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Research Report Prepared for
Auckland Transport

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2011 Auckland Region Manual Cycle Monitor

- Waitakere Ward -

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1.1 Introduction

The Need For Reliable Cycle Trip Data

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

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

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

Manual Cycle Monitoring

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

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

[1] Auckland Regional Transport Authority (2006) *Regional Cycle Monitoring Plan (Provisional Guidelines)*
[2] For example, Manukau and North Shore cities' monitors took place at the same morning and evening peak times, while Auckland city's differs by one hour for the evening peak, and Waitakere's differs for both peaks.

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

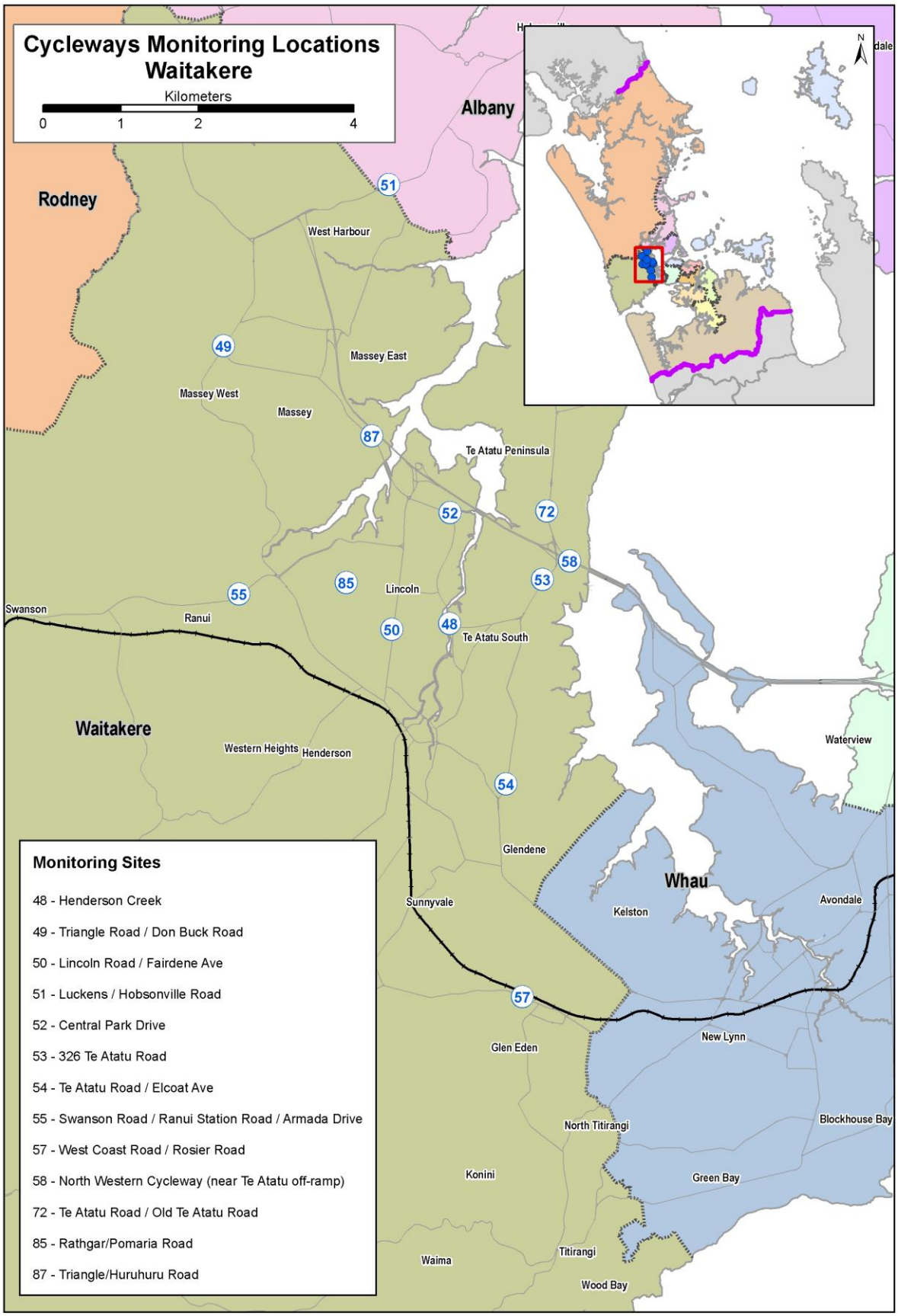
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

This report presents results from manual cycle counts conducted at 13 sites in the Waitakere 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 13 pre-determined sites in the Waitakere 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 Waitakere ward. Note that one site (Luckens/Hobsonville Road in West Harbour - Site 51) lies on the border with the Albany ward. Consequently results for this site have been included in both ward reports.

Figure 1.1: 2011 Cycle Monitoring Locations in Waitakere Ward



1.2 Methodology

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

Choice of Sites

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

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

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

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

Monitoring Times

Time Of Day

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

Day Of Week

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

Time Of Year

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

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

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

Counts were conducted on the following days:

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

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

Weather and Daylight Conditions

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

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

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

Tuesday 8th March

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

Wednesday 9th March

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

Thursday 10th March

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

Conducting The Manual Counts

Scoping Visit

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

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

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

During their shift the surveyor collected data on:

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

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

Since 2009, surveyors have been required to indicate those cyclists riding together in groups of three or more. To be consistent with previous years, each member of these 'pelotons' has been included in the site-level analysis as a separate cyclist movement. However, where pelotons were observed, the number of cyclists and the time they passed through the site 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 Zealand[6], Annual Average Daily Traffic (AADT) analysis can be used to estimate the average annual daily flow of cyclists from manual and automated cycle counts conducted at one point in time. The procedure involves deriving scale factors, which account for the time of day, day of the week, and week of the year (which varies with school holidays and season) as well as weather conditions on the count day. These scale factors are then applied to the count data collected to give an AADT estimate.

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

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

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

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

School Bike Shed Counts

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

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

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

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

Methodology

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

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

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

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

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

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

This summary contains the aggregated results of the 13 sites surveyed in the Waitakere 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 Waitakere 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 Fourteen of this report.

Note: Surveying in the Waitakere 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

Environmental Conditions

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

Key Points

- A total of 677 cyclist movements were recorded across the 13 sites monitored in the morning peak period (between 6:30am and 9:00am) in 2011. This represents an 11 per cent decrease from the 2010 result (757 movements). Five per cent (n=35) of these movements were made by cyclists riding as groups.
- The average number of cycle movements per site has declined, from 58 in 2010 to 52 this year (a 10 per cent decrease).
- Consistent with last year's result, the busiest site in the morning peak is North Western Cycleway near the Te Atatu Road off-ramp (155 movements, down from 179 movements last year), whereas the site at Luckens/Hobsonville Road has the lowest level of morning cyclist traffic (14 cycle movements).
- Five sites recorded increases this year compared to 2010. The most notable increases are at:
  - Swanson/Ranui Station Road/Armada Drive – up 38 per cent;
  - Triangle Road/Don Buck Road, Massey – up 30 per cent; and
  - Lincoln Road/Fairdene Avenue – up 24 per cent.
- In contrast, seven sites recorded declines this year compared to 2010, the most notable decrease being at Luckens/Hobsonville Road – down 66 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 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	102	121	157	179	**155**	-13%	52%
52	Central Park Drive, Henderson	61	68	91	94	**100**	6%	64%
53	326 Te Atatu Road (Near Covil Ave)	44	52	79	65	**73**	12%	66%
55	Swanson/Ranui Station Road/Armada Drive	15	21	37	34	**47**	38%	213%
49	Triangle Road/Don Buck Road, Massey	24	29	21	27	**35**	30%	46%
54	Te Atatu Road/Elcoat Avenue	26	27	37	30	**30**	0%	15%
50	Lincoln Road/Fairdene Avenue	13	19	21	21	**26**	24%	100%
57	West Coast/Rosier Road, Glen Eden	19	18	28	31	**25**	-19%	32%
48	Henderson Creek	14	11	27	38	**24**	-37%	71%
51	Luckens/Hobsonville Road	20	25	26	41	**14**	-66%	-30%
	Average per site (10 sites since 2007)	**34**	**39**	**52**	**56**	**53**	-5%	56%
	Total (10 sites since 2007)	**338**	**391**	**524**	**560**	**529**	-6%	57%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	56	66	105	**63**	-40%	-
85	Rathgar/Pomaria Road	-	-	32	53	**33**	-38%	-
	Average per site (11 sites in 2008, 12 sites in 2009)	**-**	**41**	**52**	**58**	**52**	-10%	-
	Total (11 sites in 2008, 12 sites in 2009)	**-**	**447**	**622**	**698**	**625**	-10%	-
87	Triangle/Huruhuru Road	-	-	-	59	**52**	-12%	-
	Average per site (13 sites since 2010)	**-**	**-**	**-**	**58**	**52**	-10%	-
	Total (13 sites since 2010)	**-**	**-**	**-**	**757**	**677**	-11%	-

- Overall, 75 per cent of cyclists are adults in the morning peak (down from 81 per cent last year). Of the 13 locations monitored in the Waitakere ward, the Te Atatu Road/Elcoat Ave site has the highest proportion of cyclists that are school children (80 per cent, consistent with last year's result).
- Almost all morning cyclists are wearing a helmet across the Waitakere sites (91 per cent, stable from 93 per cent in the previous year). However, helmet wearing is least likely to occur at the Lincoln Road/Fairdene Ave intersection (46 per cent not wearing a helmet).
- Almost all the morning cyclists are male (83 per cent).
- Forty-three per cent of morning cyclists are riding on an off-road cycleway (up from 31 per cent last year), 28 per cent are riding on the road (down from 47 per cent in 2010), and the remaining 29 per cent are riding on the footpath. Compared with other sites in the Waitakere ward, the incidence of cyclists riding on the footpath is the highest at the 326 Te Atatu Road site (90 per cent).

Table 1.2: Summary of Morning Cyclist Characteristics

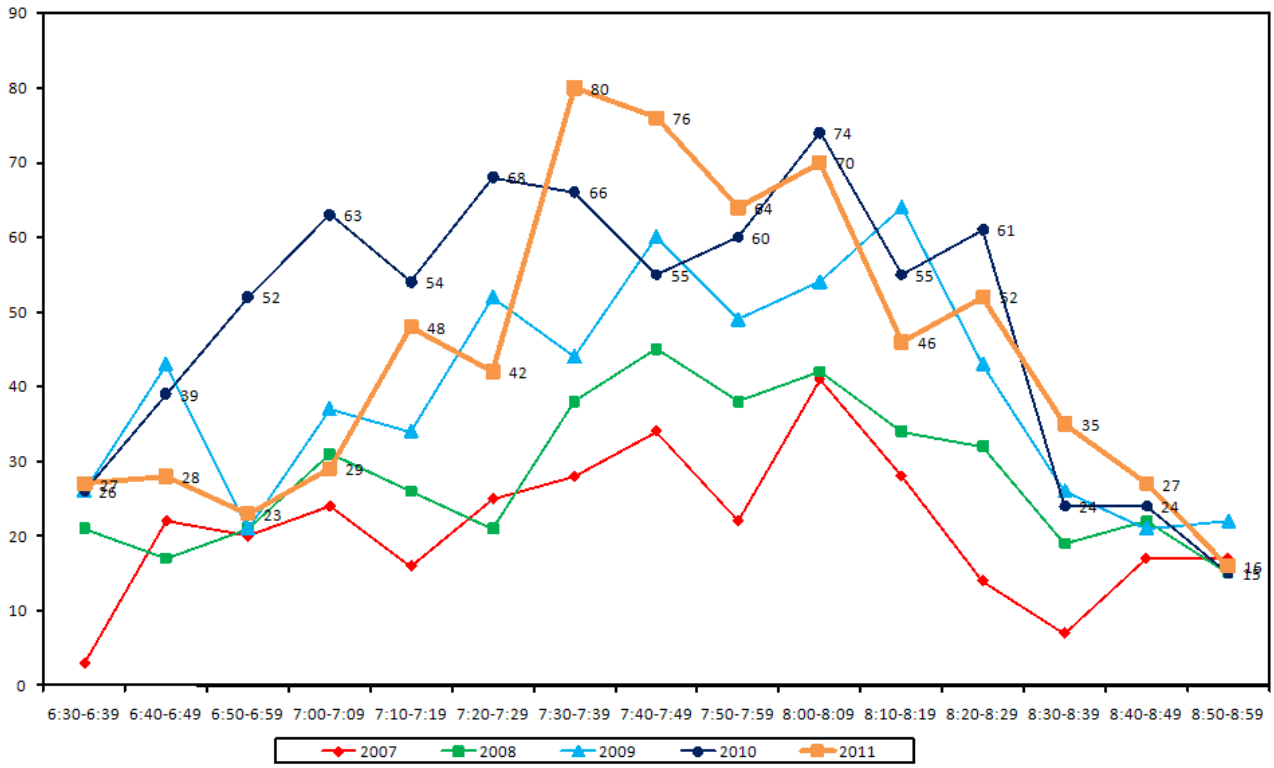
2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	80	76	78	81	75	-6
School child	20	24	22	19	25	6
Helmet Wearing						
Helmet on head	91	92	91	93	91	-2
No helmet	9	8	9	7	9	2
Gender						
Male	-	-	-	-	83	-
Female	-	-	-	-	15	-
Can't tell	-	-	-	-	2	-
Where Riding*						
Road	35	41	34	47	28	-19
Footpath	31	29	31	22	29	7
Off-road cycleway	34	30	35	31	43	12
Base:	***338***	***447***	***622***	***757***	***677***	

- Figure 1.2 illustrates the total number of cyclists in the morning peak by time of trip since 2007. This year, cycle volumes in the morning monitoring period peak at 80 movements between 7:30am and 7:39am, gradually decreasing throughout the remainder of the morning. In 2010 the volume of morning cycle movements peaked between 8:00am and 8:09am (74 movements).

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007-2011 (n)



1.5 Evening Peak

Environmental Conditions

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

Key Points

- A total of 837 cyclist movements were recorded across the 13 sites in the evening peak period (between 4:00pm and 7:00pm) in 2011. This represents a 9 per cent decrease on the 2010 result (920 movements). Only three cyclists were observed riding as a group in the evening peak.
- Consistent with the morning peak, the North Western Cycleway near the Te Atatu Road off-ramp continues to be the busiest in terms of the evening cyclists' activity, with 190 cycle movements recorded. By contrast, the lowest level of evening cyclist traffic is at the Te Atatu Road/Elcoat Avenue intersection (18 cycle movements).
- Three sites recorded increases this year compared to 2010:
  - Swanson/Ranui Station Road/Armada Drive – up 25 per cent;
  - West Coast/Rosier Road, Glen Eden – up 21 per cent; and
  - Central Park Drive, Henderson – up 6 per cent.
- In contrast, ten sites recorded declines, with the most notable decrease at Luckens/Hobsonville Road – down 30 per cent.
- The average volume of evening cyclists across the 13 sites monitored in Waitakere since 2010 is 64 cycle movements. This compares with an average of 71 movements in 2010, a decrease of 10 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 (%)
58	North Western cycleway/near Te Atatu Road off-ramp	130	151	198	209	**190**	-9%	46%
52	Central Park Drive, Henderson	66	89	121	106	**112**	6%	70%
55	Swanson/Ranui Station Road/Armada Drive	47	65	66	68	**85**	25%	81%
53	326 Te Atatu Road (Near Covil Ave)	43	55	59	62	**54**	-13%	26%
49	Triangle Road/Don Buck Road, Massey	43	32	35	63	**53**	-16%	23%
48	Henderson Creek	32	19	46	46	**42**	-9%	31%
51	Luckens/Hobsonville Road	12	16	51	54	**38**	-30%	217%
57	West Coast/Rosier Road, Glen Eden	29	19	34	29	**35**	21%	21%
50	Lincoln Road/Fairdene Avenue	27	36	22	35	**28**	-20%	4%
54	Te Atatu Road/Elcoat Avenue	24	18	32	22	**18**	-18%	-25%
	Average per site (10 sites since 2007)	**45**	**50**	**66**	**69**	**66**	-4%	47%
	Total (10 sites since 2007)	**453**	**500**	**664**	**694**	**655**	-6%	45%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	55	68	102	**78**	-24%	-
85	Rathgar/Pomaria Road	-	-	53	46	**35**	-24%	-
	Average per site (11 sites in 2008, 12 sites in 2009)	**-**	**50**	**65**	**70**	**64**	-9%	-
	Total (11 sites in 2008, 12 sites in 2009)	**-**	**555**	**785**	**842**	**768**	-9%	-
87	Triangle/Huruhuru Road	-	-	-	78	**69**	-12%	-
	Average per site (13 sites in 2010)	**-**	**-**	**-**	**71**	**64**	-10%	-
	Total (15 sites in 2010)	**-**	**-**	**-**	**920**	**837**	-9%	-

- Eighty-six per cent of cyclists in the evening are adults (up from 83 per cent last year). Of the 13 Waitakere sites monitored this year, the intersection of Rathgar/Pomaria Road has the highest proportion of cyclists who are school children (60 per cent).
- The majority of evening cyclists are wearing a helmet (83 per cent, compared with 81 per cent from the previous measure). The Rathgar/Pomaria Road intersection has the highest proportion not wearing a helmet (63 per cent).
- The greatest share of evening cyclists in the Waitakere ward are male (86 per cent).
- Approximately one third of evening cyclists (30 per cent) are riding on the road, while 45 per cent are riding on an off-road cycleway. The share of cycleway riders has increased from 30 per cent last year. The share riding on the footpath (25 per cent) is down slightly from last year. Riding on the footpath is most common at 326 Te Atatu Road (80 per cent).

Table 1.5: Summary of Evening Cyclist Characteristics

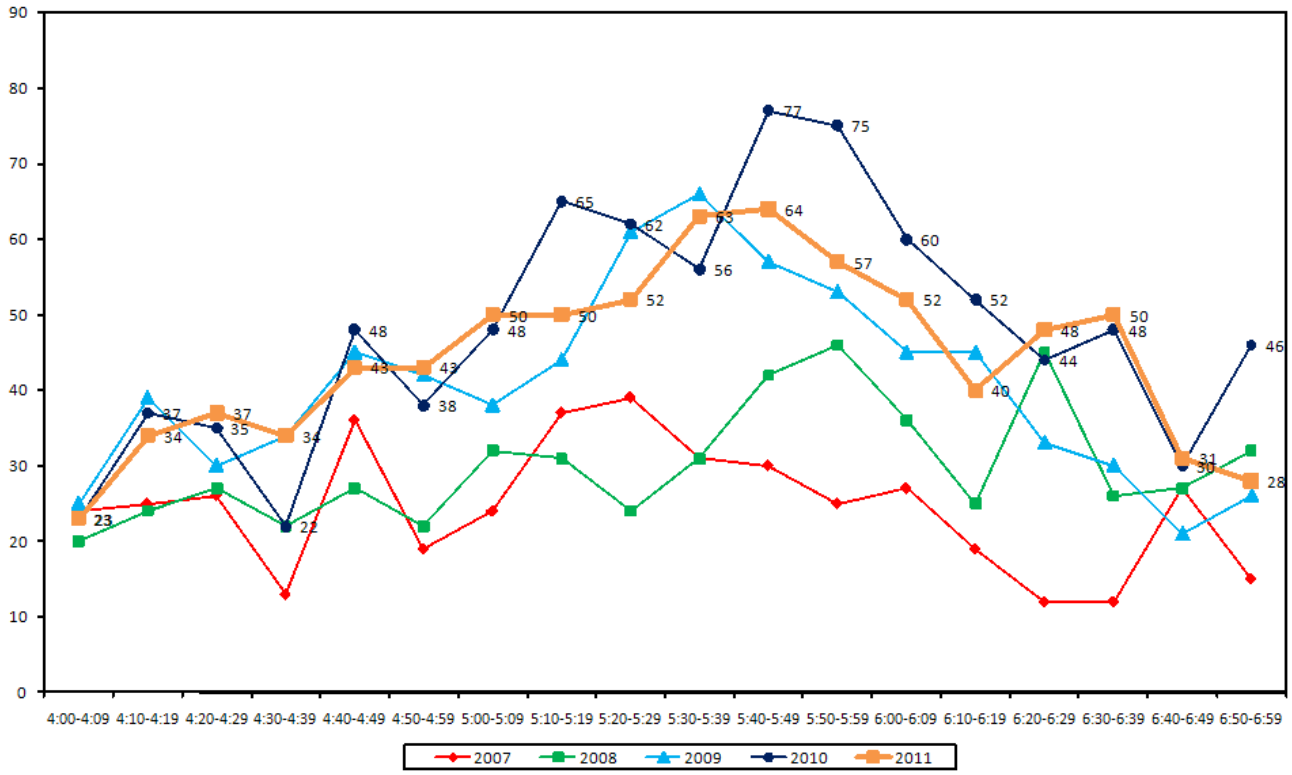
2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	84	83	83	83	86	3
School child	16	17	17	17	14	-3
Helmet Wearing						
Helmet on head	81	80	81	81	83	2
No helmet	19	20	19	19	17	-2
Gender						
Male	-	-	-	-	86	-
Female	-	-	-	-	12	-
Can't tell	-	-	-	-	2	-
Where Riding*						
Road	32	39	32	42	30	-12
Footpath	32	30	31	28	25	-3
Off-road cycleway	36	31	37	30	45	15
Base:	***453***	***555***	***785***	***920***	***837***	

- The overall pattern of cyclist volumes by time of trip in the evening is illustrated in Figure 1.3. This year, evening cyclist volumes peak in the middle of the monitoring period, with 64 movements recorded between 5:40pm and 5:49pm. Cycle volumes then decline gradually through to the end of the monitoring period. This is consistent with last year, with a peak of 77 movements also recorded between 5:40pm and 5:49pm.

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007-2011 (n)



1.6 Aggregated Total

- Overall, a total of 1514 cyclist movements were recorded across the 13 Waitakere sites in 2011 – including three per cent (n=38) observed cycling as groups. This represents an 11 per cent decrease when compared with 2010 (1697 movements).
- The busiest site is the North Western Cycleway with a total of 345 movements (down from 388 movements in 2010), while the Te Atatu Road/Elcoat Avenue site contributes the lowest number of cyclist movements (48 movements).
- Two sites have recorded increases in total cyclist numbers this year compared with 2010 - Swanson/Ranui Station Road/Armada Drive (up 29 per cent) and Central Park Drive, Henderson (up 6 per cent).
- In contrast, nine sites have recorded decreases in movements this year. The most notable decline is Luckens/Hobsonville Road (down 45 per cent from last year).

Table 1.6: Summary Of Total Cyclist Movements

2007-2011 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11 (%)	Change 07-11 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	232	272	355	388	**345**	-11%	49%
52	Central Park Drive, Henderson	127	157	212	200	**212**	6%	67%
55	Swanson/Ranui Station Road/Armada Drive	62	86	103	102	**132**	29%	113%
53	326 Te Atatu Road (Near Covil Ave)	87	107	138	127	**127**	0%	46%
49	Triangle Road/Don Buck Road, Massey	67	61	56	90	**88**	-2%	31%
48	Henderson Creek	46	30	73	84	**66**	-21%	43%
57	West Coast/Rosier Road, Glen Eden	48	37	62	60	**60**	0%	25%
50	Lincoln Road/Fairdene Avenue	40	55	43	56	**54**	-4%	35%
51	Luckens/Hobsonville Road	32	41	77	95	**52**	-45%	63%
54	Te Atatu Road/Elcoat Avenue	50	45	69	52	**48**	-8%	-4%
	Total (10 sites since 2007)	**791**	**891**	**1188**	**1254**	**1184**	-6%	50%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	111	134	207	**141**	-32%	-
85	Rathgar/Pomaria Road	-	-	85	99	**68**	-31%	-
	Total (11 sites in 2008, 12 sites in 2009)	**-**	**1002**	**1407**	**1560**	**1393**	-11%	-
87	Triangle/Huruhuru Road	-	-	-	137	**121**	-12%	-
	Total (13 sites in 2010)	**-**	**-**	**-**	**1697**	**1514**	-11%	-

- Overall cyclist characteristics are illustrated in Table 1.7. In total, 81 per cent of cyclists are adults (stable from 82 per cent last year).
- The majority of cyclists are wearing a helmet (86 per cent, stable from 87 per cent last year).
- Just less than one third of cyclists are riding on the road (29 per cent), while 44 per cent are riding on an off-road cycleway and 27 per cent are riding on the footpath. The share riding on an off-road cycleway has increased from 31 per cent last year.

