are at:
  - Richardson Road/Maioro Street – up 93 per cent; and
  - Great South Road/Campbell Road/Main Highway – up 13 per cent.
- In contrast, the remaining six sites recorded declines. The most notable decreases are at:
  - Manukau Road/Greenlane West– down 8 per cent; and
  - North Western Cycleway/St Lukes – down 8 per cent.

Table 1.1: Summary Of Morning Cyclist Movements

2007-2012 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	2012	Change 11-12	Change 07-12
7	North Western Cycleway/St Lukes	152	156	155	222	240	**222**	**-8%**	**46%**
6	North Western Cycleway/Great North Road	98	156	145	244	204	**201**	**-1%**	**105%**
3	Great North/Carrington Road	114	95	97	150	103	**112**	**9%**	**-2%**
12	Manukau Road/Greenlane West	103	92	84	130	120	**110**	**-8%**	**7%**
5	Dominion/Balmoral Road	114	90	85	91	99	**97**	**-2%**	**-15%**
14	Mount Albert/New North Road	75	68	59	91	97	**94**	**-3%**	**25%**
21	Great South Road/Campbell Road/Main Highway	89	53	64	69	60	**68**	**13%**	**-24%**
	Average per site (7 sites since 2007)	**106**	**101**	**98**	**142**	**132**	**129**	**-2%**	**22%**
	Total (7 sites since 2007)	**745**	**710**	**689**	**997**	**923**	**904**	**-2%**	**21%**
73	Blockhouse Bay/Great North Road	-	57	57	66	56	**60**	**7%**	**-**
15	Richardson Road/Maioro Street	-	-	8	14	15	**29**	**93%**	**-**
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	28	29	**28**	**-3%**	**-**
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**96**	**84**	**110**	**102**	**102**	**0%**	**-**
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**767**	**754**	**1105**	**1023**	**1021**	**0%**	**-**

- Morning cyclist characteristics this year are similar to those reported in 2011. Eighty-nine per cent of cyclists this year are adults (stable from 89 per cent in 2011).
- Almost all morning cyclists are wearing a helmet (91 per cent, down slightly from 94 per cent in 2011).
- The majority of morning cyclists are male (81 per cent).
- Riding on the road is still most common (43 per cent, down slightly from 45 per cent last year).

Table 1.2: Summary of Morning Cyclist Characteristics

2007 – 2012 (%)

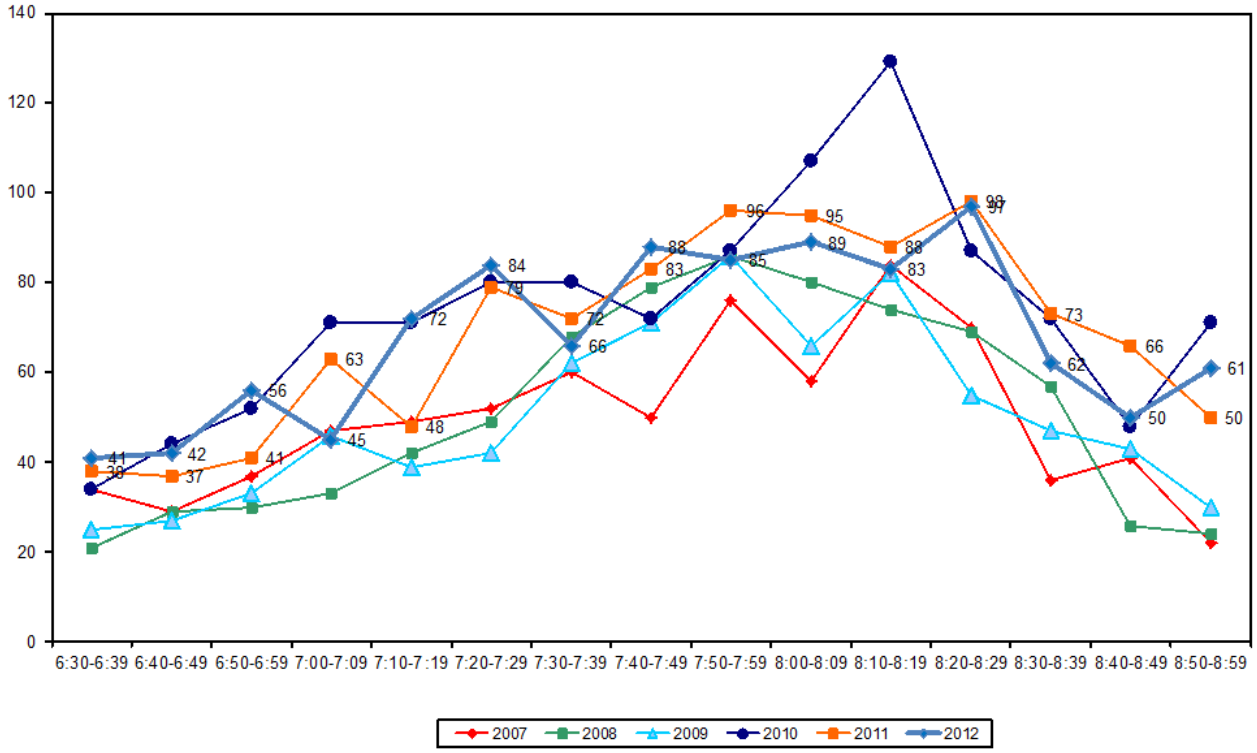
	2007	*2008*	*2009*	*2010*	*2011*	2012	Change 10-11
Cyclist Type							
Adult	87	87	87	88	89	**89**	**0**
School child	13	13	13	12	11	**11**	**0**
Helmet Wearing							
Helmet on head	95	95	94	94	94	**91**	**-3**
No helmet	5	5	6	6	6	**9**	**3**
Gender							
Male	-	-	-	-	78	**81**	**3**
Female	-	-	-	-	18	**17**	**-1**
Can't tell	-	-	-	-	4	**2**	**-2**
Where Riding*							
Road	81	81	54	48	45	43	**-2**
Footpath	19	19	14	16	16	17	**1**
Off-road cycleway	0	0	32	36	39	40	**1**
Base:	***745***	***767***	***754***	***1105***	***1023***	**1021**	

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

- Figure 1.2 shows the overall pattern of morning cyclist volumes recorded at the 10 sites monitored in 2012. Morning cyclist numbers follow a steady increasing trend from 6:30am to a peak between 8:20am and 8:29am (87 cyclists), after which the number of movements decline gradually over the remainder of the morning period.

Figure 1.2: Total Cyclist Frequency

Morning Peak 2007 – 2012



1.5 Evening Peak Summary Results

Environmental Conditions

- All sites had fine weather until 4:30pm. From then until the end of the shift, some sites experienced intermittent rain.
- At the Mt Albert/New North Road site from 4:30pm to 5:30pm, The NZ Nurses Organisation staged a protest. There were no other road works, accidents or events that may affect cycle counts.

Key Points

- A total of 943 cyclist movements were recorded across the 10 sites in the evening peak period in 2012. None of the total cycle movements in the evening peak were made by those cycling in groups.
- The number of evening cycle movements has decreased over the last 12 months (1,206 movements recorded in 2011 compared with 943 this year).
- The average volume of evening cyclist movements across the 10 sites in the Albert-Eden-Roskill ward is 94 cycle movements. This has decreased from 121 movements in 2011.
- Of the 10 Albert-Eden-Roskill sites, the volume of evening cyclists is lowest at the Keith Hay Park/Somerset Road/Bridge site (19 cycle movements recorded), whereas the North Western Cycleway/St Lukes site continues to be the busiest in terms of evening cyclists' activity, with 207 movements recorded.
- Only one site recorded an increase in evening cycle movements this year compared to 2011. This site is Richardson Road/Maioro Street, where cyclist volumes increased by 9 per cent.
- The other nine sites all recorded a decline in evening cyclist volumes this year compared to 2011. These decreases were most notable at:
  - Keith Hay Park/Somerset Road/Bridge – down 53 per cent;
  - Northwestern Cycleway/Great North Rd – down 28 per cent;
  - Great North/Carrington Road – down 27 per cent; and
  - Mount Albert/New North Road – down 27 per cent.

Table 1.3: Summary of Evening Cyclist Movements

2007 – 2012 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12	Change 07-12
7	North Western Cycleway/St Lukes	172	175	155	210	273	**207**	**-24%**	**20%**
6	Northwestern Cycleway/Great North Rd	134	213	141	241	282	**204**	**-28%**	**52%**
12	Manukau Road/Greenlane West	122	113	92	127	107	**95**	**-11%**	**-22%**
3	Great North/Carrington Road	121	136	96	164	129	**94**	**-27%**	**-22%**
5	Dominion/Balmoral Road	123	111	98	114	98	**91**	**-7%**	**-26%**
14	Mount Albert/New North Road	81	96	83	118	104	**76**	**-27%**	**-6%**
21	Great South Road/Campbell Road/Main Highway	85	61	87	102	78	**64**	**-18%**	**-25%**
	Average per site (7 sites since 2007)	**120**	**129**	**107**	**154**	**153**	**119**	**-22%**	**-1%**
	Total (7 sites since 2007)	**838**	**905**	**752**	**1076**	**1071**	**831**	**-22%**	**-1%**
73	Blockhouse Bay/Great North Road	-	60	62	75	73	**69**	**-5%**	**-**
15	Richardson Road/Maioro Street	-	-	13	25	22	**24**	**9%**	**-**
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	25	40	**19**	**-53%**	**-**
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**121**	**92**	**120**	**121**	**94**	**-22%**	**-**
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**965**	**827**	**1201**	**1206**	**943**	**-22%**	**-**

- Evening cyclist characteristics this year are similar to those reported in 2011. In particular, 94 per cent of evening cyclists this year are adults (stable from 92 per cent in 2011).
- Most cyclists are wearing a helmet in the evening (91 per cent, stable from 92 per cent in 2011).
- The majority of the cyclists recorded over the evening monitoring period were male (84 per cent).
- Riding on the road is the most common for evening cyclists (43 per cent, up 1 per cent from 2011). Forty-one per cent of evening cyclists are riding on the off-road cycle way.

Table 1.4: Summary of Evening Cyclist Characteristics

2007 – 2012 (%)

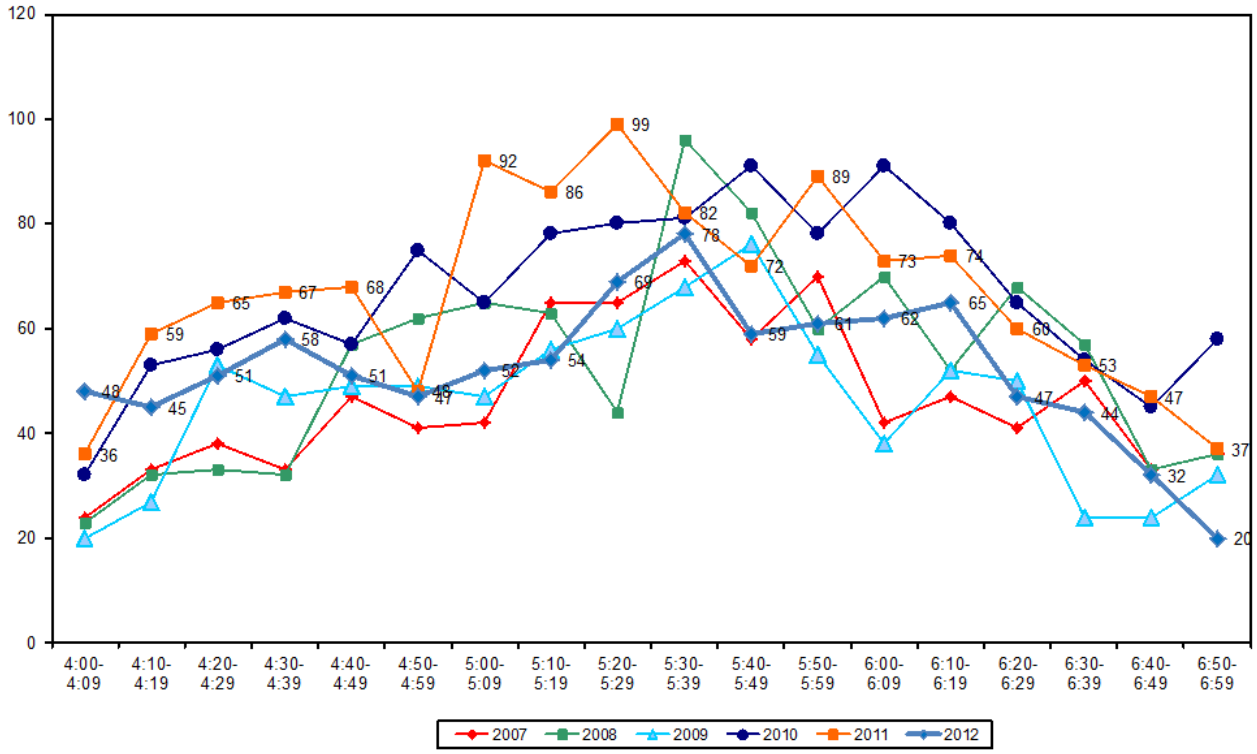
	2007	***2008***	***2009***	***2010***	***2011***	***2012***	**Change 11-12**
Cyclist Type							
Adult	93	90	95	93	92	**94**	**2**
School child	7	10	5	7	8	**6**	**-2**
Helmet Wearing							
Helmet on head	93	92	92	90	92	**91**	**-1**
No helmet	7	8	8	10	8	**9**	**1**
Gender							
Male	-	-	-	-	84	**84**	**0**
Female	-	-	-	-	14	**15**	**1**
Can't tell	-	-	-	-	2	**1**	**-1**
Where Riding*							
Road	80	82	54	48	42	43	**1**
Footpath	20	18	15	19	16	16	**0**
Off-road cycleway	0	0	31	33	42	41	**-1**
Base:	***838***	***965***	***827***	***1201***	***1206***	***943***	

** 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 10 sites in the Albert-Eden-Roskill ward is illustrated in Figure 1.3. Evening cyclist numbers start off at a moderate level, increasing to a slight peak between 4:30pm and 4:39pm (58 movements). Cyclist volumes then decrease before increasing to peak between 5:30pm and 5:39pm (67 movements). A final slight peak in cyclist volumes occurs between 6:00pm and 6:19pm (54 and 53 movements per ten minute interval respectively) before decreasing throughout the remainder of the monitoring period.

Figure 1.3: Total Cyclist Frequency

Evening Peak 2007 – 2012



1.6 Aggregated Total Summary Results

- Overall, a total of 1,964 cyclist movements were recorded across the 10 sites monitored in 2012 - 1 per cent (n=17) observed as cycling in groups. This compares with 1 per cent cycling in groups in 2011.
- Total cycle movements have declined over the last 12 months – down from 2,229 in 2011 to 1,964 in 2012, a 12 per cent decrease.
- Of the 10 sites in the Albert-Eden-Roskill ward, the busiest site is North Western Cycleway/St Lukes with a total of 429 movements, while Keith Hay Park/Somerset Road/Bridge has the fewest number of cyclists (47 movements).

Table 1.5: Summary of Total Cyclist Movements
2007 – 2012 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12	Change 07-12
7	North Western Cycleway/St Lukes	324	331	310	432	513	**429**	**-16%**	**32%**
6	North Western Cycleway/Great North Road	232	369	286	485	486	**405**	**-17%**	**75%**
3	Great North/Carrington Road	235	231	193	314	232	**206**	**-11%**	**-12%**
12	Manukau Road/Greenlane West	225	205	176	257	227	**205**	**-10%**	**-9%**
5	Dominion/Balmoral Road	237	201	183	205	197	**188**	**-5%**	**-21%**
14	Mount Albert/New North Road	156	164	142	209	201	**170**	**-15%**	**9%**
21	Great South Road/Campbell Road/Main Highway	174	114	151	171	138	**132**	**-4%**	**-24%**
	Average per site (7 sites since 2007)	**226**	**231**	**206**	**296**	**285**	**248**	**-13%**	**10%**
	Total (7 sites since 2007)	**1583**	**1615**	**1441**	**2073**	**1994**	**1735**	**-13%**	**10%**
73	Blockhouse Bay/Great North Road	-	117	119	141	129	**129**	**0%**	**-**
15	Richardson Road/Maioro Street	-	-	21	39	37	**53**	**43%**	**-**
88	Keith Hay Park/Somerset Rd/ Bridge	**-**	**-**	**-**	53	69	**47**	**-32%**	**-**
	Average per site (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**217**	**176**	**231**	**223**	**196**	**-12%**	**-**
	Total (8 sites in 2008, 9 sites in 2009, 10 sites since 2010)	**-**	**1732**	**1581**	**2306**	**2229**	**1964**	**-12%**	**-**

- Overall, cyclist characteristics this year are similar to those reported in 2011. In particular, 91 per cent of all cyclists this year are adults (unchanged from 2011).
- Most cyclists are wearing a helmet (91 per cent, stable from 93 per cent in 2011).
- Males made up approximately four in five cyclists (82 per cent).
- A slightly higher proportion of cyclists are riding on the road (43 per cent) than on off-road cycleways (40 per cent, stable from last year). The remaining 17 per cent of cyclists are riding on the footpath.

Table 1.6: Summary of Total Cyclist Characteristics

2007 – 2012 (%)

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

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

1.7 Average Annual Daily Traffic (AADT) Estimate

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

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at the North Western Cycleway/St Lukes site (625 daily movements, down from 723 movements in 2011) and the lowest is at Keith Hay Park/Somerset Rd/Bridge (69 daily movements, down from 99 movements in 2011).
- Only two sites have recorded increases in total AADT estimates this year compared with 2011:
  - Richardson Road/Maioro Street – up 45 per cent; and
  - Blockhouse Bay/Great North Road – up 1 per cent.
- In contrast, the number of total cyclists recorded at eight sites was lower than last year. This decline was most notable at:
  - Keith Hay Park/Somerset Road/Bridge – down 30 per cent.

Table 1.7: AADT Estimates Based on Morning and Evening Cyclist Movements 2007 – 2012 (n)

Site Number	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	*2012 AADT*	11-12 Change	07-12 Change
7	North Western Cycleway/St Lukes	469	480	451	629	743	**625**	**-16%**	**33%**
6	North Western Cycleway/Great North Road	335	532	416	705	701	**589**	**-16%**	**76%**
3	Great North/Carrington Road	341	333	281	455	335	**301**	**-10%**	**-12%**
12	Manukau Road/Greenlane West	326	296	255	374	331	**299**	**-10%**	**-8%**
5	Dominion/Balmoral Road	344	291	265	296	286	**274**	**-4%**	**-20%**
14	Mount Albert/New North Road	226	236	205	302	292	**249**	**-15%**	**10%**
21	Great South Road/Campbell Road/Main Highway	253	165	218	246	199	**192**	**-4%**	**-24%**
73	Blockhouse Bay/Great North Road	-	170	173	204	186	**187**	**1%**	**-**
15	Richardson Road/Maioro Street	-	-	30	56	53	**77**	**45%**	**-**
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	77	99	**69**	**-30%**	**-**

1.8 School Bike Shed Count Summary

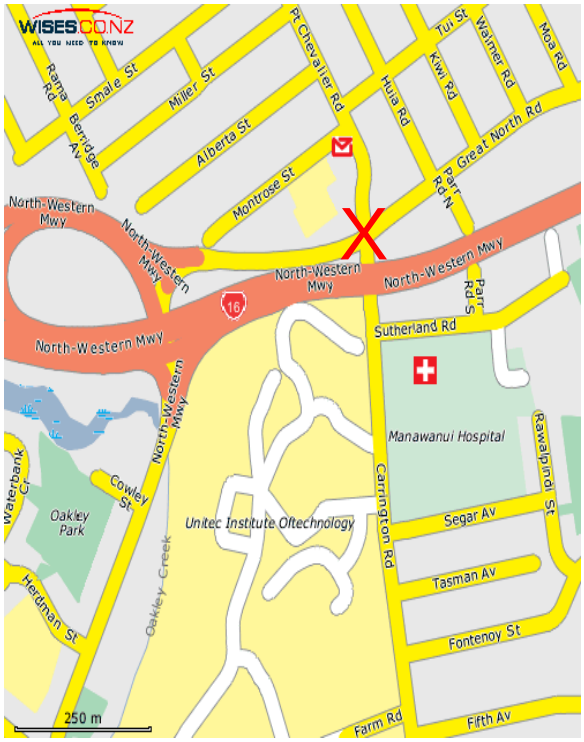
Key Points

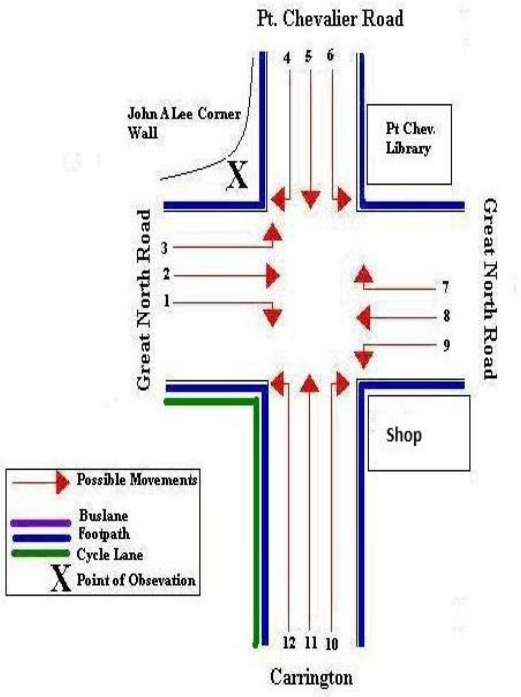
- Of those eligible to cycle, on average two per cent of students are cycling to their schools. This result is unchanged from 2011.
- Across the 18 eligible schools that responded, n=263 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 12 per cent of all eligible students currently cycling (down from 22 per cent last year).
- Of the 16 eligible schools that responded, 3 (17 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (5 per cent, down from 7 per cent in 2011), while other levels of schools have fairly constant cycling rates.

