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Research Report Prepared for
Auckland Transport

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2015 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:

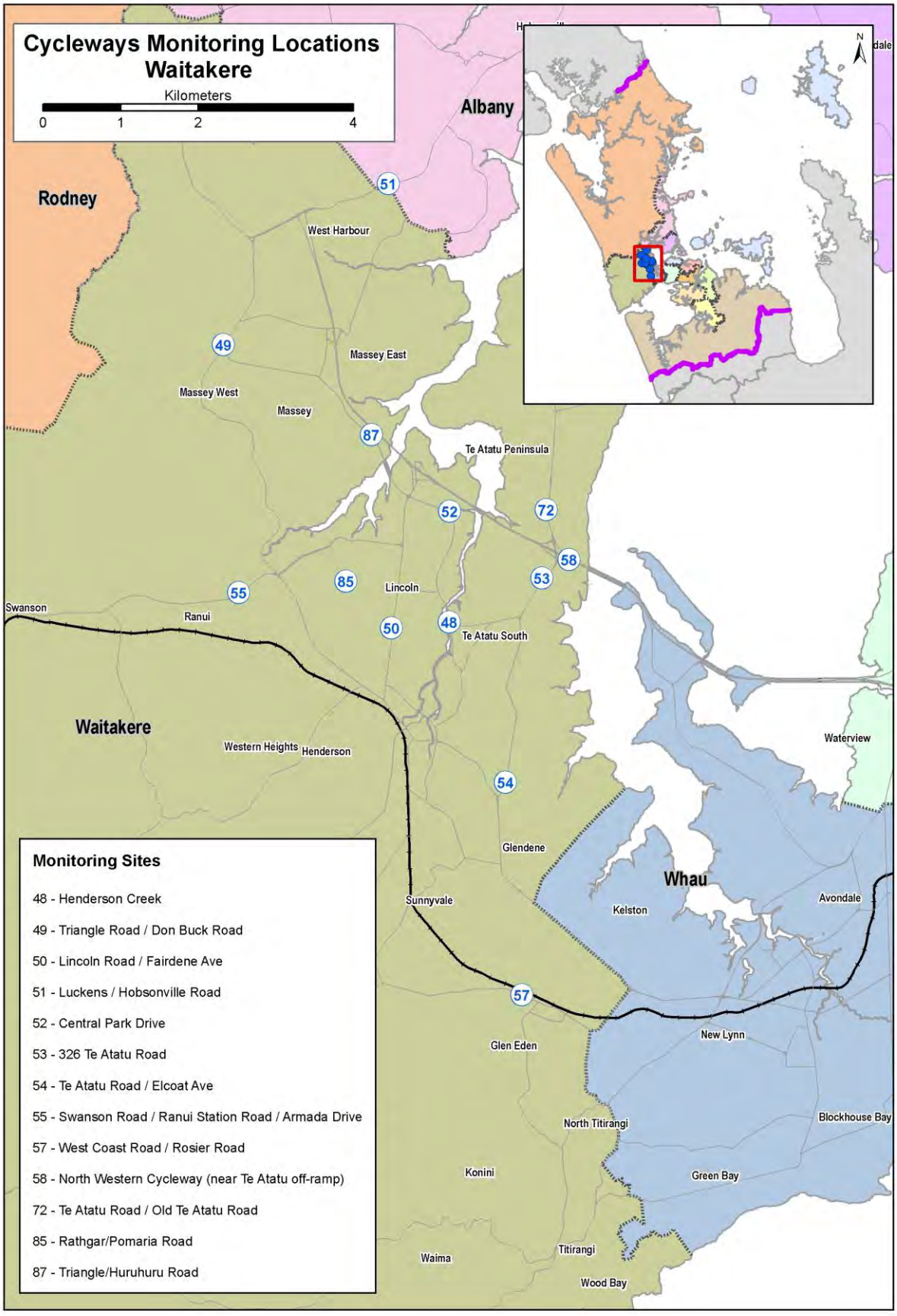
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 Road/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: 2015 Cycle Monitoring Locations in Waitakere Ward



1.2 Methodology

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

Choice of Sites

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

Manual counts were undertaken at 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 3rd of March and be conducted on the first three fine days of the 3rd, 4th, 5th, 10th, 11thor 12thof March.

