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Research Report Prepared for
Auckland Transport

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2014 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].

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:

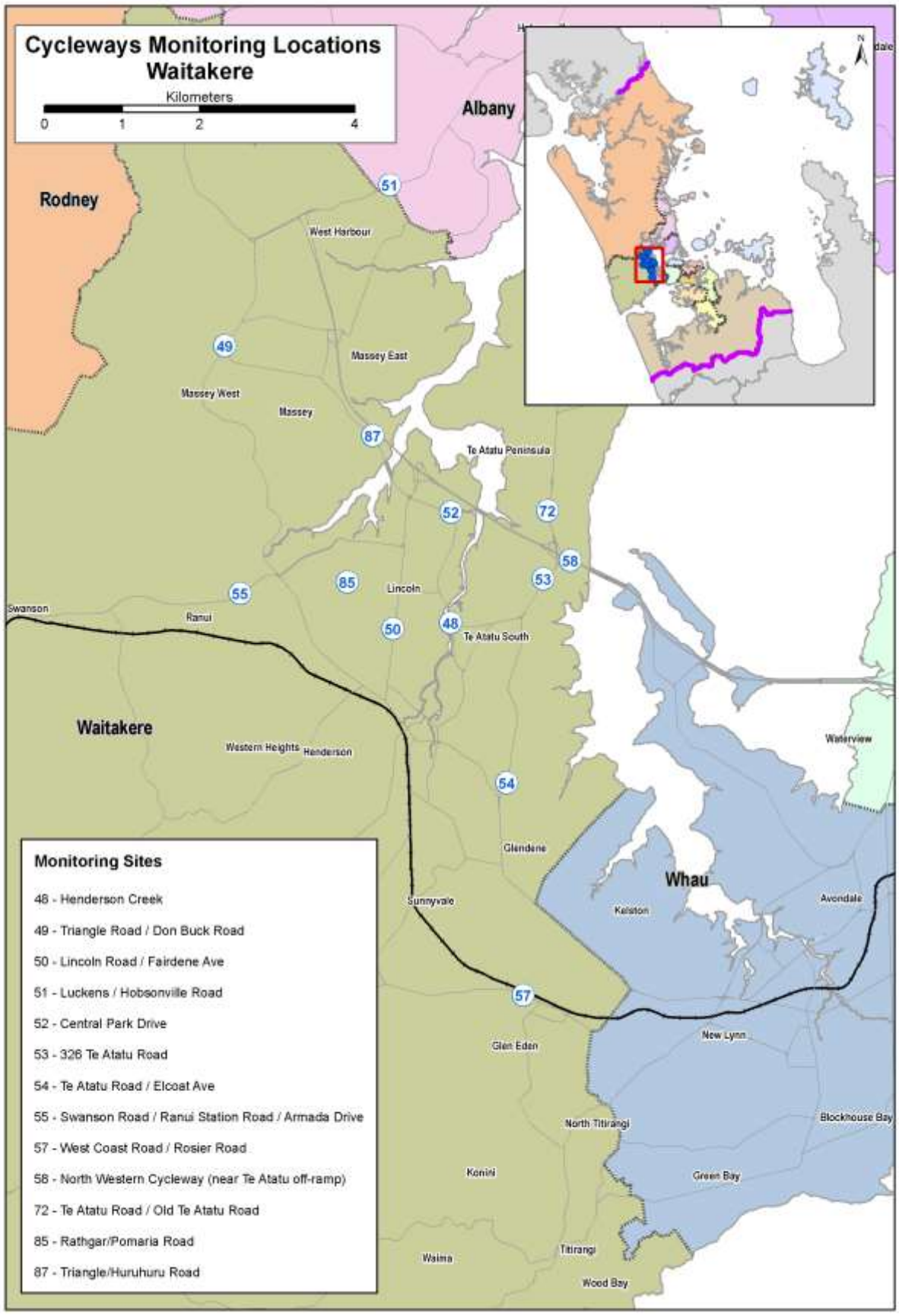
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

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: 2014 Cycle Monitoring Locations in Waitakere Ward



1.2 Method

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

Choice of Sites

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

Manual counts were undertaken at 85 different sites throughout the region. Sites were distributed by ward as follows:

- Albany 15 sites
- Albert-Eden–Roskill 11 sites
- Franklin 2 sites
- Howick 5 sites
- Manukau 10 sites
- Manurewa-Papakura 4 sites
- Maungakiekie-Tamaki 7 sites
- North Shore 8 sites
- Orakei 3 sites
- Waitakere 13 sites
- Waitemata and Gulf 10 sites
- Whau 4 sites

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

Monitoring Times

Time Of Day

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

Day Of Week

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

Time Of Year

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

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

It was agreed that manual counts would commence on Tuesday the 4th of March and be conducted on the first three fine days of the 4th, 5th, 6th, 11th, 12th, or 13th of March.

Counts were conducted on the following days:

• Tuesday 4th March	Albany, North Shore, Waitakere
• Wednesday 5th March	Howick, Franklin, Manukau, Waitemata & Gulf
• Thursday 6th March	Whau, Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki

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

Weather and Daylight Conditions

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

The weather on the three count days in 2014 was as follows:

Tuesday 4th March

- Sunrise: 7:09am; Sunset: 7:56pm.
- Highest temperature: 20.0 degrees Celsius.
- Mostly fine weather with the majority of sites experiencing drizzle in the morning and cloud in the evening.

Wednesday 5th March

- Sunrise: 7:10am; Sunset: 7:55pm.
- Highest temperature: 20.0 degrees Celsius.
- Cloudy and windy with occasional light drizzle for some sites during the morning shift. Mostly fine weather with clear sky in the evening with light winds for some sites.

Thursday 6th March

- Sunrise: 7:11am; Sunset: 7:54pm.
- Highest temperature: 22.0 degrees Celsius.
- Mostly fine weather in the morning and evening shifts.

Conducting The Manual Counts

Scoping Visit

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

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

- Great South Road/Campbell Road/Main Highway, Greenlane (Site 21; Maungakiekie-Tamaki/Albert-Eden-Roskill wards).
- Beach Road/Browns Bay Road, Mairangi Bay (Site 45; Albany ward).
- Onehunga Harbour Road (Site 17, Maungakiekie-Tamaki ward).

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

Briefing Session

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

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

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

Conducting The Manual Counts

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

During their shift the surveyor collected data on:

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

[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.

Based on feedback from some schools in 2013, in 2014 a count of the number of students who use (non-motorised) scooters to get to and from school was also included in the school bike shed count.

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,

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

special needs schools). This sheet was designed in consultation with Auckland Transport to ensure all necessary information was collected.

2. This email was then sent to all eligible schools in Auckland region (n=306) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 4th 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 2014, 264 responses were received, a response rate of 88 per cent. (This compares with 92 per cent in 2013).

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 to Fourteen of this report.

Note: Surveying in the Waitakere ward was undertaken on Tuesday 4th of March, 2014[9]. Sunrise was at 7:09am and sunset was at 7:56pm. The highest temperature was 20 degrees Celsius.

[9] The only exception was Site 72 Te Atatu Rd/Old Te Atatu Rd/ Tatau Way, which was monitored on Tuesday 12th of March, 2013.

1.4 Morning Peak

Environmental Conditions

- All sites had overcast weather throughout the monitoring period with light to moderate showers over the first hour of the monitoring period. Most sites experienced further showers or rain over the remainder of the morning, with the weather beginning to clear towards the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts in the morning.

Key Points

- A total of 493 cyclist movements were recorded across the 13 sites monitored in the morning peak period (between 6:30am and 9:00am) in 2014. This represents a 43 per cent decrease from the 2013 result (870 movements).
- Five per cent (n=27) of the movements were made by cyclists riding as groups. This compared with six per cent (n=53) in 2013.
- The average number of cycle movements per site has decreased from 67 in 2013 to 38 this year.
- Consistent with last year's result, the busiest site in the morning peak continued to be North Western Cycleway near the Te Atatu Road off-ramp (125 movements).
- Te Atatu Road/Elcoat Avenue and Triangle Road/Don Buck Road shared the lowest level of morning cyclist traffic (12 cycle movements at each site, the lowest volume recorded at this site since monitoring began).
- Only one site recorded an increase in cycle volume over the last 12 months. Henderson Creek recorded an increase of 7 per cent; from 30 cycle movements last year, to 32 cycle movements this year.
- The other twelve sites have recorded declines over the last 12 months, the most noticeable decreases occurring at:
    - Triangle Road/Don Buck Road – down 74 per cent;
    - Triangle Road/Huruhuru Road – down 66 per cent;
    - Luckens/Hobsonville Road – down 61 per cent; and
    - Central Park Drive – down 59 per cent.

Table 1.1: Summary of Morning Cyclist Movements

2007 – 2014 (n)

Site No	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14 (%)	Change 07-14 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	102	121	157	179	155	187	218	**125**	**-43%**	**23%**
53	326 Te Atatu Road (Near Covil Ave)	44	52	79	65	73	75	76	**63**	**-17%**	**43%**
52	Central Park Drive, Henderson	61	68	91	94	100	112	135	**56**	**-59%**	**-8%**
48	Henderson Creek	14	11	27	38	24	39	30	**32**	**7%**	**129%**
55	Swanson/Ranui Station Road/Armada Drive	15	21	37	34	47	27	49	**28**	**-43%**	**87%**
50	Lincoln Road/Fairdene Avenue	13	19	21	21	26	34	31	**18**	**-42%**	**38%**
51	Luckens/Hobsonville Road	20	25	26	41	14	42	44	**17**	**-61%**	**-15%**
57	West Coast/Rosier Road, Glen Eden	19	18	28	31	25	19	24	**17**	**-29%**	**-11%**
49	Triangle Road/Don Buck Road, Massey	24	29	21	27	35	30	46	**12**	**-74%**	**-50%**
54	Te Atatu Road/Elcoat Avenue	26	27	37	30	30	34	20	**12**	**-40%**	**-54%**
	Average per site (10 sites since 2007)	**34**	**39**	**52**	**56**	**53**	**60**	**67**	**38**	**-43%**	**12%**
	Total (10 sites since 2007)	**338**	**391**	**524**	**560**	**529**	**599**	**673**	**380**	**-44%**	**12%**
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	56	66	105	63	103	88	**58**	**-34%**	**-**
85	Rathgar/Pomaria Road	-	-	32	53	33	38	36	**30**	**-17%**	**-**
	Average per site (11 sites in 2008, 12 sites in 2009)	**-**	**41**	**52**	**58**	**52**	**62**	**66**	**39**	**-41%**	**-**
	Total (11 sites in 2008, 12 sites in 2009)	**-**	**447**	**622**	**698**	**625**	**740**	**797**	**468**	**-41%**	**-**
87	Triangle/Huruhuru Road	-	-	-	59	52	71	73	**25**	**-66%**	**-**
	Average per site (13 sites since 2010)	**-**	**-**	**-**	**58**	**52**	**62**	**67**	**38**	**-43%**	**-**
	Total (13 sites since 2010)	**-**	**-**	**-**	**757**	**677**	**811**	**870**	**493**	**-43%**	**-**

- Overall, 77 per cent of cyclists in the morning peak were adults (down from 84 per cent last year).
- Almost all morning cyclists were wearing a helmet across the Waitakere sites (90 per cent, stable from 91 per cent last year).
- Nearly all the morning cyclists were male (89 per cent).
- Twenty three per cent of morning cyclists were riding on an off-road cycleway, 23 per cent were riding on the road, and the remaining 54 per cent were riding on the footpath. The footpath has become considerably more popular this year; use has increased by 32 percentage points compared to last year.

Table 1.2: Summary of Morning Cyclist Characteristics

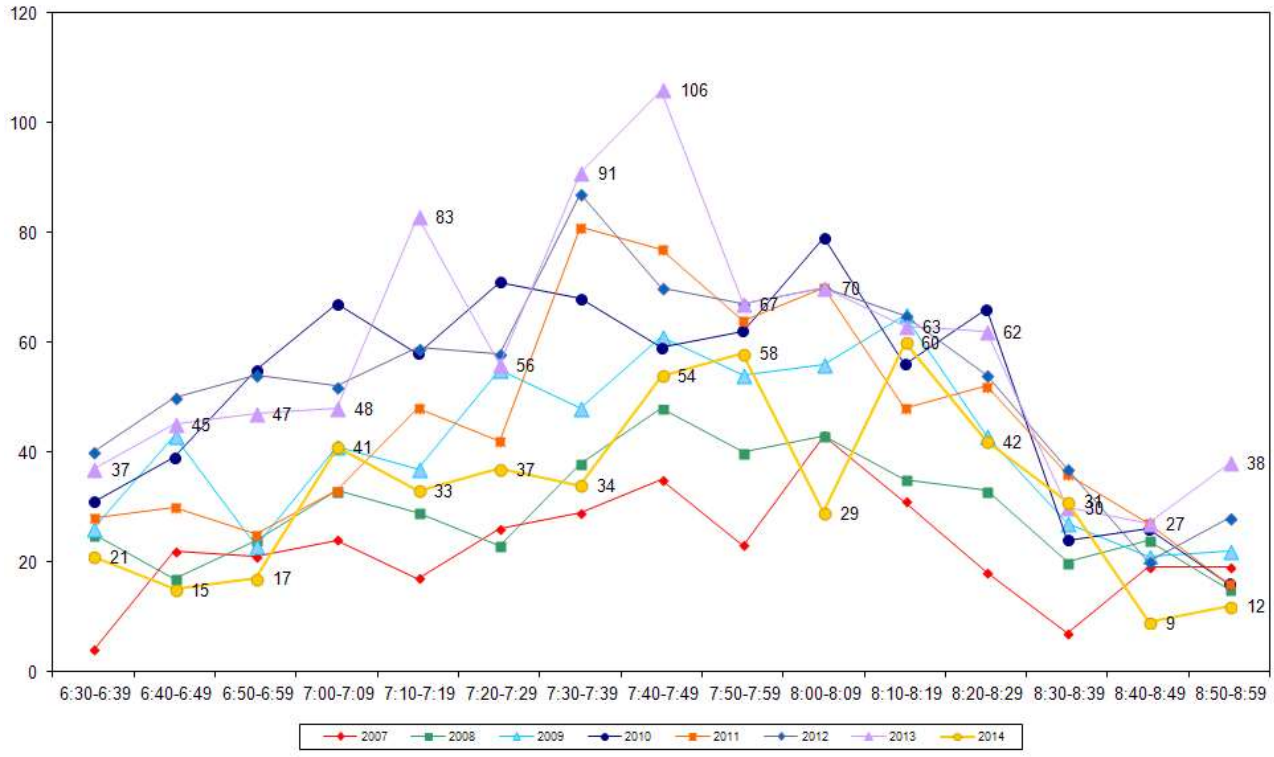
2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	80	76	78	81	75	81	84	**77**	**-7**
School child	20	24	22	19	25	19	16	**23**	**7**
Helmet Wearing									
Helmet on head	91	92	91	93	91	91	91	**90**	**-1**
No helmet	9	8	9	7	9	9	9	**10**	**1**
Gender									
Male	-	-	-	-	83	86	86	**89**	**3**
Female	-	-	-	-	15	14	12	**10**	**-2**
Can't tell	-	-	-	-	2	0	2	**1**	**-1**
Where Riding*									
Road	35	41	34	47	28	32	33	**23**	**-10**
Footpath	31	29	31	22	29	24	22	**54**	**32**
Off-road cycleway	34	30	35	31	43	44	45	**23**	**-22**
Base:	***338***	***447***	***622***	***757***	***677***	***811***	***870***	***493***	

- Figure 1.2 illustrates the total number of cyclists in the morning peak by time of trip. This year, cycle volumes in the morning monitoring period first reached a minor peak of 41 movements between 7:00am to 7:09am. Two further peaks are evident; firstly between 7:50am and 7:59am (58 cycle movements) and secondly between 8:10am and 8:19am (60 cycle movements). A trough is also present in the ten minute interval between these two peaks, with only 29 cyclists recorded during this period (8:00am to 8:09am). Following the peak between 8:10am and 8:19am, cycle volumes decreased for the remainder of the monitoring period.

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007 – 2014 (n)



1.5 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift for all sites with some sites recording light winds during the evening monitoring period.
- There were no road works or traffic accidents that may affect cycle counts in the evening.

Key Points

- A total of 654 cyclist movements were recorded across the 13 sites in the evening peak period (between 4:00pm and 7:00pm) in 2013. This represents a 34 per cent decrease from the 2013 result (984 movements).
- One per cent (n=8) of the movements were made by cyclists riding as groups. This compares with four per cent (n=42) in 2013.
- The average volume of evening cyclists across the 13 sites monitored in Waitakere since 2010 was 50 cycle movements. This represents a 34 percentage point decrease from 76 cycle movements last year.
- Consistent with the morning peak, the North Western Cycleway near the Te Atatu Road off-ramp continued to be the busiest in terms of the evening cyclists' activity, with 179 cycle movements recorded. By contrast, the lowest level of evening cyclist traffic was at the Lincoln Road/Fairdene Avenue intersection (12 cycle movements).
- All sites experienced declines in evening cycle volume this year, with the most notable decreases occurring at:
    - Lincoln/Fairdene Avenue – down 68 per cent;
    - Central Park Drive – down 50 per cent; and
    - West Coast Road/Rosier Road – down 50 per cent.

Table 1.3: Summary of Evening Cyclist Movements

2007 – 2014 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14 (%)	Change 07-14 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	130	151	198	209	190	238	236	**179**	**-24%**	**38%**
52	Central Park Drive, Henderson	66	89	121	106	112	134	138	**69**	**-50%**	**5%**
53	326 Te Atatu Road (Near Covil Ave)	43	55	59	62	54	60	77	**61**	**-21%**	**42%**
48	Henderson Creek	32	19	46	46	42	77	56	**55**	**-2%**	**72%**
55	Swanson/Ranui Station Road/Armada Drive	47	65	66	68	85	88	67	**53**	**-21%**	**13%**
51	Luckens/Hobsonville Road	12	16	51	54	38	70	60	**44**	**-27%**	**267%**
49	Triangle Road/Don Buck Road, Massey	43	32	35	63	53	53	41	**28**	**-32%**	**-35%**
54	Te Atatu Road/Elcoat Avenue	24	18	32	22	18	23	24	**23**	**-4%**	**-4%**
57	West Coast/Rosier Road, Glen Eden	29	19	34	29	35	19	32	**16**	**-50%**	**-45%**
50	Lincoln Road/Fairdene Avenue	27	36	22	35	28	33	37	**12**	**-68%**	**-56%**
	Average per site (10 sites since 2007)	**45**	**50**	**66**	**69**	**66**	**80**	**77**	**52**	**-32%**	**16%**
	Total (10 sites since 2007)	**453**	**500**	**664**	**694**	**655**	**795**	**768**	**520**	**-32%**	**15%**
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	55	68	102	78	90	104	**68**	**-35%**	**-**
85	Rathgar/Pomaria Road	-	-	53	46	35	35	32	**25**	**-22%**	**-**
	Average per site (11 sites in 2008, 12 sites in 2009)	**-**	**50**	**65**	**70**	**64**	**77**	**75**	**51**	**-32%**	**-**
	Total (11 sites in 2008, 12 sites in 2009)	**-**	**555**	**785**	**842**	**768**	**920**	**904**	**613**	**-32%**	**-**
87	Triangle/Huruhuru Road	-	-	-	78	69	106	80	**41**	**-49%**	**-**
	Average per site (13 sites in 2010)	**-**	**-**	**-**	**71**	**64**	**79**	**76**	**50**	**-34%**	**-**
	Total (13 sites in 2010)	**-**	**-**	**-**	**920**	**837**	**1026**	**984**	**654**	**-34%**	**-**

- Eighty-seven per cent of cyclists in the evening were adults (stable from 86 per cent last year).
- The majority of evening cyclists were wearing a helmet (87 per cent, stable from the previous measure).
- The greatest share of evening cyclists in the Waitakere ward were male (87 per cent).
- Twenty-six per cent of evening cyclists were riding on the road (down from 34 per cent last year), while 48 per cent were riding on an off-road cycleway (up from 43 per cent last year). The remaining 26 per cent of cyclists were riding on the footpath (up slightly from 23 per cent last year).

Table 1.5: Summary of Evening Cyclist Characteristics

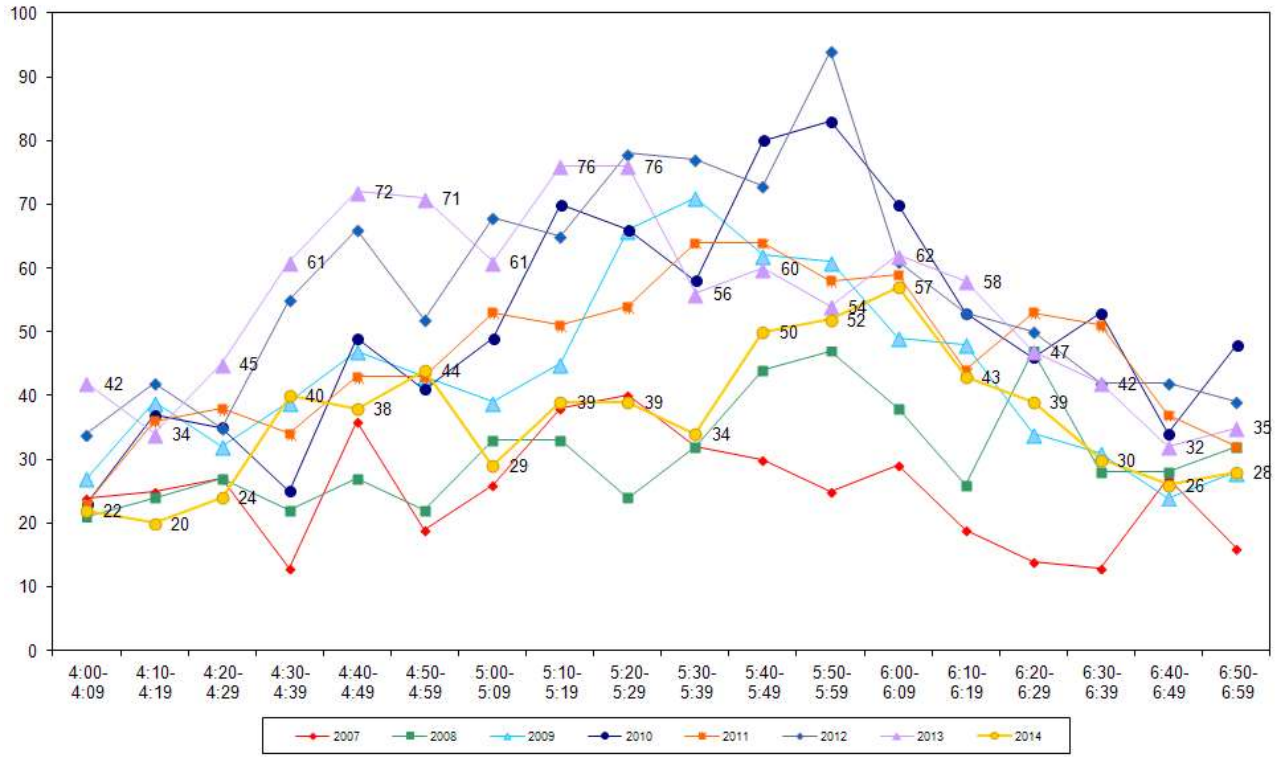
2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	84	83	83	83	86	87	86	**87**	**1**
School child	16	17	17	17	14	13	14	**13**	**-1**
Helmet Wearing									
Helmet on head	81	80	81	81	83	87	88	**87**	**-1**
No helmet	19	20	19	19	17	13	12	**13**	**1**
Gender									
Male	-	-	-	-	86	86	85	**87**	**2**
Female	-	-	-	-	12	13	13	**13**	**0**
Can't tell	-	-	-	-	2	1	2	**0**	**-2**
Where Riding*									
Road	32	39	32	42	30	37	34	**26**	**-8**
Footpath	32	30	31	28	25	21	23	**26**	**3**
Off-road cycleway	36	31	37	30	45	42	43	**48**	**5**
Base:	***453***	***555***	***785***	***920***	***837***	***1026***	***984***	***654***	

- The overall pattern of cyclist volumes by time of trip in the evening has been illustrated in Figure 1.3. This year, evening cyclist volumes peaked for a half an hour period between 4:30pm and 4:59pm with 122 movements recorded. A second peak is evident between 6:00pm and 6:09pm with 57 cyclists recorded in this ten minute interval. Cycle volumes then declined gradually through to the end of the monitoring period. This overall trend was fairly consistent with previous years.

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007 – 2014 (n)



1.6 Aggregated Total

- Overall, a total of 1,147 cyclist movements were recorded across the 13 Waitakere sites in 2014, amongst which three per cent (n=35) were observed cycling as groups (down from 5 per cent; n=88 in 2013). This result represents a 38 per cent decrease from 2013 (1,854 movements).
- The average number of cycle movements across all 13 sites was 88.
- The busiest site was the North Western Cycleway with a total of 304 movements (down from 454 movements in 2013), while the Lincoln Road/Fairdene Avenue site contributed the lowest number of cyclist movements (30 movements).
- Only one site recorded increases in total cyclist numbers this year compared with 2013. The Henderson Creek site experienced remained stable with 87 cycle movements compared to 86 movements last year.
- In contrast, the remaining twelve sites have recorded decreases in cycle movements this year. The most notable declines occurred at Luckens/Hobsonville Road (down 61 per cent) and at Triangle/Huruhuru Road (down 57 per cent).

Table 1.6: Summary of Total Cyclist Movements

2007 – 2014 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14 (%)	Change 07-14 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	232	272	355	388	345	425	454	**304**	**-33%**	**31%**
52	Central Park Drive, Henderson	127	157	212	200	212	246	273	**125**	**-54%**	**-2%**
53	326 Te Atatu Road (Near Covil Ave)	87	107	138	127	127	135	153	**124**	**-19%**	**43%**
48	Henderson Creek	46	30	73	84	66	116	86	**87**	**1%**	**89%**
55	Swanson/Ranui Station Road/Armada Drive	62	86	103	102	132	115	116	**81**	**-30%**	**31%**
51	Luckens/Hobsonville Road	32	41	77	95	52	112	104	**41**	**-61%**	**28%**
49	Triangle Road/Don Buck Road, Massey	67	61	56	90	88	83	87	**40**	**-54%**	**-40%**
54	Te Atatu Road/Elcoat Avenue	50	45	69	52	48	57	44	**35**	**-20%**	**-30%**
57	West Coast/Rosier Road, Glen Eden	48	37	62	60	60	38	56	**33**	**-41%**	**-31%**
50	Lincoln Road/Fairdene Avenue	40	55	43	56	54	67	68	**30**	**-56%**	**-25%**
	Average per site (10 sites in 2007)	**79**	**89**	**119**	**125**	**119**	**139**	**144**	**90**	**-38%**	**14%**
	Total (10 sites since 2007)	**791**	**891**	**1188**	**1254**	**1184**	**1394**	**1441**	**900**	**-38%**	**14%**
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	111	134	207	141	193	192	**126**	**-34%**	**-**
85	Rathgar/Pomaria Road	-	-	85	99	68	73	68	**55**	**-19%**	**-**
	Average per site (11 sites in 2008, 12 sites in 2009)	-	**91**	**117**	**130**	**116**	**138**	**142**	**90**	**-37%**	**-**
	Total (11 sites in 2008, 12 sites in 2009)	**-**	**1002**	**1407**	**1560**	**1393**	**1660**	**1701**	**1081**	**-36%**	**-**
87	Triangle/Huruhuru Road	-	-	-	137	121	177	153	**66**	**-57%**	**-**
	Average per site (13 sites since 2010)	-	-	-	**131**	**116**	**141**	**143**	**88**	**-38%**	**-**
	Total (13 sites since 2010)	**-**	**-**	**-**	**1697**	**1514**	**1837**	**1854**	**1147**	**-38%**	**-**

- Overall cyclist characteristics have been illustrated in Table 1.7. In total, 83 per cent of cyclists were adults (stable from 85 per cent last year).
- The majority of cyclists were wearing a helmet (88 per cent, stable from 89 per cent last year).
- Almost all cyclists were male (86 per cent, stable from 2013).
- One-in-four of cyclists were riding on the road (25 per cent), while 37 per cent were riding on an off-road cycleway (down from 43 per cent in 2013). The remaining 38 per cent were riding on the footpath.