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

Figure 2.1 shows the possible cyclist movements at this intersection.

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





2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	114	121	235	341
2008	95	136	231	333
2009	97	96	193	281
2010	150	164	314	455
2011	103	129	232	335
2012	**112**	**94**	**206**	**301**

2.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning cyclist movements recorded at the Great North/Carrington/Point Chevalier Road intersection in 2012 have increased from 103 in 2010 to 112.
- The key movements at this intersection are straight through from Pt Chevalier Road into Carrington Road (Movement 5 = 41 cyclist movements), right out of Carrington Road onto Great North Road (Movement 10 = 28 cyclist movements), and straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 16 cyclist movements).
- Compared with last year, the volume of morning cyclist movements has increased most notably at Movement 10 (up 10 movements) and decreased most notably at Movement 11 (down 8 movements).

Table 2.1: Morning Cyclist Movements

Great North/Carrington/Point Chevalier 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	0	0	0	2	0	**2**	**2**
2	10	10	9	14	6	**10**	**4**
3	0	5	1	4	3	**0**	**-3**
4	4	2	3	1	1	**0**	**-1**
5	23	15	17	24	36	**41**	**5**
6	5	0	0	1	0	**0**	**0**
7	4	2	1	1	0	**0**	**0**
8	4	2	2	4	1	**1**	**0**
9	14	4	7	19	13	**13**	**0**
10	32	36	31	36	18	**28**	**10**
11	17	18	22	44	24	**16**	**-8**
12	1	1	4	0	1	**1**	**0**
Total	**114**	**95**	**97**	**150**	**103**	**112**	**9**

- The majority of cyclists at this intersection were adults (87 per cent, stable from 89 per cent at the previous measure).
- Most cyclists were wearing a helmet (86 per cent, down from 92 per cent in 2011).
- The majority of cyclists continue to be male (77 per cent).
- Approximately two-thirds (69 per cent) of cyclists were riding on the road (down from 74 per cent last year).

Table 2.2: Morning Cyclist Characteristics

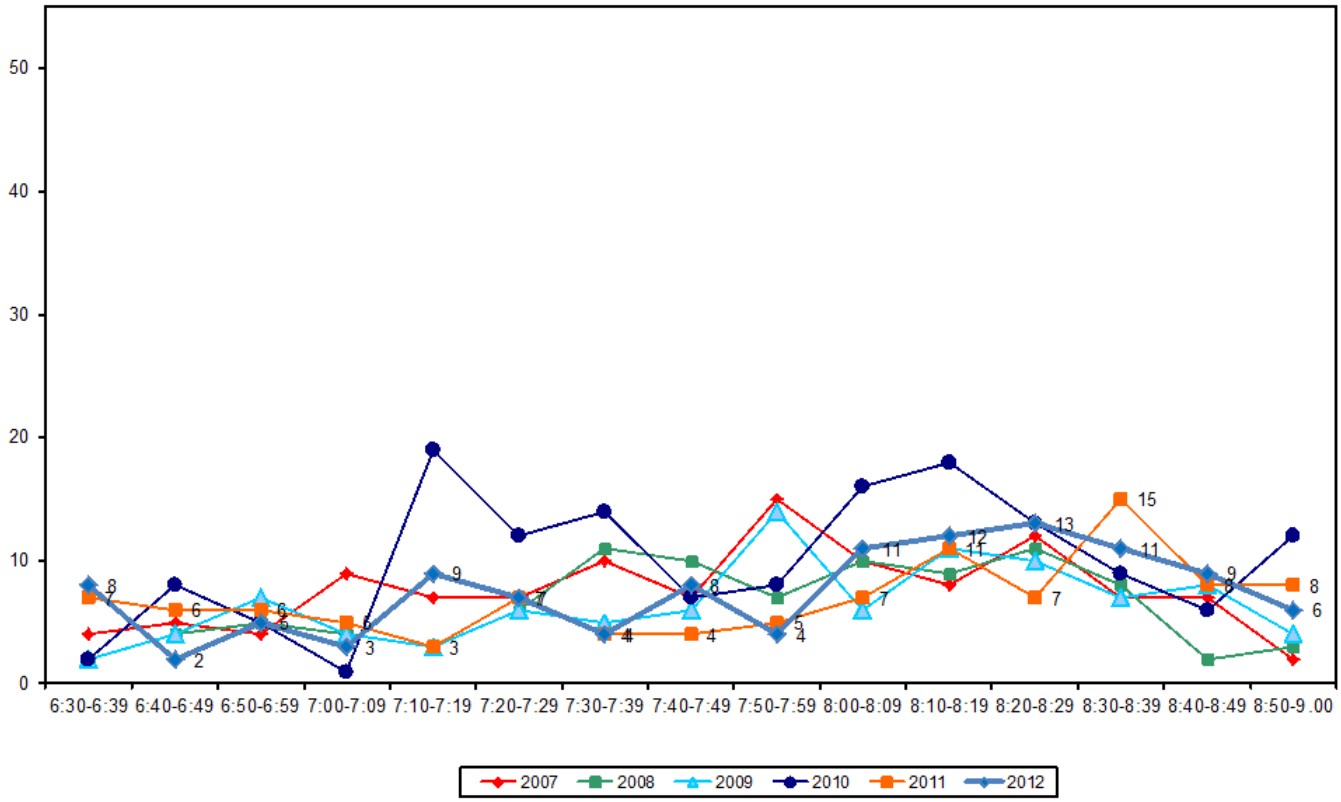
Great North/Carrington/Point Chevalier 2004 – 2012 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type										
Adult	91	84	93	86	84	87	89	89	**87**	**-2**
School child	9	16	7	14	16	13	11	11	**13**	**2**
Helmet Wearing										
Helmet on head	86	88	88	89	93	91	94	92	**86**	**-6**
No helmet	14	12	12	11	7	9	6	8	**14**	**6**
Gender										
Male	-	-	-	-	-	-	-	64	**77**	**13**
Female	-	-	-	-	-	-	-	21	**20**	**-1**
Can't tell	-	-	-	-	-	-	-	15	**3**	**-12**
Where Riding										
Road	64	68	75	67	73	68	73	74	**69**	**-5**
Footpath	36	32	25	33	27	32	27	26	**31**	**5**
Base:	***70***	***57***	***76***	***114***	***95***	***97***	***150***	***103***	***112***	

- Morning cyclist movements slightly peak between 8:20am and 8:29am (13 movements), ten minutes earlier than the peak recorded in 2011 (15 movements).

Figure 2.2: Morning Peak Cyclist Frequency

Great North/Carrington/Point Chevalier (n) 2007 – 2012



2.3 Evening Peak

Environmental Conditions

- The weather was fine at the start of the evening shift, but light drizzle began at 4:10pm, developing to rain by 4:35pm, which persisted through the rest of the evening shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Evening cyclist movement numbers (94 moments) have decreased at this intersection since last year (129 movements).
- The key movements in the evening at this intersection are right out of Carrington Road onto Great North Road (Movements 10 = 26 cyclists), straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 23 movements) and turning left off Great North Road onto Carrington Road (Movement 9 = 22 cyclists)
- Cycle volumes at all movements other than Movement 10 saw a decrease or remained unchanged from last year in number of cyclist movements. The most notable decrease was at Movement 5 (down 17 movements).

Table 2.3: Evening Cyclist Movements

Great North/Carrington/Point Chevalier 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	1	0	0	1	1	**0**	**-1**
2	5	5	3	2	3	**2**	**-1**
3	0	1	3	1	0	**0**	**0**
4	4	10	1	6	3	**2**	**-1**
5	18	14	18	35	29	**12**	**-17**
6	4	1	1	1	0	**0**	**0**
7	6	4	2	3	0	**0**	**0**
8	12	12	12	15	8	**6**	**-2**
9	22	29	22	37	31	**22**	**-9**
10	23	25	15	28	22	**26**	**4**
11	26	34	19	35	31	**23**	**-8**
12	0	1	0	0	1	**1**	**0**
Total	**121**	**136**	**96**	**164**	**129**	**94**	**-35**

- Over the evening peak, most cyclists using this intersection were adults (89 per cent, stable from 91 per cent in 2011).
- Compared with last year, the share of cyclists wearing a helmet has decreased (79 per cent, down from 92 per cent in 2011).
- The majority of cyclists continue to be male (88 per cent).
- Just over half of cyclists were riding on the road (55 per cent, down from 64 per cent last year).

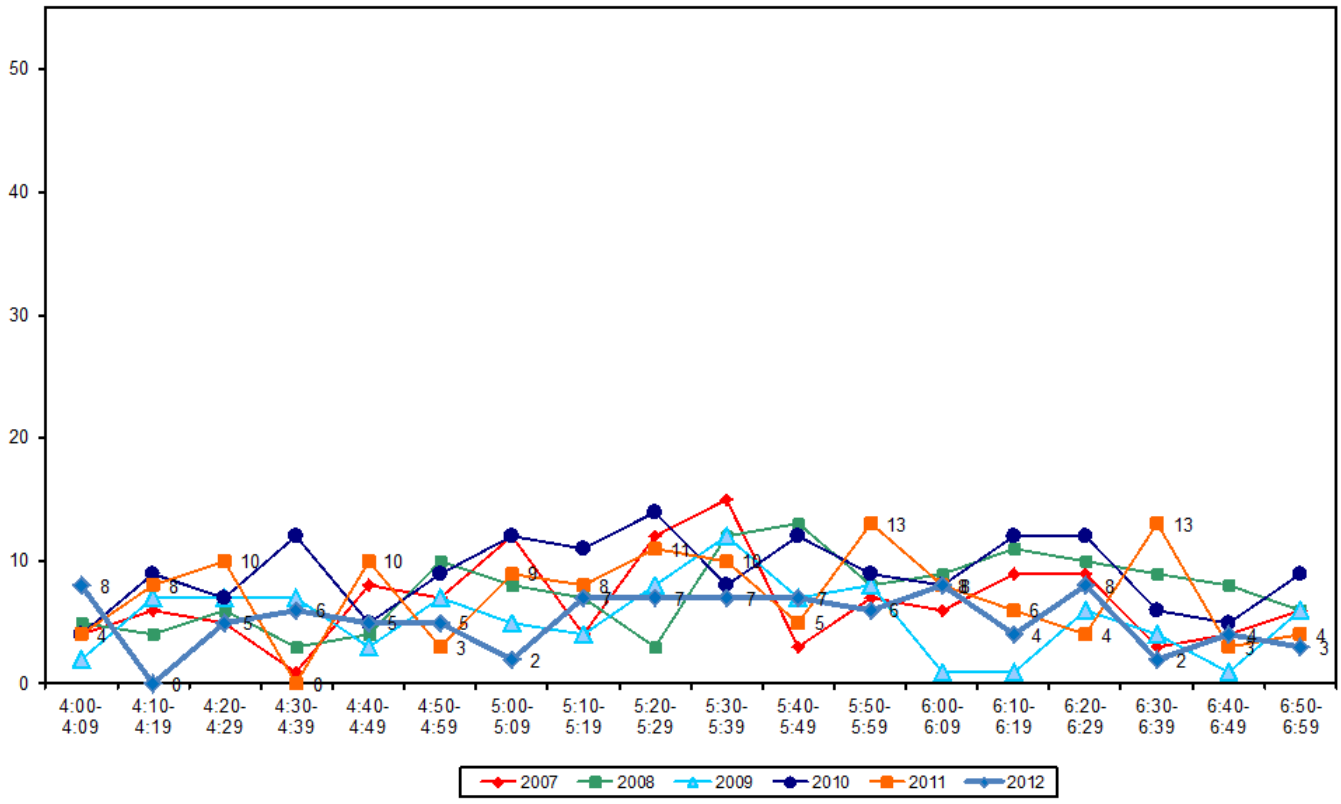
Table 2.4: Evening Cyclist Characteristics

Great North/Carrington/Point Chevalier 2004 – 2012 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type										
Adult	86	89	100	89	96	95	96	91	**89**	**-2**
School child	14	11	0	11	4	5	4	9	**11**	**2**
Helmet Wearing										
Helmet on head	81	85	84	85	91	91	84	92	**79**	**-13**
No helmet	19	15	16	15	9	9	16	8	**21**	**13**
Gender										
Male	-	-	-	-	-	-	-	79	**88**	**9**
Female	-	-	-	-	-	-	-	19	**12**	**-7**
Can't tell	-	-	-	-	-	-	-	2	**0**	**-2**
Where Riding										
Road	47	66	69	64	71	64	61	64	**55**	**-9**
Footpath	53	34	31	36	29	36	39	36	**45**	**9**
Base:	***43***	***65***	***45***	***121***	***136***	***96***	***164***	***129***	***94***	

- Evening cyclist movement volumes vary throughout the observation period, with no obvious period of peak volume. This compares to slight peaks between 5:50pm and 5:59pm, and 6:30pm and 6:39pm in 2011).

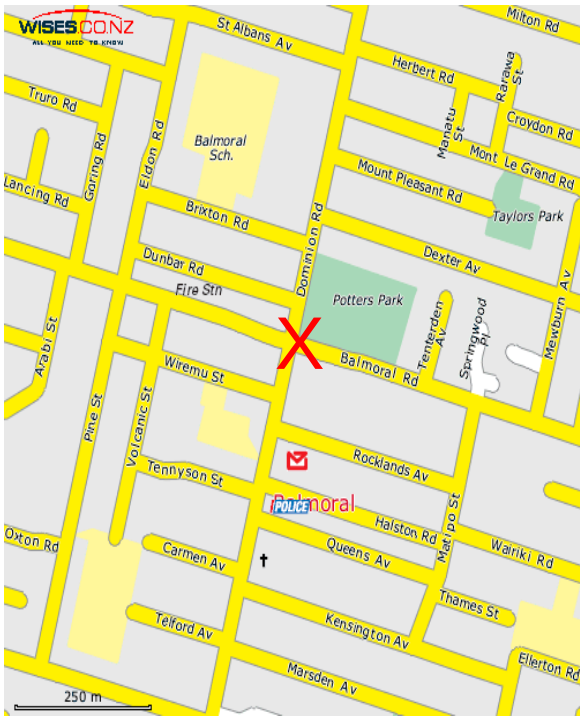
Figure 2.3: Evening Peak Cyclist Frequency
Great North/Carrington/Point Chevalier (n) 2007 – 2012

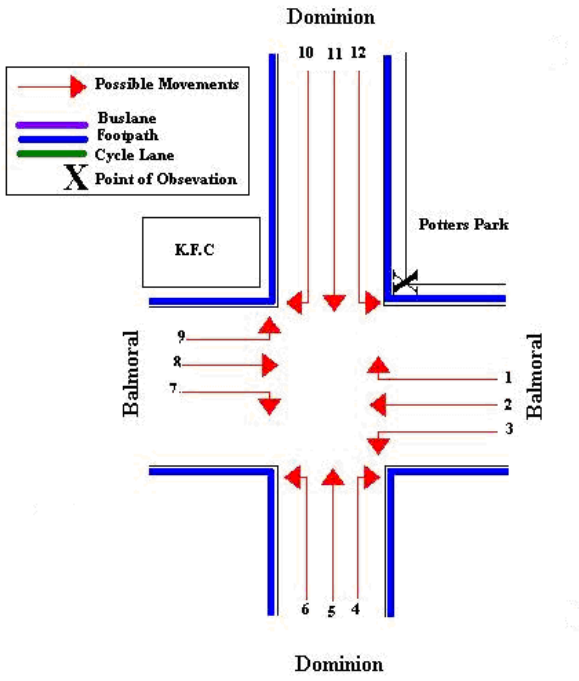


3. DOMINION/BALMORAL ROAD, BALMORAL (SITE 5)

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**

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 is stable compared with last year's result (97 movements, compared with 99 movements in 2011).
- The key movement at this site is travelling north along Dominion Road towards the city (Movement 5 = 43 cyclists).
- Movement 5 showed the most notable decrease (down 10) while Movement 3 saw the largest increase (up 5 movements) over the last 12 months.

Table 3.1: Morning Cyclist Movements

Dominion/Balmoral 2007 – 2012 (n)

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

- Most cyclists at this site were adults (89 per cent, down from 95 per cent last year).
- Consistent with previous years, almost all cyclists using this intersection were wearing a helmet (95 per cent, stable from 94 per cent in 2011).
- Eighty per cent of the cyclists were male.
- Most cyclists were observed riding on the road (85 per cent), a decrease from the 92 per cent observed in 2011.

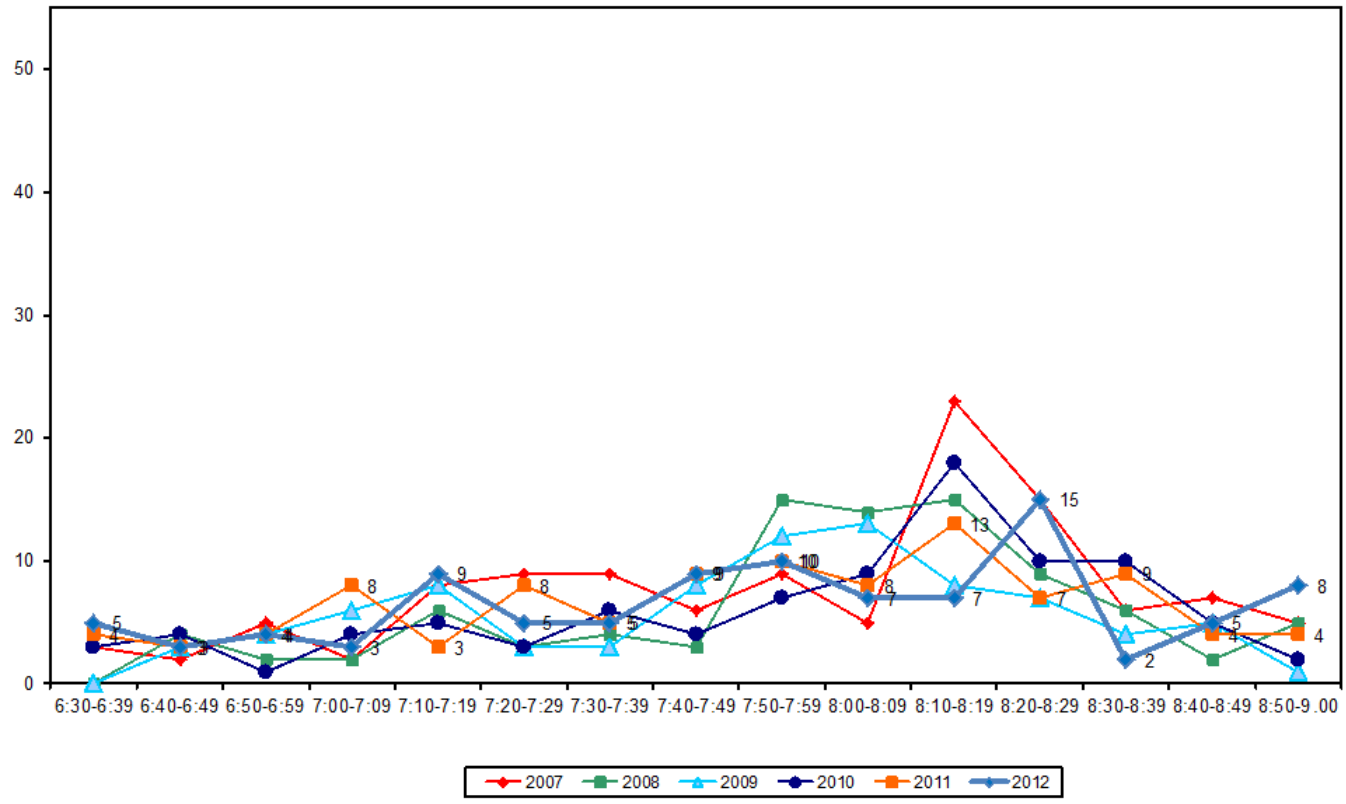
Table 3.2: Morning Cyclist Characteristics

Dominion/Balmoral 2004 – 2012 (%)

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

- The volume of morning cyclist movements varies over the monitoring period, reaching the greatest peak between 8:20am and 8:29am (15 movements). The timing of this peak is consistent with previous years.

