MONITORING REPORT

Prepared For Regional Cycle Monitoring Working Group
(Co-ordinated by Auckland Regional Transport Authority)

MANUAL CYCLE MONITORING IN THE AUCKLAND REGION

March 2010

Auckland City

Prepared by Gravitas Research and Strategy Limited

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1.1 Introduction

The Need For Reliable Cycle Movement Data

Monitoring cycle movements and cycle traffic is important to the Auckland Regional Transport Authority (ARTA) and the local councils in the Auckland region, to identify where investment may be needed to improve infrastructure for cycling. Cycle traffic data will also help ARTA 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 councils to track progress against a quality baseline over the coming decade.

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

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. 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 28 sites across the Auckland region following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a TA and region level. For sites also monitored in 2007, 2008 and/or 2009, comparative results are provided.

Important Note: This report provides the results of manual cycle monitoring conducted at 28 pre-determined sites in Auckland city only. Site-by-site results and city/district summaries for all other Auckland region Territorial Authorities 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.

[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.

1.2 Methodology

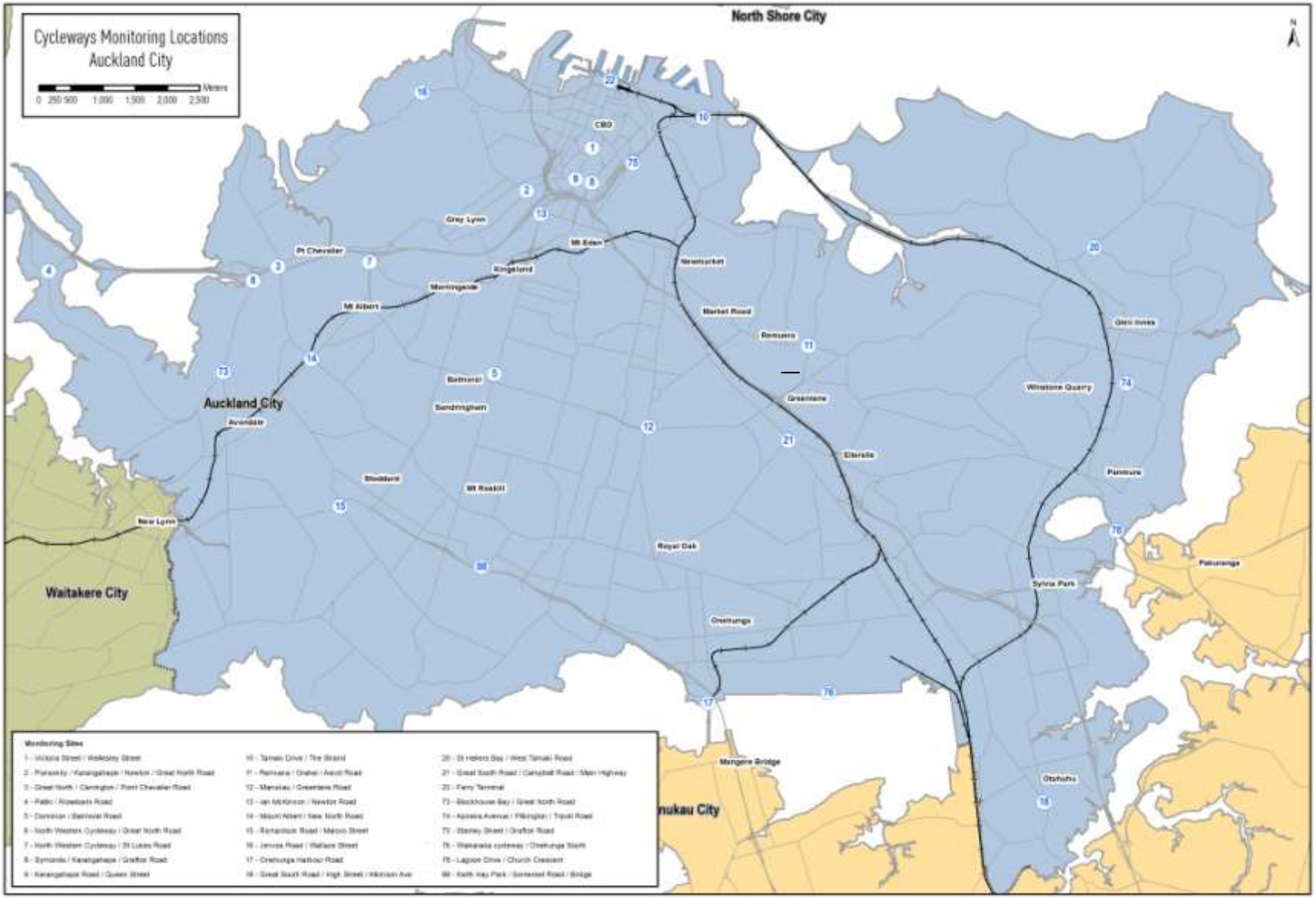
Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below. *Note: To ensure the longitudinal comparability of its cycle data, Gravitas have conducted the regional monitoring using a similar approach to that used to collect manual count data for Auckland City Council between 2001 and 2006.*

Choice Of Sites

Decisions as to which sites were chosen for cycle counts were guided by each respective TA, keeping in mind the planned developments for the Regional Cycle Network. In choosing their sites, TAs were strongly recommended to consider sites that could be retained over time as this will allow for the most accurate longitudinal assessment of change in cycle numbers.

Manual counts were undertaken at 84 different sites throughout the region. Sites were distributed throughout the region as follows:

- Auckland City — n=28 sites (12 sites monitored since 2001; 10 sites added in 2007; 5 sites added in 2008; 3 sites relocated, one site dropped and one site added in 2009, one site added in 2010)
- Waitakere City — n=15 sites (11 sites monitored since 2007; 2 sites added in 2008; 1 site added in 2009; one site relocated and one site added in 2010)
- Manukau City — n=14 sites (12 sites monitored since 2007; 1 site added in 2008; one site relocated, 2 sites dropped and 3 sites added in 2009)
- North Shore City — n=13 sites
- Rodney District — n=8 (5 sites monitored since 2007; 3 sites added in 2009)
- Franklin District — n=4 (3 sites monitored since 2007; 1 site added in 2009)
- Papakura District — n=2 sites (3 sites monitored since 2007; 1 site dropped in 2010)


Cycleways Monitoring Locations
Auckland City
Meters
0 250 500 1,000 1,500 2,000 2,500
North Shore City
CBD
Grey Lynn
Pt Chevalier
Mt Eden
Kingsland
Morningside
Mt Albert
Newmarket
Market Road
Remuera
Glen Innes
Auckland City
Avondale
Balmoral
Sandringham
Greenlane
Winstone Quarry
Ellerslie
Panmure
Mt Roskill
Royal Oak
New Lynn
Waitakere City
Sylvia Park
Pakuranga
Onehunga
Mangere Bridge
Otahuhu
nukau City

Monitoring Times

Time Of Day

On the recommendation of the Regional Cycling Monitoring Working Group, manual counts in the morning peak were conducted between **6.30 and 9.00 am.** It should be noted that this is a slightly longer morning peak than was used for manual counts in Auckland city prior to 2007 – 7.00 to 9.00 am. However, to allow for longitudinal comparisons, results for Auckland city have been presented for both 7.00 to 9.00 am and 6.30 to 9.00 am.

Between 2001 and 2006, Gravitas monitored Auckland city evening cycle numbers between 4.00 and 6.00 pm. However, in 2005 and 2006, data collected at some sites had shown upwards trends and notable peaks later in the shift (particularly between 5.50 and 6.00pm) which suggested that cycle numbers after 6.00 pm may remain high or even increase. To capture this trend, Gravitas recommended extending the evening peak monitoring period to **4.00 to 7.00 pm**. Once again, to allow for longitudinal comparisons, results for Auckland city have been presented for 4.00 to 6.00 pm as well as 4.00 to 7.00 pm.

Day Of Week

Previous experience conducting cycle and other traffic manual counts on behalf of Auckland city 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 the Regional Cycle Monitoring Working Group. 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 9th of March and be conducted on the first three fine days of the 9th, 10th, 11th, 16th, 17th, or 18th of March.

Counting at sites in **North Shore and Waitakere** cities was completed on **Tuesday the 9th of March**. Counting at sites in **Auckland city** was completed on **Wednesday the 10th of March**. Counts in **Manukau, Rodney, Papakura and Franklin** were completed on **Thursday the 11th of March**. Note: Counts in the morning and evening peaks took place on the same day for each site.

Weather and Daylight Conditions

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

To reduce the impact of weather conditions on cycle numbers, manual counts were conducted on predominantly fine days (although intermittent drizzle was observed at a small number of sites). 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 2010 was as follows:

Tuesday 9th March

(Waitakere and North Shore city sites monitored)

- Sunrise: 7:13am; Sunset: 7:49pm.
- Average temperature: 19 degrees Celsius.
- Fine weather for all sites in the morning period.
- Weather fine throughout the evening shift.

Wednesday 10th March

(Auckland city sites monitored)

- Sunrise: 7:14am; Sunset: 7:48pm.
- Average temperature: 14 degrees Celsius.
- Fine weather at most sites in the morning period.

Thursday 11th March

(Manukau city and Rodney, Papakura and Franklin district sites monitored)

- Sunrise: 7:15am; Sunset: 7:46pm.
- Average temperature: 20 degrees Celsius.
- Rodney district has fine weather throughout the morning shift. Most sites had overcast weather in the morning period apart from light drizzle at two Manukau city sites, one Franklin and one Papakura site.
- Weather in the evening period was overcast, with intermittent drizzle throughout the period.

Conducting The Manual Counts

Scoping Visit

Gravitas visited each of the selected 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; Auckland city);
- Beach Road/Browns Bay Road, Mairangi Bay (Site 45; North Shore city).

Three surveyors were used at the ferry terminal site (Site 22; Auckland city).

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].

For consistency with the Auckland city cycle data collected since 2001, 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; and
- Whether cyclists are riding on the road, footpath or designated off- road cycleway[5].

Since 2009, surveyors have been required to indicate those cyclists riding together in groups of three or more. To be consistent with previous year, each member of these 'pelatons' has been included in the site-level analysis as a separate cyclist movement. However, where pelatons 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 of 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.

In addition, 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

[3] This letter also contained contact details for the client organisation 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 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).

movements at the site – for example, construction or maintenance works being conducted on the cycle way or road works at the intersection.

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

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

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

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

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

[6] http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html

[7] ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.

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

School Bike Shed Counts

As stated above, manual cycle counts were undertaken during the morning (6.30 am to 9 am) and evening (4 pm to 7 pm) 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).

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.

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 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 eg special needs schools). This sheet was designed in consultation with the Regional Cycle Monitoring Working Group to ensure all necessary information was collected.

2. This email was then sent to all intermediate, secondary and composite schools in Auckland region (n=160) 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 9th 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. One hundred and twenty-five response were received, a response rate of 78 per cent.

Reporting

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

Manual Counts - Site Level Reporting

For consistency with Auckland city's cycle monitor, 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
  - 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 city/district 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 TA 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 28 sites surveyed in Auckland city. 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 Auckland city, 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 Twenty-Nine of this report.

Note: Surveying in Auckland city was undertaken on Wednesday 10th March, 2010. Sunrise was at 7:14am and sunset was at 7:48pm. The average temperature was 20 degrees Celsius.

Note: To enable comparisons of sites within Auckland city, cyclist volumes at each Auckland city site are considered as:

- "high/heavy" when 149 or more cycle movements are reported;
- "moderate" when between 66 and 130 cycle movements are reported;
- "low/light" when between 0 and 56 cycle movements are reported;
- having "notably" increased/decreased if the change is more than 15% of the data being compared with;
- having "slightly" increased/decreased if the change is less than 5% of the data being compared with;
- being "stable" since last year if the change is less or equal to 3 cycle movements/percentages.

1.4 Morning Peak Summary Results

Environmental Conditions

- All sites monitored in Auckland city had fine weather in the morning.
- All but one sites had no road works or accidents that may have affected cycle counts. The exception is at Great South/Campbell Road where road maintenance was being undertaken.

Key Points

- A total of 2,059 cyclist movements were recorded across the 12 previously-monitored sites in the morning peak period (between 7:00am and 9:00am) in 2010. This represents a 34 per cent increase on the result for 2009 (1,537 movements) and a 64 per cent increase on the result for 2001 (1,252 movements). Both of these changes are statistically significant – that is, the increases fall outside the margin of error at the 95% confidence interval.
- As in 2008 and 2009, the busiest site out of the 12 this year is the intersection of Tamaki Drive and The Strand (406 movements, up from 253 movements in 2009 – a 60 per cent increase), while the lowest level of morning cyclist traffic is observed at the Patiki/Rosebank Road intersection (33 movements).
- All sites recorded increases this year compared to 2009. The most notable increases are at:
  - North Western Cycleway/Great North Road – up 64 per cent;
  - Great North/Carrington/Pt Chevalier – up 61 per cent;
  - Tamaki/The Strand – up 60 per cent; and
  - Manukau Road/Greenlane West – up 52 per cent.

Table 1.1: Summary Of Morning Cyclist Movements (12 Previous Sites)

2001 -2010 (n) – 7.00 to 9.00 am

Locations	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10	Change 01-10
Tamaki/The Strand	150	157	224	125*	261	282	351	313	253	**406**	**60%**	**171%**
Symonds/K/Grafton	253	259	258	202	231	271	255	258	220	**247**	**12%**	**-2%**
Karangahape/Queen	200	197	221	209	203	211	220	189	218	**239**	**10%**	**20%**
Ponsonby/K/Newton/Great North	138	113	144	177	155	140	200	180	161	**219**	**36%**	**59%**
North Western Cycleway/Great North Road^	-	-	-	-	109	127	86	143	129	**212**	**64%**	**-**
North Western Cycleway/St Lukes	70	75	88	95	130	133	139	144	143	**191**	**34%**	**173%**
Great North/Carrington/Pt Chevalier	109	83	86	70	57	76	101	84	84	**135**	**61%**	**24%**
Manukau Road/Greenlane West	81	52	79	66	92	89	80	73	75	**114**	**52%**	**41%**
Remuera/Orakei/Ascot	71	47	64	46	78	73	62	67	90	**108**	**20%**	**52%**
Dominion/Balmoral	93	75	75	76	94	92	104	84	78	**83**	**6%**	**-11%**
Victoria/Wellesley/Halsey	60	55	53	33	56	51	60	50	54	**72**	**33%**	**20%**
Patiki/Rosebank	27	27	25	17	27	34	29	26	32	**33**	**3%**	**22%**
Total	**1252**	**1140**	**1317**	**1116**	**1493**	**1579**	**1687**	**1611**	**1537**	**2059**	**34%**	**64%**

Note: In 2004, monitoring at Tamaki/The Strand was undertaken on April 15th – three weeks after the other sites. This timing coincided with the University holidays and may have had a strong influence on the results.

^ Note: North Western Cycleway/Great North Road was firstly monitored in 2005.

- A total of 3,594 cyclist movements were recorded across the 28 sites in the morning peak period (between 6:30am and 9:00am) in 2010. Six per cent (n=205) of the total cycle movements in the morning peak were observed made by those cycling in groups.
- Of the 28 sites monitored, the busiest site in the morning peak continues to be the intersection of Tamaki Drive and The Strand (498 cycle movements, up from 321 movements in 2009), whereas the Waikaraka Cycleway site has the lowest volume of morning cyclists (7 movements).
- Twenty-four sites recorded increases this year compared to 2009. The most notable increases are at:
  - Apirana Ave/Pilkington/Movementoli Road – up 150 per cent;
  - Lagoon Drive/Church Crescent – up 75 per cent; and
  - Richardson/Maioro Street – up 75 per cent.
- In contrast, two sites recorded declines:
  - Waikaraka Cycle Way – down 61 per cent; and
  - Stanley Street/Grafton Road – down 4 per cent.
- Of the 19 Auckland city sites monitored since 2007, the total volume of morning peak cyclists has increased, from 2,198 in 2009 to 3,024 in 2010 – a 38 per cent increase. This decline is statistically significant at the 95% confidence interval.
- The average volume of morning cyclists across the 19 sites in Auckland city is 159 cycle movements. This compares with 116 movements in 2009.

Table 1.2: Summary Of Morning Cyclist Movements (28 Auckland city sites) 2007-2010 (n) – 6.30 to 9.00 am

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	Change 09-10	Change 07-10
10	Tamaki Drive/The Strand	480	416	321	**498**	**55%**	4%
8	Symonds Street/Karangahape Road	290	285	246	**283**	**15%**	-2%
9	Karangahape Road/Queen Street	246	212	238	**272**	**14%**	11%
6	North Western Cycleway/Great North Road	98	156	145	**244**	**68%**	149%
2	Ponsonby/Karangahape Road	226	199	176	**242**	**38%**	7%
7	North Western Cycleway/St Lukes	152	156	155	**222**	**43%**	46%
22	Ferry Terminal	195	158	137	**198**	**45%**	2%
13	Ian McKinnon/Newton Road	-	-	139	**190**	**37%**	-
3	Great North/Carrington Road	114	95	97	**150**	**55%**	32%
11	Remuera/Orakei Road	86	100	107	**149**	**39%**	73%
12	Manukau Road/Greenlane West	103	92	84	**130**	**55%**	26%
78	Lagoon Drive/Church Crescent	-	-	57	**100**	**75%**	-
20	St Heliers Bay/West Tamaki Road	139	107	61	**98**	**61%**	-29%
17	Onehunga Harbour Road	93	88	74	**98**	**32%**	5%
14	Mount Albert/New North Road	75	68	59	**91**	**54%**	21%
5	Dominion/Balmoral Road	114	90	85	**91**	**7%**	-20%
16	Jervois Road/Wallace Street	-	-	60	**88**	**47%**	-
1	Victoria/Wellesley Street	70	57	59	**82**	**39%**	17%
21	Great South Road/Campbell Road/Main Highway	89	53	64	**69**	**8%**	-22%
73	Blockhouse Bay/Great North Road	-	57	57	**66**	**16%**	-
75	Stanley Street/Grafton Road	-	36	49	**47**	**-4%**	-
19	Ellerslie Panmure Highway/Lunn Ave	52	42	31	**44**	**42%**	-15%
4	Patiki/Rosebank Road	37	34	38	**38**	**0%**	3%
74	Apirana Avenue/Pilkington/Movementoli Road	-	22	12	**30**	**150%**	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	**28**	**-**	-
18	Great South Road/High St/Atkinson/Park Ave	38	30	21	**25**	**19%**	-34%
15	Richardson/Maioro Street	-	-	8	**14**	**75%**	-
76	Waikaraka Cycleway	-	13	18	**7**	**-61%**	-
	Average per site (19 sites since 2007)	**142**	**128**	**116**	**159**	**37%**	12%
	Total (19 sites since 2007)	**2697**	**2438**	**2198**	**3024**	**38%**	12%
	Average per site (27 sites in 2009, 28 sites in 2010)	**-**	**-**	**96**	**128**	**33%**	**96**
	Total (27 sites in 2009, 28 sites in 2010)	**-**	**-**	**2598**	**3594**	**38%**	**2598**

- Morning cyclist characteristics this year are similar to those reported in 2009. In particular, 94 per cent of cyclists this year are adults (unchanged from 2009). Of the 28 locations monitored, the Keith Hay Park/Somerset Rd/ Bridge site has the greatest share of morning cyclists who are school children (75 per cent).
- Almost all cyclists are wearing a helmet (93 per cent in 2010, stable from 2009). Helmet wearing is least likely to occur at the Ferry Terminal (31 per cent).
- Riding on the road is still most common (66 per cent, stable from 69 per cent last year). *Note that in 2009 riding on the road has been split into riding on the road and riding on the off-road cycleway for some sites; therefore results with previous years are not directly comparable.* The Stanley Street site has the highest incidence of morning cyclists riding on the footpath (51 per cent).

Table 1.3: Summary of Morning Cyclist Characteristics 2006 -2010 (%)

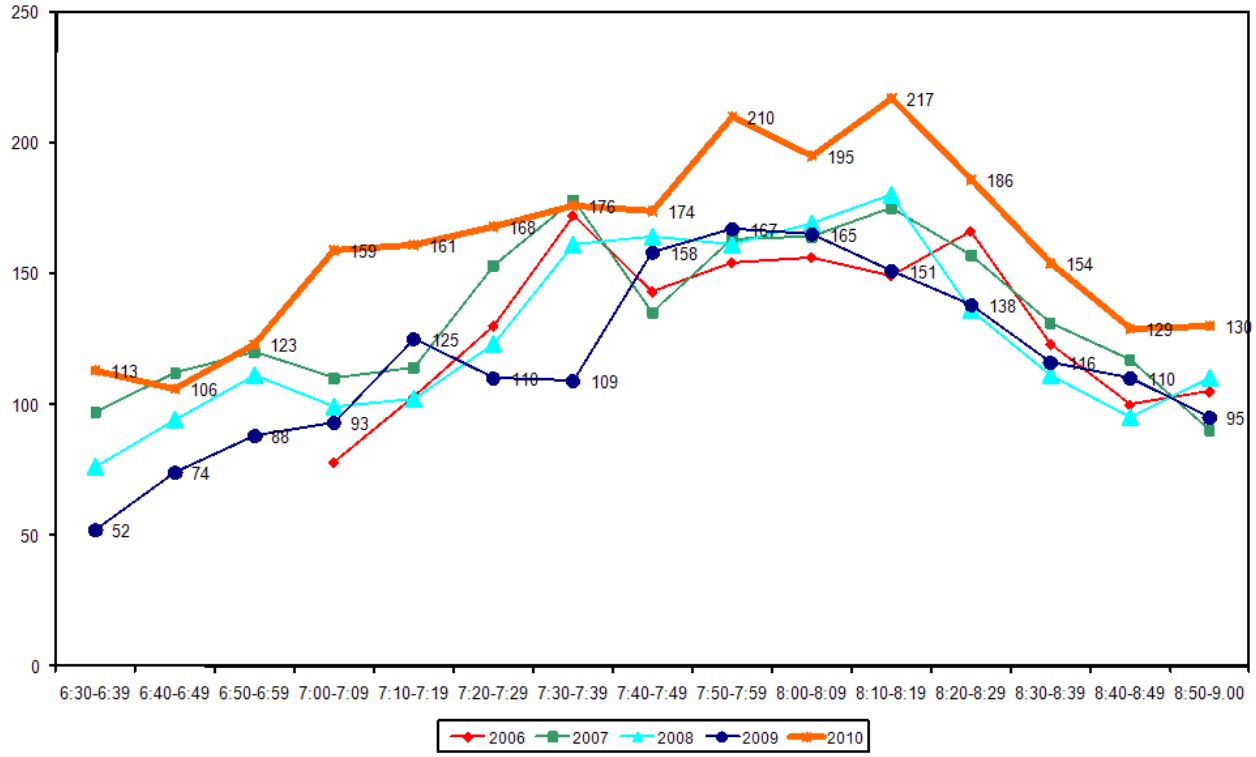
	2006	***2007***	***2008***	***2009***	***2010***	**Change 09-10**
Cyclist Type						
Adult	96%	93%	92%	94%	94%	0%
School child	4%	7%	8%	6%	6%	0%
Helmet Wearing						
Helmet on head	94%	95%	93%	94%	93%	-1%
No helmet	6%	5%	7%	6%	7%	1%
Where Riding*						
Road	80%	86%	88%	69%	66%	-3%
Footpath	20%	14%	12%	12%	16%	4%
Off-road cycleway[9]	-	-	-	19%	18%	-1%
Base:	***1579***	***2867***	***2710***	***2598***	***3594***	

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

[9] *In 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

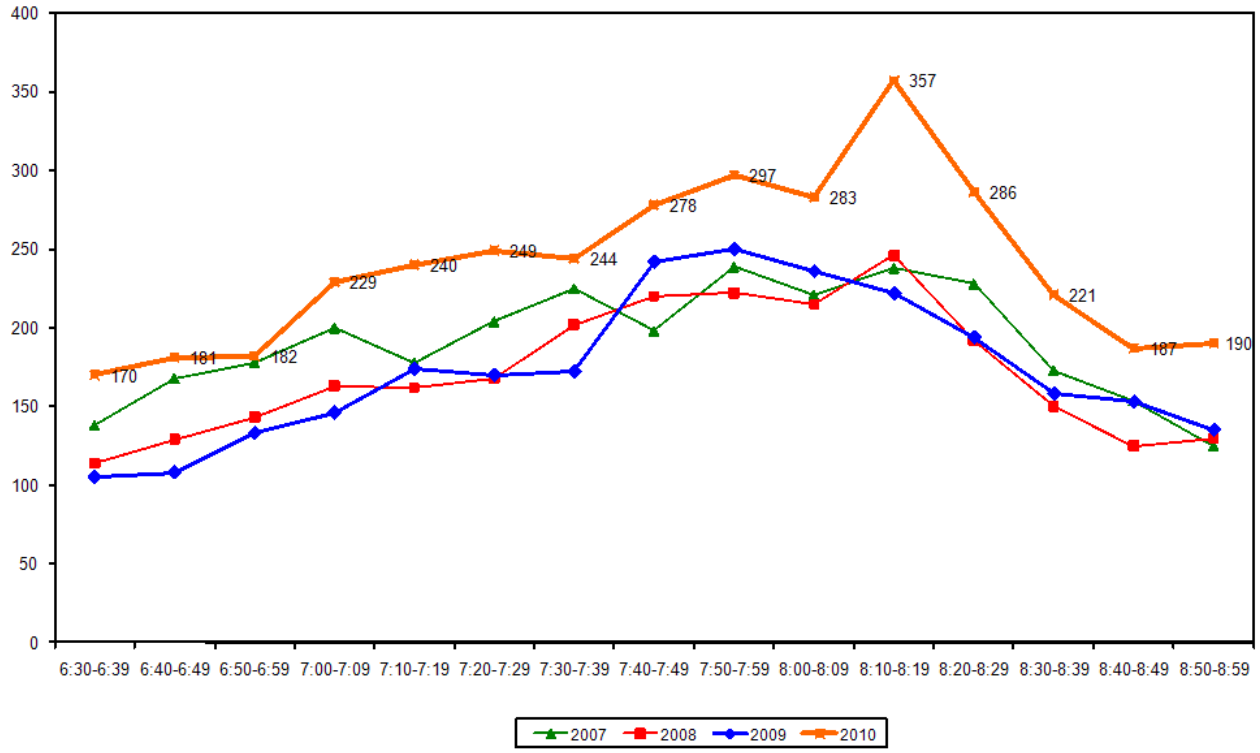
- Figure 1.1 illustrates the total number of morning cyclists by time of movement at the 12 sites monitored since 2005. The graph shows a peak in cycle volumes between 7:50am and 8:19am, with 210, 195, and 217 movements reported in each ten minute interval respectively. This is fairly consistent with the overall patterns reported in previous years.

Figure 1.1: Total Cyclist Frequency Of 12 Sites – Morning Peak 2006 - 2010



- Figure 1.2 shows the overall pattern of morning cyclist volumes recorded from the 28 sites monitored in 2010. Morning cyclist numbers follow a steady increasing trend from 6:30am to a peak between 8:10am and 8:19am (357 cyclists) after which the numbers of movements decline gradually over the remainder of the morning period. *Note one new site was monitored in 2010.*

Figure 1.2: Total Cyclist Frequency Of 28 Sites – Morning Peak 2007-2010



1.5 Evening Peak Summary Results

Environmental Conditions

- All sites had fine weather throughout the evening shift.
- All sites had no road works or accidents that may have affected cycle counts.

Key Points

- A total of 1,715 cyclist movements were recorded across the 12 previously monitored sites in the evening peak period (between 4:00pm and 6:00pm) in 2010. This represents a 34 per cent increase on the 2009 result (1,281 movements) and a 42 per cent increase when compared with 2001 result (1,204). These increases are statistically significant – that is, the increase falls outside the margin of error at the 95% confidence interval.
- All of the twelve sites have recorded increases in cyclist numbers this year compared with 2009. The most notable increases are reported at Ponsonby/K/Newton/Great North Road (up 58 per cent) and North Western Cycleway/Great North Road (up 55 per cent).

Table 1.4: Summary Of Evening Cyclist Movements
2001 -2010 (n) – 4.00 to 6.00 pm

Locations	***2001***	***2002***	***2003***	***2004***	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	**Change 09-10**	**Change 01-10**
Tamaki/The Strand	175	157	235	116	199	120	260	215	203	**298**	**47%**	70%
Symonds/K/Grafton	242	221	256	205	202	258	248	255	216	**254**	**18%**	5%
Ponsonby/K/Newton/Great North	154	122	175	154	136	117	172	140	139	**219**	**58%**	42%
Karangahape/Queen	156	143	177	168	142	120	180	145	156	**208**	**33%**	33%
North Western Cycleway/Great North Road^	-	-	-	-	112	94	86	141	107	**166**	**55%**	-
North Western Cycleway/St Lukes	79	58	66	87	108	80	122	115	117	**145**	**24%**	84%
Great North/Carrington/ Pt Chevalier	92	93	104	43	65	45	84	83	77	**112**	**45%**	22%
Manukau Road/Greenlane West	65	48	66	60	55	56	87	68	71	**85**	**20%**	31%
Dominion/Balmoral	82	58	75	73	74	64	88	83	68	**75**	**10%**	-9%
Remuera/Orakei/Ascot	72	53	51	49	73	32	58	56	55	**62**	**13%**	-14%
Victoria/Wellesley/Halsey	51	63	49	36	63	33	60	52	41	**54**	**32%**	6%
Patiki/Rosebank	36	21	19	20	38	31	34	35	31	**37**	**19%**	3%
Total	**1204**	**1037**	**1273**	**1011**	**1267**	**1050**	**1479**	**1388**	**1281**	**1715**	**34%**	42%

^ *Note: North Western Cycleway/Great North Road was firstly monitored in 2005.*

- A total of 3,796 cyclist movements were recorded across the 28 sites in the evening peak period (between 4:00pm and 7:00pm) in 2010. One per cent (n=43) of the total cycle movements in the evening peak were made by those cycling in groups.
- Of the 28 Auckland city sites, the volume of cyclists is lowest at the Richardson/Maioro Street and Keith Hay Park/Somerset Road sites in the evening (25 cycle movements recorded respectively), whereas the Tamaki Drive/The Strand intersection continues to be the busiest in terms of evening cyclists' activity, with 438 movements recorded.
- Twenty-six sites recorded increases this year compared to 2009. The most notable increases are at:
  - Richardson/Maioro Street – up 92 per cent;
  - Ferry Terminal – up 77 per cent;
  - North Western Cycleway/Great North Road – up 71 per cent; and
  - Great North/Carrington Road – up 71 per cent.
- The only site recording a decline is at Stanley Street/Grafton Road (down 2 per cent from last year).
- Of the 19 Auckland city sites monitored since 2007, the total volume of evening cyclists has increased – from 2,253 in 2009 to 3,202 in 2010, an increase of 42 per cent. This increase is statistically significant – that is, the increase falls outside the margin of error at the 95% confidence interval.
- The average volume of evening cyclist movements across the 19 sites in Auckland city is 169 cycle movements. This compares with 119 movements in 2009. The average volume of evening cycle movements across all 28 sites monitored in 2010 is 136.

Table 1.5: Summary Of Evening Cyclist Movements (28 Auckland city sites) 2007-2010 (n) – 4.00 to 7.00 pm

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	Change 09-10	Change 07-10
10	Tamaki Drive/The Strand	420	370	282	**438**	**55%**	4%
2	Ponsonby/Karangahape Road	261	216	194	**317**	**63%**	21%
8	Symonds Street/Karangahape Road	349	336	282	**314**	**11%**	-10%
9	Karangahape Road/Queen Street	261	212	221	**310**	**40%**	19%
6	Northwestern Cycleway/Great North Rd	134	213	141	**241**	**71%**	80%
7	North Western Cycleway/St Lukes	172	175	155	**210**	**35%**	22%
22	Ferry Terminal	185	158	111	**197**	**77%**	6%
13	Ian McKinnon/Newton Road	-	-	152	**184**	**21%**	-
3	Great North/Carrington Road	121	136	96	**164**	**71%**	36%
17	Onehunga Harbour Road	156	132	106	**159**	**50%**	2%
12	Manukau Road/Greenlane West	122	113	92	**127**	**38%**	4%
14	Mount Albert/New North Road	81	96	83	**118**	**42%**	46%
5	Dominion/Balmoral Road	123	111	98	**114**	**16%**	-7%
21	Great South Road/Campbell Road/Main Highway	85	61	87	**102**	**17%**	20%
11	Remuera/Orakei Road	109	89	80	**95**	**19%**	-13%
78	Lagoon Drive/Church Crescent	-	-	72	**95**	**32%**	-
1	Victoria/Wellesley Street	90	79	65	**80**	**23%**	-11%
16	Jervois Road/Wallace Street	-	-	51	**79**	**55%**	-
73	Blockhouse Bay/Great North Road	-	60	62	**75**	**21%**	-
20	St Heliers Bay/West Tamaki Road	69	60	47	**72**	**53%**	4%
19	Ellerslie Panmure Highway/Lunn Ave	66	52	51	**56**	**10%**	-15%
4	Patiki/Rosebank Road	45	45	34	**52**	**53%**	16%
75	Stanley Street/Grafton Road	-	29	47	**46**	**-2%**	-
18	Great South Road/High St/Atkinson/Park Ave	46	30	28	**36**	**29%**	-22%
76	Waikaraka Cycle Way	-	41	33	**35**	**6%**	-
74	Apirana Avenue/Pilkington/Movementoli Road	-	39	20	**30**	**50%**	-
15	Richardson/Maioro Street	-	-	13	**25**	**92%**	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	**25**	**-**	-
	Average per site (19 sites since 2007)	**152**	**141**	**119**	**169**	**42%**	11%
	Total (19 sites since 2007)	**2895**	**2684**	**2253**	**3202**	**42%**	11%
	Average per site (27 sites in 2009, 28 sites in 2010)	**-**	**-**	**100**	**136**	**36%**	-
	Total (27 sites in 2009, 28 sites in 2010)	**-**	**-**	**2703**	**3796**	**40%**	-

Table 1.6 shows the percentage change in cyclist movements from morning to evening at each site monitored in Auckland city.

Note that there are three hours for the evening monitoring period compared with 2.5 hours in the morning. To enable the morning and evening cyclist volumes to be fairly compared, a scale factor has been applied so that the count numbers for both periods are based on the same length of time (2.5 hours). However, the limitation of this approach is that it does not take into account the variation in cycle movement numbers that exist over the course of a shift (as illustrated in Figures 1.1 and 1.3); rather, the number of cycle movements is assumed to be consistent throughout the monitoring period. Consequently, the results presented in Table 1.6 should be considered indicative only.

- Overall, the number of evening cycle movements across the 28 sites decreases by 12 per cent from the number recorded in the morning shift.
- Ten of the sites have the evening cycle volume greater than the morning cycle volume. The most notable increases between the morning and evening peak are reported at:
  - Waikaraka Cycle Way – up 314 per cent;
  - Richardson/Maioro Street – up 50 per cent; and
  - Onehunga Harbour Road – up 36 per cent.

- In contrast, the number of evening cyclists recorded at 18 sites is lower than in the morning peak. The most notable decrease are:
  - Remuera/Orakei Road – down 47 per cent; and
  - St Heliers Bay/West Tamaki Road – down 39 per cent.

Table 1.6: Summary Of Change in Cyclist Movements from Morning to Evening 2010 (%)

Site Number	*Locations*	*AM*	*PM*[10]	Change
76	Waikaraka Cycle Way	7	29	314%
15	Richardson/Maioro Street	14	21	50%
17	Onehunga Harbour Road	98	133	36%
21	Great South Road/Campbell Road/Main Highway	69	85	23%
18	Great South Road/High St/Atkinson/Park Ave	25	30	20%
4	Patiki/Rosebank Road	38	43	13%
2	Ponsonby/Karangahape Road	242	264	9%
14	Mount Albert/New North Road	91	98	8%
19	Ellerslie Panmure Highway/Lunn Ave	44	47	7%
5	Dominion/Balmoral Road	91	95	4%
9	Karangahape Road/Queen Street	272	258	-5%
73	Blockhouse Bay/Great North Road	66	63	-5%
8	Symonds Street/Karangahape Road	283	262	-7%
3	Great North/Carrington Road	150	137	-9%
22	Ferry Terminal	198	164	-17%
74	Apirana Avenue/Pilkington/Movementoli Road	30	25	-17%
6	North Western Cycleway/Great North Road	244	201	-18%
12	Manukau Road/Greenlane West	130	106	-18%
1	Victoria/Wellesley Street	82	67	-18%
13	Ian McKinnon/Newton Road	190	153	-19%
75	Stanley Street/Grafton Road	47	38	-19%
7	North Western Cycleway/St Lukes	222	175	-21%
78	Lagoon Drive/Church Crescent	100	79	-21%
16	Jervois Road/Wallace Street	88	66	-25%
88	Keith Hay Park/Somerset Rd/ Bridge	28	21	-25%
10	Tamaki Drive/The Strand	498	365	-27%
20	St Heliers Bay/West Tamaki Road	98	60	-39%
11	Remuera/Orakei Road	149	79	-47%
	Total	**3594**	**3164**	**-12%**

[10] A scale factor of 5/6 has been applied to reduce the evening cyclist volumes to a 2.5 hour interval, consistent with the morning monitoring period

- Evening cyclist characteristics this year are similar to those reported in 2010. In particular, 96 per cent of evening cyclists this year are adults (unchanged from 2009). Of the 28 sites in Auckland city, in the evening, the site at Keith Hay Park/Somerset Rd/Bridge has the highest proportion of cyclists who are school children (28 per cent).
- Most cyclists are wearing a helmet in the evening (90 per cent, stable from 91 per cent in 2009). The site at Great South Road/High Street/Atkinson/Park Avenue has the highest proportion of cyclists not wearing a helmet (31 per cent).
- The majority of evening cyclists are riding on the road (61 per cent, stable from 60 per cent in 2009). Footpath riders are most common at the intersection of Stanley Street and Grafton Road (43 per cent).

Table 1.7: Summary of Evening Cyclist Characteristics 2006 -2010 (%)

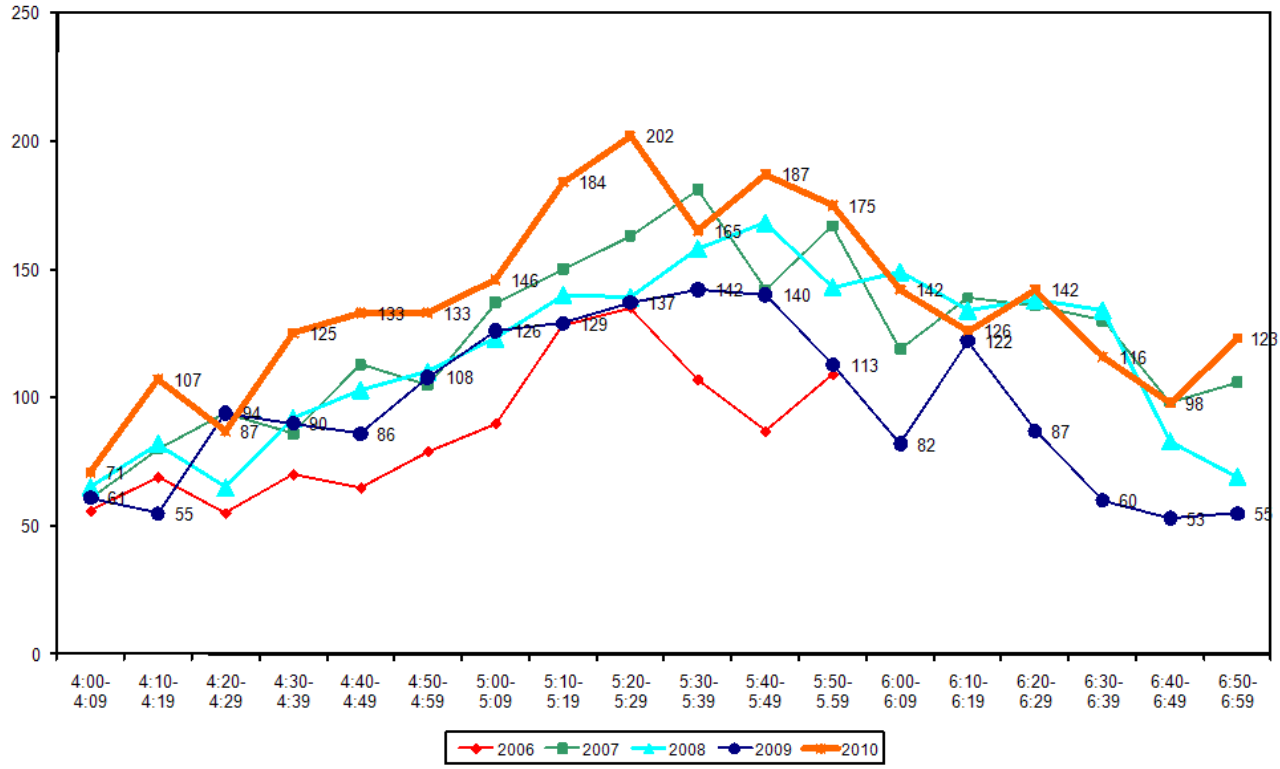
	2006	***2007***	***2008***	***2009***	***2010***	**Change 09-10**
Cyclist Type						
Adult	99%	96%	94%	96%	96%	0%
School child	1%	4%	6%	4%	4%	0%
Helmet Wearing						
Helmet on head	93%	89%	90%	91%	90%	-1%
No helmet	7%	11%	10%	9%	10%	1%
Where Riding*						
Road	78%	83%	87%	60%	61%	1%
Footpath	22%	17%	13%	17%	20%	3%
Off-road cycleway[11]	-	-	-	23%	19%	-4%
Base:	***1050***	***3093***	***3059***	***2703***	***3796***	

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

[11] *In 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

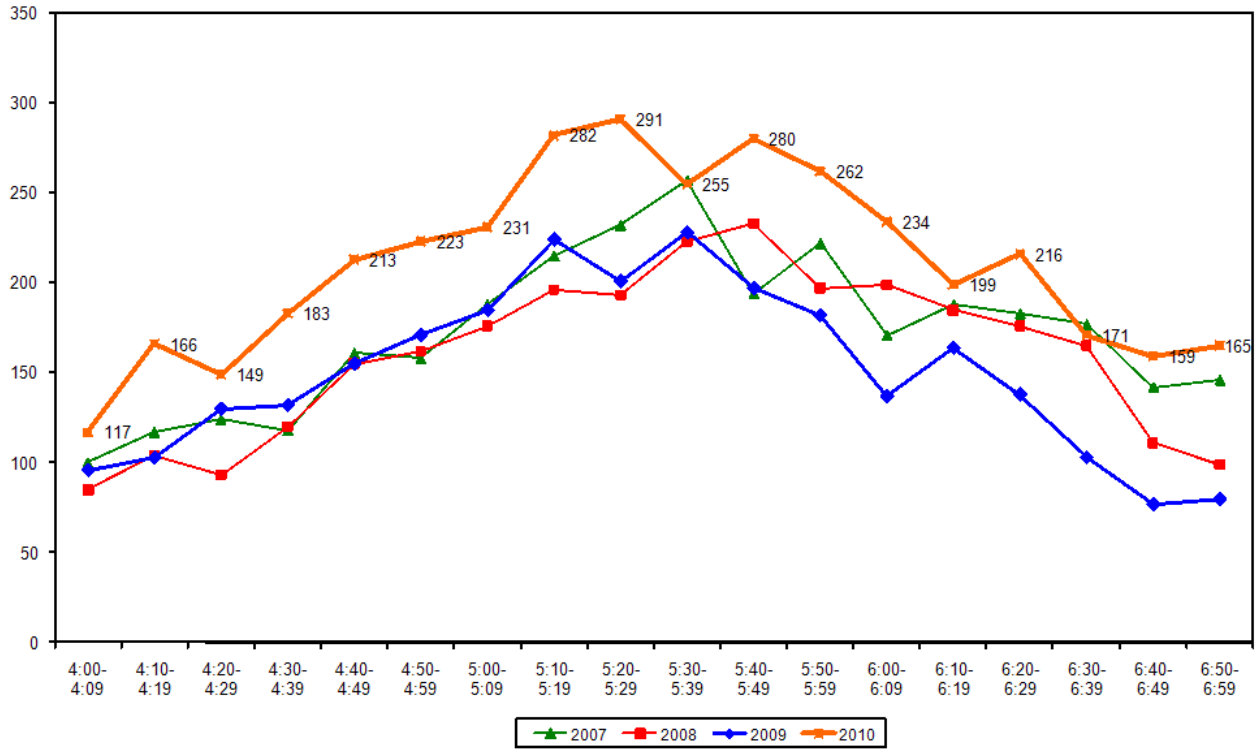
- The overall pattern of cyclist volumes by time of movement in the evening is similar to the pattern noted in previous years. Evening cyclist numbers grow steadily over the monitoring period until a peak between 5:20pm and 5:29pm (202 movements) and again between 5.40pm and 5.49pm (187 movements) after which the number of movements declines.

Figure 1.3: Total Cyclist Frequency Of 12 Sites – Evening Peak 2006 - 2010



- The overall pattern of evening cyclist volumes derived from the 28 Auckland sites is illustrated in Figure 1.4. Consistent with the overall trend in the morning peak, evening cyclist numbers start off relatively low, increase gradually to peaks at around 5:15pm (282 movements), 5:25pm (291 movements), and 5:45pm (280 movements), then tail off through to the end. *Note one new site was monitored in 2010.*

Figure 1.4: Total Cyclist Frequency Of 27 Sites – Evening Peak 2007-2010



1.6 Aggregated Total Summary Results

- A total of 3,774 cyclist movements were recorded across the 12 previously monitored sites in 2010. This represents a 34 per cent increase when compared with 2009 (2,818 movements) and a 54 per cent increase when compared with 2001 (2,456). These increases are statistically significant – that is, the increases fall outside the margin of error at the 95% confidence interval.
- As has traditionally been the case, more cyclists were recorded over the morning period (2,059 movements) than over the evening period (1,715 movements). The difference is consistent with last year, with 55 per cent of total movements being recorded in the morning period.
- Of the 12 sites, the busiest site this year is the intersection of Tamaki Drive/The Strand with a total of 704 movements (up from 456 movements in 2009).
- Consistent with last year, Patiki/Rosebank Road has the lightest cyclist traffic (70 movements).
- All sites have recorded increases in total cyclist numbers this year compared with 2009. The intersections with the biggest increases are:
  - Tamaki/The Strand – up 54 per cent;
  - Great North/Carrington/Pt Chevalier – up 53 per cent;
  - Ponsonby/K/Newton/Great North – up 46 per cent;
  - North Western Cycleway/St Lukes – up 45 per cent: and
  - North Western Cycleway/Great North Road – up 42 per cent.

Table 1.8: Summary Of Total Cyclist Movements
2001 -2010 (n) – 7.00 to 9.00 am & 4.00 to 6.00 pm

Locations	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10	Change 01-10
Tamaki/The Strand	325	314	459	241	460	402	611	528	456	**704**	**54%**	117%
Symonds/K/Grafton	495	480	514	407	433	529	503	513	436	**501**	**15%**	1%
Karangahape/Queen	356	340	398	377	345	331	400	334	374	**447**	**20%**	26%
Ponsonby/K/Newton/Great North	292	235	319	331	291	257	372	320	300	**438**	**46%**	50%
North Westerm Cycleway/St Lukes	149	133	154	182	238	213	261	259	260	**378**	**45%**	154%
North Western Cycleway/Great North Road	-	-	-	-	221	221	172	284	236	**336**	**42%**	-
Great North/Carrington/Pt Chevalier	201	176	190	113	122	121	185	167	161	**247**	**53%**	23%
Manukau Road/Greenlane West	146	100	145	126	147	145	167	141	146	**199**	**36%**	36%
Remuera/Orakei/Ascot	143	100	115	95	151	105	120	123	145	**170**	**17%**	19%
Dominion/Balmoral	175	133	150	149	168	156	192	167	146	**158**	**8%**	-10%
Victoria/Wellesley/Halsey	111	118	102	69	119	84	120	102	95	**126**	**33%**	14%
Patiki/Rosebank	63	48	44	37	65	65	63	61	63	**70**	**11%**	11%
Total	**2456**	**2177**	**2590**	**2127**	**2760**	**2629**	**3166**	**2999**	**2818**	**3774**	**34%**	**54%**

^ *Note: North Western Cycleway/Great North Road was firstly monitored in 2005.*

- Overall, a total of 7,390 cyclist movements were recorded across the 28 sites monitored in 2010 - 3 per cent (n=248) observed as cycling in groups. The number of evening cyclists comprises a slightly larger share (57 per cent) of the total number of cycle movements than the morning cyclists (43 per cent). *Note that the monitoring period for the evening peak is 30 minutes longer than the morning shift.*
- The average number of cycle movements for the 19 sites monitored since 2007 is 328, an increase of 40 per cent from last year. This increase is statistically significant at the 95% confidence interval.
- Of the 28 sites in Auckland city, the busiest site continues to be Tamaki/The Strand with a total of 936 movements, while Richardson/Maioro Street has the fewest number of cyclists (39 movements).

Table 1.9: Summary Of Total Cyclist Movements (28 Auckland city sites) 2007-2010 (n) – 6.30 to 9.00 am & 4.00 to 7.00 pm

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**	**Change 07-10**
10	Tamaki Drive/The Strand	900	786	603	**936**	**55%**	4%
8	Symonds Street/Karangahape Road	639	621	528	**597**	**13%**	-7%
9	Karangahape Road/Queen Street	507	424	459	**582**	**27%**	15%
2	Ponsonby/Karangahape Road	487	415	370	**559**	**51%**	15%
6	North Western Cycleway/Great North Road	232	369	286	**485**	**70%**	109%
7	North Western Cycleway/St Lukes	324	331	310	**432**	**39%**	33%
22	Ferry Terminal	380	316	248	**395**	**59%**	4%
13	Ian McKinnon/Newton Road	-	-	291	**374**	**29%**	-
3	Great North/Carrington Road	235	231	193	**314**	**63%**	34%
12	Manukau Road/Greenlane West	225	205	176	**257**	**46%**	14%
17	Onehunga Harbour Road	249	220	180	**257**	**43%**	3%
11	Remuera/Orakei Road	195	189	187	**244**	**30%**	25%
14	Mount Albert/New North Road	156	164	142	**209**	**47%**	34%
5	Dominion/Balmoral Road	237	201	183	**205**	**12%**	-14%
78	Lagoon Drive/Church Crescent	-	-	129	**195**	**51%**	-
21	Great South Road/Campbell Road/Main Highway	174	114	151	**171**	**13%**	-2%
20	St Heliers Bay/West Tamaki Road	208	167	108	**170**	**57%**	-18%
16	Jervois Road/Wallace Street	-	-	111	**167**	**50%**	-
1	Victoria/Wellesley Street	160	136	124	**162**	**31%**	1%
73	Blockhouse Bay/Great North Road	-	117	119	**141**	**18%**	-
19	Ellerslie Panmure Highway/Lunn Ave	118	94	82	**100**	**22%**	-15%
75	Stanley Street/Grafton Road	-	65	96	**93**	**-3%**	-
4	Patiki/Rosebank Road	82	79	72	**90**	**25%**	10%
18	Great South Road/High St/Atkinson/Park Ave	84	60	49	**61**	**24%**	-27%
74	Apirana Avenue/Pilkington/Movementoli Road	-	61	32	**60**	**88%**	-
88	Keith Hay Park/Somerset Rd/ Bridge		-	-	**53**	**-**	-
76	Waikaraka Cycle Way	-	54	51	**42**	**-18%**	-
15	Richardson/Maioro Street	-	-	21	**39**	**86%**	-
	Average per site (19 sites since 2007)	**294**	**270**	**234**	**328**	**40%**	12%
	Total (19 sites since 2007)	**5592**	**5122**	**4451**	**6226**	**40%**	11%
	Average per site (27 sites in 2009, 28 sites in 2010)	**-**	**-**	**196**	**264**	**35%**	-
	Total (27 sites in 2009, 28 sites in 2010)	**-**	**-**	**5301**	**7390**	**39%**	-

- Overall, cyclist characteristics this year are similar to those reported in 2009. In particular, 95 per cent of evening cyclists this year are adults (unchanged from 2009).
- Most cyclists are wearing a helmet (91 per cent, stable from 92 per cent in 2009).
- The majority of cyclists are riding on the road (64 per cent unchanged from 2009). Approximately one in five are riding on the off-road cycleways (18 per cent, down from 21 per cent), with the remaining 18 per cent riding on the footpath.

Table 1.10: Summary of Total Cyclist Characteristics 2006 -2010 (%)

	2006	***2007***	***2008***	***2009***	***2010***	**Change 09-10**
Cyclist Type						
Adult	97%	94%	93%	95%	95%	0%
School child	3%	6%	7%	5%	5%	0%
Helmet Wearing						
Helmet on head	94%	92%	91%	92%	91%	-1%
No helmet	6%	8%	9%	8%	9%	1%
Where Riding*						
Road	80%	84%	87%	64%	64%	0%
Footpath	20%	16%	13%	15%	18%	3%
Off-road cycleway[12]	-	-	-	21%	18%	-3%
Base:	***2629***	***5960***	***5769***	***5301***	***7390***	

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

[12] *In 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

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 1.11 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at Tamaki Drive/The Strand (1365 daily movements, up from 880 movements in 2009) and the lowest is at Richardson/Maioro Street (56 daily movements).
- Almost all sites (25 out of 28) have recorded increases in total AADT estimates this year compared with 2009. The intersections with the biggest increases are:
  - Apirana Avenue/Pilkington/Movementoli Road – up 89 per cent; and
  - Richardson/Maioro Street – up 87 per cent.
- In contrast, the number of total cyclists recorded at two sites is lower than last year:
  - Waikaraka Cycleway – down 19 per cent; and
  - Stanley Street/Grafton Road – down 4 per cent.