Table 1.7: Summary of Total Cyclist Characteristics

2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	82	80	81	82	81	-1
School child	18	20	19	18	19	1
Helmet Wearing						
Helmet on head	86	85	85	87	86	-1
No helmet	14	15	15	13	14	1
Gender						
Male	-	-	-	-	84	-
Female	-	-	-	-	14	-
Can't tell	-	-	-	-	2	-
Where Riding*						
Road	33	40	33	44	29	-15
Footpath	32	30	31	25	27	2
Off-road cycleway	35	30	36	31	44	13
Base:	***791***	***1002***	***1407***	***1697***	***1514***	

1.7 Annual Average Daily Traffic (AADT) Estimates

AADT Estimate

- Table 1.8 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at the North Western Cycleway (499 daily trips, down from 562 daily trips last year) and the lowest is at the Te Atatu Road/Elcoat Avenue intersection (71 daily trips, down from 76 trips in 2010).
- Three sites have recorded increases in total AADT estimates this year compared with 2010:
  - Swanson/Ranui Station Road/Armada Drive – up 29 per cent;
  - Central Park Drive, Henderson – up 6 per cent; and
  - 326 Te Atatu Road (Near Covil Ave) – up 1 per cent.
- In contrast, the AADT at the remaining ten sites is lower than last year, with the most notable decrease at the Luckens/Hobsonville Road intersection (down 46 per cent from last year).

Table 1.8: AADT Estimates Based on Morning and Evening Cyclist Movements

2007-2011 (n)

Site No.	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	Change 10-11 (%)	Change 07-11 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	335	393	513	562	**499**	-11%	49%
52	Central Park Drive, Henderson	184	227	306	290	**307**	6%	67%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	161	195	301	**204**	-32%	-
55	Swanson/Ranui Station Road/Armada Drive	88	122	148	146	**189**	29%	115%
53	326 Te Atatu Road (Near Covil Ave)	127	155	202	185	**186**	1%	46%
87	Triangle/Huruhuru Road	-	-	-	198	**175**	-12%	-
49	Triangle Road/Don Buck Road, Massey	96	88	80	128	**127**	-1%	32%
85	Rathgar/Pomaria Road	-	-	122	144	**99**	-31%	-
48	Henderson Creek	65	43	105	121	**95**	-21%	46%
57	West Coast/Rosier Road, Glen Eden	69	54	90	87	**86**	-1%	35%
50	Lincoln Road/Fairdene Avenue	57	79	62	80	**78**	-3%	37%
51	Luckens/Hobsonville Road	47	60	110	137	**74**	-46%	57%
54	Te Atatu Road/Elcoat Avenue	73	66	101	76	**71**	-7%	-3%

1.8 School Bike Shed Count Summary

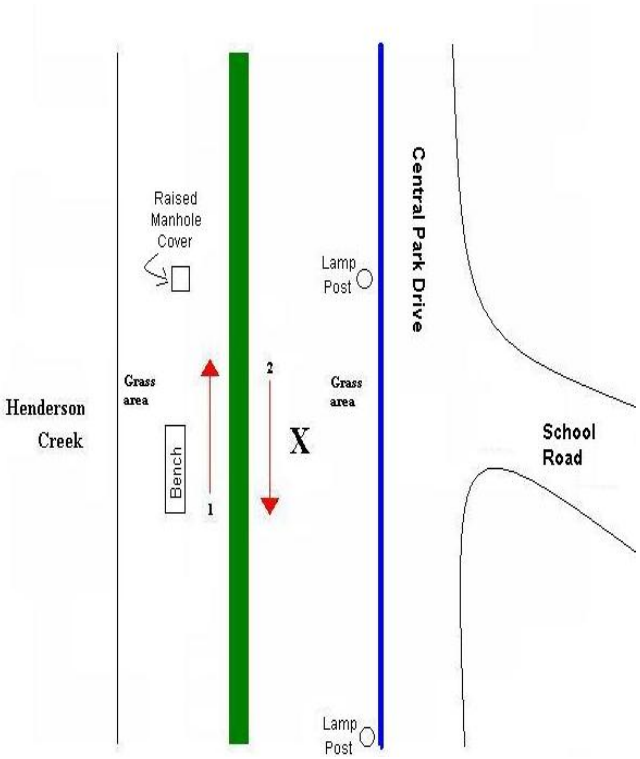
Key Points

- Among those Waitakere schools that responded to the survey, of those eligible to cycle, on average, one per cent of students are cycling to their schools.
- Among the schools that responded, n=60 students were reported to be cycling to school.
- This year, Te Atatu Intermediate reported the highest share of cyclists – 8 per cent of all eligible students currently cycling to school (stable from 2010).
- Of the 19 schools that responded, 10 (53 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (3 per cent) and lowest for combined intermediate/secondary schools and secondary schools (no cyclists).

2. HENDERSON CREEK, HENDERSON (SITE 48)

Figure 2.1 shows the possible cyclist movements at this site.

Figure 2.1: Cycle Movements: Henderson Creek



2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	14	32	46	65
2008	11	19	30	43
2009	27	46	73	105
2010	38	46	84	121
2011	**24**	**42**	**66**	**95**

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

- The volume of morning cyclists at the Henderson Creek shared path has decreased this year, with 24 cycle movements recorded (compared with 38 movements last year).
- Movement 2 had the greater share of cyclist movements in the morning period this year (13 cyclists, compared with 11 cyclists for Movement 1).
- Morning cyclist volumes have decreased for both movements when compared with 2010.

Table 2.1: Morning Cyclist Movements

Henderson Creek 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	6	5	10	19	11	**-8**
2	8	6	17	19	13	**-6**
Total	**14**	**11**	**27**	**38**	**24**	**-14**

- Over the morning peak, adults comprise the majority of all of the cycle movements (92 per cent, down from 97 per cent in 2010).
- Most cyclists are wearing a helmet (92 per cent, stable from 92 per cent last year).
- Just over three-quarters of morning cyclists (79 per cent) are male.

Table 2.2: Morning Cyclist Characteristics

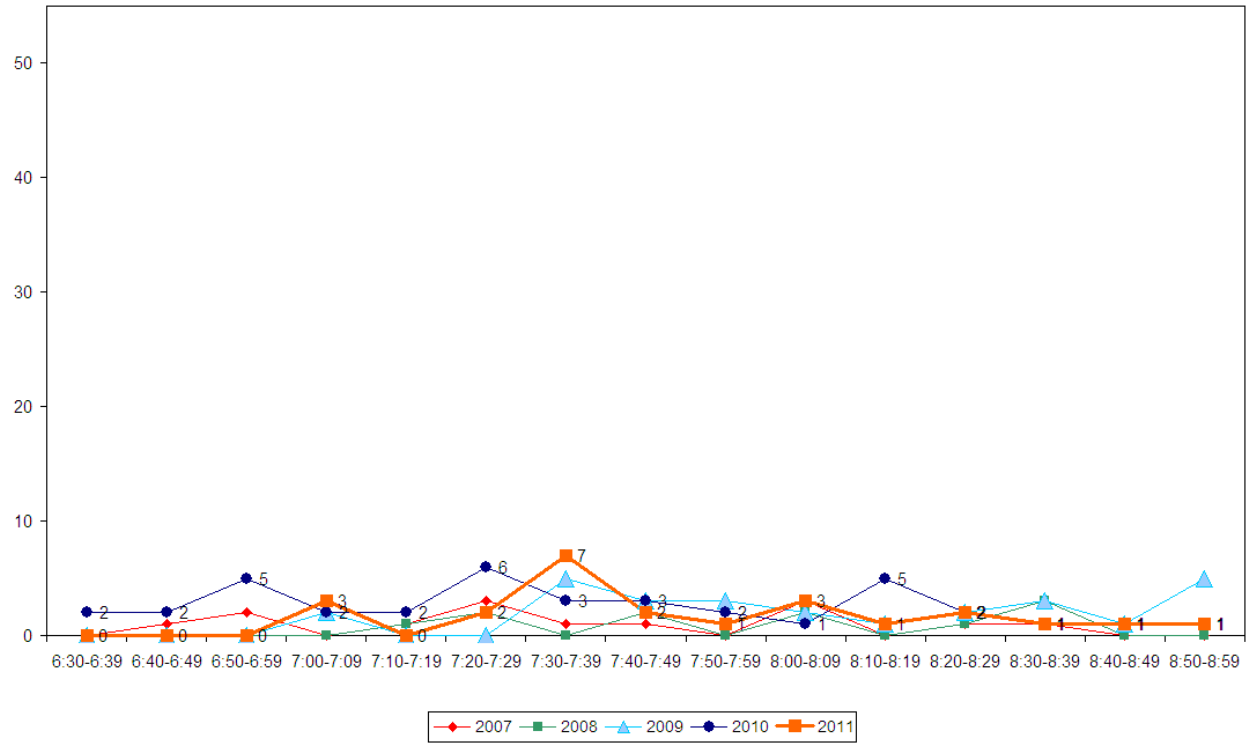
Henderson Creek 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	93	82	85	97	92	**-5**
School child	7	18	15	3	8	**5**
Helmet Wearing						
Helmet on head	79	100	93	92	92	**0**
No helmet	21	0	7	8	8	**0**
Gender						
Male	-	-	-	-	79	**-**
Female	-	-	-	-	21	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Off-road cycleway	100	100	100	100	100	**0**
Base:	***14***	***11***	***27***	***38***	***24***	

- Morning cyclist volumes peak between 7:30am and 7:39am (7 cyclists). This compares with three slight peaks in 2010 (between 6:50am and 6:59am (5 cyclists), between 7:20am and 7:29am (6 cyclists), and 8:10am and 8:19am (5 cyclists)) in 2010.

Figure 2.2: Morning Peak Cyclist Frequency

Henderson Creek (n)



2.3 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 total number of cycle movements recorded at the Henderson Creek site in the evening has decreased from last year (42 cycle movements, down from 46 total movements in 2010).
- One less cycle movement was recorded heading north along the cycle path (Movement 1 = 21 cyclists) than in 2010, and three less cycle movements were recorded heading south along the cycle path (Movement 2 = 21 cyclists) than last year.

Table 2.3: Evening Cyclist Movements

Henderson Creek 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	15	7	19	22	21	**-1**
2	17	12	27	24	21	**-3**
Total	**32**	**19**	**46**	**46**	**42**	**-4**

- Over the evening peak, the majority of cyclists using Henderson Creek are adults (90 per cent, down from 100 per cent in 2010).
- The share of cyclists at this site wearing a helmet has decreased from 93 per cent last year to 81 per cent this year.
- Almost all cyclists (83 per cent) are male.

Table 2.4: Evening Cyclist Characteristics

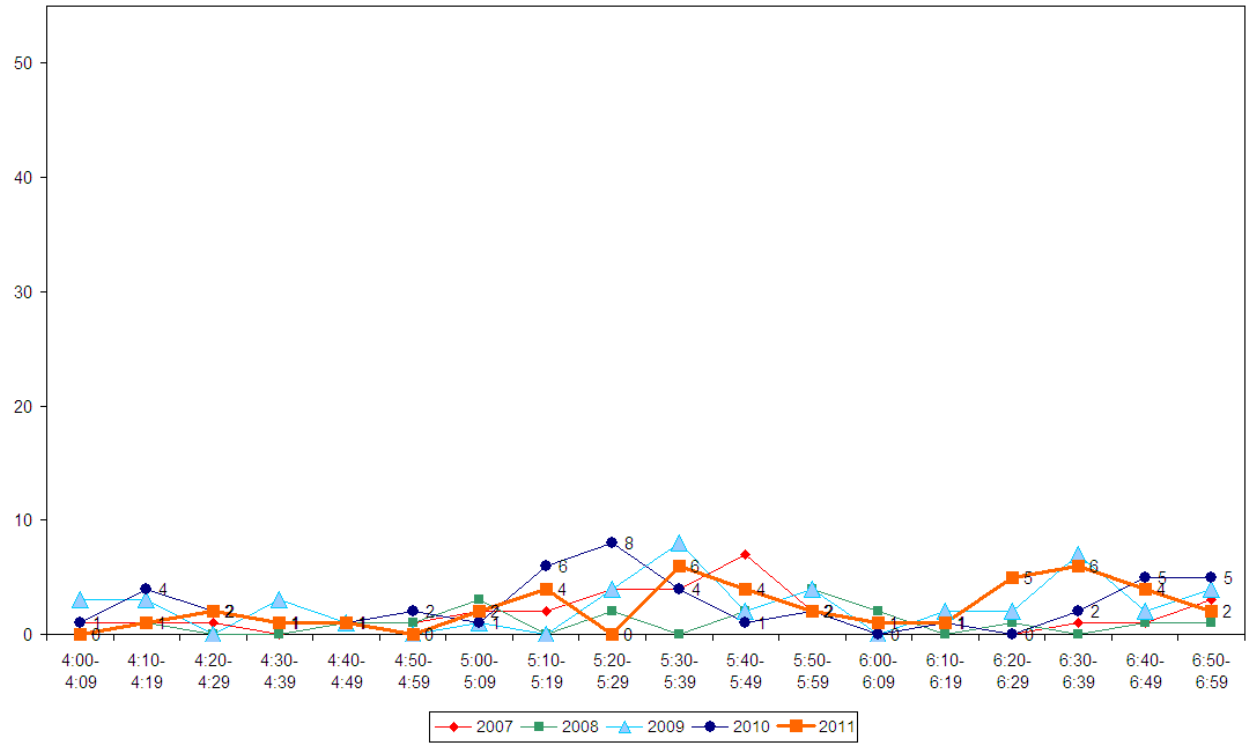
Henderson Creek 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	100	100	87	100	90	**-10**
School child	0	0	13	0	10	**10**
Helmet Wearing						
Helmet on head	78	89	91	93	81	**-12**
No helmet	22	11	9	7	19	**12**
Gender						
Male	-	-	-	-	83	**-**
Female	-	-	-	-	17	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Off-road cycleway	100	100	100	100	100	**0**
Base:	***32***	***19***	***46***	***46***	***42***	

- The volume of evening cycle movements peaked twice , with the first peak occurring between 5:30pm and 5:39pm (6 cyclists, 10 minutes later than last year's peak), and the second peak occurring between 6:30pm and 6:39pm (6 movements).

Figure 2.3: Evening Peak Cyclist Frequency

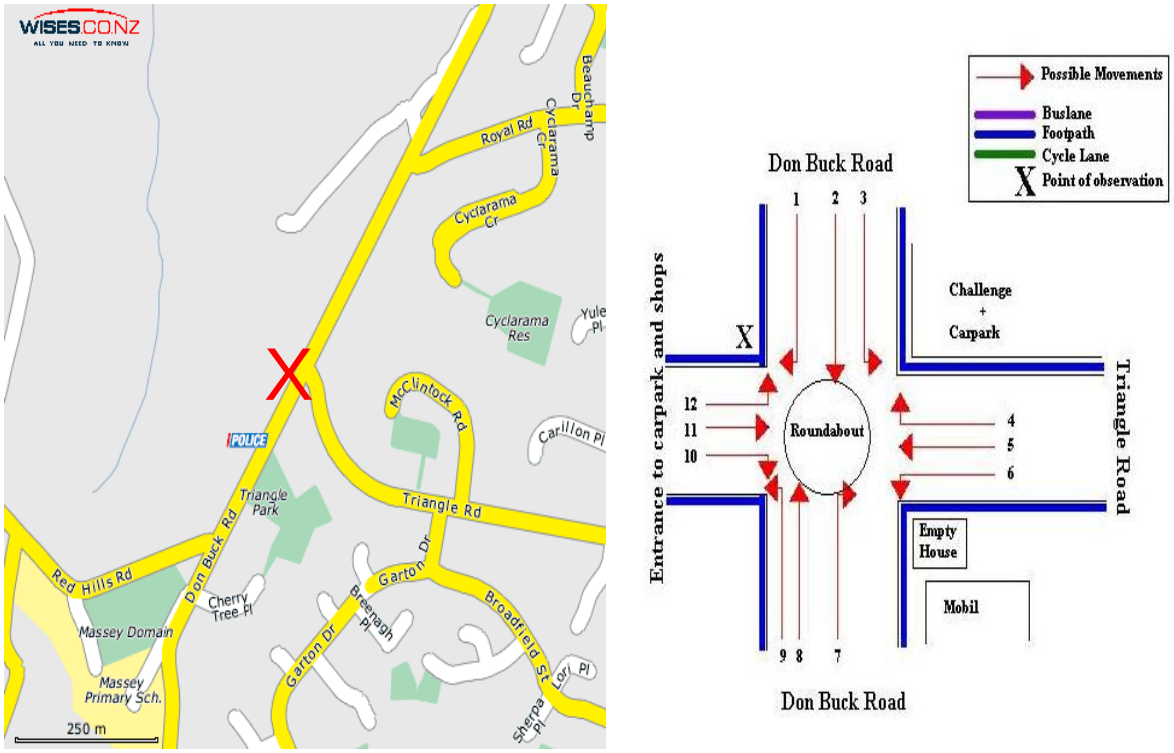
Henderson Creek (n)



3. TRIANGLE ROAD/DON BUCK ROAD, HENDERSON (SITE 49)

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Triangle Road/Don Buck Road



3.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	24	43	67	96
2008	29	32	61	88
2009	21	35	56	80
2010	27	63	90	128
2011	**35**	**53**	**88**	**127**

3.2 Morning Peak

Environmental Conditions

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

Key Points

- In 2011, the volume of morning cyclists recorded at the Triangle Road/Don Buck Road site has increased (35 cycle movements, compared with 27 cycle movements recorded last year).
- The key morning movements are straight along Don Buck Road heading south (Movement 2 = 8 cyclists) and turning right from Don Buck Road into Triangle Road (Movement 7 = 7 cyclists).
- Morning cyclist volumes for all twelve movements possible at this site remain stable since 2010, with the most notable change at Movement 1 (up 5 movements).

Table 3.1: Morning Cyclist Movements

Triangle Road/Don Buck Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	2	4	0	0	5	**5**
2	10	9	9	8	8	**0**
3	3	4	7	8	6	**-2**
4	3	3	0	1	3	**2**
5	0	1	0	0	0	**0**
6	3	4	2	1	3	**2**
7	2	1	1	5	7	**2**
8	0	3	2	2	2	**0**
9	0	0	0	0	0	**0**
10	1	0	0	0	0	**0**
11	0	0	0	0	0	**0**
12	0	0	0	2	1	**-1**
Total	**24**	**29**	**21**	**27**	**35**	**8**

- Over the morning peak, the share of cyclists classified as adults has decreased, from 74 per cent last year to 57 per cent in 2011.
- The majority of cyclists are wearing a helmet (74 per cent), but this share has declined notably from last year (93 per cent in 2010).
- The greatest share of morning cyclists are male (74 per cent).
- Approximately two thirds of cyclists are riding on the road (63 per cent, down from 78 per cent at the previous measure).

Table 3.2: Morning Cyclist Characteristics

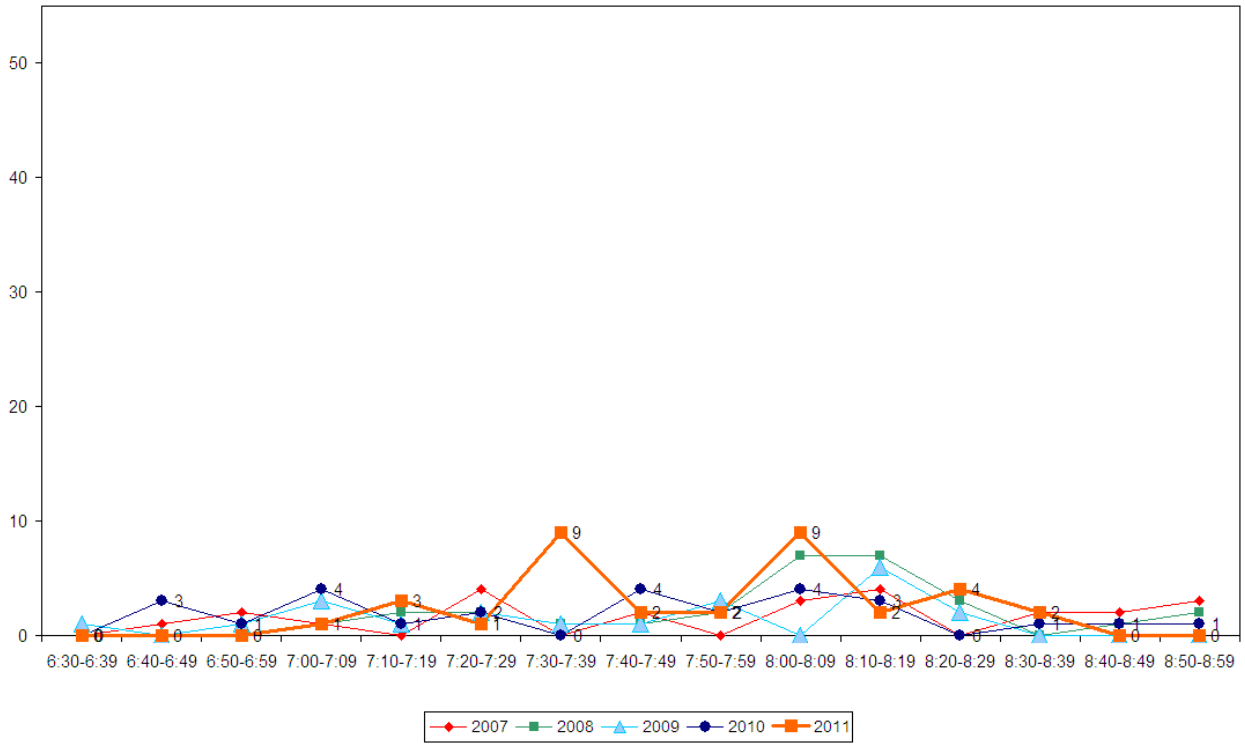
Triangle Road/Don Buck Road 2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	79	41	67	74	57	**-17**
School child	21	59	33	26	43	**17**
Helmet Wearing						
Helmet on head	87	97	86	93	74	**-19**
No helmet	13	3	14	7	26	**19**
Gender						
Male	-	-	-	-	74	**-**
Female	-	-	-	-	11	**-**
Can't tell	-	-	-	-	14	**-**
Where Riding						
Road	62	48	71	78	63	**-15**
Footpath	38	52	29	22	37	**15**
Base:	***24***	***29***	***21***	***27***	***35***	

- The volume of morning cycle movements peaked between 7:30am and 7:39am and between 8:00am and 8:09am (9 cyclists per ten minute interval).

Figure 3.2: Morning Peak Cyclist Frequency

Triangle Road/Don Buck Road (n)



3.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- There were road works further along Don Buck Road towards Westgate which may have affected cycle counts.

Key Points

- This year, the total number of evening peak cycle movements recorded at the Triangle Road/Don Buck Road intersection has decreased, with 53 movements recorded (compared with 63 movements last year).
- The key movement at this site in the evening is straight along Don Buck Road heading north (Movement 8 = 17 cyclists).
- The most notable change since 2009 is at Movement 7 (down 10 cyclists).