Table 1.7: Summary of Total Cyclist Characteristics

2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	82	80	81	82	81	84	85	**83**	**-2**
School child	18	20	19	18	19	16	15	**17**	**2**
Helmet Wearing									
Helmet on head	86	85	85	87	86	89	89	**88**	**-1**
No helmet	14	15	15	13	14	11	11	**12**	**1**
Gender									
Male	-	-	-	-	84	84	86	**87**	**1**
Female	-	-	-	-	14	15	13	**12**	**-1**
Can't tell	-	-	-	-	2	1	1	**1**	**0**
Where Riding*									
Road	33	40	33	44	29	34	34	**25**	**-9**
Footpath	32	30	31	25	27	23	23	**38**	**15**
Off-road cycleway	35	30	36	31	44	43	43	**37**	**-6**
Base:	***791***	***1002***	***1407***	***1697***	***1514***	***1837***	***1854***	***1147***	

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 (438 daily trips, down from 659 daily trips last year) and the lowest is at the Lincoln Road/Fairdene Avenue intersection (44 daily trips, down from 98 trips last year).
- Only one site has recorded an increase in total AADT estimates this year compared with 2013. Henderson Creek has experienced a 2 per cent increase on AADT estimates compared to last year.
- In contrast, the AADT at the remaining twelve sites is lower than last year, with the most noticeable decreases at:
  - Luckens/Hobsonville Road– down 61 per cent
  - Triangle/Huruhuru Road – down 57 per cent

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

2007 – 2014 (n)

Site No.	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	*2012 AADT*	*2013 AADT*	*2014 AADT*	Change 13-14 (%)	Change 07-14 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	335	393	513	562	499	614	659	**438**	**-34%**	**31%**
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	161	195	301	204	282	278	**182**	**-35%**	**-**
52	Central Park Drive, Henderson	184	227	306	290	307	356	397	**181**	**-54%**	**-2%**
53	326 Te Atatu Road (Near Covil Ave)	127	155	202	185	186	197	222	**180**	**-19%**	**42%**
48	Henderson Creek	65	43	105	121	95	166	123	**125**	**2%**	**92%**
55	Swanson/Ranui Station Road/Armada Drive	88	122	148	146	189	162	167	**116**	**-31%**	**32%**
87	Triangle/Huruhuru Road	-	-	-	198	175	255	222	**95**	**-57%**	**-**
85	Rathgar/Pomaria Road	-	-	122	144	99	106	99	**80**	**-19%**	**-**
51	Luckens/Hobsonville Road	47	60	110	137	74	161	150	**59**	**-61%**	**26%**
49	Triangle Road/Don Buck Road, Massey	96	88	80	128	127	119	127	**57**	**-55%**	**-41%**
54	Te Atatu Road/Elcoat Avenue	73	66	101	76	71	84	64	**50**	**-22%**	**-32%**
57	West Coast/Rosier Road, Glen Eden	69	54	90	87	86	55	81	**48**	**-41%**	**-30%**
50	Lincoln Road/Fairdene Avenue	57	79	62	80	78	97	98	**44**	**-55%**	**-23%**

1.8 School Bike Shed Count Summary

Cycle Counts

- Among the surveyed schools, of those eligible to cycle to school, on average, one per cent of students are cycling to their schools, down from 2 per cent in 2013.
- Lincoln Heights School, Liston College and Waitakere School all reported the highest share of cyclists – 4 per cent of all eligible students currently cycling to school.
- In total, n=145 students from the responding schools were reported to be cycling to school.
- Of the 22 schools that responded, 8 (36 per cent) had no students cycling to school.
- Of the 20 schools that participated in the count in both 2013 and 2014, 5 (25 per cent) reported an increase in the share of students cycling.

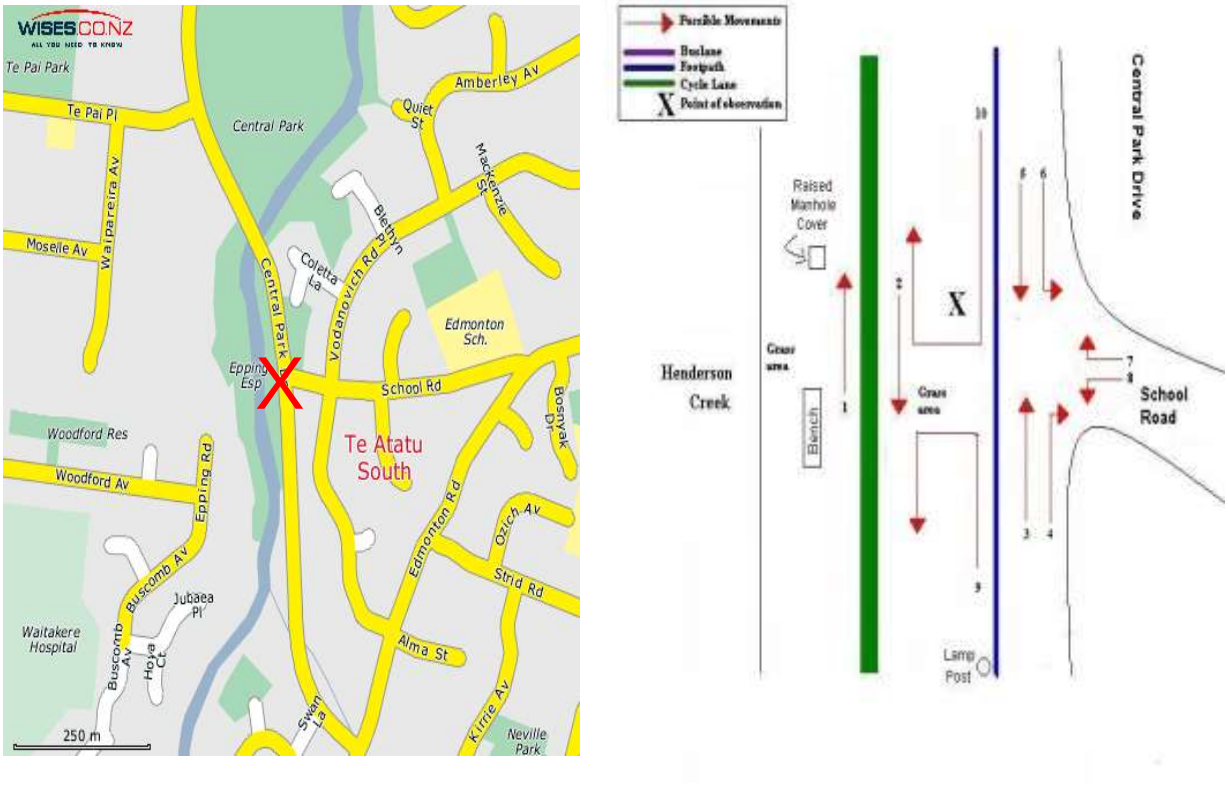
Scooter Counts

- Among the surveyed schools, of those eligible to scooter, on average, one per cent of students are scootering to their schools.
- Bruce Mclaren Intermediate reported the highest share of scooters – 6 per cent of all eligible students currently scootering to school.
- In total, n=75 students from the responding schools were reported to be scootering to school.
- Of the 22 schools that responded, 17 (77 per cent) had no students scootering to school.

2. HENDERSON CREEK, HENDERSON (SITE 48)

Figure 2.1 shows the possible cyclist movements at this site.

Figure 2.1: Cycle Movements: Henderson Creek



Note: In 2012, the surveyed area was increased to incorporate the Central Park Drive/School Road intersection. Consequently results from 2012 onwards are not directly comparable with those from previous years.

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
2012	39	77	116	166
2013	30	56	86	123
2014	**32**	**55**	**87**	**125**

2.2 Morning Peak

Environmental Conditions

- The weather was cloudy throughout the morning shift. Heavy rain was recorded from 7.00am to 7.16am and a light shower from 8:45am to 8:50am. The weather began to clear towards the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- In 2014, 32 cycle movements were recorded at this site, a slight increase of 2 movements from last year.
- Movements 6 and 7 were the most common movements during the morning shift (9 and 6 cyclists respectively).
- The biggest changes in cycle volumes occurred at Movement 6 – left turn from Central Park Road to School Road (up 8 cyclists since last year).

Table 2.1: Morning Cyclist Movements

Henderson Creek 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	6	5	10	19	11	7	6	**5**	**-1**
2	8	6	17	19	13	8	6	**5**	**-1**
3	-	-	-	-	-	6	5	**5**	**0**
4	-	-	-	-	-	1	1	**0**	**-1**
5	-	-	-	-	-	2	3	**1**	**-2**
6	-	-	-	-	-	4	1	**9**	**8**
7	-	-	-	-	-	8	5	**6**	**1**
8	-	-	-	-	-	3	3	**1**	**-2**
9	-	-	-	-	-	0	0	**0**	**0**
10	-	-	-	-	-	0	0	**0**	**0**
Total	**14**	**11**	**27**	**38**	**24**	**39**	**30**	**32**	**2**

- Over the morning peak, adults comprised nearly two-thirds of the cycle movements (63 per cent, down from 90 per cent in 2013).
- Most cyclists were wearing a helmet (88 per cent, slightly up from 85 per cent last year).
- The majority of morning cyclists (88 per cent) were male.
- Twenty-eight per cent of the cyclists were riding on the cycleway (down from 40 per cent last year). There were more cyclists using the footpath this year (14 percentage point increase).

Table 2.2: Morning Cyclist Characteristics

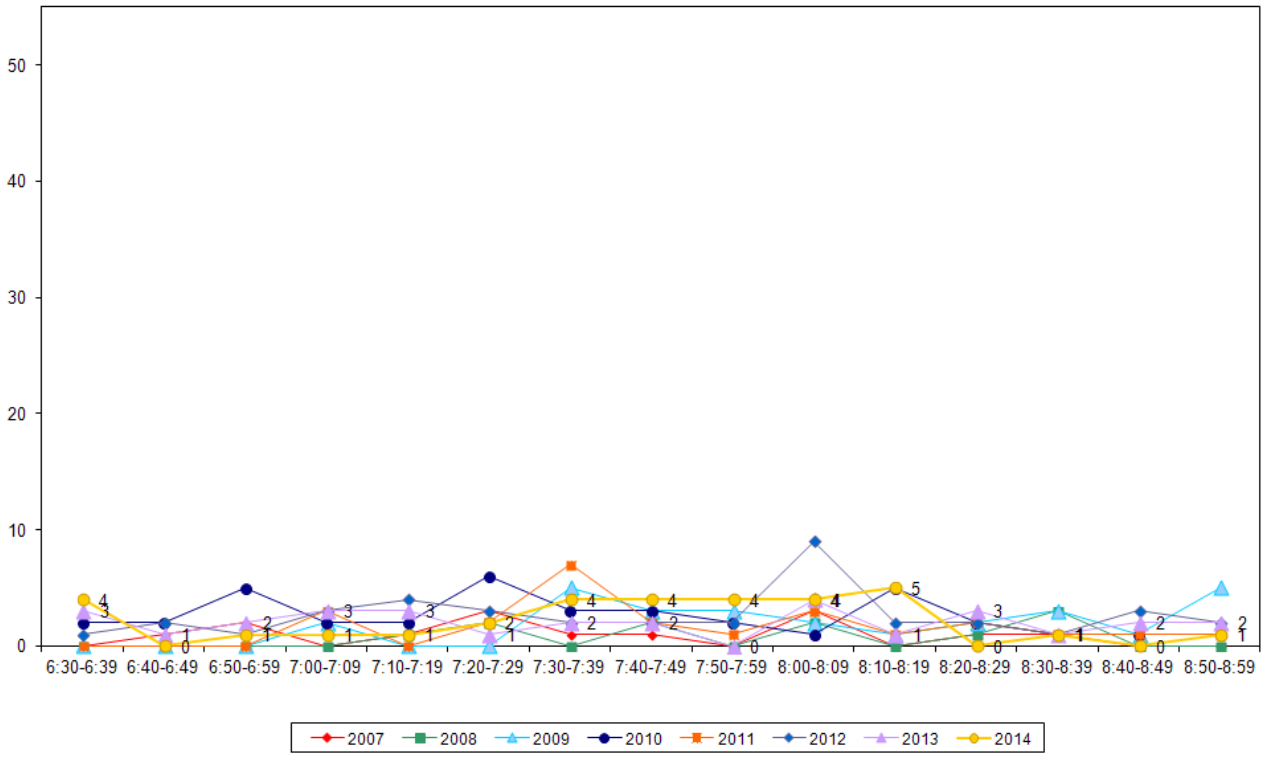
Henderson Creek 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	93	82	85	97	92	74	90	**63**	**-27**
School child	7	18	15	3	8	26	10	**37**	**27**
Helmet Wearing									
Helmet on head	79	100	93	92	92	82	85	**88**	**3**
No helmet	21	0	7	8	8	18	15	**12**	**-3**
Gender									
Male	-	-	-	-	79	87	97	**88**	**-9**
Female	-	-	-	-	21	13	3	**6**	**3**
Can't tell	-	-	-	-	0	0	0	**6**	**6**
Where Riding									
Road	-	-	-	-	-	13	27	**25**	**-2**
Footpath	-	-	-	-	-	48	33	**47**	**14**
Off-road cycleway	100	100	100	100	100	39	40	**28**	**-12**
Base:	***14***	***11***	***27***	***38***	***24***	***39***	***30***	***32***	

- Cyclist volume was low in the morning peak with no more than five cycle movements in any ten minute interval. This is consistent with previous years. They busiest period occurred between 7:30am and 8:19am with four or five cyclists observed during each ten minute interval during this period.

Figure 2.2: Morning Peak Cyclist Frequency

Henderson Creek 2007 – 2014 (n)



2.3 Evening Peak

Environmental Conditions

- The weather was sunny with a light breeze throughout the evening monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- A total of 55 cycle movements were observed in the evening peak (stable from 56 movements in 2013).
- The most common movements in the evening were heading north and south along Henderson Creek (respectively; Movement 1 = 18 cyclists and Movement 2 = 13 cyclists).
- Cycle volume heading north along Henderson Creek (Movement 1) has observed the largest change this year, with 7 more cyclists compared to last year.

Table 2.3: Evening Cyclist Movements

Henderson Creek 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	15	7	19	22	21	22	11	**18**	**7**
2	17	12	27	24	21	21	15	**13**	**-2**
3	-	-	-	-	-	6	6	**2**	**-4**
4	-	-	-	-	-	4	2	**4**	**2**
5	-	-	-	-	-	6	8	**6**	**-2**
6	-	-	-	-	-	9	5	**4**	**-1**
7	-	-	-	-	-	9	4	**5**	**1**
8	-	-	-	-	-	0	5	**3**	**-2**
9	-	-	-	-	-	0	0	**0**	**0**
10	-	-	-	-	-	0	0	**0**	**0**
Total	**32**	**19**	**46**	**46**	**42**	**77**	**56**	**55**	**-1**

- Over the evening peak, the majority of cyclists using Henderson Creek were adults (73 per cent, down from 89 per cent in 2013).
- The share of cyclists at this site wearing a helmet has remained stable (85 per cent, compared to 86 per cent in 2013).
- Most cyclists (82 per cent) were male.
- The greatest share of cyclists was riding on the off-road cycleway (62 per cent, an increase of 16 percentage points from last year). Consequently, the share cycling on either the road or the declined this year.

Table 2.4: Evening Cyclist Characteristics

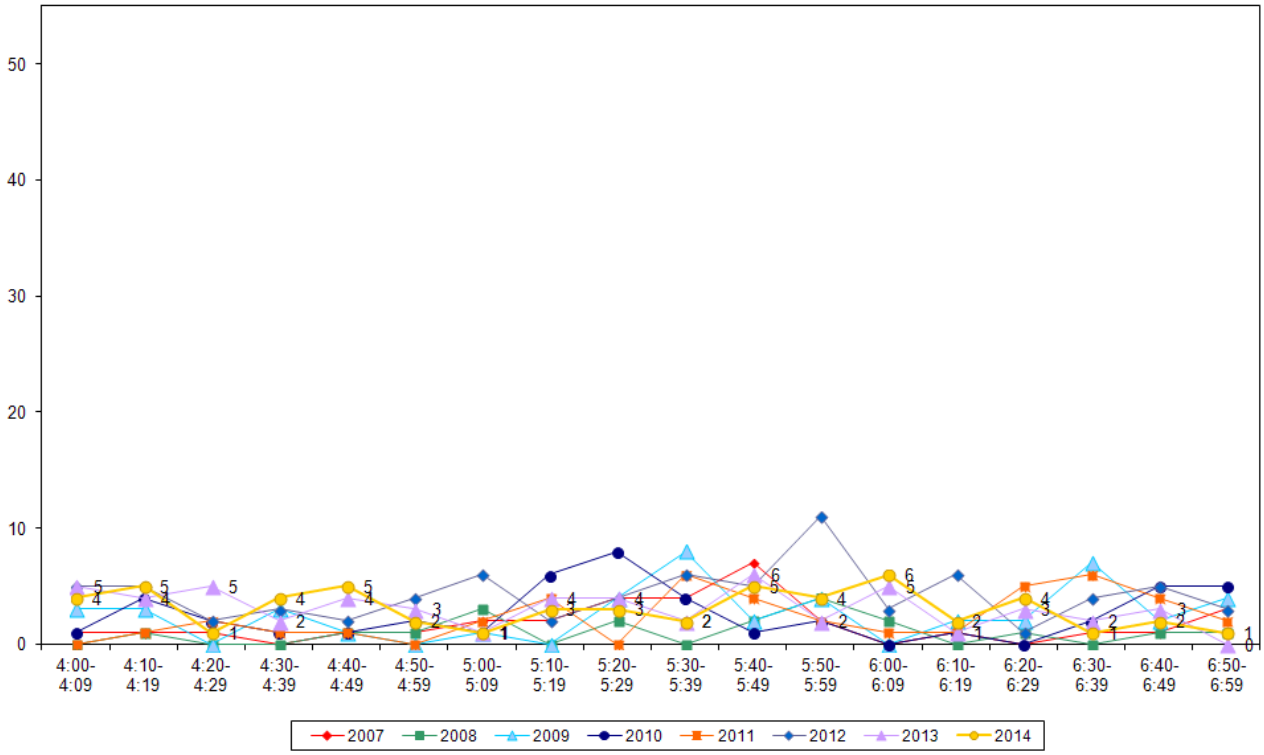
Henderson Creek 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	100	87	100	90	94	89	**73**	**-16**
School child	0	0	13	0	10	6	11	**27**	**16**
Helmet Wearing									
Helmet on head	78	89	91	93	81	82	86	**85**	**-1**
No helmet	22	11	9	7	19	18	14	**15**	**1**
Gender									
Male	-	-	-	-	83	84	88	**82**	**-6**
Female	-	-	-	-	17	16	12	**16**	**4**
Can't tell	-	-	-	-	0	0	0	**2**	**2**
Where Riding									
Road	-	-	-	-	-	16	24	**14**	**-10**
Footpath	-	-	-	-	-	29	30	**24**	**-6**
Off-road cycleway	100	100	100	100	100	55	46	**62**	**16**
Base:	***32***	***19***	***46***	***46***	***42***	***77***	***56***	***55***	

- The volume of evening cycle movements by time of trip has been illustrated in Figure 2.3. Although cycle traffic fluctuated during the monitoring period, it has remained low, not exceeding six movements during any ten minute intervals.

Figure 2.3: Evening Peak Cyclist Frequency

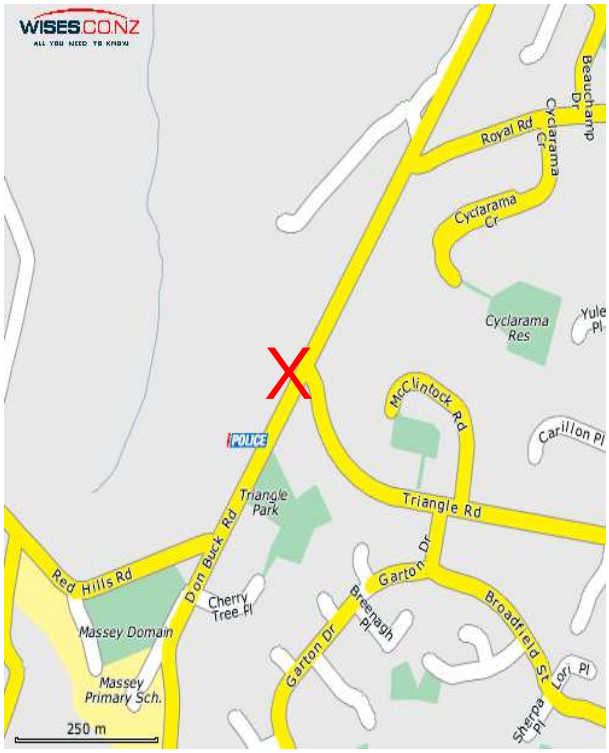
Henderson Creek 2007 – 2014 (n)

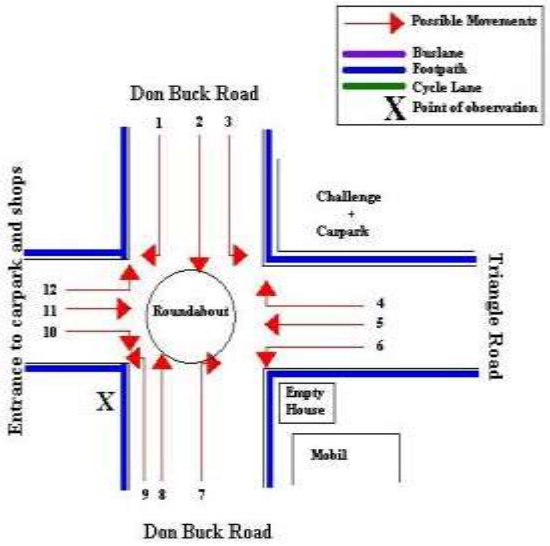


3. TRIANGLE ROAD/DON BUCK ROAD, HENDERSON (SITE 49)

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
2012	30	53	83	119
2013	46	41	87	127
2014	**12**	**28**	**40**	**57**

3.2 Morning Peak

Environmental Conditions

- It was raining shortly before the beginning of the morning of the shift. It continued to rain from 6:52am to 7:10am. The weather gradually became fine towards the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- In 2014, the volume of morning cyclists recorded at the Triangle Road/Don Buck Road site has decreased (12 cycle movements, compared with 46 cycle movements recorded last year).
- The key morning movement was turning left from Don Buck Road onto Triangle Road (Movement 3 = 7 cyclists).
- The most noticeable change in morning cyclist movements at this site in 2014 was at Movement 2 (down 14 cycle movements from 2013).

Table 3.1: Morning Cyclist Movements

Triangle Road/Don Buck Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	2	4	0	0	5	0	0	**0**	**0**
2	10	9	9	8	8	18	16	**2**	**-14**
3	3	4	7	8	6	5	10	**7**	**-3**
4	3	3	0	1	3	1	3	**2**	**-1**
5	0	1	0	0	0	0	1	**0**	**-1**
6	3	4	2	1	3	2	6	**1**	**-5**
7	2	1	1	5	7	2	2	**0**	**-2**
8	0	3	2	2	2	2	5	**0**	**-5**
9	0	0	0	0	0	0	0	**0**	**0**
10	1	0	0	0	0	0	0	**0**	**0**
11	0	0	0	0	0	0	2	**0**	**-2**
12	0	0	0	2	1	0	0	**0**	**0**
Don't know	-	-	-	-	-	-	1	**0**	**-1**
Total	**24**	**29**	**21**	**27**	**35**	**30**	**46**	**12**	**-32**

- Over the morning peak, the share of cyclists classified as adults has decreased, from 84 per cent last year to 75 per cent this year.
- Every cyclist was wearing a helmet this year, up noticeably from 89 per cent last year.
- The greatest share of morning cyclists was male (92 per cent).
- Most cyclists were riding on the road (92 per cent, up from 78 per cent at the previous measure).

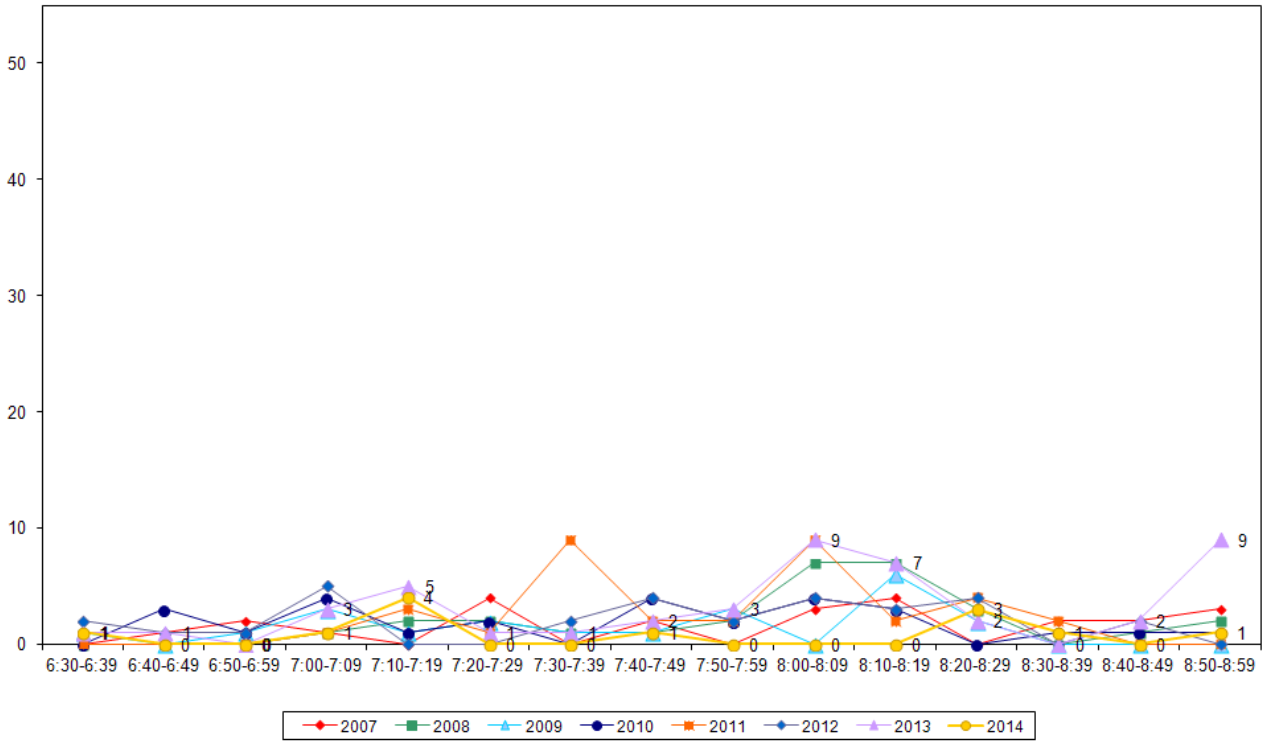
Table 3.2: Morning Cyclist Characteristics

Triangle Road/Don Buck Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	79	41	67	74	57	77	84	**75**	**-9**
School child	21	59	33	26	43	23	16	**25**	**9**
Helmet Wearing									
Helmet on head	87	97	86	93	74	100	89	**100**	**11**
No helmet	13	3	14	7	26	0	11	**0**	**-11**
Gender									
Male	-	-	-	-	75	100	89	**92**	**3**
Female	-	-	-	-	11	0	9	**8**	**-1**
Can't tell	-	-	-	-	14	0	2	**0**	**-2**
Where Riding									
Road	62	48	71	78	63	87	78	**92**	**14**
Footpath	38	52	29	22	37	13	22	**8**	**-14**
Base:	***24***	***29***	***21***	***27***	***35***	***30***	***46***	***12***	

- As illustrated in Figure 3.2, cycle volume was low throughout the morning monitoring period. A group of three cyclists riding together at 7:16am resulted in the highest number of cyclists recorded at any ten minute interval (four cyclists between 7:10am and 7:19am). The general trend appeared consistent with the ones in previous years.