Figure 3.2: Morning Peak Cyclist Frequency
Dominion/Balmoral (n) 2007 – 2012



- *Note: In 2012, 4 cyclists were observed riding together at 6:39am. This equates to 4 per cent of all morning peak cycle movements at this site.*

3.3 Evening Peak

Environmental Conditions

- The weather was overcast but fine throughout most of the evening shift. The exception to this was a period of rain between 4:35pm and 5:55pm.
- 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 2012 has decreased since last year to 91 (from 98 in 2011).
- The key movement at this site is straight along Dominion Road heading south (Movement 11 = 43 movements).
- The most notable changes since last year in terms of evening cyclist volumes are at Movement 12 (down 4 movements) and Movement 2 (up 4 movements).

Table 3.3: Evening Cyclist Movements

Dominion/Balmoral Road 2007 – 2012 (n)

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

- Almost all cyclists using the Dominion/Balmoral intersection were adults (97 per cent, up from 91 per cent in 2011).
- The majority of cyclists wore a helmet (93 per cent, up slightly from 90 per cent in 2011).
- Most cyclists were male (80 per cent).
- The number of cyclists riding on the road is the same as that observed last year (80 per cent).

Table 3.4: Evening Cyclist Characteristics

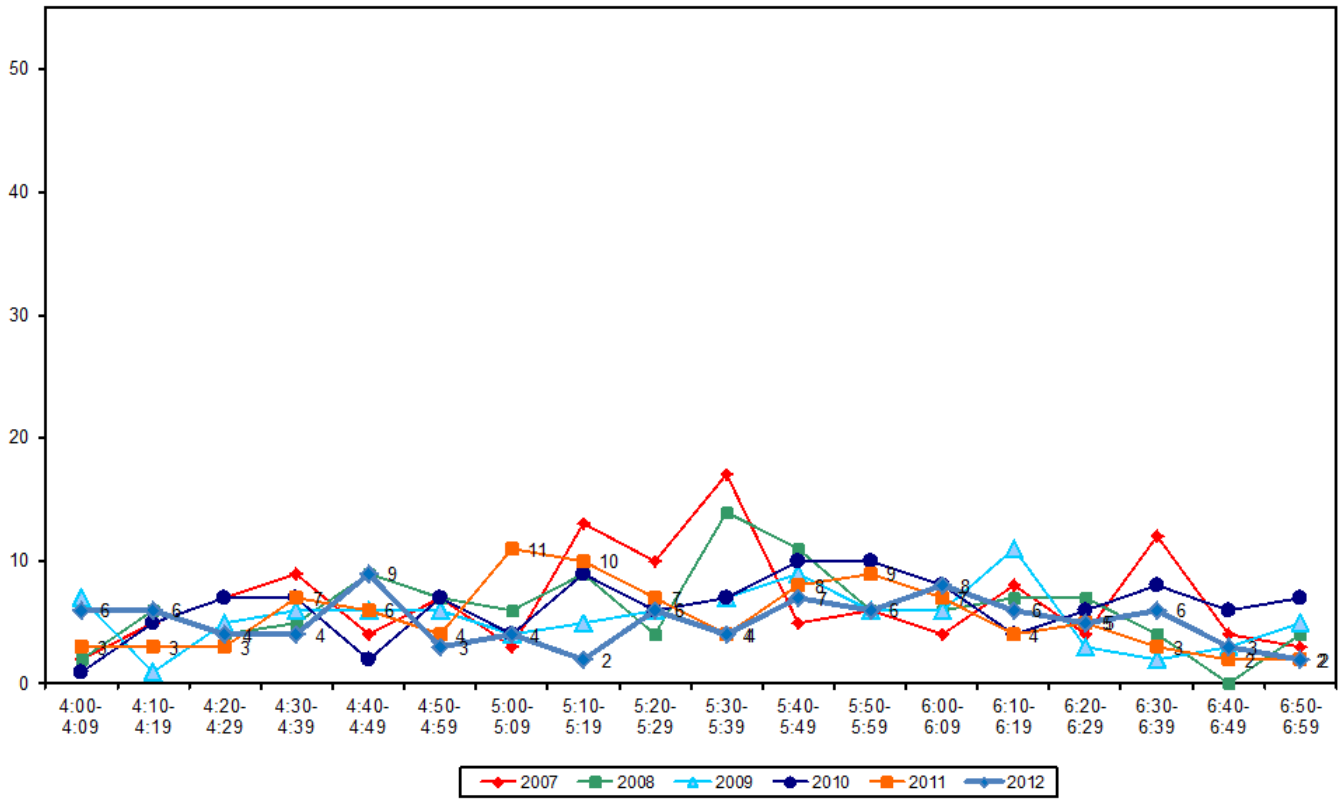
Dominion/Balmoral 2004 – 2012 (%)

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

- Cyclist volumes remain relatively stable throughout the evening period. There are slight peaks between 4:40pm and 4:49pm (9 movements) and again between 6:00pm and 6:09pm (8 movements).

Figure 3.3: Evening Peak Cyclist Frequency

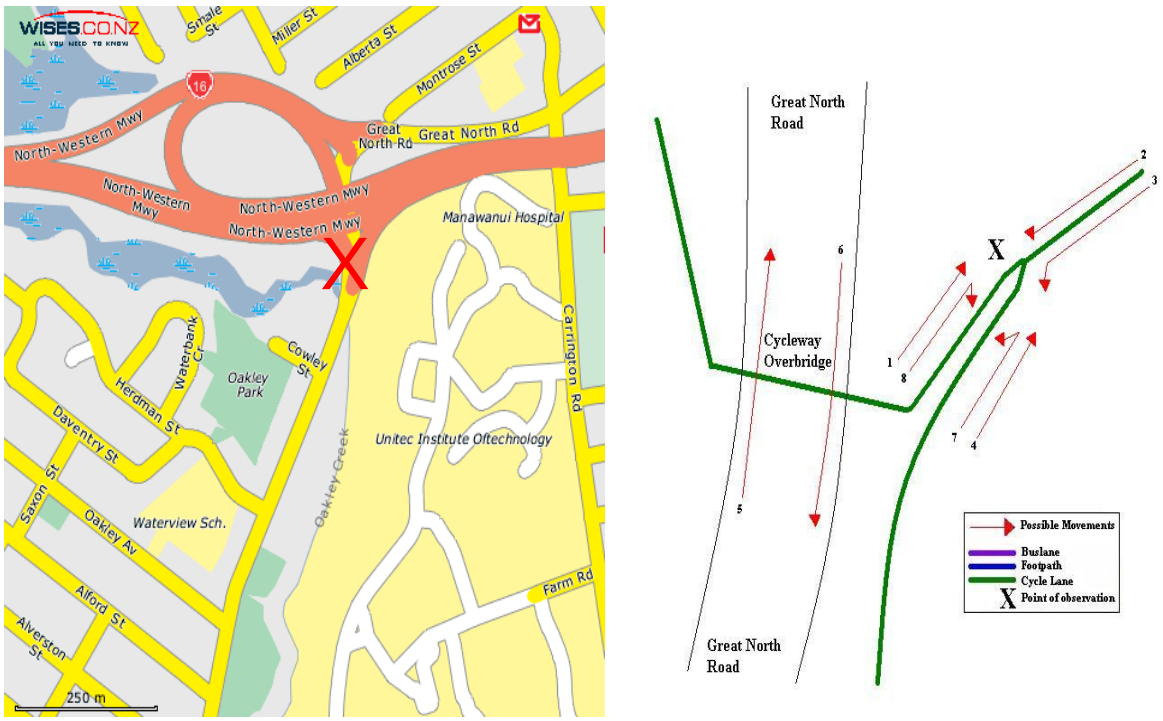
Dominion/Balmoral (n) 2007 – 2012



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**

4.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning cyclist volumes recorded at Great North Road/North Western Cycleway in 2012 have decreased slightly since the previous measure (201 movements recorded this year, down from 204 movements in 2011).
- The key morning movement is across Great North Road away from the UNITEC overbridge heading north (Movement 1 = 119 movements).
- Notable declines in cycle numbers are evident at Movement 2 and Movement 4 (both down 6 movements),while a notable increase was observed at Movement 5 (up 6 movements)

Table 4.1: Morning Cyclist Movements

Great North Road/North Western Cycleway 2007 – 2012 (n)

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

- Consistent with previous years, most cyclists this year are adults (96 per cent, up slightly from 93 per cent last year).
- Almost all cyclists are wearing a helmet (96 per cent, stable from 95 per cent last year).
- The greatest share of morning cyclists continue to be male (86 per cent).
- Almost all cyclists (93 per cent) are riding on the cycleway, stable from 95 per cent in 2011.

Table 4.2: Morning Cyclist Characteristics

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

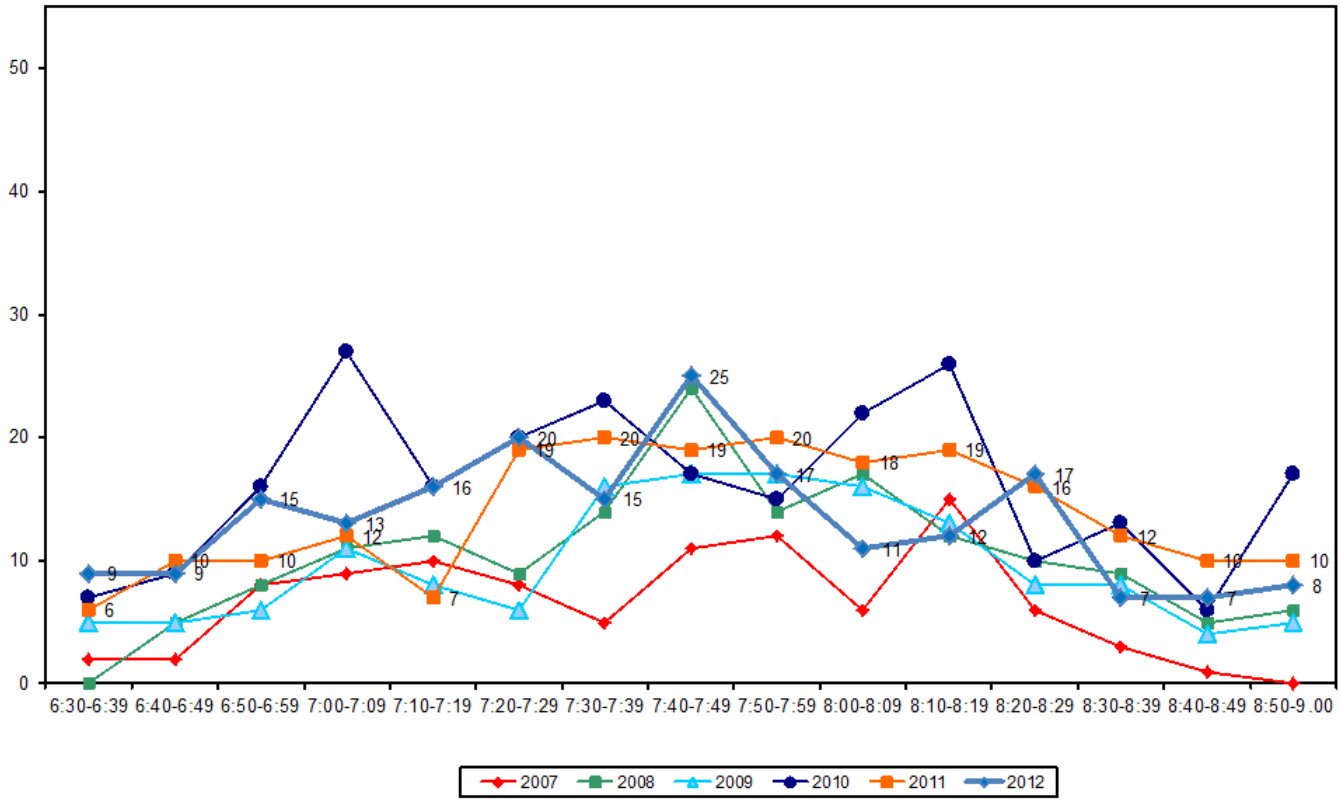
	2006	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type								
Adult	97	91	95	90	93	93	**96**	**3**
School child	3	9	5	10	7	7	**4**	**-3**
Helmet Wearing								
Helmet on head	94	99	97	97	94	95	**96**	**1**
No helmet	6	1	3	3	6	5	**4**	**-1**
Gender								
Male	-	-	-	-	-	81	**86**	**5**
Female	-	-	-	-	-	16	**14**	**-2**
Can't tell	-	-	-	-	-	3	**0**	**-3**
Where Riding*								
Road	100	100	100	9	5	5	**7**	**2**
Off-road cycleway	-	-	-	91	95	95	**93**	**-2**
Base:	***127***	***98***	***156***	***145***	***244***	***204***	***201***	

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2012 results are only comparable with results from 2009 onwards.*

- Morning cycle movements peaked between 7:40am and 7:49am (25 movements). This compares to a slight peak ten minutes earlier in 2011 (20 movements).

Figure 4.2: Morning Peak Cyclist Frequency

Great North Road/North Western Cycleway (n) 2007 – 2012



4.3 Evening Peak

Environmental Conditions

- The weather was poor during the evening monitoring period, with drizzle and rain being recorded throughout most of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The number of evening cyclists has decreased this measure, from 282 in 2011 to 204 movements in 2012.
- The key movements at this site in the evening are straight across Great North Road (via the overbridge) in both directions (Movement 2 = 105 cyclists; Movement 1 = 25 cyclists) and coming from the east on the cycle lane and continuing south along Great North Road (Movement 3 = 53 cyclists).
- The most notable decreases are at Movements 2 (down 37 from 2011) and 1 (down 32 from 2011).

Table 4.3: Evening Cyclist Movements

Great North Road/North Western Cycleway 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	-	59	25	55	57	**25**	**-32**
2	-	94	70	113	142	**105**	**-37**
3	-	40	29	42	49	**53**	**4**
4	-	7	7	11	5	**8**	**3**
5	-	6	5	9	9	**5**	**-4**
6	-	5	5	9	13	**7**	**-6**
7	-	1	0	0	1	**0**	**-1**
8	-	1	0	2	6	**1**	**-5**
Total	**134**	**213**	**141**	**241**	**282**	**204**	**-78**

- Almost all cyclists in the evening peak are adults (99 per cent, up slightly from 96 per cent recorded in 2011).
- Almost all cyclists are wearing helmets (92 per cent, down slightly from 96 per cent last year).
- The greatest share of cyclists continue to be male (89 per cent).
- Almost all cyclists (94 per cent) are riding on the cycleway, stable from 92 per cent last year.

Table 4.4: Evening Cyclist Characteristics

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

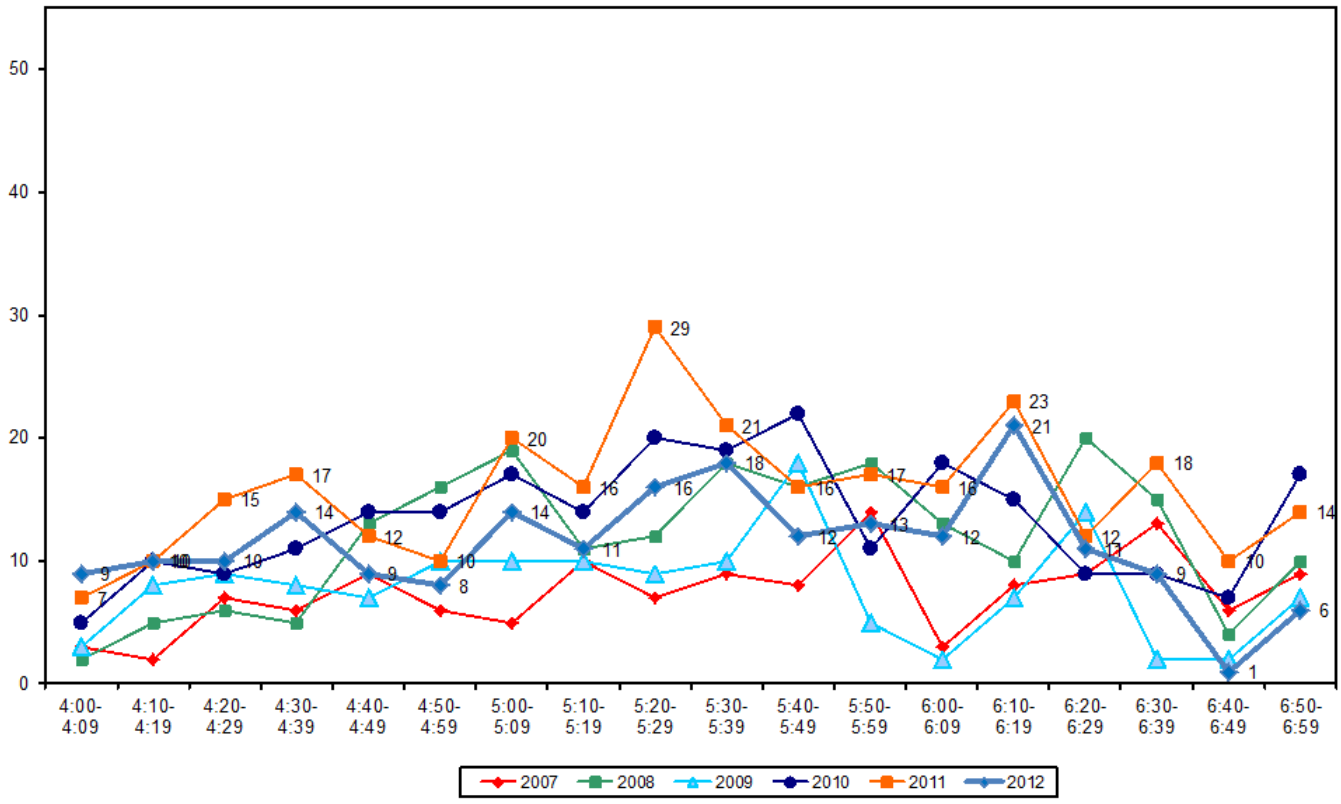
	2006	*2007*	*2008*	*2009*	*2010*	*2011*	2012	Change 11-12
Cyclist Type								
Adult	100	93	100	97	98	96	**99**	**3**
School child	0	7	0	3	2	4	**1**	**-3**
Helmet Wearing								
Helmet on head	95	98	97	95	95	96	**92**	**-4**
No helmet	5	2	3	5	5	4	**8**	**4**
Gender								
Male	-	-	-	-	-	82	**89**	**7**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

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2012 results are only comparable with results from 2009 onwards.*

- The volume of evening cyclists varied over time, with a slight peak between 6:10pm and 6:19pm (21 movements). This peak occurred at the same time as the second peak recorded in the previous measure (23 movements).