Table 3.3: Evening Cyclist Movements

Triangle Road/Don Buck Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	1	0	0	1	1	**0**
2	8	7	4	10	12	**2**
3	7	4	4	3	10	**7**
4	4	4	6	8	7	**-1**
5	1	0	0	2	0	**-2**
6	10	9	5	11	3	**-8**
7	4	3	3	11	1	**-10**
8	4	4	13	13	17	**4**
9	0	0	0	0	0	**0**
10	0	0	0	0	0	**0**
11	0	1	0	1	0	**-1**
12	4	0	0	3	2	**-1**
Total	**43**	**32**	**35**	**63**	**53**	**-10**

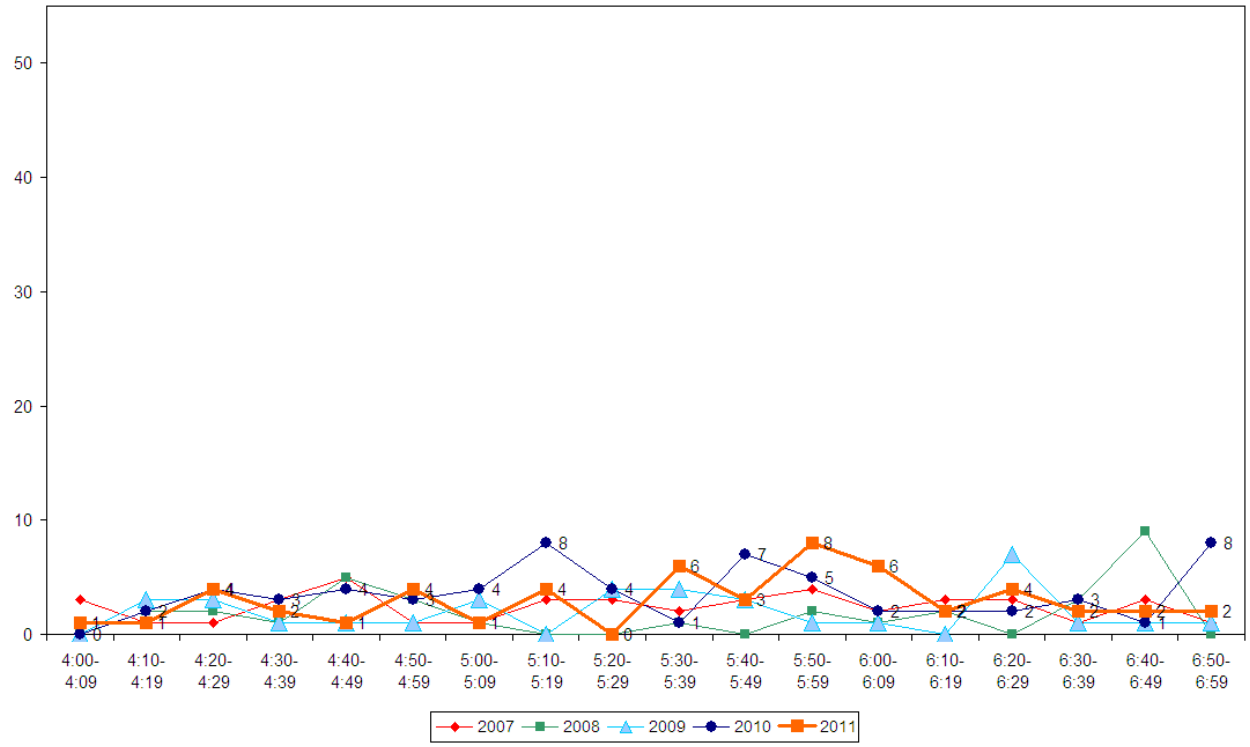
- The greatest share of cyclists using the Triangle Road/Don Buck Road intersection continue to be adults (87 per cent, up from 67 per cent in 2010).
- Eighty-seven per cent of cyclists at this site are wearing a helmet (up from 76 per cent last year).
- Almost all evening cyclists (87 per cent) are male.
- On average, 85 per cent of cyclists are riding on the road, up from 63 per cent in 2010.

Table 3.4: Evening Cyclist Characteristics
Triangle Road/Don Buck Road 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	74	78	80	67	87	20
School child	26	22	20	33	13	-20
Helmet Wearing						
Helmet on head	63	78	77	76	87	9
No helmet	37	22	23	24	13	-9
Gender						
Male	-	-	-	-	87	-
Female	-	-	-	-	8	-
Can't tell	-	-	-	-	6	-
Where Riding						
Road	58	72	71	63	85	22
Footpath	42	28	29	37	15	-22
Base:	***43***	***32***	***35***	***63***	***53***	

- Cyclist volumes at this site peaked at 8 cyclists between 5:50pm and 5:59pm (8 cyclists), with two smaller peaks between 5:30pm and 5:39pm (6 cyclists) and between 6:00pm and 6:09pm (6 cyclists).

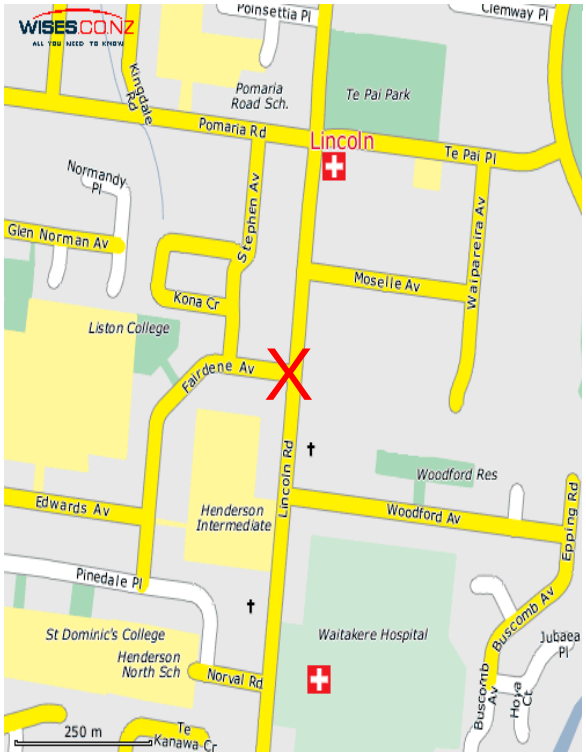
Figure 3.3: Evening Peak Cyclist Frequency
Triangle Road/Don Buck Road (n)

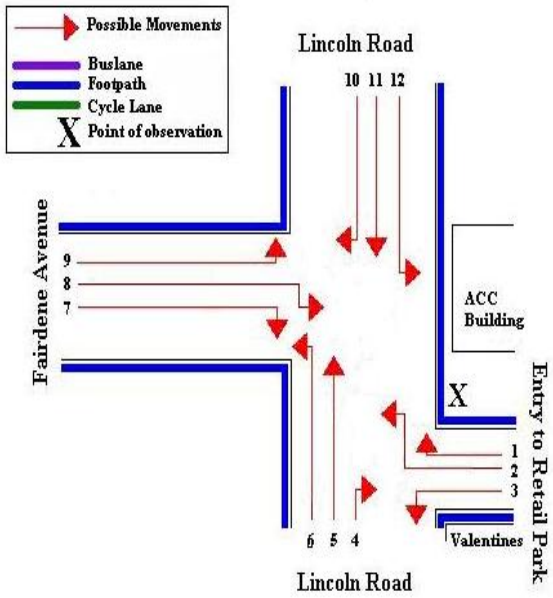


4. LINCOLN ROAD/FAIRDENE AVENUE, HENDERSON (SITE 50)

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Lincoln Road/Fairdene Avenue





4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	13	27	40	57
2008	19	36	55	79
2009	21	22	43	62
2010	21	35	56	80
2011	**26**	**28**	**54**	**78**

4.2 Morning Peak

Environmental Conditions

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

Key Points

- The level of morning cyclist traffic has increased at the intersection of Lincoln Road and Fairdene Avenue compared with last year (26 cycle movements, compared with 21 in 2010).
- The most common movement in the morning is straight along Lincoln Road heading north (Movement 5 = 10 cyclists, up from 7 cyclist movements last year, representing the most notable change in cyclist volume from the 2010 monitoring period).

Table 4.1: Morning Cyclist Movements

Lincoln Road/Fairdene Avenue 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	0	1	0	1	1	**0**
2	3	0	0	0	0	**0**
3	1	0	1	3	1	**-2**
4	2	2	2	0	1	**1**
5	1	3	11	7	10	**3**
6	3	0	1	0	0	**0**
7	1	4	0	1	2	**1**
8	0	0	0	0	0	**0**
9	2	0	0	1	1	**0**
10	0	1	0	2	2	**0**
11	0	8	6	6	7	**1**
12	0	0	0	0	1	**1**
Total	**13**	**19**	**21**	**21**	**26**	**5**

- Over the morning peak, adults comprise 79 per cent of the cycle movements (up from 71 per cent last year).
- Just over half of all cyclists at this site are wearing a helmet (down from 67 per cent in 2010).
- Three-quarters of cyclists (75 per cent) are male.
- Riding on the footpath (68 per cent, down from 81 per cent last year) continues to be much more common than riding on the road (32 per cent).

Table 4.2: Morning Cyclist Characteristics

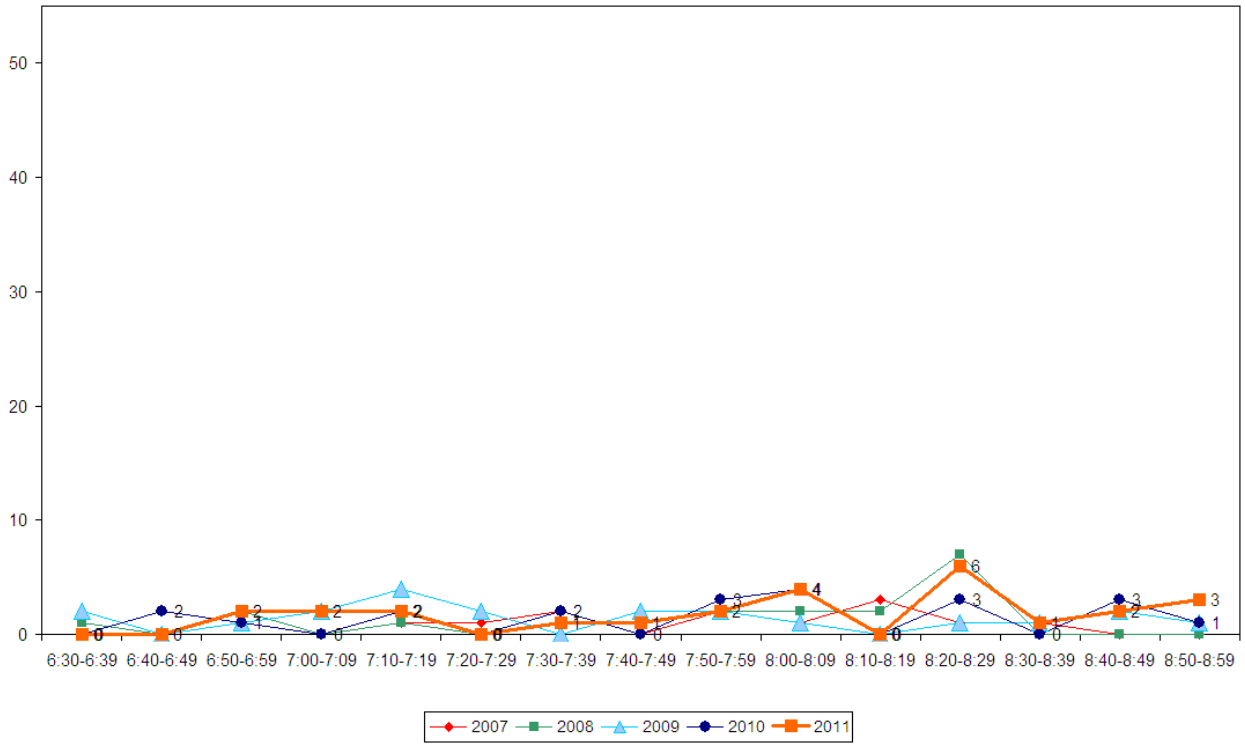
Lincoln Road/Fairdene Avenue 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	62	58	76	71	79	**8**
School child	38	42	24	29	21	**-8**
Helmet Wearing						
Helmet on head	92	89	62	67	54	**-13**
No helmet	8	11	38	33	46	**13**
Gender						
Male	-	-	-	-	75	**-**
Female	-	-	-	-	25	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	31	37	38	19	32	**13**
Footpath	69	63	62	81	68	**-13**
Base:	***13***	***19***	***21***	***21***	***28***	

- The volume of morning cycle movements peaks slightly between 8:20am and 8:29am (6 cyclists) but is low across the entire morning monitoring period, with no more than 4 cyclists recorded over all other ten minute intervals.

Figure 4.2: Morning Peak Cyclist Frequency

Lincoln Road/Fairdene Avenue (n)



4.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded in the evening at the Lincoln Road/Fairdene Avenue intersection decreased, from 35 in 2010 to 28 movements this year.
- The key movements in the evening are straight along Lincoln Road heading north (Movement 5 = 8 cyclists) and straight along Lincoln Road heading south (Movement 11 = 12 cyclists).
- Of the 12 movements possible at this site, the most notable change compared with last year is at Movement 5 (down 5 cyclists).

Table 4.3: Evening Cyclist Movements

Lincoln Road/Fairdene Avenue 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	1	0	1	2	0	-2
2	2	2	0	0	0	0
3	3	1	3	1	1	0
4	5	2	2	0	1	1
5	1	13	5	13	8	-5
6	1	1	1	3	1	-2
7	3	2	0	2	1	-1
8	3	3	0	0	0	0
9	5	0	0	2	1	-1
10	0	2	1	1	3	2
11	1	10	9	11	12	1
12	2	0	0	0	0	0
Total	**27**	**36**	**22**	**35**	**28**	**-7**

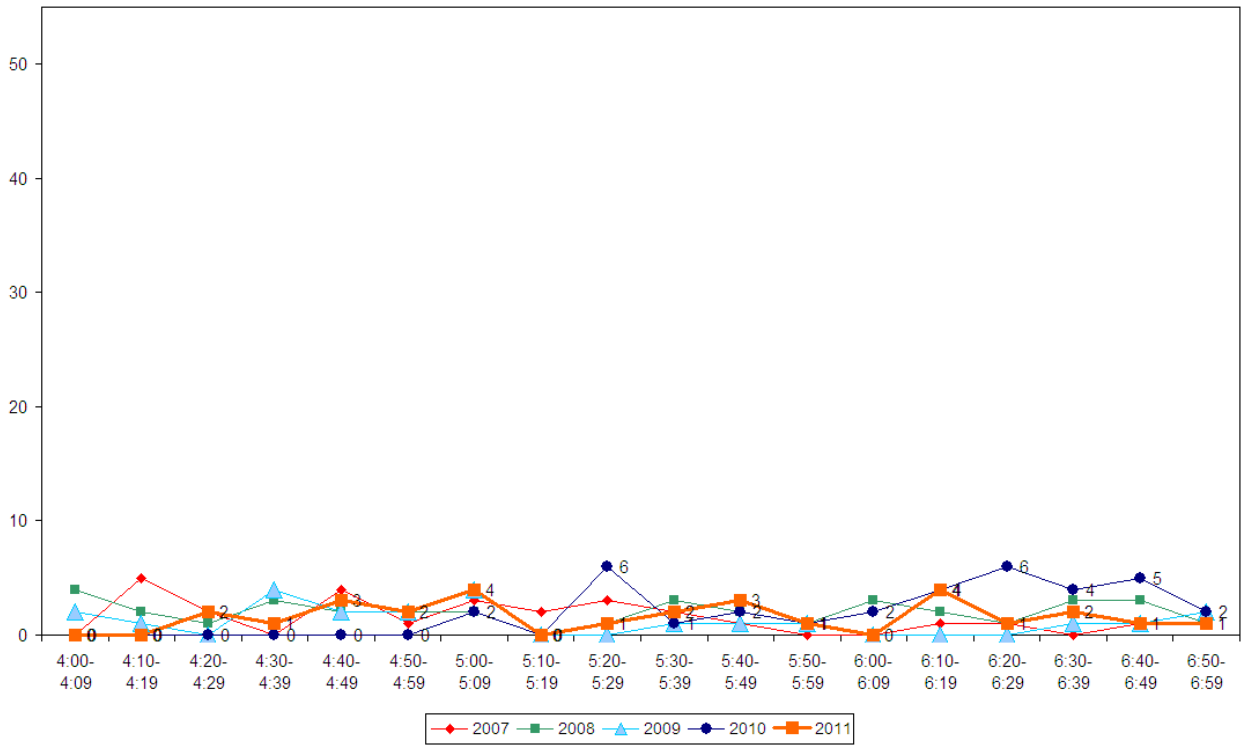
- Similar to last year, a greater share of cyclists using this intersection are adults (79 per cent, up from 71 per cent in 2010).
- Fifty-four per cent of cyclists are wearing helmets (down notably from 74 per cent last year).
- Three-quarters of cyclists (75 per cent) are male.
- The incidence of cyclists riding on the footpath is down slightly when compared with last year (68 per cent this year, down from 71 per cent in 2010), but is still high.

Table 4.4: Evening Cyclist Characteristics
Lincoln Road/Fairdene Avenue 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	89	44	59	71	79	**8**
School child	11	56	41	29	21	**-8**
Helmet Wearing						
Helmet on head	52	67	50	71	54	**-17**
No helmet	48	33	50	29	46	**17**
Gender						
Male	-	-	-	-	75	**-**
Female	-	-	-	-	25	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	19	11	9	29	32	**3**
Footpath	81	89	91	71	68	**-3**
Base:	***27***	***36***	***22***	***35***	***28***	

- As for the morning shift, the volume of cycle movements is low, with no more than 4 cyclists recorded over any of the ten minute intervals monitored.

Figure 4.3: Evening Peak Cyclist Frequency
Lincoln Road/Fairdene Avenue (n)

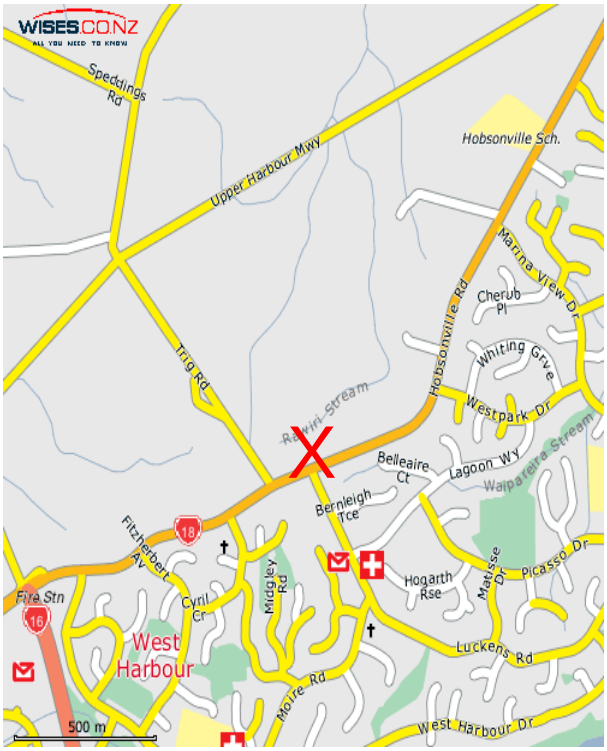


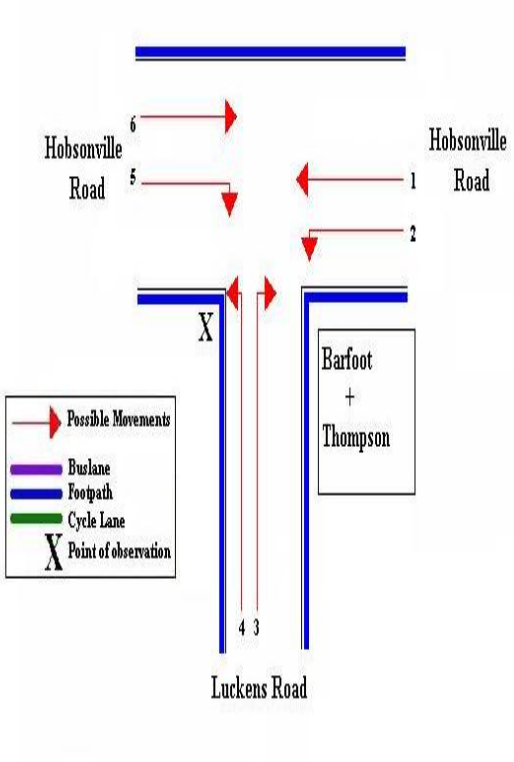
Note: In 2011, three cyclists were observed riding together in the evening peak at this site at 6:13pm. This equates to 11 per cent of all evening peak cycle movements.

5. LUCKENS ROAD/HOBSONVILLE ROAD, WEST HARBOUR (SITE 51)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movement: Luckens Road/Hobsonville Road





5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	20	12	32	47
2008	25	16	41	60
2009	26	51	77	110
2010	41	54	95	137
2011	**14**	**38**	**52**	**74**

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 Luckens/Hobsonville Road intersection has decreased notably from previous counts (14 cycle movements, compared with 41 movements in 2010).
- The key morning movement is travelling straight along Hobsonville Road heading southwest (Movement 1 = 7 cyclists).
- Of the six movements possible at this intersection, the most notable change is at Movement 6 (down 10 cyclists).

Table 5.1: Morning Cyclist Movements

Luckens/Hobsonville Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	5	3	7	7	7	**0**
2	3	8	9	9	4	**-5**
3	2	7	1	6	0	**-6**
4	2	3	6	7	2	**-5**
5	0	2	2	1	0	**-1**
6	8	2	1	11	1	**-10**
Total	**20**	**25**	**26**	**41**	**14**	**-27**

- Over the morning peak, adults comprise the greatest share of cycle movements (86 per cent, up from 83 per cent in 2010).
- Almost all cyclists are wearing a helmet (93 per cent, down from 98 per cent of cyclists in 2010).
- All cyclists recorded were male (100 per cent).
- On average, four in five cyclists are riding on the road (79 per cent, stable from 80 per cent last year).

Table 5.2: Morning Cyclist Characteristics

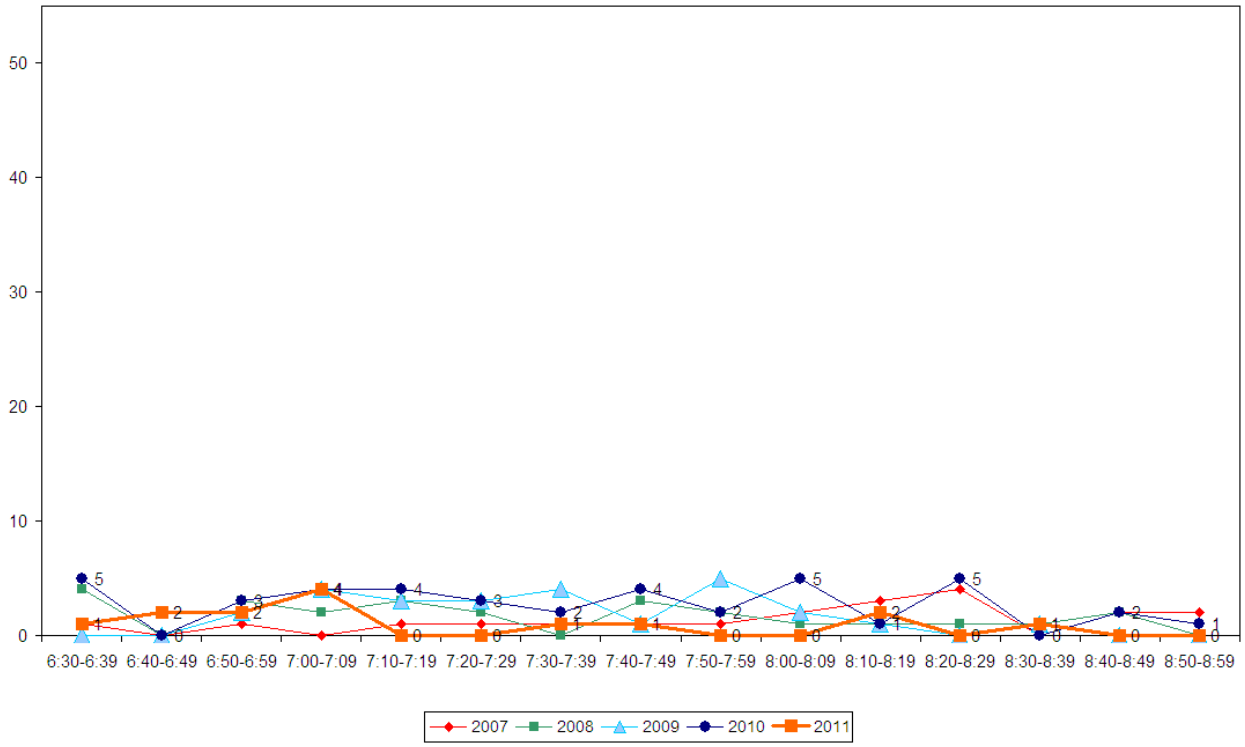
Luckens/Hobsonville Road 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	75	88	88	83	86	**3**
School child	25	12	12	17	14	**-3**
Helmet Wearing						
Helmet on head	100	100	96	98	93	**-5**
No helmet	0	0	4	2	7	**5**
Gender						
Male	-	-	-	-	100	**-**
Female	-	-	-	-	0	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	70	80	81	80	79	**-1**
Footpath	30	20	19	20	21	**1**
Base:	***20***	***25***	***26***	***41***	***14***	

- The volume of cycle movements was low throughout the morning peak monitoring period. The highest volume of cyclist movements was between 7:00am and 7:09am (4 cyclist movements).

Figure 5.2: Morning Peak Cyclist Frequency

Luckens/Hobsonville 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 evening cycle movements recorded at the Luckens/Hobsonville Road intersection has decreased from last year, with 38 movements recorded, compared with 54 movements in 2010.
- The most common movement in the evening is straight along Hobsonville Road heading southwest (Movement 1 = 13 cyclists).
- Of the six possible movements, the most notable change this year was at Movement 6 (down 12 cyclists).