Figure 3.2: Morning Peak Cyclist Frequency
Triangle Road/Don Buck Road 2007 – 2014 (n)



Note: In 2014, 3 cyclists (25 per cent of all morning peak cycle movements at this site) were observed riding together at 7:16am. This compares with no cyclists riding together as groups in 2013.

3.3 Evening Peak

Environmental Conditions

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

Key Points

- Compared with last year, the total number of evening peak cycle movements recorded at the Triangle Road/Don Buck Road intersection has decreased by 13 movements to 28 movements.
- The key movements at this site in the evening were straight along Don Buck Road heading south (Movement 2 = 6 cyclists), straight along Don Buck Road heading north (Movement 8 = 6 cyclists) and turning right from Triangle Road into Don Buck Road heading north (Movement 4 = 9 cyclists).
- The most noticeable changes since 2013 were at Movement 2 (down 5 cyclists) and Movement 6 (down 4 cyclists).

Table 3.3: Evening Cyclist Movements

Triangle Road/Don Buck Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	0	0	1	1	0	1	**1**	**0**
2	8	7	4	10	12	12	11	**6**	**-5**
3	7	4	4	3	10	3	4	**3**	**-1**
4	4	4	6	8	7	14	8	**9**	**1**
5	1	0	0	2	0	0	1	**0**	**-1**
6	10	9	5	11	3	6	6	**2**	**-4**
7	4	3	3	11	1	1	1	**0**	**-1**
8	4	4	13	13	17	17	9	**6**	**-3**
9	0	0	0	0	0	0	0	**0**	**0**
10	0	0	0	0	0	0	0	**0**	**0**
11	0	1	0	1	0	0	0	**0**	**0**
12	4	0	0	3	2	0	0	**1**	**1**
Total	**43**	**32**	**35**	**63**	**53**	**53**	**41**	**28**	**-13**

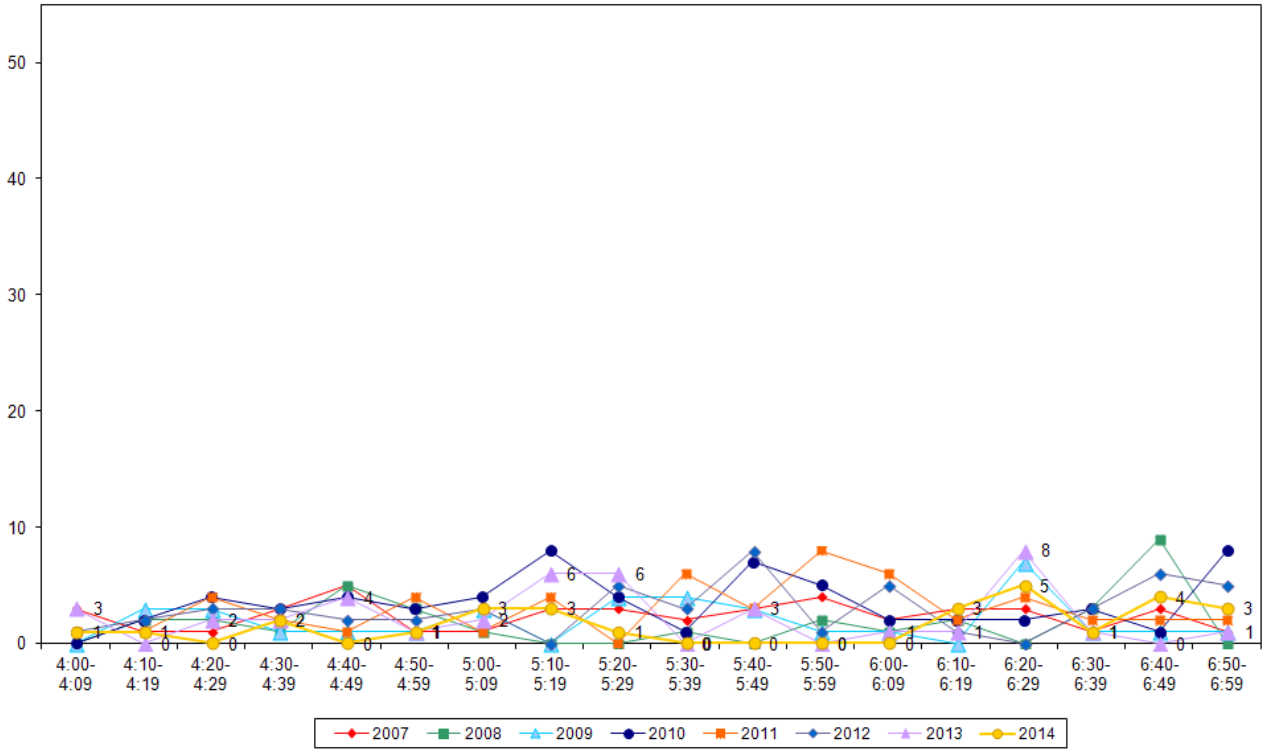
- The greatest share of cyclists using the Triangle Road/Don Buck Road intersection was adults (86 per cent, up from 83 per cent in 2013).
- Three in four cyclists at this site were wearing a helmet (down from 83 per cent last year).
- Three quarters of evening cyclists were male.
- While the majority of cyclists were riding on the road (61 per cent), the share of cyclists on the footpath increased by 17 percentage points this year.

Table 3.4: Evening Cyclist Characteristics
Triangle Road/Don Buck Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	74	78	80	67	87	89	83	**86**	**3**
School child	26	22	20	33	13	11	17	**14**	**-3**
Helmet Wearing									
Helmet on head	63	78	77	76	87	89	83	**75**	**-8**
No helmet	37	22	23	24	13	11	17	**25**	**8**
Gender									
Male	-	-	-	-	86	89	88	**75**	**-13**
Female	-	-	-	-	8	11	7	**25**	**18**
Can't tell	-	-	-	-	6	0	5	**0**	**-5**
Where Riding									
Road	58	72	71	63	85	83	71	**61**	**-10**
Footpath	42	28	29	37	15	17	22	**39**	**17**
Unsure	-	-	-	-	-	-	7	**0**	**-7**
Base:	***43***	***32***	***35***	***63***	***53***	***53***	***41***	***28***	

- Cyclist volumes in the evening gradually came to a gentle peak of five movements from 6:20pm to 6:29pm. Cycle traffic remained low until throughout the rest of the shift, with generally no more than four cyclists being recorded at any ten minute interval.

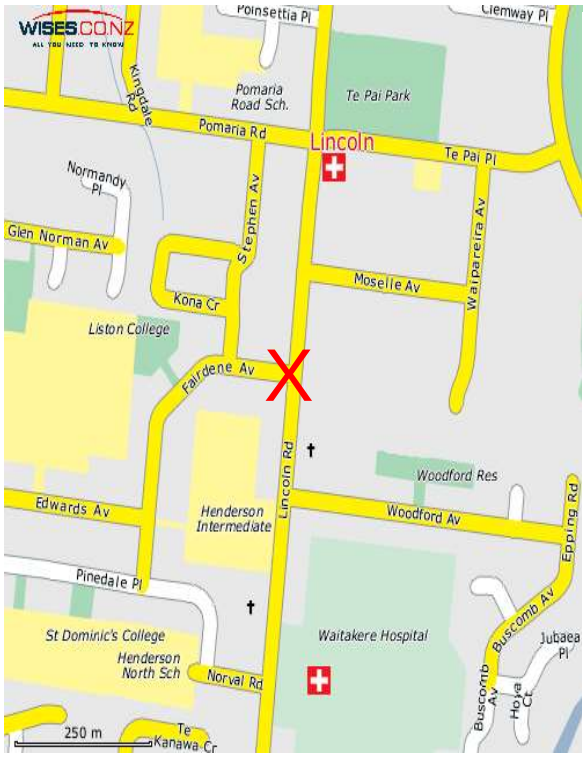
Figure 3.3: Evening Peak Cyclist Frequency
Triangle Road/Don Buck Road 2007 – 2014 (n)

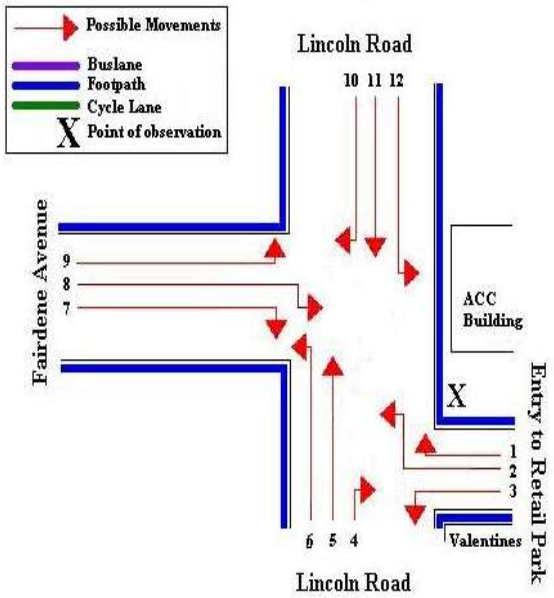


4. LINCOLN ROAD/FAIRDENE AVENUE, HENDERSON (SITE 50)

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
2012	34	33	67	97
2013	31	37	68	98
2014	**18**	**12**	**30**	**44**

4.2 Morning Peak

Environmental Conditions

- The weather was overcast with patches of light rain throughout the monitoring period. Moderate rain was recorded between 7:01am and 7:12am. The weather began to clear up towards the end of the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The level of morning cyclist traffic has decreased at the intersection of Lincoln Road and Fairdene Avenue compared with last year (18 cycle movements, compared with 31 in 2013).
- The most common movement in the morning was straight along Lincoln Road heading south (Movement 11 = 6 cyclists).
- The most notable change in morning cyclist volumes was at Movements 5, down 8 cyclists from 2013.

Table 4.1: Morning Cyclist Movements

Lincoln Road/Fairdene Avenue 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	1	0	1	1	2	0	**1**	**1**
2	3	0	0	0	0	0	1	**0**	**-1**
3	1	0	1	3	1	1	1	**0**	**-1**
4	2	2	2	0	1	1	3	**0**	**-3**
5	1	3	11	7	10	14	10	**2**	**-8**
6	3	0	1	0	0	0	2	**1**	**-1**
7	1	4	0	1	2	1	2	**2**	**0**
8	0	0	0	0	0	0	0	**0**	**0**
9	2	0	0	1	1	0	1	**3**	**2**
10	0	1	0	2	2	3	4	**3**	**-1**
11	0	8	6	6	7	11	7	**6**	**-1**
12	0	0	0	0	1	1	0	**0**	**0**
Total	**13**	**19**	**21**	**21**	**26**	**34**	**31**	**18**	**-13**

- Over the morning peak, adults comprised 61 per cent of the cycle movements (down from 74 per cent last year).
- Almost three-quarters of all cyclists at this site were wearing a helmet (72 per cent, down 5 percentage points from last year).
- The majority of cyclists were male (83 per cent).
- Riding on the footpath (89 per cent, up from 63 per cent last year) continued to be much more common than riding on the road (11 per cent).

Table 4.2: Morning Cyclist Characteristics

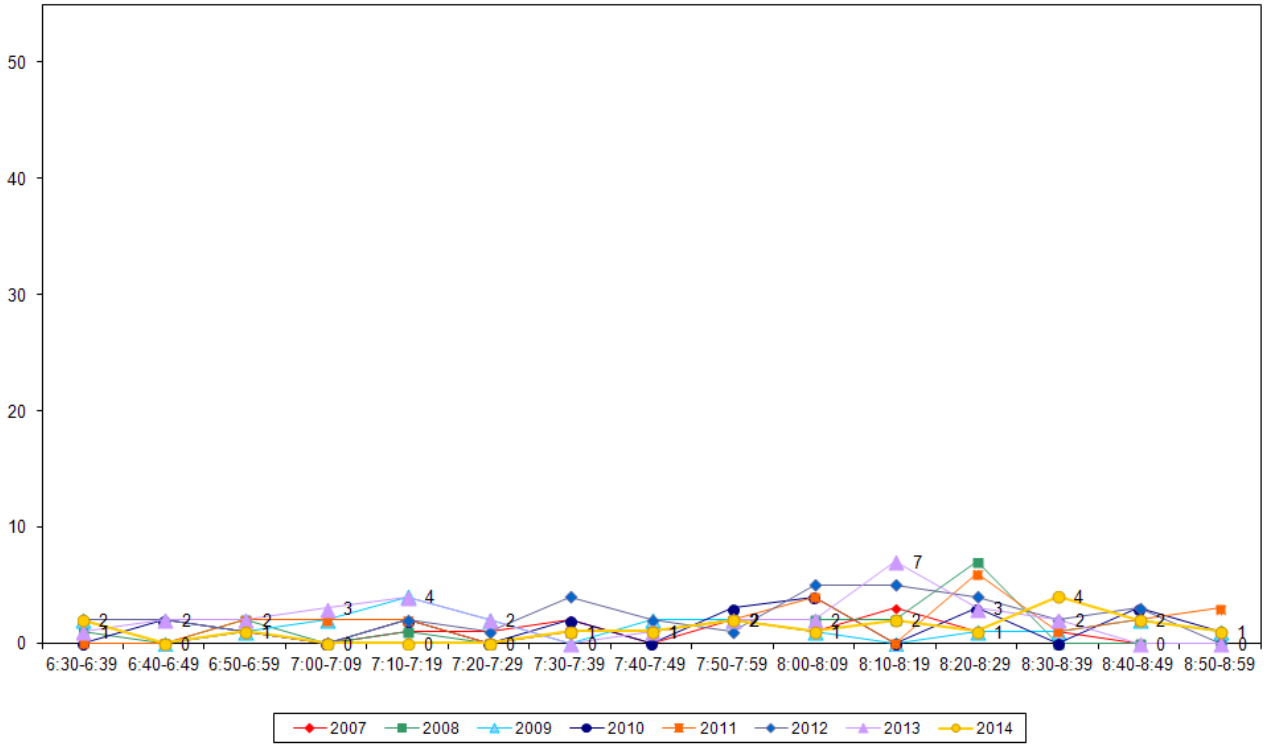
Lincoln Road/Fairdene Avenue 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	62	58	76	71	79	74	74	**61**	**-13**
School child	38	42	24	29	21	26	26	**39**	**13**
Helmet Wearing									
Helmet on head	92	89	62	67	54	76	77	**72**	**-5**
No helmet	8	11	38	33	46	24	23	**28**	**5**
Gender									
Male	-	-	-	-	75	79	81	**83**	**2**
Female	-	-	-	-	25	21	16	**17**	**1**
Can't tell	-	-	-	-	0	0	3	**0**	**-3**
Where Riding									
Road	31	37	38	19	32	35	37	**11**	**-26**
Footpath	69	63	62	81	68	65	63	**89**	**26**
Base:	***13***	***19***	***21***	***21***	***26***	***34***	***31***	***18***	

- The volume of morning cycle movements was low at this site, consistent with the trend from previous years. Cycle movements did not exceed four cyclists during any ten minute interval throughout the morning monitoring period.

Figure 4.2: Morning Peak Cyclist Frequency

Lincoln Road/Fairdene Avenue 2007 – 2014 (n)



4.3 Evening Peak

Environmental Conditions

- The weather was mostly fine throughout the evening shift. There was a moderate breeze with a shower of rain recorded during 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 in the evening at the Lincoln Road/Fairdene Avenue intersection has decreased, from 37 movements in 2013 to 12 movements this year.
- The key movement in the evening was straight along Lincoln Road heading north (Movement 5 = 5 cyclists).
- Of the 12 movements possible at this site, the most notable change compared with last year was at Movement 11 – travelling straight along Lincoln Road heading south (down 10 cyclists).

Table 4.3: Evening Cyclist Movements

Lincoln Road/Fairdene Avenue 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	0	1	2	0	1	1	**0**	**-1**
2	2	2	0	0	0	2	0	**1**	**1**
3	3	1	3	1	1	1	5	**1**	**-4**
4	5	2	2	0	1	0	2	**1**	**-1**
5	1	13	5	13	8	6	7	**5**	**-2**
6	1	1	1	3	1	0	3	**0**	**-3**
7	3	2	0	2	1	4	1	**0**	**-1**
8	3	3	0	0	0	2	0	**0**	**0**
9	5	0	0	2	1	1	3	**0**	**-3**
10	0	2	1	1	3	2	0	**0**	**0**
11	1	10	9	11	12	13	13	**3**	**-10**
12	2	0	0	0	0	1	2	**1**	**-1**
Total	**27**	**36**	**22**	**35**	**28**	**33**	**37**	**12**	**-25**

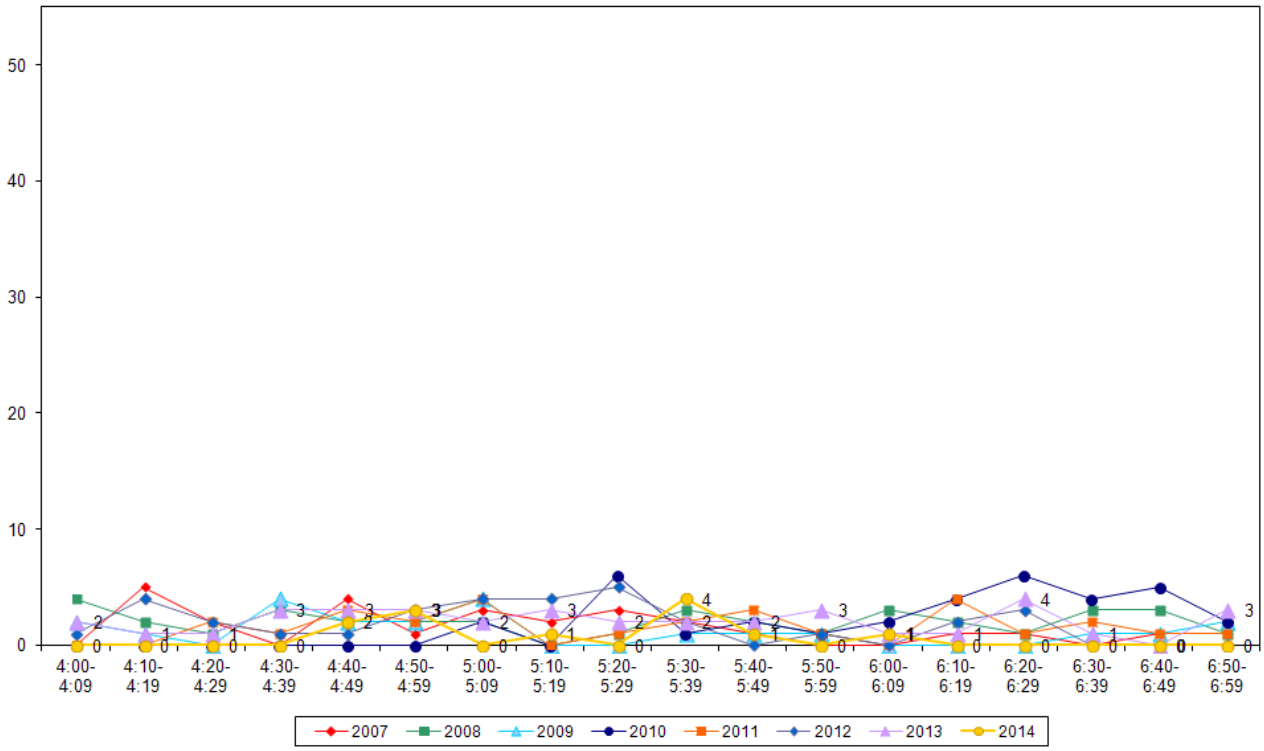
- In contrast to last year, all cyclists using this intersection in 2014 were adults (100 per cent up from 57 per cent in 2013).
- Fifty-eight per cent of cyclists were wearing a helmet (down 7 percentage points from last year).
- All recorded cyclists during the evening monitoring period were male (up from 81 per cent in 2013).
- The incidence of cyclists riding on the road was higher when compared with last year (42 per cent this year, 21 percentage point increase from 2013).

Table 4.4: Evening Cyclist Characteristics
Lincoln Road/Fairdene Avenue 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	89	44	59	71	79	64	57	**100**	**43**
School child	11	56	41	29	21	36	35	**0**	**-35**
Unsure	-	-	-	-	-	-	8	**0**	**-8**
Helmet Wearing									
Helmet on head	52	67	50	71	54	76	65	**58**	**-7**
No helmet	48	33	50	29	46	24	35	**42**	**7**
Gender									
Male	-	-	-	-	75	76	81	**100**	**19**
Female	-	-	-	-	25	24	19	**0**	**-19**
Can't tell	-	-	-	-	0	0	0	**0**	**0**
Where Riding									
Road	19	11	9	29	32	31	21	**42**	**21**
Footpath	81	89	91	71	68	69	79	**58**	**-21**
Base:	***27***	***36***	***22***	***35***	***28***	***33***	***37***	***12***	

- Similar to the observation from the morning shift, the volume of cycle movements was low. There were no more than four cyclists recorded in all but one of the ten minute intervals monitored. This exception occurred between 5:30pm and 5:39pm, with four cyclist movements recorded.

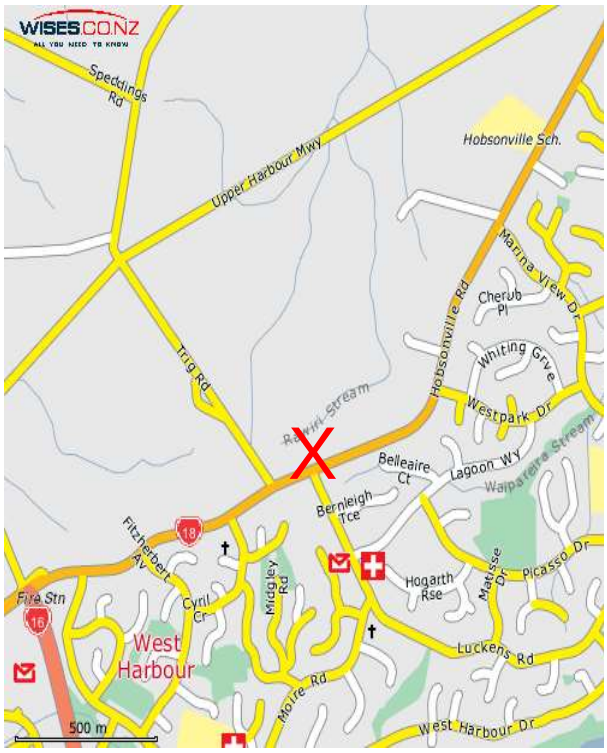
Figure 4.3: Evening Peak Cyclist Frequency
Lincoln Road/Fairdene Avenue 2007 – 2014 (n)

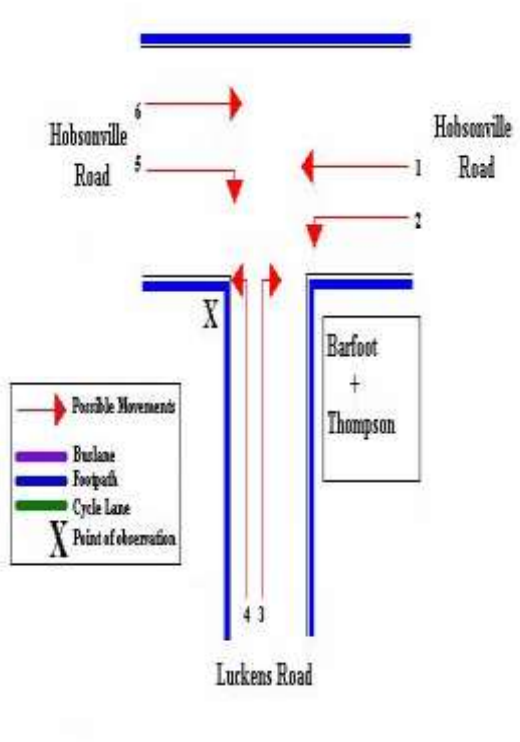


5. LUCKENS ROAD/HOBSONVILLE ROAD, WEST HARBOUR (SITE 51)

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: 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
2012	42	70	112	161
2013	44	60	104	150
2014	**17**	**24**	**41**	**59**

5.2 Morning Peak

Environmental Conditions

- The weather was overcast throughout the morning shift. Heavy showers were reported at 6:20am to 6:30am and light drizzle at 8:32am.
- 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 this year (17 cycle movements, compared with 44 movements in 2013).
- The key decrease at this site was travelling straight along Hobsonville Road heading southwest (Movement 1 down 10 cyclists).
- Four cyclists were recorded each at Movement 1, Movement 4 and Movement 6.

Table 5.1: Morning Cyclist Movements

Luckens/Hobsonville Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	5	3	7	7	7	15	14	**4**	**-10**
2	3	8	9	9	4	11	10	**3**	**-7**
3	2	7	1	6	0	3	3	**0**	**-3**
4	2	3	6	7	2	5	10	**4**	**-6**
5	0	2	2	1	0	1	0	**1**	**1**
6	8	2	1	11	1	7	7	**4**	**-3**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Total	**20**	**25**	**26**	**41**	**14**	**42**	**44**	**17**	**-27**

- Over the morning peak, every cyclist was recorded as an adult (stable from 98 per cent in 2013).
- All cyclists were wearing a helmet (stable from 98 per cent of cyclists in 2013).
- The majority of cyclists recorded were male (88 per cent, stable from 90 per cent last year).
- Almost all of the cyclists were riding on the road (94 per cent, a 4 percentage point decrease from 2013).

Table 5.2: Morning Cyclist Characteristics

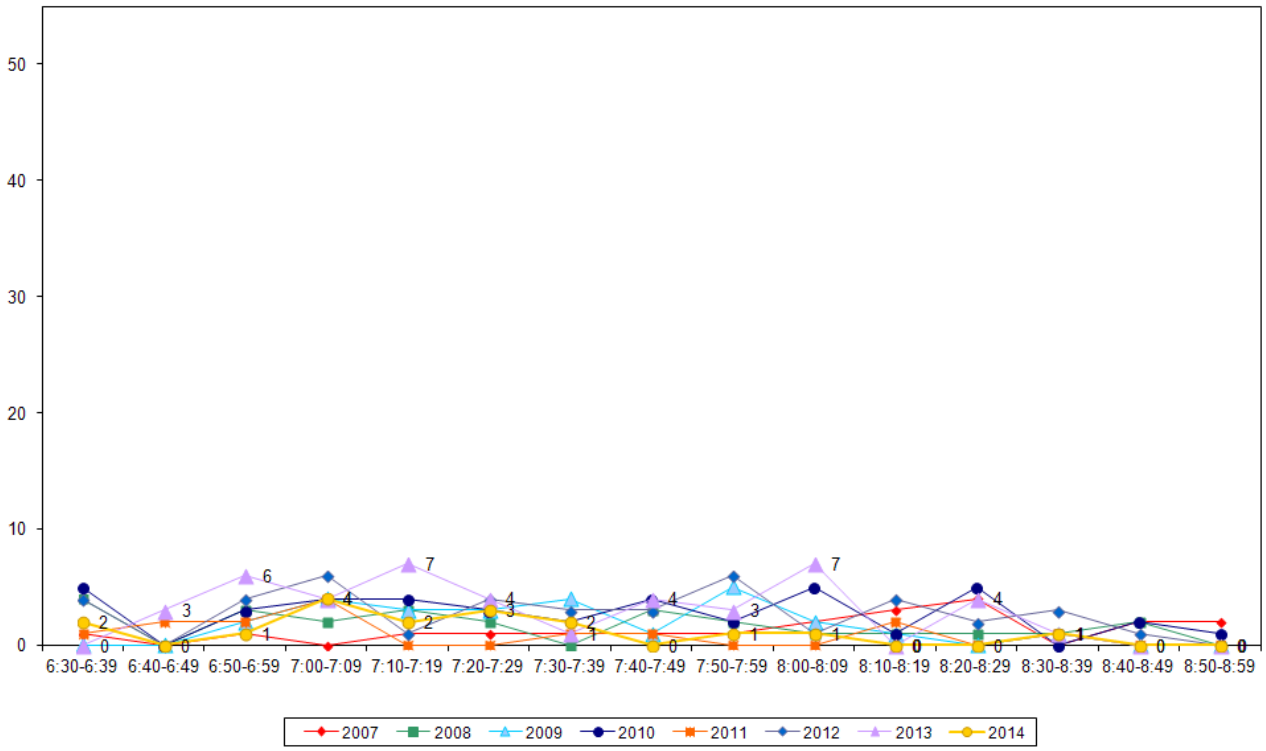
Luckens/Hobsonville Road 2007 – 2014 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type									
Adult	75	88	88	83	86	93	98	**100**	**2**
School child	25	12	12	17	14	7	2	**0**	**-2**
Helmet Wearing									
Helmet on head	100	100	96	98	93	95	98	**100**	**2**
No helmet	0	0	4	2	7	5	2	**0**	**-2**
Gender									
Male	-	-	-	-	100	83	90	**88**	**-2**
Female	-	-	-	-	0	17	5	**12**	**7**
Can't tell	-	-	-	-	0	0	5	**0**	**-5**
Where Riding									
Road	70	80	81	80	79	86	98	**94**	**-4**
Footpath	30	20	19	20	21	14	2	**6**	**4**
Base:	***20***	***25***	***26***	***41***	***14***	***42***	***44***	***17***	

- 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 movements).