Figure 4.3: Evening Peak Cyclist Frequency

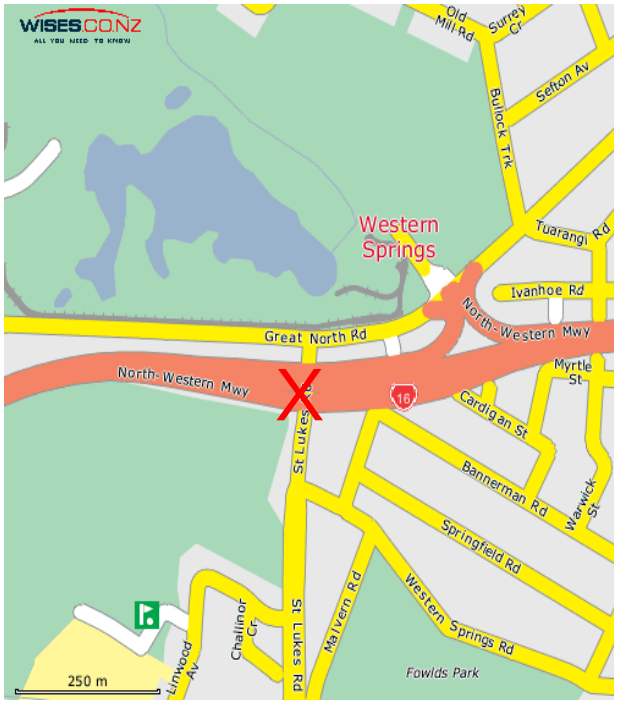
Great North Road/North Western Cycleway (n) 2007 – 2012

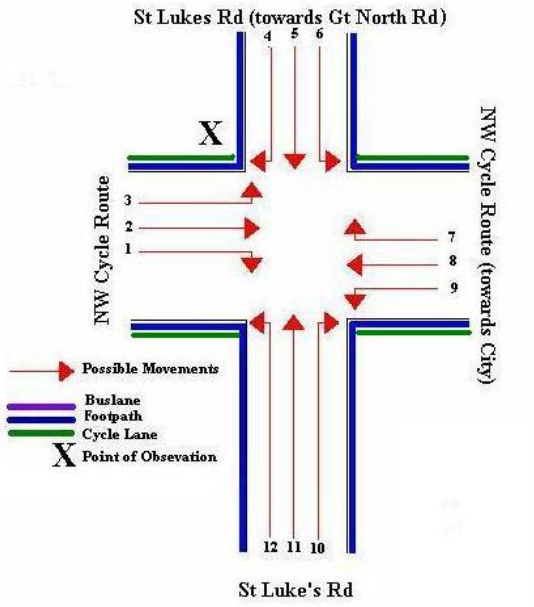


5. NORTH WESTERN CYCLEWAY/ST LUKES ROAD, WESTERN SPRINGS (SITE 7)

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**

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 2012 have decreased from 2011 (222 movements, compared with 240 last year).
- The key morning movement at this site is straight along the North Western cycleway towards the city (Movement 2 = 124 cyclists).
- The most notable change in movements is the decrease seen at Movement 11 (down 22 movements).

Table 5.1: Morning Cyclist Movements

North Western Cycleway/St Lukes Road 2007 – 2012 (n)

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

- As in 2011, the greatest share of cyclists were adults (96 per cent, up from 91 per cent).
- Most cyclists were wearing a helmet (96 per cent, stable from 95 per cent in 2011).
- The majority of cyclists continue to be male (78 per cent).
- The majority of cyclists (80 per cent, up from 71 per cent in 2011) were cycling on the off-road cycleway, while 10 per cent were riding on the road.

Table 5.2: Morning Cyclist Characteristics

North Western Cycleway/St Lukes Road 2004 – 2012 (%)

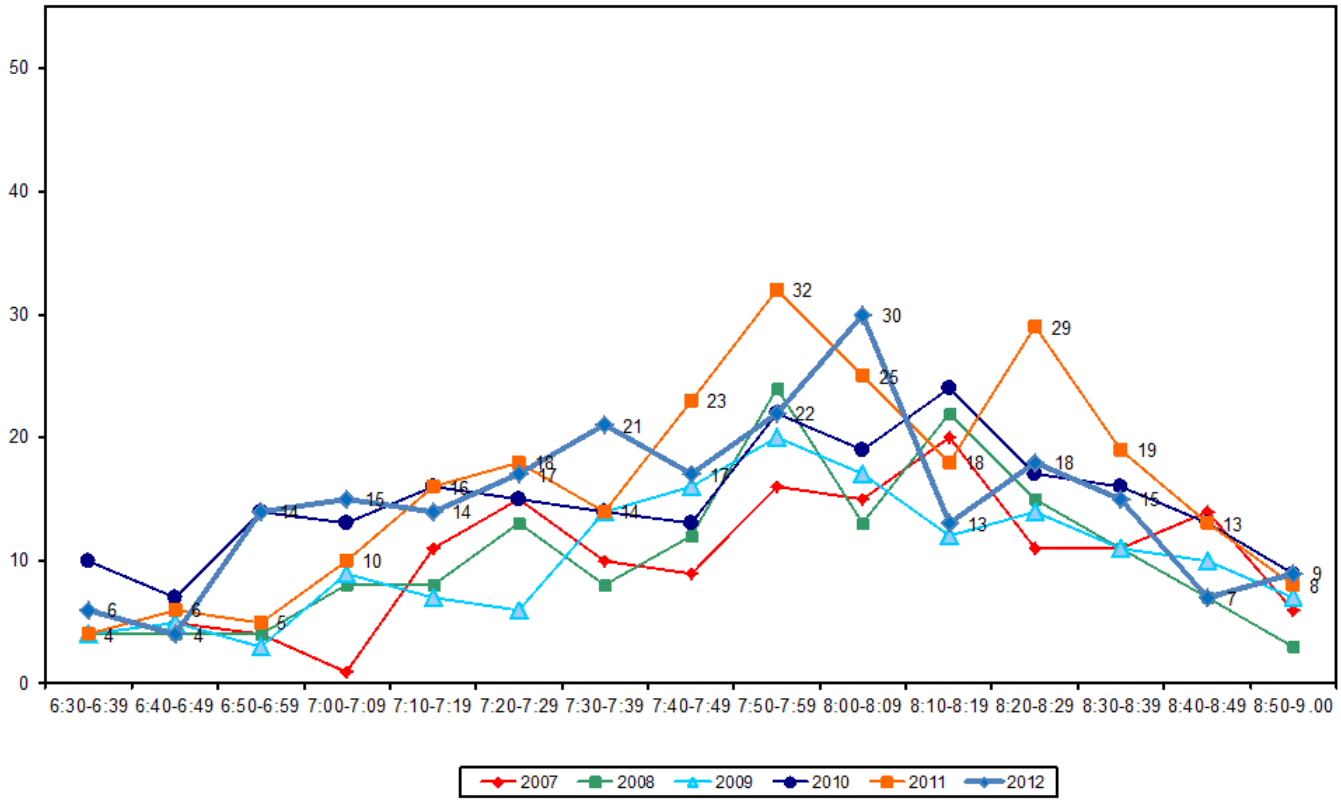
	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type										
Adult	75	92	97	82	85	89	86	91	**96**	**5**
School child	25	8	3	18	15	11	14	9	**4**	**-5**
Helmet Wearing										
Helmet on head	99	95	98	97	94	95	94	95	**96**	**1**
No helmet	1	5	2	3	6	5	6	5	**4**	**-1**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

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2012 results are only comparable with results from 2009 onwards.*

- Morning cycle movement volumes in 2012 peak between 8:00am and 8:09am (30 movements, ten minutes later than 2011).

Figure 5.2: Morning Peak Cyclist Frequency

North Western Cycleway/St Lukes Road (n) 2007 – 2012



5.3 Evening Peak

Environmental Conditions

- Light rain began at 4:10pm, became heavier at 4:32pm and persisted through until the end of the evening shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Evening cyclist numbers have decreased notably since last year (207 movements compared to 273 last year).
- In the evening peak, the key route is along the North Western cycleway away from the city (Movement 8 = 121 cyclists).
- Of the twelve movements possible at this site, the most notable change since last year is at Movement 8 (down 28 movements).

Table 5.3: Evening Cyclist Movements

North Western Cycleway/St Lukes Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	11	13	9	11	8	**5**	**-3**
2	8	20	12	28	28	**22**	**-6**
3	7	7	5	5	4	**3**	**-1**
4	11	13	13	16	12	**6**	**-6**
5	27	7	18	24	23	**9**	**-14**
6	5	4	1	1	1	**6**	**5**
7	5	4	3	10	10	**10**	**0**
8	69	60	64	80	149	**121**	**-28**
9	6	11	2	8	18	**7**	**-11**
10	1	1	1	1	1	**2**	**1**
11	18	22	13	14	16	**11**	**-5**
12	4	13	14	12	3	**5**	**2**
Total	**172**	**175**	**155**	**210**	**273**	**207**	**-66**

- Consistent with previous years, adults comprised the greatest share of cyclists (98 per cent, unchanged from 2011).
- Most cyclists were wearing a helmet (96 per cent, unchanged since the previous measure).
- The majority of cyclists continued to be male (80 per cent).
- The greatest share of cyclists (76 per cent, up slightly from 72 per cent in 2011) were cycling on the off-road cycleway, while 10 percent were riding on the road.

Table 5.4: Evening Cyclist Characteristics

North Western Cycleway/St Lukes Road 2004 – 2012 (%)

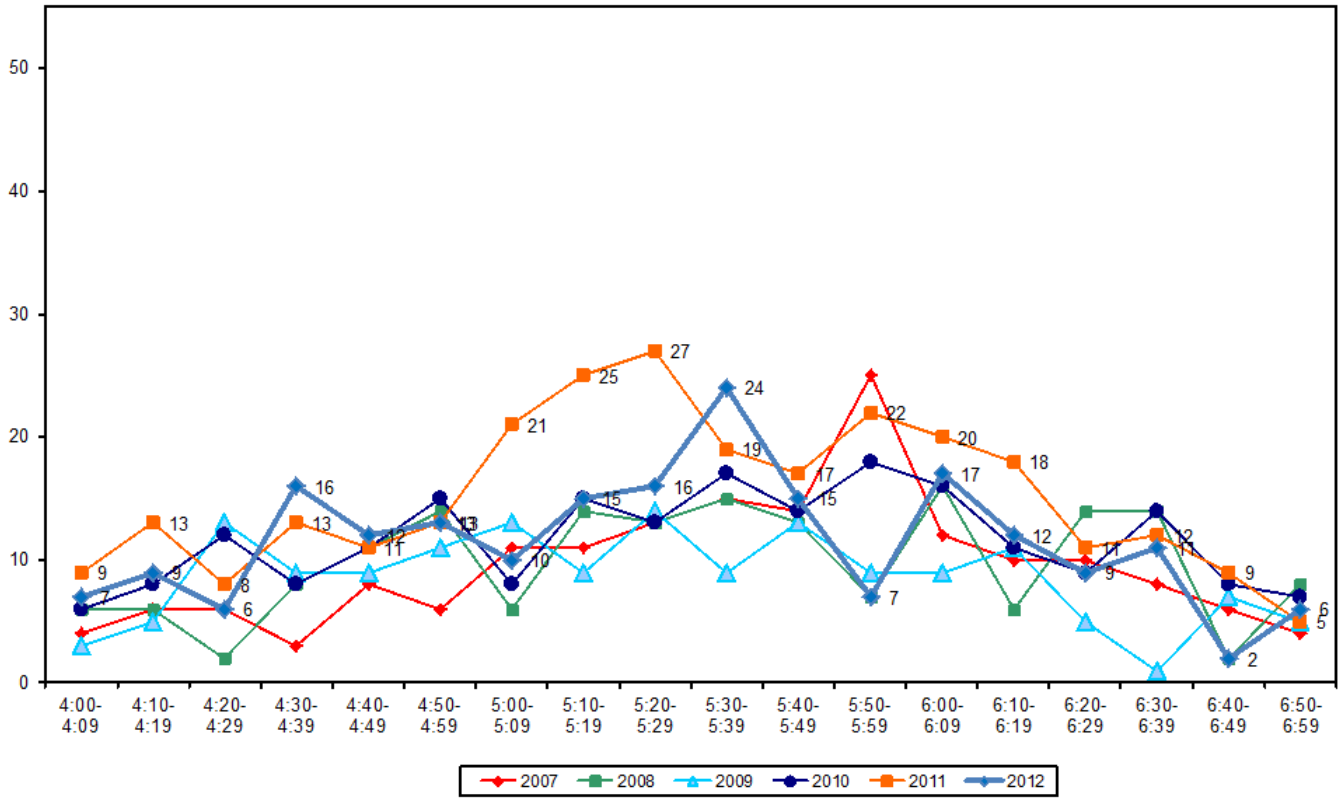
	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type										
Adult	93	98	100	96	88	100	95	98	**98**	**0**
School child	7	2	0	4	12	0	5	2	**2**	**0**
Helmet Wearing										
Helmet on head	97	92	98	97	91	93	93	96	**96**	**0**
No helmet	3	8	2	3	9	7	7	4	**4**	**0**
Gender										
Male	-	-	-	-	-	-	-	84	**80**	**-4**
Female	-	-	-	-	-	-	-	12	**18**	**6**
Can't tell	-	-	-	-	-	-	-	4	**2**	**-2**
Where Riding*										
Road	98	87	98	85	89	15	16	15	**10**	**-5**
Footpath	2	13	2	15	11	5	20	13	**14**	**1**
Off-road cycleway*	-	-	-	-	-	80	64	72	**76**	**4**
Base:	***87***	***108***	***80***	***172***	***175***	***155***	***210***	***273***	***207***	

** In 2009 onwards, riding on the road was split into riding on off road cycleway and road. Therefore, 2012 results are only comparable with results from 2009 onwards.*

- Evening cyclist movements tended to increase throughout the monitoring period to peak between 5:30pm and 5:39pm, (24 movements). From there, volumes decreased through to the end of the monitoring period. This compares to a peak ten minutes earlier in 2011 (between 5:20pm and 5:29pm, 27 movements).

Figure 5.3: Evening Peak Cyclist Frequency

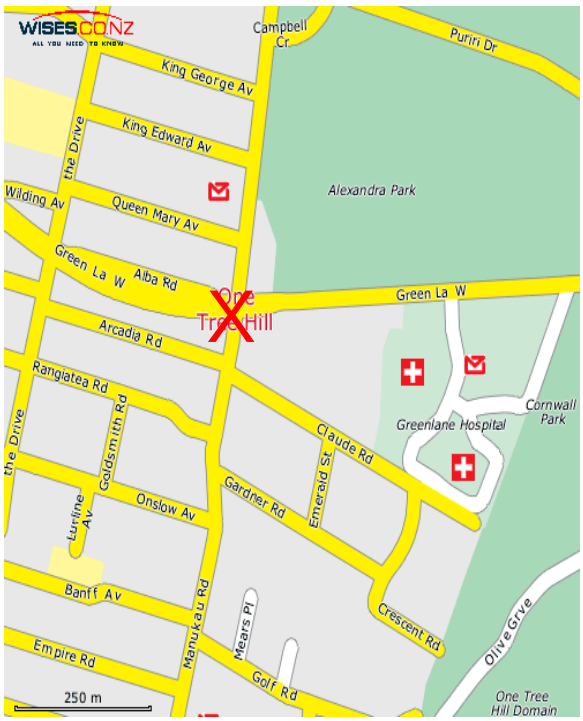
North Western Cycleway/St Lukes Road (n) 2007 – 2012

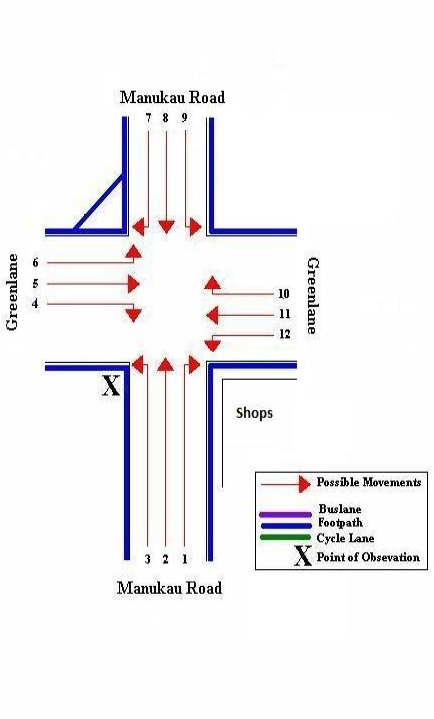


6. MANUKAU/GREENLANE ROAD, EPSOM (SITE 12)

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**

6.2 Morning Peak

Environmental Conditions

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

Key Points

- The number of morning cyclist movements recorded at the Manukau/Greenlane West intersection in 2011 decreased slightly from 2011 (110 movements, down from 120 movements last year).
- As in previous years, the most common morning movement at this intersection is north along Manukau Road towards the city (Movement 2 = 30 movements).
- The largest change in cyclist movements was observed at Movement 2 (down 18 movements).

Table 6.1: Morning Cyclist Movements

Manukau/Greenlane West 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	4	6	1	4	4	**4**	**0**
2	27	26	30	48	48	**30**	**-18**
3	4	2	4	7	5	**3**	**-2**
4	1	5	2	1	7	**8**	**1**
5	20	15	16	20	20	**15**	**-5**
6	1	6	4	8	5	**8**	**3**
7	4	4	1	4	3	**2**	**-1**
8	22	14	14	16	16	**20**	**4**
9	9	4	1	3	3	**7**	**4**
10	2	2	2	5	0	**0**	**0**
11	7	7	9	11	9	**10**	**1**
12	2	1	0	3	0	**3**	**3**
Total	**103**	**92**	**84**	**130**	**120**	**110**	**-10**

- Almost all of the morning cyclists at the Manukau/Greenlane West intersection were adults (84 per cent, down slightly from 87 per cent last year).
- Almost all cyclists were wearing a helmet (95 per cent, stable from 98 per cent last year).
- The majority of cyclists continue to be male (71 per cent).
- The proportion of cyclists riding on the road has remain unchanged since last year (75 per).

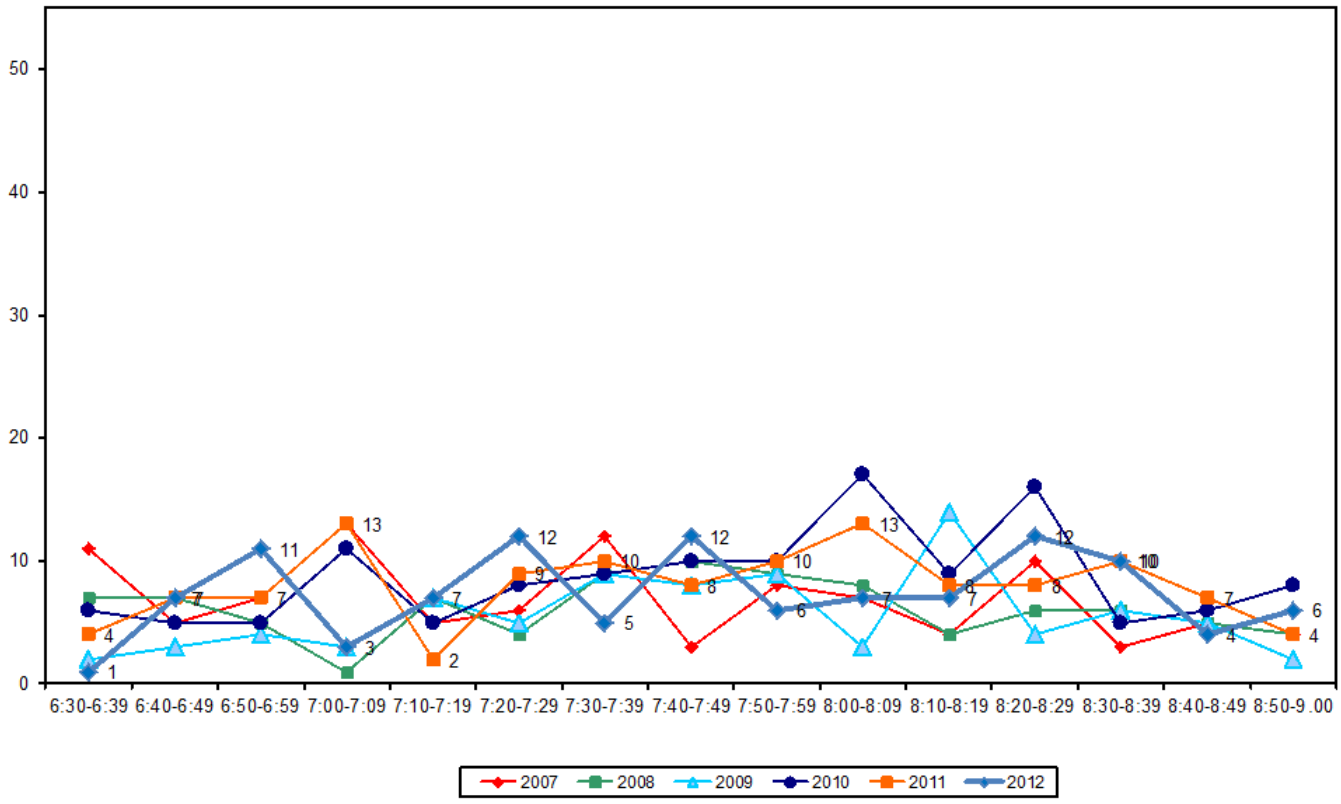
Table 6.2: Morning Cyclist Characteristics

Manukau/Greenlane West 2004 – 2012 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type										
Adult	71	89	87	95	87	87	97	87	**84**	**-3**
School child	29	11	13	5	13	13	3	13	**16**	**3**
Helmet Wearing										
Helmet on head	92	99	93	95	99	95	99	98	**95**	**-3**
No helmet	8	1	7	5	1	5	1	2	**5**	**3**
Gender										
Male	-	-	-	-	-	-	-	74	**71**	**-3**
Female	-	-	-	-	-	-	-	23	**24**	**1**
Can't tell	-	-	-	-	-	-	-	3	**5**	**2**
Where Riding										
Road	71	71	74	78	79	73	88	75	75	**0**
Footpath	29	29	26	22	21	27	12	25	25	**0**
Base:	***66***	***92***	***89***	***103***	***92***	***84***	***130***	***120***	**110**	

- The volume of morning cyclists remains relatively stable over the entire monitoring period, with no more than 12 cyclist movements per ten minute interval. This is consistent with the observations in 2011.