Table 5.3: Evening Cyclist Movements

Luckens/Hobsonville Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	6	1	8	12	13	**1**
2	3	6	4	6	4	**-2**
3	1	2	13	10	6	**-4**
4	2	2	2	5	4	**-1**
5	0	0	3	4	6	**2**
6	0	5	21	17	5	**-12**
Total	**12**	**16**	**51**	**54**	**38**	**-16**

- Most cyclists using this intersection are adults (66 per cent, down notably from 91 per cent in the previous year).
- A notable decline in helmet-wearing is evident (74 per cent, down from 94 per cent last year).
- Most cyclists are male (87 per cent).
- Just over half of cyclists are riding on the road (53 per cent, down notably from 81 per cent in 2010).

Table 5.4: Evening Cyclist Characteristics

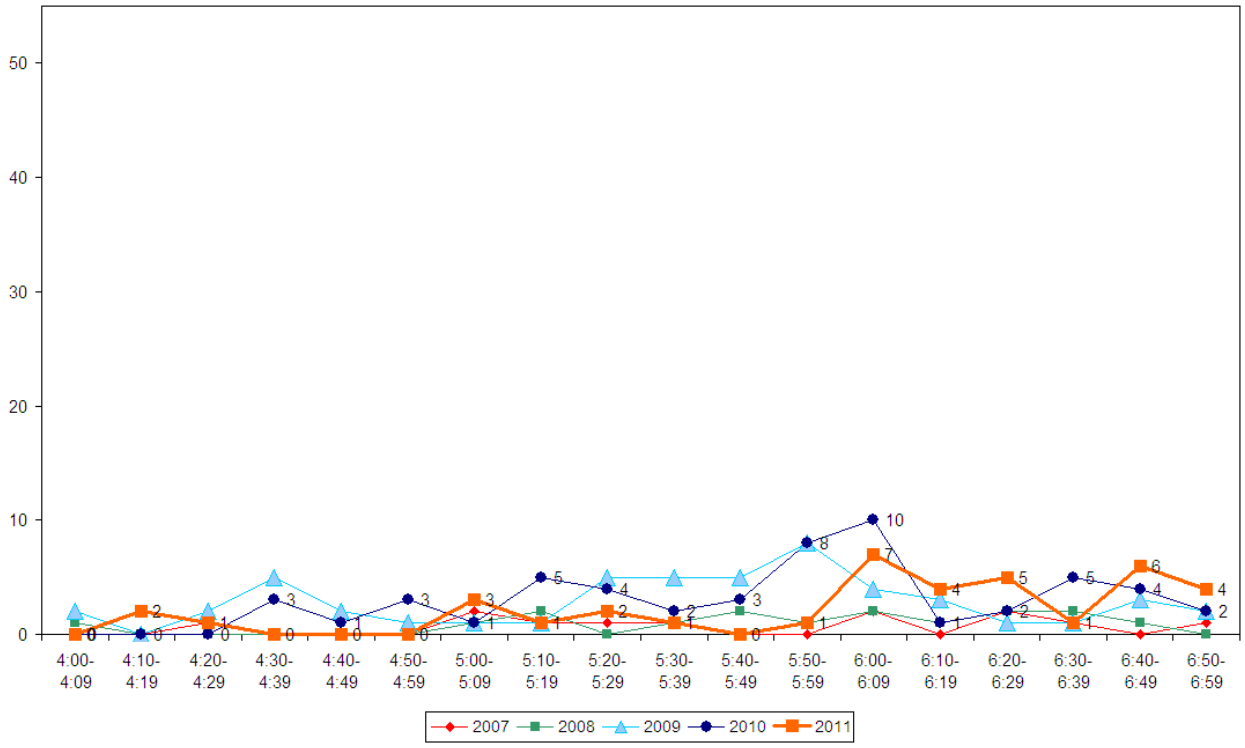
Luckens/Hobsonville Road 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	100	94	100	91	66	**-25**
School child	0	6	0	9	34	**25**
Helmet Wearing						
Helmet on head	100	69	98	94	74	**-20**
No helmet	0	31	2	6	26	**20**
Gender						
Male	-	-	-	-	87	**-**
Female	-	-	-	-	5	**-**
Can't tell	-	-	-	-	8	**-**
Where Riding						
Road	100	81	90	81	53	**-28**
Footpath	0	19	10	19	47	**28**
Base:	***12***	***16***	***51***	***54***	***38***	

- This year, cycle volumes peak between 6:00pm and 6:09pm, with 7 cyclists recorded. This peak occurs in the same ten minute period as the peak recorded in 2010 (10 cyclists).

Figure 5.3: Evening Peak Cyclist Frequency

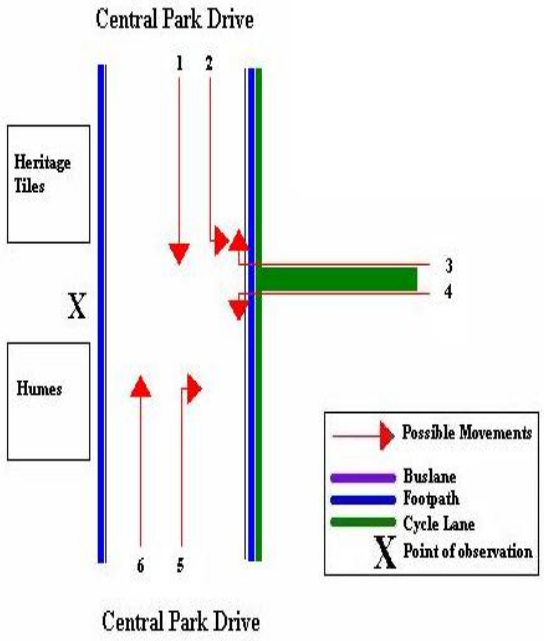
Luckens/Hobsonville Road (n)



6. CENTRAL PARK DRIVE, HENDERSON (SITE 52)

Figure 6.1 shows the possible cyclist movements at this intersection.

Figure 6.1: Cycle Movement: Central Park Drive



6.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	61	66	127	184
2008	68	89	157	227
2009	91	121	212	306
2010	94	106	200	290
2011	**100**	**112**	**212**	**307**

6.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning peak cycle volumes at Central Park Drive have increased slightly this year, with 100 cycle movements recorded (compared with 94 movements in 2010).
- The most common movement in the morning is turning off the northern end of Central Park Drive into the cycle way (Movement 2 = 32 cyclists).
- Of the six possible movements at this site, the most notable change since 2010 has been at Movement 5 (up 4 cyclists).

Table 6.1: Morning Cyclist Movements

Central Park Drive 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	8	4	0	10	12	**2**
2	20	34	36	35	32	**-3**
3	8	12	12	9	9	**0**
4	8	7	11	14	14	**0**
5	14	10	20	25	29	**4**
6	3	1	12	1	4	**3**
Total	**61**	**68**	**91**	**94**	**100**	**6**

- Over the morning peak, almost all cyclists are adults (97 per cent, stable from the previous measure).
- Most cyclists are wearing a helmet (96 per cent, stable from 98 per cent last year).
- The greatest share of morning cyclists (81 per cent) are male.
- This year the volume of cyclists riding on the road has decreased notably, to 39 per cent (down from 71 per cent in 2010). In contrast, the share of cyclists riding on the off-road cycleway has increased notably to 56 per cent (up from 23 per cent last year).

Table 6.2: Morning Cyclist Characteristics
Central Park Drive 2007-2011 (%)

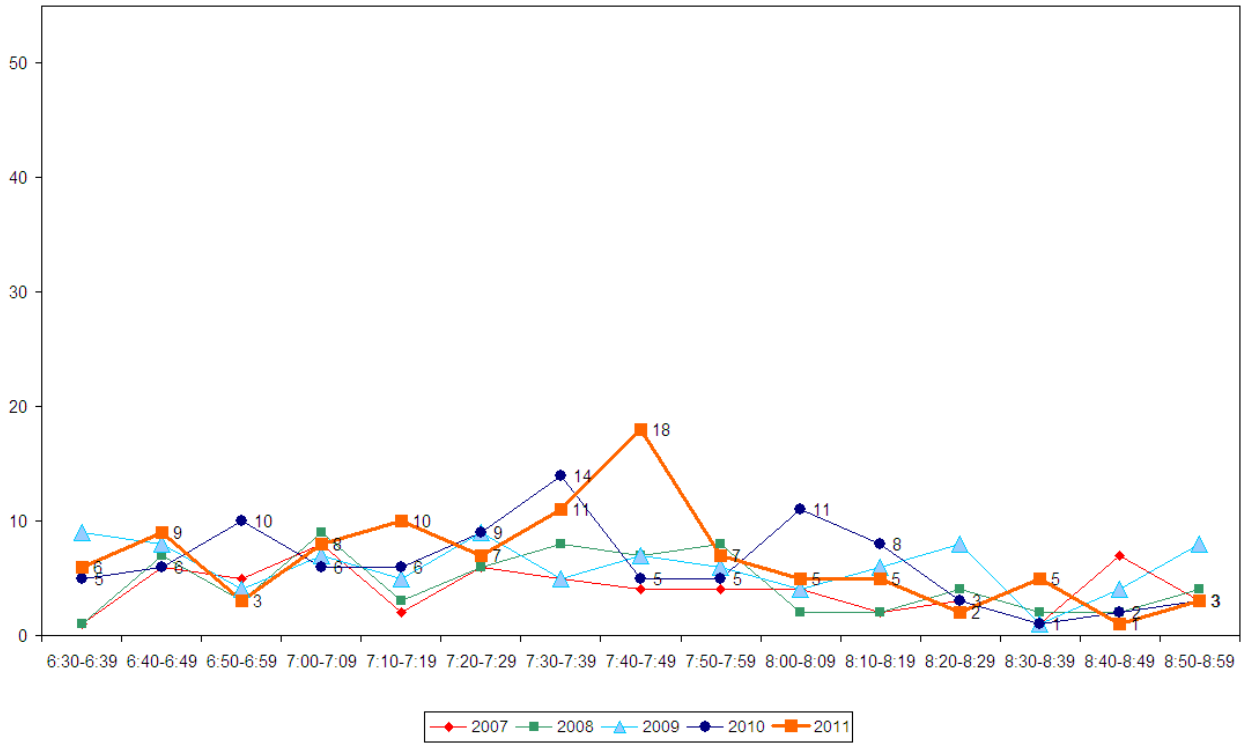
	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	98	99	96	97	97	**0**
School child	2	1	4	3	3	**0**
Helmet Wearing						
Helmet on head	92	94	97	98	96	**-2**
No helmet	8	6	3	2	4	**2**
Gender						
Male	-	-	-	-	81	**-**
Female	-	-	-	-	19	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	74	99	59	71	39	**-32**
Footpath	26	1	3	6	5	**-1**
Off-road cycleway[9]	-	-	38	23	56	**33**
Base:	***61***	***68***	***91***	***94***	***100***	

[9] *From 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 volume of cycle movements peaks between 7:40am and 7:49am (18 cyclists). This compares with last year where cycle volumes peaked between 7:30am and 7:39am (14 cyclists).

Figure 6.2: Morning Peak Cyclist Frequency

Central Park Drive (n)



Note: In 2011, six cyclists were observed travelling as a group at this site at 7:45am. This equates to 6 per cent of all morning peak cyclists.

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

- This year, the total number of cycle movements recorded at the Central Park Drive intersection in the evening increased, from 106 in 2010 to 112 movements.
- In contrast to the morning shift, the most common movement in the evening is turning out of the cycleway onto Central Park Drive heading north (Movement 3 = 43 cyclists, up from 34 cyclists last year).
- The most notable changes since last year are at Movement 3 (up 9 cyclists) and at Movement 4 (down 9 cyclists).

Table 6.3: Evening Cyclist Movements

Central Park Drive 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	5	5	1	3	2	**-1**
2	12	14	17	11	18	**7**
3	22	38	49	34	43	**9**
4	14	10	33	28	19	**-9**
5	11	17	11	21	22	**1**
6	2	5	10	9	8	**-1**
Total	**66**	**89**	**121**	**106**	**112**	**6**

- Over the evening peak, most cyclists at this site are adults (96 per cent, stable from the previous year).
- Helmet wearing is still common in the evening (96 per cent, stable from 95 per cent in 2010).
- Almost all evening peak cyclists are male (90 per cent).
- This year 37 per cent of cyclists in the evening are riding on the road (down notably from 70 per cent last year). Sixty-one per cent are riding on the off-road cycleway - up 37 percentage points from last year (24 per cent).

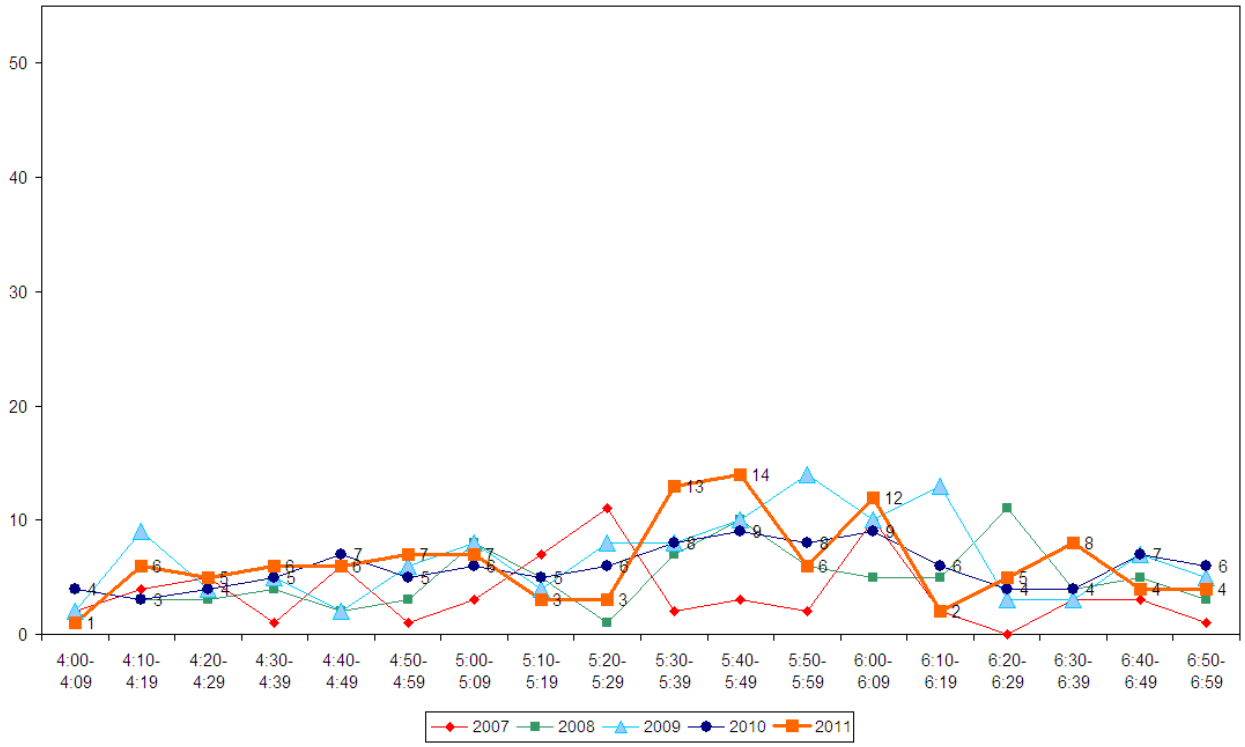
Table 6.4: Evening Cyclist Characteristics
Central Park Drive 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	100	97	97	95	96	**1**
School child	0	3	3	5	4	**-1**
Helmet Wearing						
Helmet on head	94	91	93	94	96	**2**
No helmet	6	9	7	6	4	**-2**
Gender						
Male	-	-	-	-	90	**-**
Female	-	-	-	-	10	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	83	97	55	70	37	**33**
Footpath	17	3	2	6	3	**-3**
Off-road cycleway	-	-	43	24	61	**37**
Base:	***66***	***89***	***121***	***106***	***112***	

- The volume of evening cyclist movements peaks three times over the monitoring period: between 5:30pm and 5:39pm (13 cyclists), between 5:40pm and 5:49pm (14 cyclists), and between 6:00pm and 6:10pm (12 cyclists).

Figure 6.3: Evening Peak Cyclist Frequency

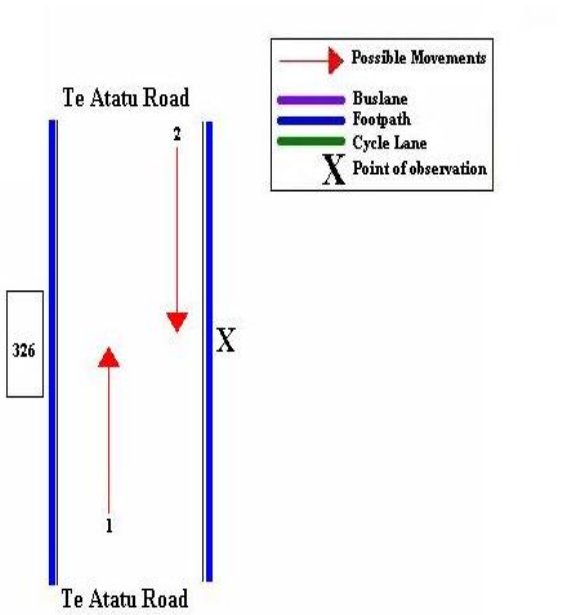
Central Park Drive (n)



7. 326 TE ATATU ROAD, TE ATATU (SITE 53)

Figure 7.1 shows the possible cyclist movements at this site.

Figure 7.1: Cycle Movements: 326 Te Atatu Road



7.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	44	43	87	127
2008	52	55	107	155
2009	79	59	138	202
2010	65	62	127	185
2011	**73**	**54**	**127**	**186**

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 count.

Key Points

- The volume of morning cyclists at 326 Te Atatu Road in 2011 is 73, up from 65 movements recorded in 2010.
- The most common movement is straight along Te Atatu Road heading north (Movement 1 = 64 cyclists.
- The most notable change from last year is at Movement 1 (up 5 from 2010).

Table 7.1: Morning Cyclist Movements

326 Te Atatu Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	35	42	60	59	64	**5**
2	9	10	19	6	9	**3**
Total	**44**	**52**	**79**	**65**	**73**	**8**

- Over the morning peak, school children comprise over half of cycle movements (58 per cent, down from 66 per cent last year).
- Most cyclists are wearing a helmet (92 per cent, up from 88 per cent in 2010).
- Almost all morning cyclists (90 per cent) are male.
- Of the 13 Waitakere sites monitored in the morning, this site has the highest proportion of morning cyclists riding on the footpath (90 per cent, up from 89 per cent last year).

Table 7.2: Morning Cyclist Characteristics

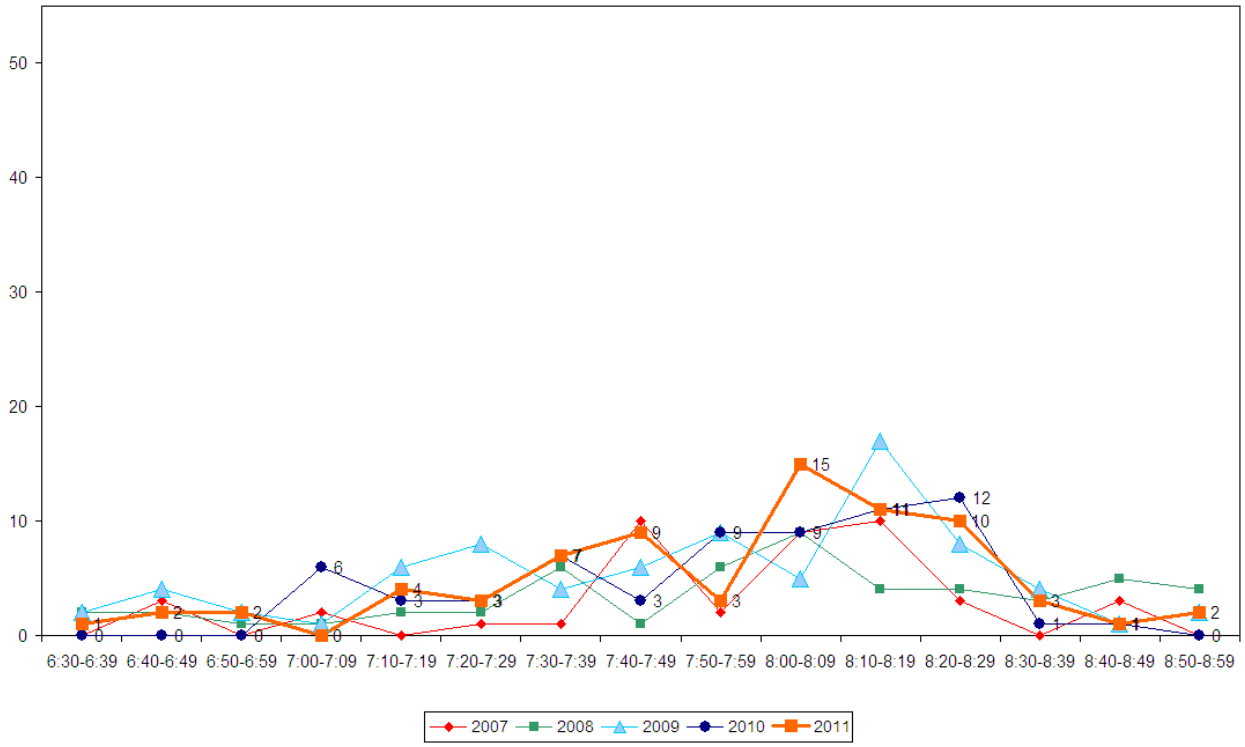
326 Te Atatu Road 2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	43	52	46	34	42	8
School child	57	48	54	66	58	-8
Helmet Wearing						
Helmet on head	84	87	94	88	92	4
No helmet	16	13	6	12	8	-4
Gender						
Male	-	-	-	-	90	-
Female	-	-	-	-	10	-
Can't tell	-	-	-	-	0	-
Where Riding						
Road	11	8	18	11	10	-1
Footpath	89	92	82	89	90	1
Base:	***44***	***52***	***79***	***65***	***73***	

- In 2011, the volume of morning cycle movements starts off low, then increases to peak between 8:00am and 8:29am (15 cyclists between 8:00am and 8:09am, 11 between 8:10am and 8:19am, and 10 between 8:20am and 8:29am).

Figure 7.2: Morning Peak Cyclist Frequency

326 Te Atatu Road (n)



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

- The total number of cycle movements recorded in the evening at the 326 Te Atatu Road site has decreased, from 62 in 2010 to 54 movements this year.
- The most common movement in the evening is straight along Te Atatu Road in the opposite direction from the morning shift (Movement 2 = 38 cyclists travelling south).
- The most notable change in cyclist volume was at Movement 2 (down 11 cyclists).

Table 7.3: Evening Cyclist Movements

326 Te Atatu Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	16	15	17	13	16	**3**
2	27	40	42	49	38	**-11**
Total	**43**	**55**	**59**	**62**	**54**	**-8**

- The greatest share of cyclists using this site in the evening are adults (89 per cent, stable from 90 per cent in the previous year).
- A large proportion of cyclists are wearing a helmet (91 per cent, up from 74 per cent in 2010).
- The greatest share of evening cyclists are male (85 per cent).
- On average, four in five cyclists are riding on the footpath (80 per cent, stable from 81 per cent last year).