Table 1.11: AADT Estimates Based on Morning and Evening Cyclist Movements 2007-2010 (n)

Site Number	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	09-10 Change	07-10 Change
10	Tamaki Drive/The Strand	1313	1146	880	**1365**	**55%**	4%
8	Symonds Street/Karangahape Road	924	899	765	**865**	**13%**	-6%
9	Karangahape Road/Queen Street	736	616	669	**843**	**26%**	15%
2	Ponsonby/Karangahape Road	705	602	536	**807**	**51%**	14%
6	North Western Cycleway/Great North Road	335	532	416	**705**	**69%**	110%
7	North Western Cycleway/St Lukes	469	480	451	**629**	**39%**	34%
22	Ferry Terminal	553	459	363	**574**	**58%**	4%
13	Ian McKinnon/Newton Road	-	-	422	**544**	**29%**	-
3	Great North/Carrington Road	341	333	281	**455**	**62%**	33%
12	Manukau Road/Greenlane West	326	296	255	**374**	**47%**	15%
17	Onehunga Harbour Road	357	316	259	**369**	**42%**	3%
11	Remuera/Orakei Road	282	276	274	**359**	**31%**	27%
14	Mount Albert/New North Road	226	236	205	**302**	**47%**	34%
5	Dominion/Balmoral Road	344	291	265	**296**	**12%**	-14%
78	Lagoon Drive/Church Crescent	-	-	186	**284**	**53%**	-
20	St Heliers Bay/West Tamaki Road	308	246	158	**249**	**58%**	-19%
21	Great South Road/Campbell Road/Main Highway	253	165	218	**246**	**13%**	-3%
16	Jervois Road/Wallace Street	-	-	162	**243**	**50%**	-
1	Victoria/Wellesley Street	231	201	180	**236**	**31%**	2%
73	Blockhouse Bay/Great North Road	-	170	173	**204**	**18%**	-
19	Ellerslie Panmure Highway/Lunn Ave	170	136	118	**144**	**22%**	-15%
75	Stanley Street/Grafton Road	-	95	140	**135**	**-4%**	-
4	Patiki/Rosebank Road	119	114	105	**130**	**24%**	9%
18	Great South Road/High St/Atkinson/Park Ave	121	87	71	**88**	**24%**	-27%
74	Apirana Avenue/Pilkington/Movementoli Road	-	87	46	**87**	**89%**	-
88	Keith Hay Park/Somerset Rd/ Bridge	-	-	-	**77**	**-**	-
76	Waikaraka Cycle Way	-	76	73	**59**	**-19%**	-
15	Richardson/Maioro Street	-	-	30	**56**	**87%**	-

1.8 School Bike Shed Count Summary

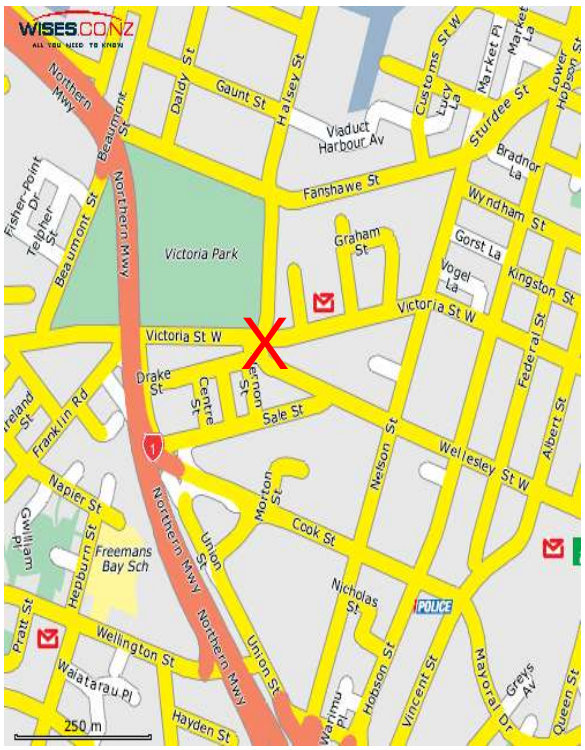
Key Points

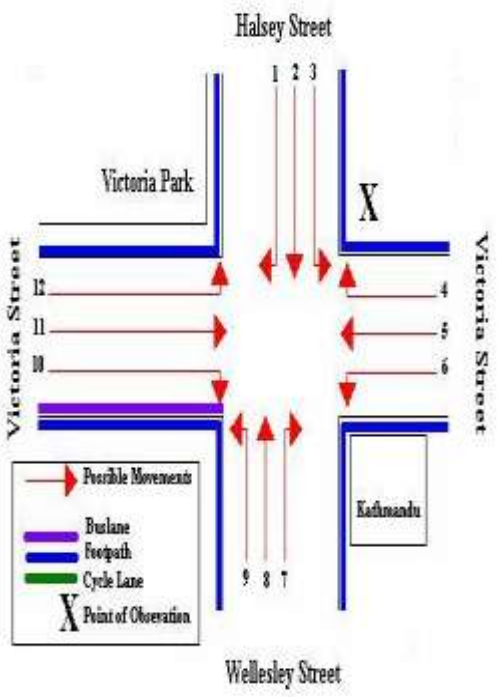
- Of those eligible to cycle, on average, two per cent of students are cycling to their schools. This share is unchanged from two per cent in previous years.
- Across the 39 eligible schools that responded n=576 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 26 per cent of all eligible students currently cycling (up from 17 per cent last year).
- Of the 39 eligible schools that responded, 14 (36 per cent) had no students cycling to school. This compares with 15 (34 per cent) in 2009.
- Rates of cycling to school are highest among intermediate schools (5 per cent, unchanged from 2009), while other levels of schools have fairly constant cycling rates (1 per cent, unchanged from last year).

2. VICTORIA STREET/WELLESLEY STREET/HALSEY STREET (SITE 1)

Figure 2.1 shows the possible cyclist movements at this intersection.

Figure 2.1: Cycle Movements: Victoria/Wellesley/Halsey Street





- The AADT for this site is 236. This compares with:
  - 180 in 2009
  - 201 in 2008
  - 231 in 2007.

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**82**	**80**	**162**

2.1 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 previous years, the volume of morning peak[13] cyclists recorded at the Victoria/Wellesley/Halsey intersection in 2010 has increased (72 movements, up 18 compared with 2009).
- The key route in the morning is east along Victoria Street West turning left into Halsey Street (Movement 12 = 22 cyclists, down 5 cyclists from 2009). Other key routes are continuing towards the city centre (Movement 11 = 13 cyclists) and turning right from Halsey Street to Victoria Street (Movement 1 = 11 cyclists). The findings are consistent with the results from previous years.
- Of the twelve movements possible at this intersection, the most notable increases since last year are at Movements 1 (up 5 cyclists) and 2 (up 6 cyclists). The most notable decrease has been at Movement 12 (down 5 cyclists).

Table 2.1: Morning Cyclist Movements
Victoria/Wellesley/Halsey 2002-2010 (n) - 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	3	10	4	6	9	13	10	6	11	5
2	0	2	5	3	3	0	3	2	8	6
3	1	0	1	1	3	1	3	1	5	4
4	3	0	0	1	0	1	0	3	3	0
5	2	1	0	1	1	2	4	1	3	2
6	1	0	0	1	0	0	0	1	1	0
7	0	0	0	2	0	0	0	0	0	0
8	4	3	0	0	5	1	4	1	4	3
9	1	0	1	2	0	0	1	1	0	-1
10	2	1	1	2	4	2	2	1	2	1
11	12	14	11	19	13	20	10	10	13	3
12	25	22	10	18	13	20	13	27	22	-5
Total	**55**	**53**	**33**	**56**	**51**	**60**	**50**	**54**	**72**	**18**

[13] For consistency with previous years' monitoring, the morning peak is 7.00 to 9.00am. Data for the full monitored period is provided in Table 2.1A.

- Overall, 82 cycle movements were recorded at the Victoria/Wellesley/Halsey Street intersection during the whole monitoring period (from 6:30am to 9:00am). This compares with 59 movements in 2009.

Table 2.1A: Morning Cyclist Movements
Victoria/Wellesley/Halsey 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	16	10	6	11	5
2	0	4	2	10	8
3	2	5	2	5	3
4	1	0	3	3	0
5	3	5	1	5	4
6	0	0	1	1	0
7	0	0	0	0	0
8	1	4	1	4	3
9	0	1	1	0	-1
10	2	2	1	3	2
11	22	13	11	15	4
12	23	13	30	25	-5
Total	**70**	**57**	**59**	**82**	**23**

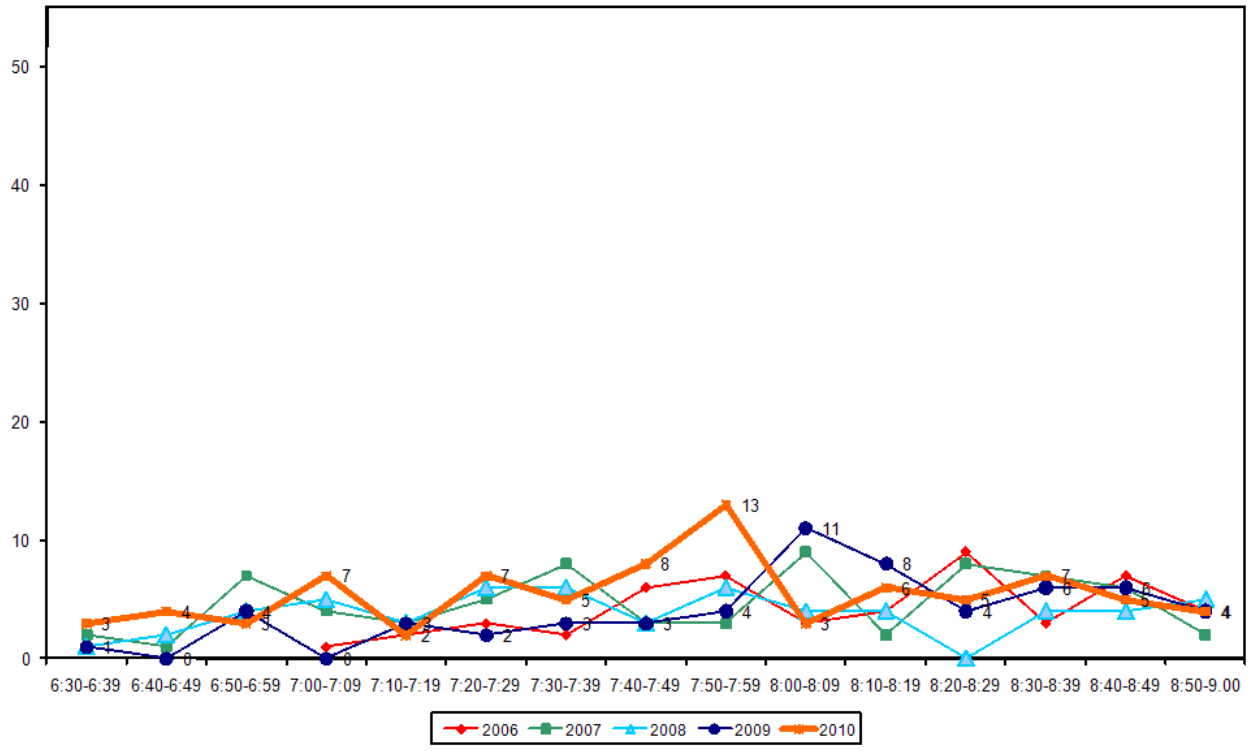
- Only one per cent of cyclists using this site in the morning peak are children (down from 8 per cent in 2009).
- Most cyclists are wearing a helmet (90 per cent, stable from 93 per cent in 2009).
- The majority of cyclists (84 per cent) are riding on the road (stable compared with 83 per cent recorded in the previous year).

Table 2.2: Morning Cyclist Characteristics
Victoria/Wellesley/Halsey 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	100	89	100	100	100	92	99	7
School child	0	11	0	0	0	8	1	-7
Helmet Wearing								
Helmet on head	94	91	96	91	98	93	90	-3
No helmet	6	9	4	9	2	7	10	3
Where Riding								
Road	88	88	100	91	86	83	84	1
Footpath	12	12	0	9	14	17	16	-1
Base:	***33***	***56***	***51***	***70***	***57***	***59***	***82***	

- The volume of morning cycle movements in 2010 peaks slightly between 7:50am and 7:59am (13 moments) – 10 minutes earlier than the peak reported last year.

Figure 2.2: Victoria/Wellesley/Halsey Cyclist Frequency – Morning Peak



2.2 Evening Peak

Environmental Conditions

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

Key Points

- Compared with last year, evening[14] cyclist numbers have increased at this site (54 movements this year compared with 41 in 2009).
- The key movement in the evening is turning right from Halsey Street into Victoria Street (Movement 1 = 22 cyclists).
- Evening cyclist volumes have most notably increased at Movement 1 (up 14 cyclists from 2009).

Table 2.3: Evening Cyclist Movements

Victoria/Wellesley/Halsey 2002-2010 (n) - 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	22	11	8	16	9	19	13	8	22	14
2	3	3	2	1	3	2	4	4	1	-3
3	4	5	2	4	1	0	1	5	1	-4
4	1	2	1	1	2	4	3	1	2	1
5	7	8	6	18	6	15	6	9	9	0
6	1	1	0	1	0	0	0	0	0	0
7	1	1	1	1	1	0	2	0	0	0
8	3	3	1	3	2	1	8	5	8	3
9	4	0	0	4	4	1	1	4	2	-2
10	2	1	0	1	1	2	0	0	0	0
11	7	6	4	4	0	4	5	3	4	1
12	7	8	12	9	4	12	9	2	5	3
Total	**63**	**49**	**36**	**63**	**33**	**60**	**52**	**41**	**54**	**13**

[14] For consistency with previous years' monitoring, the evening peak is 4.00 to 6.00am. Data for the full monitored period is provided in Table 2.3A.

- In total, 80 cycle movements were recorded at this intersection during the evening monitoring period (from 4:00pm to 7:00pm). This compares with 65 movements in 2009.

Table 2.3A: Evening Cyclist Movements
Victoria/Wellesley/Halsey 2007-2010 (n) - 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	25	23	15	26	11
2	3	6	5	2	-3
3	0	1	7	1	-6
4	5	3	3	3	0
5	23	8	11	12	1
6	1	0	0	0	0
7	0	2	0	0	0
8	2	10	6	11	5
9	3	2	4	3	-1
10	4	0	0	0	0
11	5	7	5	9	4
12	19	17	9	13	4
Total	**90**	**79**	**65**	**80**	**15**

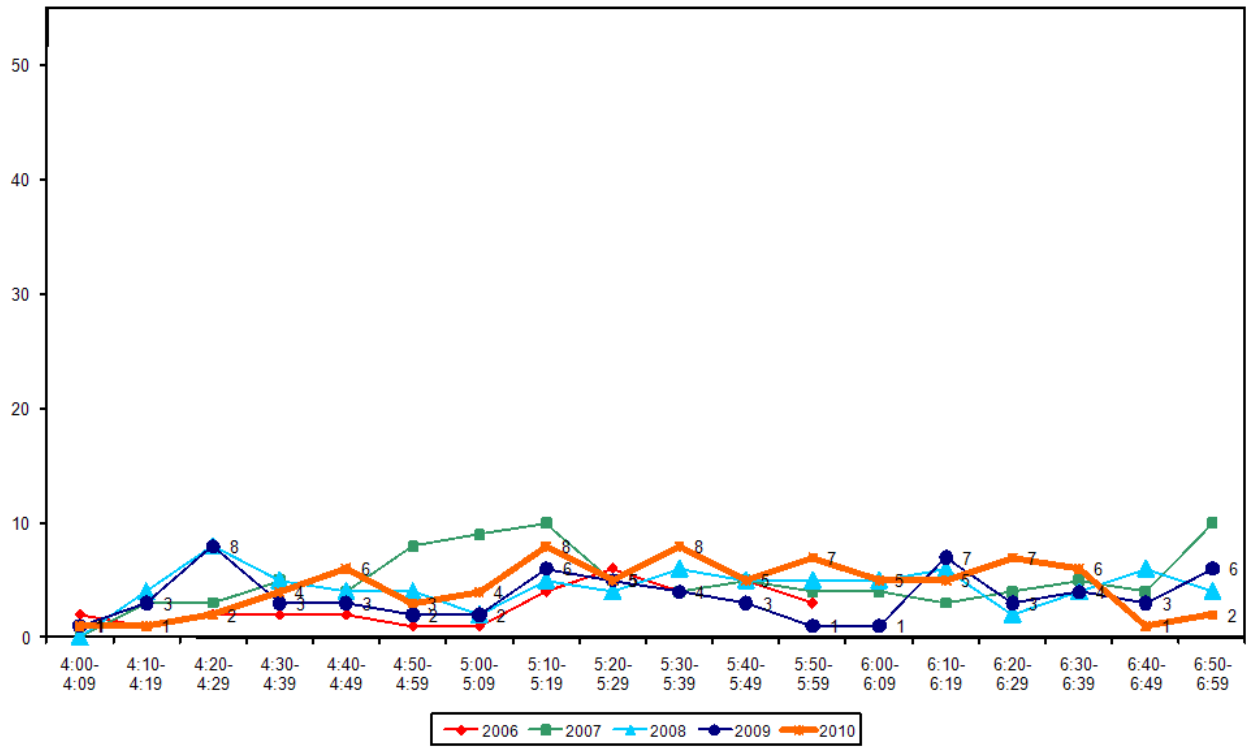
- Over the evening peak, all cyclists using the Victoria/Wellesley/Halsey intersection are adults (100 per cent, stable since 2004).
- Most evening cyclists (81 per cent) at this site are wearing a helmet (stable from 83 per cent in 2009).
- Most cyclists are riding on the road (76 per cent, up slightly from 71 per cent last year).

Table 2.4: Evening Cyclist Characteristics
Victoria/Wellesley/Halsey 2004-2010(%)

	2004	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type							
Adult	100	97	100	99	100	100	0
School child	0	3	0	1	0	0	0
Helmet Wearing							
Helmet on head	86	91	91	96	83	81	-2
No helmet	14	9	9	4	17	19	2
Where Riding							
Road	72	94	87	87	71	76	5
Footpath	18	6	13	13	29	24	-5
Base:	***36***	***33***	***90***	***79***	***65***	***80***	

- A slight peak (8 cyclists) occurs between 5:10pm and 5:19pm and another slight peak occurs between 5:30pm and 5:39pm (8 cyclists). This compares to a slight peak between 4:20pm and 4:29pm in 2009.

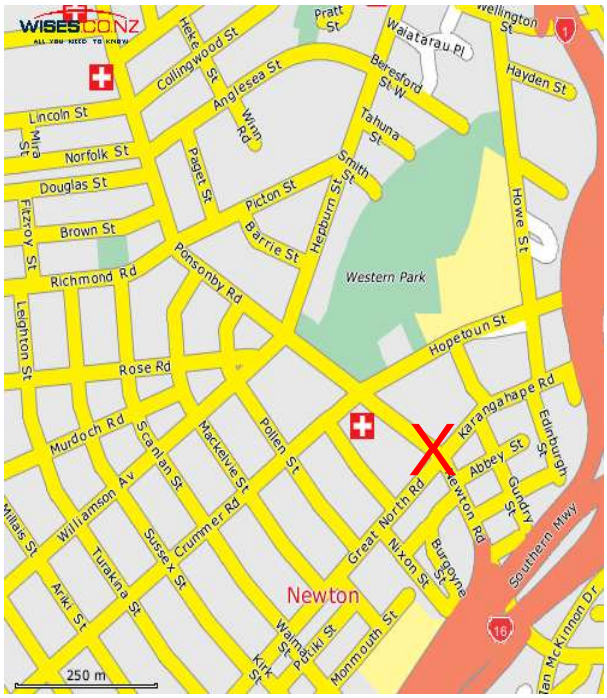
Figure 2.3: Victoria/Wellesley/Halsey Cyclist Frequency – Evening Peak

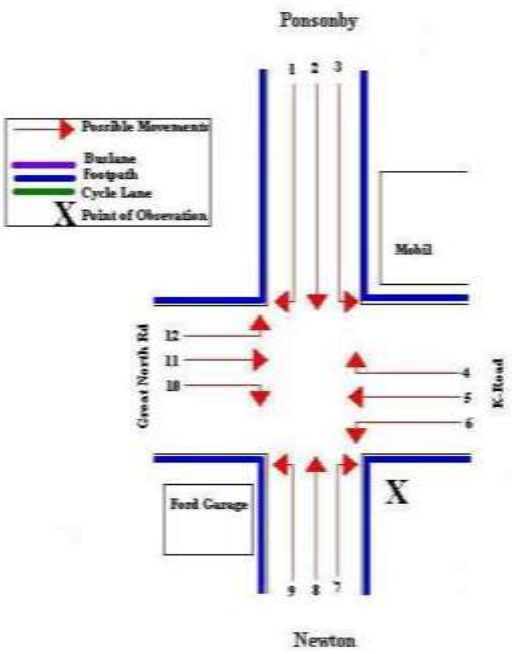


3. PONSONBY/KARANGAHAPE/ NEWTON/GREAT NORTH ROAD, NEWTON (SITE 2)

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Ponsonby/Karangahape/Newton/Great North





- The AADT for this site is 807. This compares with:
  - 536 in 2009
  - 602 in 2008
  - 705 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**242**	**317**	**559**

3.1 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 previous years, the volume of morning peak cyclists recorded at the Ponsonby/Karangahape/Newton/Great North Road intersection in 2010 has increased notably, from 161 in 2009 to 219 movements this year.
- The most common movement at this intersection continues to be straight through from Great North Road into Karangahape Road (Movement 11 = 92 cyclists).
- Morning cyclist volumes at all but one of the possible movements at this site have increased since last year. The most notable increases are at Movement 11 (up 14 cyclists), Movement 12 (also up 14 cyclists) and Movement 8 (up 12 cyclists).

Table 3.1: Morning Cyclist Movements
Ponsonby/Karangahape/Newton/Great North
2002-2010 (n) – 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	1	2	1	6	1	6	5	7	8	1
2	6	6	16	3	9	5	6	7	9	2
3	20	16	22	21	16	23	22	26	31	5
4	6	4	4	10	8	9	13	7	12	5
5	6	3	9	6	7	12	5	4	8	4
6	0	0	0	0	1	2	1	1	1	0
7	3	3	3	6	6	11	5	5	4	-1
8	5	2	7	8	9	11	15	6	18	12
9	2	0	2	1	0	0	2	1	2	1
10	0	2	0	2	2	5	0	0	1	1
11	61	102	92	74	65	95	86	78	92	14
12	3	4	21	18	16	21	20	19	33	14
Total	**113**	**144**	**177**	**155**	**140**	**200**	**180**	**161**	**219**	**58**

- Overall, 242 cycle movements were recorded at the Ponsonby/Karangahape/Newton/ Great North Road intersection during the morning monitoring period (from 6:30am to 9:00am). This has increased notably from 176 movements in 2009.

Table 3.1A: Morning Cyclist Movements
Ponsonby/Karangahape/Newton/Great North
2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	7	6	8	10	2
2	7	6	7	12	5
3	24	22	28	36	8
4	15	15	9	14	5
5	16	9	7	10	3
6	2	1	1	2	1
7	11	5	5	4	-1
8	11	15	7	19	12
9	0	2	1	2	1
10	5	0	0	1	1
11	105	97	84	97	13
12	23	21	19	35	16
Total	**226**	**199**	**176**	**242**	**66**

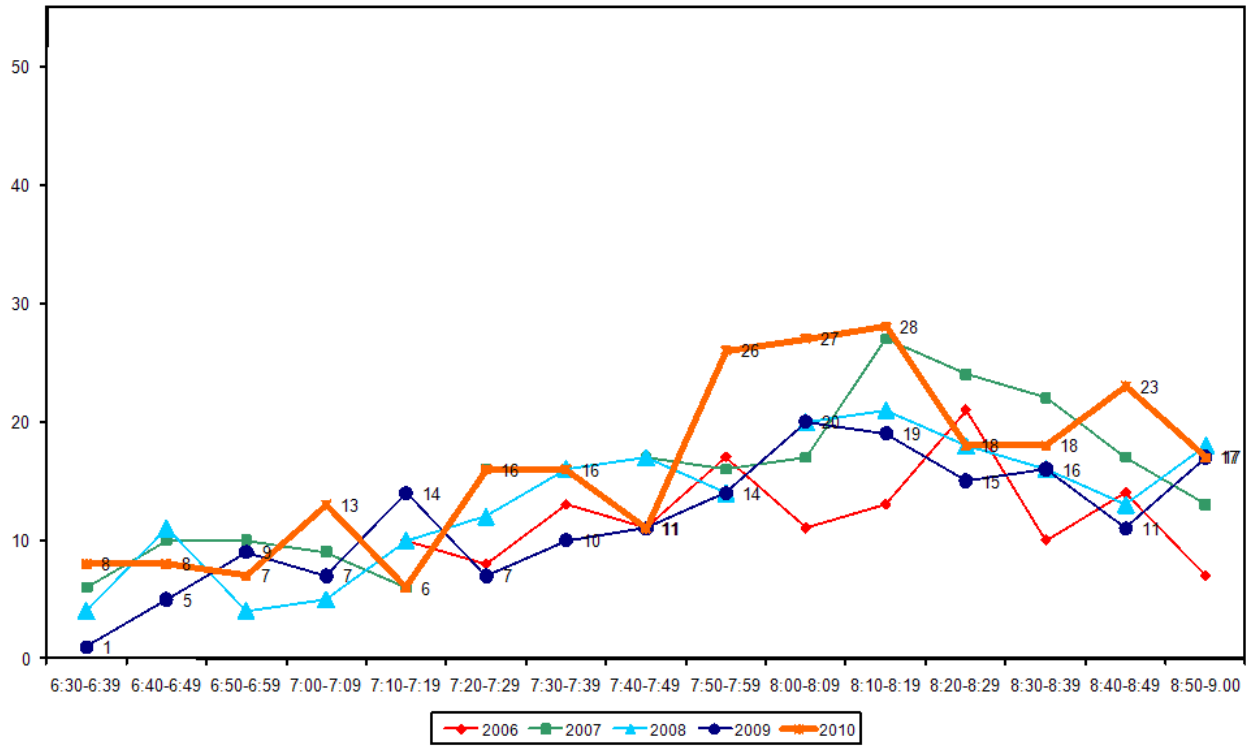
- As in previous years, almost all cyclists using the Ponsonby/Karangahape/Newton/Great North Road intersection are adults (99 per cent, up slightly from 95 per cent last year).
- Most cyclists are wearing a helmet (89 per cent, compared with 91 per cent in 2009).
- Most cyclists at the site are riding on the road (64 per cent, down from 79 per cent in 2009).

Table 3.2: Morning Cyclist Characteristics
Ponsonby/Karangahape/Newton/Great North 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	96	96	100	98	97	95	99	4
School child	4	4	0	2	3	5	1	-4
Helmet Wearing								
Helmet on head	92	92	92	93	92	91	89	-2
No helmet	8	8	8	7	8	9	11	2
Where Riding								
Road	40	89	72	68	91	79	64	-15
Footpath	60	11	28	32	9	21	36	15
Base:	***177***	***155***	***140***	***226***	***199***	***176***	***242***	

- Overall, the pattern of morning cyclist volumes in 2010 follows that of previous years. In particular, morning cycle volumes start off relatively low, peak during the second half of the monitoring period, and then tail off towards the end. This year the main peak occurs between 7:50am and 8:19am (26, 27 and 28 movements per ten minute interval respectively).

Figure 3.2: Ponsonby/Karangahape/Newton/Great North Cyclist Frequency – Morning Peak



Note: In 2010, three cyclists were observed riding as a group at 7.02am. This comprises one per cent of the total cycle movements in the morning peak in 2010.

3.2 Evening Peak

Environmental Conditions

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

Key Points

- Total evening cyclist volumes at the Ponsonby/Karangahape/Newton/Great North Road intersection continue to be high and have increased notably from last year (139 movements in 2009, 219 in 2010).
- The most common movement at this intersection in the evening is straight through from Karangahape Road into Great North Road (Movement 5 = 100 cyclists). This is consistent with previous years.
- The most notable increase in evening cyclist volumes is at Movement 5 (up 43 cyclists from last year).

Table 3.3: Evening Cyclist Movements
Ponsonby/Karangahape/Newton/Great North
2002-2010 (n) – 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	4	17	14	14	10	29	10	17	16	-1
2	8	8	10	8	9	11	12	7	15	8
3	8	7	12	9	3	9	7	11	11	0
4	27	32	28	19	22	18	14	22	32	10
5	57	82	61	64	54	69	70	57	100	43
6	4	3	1	0	2	6	1	5	9	4
7	0	2	0	2	0	1	0	1	2	1
8	1	9	10	5	3	5	5	6	9	3
9	1	0	0	2	1	1	0	1	0	-1
10	0	4	0	0	0	0	0	1	0	-1
11	9	9	13	11	11	16	14	6	21	15
12	3	2	5	2	2	7	7	5	4	-1
Total	**122**	**175**	**154**	**136**	**117**	**172**	**140**	**139**	**219**	**80**

- In total, 317 cycle movements were recorded at this intersection during the evening monitoring period (from 4:00pm to 7:00pm). This compares with 194 movements in 2009.

Table 3.3A: Evening Cyclist Movements
Ponsonby/Karangahape/Newton/Great North
2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	38	18	23	19	-4
2	14	20	7	21	14
3	20	12	15	19	4
4	32	25	31	45	14
5	106	97	85	139	54
6	8	1	9	15	6
7	1	1	1	2	1
8	10	6	6	16	10
9	1	1	3	0	-3
10	0	1	1	0	-1
11	22	22	8	31	23
12	9	12	5	10	5
Total	**261**	**216**	**194**	**317**	**123**

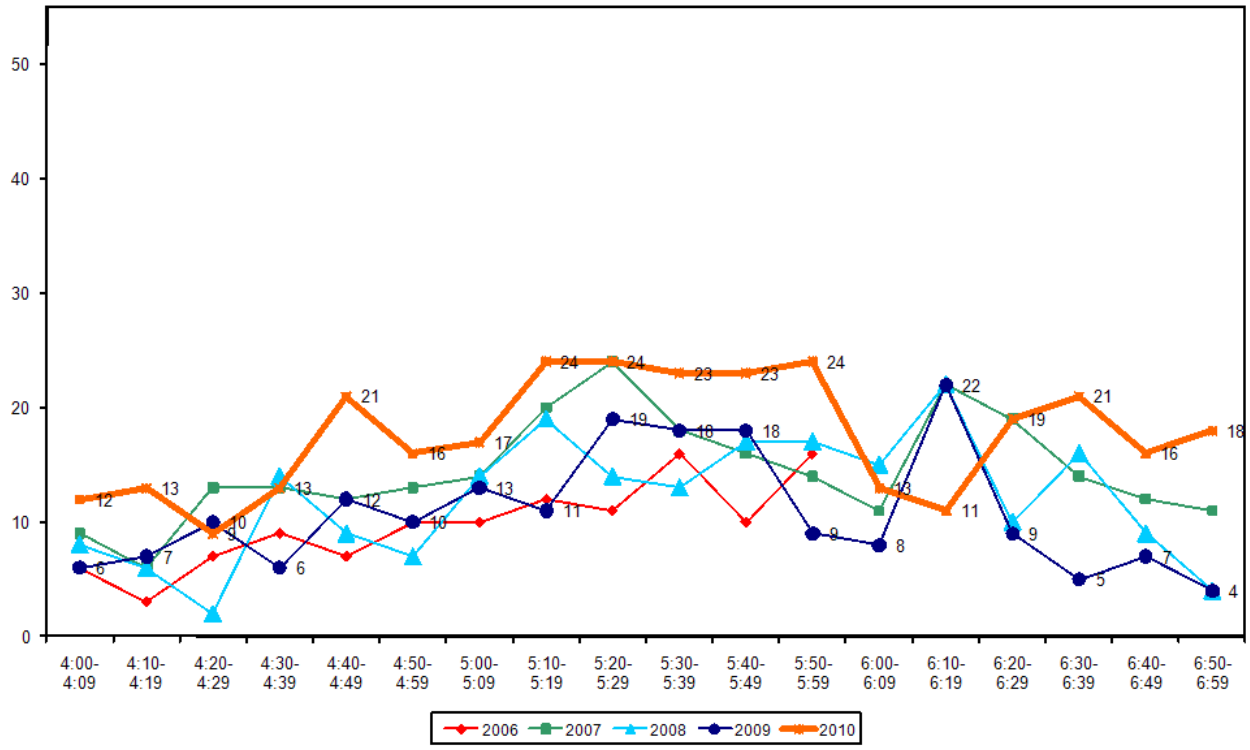
- Over the evening peak, almost all riders at this intersection are adults (99 per cent, compared with 97 per cent in 2009).
- The majority of cyclists are wearing a helmet (85 per cent, stable from 88 per cent in 2009).
- Sixty-eight per cent of cyclists are riding on the road, representing a decrease of 7 percentage points since the last measure.

Table 3.4: Evening Cyclist Characteristics
Ponsonby/Karangahape/Newton/Great North 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	94	98	100	99	98	97	99	2
School child	6	2	0	1	2	3	1	-2
Helmet Wearing								
Helmet on head	87	90	86	87	89	88	85	-3
No helmet	13	10	14	13	11	12	15	3
Where Riding								
Road	65	88	68	74	90	75	68	-7
Footpath	35	12	32	26	10	25	32	7
Base:	***154***	***136***	***117***	***261***	***216***	***194***	***317***	

- This year, the number of evening cyclists peaks slightly between 5:10pm and 5:59pm (23 or 24 cyclists per ten minute monitoring period).

Figure 3.3: Ponsonby/Karangahape/Newton/Great North Cyclist Frequency – Evening Peak

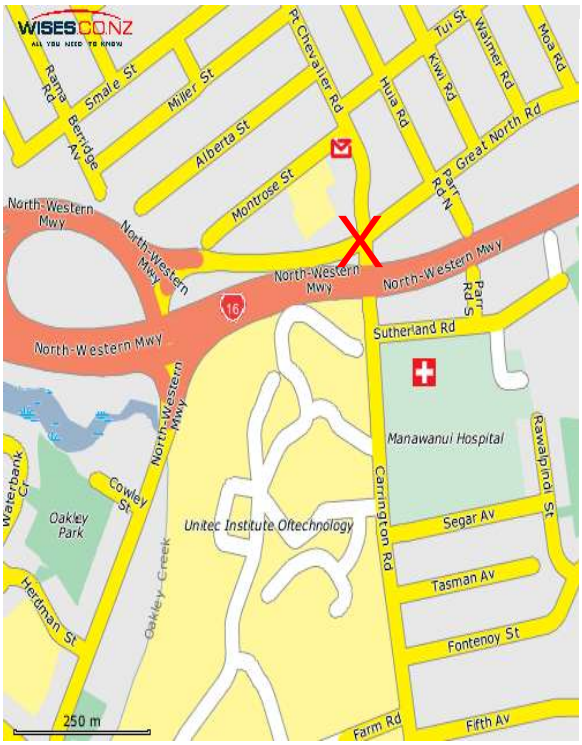


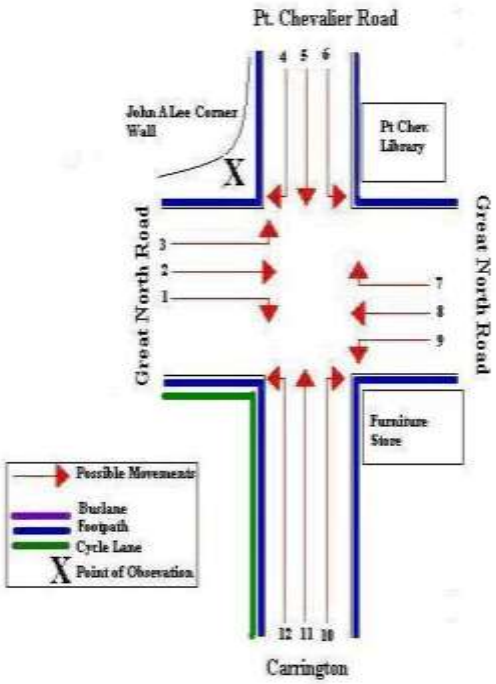
Note: In 2010, three cyclists were observed riding as a group at 6.49am. This comprises one per cent of the total cycle movements in the evening peak in 2010.

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

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Great North/Carrington/Point Chevalier





- The AADT for this site is 455. This compares with:
  - 281 in 2009
  - 333 in 2008
  - 341 in 2007.

	AM	*PM*	*TOTAL*
Raw Cycle Movement Counts 2010	**150**	**164**	**314**

4.1 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 numbers recorded at the Great North/Carrington/Point Chevalier Road intersection in 2010 have increased notably to 135 from 84 in 2009.
- The key movements in the morning at this intersection are straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 38 cyclists), right out of Carrington Road onto Great North Road (Movement 10 = 35 cyclists) and straight through from Pt Chevalier Road into Carrington Road (Movements 5 = 23 cyclists).
- Compared with last year, the volume of morning cyclists has increased most notably at Movement 11 (up 20 cyclists) and Movement 9 (up 10 cyclists).

Table 4.1: Morning Cyclist Movements

Great North/Carrington/Point Chevalier 2002-2010 (n) – 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	19	16	3	0	1	0	0	0	2	2
2	24	20	10	10	10	10	9	8	14	6
3	0	3	1	1	0	0	5	1	1	0
4	2	2	0	2	2	3	2	1	1	0
5	7	11	19	8	23	20	13	17	23	6
6	1	0	1	1	0	4	0	0	1	1
7	0	0	1	0	0	4	2	1	1	0
8	3	4	3	2	2	3	1	2	4	2
9	5	7	7	4	7	12	4	5	15	10
10	10	9	15	20	21	28	35	27	35	8
11	3	5	10	8	9	16	13	18	38	20
12	9	9	0	1	1	1	0	4	0	-4
Total	**83**	**86**	**70**	**57**	**76**	**101**	**84**	**84**	**135**	**51**

- Overall, 150 cycle movements were recorded at the Great North/Carrington/Point Chevalier Road intersection during the morning monitoring period (from 6:30am to 9:00am). This compares with 97 movements in 2009.

Table 4.1A: Morning Cyclist Movements

Great North/Carrington/Point Chevalier 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	2	2
2	10	10	9	14	5
3	0	5	1	4	3
4	4	2	3	1	-2
5	23	15	17	24	7
6	5	0	0	1	1
7	4	2	1	1	0
8	4	2	2	4	2
9	14	4	7	19	12
10	32	36	31	36	5
11	17	18	22	44	22
12	1	1	4	0	-4
Total	**114**	**95**	**97**	**150**	**53**

- The majority of cyclists at this intersection are adults (89 per cent, unchanged from 87 per cent last year).
- Most cyclists are wearing a helmet (94 per cent, stable from 91 per cent in 2009).
- Just less than three-quarters (73 per cent) of cyclists are riding on the road (up from 68 per cent last year).

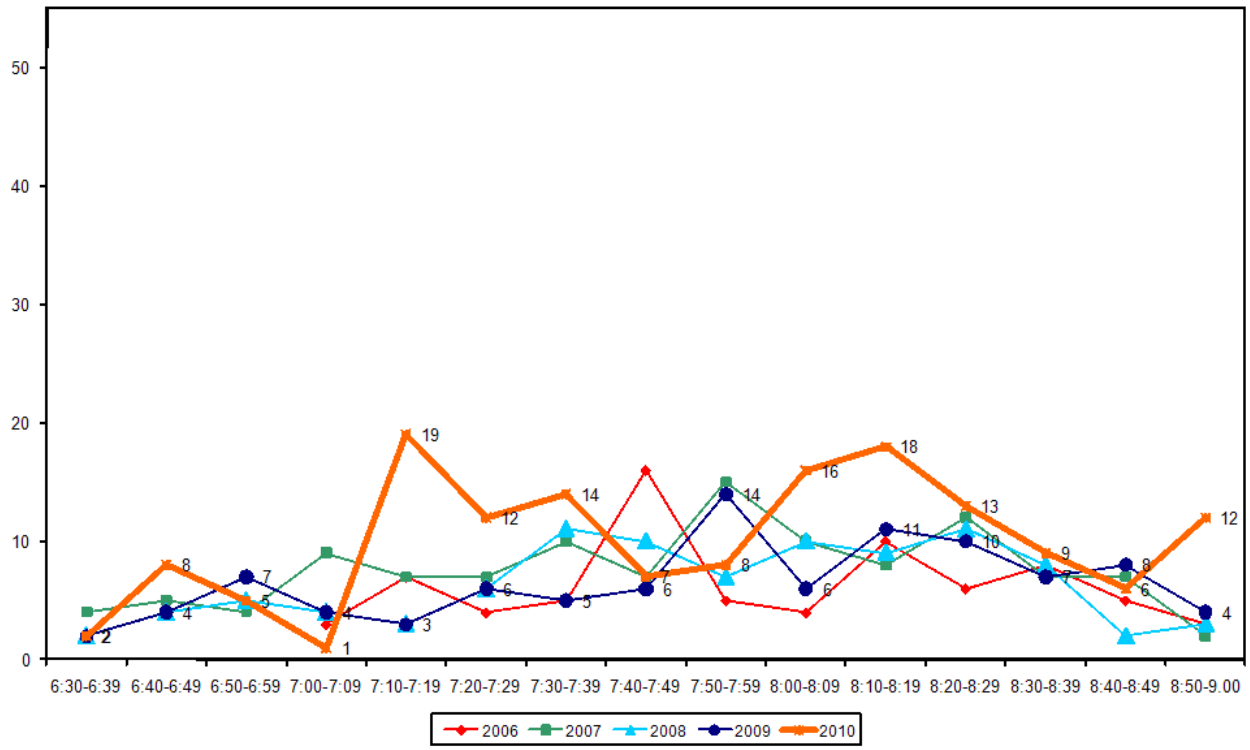
Table 4.2: Morning Cyclist Characteristics

Great North/Carrington/Point Chevalier 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	91	84	93	86	84	87	89	2
School child	9	16	7	14	16	13	11	-2
Helmet Wearing								
Helmet on head	86	88	88	89	93	91	94	3
No helmet	14	12	12	11	7	9	6	-3
Where Riding								
Road	64	68	75	67	73	68	73	5
Footpath	36	32	25	33	27	32	27	-5
Base:	***70***	***57***	***76***	***114***	***95***	***97***	***150***	

- Morning cycle volumes peak between 7:10am and 7:19am (19 cyclists) and again between 8:10am and 8:19am (18 cyclists).This compares to a peak between 7:50am and 7:59am (14 movements) in 2009.

Figure 4.2: Great North/Carrington/Point Chevalier Cyclist Frequency – Morning Peak



Note: In 2010, three cyclists were observed riding as a group at 7.11am. This comprises three per cent of the total cycle movements in the morning peak in 2010.

4.2 Evening Peak

Environmental Conditions

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

Key Points

- Evening cyclist numbers (112 moments) have notably increased at this intersection since last year (77 movements).
- The key movements in the evening at this intersection are straight through from Carrington Road into Pt Chevalier Road (Movement 11 = 24 movements), turning left off Great North Road onto Carrington Road (Movement 9 = 23 cyclists) and straight through from Pt Chevalier Road into Carrington Road (Movements 5 = 21 cyclists).
- The most notable increases have been Movement 11 (up 8 cyclists), Movement 5 and Movement 8 (both up 7 cyclists).

Table 4.3: Evening Cyclist Movements

Great North/Carrington/Point Chevalier 2002-2010 (n) – 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	15	6	0	0	0	0	0	0	1	1
2	6	3	1	1	1	4	3	3	2	-1
3	1	6	2	1	2	0	0	2	1	-1
4	0	7	1	2	1	3	7	1	6	5
5	6	3	8	7	6	13	6	14	21	7
6	0	0	0	0	0	1	1	1	1	0
7	0	0	0	1	1	3	4	1	1	0
8	17	25	6	12	2	7	9	6	13	7
9	6	7	9	11	15	18	18	20	23	3
10	12	13	7	18	9	20	15	13	19	6
11	6	4	9	12	7	15	20	16	24	8
12	24	30	0	0	1	0	0	0	0	0
Total	**93**	**104**	**43**	**65**	**45**	**84**	**83**	**77**	**112**	**35**

- In total, 164 cycle movements were recorded at the Great North/Carrington/Point Chevalier Road intersection during the evening monitoring period (from 4:00pm to 7:00pm). This compares with 96 movements in 2009.

Table 4.3A: Evening Cyclist Movements
Great North/Carrington/Point Chevalier 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	1	0	0	1	1
2	5	5	3	2	-1
3	0	1	3	1	-2
4	4	10	1	6	5
5	18	14	18	35	17
6	4	1	1	1	0
7	6	4	2	3	1
8	12	12	12	15	3
9	22	29	22	37	15
10	23	25	15	28	13
11	26	34	19	35	16
12	0	1	0	0	0
Total	**121**	**136**	**96**	**164**	**68**

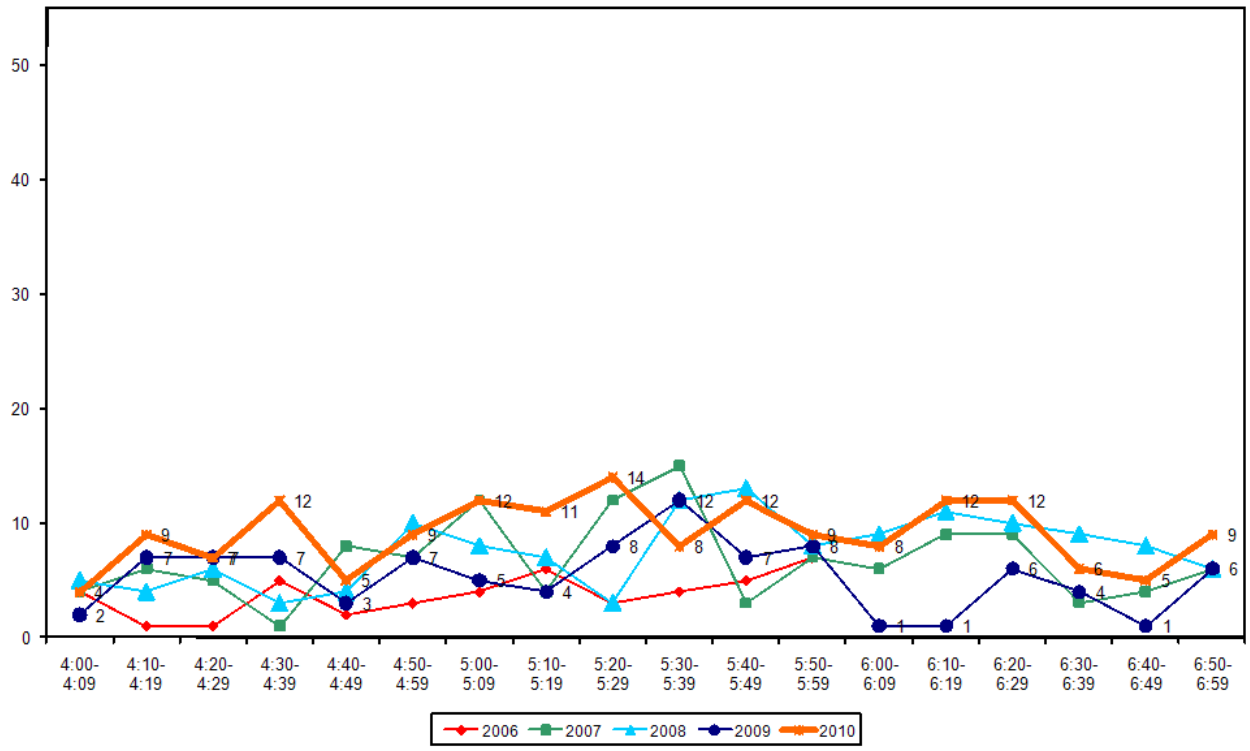
- Over the evening peak, most cyclists using this intersection are adults (96 per cent, stable from 2009).
- Compared with last year, the share of cyclists wearing a helmet has declined (84 per cent, down from 91 per cent in 2009).
- Approximately three in five cyclists are riding on the road (61 per cent, down slightly from 64 per cent last year).

Table 4.4: Evening Cyclist Characteristics
Great North/Carrington/Point Chevalier 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	86	89	100	89	96	95	96	1
School child	14	11	0	11	4	5	4	-1
Helmet Wearing								
Helmet on head	81	85	84	85	91	91	84	-7
No helmet	19	15	16	15	9	9	16	7
Where Riding								
Road	47	66	69	64	71	64	61	-3
Footpath	53	34	31	36	29	36	39	3
Base:	***43***	***65***	***45***	***121***	***136***	***96***	***164***	

- Evening cycle volumes peak slightly in the middle of the monitoring period (14 cyclists between 5:20pm and 5:29pm) – 10 minutes earlier than last year's peak.

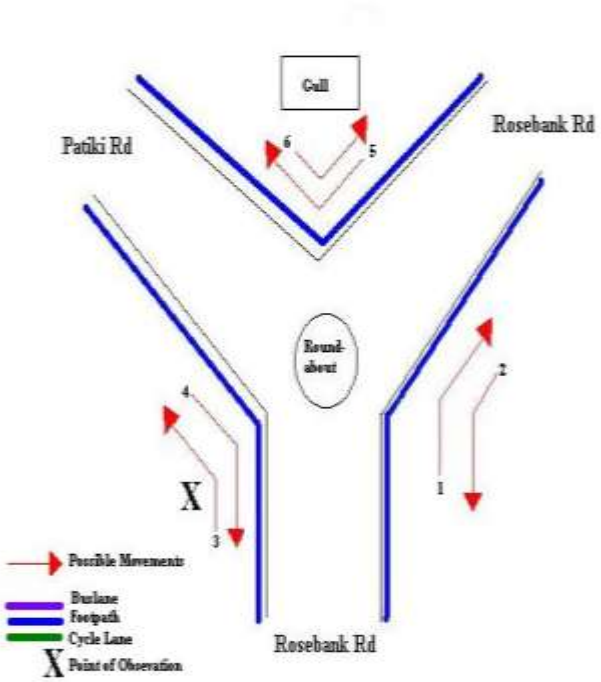
Figure 4.3: Great North/Carrington/Point Chevalier Cyclist Frequency – Evening Peak



5. PATIKI/ROSEBANK ROAD, AVONDALE (SITE 4)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: Patiki/Rosebank



- The AADT for this site is 130. This compares with:
  - 105 in 2009
  - 114 in 2008
  - 119 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**38**	**52**	**90**

5.1 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

- As noted in previous years, the volume of morning cyclists at the Patiki /Rosebank Road intersection is relatively light (33 movements) when compared to other sites in Auckland city. The number of morning cyclists this year has remained stable from last year (32 movements).
- The key movements at this site in the morning are south down Patiki Road into Rosebank Road (Movement 4 = 13 cyclists) and straight down Rosebank Road heading south (Movement 2 = 12 cyclists).
- Of the six movements possible at this site, the most notably change is at Movement 2 (up 7 movements).

Table 5.1: Morning Cyclist Movements
Patiki/Rosebank 2004-2010(n) – 7.00 to 9.00 am

Movement	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	1	3	1	2	3	4	1	-3
2	3	9	6	7	5	5	12	7
3	1	0	7	2	2	6	4	-2
4	8	12	20	17	14	17	13	-4
5	2	1	0	1	0	0	2	2
6	2	2	0	1	2	0	1	1
Total	**17**	**27**	**34**	**30**	**26**	**32**	**33**	**1**

- Overall, 38 cycle movements were recorded at the Patiki/Rosebank Road intersection during the morning monitoring period (from 6:30am to 9:00am). This remains unchanged from 2009.

Table 5.1A: Morning Cyclist Movements
Patiki/Rosebank 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	2	4	5	1	-4
2	7	7	5	12	7
3	5	4	8	5	-3
4	21	16	20	17	-3
5	1	1	0	2	2
6	1	2	0	1	1
Total	**37**	**34**	**38**	**38**	**0**

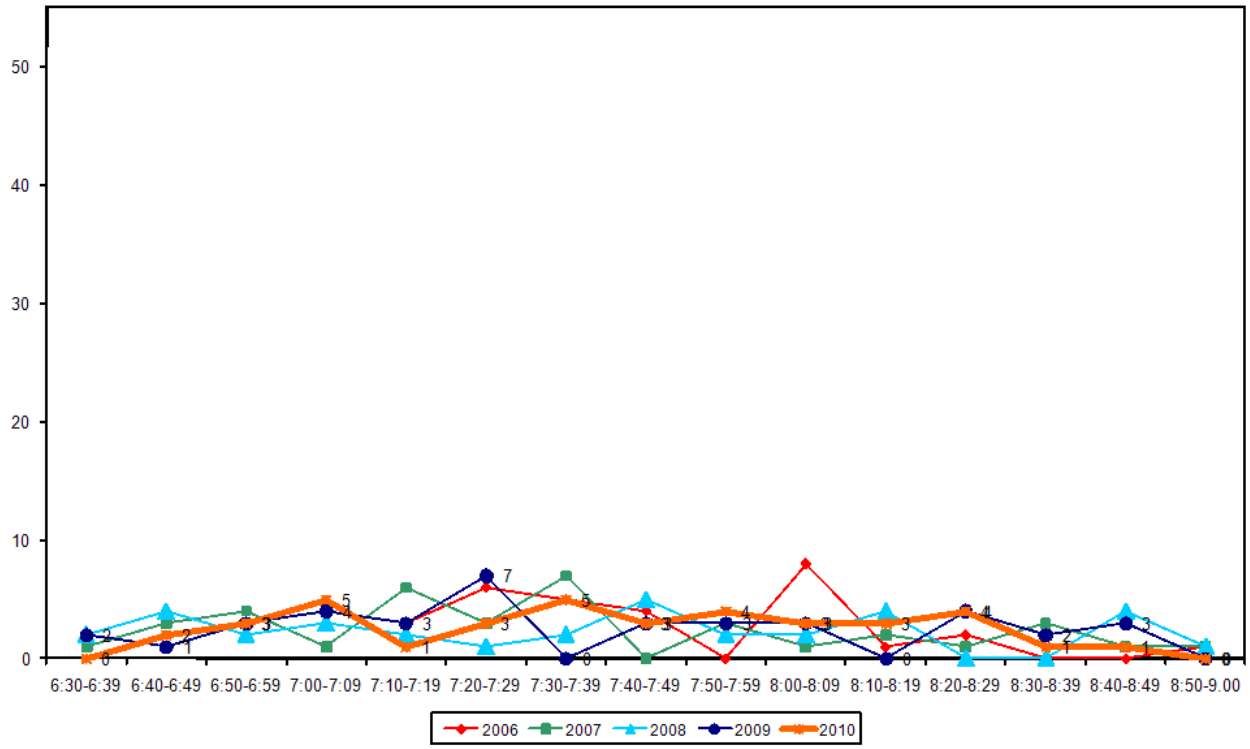
- Over the morning peak, most cyclists are adults (95 per cent, stable from 97 per cent last year).
- The majority of cyclists are wearing helmets over the morning peak (87 per cent, down from 95 per cent in 2009).
- Approximately four in five cyclists (82 per cent) were riding on the road, an increase from 74 per cent in 2009, and the highest incidence of cyclists riding on the road at this site since monitoring began.

Table 5.2: Morning Cyclist Characteristics
Patiki/Rosebank 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	82	100	76	95	100	97	95	-2
School child	18	0	24	5	0	3	5	2
Helmet Wearing								
Helmet on head	82	85	88	81	88	95	87	-8
No helmet	18	15	12	19	12	5	13	8
Where Riding								
Road	53	63	59	57	47	74	82	8
Footpath	47	37	41	43	53	26	18	-8
Base:	***17***	***27***	***34***	***37***	***34***	***38***	***38***	

- This year, the frequency of cyclists in the morning period peaks slightly between 7:00am and 7:09am (5 cyclists) – 20 minutes earlier than the peak reported last year.

Figure 5.2: Patiki/Rosebank Cyclist Frequency – Morning Peak



5.2 Evening Peak

Environmental Conditions

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

Key Points

- The total cyclist volume recorded at the Patiki/Rosebank Road intersection continues to be light in the evening peak (37 movements, up from 31 last year).
- The most common movement at this site in the evening is north up Rosebank Road turning into Patiki Road (Movement 3 = 19 cyclists). This is consistent with last year.
- Evening cyclist volumes at each movement are fairly constant from last year, with the exception of Movement 1 (up 3 cyclists).