Figure 13.2: Morning Peak Cyclist Frequency
Manukau/Greenlane West (n) 2007 – 2012



6.3 Evening Peak

Environmental Conditions

- The weather was fine for the start of the evening shift. However light drizzle and rain developed from 5:20pm and persisted through the remainder of the 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 decreased from those recorded in 2011 (95 movements, down from 107 movements).
- The two key movements in the evening at this intersection are straight along Manukau Road heading south (Movement 8 = 25 cyclists) and west along Greenlane West (Movement 11 = 15 cyclists).
- The most notable changes in cycle movement numbers occurred at Movement 8 (down 11 movements) and Movement 11 (down 9 movements).

Table 6.3: Evening Cyclist Movements

Manukau/Greenlane West 2007 – 2012 (n)

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

- Most cyclists continue to be adults (95 per cent, up from 84 per cent in 2011).
- The share wearing a helmet also remained high (97 per cent, up from 91 per cent in 2011).
- The majority of cyclists continue to be male (74 per cent).
- The proportion of cyclists riding on the road has increased from 2011 at 74 per cent to 2012 at 90 per cent, while 10 per cent of cyclists were riding on the footpath.

Table 6.4: Evening Cyclist Characteristics

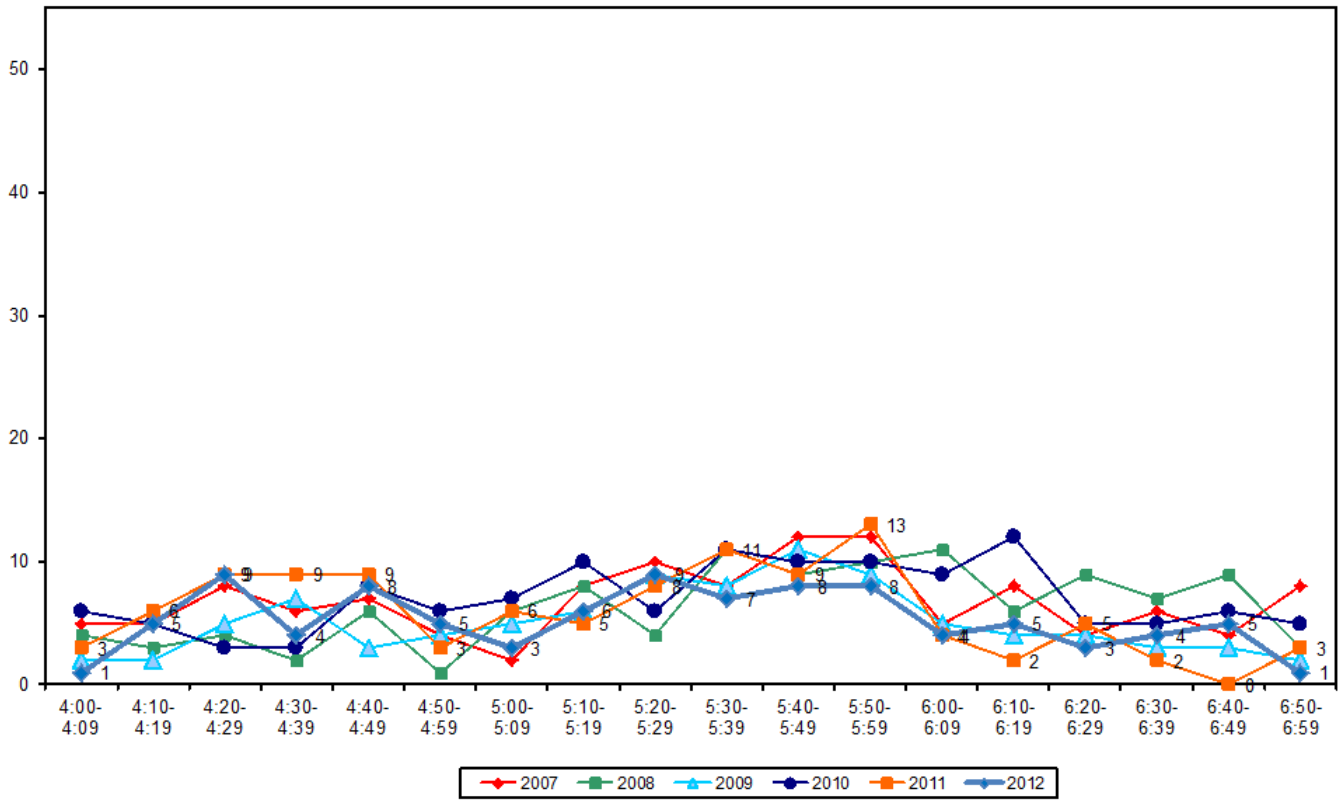
Manukau/Greenlane West 2004 – 2012 (%)

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

- In the evening, cyclist movement volumes first peak slightly between 4:20 and 4:29 (9 movements) and again between 5:20pm and 5:29pm (9 movements). This compares to a slight peak between 4:20pm and 4:49pm (9 movements per ten minute interval), with a larger peak between 5:50pm and 5:59pm (13 movements) in 2011.

Figure 6.3: Evening Peak Cyclist Frequency

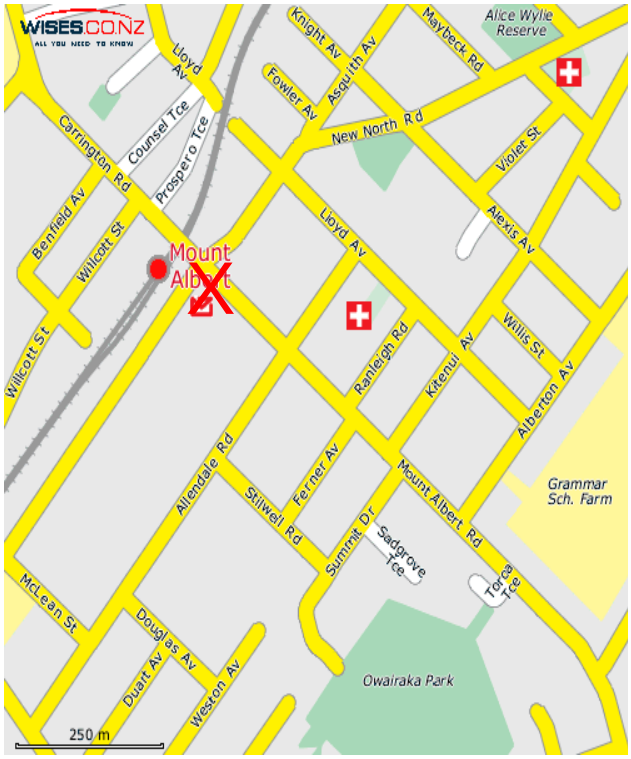
Manukau/Greenlane West (n) 2007 – 2012

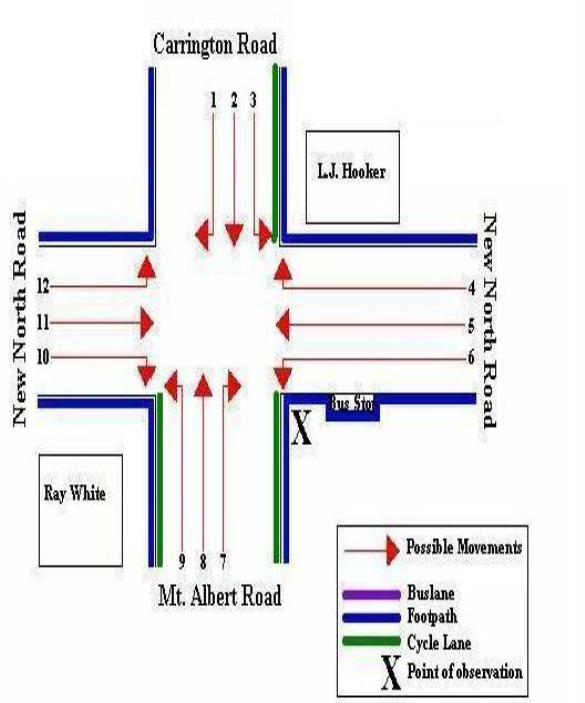


7. MOUNT ALBERT/NEW NORTH/ CARRINGTON ROAD, MT ALBERT (SITE 14)

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**

7.2 Morning Peak

Environmental Conditions

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

Key Points

- Compared with last year, the volume of morning cyclist movements at the Mount Albert/New North Road/Carrington Road intersection has remained relatively stable (94 movements, down from 97 movements in 2010).
- The most common movement in the morning is straight along New North Road heading northeast (Movement 11 = 25 movements).
- The greatest changes in morning cyclist movement volumes occurred at Movement 2 (down 8 movements) and Movement 4 (up 5 movements).

Table 7.1: Morning Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007 – 2012 (n)

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

- Over the morning peak, most cyclists using the Mount Albert/New North Road/Carrington Road intersection were adults (80 per cent, down from 94 per cent in 2011).
- Most cyclists were wearing a helmet (79 per cent, down from 91 per cent in 2011).
- The majority of cyclists were male (89 per cent).
- The share of footpath riders at this site has increased over the last 12 months – up 16 percentage points to 32 per cent.

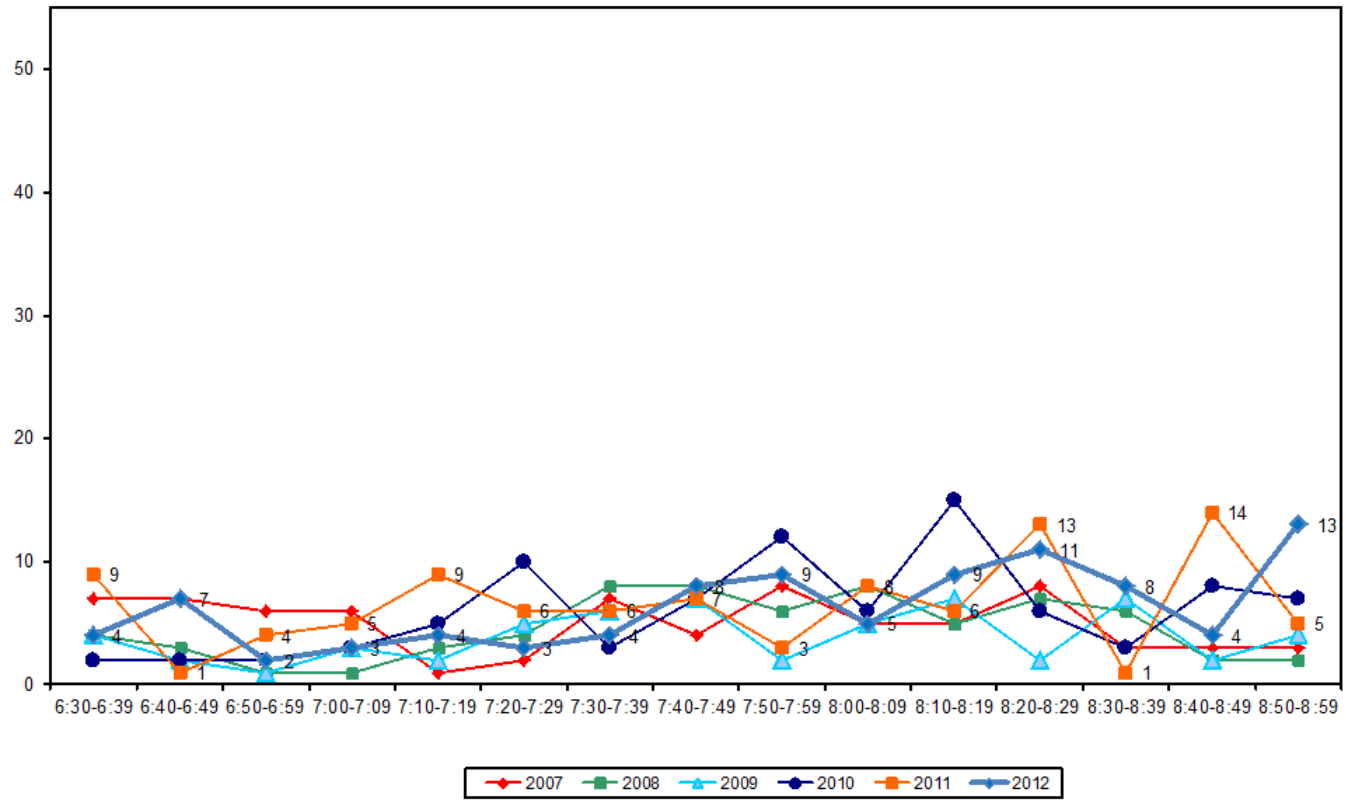
Table 7.2: Morning Cyclist Characteristics

Mount Albert/New North Road/Carrington Road 2007 – 2012 (%)

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

- Unlike last year's high volume start (9 movements), the volume of morning cycle movements starts off lower (4 movements), increases then reaches the first peak at 7:50 and 7:59 (9 movements), remaining relatively steady until another peak at 8:20 and 8:29 (11 movements) and a third between 8:50 and 8:59 (13 movements).

Figure 15.2: Morning Peak Cyclist Frequency
Mount Albert/New North Road/Carrington Road (n) 2007 – 2012



Note: In 2012, 9 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Five cyclists at 6:44am*
- *Three cyclists at 8:15am*

7.3 Evening Peak

Environmental Conditions

- The weather was overcast at the start of the shift, with light drizzle evident from 4:15pm through to the end of the shift at 7:00pm.
- From 4:30pm to 5:30pm, The NZ Nurses Organisation staged a protest. There were no other 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 decreased, from 104 in 2011 to 76 movements in 2012.
- The key evening movement is straight along New North Road in a south-westerly direction (Movement 5 = 23 cyclists).
- Evening cyclist volumes have decreased most notably at Movement 2 (down 9 movements).

Table 7.3: Evening Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007 – 2012 (n)

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

- The majority of cyclists using this intersection were adults (88 per cent, unchanged from 2011).
- The majority of cyclists at this site were wearing a helmet (82 per cent, stable from 83 per cent last year).
- The majority of cyclists were male (90 per cent).
- Two thirds of peak cyclists rode on the road (66 per cent, down slightly from 70 per cent from 2011).

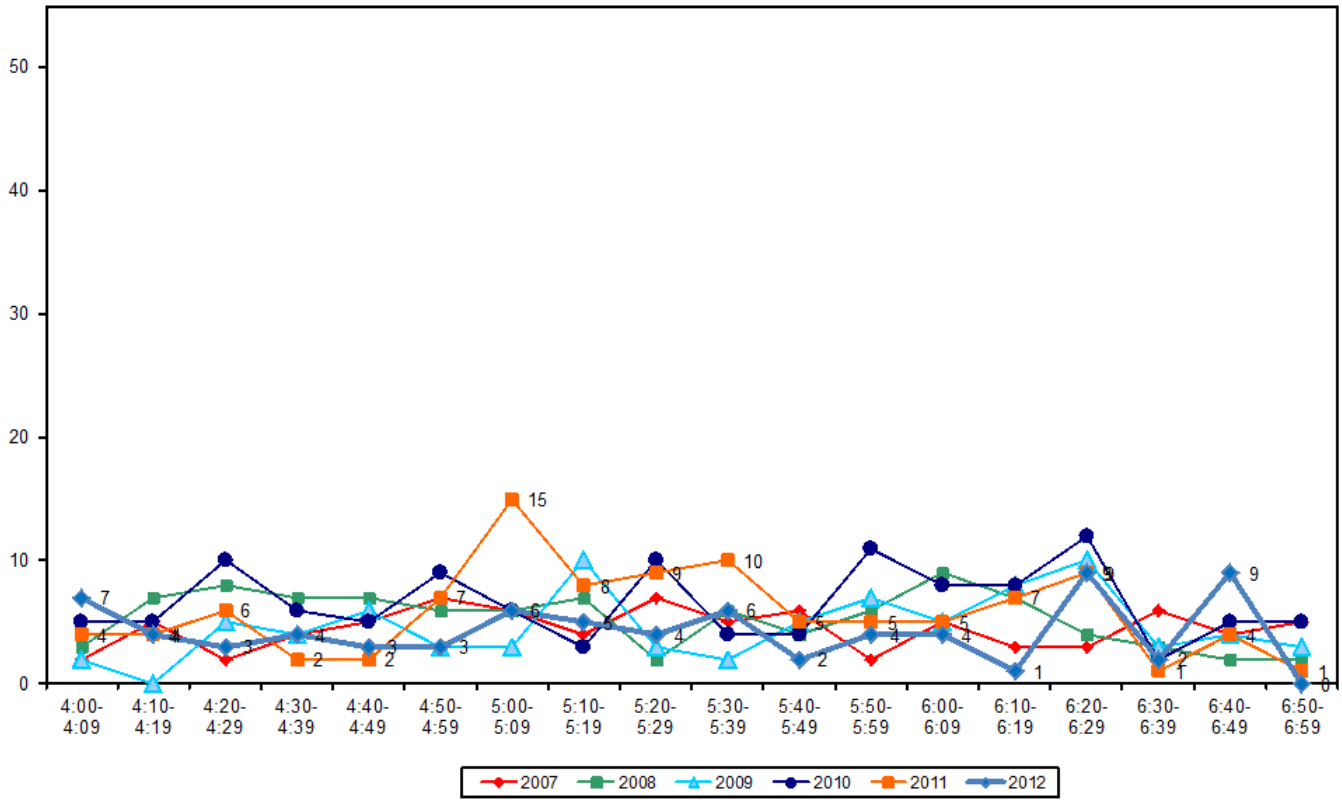
Table 7.4: Evening Cyclist Characteristics

Mount Albert/New North Road/Carrington Road 2007 – 2012 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	**Change 11-12**
Cyclist Type							
Adult	94	85	98	84	88	**88**	**0**
School child	6	15	2	16	12	**12**	**0**
Helmet Wearing							
Helmet on head	90	90	86	81	83	**82**	**-1**
No helmet	10	10	14	19	17	**18**	**1**
Gender							
Male	-	-	-	-	90	**90**	**0**
Female	-	-	-	-	10	**9**	**-1**
Can't tell	-	-	-	-	0	**1**	**1**
Where Riding							
Road	63	78	75	73	70	**66**	**-4**
Footpath	37	22	25	27	30	**34**	**4**
Base:	***81***	***96***	***83***	***118***	***104***	***76***	

- The volume of cycle movements varies throughout the evening shift. A peak occurs between 6:20pm and 6:29pm (9 movements) and a second peak occurs later between 6:40pm and 6:49pm (9 movements).

