

2011 Auckland Region Manual Cycle Monitor

Maungakiekie Tamaki Ward



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1. MAUNGAKIEKIE-TAMAKI WARD SUMMARY OF RESULTS

1.1 Introduction

The Need For Reliable Cycle Trip Data

Monitoring cycle movements and cycle traffic is important to Auckland Transport, to identify where investment may be needed to improve infrastructure for cycling. Cycle traffic data will also help Auckland Transport prioritise future funding through the Auckland Land Transport Programme¹.

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

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

Manual Cycle Monitoring

Historically, manual cycle monitoring had been carried out in four of the seven Auckland region Territorial Authorities (TAs). However, each monitor had been undertaken using a different methodology². This variability prevented the possibility of comparing the relative popularity of different sites across TA boundaries. In addition, each monitor programme took place at different times of the year, preventing comparability from location to location since factors such as weather, school/tertiary education holidays, seasonal variations and daylight savings each have an impact on the numbers of cyclists. Even within TAs, inconsistencies as to when counts took place from year to year prevented robust comparability over time.

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

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

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

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

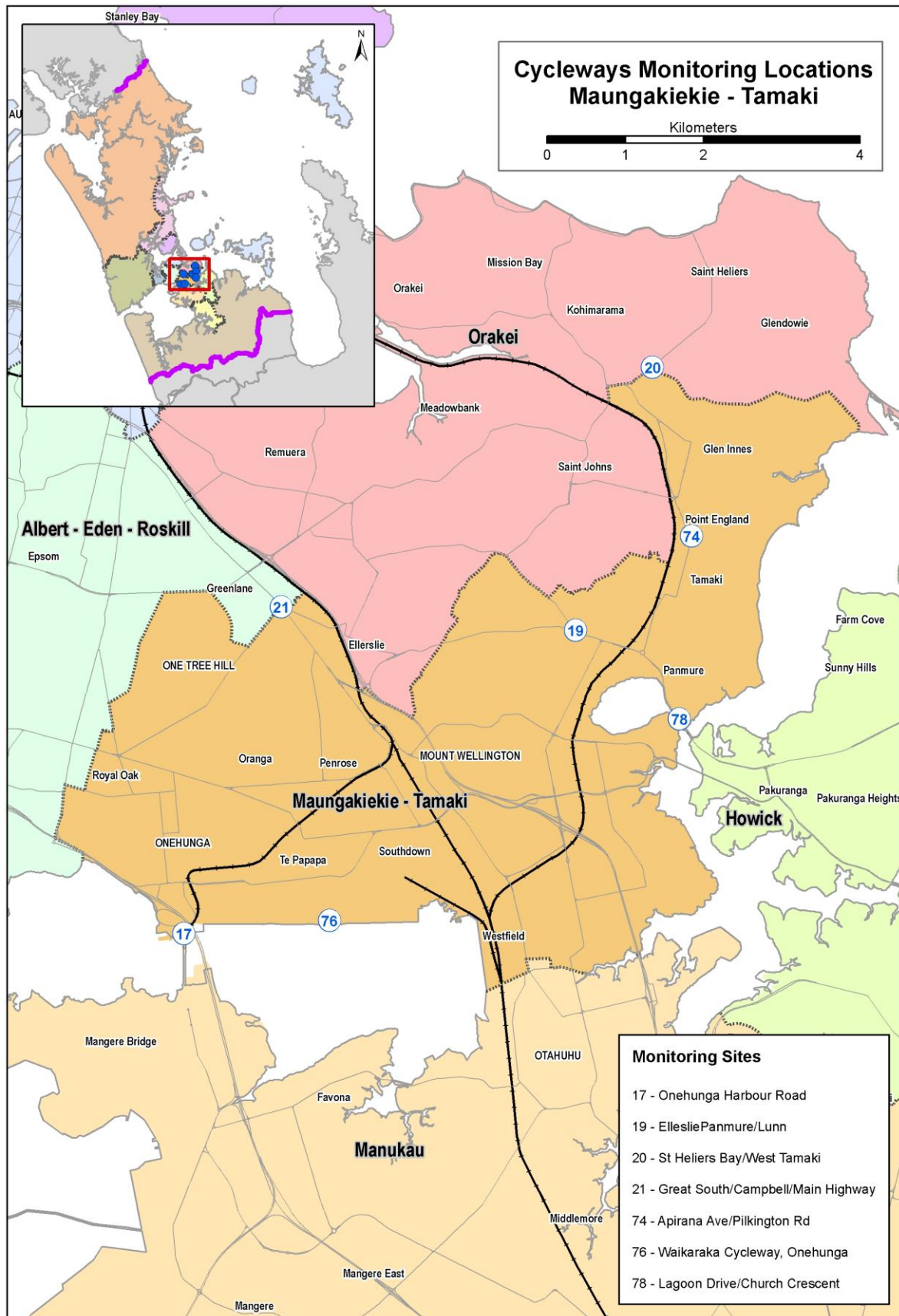
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

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

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

Figure 1.1 shows the locations of the monitoring sites in the Maungakiekie-Tamaki ward. Note that two sites (Great South/Campbell Road/Main Highway in Ellerslie (Site 21) and St Heliers Bay/West Tamaki Road in Glen Innes (Site 20)) lie on the border with the other wards (Albert-Eden-Roskill and Orakei respectively). Consequently these sites have been included in both ward reports.

Figure 1.1: 2011 Cycle Monitoring Locations in Maungakiekie-Tamaki Ward



1.2 Methodology

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

Choice of Sites

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

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

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

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

Monitoring Times

Time Of Day

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

Day Of Week

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

Time Of Year

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

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

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

Counts were conducted on the following days:

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

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

Weather and Daylight Conditions

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

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

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

Tuesday 8th March

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

Wednesday 9th March

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

Thursday 10th March

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

Conducting The Manual Counts

Scoping Visit

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

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

Each site was assigned to a surveyor, who was issued with a map that showed the range of movements a cyclist could make through that site. In addition to the map, surveyors were issued with a clipboard, a safety vest and a letter identifying them as a member of a Gravitas research team³.

During their shift the surveyor collected data on:

- The total number of cyclists⁴ passing through the intersection;
- The direction in which cyclists are travelling (using the numbers on the map provided);
- The time at which cyclists pass through the intersection (to the nearest minute);
- Whether cyclists are school children or adults (determined by whether they are wearing a school uniform or clearly of school age);
- Whether cyclists are wearing a helmet;
- Gender of the cyclist (*collected for the first time in 2011*); and
- Whether cyclists are riding on the road, footpath or designated off- road cycleway⁵.

³ This letter also contained contact details for Auckland Transport and Gravitas Research and Strategy for any member of the public or local business owners who had queries about the work being undertaken.

⁴ To ensure consistency across all surveyors, a “cycle” was defined as being non-motorised, with one or two wheels and requiring pedalling to make it move. Note that this definition did not include scooters.

⁵ Note: For the purpose of this project, an off-road cycleway is defined as designated off-road path for cycles. This includes exclusive cycle paths, separated paths (such as the footpath on Tamaki Drive) and shared-use paths (available to cyclists and pedestrians). It excludes on-road cycle lanes (that is, designated lanes marked on the road).

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

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

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

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

It is acknowledged that the number of cyclists using a site varies by time of day, day of the week and week of the year, and therefore it is not valid to simply multiply manual count data collected over a certain (relatively brief) period out to represent a full day, week or year. However, according to Land Transport New Zealand⁶, 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 ViaStrada⁷.

⁶ <http://www.itsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html>

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

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

Note: ViaStrada acknowledge that, as cycling volumes fluctuate from day to day depending on the weather, this method should be used with caution. They note that ideally an estimate should be achieved based on the average of the results of several counts, rather than counts from a single day, as in this study⁸.

School Bike Shed Counts

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

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

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

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

Methodology

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

1. Gravitas designed an information sheet that was distributed to most full primary, intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region via email (note a small number of schools were omitted due to the special nature of the students e.g. boarding schools, special needs schools). This sheet was designed in consultation with Auckland Transport to ensure all necessary information was collected.
2. This email was then sent to all eligible schools in Auckland region (n=295) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.
3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 8th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).
4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2011, 201 responses were received, a response rate of 68 per cent.

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

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

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

Note: Surveying in the Maungakiekie-Tamaki ward was undertaken on Thursday 10th of March, 2011. Sunrise was at 7:14am and sunset at 7:48pm. The highest temperature was 21.7 degrees Celsius.

1.4 Morning Peak Summary Results

Environmental Conditions

- All sites monitored in Auckland city had fine weather in the morning.
- Road works were observed just west of the Ellerslie Panmure Highway/Lunn Avenue site. No other sites reported road works or accidents that may have affected cycle counts.

Key Points

- A total of 488 cyclist movements were recorded across the seven sites in the morning peak period (between 6:30am and 9:00am) in 2011, a 9 per cent increase from 12 months ago.
- The average volume of morning cyclists across the seven sites in this ward is 70 cycle movements. This compares with 64 movements in 2010 (a 9 per cent increase).
- Twenty-two per cent (n=105) of the total cycle movements in the morning peak were made by those cycling in groups.
- The busiest site in the morning peak was the intersection of St Heliers Bay/West Tamaki Road (150 cycle movements, up from 98 movements in 2010), whereas the Apirana Avenue/Pilkington/Tripoli Road site had the lowest volume of morning cyclists (14 movements).
- Three sites recorded increases this year compared to 2010:
 - Waikaraka Cycleway – up 314 per cent;
 - St Heliers Bay/West Tamaki Road – up 53 per cent; and
 - Onehunga Harbour Road – up 42 per cent.
- In contrast, the four remaining sites recorded declines, the most notable at Apirana Avenue/Pilkington/Tripoli Road – down 53 per cent.

**Table 1.1: Summary Of Morning Cyclist Movements
2007-2011 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	Change 10-11	Change 07-11
20	St Heliers Bay/West Tamaki Road	139	107	61	98	150	53%	8%
17	Onehunga Harbour Road	93	88	74	98	139	42%	49%
21	Great South Road/Campbell Road/Main Highway	89	53	64	69	60	-13%	-33%
19	Ellerslie Panmure Highway/Lunn Ave	52	42	31	44	31	-30%	-40%
	Average per site (4 sites since 2007)	93	73	58	77	95	23%	2%
	Total (4 sites since 2007)	373	290	230	309	380	23%	2%
78	Lagoon Drive/Church Crescent	-	-	57	100	65	-35%	-
76	Waikaraka Cycleway	-	13	18	7	29	314%	-
74	Apirana Avenue/Pilkington/Tripoli Road	-	22	12	30	14	-53%	-
	Average per site (6 sites in 2008, 7 sites since 2009)	-	54	45	64	70	9%	-
	Total (6 sites in 2008, 7 sites since 2009)	-	325	317	446	488	9%	-

- Ninety per cent of cyclists this year are adults (down from 91 per cent in 2010). Of the seven locations monitored, the Apirana Avenue/Pilkington Road/Tripoli Road site has the greatest share of morning cyclists who are school children (21 per cent).
- Almost all cyclists are wearing a helmet (94 per cent in 2011, stable from 2010). Helmet wearing is least likely to occur at the Apirana Avenue/Pilkington Road/Tripoli Road site (29 per cent not wearing a helmet).
- The greatest share of morning cyclists are male (83 per cent).
- Riding on the road is still most common (75 per cent, down from 81 per cent last year). The Apirana Avenue/Pilkington Road/Tripoli Road site has the highest incidence of morning cyclists riding on the footpath (43 per cent).

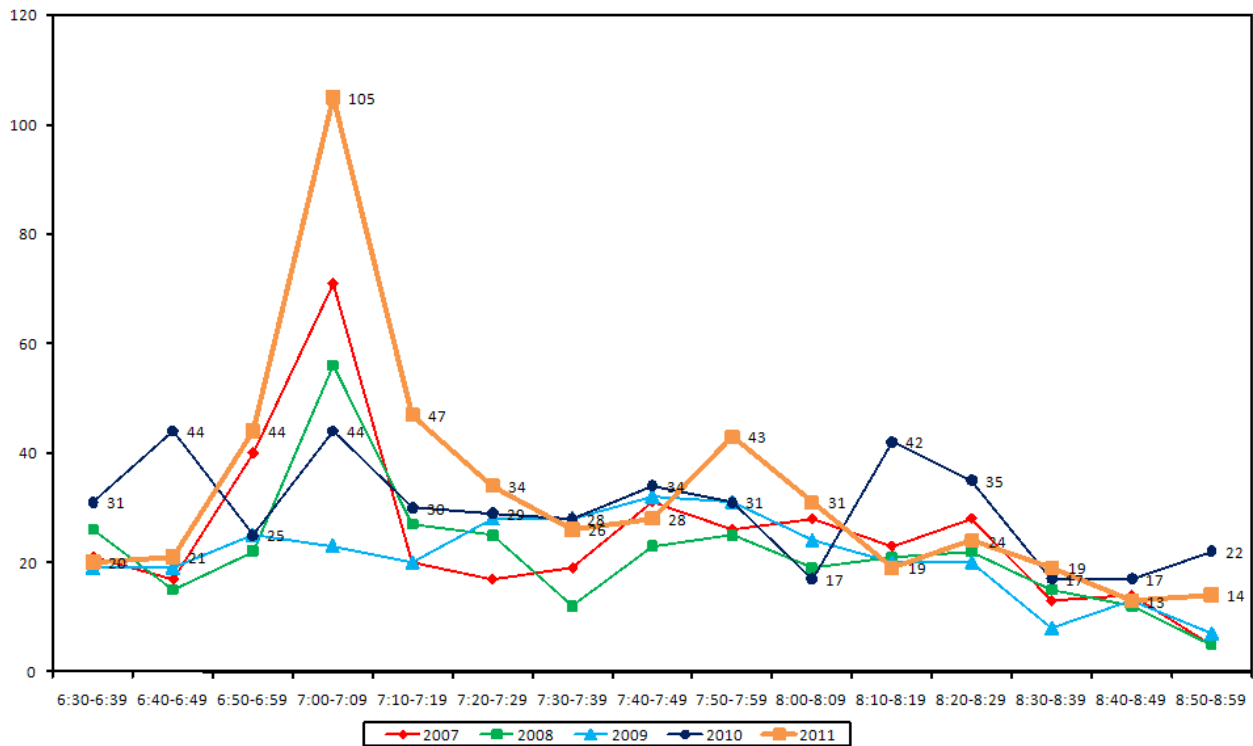
**Table 1.2: Summary of Morning Cyclist Characteristics
2007 -2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	88	89	88	91	90	-2
School child	12	11	12	9	10	2
Helmet Wearing						
Helmet on head	94	93	94	94	94	0
No helmet	6	7	6	6	6	0
Gender						
Male	-	-	-	-	83	-
Female	-	-	-	-	16	-
Can't tell	-	-	-	-	1	-
Where Riding*						
Road	85	78	75	81	75	-6
Footpath	15	17	18	17	17	0
Off-road cycleway	0	5	7	2	8	6
Base:	373	325	317	446	488	

The Onehunga Harbour Road site is not included for results regarding where cyclists were riding as cyclists could use multiple riding locations during a single trip through the site.

- Figure 1.2 shows the overall pattern of morning cyclist volumes recorded from the seven sites monitored in 2011. Morning cyclist numbers peak sharply between from 7:00am and 7:09am (105 movements), gradually declining over the remainder of the morning period.