Table 5.3: Evening Cyclist Movements

Patiki/Rosebank 2004-2010(n) – 4.00 to 6.00 pm

Movement	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	2	9	3	7	5	4	7	3
2	2	4	1	0	4	6	6	0
3	13	19	20	17	18	17	19	2
4	2	4	5	8	6	1	2	1
5	1	1	2	2	1	1	2	1
6	0	1	0	0	1	2	1	-1
Total	**20**	**38**	**31**	**34**	**35**	**31**	**37**	**6**

- Total cyclist volumes recorded at this intersection from 4:00pm to 7:00pm have increased this year (52 movements, up from 34 movements in 2009).

Table 5.3A: Evening Cyclist Movements

Patiki/Rosebank 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	2010	Change 09-10
1	7	6	4	9	5
2	2	8	7	9	2
3	18	22	19	26	7
4	14	7	1	4	3
5	4	1	1	2	1
6	0	1	2	2	0
Total	**45**	**45**	**34**	**52**	**18**

- None of the evening cyclists using this intersection are school children (unchanged from 2009).
- Most cyclists are wearing a helmet in the evening peak (88 per cent, compared with 91 per cent last year).
- In contrast to the morning period, the incidence of riding on the footpath has increased notably, from 12 per cent in 2009 to 25 per cent this year.

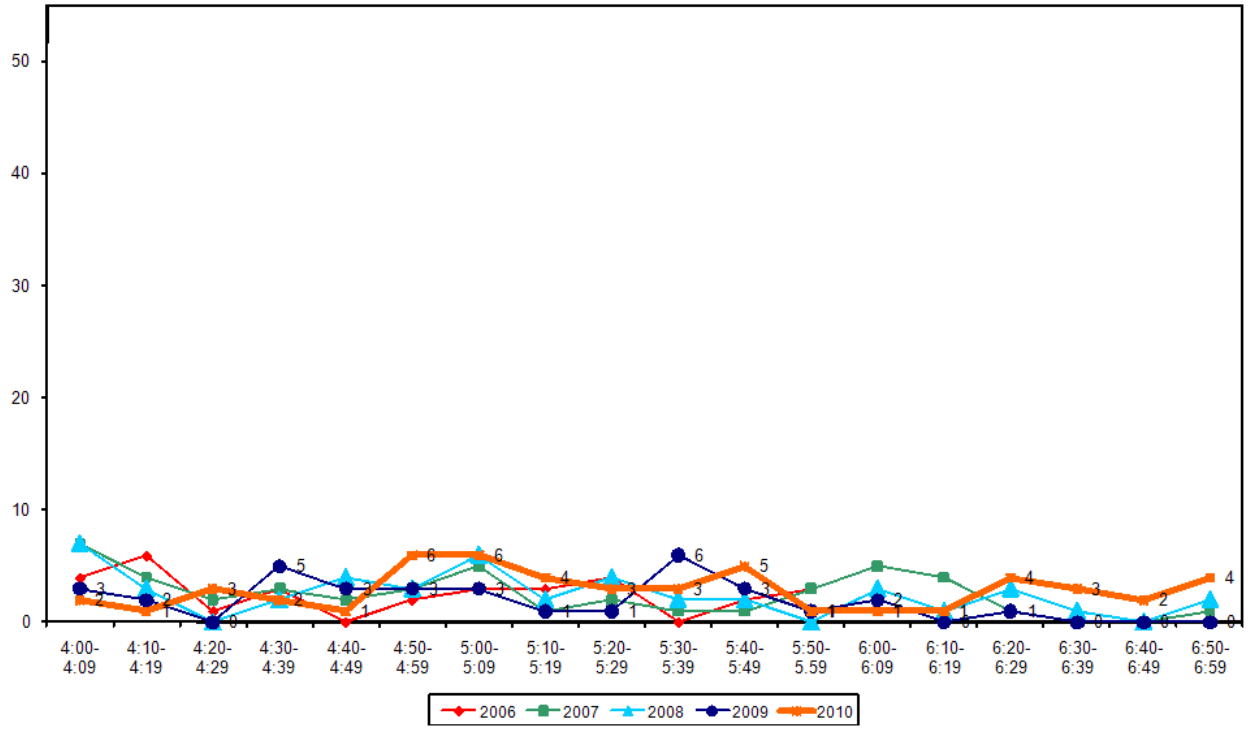
Table 5.4: Evening Cyclist Characteristics

Patiki/Rosebank 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 08-09**
Cyclist Type								
Adult	95	100	94	100	100	100	100	0
School child	5	0	6	0	0	0	0	0
Helmet Wearing								
Helmet on head	100	87	84	89	84	91	88	-3
No helmet	0	13	16	11	16	9	12	3
Where Riding								
Road	95	63	81	53	62	88	75	-13
Footpath	5	37	19	47	38	12	25	13
Base:	***20***	***38***	***31***	***45***	***45***	***34***	***52***	

- The volume of evening cyclists in 2010 peaks between 4:50pm and 5:09pm (6 cyclists per ten minute interval). This compares with a peak between 5:30pm and 5:39pm in 2009.

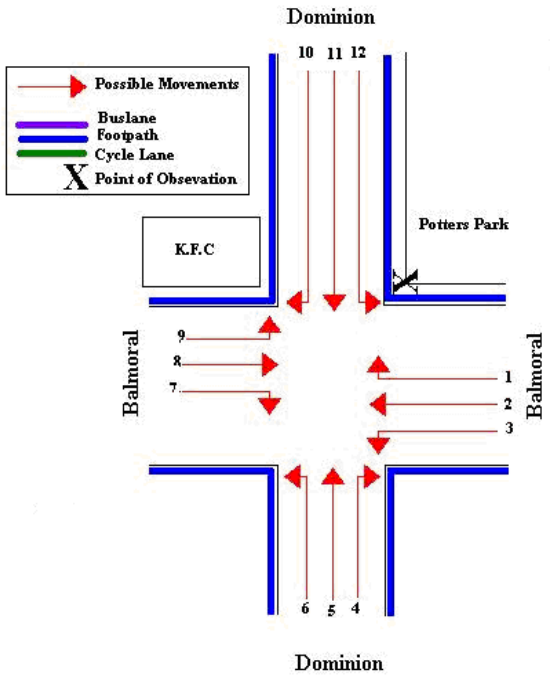
Figure 5.3: Patiki/Rosebank Cyclist Frequency – Evening Peak



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

Figure 6.1 shows the possible cyclist movements at this intersection.

Figure 6.1: Cycle Movement: Dominion/Balmoral



- The AADT for this site is 296. This compares with:
  - 265 in 2009
  - 291 in 2008
  - 344 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**91**	**114**	**205**

6.1 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 cyclists at the Balmoral/Dominion Road intersection in 2009 has increased slightly from last year's result (83 movements, compared with 78 movements in 2009).
- The key movements at this site are travelling north along Dominion Road towards the city (Movement 5 = 38 cyclists), and straight along Balmoral Road heading east (Movement 8 = 11 cyclists).
- Morning cyclist volumes at six out of twelve of the movements have increased slightly from last year, while decreases were recorded at five of the movements. The most notable increases are at Movements 5 and 11 (each up 6 cyclists).

Table 6.1: Morning Cyclist Movements

Dominion/Balmoral 2003-2010 (n) – 7.00 to 9.00 am

Movement	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	0	4	13	20	19	15	10	6	-4
2	7	12	9	5	9	10	5	7	2
3	0	1	0	2	1	0	0	2	2
4	0	1	0	1	1	0	2	1	-1
5	54	43	51	40	49	36	32	38	6
6	1	2	2	4	4	0	1	2	1
7	0	0	2	0	3	0	1	2	1
8	2	2	10	9	10	12	14	11	-3
9	4	5	1	5	4	4	5	4	-1
10	1	2	0	3	1	1	4	0	-4
11	6	3	6	1	3	4	3	9	6
12	0	1	0	2	0	2	1	1	0
Total	**75**	**76**	**94**	**92**	**104**	**84**	**78**	**83**	**5**

- Overall, 91 cycle movements were recorded at the Balmoral/Dominion Road intersection during the morning monitoring period (from 6:30am to 9:00am). This compares with 85 movements in 2009.

Table 6.1A: Morning Cyclist Movements
Dominion/Balmoral 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	20	15	10	6	-4
2	11	10	6	7	1
3	1	0	0	3	3
4	1	0	2	1	-1
5	52	41	35	43	8
6	4	1	1	3	2
7	3	0	1	2	1
8	12	12	15	11	-4
9	4	4	6	4	-2
10	1	1	4	0	-4
11	3	4	4	10	6
12	2	2	1	1	0
Total	**114**	**90**	**85**	**91**	**6**

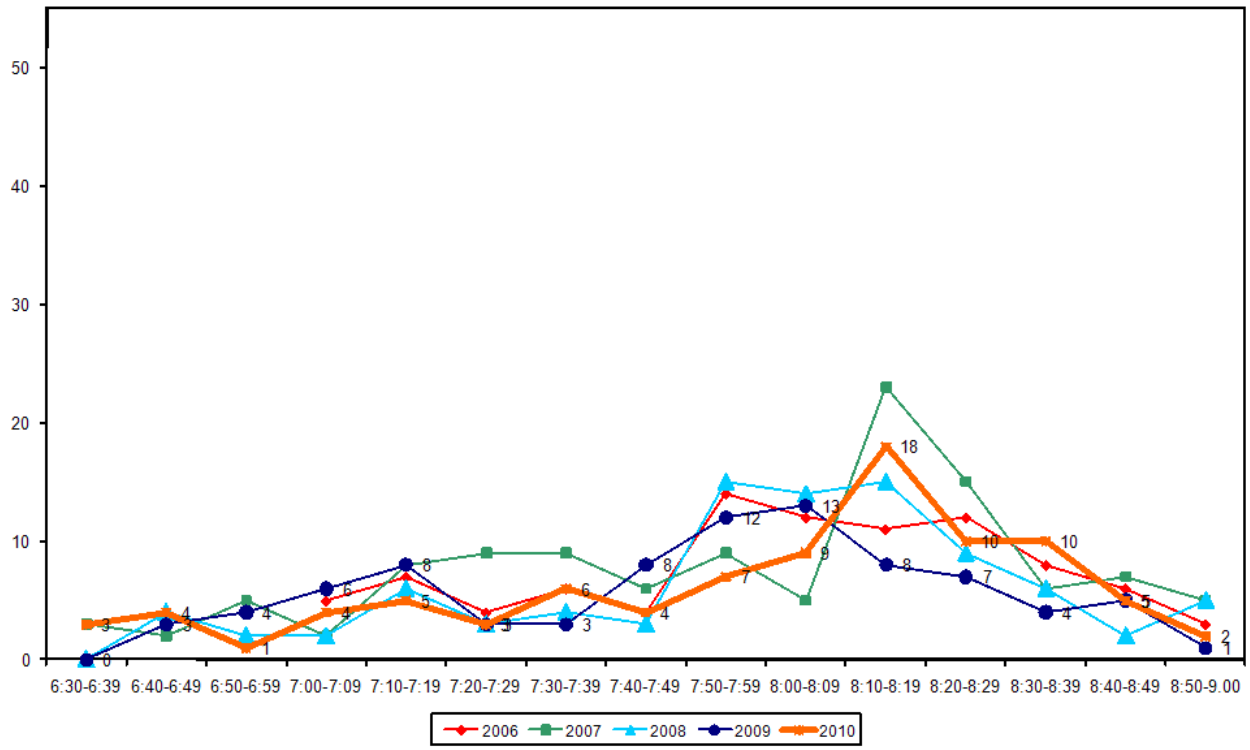
- Most cyclists at this site are adults (78 per cent, compared with 87 per cent last year).
- Consistent with previous years, almost all cyclists using this intersection are wearing a helmet (97 per cent).
- This year, seven in ten cyclists were riding on the road, a notable decrease from 100 per cent in 2009.

Table 6.2: Morning Cyclist Characteristics
Dominion/Balmoral 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	2010	Change 09-10
Cyclist Type								
Adult	67	81	75	71	74	87	78	-9
School child	33	19	25	29	26	13	22	9
Helmet Wearing								
Helmet on head	93	97	98	96	96	96	97	1
No helmet	7	3	2	4	4	4	3	-1
Where Riding								
Road	67	69	67	65	67	100	70	-30
Footpath	33	31	33	35	33	0	30	30
Base:	***76***	***94***	***92***	***114***	***90***	***85***	***91***	

- The volume of morning cyclists in 2010 steadily increases over the monitoring period to peak between 8:10am and 8:19am (18 cyclists). This compares with cyclist numbers peaking between 8:00am and 8:09am last year.

Figure 6.2: Dominion/Balmoral Cyclist Frequency – Morning Peak



Note: In 2010, nine per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Three cyclists at 8.15am*
- *Three cyclists at 8.16am*
- *Three cyclists at 8.39am.*

6.2 Evening Peak

Environmental Conditions

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

Key Points

- The volume of evening peak cyclists recorded at the Dominion/Balmoral Road intersection in 2010 has increased since last year, to 75 (from 68 in 2009).
- The key movements at this site are south down Dominion Road (Movement 11 = 31 cyclists) and west along Balmoral Road (Movement 2 = 14 cyclists).
- Of the twelve movements possible at this intersection, the most notable increases since last year in terms of evening cyclist volumes are at Movement 4 and Movement 6 (both up 4 cyclists).

Table 6.3: Evening Cyclist Movements

Dominion/Balmoral Road 2003-2010 (n) – 4.00 to 6.00 pm

Movement	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	2	3	2	1	3	5	1	2	1
2	7	8	20	12	14	15	14	14	0
3	3	2	3	1	2	2	1	0	-1
4	1	2	3	1	0	0	0	4	4
5	11	9	5	4	7	9	7	10	3
6	1	1	1	0	3	3	0	4	4
7	1	2	6	1	5	3	1	1	0
8	7	9	6	4	7	10	4	2	-2
9	2	1	1	3	2	0	1	0	-1
10	5	5	3	6	7	0	6	4	-2
11	34	25	21	25	33	34	32	31	-1
12	1	6	3	6	4	2	1	3	2
Total	**75**	**73**	**74**	**64**	**88**	**83**	**68**	**75**	**7**

- In total, 114 cycle movements were recorded at the Balmoral/Dominion Road intersection during the evening monitoring period (from 4:00pm to 7:00pm). This compares with 98 movements in 2009.

Table 6.3A: Evening Cyclist Movements
Dominion/Balmoral Road 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	3	7	2	3	1
2	23	22	18	19	1
3	3	2	1	2	1
4	1	0	1	5	4
5	10	10	9	15	6
6	3	4	2	5	3
7	5	4	3	1	-2
8	8	13	4	5	1
9	2	0	1	0	-1
10	8	2	7	7	0
11	51	44	48	47	-1
12	5	3	2	5	3
Total	**123**	**111**	**98**	**114**	**16**

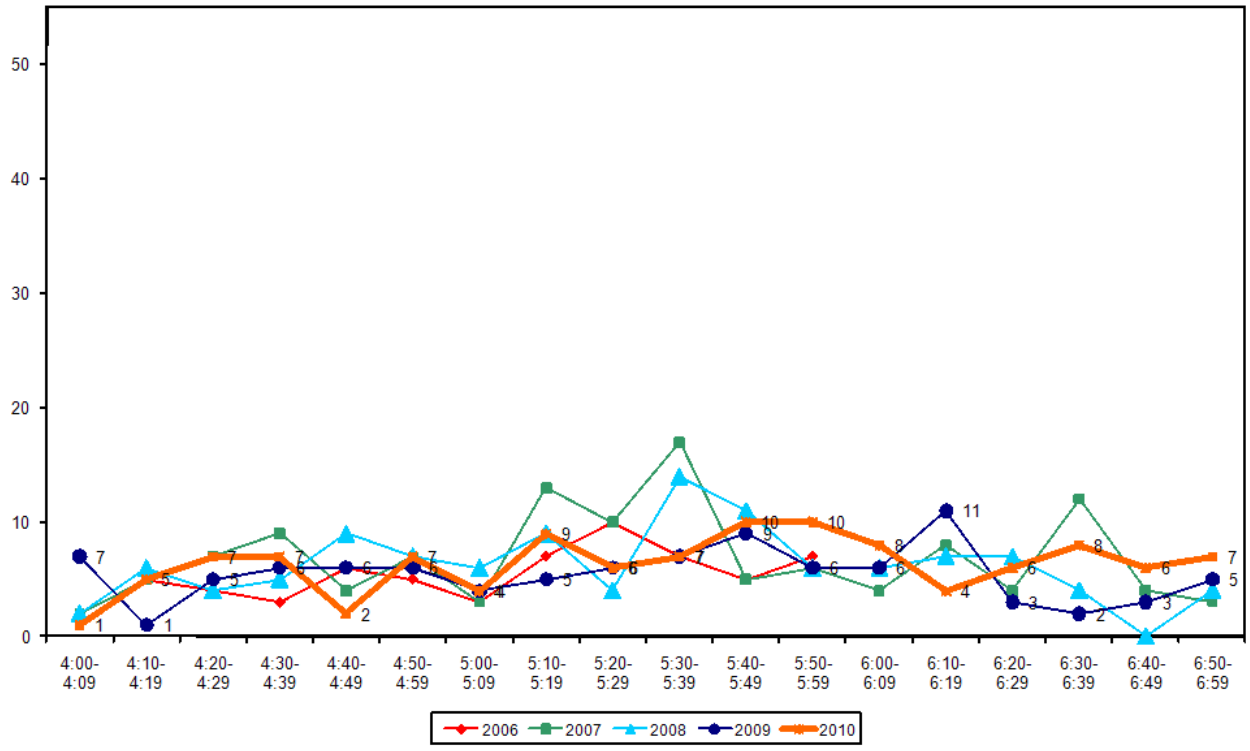
- Almost all cyclists using the Dominion/Balmoral intersection are adults (86 per cent, down slightly from 92 per cent in 2009).
- Since last year, the share of cyclists riding with a helmet has decreased (down from 96 per cent in 2009 to 86 per cent in 2010).
- Similarly, the share of cyclists riding on the road has decreased – down notably from 100 per cent to 82 per cent this year.

Table 6.4: Evening Cyclist Characteristics
Dominion/Balmoral 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	2010	Change 09-10
Cyclist Type								
Adult	81	89	100	93	79	92	86	-6
School child	19	11	0	7	21	8	14	6
Helmet Wearing								
Helmet on head	82	84	92	89	86	96	86	-10
No helmet	18	16	8	11	14	4	14	10
Where Riding								
Road	70	70	92	78	68	100	82	-18
Footpath	30	30	8	22	32	0	18	18
Base:	***73***	***74***	***64***	***123***	***111***	***98***	***114***	

- Evening cyclist volumes peak between 5:40pm and 5:59pm (10 movements per ten minute interval) – approximately 25 minutes earlier than in 2009.

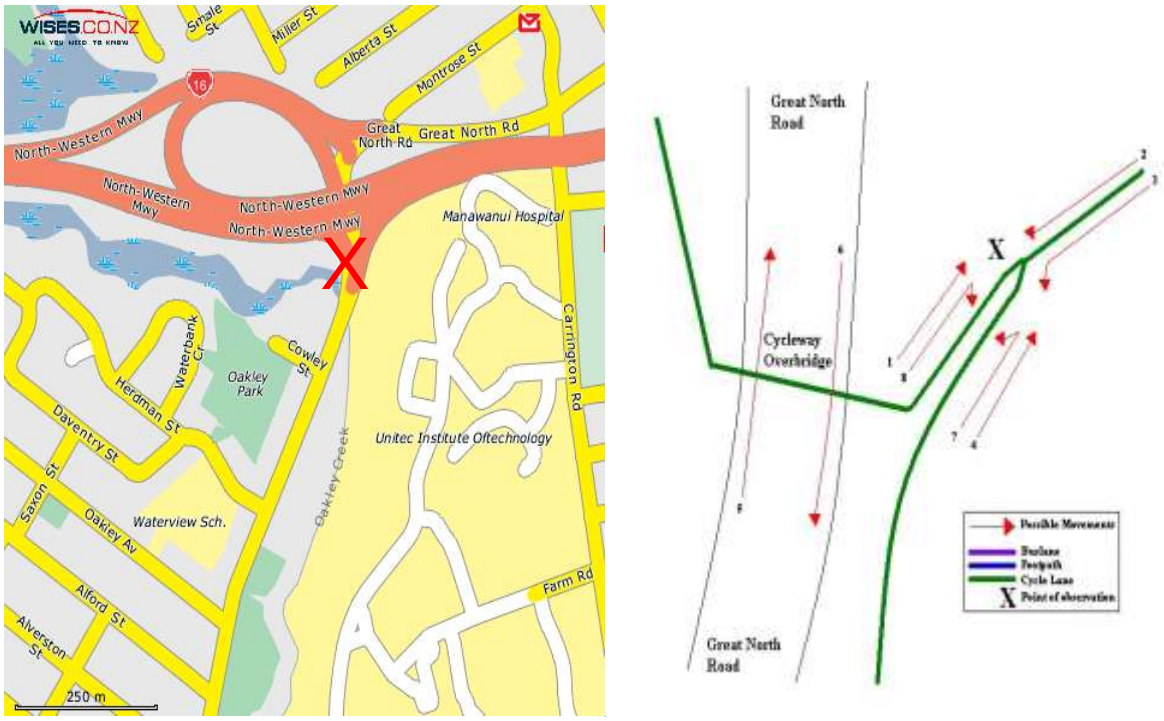
Figure 6.3: Dominion/Balmoral Cyclist Frequency – Evening Peak



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

Figure 7.1 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 7.1: Cycle Movements: Great North Road/North Western Cycleway



- The AADT for this site is 705. This compares with:
  - 416 in 2009
  - 532 in 2008
  - 335 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**244**	**241**	**485**

7.1 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 2010 have increased notably since the previous measure (212 movements recorded this year, up from 129 movements in 2009).
- The key morning movement between 7.00 and 9.00 am is across Great North Road away from the UNITEC overbridge heading north (Movement 1 = 113 movements).

Table 7.1: Morning Cyclist Movements

Great North Road/North Western Cycleway 2007-2010 (n) – 7.00 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09 - 10
1	-	75	68	113	45
2	-	24	26	48	22
3	-	5	7	11	4
4	-	27	12	24	12
5	-	10	7	11	4
6	-	1	4	4	0
7	-	1	1	1	0
8	-	0	4	0	-4
Total	**86**	**143**	**129**	**212**	**83**

- Overall, 244 cycle movements were recorded at Great North Road/North Western cycleway during the morning monitoring period (from 6:30am to 9:00am). This has increased notably from 145 movements in 2009.

Table 7.1A: Morning Cyclist Movements

Great North Road/North Western Cycleway 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09 - 10
1	-	82	75	133	58
2	-	30	28	55	27
3	-	5	9	11	2
4	-	27	13	28	15
5	-	10	9	12	3
6	-	1	6	4	-2
7	-	1	1	1	0
8	-	0	4	0	-4
Total	**98**	**156**	**145**	**244**	**99**

- Consistent with previous years, most cyclists this year are adults (93 per cent, up slightly from 90 per cent last year).
- Almost all cyclists are wearing a helmet (94 per cent, down slightly from 97 per cent last year).
- Almost all cyclists (95 per cent) are riding on the cycleway.

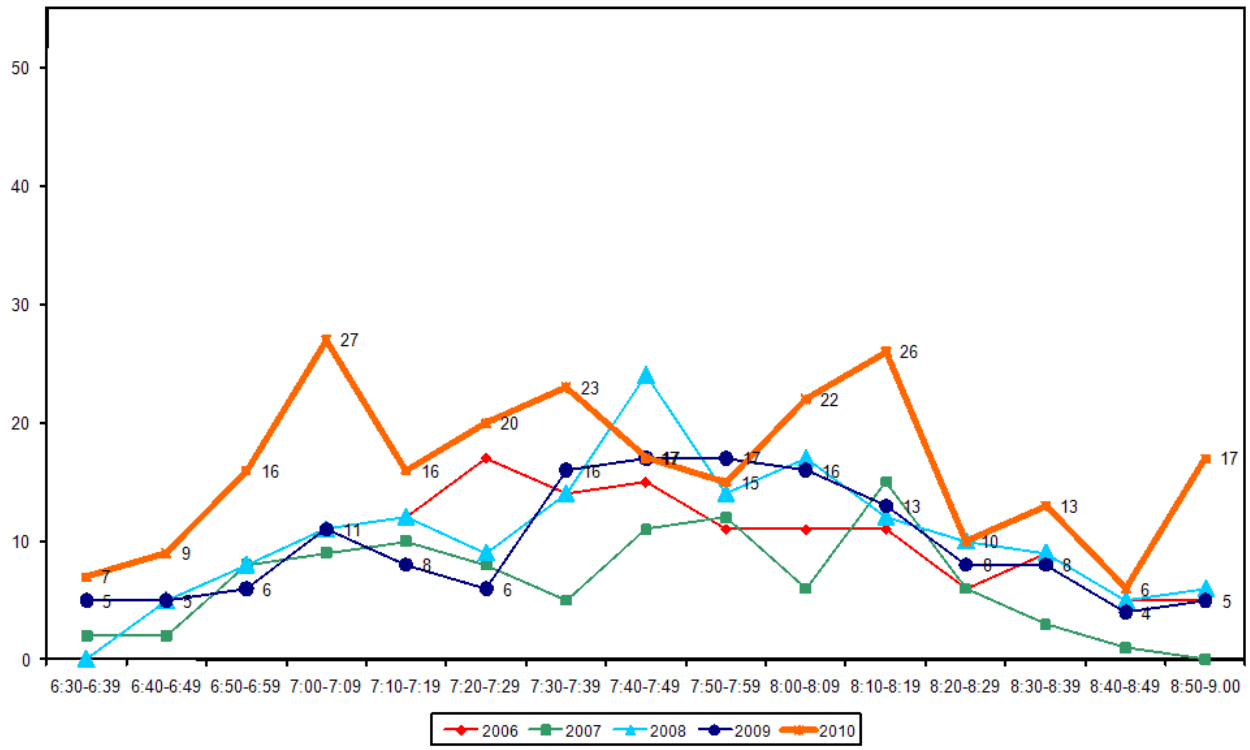
Table 7.2: Morning Cyclist Characteristics
Great North Road/North Western Cycleway 2006-2010 (%)

	2006	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type						
Adult	97	91	95	90	93	3
School child	3	9	5	10	7	-3
Helmet Wearing						
Helmet on head	94	99	97	97	94	-3
No helmet	6	1	3	3	6	3
Where Riding*						
Road	100	100	100	9	5	-4
Off-road cycleway	-	-	-	91	95	4
Base:	***127***	***98***	***156***	***145***	***244***	

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

- Morning cycle volumes peaked three times over the monitoring period. The first peak is between 7:00am and 7:09am (27 cyclists), the second is between 7:30am and 7:39am (23 cyclists) and the third is between 8:10am and 8:19am (26 cyclists). In contrast, last year cycle movements peaked between 7:30am and 8:09am (between 16 and 17 movements during each ten minute period).

Figure 7.2: Great North Road/North Western Cycleway Cyclist Frequency – Morning Peak



7.2 Evening Peak

Environmental Conditions

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

Key Points

- Consistent with the morning peak, the number of evening cyclists has also increased, from 107 in 2009 to 166 movements in 2010.
- The key movements at this site in the evening are straight across Great North Road (via the overbridge) in both directions (Movement 2 = 79 cyclists; Movement 1 = 39 cyclists) and coming from the east on the cycle lane and continuing south along Great North Road (Movement 3 = 28 cyclists).

Table 7.3: Evening Cyclist Movements

Great North Road/North Western Cycleway 2007-2010 (n) – 4.00 to 6.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	-	39	19	39	20
2	-	58	51	79	28
3	-	30	25	28	3
4	-	6	5	5	0
5	-	4	4	5	1
6	-	3	3	8	5
7	-	1	0	0	0
8	-	0	0	2	2
Total	**88**	**141**	**107**	**166**	**59**

- In total, 241 cycle movements were recorded at the Great North Road/North Western cycleway during the evening monitoring period (from 4:00pm to 7:00pm). This is a notable increase from 141 movements in 2009.

Table 7.3A: Evening Cyclist Movements

Great North Road/North Western Cycleway 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	-	59	25	55	30
2	-	94	70	113	43
3	-	40	29	42	13
4	-	7	7	11	4
5	-	6	5	9	4
6	-	5	5	9	4
7	-	1	0	0	0
8	-	1	0	2	2
Total	**134**	**213**	**141**	**241**	**100**

- Almost all cyclists in the evening peak are adults (98 per cent, stable from that recorded in 2009).
- Almost all cyclists are wearing helmets (95 per cent, stable over the last five years).
- Almost all cyclists (93 per cent) are riding on the cycleway

Table 7.4: Evening Cyclist Characteristics

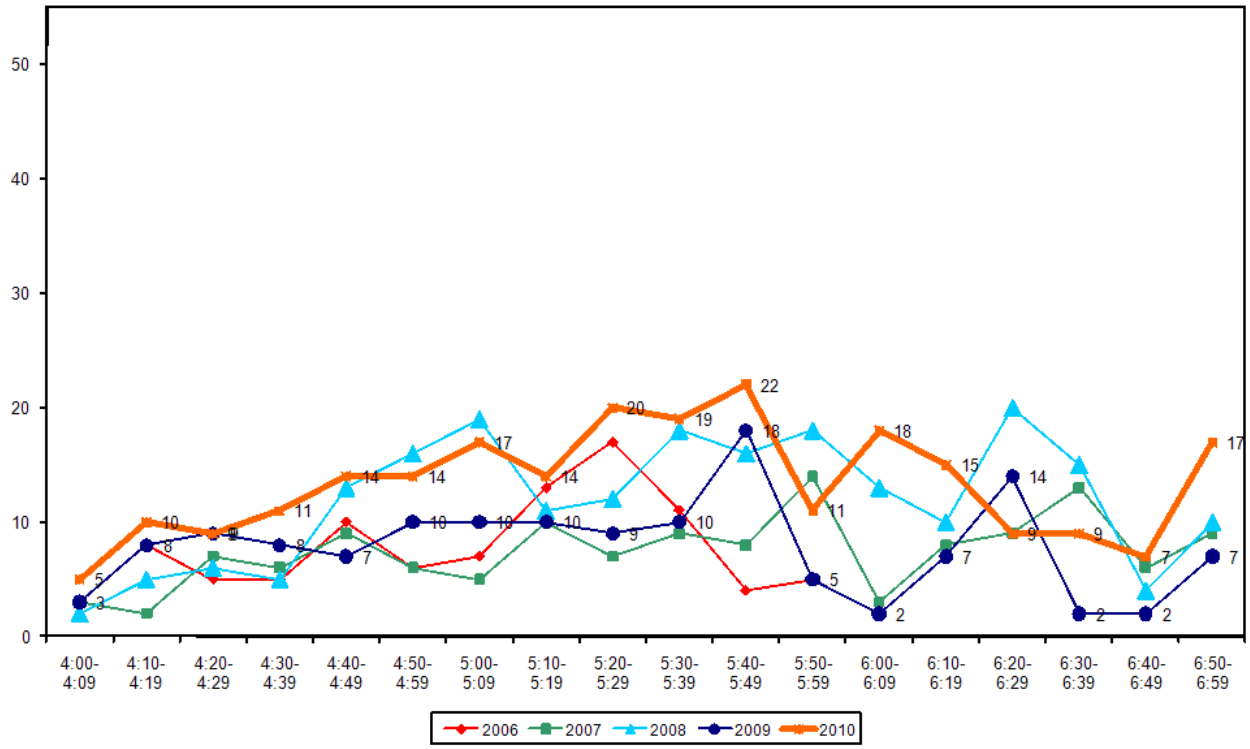
Great North Road/North Western Cycleway 2006-2010 (%)

	2006	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type						
Adult	100	93	100	97	98	1
School child	0	7	0	3	2	-1
Helmet Wearing						
Helmet on head	95	98	97	95	95	0
No helmet	5	2	3	5	5	0
Where Riding*						
Road	100	100	100	7	7	0
Off-road cycleway	-	-	-	93	93	0
Base:	***94***	***134***	***213***	***141***	***241***	

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

- The volume of evening cyclists peaked between 5:40pm and 5:49pm (22 movements. This differs slightly to 2009, where two peaks were recorded.

Figure 7.3: Great North Road/North Western Cycleway Cyclist Frequency – Evening Peak



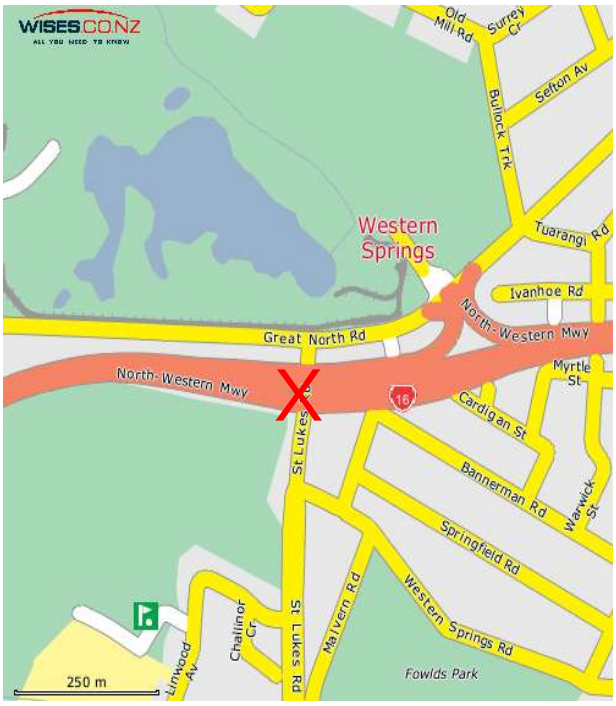
Note: In 2010, two per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

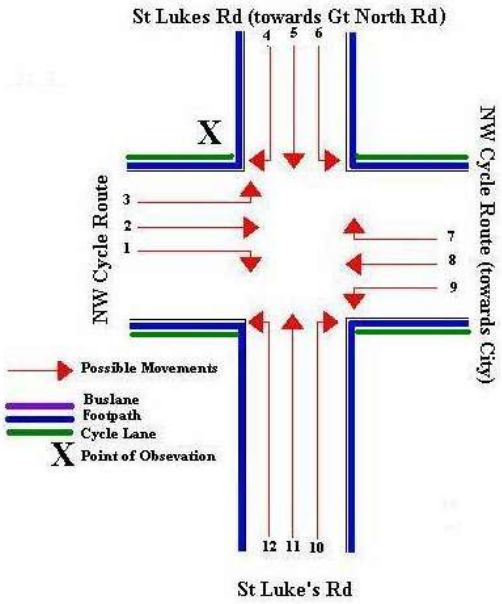
- *Three cyclists at 6.14pm*
- *Three cyclists at 6.38pm*

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

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: North Western Cycleway/St Lukes Road





- The AADT for this site is 629. This compares with:
  - 451 in 2009
  - 480 in 2008
  - 469 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	222	210	432

8.1 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 numbers recorded at the North Western Cycleway/St Lukes Road site in 2010 have increased notably (191 cyclists, compared with 143 last year).
- The key movement at this site in the morning is straight along the North Western cycleway towards the city (Movement 2 = 79 cyclists).
- Morning cyclist volumes at seven of the twelve movements have increased from 2009. The most notable increase is at Movement 2 (up 22 cyclists).

Table 8.1: Morning Cyclist Movements

North Western Cycleway/St Lukes Road 2004-2010(n) – 7.00 to 9.00 am

Movement	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	1	5	4	8	5	7	7	0
2	6	45	50	60	62	57	79	22
3	2	9	13	7	9	7	6	-1
4	8	3	5	7	2	4	4	0
5	23	7	6	4	3	5	5	0
6	5	2	2	3	2	0	5	5
7	6	6	9	14	7	4	7	3
8	27	2	12	9	11	15	16	1
9	6	1	0	0	2	4	0	-4
10	1	9	4	6	14	4	13	9
11	8	38	23	16	22	28	35	7
12	2	3	5	5	5	8	14	6
Total	**95**	**130**	**133**	**139**	**144**	**143**	**191**	**48**

- Overall, 222 cycle movements were recorded at the North Western Cycleway/St Lukes Road site during the morning monitoring period (from 6:30am to 9:00am). This compares with 155 movements in 2009.

Table 8.1A: Morning Cyclist Movements

North Western Cycleway/St Lukes Road 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	8	6	9	12	3
2	60	63	59	83	24
3	10	10	11	6	-5
4	7	3	5	5	0
5	6	4	7	11	4
6	3	2	0	8	8
7	15	7	4	7	3
8	9	16	15	20	5
9	0	2	4	0	-4
10	7	14	4	13	9
11	21	23	29	40	11
12	6	6	8	17	9
Total	**152**	**156**	**155**	**222**	**67**

- As in 2009, the greatest share of cyclists are adults (86 per cent, down slightly from 89 per cent).
- Most cyclists are wearing a helmet (94 per cent, stable from 95 per cent in 2009).
- The majority of cyclists (64 per cent) were cycling on the off-road cycleway, while 21 per cent were riding on the road.

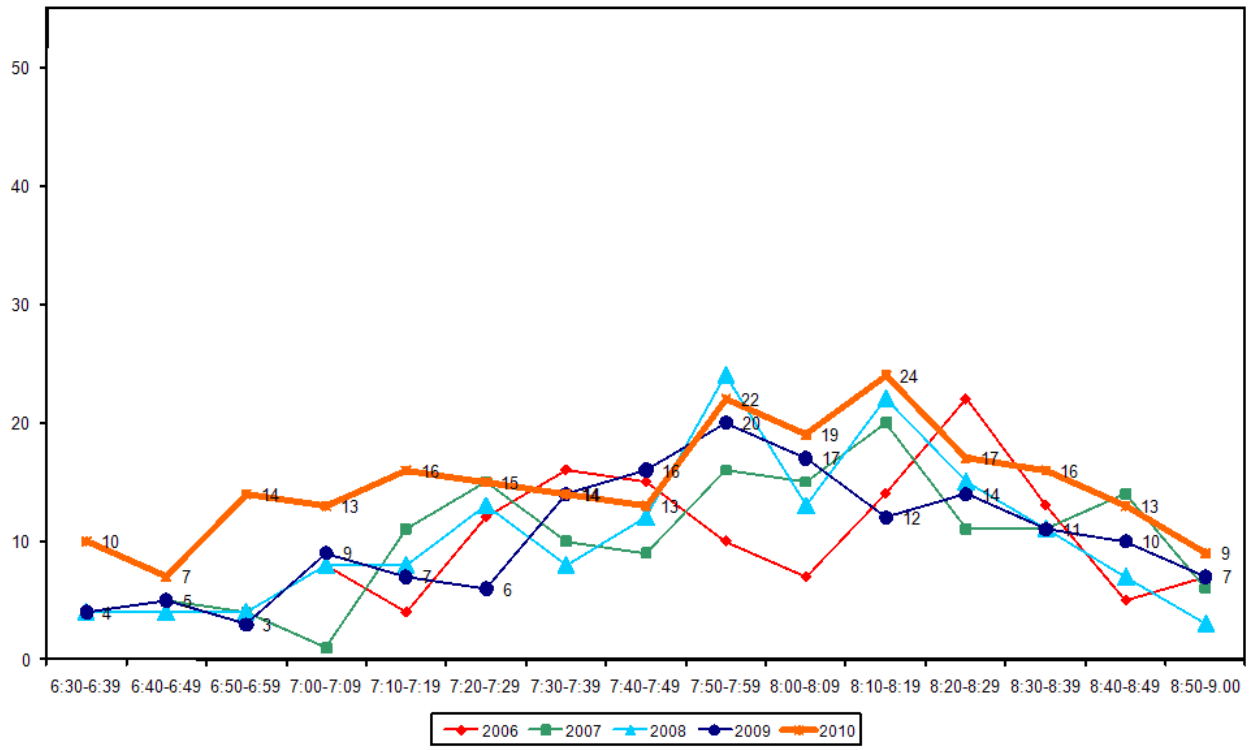
Table 8.2: Morning Cyclist Characteristics
North Western Cycleway/St Lukes Road 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
Cyclist Type								
Adult	75	92	97	82	85	89	86	-3
School child	25	8	3	18	15	11	14	3
Helmet Wearing								
Helmet on head	99	95	98	97	94	95	94	-1
No helmet	1	5	2	3	6	5	6	1
Where Riding								
Road	89	76	78	87	94	20	21	1
Footpath	11	24	22	13	6	10	15	5
Off-road cycleway*	-	-	-	-	-	70	64	-6
Base:	***95***	***130***	***133***	***152***	***156***	***155***	***222***	

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

- Morning cycle volumes in 2010 peak between 7:50am and 7:59am (22 movements, the same time as last year) and again between 8:10am and 8:19am (24 movements) as they did in previous years.

Figure 8.2: North Western Cycleway/St Lukes Road Cyclist Frequency – Morning Peak



Note: In 2010, four per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Three cyclists at 7.01am*
- *Three cyclists at 8.10am*
- *Three cyclists at 8.13am*

8.2 Evening Peak

Environmental Conditions

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

Key Points

- Evening cyclist numbers have increased notably since last year (145 movements in 2010 compared to 117 last year), the highest since the monitor began.
- In the evening peak, the key route is along the North Western cycleway away from the city (Movement 8 = 65 cyclists).
- Of the twelve movements possible at this site, the most notable increases since last year are at Movement 8 (up 17 cyclists) and Movement 2 (up 10 cyclists).

Table 8.3: Evening Cyclist Movements

North Western Cycleway/St Lukes Road 2004-2010(n) – 4.00 to 6.00 pm

Movement	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	0	9	8	10	8	9	8	-1
2	28	6	8	7	10	12	22	10
3	3	5	4	4	6	5	4	-1
4	0	6	10	8	10	7	9	2
5	13	15	3	13	7	13	14	1
6	11	0	0	3	3	0	1	1
7	4	1	1	3	3	2	5	3
8	5	34	38	50	40	48	65	17
9	2	0	2	6	6	1	3	2
10	9	2	0	1	1	0	1	1
11	6	16	4	14	14	9	7	-2
12	6	14	2	3	7	11	6	-5
Total	**87**	**108**	**80**	**122**	**115**	**117**	**145**	**28**

- In total, 210 cycle movements were recorded at the North Western Cycleway/St Lukes Road site during the evening monitoring period (from 4:00pm to 7:00pm). This compares with 155 movements in 2009.

Table 8.3A: Evening Cyclist Movements

North Western Cycleway/St Lukes Road 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	11	13	9	11	2
2	8	20	12	28	16
3	7	7	5	5	0
4	11	13	13	16	3
5	27	7	18	24	6
6	5	4	1	1	0
7	5	4	3	10	7
8	69	60	64	80	16
9	6	11	2	8	6
10	1	1	1	1	0
11	18	22	13	14	1
12	4	13	14	12	-2
Total	**172**	**175**	**155**	**210**	**55**

- Consistent with previous years, adults comprise the greatest share of cyclists (95 per cent of cyclists in 2010, down slightly from 100 per cent in 2009).
- Most cyclists are wearing a helmet (93 per cent, unchanged from 2009).
- The greatest share of cyclists (64 per cent) were cycling on the off-road cycleway, while 16 percent were riding on the road.

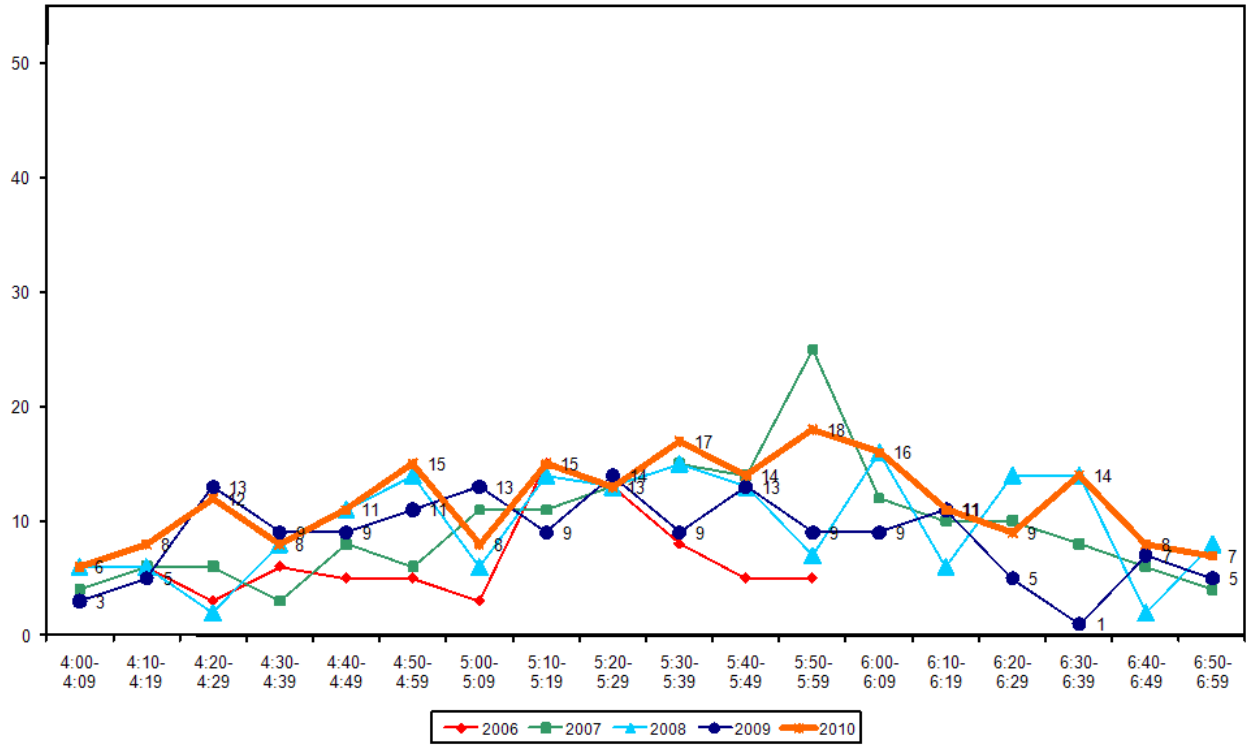
Table 8.2: Evening Cyclist Characteristics
North Western Cycleway/St Lukes Road 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
Cyclist Type								
Adult	93	98	100	96	88	100	95	-5
School child	7	2	0	4	12	0	5	5
Helmet Wearing								
Helmet on head	97	92	98	97	91	93	93	0
No helmet	3	8	2	3	9	7	7	0
Where Riding*								
Road	98	87	98	85	89	15	16	1
Footpath	2	13	2	15	11	5	20	15
Off-road cycleway*	-	-	-	-	-	80	64	-16
Base:	***87***	***108***	***80***	***172***	***175***	***155***	***210***	

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

- This year cyclist volumes are relatively consistent throughout the evening peak, with volumes peaking between 5:50pm and 5:59pm (18 movements). In contrast, last year cyclist volumes peaked between 4:20pm and 4:29pm (13 movements), and then every alternate ten minute interval between 5:00pm and 5:49pm (13 movements each peak).

Figure 8.3: North Western Cycleway/St Lukes Road Cyclist Frequency – Evening Peak



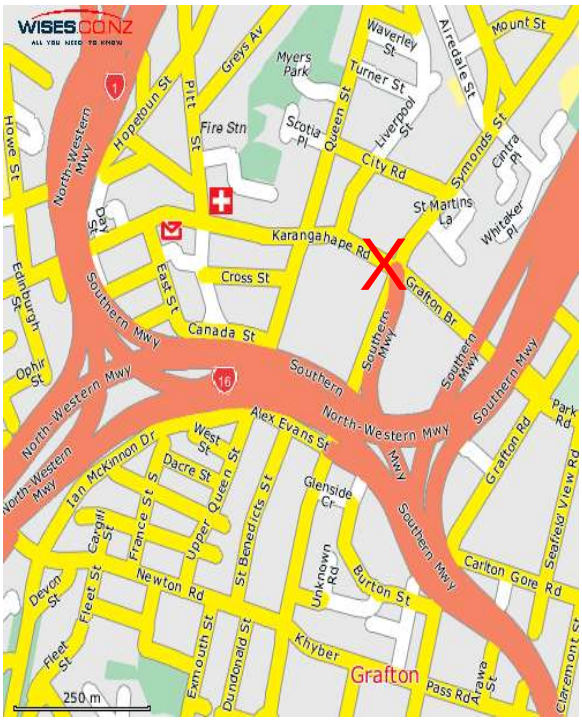
Note: In 2010, three per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

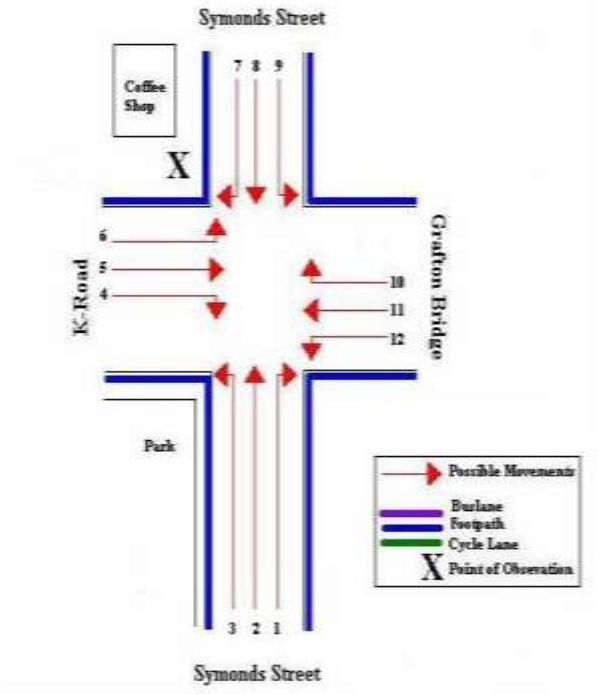
- *Four cyclists at 6.32am*
- *Three cyclists at 6.45am.*

9. SYMONDS/KARANGAHAPE/ GRAFTON ROAD, GRAFTON (SITE 8)

Figure 9.1 shows the possible cyclist movements at this intersection.

Figure 9.1: Cycle Movements: Symonds/Karangahape/Grafton





- The AADT for this site is 865. This compares with:
  - 735 in 2009
  - 899 in 2008
  - 924 in 2007.

	AM	*PM*	*TOTAL*
Raw Cycle Movement Counts 2010	**283**	**314**	**597**

9.1 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 peak cyclists recorded at the Symonds/Karangahape/Grafton intersection in 2010 (247 movements) has increased since last year (220 movements).
- This year, key routes in the morning are northbound along Symonds Street (Movement 2 = 81 cyclists), from Karangahape Road onto Grafton Bridge (Movement 5 = 41 cyclists), and straight through from Grafton Bridge into Karangahape Road (Movement 11 = 41 cyclists).
- The most notable increases since last year are at Movement 8 (14 movements), Movement 10 (11 movements) and Movement 2 (10 movements).

Table 9.1: Morning Cyclist Movements

Symonds/Karangahape/Grafton 2002-2010 (n) – 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	0	4	2	2	7	3	9	5	3	-2
2	69	72	55	72	84	88	76	71	81	10
3	20	8	12	6	11	7	18	14	19	5
4	5	5	4	2	4	0	6	1	1	0
5	45	42	44	37	44	43	46	47	41	-6
6	14	13	14	9	7	12	11	10	6	-4
7	3	1	0	1	1	3	3	0	1	1
8	13	7	3	5	7	9	3	1	15	14
9	12	5	2	9	5	8	3	8	5	-3
10	45	64	32	47	40	41	32	18	29	11
11	33	37	32	40	58	39	48	45	41	-4
12	3	0	2	1	3	2	3	0	5	5
Total	**259**	**258**	**202**	**231**	**271**	**255**	**258**	**220**	**247**	**27**

- Of the 28 sites monitored in Auckland city this year, this intersection is the second busiest in terms of morning cyclists' activity, with 283 cycle movements recorded from 6:30 to 9:00am. This compares with 246 movements in 2009.

Table 9.1A: Morning Cyclist Movements
Symonds/Karangahape/Grafton 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	3	10	6	4	-2
2	92	81	77	87	10
3	9	18	18	22	4
4	2	6	1	1	0
5	55	54	51	51	0
6	12	11	12	7	-5
7	3	3	0	1	1
8	11	8	2	19	17
9	8	5	9	7	-2
10	41	33	21	31	10
11	51	53	48	48	0
12	3	3	1	5	4
Total	**290**	**285**	**246**	**283**	**37**

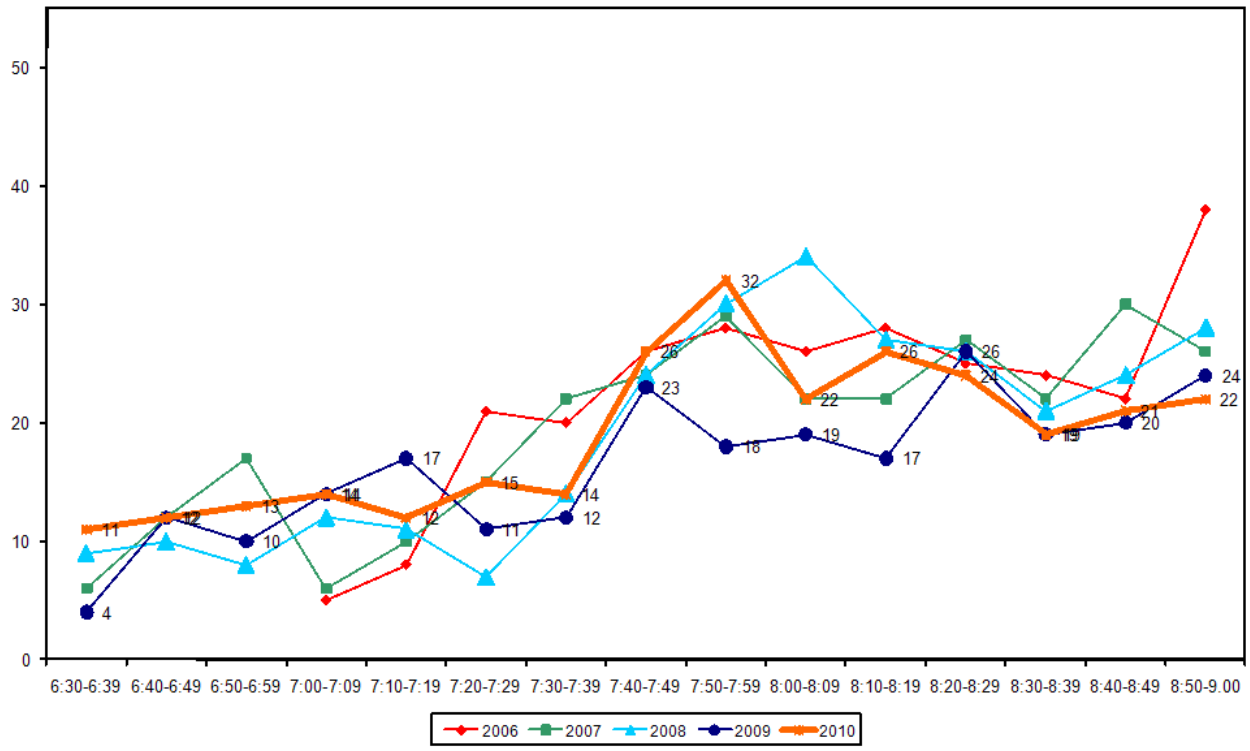
- Almost all morning cyclists continue to be adults (99 per cent).
- Helmet wearing is still the norm (94 per cent, stable from last year)
- Riding on the road is slightly less common than last year (87 per cent, down from 91 per cent in 2009).