Figure 5.2: Morning Peak Cyclist Frequency

Luckens/Hobsonville Road 2007 – 2014 (n)



5.3 Evening Peak

Environmental Conditions

- The weather was cloudy 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, with 24 movements recorded, compared with 60 movements last year.
- The largest change in cycle volumes in the evening was turning right into Hobsonville Road from Luckens Road (Movement 3, down 15 cyclists).

Table 5.3: Evening Cyclist Movements

Luckens/Hobsonville Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	6	1	8	12	13	13	9	**6**	**-3**
2	3	6	4	6	4	1	6	**2**	**-4**
3	1	2	13	10	6	28	19	**4**	**-15**
4	2	2	2	5	4	4	4	**1**	**-3**
5	0	0	3	4	6	8	14	**5**	**-9**
6	0	5	21	17	5	16	8	**6**	**-2**
Total	**12**	**16**	**51**	**54**	**38**	**70**	**60**	**24**	**-36**

- All cyclists using this intersection were adults (an increase of 10 percentage points from the previous year).
- Helmet-wearing continued to be wide-spread (100 per cent, an increase from 92 per cent last year).
- The majority of cyclists were male (71 per cent, down 19 percentage points from 2013).
- Most cyclists were riding on the road (79 per cent, down from 83 per cent in 2013).

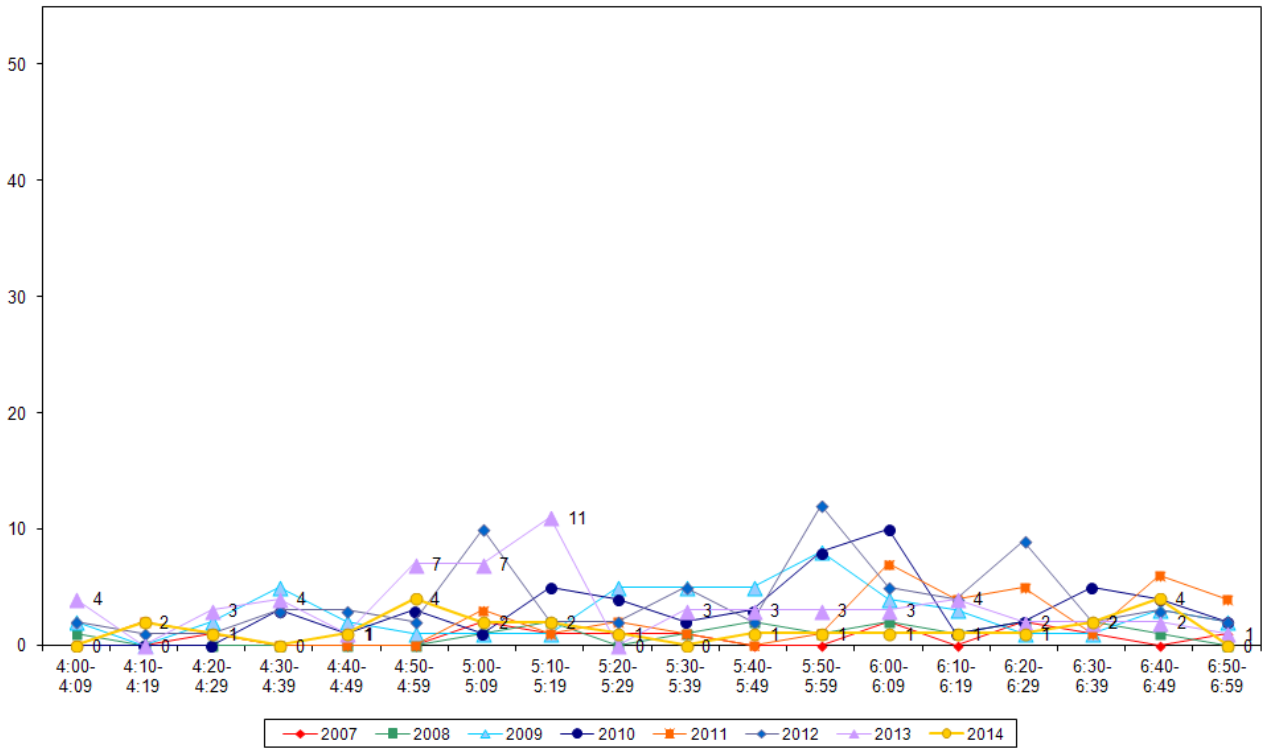
Table 5.4: Evening Cyclist Characteristics

Luckens/Hobsonville Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	94	100	91	66	89	90	**100**	**10**
School child	0	6	0	9	34	11	10	**0**	**-10**
Helmet Wearing									
Helmet on head	100	69	98	94	74	97	92	**100**	**8**
No helmet	0	31	2	6	26	3	8	**0**	**-8**
Gender									
Male	-	-	-	-	87	87	90	**71**	**-19**
Female	-	-	-	-	5	13	10	**29**	**19**
Can't tell	-	-	-	-	8	0	0	**0**	**0**
Where Riding									
Road	100	81	90	81	53	91	83	**79**	**-4**
Footpath	0	19	10	19	47	9	17	**21**	**4**
Base:	***12***	***16***	***51***	***54***	***38***	***70***	***60***	***24***	

- Cycle volumes have been low throughout the evening monitoring period, with no more than four cycle mounts recorded at any ten minute interval. In contrast to cycle volumes from previous years, there are no notable peaks during the evening period.

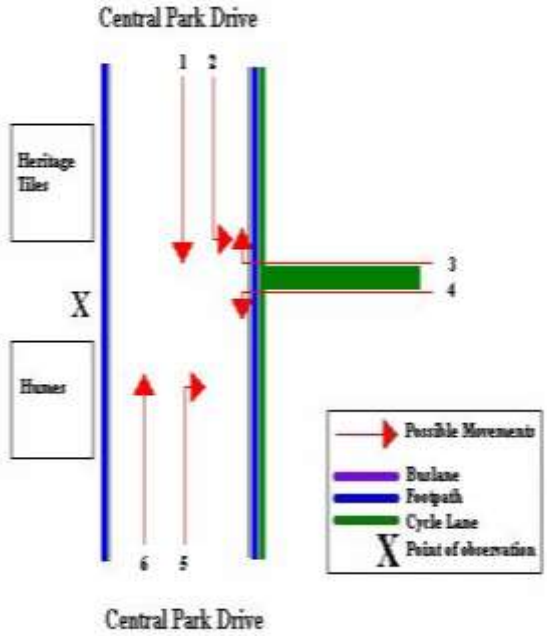
Figure 5.3: Evening Peak Cyclist Frequency
Luckens/Hobsonville Road 2007 – 2014 (n)



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
2012	112	134	246	356
2013	135	138	273	397
2014	**56**	**69**	**125**	**181**

6.2 Morning Peak

Environmental Conditions

- The weather was cloudy with drizzle and moderate showers present throughout the first part of the morning monitoring period. The weather gradually improved after 8:00am, although sun showers were recorded at 8:30am and 8:44am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning peak cycle volumes at Central Park Drive have decreased this year, with 56 cycle movements recorded (compared with 135 movements in 2013).
- The most common movements in the morning were turning off the northern end of Central Park Drive into the cycle way (Movement 2 = 19 cyclists) and turning off the southern end of Central Park into the cycle way (Movement 5 = 21 cyclists).
- Of the six possible movements at this site, the most notable change since 2013 has been at Movement 2 (down 27 cyclists).

Table 6.1: Morning Cyclist Movements

Central Park Drive 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	8	4	0	10	12	6	9	**5**	**-4**
2	20	34	36	35	32	46	46	**19**	**-27**
3	8	12	12	9	9	14	13	**1**	**-12**
4	8	7	11	14	14	14	13	**5**	**-8**
5	14	10	20	25	29	30	42	**21**	**-21**
6	3	1	12	1	4	2	7	**5**	**-2**
Don't Know	-	-	-	-	-	-	5	**0**	**-5**
Total	**61**	**68**	**91**	**94**	**100**	**112**	**135**	**56**	**-79**

- Over the morning peak, almost all cyclists were adults (95 per cent, stable from 96 per cent at the previous measure).
- Most cyclists were wearing a helmet (95 per cent, stable from the 96 per cent observed the past three years).
- The greatest share of morning cyclists were male (86 per cent, up from 82 per cent last year).
- Approximately three-in-four morning cyclists were riding on the cycleway (73 per cent, up from 42 per cent in 2012). The remainder were mostly riding on the road (23 per cent).

Table 6.2: Morning Cyclist Characteristics
Central Park Drive 2007 – 2014 (%)

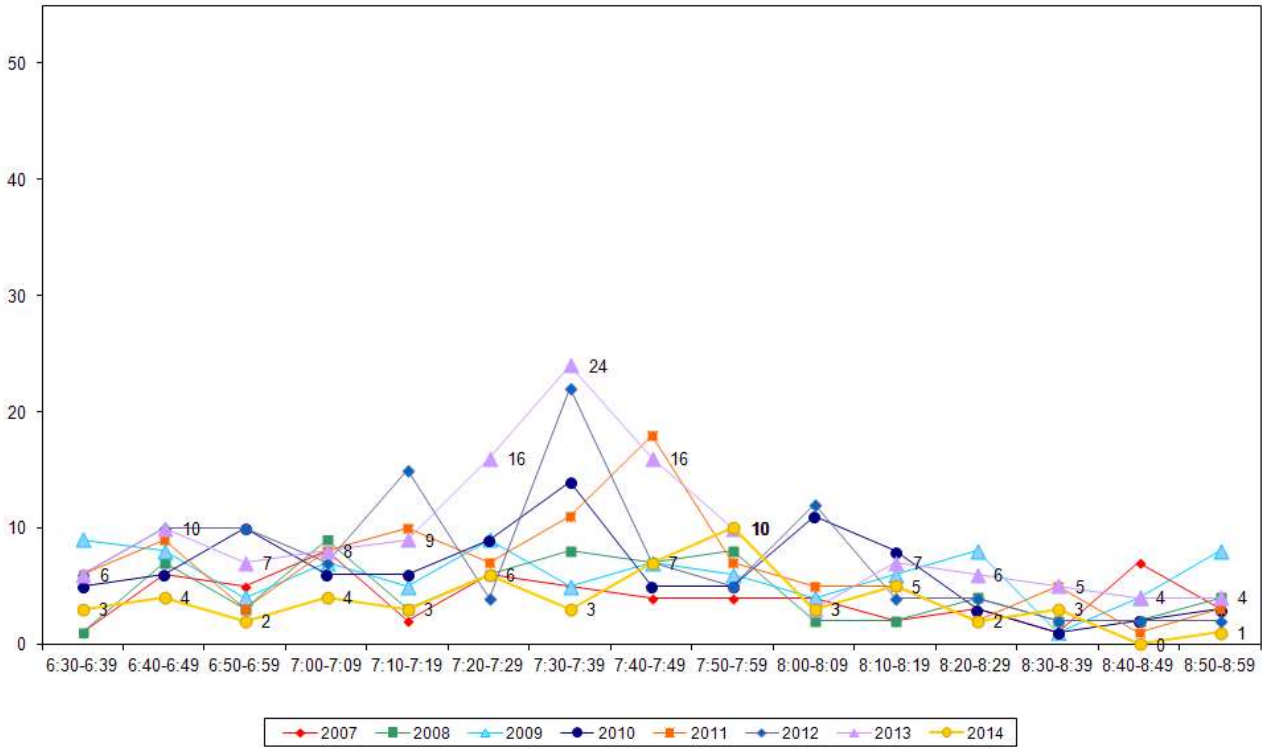
	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	98	99	96	97	97	92	96	**95**	**-1**
School child	2	1	4	3	3	8	4	**5**	**1**
Helmet Wearing									
Helmet on head	92	94	97	98	96	96	96	**95**	**-1**
No helmet	8	6	3	2	4	4	4	**5**	**1**
Gender									
Male	-	-	-	-	81	80	82	**86**	**4**
Female	-	-	-	-	19	20	13	**11**	**-2**
Can't tell	-	-	-	-	0	0	5	**3**	**-2**
Where Riding									
Road	74	99	59	71	39	39	46	**23**	**-23**
Footpath	26	1	3	6	5	5	12	**4**	**-8**
Off-road cycleway[10]	-	-	38	23	56	56	42	**73**	**31**
Base:	***61***	***68***	***91***	***94***	***100***	***112***	***135***	***56***	

[10] *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 was low this year, with no more than seven cyclists recorded at most ten minute intervals during the morning monitoring period, The exception to this occurred between 7:50am to 7:59am with 10 cyclists recorded during this interval. In contrast to previous years, no considerable peak was evident during the shift.

Figure 6.2: Morning Peak Cyclist Frequency

Central Park Drive 2007 – 2014 (n)



Note: No cyclists were observed riding in groups in 2014. This compares with 12 per cent of cycle movements in the morning peak (n=16) being made by those riding in groups last year.

6.3 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 Central Park Drive intersection in the evening has halved over the last 12 months, from 138 in 2013 to 69 movements this year.
- In contrast to the morning shift, the most common movement in the evening was turning out of the cycleway onto Central Park Drive heading north (Movement 3 = 26 cyclists).
- The most noticeable change since last year was at Movement 3 (down 36 cyclists).

Table 6.3: Evening Cyclist Movements

Central Park Drive 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	5	5	1	3	2	3	8	**3**	**-5**
2	12	14	17	11	18	19	15	**5**	**-10**
3	22	38	49	34	43	69	62	**26**	**-36**
4	14	10	33	28	19	21	26	**20**	**-6**
5	11	17	11	21	22	15	17	**11**	**-6**
6	2	5	10	9	8	7	9	**4**	**-5**
Don't Know	-	-	-	-	-	-	1	**0**	**-1**
Total	**66**	**89**	**121**	**106**	**112**	**134**	**138**	**69**	**-69**

- Over the evening peak, most cyclists at this site were adults (97 per cent, stable from 96 per cent in the previous year).
- Helmet wearing was still common in the evening (97 per cent, up slightly from 93 per cent in 2013).
- Almost all evening peak cyclists were male (88 per cent, up 5 percentage points from last year).
- This year 45 per cent of cyclists in the evening were riding on the road (down from 49 per cent last year). Riding on the off-road cycleway has increased to 54 per cent (from 49 per cent last year).

Table 6.4: Evening Cyclist Characteristics

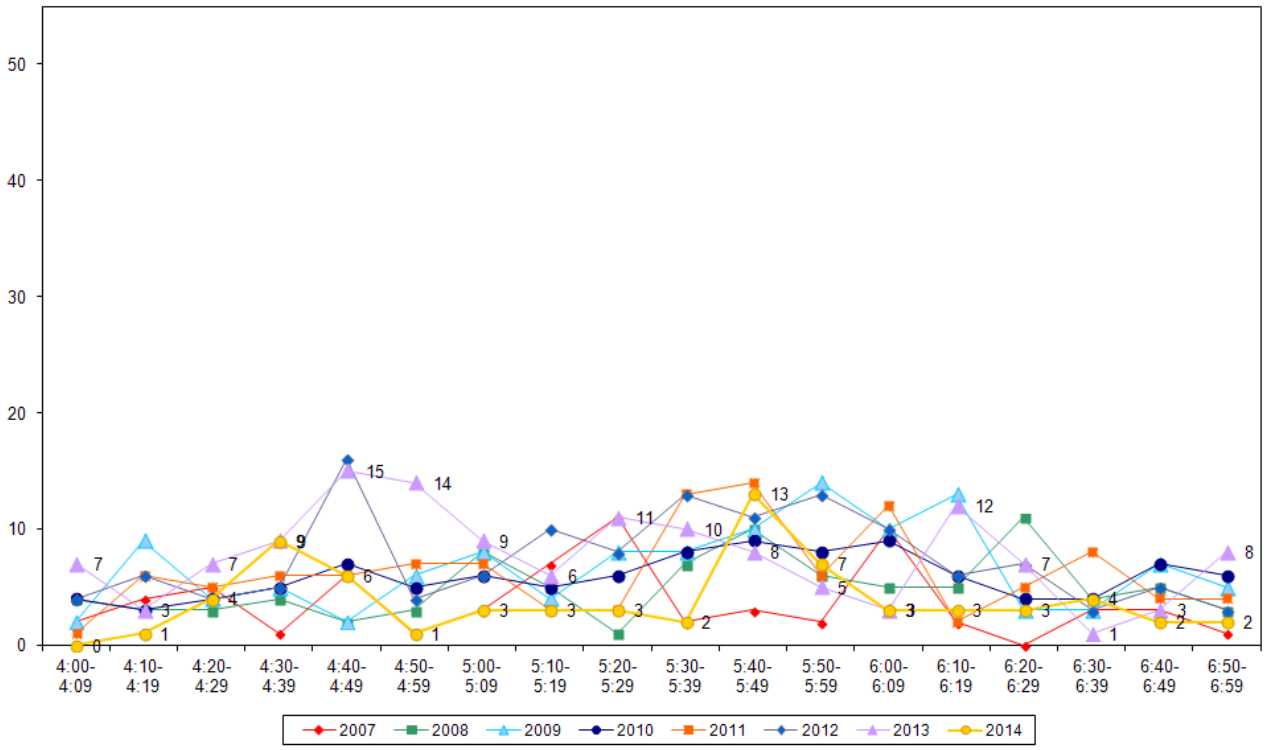
Central Park Drive 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	97	97	95	96	94	96	**97**	**1**
School child	0	3	3	5	4	6	4	**3**	**-1**
Helmet Wearing									
Helmet on head	94	91	93	94	96	94	93	**97**	**4**
No helmet	6	9	7	6	4	6	7	**3**	**-4**
Gender									
Male	-	-	-	-	90	90	83	**88**	**5**
Female	-	-	-	-	10	10	12	**12**	**0**
Can't tell	-	-	-	-	0	0	5	**0**	**-5**
Where Riding									
Road	83	97	55	70	37	54	49	**45**	**-4**
Footpath	17	3	2	6	3	4	2	**1**	**-1**
Off-road cycleway	-	-	43	24	60	42	49	**54**	**5**
Base:	***66***	***89***	***121***	***106***	***112***	***134***	***138***	***69***	

- The volume of evening cyclist movements peaked twice over the monitoring period: between 4:30pm and 4:39pm (9 cyclists) and between 5:40pm and 5:49pm (13 cyclists). The intervals surrounding these peaks generally observed low cycle volumes.

Figure 6.3: Evening Peak Cyclist Frequency

Central Park Drive 2007 – 2014 (n)

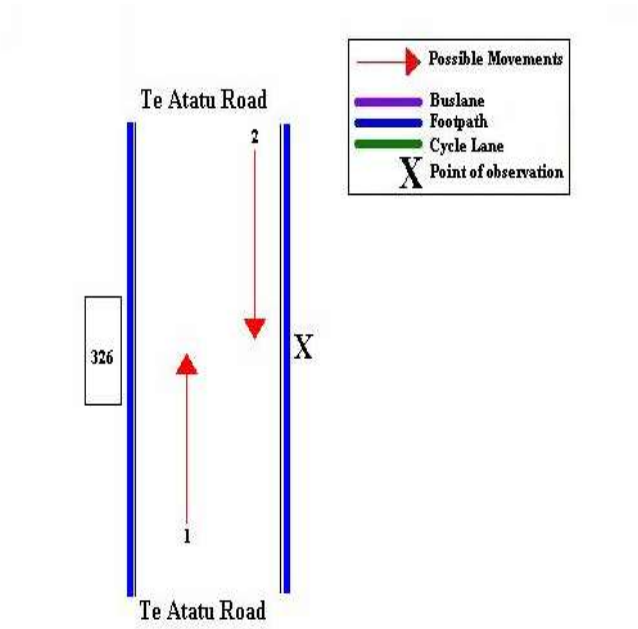


Note: No cyclists were observed riding in groups in 2014. This compares with 2013 where 4 per cent of evening cycle movements at this site (n=6) were observed riding in groups.

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
2012	75	60	135	197
2013	76	77	153	222
2014	**63**	**61**	**124**	**180**

7.2 Morning Peak

Environmental Conditions

- The weather was cloudy with patches of rain throughout the morning shift. Patches of light rain was recorded from 6:30am to 6:55am and 8:00am to 8:40am. A heavy shower also occurred at 7:05am.
- 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 2014 was 63, down from 76 movements recorded in 2013.
- The most common movement was straight along Te Atatu Road heading north (Movement 1 = 56 cyclists.

Table 7.1: Morning Cyclist Movements

326 Te Atatu Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	35	42	60	59	64	64	70	**56**	**-14**
2	9	10	19	6	9	11	6	**7**	**1**
Total	**44**	**52**	**79**	**65**	**73**	**75**	**76**	**63**	**-13**

- Over the morning peak, school children comprised 43 per cent of cycle movements (up from 38 per cent last year). This is the first time the number of school children has increased since 2010.
- Most cyclists were wearing a helmet (89 per cent, down from 92 per cent in 2013).
- Almost all morning cyclists (86 per cent) were male.
- The majority of morning cyclists were riding on the footpath (92 per cent, up from 84 per cent last year).

Table 7.2: Morning Cyclist Characteristics

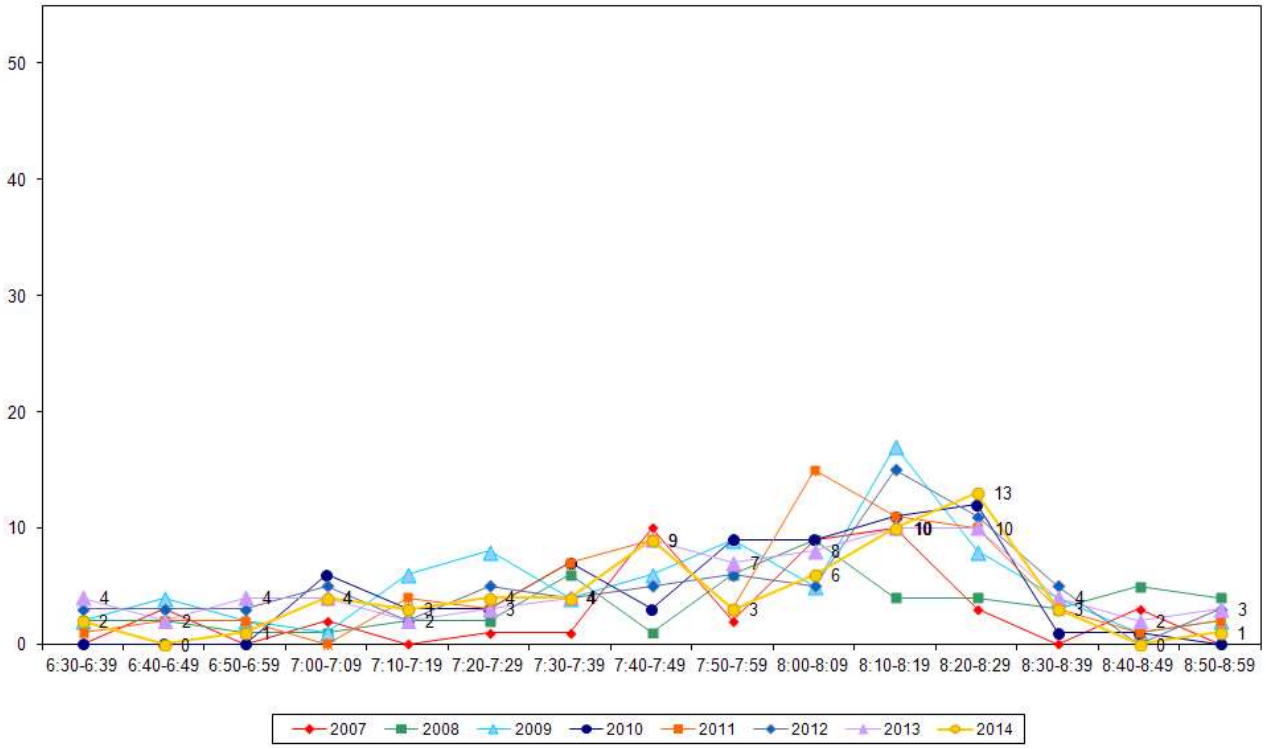
326 Te Atatu Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	43	52	46	34	42	51	62	**57**	**-5**
School child	57	48	54	66	58	49	38	**43**	**5**
Helmet Wearing									
Helmet on head	84	87	94	88	92	87	92	**89**	**-3**
No helmet	16	13	6	12	8	13	8	**11**	**3**
Gender									
Male	-	-	-	-	90	94	88	**86**	**-2**
Female	-	-	-	-	10	5	12	**14**	**2**
Can't tell	-	-	-	-	0	1	0	**0**	**0**
Where Riding									
Road	11	8	18	11	10	11	16	**8**	**-8**
Footpath	89	92	82	89	90	89	84	**92**	**8**
Base:	***44***	***52***	***79***	***65***	***73***	***75***	***76***	***63***	

- The volume of morning cycle movements started off low, but gradually increased to a small peak between 7:40am and 7:49am (9 cyclists). A second peak is also evident between 8:20am and 8:29am (13 cyclists) and occurred at approximately the same time as a similar peak last year. Consistent with previous years, cycle volumes sharply fell for the remainder of the shift.

Figure 7.2: Morning Peak Cyclist Frequency

326 Te Atatu Road 2007 – 2014 (n)



7.3 Evening Peak

Environmental Conditions

- The weather was mostly cloudy with some patches of drizzle 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 77 in 2013 to 61 movements this year.
- The most common movement in the evening was straight along Te Atatu Road in the opposite direction from the morning shift (Movement 2 = 47 cyclists travelling south).
- The most noticeable change in cyclist volume was at Movement 2 (down 11 cyclists).

Table 7.3: Evening Cyclist Movements

326 Te Atatu Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	16	15	17	13	16	12	19	**14**	**-5**
2	27	40	42	49	38	48	58	**47**	**-11**
Total	**43**	**55**	**59**	**62**	**54**	**60**	**77**	**61**	**-16**

- The greatest share of cyclists using this site in the evening were adults (93 per cent, up from 86 per cent in the previous year).
- A large proportion of cyclists were wearing a helmet (84 per cent, stable from 83 per cent in 2013).
- The greatest share of evening cyclists were male (88 per cent, stable from 86 per cent last year).
- Almost all cyclists were riding on the footpath (89 per cent, down 5 percentage points from last year).