Table 7.4: Evening Cyclist Characteristics

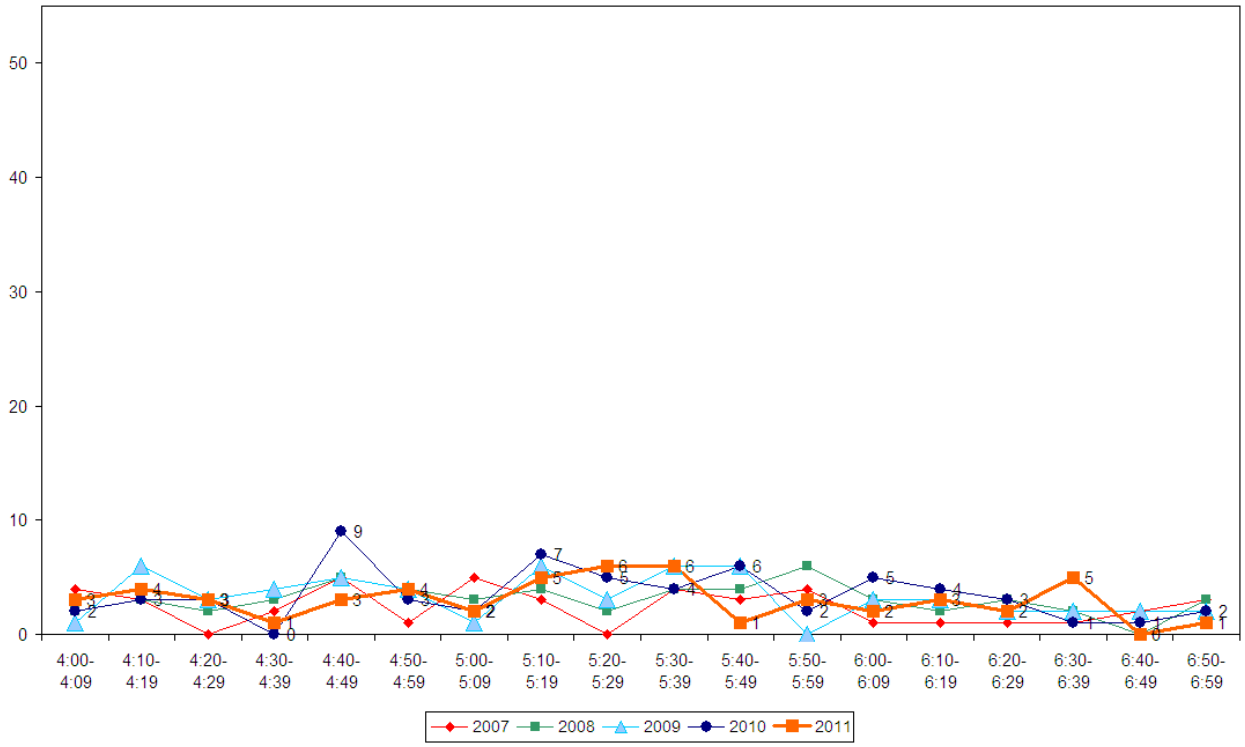
326 Te Atatu Road 2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	72	91	80	90	89	-1
School child	28	9	20	10	11	1
Helmet Wearing						
Helmet on head	88	84	80	74	91	17
No helmet	12	16	20	26	9	-17
Gender						
Male	-	-	-	-	85	-
Female	-	-	-	-	15	-
Can't tell	-	-	-	-	0	-
Where Riding						
Road	16	24	22	19	20	1
Footpath	84	76	78	81	80	-1
Base:	***43***	***55***	***59***	***62***	***54***	

- This year, cycle volumes peak between 5:20pm and 5:29pm (6 cyclists) and again between 5:30pm and 5:39pm, trailing off to the end of the monitoring period.

Figure 7.3: Evening Peak Cyclist Frequency

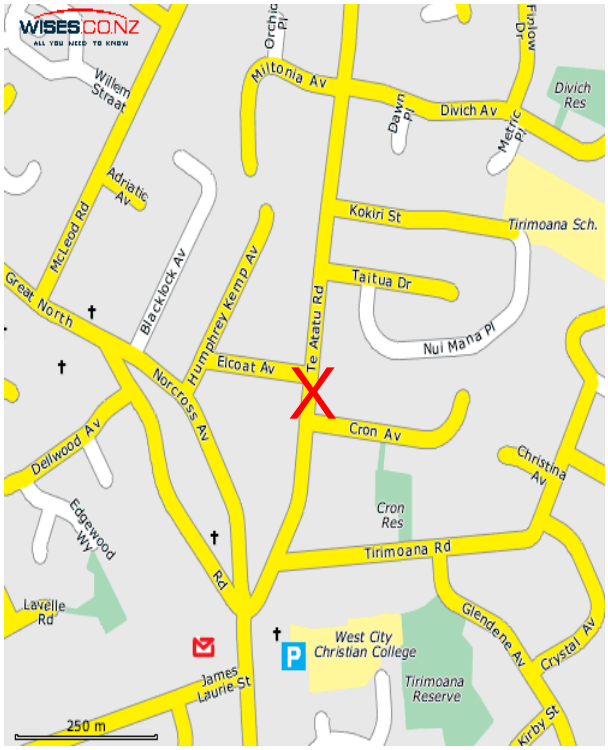
326 Te Atatu Road (n)

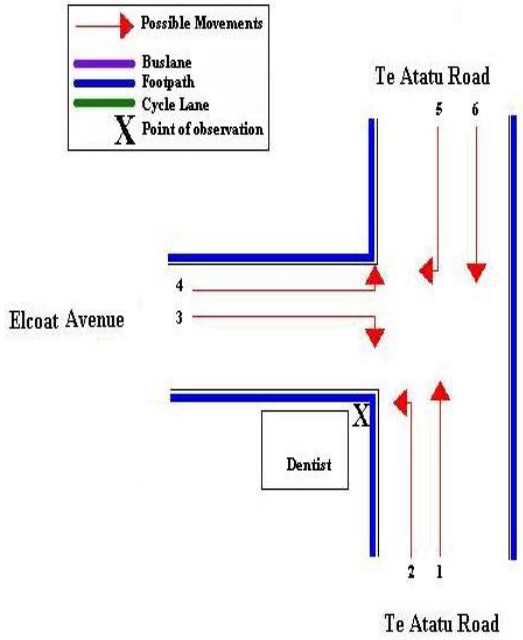


8. TE ATATU ROAD/ELCOAT AVENUE, HENDERSON (SITE 54)

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: Te Atatu Road/Elcoat Avenue





8.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	26	24	50	73
2008	27	18	45	66
2009	37	32	69	101
2010	30	22	52	76
2011	**30**	**18**	**48**	**71**

8.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Te Atatu Road/Elcoat Avenue intersection has remained stable from last year at 30 cycle movements.
- The most common morning movement is north up Te Atatu Road (Movement 1 = 22 cyclists).
- The most notable change in cyclist volumes occurred at Movement 1 (down by 4 movements from last year).

Table 8.1: Morning Cyclist Movements

Te Atatu Road/Elcoat Avenue 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	16	19	28	26	22	**-4**
2	0	0	1	0	0	**0**
3	0	0	0	0	0	**0**
4	2	1	2	1	3	**2**
5	0	0	1	0	0	**0**
6	8	7	5	3	5	**2**
Total	**26**	**27**	**37**	**30**	**30**	**0**

- Over the morning peak, school children comprise four-fifths of the total number of cycle movements (80 per cent, stable from 2010).
- Most cyclists are wearing a helmet (93 per cent, down from 97 per cent at the last measure).
- The greatest share of morning cyclists are male (83 per cent).
- Approximately four in five cyclists are riding on the footpath in the morning (83 per cent, up from 80 per cent last year).

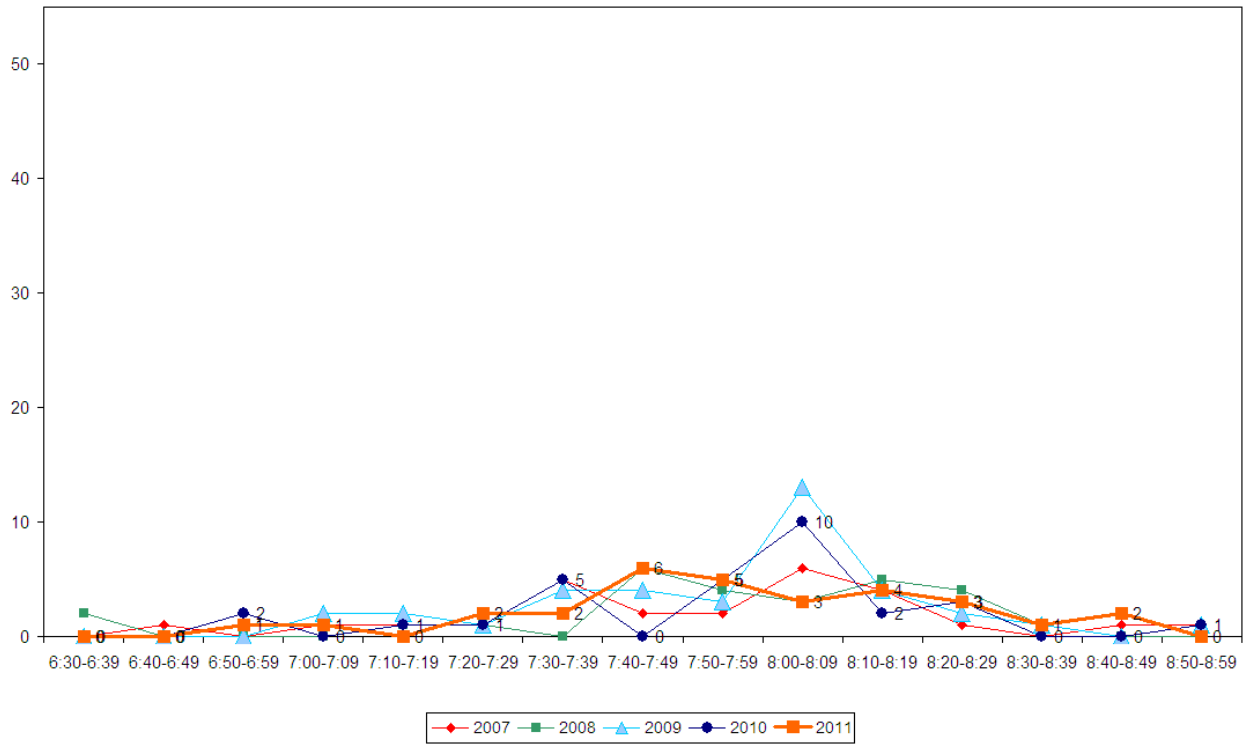
Table 8.2: Morning Cyclist Characteristics
Te Atatu Road/Elcoat Avenue 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	46	37	32	20	20	**0**
School child	54	63	68	80	80	**0**
Helmet Wearing						
Helmet on head	88	89	86	97	93	**-4**
No helmet	12	11	14	3	7	**4**
Gender						
Male	-	-	-	-	83	**-**
Female	-	-	-	-	17	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	38	26	19	20	17	**-3**
Footpath	62	74	81	80	83	**3**
Base:	***26***	***27***	***37***	***30***	***30***	

- This year, the volume of morning cycle movements increased slowly and peaked at six cycle movements between 7:40pm and 7:49pm, decreasing after this time to the end of the monitoring period. This contrasts with the sharp peak between 8:00am and 8:09am recorded last year (10 cycle movements).

Figure 8.2: Morning Peak Cyclist Frequency

Te Atatu Road/Elcoat Avenue (n)



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

- In the evening, the total number of cycle movements recorded at the Te Atatu Road/Elcoat Avenue intersection has decreased, from 22 movements last year to 18 movements in 2011.
- The most common movement in the evening is south down Te Atatu Road (Movement 6 = 12 cyclists).
- No notable changes in cyclist volumes at any movement occurred since 2010.

Table 8.3: Evening Cyclist Movements

Te Atatu Road/Elcoat Avenue Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	9	2	7	7	5	-2
2	0	2	1	0	0	0
3	0	0	2	0	0	0
4	1	0	3	0	0	0
5	1	2	1	0	1	1
6	13	12	18	15	12	-3
Total	**24**	**18**	**32**	**22**	**18**	**-4**

- Approximately four in five of the cyclists using this intersection are adults (78 per cent, down slightly from 82 per cent last year).
- All cyclists observed at this site were wearing helmets (up notably from 77 per cent in 2010).
- All evening cyclists were male (100 per cent).
- Only half of cyclists (50 per cent) are riding on the road (down from 55 per cent in 2010).

Table 8.4: Evening Cyclist Characteristics

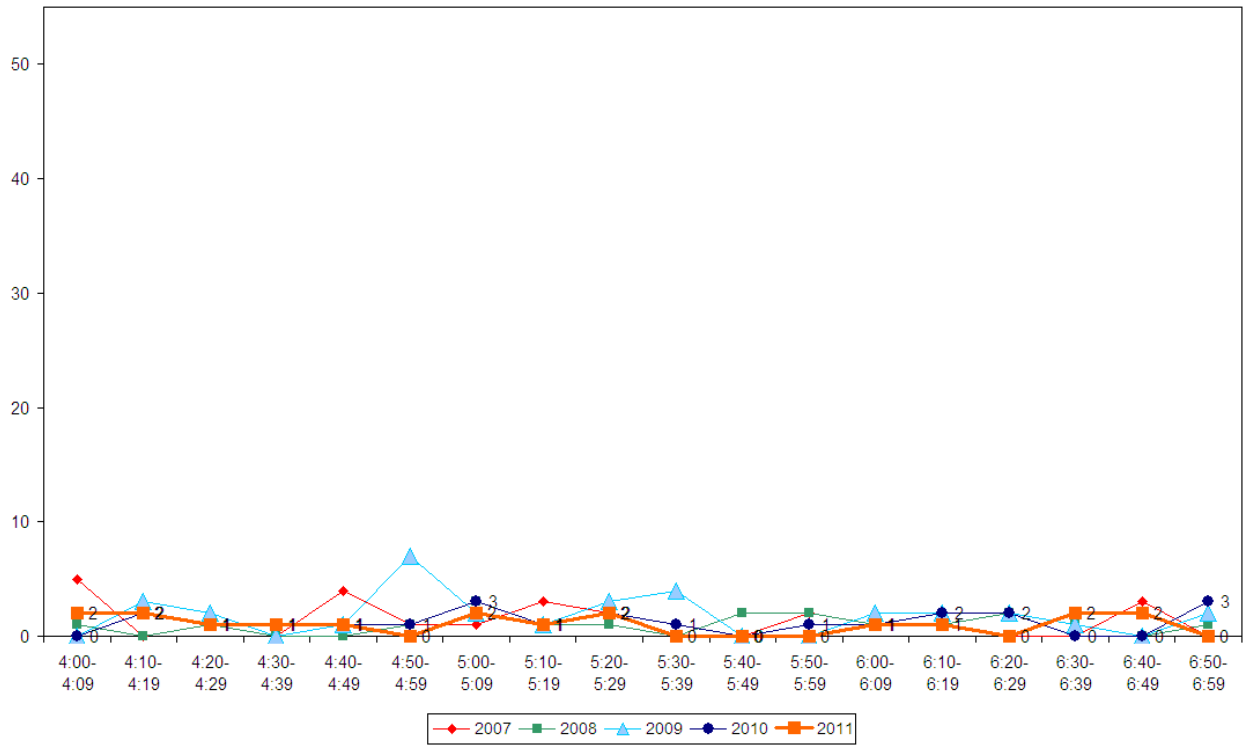
Te Atatu Road/Elcoat Avenue 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	58	83	53	82	78	**-4**
School child	42	17	47	18	22	**4**
Helmet Wearing						
Helmet on head	87	78	66	77	100	**23**
No helmet	13	22	34	23	0	**-23**
Gender						
Male	-	-	-	-	100	**-**
Female	-	-	-	-	0	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	50	50	19	55	50	**-5**
Footpath	50	50	81	45	50	**5**
Base:	***24***	***18***	***32***	***22***	***18***	

- This year, evening cycle volumes were consistently low across the entire monitoring period. This is comparable to last year, which also had low cycle volumes in the evening peak period.

Figure 8.3: Evening Peak Cyclist Frequency

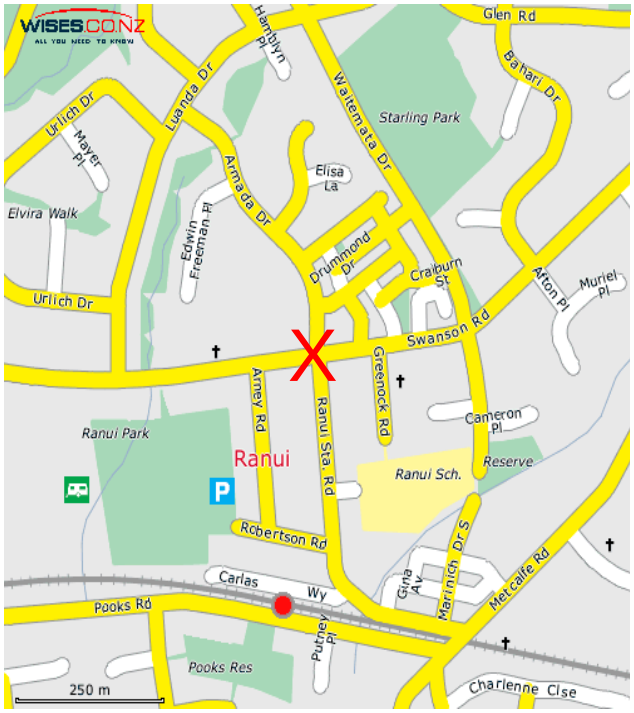
Te Atatu Road/Elcoat Avenue (n)

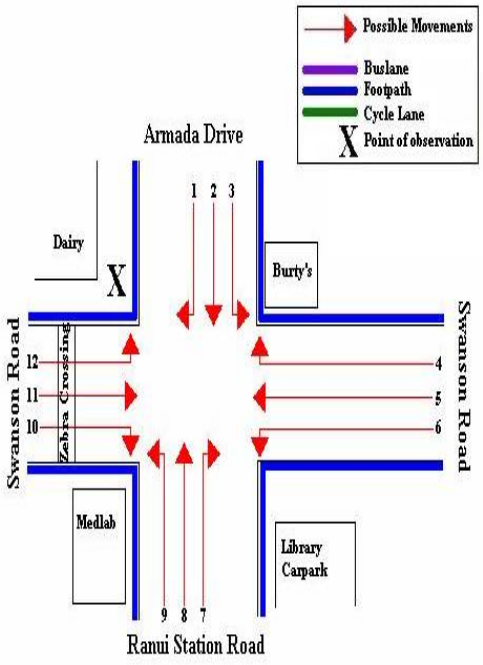


9. SWANSON ROAD/RANUI STATION ROAD/ARMADA DRIVE, RANUI (SITE 55)

Figure 9.1 shows the possible cyclist movements at this intersection.

Figure 9.1: Cycle Movements: Swanson Road/Ranui Station Road/Armada Drive





9.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	15	47	62	88
2008	21	65	86	122
2009	37	66	103	148
2010	34	68	102	146
2011	**47**	**85**	**132**	**189**

9.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Swanson Road/Armada Drive intersection has increased, from 34 in 2010 to 47 cycle movements this year.
- The most common movement is straight along Swanson Road heading east (Movement 11 = 18 cyclists).
- Compared to last year, the most notable increases in cycle volumes are at Movement 1 (up 5 cyclists) and Movement 10 (up 5 cyclists).

Table 9.1: Morning Cyclist Movements

Swanson Road/Ranui Station Road/Armada Drive 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	0	2	3	2	7	**5**
2	0	0	2	3	1	**-2**
3	1	0	0	1	0	**-1**
4	0	2	0	0	0	**0**
5	1	3	2	6	6	**0**
6	1	1	1	3	4	**1**
7	0	0	0	0	1	**1**
8	1	0	1	1	0	**-1**
9	1	0	0	0	1	**1**
10	0	0	3	0	5	**5**
11	10	13	23	17	18	**1**
12	0	0	2	1	4	**3**
Total	**15**	**21**	**37**	**34**	**47**	**13**

- Over the morning peak, adults comprise the greatest share of the total number of cycle movements (72 per cent, down from 79 per cent last year).
- Approximately two-thirds of cyclists are wearing a helmet (66 per cent, down from 76 per cent last year).
- Just over three-quarters of morning cyclists (77 per cent) are male.
- The share of footpath riding has increased notably over the last 12 months, up from 32 percent in 2010 to 53 per cent in 2011.

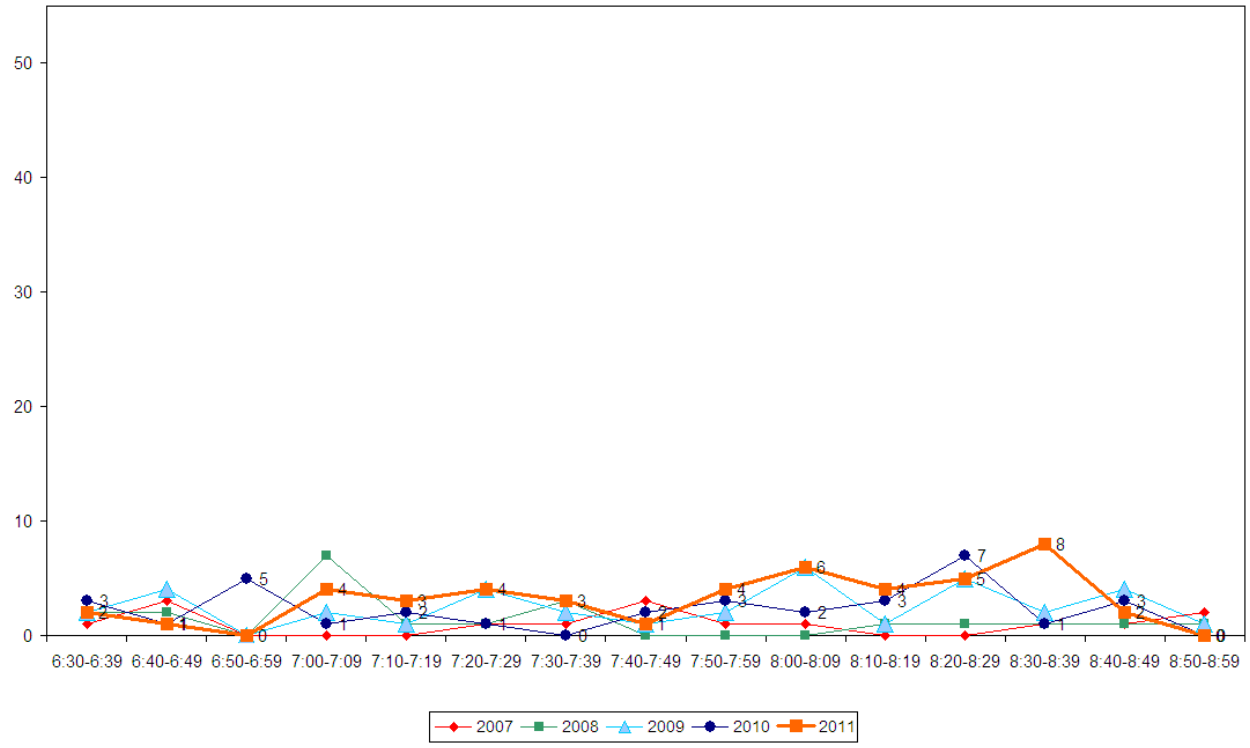
Table 9.2: Morning Cyclist Characteristics

Swanson Road/Ranui Station Road/Armada Drive 2007-2011 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	87	81	81	79	72	**-7**
School child	13	19	19	21	28	**7**
Helmet Wearing						
Helmet on head	93	67	81	76	66	**-10**
No helmet	7	33	19	24	34	**10**
Gender						
Male	-	-	-	-	77	**-**
Female	-	-	-	-	23	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Road	73	62	54	68	47	**-21**
Footpath	27	38	46	32	53	**21**
Base:	***15***	***21***	***37***	***34***	***47***	

- Morning cycle volumes peak between 8:30am and 8:39am (8 movements), 10 minutes later than the peak last year (8:20am and 8:29am - 7 movements).

Figure 9.2: Morning Peak Cyclist Frequency
Swanson Road/Ranui Station Road/Armada Drive (n)



Note: In 2011, three cyclists were observed riding together at this site at 8:31am. This equates to 6 per cent of all morning peak cycle movements at this site.

9.3 Evening Peak

Environmental Conditions

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

Key Points

- Compared with the previous year, the total number of evening cycle movements recorded at the Swanson Road/Armada Drive intersection has increased (85 movements, compared with 68 movements in 2010).
- The key movements in the evening are Movement 5 (riding straight along Swanson Road heading west, 20 cyclists), and Movement 11 (riding straight along Swanson Road heading east, 21 cyclists).
- The most notable increase since last year has been at Movement 11 (up 9 cyclists).

Table 9.3: Evening Cyclist Movements

Swanson Road/Ranui Station Road/Armada Drive 2007-2011(n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	2	15	8	5	9	**4**
2	4	4	2	1	1	**0**
3	0	0	2	0	2	**2**
4	0	0	1	1	0	**-1**
5	11	10	20	16	20	**4**
6	2	0	0	7	9	**2**
7	1	1	3	7	5	**-2**
8	7	0	3	9	4	**-5**
9	2	7	0	4	2	**-2**
10	4	2	5	2	6	**4**
11	11	9	11	12	21	**9**
12	3	17	11	4	6	**2**
Total	**47**	**65**	**66**	**68**	**85**	**17**

- The share of children using the Swanson Road/Armada Drive intersection in the evening is 38 per cent, down notably from 56 per cent last year.
- Just over half of all cyclists at this site were not wearing a helmet (51 per cent, down slightly from 56 per cent in 2010).
- The greatest share of evening cyclists are male (85 per cent).
- Just over two-thirds of cyclists are riding on the footpath (68 per cent, stable from 65 per cent in the previous measure).