**Figure 1.2: Total Cyclist Frequency – Morning Peak
2007-2011 (n)**



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 544 cyclist movements were recorded across the seven sites in the evening peak period (between 4:00pm and 7:00pm) in 2011. This compares with 549 movements in 2010.
- The average volume of evening cycle movements across all seven sites monitored in 2011 is 78 cycle movements, unchanged from last year.
- Six per cent (n=33) of the total cycle movements in the evening peak were made by those cycling in groups.
- Of the seven sites, the volume of cyclists is lowest at the Waikaraka Cycleway site in the evening (36 cycle movements), whereas the Onehunga Harbour Road intersection was the busiest in terms of evening cyclists' activity, with 171 movements recorded.
- Five sites recorded increases this year compared to 2010, the most notable at Apirana Avenue/Pilkington/Tripoli Road – up 37 per cent.
- In contrast, the two remaining sites recorded declines:
 - Great South Road/Campbell Road/Main Highway – down 24 per cent; and
 - Ellerslie Panmure Highway/Lunn Avenue – down 18 per cent.

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

Site No.	Locations	2007	2008	2009	2010	2011	Change 10-11	Change 07-11
17	Onehunga Harbour Road	156	132	106	159	171	8%	10
21	Great South Road/Campbell Road/Main Highway	85	61	87	102	78	-24%	-8
20	St Heliers Bay/West Tamaki Road	69	60	47	72	74	3%	7%
19	Ellerslie Panmure Highway/Lunn Ave	66	52	51	56	46	-18%	-30%
	Average per site (4 sites since 2007)	94	76	73	97	92	-5%	-2%
	Total (4 sites since 2007)	376	305	291	389	369	-5%	-2%
78	Lagoon Drive/Church Crescent	-	-	72	95	98	3%	-
74	Apirana Avenue/Pilkington/Tripoli Road	-	39	20	30	41	37%	-
76	Waikaraka Cycleway	-	41	33	35	36	3%	-
	Average per site (6 sites in 2008, 7 sites since 2009)	-	57	59	78	78	0%%	-
	Total (6 sites in 2008, 7 sites since 2009)	-	344	416	549	544	-1%	-

- Ninety-one per cent of evening cyclists this year are adults (down from 94 per cent in 2010). As in the morning peak period, of the seven sites in this ward in the evening, the site at Apirana Avenue/Pilkington Road/Tripoli Road has the highest proportion of cyclists who are school children (39 per cent).
- Most cyclists are wearing a helmet in the evening (89 per cent, down from 92 per cent in 2010). The site at Apirana Avenue/Pilkington Road/Tripoli Road has the highest proportion of cyclists not wearing a helmet (44 per cent).
- Almost all evening peak cyclists are male (84 per cent).
- The majority of evening cyclists are riding on the road (66 per cent, down from 78 per cent in 2010). Footpath riders are most common at the intersection of Apirana Avenue/Pilkington Road/Tripoli Road (49 per cent).

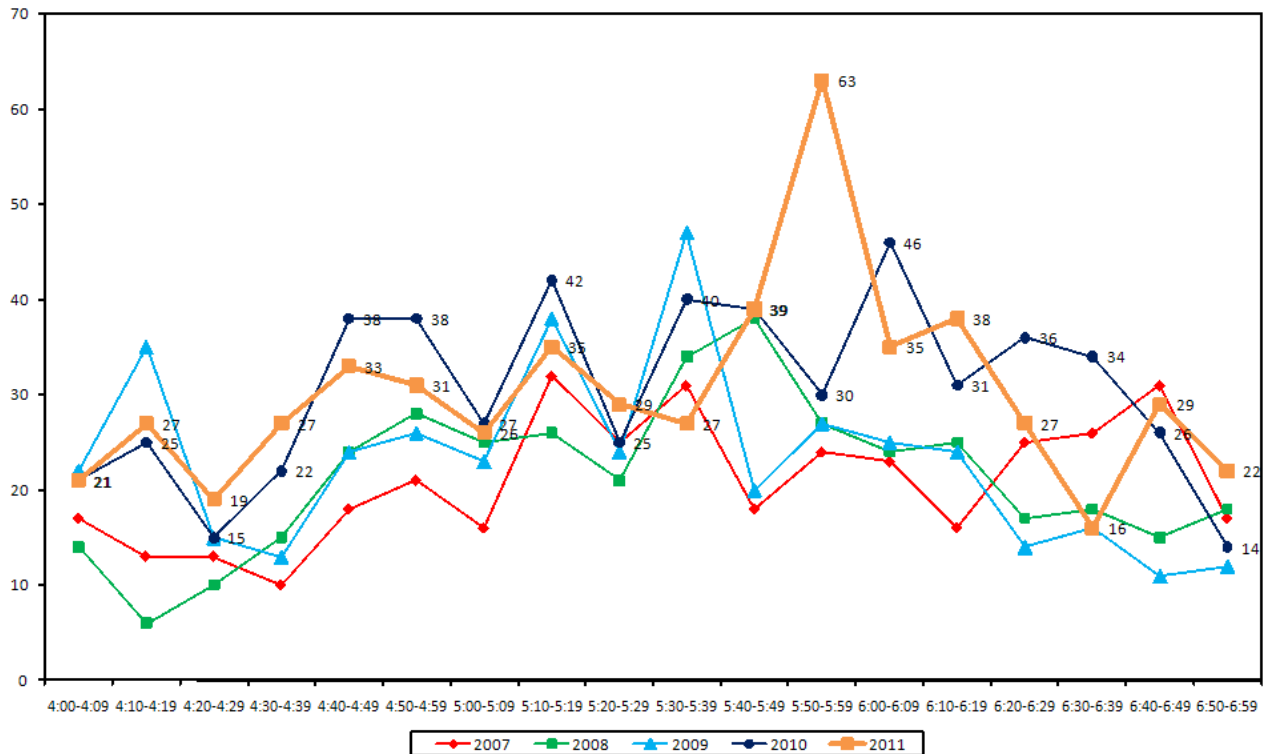
**Table 1.4: Summary of Evening Cyclist Characteristics
2007 -2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	95	92	94	94	91	-3
School child	5	8	6	6	9	3
Helmet Wearing						
Helmet on head	91	89	89	92	89	-3
No helmet	9	11	11	8	11	3
Gender						
Male	-	-	-	-	84	-
Female	-	-	-	-	15	-
Can't tell	-	-	-	-	1	-
Where Riding*						
Road	83	67	70	78	66	-12
Footpath	17	17	19	13	24	11
Off-road cycleway	0	16	11	9	10	1
Base:	376	344	416	549	544	

The Onehunga Harbour Road site is not included for results regarding where cyclists were riding as cyclists could use multiple riding locations during a single trip through the site.

- The overall pattern of evening cyclist volumes derived from the seven sites in the Maungakiekie-Tamaki ward is illustrated in Figure 1.3. Evening cyclist numbers remain steady throughout the monitoring period, peaking sharply between 5:00pm and 5:09pm (63 movements), then decreasing towards the end of the evening peak.

Figure 1.3: Cyclist Frequency – Evening Peak
2007-2011 (n)



1.6 Aggregated Total Summary Results

- Overall, a total of 1,032 cyclist movements were recorded across the seven sites monitored in 2011 (13 per cent observed as cycling in groups). This represents a 4 per cent increase from last year.
- The average number of cycle movements for the seven sites monitored since 2009 is 147, an increase of 4 per cent from last year.
- Of the seven sites in this ward, the busiest site continues to be Onehunga Harbour Road with a total of 310 movements, while Apirana Avenue/Pilkington/Tripoli Road has the fewest number of cyclists (55 movements).

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

Site No.	Locations	2007	2008	2009	2010	2011	Change 10-11	Change 07-11
17	Onehunga Harbour Road	249	220	180	257	310	21%	24%
20	St Heliers Bay/West Tamaki Road	208	167	108	170	224	32%	8%
21	Great South Road/Campbell Road/Main Highway	174	114	151	171	138	-19%	-21%
19	Ellerslie Panmure Highway/Lunn Ave	118	94	82	100	77	-23%	-35%
	Average per site (4 sites since 2007)	187	149	130	175	187	7%	0%
	Total (4 sites since 2007)	749	595	521	698	749	7%	0%
78	Lagoon Drive/Church Crescent	-	-	129	195	163	16%	-
76	Waikaraka Cycle Way	-	54	51	42	65	55%	-
74	Apirana Avenue/Pilkington/Tripoli Road	-	61	32	60	55	-8%	-
	Average per site (6 sites in 2008, 7 sites since 2009)	-	109	105	142	147	4%	-
	Total (6 sites in 2008, 7 sites since 2009)	-	656	733	995	1032	4%	-

- Overall, cyclist characteristics this year are similar to those reported in 2010. In particular, 91 per cent of evening cyclists this year are adults (down from 93 per cent last year).
- Most cyclists are wearing a helmet (92 per cent, stable from 93 per cent in 2010).
- Most cyclists are male (84 per cent).
- The majority of cyclists are riding on the road (71 per cent, down from 79 per cent in 2010). One in five are riding on the footpath (20 per cent, up from 15 per cent last year), with the remaining 9 per cent riding on an off-road cycleway.

**Table 1.6: Summary of Total Cyclist Characteristics
2007 -2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	91	91	91	93	91	-2
School child	9	9	9	7	9	2
Helmet Wearing						
Helmet on head	93	91	92	93	92	-1
No helmet	7	9	8	7	8	1
Gender						
Male	-	-	-	-	84	-
Female	-	-	-	-	15	-
Can't tell	-	-	-	-	1	-
Where Riding*						
Road	84	72	72	79	71	-8
Footpath	16	17	18	15	20	5
Off-road cycleway	0	11	9	6	9	3
Base:	749	656	733	995	1032	

The Onehunga Harbour Road site is not included for results regarding where cyclists were riding as cyclists could use multiple riding locations during a single trip through this site.

1.7 Average Annual Daily Traffic (AADT) Estimate

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

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at Onehunga Harbour Road (448 daily movements, up from 369 movements in 2010) and the lowest is at Apirana Avenue/Pilkington/Tripoli Road (78 daily movements).
- Three sites recorded increases this year compared to 2010:
 - Waikaraka Cycleway – up 59 per cent;
 - St Heliers Bay/West Tamaki Road – up 33 per cent; and
 - Onehunga Harbour Road – up 21 per cent.
- In contrast, three sites recorded declines, the most notable being Ellerslie Panmure Highway/Lunn Avenue – down 23 per cent.
- The Great South Road/Campbell Road/Main Highway site recorded no change when compared with last year.

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

Site Number	Locations	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	10-11 Change	07-11 Change
17	Onehunga Harbour Road	357	316	259	369	448	21%	25%
20	St Heliers Bay/West Tamaki Road	308	246	158	249	331	33%	7%
21	Great South Road/Campbell Road/Main Highway	253	165	218	246	246	0%	-3%
78	Lagoon Drive/Church Crescent	-	-	186	284	234	-18%	-
19	Ellerslie Panmure Highway/Lunn Ave	170	136	118	144	111	-23%	-35%
76	Waikaraka Cycleway	-	76	73	59	94	59%	-
74	Apirana Avenue/Pilkington/Tripoli Road	-	87	46	87	78	-10%	-

1.8 School Bike Shed Count Summary

Key Points

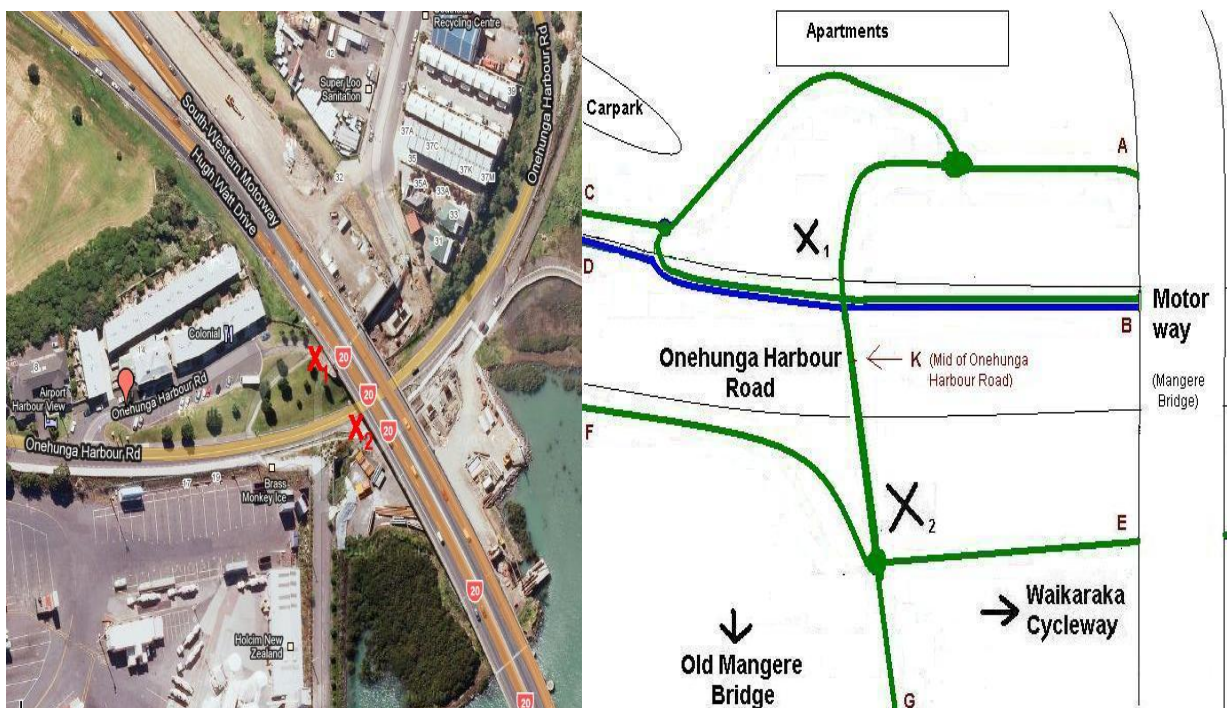
- Of those eligible to cycle, on average, less than one per cent of students are cycling to their schools in this ward.
- Across the 13 eligible schools that responded, n=8 students were reported to cycle to school.
- Ellerslie School, Panmure School, and St Pius X School each reported one per cent of all eligible students currently cycling (these three schools reported the highest share of cyclists of the eligible schools in the Maungakiekie-Tamaki ward).
- Of the 13 eligible schools that responded, 8 (62 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (1 per cent, up from no cyclists last year). The composite school in this ward has the lowest rate of cycling of all levels of schools, with no cyclists.

2. ONEHUNGA HARBOUR ROAD, ONEHUNGA (SITE 17)

Figure 2.1 shows the possible cyclist movements at this site.

Note: Due to the complexity of this site, the map and movement directions were re-designed in 2011 to more accurately capture how this site is used by cyclists. Rather than trying to keep track of cyclists as they move around the site, surveyors were instead required to record the zone at which each cyclist entered the site (represented by letters on the map), and the zone from which they exited. As a result, movement numbers are not directly comparable with previous years.

Figure 2.1: Cycle Movements: Onehunga Harbour Road



2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	93	156	249	357
2008	88	132	220	316
2009	74	68	142	259
2010	98	159	257	369
2011	139	171	310	448

2.2 Morning Peak

Environmental Conditions

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

Key Points

- Compared with the previous year, the volume of morning cyclists at Onehunga Harbour Road has increased (139 movements, up from 98 cycle movements recorded in 2010).
- The most common entry point in the morning peak is at Zone G, 61 cyclists entering the site from Old Mangere Bridge.
- The most frequently used exit point is also Zone G, 44 cyclists leaving the site via Old Mangere Bridge.
- The most common movement in the morning peak is entering the site in Zone G and exiting in Zone F (25 movements).