Table 7.4: Evening Cyclist Characteristics

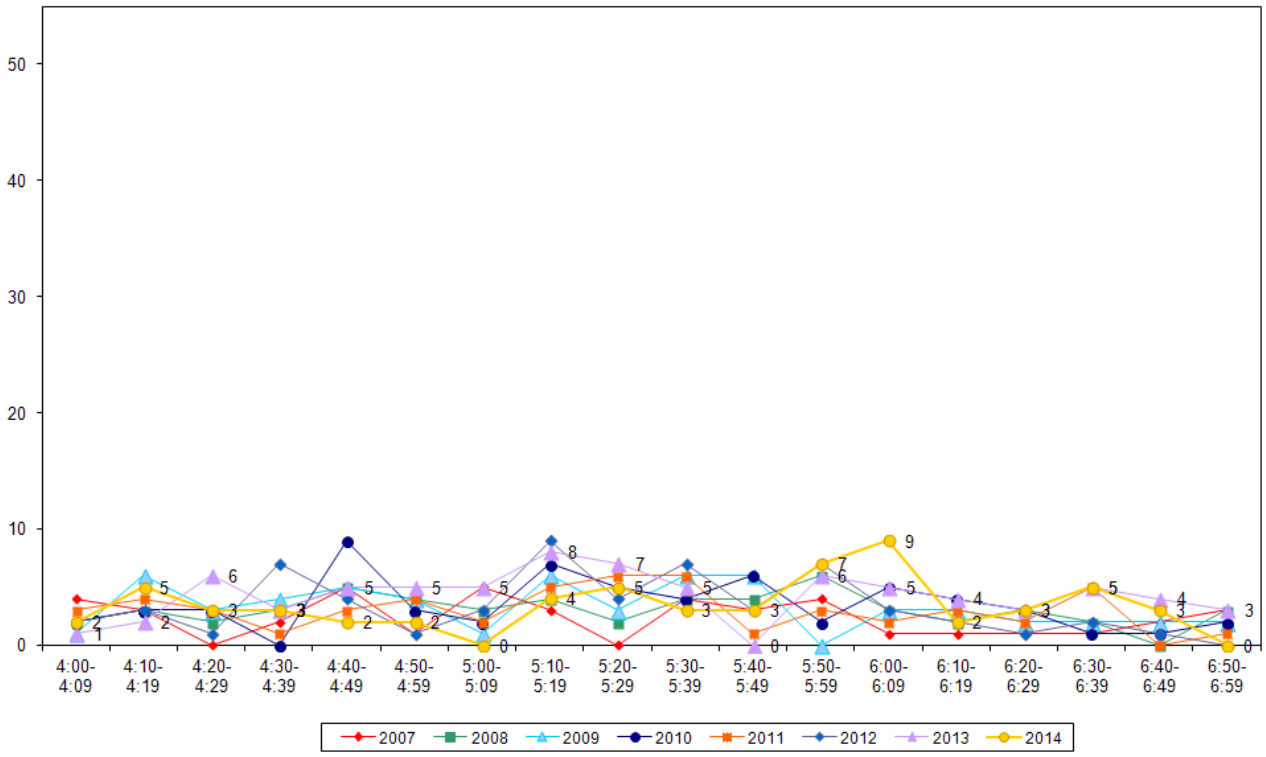
326 Te Atatu Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	72	91	80	90	89	83	86	**93**	**7**
School child	28	9	20	10	11	17	14	**7**	**-7**
Helmet Wearing									
Helmet on head	88	84	80	74	91	87	83	**84**	**1**
No helmet	12	16	20	26	9	13	17	**16**	**-1**
Gender									
Male	-	-	-	-	85	87	86	**88**	**2**
Female	-	-	-	-	15	13	14	**10**	**-4**
Can't tell	-	-	-	-	0	0	0	**2**	**2**
Where Riding									
Road	16	24	22	19	20	17	6	**11**	**5**
Footpath	84	76	78	81	80	83	94	**89**	**-5**
Base:	***43***	***55***	***59***	***62***	***54***	***60***	***77***	***61***	

- The overall pattern of evening cycle traffic was low this year, with no more than nine cyclists during any ten minute interval. Cycle volumes peaked between 6:00pm and 6:09pm (9 cyclists), then returned to low levels for the remainder of the shift.

Figure 7.3: Evening Peak Cyclist Frequency

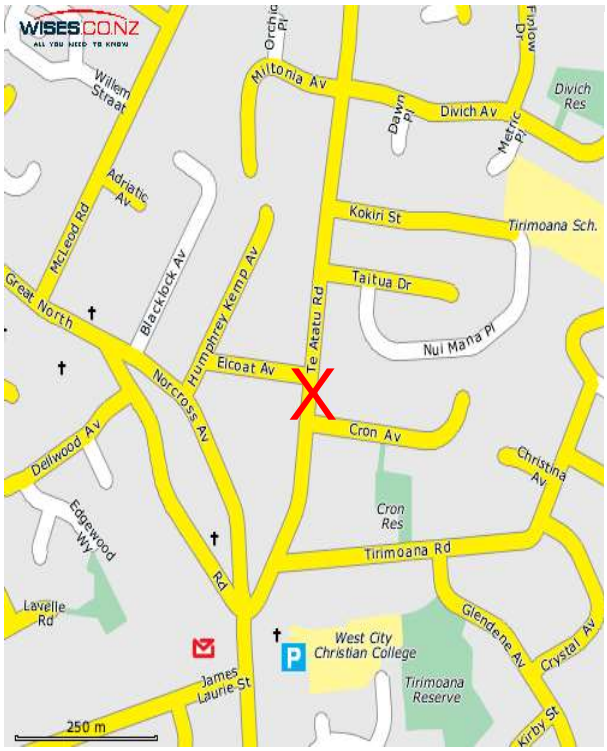
326 Te Atatu Road 2007 – 2014 (n)

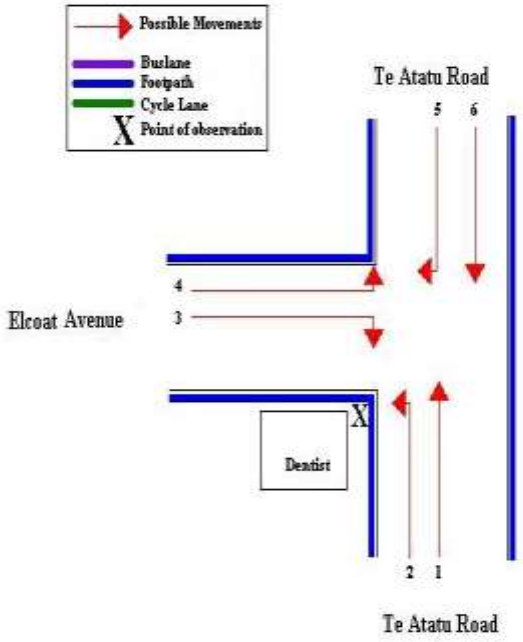


8. TE ATATU ROAD/ELCOAT AVENUE, HENDERSON (SITE 54)

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
2012	34	23	57	84
2013	20	24	44	64
2014	**12**	**23**	**35**	**50**

8.2 Morning Peak

Environmental Conditions

- The weather was cloudy throughout the morning peak. Intermittent drizzle was observed from 7:10am until 7:30am. There was also some light drizzle recorded at 8:30am.
- 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 decreased from last year (12 cycle movements, down from 20 movements in 2013).
- The most common morning movement continued to be heading north up Te Atatu Road (Movement 1 = 9 cyclists).
- The most notable change in cyclist volumes occurred at Movement 1 (down by 6 movements from last year).

Table 8.1: Morning Cyclist Movements

Te Atatu Road/Elcoat Avenue 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	16	19	28	26	22	26	15	**9**	**-6**
2	0	0	1	0	0	0	0	**0**	**0**
3	0	0	0	0	0	1	0	**0**	**0**
4	2	1	2	1	3	2	2	**0**	**-2**
5	0	0	1	0	0	1	0	**1**	**1**
6	8	7	5	3	5	4	3	**2**	**-1**
Total	**26**	**27**	**37**	**30**	**30**	**34**	**20**	**12**	**-8**

- Over the morning peak, adults comprised 75 per cent of the total number of cycle movements (a 45 percentage point increase from last year).
- Three-quarters of cyclists were wearing a helmet (75 per cent, down from 85 per cent at the last measure).
- The greatest share of morning cyclists was male (92 per cent).
- Fifty per cent of cyclists were riding on the footpath in the morning (up 20 percentage points from last year) with the remaining 50 per cent riding on the road.

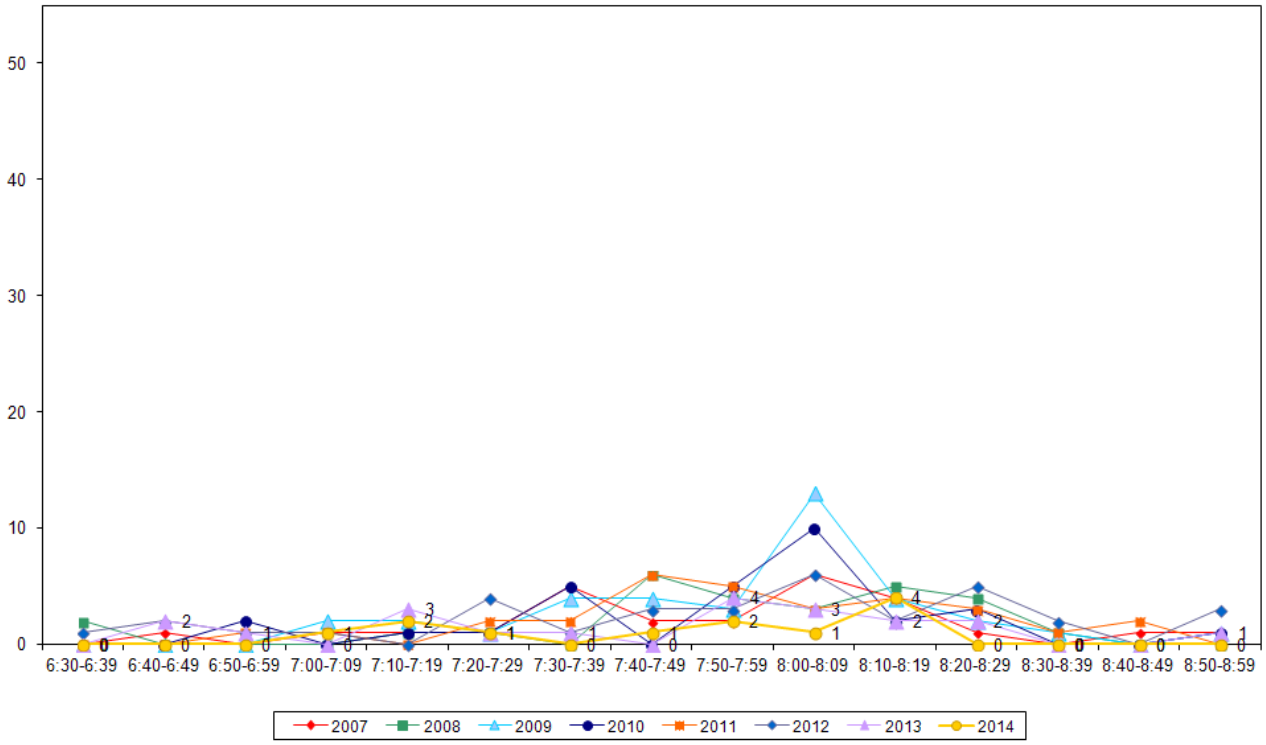
Table 8.2: Morning Cyclist Characteristics
Te Atatu Road/Elcoat Avenue 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	46	37	32	20	20	44	30	**75**	**45**
School child	54	63	68	80	80	56	70	**25**	**-45**
Helmet Wearing									
Helmet on head	88	89	86	97	93	88	85	**75**	**-10**
No helmet	12	11	14	3	7	12	15	**25**	**10**
Gender									
Male	-	-	-	-	83	88	95	**92**	**-3**
Female	-	-	-	-	17	9	5	**8**	**3**
Can't tell	-	-	-	-	0	3	0	**0**	**0**
Where Riding									
Road	38	26	19	20	17	47	30	**50**	**20**
Footpath	62	74	81	80	83	53	70	**50**	**-20**
Base:	***26***	***27***	***37***	***30***	***30***	***34***	***20***	***12***	

- This year, the volume of morning cycle movements has been very low throughout the monitoring period. There were no obvious peaks or troughs in the traffic flow. In contrast to many previous years, there were no pelotons riding past the site and no peak was observed between 8:00am and 8:19am.

Figure 8.2: Morning Peak Cyclist Frequency

Te Atatu Road/Elcoat Avenue 2007 – 2014 (n)



8.3 Evening Peak

Environmental Conditions

- The weather was fine with a light breeze 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 has remained stable over the last 12 months, from 24 movements last year to 23 movements in 2014.
- The most common movement in the evening was heading south down Te Atatu Road (Movement 6 = 16 cyclists).
- The greatest change during the evening at this site was at Movement 1 which had a decrease of 6 cycle movements compared to last year.

Table 8.3: Evening Cyclist Movements

Te Atatu Road/Elcoat Avenue Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	9	2	7	7	5	8	9	**3**	**-6**
2	0	2	1	0	0	0	0	**0**	**0**
3	0	0	2	0	0	0	0	**0**	**0**
4	1	0	3	0	0	1	1	**1**	**0**
5	1	2	1	0	1	2	2	**3**	**1**
6	13	12	18	15	12	12	12	**16**	**4**
Total	**24**	**18**	**32**	**22**	**18**	**23**	**24**	**23**	**-1**

- Approximately 50 per cent of the cyclists using this intersection were adults (52 per cent, down from 71 per cent last year).
- The majority of cyclists observed at this site were wearing helmets (78 per cent, down 18 percentage point since last year).
- Most evening cyclists were male (78 per cent, down 18 percentage point since last year).
- Sixty-one per cent of cyclists were riding on the footpath, up from 38 per cent at the previous measure.

Table 8.4: Evening Cyclist Characteristics

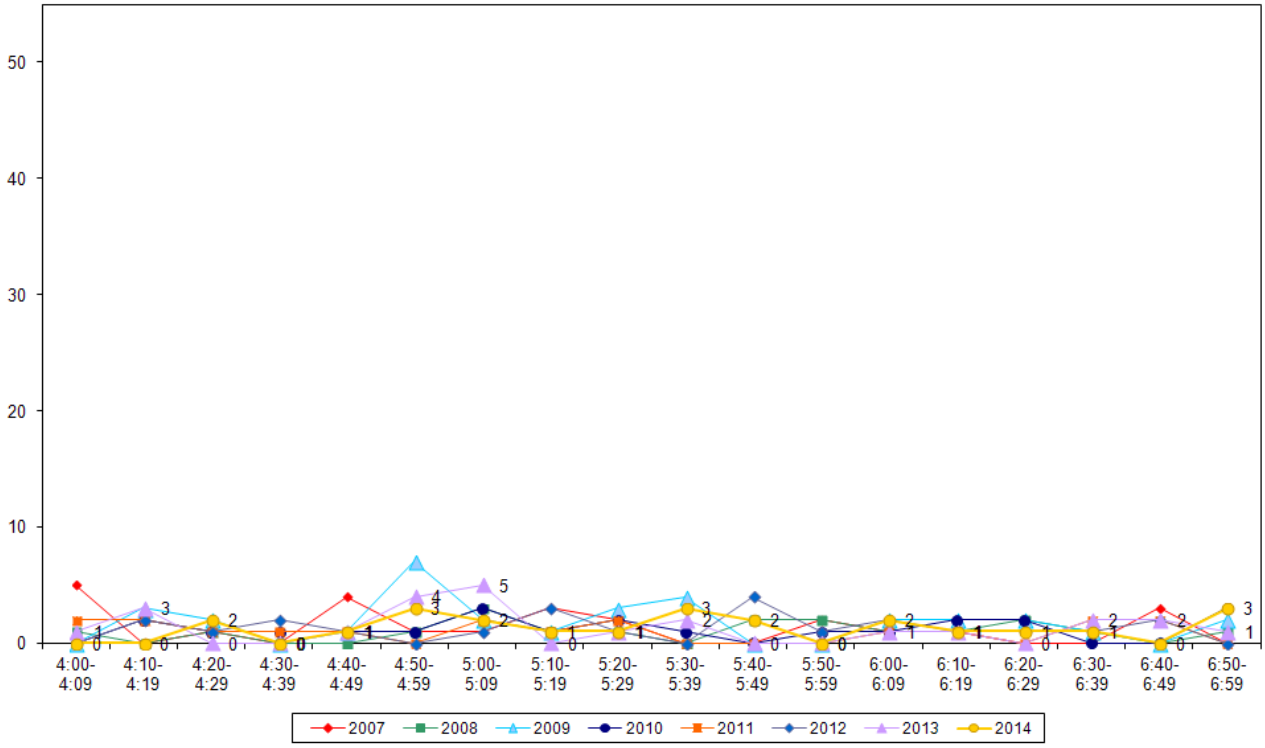
Te Atatu Road/Elcoat Avenue 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	58	83	53	82	78	87	71	**52**	**-19**
School child	42	17	47	18	22	13	29	**48**	**19**
Helmet Wearing									
Helmet on head	87	78	66	77	100	91	96	**78**	**-18**
No helmet	13	22	34	23	0	9	4	**22**	**18**
Gender									
Male	-	-	-	-	100	91	96	**78**	**-18**
Female	-	-	-	-	0	9	4	**22**	**18**
Can't tell	-	-	-	-	0	0	0	**0**	**0**
Where Riding									
Road	50	50	19	55	50	74	62	**39**	**-23**
Footpath	50	50	81	45	50	26	38	**61**	**23**
Base:	***24***	***18***	***32***	***22***	***18***	***23***	***24***	***23***	

- This year, evening cycle volumes were consistently low across the entire monitoring period. The highest number of cycle movements observed at any ten minute interval throughout the evening monitoring period was three.

Figure 8.3: Evening Peak Cyclist Frequency

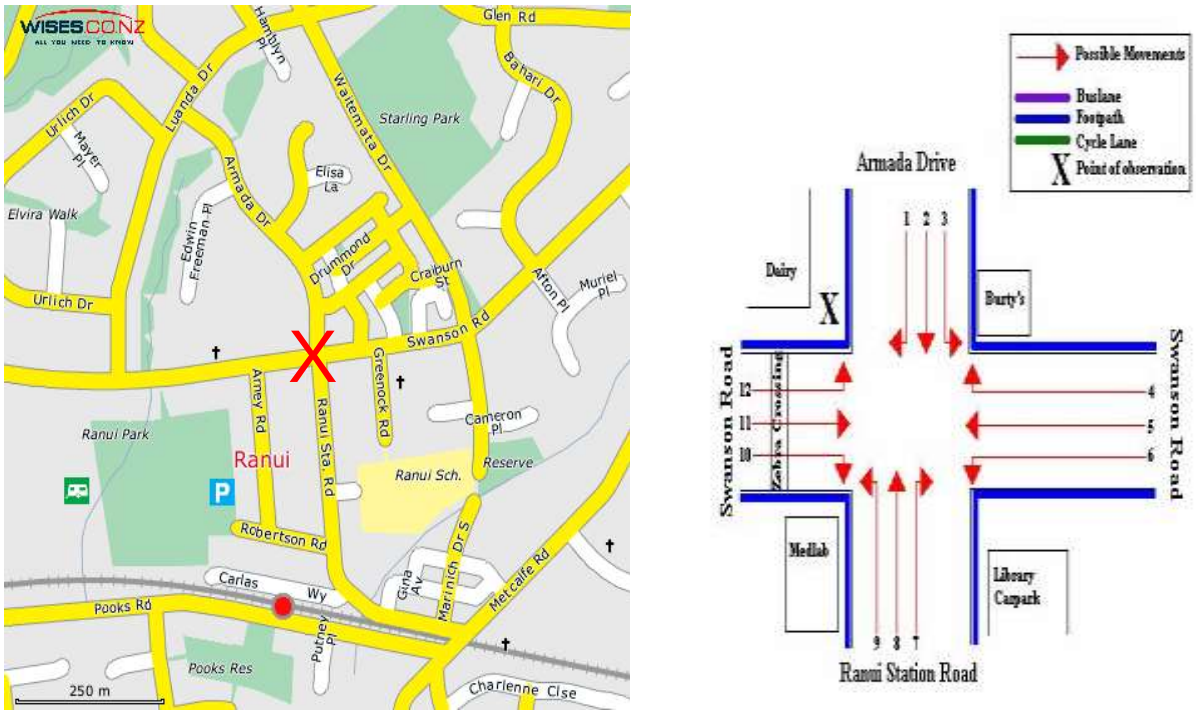
Te Atatu Road/Elcoat Avenue 2007 – 2014 (n)



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
2012	27	88	115	162
2013	49	67	116	167
2014	**28**	**53**	**81**	**116**

9.2 Morning Peak

Environmental Conditions

- The weather was overcast at the beginning of the morning shift. Drizzle was recorded at 6:45am, 6:53am and at 8:20am. The weather became fine towards the end of the morning monitoring period.
- 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 decreased, from 49 in 2013 to 28 cycle movements this year.
- The most common movement was straight along Swanson Road heading east (Movement 11 = 19 cyclists).
- The most notable change in cycle volumes was at Movement 1 (down 6 cyclists).

Table 9.1: Morning Cyclist Movements

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	2	3	2	7	1	7	**1**	**-6**
2	0	0	2	3	1	0	4	**0**	**-4**
3	1	0	0	1	0	2	0	**0**	**0**
4	0	2	0	0	0	0	0	**0**	**0**
5	1	3	2	6	6	3	5	**1**	**-4**
6	1	1	1	3	4	1	5	**2**	**-3**
7	0	0	0	0	1	1	0	**1**	**1**
8	1	0	1	1	0	0	0	**1**	**1**
9	1	0	0	0	1	1	1	**0**	**-1**
10	0	0	3	0	5	2	5	**1**	**-4**
11	10	13	23	17	18	16	18	**19**	**1**
12	0	0	2	1	4	0	4	**2**	**-2**
Total	**15**	**21**	**37**	**34**	**47**	**27**	**49**	**28**	**-21**

- Over the morning peak, adults comprise over half of cycle movements (57 per cent, down from 61 per cent last year).
- The greatest share of the cyclists were wearing a helmet (86 per cent, up from 59 per cent last year).
- The majority of cyclists were male (79 per cent, stable from 80 per cent at the previous measure).
- The share of road riding has increased over the last 12 months, up from 45 per cent in 2013 to 79 per cent in 2014.

Table 9.2: Morning Cyclist Characteristics

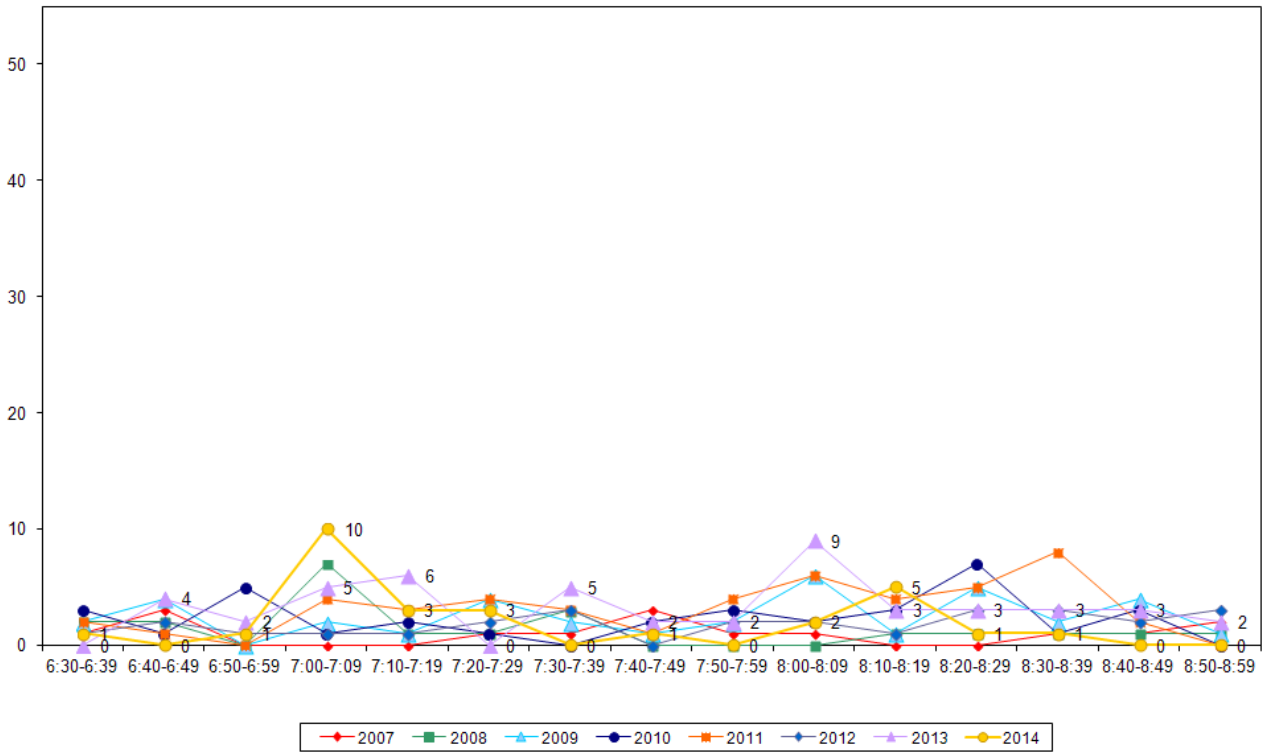
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	87	81	81	79	72	81	61	**57**	**-4**
School child	13	19	19	21	28	19	39	**43**	**4**
Helmet Wearing									
Helmet on head	93	67	81	76	66	78	59	**86**	**27**
No helmet	7	33	19	24	34	22	41	**14**	**-27**
Gender									
Male	-	-	-	-	77	85	80	**79**	**-1**
Female	-	-	-	-	23	15	20	**21**	**1**
Can't tell	-	-	-	-	0	0	0	**0**	**0**
Where Riding									
Road	73	62	54	68	47	56	45	**79**	**34**
Footpath	27	38	46	32	53	44	55	**21**	**-34**
Base:	***15***	***21***	***37***	***34***	***47***	***27***	***49***	***28***	

- Figure 9.2 illustrates the cycle traffic at this site in the morning. Cycle volumes varied between zero to five movements across the morning monitoring period, with the exception of a peak between 7:00am and 7:09am with 10 cyclists riding in a group through this interval.

Figure 9.2: Morning Peak Cyclist Frequency

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2014 (n)



Note: In 2014, 10 cyclists (36 per cent of all morning peak cycle movements at this site) were observed riding together at 7:02am. This compares with no cyclists riding in groups in 2013.

9.3 Evening Peak

Environmental Conditions

- The weather was generally fine throughout the evening monitoring period. Drizzle was recorded at 4:50pm.
- 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 decreased (53 movements, compared with 67 movements in 2013).
- The key movement in the evening was Movement 5 (riding straight along Swanson Road heading west, 20 cyclists).
- The most notable changes since last year have been at Movement 2 and Movement 12 (each down 5 cyclists).