Counts were conducted on the following days:

• Tuesday 3rd March	Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki, Whau
• Wednesday 4th March	Howick, Franklin, Manukau, Waitemata & Gulf
• Thursday 5th March	Albany, North Shore, Waitakere

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 2015 was as follows:

Tuesday 3rd March

- Sunrise: 7:08am; Sunset: 7:58pm.
- Highest temperature: 25 degrees Celsius. Lowest temperature: 17 degree Celsius.
- Mostly fine weather with scattered cloud throughout the day.

Wednesday 4th March

- Sunrise: 7:09am; Sunset: 7:57pm.
- Highest temperature: 26 degrees Celsius. Lowest temperature: 19 degree Celsius.
- Fine with cloud throughout the morning shift. Cloudy in the evening with light rain recorded at some sites from 6:00pm.

Thursday 5th March

- Sunrise: 7:09am; Sunset: 7:55pm.
- Highest temperature: 27 degrees Celsius. Lowest temperature: 17 degree Celsius.
- 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, from 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.

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

Methodology

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

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

2. This email was then sent to all eligible schools in Auckland region (n=300) 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 3rd 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 2015, 201 responses were received, a response rate of 64 per cent. (This compares with 88 per cent in 2014).

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. Separate scooter counts have also 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 Thursday the 5th of March, 2015. Sunrise was at 7:09am and sunset was at 7:55pm. The highest temperature was 27 degrees Celsius.

1.4 Morning Peak

Environmental Conditions

- All sites had fine weather throughout the monitoring period.
- For Site No.85 (Rathgar/Pomaria Road intersection); major road works were being carried out on the odd-numbered side of Pomaria Road. The surveyor also noted that there was gravel everywhere and the road surface was very rough along Pomaria Road.
- There were no other road works or accidents that may affect cycle counts in the morning.

Key Points

- A total of 669 cyclist movements were recorded across the 13 sites monitored in the morning peak period (between 6:30am and 9:00am) in 2015. This represents a 36 per cent increase from the 2014 result (493 movements).
- Four per cent (n=27) of the movements were made by cyclists riding as groups. This compares with five per cent (n=27) in 2014.
- The average number of cycle movements per site has increased from 38 in 2014 to 51 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 (205 movements, a notable increase from 125 movements in 2014).
- Te Atatu Road/Elcoat Avenue, Luckens Road/Hobsonville Road and Triangle Road/Don Buck Road had the lowest level of morning cyclist traffic (less than 20 cycle movements each).
- All but one site recorded an increase in cycle volume over the last 12 months. Triangle Road/Don Buck Road recorded the most notable increase of 117 per cent; from 12 cycle movements last year, to 26 cycle movements this year. Triangle Road/Huruhuru Road also recorded a notable increase of 80 per cent; from 25 cycle movements last year, to 45 cycle movements this year.
- Rathgar Road/Pomaria Road was the only site that recorded a decline over the last 12 months (24 cycle movements, down from 30 cycle movements in 2014).

Table 1.1: Summary of Morning Cyclist Movements

2007 – 2015 (n)