Table 9.4: Evening Cyclist Characteristics

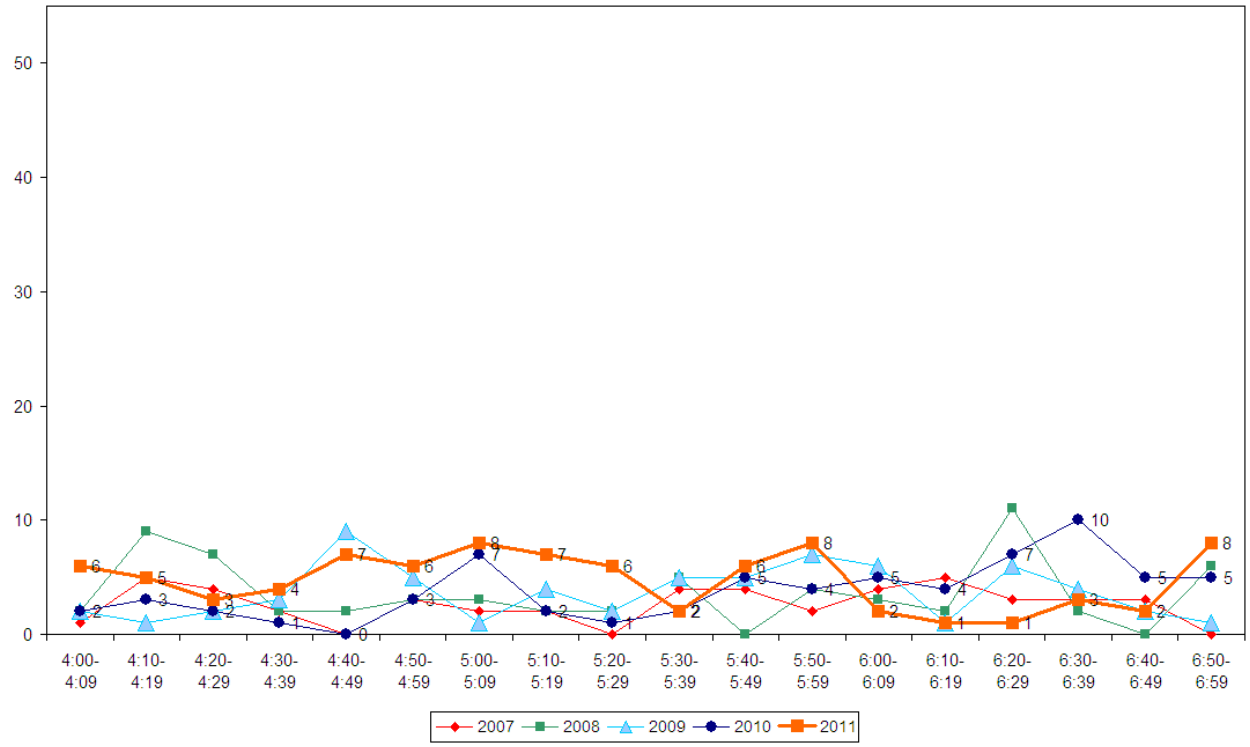
Swanson Road/Ranui Station Road/Armada Drive 2007-2010 (%)

	2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type						
Adult	68	32	47	44	62	**18**
School child	32	68	53	56	38	**-18**
Helmet Wearing						
Helmet on head	60	31	42	44	49	**5**
No helmet	40	69	58	56	51	**-5**
Gender						
Male	-	-	-	-	85	**-**
Female	-	-	-	-	14	**-**
Can't tell	-	-	-	-	1	**-**
Where Riding						
Road	43	23	36	35	32	**-3**
Footpath	57	77	64	65	68	**3**
Base:	***47***	***65***	***66***	***68***	***85***	

- Evening cyclist volumes peak three times over the monitoring period: between 5:00pm and 5:09pm (8 cyclists), between 5:50pm and 5:59pm (8 cyclists) and between 6:50pm and 6:59pm (8 cyclists). This compares with a peak of 10 movements between 6:30pm and 6:39pm in 2010.

Figure 9.3: Evening Peak Cyclist Frequency

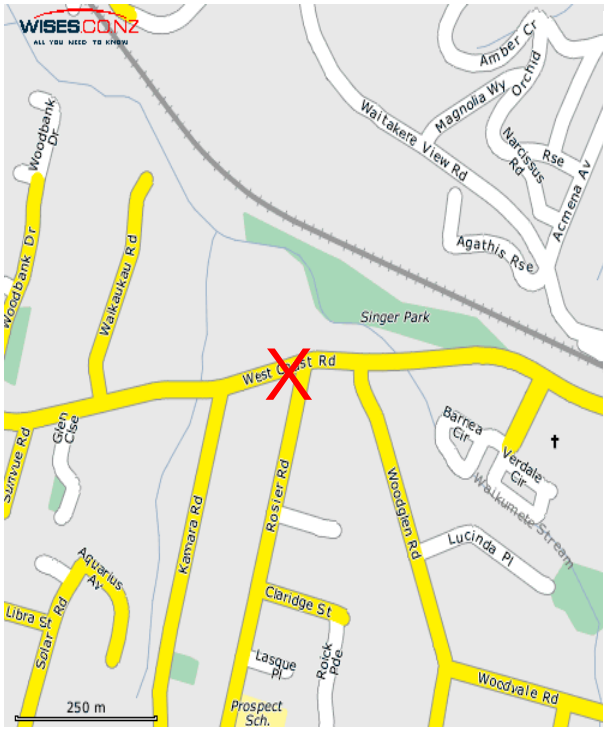
Swanson Road/Ranui Station Road/Armada Drive (n)

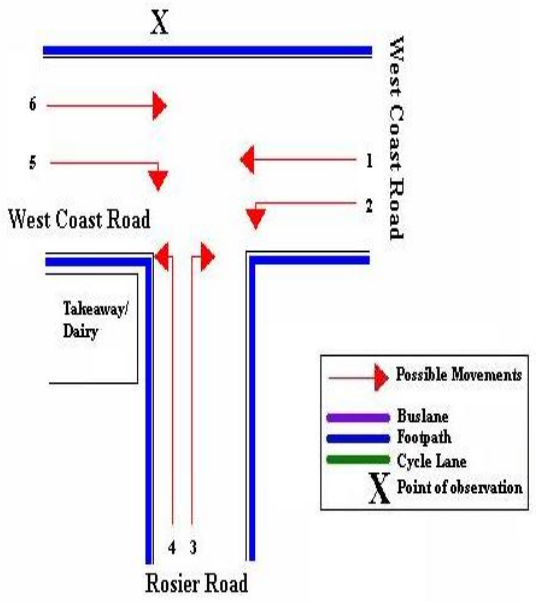


10. WEST COAST ROAD/ROSIER ROAD, GLEN EDEN (SITE 57)

Figure 10.1 shows the possible cyclist movements at this intersection.

Figure 10.1: Cycle Movements: West Coast Road/Rosier Road





10.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	19	29	48	69
2008	18	19	37	54
2009	28	34	62	90
2010	31	29	60	87
2011	**25**	**35**	**60**	**86**

10.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the West Coast Road/Rosier Road intersection has decreased slightly this year, down from 31 movements in 2010 to 25 movements in 2011.
- The most common movement in the morning is straight along West Coast heading east (Movement 6 = 9 cyclists).
- Morning cyclist volumes at Movement 1 have decreased notably (6 cyclists, down from 19 cyclists last year).

Table 10.1: Morning Cyclist Movements

West Coast Road/Rosier Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	4	7	13	19	6	**-13**
2	0	0	0	0	0	**0**
3	4	2	3	1	2	**1**
4	1	1	2	1	8	**7**
5	1	2	1	0	0	**0**
6	9	6	9	10	9	**-1**
Total	**19**	**18**	**28**	**31**	**25**	**-6**

- Over the morning peak, adults comprise most cycle movements (80 per cent, down from 87 per cent in 2010).
- Helmet wearing is widespread (96 per cent, up from 90 per cent last year).
- Almost all morning peak cyclists are male (88 per cent).
- Approximately seven in ten cyclists are riding on the road (68 per cent, down slightly from 71 last year).

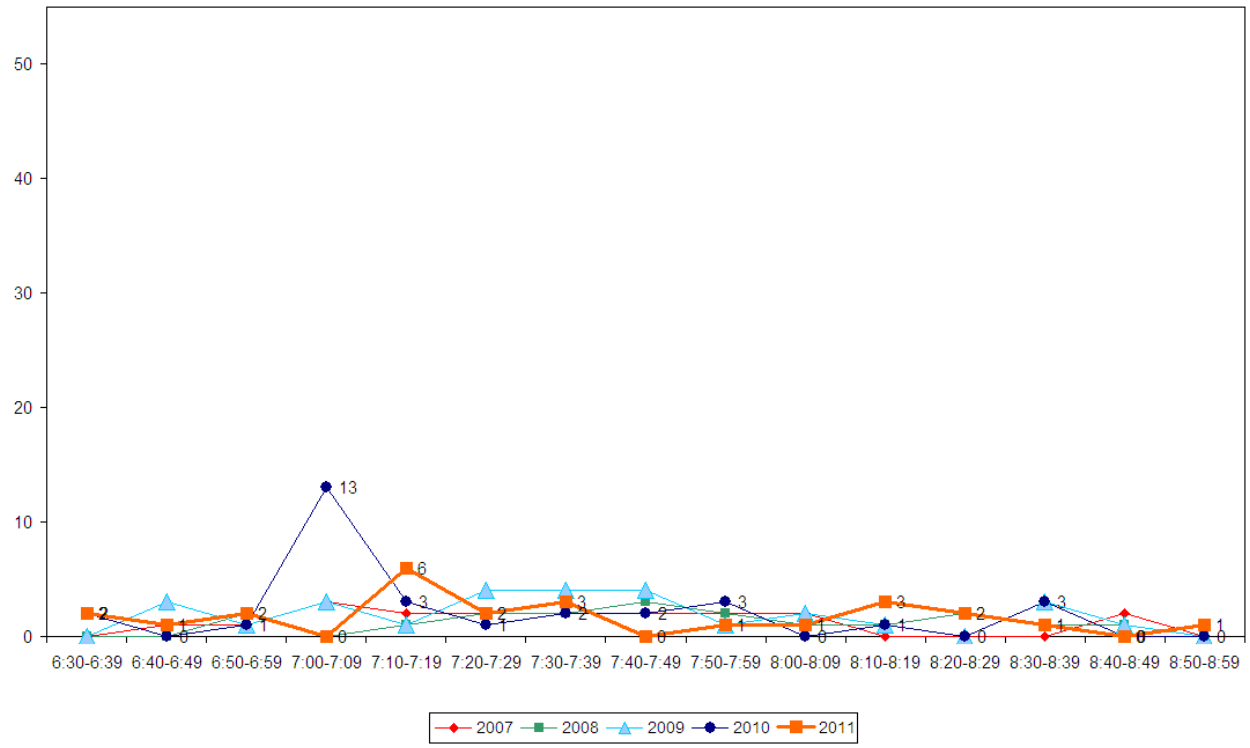
Table 10.2: Morning Cyclist Characteristics

West Coast Road/Rosier Road 2007-2010 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	74	72	93	87	80	**-7**
School child	26	28	7	13	20	**7**
Helmet Wearing						
Helmet on head	84	78	93	90	96	**6**
No helmet	16	22	7	10	4	**-6**
Gender						
Male	-	-	-	-	88	**-**
Female	-	-	-	-	8	**-**
Can't tell	-	-	-	-	4	**-**
Where Riding						
Road	74	56	71	71	68	**-3**
Footpath	26	44	29	29	32	**3**
Base:	***19***	***18***	***28***	***31***	***25***	

- Morning cycle volumes are very low over the entire monitoring period, with no more than three cyclists recorded passing during most ten minute intervals. However, a peak occurs between 7:10am and 7:19am (6 movements). This compares with an earlier peak between 7:00am and 7:09am (13 movements) recorded in 2010.

Figure 10.2: Morning Peak Cyclist Frequency
West Coast Road/Rosier Road (n)



Note: In 2011, three cyclists were observed riding together as a group at this site at 7:10am. This equates to 12 per cent of all morning peak cycle movements.

10.3 Evening Peak

Environmental Conditions

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

Key Points

- Compared with the previous year, the total number of cycle movements recorded at the West Coast Road/Rosier Road intersection in the evening is up, from 29 movements in 2010 to 35 movements in 2011.
- The key movements in the evening are straight along West Coast Road heading west (Movement 1 = 12 cyclists) and straight along West Coast Road heading east (Movement 6 = 12 cyclists).
- Of the six movements possible at this site, the most notable change in terms of evening cyclist numbers is at Movement 5 (up 5 cyclists).

Table 10.3: Evening Cyclist Movements

West Coast Road/Rosier Road 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	8	3	13	8	12	**4**
2	3	2	2	3	1	**-2**
3	1	3	1	0	0	**0**
4	5	2	1	3	4	**1**
5	4	1	1	1	6	**5**
6	8	8	16	14	12	**-2**
Total	**29**	**19**	**34**	**29**	**35**	**6**

- Most evening cyclists using the West Coast Road/Rosier Road intersection are adults (80 per cent, up from 76 per cent in 2010).
- Seventy-one per cent of cyclists at this site are wearing a helmet (stable from 72 per cent last year).
- Almost all evening cyclists are male (89 per cent).
- Just over half of all cyclists at this site are riding on the road this year (54 per cent, down from 59 per cent in the previous year).

Table 10.4: Evening Cyclist Characteristics

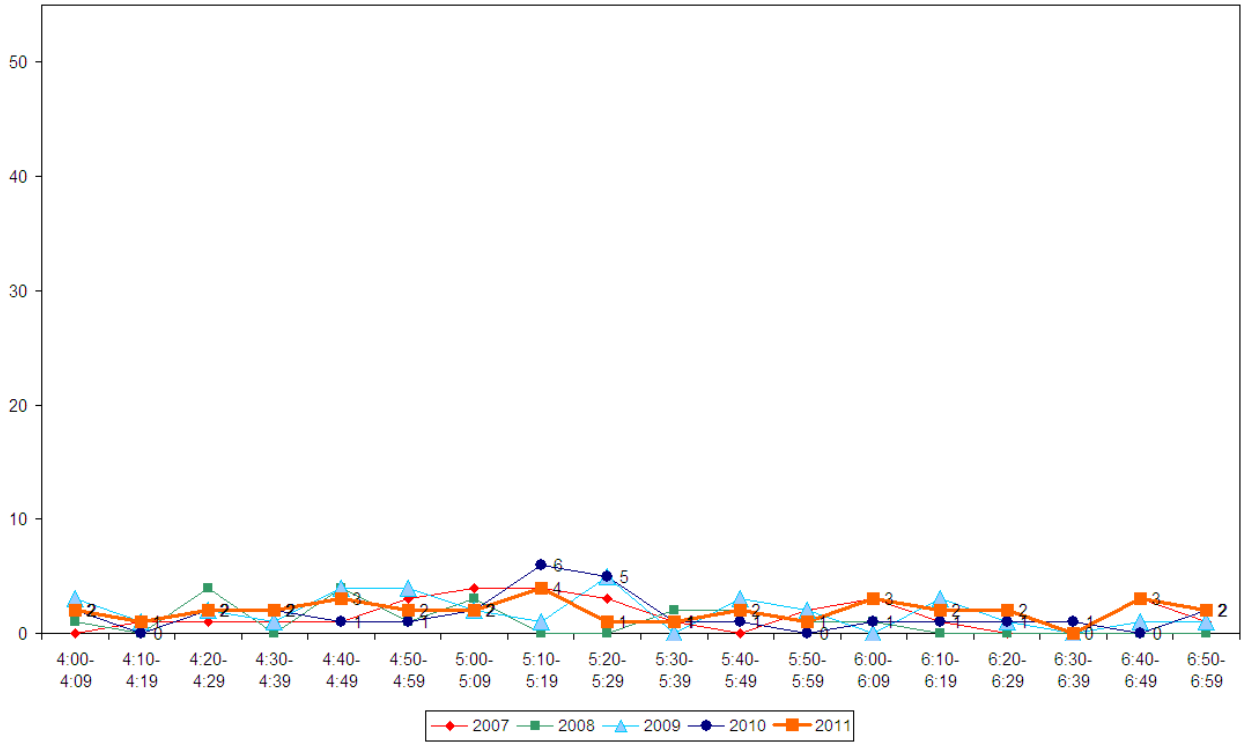
West Coast Road/Rosier Road 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	66	74	88	76	80	**4**
School child	34	26	12	24	20	**-4**
Helmet Wearing						
Helmet on head	59	74	79	72	71	**-1**
No helmet	41	26	21	28	29	**1**
Gender						
Male	-	-	-	-	89	**-**
Female	-	-	-	-	6	**-**
Can't tell	-	-	-	-	6	**-**
Where Riding						
Road	34	58	47	59	54	**-5**
Footpath	66	42	53	41	46	**5**
Base:	***29***	***19***	***34***	***29***	***35***	

- Evening cyclist volumes are low throughout the monitoring period, with no notable peaks recorded.

Figure 10.3: Evening Peak Cyclist Frequency

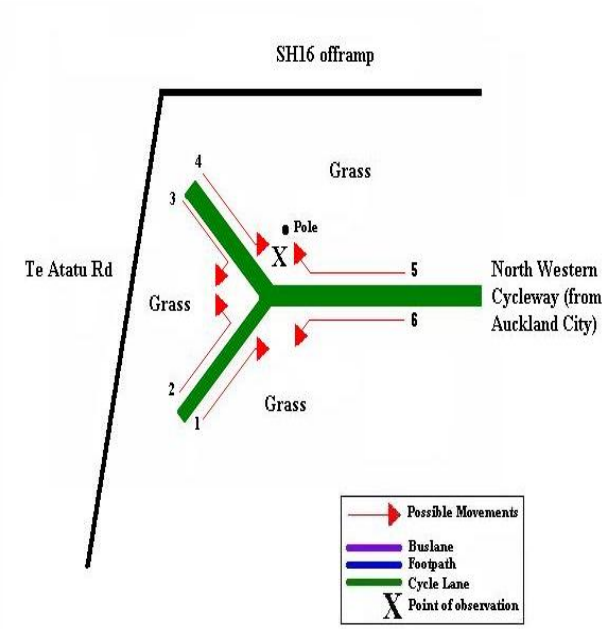
West Coast Road/Rosier Road (n)



11. NORTH WESTERN CYCLEWAY (NEAR TE ATATU RD OFF-RAMP), TE ATATU (SITE 58)

Figure 11.1 shows the possible cyclist movements at this intersection.

Figure 11.1: Cycle Movements: North Western Cycleway



11.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	102	130	232	335
2008	121	151	272	393
2009	157	198	355	513
2010	179	209	388	562
2011	**155**	**190**	**345**	**499**

11.2 Morning Peak

Environmental Conditions

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

Key Points

- In 2011, 155 cyclist movements were recorded at the North Western Cycleway, down from 179 movements last year.
- The key morning movement is Movement 4 (97 cyclists). However, the number of cyclists making Movement 4 has declined over the last 12 months (compared with 119 in 2010).

Table 11.1: Morning Cyclist Movements

North Western Cycleway 2007-2011(n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	16	22	30	22	30	**8**
2	0	0	0	0	0	**0**
3	0	0	0	0	0	**0**
4	58	74	85	118	97	**-21**
5	25	23	27	31	20	**-11**
6	3	2	15	8	8	**0**
Total	**102**	**121**	**157**	**179**	**155**	**-24**

- Over the morning peak, nearly all cyclists are adults (99 per cent, compared to 100 per cent last year).
- Most cyclists are wearing a helmet (97 per cent, stable from 2010).
- The greatest share of morning cyclists are male (85 per cent).

Table 11.2: Morning Cyclist Characteristics

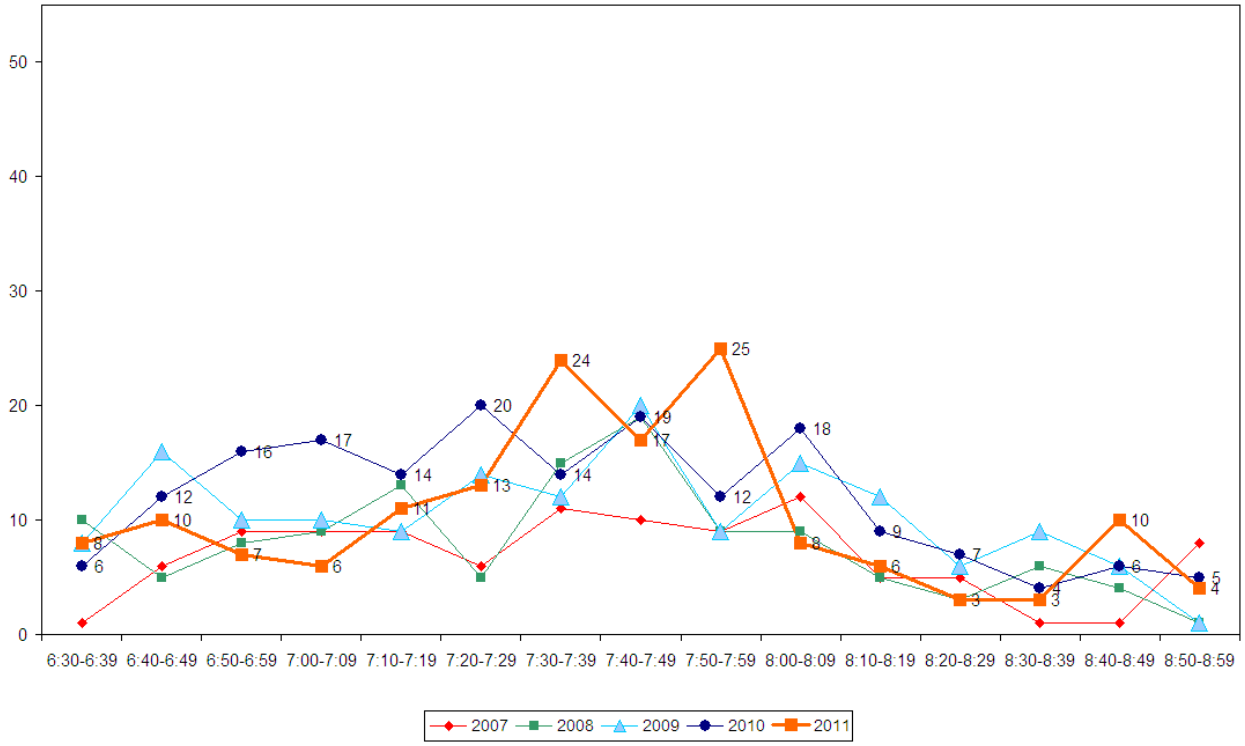
North Western Cycleway 2007-2011(%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	95	99	99	100	99	**-1**
School child	5	1	1	0	1	**1**
Helmet Wearing						
Helmet on head	97	95	96	97	97	**0**
No helmet	3	5	4	3	3	**0**
Gender						
Male	-	-	-	-	85	**-**
Female	-	-	-	-	15	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Cycleway	100	100	100	100	100	**0**
Base:	***102***	***121***	***157***	***179***	***155***	

- Morning cycle volumes peak twice over the monitoring period: between 7:30am and 7:39am (24 movements) and between 7:50am and 7:59am (25 movements). Cycle volumes then drop off through to the end of the monitoring period.

Figure 11.2: Morning Peak Cyclist Frequency

North Western Cycleway (n)



Note: In 2011, 10 cyclists were observed riding together as a group at this site at 7:51am. This equates to 7 per cent of all morning peak cycle movements at this site.

11.3 Evening Peak

Environmental Conditions

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

Key Points

- This year, 190 evening cycle movements were recorded at the North Western Cycleway, compared with 209 movements in 2010.
- The most common movement in the evening is Movement 5 (102 cyclists).
- Of the six movements possible at this intersection, the most notable change is at Movement 5 (down 16 cyclists).

Table 11.3: Evening Cyclist Movements

North Western Cycleway 2007-2011 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	Change 10-11
1	15	3	11	7	11	**4**
2	0	0	0	0	0	**0**
3	0	0	0	0	0	**0**
4	27	36	32	48	44	**-4**
5	58	75	113	118	102	**-16**
6	30	37	42	36	33	**-3**
Total	**130**	**151**	**198**	**209**	**190**	**-19**

- Over the evening peak, all cyclists using this cycleway are adults (100 per cent, up from 99 per cent last year).
- Most cyclists at this site are wearing a helmet (98 per cent, up from 96 per cent in 2010).
- The greatest share of evening cyclists are male (85 per cent).