**Table 2.1A: Morning Cyclist Movements
Onehunga Harbour Road 2007-2011 (n)**

Entry	Exit								Total
	A	B	C	D	E	F	G	K	
A	1	0	0	0	0	0	0	1	2
B	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	1	1
D	1	1	0	0	0	0	0	0	2
E	0	0	0	0	0	1	16	0	17
F	0	0	0	0	7	0	27	1	35
G	0	0	0	0	16	25	0	20	61
K	18	0	1	0	0	1	1	0	21
Total	20	1	1	0	23	27	44	23	139

**Table 2.1B: Morning Cyclist Movements
Onehunga Harbour Road 2007-2011 (n)**

	2007	2008	2009	2010	2011	Change 10-11
Total Movements	93	88	74	98	139	42%

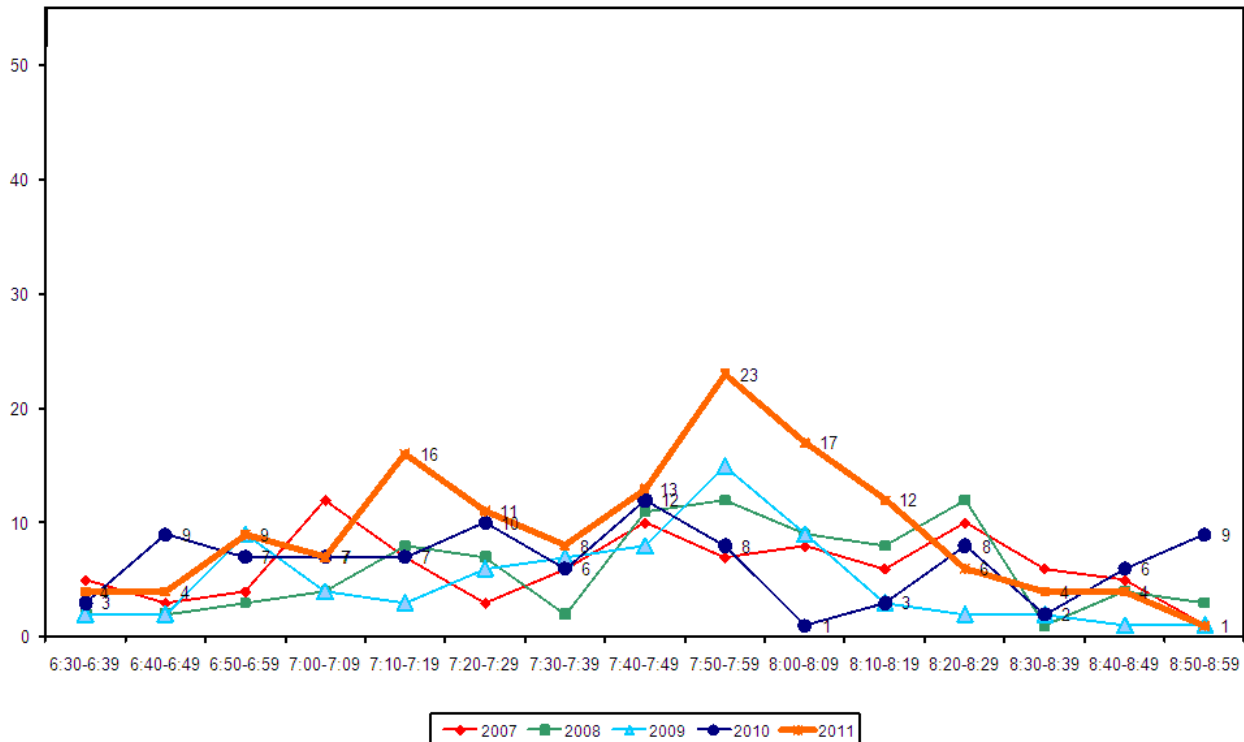
- Eighty-one per cent of cyclists using this site are adults (unchanged from last year).
- The majority of cyclists are wearing a helmet (91 per cent, up 88 per cent 2010).
- The greatest share of morning cyclists are male (81 per cent).
- Seventeen per cent of cyclists were observed crossing Onehunga Harbour Road, down slightly from 21 per cent in 2010.

**Table 2.2: Morning Cyclist Characteristics
Onehunga Harbour Road 2007 - 2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	83	77	80	81	81	0
School child	17	23	20	19	19	0
Helmet Wearing						
Helmet on head	84	84	95	88	91	3
No helmet	16	16	5	12	9	-3
Gender						
Male	-	-	-	-	81	-
Female	-	-	-	-	17	-
Can't tell	-	-	-	-	1	-
Crossing Onehunga Road						
Yes	-	14	19	21	17	-4
No	-	86	81	79	83	4
Base:	93	88	74	98	139	

- The volume of morning cycle movements peaks between 7:10am and 7:19am (16 cyclists), then again between 7:50am and 7:59am (23 cyclists).

**Figure 2.2: Morning Peak Cyclist Frequency
Onehunga Harbour Road (n)**



Note: In 2011, 12 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 7:15am
- Six cyclists at 7:52am
- Three cyclists at 8:15am.

2.3 Evening Peak

Environmental Conditions

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

Key Points

- Compared with the previous year, the volume of evening cyclists at Onehunga Harbour Road has increased (171 movements, up from 159 cycle movements recorded in 2010).
- The most common entry point in the evening peak is at Zone E, 68 cyclists entering the site from the path from the Waikaraka Cycleway.
- The most frequently used exit point is also Zone G, 78 cyclists leaving the site via Old Mangere Bridge.
- The most common movement in the evening peak is entering the site in Zone E and exiting in Zone G (59 movements).

**Table 2.3A: Evening Cyclist Movements
Onehunga Harbour Road 2007-2011 (n)**

Entry	Exit								Total
	A	B	C	D	E	F	G	K	
A	0	0	0	0	0	0	0	5	5
B	0	0	0	1	0	0	0	0	1
C	0	0	0	0	0	0	0	1	1
D	0	1	0	0	0	0	0	1	2
E	0	0	0	0	0	8	59	1	68
F	0	0	0	0	6	0	13	0	19
G	0	0	0	0	7	21	1	19	48
K	20	0	0	0	0	2	5	0	27
Total	20	1	0	1	13	31	78	27	171

**Table 2.3B: Morning Cyclist Movements
Onehunga Harbour Road 2007-2011 (n)**

	2007	2008	2009	2010	2011	Change 10-11
Total Movements	156	132	68	159	171	8%

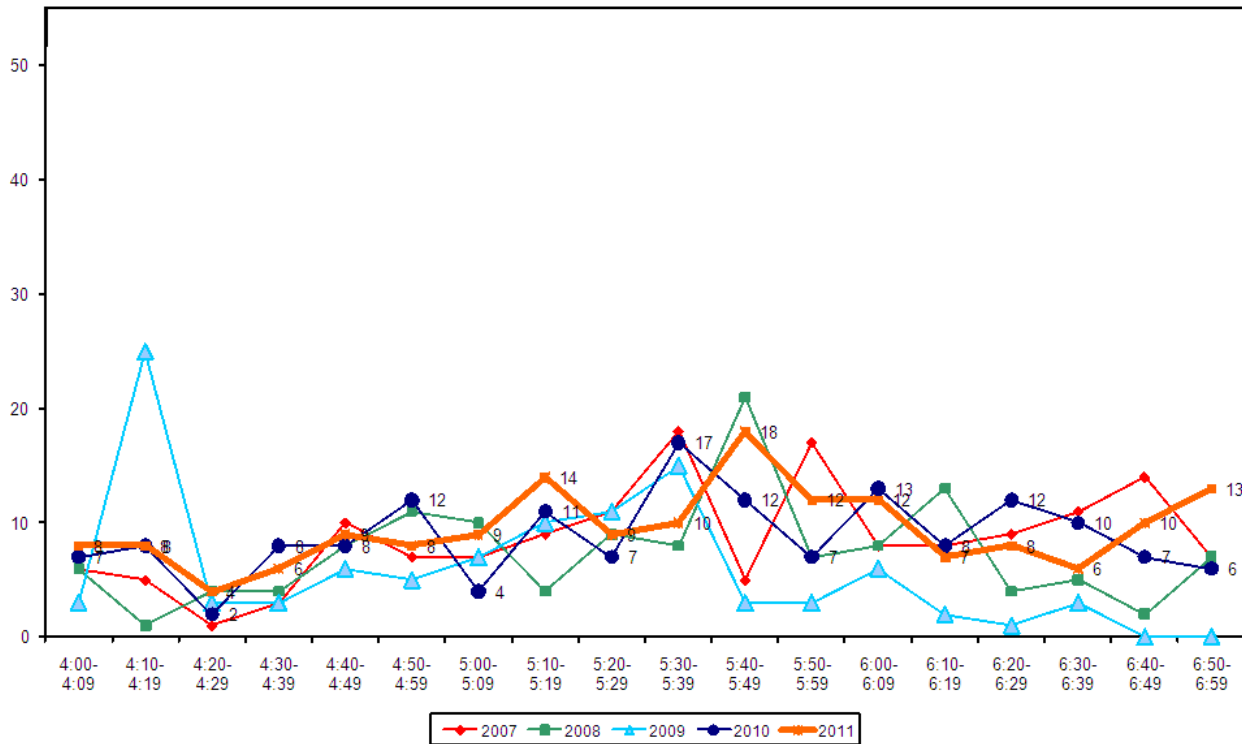
- Over the evening shift, almost all cyclists using this site are adults (95 per cent, up slightly from 91 per cent in 2009).
- The majority of cyclists are wearing a helmet (89 per cent, down from 94 per cent last year).
- The greatest share of evening cyclists are male (86 per cent).
- Sixteen per cent of cyclists were observed crossing Onehunga Harbour Road (down from 23 per cent in 2010).

**Table 2.4: Morning Cyclist Characteristics
Onehunga Harbour Road 2007-2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	96	93	92	91	95	4
School child	4	7	8	9	5	-4
Helmet Wearing						
Helmet on head	83	91	97	94	89	-5
No helmet	17	9	3	6	11	5
Gender						
Male	-	-	-	-	86	-
Female	-	-	-	-	12	-
Can't tell	-	-	-	-	2	-
Crossing Onehunga Harbour Road						
Yes	-	27	8	23	16	-7
No	-	73	92	77	84	7
Base:	156	132	68	159	171	

- The volume of evening cyclists over time is relatively consistent with previous periods, the greatest number of cyclists riding through between 5:40pm and 5:49pm (18 cyclists).

**Figure 2.3: Evening Peak Cyclist Frequency
Onehunga Harbour Road (n)**

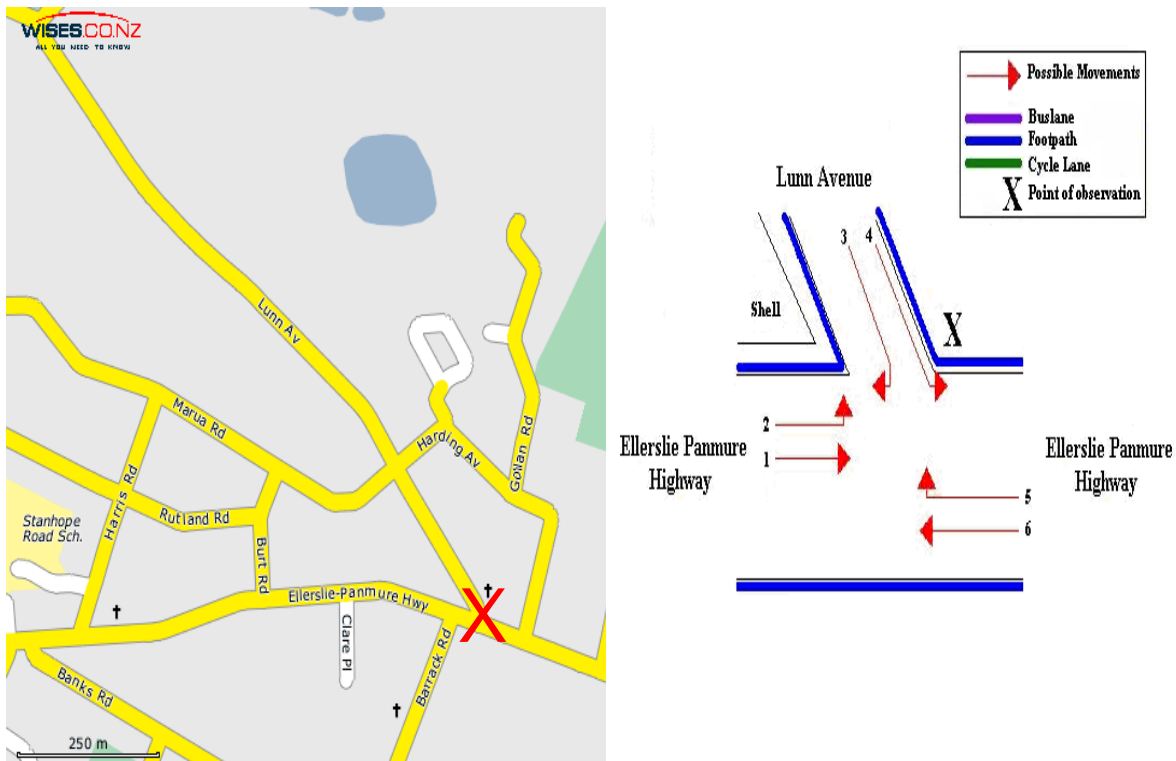


Note: In 2011, six cyclists were observed riding as a group at 6:55pm. This comprises four per cent of the total cycle movements in the evening peak in 2011. (A further group of 13 cyclists were observed riding as a group just after the end of the evening shift – 7:03pm).

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

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Ellerslie Panmure Highway/Lunn Avenue



3.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	52	66	118	170
2008	42	52	94	136
2009	31	51	82	118
2010	44	56	100	144
2011	31	46	77	111

3.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift
- Road works were observed just west of this site (on the northern side of the road) which may have affected cycle counts.

Key Points

- Morning cyclist volumes recorded at the Ellerslie Panmure Highway/Lunn Avenue intersection are down from 44 in 2010 to 31 cycle movements in 2011.
- The most common morning movements are straight along the Ellerslie Panmure Highway heading west (Movement 6 = 13 cyclists).
- The most notable increase is at Movement 3 (down 6 cyclists).