Table 9.3: Evening Cyclist Movements

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	2	15	8	5	9	9	6	**4**	**-2**
2	4	4	2	1	1	0	9	**4**	**-5**
3	0	0	2	0	2	1	0	**0**	**0**
4	0	0	1	1	0	4	2	**0**	**-2**
5	11	10	20	16	20	24	20	**20**	**0**
6	2	0	0	7	9	3	6	**2**	**-4**
7	1	1	3	7	5	4	0	**4**	**4**
8	7	0	3	9	4	5	5	**3**	**-2**
9	2	7	0	4	2	6	4	**2**	**-2**
10	4	2	5	2	6	4	3	**6**	**3**
11	11	9	11	12	21	21	6	**6**	**0**
12	3	17	11	4	6	7	6	**1**	**-5**
Total	**47**	**65**	**66**	**68**	**85**	**88**	**67**	**53**	**-15**

- The share of adults using the Swanson Road/Armada Drive intersection in the evening was 60 per cent, a 9 percentage point increase from last year.
- Fifty-eight per cent of the cyclists at this site were wearing a helmet (a decrease from 67 per cent recorded in 2013).
- The greatest share of evening cyclists were male (91 per cent).
- About half of the cyclists (53 per cent) were riding on the footpath, while the remaining cyclists were riding on road.

Table 9.4: Evening Cyclist Characteristics

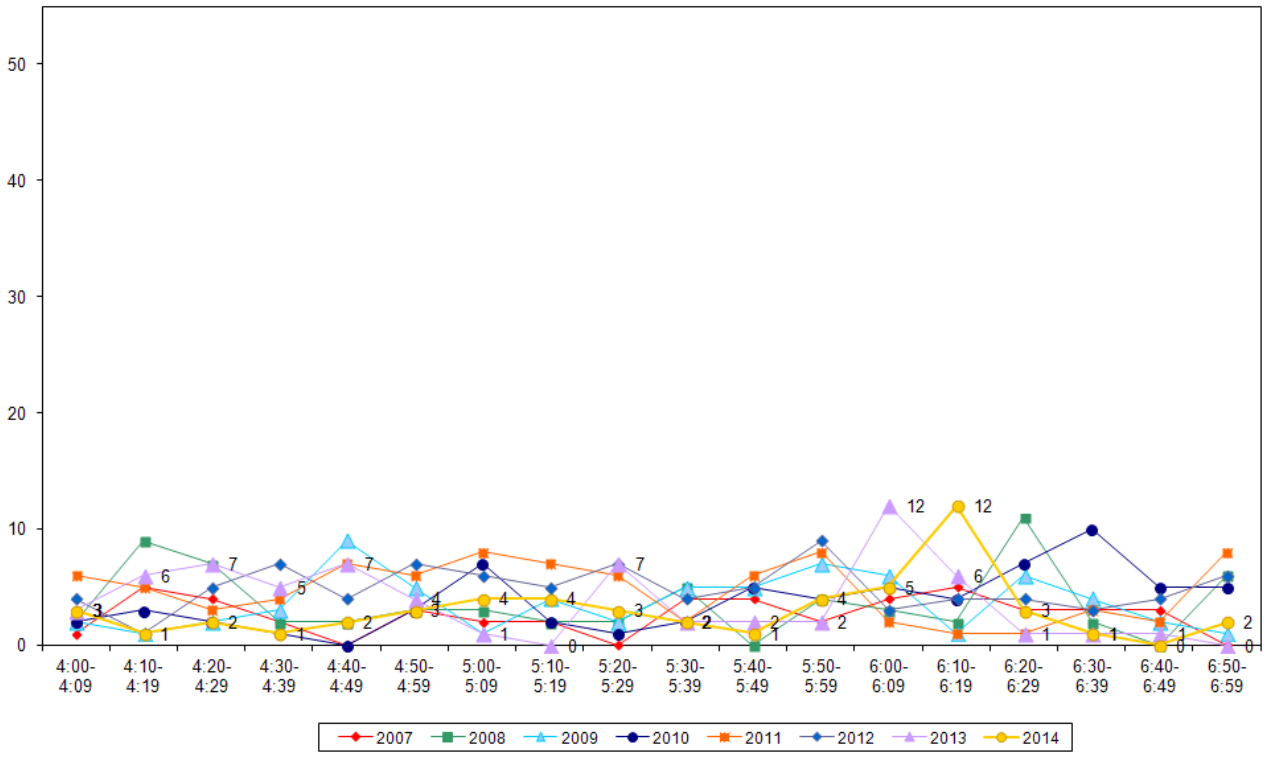
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	68	32	47	44	62	65	51	**60**	**9**
School child	32	68	53	56	38	35	49	**40**	**-9**
Helmet Wearing									
Helmet on head	60	31	42	44	49	59	67	**58**	**-9**
No helmet	40	69	58	56	51	41	33	**42**	**9**
Gender									
Male	-	-	-	-	85	81	76	**91**	**15**
Female	-	-	-	-	14	19	21	**9**	**-12**
Can't tell	-	-	-	-	1	0	3	**0**	**-3**
Where Riding									
Road	43	23	36	35	32	37	49	**47**	**-2**
Footpath	57	77	64	65	68	63	51	**53**	**2**
Base:	***47***	***65***	***66***	***68***	***85***	***88***	***67***	***53***	

- Evening cycle traffic was remained low throughout the majority of the evening monitoring period. A peak is evident between 6:10pm and 6:19pm, consisting of 12 cycle movements. This is similar to 2013 which recorded a peak of 12 cycle movements between 6:00pm and 6:09pm.

Figure 9.3: Evening Peak Cyclist Frequency

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2014 (n)

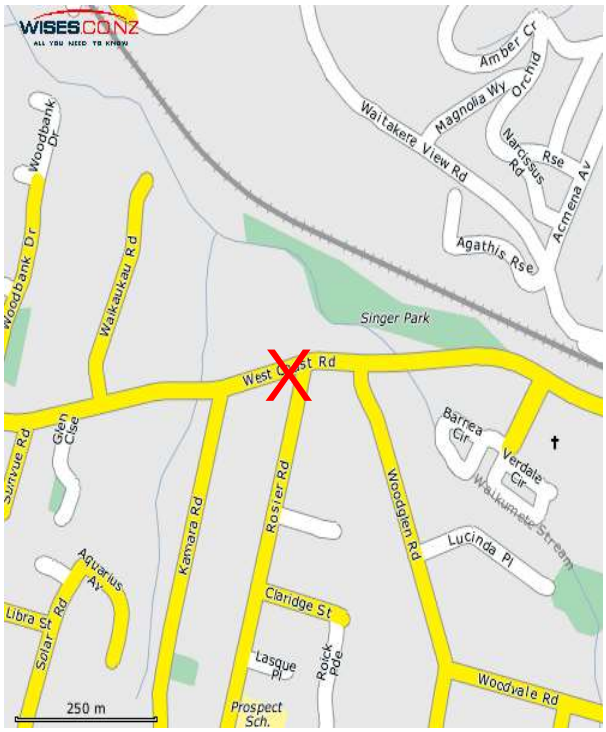


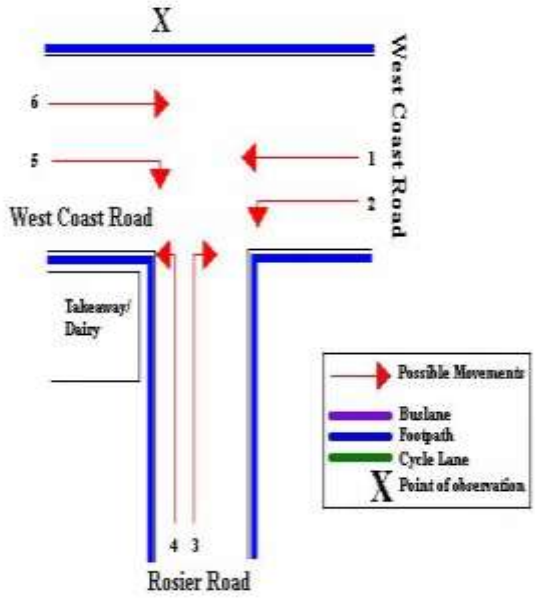
Note: In 2014, 8 cyclists (15 per cent of all evening peak cycle movements at this site) were observed riding together at 6:11pm. This compares with 2013 where 22 per cent of all evening peak cyclists (n=15) were observed riding in a group.

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
2012	19	19	38	55
2013	24	32	56	81
2014	**17**	**16**	**33**	**48**

10.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the majority of the morning shift, with the exception of light drizzle observed between 6:30am to 6:43am and 6:56am to 7:03am.
- 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 this year, down from 24 movements in 2013 to 17 movements in this year.
- The most common movement in the morning was straight along West Coast heading west (Movement 1 = 9 cyclists).
- Cyclist volume for Movement 6 has decreased by 10 movements over the past 12 months.

Table 10.1: Morning Cyclist Movements

West Coast Road/Rosier Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	4	7	13	19	6	8	3	**9**	**6**
2	0	0	0	0	0	0	0	**1**	**1**
3	4	2	3	1	2	3	2	**2**	**0**
4	1	1	2	1	8	1	5	**1**	**-4**
5	1	2	1	0	0	0	0	**0**	**0**
6	9	6	9	10	9	7	14	**4**	**-10**
Total	**19**	**18**	**28**	**31**	**25**	**19**	**24**	**17**	**-7**

- Over the morning peak, adults comprised most cycle movements (94 per cent, stable from 92 per cent in 2013).
- Helmet wearing notably decreased this year (59 per cent, a 33 percentage point decrease since last year).
- Almost all morning peak cyclists were male (82 per cent, down from 92 per cent last year).
- Fifty-nine per cent of the cyclists were riding on the footpath, an increasing trend since 2009.

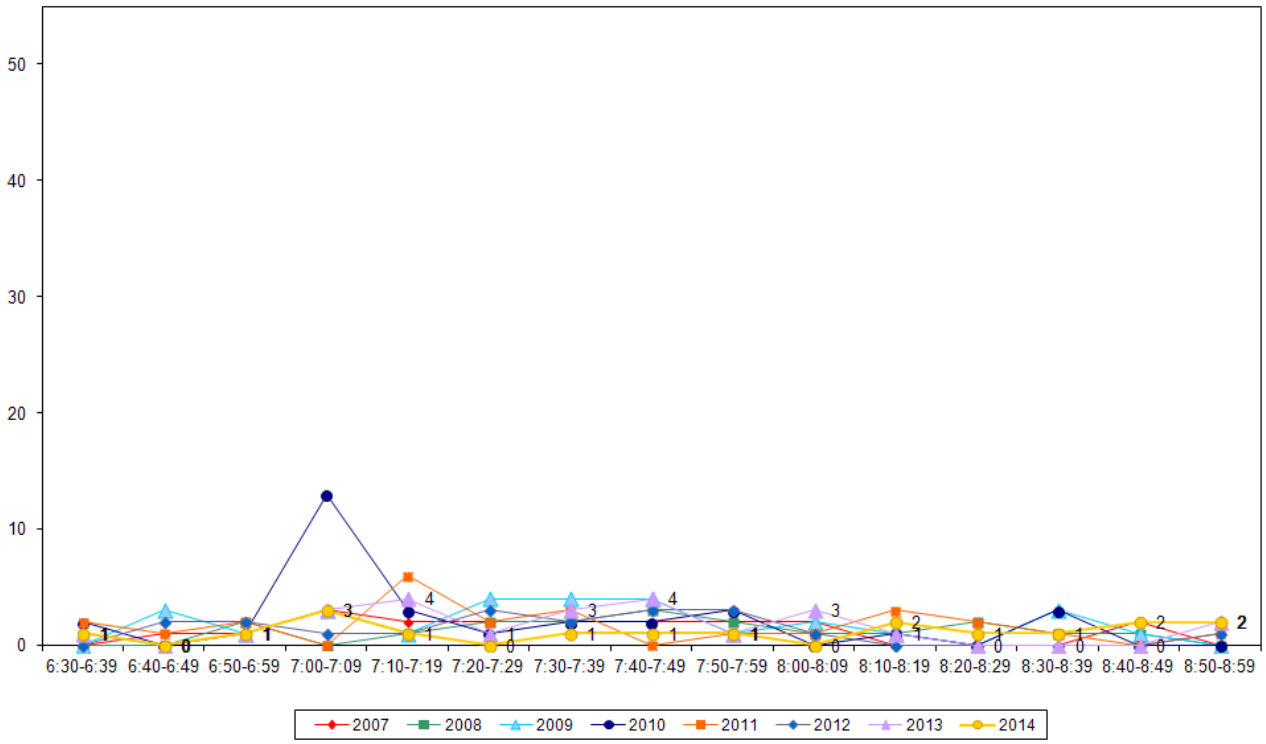
Table 10.2: Morning Cyclist Characteristics

West Coast Road/Rosier Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	74	72	93	87	80	95	92	**94**	**2**
School child	26	28	7	13	20	5	8	**6**	**-2**
Helmet Wearing									
Helmet on head	84	78	93	90	96	74	92	**59**	**-33**
No helmet	16	22	7	10	4	26	8	**41**	**33**
Gender									
Male	-	-	-	-	88	89	92	**82**	**-10**
Female	-	-	-	-	8	11	8	**18**	**10**
Can't tell	-	-	-	-	4	0	0	**0**	**0**
Where Riding									
Road	74	56	71	71	68	63	60	**41**	**-19**
Footpath	26	44	29	29	32	37	40	**59**	**19**
Base:	***19***	***18***	***28***	***31***	***25***	***19***	***24***	***17***	

- Morning cycle volume was very low over the entire monitoring period, with no more than three cyclists recorded per ten minute interval. The trend was consistent with that observed last year.

Figure 10.2: Morning Peak Cyclist Frequency
West Coast Road/Rosier Road 2007 – 2014 (n)



Note: No cyclists were observed riding in groups in 2014. This compares with 13 per cent of cyclists (n=3) riding together in 2013.

10.3 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

- Compared with the previous year, the total number of cycle movements recorded at the West Coast Road/Rosier Road intersection in the evening has halved, from 32 movements in 2013 to 16 movements this year.
- The key movements in the evening were straight along West Coast Road heading west (Movement 1 =7 cyclists) and the opposite direction; straight on West Coast Road heading east (Movement 6 = 7 cyclists).
- Of the six movements possible at this site, the most noticeable change in terms of evening cyclist numbers was at Movement 1 (down 10 cyclists).

Table 10.3: Evening Cyclist Movements

West Coast Road/Rosier Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	8	3	13	8	12	7	17	**7**	**-10**
2	3	2	2	3	1	2	4	**1**	**-3**
3	1	3	1	0	0	0	0	**0**	**0**
4	5	2	1	3	4	0	0	**0**	**0**
5	4	1	1	1	6	0	0	**1**	**1**
6	8	8	16	14	12	10	11	**7**	**-4**
Total	**29**	**19**	**34**	**29**	**35**	**19**	**32**	**16**	**-16**

- All evening cyclists using the West Coast Road/Rosier Road intersection were adults (up from 83 per cent in 2013).
- Ninety-four per cent of cyclists at this site were wearing a helmet (up from 88 per cent last year).
- Almost all evening cyclists were male (94 per cent, up 13 percentage points from the last measure).
- The greater share of cyclists at this site were riding on the road this year (63 per cent, stable from 62 per cent in the previous year).

Table 10.4: Evening Cyclist Characteristics

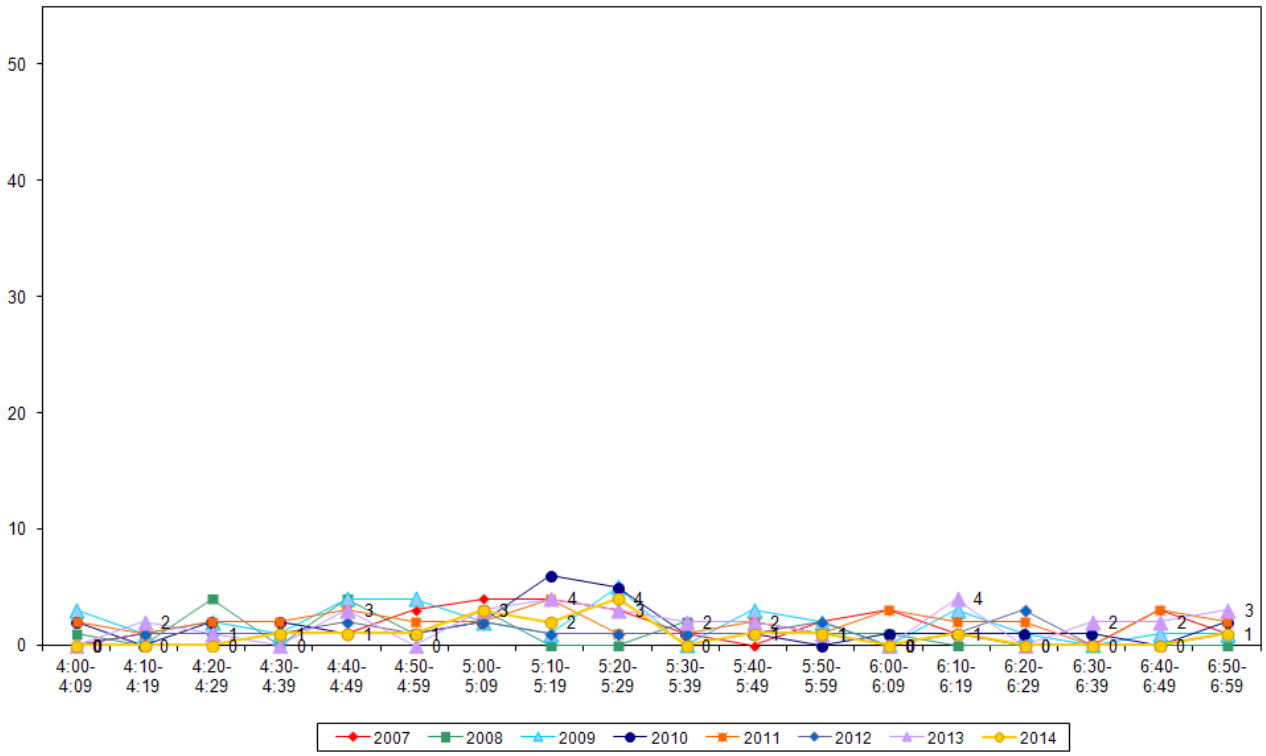
West Coast Road/Rosier Road 2007 – 2014 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type									
Adult	66	74	88	76	80	79	83	**100**	**17**
School child	34	26	12	24	20	21	17	**0**	**-17**
Helmet Wearing									
Helmet on head	59	74	79	72	71	79	88	**94**	**6**
No helmet	41	26	21	28	29	21	12	**6**	**-6**
Gender									
Male	-	-	-	-	89	89	81	**94**	**13**
Female	-	-	-	-	6	11	13	**6**	**-7**
Can't tell	-	-	-	-	5	0	6	**0**	**-6**
Where Riding									
Road	34	58	47	59	54	58	62	**63**	**1**
Footpath	66	42	53	41	46	42	38	**37**	**-1**
Base:	***29***	***19***	***34***	***29***	***35***	***19***	***32***	***16***	

- Evening cyclist volumes remained low throughout the monitoring period, with no noticeable peaks recorded. There were no more than four cyclists passing the site during any ten minute interval. This trend was consistent with that observed in 2013.

Figure 10.3: Evening Peak Cyclist Frequency

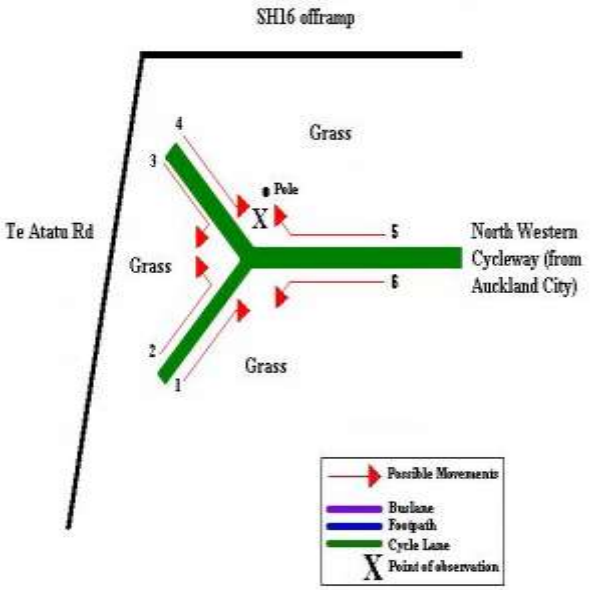
West Coast Road/Rosier Road 2007 – 2014 (n)



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
2012	187	238	425	614
2013	218	236	454	659
2014	**125**	**179**	**304**	**438**

11.2 Morning Peak

Environmental Conditions

- There was rain at the beginning of the morning shift which continued until 6:45am. Light rain was also recorded between 7:00am to 7:15am. The weather was cloudy and mostly dry for the remainder of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- In 2014, 125 cyclist movements were recorded at the North Western Cycleway, down from 218 movements recorded last year.
- The key morning movement was Movement 4 (78 cyclists, down 70 movements from 12 months ago).

Table 11.1: Morning Cyclist Movements

North Western Cycleway 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	16	22	30	22	30	27	36	**31**	**-5**
2	0	0	0	0	0	0	0	**0**	**0**
3	0	0	0	0	0	0	0	**0**	**0**
4	58	74	85	118	97	124	148	**78**	**-70**
5	25	23	27	31	20	30	29	**13**	**-16**
6	3	2	15	8	8	6	5	**3**	**-2**
Total	**102**	**121**	**157**	**179**	**155**	**187**	**218**	**125**	**-93**

- Over the morning peak, nearly all cyclists were adults (99 per cent, up slightly from 96 per cent last year).
- Most cyclists were wearing a helmet (97 per cent, stable from 96 per cent in 2013).
- The greatest share of morning cyclists were male (91 per cent, an increase from 87 per cent in 2013).

Table 11.2: Morning Cyclist Characteristics

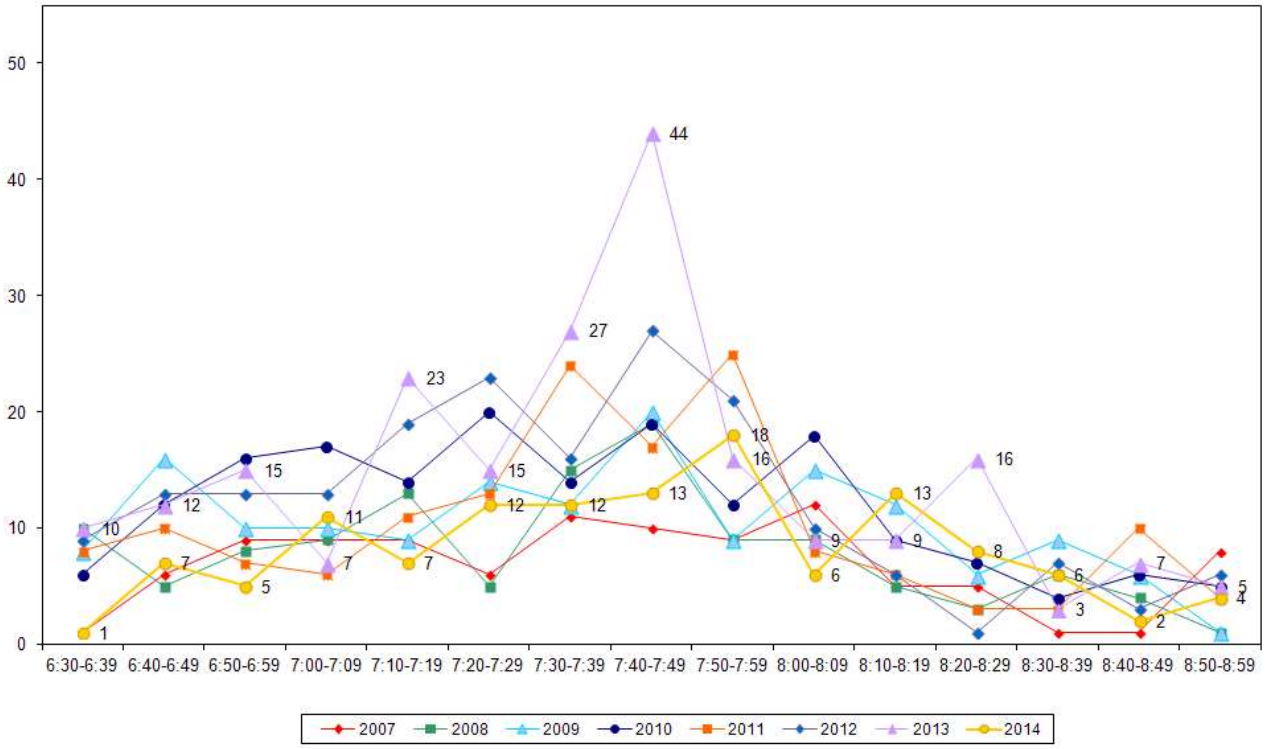
North Western Cycleway 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	95	99	99	100	99	99	96	**99**	**3**
School child	5	1	1	0	1	1	4	**1**	**-3**
Helmet Wearing									
Helmet on head	97	95	96	97	97	98	96	**97**	**1**
No helmet	3	5	4	3	3	2	4	**3**	**-1**
Gender									
Male	-	-	-	-	85	84	87	**91**	**4**
Female	-	-	-	-	15	15	13	**9**	**-4**
Can't tell	-	-	-	-	0	1	0	**0**	**0**
Where Riding									
Cycleway	100	100	100	100	100	100	100	**100**	**0**
Base:	***102***	***121***	***157***	***179***	***155***	***187***	***218***	***125***	

- Morning cycle volumes increased over the monitoring period to a peak between 7:50am and 7:59am (18 movements) before decreasing toward the end of the monitoring period. Cyclist trends remained similar to that of previous years, although cyclist volumes were less numerous in the first half of the monitoring period.

Figure 11.2: Morning Peak Cyclist Frequency

North Western Cycleway 2007 – 2014 (n)



Note: In 2014, 7 per cent of the total cycle movements (n=125) 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:

- *3 cyclists at 7:07am*
- *4 cyclists at 7:59am.*

This compares with 10 per cent of morning peak cyclists in 2013 (n=22) riding in groups.

11.3 Evening Peak

Environmental Conditions

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

Key Points

- This year, 179 evening cycle movements were recorded at the North Western Cycleway, down from 236 movements in 2013.
- The most common movement in the evening was Movement 5, turning right from the North Western Cycleway (95 cyclists).
- Of the six movements possible at this intersection, the most noticeable change was at Movement 5 (down 51 cyclists).

Table 11.3: Evening Cyclist Movements

North Western Cycleway 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	15	3	11	7	11	9	9	**10**	**1**
2	0	0	0	0	0	0	0	**0**	**0**
3	0	0	0	0	0	0	0	**0**	**0**
4	27	36	32	48	44	41	36	**27**	**-9**
5	58	75	113	118	102	152	146	**95**	**-51**
6	30	37	42	36	33	36	45	**47**	**2**
Total	**130**	**151**	**198**	**209**	**190**	**238**	**236**	**179**	**-57**

- Over the evening peak, almost all cyclists using this cycleway were adults (98 per cent, stable from 96 per cent last year).
- Most cyclists at this site were wearing a helmet (97 per cent, the same share recorded in 2013).
- The greatest share of evening cyclists were male (89 per cent, up 3 percentage points from last year).