Table 11.4: Evening Cyclist Characteristics

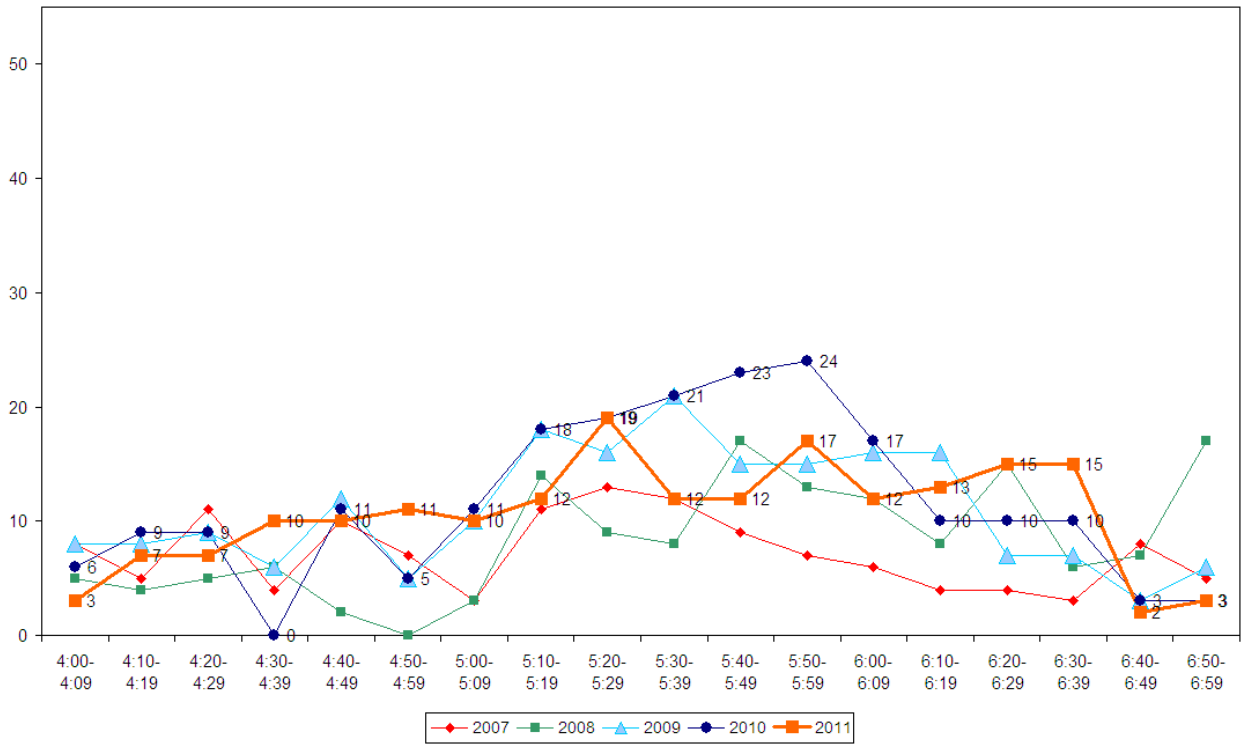
North Western Cycleway 2007-2011 (%)

	2007	*2008*	*2009*	*2010*	*2011*	Change 10-11
Cyclist Type						
Adult	91	100	99	99	100	**1**
School child	9	0	1	1	0	**-1**
Helmet Wearing						
Helmet on head	95	95	95	96	98	**2**
No helmet	5	5	5	4	2	**-2**
Gender						
Male	-	-	-	-	85	**-**
Female	-	-	-	-	15	**-**
Can't tell	-	-	-	-	0	**-**
Where Riding						
Cycleway	100	100	100	100	100	**0**
Base:	***130***	***151***	**198**	**209**	***190***	

- Evening cycle volumes increase steadily to peak between 5:20pm and 5:29pm (19 movements). This compares to last year, where high numbers of cyclist movements occurred between 5:10pm and 5:59pm (18, 19, 21, 23 and 24 cyclists in each respective ten minute interval over that period).

Figure 11.3: Evening Peak Cyclist Frequency

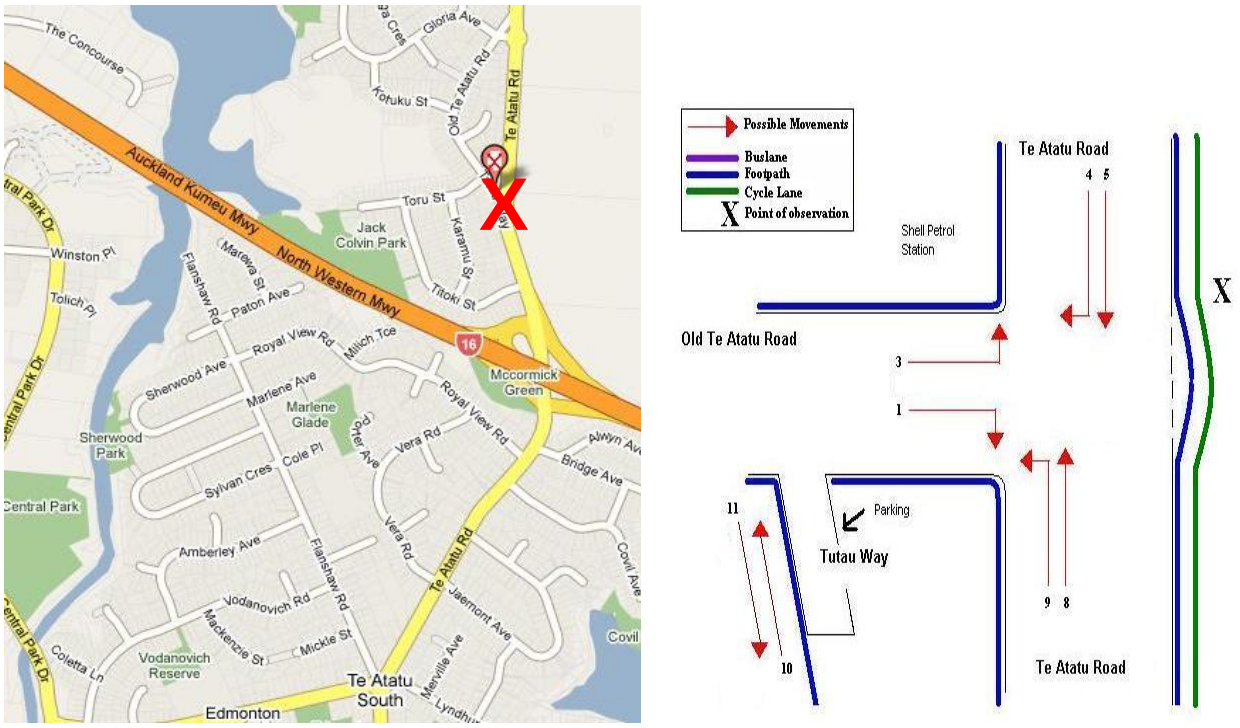
North Western Cycleway (n)



12. TE ATATU/OLD TE ATATU ROAD/TATAU WAY, TE ATATU (SITE 72)

Figure 12.1 shows the possible cyclist movements at this intersection.

Figure 12.1: Cycle Movements: Te Atatu/Old Te Atatu Road/Tatau Way



Note: Movements 10 and 11 indicate the footpath on Tatau Way.

12.1 Site Summary

	Raw Counts			AADT
	Morning Peak	***Evening Peak***	***Total***	***Total***
2008	56	55	111	161
2009	66	68	134	195
2010	105	102	207	301
2011	**63**	**78**	**141**	**204**

12.2 Morning Peak

Environmental Conditions

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

Key Points

- This year, morning cycle volumes at the Te Atatu/Old Te Atatu Road/Tatau Way site have decreased, from 105 movements in 2010 to 63 movements in 2011.
- The key morning movements are south down Te Atatu Road (Movement 5 = 28 cyclists), turning left from Te Atatu Road into Old Te Atatu Road (Movement 9 = 11 cyclists) and heading north on Te Atatu Road (Movement 8 = 10 cyclists).
- Of the 11 possible movements at this site, the most notable decreases are at Movement 5 (down 20 cyclists) and Movement 10 (down 16 cyclists).

Table 12.1: Morning Cyclist Movements

Te Atatu/Old Te Atatu Road/Tatau Way 2008-2011 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*Change 10-11*
1	5	1	2	6	**4**
2	0	0	0	0	**0**
3	0	0	1	0	**-1**
4	0	0	2	1	**-1**
5	17	27	48	28	**-20**
6	0	0	0	0	**0**
7	0	0	0	0	**0**
8	6	3	22	10	**-12**
9	0	2	5	11	**6**
10	15	18	22	6	**-16**
11	13	15	3	1	**-2**
Total	**56**	**66**	**105**	**63**	**-42**

- Over the morning peak, most cyclists at this site are adults (63 per cent, down from 69 per cent last year).
- Almost all cyclists are wearing a helmet (97 per cent, compared with 95 per cent in 2010).
- Eighty-four per cent of evening peak cyclists are male.
- Almost all cyclists are riding on the cycleway (68 per cent). Nearly a third of all cyclists are riding on the footpath (27 per cent this year).

Table 12.2: Morning Cyclist Characteristics

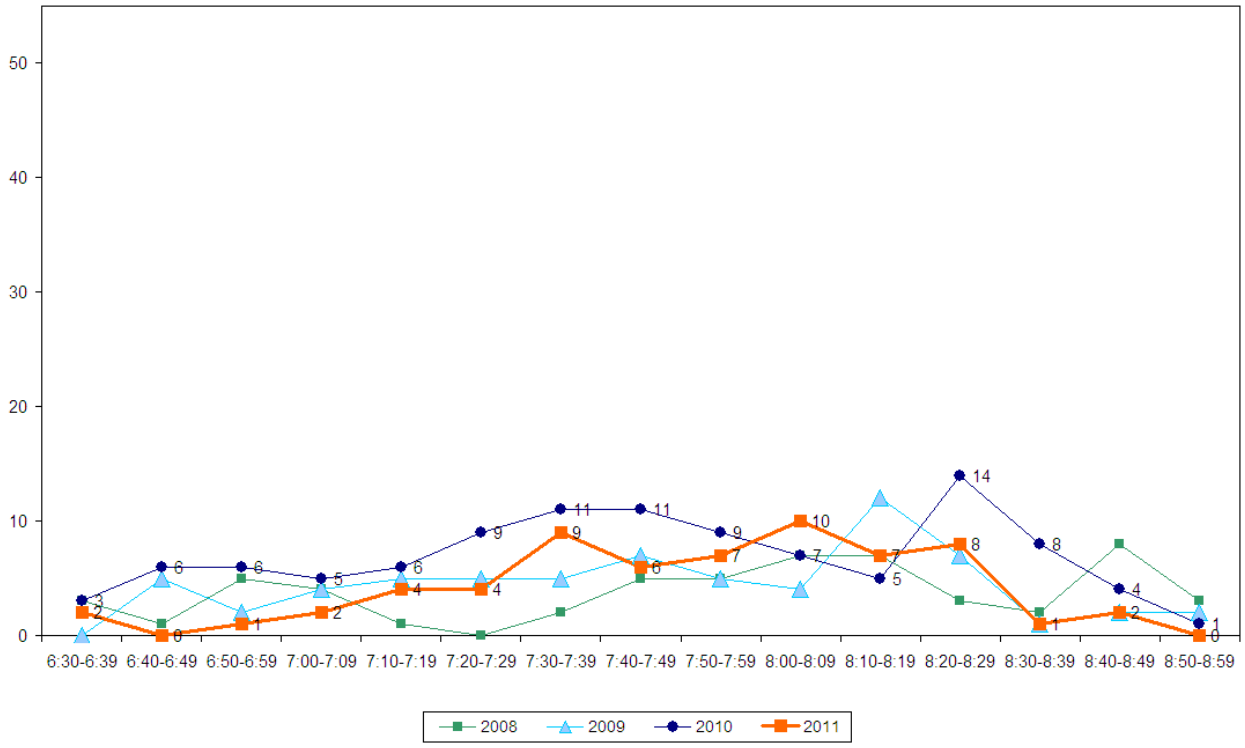
Te Atatu/Old Te Atatu Road/Tatau Way 2008-2011 (%)

	2008	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type					
Adult	59	71	69	63	**-6**
School child	41	29	31	37	**6**
Helmet Wearing					
Helmet on head	95	91	95	97	**2**
No helmet	5	9	5	3	**-2**
Gender					
Male	-	-	-	84	**-**
Female	-	-	-	11	**-**
Can't tell	-	-	-	5	**-**
Where Riding					
Road	75	58	90	5	**-**
Footpath	25	42	10	27	**-**
Off-road cycleway	-	-	-	68	**-**
Base:	***56***	***66***	***105***	***63***	

Note: Over the last twelve months a cycleway has been constructed at this site

- Morning cycle volumes increase gradually before peaking between 7:30am and 7:39am (9 cyclists) and again between 8:00am and 8:09am (10 cyclists).

Figure 12.2: Morning Peak Cyclist Frequency
Te Atatu/Old Te Atatu Road/Tatau Way (n)



12.3 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 Te Atatu/Old Te Atatu Road/Tatau Way site has decreased this year with 78 movements evident in the evening (down from 102 movements last year).
- The most common movements in the evening are along Te Atatu Road in both directions (Movement 8 = 48 cyclists; Movement 5 =14 cyclists).
- The most notable change from 2010 is at Movement 5 (down 12 cyclists).

Table 12.3: Evening Cyclist Movements

Te Atatu/Old Te Atatu Road/Tatau Way 2008-2011 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*Change 10-11*
1	3	4	3	1	**-2**
2	0	0	0	0	**0**
3	0	0	1	1	**0**
4	0	0	1	1	**0**
5	7	7	26	14	**-12**
6	0	0	0	0	**0**
7	0	0	0	0	**0**
8	17	27	55	48	**-7**
9	2	5	2	2	**0**
10	20	19	6	11	**5**
11	6	6	8	0	**-8**
Total	**55**	**68**	**102**	**78**	**-24**

- Over the evening peak, the greatest share of cyclists using this site are adults (97 per cent, up from 85 per cent last year).
- Most cyclists at this site are wearing a helmet (94 per cent, up from 84 per cent from last year).
- The greatest share of evening cyclists are male (83 per cent).
- Three in four cyclists at this site are riding on the cycleway (77 per cent).

Table 12.4: Evening Cyclist Characteristics

Te Atatu/Old Te Atatu Road/Tatau Way 2008-2011 (%)

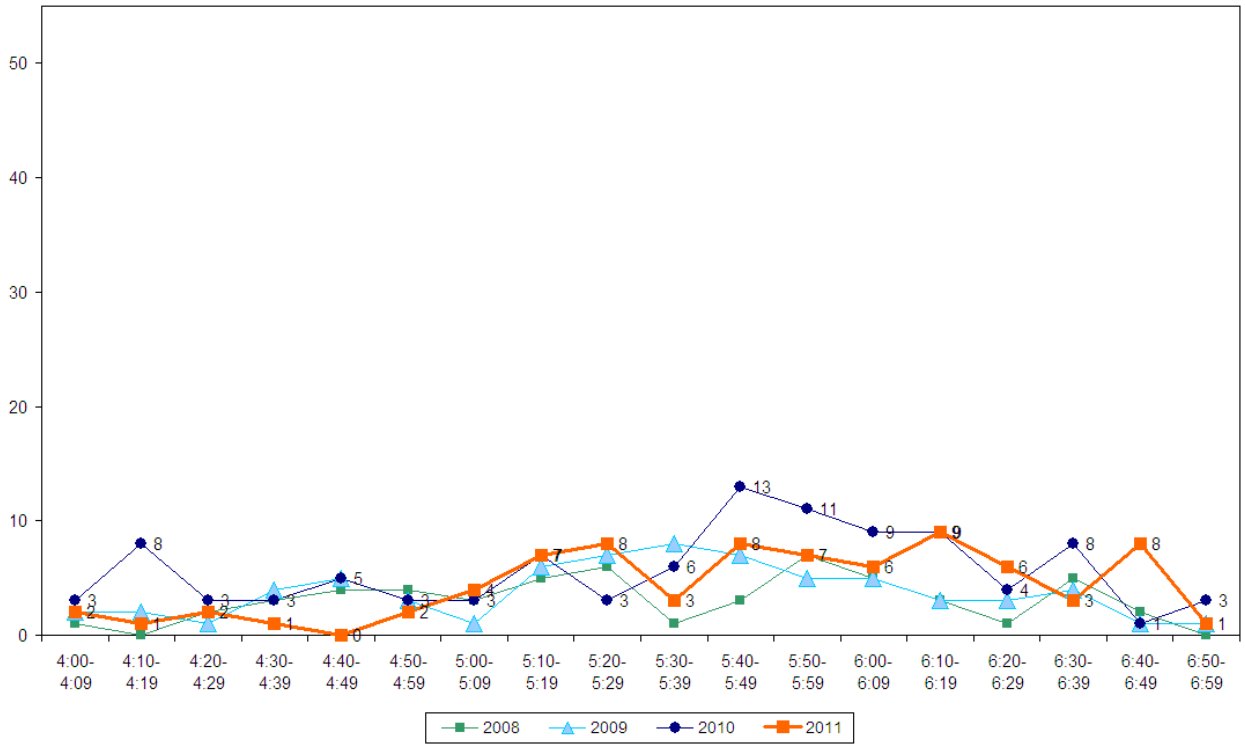
	2008	***2009***	***2010***	***2011***	**Change 10-11**
Cyclist Type					
Adult	91	90	85	97	12
School child	9	10	15	3	-12
Helmet Wearing					
Helmet on head	87	84	84	94	10
No helmet	13	16	16	6	-10
Gender					
Male	-	-	-	83	-
Female	-	-	-	9	-
Can't tell	-	-	-	8	-
Where Riding					
Road	82	49	75	12	-
Footpath	18	51	25	12	-
Off-road cycleway	-	-	-	77	-
Base:	***55***	***68***	***102***	*78*	

Note: Over the last twelve months a cycleway has been constructed at this site

- Evening cycle volumes increase steadily to peak between 6:10pm and 6:19pm (9 cyclists).

Figure 12.3: Evening Peak Cyclist Frequency

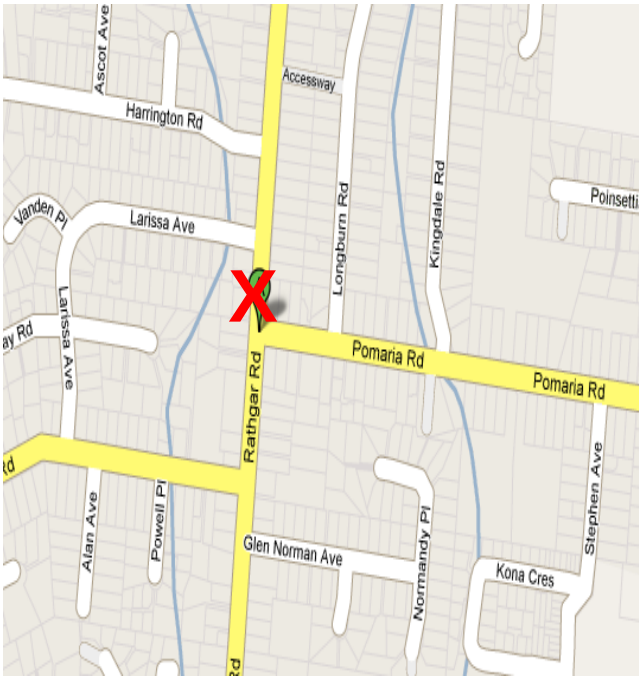
Te Atatu/Old Te Atatu Road/Tatau Way (n)

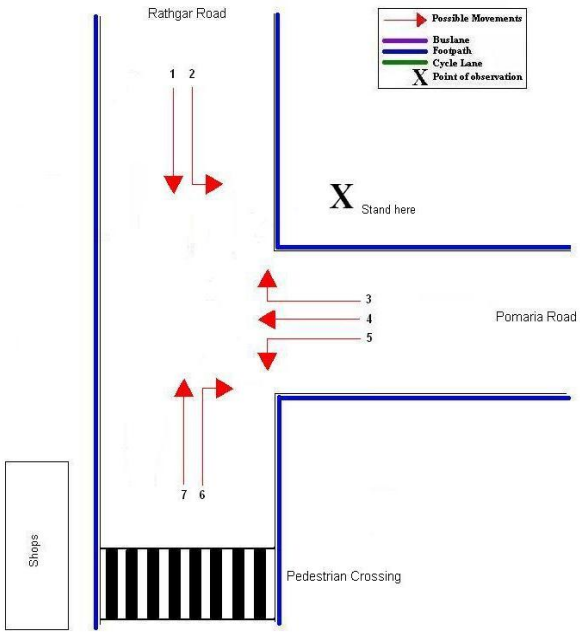


13. RATHGAR/POMARIA ROAD, HENDERSON (SITE 85)

Figure 13.1 shows the possible cyclist movements at this intersection.

Figure 13.1: Cycle Movements: Rathgar/Pomaria Road





13.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2009	32	53	85	122
2010	53	46	99	144
2011	**33**	**35**	**68**	**99**

13.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning cycle volumes at the Rathgar/Pomaria Road site have decreased notably to 33 cyclists (down from 53 cycle movements in 2010).
- The key morning movements are the right turn from Rathgar Road into Pomaria Road (Movement 6 = 15 cyclists) and the left turn from Pomaria Road into Rathgar Road (Movement 5 = 10 cyclists).

Table 15.1: Morning Cyclist Movements

Rathgar/Pomaria Road 2009 - 2011 (n)

Movement	2009	2010	2011	Change 10-11
1	4	10	5	**-5**
2	3	3	1	**-2**
3	2	3	0	**-3**
4	0	0	0	**0**
5	10	15	10	**-5**
6	12	20	15	**-5**
7	1	2	2	**0**
Total	**32**	**53**	**33**	**-20**

- Over the morning peak, just over half of all cyclists are children (55 per cent, up notably from 25 per cent in 2010).
- Most cyclists are wearing a helmet (94 per cent, up from 85 per cent last year).
- Almost all morning cyclists are male (94 per cent).
- Fifty-five per cent of cyclists at this site are riding on the road (down from 60 per cent in 2010).

Table 15.2: Morning Cyclist Characteristics

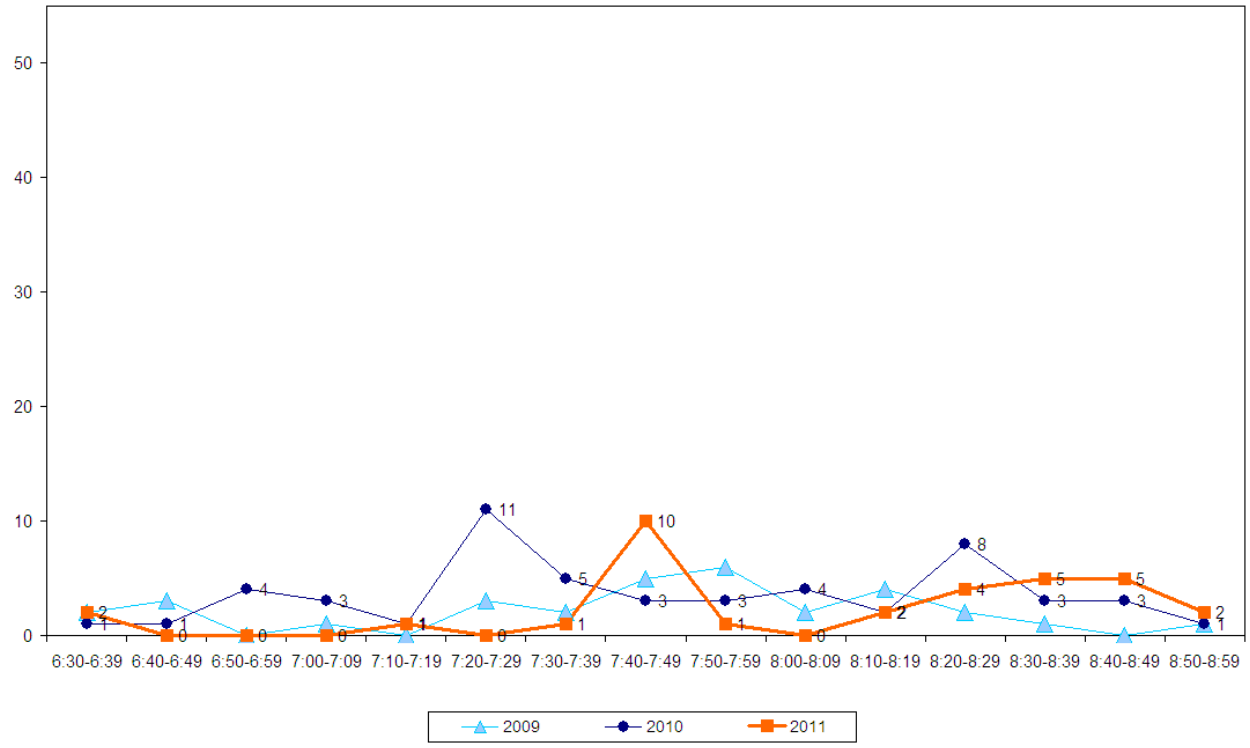
Rathgar/Pomaria Road 2009 – 2011 (%)

	2009	2010	2011	Change 10-11
Cyclist Type				
Adult	53	75	45	**-30**
School child	47	25	55	**30**
Helmet Wearing				
Helmet on head	69	85	94	**9**
No helmet	31	15	6	**-9**
Gender				
Male	-	-	94	**-**
Female	-	-	6	**-**
Can't tell	-	-	0	**-**
Where Riding				
Road	50	60	55	**-5**
Footpath	50	40	45	**5**
Base:	***32***	***53***	***33***	

- Morning cycle volumes peak between 7:40am and 7:49am (10 movements), but otherwise remain low throughout the morning peak period. This compares to two peaks occurring between 7:20am and 7:29am, and between 8:20am and 8:29am in 2010.