Table 3.1: Morning Cyclist Movements
Ellerslie Panmure Highway/Lunn Avenue 2007-2011 (n)

Movement	2007	2008	2009	2010	2011	Change 10-11
1	15	7	8	10	7	-3
2	1	3	1	2	0	-2
3	2	8	2	8	2	-6
4	12	8	8	7	8	1
5	3	3	8	4	1	-3
6	19	13	4	13	13	0
Total	52	42	31	44	31	-13

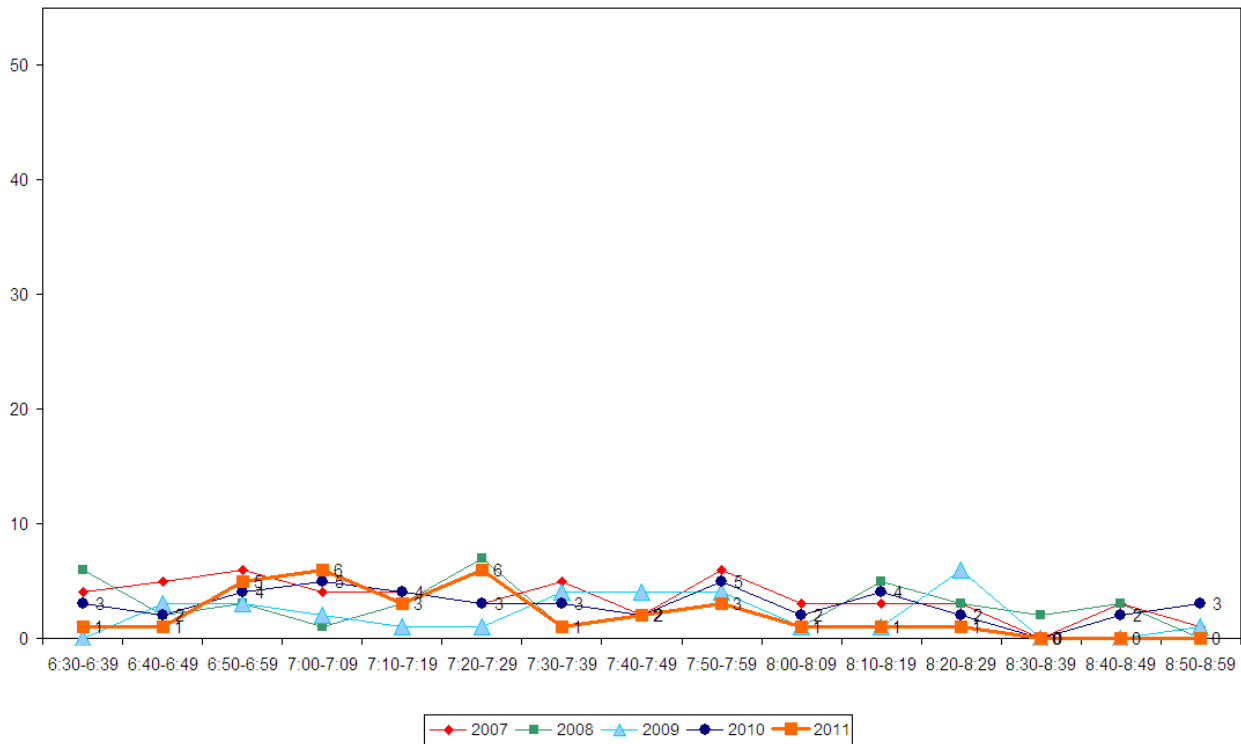
- Over the morning peak, adults comprise the majority of all cycle movements (90 per cent, down from 100 per cent in 2010).
- All cyclists are wearing a helmet over the morning peak at this site (100 per cent, up from 95 per cent in 2010).
- Almost all morning cyclists are male (90 per cent).
- Four in five cyclists are riding on the road (81 per cent, stable since last year).

**Table 3.2: Morning Cyclist Characteristics
Ellerslie Panmure Highway/Lunn Avenue 2007-2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	88	90	100	100	90	-10
School child	12	10	0	0	10	10
Helmet Wearing						
Helmet on head	94	98	97	95	100	5
No helmet	6	2	3	5	0	-5
Gender						
Male	-	-	-	-	90	-
Female	-	-	-	-	6	-
Can't tell	-	-	-	-	3	-
Where Riding						
Road	77	79	81	80	81	1
Footpath	23	21	19	20	19	-1
Base:	52	42	31	44	31	

- Morning cycle volumes are relatively low over the entire monitoring period. Two slight peaks occurred between 7:00am and 7:09am and 7:20am and 7:29am (6 movements for each ten minute period).

**Figure 3.2: Morning Peak Cyclist Frequency
Ellerslie Panmure Highway/Lunn Avenue (n)**



Note: In 2011, a group of 12 cyclists were observed at this site just prior to the shift starting at 6:30am.

3.3 Evening Peak

Environmental Conditions

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

Key Points

- The number of evening cycle movements at the Ellerslie Panmure Highway/Lunn Avenue intersection has decreased, from 56 movements recorded in 2010 to 46 movements in 2011.
- The key evening movements are straight along Ellerslie Panmure Highway heading east (Movement 1 = 14 cyclists) and straight along Ellerslie Panmure Highway heading west (Movement 6 = 13 cyclists).
- The most notable decrease is at Movement 5 (down 7 cyclists).

Table 3.3: Evening Cyclist Movements
Ellerslie Panmure Highway/Lunn Avenue 2007-2011 (n)

Movement	2007	2008	2009	2010	2011	Change 10-11
1	16	14	24	16	14	-2
2	5	4	1	4	2	-2
3	6	5	1	0	3	3
4	14	12	7	14	9	-5
5	4	8	6	12	5	-7
6	21	9	12	10	13	3
Total	66	52	51	56	46	-10

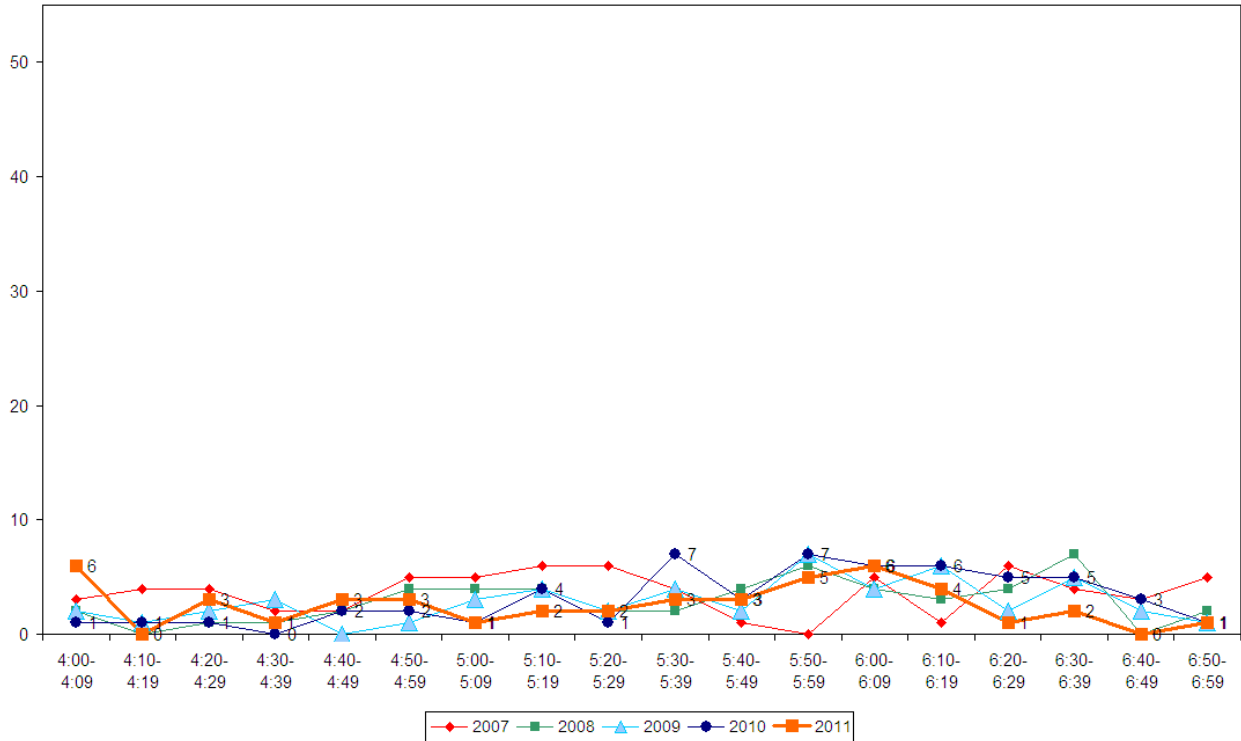
- The majority of cyclists using this intersection are adults (87 per cent, down from 95 per cent last year).
- Helmet wearing is still common over the evening peak (89 per cent, stable from 2010).
- Almost all evening peak cyclists are male (91 per cent).
- On average, just less than two-thirds of cyclists are riding on the road (65 per cent, down from 79 per cent at the previous measure).

**Table 3.4: Evening Cyclist Characteristics
Eilerslie Panmure Highway/Lunn Avenue 2007-2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	86	88	98	95	87	-8
School child	14	12	2	5	13	8
Helmet Wearing						
Helmet on head	95	92	88	89	89	0
No helmet	5	8	12	11	11	0
Gender						
Male	-	-	-	-	91	-
Female	-	-	-	-	9	-
Can't tell	-	-	-	-	0	-
Where Riding						
Road	73	73	78	79	65	-14
Footpath	27	27	22	21	35	14
Base:	66	52	51	56	46	

- The volume of evening cycle movements peaks between 4:00pm and 4:09pm, and again between 6:00pm and 6:09pm (6 cyclists each ten minute interval).

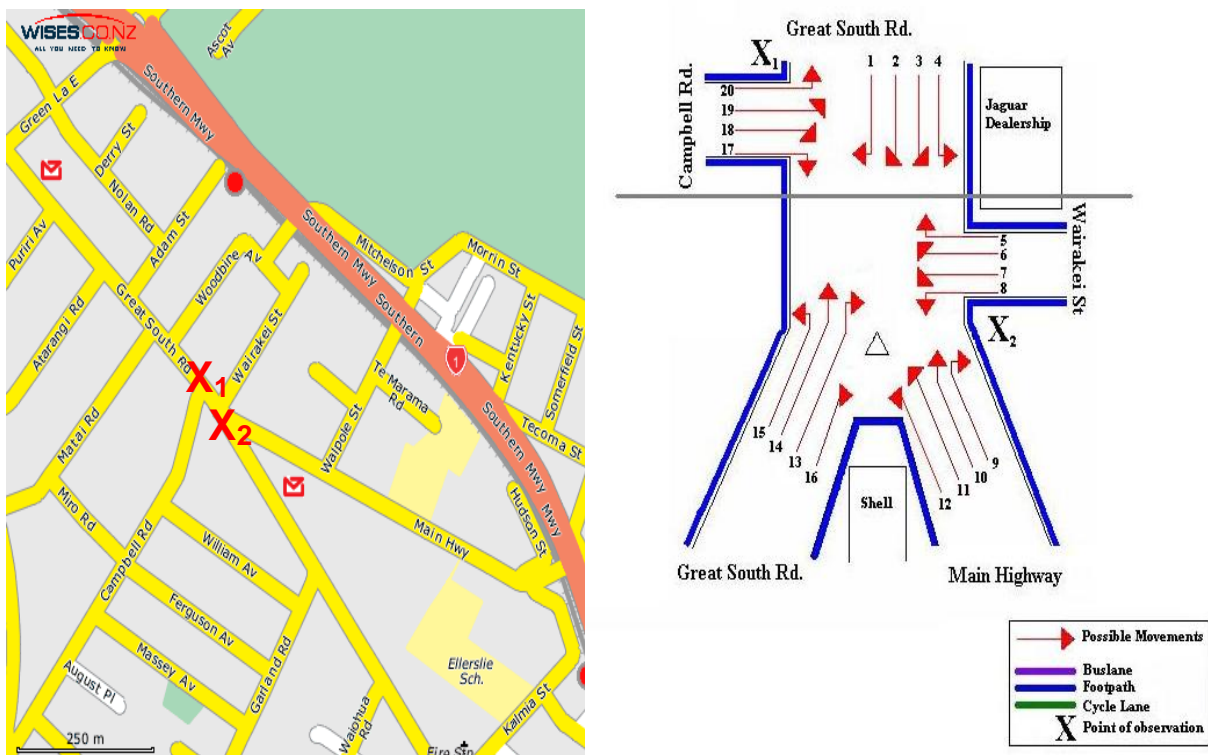
**Figure 3.3: Evening Peak Cyclist Frequency
Ellerslie Panmure Highway/Lunn Avenue (n)**



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

Figure 4.1 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 4.1: Cycle Movements: Great South/Campbell Road



4.1 Site Summary

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

4.2 Morning Peak

Environmental Conditions

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

Key Points

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

**Table 4.1: Morning Cyclist Movements
Great South/Campbell Road 2007-2011 (n)**

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

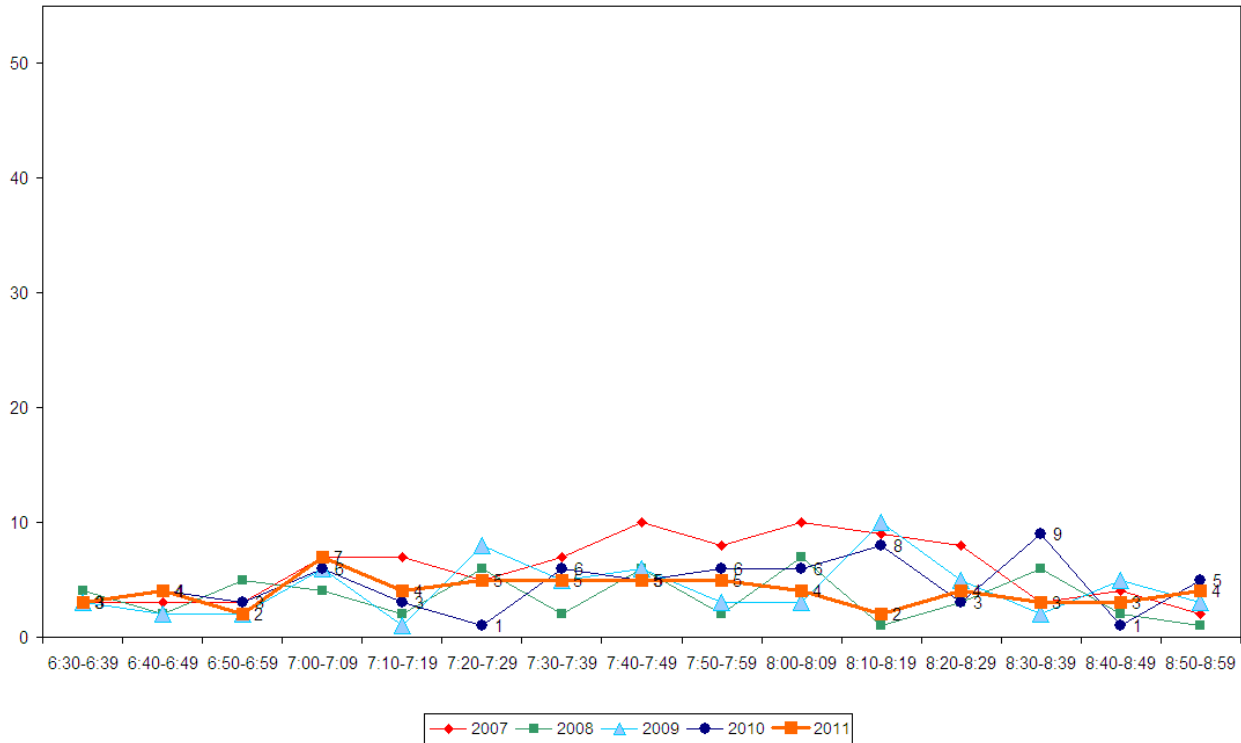
- Over the morning peak, adults comprise the greatest share of cycle movements (95 per cent, stable from 93 per cent in the previous year).
- Most cyclists are wearing a helmet (95 per cent, stable from 2010).
- The greatest share of cyclists are male (83 per cent).
- The majority of cyclists are riding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