Table 9.2: Morning Cyclist Characteristics
Symonds/Karangahape/Grafton 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	99	99	99	99	100	100	99	-1
School child	1	1	1	1	0	0	1	1
Helmet Wearing								
Helmet on head	95	96	94	98	95	94	94	0
No helmet	5	4	6	2	5	6	6	0
Where Riding								
Road	84	92	92	91	92	91	87	-4
Footpath	16	8	8	9	8	9	13	4
Base:	***202***	***231***	***271***	***290***	***285***	***246***	***283***	

- Morning cyclist volumes steadily increase over the morning period to peak between 7:50am and 7:59am (32 cyclists). This compares to peaks between 7:40am and 7:49 am (23 cyclists), between 8:20am and 8:29am (26 cyclists) and again between 8:50am and 8:59am (24 cyclists) in 2009.

Figure 9.2: Symonds/Karangahape/Grafton Cyclist Frequency – Morning Peak



9.2 Evening Peak

Environmental Conditions

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

Key Points

- The number of cyclists at this site has increased notably this year, from 216 in 2009 to 245.
- Consistent with previous years, the key evening movement at this site is straight along Symonds Street heading south (Movement 8 = 73 cyclists) and straight from Grafton Bridge into Karangahape Road (Movement 11 = 61 cyclists).
- The most notable increases since last year in terms of evening cyclist volumes are at Movement 11 (up 15 cyclists), Movement 2 and Movement 8 (both up 11 cyclists).

Table 9.3: Evening Cyclist Movements

Symonds/Karangahape/Grafton 2002-2010 (n) – 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	0	1	0	1	1	1	1	0	1	1
2	7	18	10	8	16	14	14	6	17	11
3	5	5	6	7	6	3	4	6	2	-4
4	9	8	6	10	11	11	17	14	16	2
5	24	30	35	30	28	40	39	27	34	7
6	1	0	5	4	2	3	5	3	4	1
7	17	13	14	13	13	9	11	10	6	-4
8	75	83	56	51	79	86	74	62	73	11
9	40	45	33	38	41	25	44	27	22	-5
10	5	18	5	12	16	17	10	12	11	-1
11	38	31	32	22	41	29	30	46	61	15
12	0	4	3	6	4	10	6	3	7	4
Total	**221**	**256**	**205**	**202**	**258**	**248**	**255**	**216**	**254**	**38**

- In 2010, this site has the third highest level of evening cyclist traffic, with 314 movements recorded between 4:00pm and 7:00pm. This compares with 282 movements in 2009.

Table 9.3A: Evening Cyclist Movements
Symonds/Karangahape/Grafton 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	2	1	0	2	2
2	20	17	11	24	13
3	4	4	6	3	-3
4	17	24	23	20	-3
5	56	49	40	41	1
6	4	5	3	8	5
7	16	16	12	7	-5
8	117	103	74	85	11
9	38	55	33	27	-6
10	20	11	16	15	-1
11	42	42	60	74	14
12	13	9	4	8	4
Total	**349**	**336**	**282**	**314**	**32**

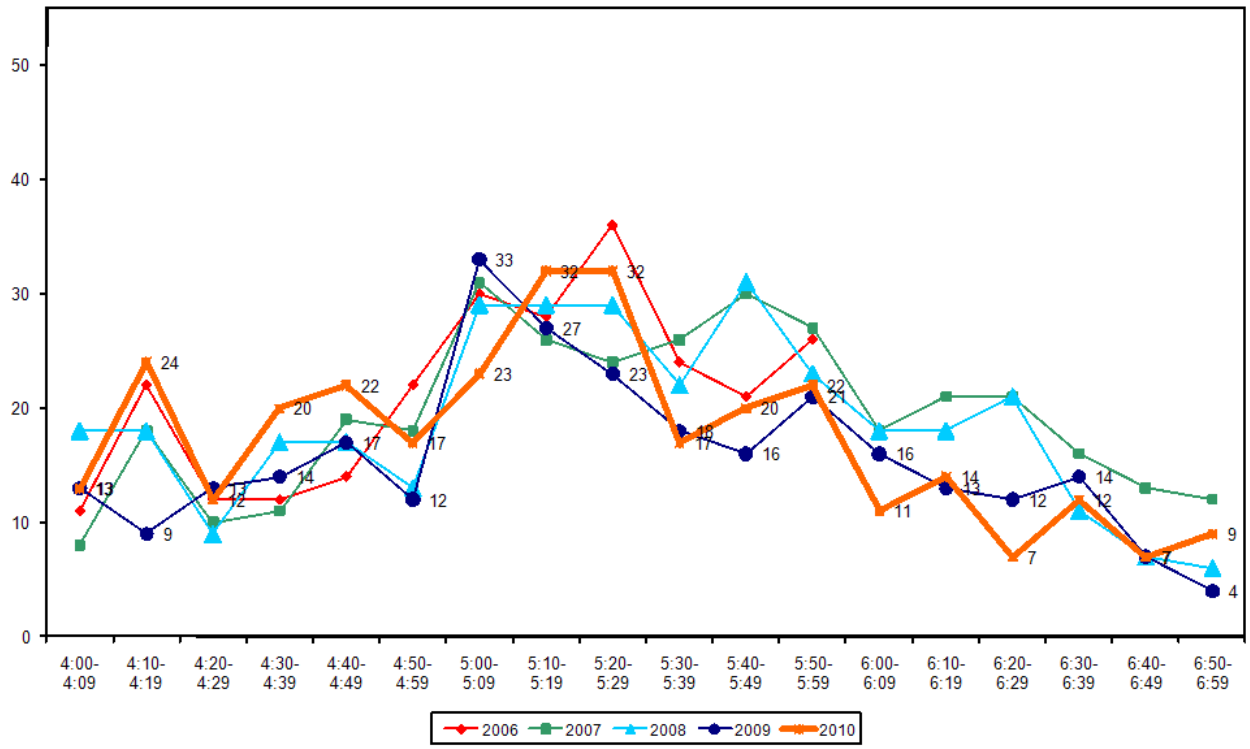
- Almost all evening cyclists at the Symonds/Karangahape/Grafton intersection are adults (99 per cent, stable since the monitor began).
- The majority of cyclists at this site are wearing a helmet (92 per cent, stable from 2009).
- Most cyclists (79 per cent) use the road – a decline from 88 per cent last year.

Table 9.4: Evening Cyclist Characteristics
Symonds/Karangahape/Grafton 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	99	98	99	99	100	100	99	-1
School child	1	2	1	1	0	0	1	1
Helmet Wearing								
Helmet on head	90	90	94	90	92	90	92	2
No helmet	10	10	6	10	8	10	8	-2
Where Riding								
Road	81	88	80	84	97	88	79	-9
Footpath	19	12	20	16	3	12	21	9
Base:	***205***	***202***	***258***	***349***	***336***	***282***	***314***	

- Evening cycle volumes in 2010 increase over the monitoring period to peak between 5:10pm and 5:29pm (32 movements per ten minute interval). This compares with a peak between 5:00pm and 5:09pm (33 movements) in the previous year.

Figure 9.3: Symonds/Karangahape/Grafton Cyclist Frequency – Evening Peak

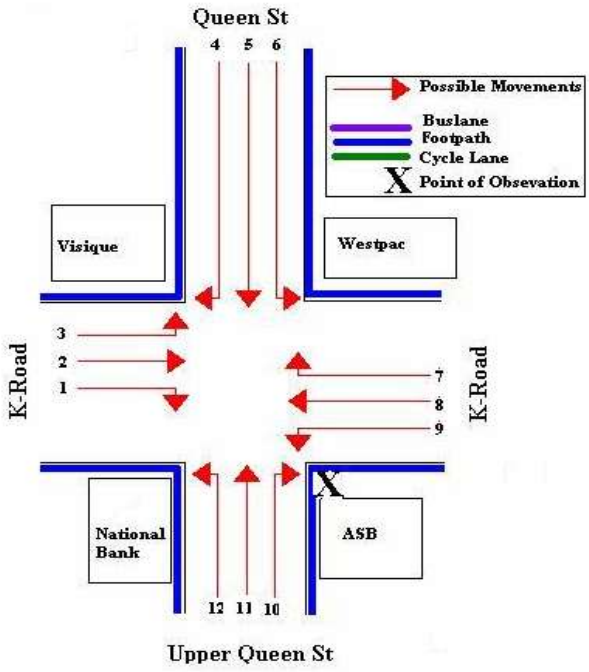


Note: In 2010, three cyclists were observed riding as a group at 4.18pm. This comprises one per cent of the total cycle movements in the evening peak in 2010.

10. KARANGAHAPE ROAD/QUEEN STREET, AUCKLAND CENTRAL (SITE 9)

Figure 10.1 shows the possible cyclist movements at this intersection.

Figure 10.1: Cycle Movements: Karangahape/Queen



- The AADT for this site is 843. This compares with:
  - 669 in 2009
  - 616 in 2008
  - 736 in 2007.
  -

	AM	*PM*	*TOTAL*
Raw Cycle Movement Counts 2010	272	310	582

10.1 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

- Total morning cyclist volumes recorded at the Karangahape/Queen Street intersection in 2010 have increased from last year, and are the highest since the monitor began (up 21 from last year, to 239 movements).
- Key morning movements are straight along Karangahape Road in both directions (Movement 2 = 87 cyclists travelling east; Movement 8 = 66 cyclists travelling west).
- Of the twelve movements possible at this intersection, the most notable increase since last year in terms of morning cyclist volumes is at Movement 11 (up 16 cyclists).

Table 10.1: Morning Cyclist Movements
Karangahape/Queen 2002-2010 (n) – 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	2	3	0	0	1	0	-1
2	91	81	91	64	73	78	68	89	87	-2
3	11	18	10	6	6	10	6	10	6	-4
4	4	0	2	1	2	8	1	2	1	-1
5	2	1	3	2	3	2	4	2	3	1
6	1	2	1	3	3	7	0	3	2	-1
7	12	16	11	5	8	9	10	7	13	6
8	29	47	43	55	53	49	62	66	66	0
9	1	1	0	0	2	0	1	0	0	0
10	6	14	8	12	10	8	14	8	13	5
11	31	31	25	41	33	37	17	24	40	16
12	9	10	15	12	15	12	6	6	8	2
Total	**197**	**221**	**209**	**203**	**211**	**220**	**189**	**218**	**239**	**21**

- Overall, 272 cycle movements were recorded at this site during the morning monitoring period (from 6:30am to 9:00am). This compares with 238 movements in 2009.

Table 10.1A: Morning Cyclist Movements
Karangahape/Queen 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	0	0	1	0	-1
2	85	77	96	99	3
3	10	6	13	8	-5
4	8	2	2	2	0
5	2	4	2	3	1
6	9	0	3	2	-1
7	9	11	10	15	5
8	60	67	69	74	5
9	0	1	0	0	0
10	12	16	8	13	5
11	38	20	28	46	18
12	13	8	6	10	4
Total	**246**	**212**	**238**	**272**	**34**

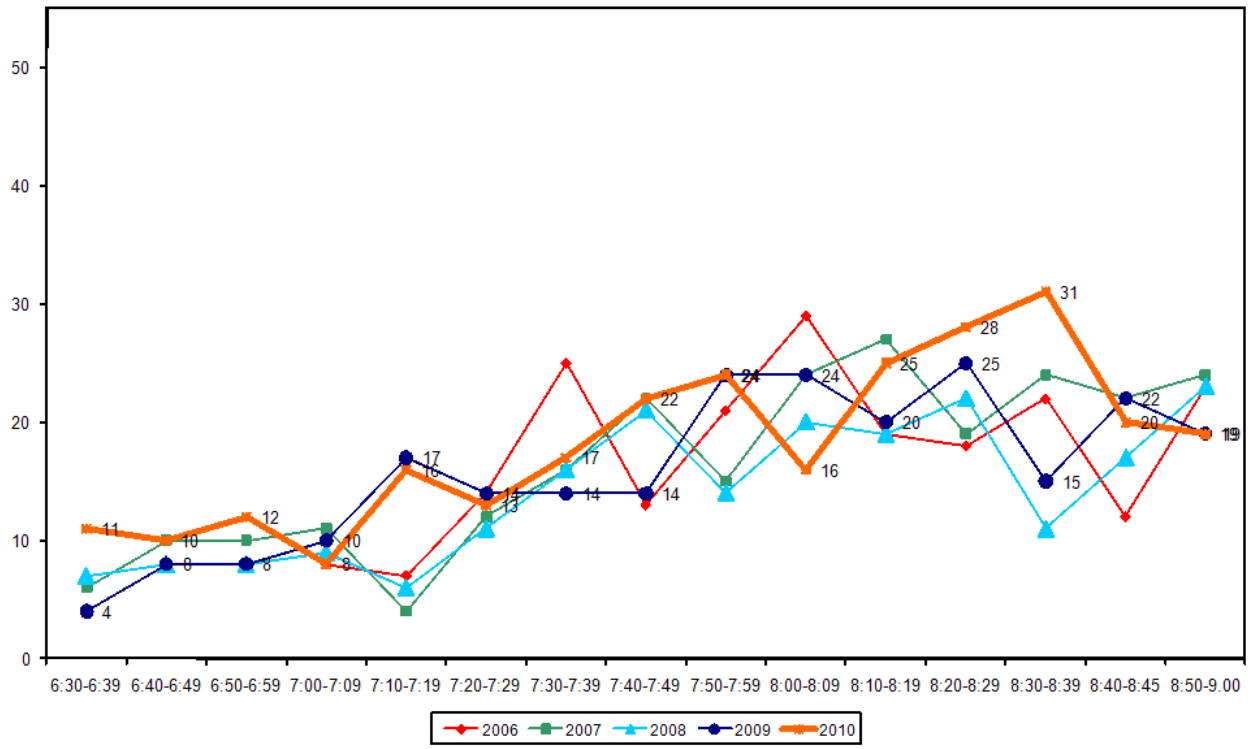
- All cyclists are adults (100 per cent, consistent with results recorded in previous years with the exception of 2008 – 83 per cent).
- Most of cyclists are wearing a helmet (97 per cent, up slightly from 93 per cent last year).
- Riding on the road is still most common (94 per cent, up slightly from 92 per cent last year).

Table 10.2: Morning Cyclist Characteristics
Karangahape/Queen 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	99	99	99	99	83	99	100	1
School child	1	1	1	1	17	1	0	-1
Helmet Wearing								
Helmet on head	90	91	91	95	92	93	97	4
No helmet	10	9	9	5	8	7	3	-4
Where Riding								
Road	95	93	94	92	92	92	94	2
Footpath	5	7	6	8	8	8	6	-2
Base:	***209***	***203***	***211***	***246***	***212***	***238***	***272***	

- Similar to the pattern noted in previous years, the volume of morning cyclists in 2010 follows an increasing trend. Cyclist volumes peak between 8:30am and 8:39am (31 cyclists). This peak is later in the morning than the peaks observed between 7:50am and 8:09am, and 8:20am and 8:29am in 2009.

Figure 10.2: Karangahape/Queen Cyclist Frequency – Morning Peak



10.2 Evening Peak

Environmental Conditions

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

Key Points

- The total number of evening peak cyclists recorded at the Karangahape Road/Queen Street intersection in 2010 has increased notably, from 156 in 2009 to 208 movements this year.
- The key routes through this intersection are west and east along Karangahape Road heading both directions (Movement 8 = 92 cyclists; Movement 2 = 64 cyclists).
- Compared with last year, the number of cycle movements in a westerly direction along Karangahape Road (Movement 8, up 21) and an easterly direction along Karangahape Road (Movement 2, up 13) have increased notably this year.

Table 10.3: Evening Cyclist Movements

Karangahape/Queen 2002-2010 (n) – 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	3	5	8	1	9	3	3	1	5	4
2	23	42	43	42	23	54	40	51	64	13
3	4	4	4	2	2	1	7	3	3	0
4	8	16	12	7	11	5	1	9	13	4
5	21	16	15	19	10	20	13	8	11	3
6	3	7	6	4	1	13	3	3	3	0
7	2	6	3	2	3	5	2	4	6	2
8	71	70	64	54	53	58	58	71	92	21
9	2	7	3	3	5	4	7	4	7	3
10	0	1	1	1	0	2	3	0	1	1
11	4	1	3	6	2	10	7	2	3	1
12	2	2	6	1	1	5	1	0	0	0
Total	**143**	**177**	**168**	**142**	**120**	**180**	**145**	**156**	**208**	**52**

- In total, 310 cycle movements were recorded at this site during the evening monitoring period (from 4:00am to 7:00pm). This is a notable increase from 221 movements in 2009.

Table 10.3A: Evening Cyclist Movements
Karangahape/Queen 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	4	3	3	6	3
2	85	63	70	104	34
3	2	8	5	4	-1
4	6	4	14	15	1
5	24	17	10	15	5
6	16	4	5	4	-1
7	6	5	5	10	5
8	94	84	101	137	36
9	5	11	4	8	4
10	2	3	0	1	1
11	11	9	3	4	1
12	6	1	1	2	1
Total	**261**	**212**	**221**	**310**	**89**

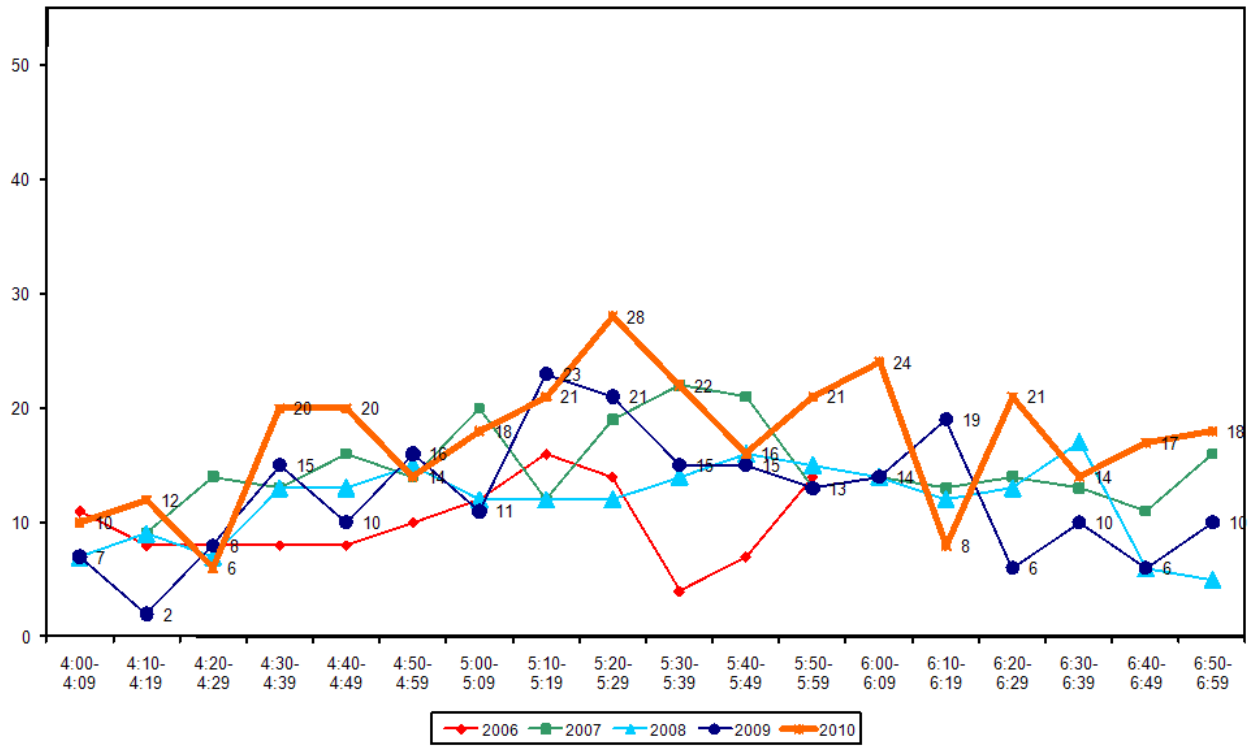
- This year all riders at this intersection are adults (100 per cent, unchanged from 2009).
- Since 2009, the share of cyclists wearing a helmet has increased (91 per cent, compared with 86 per cent last year).
- Most cyclists (86 per cent) are riding on the road (up from 77 per cent in 2009).

Table 10.4: Evening Cyclist Characteristics
Karangahape/Queen 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	98	99	100	99	94	100	100	0
School child	2	1	0	1	6	0	0	0
Helmet Wearing								
Helmet on head	80	77	88	78	88	86	91	5
No helmet	20	23	12	22	12	14	9	-5
Where Riding								
Road	81	75	78	80	86	77	86	9
Footpath	19	25	22	20	14	23	14	-9
Base:	***168***	***142***	***120***	***261***	***212***	***221***	***310***	

- The volume of evening cyclists in 2010 slightly peaks between 5:20pm and 5:29pm (28 movements). This compares to a peak between 5:10pm and 5:29pm (23 cyclists in the first ten minute interval, 21 cyclists in the second ten minute interval) and another slight peak between 6:10pm and 6:19pm (19 movements) in 2009.

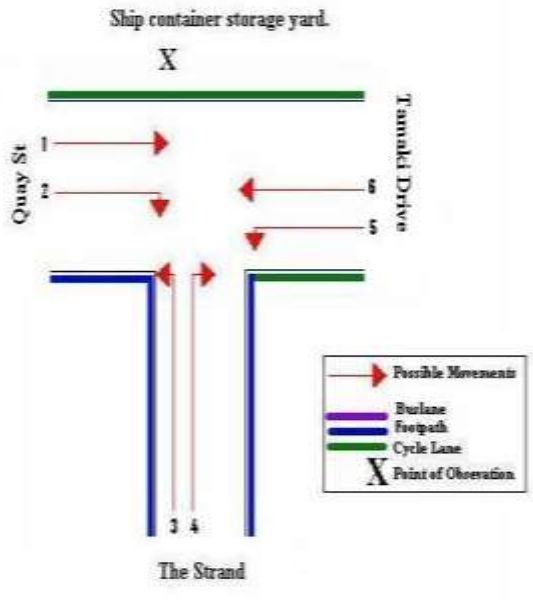
Figure 10.3: Karangahape/Queen Cyclist Frequency – Evening Peak



11. TAMAKI DRIVE/THE STRAND, PARNELL (SITE 10)

Figure 11.1 shows the possible cyclist movements at this intersection.

Figure 11.1: Cycle Movements: Tamaki/The Strand



- The AADT for this site is 1365. This compares with:
  - 880 in 2009
  - 1146 in 2008
  - 1313 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**498**	**438**	**936**

11.1 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 numbers at the Tamaki Drive/The Strand/Quay Street intersection in 2010 have increased notably from last year (406 movements, up from 253 in 2009).
- Just less than half of the cycle movements at this site are west along Tamaki Drive towards the city centre (Movement 6 = 194 cyclists).
- Of the six movements possible at this site, cyclist volumes at all movements have increased since last year. The most notable increases are at Movement 1 (up 53 cyclists), Movement 6 (up 41 cyclists) and Movement 5 (up 33 cyclists).

Table 11.1: Morning Cyclist Movements
Tamaki/The Strand 2002-2010 (n) – 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	12	19	8	26	23	25	33	19	72	53
2	10	18	12	18	13	23	32	25	30	5
3	9	13	9	17	27	10	7	10	27	17
4	7	9	9	14	7	16	18	6	10	4
5	39	42	24	59	66	89	71	40	73	33
6	80	123	63	127	146	188	152	153	194	41
Total	**157**	**224**	**125***	**261**	**282**	**351**	**313**	**253**	**406**	**153**

** Note: In 2004, monitoring at this site was undertaken on April 15th – three weeks after the other sites. This timing coincided with the University holidays and may have had a strong influence on the results.*

- Of the 27 sites monitored in Auckland city this year, the Tamaki/The Strand site is the busiest in terms of morning cyclists' activity, with a total of 498 cycle movements recorded from 6:30am to 9:00am. This compares with 321 movements in 2009.

Table 11.1A: Morning Cyclist Movements
Tamaki/The Strand 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	55	58	47	92	45
2	31	36	29	37	8
3	14	9	14	29	15
4	26	25	8	17	9
5	147	112	50	106	56
6	207	176	173	217	44
Total	**480**	**416**	**321**	**498**	**177**

- As was the case last year, no school children are using this site in the morning.
- Almost all riders are wearing a helmet at this site (97 per cent, stable from previous years).
- In 2009, road riding was split into riding on the off-road cycleway (designated side of the footpath) and the road. Fifteen per cent of cyclists are riding on the off-road cycleway (down from 24 per cent last year).

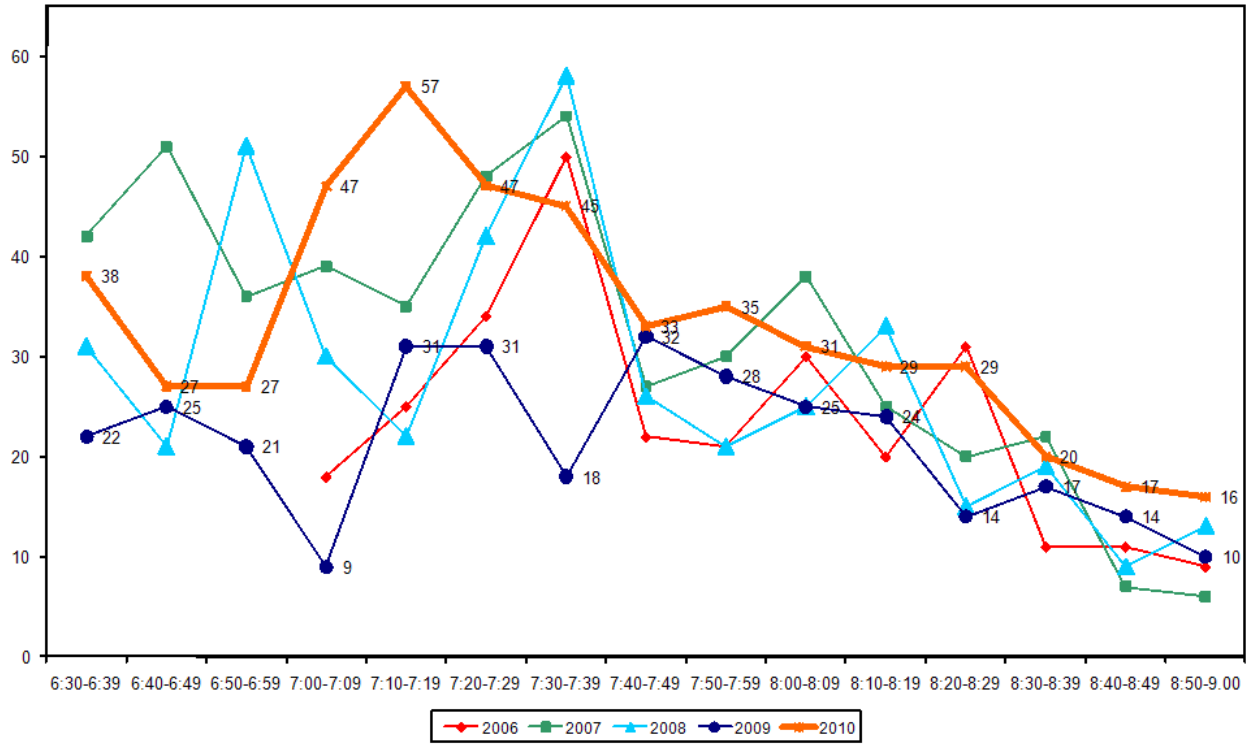
Table 11.2: Morning Cyclist Characteristics
Tamaki/The Strand 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	98	100	100	100	100	100	100	0
School child	2	0	0	0	0	0	0	0
Helmet Wearing								
Helmet on head	97	98	98	99	100	99	97	-2
No helmet	3	2	2	1	0	1	3	2
Where Riding*								
Road	83	71	70	95	99	74	78	4
Footpath	17	29	30	5	1	2	7	5
Off-road cycleway	-	-	-	-	-	24	15	-9
Base:	***125***	***261***	***282***	***480***	***416***	***321***	***498***	

** Prior to 2009, cyclists riding on the cycle-designated side of the footpath on Tamaki Drive were classified as road riders. In 2009, a separate classification of 'off-road cycleway' was introduced, which incorporates separated cycleways such as Tamaki Drive. From 2009, 'road riders' were defined as those cycling on the cycle designated side of the footpath, and 'footpath' riders as those cycling on the pedestrian-designated side of the footpath.*

- This year, morning cyclist volume peak between 7:10am and 7:19am (57 cyclists) and then trail off to the end of the monitoring period. This compares to peaks recorded between 7:10am and 7:29am (with 31 cyclists in each ten minute period) and again between 7:40am and 7:49am (32 cyclists) before declining steadily to the end of the monitoring period in 2009.

Figure 11.2: Tamaki/The Strand Cyclist Frequency – Morning Peak



Note: In 2010, 19 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 6.36am*
- *Three cyclists at 6.37am*
- *Three cyclists at 6.42am*
- *Four cyclists at 6.50am*
- *Twenty-two cyclists at 7.01am*
- *Seven cyclists at 7.11am*
- *Sixteen cyclists at 7.15am.*
- *Three cyclists at 7.26am*
- *Fifteen cyclists at 7.27am*
- *Fifteen cyclists at 7.30am*
- *Three cyclists at 7.37am.*

11.2 Evening Peak

Environmental Conditions

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

Key Points

- Evening cycle volumes recorded at this intersection in 2010 have notably increased from last year (up from 203 movements in 2009 to 298 movements this year).
- Key movements in the evening are dominated by those travelling east along Tamaki Drive away from the city (Movement 1 = 122 cyclists), and also by those travelling right into Tamaki Drive from The Strand (Movement 4 = 68 cyclists).
- Cyclist volumes have increased across all movements this year. The most notable increases are at Movement 4 (up 27 cyclists) and Movement 6 (up 26 cyclists).

Table 11.3: Evening Cyclist Movements
Tamaki/The Strand 2002-2010 (n) – 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	43	99	43	97	62	113	93	105	122	17
2	4	17	9	12	16	16	7	9	16	7
3	4	14	12	14	9	20	21	21	25	4
4	53	41	27	35	21	57	39	41	68	27
5	33	33	5	21	4	19	22	8	22	14
6	20	31	20	20	8	35	33	19	45	26
Total	**157**	**235**	**116**	**199**	**120**	**260**	**215**	**203**	**298**	**95**

- Consistent with the morning peak, the Tamaki/The Strand site continues to be the busiest in terms of evening cyclists' activity, with a total of 438 cycle movements recorded from 4:00pm to 7:00pm. This compares with 282 movements in 2009.

Table 11.3A: Evening Cyclist Movements
Tamaki/The Strand 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	182	150	152	170	18
2	24	12	15	29	14
3	21	25	24	28	4
4	98	78	51	102	51
5	38	30	13	36	23
6	57	75	27	73	46
Total	**420**	**370**	**282**	**438**	**156**

- Cyclists using the Tamaki/Strand intersection this year are almost all adults (99 per cent, compared to 100 per cent last year).
- Almost all cyclists are wearing a helmet (96 per cent, down slightly from 99 per cent last year).
- In 2009, riding on the road was split into riding on the off-road cycleway (designated side of the footpath) and the road. The proportion of those riding on the off-road cycleway is 25 per cent, down from 39 per cent in 2009.

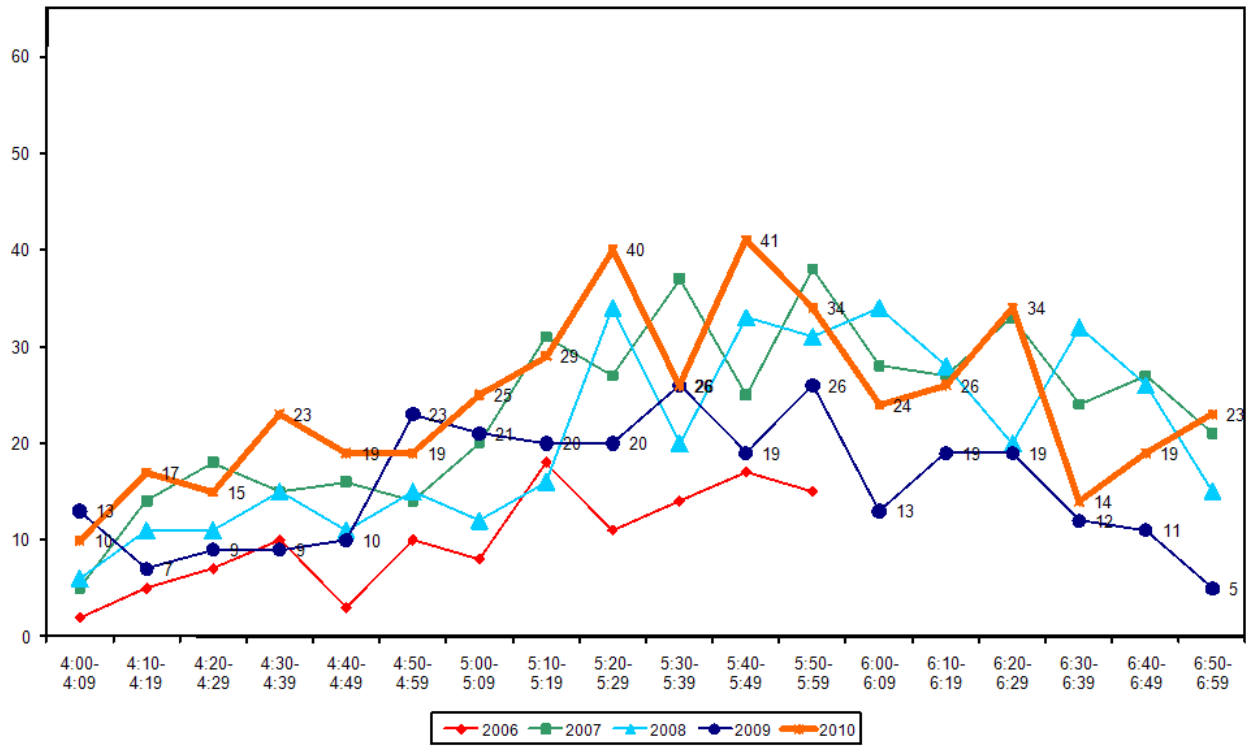
Table 11.4: Evening Cyclist Characteristics
Tamaki/The Strand 2002-2010 (%)

	2004	***2005***	***2006***	***2007***	***2008***	***2009***	***2010***	**Change 09-10**
Cyclist Type								
Adult	94	98	100	100	100	100	99	-1
School child	6	2	0	0	0	0	1	1
Helmet Wearing								
Helmet on head	91	98	98	96	100	99	96	-3
No helmet	9	2	2	4	0	1	4	3
Where Riding*								
Road	54	78	61	97	99	57	63	6
Footpath	46	22	39	3	1	4	12	8
Off-road cycleway	-	-	-	-	-	39	25	-14
Base:	***116***	***199***	***120***	***420***	***370***	***282***	***438***	

** Prior to 2009, cyclists riding on the cycle-designated side of the footpath on Tamaki Drive were classified as road riders. In 2009, a separate classification of 'off-road cycleway' was introduced, which incorporates separated cycleways such as Tamaki Drive. From 2009, 'road riders' were defined as those cycling on the cycle designated side of the footpath, and 'footpath' riders as those cycling on the pedestrian-designated side of the footpath.*

- In the evening, cyclist volumes tend to increase over the period of monitoring until the peaks between 5:20pm and 5:29pm and between 5:40pm and 5:49pm (40 and 41 movements over each ten minute period respectively). These peaks occurred ten minutes earlier than those recorded in 2009.

Figure 11.3: Tamaki/The Strand Cyclist Frequency – Evening Peak



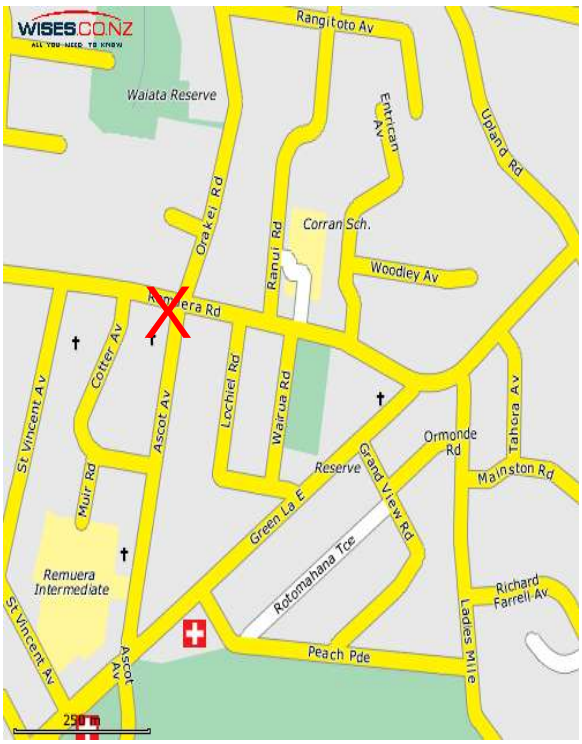
Note: In 2010, two per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

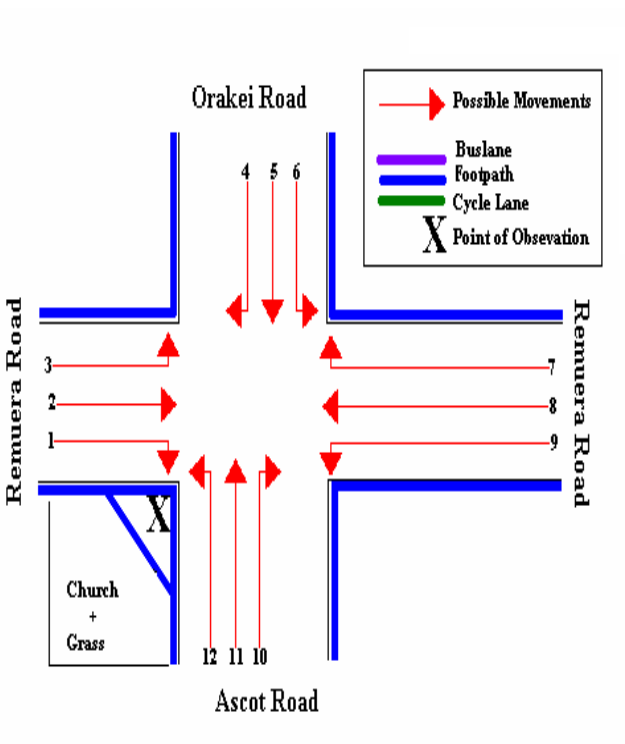
- *Three cyclists at 5.17pm*
- *Three cyclists at 6.27pm*

12. REMUERA/ORAKEI/ASCOT ROAD, REMUERA (SITE 11)

Figure 12.1 shows the possible cyclist movements at this intersection.

Figure 12.1: Cycle Movements: Remuera/Orakei/Ascot





- The AADT for this site is 359. This compares with:
  - 274 in 2009
  - 276 in 2008
  - 282 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**149**	**95**	**244**

12.1 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 numbers recorded at the Remuera/Orakei/Ascot intersection in 2010 have increased since last year (108 movements, compared with 90 movements in 2009).
- Consistent with previous years, the most common movement at this site continues to be west along Remuera Road (Movement 8 = 51 cyclists).
- The most notable increase in cyclist volumes is straight through Remuera Road heading east (Movement 2 = 32 cyclists, up from 14 cyclists in 2009).

Table 12.1: Morning Cyclist Movements

Remuera/Orakei/Ascot 2002-2010 (n) – 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	0	0	1	1	0	0	0	0	0	0
2	5	18	15	10	9	4	13	14	32	18
3	0	3	0	3	1	2	0	3	4	1
4	4	5	4	8	5	1	3	10	8	-2
5	2	1	1	7	4	2	4	3	6	3
6	0	1	3	1	2	3	7	0	3	3
7	0	0	1	2	1	0	0	4	2	-2
8	30	35	19	43	49	47	33	52	51	-1
9	3	0	0	1	0	0	0	0	2	2
10	0	0	1	0	0	0	1	0	0	0
11	1	0	1	0	0	1	2	1	0	-1
12	2	1	0	2	2	2	4	3	0	-3
Total	**47**	**64**	**46**	**78**	**73**	**62**	**67**	**90**	**108**	**18**

- Overall, 149 cycle movements were recorded at this site during the morning monitoring period (from 6:30am to 9:00am). This is a notable increase from 107 movements in 2009.

Table 12.1A: Morning Cyclist Movements
Remuera/Orakei/Ascot 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	0	0
2	19	25	24	56	32
3	4	1	3	5	2
4	3	9	12	10	-2
5	2	4	3	7	4
6	3	9	1	4	3
7	0	0	4	2	-2
8	52	45	56	63	7
9	0	0	0	2	**2**
10	0	1	0	0	0
11	1	2	1	0	-1
12	2	4	3	0	-3
Total	**86**	**100**	**107**	**149**	**42**

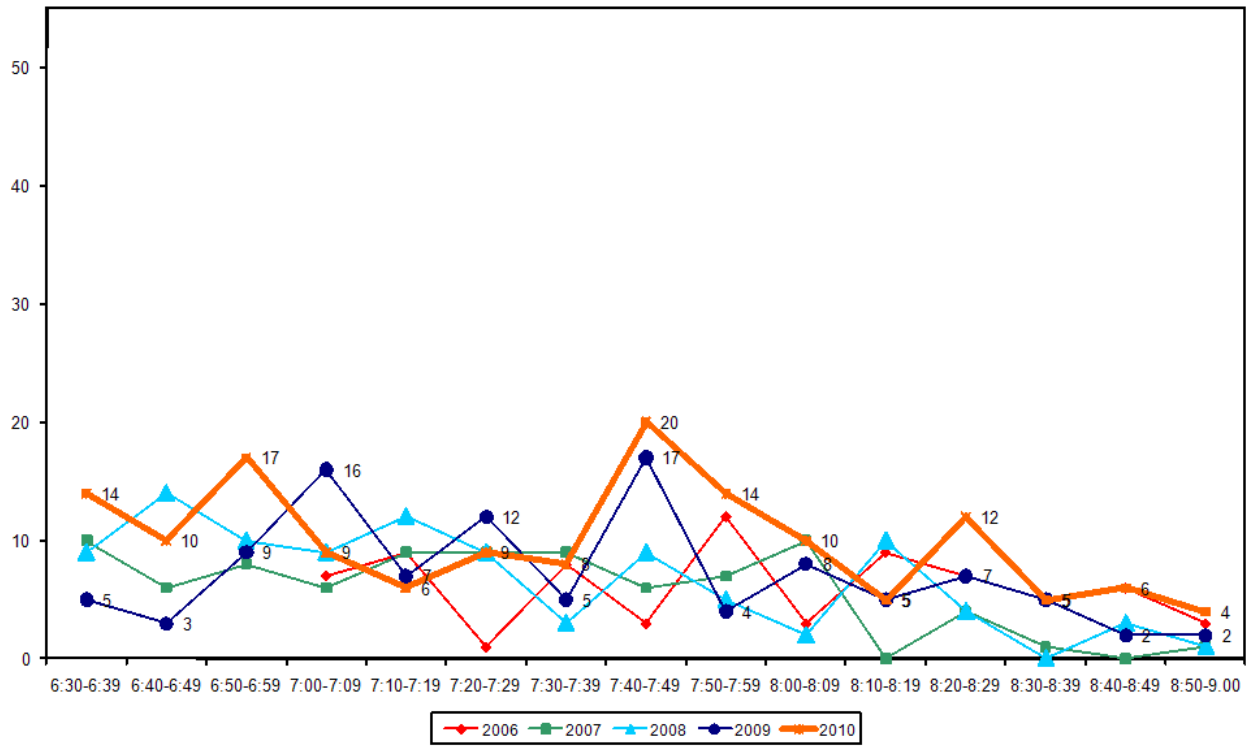
- Ninety-one per cent of cyclists in the morning at this site are adults (down slightly from 94 per cent last year).
- Helmet wearing continues to be widespread (97 per cent, unchanged from last year)
- The number of cyclists riding on the road has decreased slightly to 90 per cent (down four percentage points since the 2009 measure).

Table 12.2: Morning Cyclist Characteristics
Remuera/Orakei/Ascot 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	89	85	89	91	97	94	91	-3
School child	11	15	11	9	3	6	9	3
Helmet Wearing								
Helmet on head	98	97	99	98	98	98	97	-1
No helmet	2	3	1	2	2	2	3	1
Where Riding								
Road	83	79	86	90	92	94	90	-4
Footpath	17	21	14	10	8	6	10	4
Base:	***46***	***78***	***73***	***86***	***100***	***107***	***149***	

- This year, morning cyclist volumes peak between 6:50am and 6:59am (17 cyclists) and then remain relatively stable until the second peak between 7:40am and 7:49am (20 cyclists). This contrasts with a later first peak around 7:05am, and a matching second peak between 7:40am and 7:49am in 2009.

Figure 12.2: Remuera/Orakei/Ascot Cyclist Frequency – Morning Peak



Note: In 2010, 11 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 6.32am*
- *Three cyclists at 6.46am*
- *Six cyclists at 6.50am*
- *Three cyclists at 6.58am*
- *Fourteen cyclists at 7.44am*

12.2 Evening Peak

Environmental Conditions

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

Key Points

- The volume of cyclists recorded between 4:00pm and 6:00pm at this site in 2010 (62 movements) is an increase from that recorded last year (55 movements).
- The key movement in the evening at this site is east along Remuera Road (Movement 2 = 39 cyclists).
- The most notable increase in cyclist volumes recorded is at Movement 2 (up 11 cyclists).

Table 12.3: Evening Cyclist Movements
Remuera/Orakei/Ascot 2002-2010 (n) – 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	1	0	0	1	0	0	1	0	0	0
2	29	34	22	44	21	30	29	28	39	11
3	4	2	7	12	1	4	4	3	6	3
4	0	3	0	2	0	2	0	0	1	1
5	2	1	3	1	0	3	0	1	0	-1
6	0	0	2	3	1	0	3	1	1	0
7	2	0	2	3	0	0	3	1	0	-1
8	15	8	12	7	6	14	10	15	11	-4
9	0	1	0	0	0	0	0	1	0	-1
10	0	2	0	0	1	1	1	0	1	1
11	0	0	1	0	2	4	5	5	3	-2
12	0	0	0	0	0	0	0	0	0	0
Total	**53**	**51**	**49**	**73**	**32**	**58**	**56**	**55**	**62**	**7**

- In total, 95 cycle movements were recorded at this site during the evening monitoring period (from 4:00pm to 7:00pm). This compares with 80 movements in 2009.

Table 12.3A: Evening Cyclist Movements
Remuera/Orakei/Ascot 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	3	3	2	0	-2
2	60	49	41	60	19
3	6	4	6	8	2
4	4	0	2	2	0
5	4	0	1	0	-1
6	1	5	2	3	1
7	2	5	1	0	-1
8	22	16	19	17	-2
9	0	0	1	0	**-1**
10	1	1	0	1	1
11	5	6	5	3	-2
12	1	0	0	1	1
Total	**109**	**89**	**80**	**95**	**15**

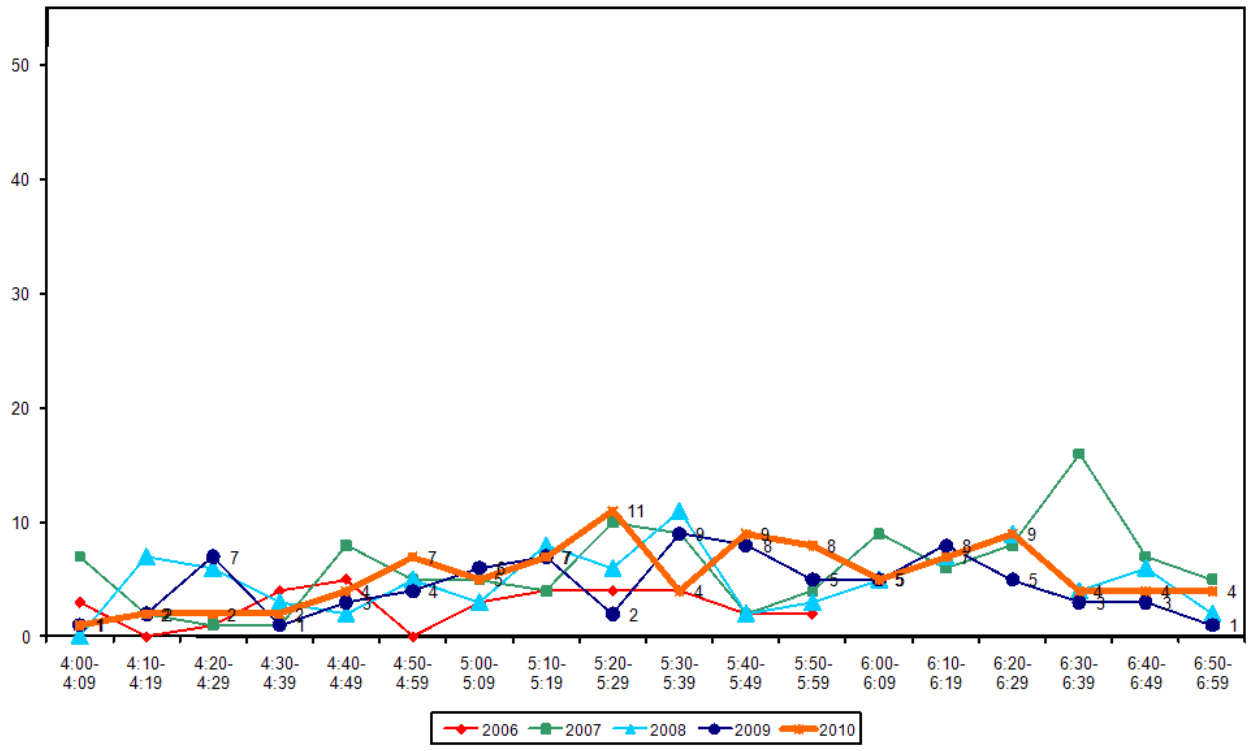
- Almost all cyclists in the evening are adults (94 per cent, down slightly from 98 per cent last year).
- Most cyclists are wearing a helmet (95 per cent, down slightly from 98 per cent in 2009).
- Compared with last year, the incidence of riding on the road has decreased slightly to 87 per cent (down from 90 per cent).

Table 12.4: Evening Cyclist Characteristics
Remuera/Orakei/Ascot 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	73	99	97	94	89	98	94	-4
School child	27	1	3	6	11	2	6	4
Helmet Wearing								
Helmet on head	94	100	100	98	96	98	95	-3
No helmet	6	0	0	2	4	2	5	3
Where Riding								
Road	86	75	84	92	89	90	87	-3
Footpath	14	25	16	8	11	10	13	3
Base:	***49***	***73***	***32***	***109***	***89***	***80***	***95***	

- This year, evening cyclist volumes peak slightly between 5:20pm and 5:29pm (11 cyclists) – slightly earlier than the peak between 5:30pm and 5:39pm in 2009.

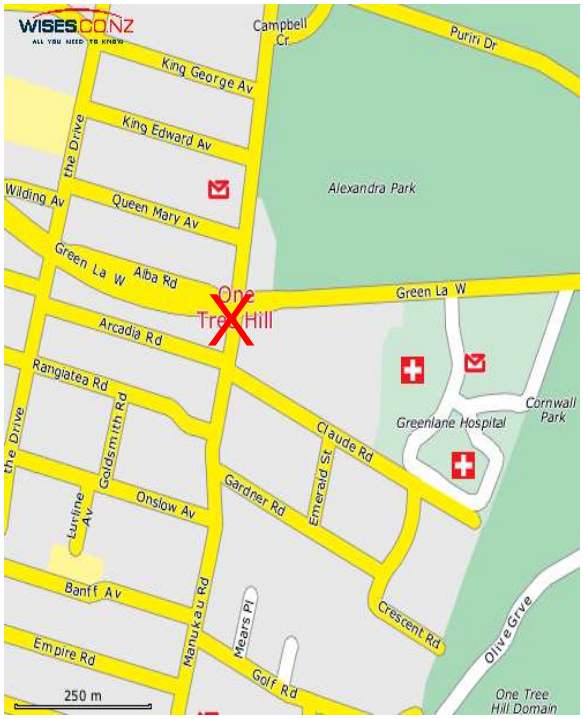
Figure 12.3: Remuera/Orakei/Ascot Cyclist Frequency – Evening Peak

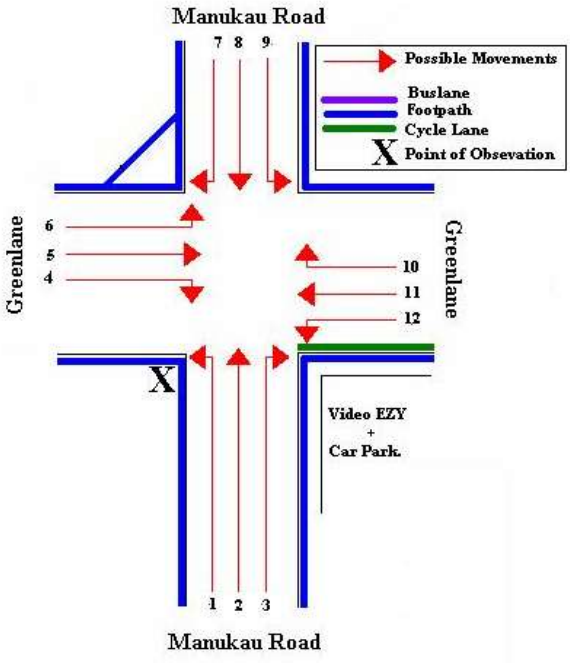


13. MANUKAU/GREENLANE ROAD, EPSOM (SITE 12)

Figure 13.1 shows the possible cyclist movements at this intersection.

Figure 13.1: Cycle Movements: Manukau/Greenlane West





- The AADT for this site is 374. This compares with:
  - 255 in 2009
  - 296 in 2008
  - 326 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**130**	**127**	**257**

13.1 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 the Manukau/Greenlane West intersection in 2010 increased notable from the volumes recorded in 2009 (114 cyclists, up from 75 cyclists in 2009).
- As in previous years, the most common morning movement at this intersection is north along Manukau Road towards the city (Movement 2 = 42 cyclists).
- The most notable increase in cyclist volumes is at Movement 2 (up to 42 cyclists from 26 in 2009).

Table 13.1: Morning Cyclist Movements

Manukau/Greenlane West 2002-2010 (n) – 7.00 to 9.00 am

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	0	0	3	5	2	2	4	1	2	1
2	10	18	7	35	31	24	22	26	42	16
3	2	4	2	8	5	1	2	4	6	2
4	3	4	0	2	5	1	5	2	1	-1
5	3	7	4	17	15	17	12	13	19	6
6	0	0	5	2	7	1	4	4	7	3
7	4	3	1	1	2	4	4	1	3	2
8	20	28	25	13	10	17	8	12	13	1
9	1	3	3	2	4	4	3	1	3	2
10	0	1	2	2	1	2	2	2	5	3
11	7	6	9	3	5	6	7	9	10	1
12	22	5	5	2	2	1	0	0	3	3
Total	**52**	**79**	**66**	**92**	**89**	**80**	**73**	**75**	**114**	**39**

- Overall, 130 cycle movements were recorded at this site during the morning monitoring period (from 6:30am to 9:00am). This is a notable increase from 84 movements in 2009.