Table 11.4: Evening Cyclist Characteristics

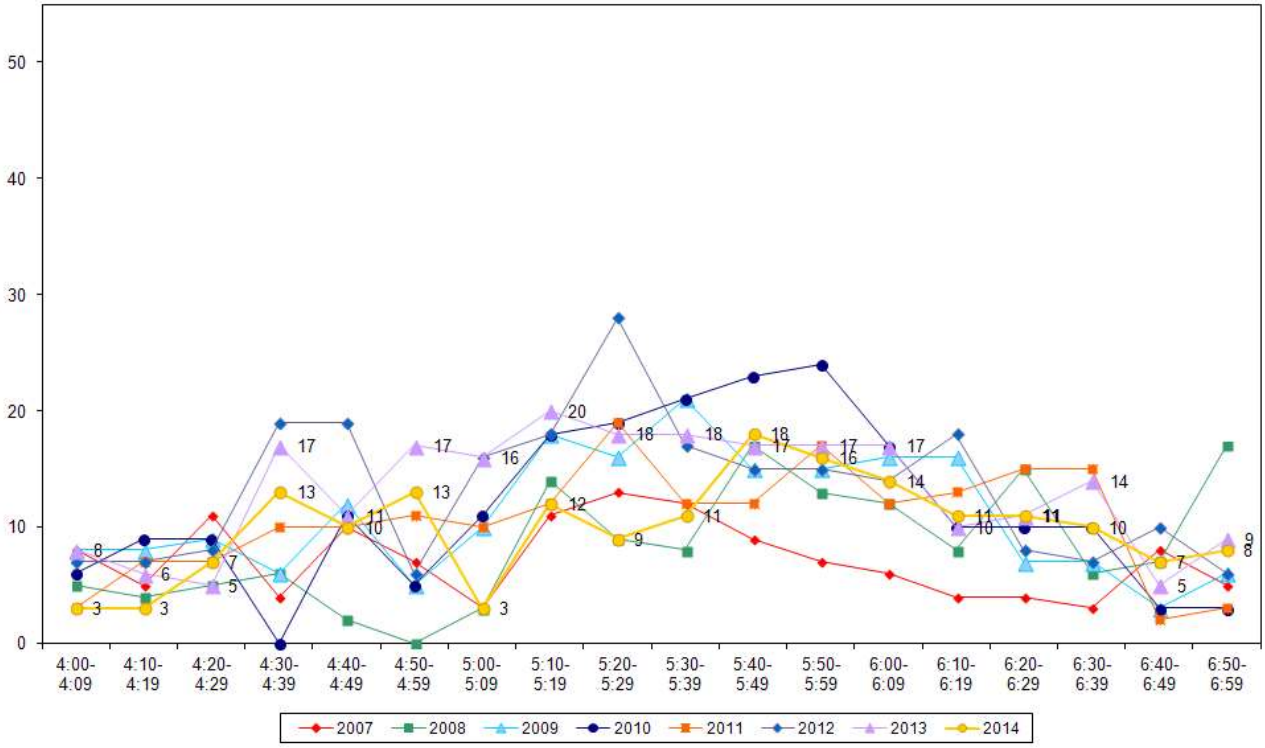
North Western Cycleway 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	91	100	99	99	100	98	96	**98**	**2**
School child	9	0	1	1	0	2	4	**2**	**-2**
Helmet Wearing									
Helmet on head	95	95	95	96	98	96	97	**97**	**0**
No helmet	5	5	5	4	2	4	3	**3**	**0**
Gender									
Male	-	-	-	-	85	88	86	**89**	**3**
Female	-	-	-	-	15	12	14	**11**	**-3**
Can't tell	-	-	-	-	0	0	0	**0**	**0**
Where Riding									
Cycleway	100	100	100	100	100	100	100	**100**	**0**
Base:	***130***	***151***	**198**	**209**	***190***	***238***	***236***	***179***	

- Figure 11.3 below illustrates the total number of evening cyclists by time of movement in the evening shift. Evening cycle volume was heavier in the middle section of the evening period for approximately half an hour (between 5:40pm and 6:09pm) of the monitoring period.

Figure 11.3: Evening Peak Cyclist Frequency

North Western Cycleway 2007 – 2014 (n)

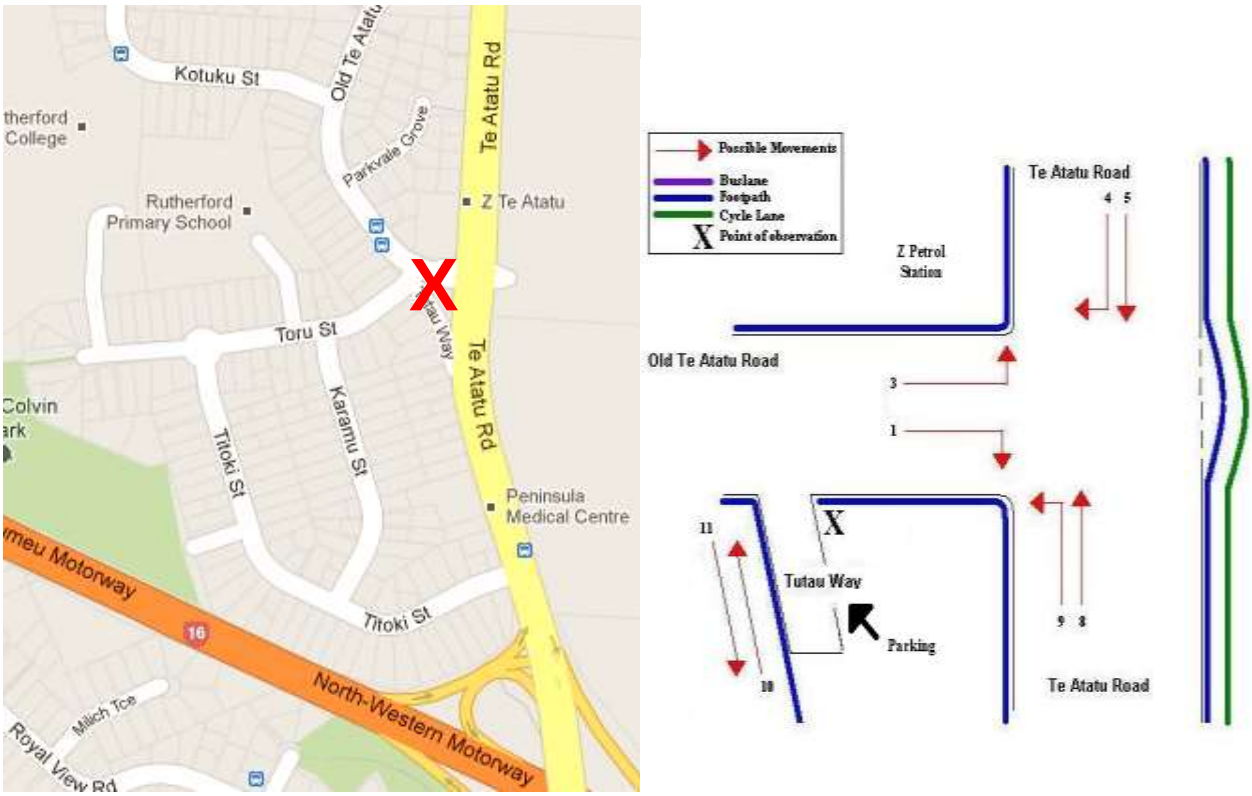


Note: No cyclists were observed riding together at this site in 2014. This compares with 3 per cent of cyclists (n=6) recorded in 2013.

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
2012	103	90	193	282
2013	88	104	192	278
2014	**58**	**68**	**126**	**182**

12.2 Morning Peak

Environmental Conditions

- The weather was cloudy with intermittent showers throughout the morning shift. The weather gradually improved towards the end of the monitoring period.
- 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 88 movements in 2013 to 58 movements in this year.
- The key morning movements were riding southwards down Te Atatu Road (Movement 5 = 30 cyclists), heading north on Te Atatu Road (Movement 8 = 15 cyclists) and turning left from Te Atatu Road into Old Te Atatu Road (Movement 9 = 8 cyclists) .
- Of the possible movements at this site, the most noticeable decrease was at Movement 5 (down 12 cyclists).

Table 12.1: Morning Cyclist Movements

Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2014 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	5	1	2	6	4	5	**3**	**-2**
2	0	0	0	0	0	0	**0**	**0**
3	0	0	1	0	0	0	**1**	**1**
4	0	0	2	1	2	2	**0**	**-2**
5	17	27	48	28	50	42	**30**	**-12**
6	0	0	0	0	1	0	**0**	**0**
7	0	0	0	0	0	0	**0**	**0**
8	6	3	22	10	21	22	**15**	**-7**
9	0	2	5	11	14	12	**8**	**-4**
10	15	18	22	6	8	2	**1**	**-1**
11	13	15	3	1	3	3	**0**	**-3**
Total	**56**	**66**	**105**	**63**	**103**	**88**	**58**	**-30**

- Over the morning peak, most cyclists at this site were adults (64 per cent, down from 69 per cent last year).
- Most cyclists were wearing a helmet (97 per cent, up from 93 per cent in 2013).
- Ninety-one per cent of evening peak cyclists was male.
- Almost all cyclists were riding on the cycleway (90 per cent, up from 75 per cent last year). The remaining 10 per cent were riding on the footpath.

Table 12.2: Morning Cyclist Characteristics

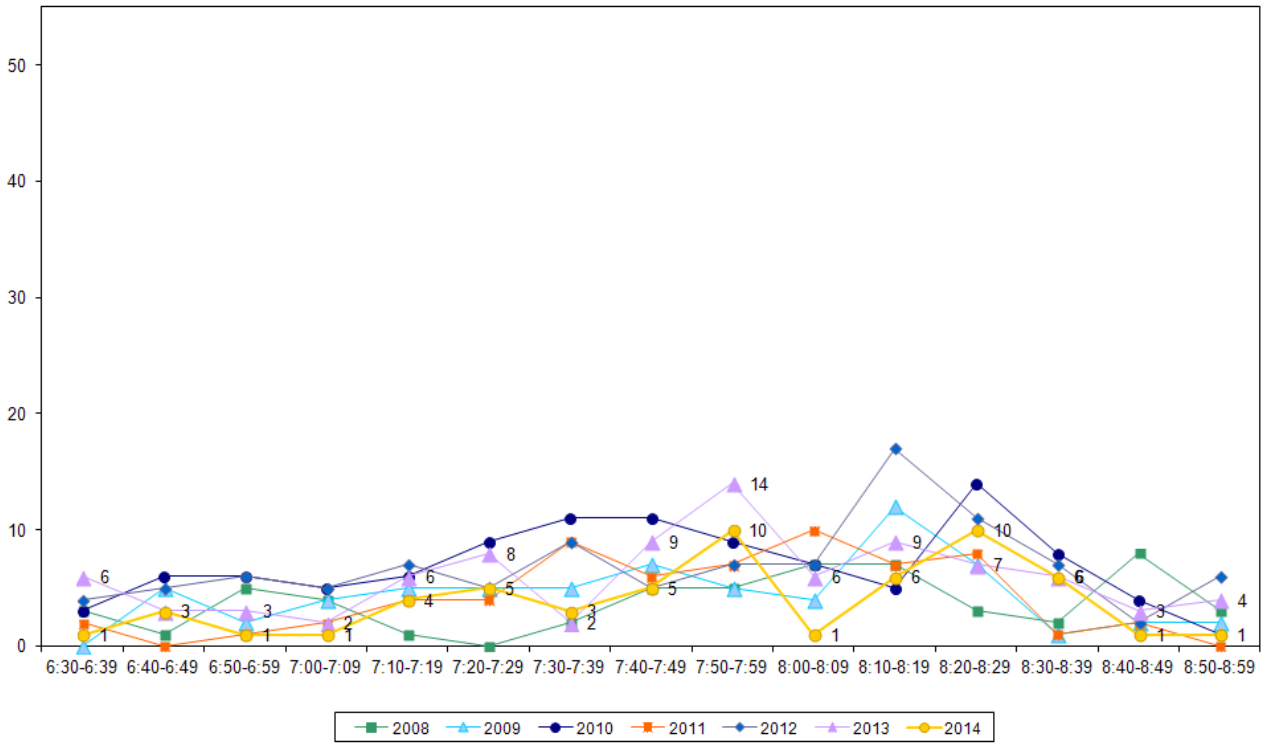
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2014 (%)

	2008	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type								
Adult	59	71	69	63	68	69	**64**	**-5**
School child	41	29	31	37	32	31	**36**	**5**
Helmet Wearing								
Helmet on head	95	91	95	97	88	93	**97**	**4**
No helmet	5	9	5	3	12	7	**3**	**-4**
Gender								
Male	-	-	-	84	83	89	**91**	**2**
Female	-	-	-	11	17	9	**5**	**-4**
Can't tell	-	-	-	5	0	2	**4**	**2**
Where Riding								
Road	75	58	90	5	18	10	**0**	**-10**
Footpath	25	42	10	27	9	15	**10**	**-5**
Off-road cycleway	-	-	-	68	73	75	**90**	**15**
Base:	***56***	***66***	***105***	***63***	***103***	***88***	***58***	

Note: A cycleway was constructed at this site in 2010.

- Figure 12.2 below illustrates the total number of morning cyclists by time of movement in the morning shift. Cycle volumes steadily increased over the first half of the morning period, reaching a peak between 7:50am and 7:59am (10 cyclists). A second peak was recorded between 8:20am and 8:29am (10 cyclists), before cycle volumes fell towards the end of the shift.

Figure 12.2: Morning Peak Cyclist Frequency
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2014 (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 number of evening cycle movements recorded at the Te Atatu/Old Te Atatu Road/Tatau Way site has decreased this year to 68 movements (down from 104 movements last year).
- The most common movements in the evening were along Te Atatu Road in both directions (Movement 8 = 49 cyclists; Movement 5 = 12 cyclists).
- The most noticeable changes from 2013 were at Movement 8 (down 11 cyclists) and Movement 5 (down 9 cyclists).

Table 12.3: Evening Cyclist Movements

Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2014 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	3	4	3	1	2	5	**4**	**-1**
2	0	0	0	0	0	0	**0**	**0**
3	0	0	1	1	1	0	**0**	**0**
4	0	0	1	1	1	1	**0**	**-1**
5	7	7	26	14	16	21	**12**	**-9**
6	0	0	0	0	0	0	**0**	**0**
7	0	0	0	0	0	1	**0**	**-1**
8	17	27	55	48	56	60	**49**	**-11**
9	2	5	2	2	5	3	**1**	**-2**
10	20	19	6	11	6	7	**1**	**-6**
11	6	6	8	0	3	6	**1**	**-5**
Total	**55**	**68**	**102**	**78**	**90**	**104**	**68**	**-36**

- Over the evening peak, the greatest share of cyclists using this site were adults (81 per cent, down from 86 per cent last year). There were more school children cycling this year (19 per cent, an increasing trend since 2011).
- Most cyclists at this site were wearing a helmet (93 per cent, a 3 percentage point increase from the last measure).
- The greatest share of evening cyclists were male (91 per cent, up from 86 per cent last year).
- Three in four cyclists at this site were riding on the cycleway (78 per cent, up from 74 per cent from the previous measure).

Table 12.4: Evening Cyclist Characteristics

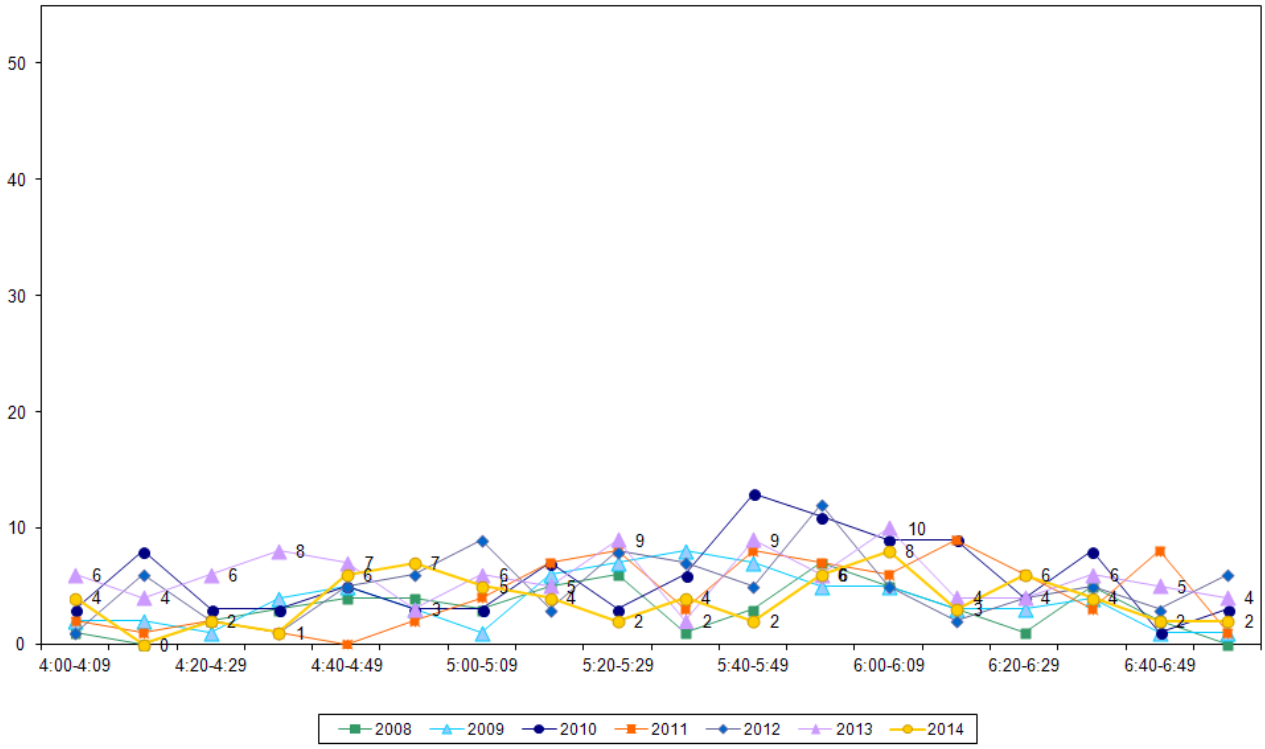
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2014 (%)

	2008	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type								
Adult	91	90	85	97	93	86	**81**	**-5**
School child	9	10	15	3	7	14	**19**	**5**
Helmet Wearing								
Helmet on head	87	84	84	94	81	90	**93**	**3**
No helmet	13	16	16	6	19	10	**7**	**-3**
Gender								
Male	-	-	-	83	86	86	**91**	**5**
Female	-	-	-	9	14	14	**9**	**-5**
Can't tell	-	-	-	8	0	0	**0**	**0**
Where Riding								
Road	82	49	75	12	17	15	**9**	**-6**
Footpath	18	51	25	12	9	11	**13**	**2**
Off-road cycleway	-	-	-	76	74	74	**78**	**4**
Base:	***55***	***68***	***102***	***78***	***90***	***104***	***68***	

Note: A cycleway was constructed at this site in 2010 .

- Figure 12.3 illustrates the total number of evening cyclists by time of movement in the evening shift. Evening cycle volume fluctuated throughout the monitoring period, with a maximum of eight cyclists and a minimum of zero cyclists per ten minute interval. There were no notable peaks in cycle traffic.

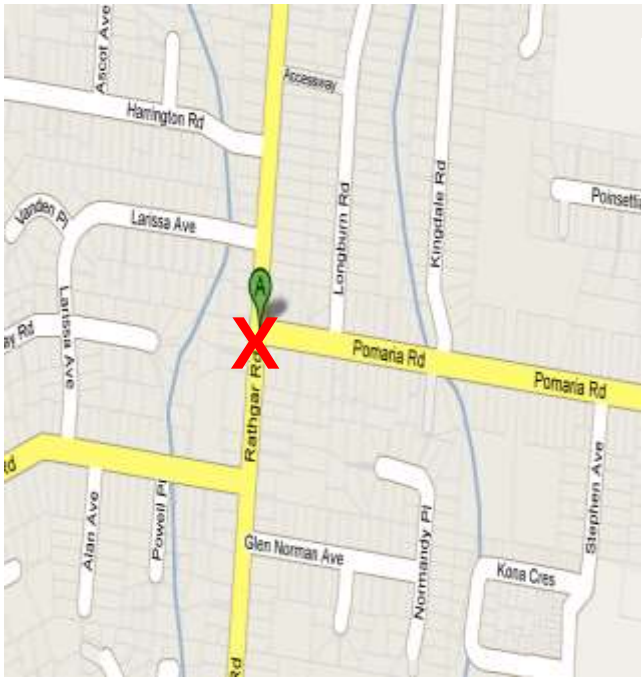
Figure 12.3: Evening Peak Cyclist Frequency
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2014 (n)

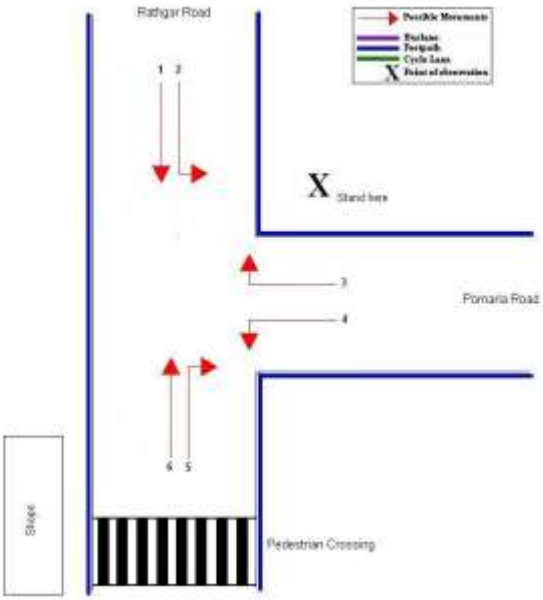


13. RATHGAR/POMARIA ROAD, HENDERSON (SITE 85)

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
2012	38	35	73	106
2013	36	32	68	99
2014	**30**	**25**	**55**	**80**

13.2 Morning Peak

Environmental Conditions

- The weather was overcast throughout the morning shift. There was light drizzle recorded from 6:20am to 7:00am, at 8:26am, and from 8:42am to 8:51am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cycle volume at the Rathgar/Pomaria Road site was 30 cyclists this year, down from 36 cycle movements in 2013.
- The key morning movement was the right turn from Rathgar Road into Pomaria Road (Movement 5 = 12 cyclists).
- The biggest changes in cyclist volume occurred at Movement 5 – right turn from Rathgar Road into Pomaria Road (down 9 movements).

Table 13.1: Morning Cyclist Movements

Rathgar/Pomaria Road 2009 – 2014 (n)

Movement	2009	2010	2011	2012	2013	2014	Change 13-14
1	4	10	5	5	6	**8**	**2**
2	3	3	1	6	3	**4**	**1**
3	2	3	0	0	2	**1**	**-1**
4	10	15	10	7	4	**1**	**-3**
5	12	20	15	19	21	**12**	**-9**
6	1	2	2	1	0	**3**	**3**
Don't know	0	0	0	0	0	**1**	**1**
Total	**32**	**53**	**33**	**38**	**36**	**30**	**-6**

- Over the morning peak, two thirds of all cyclists were school children (67 per cent, up notably from 28 per cent in 2013).
- Approximately three-quarters of cyclists were wearing a helmet (73 per cent, down from 89 per cent from last year).
- Most morning cyclists were male (97 per cent, up 22 percentage points from 2013).
- Two-thirds of the cyclists at this site (67 per cent) were riding on the footpath (a 36 percentage point increase since 2013).

Table 13.2: Morning Cyclist Characteristics

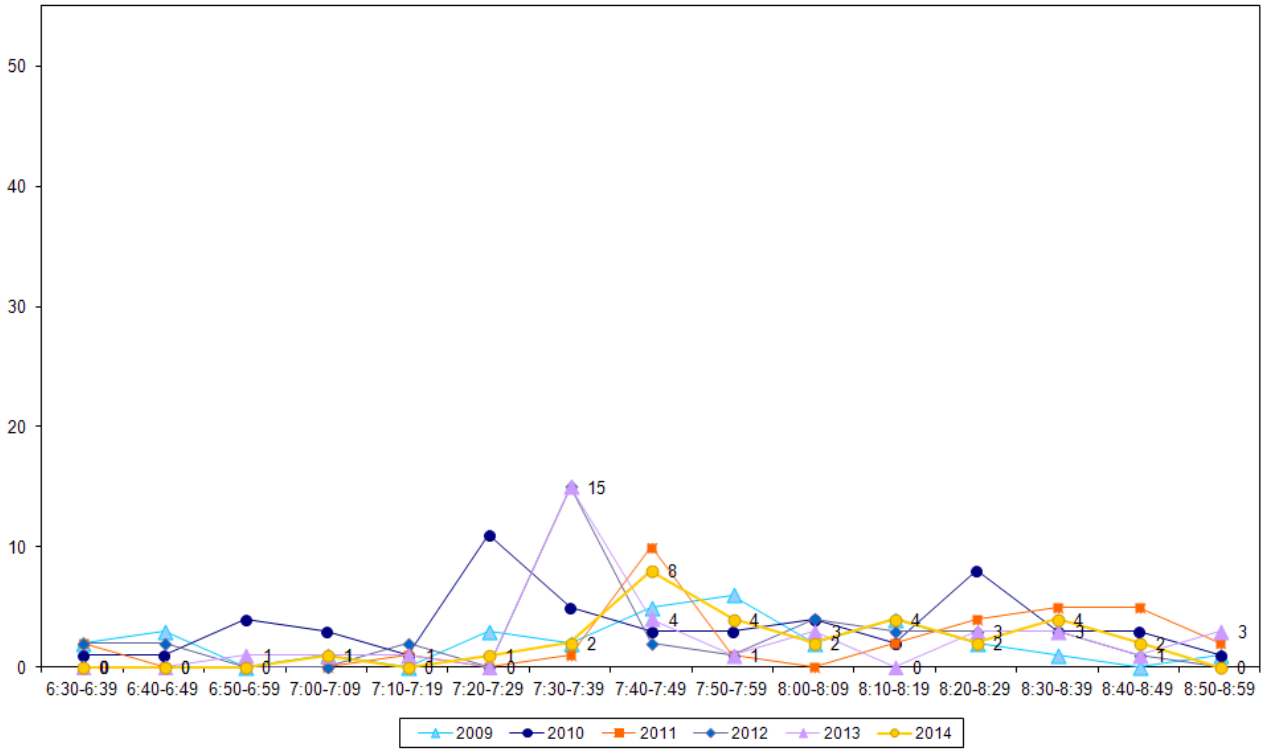
Rathgar/Pomaria Road 2009 – 2014 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type							
Adult	53	75	45	71	72	**33**	**-39**
School child	47	25	55	29	28	**67**	**39**
Helmet Wearing							
Helmet on head	69	85	94	89	89	**73**	**-16**
No helmet	31	15	6	11	11	**27**	**16**
Gender							
Male	-	-	94	87	75	**97**	**22**
Female	-	-	6	11	25	**3**	**-22**
Can't tell	-	-	0	2	0	**0**	**0**
Where Riding							
Road	50	60	55	57	69	**33**	**-36**
Footpath	50	40	45	43	31	**67**	**36**
Base:	***32***	***53***	***33***	***38***	***36***	***30***	

- Morning cycle movements peaked between 7:40am and 7:49am (8 movements, amongst which there were 4 cyclists travelling in a group). Traffic remained low throughout the remainder of the morning peak period, with no more than four cyclists per ten minute interval.

Figure 13.2: Morning Peak Cyclist Frequency

Rathgar/Pomaria Road 2009 – 2014 (n)



Note: In 2014, 4 cyclists (13 per cent of all morning peak cycle movements at this site) were observed riding together at 7:46am. This compares with 2013, where 25 per cent of cyclists (n=9) were identified as riding in groups.

13.3 Evening Peak

Environmental Conditions

- The weather was cloudy and windy at the start of the shift, with a shower recorded at 6:58pm lasting around 5 minutes. Some sunshine was also present towards the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.
- A male school child was observed riding through the intersection on multiple occasions at around 6:50pm - 7:00pm. As per protocol he was recorded in the data set the first three times.

Key Points

- The total number of cycle movements recorded at the Rathgar/Pomaria Road site in the evening has decreased from 32 movements last year, to 25 movements recorded this year.
- The most common movement in the evening was travelling straight along Rathgar Road heading south (Movement 1 = 8 cyclists).
- The most noticeable change occurred at Movement 5 (down 4 cyclists from 2013).