**Table 4.2: Morning Cyclist Characteristics
Great South/Campbell Road 2007-2011 (%)**

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

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

**Figure 4.2: Morning Peak Cyclist Frequency
Great South/Campbell Road (n)**



4.3 Evening Peak

Environmental Conditions

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

Key Points

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

**Table 4.3: Evening Cyclist Movements
Great South/Campbell Road 2007-2011 (n)**

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

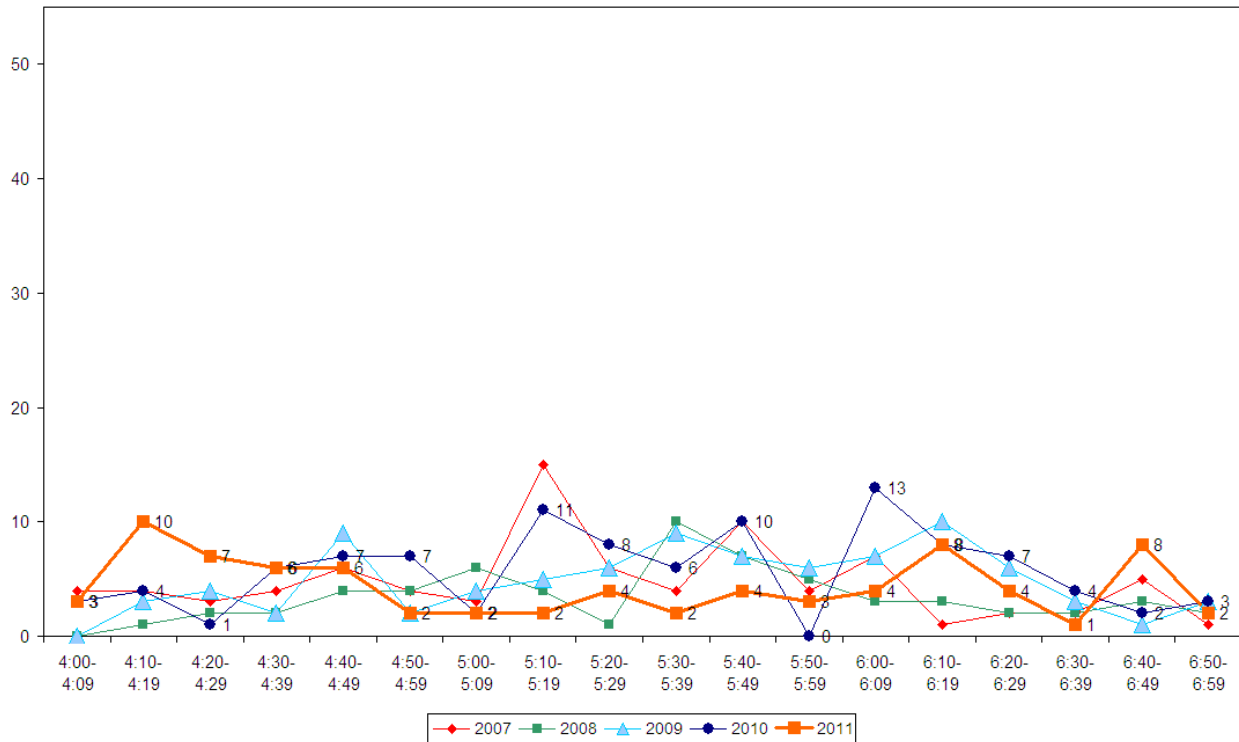
- Over the evening peak, almost all cyclists using this intersection are adults (97 per cent, stable from 95 per cent last year).
- Most cyclists at this site are wearing a helmet (99 per cent, up from 92 per cent in 2010).
- The greatest share of evening cyclists are male (82 per cent).
- Almost all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

**Table 4.4: Evening Cyclist Characteristics
Great South/Campbell Road 2007-2011 (%)**

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

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

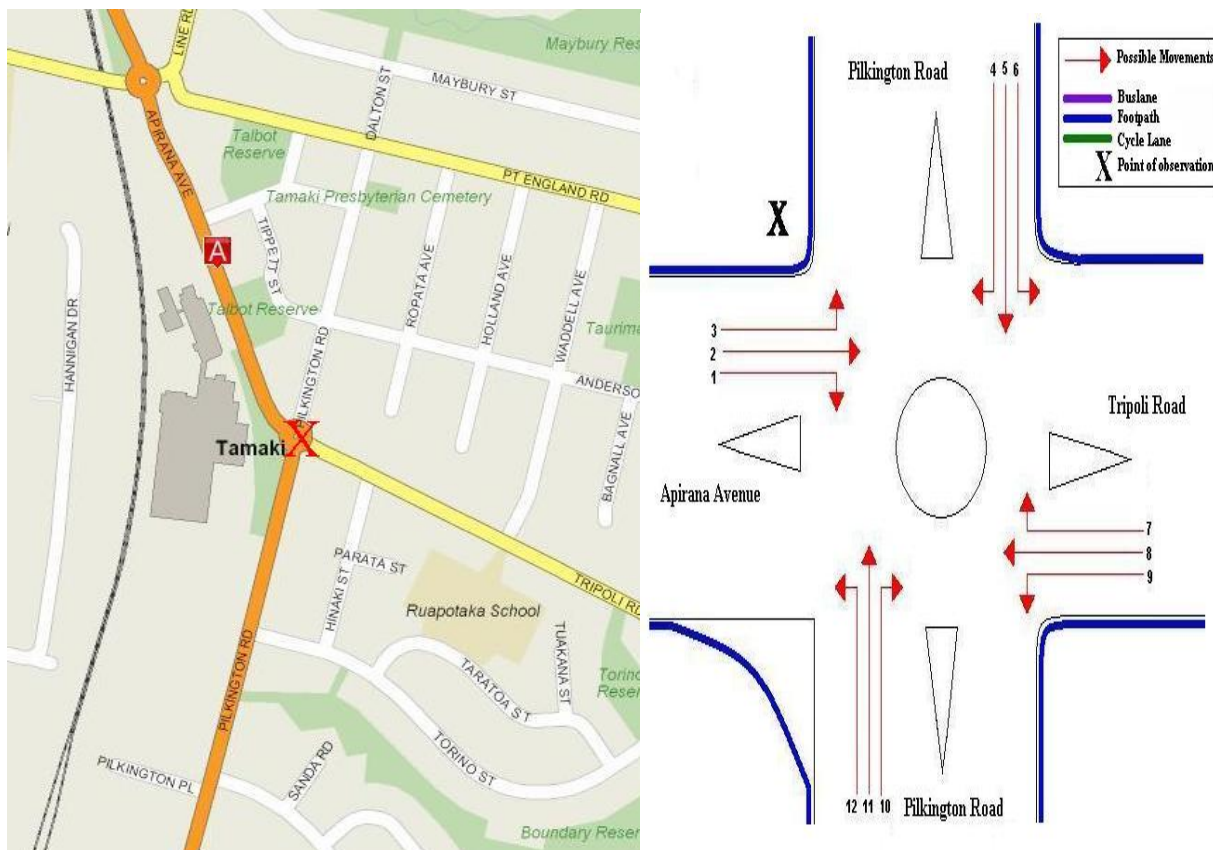
Figure 4.3: Evening Peak Cyclist Frequency
Great South/Campbell Road (n)



5. APIRANA AVENUE/PILKINGTON ROAD/TRIPOLI ROAD, POINT ENGLAND (SITE 74)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: Apirana Avenue/Pilkington Road/Tripoli Road



5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2008	22	39	61	87
2009	12	20	32	46
2010	30	30	60	87
2011	14	41	55	78

5.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Apirana Avenue/Pilkington Road/Tripoli Road site is low, with 14 cycle movements recorded (down from 30 movements in 2010).
- The most common morning movement was turning right from Apirana Avenue into Pilkington Road (Movement 1 = 4 cyclists).
- Compared with last year, the most notable decrease is at Movement 2 (down 13 cyclists).

Table 5.1: Morning Cyclist Movements
Apirana Avenue/Pilkington Road/Tripoli Road 2008-2011 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>Change 10-11</i>
1	6	3	10	4	-6
2	0	0	13	0	-13
3	1	0	0	0	0
4	0	0	0	0	0
5	0	2	2	2	0
6	0	0	0	0	0
7	1	1	0	2	2
8	9	0	2	3	1
9	1	0	0	0	0
10	1	0	0	0	0
11	0	2	0	1	1
12	3	4	3	2	-1
Total	22	12	30	14	-16

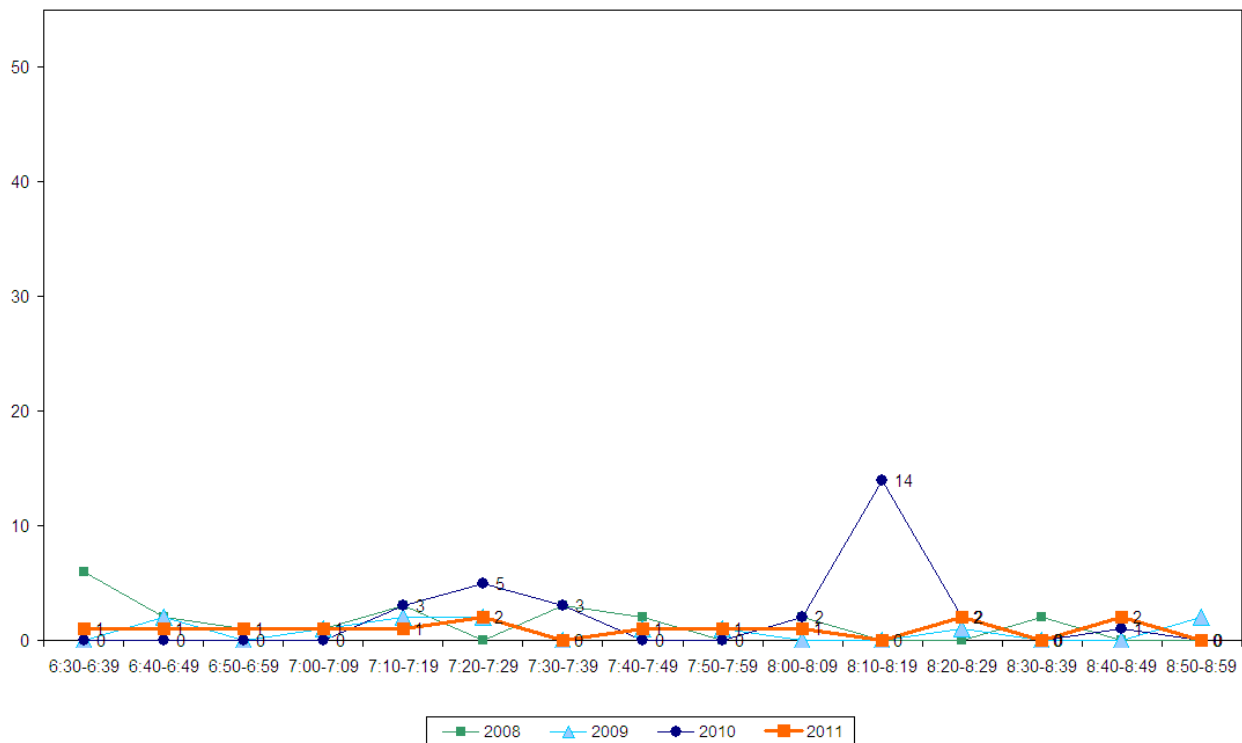
- Over the morning peak, the majority of cyclists are adults (79 per cent), down from 100 per cent last year.
- Seventy-one per cent of all cyclists are wearing a helmet, down notably from 97 per cent in 2010.
- Almost all cyclists are male (93 per cent).
- Just over half of cyclists are riding on the road (57 per cent, down notably from 93 per cent at the previous measure).

Table 5.2: Morning Cyclist Characteristics
Apirana Avenue/Pilkington Road/Tripoli Road 2008-2011 (%)

	2008	2009	2010	2011	Change 10-11
Cyclist Type					
Adult	95	92	100	79	-21
School child	5	8	0	21	21
Helmet Wearing					
Helmet on head	100	83	97	71	-26
No helmet	0	17	3	29	26
Gender					
Male	-	-	-	93	-
Female	-	-	-	7	-
Can't tell	-	-	-	0	-
Where Riding					
Road	73	67	93	57	-36
Footpath	27	33	7	43	36
Base:	22	12	30	14	

- Morning cycle volumes are low throughout most of the shift, with no more than two cyclists per ten minute monitoring interval. This compares with a slight peak between 7:20am and 7:29am (5 cyclists) and a sharp peak between 8:10am and 8:19am (14 cyclists) in 2010.

Figure 5.2: Cyclist Frequency
Apirana Avenue/Pilkington Road/Tripoli Road (n)



5.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded at the Apirana Avenue/Pilkington Road/Tripoli Road was 41 movements, up from 30 movements in 2010.
- The most common movement in the evening is turning left from Pilkington Road into Tripoli Road (Movement 6 = 9 cyclists).
- Compared with 2010, the most notable increase in cyclist numbers is at Movement 6 (up 8 cyclists).

Table 5.3: Evening Cyclist Movements
Apirana Avenue/Pilkington Road/Tripoli Road 2008-2011 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>Change 10-11</i>
1	12	5	7	5	-2
2	7	2	2	5	3
3	1	0	0	0	0
4	0	0	1	0	-1
5	0	1	0	1	1
6	1	1	1	9	8
7	1	1	2	4	2
8	5	0	3	5	2
9	1	3	2	3	1
10	2	0	0	1	1
11	2	5	2	4	2
12	7	2	10	4	-6
Total	39	20	30	41	11

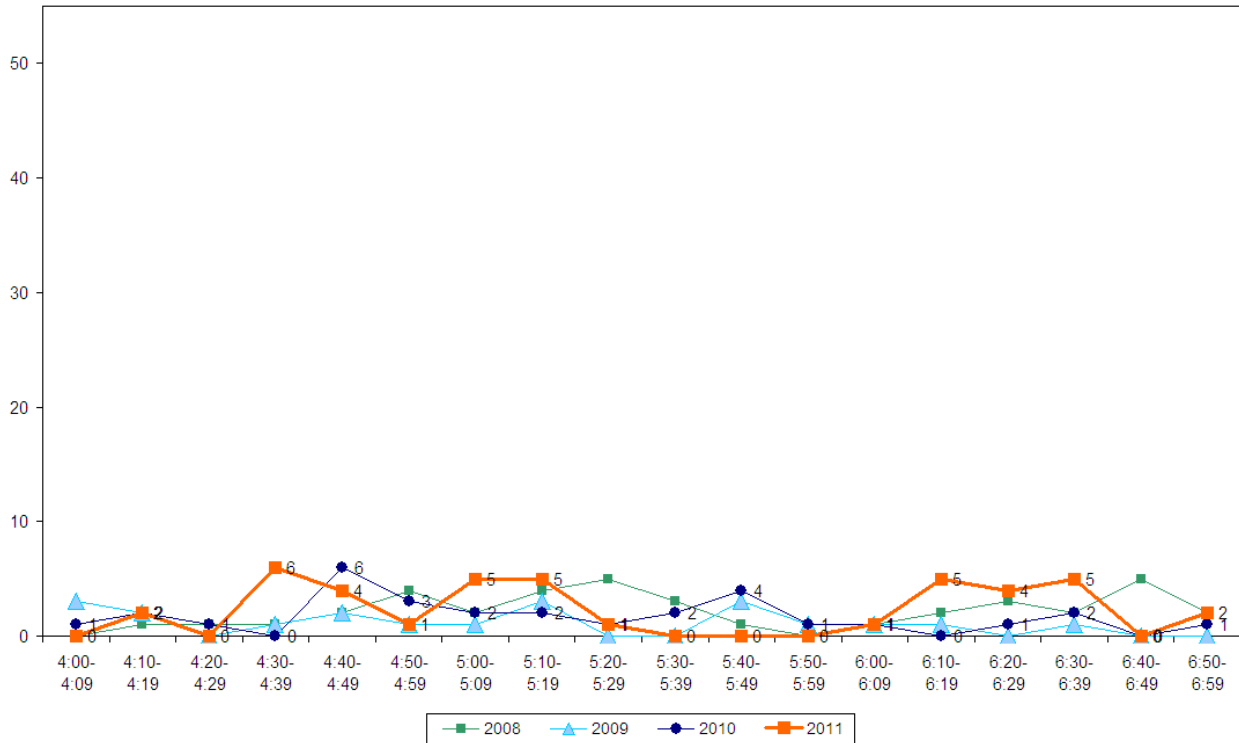
- The share of cyclists at this site who are children has increased notably over the last 12 months – up from 3 per cent in 2010 to 39 per cent this year.
- On average, just over half of all cyclists at this site are wearing a helmet (down notably from 83 per cent at the previous measure).
- Sixty-one percent of cyclists are male.
- Fifty-one per cent of cyclists at this site in the evening are riding on the road (compared with 77 per cent in 2010).