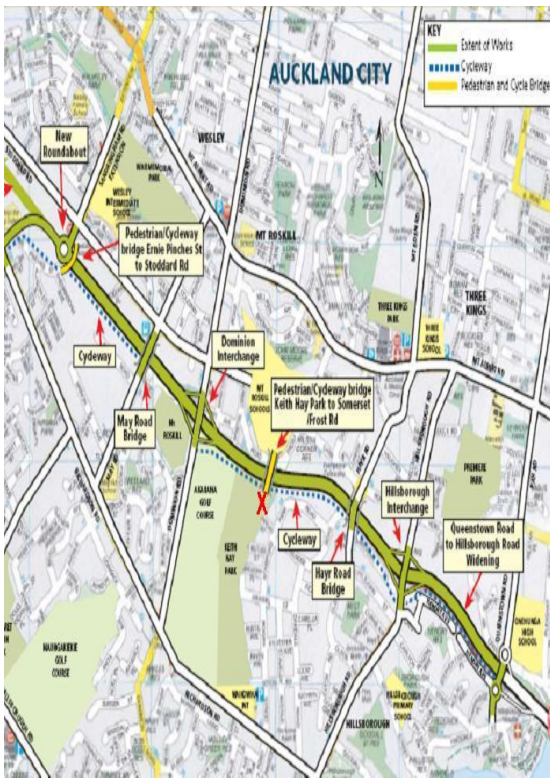
Figure 15.3: Evening Peak Cyclist Frequency
Mount Albert/New North Road/Carrington Road (n) 2007 – 2012

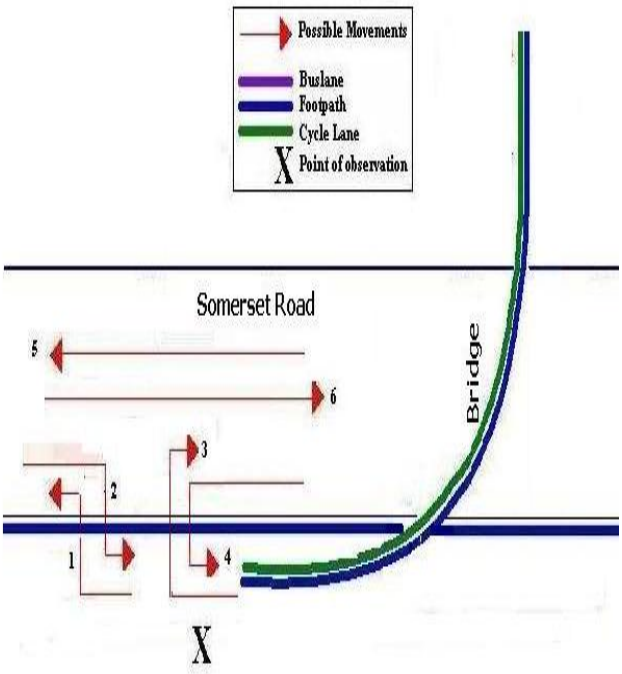


8. KEITH HAY PARK/SOMERSET RD/ BRIDGE, MT ROSKILL (SITE 88)

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**

8.2 Morning Peak

Environmental Conditions

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

Key Points

- Twenty-eight cycle movements were recorded at this site in 2012, stable from last year (29 movements).
- Like last year, the key morning movement is turning off the over-head bridge into Somerset Road heading west (Movement 1 = 19 movements).
- Results by movement are stable from last year.

Table 8.1: Morning Cyclist Movements

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2012 (n)

Movement	*2010*	*2011*	*2012*	Change 11-12
1	22	22	19	**-3**
2	3	1	1	**0**
3	0	1	1	**0**
4	0	1	2	**1**
5	1	2	2	**0**
6	2	2	3	**1**
Total	**28**	**29**	**28**	**-1**

- Over the morning peak, the majority of cyclists were school children (71 per cent, stable from 72 per cent in 2011).
- The majority of cyclists were wearing a helmet (68 per cent, down from 83 per cent in 2011).
- The majority of cyclists were male (89 per cent).
- Almost all cyclists were riding on the off-road cycleway on the bridge (82 per cent, down slightly from 86 per cent in 2011), the remainder of cyclists were riding on the road (20 per cent, up slightly from 14 per cent in 2011).

Table 8.2: Morning Cyclist Characteristics

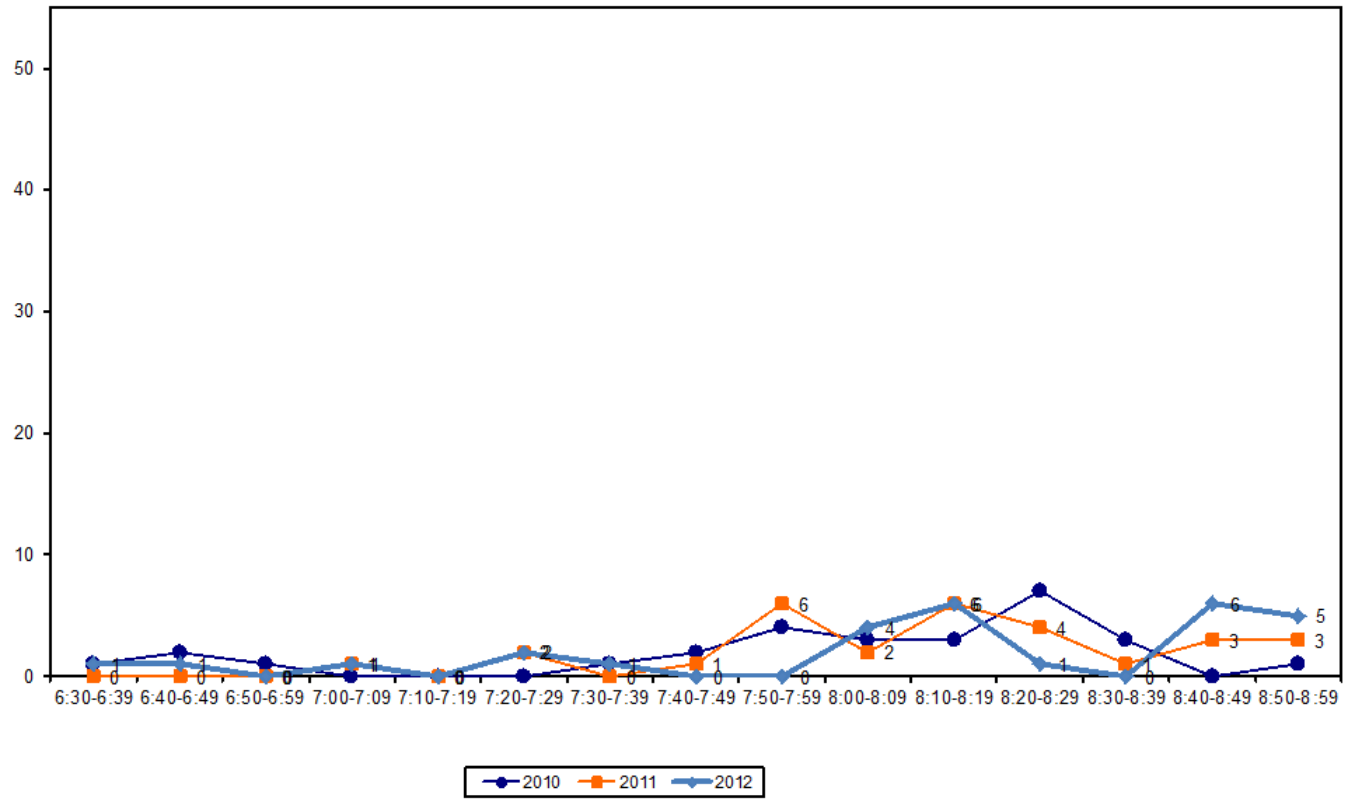
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2012 (%)

	2010	***2011***	***2012***	**Change 11-12**
Cyclist Type				
Adult	25	28	**29**	**1**
School child	75	72	**71**	**-1**
Helmet Wearing				
Helmet on head	82	83	**68**	**-15**
No helmet	18	17	**32**	**15**
Gender				
Male	-	86	**89**	**3**
Female	-	14	**11**	**-3**
Can't tell	-	0	**0**	**0**
Where Riding				
Road	7	14	18	**4**
Footpath	4	0	0	**0**
Off-road cycleway	89	86	82	**-4**
Base:	***28***	***29***	***28***	

- Like last year, morning cycle volumes are low throughout the shift. In 2012, peaks occurred between 8:10am and 8:19am (6 movements) and again between 8:40am and 8:49am (6 movements).

Figure 8.2: Morning Peak Cyclist Frequency

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill (n) 2010 – 2012



8.3 Evening Peak

Environmental Conditions

- The weather was overcast at the start of the shift, with intermittent rain showers evident from 4:35pm to the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Decreasingly notably from 2011 observations, 19 cyclists movements were recorded at this site in 2012 (down from 40 movements).
- The most common movements in the evening is turning off the over-head bridge into Somerset Road heading west (Movement 1 = 7 movements) and turning off Somerset Road onto the over-head bridge heading east (Movement 2 = 5 movements).
- Movement 2 saw a notable decrease in cyclist volumes (down 12 movements) as did Movement 1 (down 6 movements).

Table 8.3: Evening Cyclist Movements

Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2012 (n)

Movement	2010	2011	*2012*	Change 11-12
1	8	13	**7**	**-6**
2	7	17	**5**	**-12**
3	0	0	**2**	**2**
4	4	2	**2**	**0**
5	4	4	**0**	**-4**
6	2	4	**3**	**-1**
Total	**25**	**40**	**19**	**-21**

- A slight majority of cyclists were adults (53 per cent, up slightly from 48 per cent in 2011).
- Helmet wearing by cyclists increased in 2012 (89 per cent, up notably from 58 per cent in 2011).
- The majority of cyclists were male (84 per cent).
- Consistent to previous measures, 84 per cent of cyclists were riding on the road (up from 80 per cent in 2011) with the remaining 16 per cent riding on the road (down from 20 per cent in 2011).

Table 8.4: Evening Cyclist Characteristics

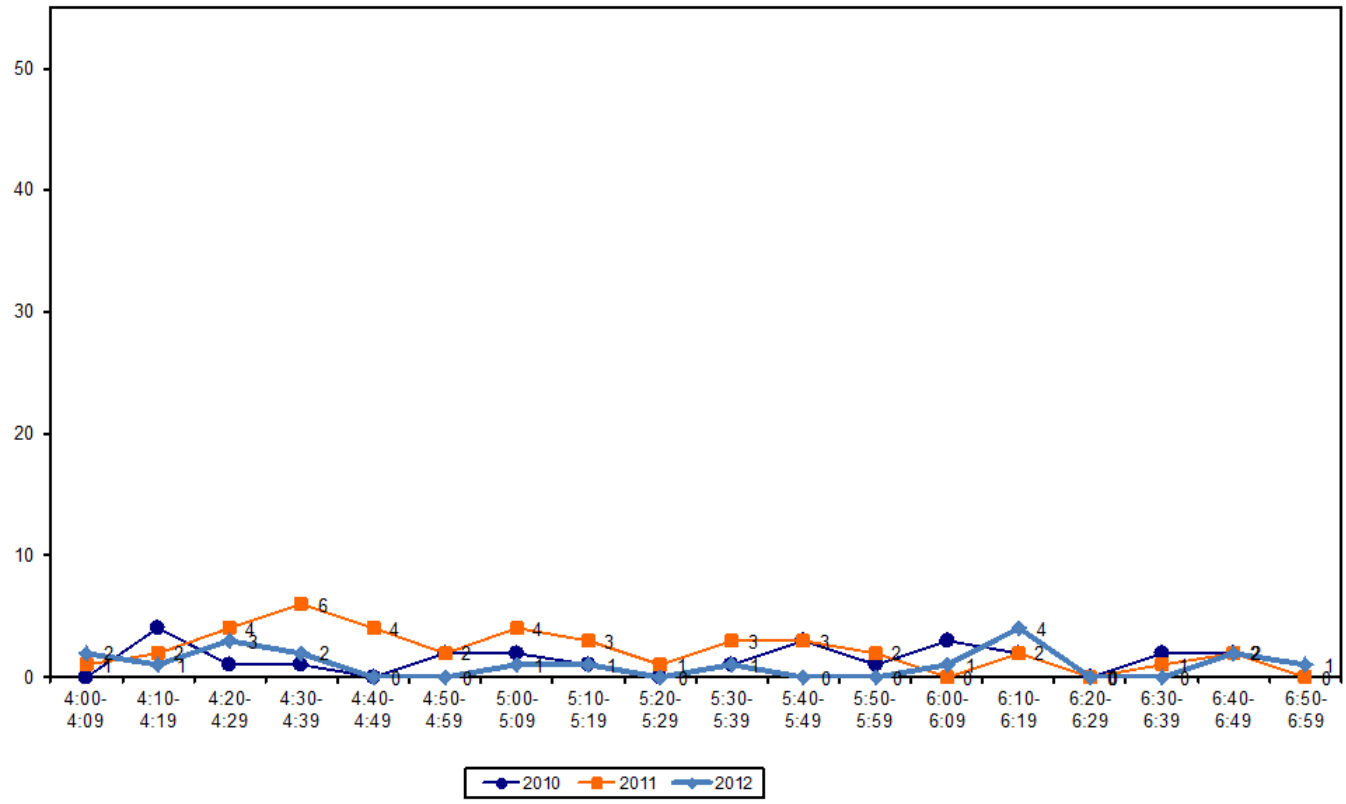
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 – 2012 (%)

	2010	***2011***	***2012***	**Change 11-12**
Cyclist Type				
Adult	72	48	**53**	**5**
School child	28	53	**47**	**-5**
Helmet Wearing				
Helmet on head	76	58	**89**	**31**
No helmet	24	43	**11**	**-32**
Gender				
Male	-	95	**84**	-11
Female	-	5	**16**	11
Can't tell	-	0	**0**	0
Where Riding				
Road	20	20	**16**	**-4**
Footpath	4	0	**0**	**0**
Off-road cycleway	76	80	**84**	**4**
Base:	***25***	***40***	***19***	

- Evening cyclist volumes continue to be low throughout the monitoring period, with no more than three cyclists over all but one ten minute interval. The exception to this was the slight peak between 6:10pm and 6:19pm (4 movements). This compares to a peak between 4:30pm and 4:39pm (6 movements) in 2011.

Figure 8.3: Evening Peak Cyclist Frequency

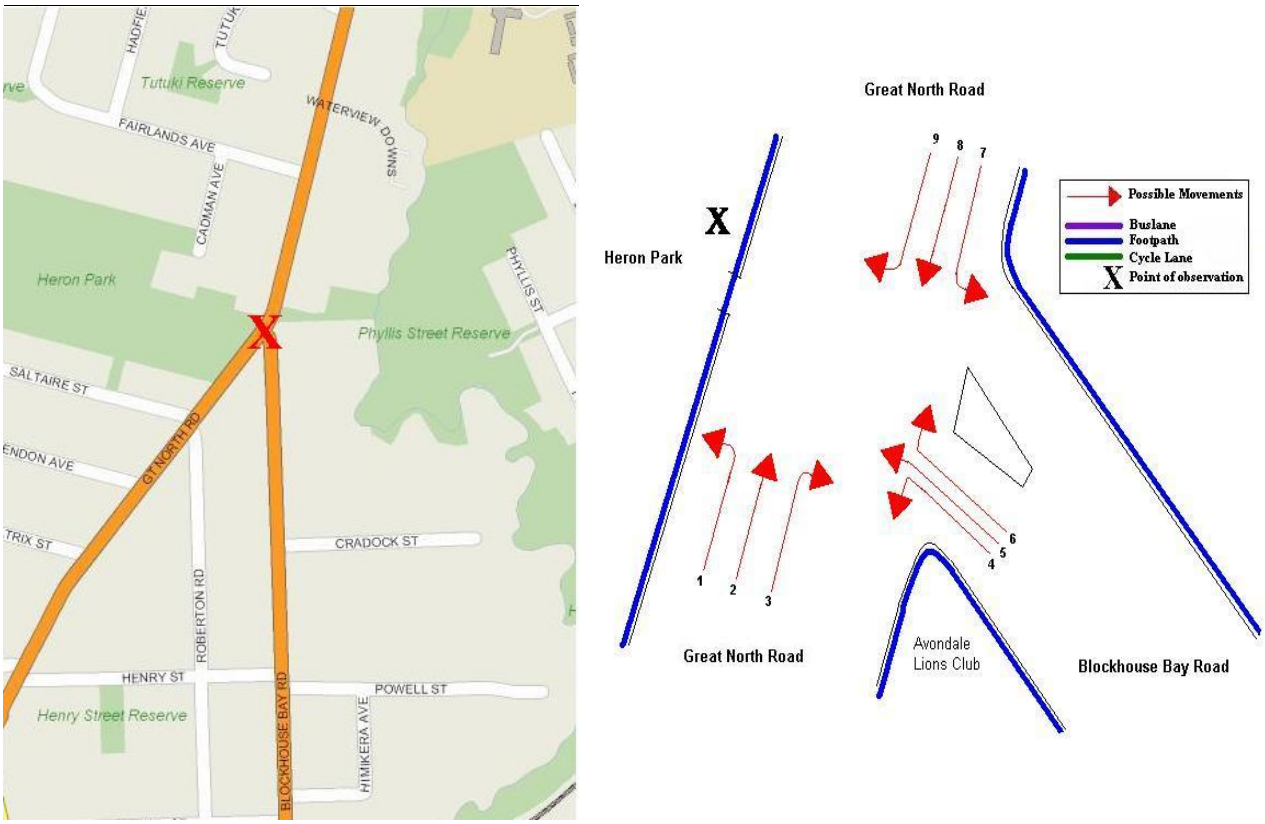
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill (n) 2010 – 2012



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

Figure 9.1 shows the possible cyclist movements at this intersection.

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



9.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2008	57	60	117	170
2009	57	62	119	173
2010	66	75	141	204
2011	56	73	129	186
2012	**60**	**69**	**129**	**187**

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

- Sixty movements were recorded at the Blockhouse Bay/Great North Road site, up from 56 movements in 2011.
- The key morning movements are straight through Great North Road (Movement 2 = 36 cyclists) and the right turn out of Blockhouse Bay Road into Great North Road (Movement 6 = 11 cyclists).
- The most notable increase in cyclist movements in the morning at this site was at Movement 2 (up 13 cyclists).

Table 9.1: Morning Cyclist Movements

Blockhouse Bay/Great North Road 2008 – 2012 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	0	0	0	0	0	**0**
2	29	28	33	23	36	**13**
3	0	0	2	0	0	**0**
4	0	1	1	0	1	**1**
5	0	0	0	0	0	**0**
6	16	14	16	21	11	**-10**
7	3	4	2	4	4	**0**
8	9	10	12	8	6	**-2**
9	0	0	0	0	0	**0**
Total	**57**	**57**	**66**	**56**	**60**	**4**

- Over the morning peak, most cyclists are adults (93 per cent, an increase from 82 per cent in 2011).
- Most cyclists are wearing a helmet (88 per cent, a decrease from 98 per cent at the previous measure).
- Most cyclists are male (85 per cent).
- Fifty-seven per cent of cyclists are riding on the road, an increase from 50 per cent last year.

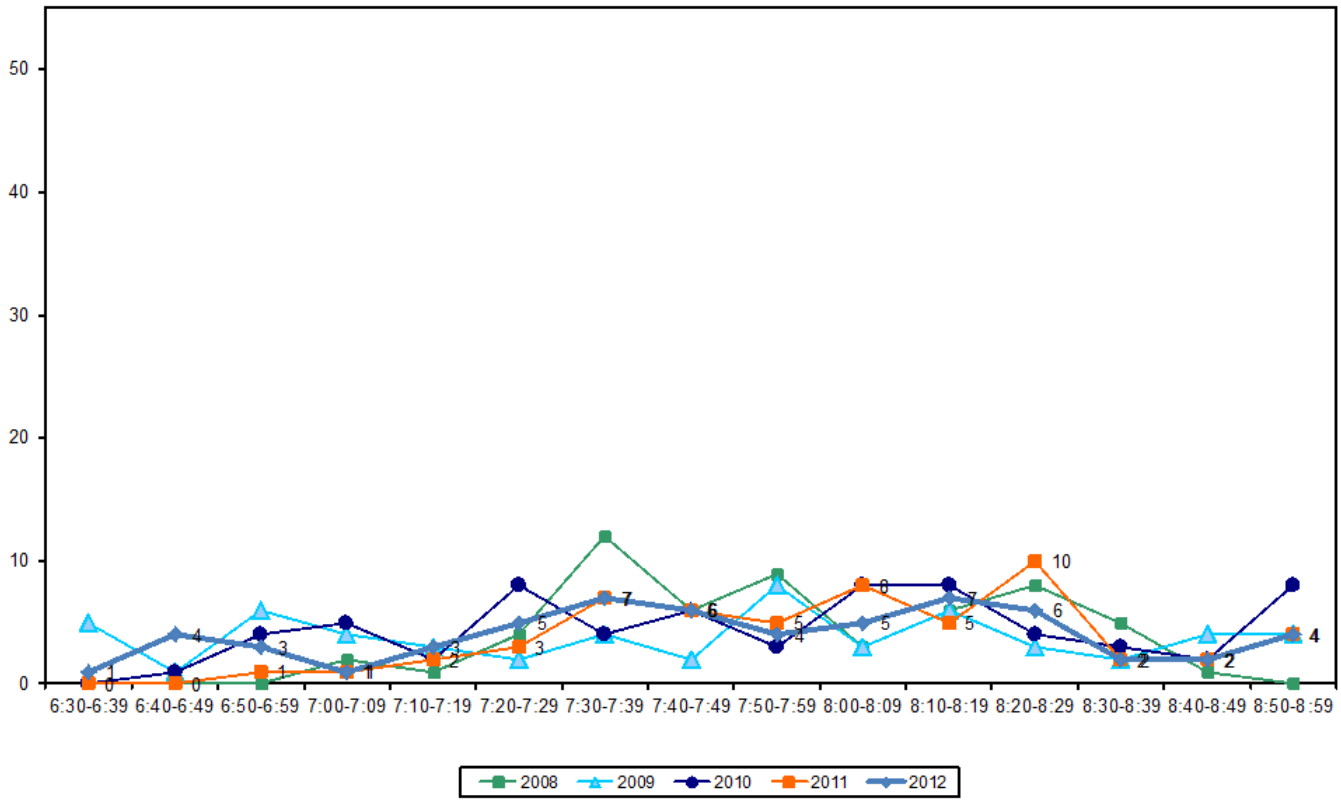
Table 9.2: Morning Cyclist Characteristics

Blockhouse Bay/Great North Road 2008 – 2012 (%)

	2008	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type						
Adult	89	65	92	82	**93**	**11**
School child	11	35	8	18	**7**	**-11**
Helmet Wearing						
Helmet on head	93	88	95	98	**88**	**-10**
No helmet	7	12	5	2	**12**	**10**
Gender						
Male	-	-	-	86	**85**	**-1**
Female	-	-	-	5	**13**	**8**
Can't tell	-	-	-	9	**2**	**-7**
Where Riding						
Road	44	65	62	50	**57**	**7**
Footpath	56	35	38	50	**43**	**-7**
Base:	***57***	***57***	***66***	***56***	***60***	

- Morning cycle volumes peak slightly between 7:30am and 7:39am (7 cyclists) and then again between 8:10am and 8:19am (7 movements). This compares with slight peaks between 8:20am and 8:29am (10 movements) in 2011.