Site No	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15 (%)	Change 07-15 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	102	121	157	179	155	187	218	125	**205**	**64%**	**101%**
52	Central Park Drive, Henderson	61	68	91	94	100	112	135	56	**76**	**36%**	**25%**
53	326 Te Atatu Road (Near Covil Ave)	44	52	79	65	73	75	76	63	**69**	**10%**	**57%**
48	Henderson Creek	14	11	27	38	24	39	30	32	**41**	**28%**	**193%**
55	Swanson Road/Ranui Station Road/Armada Drive	15	21	37	34	47	27	49	28	**31**	**11%**	**107%**
49	Triangle Road/Don Buck Road, Massey	24	29	21	27	35	30	46	12	**26**	**117%**	**8%**
57	West Coast Road/Rosier Road, Glen Eden	19	18	28	31	25	19	24	17	**23**	**35%**	**21%**
50	Lincoln Road/Fairdene Avenue	13	19	21	21	26	34	31	18	**18**	**0%**	**38%**
51	Luckens Road/Hobsonville Road	20	25	26	41	14	42	44	17	**17**	**0%**	**-15%**
54	Te Atatu Road/Elcoat Avenue	26	27	37	30	30	34	20	12	**15**	**25%**	**-42%**
	Average per site (10 sites since 2007)	**34**	**39**	**52**	**56**	**53**	**60**	**67**	**38**	**52**	**37%**	**53%**
	Total (10 sites since 2007)	**338**	**391**	**524**	**560**	**529**	**599**	**673**	**380**	**521**	**37%**	**54%**
72	Te Atatu Road/Old Te Atatu Road/Tatau Way	-	56	66	105	63	103	88	58	**79**	**36%**	**-**
85	Rathgar Road/Pomaria Road	-	-	32	53	33	38	36	30	**24**	**-20%**	**-**
	Average per site (11 sites in 2008, 12 sites in 2009)	**-**	**41**	**52**	**58**	**52**	**62**	**66**	**39**	**52**	**33%**	**-**
	Total (11 sites in 2008, 12 sites in 2009)	**-**	**447**	**622**	**698**	**625**	**740**	**797**	**468**	**624**	**33%**	**-**
87	Triangle Road/Huruhuru Road	-	-	-	59	52	71	73	25	**45**	**80%**	**-**
	Average per site (13 sites since 2010)	**-**	**-**	**-**	**58**	**52**	**62**	**67**	**38**	**51**	**34%**	**-**
	Total (13 sites since 2010)	**-**	**-**	**-**	**757**	**677**	**811**	**870**	**493**	**669**	**36%**	**-**

- Overall, 85 per cent of cyclists in the morning peak were adults (up from 77 per cent last year).
- Almost all morning cyclists were wearing a helmet across the Waitakere sites (91 per cent, stable since 2007).
- Nearly all the morning cyclists were male (86 per cent).
- Fifty-one per cent of morning cyclists were riding on an off-road cycleway, 25 per cent were riding on the footpath, and the remaining 24 per cent were riding on the road. The off-road cycleway has become notably more popular this year; use has increased by 28 percentage points compared to last year.