Table 5.4: Evening Cyclist Characteristics
Apirana Avenue/Pilkington Road/Tripoli Road 2008-2011 (%)

	2008	2009	2010	2011	Change 10-11
Cyclist Type					
Adult	92	75	97	61	-36
School child	8	25	3	39	36
Helmet Wearing					
Helmet on head	72	40	83	56	-27
No helmet	28	60	17	44	27
Gender					
Male	-	-	-	61	-
Female	-	-	-	39	-
Can't tell	-	-	-	0	-
Where Riding					
Road	74	40	77	51	-26
Footpath	26	60	23	49	26
Base:	39	20	30	41	

- Evening cycle volumes are low throughout the shift, with a slight peak between 4:30pm and 4:39pm (6 cyclists). The peak in 2010 occurred between 4:40pm and 4:49pm (6 cyclists).

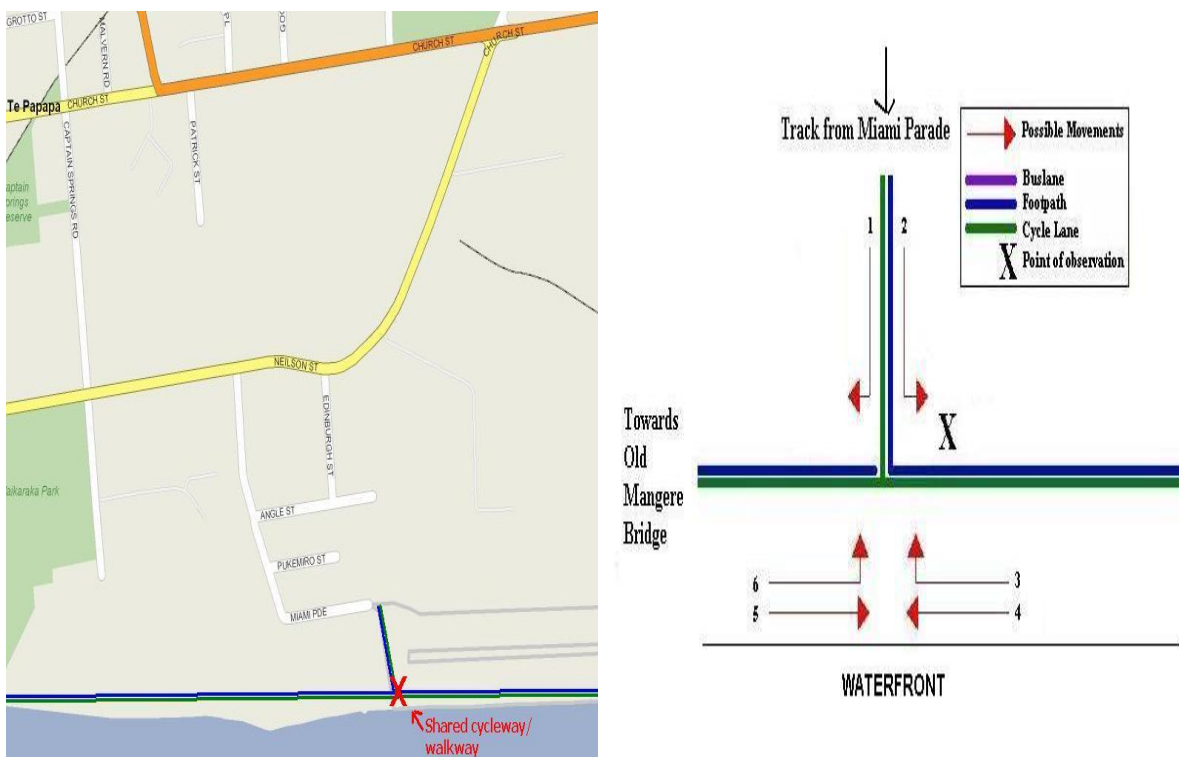
Figure 5.3: Evening Peak Cyclist Frequency
Apirana Avenue/Pilkington Road/Tripoli Road



6. WAIKARAKA CYCLEWAY, ONEHUNGA SOUTH (SITE 76)

Figure 6.1 shows the possible cyclist movements at this site.

Figure 6.1: Cycle Movements: Waikaraka Cycleway, Onehunga South



6.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2008	13	41	54	76
2009	18	33	51	73
2010	7	35	42	59
2011	29	36	65	94

6.2 Morning Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded in the morning shift has increased this year, from 7 in 2010 to 29.
- The key morning movement is straight along the waterfront, heading east (Movement 5 = 17 cyclists).
- The most notable increase in cyclist volumes across the six possible movements at this site was at Movement 5 (up 16 cyclists).

Table 6.1: Morning Cyclist Movements
Waikaraka Cycleway, Onehunga South 2008-2011 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>Change 10-11</i>
1	0	0	0	0	0
2	0	0	0	0	0
3	1	1	0	0	0
4	2	3	2	11	9
5	9	11	1	17	16
6	1	3	4	1	-3
Total	13	18	7	29	22

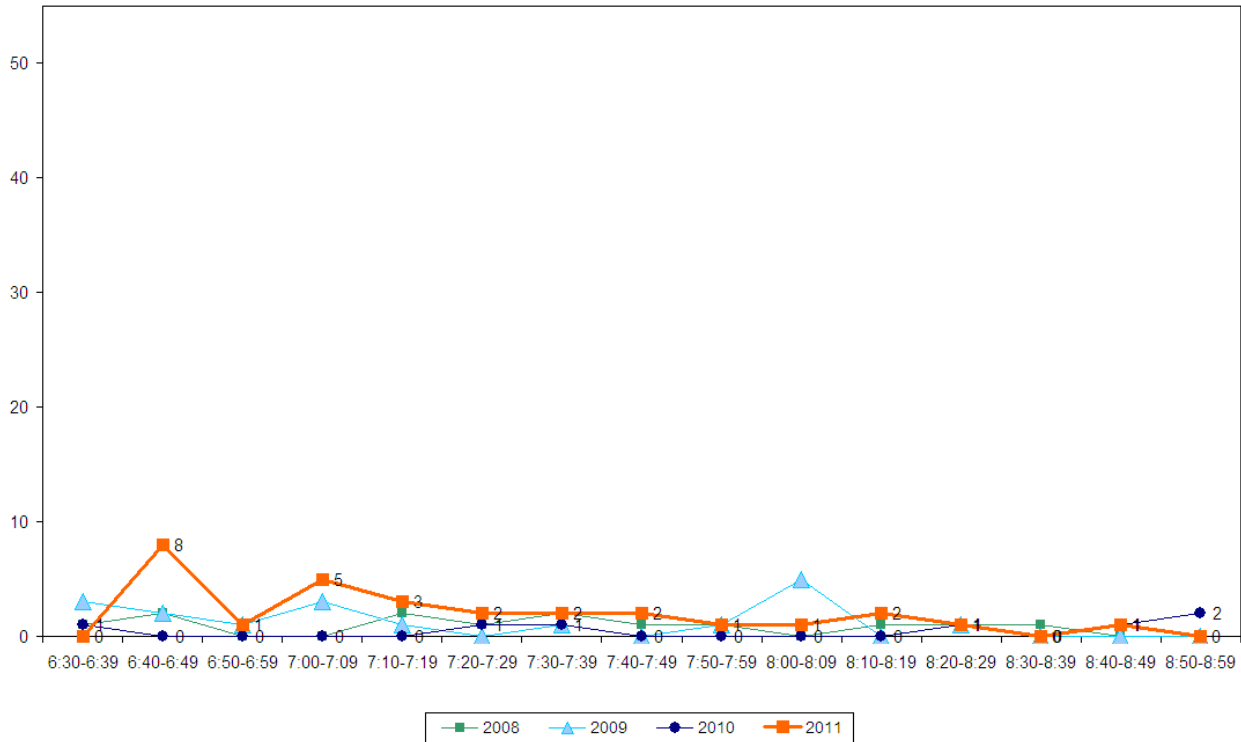
- Over the morning peak, all cyclists are adults (100 per cent), unchanged from last year.
- The majority of cyclists are wearing a helmet (86 per cent, stable from 2010).
- Two-thirds of cyclists (66 per cent) are male.

Table 6.2: Morning Cyclist Characteristics
Waikaraka Cycleway, Onehunga South 2008-2011 (%)

	2008	2009	2010	2011	Change 10-11
Cyclist Type					
Adult	100	100	100	100	0
School child	0	0	0	0	0
Helmet Wearing					
Helmet on head	85	89	86	86	0
No helmet	15	11	14	14	0
Gender					
Male	-	-	-	66	-
Female	-	-	-	34	-
Can't tell	-	-	-	0	-
Where Riding					
Off-road cycle way	100	100	100	100	0
Base:	13	18	7	29	

- Morning cycle volumes peak between 6:40am and 6:49am (8 cyclists), then decrease and remain low throughout the remainder of the shift. This compares with no more than two cyclists recorded during any ten minute intervals in 2010.

**Figure 6.2: Morning Peak Cyclist Frequency
Waikaraka Cycleway, Onehunga South (n)**



6.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements at the Waikaraka Cycleway site continues to be low with 36 movements evident in the evening, stable from the 35 movements recorded in 2010.
- The most common movement in the evening is west along the cycleway towards the Old Mangere Bridge (Movement 4 = 21 cyclists).
- The most notable increase in cyclist volumes across the six possible movements at this site was at Movement 5 (4 cyclists).

Table 6.3: Evening Cyclist Movements
Waikaraka Cycleway, Onehunga South 2008-2011 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>Change 10-11</i>
1	1	2	3	2	-1
2	1	1	2	0	-2
3	0	0	1	0	-1
4	21	19	18	21	3
5	15	8	9	13	4
6	3	3	2	0	-2
Total	41	33	35	36	1

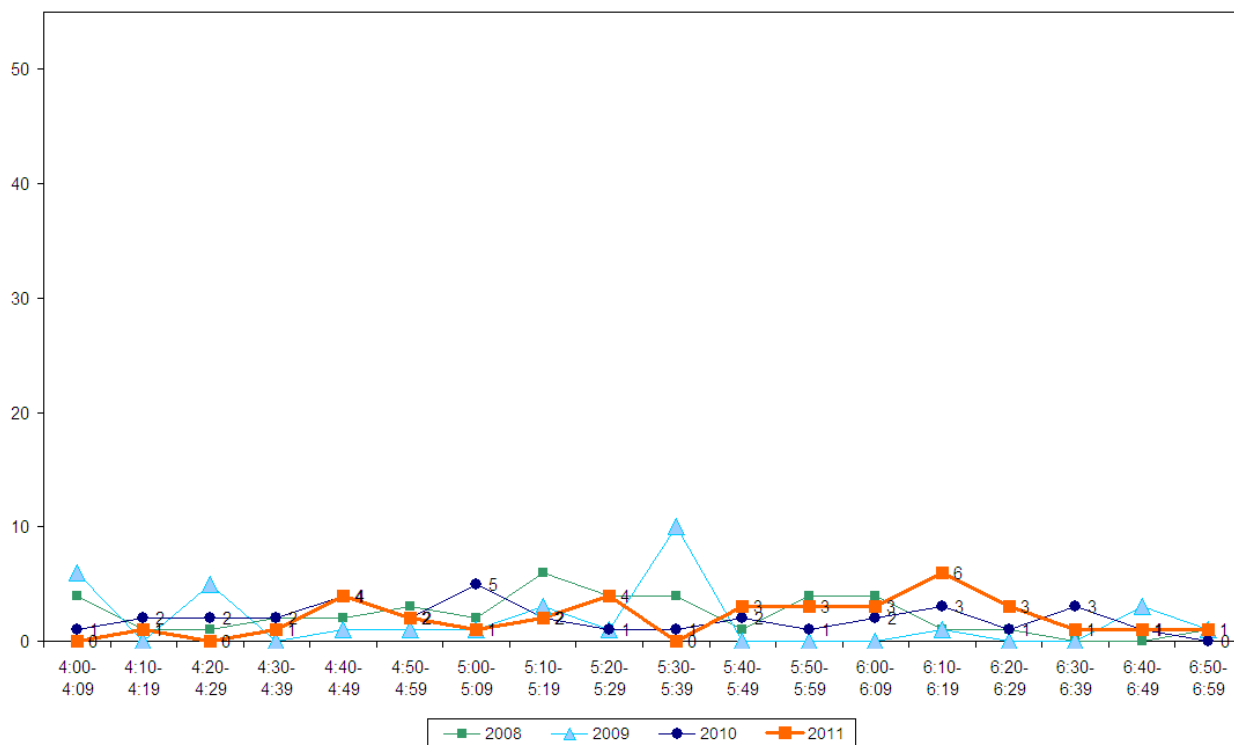
- Over the evening peak, all cyclists using this cycleway are adults (100 per cent, up slightly from 97 per cent in 2010).
- Most cyclists at this site are wearing a helmet (89 per cent, down from 97 per cent at the previous measure).
- The greatest share of evening cyclists are male (83 per cent).

Table 6.4: Evening Cyclist Characteristics
Waikaraka Cycleway, Onehunga South 2008-2011 (%)

	2008	2009	2010	2011	Change 10-11
Cyclist Type					
Adult	95	100	97	100	3
School child	5	0	3	0	-3
Helmet Wearing					
Helmet on head	88	79	97	89	-8
No helmet	12	21	3	11	8
Gender					
Male	-	-	-	83	-
Female	-	-	-	17	-
Can't tell	-	-	-	100	-
Where Riding					
Off-road cycle way	100	100	100	100	0
Base:	41	33	35	36	

- Evening cycle volumes are low throughout the shift, with a slight peak between 6:10pm and 6:19pm (6 cyclists). This compares to a slight peak between 5:00pm and 5:09pm (5 cyclists) in 2010.