Table 13.1A: Morning Cyclist Movements
Manukau/Greenlane West 2007-2010 (n) – 6.30 to 9.00 am

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	4	6	1	4	3
2	27	26	30	48	18
3	4	2	4	7	3
4	1	5	2	1	-1
5	20	15	16	20	4
6	1	6	4	8	4
7	4	4	1	4	3
8	22	14	14	16	2
9	9	4	1	3	**2**
10	2	2	2	5	3
11	7	7	9	11	2
12	2	1	0	3	3
Total	**103**	**92**	**84**	**130**	**46**

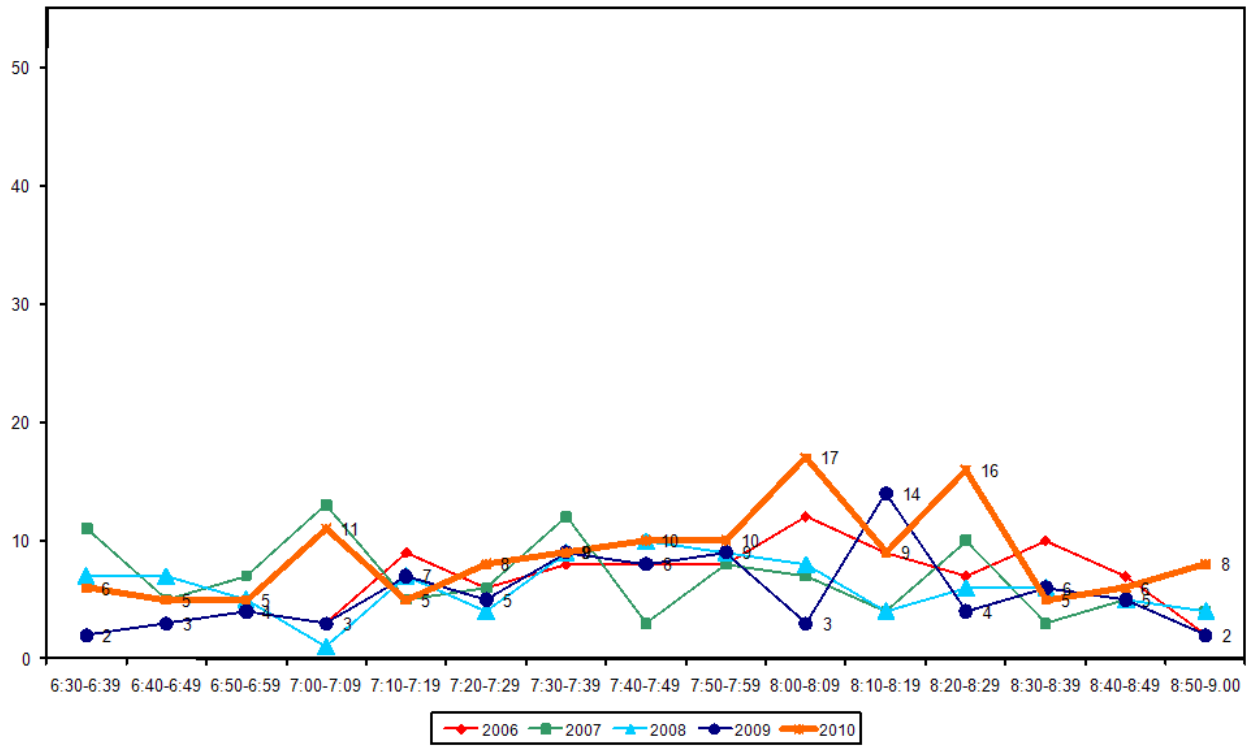
- Almost all of morning cyclists at the Manukau/Greenlane West intersection are adults (97 per cent, up from 87 per cent last year).
- Almost all cyclists are wearing a helmet (99 per cent, up from 95 per cent in 2009).
- The proportion of cyclists riding on the road has increased since last year, to 88 per cent (from 73 per cent in 2009).

Table 13.2: Morning Cyclist Characteristics
Manukau/Greenlane West 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	71	89	87	95	87	87	97	10
School child	29	11	13	5	13	13	3	-10
Helmet Wearing								
Helmet on head	92	99	93	95	99	95	99	4
No helmet	8	1	7	5	1	5	1	-4
Where Riding								
Road	71	71	74	78	79	73	88	15
Footpath	29	29	26	22	21	27	12	-15
Base:	***66***	***92***	***89***	***103***	***92***	***84***	***130***	

- The volume of morning cyclists remains relatively stable over the entire monitoring period, with two peaks between 8:00am and 8:09am (17 movements) and 8:20am and 8:29am (16 movements). The peaks in 2010 are the ten minute periods either side of the peak period in 2009 (8:10am to 8:19am).

Figure 13.2: Manukau/Greenlane West Cyclist Frequency – Morning Peak



13.2 Evening Peak

Environmental Conditions

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

Key Points

- Compared with previous years, evening cyclist numbers recorded at the Manukau/Greenlane West intersection are the second highest since monitoring began (85 movements, up from 71 movements in 2009).
- 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 = 20 cyclists).
- The most notable increases in cycle volumes are at Movement 2 (up 7 cyclists to 12) and Movement 11 (up 7 cyclists to 20).

Table 13.3: Evening Cyclist Movements
Manukau/Greenlane West 2002-2010 (n) – 4.00 to 6.00 pm

Movement	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	**Change 09-10**
1	2	2	7	0	0	2	1	2	3	1
2	13	18	12	10	8	11	14	5	12	7
3	1	0	2	2	2	4	3	2	4	2
4	5	7	6	3	4	1	5	3	3	0
5	9	11	11	3	5	7	9	6	7	1
6	4	2	1	2	0	1	0	3	0	-3
7	2	2	0	3	5	3	1	1	1	0
8	3	7	7	10	14	20	14	25	25	0
9	1	1	1	3	1	4	0	2	3	1
10	3	5	7	3	7	8	3	3	6	3
11	5	10	3	15	10	23	15	13	20	7
12	0	1	3	1	0	3	3	6	1	-5
Total	**48**	**66**	**60**	**55**	**56**	**87**	**68**	**71**	**85**	**14**

- Over the entire evening peak, 127 cycle movements were recorded at this site (from 4:00pm to 7:00pm). This compares with 92 movements in 2009.

Table 13.3A: Evening Cyclist Movements
Manukau/Greenlane West 2007-2010 (n) – 4.00 to 7.00 pm

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	4	1	2	6	4
2	16	17	5	17	12
3	4	4	3	4	1
4	6	7	5	7	2
5	9	11	8	11	3
6	1	1	5	0	-5
7	5	3	3	3	0
8	26	37	33	36	3
9	6	0	2	4	**2**
10	11	4	3	6	3
11	30	25	17	29	12
12	4	3	6	4	-2
Total	**122**	**113**	**92**	**127**	**35**

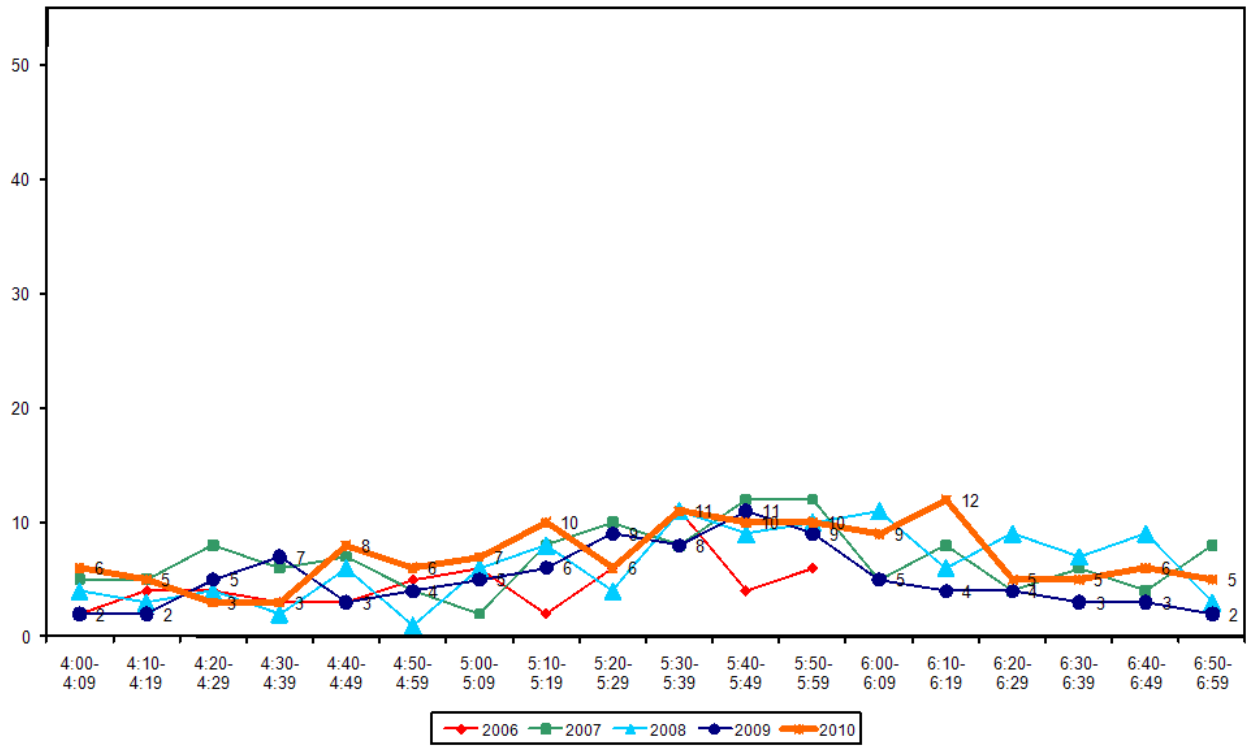
- As in previous years, the share of adult cyclists remains high (94 per cent, up from 91 per cent last year).
- The share wearing a helmet continues to be high (98 per cent, up from 93 per cent in the 2009 measure).
- The proportion of cyclists riding on the road has declined to 74 per cent (down from 84 per cent last year).

Table 13.4: Evening Cyclist Characteristics
Manukau/Greenlane West 2004-2010(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type								
Adult	78	96	95	88	81	91	94	3
School child	22	4	5	12	19	9	6	-3
Helmet Wearing								
Helmet on head	90	98	98	95	94	93	98	5
No helmet	10	2	2	5	6	7	2	-5
Where Riding								
Road	73	87	86	76	78	84	74	-10
Footpath	27	13	14	24	22	16	26	10
Base:	***60***	***55***	***56***	***122***	***113***	***92***	***127***	

- In the evening, cyclist volumes peak slightly between 6:10pm and 6:19pm (12 cyclists). This compares to a slight peak at around 5:40pm (11 cyclists) in 2009.

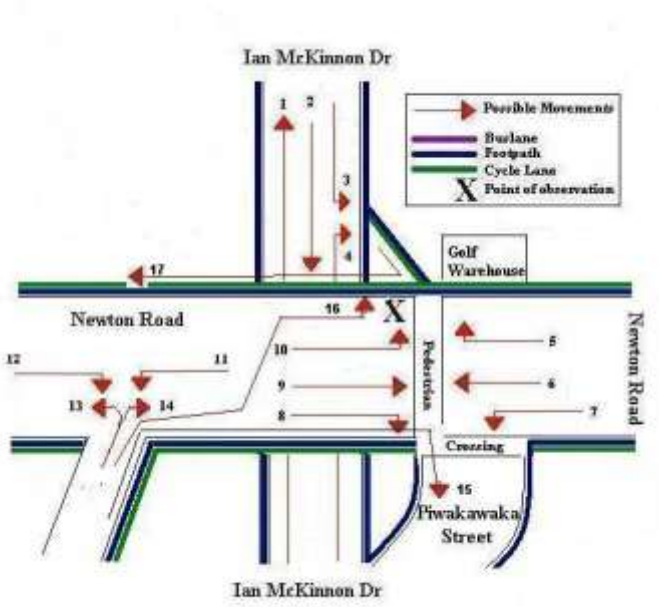
Figure 13.3: Manukau/Greenlane West Cyclist Frequency – Evening Peak



14. IAN MCKINNON DRIVE/NEWTON ROAD, NEWTON (SITE 13)

Figure 14.1 shows the possible cyclist movements at this intersection.

Figure 14.1: Cycle Movements: Ian McKinnon Drive/Newton Road



Note: This site was monitored for the first time in 2009.

- The AADT for this site is 544. This compares with 422 in 2009.

	AM	*PM*	*TOTAL*
Raw Cycle Movement Counts 2010	**190**	**184**	**374**

14.1 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 Ian McKinnon Drive Newton Road site was 190, up notably from 139 movements in 2009.
- The key morning movement at this intersection is straight along Ian McKinnon Drive heading north towards the city (Movement 1 = 78 cyclists, up from 51 cyclists last year).

Table 14.1: Morning Cyclist Movements

Ian McKinnon Drive/Newton Road 2009 - 2010 (n)

Movement	2009	2010	Change 09-10
1	51	78	27
2	1	0	-1
3	0	2	2
4	0	1	1
5	1	0	-1
6	9	17	8
7	1	0	-1
8	6	0	-6
9	10	16	6
10	7	4	-3
11	2	1	-1
12	1	1	0
13	9	21	12
14	41	13	-28
15	0	19	19
16	0	17	17
17	0	0	0
Total	**139**	**190**	**51**

- Almost all cyclists are adults (99 per cent, unchanged from last year).
- Most cyclists are wearing a helmet (93 per cent, compared with 90 per cent in 2009).
- Just less than two-fifth of cyclists are riding on the off-road cycleway (38 per cent, down from 45 per cent last year), while 43 per cent are riding on the road. The remaining 19 per cent are riding on the footpath.

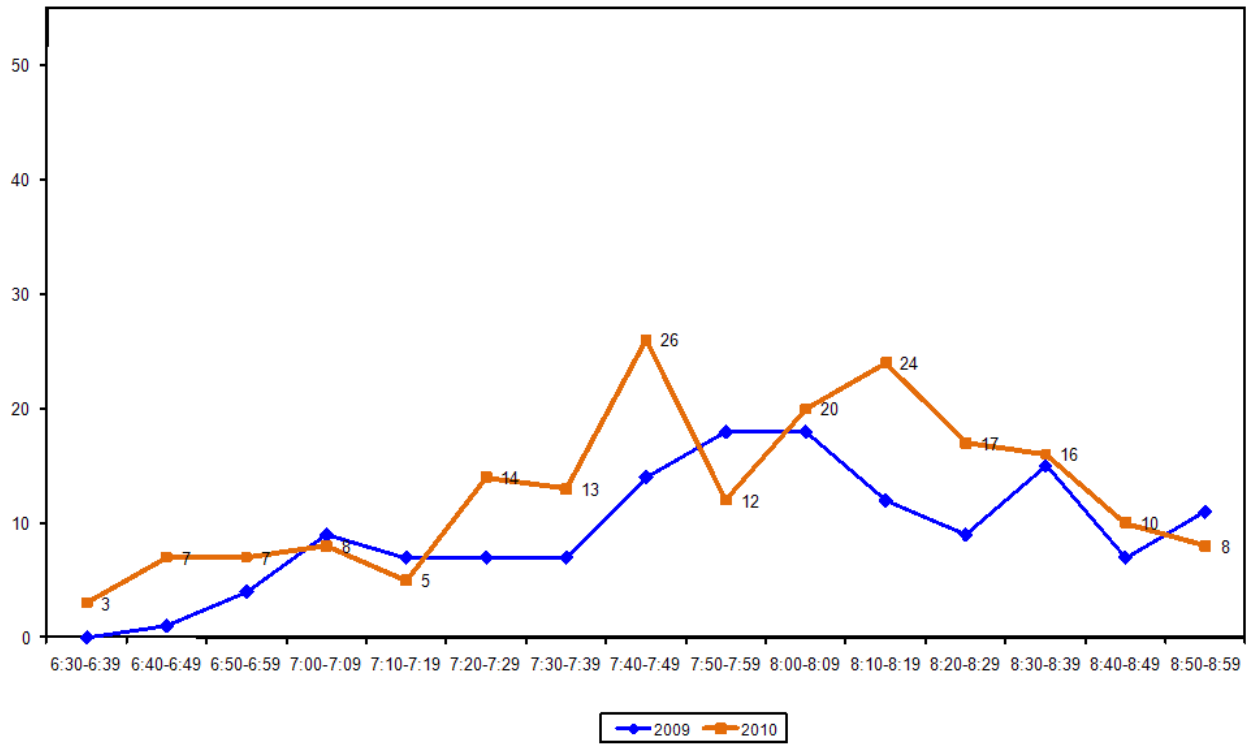
Table 14.2: Morning Cyclist Characteristics

Ian McKinnon Drive/Newton Road 2009 - 2010 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	99	99	0
School child	1	1	0
Helmet Wearing			
Helmet on head	90	93	3
No helmet	10	7	-3
Where Riding			
Road	40	43	3
Footpath	15	19	4
Off-road cycleway	45	38	-7
Base:	***139***	***190***	

- Morning cyclist volumes start off low, but peak between 7:40am and 7:49am (26 cyclists in ten minute period). There is another slight peak of 24 movements between 8:10am and 8:19am.

Figure 14.2: Ian McKinnon Drive/Newton Road Cyclist Frequency – Morning Peak



14.2 Evening Peak

Environmental Conditions

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

Key Points

- The number of evening cyclists recorded at the Ian McKinnon Drive/Newton Road intersection was 184, up from 152 movements in 2009.
- The key evening movements at this intersection are straight along Ian McKinnon Drive heading south away from the city (Movement 2 = 43, compared with 48 cyclists last year), and turning left from Newton Road into the North Western Cycleway (Movement 11 = 49, compared with 45 cyclists in 2009).

Table 14.3: Evening Cyclist Movements
Ian McKinnon Drive/Newton Road 2009 - 2010 (n)

Movement	2009	2010	Change 09-10
1	4	4	0
2	48	43	-5
3	7	3	-4
4	1	1	0
5	0	0	0
6	11	14	3
7	4	1	-3
8	0	7	7
9	22	19	-3
10	0	4	4
11	45	49	4
12	2	14	12
13	5	7	2
14	3	3	0
15	0	0	0
16	0	4	4
17	0	11	11
Total	**152**	**184**	**32**

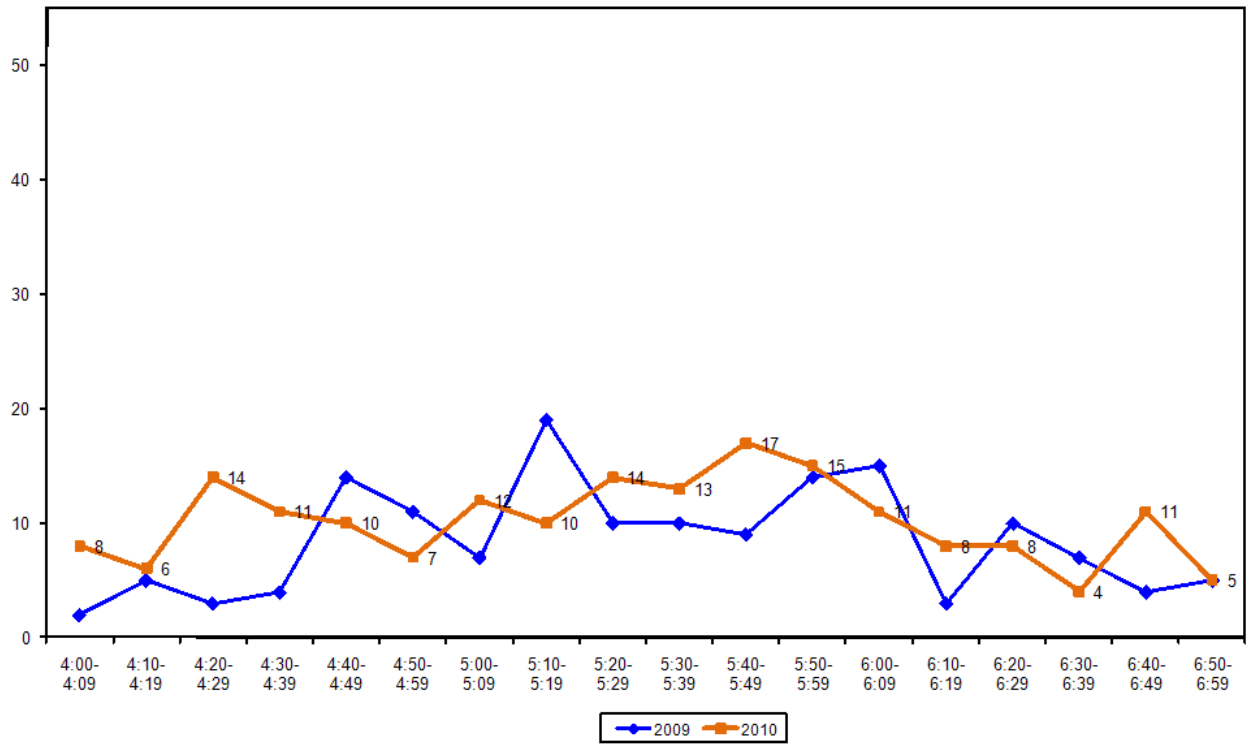
- Over the evening peak, almost all cyclists using this site are adults (99 per cent, stable from 98 per cent in 2009).
- The greatest share of cyclists at this site are wearing a helmet (96 per cent, stable from 95 per cent).
- The greatest single share of respondents are riding on the off-road cycleway (32 per cent, down from 44 per cent in 2009). A further 39 per cent are riding on the road (up from 31 per cent last year), while one quarter (29 per cent, compared with 25 per cent in 2009) are riding on the footpath.

Table 14.4: Evening Cyclist Characteristics
Ian McKinnon Drive/Newton Road 2009 - 2010 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	98	99	1
School child	2	1	-1
Helmet Wearing			
Helmet on head	95	96	1
No helmet	5	4	-1
Where Riding			
Road	31	39	8
Footpath	25	29	4
Off-road cycleway	44	32	-12
Base:	***152***	***184***	

- Evening cyclist numbers peak between slightly between 5:40pm and 5:49pm (17 movements).

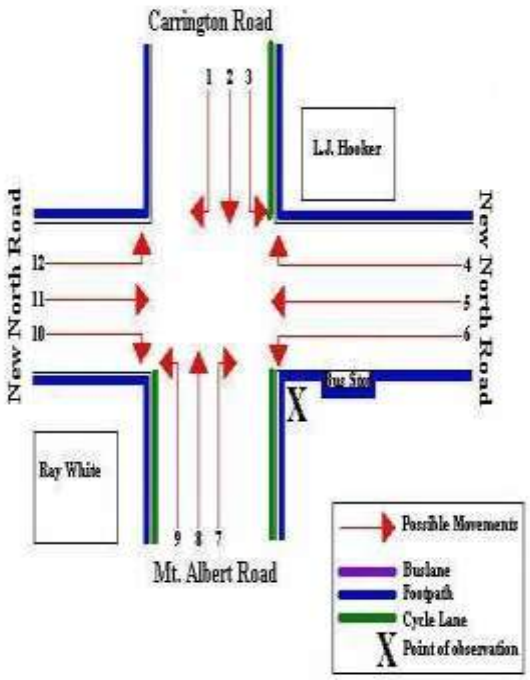
Figure 14.3: Ian McKinnon Drive/Newton Road Cyclist Frequency – Evening Peak



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

Figure 15.1 shows the possible cyclist movements at this intersection.

Figure 15.1: Cycle Movements: Mount Albert/New North Road/Carrington Road



- The AADT for this site is 302. This compares with:
  - 205 in 2009
  - 236 in 2008
  - 226 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**91**	**118**	**209**

15.1 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 cyclists at the Mount Albert/New North Road/Carrington Road intersection has increased notably (91 cycle movements, up from 59 movements in 2009).
- The most common movement in the morning is straight along New North Road heading northeast (Movement 11 = 32 cyclists).
- The most notable change in morning cyclist volumes is at Movement 8 (up 16 cyclists).

Table 15.1: Morning Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	1	3	1	2	1
2	11	10	11	19	8
3	3	2	2	4	2
4	3	3	1	2	1
5	5	3	5	6	1
6	0	0	0	0	0
7	2	3	2	1	-1
8	14	14	6	22	16
9	1	3	1	0	-1
10	6	4	3	1	-2
11	25	23	25	32	7
12	4	0	2	2	0
Total	**75**	**68**	**59**	**91**	**32**

- Over the morning peak, most cyclists using the Mount Albert/New North Road/Carrington Road intersection are adults (87 per cent, down from 92 per cent in 2009).
- Most cyclists are wearing a helmet (90 per cent, up from 86 per cent in 2009).
- The greatest share of morning peak cyclists continue to ride on the road (81 per cent, down from 90 per cent last year).

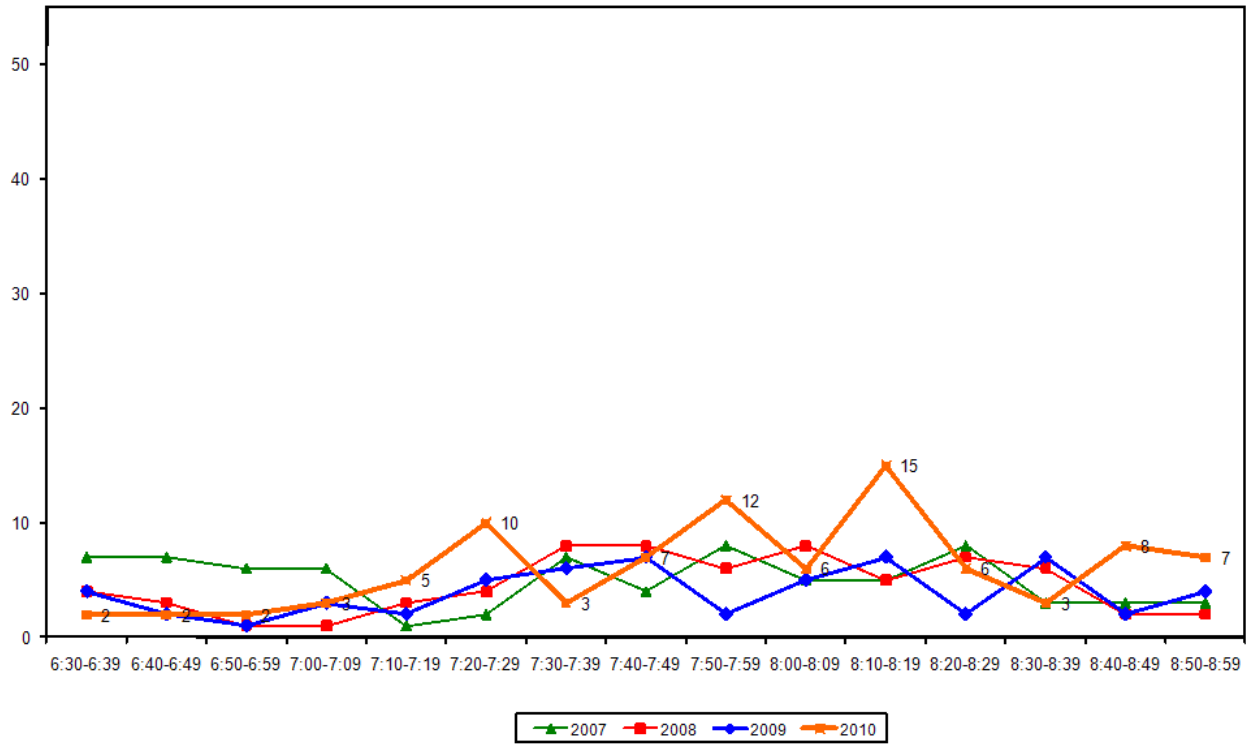
Table 15.2: Morning Cyclist Characteristics

Mount Albert/New North Road/Carrington Road 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	**Change 09-10**
Cyclist Type					
Adult	95	91	92	87	-5
School child	5	9	8	13	5
Helmet Wearing					
Helmet on head	91	91	86	90	4
No helmet	9	9	14	10	-4
Where Riding					
Road	84	85	90	81	-9
Footpath	16	15	10	19	9
Base:	***75***	***68***	***59***	***91***	

- The volume of morning cycle movements starts off low, and increases to peak between 7:20am and 7:29am (10 cyclists), 7:50am and 7:59am (12 cyclists) and 8:10am and 8:19am (15 cyclists). This compares with the slight peaks observed around 7:40am, 8:10am and 8:30am in 2009.

Figure 15.2: Mount Albert/New North Road/Carrington Road Cyclist Frequency – Morning Peak



Note: In 2010, five cyclists were observed riding as a group at 8.16am. This comprises five per cent of the total cycle movements in the morning peak in 2010.

15.2 Evening Peak

Environmental Conditions

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

Key Points

- The total number of evening cycle movements recorded at the Mount Albert/New North Road/Carrington Road intersection has increased, from 83 in 2009 to 118 movements in 2010.
- The key evening movement is straight along New North Road in a south-westerly direction (Movement 5 = 34 cyclists).
- Evening cyclist volumes have increased most notably at Movement 9 (up 12 cyclists).

Table 15.3: Evening Cyclist Movements

Mount Albert/New North Road/Carrington Road 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	3	5	2	2	0
2	13	16	17	23	6
3	3	5	1	5	4
4	5	3	4	5	1
5	28	31	34	34	0
6	2	2	3	1	-2
7	3	1	3	1	-2
8	9	8	9	16	7
9	1	2	0	12	12
10	3	4	1	7	6
11	7	10	6	8	2
12	4	9	3	4	1
Total	**81**	**96**	**83**	**118**	**35**

- The majority of cyclists using this intersection are adults (84 per cent, down from 98 per cent in 2009).
- The majority of cyclists at this site are wearing a helmet (81 per cent, down from 86 per cent last year).
- Approximately three quarters of evening peak cyclists ride on the road (73 per cent, compared with 75 per cent in 2009).

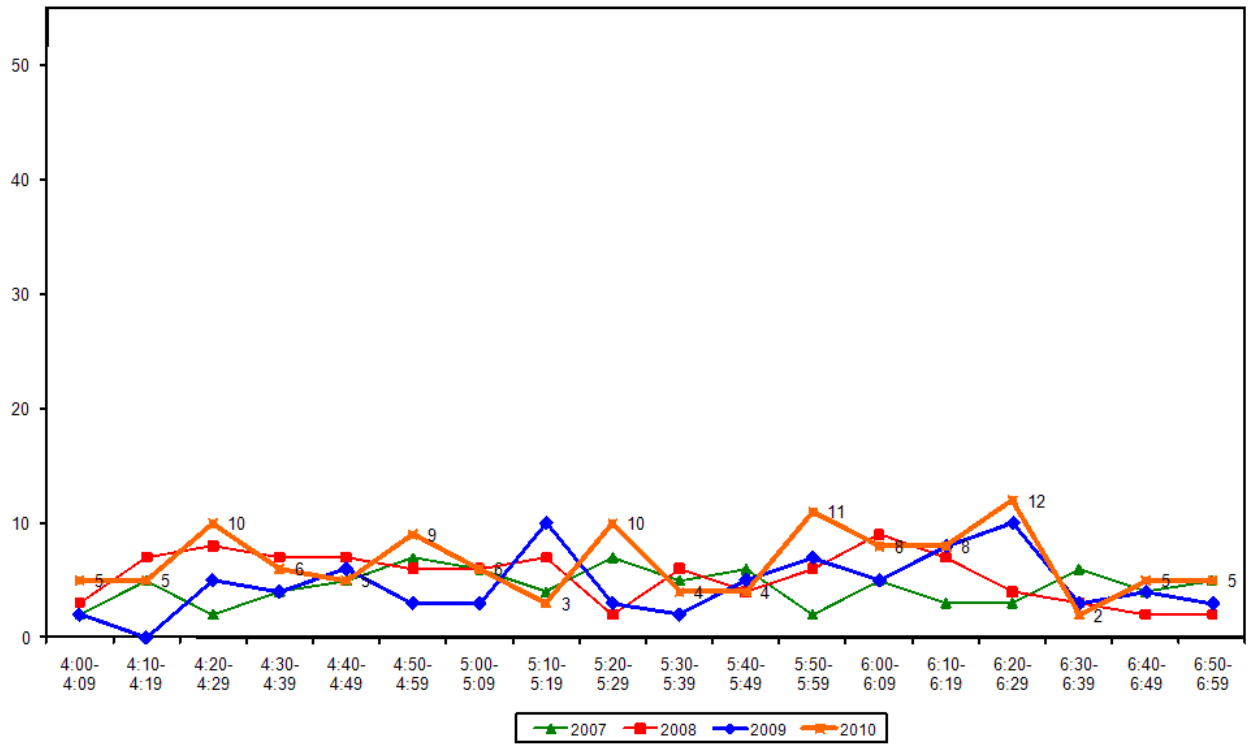
Table 15.4: Evening Cyclist Characteristics

Mount Albert/New North Road/Carrington Road 2009 (%)

	2007	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type					
Adult	94	85	98	84	-14
School child	6	15	2	16	14
Helmet Wearing					
Helmet on head	90	90	86	81	-5
No helmet	10	10	14	19	5
Where Riding					
Road	63	78	75	73	-2
Footpath	37	22	25	27	2
Base:	***81***	***96***	***83***	***118***	

- The volume of cycle movements is fairly consistent throughout the evening shift. A slight peak occurs between 6:20pm and 6:29pm (12 cyclists). This contrasts with a slight peak between 5:10pm and 5:19pm and another between 6:20pm and 6:29pm in 2009.

Figure 15.3: Mount Albert/New North Road/Carrington Road Cyclist Frequency – Evening Peak

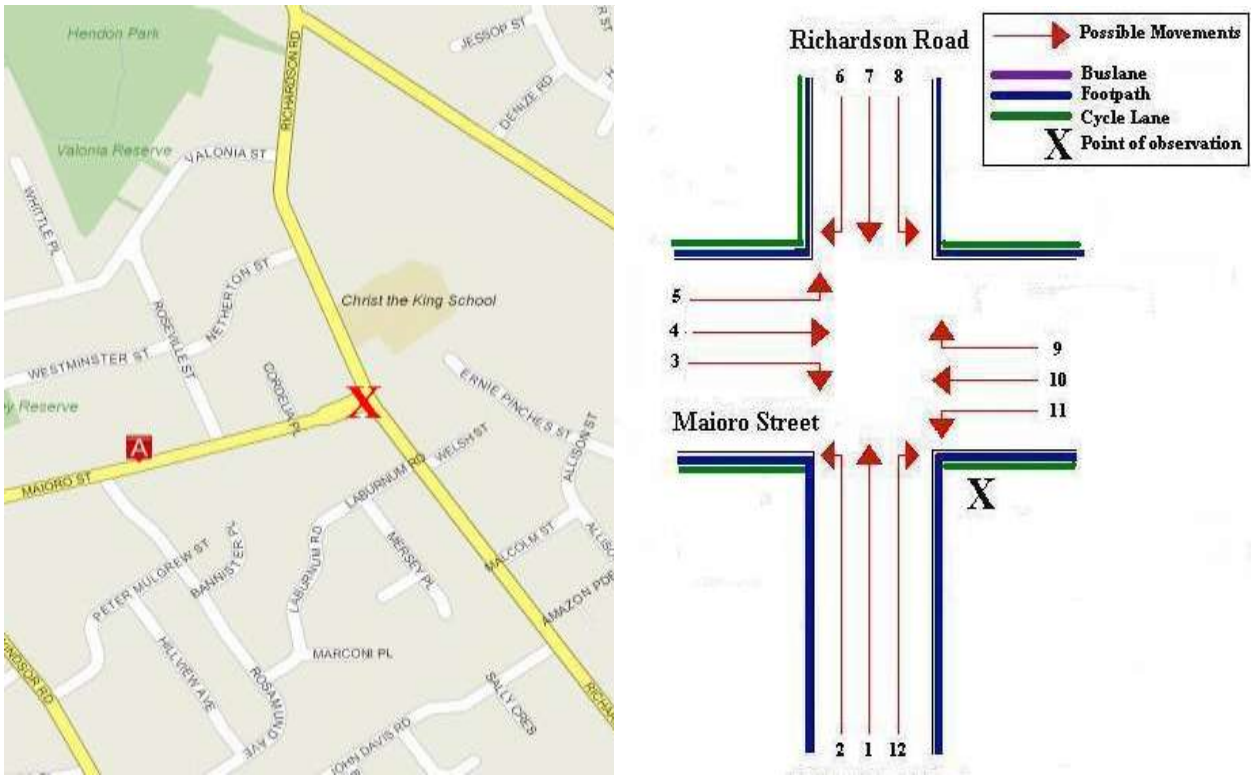


Note: In 2010, six cyclists were observed riding as a group at 6.21pm. This comprises five per cent of the total cycle movements in the evening peak in 2010.

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

Figure 16.1 shows the possible cyclist movements at this intersection.

Figure 16.1: Cycle Movement: Richardson Road/Mairoro Street



Note: In 2010, the site map for this site was changed to reflect the new construction of the Southern Motorway cycleway connected to the Manukau motorway. Consequently, comparative results are indicative only.

- The AADT for this site is 56. This compares with 30 in 2009.
-

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**14**	**25**	**39**

16.1 Morning Peak

Environmental Conditions

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

Key Points

- Of the 28 sites monitored in Auckland city, the volume of cycle movements at the Richardson/Maioro intersection is the second lightest, with 14 cycle movements recorded (up from 8 movements last year).
- The key movement is Movement 1 = 4 cyclists (up from 2 cyclists last year).

Table 16.1: Morning Cyclist Movements

Richardson/Maioro Street 2009 – 2010 (n)

Movement	2009	2010	Change 09-10
1	2	4	2
2	1	1	0
3	2	1	-1
4	0	3	3
5	0	0	0
6	1	0	-1
7	2	1	-1
8	-	2	-
9	-	0	-
10	-	2	-
11	0	0	0
12	-	0	-
Total	**8**	**14**	**6**

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

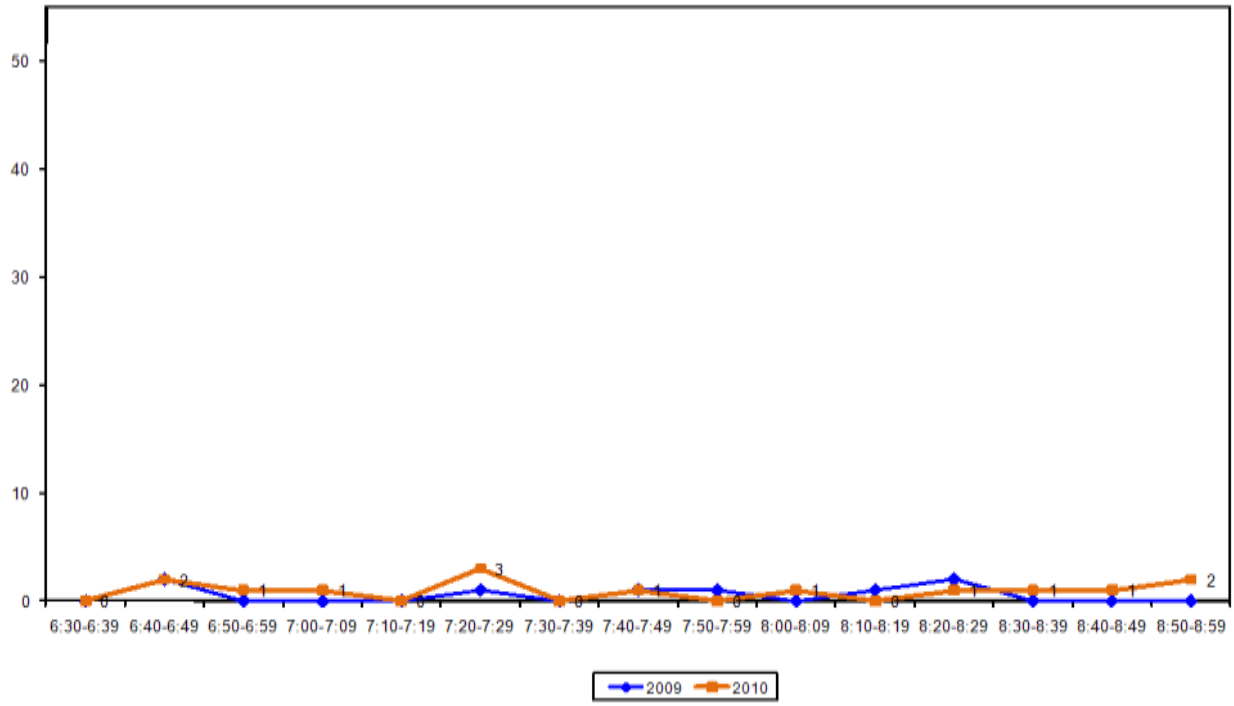
- Over the morning peak, all cyclists are adults (100 per cent, no change from last year).
- All cyclists are wearing helmets (93 per cent, down from 100 per cent in (2009).
- Just over half of all cyclists (57 per cent) are riding on the road – down from 88 per cent last year. Around one-third (29 per cent) of cyclists are riding on off-road cycleway.

Table 16.2: Morning Cyclist Characteristics
Richardson/Maioro Street 2009 – 2010 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	100	100	0
School child	0	0	0
Helmet Wearing			
Helmet on head	100	93	-7
No helmet	0	7	7
Where Riding			
Road	88	57	-31
Footpath	12	14	2
Off-road Cycleway	-	29	-
Base:	***8***	***14***	

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

Figure 16.2: Richardson/Maioro Street Cyclist Frequency – Morning Peak



16.2 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- 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 25 (up from 13 movements last year).
- The two key movements in the evening are north up Richardson Road (Movement 1 = 6 cyclists, up from no movements last year) and south down Richardson Road (Movement 7 = 5 cyclists, compared with 4 cyclists in 2009).

Table 16.3: Evening Cyclist Movements
Richardson/Maioro Street 2009 – 2010 (n)

Movement	2009	2010	Change 09-10
1	0	6	6
2	4	2	-2
3	1	1	0
4	1	1	0
5	1	0	-1
6	1	1	0
7	4	5	1
8	-	0	-
9	-	3	-
10	-	4	-
11	1	2	-9
12	-	0	-
Total	**13**	**25**	**12**

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

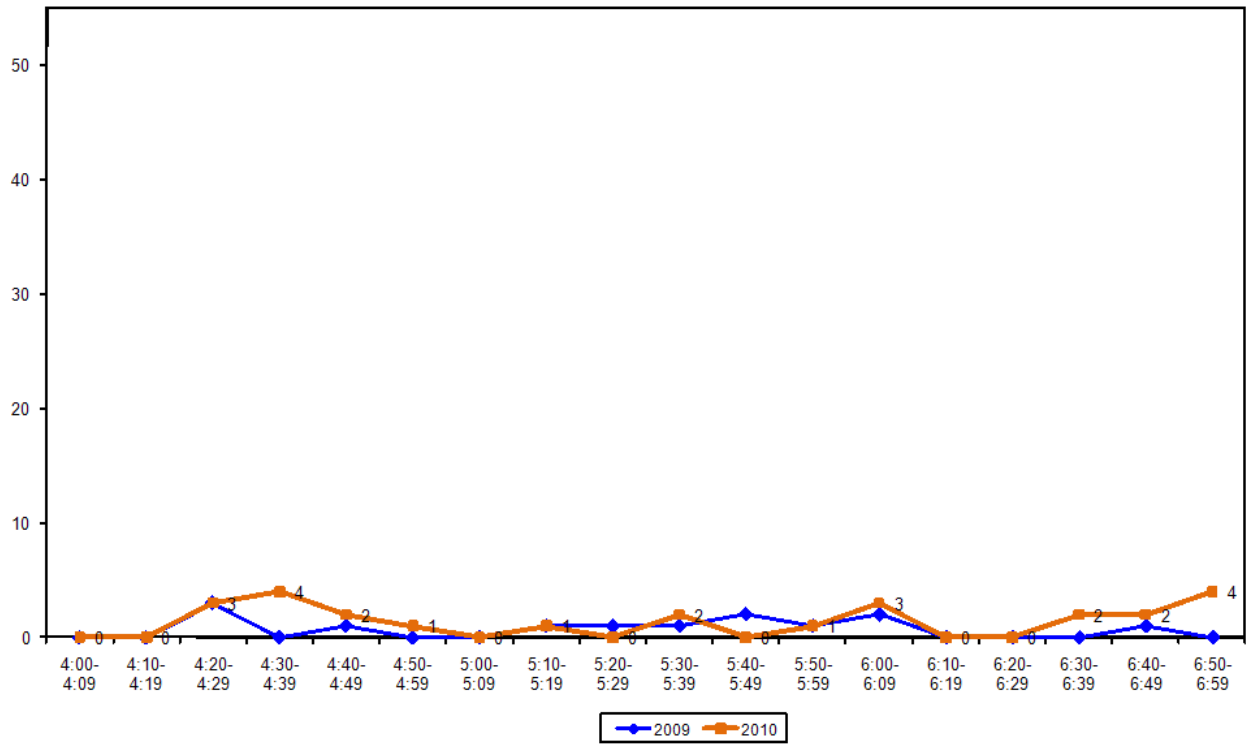
- Four in five cyclists at this intersection are adults (80 per cent, down from 100 per cent last year).
- Three-quarters of cyclists are wearing a helmet (76 per cent, down from 85 per cent last year).
- Two thirds of the cyclists at this intersection are riding on the off-road cycleway (68 per cent).

Table 16.4: Evening Cyclist Characteristics
Richardson/Maioro Street 2009 – 2010 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	100	80	-20
School child	0	20	20
Helmet Wearing			
Helmet on head	85	76	-9
No helmet	15	24	9
Where Riding			
Road	46	16	-30
Footpath	54	16	-38
Off-road cycleway	-	68	-
Base:	***13***	***25***	

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

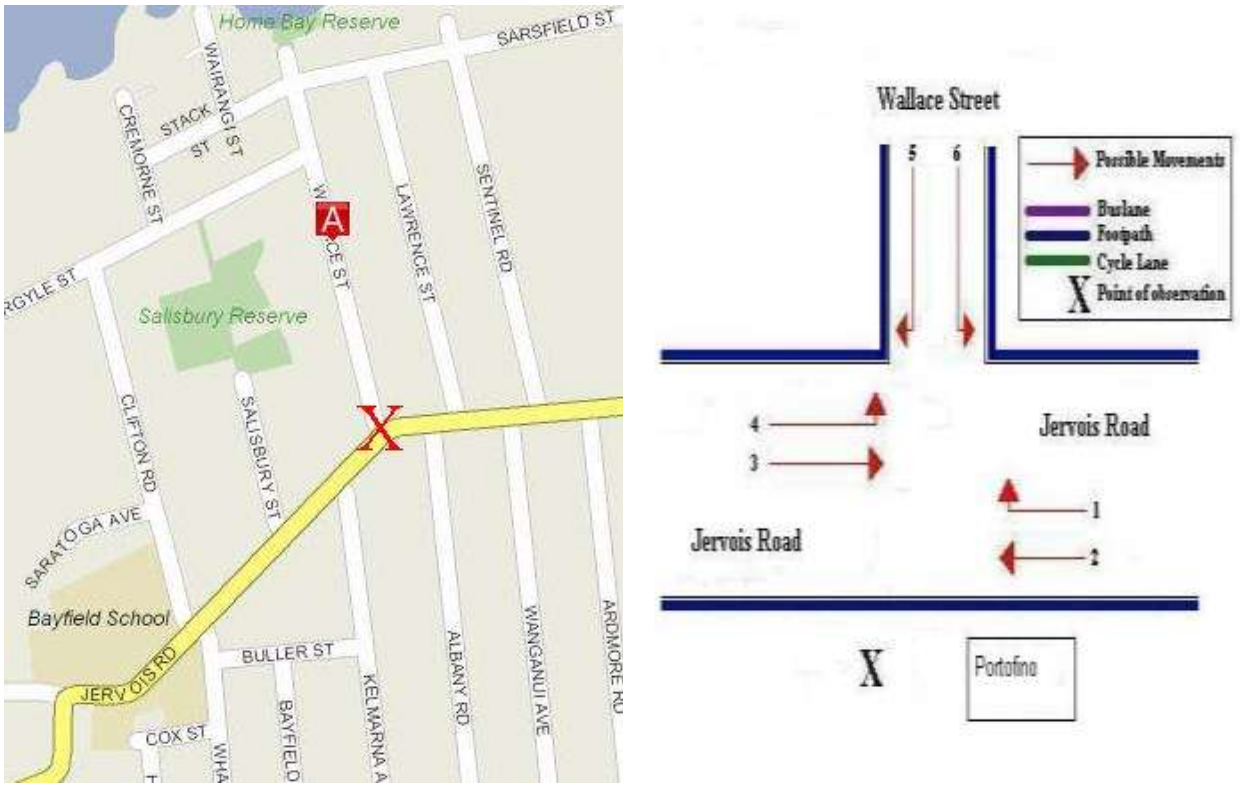
Figure 16.3: Richardson/Maioro Street Cyclist Frequency - Evening



17. JERVOIS ROAD/WALLACE STREET, HERNE BAY (SITE 16)

Figure 17.1 shows the possible cyclist movements at this intersection.

Figure 17.1: Cycle Movements: Jervois Road/Wallace Street



Note: This site was monitored for the first time in 2009.

- The AADT for this site is 243. This compares with 162 in 2009.
-

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**88**	**79**	**167**

17.1 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 cyclists recorded at this site in the morning peak has increased this year (88 movements, up from 60 in 2009).
- The key movements are straight along Jervois Road in both directions (Movement 3 heading northeast = 37 cyclists; Movement 2 heading southwest = 36 cyclists).
- The most notable increases have been at Movements 3 (up 13 cyclists) and Movement 4 (up 10 cyclists).

Table 17.1: Morning Cyclist Movements
Jervois Road/Wallace Street 2009 (n)

Movement	2009	2010	Change 09-10
1	0	1	1
2	30	36	6
3	24	37	13
4	2	12	10
5	1	1	0
6	3	1	-2
Total	**60**	**88**	**28**

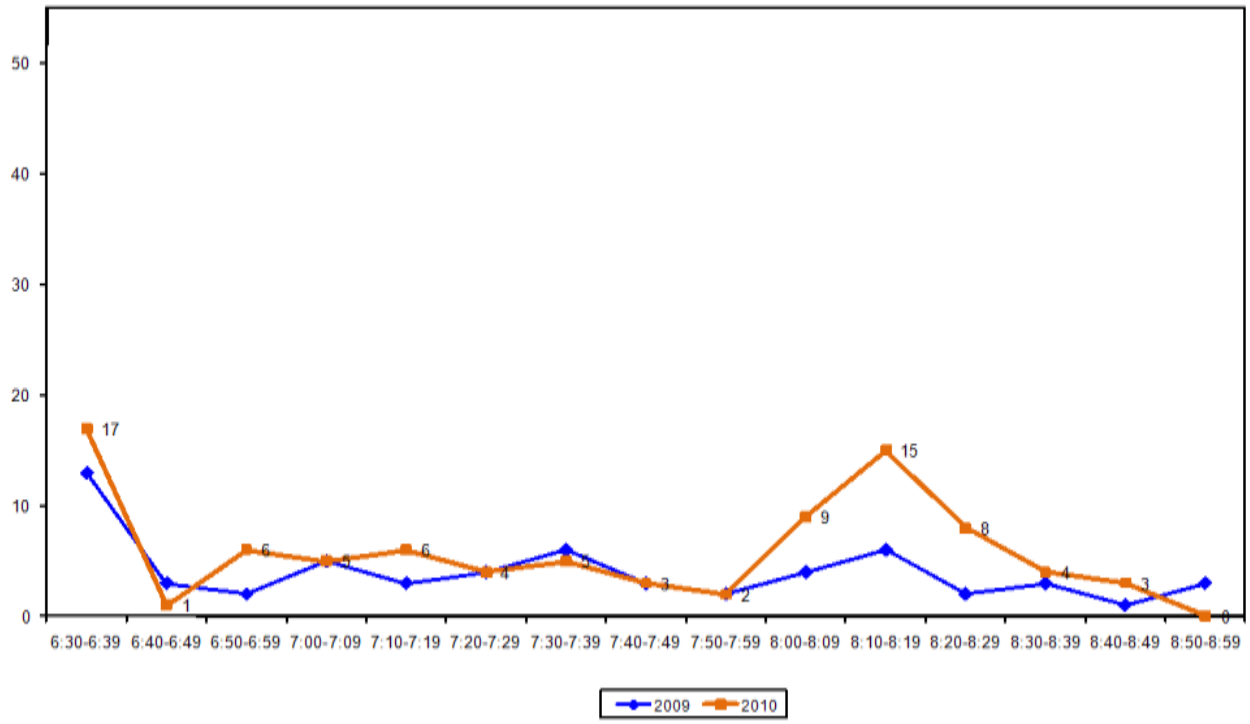
- Four in five cyclists at this site are adults (80 per cent, down from 90 per cent in 2009).
- Helmet wearing continues to be widespread (97 per cent, stable from 2009).
- The majority of cyclists are riding on the road (73 per cent, down from 85 per cent).

Table 17.2: Morning Cyclist Characteristics
Jervois Road/Wallace Street 2009 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	90	80	-10
School child	10	20	10
Helmet Wearing			
Helmet on head	98	97	-1
No helmet	2	3	1
Where Riding			
Road	85	73	-12
Footpath	15	27	12
Base:	***60***	***88***	

- Morning cycle volumes are relatively low over most of the monitoring period, with no more than six cyclists recorded passing during most ten minute intervals. However, a notable peak occurs at the beginning of the monitoring period, with 17 cyclists recorded between 6:30am and 6:39am similar to what was observed in 2009. A second notable peak occurs between 8:10am and 8:19am (15 cyclists).

Figure 17.2: Jervois Road/Wallace Street Cyclist Frequency – Morning Peak



Note: In 2010, 18 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Three cyclists at 6.32am*
- *Thirteen cyclists at 6.34am*

17.2 Evening Peak

Environmental Conditions

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

Key Points

- Evening cyclist numbers have increased notably since 2009 (up to 79 cyclists from 51 in 2009).
- Consistent with the morning peak, the key movements in the evening are straight along Jervois Road in both directions (Movement 2 heading southwest = 50 cyclists; Movement 3 heading northeast = 21 cyclists).
- The most notable increase in cyclist volume is at Movement 2 (up 28 cyclists).

Table 17.3: Evening Cyclist Movements
Jervois Road/Wallace Street 2009 (n)

Movement	2009	2010	Change 09-10
1	1	4	3
2	22	50	28
3	17	21	4
4	3	0	-3
5	3	4	1
6	5	0	-5
Total	**51**	**79**	**28**

- Over the evening peak, adults comprise approximately four-fifths of all cyclists recorded (78 per cent, up from 55 per cent in 2009).
- The majority of cyclists are wearing a helmet (85 per cent, down from 98 per cent last year).
- Sixty-two per cent of cyclists are riding on the road (up from 55 per cent in 2009).