Figure 15.2: Morning Peak Cyclist Frequency

Rathgar/Pomaria Road (n)



Note: In 2011, 21 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 7:44am*
- *Three cyclists at 7:45am.*

13.3 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 Rathgar/Pomaria Road site in the evening has decreased from last year, with 35 movements recorded (down from 46 movements in 2010).
- The most common movement in the evening is straight along Rathgar Road heading north (Movement 7 = 11 cyclists).
- The most notable change is at Movement 2, down 6 cyclists from 2010.

Table 13.3: Evening Cyclist Movements

Rathgar/Pomaria Road 2009 – 2011 (n)

Movement	2009	2010	2011	Change 10-11
1	14	10	5	**-5**
2	1	6	0	**-6**
3	3	5	1	**-4**
4	0	0	0	**0**
5	16	5	9	**4**
6	9	13	9	**-4**
7	10	7	11	**4**
Total	**53**	**46**	**35**	**-11**

- Over the evening peak, the greatest share of cyclists using this intersection are school children (60 per cent, up slightly from 57 per cent in 2010).
- Nearly two-thirds of those cyclists using the site in the evening are not wearing a helmet (63 per cent, up from 54 per cent last year).
- The greatest share of evening peak cyclists are male (83 per cent).
- The majority of evening cyclists are riding on the footpath (69 per cent, up from 63 per cent at the last count).

Table 13.4: Evening Cyclist Characteristics

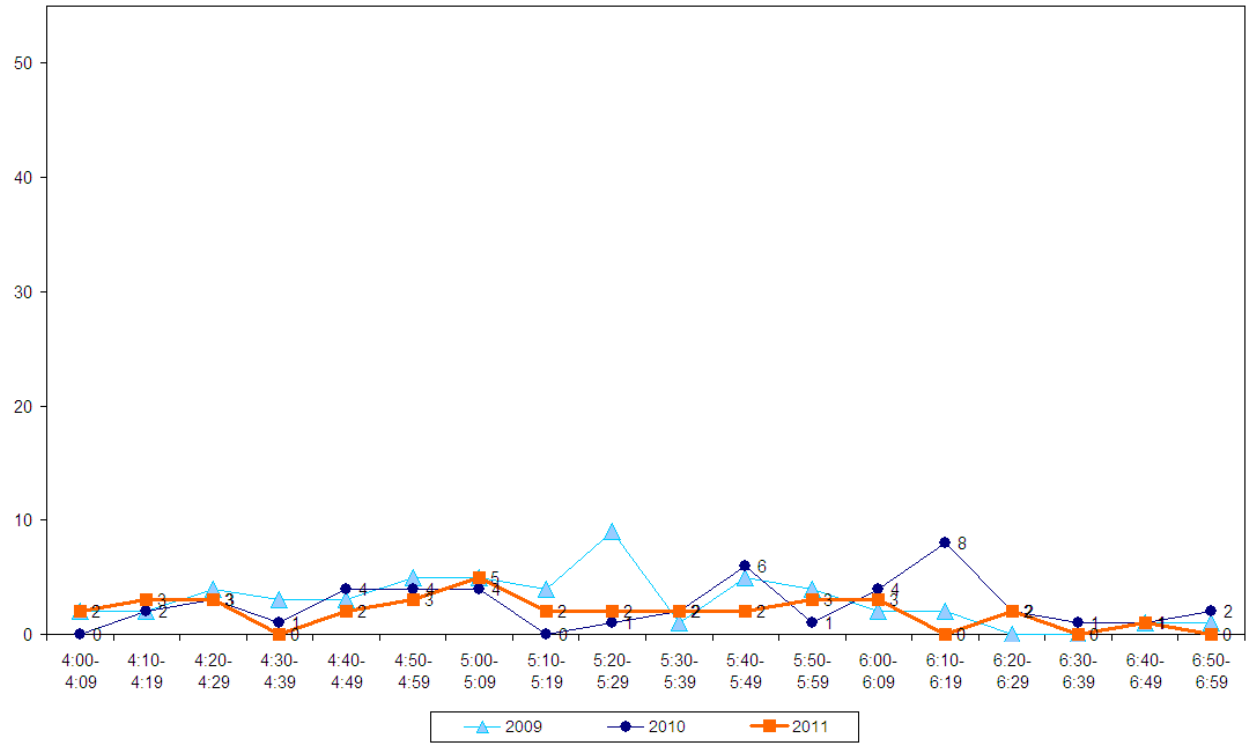
Rathgar/Pomaria Road 2009 – 2011 (%)

	2009	2010	2011	Change 10-11
Cyclist Type				
Adult	42	43	40	**-3**
School child	58	57	60	**3**
Helmet Wearing				
Helmet on head	49	46	37	**-9**
No helmet	51	54	63	**9**
Gender				
Male	-	-	83	**-**
Female	-	-	17	**-**
Can't tell	-	-	0	**-**
Where Riding				
Road	32	37	31	**-6**
Footpath	68	63	69	**6**
Base:	***53***	***46***	***35***	

- Evening cycle volumes remained low throughout the evening peak period. This compares to two peaks in 2010: between 5:40pm and 5:49pm (6 cyclists) and again between 6:10pm and 6:19pm (8 cyclists).

Figure 13.3: Evening Peak Cyclist Frequency

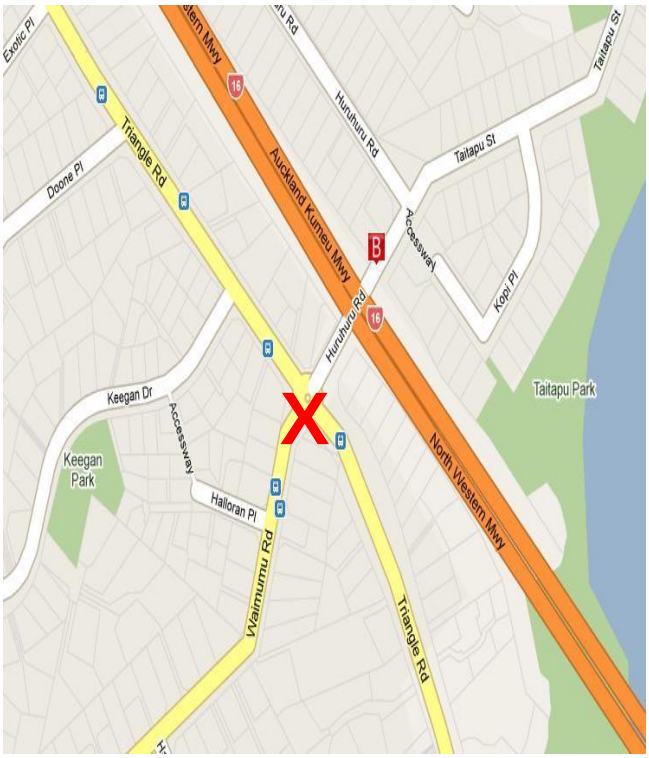
Rathgar/Pomaria Road (n)

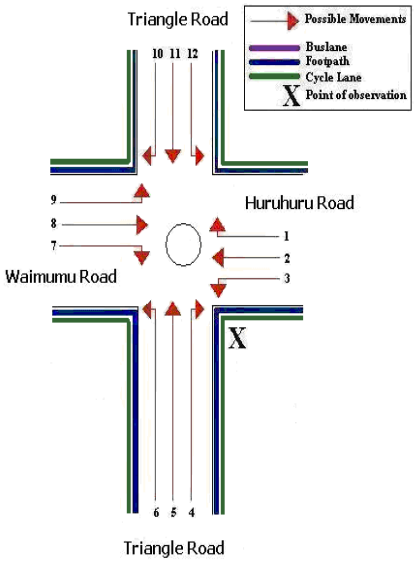


14. TRIANGLE/HURUHURU ROAD (SITE 87)

Figure 14.1 shows the possible cyclist movements at this intersection.

Figure 16.1: Cycle Movements: Triangle/Huruhuru Road





Note: This site was monitored for the first time in 2010. A shared cycle lane was added at this site prior to the 2011 round of monitoring.

14.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2010	59	78	137	198
2011	**52**	**69**	**121**	**175**

14.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning peak cycle volumes at the Triangle/Huruhuru Road site are moderate, with 52 cycle movements recorded (down from 59 movements in 2010).
- The key morning movement is travelling straight along Triangle Road heading southeast (Movement 11 = 34 cyclists).
- The most notable change is at Movement 6 (up 6 movements from 2010).

Table 14.1: Morning Cyclist Movements

Triangle/Huruhuru Road 2010-2011 (n)

Movement	*2010*	*2011*	Change 10-11
1	0	2	**2**
2	0	0	**0**
3	4	1	**-3**
4	0	0	**0**
5	6	5	**-1**
6	1	7	**6**
7	8	3	**-5**
8	1	0	**-1**
9	0	0	**0**
10	0	0	**0**
11	39	34	**-5**
12	0	0	**0**
Total	**59**	**52**	**-7**

- Over the morning peak, most cyclists are adults (77 per cent, down notably from 95 per cent in 2010).
- Almost all cyclists are wearing a helmet (96 per cent, stable from 97 per cent last year).
- Just less than three quarters of cyclists at this site (73 per cent) are male.
- Most cyclists are riding on the road (71 per cent).

Table 14.2: Morning Cyclist Characteristics

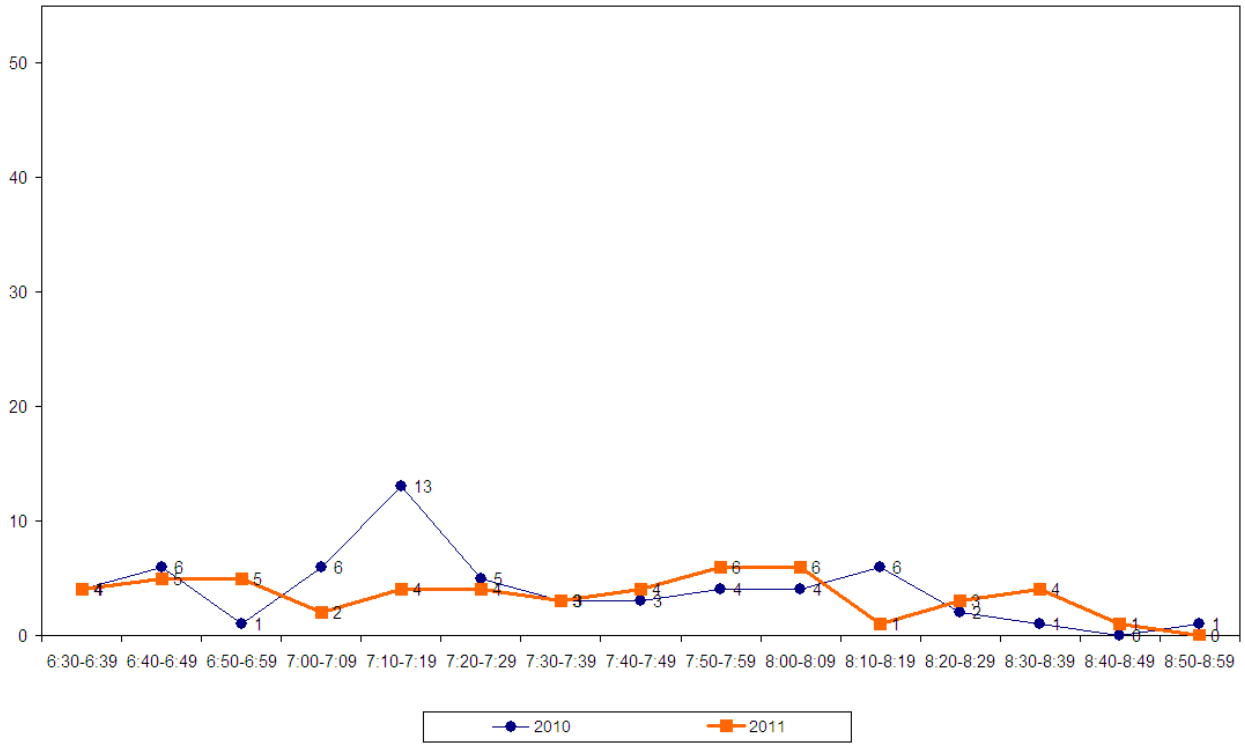
Triangle/Huruhuru Road 2010-2011 (%)

	2010	***2011***	**Change 10-11**
Cyclist Type			
Adult	95	77	**-18**
School child	5	23	**18**
Helmet Wearing			
Helmet on head	97	96	**-1**
No helmet	3	4	**1**
Gender			
Male	-	73	**-**
Female	-	15	**-**
Can't tell	-	12	**-**
Where Riding			
Road	95	71	**-**
Footpath	5	2	**-**
Off-road cycle way	-	27	**-**
Base:	***59***	***52***	

- Morning cycle volumes remain low throughout the monitoring period. This compares to a peak in 2010 between 7:10am and 7:19am (13 movements).

Figure 14.2: Morning Peak Cyclist Frequency

Triangle/Huruhuru 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 7:12 am*
- *Three cyclists at 8:00am.*

14.3 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 Triangle/Huruhuru Road site in the evening is moderate, with 69 movements recorded (down from 78 movements in 2010).
- The most common movements in the evening are straight along Triangle Road heading northeast (Movement 5 = 39 cyclists) and southwest (Movement 11 = 10 cyclists).
- The most notable change is at Movement 10 (up 5 movements from last year).

Table 14.3: Evening Cyclist Movements

Triangle/Huruhuru Road 2010-2011 (n)

Movement	*2010*	*2011*	Change 10-11
1	1	0	**-1**
2	1	0	**-1**
3	5	2	**-3**
4	4	3	**-1**
5	39	39	**0**
6	9	6	**-3**
7	3	1	**-2**
8	1	0	**-1**
9	2	2	**0**
10	0	5	**5**
11	13	10	**-3**
12	0	1	**1**
Total	**78**	**69**	**-9**

- Over the evening peak, the greatest share of cyclists using this intersection are adults (80 per cent, up slightly from 77 per cent last year).
- Just over four-fifths of cyclists using the site in the evening are wearing a helmet (84 per cent, up from 76 per cent in 2010).
- Almost all evening cyclists are male (87 per cent).
- The majority of evening cyclists are riding on the road (74 per cent).

Table 14.4: Evening Cyclist Characteristics

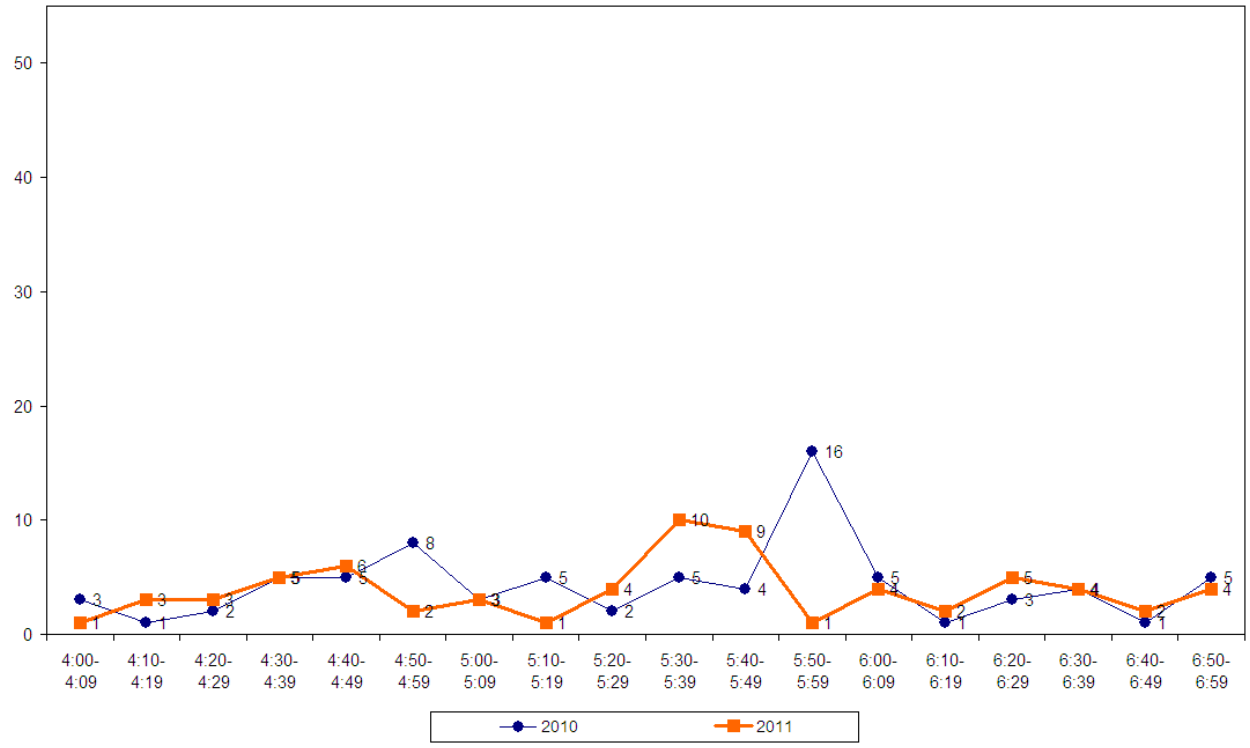
Triangle/Huruhuru Road 2010-2011 (%)

	2010	***2011***	**Change 10-11**
Cyclist Type			
Adult	77	80	**3**
School child	23	20	**-3**
Helmet Wearing			
Helmet on head	76	84	**8**
No helmet	24	16	**-8**
Gender			
Male	-	87	**-**
Female	-	13	**-**
Can't tell	-	0	**-**
Where Riding			
Road	71	74	**-**
Footpath	29	0	**-**
Off-road cycle way	-	26	**-**
Base:	***78***	***69***	

- Evening cycle volumes peak twice, between 5:30pm and 5:39pm (10 cyclists) and between 5:40pm and 5:49pm (9 cyclists). This compares with evening cycle volumes peaking sharply in 2010 between 5:50pm and 5:59pm (16 cyclists).

Figure 14.3: Evening Peak Cyclist Frequency

Triangle/Huruhuru Road (n)



15. WEST HARBOUR FERRY WHARF

A cycle count was taken on the morning of Wednesday, 9th of March at the West Harbour ferry wharf. No cycles were observed.

16. SCHOOL BIKE SHED COUNT - WAITAKERE

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

Background Information

- A total of 19 schools in the Waitakere ward participated in the school bike shed count.
- Most of the schools that responded to the survey have no policies that restrict students cycling to school[10].
- Hobsonville Primary School noted that Year 7 and 8 students were on camp on count day. Consequently actual cycle numbers for this school may be higher than reported here.
- The designated count day was Tuesday 8th of March[11].

Key Points

- Among those Waitakere schools that responded to the survey, of those eligible to cycle to school, on average, one per cent of students are cycling to their schools.
- Among the schools that responded, n=60 students were reported to be cycling to school.
- This year, Te Atatu Intermediate reported the highest share of cyclists – 8 per cent of all eligible students currently cycling to school (stable from 2010).
- Of the 19 schools that responded, 10 (53 per cent) had no students cycling to school.

[10] Birdwood School permits students in Years 6 to 8 to cycle to school provided they have parental permission. Don Buck School and Waitakere Primary permits students 10 years or older to cycle provided they have parental permission. Hobsonville Primary School, Lincoln Heights School and Swanson School permit students in Years 5 to 8 to cycle with permission from the Principal. Royal Road School permits students in Years 7 and 8 to cycle with permission from the Principal.

[11] The following schools conducted counts on alternative count days

- ACS Sunderland – Wednesday 9th March
- Holy Cross Henderson, Titirangi Rudolf Steiner School – Thursday 10th March
- Kelston Girls High School – Monday 14th March
- Birdwood School, Ngakakano Christian Reo Rua Kura – Tuesday 29th March
- Royal Road School – Thursday 31st March

Table 16.1 shows the results of the 19 schools in Waitakere that responded to the survey.

Table 16.1: Summary Table Of School Bike Count

2007-2011 (n)

School Name	*School Types*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[12]				
				2011	*2010*	*2009*	*2008*	*2007*
Te Atatu Intermediate	Intermediate	302	23	8%	8%	9%	7%	10%
Swanson School	Full primary	200	13	7%	-	-	-	-
Waitakere Primary	Full primary	70	4	6%				
Nga Kakano Christian Reo Rua Kura	Composite	60	1	2%	-	6%	7%	7%
Te Kura Kaupapa Maori O Hoani Waititi Marae	Composite	183	4	2%	2%	0%	0%	-
Glen Eden Intermediate School	Intermediate	1045	12	1%	1%	3%	-	-
ACG Sunderland	Composite	280	1	<1%	4%	2%	1%	-
Bruce McLaren Intermediate	Intermediate	287	1	<1%	3%	4%	2%	2%
Colwill School	Full primary	270	1	<1%	-	-	-	-
Birdwood School	Full primary	82	0	0%	-	-	-	-
Don Buck School	Full primary	56	0	0%	-	-	-	-
Hobsonville Primary School	Full primary	256	0	0%	-	-	-	-
Holy Cross Henderson	Full primary	410	0	0%	-	-	-	-
Kelston Girls High School	Secondary	854	0	0%	0%	0%	0%	0%
Lincoln Heights School	Full primary	280	0	0%	-	-	-	-
Royal Road School	Full primary	73	0	0%	-	-	-	-

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

School Name	*School Types*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[12]				
				2011	*2010*	*2009*	*2008*	*2007*
St Dominic's College	Intermediate/secondary	923	0	0%	-	<1%	<1%	<1%
Titirangi Rudolf Steiner School	Full primary	Not given	0	0%				
Waitakere SDA School	Full primary	38	0	0%				
Total		**5669**	**60**	**1%**				

- Table 16.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (3 per cent) and lowest for combined intermediate/secondary schools and secondary schools (no cyclists).

Table 16.2: Summary Table Of School Bike Count by School Type

2007-2011 (%)

School Types	***Number of Schools Responded in 2011***	***Cyclists as share of those eligible***					
		2007	***2008***	***2009***	***2010***	***2011***	**Change 10-11**
Intermediate	3	6%	5%	5%	4%	**3%**	-1
Composite	3	7%	3%	3%	3%	**1%**	-2
Full primary	11	-	-	-	-	**1%**	-
Secondary	1	0%	0%	0%	0%	**0%**	0
Intermediate/Secondary	1	<1%	<1%	<1%	-	**0%**	0

APPENDIX

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[13] in the Auckland region from any Gravitas manual count.

Method for Estimating AADT

The methodology is based on that published in Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG)[14], adjusted for Auckland conditions based on data collected during March 2007. The aim was to use the published methodology as much as possible, with any necessary departure from it documented below. The following equation yields the best estimate of a cycling AADT:

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

where *Count = result of count period*

H = scale factor for time of day

D = scale factor for day of week

W = scale factor for week of year

R = scale factor for weather conditions on the count day

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

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

[13] Annual average daily traffic

[14] LTSA, 2004

For the Gravitas counts, the following factors apply:

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

D = 14

W = 0.9

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

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

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

Worked Example

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

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

Appendix Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%