Figure 9.2: Morning Peak Cyclist Frequency
Blockhouse Bay/Great North Road (n) 2008 – 2012



9.3 Evening Peak

Environmental Conditions

- The weather was fine throughout most of the evening shift, with the exception of rain showers between 4:15pm and 6:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening peak cycle movements recorded at the Blockhouse Bay/Great North Road site is 68, down from 2011 (73 movements).
- The most common movement in the evening is straight through Great North Road in a south-westerly direction (Movement 8 =39 cyclists).
- Cyclist volumes over the evening period have increased most notably at Movement 8 (up 12 cyclists).

Table 9.3: Evening Cyclist Movements

Blockhouse Bay/Great North Road 2008 – 2012 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	0	0	0	0	**0**	**0**
2	14	15	17	15	**10**	**-5**
3	0	0	2	1	**2**	**1**
4	0	1	0	0	**1**	**1**
5	0	2	0	0	**0**	**0**
6	1	2	4	6	**5**	**-1**
7	15	13	15	20	**10**	**-10**
8	30	28	37	27	**39**	**12**
9	0	1	0	4	**1**	**-3**
Total	**60**	**62**	**75**	**73**	**68**	**-5**

- Over the evening peak, all cyclists at this site are adults (100 per cent, up slightly from 95 per cent last year).
- Most cyclists at this site are wearing a helmet (94 per cent, up from 89 per cent at the previous measure).
- The majority of cyclists are recorded as male (87 per cent).
- Seventy-five per cent of cyclists are riding on the road, up slightly from 70 per cent in 2011.

Table 9.4: Evening Cyclist Characteristics

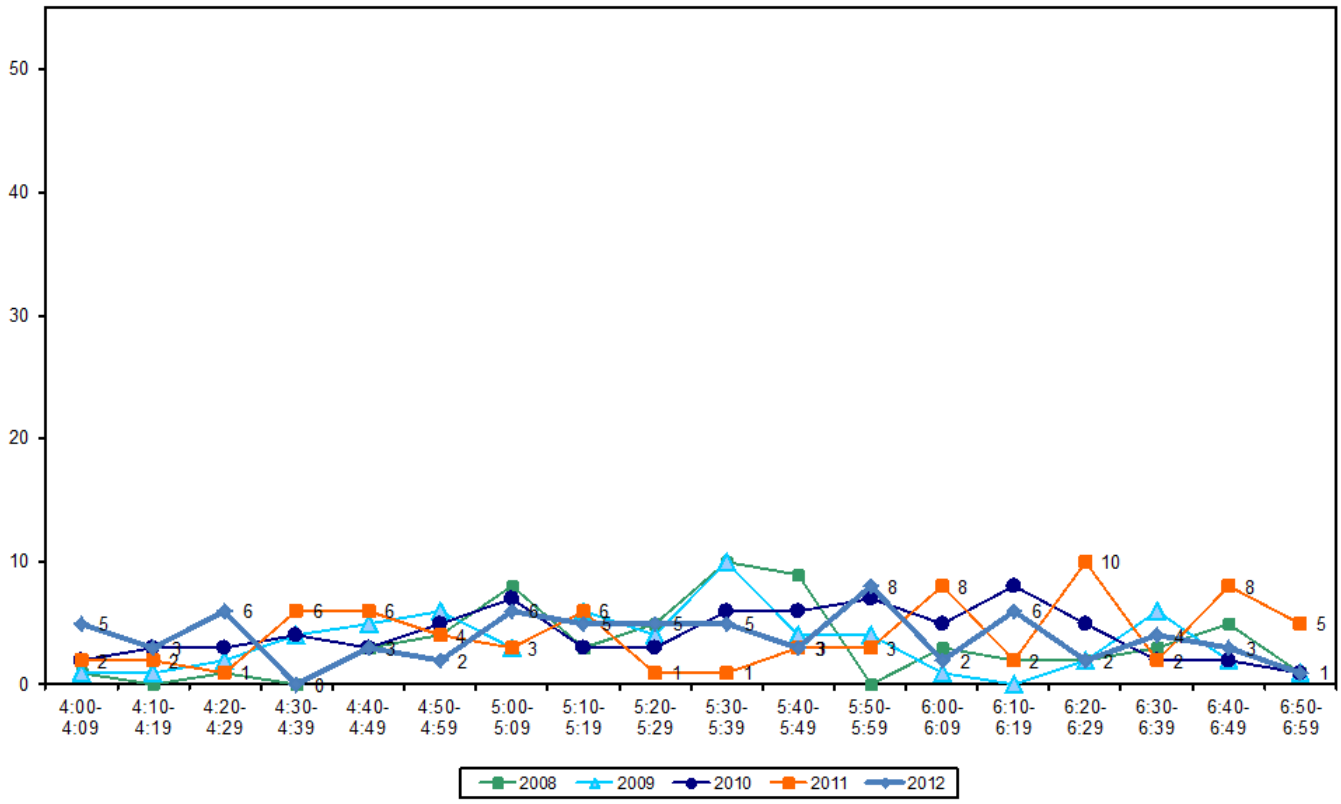
Blockhouse Bay/Great North Road 2008 – 2012 (%)

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

- Evening cycle volumes vary throughout the monitoring period to peak between 5:50pm and 5:59pm (8 cyclists), as well as three smaller peaks evident between 4:20pm and 4:29pm, 5:00pm and 5:09pm and between 6:10pm and 6:19pm (6 cyclists per ten minute interval). This compares to a peak between 6:20pm and 6:29pm (10 cyclists) in 2011.

Figure 9.3: Evening Peak Cyclist Frequency

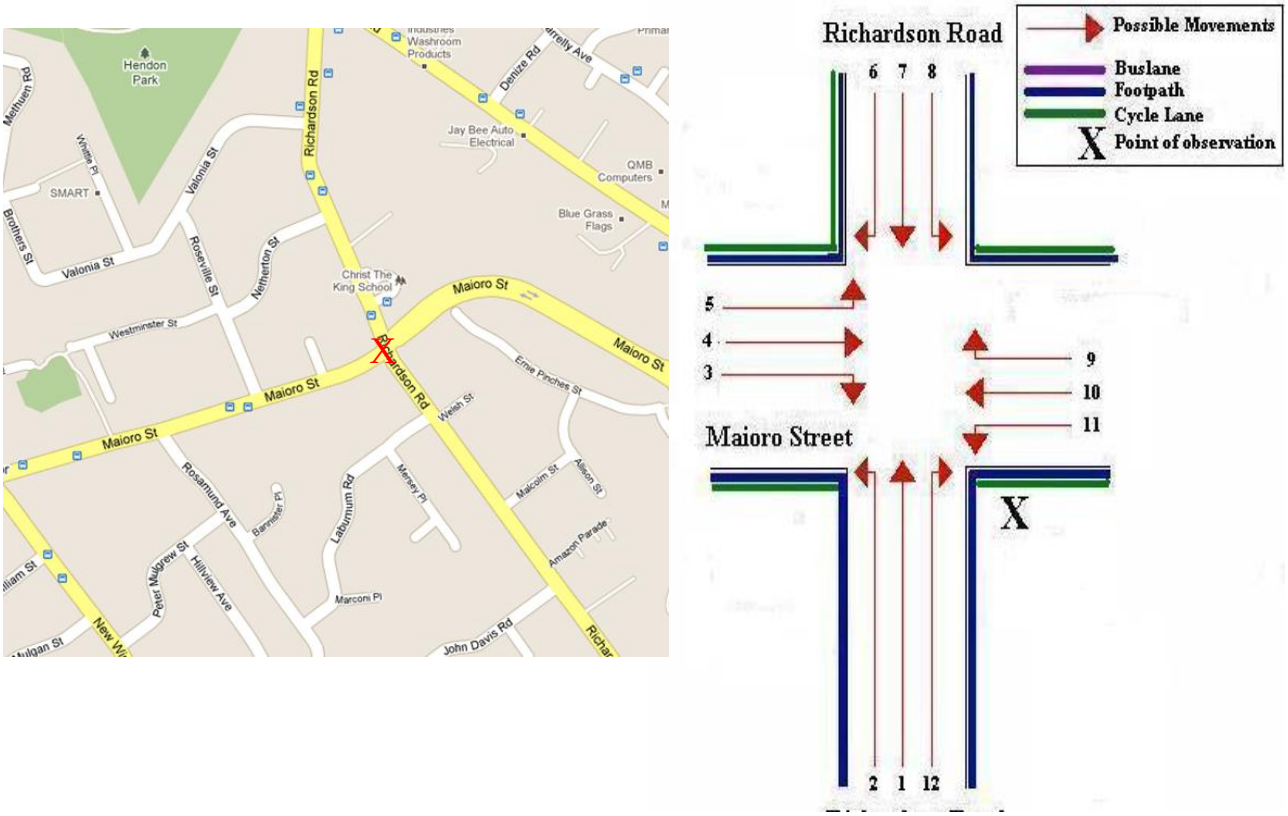
Blockhouse Bay/Great North Road (n) 2008 – 2012



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

Figure 10.1 shows the possible cyclist movements at this intersection.

Figure 10.1: Cycle Movement: Richardson Road/Maioro Street



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

10.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2009	8	13	21	30
2010	14	25	39	56
2011	15	22	37	53
2012	**29**	**24**	**53**	**77**

10.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of cycle movements at the Richardson/Maioro intersection has increased this year, with 29 cycle movements recorded (up from 15 movements last year).
- The key movement is travelling straight along Maioro Street travelling east (Movement 4 = 9 cyclists).
- The greatest change in morning cyclist volumes is at Movement 4 (up 9 cyclists).

Table 3.1: Morning Cyclist Movements

Richardson/Maioro Street 2009 – 2012 (n)

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

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

- Over the morning peak, the share of children cycling at this site has increased notably – up from 24 percentage points to 31 per cent.
- The majority of cyclists are wearing helmets (79 per cent, down from 87 per cent in 2011).
- Approximately three in four cyclists are male (76 per cent, down slightly from 80 per cent at the previous measure).
- The majority of cyclists are riding on the off-road cycleway (62 per cent, up notably from 40 per cent last year). The remaining 38 per cent are riding on the road (down from 47 per cent in 2011).

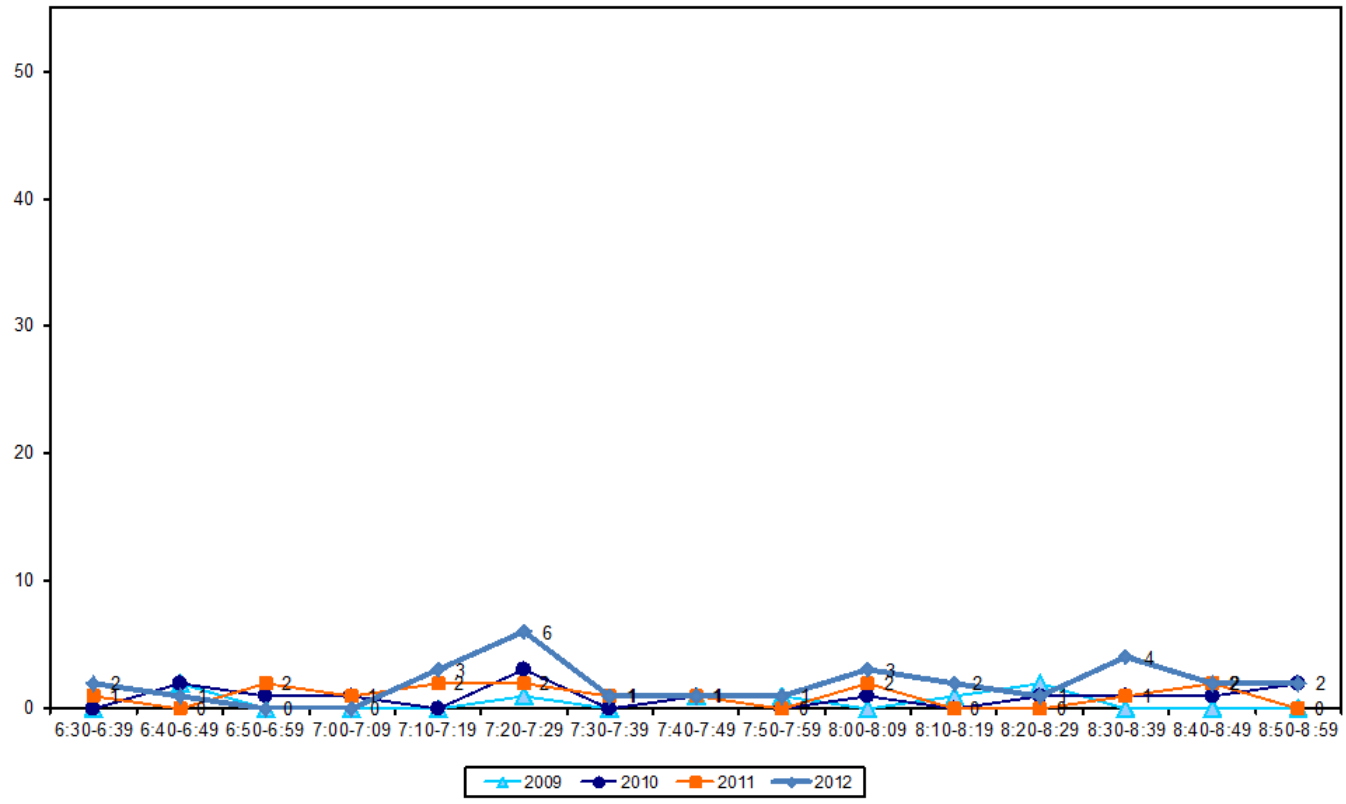
Table 3.2: Morning Cyclist Characteristics

Richardson/Maioro Street 2009 – 2012 (%)

	2009	***2010***	***2011***	***2012***	**Change 11-12**
Cyclist Type					
Adult	100	100	93	**69**	**-24**
School child	0	0	7	**31**	**24**
Helmet Wearing					
Helmet on head	100	93	87	**79**	**-8**
No helmet	0	7	13	**21**	**8**
Gender					
Male	-	-	80	**76**	**-4**
Female	-	-	20	**24**	**4**
Can't tell	-	-	0	**0**	**0**
Where Riding					
Road	88	57	47	**38**	**-9**
Footpath	12	14	13	**0**	**-13**
Off-road Cycleway	-	29	40	**62**	**22**
Base:	***8***	***14***	***15***	***29***	

- Morning cycle volumes are low throughout most on the morning monitoring period, with the peak of cyclist movements occurring between 7:20am and 7:29am (6 movements). This compares with no more than two cyclist movements over any ten minute interval in 2011.

Figure 3.2: Cyclist Frequency
Richardson/Maioro Street 2009 – 2012 (n)



- *Note: In 2012, 5 cyclists were observed riding together at 7:27am. This equates to 17 per cent of all morning peak cycle movements at this site.*

10.3 Evening Peak

Environmental Conditions

- The weather was fine but overcast at the start of the shift. Light rain began at 4:31pm and persisted throughout the remainder of the monitoring period.
- There were no road works that may affect cycle counts.

Key Points

- The total number of evening cycle movements recorded at the Richardson/Maioro Street intersection is 24 (stable from 22 movements last year).
- The key movement in the evening is turning left into Maioro Street from Richardson Road (Movement 2 = 6 cyclists).
- The largest change in cyclist volumes this year is at Movement 4, down 7 cyclists from 2011.

Table 3.3: Evening Cyclist Movements

Richardson/Maioro Street 2009 – 2012 (n)

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

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

- As with the morning period, the share of children using this site has increased over the last 12 months – up from 9 per cent in 2011 to 25 per cent this year.
- Three-quarters of cyclists are wearing a helmet (75 per cent, stable from 77 per cent last year).
- The majority of cyclists continue to be male (92 per cent).
- Over half of the cyclists at this intersection are riding on the off-road cycleway (54 per cent, unchanged from 2011).

Table 3.4: Evening Cyclist Characteristics

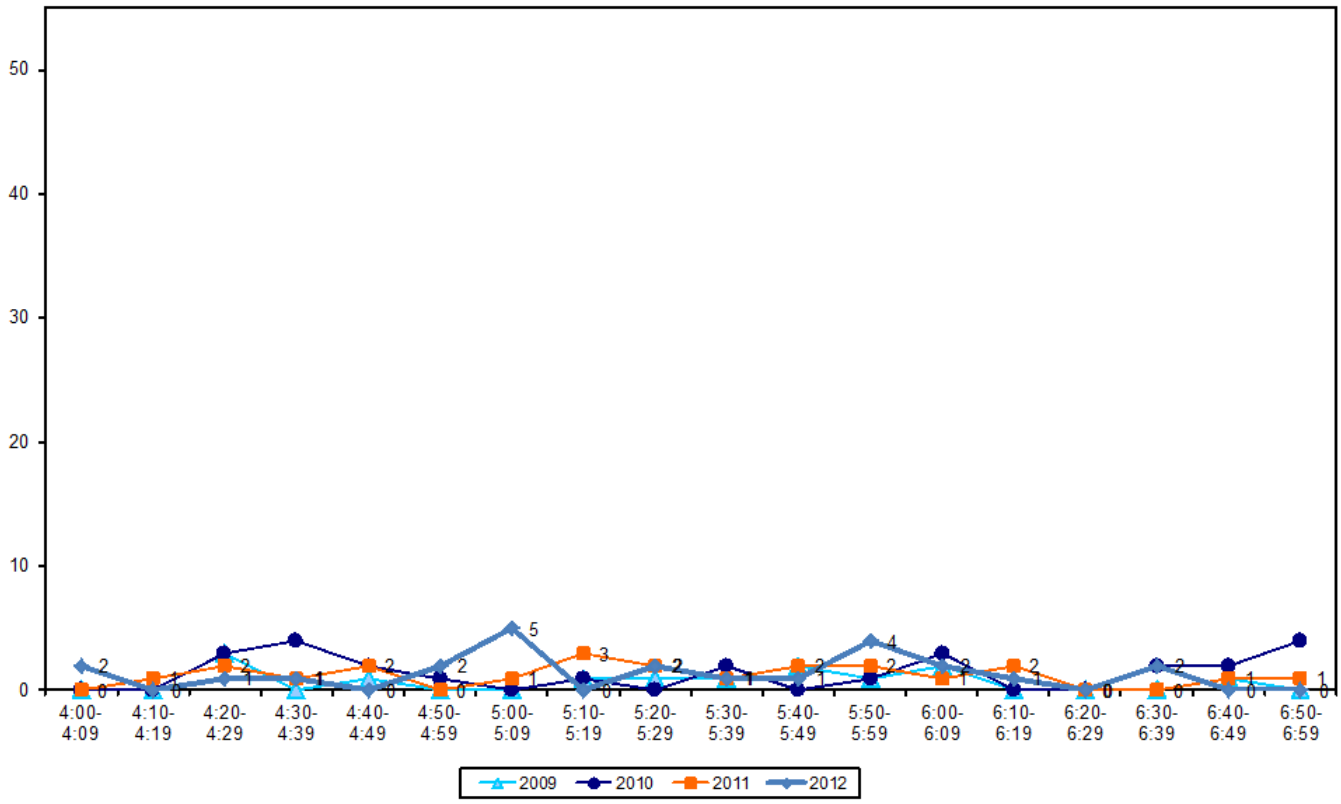
Richardson/Maioro Street 2009 – 2012 (%)

	2009	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type					
Adult	100	80	91	**75**	**-16**
School child	0	20	9	**25**	**16**
Helmet Wearing					
Helmet on head	85	76	77	**75**	**-2**
No helmet	15	24	23	**25**	**2**
Gender					
Male	-	-	86	**92**	**6**
Female	-	-	9	**8**	**-1**
Can't tell	-	-	5	**0**	**-5**
Where Riding					
Road	46	16	32	**46**	**14**
Footpath	54	16	14	**0**	**-14**
Off-road cycleway	-	68	54	**54**	**0**
Base:	***13***	***25***	***22***	***24***	

- The volume of cycle movements remains relatively low over the entire evening peak, with no more than three cyclists recorded during all but two of the ten minute intervals. These exceptions were between 5:00pm and 5:09pm (5 movements) and between 5:50pm and 5:59pm (4 movements). This trend of low cyclist numbers is consistent with 2011.