Table 13.3: Evening Cyclist Movements

Rathgar/Pomaria Road 2009 – 2014 (n)

Movement	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	14	10	5	8	5	**8**	**3**
2	1	6	0	0	2	**1**	**-1**
3	3	5	1	4	6	**4**	**-2**
4	16	5	9	10	7	**4**	**-3**
5	9	13	9	7	8	**4**	**-4**
6	10	7	11	6	4	**4**	**0**
Total	**53**	**46**	**35**	**35**	**32**	**25**	**-7**

- Over the evening peak, just less than half of the cyclists using this intersection were school children (48 per cent, up from 41 per cent in 2013).
- Two-in-three of the cyclists using the site in the evening were wearing a helmet (68 per cent, up from 47 per cent on last year).
- The majority of evening peak cyclists were male (76 per cent, up from 72 per cent last year).
- The greatest share of evening cyclists were riding on the footpath (80 per cent, up from 66 per cent in 2013).

Table 13.4: Evening Cyclist Characteristics

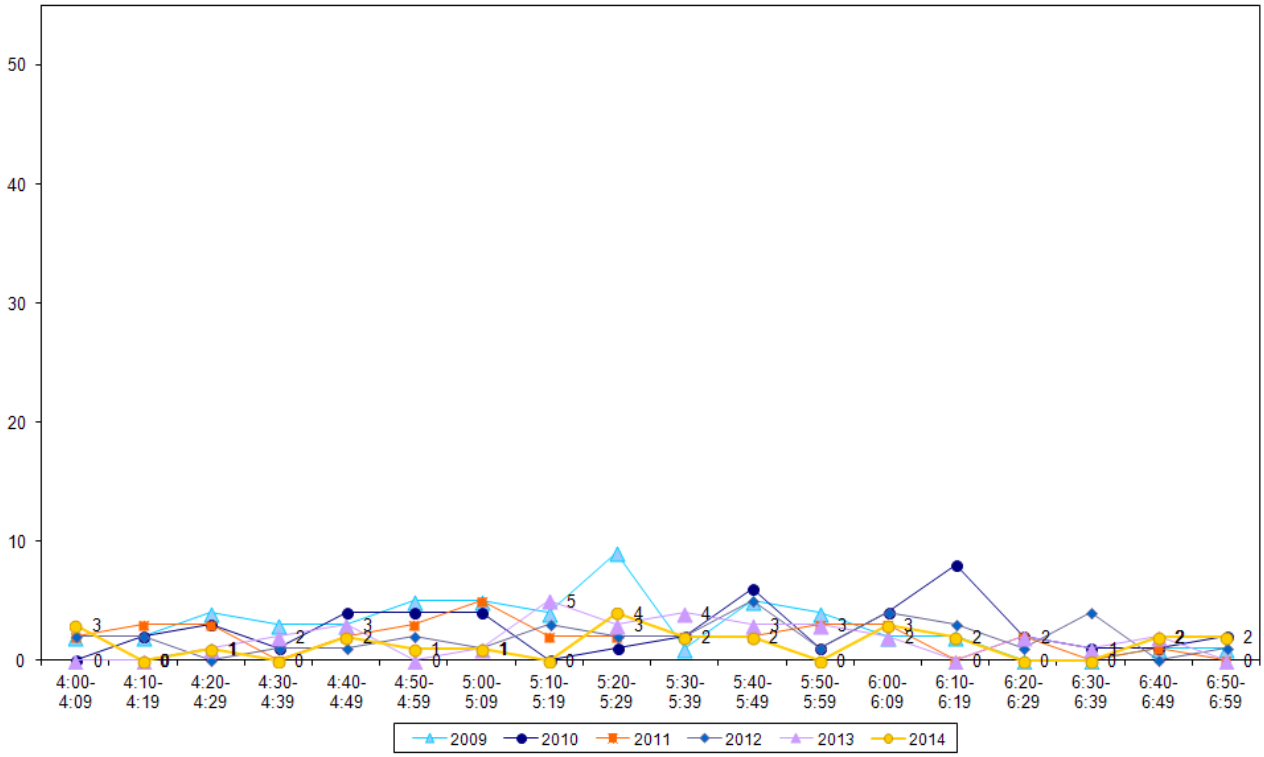
Rathgar/Pomaria Road 2009 – 2014 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type							
Adult	42	43	40	80	59	**52**	**-7**
School child	58	57	60	20	41	**48**	**7**
Helmet Wearing							
Helmet on head	49	46	37	74	47	**68**	**21**
No helmet	51	54	63	26	53	**32**	**-21**
Gender							
Male	-	-	83	94	72	**76**	**4**
Female	-	-	17	6	28	**24**	**-4**
Can't tell	-	-	0	0	0	**0**	**0**
Where Riding							
Road	32	37	31	46	34	**20**	**-14**
Footpath	68	63	69	54	66	**80**	**14**
Base:	***53***	***46***	***35***	***35***	***32***	***25***	

- Consistent with 2013, evening cycle volumes remained low throughout the evening peak period. No more than four cyclists rode past the site during any ten minute interval.

Figure 13.3: Evening Peak Cyclist Frequency

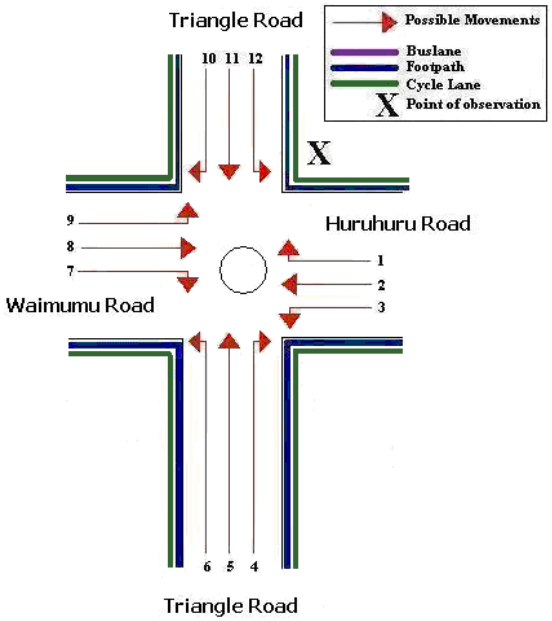
Rathgar/Pomaria Road 2009 – 2014 (n)



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
2012	71	106	177	255
2013	73	80	153	222
2014	**25**	**41**	**66**	**95**

14.2 Morning Peak

Environmental Conditions

- The weather mostly sunny throughout the morning shift, with drizzle recorded at 8:25am to 8:30am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning peak cycle volumes at the Triangle/Huruhuru Road site has decreased considerably this year, with 25 cycle movements recorded (down from 73 movements in 2013).
- The key morning movement remained travelling straight along Triangle Road heading southeast (Movement 11 = 18 cyclists).
- Movement 11 also registered the biggest volume change from last year (down 23 movements).

Table 14.1: Morning Cyclist Movements

Triangle/Huruhuru Road 2010 – 2014 (n)

Movement	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	2	0	0	**0**	**0**
2	0	0	1	1	**0**	**-1**
3	4	1	8	7	**1**	**-6**
4	0	0	1	0	**0**	**0**
5	6	5	10	11	**1**	**-10**
6	1	7	1	1	**0**	**-1**
7	8	3	14	10	**5**	**-5**
8	1	0	0	1	**0**	**-1**
9	0	0	0	0	**0**	**0**
10	0	0	0	1	**0**	**-1**
11	39	34	36	41	**18**	**-23**
12	0	0	0	0	**0**	**0**
Total	**59**	**52**	**71**	**73**	**25**	**-48**

- Over the morning peak, most cyclists were adults (88 per cent, down from 92 per cent in 2013).
- Almost all cyclists are wearing a helmet (88 per cent, down from 93 per cent last year).
- The majority of cyclists at this site were male (92 per cent, up from 88 per cent in 2013).
- Forty per cent cyclists were riding on the off-road cycle way (a 4 percentage point decrease from 2013). The remaining 60 per cent of cyclists travelled on the road.

Table 14.2: Morning Cyclist Characteristics

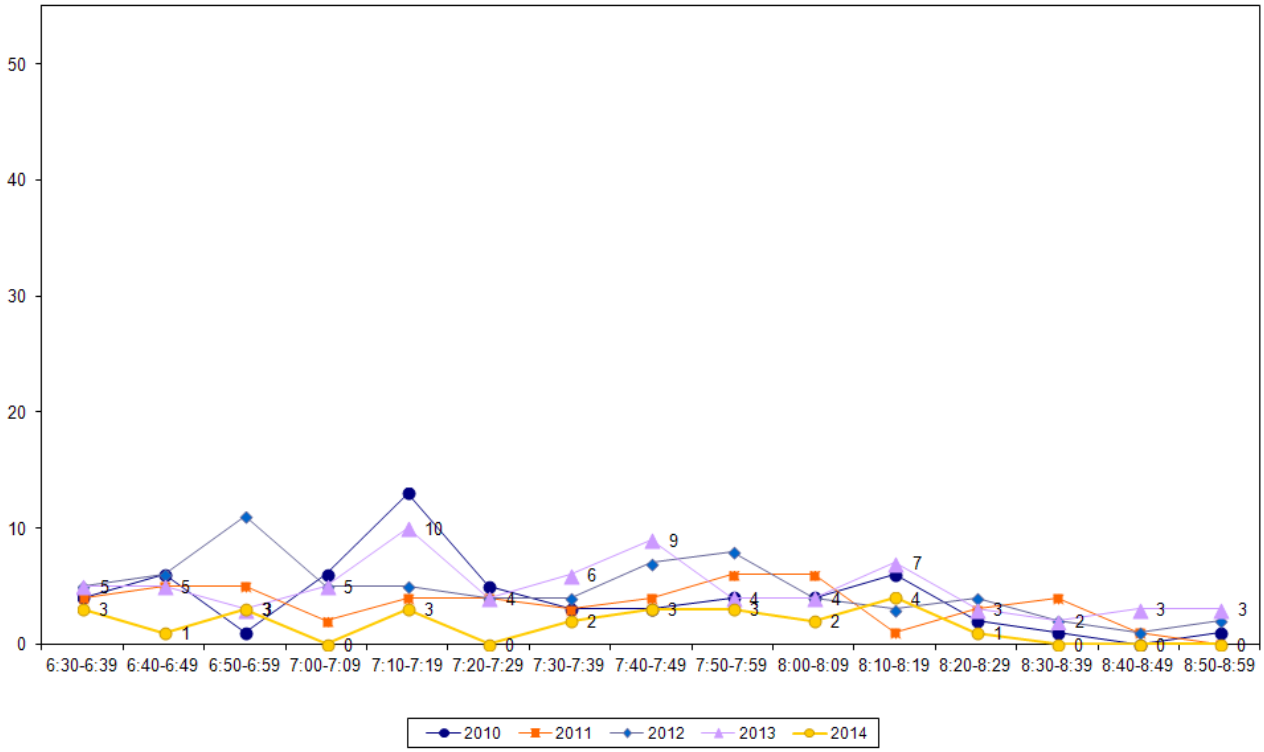
Triangle/Huruhuru Road 2010 – 2014 (%)

	2010	***2011***	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type						
Adult	95	77	87	92	**88**	**-4**
School child	5	23	13	8	**12**	**4**
Helmet Wearing						
Helmet on head	97	96	92	93	**88**	**-5**
No helmet	3	4	8	7	**12**	**5**
Gender						
Male	-	73	89	88	**92**	**4**
Female	-	15	11	12	**8**	**4**
Can't tell	-	12	0	0	**0**	**0**
Where Riding						
Road	95	71	60	56	**60**	**4**
Footpath	5	2	15	0	**0**	**0**
Off-road cycle way	-	27	25	44	**40**	**-4**
Base:	***59***	***52***	***71***	***73***	***25***	

- Morning cycle volume remained low throughout the morning period. The highest number of cyclists recorded at any ten minute interval was between 8:10am to 8:19am with four cycle movements. For the final half an hour of the shift, no cyclists were recorded.

Figure 14.2: Morning Peak Cyclist Frequency

Triangle/Huruhuru Road 2010 – 2014 (n)



Note: In 2014, 3 cyclists (12 per cent of all morning peak cycle movements at this site) were observed riding together at 7:19am. This compares with 4 per cent of cyclists (n=3) riding as groups in 2013.

14.3 Evening Peak

Environmental Conditions

- The weather was mostly overcast throughout the evening shift with drizzle recorded from 4:45pm to 4:55pm.
- 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 has decreased, with 41 movements recorded (down from 80 movements in 2013).
- The most common movement in the evening was straight along Triangle Road heading northeast (Movement 5 = 23 cyclists).
- The most noticeable change was at Movement 5 (down 24 movements from last year).

Table 14.3: Evening Cyclist Movements

Triangle/Huruhuru Road 2010 – 2014 (n)

Movement	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	0	0	0	**0**	**0**
2	1	0	2	0	**0**	**0**
3	5	2	0	1	**0**	**-1**
4	4	3	7	6	**3**	**-3**
5	39	39	60	47	**23**	**-24**
6	9	6	14	12	**9**	**-3**
7	3	1	5	1	**3**	**2**
8	1	0	0	0	**0**	**0**
9	2	2	4	2	**0**	**-2**
10	0	5	2	0	**0**	**0**
11	13	10	10	11	**2**	**-9**
12	0	1	2	0	**0**	**0**
Don't know	0	0	0	0	**1**	**1**
Total	**78**	**69**	**106**	**80**	**41**	**-39**

- Over the evening peak, all cyclists using this intersection were adults (up from 97 per cent last year).
- Almost all cyclists using the site in the evening were wearing a helmet (88 per cent, down from 94 per cent in 2013).
- The majority of evening cyclists were male (83 per cent).
- Almost three quarters of evening cyclists are riding on the road (71 per cent, down from 85 per cent in 2013), while there has been an increase in use of the off-road cycleway (up to 29 per cent this year).

Table 14.4: Evening Cyclist Characteristics

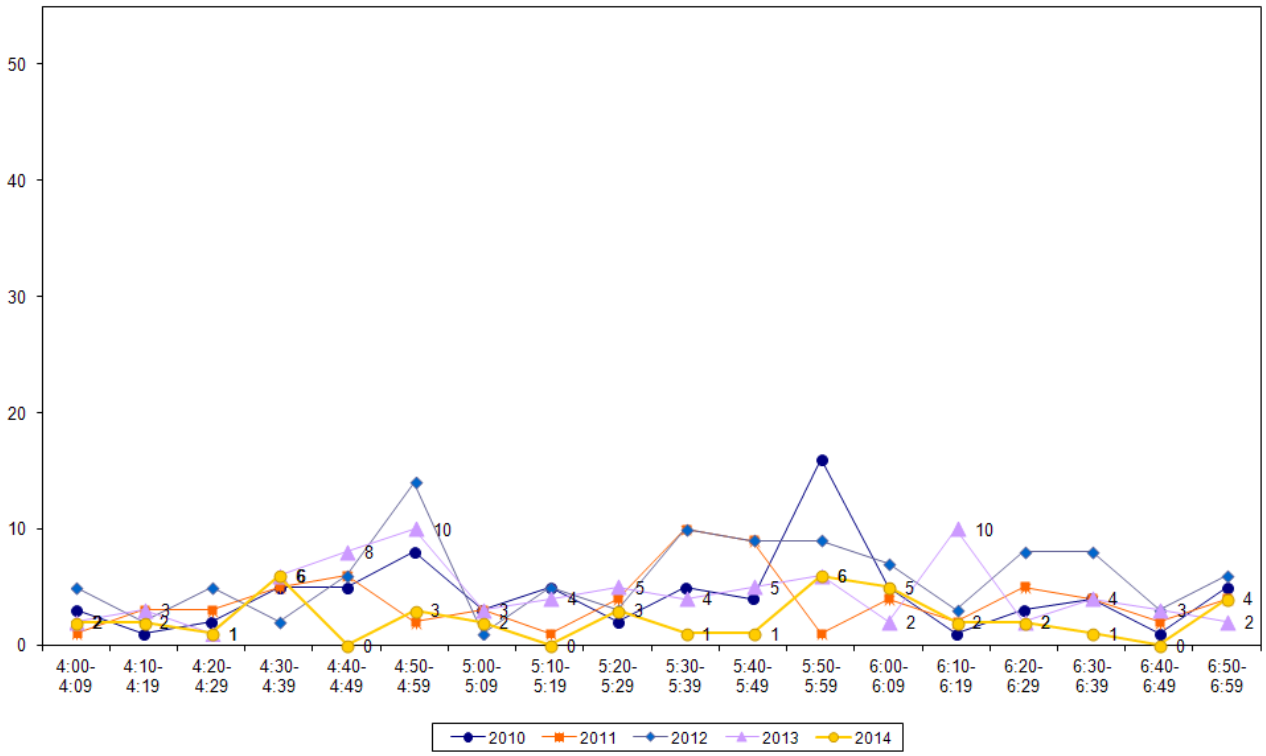
Triangle/Huruhuru Road 2010 – 2014 (%)

	2010	***2011***	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type						
Adult	77	80	75	97	**100**	**3**
School child	23	20	25	3	**0**	**-3**
Helmet Wearing						
Helmet on head	76	84	89	94	**88**	**-6**
No helmet	24	16	11	6	**12**	**6**
Gender						
Male	-	87	80	91	**83**	**-8**
Female	-	13	11	8	**17**	**9**
Can't tell	-	0	9	1	**0**	**-1**
Where Riding						
Road	71	74	72	85	**71**	**-14**
Footpath	29	0	7	0	**0**	**0**
Off-road cycle way	-	26	21	15	**29**	**14**
Base:	***78***	***69***	***106***	***80***	***41***	

- Cycle volume in the evening was generally low throughout the evening monitoring period. There were no more than six cyclists passing the site per ten minute interval.

Figure 14.3: Evening Peak Cyclist Frequency

Triangle/Huruhuru Road 2010 – 2014 (n)



Note: No cyclists were observed together as groups in 2014. This compares with 11 per cent of evening peak cyclists in 2013 (n=9) riding as groups.

15. WEST HARBOUR FERRY WHARF

No cycle counts were observed at the West Harbour ferry wharf this year (compared with one cycle count last year).

16. SCHOOL BIKE SHED COUNT

16.1 Cycle Count Background Information

- A total of 22 schools in the Waitakere ward participated in the school bike shed count. Of the schools that responded to the survey, most had no policies that restrict students cycling to school[11].
- No schools surveyed reported any events or issues that may affect the cycle counts.
- The designated count day was Tuesday 4th of March 2014[12].

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

16.2 Cycle Count Key Points

- Among the surveyed schools, of those eligible to cycle to school, on average, one per cent of students are cycling to their schools, down from 2 per cent in 2013.
- Lincoln Heights School, Liston College and Waitakere School all reported the highest share of cyclists – 4 per cent of all eligible students currently cycling to school.
- In total, n=145 students from the responding schools were reported to be cycling to school.
- Of the 22 schools that responded, 8 (36 per cent) had no students cycling to school.

[11] The following schools have policies surrounding cycling to school:
- Birdwood School *"A note from parents is required for students to be allowed to cycle to and from school."*
- Lincoln Heights School *"Year 6 students and above may ride to school when wearing the approved helmet and road worthy bike. On a Thursday students may bring a bicycle to school if younger provided they are supervised by an adult on the way to and from school."*
- Massey Primary School *"Requires written permission from parents."*
- Waitakere School *"Must be 9 years of age."*
- West Harbour School *"Year 4 and above."*

[12] The following schools conducted their counts on alternative days:
- Birdwood School – 12th March 2014
- Colwill School – 26th March 2014
- Don Buck School – 12th March 2014
- Henderson High School – 7th March 2014
- Holy Cross School (Henderson) – 18th March 2014
- Lincoln Heights School – 18th March 2014
- Liston College – 20th March 2014
- Massey High School – 13th March 2014
- Massey Primary School – 13th March 2014
- Nga Kakano Christian Reo Rua Kura – 26th March 2014
- Rangeview Intermediate School – 17th March 2014
- Rutherford College – 17th March 2014
- Titirangi Rudolf Steiner School – 18th March 2014
- Waitakere School – 18th March 2014
- Waitakere Seventh Day Adventist School – 27th March 2014
- West Harbour School – 18th March 2014

- Of the 20 schools that participated in the count in both 2013 and 2014, 5 (25 per cent) reported an increase in the share of students cycling, the most notable increases being:
  - Lincoln Heights School (4 per cent, up from 2 per cent)
  - Liston College (4 per cent, up from 1 per cent).
  - Henderson High School (3 per cent, up from 1 per cent).
  - Te Kura Kaupapa Māori o Hoani Waititi Marae (2 per cent, up from 0 per cent).
- Of the 20 schools that participated in the count in both 2013 and 2014, 8 (40 per cent) reported a decrease in the share of students cycling. The most notable decrease occurred at Rangeview Intermediate – down to 1 per cent (compared to 4 per cent last year).

Table 16.1 shows the results of the 22 schools in Waitakere that responded to the survey.

Table 16.1: Summary Table of School Bike Count

2007 – 2014 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[13]							
				2014	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Lincoln Heights School	Full Primary	125	5	**4%**	2%	0%	0%	-	-	-	-
Liston College	Intermediate/Secondary	819	32	**4%**	1%	3%	-	-	-	-	-
Waitakere School	Full Primary	150	6	**4%**	-	-	-	-	-	-	-
Henderson High School	Secondary	640	21	**3%**	1%	1%	-	-	-	-	-
Bruce McLaren Intermediate	Intermediate	238	4	**2%**	2%	1%	<1%	3%	4%	2%	2%
Rutherford College	Secondary	1400	34	**2%**	3%	4%	-	-	-	-	-
ACG Sunderland	Composite	262	3	**1%**	3%	2%	<1%	4%	2%	1%	-
Te Kura Kaupapa Māori o Hoani Waititi Marae	Composite	155	3	**2%**	0%	0%	2%	2%	0%	0%	-
Colwill School	Full Primary	230	2	**1%**	1%	0%	<1%	-	-	-	-
Glen Eden Intermediate School	Intermediate	1014	15	**1%**	3%	1%	1%	1%	3%	-	-
Rangeview Intermediate	Intermediate	680	10	**1%**	4%	3%	-	-	-	-	-
West Harbour School	Full Primary	190	2	**1%**	0%	-	-	-	-	-	-
Birdwood School	Full Primary	203	1	**<1%**	2%	0%	0%	-	-	-	-
Massey High School	Secondary	2200	7	**<1%**	1%	-	-	<1%	1%	1%	1%
Don Buck Primary School	Full Primary	220	0	**0%**	0%	0%	0%	-	-	-	-
Holy Cross School (Henderson)	Full Primary	376	0	**0%**	<1%	0%	0%	-	-	-	-
Massey Primary School	Full Primary	400	0	**0%**	<1%	-	-	-	-	-	-

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

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[13]							
				2014	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Ngā Kakano Christian Reo Rua Kura	Composite	91	0	**0%**	0%	6%	2%	-	6%	7%	7%
Royal Road School	Full Primary	269	0	**0%**	0%	0%	0%	-	-	-	-
St Dominic's College	Intermediate/Secondary	835	0	**0%**	0%	0%	0%	-	<1%	<1%	<1%
Titirangi Rudolf Steiner School	Full Primary	260	0	**0%**	0%	0%	0%	0%	0%	0%	0%
Waitakere Seventh Day Adventist School	Full Primary	35	0	**0%**	-	-	-	-	-	-	-
Total		**10792**	**145**	**1%**	2%	2%	1%	-	-	-	-

Table 16.2 illustrates the rates of cycling to school at different school levels. The highest rate of school cycling this year was 2 per cent, observed by intermediate schools and intermediate/secondary schools.

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

2007 – 2014 (%)

School Types	*Number of Schools Responded in 2014*	*Cyclists as share of those eligible*								Change 13-14
		2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	
Intermediate	3	6%	5%	5%	4%	3%	3%	4%	**2%**	**-2%**
Intermediate/Secondary	2	<1%	<1%	<1%	-	0%	1%	1%	**2%**	**1%**
Composite	4	7%	3%	3%	3%	1%	2%	1%	**1%**	**0%**
Full Primary	10	-	-	-	-	1%	1%	1%	**1%**	**0%**
Secondary	3	0%	0%	0%	0%	0%	2%	2%	**1%**	**-1%**

16.3 Scooter Count Background Information

- A total of 22 schools in the Waitakere ward participated in the school bike shed scooter count. Of the schools that responded to the survey, most had no policies that restrict students scootering to school[14].
- No schools surveyed reported any events or issues that may affect the scooter counts.
- The designated count day was Tuesday 4th of March 2014[15].

Note: Non-motorised scooters were counted for the first time in 2014.

16.4 Scooter Count Key Points

- Among the surveyed schools, of those eligible to scooter, on average, one per cent of students are scootering to their schools.
- Bruce Mclaren Intermediate reported the highest share of scooters – 6 per cent of all eligible students currently scootering to school.
- In total, n=75 students from the responding schools were reported to be scootering to school.
- Of the 22 schools that responded, 17 (77 per cent) had no students scootering to school.

[14] The following schools have policies surrounding scootering to school:
- Birdwood School *"A note from parents is required for students to be allowed to scooter to and from school."*
- Massey Primary School *"Requires written permission from parents."*

[15] The following schools conducted their counts on alternative days:
- Birdwood School – 12th March 2014
- Colwill School – 26th March 2014
- Don Buck School – 12th March 2014
- Henderson High School – 7th March 2014
- Holy Cross School (Henderson) – 18th March 2014
- Lincoln Heights School – 18th March 2014
- Liston College – 20th March 2014
- Massey High School – 13th March 2014
- Massey Primary School – 13th March 2014
- Nga Kakano Christian Reo Rua Kura – 26th March 2014
- Rangeview Intermediate School – 17th March 2014
- Rutherford College – 17th March 2014
- Titirangi Rudolf Steiner School – 18th March 2014
- Waitakere School – 18th March 2014
- Waitakere Seventh Day Adventist School – 27th March 2014
- West Harbour School – 18th March 2014

Table 16.3 shows the results of the 22 schools surveyed in the Waitakere ward.

Table 16.3: Summary Table Of School Scooter Count

2007 – 2014 (n)

School Name	*School Type*	*School Roll Eligible To Scooter*	*No. of Scooters Counted*	*Scooters as share of those eligible*[16]
				2014
Bruce Mclaren Intermediate	Intermediate	238	14	**6%**
Glen Eden Intermediate School	Intermediate	1014	40	**4%**
Lincoln Heights School	Full Primary	410	15	**4%**
Liston College	Intermediate/ Secondary	819	5	**1%**
Te Kura Kaupapa Maori o Hoani Waititi Marae	Composite	155	1	**1%**
ACG Sunderland	Composite	262	0	**0%**
Birdwood School	Full Primary	203	0	**0%**
Colwill School	Full Primary	230	0	**0%**
Don Buck School	Full Primary	220	0	**0%**
Henderson High School	Secondary	640	0	**0%**
Holy Cross School (Henderson)	Full Primary	376	0	**0%**
Massey High School	Secondary	2200	0	**0%**
Massey Primary School	Full Primary	400	0	**0%**
Nga Kakano Christian Reo Rua Kura	Composite	91	0	**0%**
Rangeview Intermediate School	Intermediate	680	0	**0%**
Royal Road School	Full Primary	269	0	**0%**
Rutherford College	Secondary	1400	0	**0%**
St. Dominic's College	Intermediate/ Secondary	835	0	**0%**
Titirangi Rudolf Steiner School	Composite	260	0	**0%**
Waitakere School	Full Primary	445	0	**0%**
Waitakere Seventh Day Adventist School	Full Primary	35	0	**0%**
West Harbour School	Full Primary	333	0	**0%**
Total			**75**	**1%**

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

Table 16.4 illustrates the rates of scootering to school at different school levels. Rates of scootering to school are highest for the intermediate schools (3 per cent).

Table 16.4: Summary Table Of School Scooter Count by School Type

2007 – 2014 (%)

School Type	***Number of Schools Responded in 2014 (n)***	***Scooter riders as share of those eligible***
		2014
Intermediate	3	**3%**
Full Primary	10	**1%**
Composite	4	**<1%**
Intermediate/Secondary	5	**<1%**
Secondary	3	**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[17] 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)[18], 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.

[17] Annual average daily traffic

[18] 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%