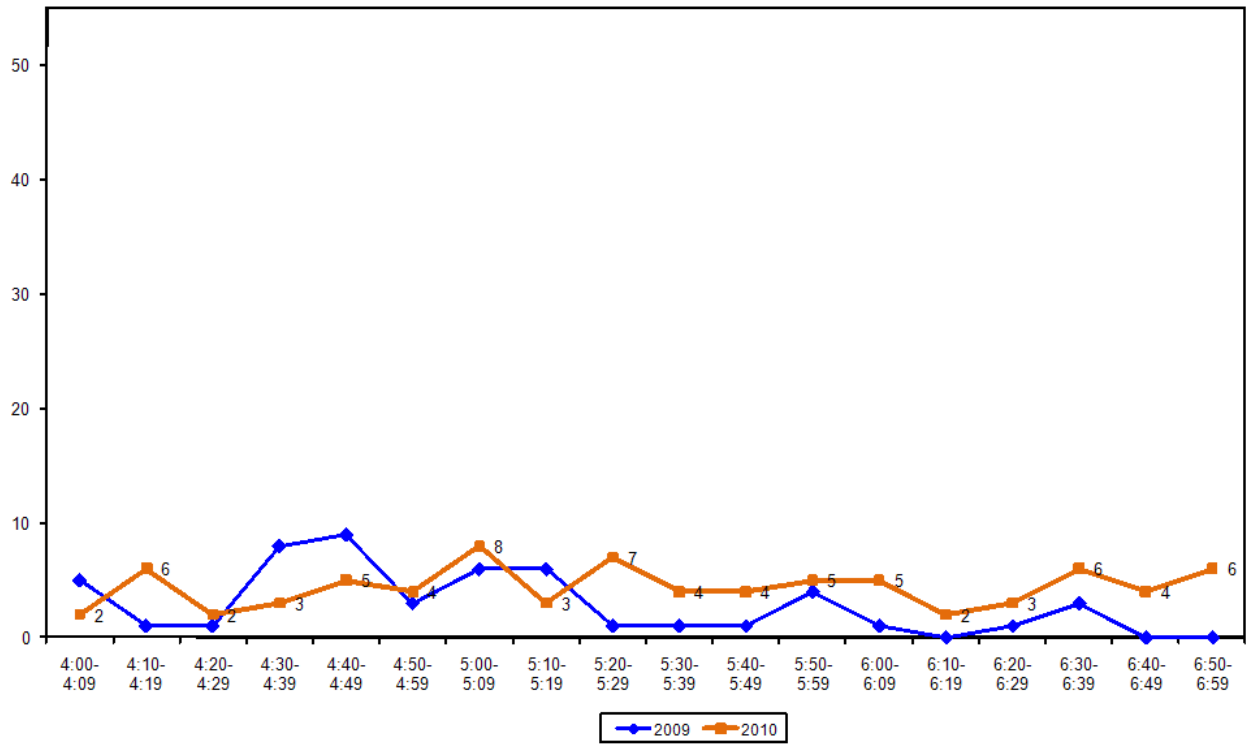
Table 17.4: Evening Cyclist Characteristics

Jervois Road/Wallace Street 2009 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	55	78	23
School child	45	22	-23
Helmet Wearing			
Helmet on head	98	85	-13
No helmet	2	15	13
Where Riding			
Road	55	62	7
Footpath	45	38	-7
Base:	***51***	***79***	

- Evening cycle volumes are relatively stable across the entire monitoring period, with a slight peak between 5:00pm and 5:09pm (8 cyclists). This compares to a slight peak between 4:30pm and 4:49pm in 2009).

Figure 17.3: Jervois Road/Wallace Street Cyclist Frequency – Evening Peak



Note: In 2010, nine per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

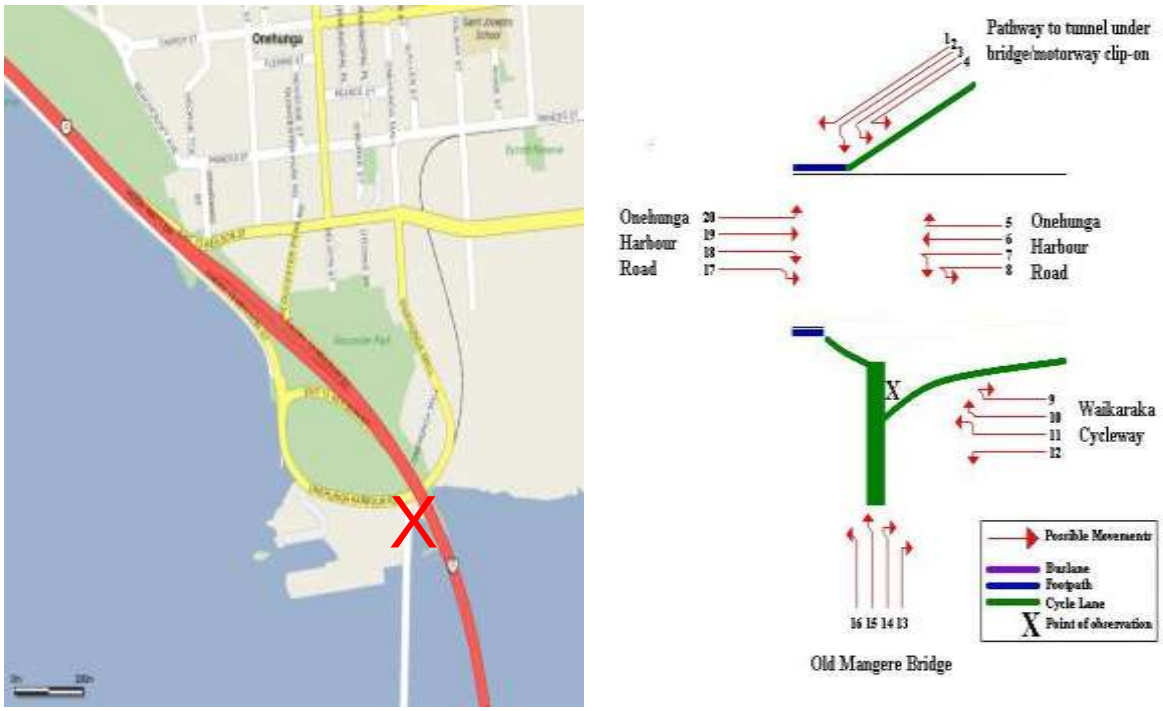
- *Four cyclists at 4.48pm*
- *Three cyclists at 5.02pm*

18. ONEHUNGA HARBOUR ROAD, ONEHUNGA (SITE 17)

Figure 18.1 shows the possible cyclist movements at this site. *Note: A revised map has been used for this site from 2008 to incorporate use of the Waikaraka cycleway, which was under construction in 2007. As a result, movement data collected in 2008, 2009 and 2010 cannot be compared with 2007.*

In 2009, there was construction work (as part of the second Manukau Harbour crossing) at this site from the Waikaraka cycleway to Mangere Bridge. However, the surveyor noted that Movements 9 to 12 were still possible.

Figure 18.1: Cycle Movements: Onehunga Harbour Road



- The AADT for this site is 369. This compares with:
  - 259 in 2009
  - 316 in 2008
  - 357 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**98**	**159**	**257**

18.1 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- As in 2009, construction work was underway at this site from the Waikaraka Cycleway to Mangere Bridge. However, the surveyor noted that this construction did not affect any of the possible cycle movements.

Key Points

- Compared with the previous year, the volume of morning cyclists at Onehunga Harbour Road has increased (98 movements, up from 74 cycle movements recorded in 2009).
- The most common movements in the morning are turning left off Old Mangere Bridge onto Onehunga Harbour Road (Movement 16 = 19 cyclists) and turning right off Onehunga Harbour Road onto Old Mangere Bridge (Movement 18 = 18 cyclists).
- The most notable decline in cycle volumes has occurred at Movement 12 (down from 12 cyclists in 2009 to no cyclists in 2010). The most notable increases have occurred at Movements 8 and 14 (both up 11 cyclists) and Movement 7 (up 10 cyclists).

Table 18.1: Morning Cyclist Movements
Onehunga Harbour Road 2007 - 2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	-	0	0	0	0
2	-	1	0	1	1
3	-	0	1	0	-1
4	-	0	0	1	1
5	-	0	0	0	0
6	-	1	0	2	2
7	-	17	0	10	10
8	-	2	0	11	11
9	-	1	0	0	0
10	-	1	1	0	-1
11	-	1	0	0	0
12	-	2	12	0	-12
13	-	6	11	10	-1
14	-	6	0	11	11
15	-	4	11	12	1
16	-	27	13	19	6
17	-	2	3	0	-3
18	-	17	22	18	-4
19	-	0	0	3	3
20	-	0	0	0	0
Total	**93**	**88**	**74**	**98**	**24**

**Note: The map and movement directions at this site had been re-designed in 2008, so results for movement numbers are not directly comparable with 2007.*

- Eighty-one per cent of cyclists using this site are adults (stable from 80 per cent recorded last year).
- The majority of cyclists are wearing a helmet (88 per cent, down from 95 per cent 2009).
- One in five cyclists (21 per cent) were observed crossing Onehunga Harbour Road (stable from 2009).

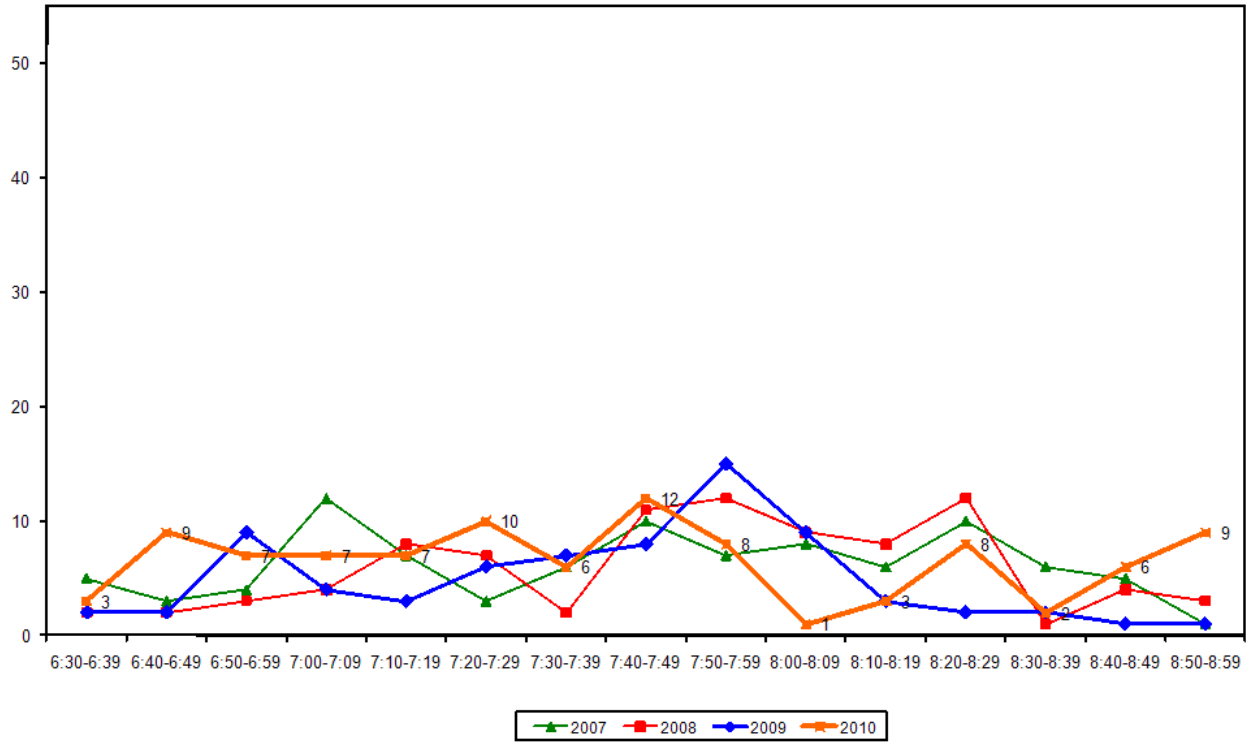
Table 18.2: Morning Cyclist Characteristics
Onehunga Harbour Road 2007 - 2010 (%)

	2007	*2008*	*2009*	*2010*	**Change 09-10**
Cyclist Type					
Adult	83	77	80	81	3
School child	17	23	20	19	-3
Helmet Wearing					
Helmet on head	84	84	95	88	11
No helmet	16	16	5	12	-11
Crossing*					
Yes	-	14	19	21	2
No	-	86	81	79	-2
Base:	***93***	***88***	***74***	***98***	

**Note: In 2008 and 2009, information was collected on whether or not cyclists at this site cross Onehunga Harbour Road.*

- The volume of morning cycle movements peaks slightly between 7:40am and 7:49am (12 cyclists), ten minutes earlier than the peak recorded last year (15 movements).

Figure 18.2: Onehunga Harbour Road Cyclist Frequency – Morning Peak



Note: In 2010, three cyclists were observed riding as a group at 8.54am. This comprises three per cent of the total cycle movements in the morning peak in 2010.

18.2 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- As in 2009, construction work was underway at this site from the Waikaraka Cycleway to Mangere Bridge. However, the surveyor noted that this construction did not affect any of the possible cycle movements.

Key Points

- Compared with last year, the volume of evening cyclists at Onehunga Harbour Road has increased notably, from 106 in 2009 to 159 movements in 2010).
- The key movements in the evening are turning left from Onehunga Harbour Road into the Waikaraka Cycleway (Movement 8 = 32 cyclists), and turning right from Old Mangere Bridge onto Onehunga Harbour Road (Movement 14 = 27 cyclists).
- The most notable increase in cyclist numbers has occurred at Movement 8 (up from no cyclists in 2009 to 32 cyclists in 2010).

Table 18.3: Evening Cyclist Movements
Onehunga Harbour Road 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	-	0	0	1	1
2	-	2	2	2	0
3	-	0	0	0	0
4	-	0	0	3	3
5	-	0	0	2	2
6	-	3	1	0	-1
7	-	22	4	3	-1
8	-	1	0	32	32
9	-	0	0	0	0
10	-	0	0	3	3
11	-	2	2	3	1
12	-	17	33	18	-15
13	-	11	9	19	10
14	-	24	6	27	21
15	-	11	7	3	-4
16	-	21	28	24	-4
17	-	3	0	0	0
18	-	15	13	15	2
19	-	0	1	4	3
20	-	0	0	0	0
Total	**156**	**132**	**106**	**159**	**53**

**Note: The map and movement directions at this site had been re-designed in 2008, so results for movement numbers are not directly comparable with 2007.*

- Over the evening shift, almost all cyclists using this site are adults (91 per cent, stable from 92 per cent in 2009).
- The majority of cyclists are wearing a helmet (94 per cent, down slightly from 97 per cent last year).
- Just less than a quarter of cyclists (25 per cent) were observed crossing Onehunga Harbour Road.

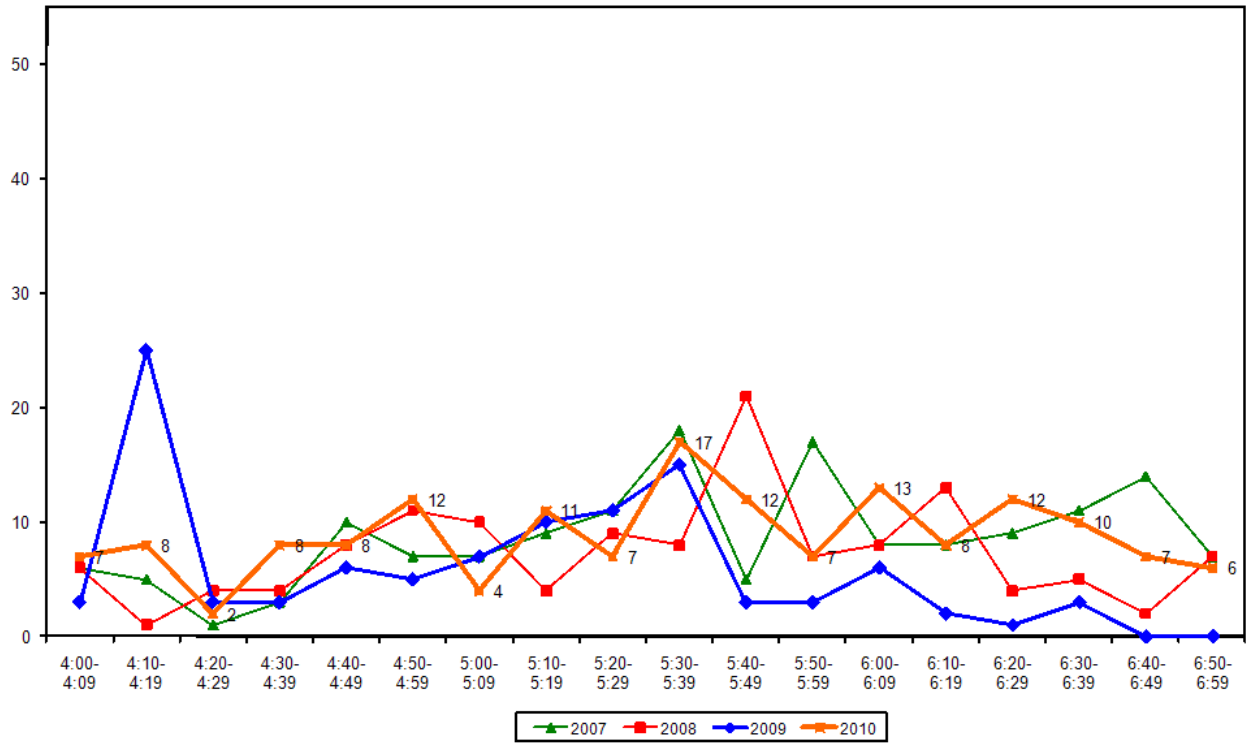
Table 18.4: Morning Cyclist Characteristics
Onehunga Harbour Road 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type					
Adult	96	93	92	91	-1
School child	4	7	8	9	1
Helmet Wearing					
Helmet on head	83	91	97	94	-3
No helmet	17	9	3	6	3
Crossing*					
Yes	-	27	8	23	15
No	-	73	92	77	-15
Base:	***156***	***132***	***68***	***159***	

**Note: Since 2008, information was collected on whether or not cyclists at this site cross Onehunga Harbour Road*

- Evening cyclist numbers peak notably between 5:30pm and 5:39pm, with 17 movements recorded over this interval this year. This compares to a notable peak between 4:10pm and 4:19pm and another peak between 5:30pm and 5:39pm in 2009.

Figure 18.3: Onehunga Harbour Road Cyclist Frequency – Evening Peak

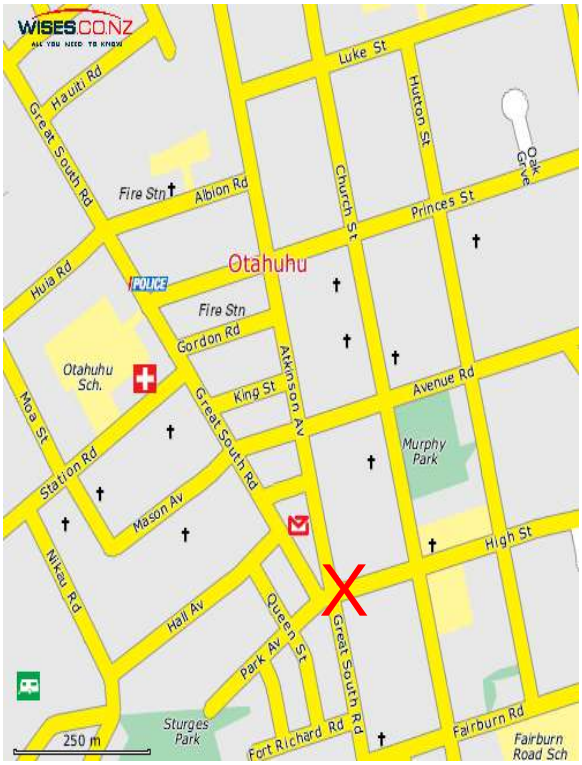


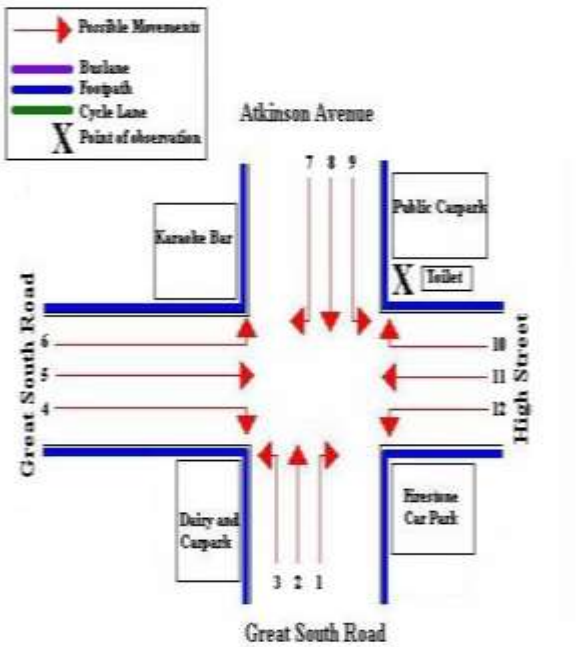
Note: In 2010, four cyclists were observed riding as a group at 5.32pm. This comprises three per cent of the total cycle movements in the evening peak in 2010.

19. GREAT SOUTH ROAD/HIGH STREET/ATKINSON AVENUE, OTAHUHU (SITE 18)

Figure 19.1 shows the possible cyclist movements at this intersection.

Figure 19.1: Cycle Movements: Great South Road/High Street





- The AADT for this site is 88. This compares with:
  - 71 in 2009
  - 87 in 2008
  - 121 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**25**	**36**	**61**

19.1 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

- Consistent with last year, the morning cyclist traffic at the Great South Road/High Street intersection remains low, with 25 cycle movements recorded (up from 21 movements in 2009).
- The most common movement is travelling along Great South Road in a northwesterly direction (Movement 3 = 10 cyclists).
- Compared with last year, the volume of morning cyclists is most notably higher at Movement 3 (up 6 cyclists).

Table 19.1: Morning Cyclist Movements
Great South Road/High Street 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	0	0	2	0	-2
2	7	8	6	2	-4
3	11	11	4	10	6
4	7	7	3	6	3
5	0	1	2	1	-1
6	1	0	0	0	0
7	1	0	0	0	0
8	11	2	3	4	1
9	0	0	1	0	-1
10	0	0	0	1	1
11	0	1	0	1	1
12	0	0	0	0	0
Total	**38**	**30**	**21**	**25**	**4**

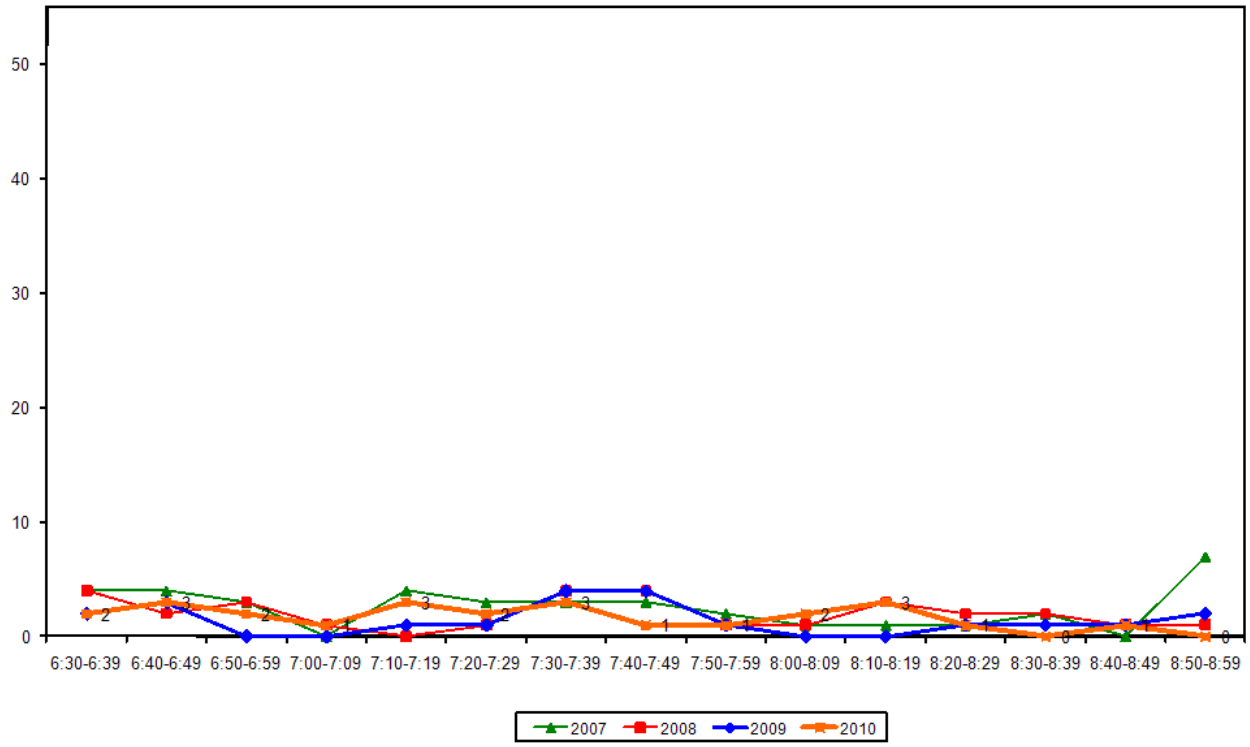
- Over the morning peak in 2010, most cyclists are adults (96 per cent, unchanged from 95 per cent in 2009).
- Almost all cyclists are wearing a helmet (92 per cent, down slightly from 95 per cent recorded last year).
- On average, 76 per cent of cyclists are riding on the road (down notably from 86 per cent at the previous measure).

Table 19.2: Morning Cyclist Characteristics
Great South Road/High Street 2007 - 2009 (%)

	2007	*2008*	*2009*	*2010*	**Change 09-10**
Cyclist Type					
Adult	97	100	95	96	1
School child	3	0	5	4	-1
Helmet Wearing					
Helmet on head	89	77	95	92	-3
No helmet	11	23	5	8	3
Where Riding					
Road	89	70	86	76	-10
Footpath	11	30	14	24	10
Base:	***38***	***30***	***21***	***25***	

- The volume of morning cycle movements is low during the entire morning shift, with a fairly consistent flow over the monitoring period. This is consistent with last year.

Figure 19.2: Great South Road/High Street Cyclist Frequency – Morning Peak



19.2 Evening Peak

Environmental Conditions

- The weather was clear and sunny throughout the evening monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening cycle movements recorded at the Great South Road/High Street intersection in 2010 (36 movements) represents an increase from last year's result (28 movements).
- The key movements are straight through Atkinson Avenue into Great South Road heading south (Movement 8 = 9 cyclists), travelling along Great South Road in a southeasterly direction (Movement 4 = 9 cyclists), travelling straight through Great South Road into Atkinson Avenue heading north (Movement 2 = 7 cyclists) and travelling along Great South Road in a northwesterly direction (Movement 3 = 7 cyclists).

Table 19.3: Evening Cyclist Movements
Great South Road/High Street 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	0	2	1	0	-1
2	8	4	3	7	4
3	6	7	4	7	3
4	13	3	7	9	2
5	1	4	2	0	-2
6	0	0	0	0	0
7	1	0	1	0	-1
8	13	8	9	9	0
9	2	1	0	2	2
10	1	0	0	2	2
11	1	1	1	0	-1
12	0	2	0	0	0
Total	**46**	**30**	**28**	**36**	**8**

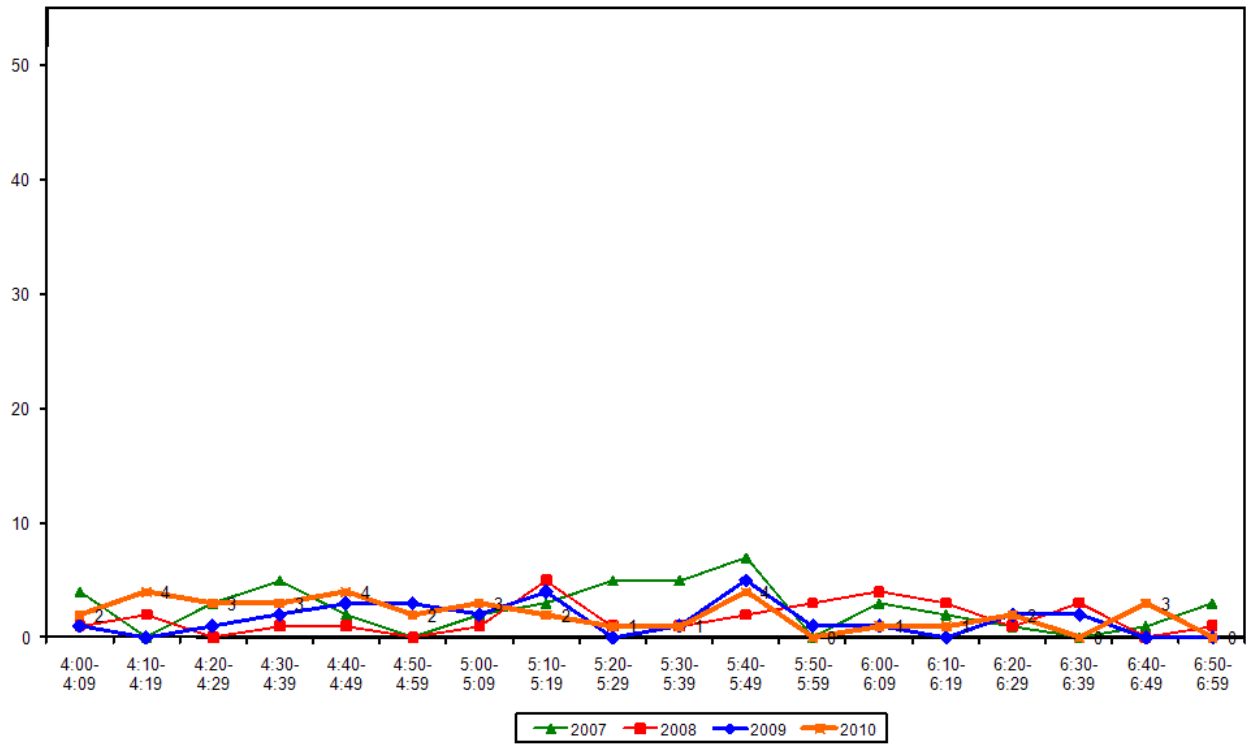
- Over the evening peak, most of the cyclists were adults (92 per cent, down from 100 per cent last year).
- Approximately two-thirds of cyclists are wearing a helmet (69 per cent, compared with 75 per cent in 2009).
- A slightly lower proportion of cyclists are riding on the road (69 per cent, down from 75 per cent in 2009).

Table 19.4: Evening Cyclist Characteristics
Great South Road/High Street 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type					
Adult	83	87	100	92	-8
School child	17	13	0	8	8
Helmet Wearing					
Helmet on head	74	77	75	69	-6
No helmet	26	23	25	31	6
Where Riding					
Road	57	53	75	69	-6
Footpath	43	47	25	31	6
Base:	***46***	***30***	***28***	***36***	

- The volume of cycle movements peaks slightly three times, between 4:10pm and 4:19pm, 4:40pm and 4:49pm and 5:40pm and 5:49pm (4 movements) – two more peaks than were reported in 2009 (slight peak between 5:40pm and 5:49pm only).

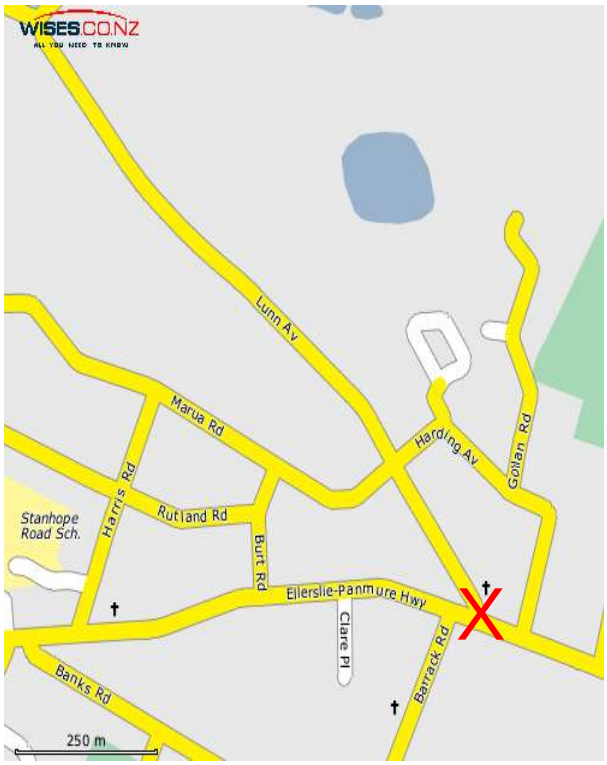
Figure 19.3: Great South Road/High Street Cyclist Frequency – Evening Peak

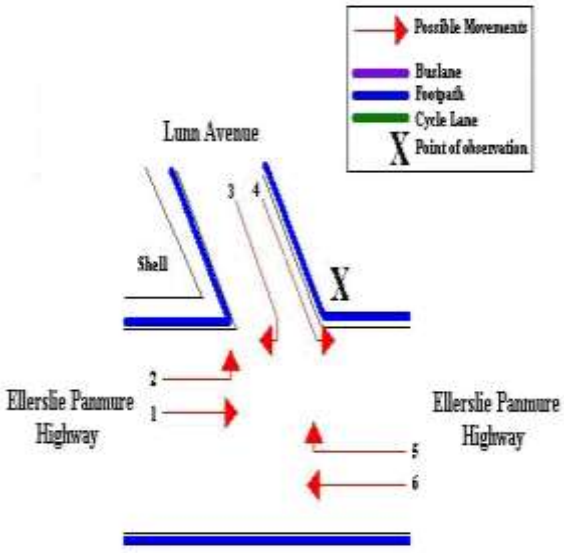


20. ELLERSLIE PANMURE HIGHWAY/LUNN AVENUE, PANMURE (SITE 19)

Figure 20.1 shows the possible cyclist movements at this intersection.

Figure 20.1: Cycle Movements: Ellerslie Panmure Highway/Lunn Avenue





- The AADT for this site is 144. This compares with:
  - 118 in 2009
  - 136 in 2008
  - 170 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**44**	**56**	**100**

20.1 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 the Ellerslie Panmure Highway/Lunn Avenue intersection are up, from 31 in 2009 to 44 cycle movements in 2010.
- The most common morning movements are straight along the Ellerslie Panmure Highway heading west (Movement 6 = 13 cyclists) and straight along the Ellerslie Panmure Highway heading east (Movement 1 = 10 cyclists).
- The most notable increase is at Movement 6 (up 9 cyclists).

Table 20.1: Morning Cyclist Movements
Ellerslie Panmure Highway/Lunn Avenue 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	15	7	8	10	2
2	1	3	1	2	1
3	2	8	2	8	6
4	12	8	8	7	-1
5	3	3	8	4	-4
6	19	13	4	13	9
Total	**52**	**42**	**31**	**44**	**13**

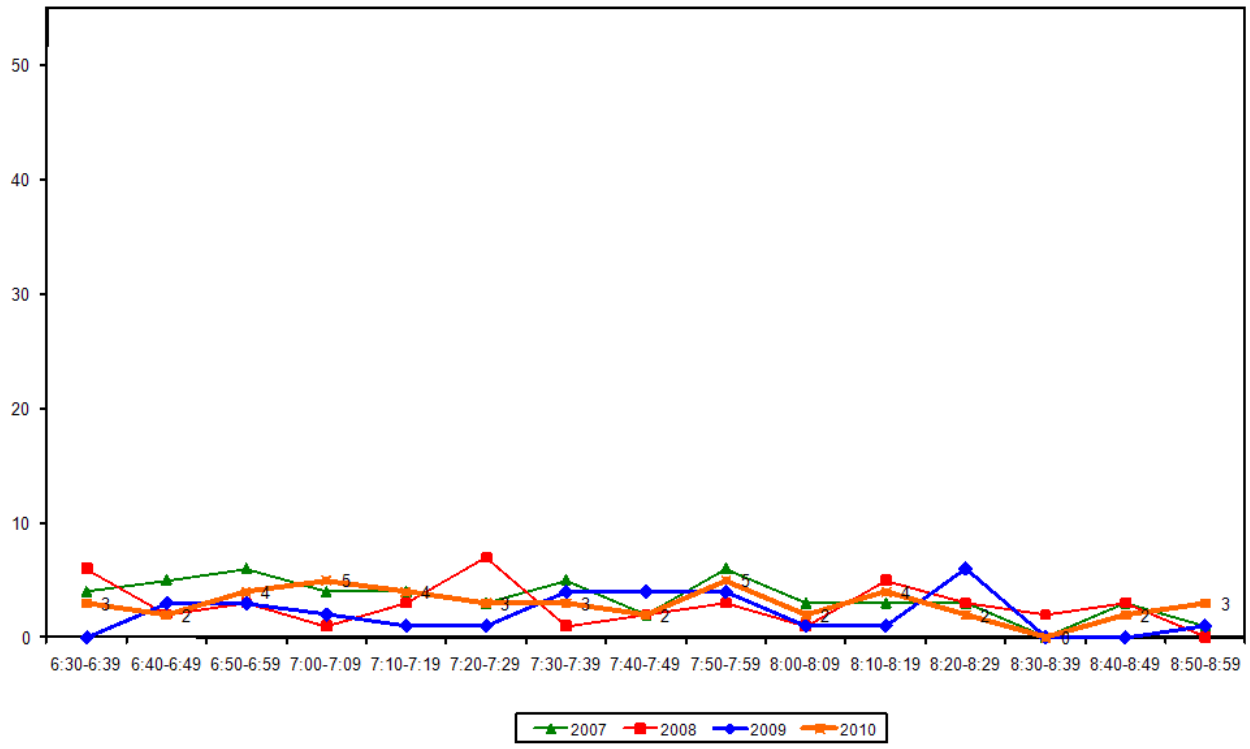
- Over the morning peak, adults comprise all cycle movements (100 per cent, stable from 2009).
- Almost all cyclists are wearing a helmet (95 per cent, stable from 97 per cent in 2009).
- Four in five cyclists are riding on the road (80 per cent, stable since last year).

Table 20.2: Morning Cyclist Characteristics
Ellerslie Panmure Highway/Lunn Avenue 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type					
Adult	88	90	100	100	0
School child	12	10	0	0	0
Helmet Wearing					
Helmet on head	94	98	97	95	-2
No helmet	6	2	3	5	2
Where Riding					
Road	77	79	81	80	-1
Footpath	23	21	19	20	1
Base:	***52***	***42***	***31***	***44***	

- Morning cycle volumes are relatively low over the entire monitoring period. Two slight peaks occurred between 7:00am and 7:09am and 7:50am and 7:59am (5 movements for each ten minute period). This compares with a slight peak between 8:20am and 8:29am (6 movements) in 2009.

Figure 20.2: Ellerslie Panmure Highway/Lunn Avenue Cyclist Frequency – Morning Peak



20.2 Evening Peak

Environmental Conditions

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

Key Points

- The number of evening cycle movements at the Ellerslie Panmure Highway/Lunn Avenue intersection has increased slightly, from 51 movements recorded in 2009 to 56 movements in 2010.
- The key evening movements are straight along Ellerslie Panmure Highway heading east (Movement 1 = 16 cyclists) and turning left from Lunn Avenue into the Ellerslie Panmure Highway (Movement 4 = 14 cyslists).
- The most notable decrease is at Movement 1 (down 8 cyclists). The most notable increase is at Movement 4 (up 7 cyclists).

Table 20.3: Evening Cyclist Movements
Ellerslie Panmure Highway/Lunn Avenue 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	16	14	24	16	-8
2	5	4	1	4	3
3	6	5	1	0	-1
4	14	12	7	14	7
5	4	8	6	12	6
6	21	9	12	10	-2
Total	**66**	**52**	**51**	**56**	**5**

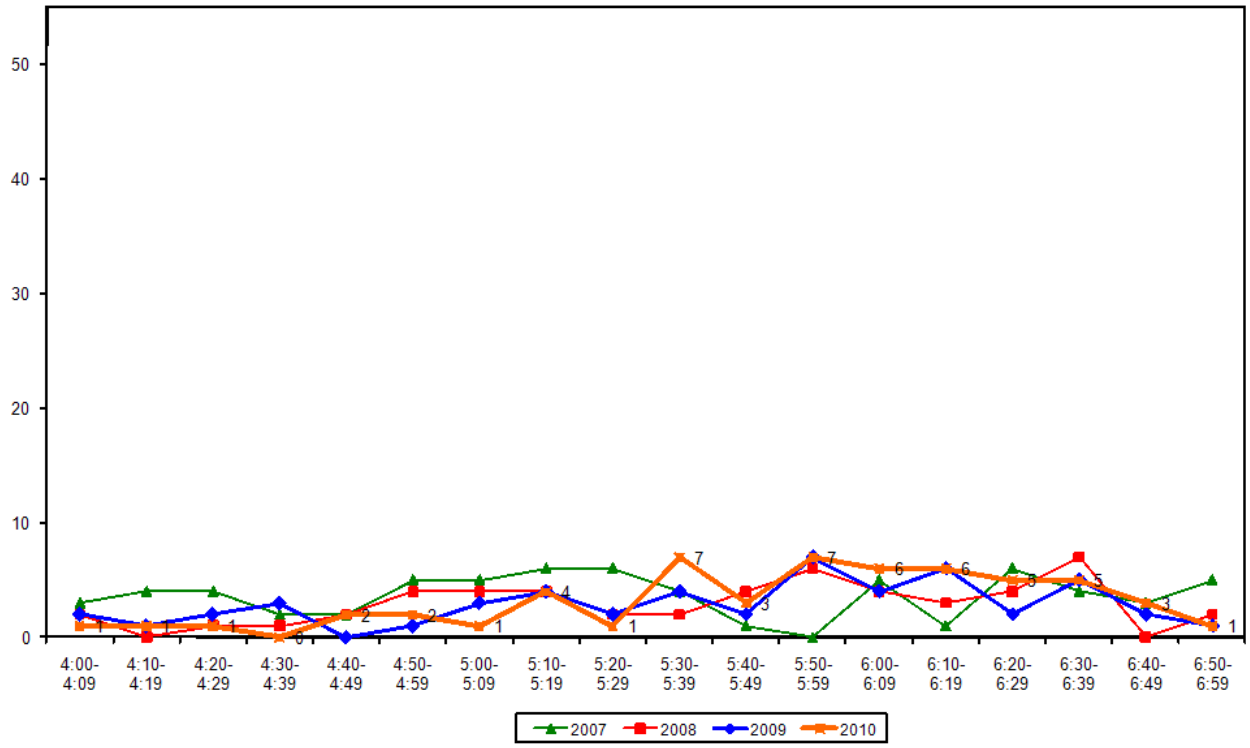
- The majority of cyclists using this intersection are adults (95 per cent, stable from 98 per cent last year).
- Helmet wearing is still common over the evening peak (89 per cent, stable from 88 per cent in 2009).
- On average, just over three in four cyclists are riding on the road (79 per cent, stable from 78 per cent at the previous measure).

Table 20.4: Evening Cyclist Characteristics
Ellerslie Panmure Highway/Lunn Avenue 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type					
Adult	86	88	98	95	-3
School child	14	12	2	5	3
Helmet Wearing					
Helmet on head	95	92	88	89	1
No helmet	5	8	12	11	-1
Where Riding					
Road	73	73	78	79	1
Footpath	27	27	22	21	-1
Base:	***66***	***52***	***51***	***56***	

- The volume of evening cycle movements peaks between 5:30pm and 5:39pm, and again between 5:50pm and 5:59pm (both 7 cyclists each ten minute interval). This compares with peaks between 5:50pm and 5:59pm (7 cyclists) and again between 6:10pm and 6:19pm (6 cyclists) in 2009.

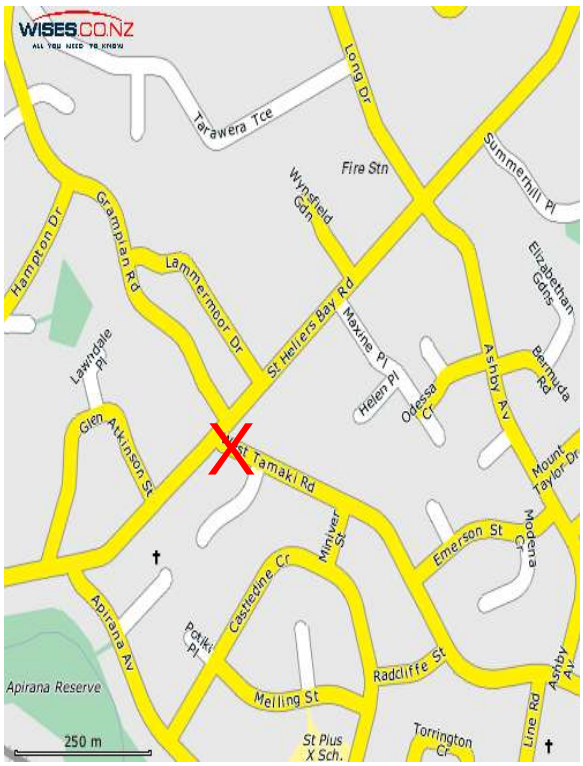
Figure 20.3: Ellerslie Panmure Highway/Lunn Avenue Cyclist Frequency – Evening Peak

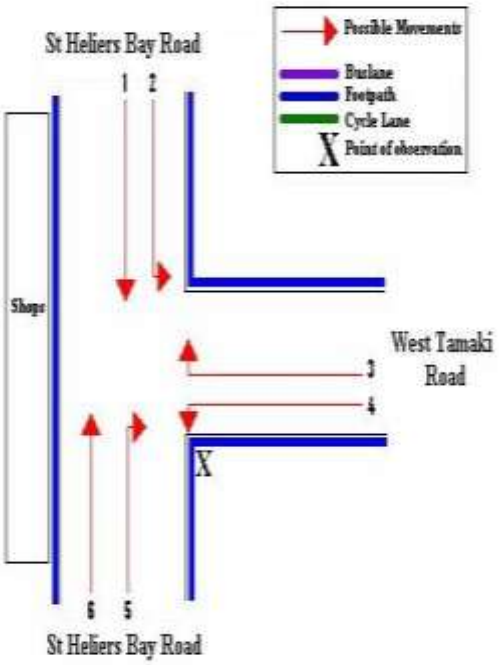


21. ST HELIERS BAY ROAD/WEST TAMAKI ROAD, GLEN INNES (SITE 20)

Figure 21.1 shows the possible cyclist movements at this intersection.

Figure 21.1: Cycle Movements: St Heliers Bay/West Tamaki Road





- The AADT for this site is 249. This compares with:
  - 158 in 2009
  - 246 in 2008
  - 308 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**98**	**72**	**170**

21.1 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 peak cyclists at the St Heliers Bay/West Tamaki Road intersection has increased notably from last year – up from 61 to 98 movements this year.
- The key morning movement is riding straight along St Heliers Bay Road in a north-easterly direction (Movement 6 = 33 cyclists).
- The most notable increase is at Movement 5 - up 14 cyclists from 7 in 2009 to 21 in 2010. *Note: Cyclists training groups were observed at this site during the monitoring period in 2007, 2008 and 2010.*

Table 21.1: Morning Cyclist Movements
St Heliers Bay/West Tamaki Road 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	17	14	16	20	4
2	4	4	1	5	4
3	21	7	5	7	2
4	5	14	12	12	0
5	69	53	7	21	14
6	23	15	20	33	13
Total	**139**	**107**	**61**	**98**	**37**

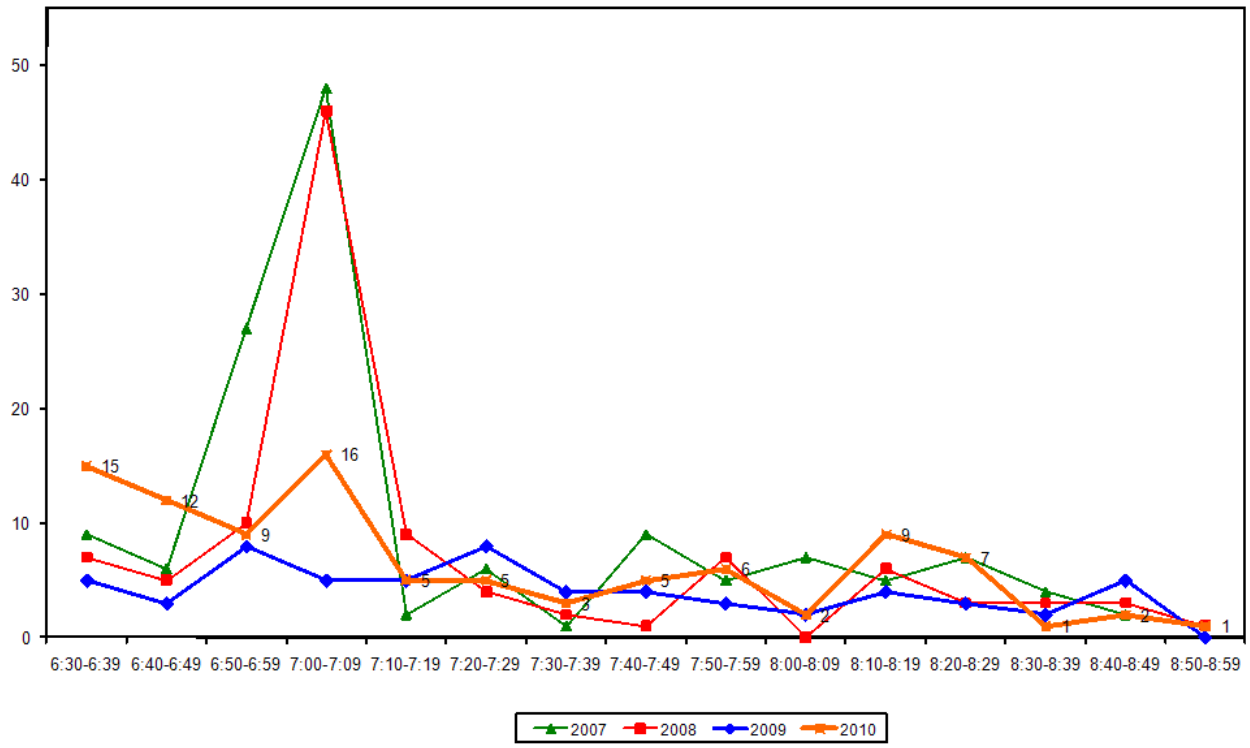
- Over the morning peak, adults comprise the greatest share of cycle movements (93 per cent, stable from the previous year).
- All cyclists are wearing a helmet (100 per cent, compared with 98 per cent last year).
- Riding on the road continues to be much more common than riding on the footpath (95 per cent, slightly up from 93 per cent at last measure).

Table 21.2: Morning Cyclist Characteristics
St Heliers Bay/West Tamaki Road 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type					
Adult	87	93	92	93	1
School child	13	7	8	7	-1
Helmet Wearing					
Helmet on head	100	97	98	100	2
No helmet	0	3	2	0	-2
Where Riding					
Road	87	92	93	95	2
Footpath	13	8	7	5	-2
Base:	***139***	***107***	***61***	***98***	

- There are two peaks - between 6:30am and 6:39am and between 7:00am and 7:09am. This compares to two slight peaks between 6:50am and 6:59am and between 7:20am and 7:29am in 2009.

Figure 21.2: St Heliers Bay/West Tamaki Road Cyclist Frequency – Morning Peak



Note: In 2010, eight 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:

- *Four cyclists at 6.44am*
- *Four cyclists at 7.01am*

21.2 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift, with a cold wind developing towards the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening cycle movements recorded at the St Heliers Bay/West Tamaki Road intersection has increased, from 47 last year to 72 movements in 2010.
- The key movements at this site in the evening are straight along St Heliers Bay Road heading north (Movement 6 = 26 cyclists) and southeast along St Heliers Bay Road (Movement 1 = 23 cyclists).
- The most notable increase is at Movement 6 (up 19 cyclists).

Table 21.3: Evening Cyclist Movements
St Heliers Bay/West Tamaki Road 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	22	19	15	23	8
2	6	6	7	6	-1
3	4	8	6	2	-4
4	5	5	5	6	1
5	3	12	7	9	2
6	29	10	7	26	19
Total	**69**	**60**	**47**	**72**	**25**

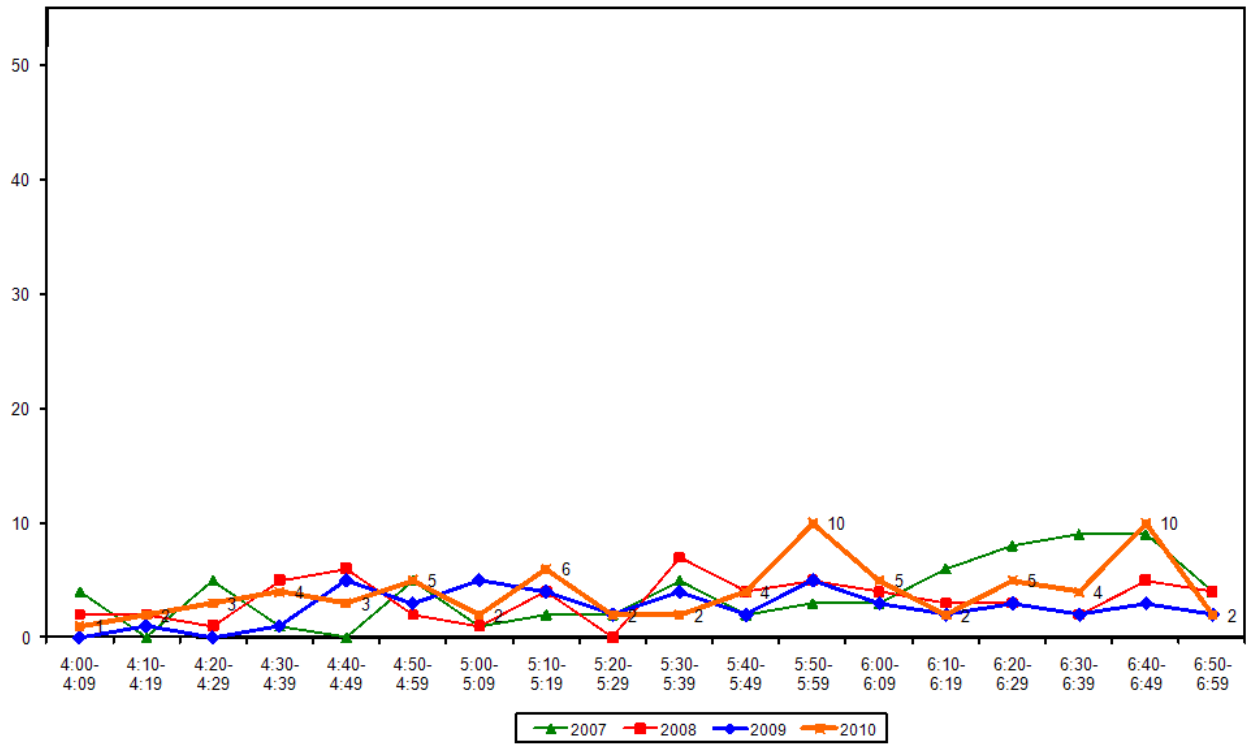
- Consistent with the morning peak, the greatest share of cyclists using this intersection are adults (96 per cent, up from 89 per cent in 2009).
- Most cyclists at this site are wearing a helmet (96 per cent, up slightly from 94 per cent last year).
- The majority of cyclists are riding on the road (96 per cent, up from 87 per cent last year).