Figure 3.3: Evening Peak Cyclist Frequency

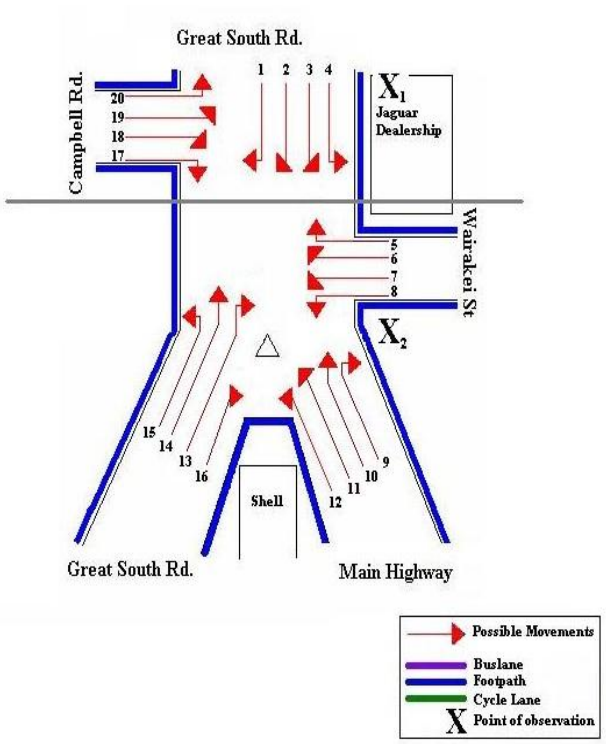
Richardson/Maioro Street 2009 – 2012 (n)



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

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

Figure 11.1: Cycle Movements: Great South/Campbell Road



11.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	89	85	174	253
2008	53	61	114	165
2009	64	87	151	218
2010	69	102	171	246
2011	60	78	138	199
2012	**68**	**64**	**132**	**192**

11.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Great South/Campbell Road intersection has increased from last year – up by 8 to 68 movements this year.
- Key morning movements are straight along Great South Road heading north (Movement 14 = 17 cyclists), straight along Great South Road heading south (Movement 2 = 15 cyclists) and left from Great South Road into Main Highway heading south-east (Movement 3 = 13 cyclists).
- The most notable increases have been at Movement 3 and Movement 14, an increase of 7 and 6 cyclists this year respectively.

Table 11.1: Morning Cyclist Movements

Great South/Campbell Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	3	1	2	5	1	**0**	**-1**
2	20	9	19	3	19	**15**	**-4**
3	14	7	9	8	6	**13**	**7**
4	2	0	0	7	0	**0**	**0**
5	2	0	1	0	0	**1**	**1**
6	0	0	0	0	0	**0**	**0**
7	0	0	0	4	2	**3**	**1**
8	1	0	0	0	0	**0**	**0**
9	0	0	0	0	0	**0**	**0**
10	15	12	8	11	10	**8**	**-2**
11	1	0	0	2	2	**2**	**0**
12	1	0	2	3	0	**0**	**0**
13	0	0	0	0	1	**0**	**-1**
14	15	9	12	17	11	**17**	**6**
15	2	4	0	0	1	**2**	**1**
16	2	0	0	0	0	**0**	**0**
17	1	1	1	1	2	**1**	**-1**
18	5	1	2	4	2	**3**	**1**
19	3	4	2	0	0	**0**	**0**
20	2	5	6	4	3	**3**	**0**
Total	**89**	**53**	**64**	**69**	**60**	**68**	**8**

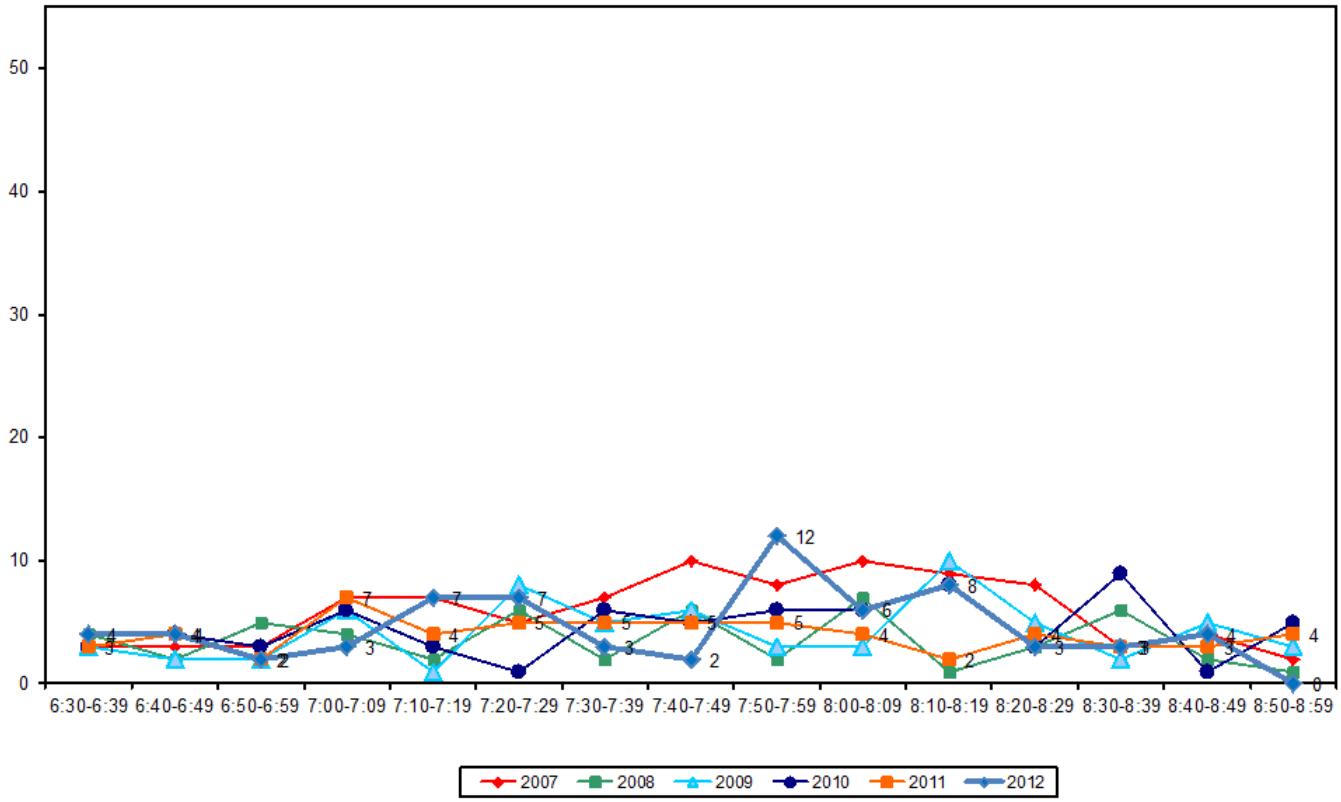
- Over the morning peak, adults comprise the greatest share of cycle movements (97 per cent, stable from 95 per cent in the previous year).
- Most cyclists are wearing a helmet (97 per cent, stable from 95 per cent in 2011).
- The greatest share of cyclists continue to be male (79 per cent).
- The majority of cyclists are riding on the road (81 per cent, stable from 2011).

Table 11.2: Morning Cyclist Characteristics
Great South/Campbell Road 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	94	92	88	93	95	**97**	**2**
School child	6	8	12	7	5	**3**	**-2**
Helmet Wearing							
Helmet on head	97	94	95	96	95	**97**	**2**
No helmet	3	6	5	4	5	**3**	**-2**
Gender							
Male	-	-	-	-	84	**79**	**-5**
Female	-	-	-	-	13	**18**	**5**
Can't tell	-	-	-	-	3	**3**	**0**
Where Riding							
Road	87	68	84	83	82	**81**	**-1**
Footpath	13	32	16	17	18	**19**	**1**
Base:	***89***	***53***	***64***	***69***	***60***	***68***	

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

Figure 11.2: Morning Peak Cyclist Frequency
Great South/Campbell Road (n) 2007 – 2012



11.3 Evening Peak

Environmental Conditions

- The weather was fine at the start of the evening shift. However, by 4:20pm drizzle began, which became rain at 4:40pm through until 5:00pm. From 5:00pm drizzle persisted though until 5:35pm, when the weather cleared up for the remainder of the 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 decreased – down from 78 in 2011 to 64 cycle movements this year.
- Key evening cyclist movements are straight along Great South Road heading north (Movement 14 = 17 cyclists), straight along Great South Road heading south (Movement 2 = 16 cyclists) and left from Great South Road into Main Highway heading south-east (Movement 3 = 15 cyclists).
- The most notable decrease in cyclist movements is at Movement 14 (down 13 cyclists).

Table 11.3: Evening Cyclist Movements

Great South/Campbell Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	2	3	5	5	1	**3**	**2**
2	14	7	13	14	16	**16**	**0**
3	16	8	10	19	14	**15**	**1**
4	1	0	4	2	0	**1**	**1**
5	0	0	0	1	0	**0**	**0**
6	0	0	0	0	0	**0**	**0**
7	0	0	2	0	0	**1**	**1**
8	0	0	0	1	0	**1**	**1**
9	0	0	0	1	0	**1**	**1**
10	14	7	8	12	7	**3**	**-1**
11	4	5	4	6	3	**2**	**-1**
12	1	0	0	1	0	**1**	**1**
13	0	0	1	0	1	**0**	**-1**
14	15	13	28	34	30	**17**	**-13**
15	5	8	2	1	3	**0**	**-3**
16	3	1	1	1	0	**0**	**0**
17	2	2	1	0	0	**0**	**0**
18	4	1	5	0	0	**1**	**1**
19	0	3	0	0	1	**0**	**-1**
20	4	3	3	4	2	**2**	**0**
Total	**85**	**61**	**87**	**102**	**78**	**64**	**-14**

- Over the evening peak, almost all cyclists using this intersection are adults (97 per cent, unchanged from the previous measure).
- Most cyclists at this site are wearing a helmet (92 per cent, down from 99 per cent in 2011).
- The greatest share of evening cyclists continue to be male (83 per cent).
- Most cyclists (77 per cent) are riding on the road, this share down from 2011 (85 per cent).

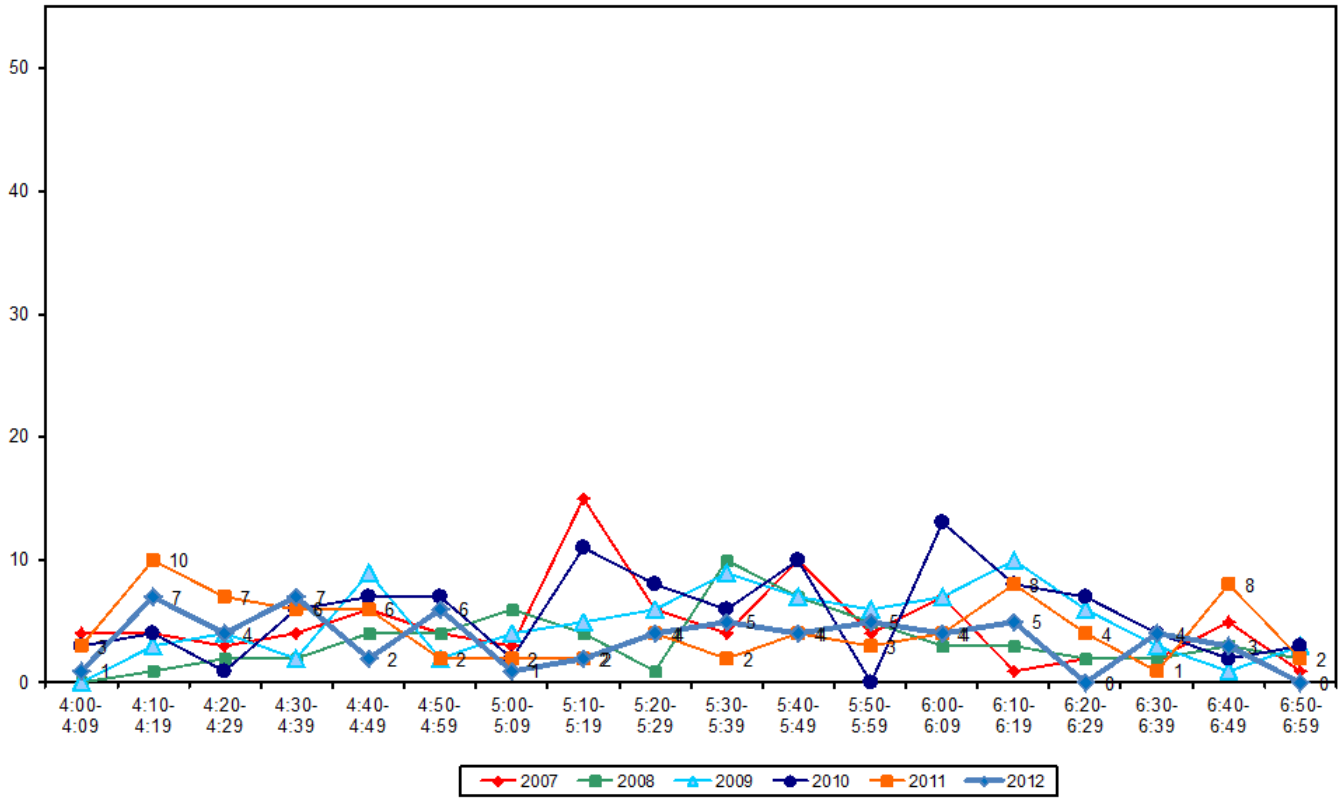
Table 11.4: Evening Cyclist Characteristics

Great South/Campbell Road 2007 – 2012 (%)

	2007	*2008*	*2009*	2010	2011	*2012*	Change 11-12
Cyclist Type							
Adult	100	97	97	95	97	**97**	**0**
School child	0	3	3	5	3	**3**	**0**
Helmet Wearing							
Helmet on head	95	89	98	92	99	**92**	**-7**
No helmet	5	11	2	8	1	**8**	**7**
Gender							
Male	-	-	-	-	82	**83**	**1**
Female	-	-	-	-	17	**14**	**-3**
Can't tell	-	-	-	-	1	**3**	**2**
Where Riding							
Road	87	82	83	89	85	**77**	**-8**
Footpath	13	18	17	11	15	**23**	**8**
Base:	***85***	***61***	***87***	***102***	***78***	***64***	

- Evening cycle volumes had two slight peaks during the monitoring period: between 4:10pm and 4:19pm (7 cyclists) and between 4:30pm and 4:39pm (7 cyclists). This compares with peaks between 4:10pm and 4:19pm (10 cyclists), between 6:10pm and 6:19pm (8 cyclists), and between 6:40pm and 6:49pm (8 cyclists) in 2011.

Figure 11.3: Evening Peak Cyclist Frequency
Great South/Campbell Road (n) 2007 – 2012



12. SCHOOL BIKE SHED COUNT

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

Background Information

- A total of 19 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.***
- Of the schools that responded to the survey, most did not have policies that restrict students cycling to school[9].
- The designated count day was Tuesday 6th of March 2012[10].

Key Points

- Of those eligible to cycle, on average, two per cent of students are cycling to their schools. This result is unchanged from 2011.
- Across the 18 eligible schools that responded n=263 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 12 per cent of all eligible students currently cycling (down from 22 per cent last year).
- Of the 18 eligible schools that responded, 3 (17 per cent) had no students cycling to school.

[9] The following schools have policies surrounding which students can ride to school:
- Fincino School, Years 6-8 allowed
- Kohia Terrace School, recommended from age of 10
- St Cuthbert's College, Year 7 and above with permission from Deputy Principal or Principal of Junior School

[10] The following schools undertook counts on alternative days:
- Kohia Terrace School – Thursday 8th March 2012
- Mt Roskill Intermediate School – Tuesday 13th March 2012
- St Cuthbert's College – Wednesday 14th March 2012
- Balmoral SDA School – Tuesday 3rd April 2012
- Balmoral School – Wednesday 4th April 2012
- Mt Roskill Grammar – Thursday 5th April 2012
- Pasadena Intermediate – Thursday 5th April 2012

Table 12.1 shows the results of the 19 schools surveyed in the Albert-Eden-Roskill ward.

Table 12.1: Summary Table Of School Bike Count 2007 – 2012 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible[1]*					
				2012	*2011*	*2010*	*2009*	*2008*	*2007*
Pasadena Intermediate School	Intermediate	338	42	**12%**	22%	26%	17%	12%	18%
Waikowhai Intermediate School	Intermediate	400	22	**6%**	5%	3%	4%	3%	3%
Auckland Normal Intermediate	Intermediate	680	29	**4%**	7%	7%	6%	5%	7%
Balmoral School	Full Primary	779	32	**4%**	4%	0%	-	-	-
Kowhai Intermediate School	Intermediate	387	13	**3%**	5%	5%	6%	6%	6%
Mt Roskill Intermediate School	Intermediate	660	19	**3%**	2%	4%	-	2%	2%
Balmoral SDA School	Full Primary	89	2	**2%**	2%	-	-	-	-
Kohia Terrace School	Full Primary	370	6	**2%**	-	-	-	-	-
Mount Albert Grammar School	Secondary	2600	47	**2%**	-	-	-	-	-
Mt Roskill Grammar School	Secondary	2300	35	**2%**	1%	1%	1%	1%	2%
Diocesan School for Girls	Composite	1399	1	**<1%**	<1%	<1%	0%	<1%	0%
Epsom Girls' Grammar School	Secondary	2199	5	**<1%**	0%	<1%	0%	<1%	-
Hebron Christian College	Composite	235	3	**1%**	-	-	-	-	-
Lynfield College	Secondary	1900	5	**<1%**	<1%	<1%	1%	<1%	1%
St Cutherbert's College	Composite	1444	3	**<1%**	-	-	-	-	-
Christ the King Catholic School	Full Primary	141	0	**0%**	0%	-	-	-	-
Ficino School	Full Primary	122	0	**0%**	0%	-	-	-	-
Marcellin College	Intermediate/Secondary	686	0	**0%**	<1%	0%	0%	1%	-
Total		**16729**	**263**	**2%**	**2%**	-	-	-	-

Table 12.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (5 per cent, down from 7 per cent in 2011), while other levels of schools have fairly constant cycling rates.

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

2007 – 2012 (%)

School Type	***Number of Schools Responded in 2012***	***Cyclists as share of those eligible***						
		2007	***2008***	***2009***	***2010***	***2011***	***2012***	**Change 11-12**
Intermediate	5	7%	6%	8%	9%	7%	**5%**	-2
Secondary	4	2%	<1%	1%	<1%	1%	**1%**	0
Composite	3	0%	<1%	0%	<1%	<1%	**<1%**	0
Intermediate/Secondary	1	-	1%	0%	<1%	<1%	**0%**	0
Full primary	5	-	-	-	-	2%	**2%**	0

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APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[11] 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)[12], 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.

[11] Annual average daily traffic

[12] 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%