Table 1.2: Summary of Morning Cyclist Characteristics

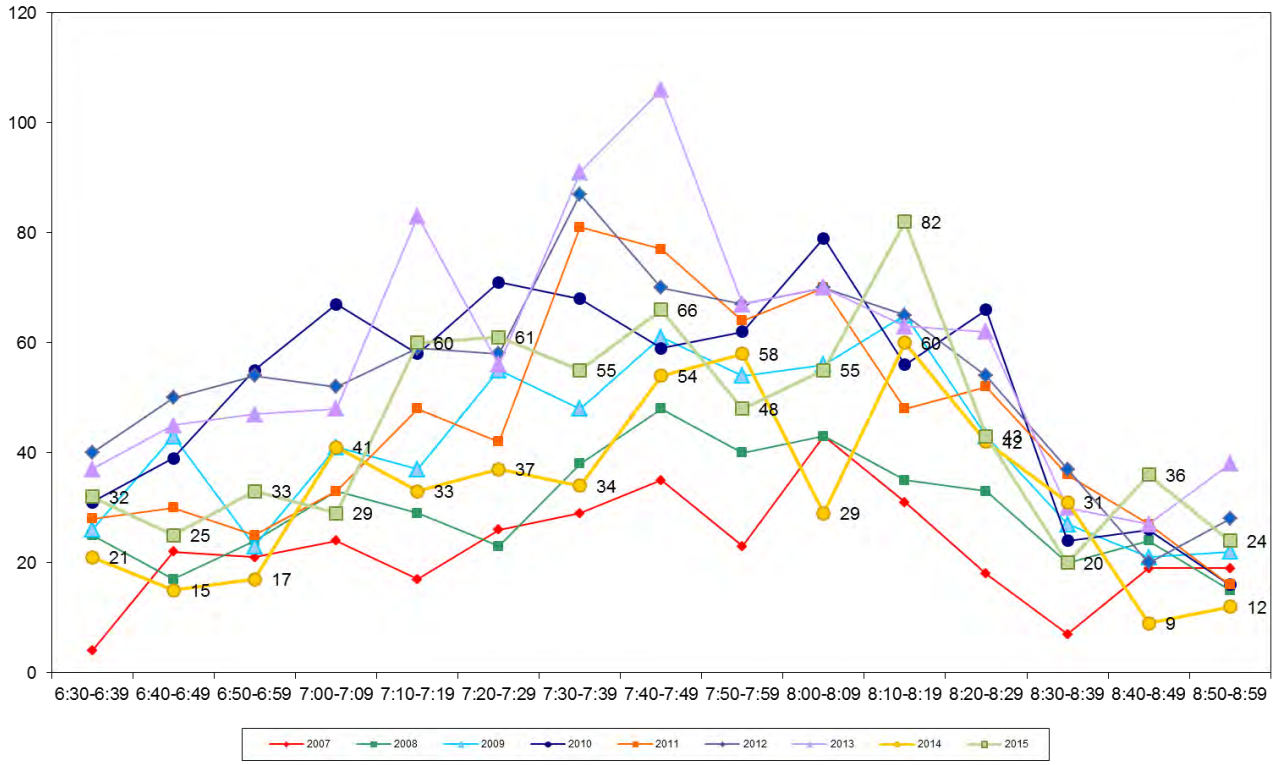
2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	80	76	78	81	75	81	84	77	**85**	**8**
School child	20	24	22	19	25	19	16	23	**15**	**-8**
Helmet Wearing										
Helmet on head	91	92	91	93	91	91	91	90	**91**	**1**
No helmet	9	8	9	7	9	9	9	10	**9**	**-1**
Gender										
Male	-	-	-	-	83	86	86	89	**86**	**-3**
Female	-	-	-	-	15	14	12	10	**13**	**3**
Can't tell	-	-	-	-	2	0	2	1	**1**	**0**
Where Riding*										
Road	35	41	34	47	28	32	33	23	**24**	**1**
Footpath	31	29	31	22	29	24	22	54	**25**	**-29**
Off-road cycleway	34	30	35	31	43	44	45	23	**51**	**28**
Base:	***338***	***447***	***622***	***757***	***677***	***811***	***870***	***493***	***669***	

- 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 66 movements between 7:40am to 7:49am. The largest peak occurred between 8:10am and 8:19am (82 cycle movements). Following this large peak, there was a rapid decline in cycle movements, dropping to its lowest volume of 20 cycle movements between 8:30am and 8:39am.

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007 – 2015 (n)



1.5 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- For Site No.85 (Rathgar/Pomaria Road intersection); major road works were being carried out on the odd-numbered side of Pomaria Road. The surveyor also noted that there was gravel everywhere and the road surface was very rough along Pomaria Road. From 6:20pm, the odd-numbered side of Pomaria Road was completely closed. Movements 2 and 5 at this site were not allowed.
- There were no other road works or traffic accidents that may affect cycle counts in the evening.