Table 21.4: Evening Cyclist Characteristics
St Heliers Bay/West Tamaki Road 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	**Change 09-10**
Cyclist Type					
Adult	93	88	89	96	7
School child	7	12	11	4	-7
Helmet Wearing					
Helmet on head	99	92	94	96	2
No helmet	1	8	6	4	-2
Where Riding					
Road	88	87	87	96	9
Footpath	12	13	13	4	-9
Base:	***69***	***60***	***47***	***72***	

- The volume of evening cycle movements peaks twice - between 5:50pm and 5:59pm (10 cyclists) and again between 6:40pm and 6:49pm (10 cyclists).

Figure 21.3: St Heliers Bay/West Tamaki Road Cyclist Frequency – Evening Peak

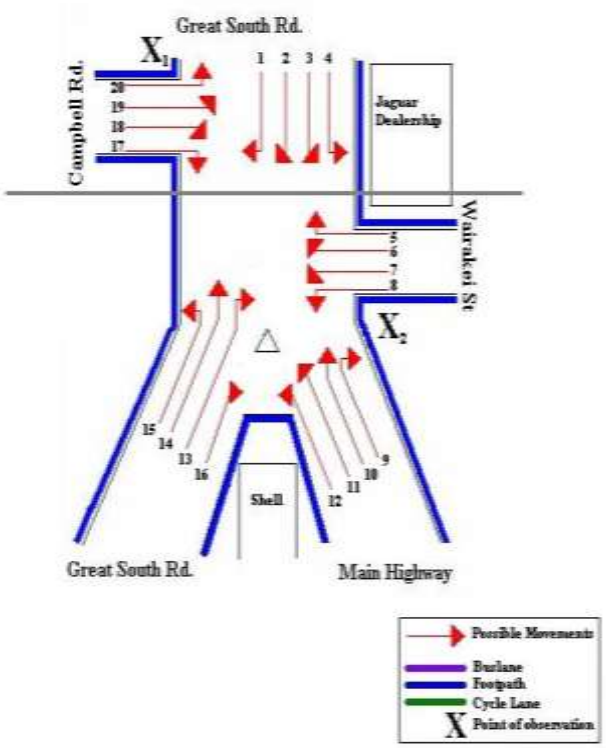


Note: In 2010, three cyclists were observed riding as a group at 5.52pm. This comprises four per cent of the total cycle movements in the evening peak in 2010.

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

Figure 22.1 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 22.1: Cycle Movements: Great South/Campbell Road



- The AADT for this site is 246. This compares with:
  - 218 in 2009
  - 165 in 2008
  - 253 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**69**	**102**	**171**

22.1 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- Road maintenance occurred on Great South Road just before the intersection until 7:15am, causing moderate traffic build-up.

Key Points

- The volume of morning cyclists at the Great South/Campbell Road intersection has increased from last year – up by 5 to 69 movements this year.
- Key morning movements are right from the main highway into Great South Road heading north (Movement 10 = 11 cyclists) and straight along Great South Road heading north (Movement 14 = 17 cyclists).
- The most notable decrease has been at Movement 2, a decrease of 16 cyclists this year from 19 cyclists recorded in 2009.

Table 22.1: Morning Cyclist Movements
Great South/Campbell Road 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
1	3	1	2	5	3
2	20	9	19	3	-16
3	14	7	9	8	-1
4	2	0	0	7	7
5	2	0	1	0	-1
6	0	0	0	0	0
7	0	0	0	4	4
8	1	0	0	0	0
9	0	0	0	0	0
10	15	12	8	11	3
11	1	0	0	2	2
12	1	0	2	3	1
13	0	0	0	0	0
14	15	9	12	17	5
15	2	4	0	0	0
16	2	0	0	0	0
17	1	1	1	1	0
18	5	1	2	4	2
19	3	4	2	0	-2
20	2	5	6	4	-2
Total	**89**	**53**	**64**	**69**	**5**

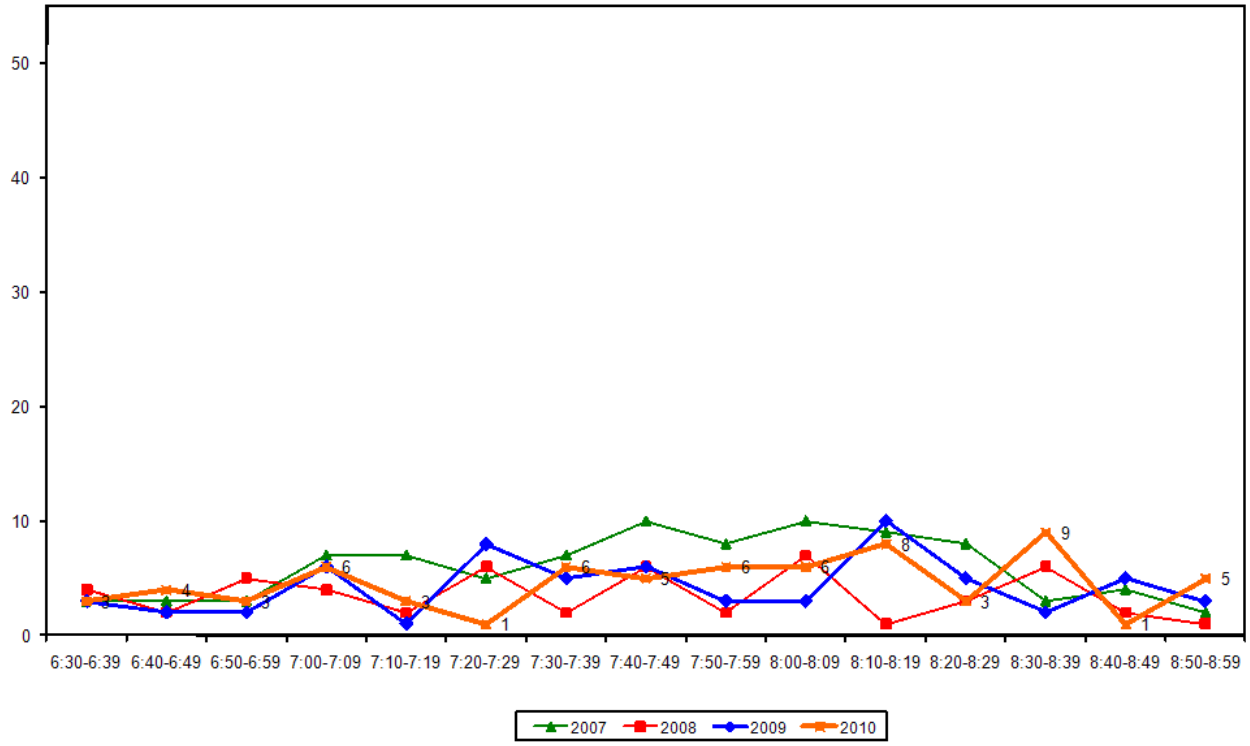
- Over the morning peak, adults comprise the greatest share of cycle movements (93 per cent, up slightly from 88 per cent in the previous year).
- Most cyclists are wearing a helmet (96 per cent, stable from 2009).
- The majority of cyclists are riding on the road (83 per cent, stable from 2009).

Table 22.2: Morning Cyclist Characteristics
Great South/Campbell Road 2007-2010 (%)

	2007	*2008*	*2009*	2010	Change 09-10
Cyclist Type					
Adult	94	92	88	93	5
School child	6	8	12	7	-5
Helmet Wearing					
Helmet on head	97	94	95	96	1
No helmet	3	6	5	4	-1
Where Riding					
Road	87	68	84	83	-1
Footpath	13	32	16	17	1
Base:	***89***	***53***	***64***	***69***	

- Morning cyclist volumes peak between 8:30am and 8:39am (9 cyclists), 20 minutes later than the peak recorded last year.

Figure 22.2: Great South/Campbell Road Cyclist Frequency – Morning Peak



22.2 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- There were no road works or accidents that may affect cycle counts. Heavy traffic build up was recorded from 4:45pm with queues often extending over the intersection.

Key Points

- Consistent with the morning peak, the volume of evening cyclists at the Great South/Campbell Road intersection has also increased – up from 87 in 2009 to 102 cycle movements this year.
- The most common movement in the evening is straight along Great South Road heading in a northerly direction (Movement 14 = 34 cyclists).
- Of the 20 movements recorded at this site, the most notable increase is at Movement 3 (up 9 cyclists).

Table 22.3: Evening Cyclist Movements
Great South/Campbell Road 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	2010	Change 09-10
1	2	3	5	5	0
2	14	7	13	14	1
3	16	8	10	19	9
4	1	0	4	2	-2
5	0	0	0	1	1
6	0	0	0	0	0
7	0	0	2	0	-2
8	0	0	0	1	1
9	0	0	0	1	1
10	14	7	8	12	4
11	4	5	4	6	2
12	1	0	0	1	1
13	0	0	1	0	-1
14	15	13	28	34	6
15	5	8	2	1	-1
16	3	1	1	1	0
17	2	2	1	0	-1
18	4	1	5	0	-5
19	0	3	0	0	0
20	4	3	3	4	1
Total	**85**	**61**	**87**	**102**	**15**

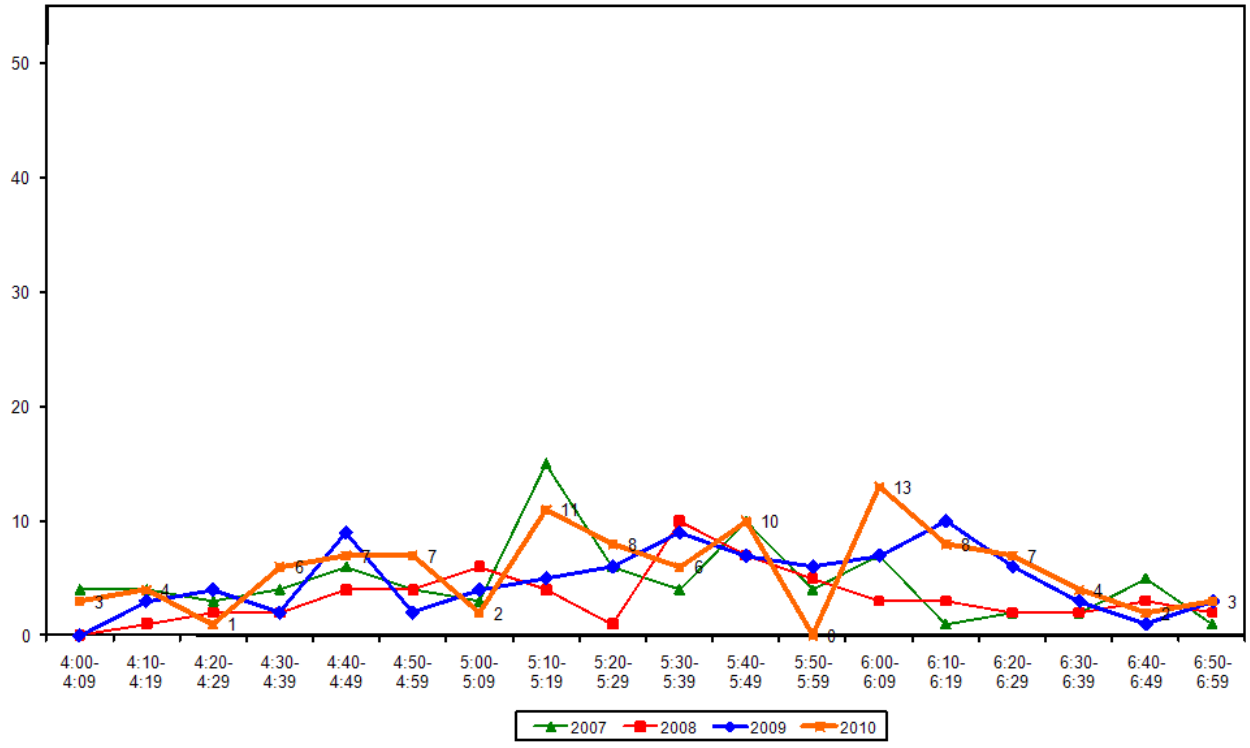
- Over the evening peak, almost all cyclists using this intersection are adults (95 per cent, stable from 97 per cent last year).
- Most cyclists at this site are wearing a helmet (92 per cent, down from 98 per cent in 2009).
- Almost all cyclists (89 per cent) are riding on the road, up slightly from 2009 (83 per cent).

Table 22.4: Evening Cyclist Characteristics
Great South/Campbell Road 2007-2010 (%)

	2007	*2008*	*2009*	2010	Change 09-10
Cyclist Type					
Adult	100	97	97	95	-2
School child	0	3	3	5	2
Helmet Wearing					
Helmet on head	95	89	98	92	-6
No helmet	5	11	2	8	6
Where Riding					
Road	87	82	83	89	6
Footpath	13	18	17	11	-6
Base:	***85***	***61***	***87***	***102***	

- Evening cycle volumes start off low, increasing to a peak between 5:10pm and 5:19pm (11 cyclists) and a second peak between 6:00pm and 6:09pm (13 cyclists) before tailing off through the rest of the monitoring period. This compares with a peak between 4:40pm and 4:49pm (9 cyclists), with another peak between 5:30pm and 5:39pm (9 cyclists), and a final peak between 6:10pm and 6:19pm (10 cyclists) in 2009, with cyclist numbers then tailing off through the rest of the monitoring period.

Figure 22.3: Point Great South/Campbell Road Cyclist Frequency – Evening Peak



23. FERRY TERMINAL, AUCKLAND CENTRAL (SITE 22)

Figure 23.1 shows the possible cyclist movements at this site. *Note: Due to the size of this site, three surveyors were used to conduct the cycle counts. One surveyor counted cycle traffic entering and leaving via the actual ferry terminal (Pier 1). The second surveyor counted cycle traffic using the ferries at Pier 2. The third surveyor counted cycle traffic using ferries at Piers 3 and 4.*

Figure 23.1: Cycle Movements: Ferry Terminal

- The AADT for this site is 574. This compares with:
  - 363 in 2009
  - 459 in 2008
  - 553 in 2007.
  -

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**198**	**197**	**395**

23.1 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 cycle movements at the Ferry Terminal site has increased notably, from 137 in 2009 to 198 this year.
- The key movement in the morning is disembarking the terminal at Pier One, which provides access to ferry services to and from Birkenhead, Northcote Point, Bayswater and Devonport (134 cyclists).
- The most notable increase is disembarking at Pier One (up 34 cyclists).

Table 23.1: Morning Cyclist Movements

Ferry Terminal 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
Pier One					
Boarding	18	11	10	24	14
Disembarking	136	127	100	134	34
Pier Two					
Boarding	8	5	1	0	-1
Disembarking	18	10	16	28	12
Pier Three					
Boarding	0	0	1	0	-1
Disembarking	4	3	3	8	5
Pier Four					
Boarding	0	0	4	0	-4
Disembarking	11	2	2	4	2
Total	**195**	**158**	**137**	**198**	**61**

Pier 1 – departs for Birkenhead, Northcote Point, Bayswater and Devonport
Pier 2 – departs for Waiheke Island and Half Moon Bay
Pier 3 – departs for West Harbour and Pine Harbour
Pier 4 – departs for Gulf Harbour and Stanley Bay

Table 23.1a: Morning Cyclist Movements – Which Ferry Boarded (n)

Ferry	2009	2010	Change 09-10
Pier Two			
Half Moon Bay	0	0	0
Waiheke	1	0	-1
Pier Three			
Pine Harbour	0	0	0
West Harbour	1	0	-1
Pier Four			
Gulf Harbour	0	0	0
Stanley Bay	4	0	-4
Total	**6**	**0**	**-6**

Note: At Pier 1, it is not possible to identify which ferry cyclists are boarding.

Table 23.1b: Morning Cyclist Movements – Which Ferry Disembarked (n)

Ferry	2009	2010	Change 09-10
Pier One			
Bayswater	22	-	-
Birkenhead	34	-	-
Devonport	44	-	-
Pier Two			
Half Moon Bay	4	10	6
Waiheke	12	18	6
Pier Three			
Pine Harbour	2	8	6
West Harbour	1	0	-1
Pier Four			
Gulf Harbour	1	1	0
Stanley Bay	1	3	2
Total	**121**	**40**	**-**

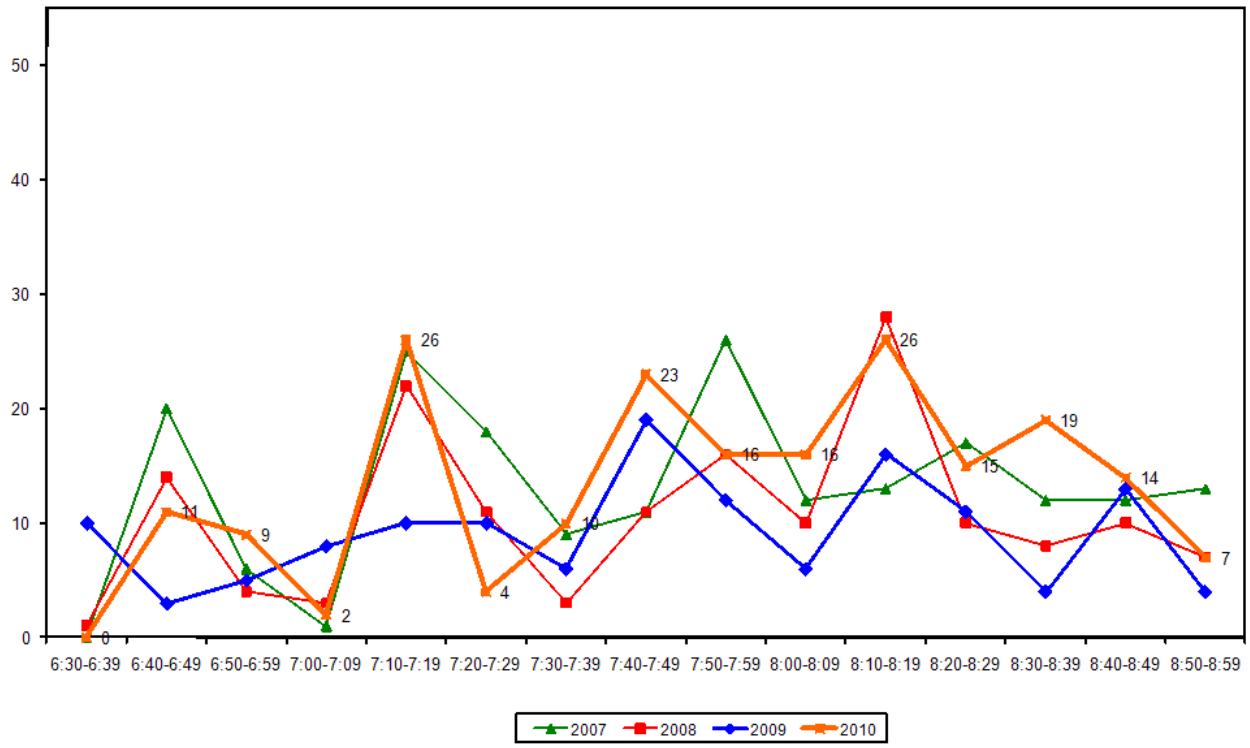
- Almost all cyclists using this site in the morning are adults (99 per cent - a slight decrease from 100 per cent last year).
- On average, two in three cyclists are wearing a helmet (69 per cent, down from 80 per cent in 2009).

Table 23.2: Morning Cyclist Characteristics
Ferry Terminal 2007-2010 (%)

	2007	***2008***	***2009***	**2010**	**Change 09-10**
Cyclist Type					
Adult	98	96	100	99	-1
School child	2	4	0	1	1
Helmet Wearing					
Helmet on head	87	70	80	69	-11
No helmet	13	30	20	31	11
Base:	***195***	***158***	***137***	***198***	

- Morning cyclist volumes peak three times – 26 cyclists at around 7:15am (half an hour earlier than the first peak last year), 23 cyclists at around 7:45am and 23 cyclists at around 8:15am (the same time as the second peak in 2009).

Figure 23.2: Ferry Terminal Cyclist Frequency – Morning Peak



23.2 Evening Peak

Environmental Conditions

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

Key Points

- The volume of evening cycle movements at the Ferry Terminal site has increased from last year – up by 86 to 197 movements in 2010.
- In contrast to the morning shift, the key movement in the evening is boarding the ferries at Pier One (137 cyclists).
- Compared with last year, the most notable increase is boarding the ferry at Pier One (up 49 cyclists).

Table 23.3: Evening Cyclist Movements
Ferry Terminal 2007-2010 (n)

Movement	*2007*	*2008*	*2009*	*2010*	Change 09-10
Pier One					
Boarding	131	122	88	137	49
Disembarking	15	13	5	25	20
Pier Two					
Boarding	7	15	10	21	11
Disembarking	16	6	0	3	3
Pier Three					
Boarding	0	2	5	6	1
Disembarking	0	0	0	0	0
Pier Four					
Boarding	0	0	3	3	0
Disembarking	16	0	0	2	2
Total	**185**	**158**	**111**	**197**	**86**

Pier 1 – departs for Birkenhead, Northcote Point, Bayswater and Devonport
Pier 2 – departs for Waiheke Island and Half Moon Bay
Pier 3 – departs for West Harbour and Pine Harbour
Pier 4 – departs for Gulf Harbour and Stanley Bay

Table 23.3a: Evening Cyclist Movements – Which Ferry to Board (n)

Ferry	2009	2010	Change 09-10
Pier Two			
Half Moon Bay	3	4	1
Waiheke	7	17	10
Pier Three			
Pine Harbour	4	6	2
West Harbour	1	0	-1
Pier Four			
Gulf Harbour	0	0	0
Stanley Bay	3	3	0
Total	**18**	**30**	**12**

Note: At Pier 1 it is not possible to identify which ferry cyclists are boarding

Table 23.3b: Evening Cyclist Movements – Which Ferry to Disembark (n)

Ferry	2009	2010	Change 09-10
Pier One			
Bayswater	0	-	-
Birkenhead	0	-	-
Devonport	5	-	-
Pier Two			
Half Moon Bay	0	0	0
Waiheke	0	3	3
Pier Three			
Pine Harbour	0	0	0
West Harbour	0	0	0
Pier Four			
Gulf Harbour	0	1	1
Stanley Bay	0	1	1
Total	**5**	**5**	**0**

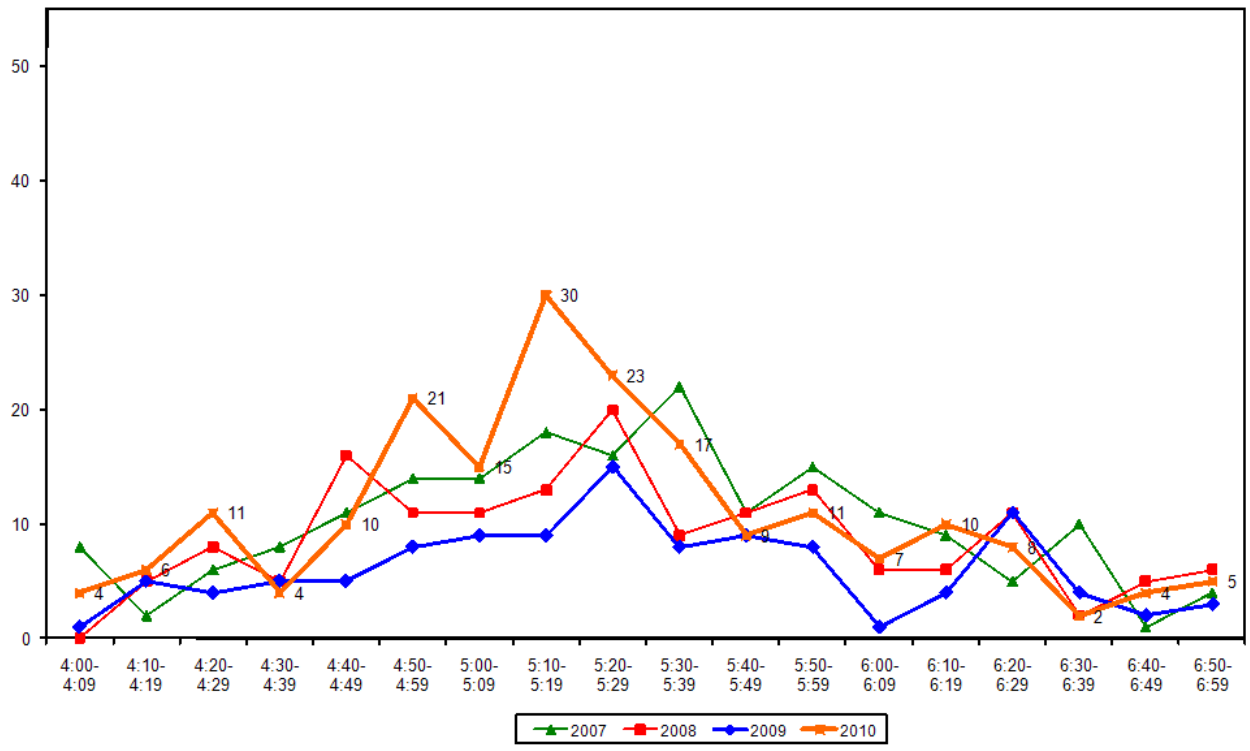
- Over the evening peak, all cyclists using this site are adults (100 per cent, stable from the previous measure).
- Seventy-one per cent of cyclists are wearing a helmet (down from 80 per cent recorded in 2009).

Table 23.4: Evening Cyclist Characteristics
Ferry Terminal 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	Change 09-10
Cyclist Type					
Adult	99	98	100	100	0
School child	1	2	0	0	0
Helmet Wearing					
Helmet on head	85	69	80	71	-9
No helmet	15	31	20	29	9
Base:	***185***	***158***	***111***	***198***	

- Evening cyclist numbers start off low, increase gradually to a peak between 4:50pm and 4:59pm (21 cyclists) and again between 5:10pm and 5:19pm (30 cyclists), and then tail off towards the end of the monitoring period. This compares to peaks between 5:20pm and 5:29pm, and again between 6:20pm and 6:29pm, in 2009.

Figure 23.3: Ferry Terminal Cyclist Frequency
– Evening Peak



23.3 Ferry Terminal – Count of Parked Cycles

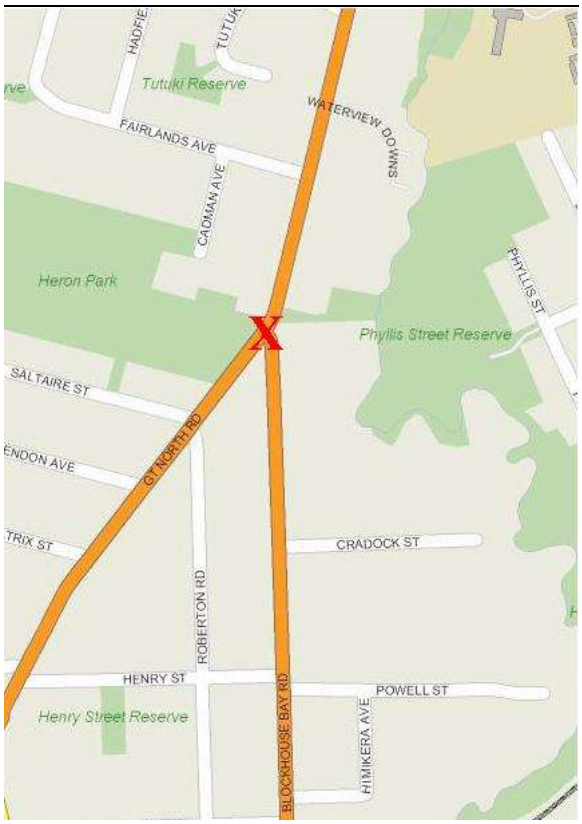
Key Points

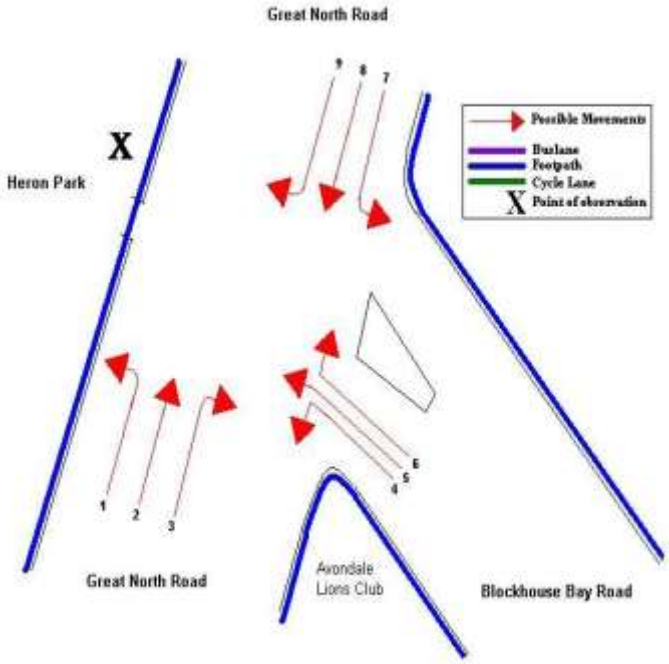
- Cycles were observed at various places around the Ferry Terminal with the main cluster observed outside the taxi-stand entrances/exit to Pier One.
- In the morning, a total of 18 bikes were recorded at the downtown Ferry Terminal at 6.00am and 12 bikes were counted at 9.10am.
- In the afternoon, a total of 11 bikes were recorded at the downtown Ferry Terminal at 3.30pm and 19 bikes were counted at 7.05pm.

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

Figure 24.1 shows the possible cyclist movements at this intersection.

Figure 24.1: Cycle Movements: Blockhouse Bay/Great North Road





- The AADT for this site is 204. This compares with
  - 173 in 2009
  - 170 in 2008.

	AM	*PM*	*TOTAL*
Raw Cycle Movement Counts 2010	**66**	**75**	**141**

24.1 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-six cycle movements were recorded at the Blockhouse Bay/Great North Road site,up from 57 movements in 2009.
- The key morning movements are straight through Great North Road (Movement 2 = 33 cyclists) and the right turn out of Blockhouse Bay Road into Great North Road (Movement 6 = 16 cyclists).
- The most notable increase in cyclist movements in the morning at this site was at Movement 2 (up 5 cyclists).

Table 24.1: Morning Cyclist Movements

Blockhouse Bay/Great North Road 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	0
2	29	28	33	5
3	0	0	2	2
4	0	1	1	0
5	0	0	0	0
6	16	14	16	2
7	3	4	2	-2
8	9	10	12	2
9	0	0	0	0
Total	**57**	**57**	**66**	**9**

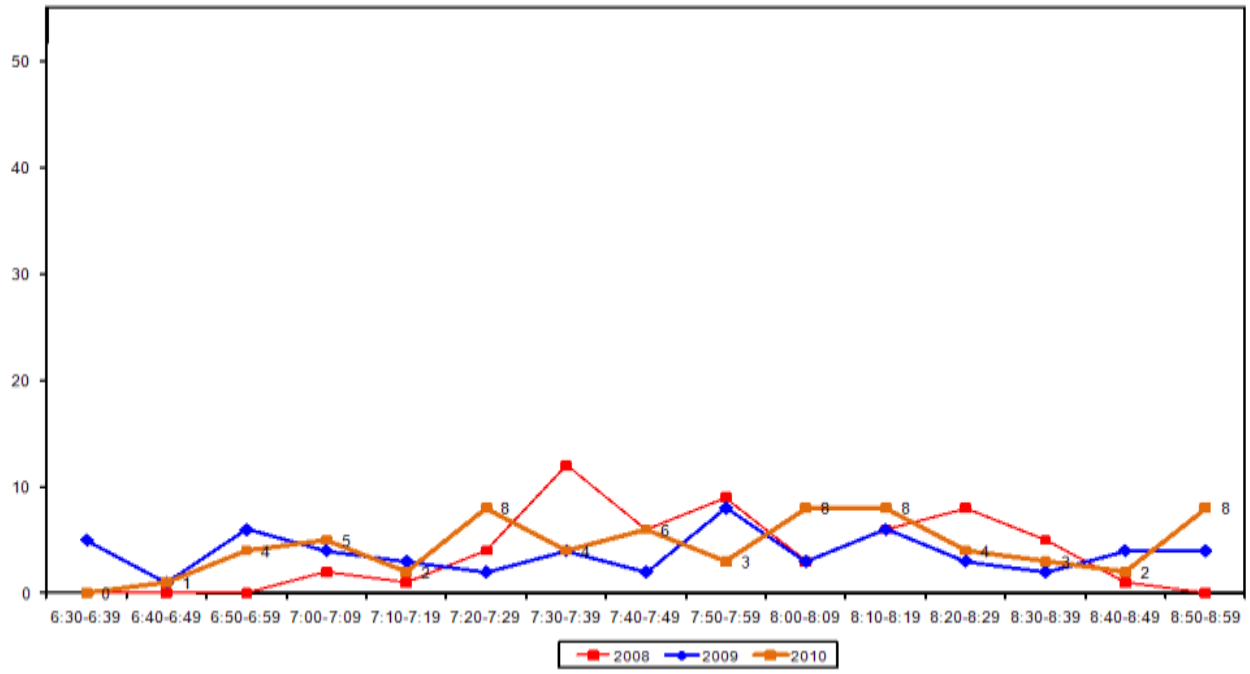
- Over the morning peak, most cyclists are adults (92 per cent, a notable increase from 65 per cent in 2009).
- Almost all cyclists are wearing a helmet (95 per cent, up from 88 per cent at the previous measure).
- Sixty-two per cent of cyclists are riding on the road, stable from 65 per cent last year.

Table 24.2: Morning Cyclist Characteristics
Blockhouse Bay/Great North Road 2008-2010 (%)

	2008	*2009*	*2010*	**Change 09-10**
Cyclist Type				
Adult	89	65	92	27
School child	11	35	8	-27
Helmet Wearing				
Helmet on head	93	88	95	7
No helmet	7	12	5	-7
Where Riding				
Road	44	65	62	-3
Footpath	56	35	38	3
Base:	***57***	***57***	***66***	

- Morning cycle volumes peak slightly between 7:20am and 7:29am, 8:00am and 8:29am and 8:50am and 8:59am (8 cyclists per ten minute interval). This compares to a single slight peak between 7:50am and 7:59am in 2009.

Figure 24.2: Blockhouse Bay/Great North Road Cyclist Frequency – Morning Peak



24.2 Evening Peak

Environmental Conditions

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

Key Points

- The total number of evening peak cycle movements recorded at the Blockhouse Bay/Great North Road site is 75, up from 2009 (62 movements).
- The most common movement in the evening is straight through Great North Road in a south-westerly direction (Movement 8 = 37 cyclists).
- Cyclist volumes over the evening period have increased most notably at Movement 8 (up 9 cyclists).

Table 24.3: Evening Cyclist Movements
Blockhouse Bay/Great North Road 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	0
2	14	15	17	2
3	0	0	2	2
4	0	1	0	-1
5	0	2	0	-2
6	1	2	4	2
7	15	13	15	2
8	30	28	37	9
9	0	1	0	-1
Total	**60**	**62**	**75**	**13**

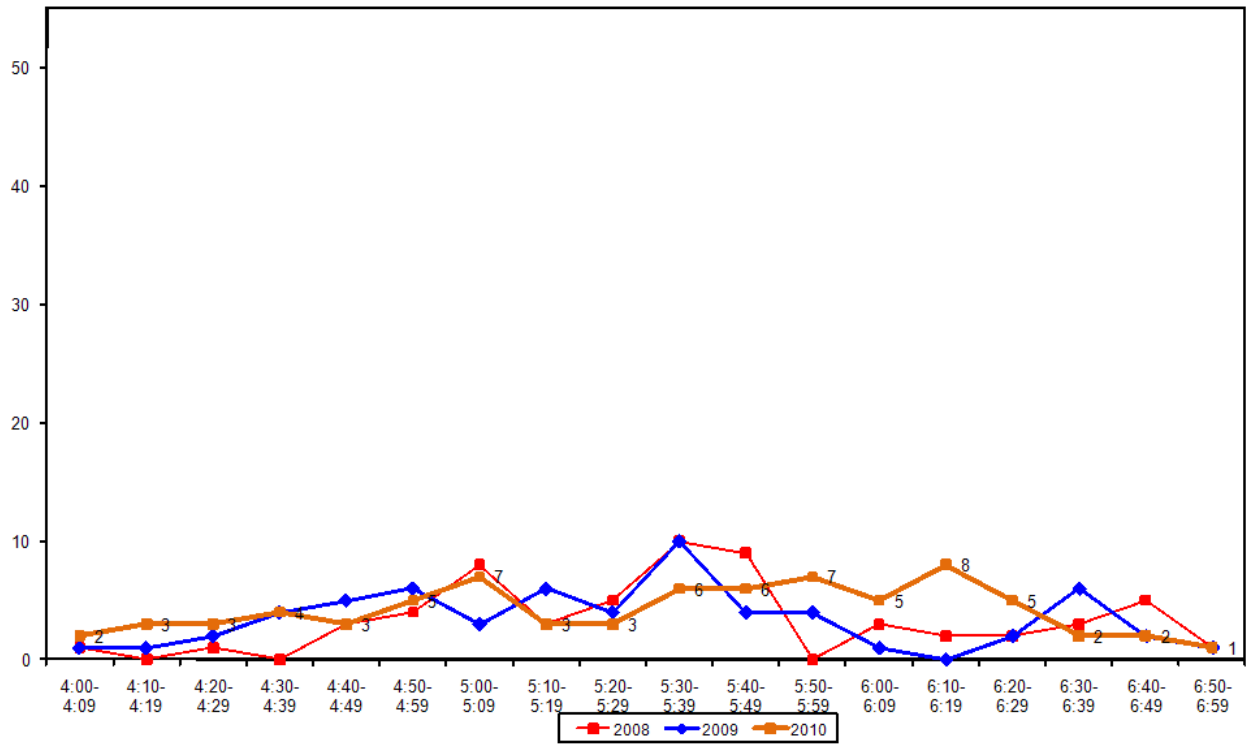
- Over the evening peak, almost all cyclists at this site are adults (96 per cent, up notably from 76 per cent last year).
- Most cyclists at this site are wearing a helmet (93 per cent, up from 81 per cent at the previous measure).
- Seventy-two per cent of cyclists are riding on the road, up notably from 56 per cent in 2009.

Table 24.4: Evening Cyclist Characteristics
Blockhouse Bay/Great North Road 2008-2010 (%)

	2008	*2009*	*2010*	Change 09-10
Cyclist Type				
Adult	90	76	96	20
School child	10	24	4	-20
Helmet Wearing				
Helmet on head	87	81	93	12
No helmet	13	19	7	-12
Where Riding				
Road	67	56	72	16
Footpath	33	44	28	-16
Base:	***60***	***62***	***75***	

- Evening cycle volumes increase steadily throughout the monitoring period to peak slightly between 6:10pm and 6:19pm (8 cyclists), 40 minutes later than the two previous years. This compares to a peak between 5:30pm and 5:39pm (10 cyclists) in 2009.

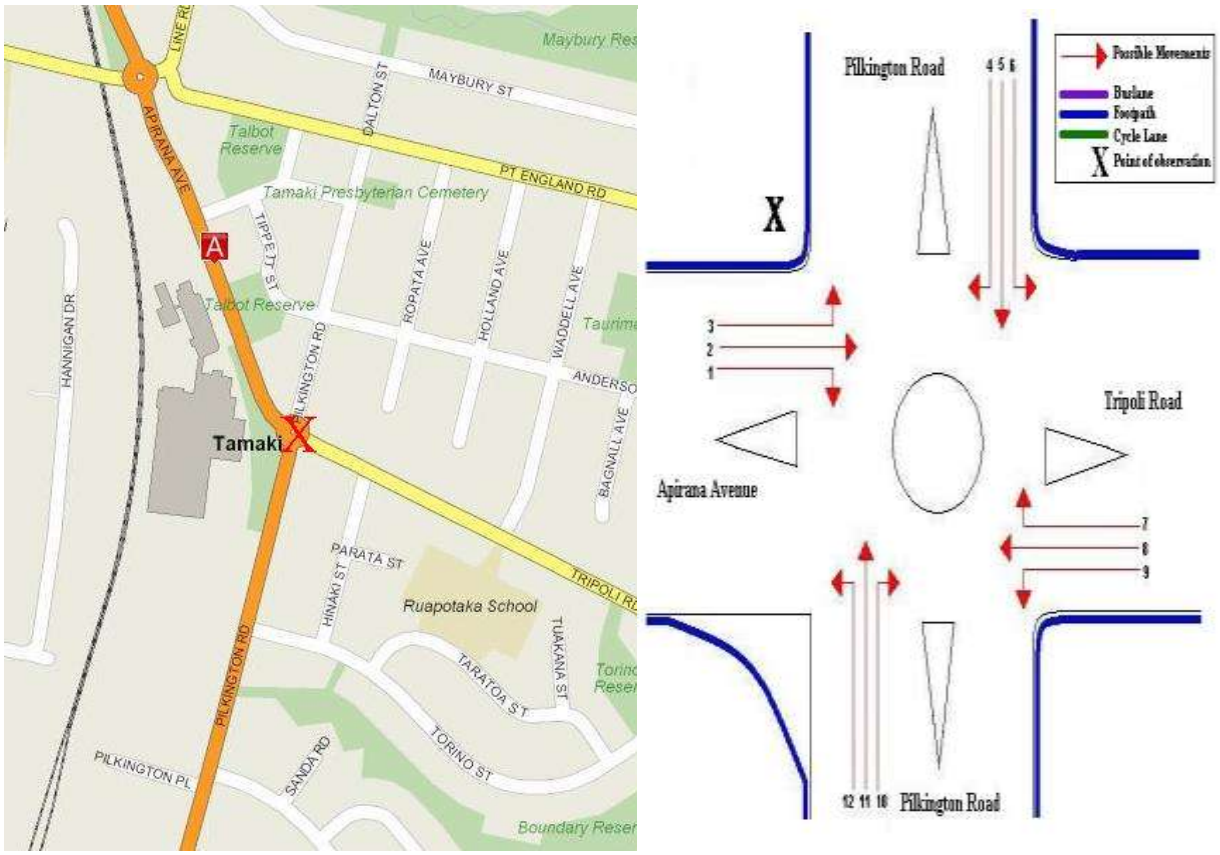
Figure 24.3: Blockhouse Bay/Great North Road Cyclist Frequency – Evening Peak



25. APIRANA AVENUE/PILKINGTON ROAD/MOVEMENTOLI ROAD, POINT ENGLAND (SITE 74)

Figure 25.1 shows the possible cyclist movements at this intersection.

Figure 25.1: Cycle Movements: Apirana Avenue/Pilkington Road/Movementoli Road



- The AADT for this site is 87, compared with
  - 46 in 2009
  - 87 in 2008.

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**30**	**30**	**60**

25.1 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- Road cones were placed out on Apirana Avenue at 7:45am and on Pilkington Road and Movementoli Road at 7:55am. At 8:55am the cones were moved to reduce the number of lanes on the road from two to one for road works.

Key Points

- Compared with other sites in Auckland city, the volume of morning cyclists at the Apirana Avenue/Pilkington Road/Movementoli Road site is low, with 30 cycle movements recorded (up from 12 movements in 2009).
- The most common morning movements are travelling straight from Apirana Avenue into Movementoli Road (Movement 2 = 13 cyclists) and turning right from Apirana Avenue into Pilkington Road (Movement 1 = 10 cyclists).
- Compared with last year, the most notable increase is at Movement 2 (up 13 cyclists).

Table 25.1: Morning Cyclist Movements

Apirana Avenue/Pilkington Road/Movementoli Road 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	6	3	10	7
2	0	0	13	13
3	1	0	0	0
4	0	0	0	0
5	0	2	2	0
6	0	0	0	0
7	1	1	0	-1
8	9	0	2	2
9	1	0	0	0
10	1	0	0	0
11	0	2	0	-2
12	3	4	3	-1
Total	**22**	**12**	**30**	**18**

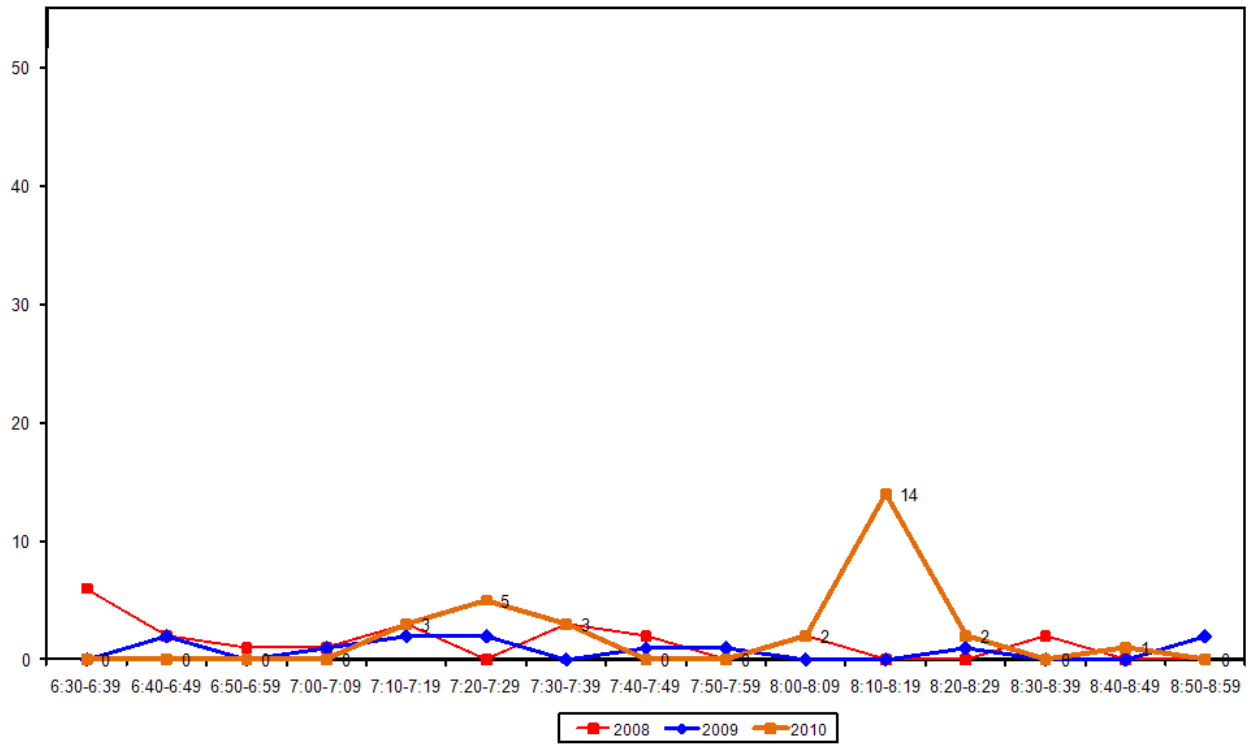
- Over the morning peak, all cyclists are adults, up from 92 per cent last year.
- Almost all cyclists (97 per cent) are wearing a helmet, up from 83 per cent in 2009.
- Ninety-three per cent of cyclists are riding on the road (up notably from 67 per cent at the previous measure).

Table 25.2: Morning Cyclist Characteristics
Apirana Avenue/Pilkington Road/Movementoli Road 2008-2010 (%)

	2008	*2009*	*2010*	**Change 09-10**
Cyclist Type				
Adult	95	92	100	8
School child	5	8	0	-8
Helmet Wearing				
Helmet on head	100	83	97	14
No helmet	0	17	3	-14
Where Riding				
Road	73	67	93	26
Footpath	27	33	7	-26
Base:	***22***	***12***	***30***	

- Morning cycle volumes are low throughout most of the shift, with a slight peak between 7:20am and 7:29am (5 cyclists) and a sharp peak between 8:10am and 8:19am (14 cyclists). This compares with low cyclist traffic of no more than two cyclists per ten minute monitoring interval throughout the shift in 2009.

Figure 25.2: Apirana Avenue/Pilkington Road/Movementoli Road Cyclist Frequency – Morning Peak



Note: In 2010, nine cyclists were observed riding as a group at 8.14am. This comprises 30 per cent of the total cycle movements in the morning peak in 2010.

25.2 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded at the Apirana Avenue/Pilkington Road/Movementoli Road continues to be low, with 30 movements evident in the evening, up from 20 movements in 2009.
- The most common movements in the evening are turning left from Pilkington Road into Apirana Avenue (Movement 12 = 10 cyclists) and turning right off Apirana Avenue onto Pilkington Road (Movement 1 = 7 cyclists).
- Compared with 2009, the most notable increase in cyclist numbers is at Movement 12 (up 10 cyclists).

Table 25.3: Evening Cyclist Movements

Apirana Avenue/Pilkington Road/Movementoli Road 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	12	5	7	2
2	7	2	2	0
3	1	0	0	0
4	0	0	1	1
5	0	1	0	-1
6	1	1	1	0
7	1	1	2	1
8	5	0	3	3
9	1	3	2	-1
10	2	0	0	0
11	2	5	2	-3
12	7	2	10	8
Total	**39**	**20**	**30**	**10**

- Over the evening peak, almost all cyclists using this site are adults (97 per cent, up notably from 75 per cent in 2009).
- On average, four in five cyclists at this site are wearing a helmet (up notably from 40 per cent at the previous measure).
- A greater proportion of cyclists at this site in the evening are riding on the road (77 per cent, compared with only 40 per cent last year).

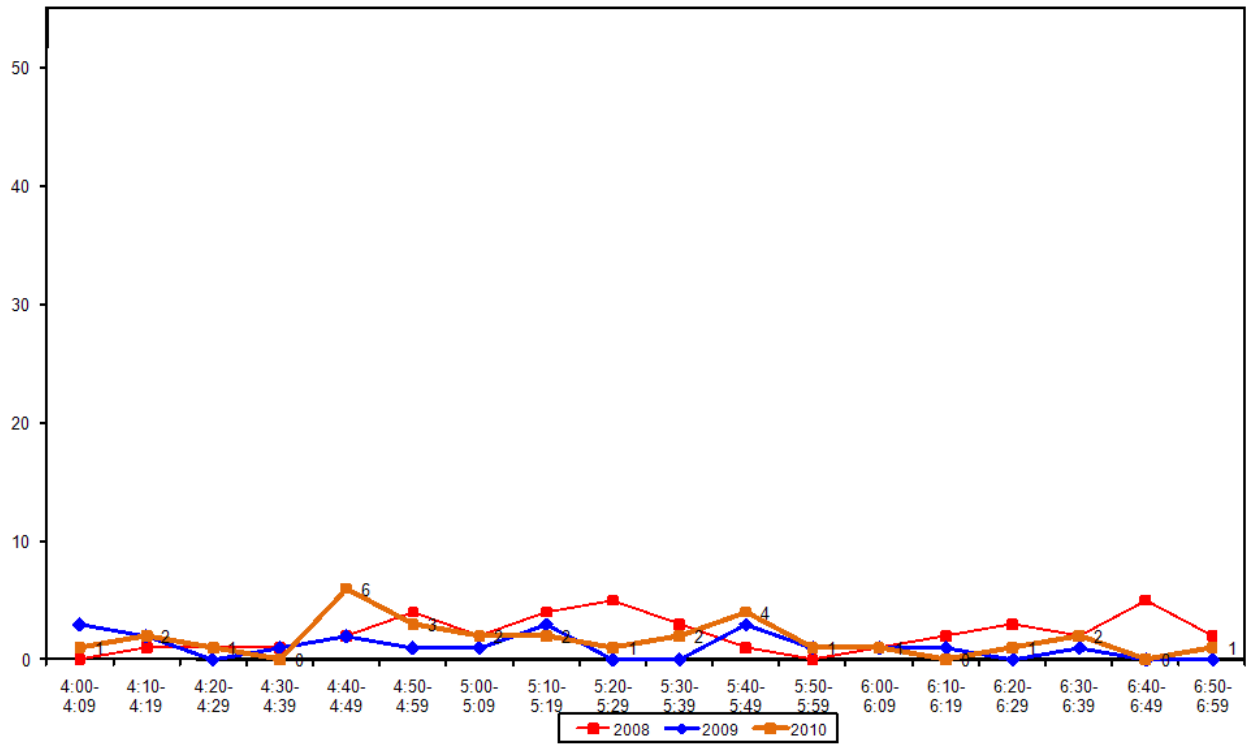
Table 25.4: Evening Cyclist Characteristics

Apirana Avenue/Pilkington Road/Movementoli Road 2008-2010 (%)

	2008	*2009*	*2010*	**Change 09-10**
Cyclist Type				
Adult	92	75	97	22
School child	8	25	3	-22
Helmet Wearing				
Helmet on head	72	40	83	43
No helmet	28	60	17	-43
Where Riding				
Road	74	40	77	37
Footpath	26	60	23	-37
Base:	***39***	***20***	***30***	

- Evening cycle volumes are low throughout the shift, with a slight peak between 4:40pm and 4:49pm (6 cyclists). This compares with 2009 in which no more than three cyclists were recorded during all ten minute intervals.

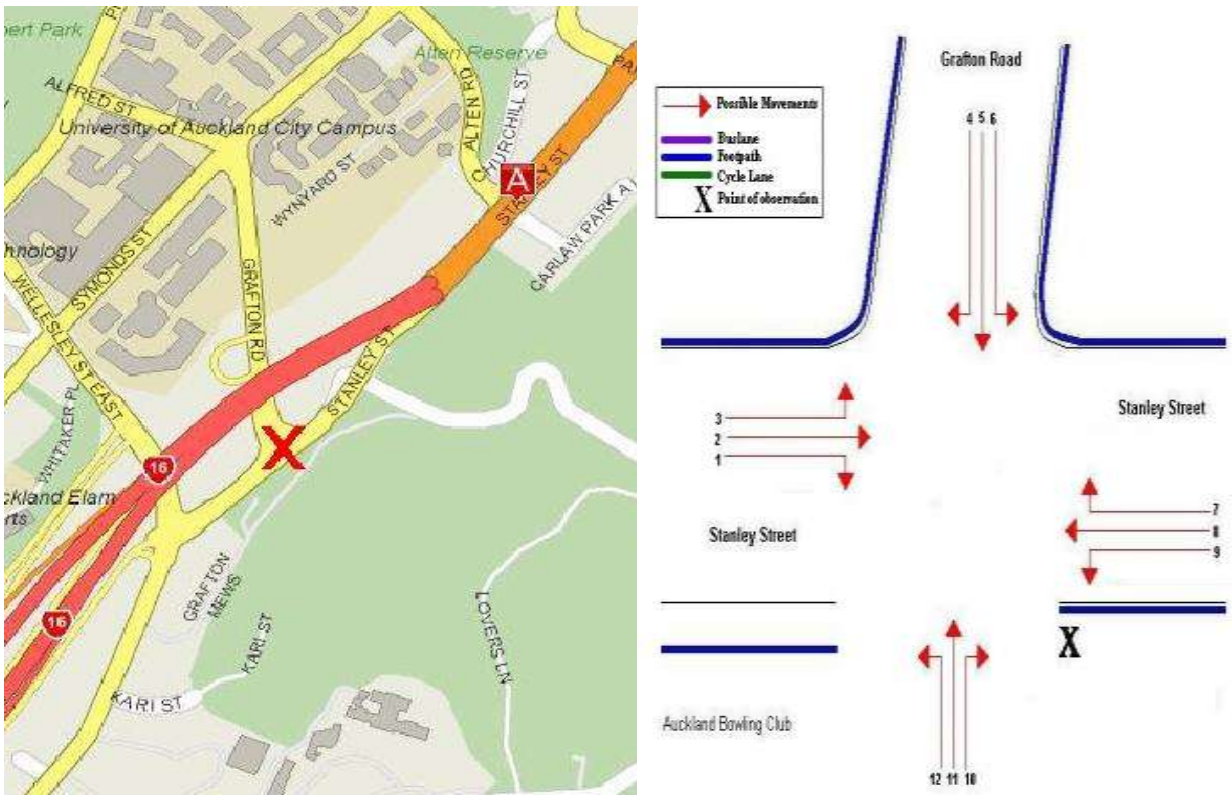
Figure 25.3: Apirana Avenue/Pilkington Road/Movementoli Road Cyclist Frequency – Evening Peak



26. STANLEY STREET/GRAFTON ROAD, GRAFTON (SITE 75)

Figure 26.1 shows the possible cyclist movements at this intersection.