**Figure 6.3: Evening Peak Cyclist Frequency
Waikaraka Cycleway, Onehunga South (n)**

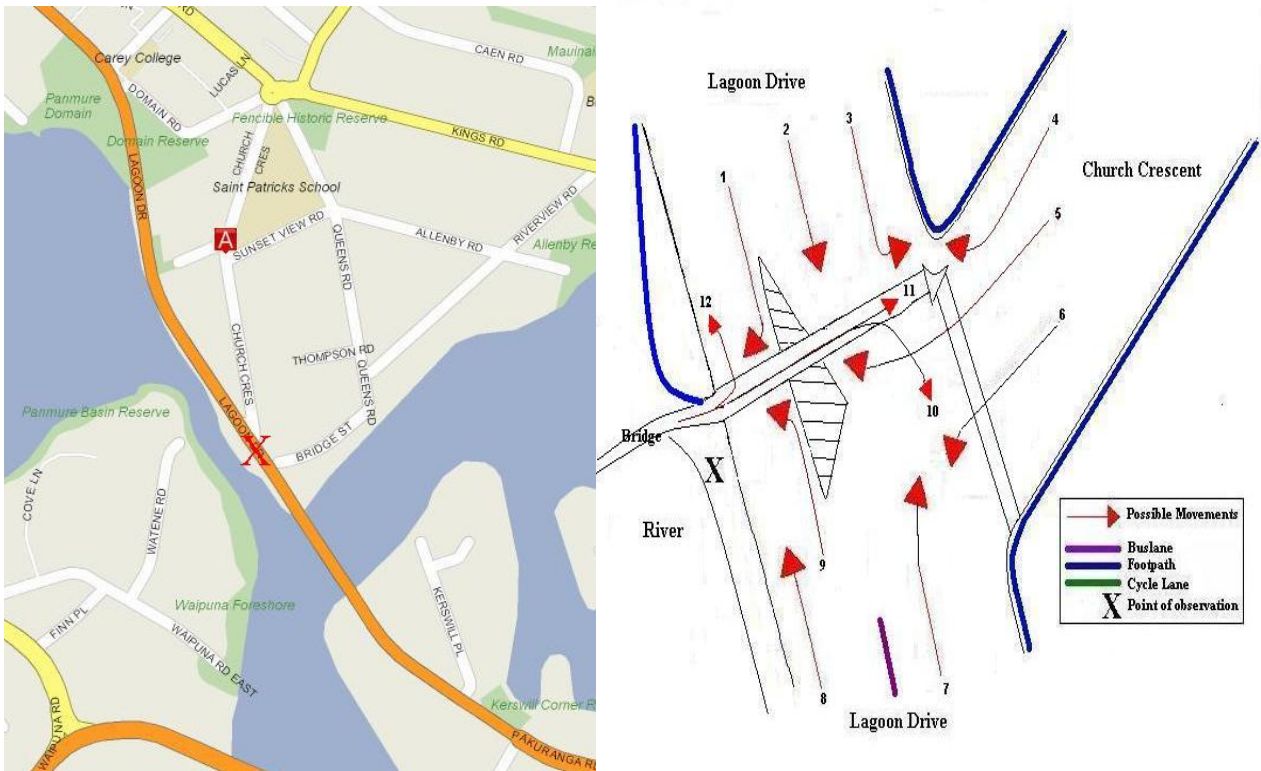


Note: In 2011, a group of three cyclists were observing riding together at this site at 6:10pm. This equates to 8 per cent of all evening peak cyclists.

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

Figure 7.1 shows the possible cyclist movements at this intersection.

Figure 7.1: Cycle Movements: Lagoon Drive/Church Crescent, Panmure



7.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2009	57	72	129	186
2010	100	95	195	284
2011	65	98	163	234

7.2 Morning Peak

Environmental Conditions

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

Key Points

- Sixty-five cycle movements were recorded at this site, down notably from 100 in 2010.
- The key morning movement is turning left from Lagoon Drive into the foot bridge (Movement 9 = 19 cyclists, down from 26 cyclists last year).
- The most notable decrease in cyclist volumes across the twelve possible movements at this site was at Movement 10 (12 cyclists).

Table 7.1: Morning Cyclist Movements
Lagoon Drive/Church Crescent, Panmure 2009 - 2011 (n)

<i>Movement</i>	2009	2010	2011	Change 10-11
1	0	0	0	0
2	8	9	6	-3
3	1	0	0	0
4	0	0	0	0
5	3	3	2	-1
6	9	15	11	-4
7	6	10	7	-3
8	12	15	11	-4
9	8	26	19	-7
10	10	21	9	-12
11	0	1	0	-1
12	0	0	0	0
Total	57	100	65	35

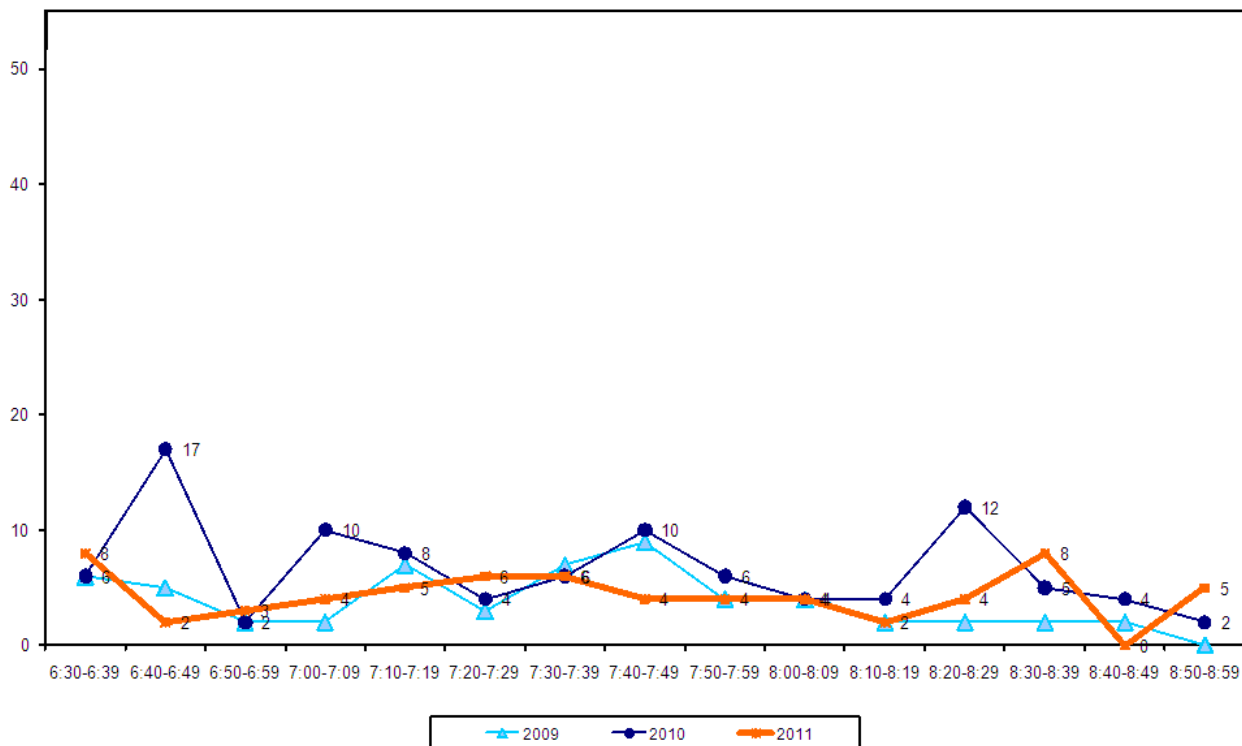
- Over the morning peak, the majority of cyclists are adults (92 per cent, stable from 93 per cent last year).
- Most cyclists are wearing a helmet (98 per cent, up from 94 per cent in 2010).
- Almost all cyclists are male (86 per cent).
- Just less than two-thirds of cyclists are riding on the road (62 per cent, down slightly from 67 per cent in 2010).

Table 7.2: Morning Cyclist Characteristics
Lagoon Drive/Church Crescent, Panmure 2009 - 2011 (%)

	2009	2010	2011	Change 10-11
Cyclist Type				
Adult	82	93	92	-1
School child	18	7	8	1
Helmet Wearing				
Helmet on head	89	94	98	4
No helmet	11	6	2	-4
Gender				
Male	-	-	86	-
Female	-	-	14	-
Can't tell	-	-	0	-
Where Riding				
Road	68	67	62	-5
Footpath	32	33	38	5
Base:	57	100	65	

- Morning cycle volumes are low throughout the shift, with peaks between 6:30am and 6:39 am (8 movements) and between 8:30am and 8:39am (8 cyclists).

Figure 7.2: Morning Peak Cyclist Frequency
Lagoon Drive/Church Crescent, Panmure (n)



Note: In 2011, a group of 11 cyclists were observed riding together at this site just prior to 6:30am.

7.3 Evening Peak

Environmental Conditions

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

Key Points

- Ninety-eight movements were recorded over the evening shift at the Lagoon Drive and Church Crescent site (up from 95 movements in 2010).
- The most common movement in the evening is turning right from Lagoon Drive into Church Crescent (Movement 7 = 34 cyclists, up notably from 19 cyclists last year).

Table 7.3: Evening Cyclist Movements
Lagoon Drive/Church Crescent, Panmure 2009 - 2011 (n)

<i>Movement</i>	2009	2010	2011	Change 10-11
1	0	0	0	0
2	10	12	12	0
3	0	0	1	1
4	0	0	0	0
5	0	0	0	0
6	10	20	13	-7
7	17	19	34	15
8	9	11	10	-1
9	6	10	6	-4
10	15	18	19	1
11	5	5	3	-2
12	0	0	0	0
Total	72	95	98	3

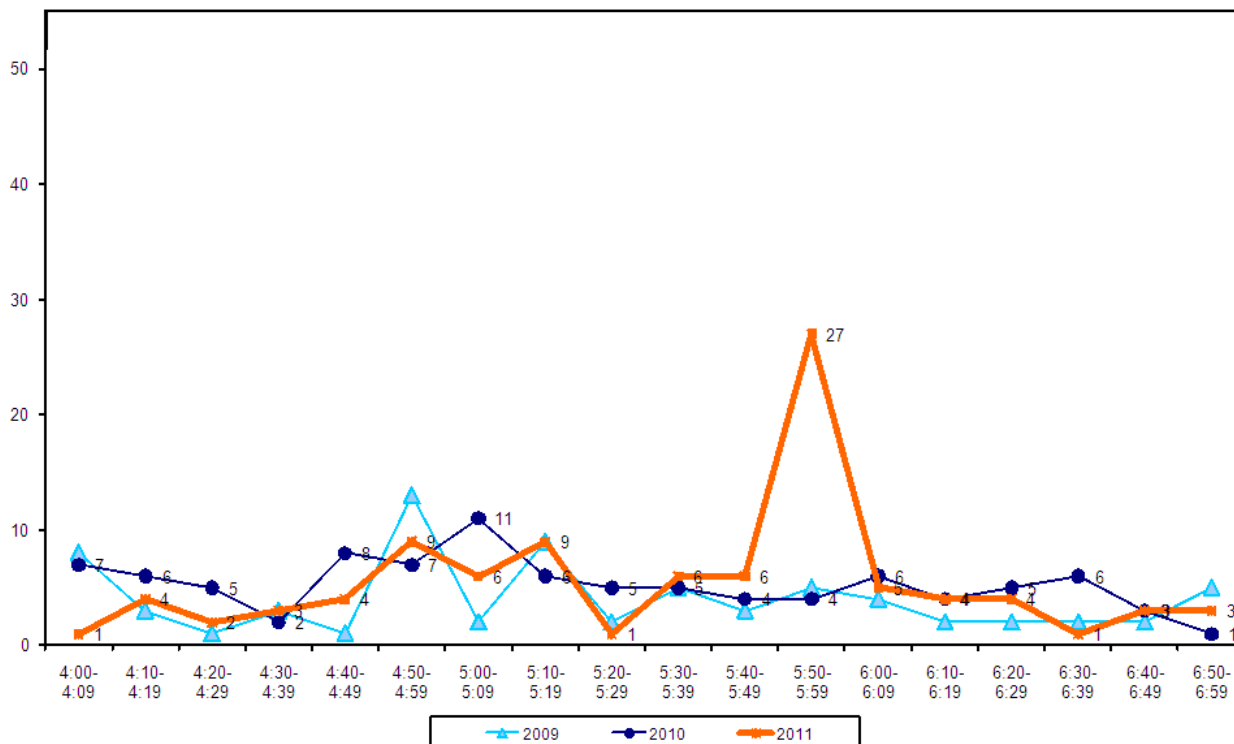
- Almost all cyclists at this site were adults (94 per cent, compared with 93 per cent in 2010).
- Most cyclists were wearing a helmet (98 per cent, up from 89 per cent last year).
- The greatest share of evening cyclists were male (86 per cent).
- Most cyclists were riding on the road (77 per cent, down from 81 in 2010).

Table 7.4: Evening Cyclist Characteristics
Lagoon Drive/Church Crescent, Panmure 2009 - 2011 (%)

	<i>2009</i>	<i>2010</i>	<i>2011</i>	Change 10-11
Cyclist Type				
Adult	96	93	94	1
School child	4	7	6	-1
Helmet Wearing				
Helmet on head	89	89	98	9
No helmet	11	11	2	-9
Gender				
Male	-	-	86	-
Female	-	-	14	-
Can't tell	-	-	0	-
Where Riding				
Road	79	81	77	-4
Footpath	21	19	23	4
Base:	72	95	98	

- Cyclist volumes peak sharply between 5:50pm and 5:59pm (27 cyclists). This compares with a peak between 5:00pm and 5:09pm in 2010 where 11 movements were recorded.

Figure 7.3: Evening Peak Cyclist Frequency
Lagoon Drive/Church Crescent, Panmure (n)



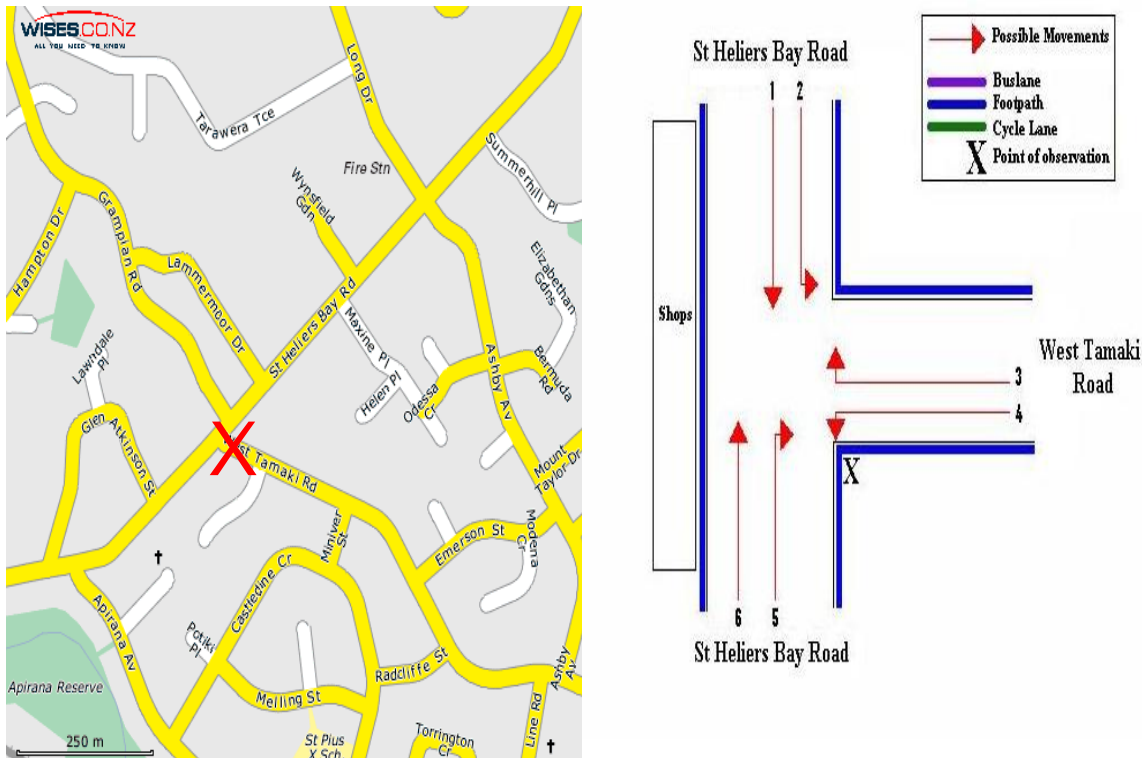
Note: In 2011, 21 per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- Seven cyclists at 5:51pm
- Fourteen cyclists at 5:53pm.