Figure 26.1: Cycle Movements: Stanley Street/Grafton Road



- The AADT for this site is 135. This compares with
  - 140 in 2009
  - 95 in 2008.

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**47**	**46**	**93**

26.1 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 cycle volumes at the Stanley Street/Grafton Road site have decreased slightly this year, from 49 cycle movements in 2009 to 47 movements.
- The most common morning movement is heading straight along Stanley Street in a north-westerly direction (Movement 8 =16 cyclists).
- The most notable increase in cyclist volumes from 2009 is at Movement 8 (up 3 cyclists). The most notable decrease in cyclist volumes from 2009 is at Movement 9 (down 3 cyclists).

Table 26.1: Morning Cyclist Movements
Stanley Street/Grafton Road 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	0
2	3	10	9	-1
3	1	1	1	0
4	0	0	0	0
5	0	0	1	1
6	1	1	0	-1
7	8	11	9	-2
8	9	13	16	3
9	2	3	0	-3
10	0	0	0	0
11	12	9	11	2
12	0	1	0	-1
Total	**36**	**49**	**47**	**-2**

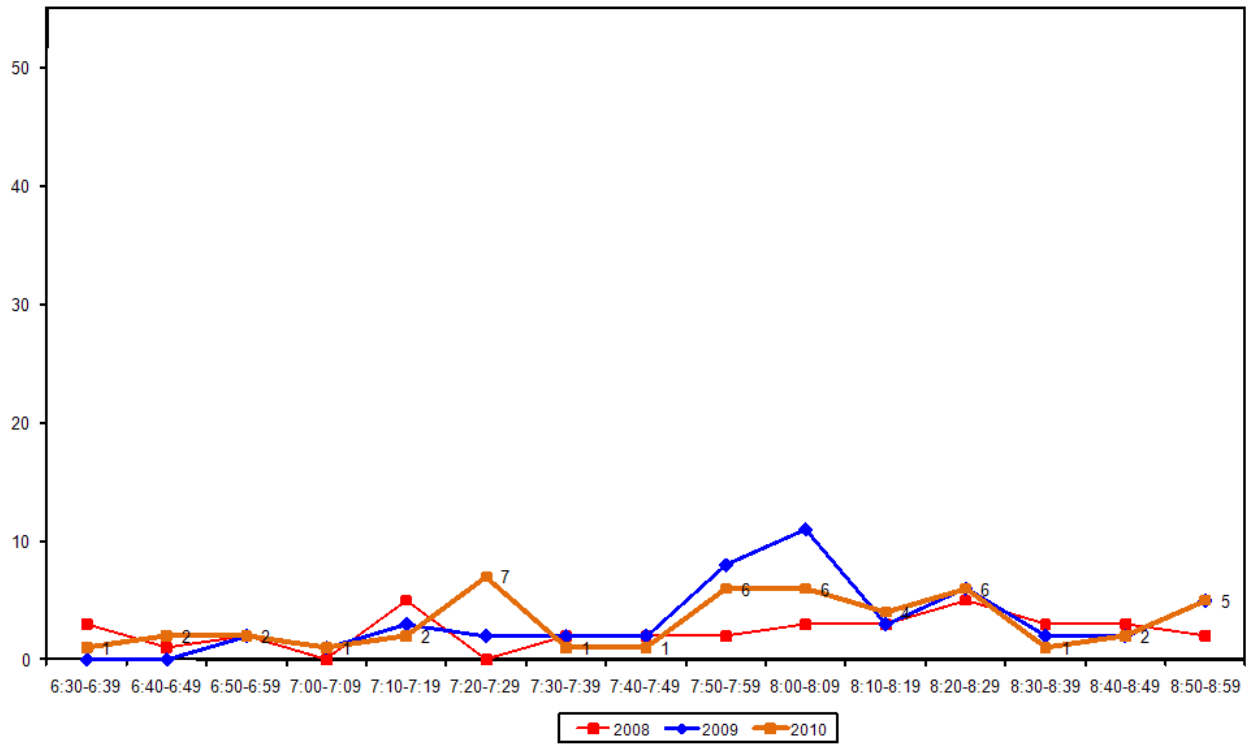
- Over the morning peak, all cyclists are adults (100 per cent, unchanged from last year).
- Most cyclists are wearing a helmet (94 per cent, unchanged from 94 per cent in 2009).
- Approximately half of cyclists are riding on the road (49 per cent, down notably from 61 per cent at the previous measure).

Table 26.2: Morning Cyclist Characteristics
Stanley Street/Grafton Road 2008-2010 (%)

	2008	*2009*	*2010*	**Change 09-10**
Cyclist Type				
Adult	100	100	100	0
School child	0	0	0	0
Helmet Wearing				
Helmet on head	92	94	94	0
No helmet	8	6	6	0
Where Riding				
Road	78	61	49	-12
Footpath	22	39	51	12
Base:	***36***	***49***	***47***	

- Morning cycle volumes start off low, then increase to peak between 7:20am and 7:29am (7 cyclists) and again between 7:50am and 8:09am and 8:20am and 8:29am (6 cyclists per ten minute interval). This compares with a slight peak between 8:00am and 8:09am in 2009.

Figure 26.2: Stanley Street/Grafton Road Cyclist Frequency – Morning Peak



26.2 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded at the Stanley Street/Grafton Road site has remained the same this year, with 46 movements in the evening.
- The key movements in the evening are straight along Stanley Street heading northwest (Movement 8 = 15 cyclists) and straight along Stanley Street heading southeast (Movement 2 = 11 cyclists).
- The most notable increases since 2009 are at Movement 6 and Movement 8, up by 3 cyclists each this year.

Table 26.3: Evening Cyclist Movements
Stanley Street/Grafton Road 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	0
2	8	13	11	-2
3	3	0	1	1
4	1	1	1	0
5	3	8	7	-1
6	4	5	8	3
7	2	1	1	0
8	2	12	15	3
9	1	2	1	-1
10	4	2	0	-2
11	1	3	1	-2
12	0	0	0	0
Total	**29**	**47**	**46**	**-1**

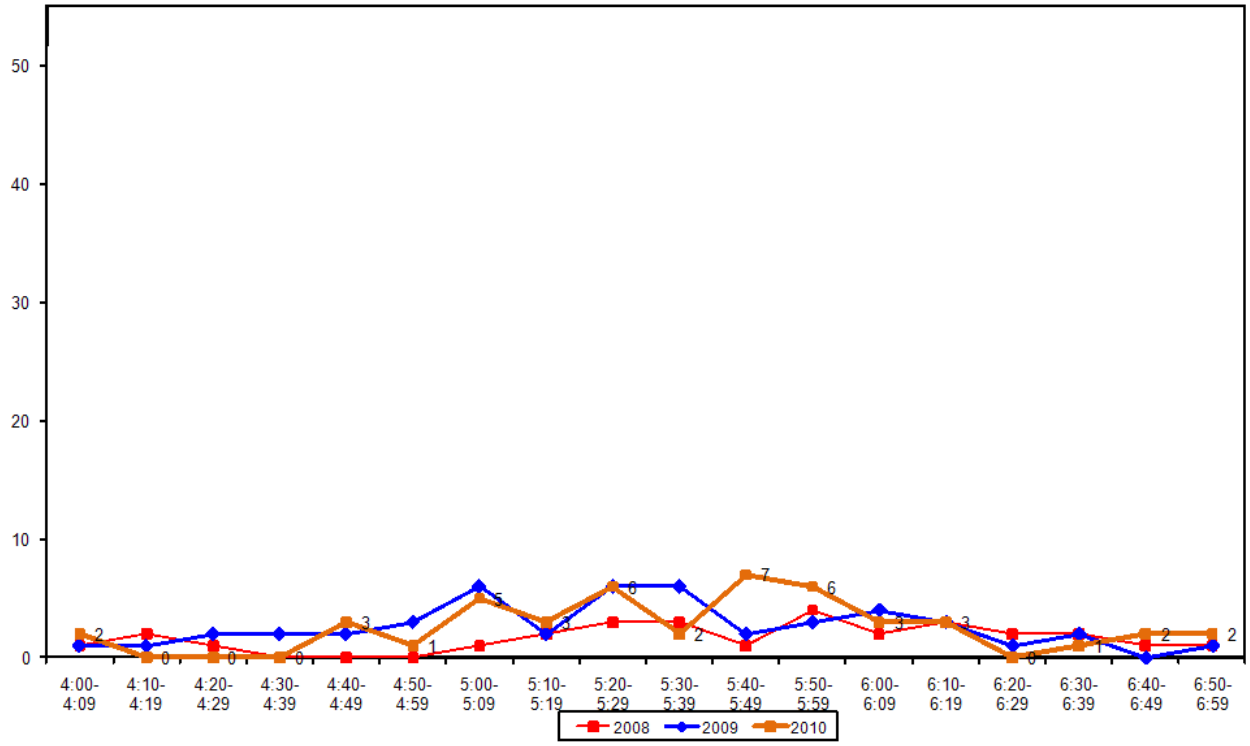
- Over the evening peak, all cyclists using this site are adults (100 per cent, unchanged from 2009).
- Most cyclists at this site are wearing a helmet (89 per cent, down from 96 per cent in 2009).
- On average, just more than half of cyclists are riding on the road (57 per cent, up notably from 36 per cent last year).

Table 26.4: Evening Cyclist Characteristics
Stanley Street/Grafton Road 2008-2010 (%)

	2008	*2009*	*2010*	**Change 09-10**
Cyclist Type				
Adult	100	100	100	0
School child	0	0	0	0
Helmet Wearing				
Helmet on head	93	96	89	-7
No helmet	7	4	11	7
Where Riding				
Road	66	36	57	21
Footpath	34	64	43	-21
Base:	***29***	***47***	***46***	

- Evening cycle volumes are low throughout the shift, with no more than three cyclists recorded during most ten minute intervals. The evening cycle volumes peak slightly between 5:20pm and 5:29pm (6 cyclists) and again between 5:40pm and 5:59pm (7 and 6 cyclists per ten minute interval respectively. This compares with slight peaks occurring between 5:00pm and 5:09pm (6 cyclists), and again between 5:20pm and 5:39pm (6 cyclists per ten minute interval) in 2009.

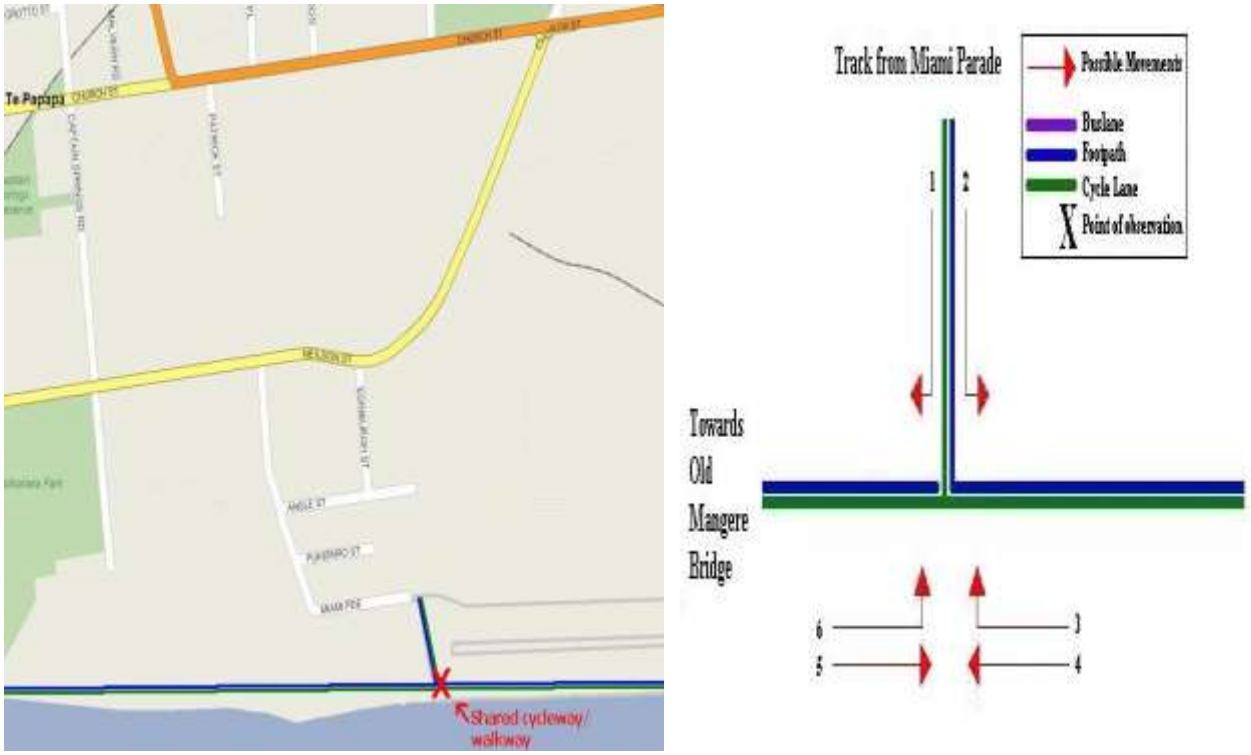
Figure 26.3: Stanley Street/Grafton Road Cyclist Frequency – Evening Peak



27. WAIKARAKA CYCLEWAY, ONEHUNGA SOUTH (SITE 76)

Figure 27.1 shows the possible cyclist movements at this site.

Figure 27.1: Cycle Movements: Waikaraka Cycleway, Onehunga South



- The AADT for this site is 59. This compares with
  - 73 in 2009
  - 76 in 2008.

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**7**	**35**	**42**

27.1 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 cycle movements recorded in the morning shift has decreased notably this year, from 18 in 2009 to 7.
- The key morning movement is left from the cycleway from Old Mangere Bridge into the track from Miami Parade (Movement 6 = 4 cyclists).
- The most notable decrease in cyclist volumes across the six possible movements at this site was at Movement 5 (down 10 cyclists).

Table 27.1: Morning Cyclist Movements
Waikaraka Cycleway, Onehunga South 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	0	0	0	0
2	0	0	0	0
3	1	1	0	-1
4	2	3	2	-1
5	9	11	1	-10
6	1	3	4	1
Total	**13**	**18**	**7**	**-11**

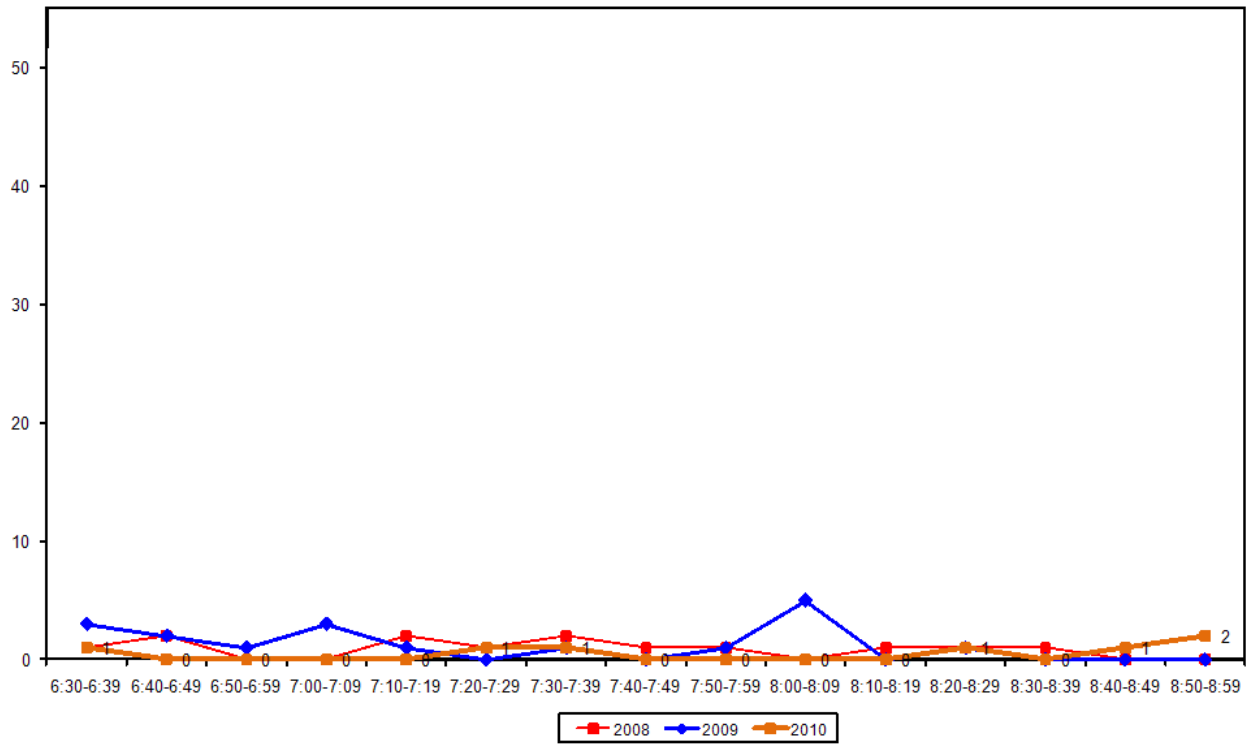
- Over the morning peak, all cyclists are adults (100 per cent), unchanged from last year.
- The majority of cyclists are wearing a helmet (86 per cent, stable from 89 per cent in 2009).

Table 27.2: Morning Cyclist Characteristics
Waikaraka Cycleway, Onehunga South 2008 (%)

	2008	***2009***	***2010***	**Change 09-10**
Cyclist Type				
Adult	100	100	100	0
School child	0	0	0	0
Helmet Wearing				
Helmet on head	85	89	86	-3
No helmet	15	11	14	3
Base:	***13***	***18***	***7***	

- Morning cycle volumes are low throughout the shift, with no more than two cyclists recorded during any ten minute intervals. This compares to a slight peak between 7:00am and 7:09am and again between 8:00am and 8:09am in 2009.

Figure 27.2: Waikaraka Cycleway, Onehunga South Cyclist Frequency – Morning Peak



27.2 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements at the Waikaraka Cycleway site continues to be low with 35 movements evident in the evening, a slight increase from the 33 movements recorded in 2009.
- The most common movement in the evening is west along the cycleway towards the Old Mangere Bridge (Movement 4 = 18 cyclists).
- Cyclist volumes at all 6 possible movements have not changed by more than 1 cyclist since 2009.

Table 27.3: Evening Cyclist Movements

Waikaraka Cycleway, Onehunga South 2008-2010 (n)

Movement	*2008*	*2009*	*2010*	Change 09-10
1	1	2	3	1
2	1	1	2	1
3	0	0	1	1
4	21	19	18	-1
5	15	8	9	1
6	3	3	2	-1
Total	**41**	**33**	**35**	**2**

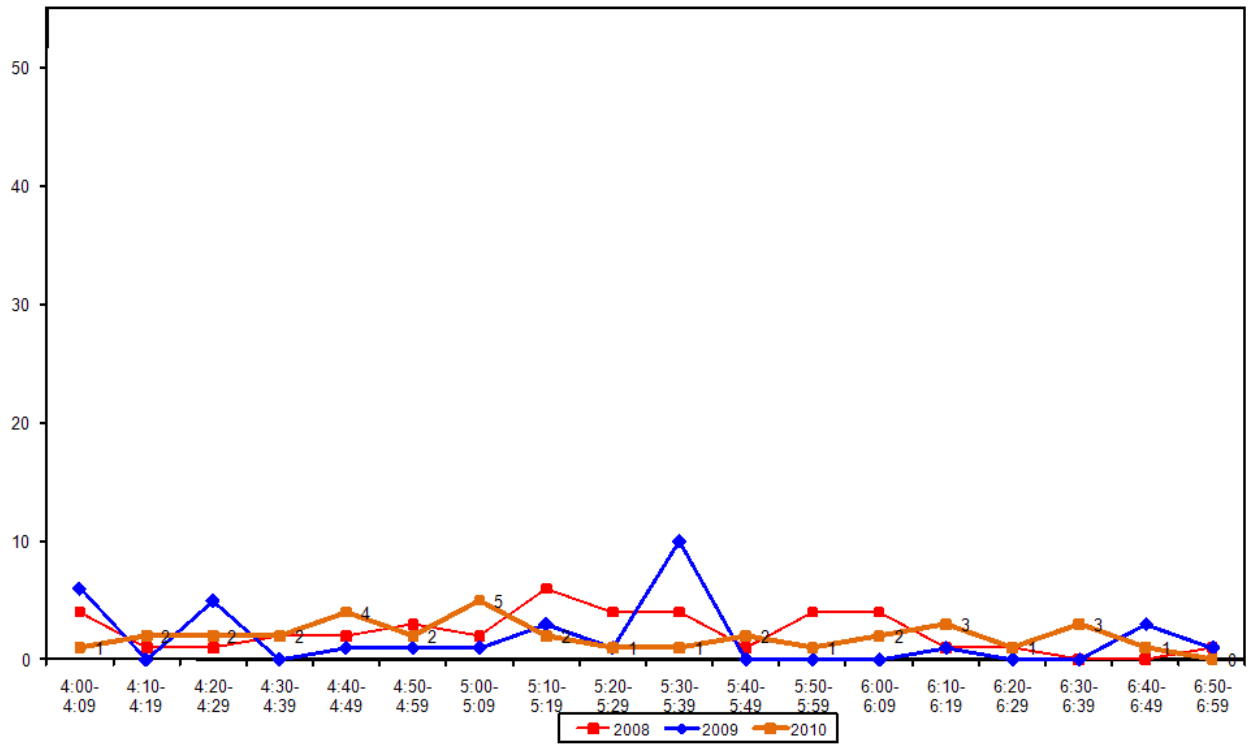
- Over the evening peak, almost all cyclists using this cycleway are adults (97 per cent, down slightly from 100 per cent in 2009).
- Most cyclists at this site are wearing a helmet (97 per cent, up notably from 79 per cent at the previous measure).

Table 27.4: Evening Cyclist Characteristics
Waikaraka Cycleway, Onehunga South 2008-2010 (%)

	2008	*2009*	*2010*	**Change 09-10**
Cyclist Type				
Adult	95	100	97	-3
School child	5	0	3	3
Helmet Wearing				
Helmet on head	88	79	97	18
No helmet	12	21	3	-18
Base:	***41***	***33***	***35***	

- Evening cycle volumes are low throughout the shift, with no more than three cyclists recorded during most ten minute intervals. A slight peak occurs between 5:00pm and 5:09pm (5 cyclists). This compares to a notable peak between 5:30pm and 5:39pm in 2009.

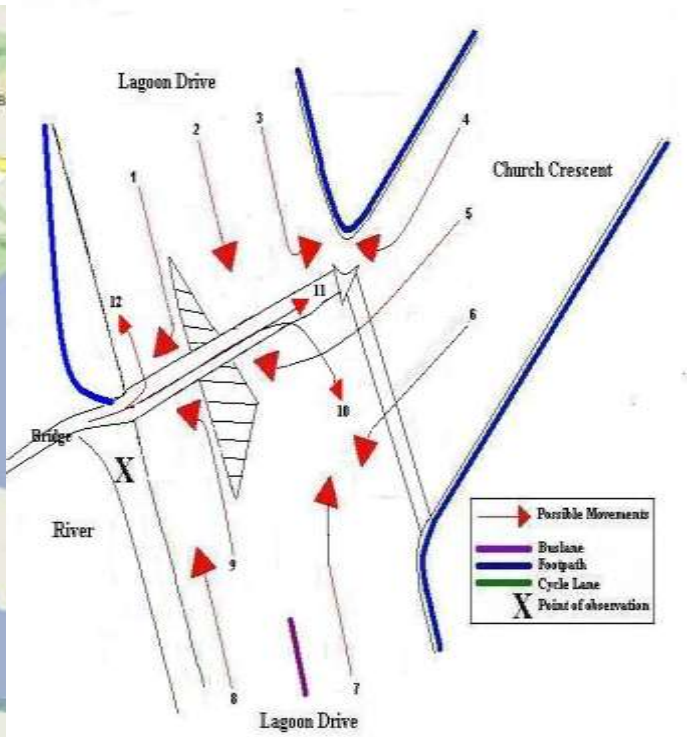
Figure 27.3: Waikaraka Cycleway, Onehunga South Cyclist Frequency – Evening Peak



28. LAGOON DRIVE/CHURCH CRESCENT, PANMURE (SITE 78)

Figure 28.1 shows the possible cyclist movements at this intersection.

Figure 28.1: Cycle Movements: Lagoon Drive/Church Crescent, Panmure



Note: This site was monitored for the first time in 2009.

- The AADT for this site is 284. This compares with 186 in 2009.

	AM	*PM*	*TOTAL*
Raw Cycle Movement Counts 2010	**100**	**95**	**195**

28.1 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

- One hundred cycle movements were recorded at this site (up notably from 57 in 2009).
- The key morning movements are turning left from Lagoon Drive into the foot bridge (Movement 9 = 26 cyclists, up notably from 8 cyclists last year) and coming from the foot bridge and turning right into Lagoon Drive (Movement 10 = 21 cyclists, up from 10 cyclists in 2009).

Table 28.1: Morning Cyclist Movements

Lagoon Drive/Church Crescent, Panmure 2009 - 2010 (n)

Movement	2009	2010	Change 09-10
1	0	0	0
2	8	9	1
3	1	0	-1
4	0	0	0
5	3	3	0
6	9	15	6
7	6	10	4
8	12	15	3
9*	8	26	18
10	10	21	11
11	0	1	1
12	0	0	0
Total	**57**	**100**	**43**

- **Note: All cyclists making Movement 9 were riding on the right hand side of Lagoon Drive (footpath on Pamure bridge) to approach the intersection and crossed the pedestrian crossing to reach the foot bridge.*

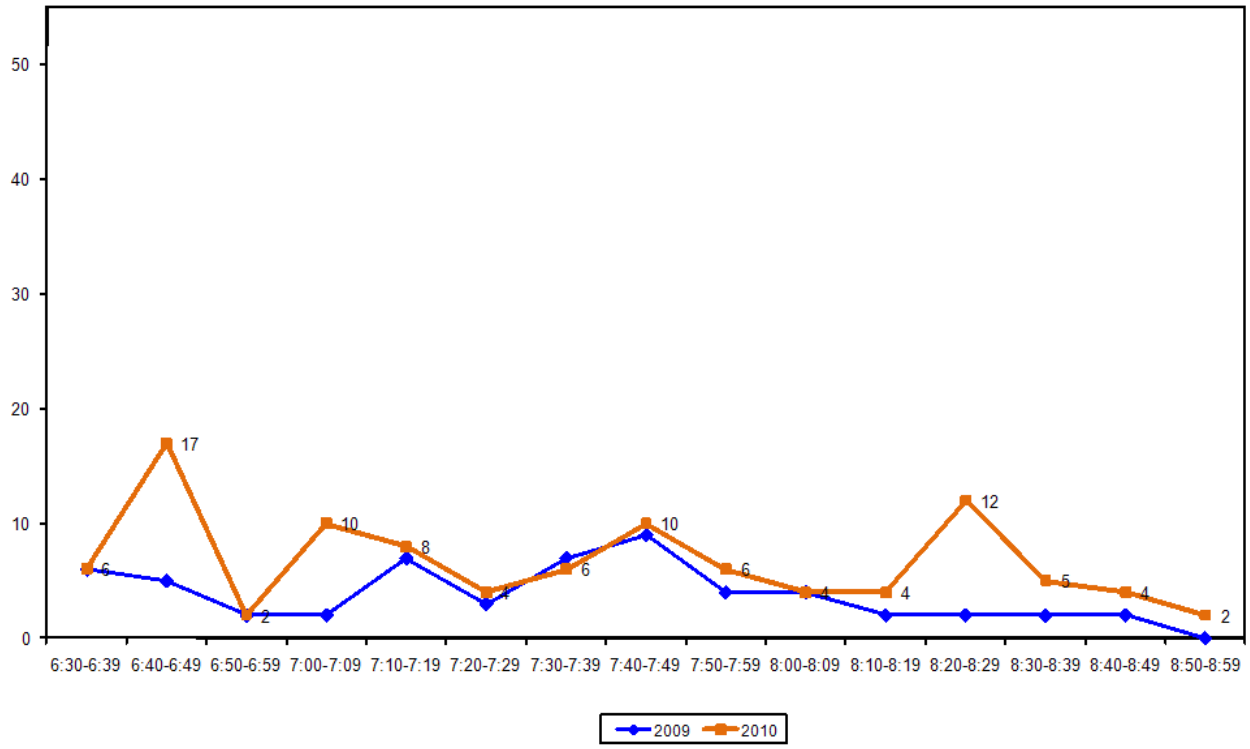
- Over the morning peak, the majority of cyclists are adults (93 per cent, up from 82 per cent last year).
- Most cyclists are wearing a helmet (94 per cent, up from 89 per cent in 2009).
- Two-thirds of cyclists are riding on the road (67 per cent, stable from 68 per cent in 2009).

Table 28.2: Morning Cyclist Characteristics
Lagoon Drive/Church Crescent, Panmure 2009 - 2010 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	82	93	11
School child	18	7	-11
Helmet Wearing			
Helmet on head	89	94	5
No helmet	11	6	-5
Where Riding			
Road	68	67	-1
Footpath	32	33	1
Base:	***57***	***100***	

- Morning cycle volumes are low throughout the shift, with peaks between 6:40am and 6:49 am (17 movements) and between 8:20am and 8:29am (12 cyclists).

Figure 28.2: Lagoon Drive/Church Crescent, Panmure Cyclist Frequency – Morning Peak



Note: In 2010, 24 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:

- *Twelve cyclists at 6.40am*
- *Nine cyclists at 8.25am*
- *Three cyclists at 8.30am.*

28.2 Evening Peak

Environmental Conditions

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

Key Points

- Ninety-five movements were recorded over the evening shift at the Lagoon Drive and Church Crescent site (up from 72 movements in 2009).
- The most common movements in the evening are turning left from Church Crescent into Lagoon Drive (Movement 6 = 20 cyclists, up from 10 movements (2009), turning right from Lagoon Drive into Church Crescent (Movement 7 = 19 cyclists, stable from 17 cyclists last year) and coming from the foot bridge and turning right into Lagoon Drive (Movement 10 = 18 cyclists, up from 15 cyclists in 2009).

Table 28.3: Evening Cyclist Movements
Lagoon Drive/Church Crescent, Panmure 2009 - 2010 (n)

Movement	2009	2010	Change 09-10
1	0	0	0
2	10	12	2
3	0	0	0
4	0	0	0
5	0	0	0
6	10	20	10
7	17	19	2
8	9	11	2
9*	6	10	4
10	15	18	3
11	5	5	0
12	0	0	0
Total	**72**	**95**	**23**

- **Note: All cyclists making Movement 9 were riding on the right hand side of Lagoon Drive (footpath on Pamure bridge) to approach the intersection and crossed the pedestrian crossing to reach the foot bridge.*

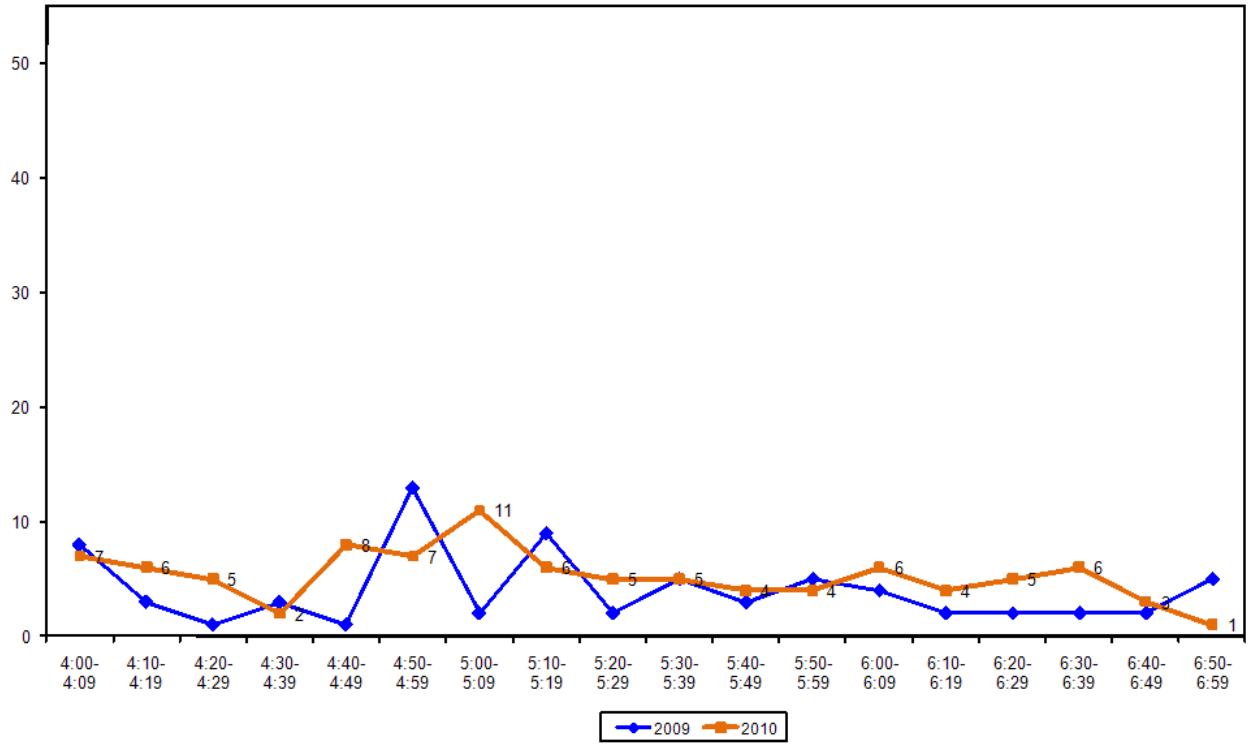
- Almost all cyclists at this site were adults (93 per cent, compared with 96 per cent in 2009).
- Most cyclists were wearing a helmet (89 per cent, unchanged from last year).
- Most cyclists were riding on the road (79 per cent, stable from 2009).

Table 28.4: Evening Cyclist Characteristics
Lagoon Drive/Church Crescent, Panmure 2009 - 2010 (%)

	2009	2010	Change 09-10
Cyclist Type			
Adult	96	93	-3
School child	4	7	3
Helmet Wearing			
Helmet on head	89	89	0
No helmet	11	11	0
Where Riding			
Road	79	81	2
Footpath	21	19	-2
Base:	***72***	***95***	

- Cyclist volumes peak between 5:00pm and 5:09pm where 11 movements were recorded.

Figure 28.3: Lagoon Drive/Church Crescent, Panmure Cyclist Frequency – Evening Peak



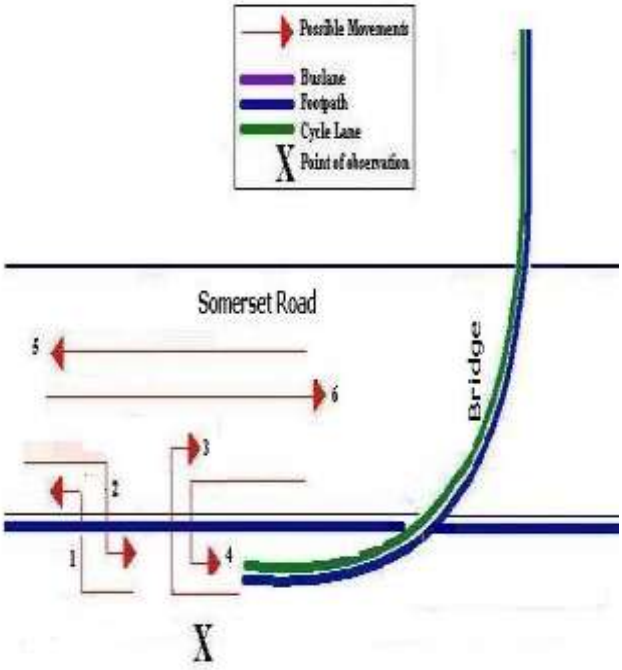
Note: In 2010, six per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Three cyclists at 4.05pm*
- *Three cyclists at 4.49pm*

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

Figure 28.1 shows the possible cyclist movements at this intersection.

Figure 28.1: Cycle Movements: Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill



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

- The AADT for this site is 77.

	AM	PM	TOTAL
Raw Cycle Movement Counts 2010	**28**	**25**	**53**

29.1 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.
- The key morning movement is turning off the over-head bridge into Somerset Road heading west (Movement 1 = 22 cyclists).
- As this is a new site this year, comparisons with previous years cannot be made.

Table 28.1: Morning Cyclist Movements
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 (n)

Movement	2010
1	22
2	3
3	0
4	0
5	1
6	2
Total	**28**

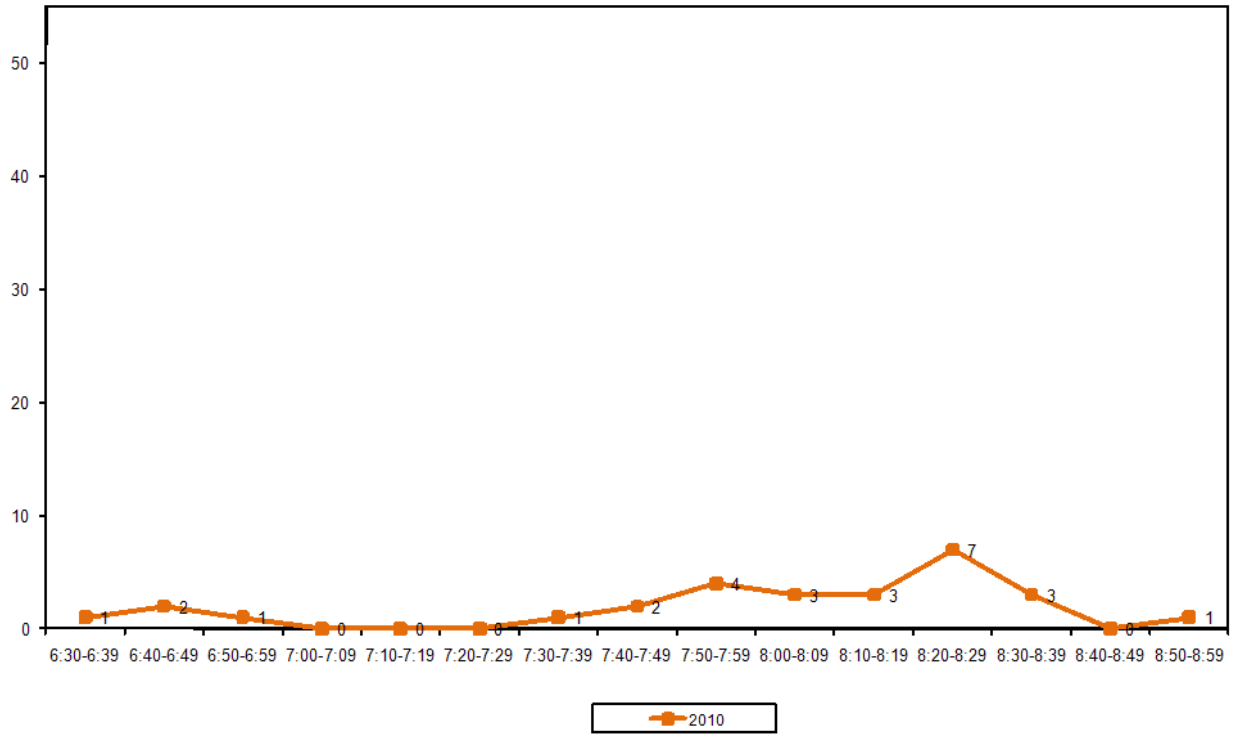
- Over the morning peak, the majority of cyclists are school children (75 per cent).
- Most cyclists are wearing a helmet (82 per cent).
- Almost all cyclists are riding on the off-road cycleway on the bridge (89 per cent).

Table 28.2: Morning Cyclist Characteristics
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 (%)

	2010
Cyclist Type	
Adult	25
School child	75
Helmet Wearing	
Helmet on head	82
No helmet	18
Where Riding	
Road	7
Footpath	4
Off-road Cycleway	89
Base:	***28***

- Morning cycle volumes are low throughout the shift, with a peak between 8:20am and 8:29 am (7 movements).

Figure 28.2: Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill Cyclist Frequency – Morning Peak



29.2 Evening Peak

Environmental Conditions

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

Key Points

- Twenty-five movements were recorded over the evening shift at the Keith Hay Park site.
- The most common movement in the evening is turning off the over-head bridge into Somerset Road heading west (Movement 1 = 8 cyclists).
- As this is a new site in 2010, comparisons with previous years cannot be made.

Table 28.3: Evening Cyclist Movements
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 (n)

Movement	2010
1	8
2	7
3	0
4	4
5	4
6	2
Total	**25**

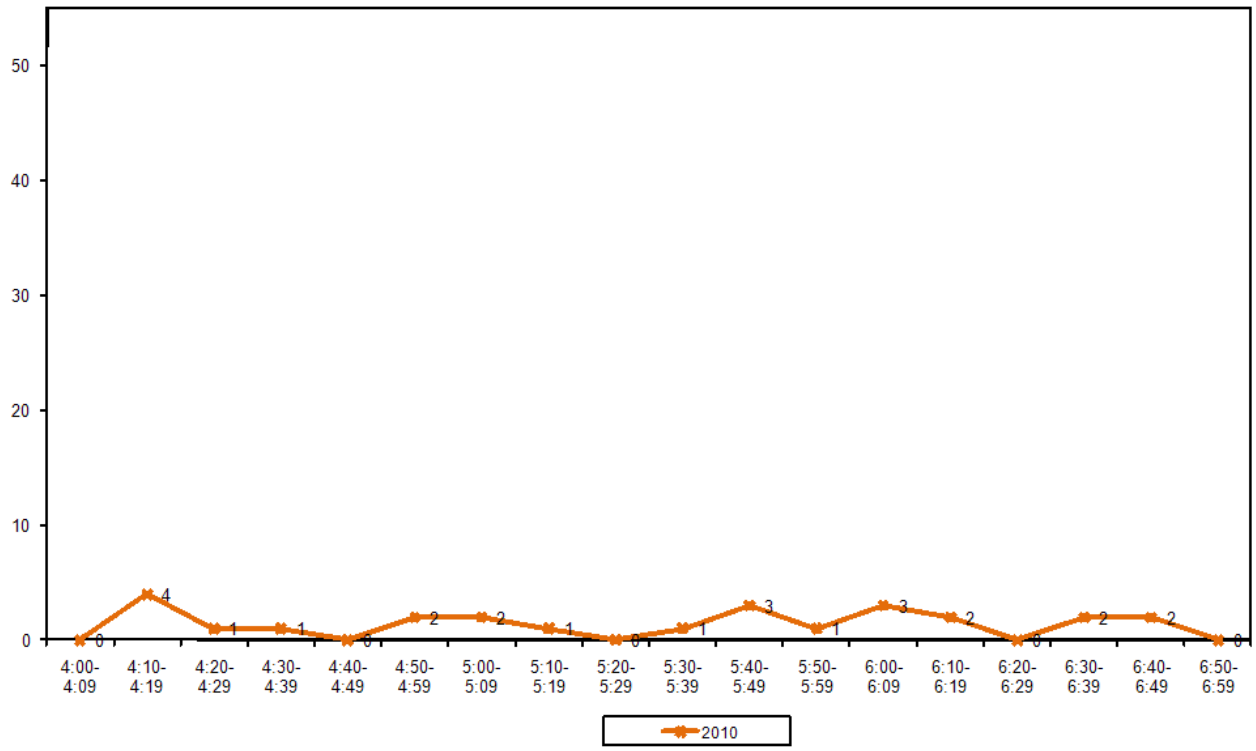
- Almost all cyclists at this site were adults (72 per cent).
- Most cyclists were wearing a helmet (76 per cent).
- Three-quarters of cyclists were riding on the off-road cycleway (76 per cent).

Table 28.4: Evening Cyclist Characteristics
Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill 2010 (%)

	2010
Cyclist Type	
Adult	72
School child	28
Helmet Wearing	
Helmet on head	76
No helmet	24
Where Riding	
Road	20
Footpath	4
Off-road Cycleway	76
Base:	***25***

- Cyclist volumes peak between 4:10pm and 4:19pm where 4 movements were recorded.

Figure 28.3: Keith Hay Park/Somerset Rd/ Bridge, Mt Roskill Cyclist Frequency – Evening Peak



30. SCHOOL BIKE SHED COUNT – AUCKLAND CITY

Background Information

- A total of 53 schools were contacted in Auckland city. Two of these schools were deemed ineligible due to all students being boarders. Of the 39 eligible schools that responded to the survey (76 per cent), no schools have policies that restrict students cycling to school[15].
- The designated count day was Tuesday 9th of March[16].

Key Points

- Of those eligible to cycle at school, on average, two per cent of students are cycling to their schools. This share is unchanged from two per cent in previous years.
- Across the 39 eligible schools that responded n=576 students were reported to cycle to school.
- As in previous years, Pasadena Intermediate reported the highest share of cyclists – 26 per cent of all eligible students currently cycling (up from 17 per cent last year).
- Of the 39 eligible schools that responded, 14 (36 per cent) had no students cycling to school. This compares with 15 (34 per cent) in 2009.

[15] Note: Two schools who responded – Dilworth and St Paul's College – were deemed ineligible as all students are boarders.

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

- Hebron Christian College – Wednesday 10th March
- Otahuhu College – Thursday 11th March
- Baradene College, Epsom Girls Grammar School, Waikowhai Intermediate - Monday 15th March
- ACG Parnell College, Mt Roskill Grammar School, Ponsonby Intermediate, Western Springs College – Tuesday 16th March
- Diocesan School for girls – Wednesday 17th March
- Mt Albert Grammar School – Thursday 18th March
- Auckland International College, Carey College, Kings College, Mt Albert Grammar School, Te KKM o Puau Te Moananui-a-Kiwa – Friday 19th March

Table 29.1 shows the results of the 39 schools surveyed in Auckland city.

Table 29.1: Summary Table Of School Bike Count 2007-2010 (n)

School Name	*Year Levels*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible[17] (2010)*	*Cyclists as share of those eligible[18] (2009)*	*Cyclists as share of those eligible (2008)*	*Cyclists as share of those eligible (2007)*
Pasadena Intermediate School	Intermediate	318	82	26%	17%	12%	18%
Auckland Normal Intermediate	Intermediate	644	46	7%	6%	5%	7%
Ponsonby Intermediate	intermediate	539	33	6%	5%	4%	6%
Remuera Intermediate School[19]	Intermediate	950	46	5%	7%	5%	9%
Kowhai Intermediate School	Intermediate	374	18	5%	6%	6%	6%
Mt Roskill Intermediate	Intermediate	665	24	4%	-	2%	2%
Auckland Grammar School	Secondary	2500	88	4%	4%	3%	2%
Waiheke High School	Intermediate/Secondary	458	17	4%	3%	2%	3%
Western Springs College	Secondary	1170	40	3%	6%	7%	-
Waikowhai Intermediate	intermediate	419	11	3%	4%	3%	3%
Hebron Christian College	Composite	276	6	2%	3%	2%	3%
Royal Oak Intermediate	intermediate	534	13	2%	3%	2%	2%
Mt Albert Grammar School	Secondary	2310	51	2%	2%	3%	-
Selwyn College	Secondary	890	15	2%	2%	1%	-

[17] This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.
[18] This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.
[19] Two classes away at school camp on count day.
[20] Three students usually cycle; one was absent on count day and the other two walked.
[21] Several teams away at a softball tournament on count day.

School Name	Year Levels	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible[17] (2010)	Cyclists as share of those eligible[18] (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
ACG Parnell College	Composite	832	5	1%	-	0%	-
Onehunga High School	Secondary	1540	20	1%	1%	-	-
Glendowie College	Secondary	1037	15	1%	1%	1%	2%
Mt Roskill Grammar School	Secondary	2300	29	1%	1%	1%	2%
Avondale Intermediate School	Intermediate	373	2	1%	0%	1%	1%
Lynfield College	Secondary	1850	6	0%	1%	<1%	1%
Epsom Girls Grammar School	Secondary	2148	3	0%	0%	<1%	-
Diocesan School for Girls	Composite	1480	2	0%	0%	<1%	0%
Marist College	Intermediate/Secondary	752	2	0%	0%	-	-
One Tree Hill College	Secondary	780	1	0%	0%	-	-
ACG Senior College	Secondary	400	1	0%	0%	0%	0%
Bridge Academy	Composite	16	0	0%	-	-	-
Otahuhu Intermediate School	intermediate	379	0	0%	-	1%	1%
Tamaki Intermediate School[21]	Intermediate	200	0	0%	1%	0%	3%
Tamaki College	Secondary	700	0	0%	0%	<1%	<1%
Baradene College	Intermediate/Secondary	960	0	0%	0%	<1%	0%
Carey College	Composite	66	0	0%	0%	-	-
Mind Alive	Composite	47	0	0%	0%	-	-
St Mary's College[20]	Intermediate/Secondary	818	0	0%	0%	-	-
Te KKM o Puau Te Moananui-a-Kiwa	Composite	68	0	0%	0%	-	-
Kings College	Secondary	947	0	0%	0%	2%	0%

School Name	*Year Levels*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible[17] (2010)*	*Cyclists as share of those eligible[18] (2009)*	*Cyclists as share of those eligible (2008)*	*Cyclists as share of those eligible (2007)*
Marcellin College	Intermediate/Secondary	702	0	0%	0%	1%	-
Auckland Girls Grammar School	Secondary	1450	0	0%	0%	0%	<1%
Auckland International College	Secondary	338	0	0%	0%	0%	-
McAuley High School	Secondary	688	0	0%	0%	0%	0%
Total		32918	576	2%	2%	2%	2%

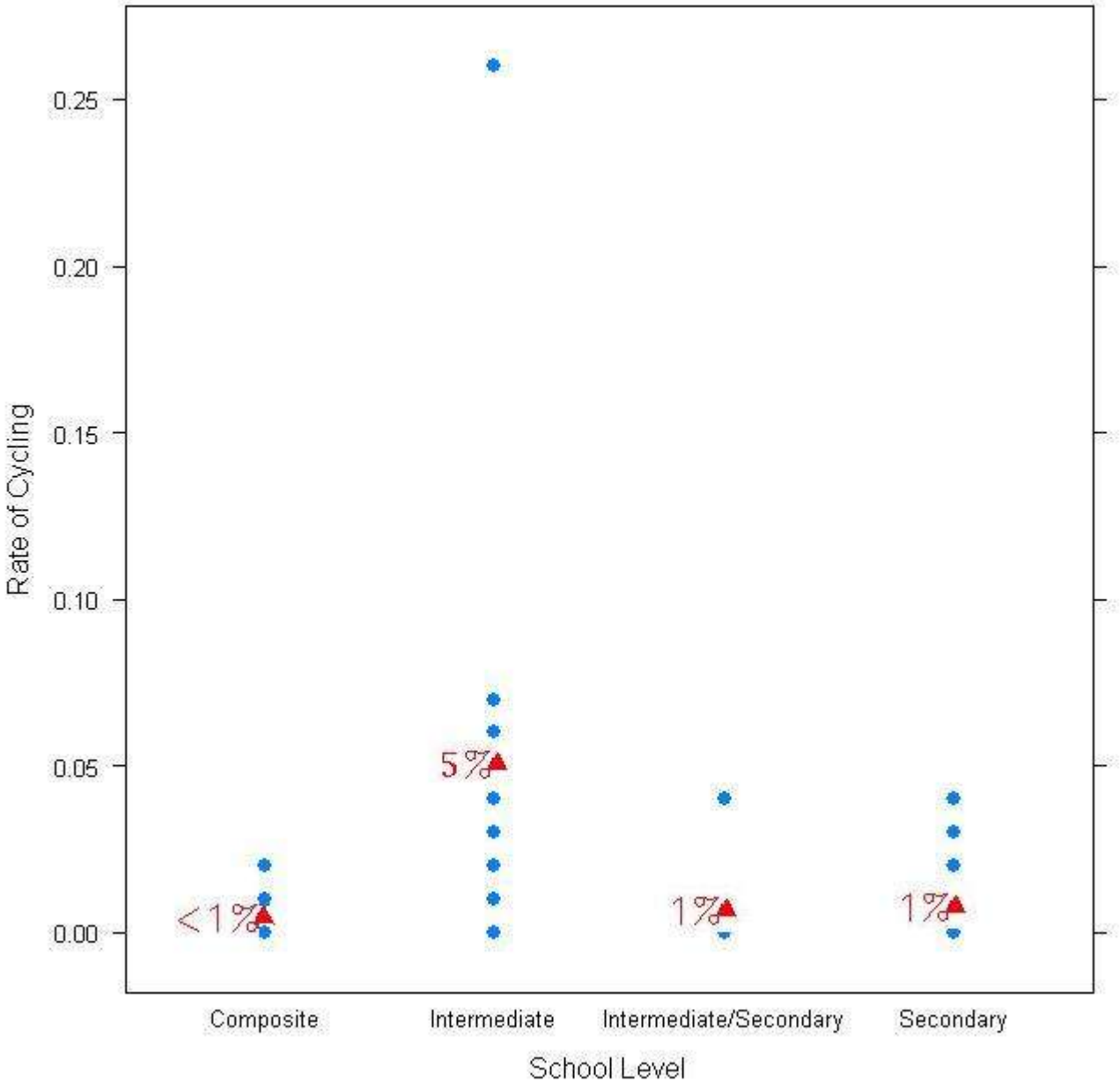
Table 29.2 and Figure 29.1 illustrate the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (5 per cent, unchanged from 2009), while other levels of schools have fairly constant cycling rates (1 per cent, unchanged from last year).

Table 29.2: Summary Table Of School Bike Count by Year Levels

2007-2010 (%)

Year Levels	*Number of Schools Responded in 2010*	*Cyclists as share of those eligible 2007*	*Cyclists as share of those eligible 2008*	*Cyclists as share of those eligible 2009*	*Cyclists as share of those eligible 2010*	**Change 09-10**
Intermediate	11	5	3	5	**5**	0
Intermediate/Secondary	5	1	1	1	**1**	0
Secondary	16	1	1	1	**1**	0
Composite	7	1	1	1	**<1**	-1
Total	**39**	**2**	**2**	**2**	**2**	**0**

Figure 29.1: Cycling Rates by School Level 2010(%)



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[19] 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)[20], 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.

[19] Annual average daily traffic

[20] 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.

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%