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

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: St Heliers Bay/West Tamaki Road



8.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	139	69	208	308
2008	107	60	167	246
2009	61	47	108	158
2010	98	72	170	249
2011	150	74	224	331

8.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning peak cyclists at the St Heliers Bay/West Tamaki Road intersection has increased notably from last year – up from 98 to 150 movements this year.
- The key morning movement is riding along St Heliers Bay Road in a north-easterly direction and turning right on to West Tamaki Road (Movement 5 = 61 cyclists).
- The most notable increase is at Movement 5 - up 40 cyclists from 21 in 2010.

Table 8.1: Morning Cyclist Movements
St Heliers Bay/West Tamaki Road 2007-2011 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>Change 10-11</i>
1	17	14	16	20	19	-1
2	4	4	1	5	4	-1
3	21	7	5	7	6	-1
4	5	14	12	12	33	21
5	69	53	7	21	61	40
6	23	15	20	33	27	-6
Total	139	107	61	98	150	52

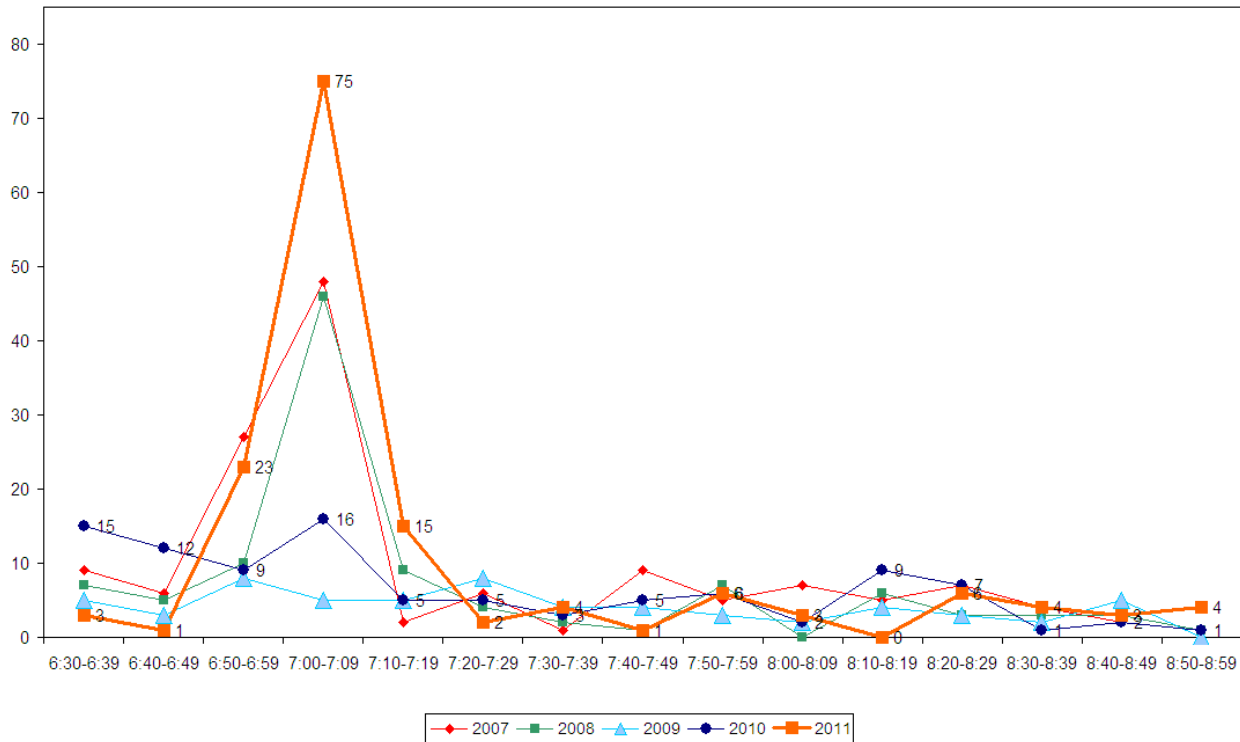
- Over the morning peak, adults comprise the greatest share of cycle movements (95 per cent, stable from the previous year).
- Nearly all cyclists are wearing a helmet (99 per cent, compared with 100 per cent last year).
- Eighty-four per cent of cyclists are male.
- Consistent with last year, the majority of cyclists are riding on the road (93 per cent, compared with 95 per cent at the last measure).

Table 8.2: Morning Cyclist Characteristics
St Heliers Bay/West Tamaki Road 2007-2011 (%)

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	87	93	92	93	95	2
School child	13	7	8	7	5	-2
Helmet Wearing						
Helmet on head	100	97	98	100	99	-1
No helmet	0	3	2	0	1	1
Gender						
Male	-	-	-	-	84	-
Female	-	-	-	-	16	-
Can't tell	-	-	-	-	0	-
Where Riding						
Road	87	92	93	95	93	-2
Footpath	13	8	7	5	7	2
Base:	139	107	61	98	150	

- There is a sharp peak between 7:00am and 7:09am (75 cyclist movements) which then falls to become a stable volume of movements for the remainder of the monitoring period. This compares to three slight peaks between 6:30am and 6:39am (15 cyclists), and 7:00am and 7:09am (16 cyclists), and between 8:10am and 8:19am (9 cyclists) in 2010. This trend is consistent with previous years.

Figure 8.2: Morning Peak Cyclist Frequency
St Heliers Bay/West Tamaki Road (n)



Note: In 2011, 62 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:

- Nine cyclists at 6:54am
- Four cyclists at 6:58am
- Fourteen cyclists at 7:00am
- Thirteen cyclists at 7:03am
- Twenty-four cyclists at 7:05am
- Twenty-two cyclists at 7:06am
- Seven cyclists at 7:18am

8.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of evening cycle movements recorded at the St Heliers Bay/West Tamaki Road intersection has increased slightly, from 72 last year to 74 movements in 2011.
- The key movement at this site in the evening is straight along St Heliers Bay Road heading north (Movement 6 = 28 cyclists).
- The most notable decrease is at Movement 1 (down 6 cyclists).

Table 8.3: Evening Cyclist Movements
St Heliers Bay/West Tamaki Road 2007-2011 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>Change 10-11</i>
1	22	19	15	23	17	-6
2	6	6	7	6	6	0
3	4	8	6	2	4	2
4	5	5	5	6	8	2
5	3	12	7	9	11	2
6	29	10	7	26	28	2
Total	69	60	47	72	74	2

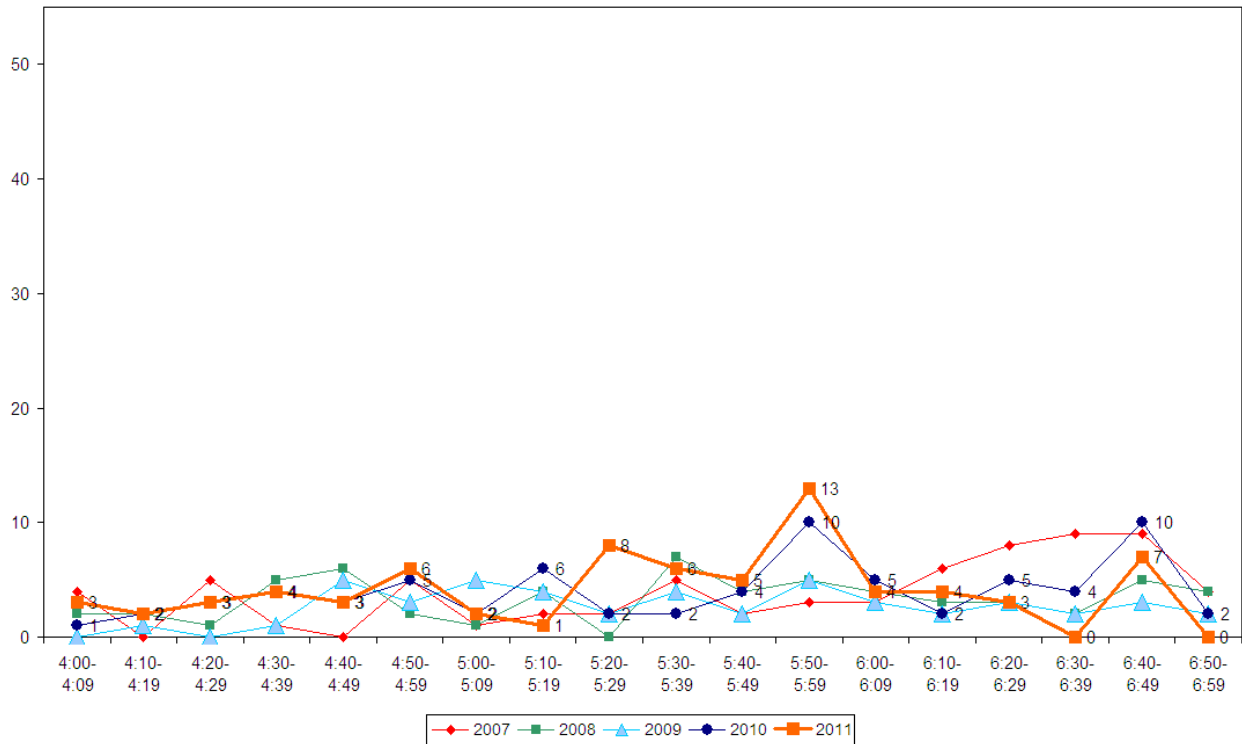
- Consistent with the morning peak, the greatest share of cyclists using this intersection are adults (89 per cent, down from 96 per cent in 2010).
- Most cyclists at this site are wearing a helmet (88 per cent, down from 96 per cent last year).
- Ninety-one per cent of cyclists are male.
- The majority of cyclists are riding on the road (76 per cent, down from 96 per cent last year).

**Table 8.4: Evening Cyclist Characteristics
St Heliers Bay/West Tamaki Road 2007-2011 (%)**

	2007	2008	2009	2010	2011	Change 10-11
Cyclist Type						
Adult	93	88	89	96	89	-7
School child	7	12	11	4	11	7
Helmet Wearing						
Helmet on head	99	92	94	96	88	-8
No helmet	1	8	6	4	12	8
Gender						
Male	-	-	-	-	91	-
Female	-	-	-	-	9	-
Can't tell	-	-	-	-	0	-
Where Riding						
Road	88	87	87	96	76	-20
Footpath	12	13	13	4	24	20
Base:	69	60	47	72	74	

- The volume of evening cycle movements is relatively stable with three slight peaks occurring between 5:20pm and 5:29pm (8 cyclists), 5:50pm and 5:59pm (13 cyclists), and between 6:40pm and 6:49pm (7 cyclists). The two latter peaks are similar to the two slight peaks that occurred last year.

Figure 8.3: Evening Peak Cyclist Frequency
St Heliers Bay/West Tamaki Road (n)



Note: In 2011, three cyclists were observed riding as a group at 6:46pm. This comprises four per cent of the total cycle movements at this site in the evening peak.

9. SCHOOL BIKE SHED COUNT

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

Background Information

- A total of 13 schools in the Maungakiekie-Tamaki ward participated in the school bike shed count.
- Of the schools that responded to the survey, most do not have policies that restrict students cycling to school⁹.
- The designated count day was Tuesday 8th of March¹⁰.

Key Points

- Of those eligible to cycle, on average, less than one per cent of students are cycling to their schools in this ward.
- Across the 13 eligible schools that responded, n=8 students were reported to cycle to school.
- Ellerslie School, Panmure School, and St Pius X School each reported one per cent of all eligible students currently cycling, the highest share of student cyclists in the Maungakiekie-Tamaki ward.
- Of the 13 eligible schools that responded, 8 (62 per cent) had no students cycling to school.

⁹ Ellerslie School permits students Year 6 and older to cycle; younger children must have written permission from a parent and be accompanied by an adult when riding. Stanhope Road School permits students from Year 5 to cycle to school provided they have parental permission and permission from the principal.

¹⁰ The following schools undertook counts on alternative days:

- Destiny School – Thursday 10th March
- Golden Grove School, Westmount School – Tuesday 29th March
- Panmure District School, St Pius X School – Thursday 31st March

Table 9.1 shows the results of the 13 schools surveyed in the Maungakiekie-Tamaki ward.

**Table 9.1: Summary Table Of School Bike Count
2007-2011 (n)**

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible ¹¹				
				2011	2010	2009	2008	2007
Ellerslie School	Full primary	230	3	1%	-	-	-	-
Panmure District School	Full primary	163	2	1%	-	-	-	-
St Pius X School	Full primary	165	1	1%	-	-	-	-
Stanhope Road School	Full primary	240	1	<1%	-	-	-	-
Tamaki Intermediate School	Intermediate	150	1	1%	0%	1%	0%	3%
Bailey Road School	Full primary	418	0	0%	-	-	-	-
Destiny School	Full primary	Not given	0	0%	-	-	-	-
Golden Grove School	Full primary	30	0	0%	-	-	-	-
Pt England School	Full primary	570	0	0%	-	-	-	-
St Mary's Catholic School Ellerslie	Full primary	310	0	0%	-	-	-	-
Sylvia Park School	Full primary	330	0	0%	-	-	-	-
Te Kura Kaupapa Maori o Puau Te Moananui-a-Kiwa	Composite	111	0	0%	-	-	-	-
Westmount School (Exclusive Brethren)	Full primary	140	0	0%	-	-	-	-
Total		2857	8	<1%				

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

Table 9.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (1 per cent, up from no cyclists last year). The composite school in this ward has the lowest rate of cycling of all levels of schools, with no cyclists.

**Table 9.2: Summary Table Of School Bike Count by School Type
2007-2011 (%)**

Year Levels	Number of Schools Responded in 2011	Cyclists as share of those eligible					Change 10-11
		2007	2008	2009	2010	2011	
Intermediate	1	3%	0%	1%	0%	1%	+1
Full primary	11	-	-	-	-	<1%	-
Composite	1	-	-	-	-	0%	-

APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT¹² in the Auckland region from any Gravitax manual count.

Method for Estimating AADT

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

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

where *Count* = result of count period

H = scale factor for time of day

D = scale factor for day of week

W = scale factor for week of year

R = scale factor for weather conditions on the count day

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

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

¹² Annual average daily traffic

¹³ LTSA, 2004

For the Gravitass counts, the following factors apply:

$\Sigma H_{AM} = 30\%$; $\Sigma H_{PM} = 33.3\%$; (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 $3.06 \times 102 = 312$.
- The AADT from the afternoon survey is estimated as $2.78 \times 130 = 359$.
- 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}		H _{Weekend}	
			Mon to Fri	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%