Key Points

- A total of 758 cyclist movements were recorded across the 13 sites in the evening peak period (between 4:00pm and 7:00pm) in 2015. This represents a 16 per cent increase from the 2014 result (654 movements).
- Four per cent (n=30) of the movements were made by cyclists riding as groups. This compares with one per cent (n=8) in 2014.
- The average volume of evening cyclists across the 13 sites monitored in Waitakere since 2010 was 58 cycle movements. This represents a 16 percentage point increase from 50 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 cyclist activity, with 218 cycle movements recorded. In contrast, the lowest level of evening cyclist activity was at the Te Atatu Road/Elcoat Avenue intersection (14 cycle movements).
- Of the 13 sites, 9 experienced increases in evening cycle volumes. The most notable increases occurring at:
    - Lincoln Road/Fairdene Avenue – up 100 per cent;
    - Triangle Road/Don Buck Road, Massey – up 89 per cent; and
    - West Coast Road/Rosier Road, Glen Eden – up 69 per cent.
- Four sites experienced declines in evening cycle volume this year, the most notable decreases occurring at:
    - Te Atatu Road/Elcoat Avenue – down 39 per cent;
    - Swanson Road/Ranui Station Road/Armada Drive – down 34 per cent; and
    - Luckens Road/Hobsonville Road – down 20 per cent.

Table 1.3: Summary of Evening Cyclist Movements

2007 – 2015 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15 (%)	Change 07-15 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	130	151	198	209	190	238	236	179	**218**	**22%**	**68%**
52	Central Park Drive, Henderson	66	89	121	106	112	134	138	69	**85**	**23%**	**29%**
53	326 Te Atatu Road (Near Covil Ave)	43	55	59	62	54	60	77	61	**72**	**18%**	**67%**
48	Henderson Creek	32	19	46	46	42	77	56	55	**60**	**9%**	**88%**
49	Triangle Road/Don Buck Road, Massey	43	32	35	63	53	53	41	28	**53**	**89%**	**23%**
55	Swanson Road/Ranui Station Road/Armada Drive	47	65	66	68	85	88	67	53	**35**	**-34%**	**-26%**
51	Luckens Road/Hobsonville Road	12	16	51	54	38	70	60	44	**35**	**-20%**	**192%**
57	West Coast Road/Rosier Road, Glen Eden	29	19	34	29	35	19	32	16	**27**	**69%**	**-7%**
50	Lincoln Road/Fairdene Avenue	27	36	22	35	28	33	37	12	**24**	**100%**	**-11%**
54	Te Atatu Road/Elcoat Avenue	24	18	32	22	18	23	24	23	**14**	**-39%**	**-42%**
	Average per site (10 sites since 2007)	**45**	**50**	**66**	**69**	**66**	**80**	**77**	**52**	**62**	**19%**	**38%**
	Total (10 sites since 2007)	**453**	**500**	**664**	**694**	**655**	**795**	**768**	**520**	**623**	**20%**	**38%**
72	Te Atatu Road/Old Te Atatu Road/Tatau Way	-	55	68	102	78	90	104	68	**63**	**-7%**	**-**
85	Rathgar Road/Pomaria Road	-	-	53	46	35	35	32	25	**29**	**16%**	**-**
	Average per site (11 sites in 2008, 12 sites since 2009)	**-**	**50**	**65**	**70**	**64**	**77**	**75**	**51**	**60**	**18%**	**-**
	Total (11 sites in 2008, 12 sites since 2009)	**-**	**555**	**785**	**842**	**768**	**920**	**904**	**613**	**715**	**17%**	**-**
87	Triangle Road/Huruhuru Road	-	-	-	78	69	106	80	41	**43**	**5%**	**-**
	Average per site (13 sites since 2010)	**-**	**-**	**-**	**71**	**64**	**79**	**76**	**50**	**58**	**16%**	**-**
	Total (13 sites since 2010)	**-**	**-**	**-**	**920**	**837**	**1026**	**984**	**654**	**758**	**16%**	**-**

- Ninety per cent of cyclists in the evening were adults (up slightly from 87 per cent last year).
- The majority of evening cyclists were wearing a helmet (89 per cent, stable from 87 per cent in 2014).
- The greatest share of evening cyclists in the Waitakere ward were male (84 per cent).
- Fifty-one per cent of evening cyclists were riding on the off-road cycleway (up slightly from 48 per cent last year), while 26 per cent of evening cyclists were riding on the road (unchanged from last year). The remaining 23 per cent of cyclists were riding on the footpath (down slightly from 26 per cent last year).

Table 1.5: Summary of Evening Cyclist Characteristics

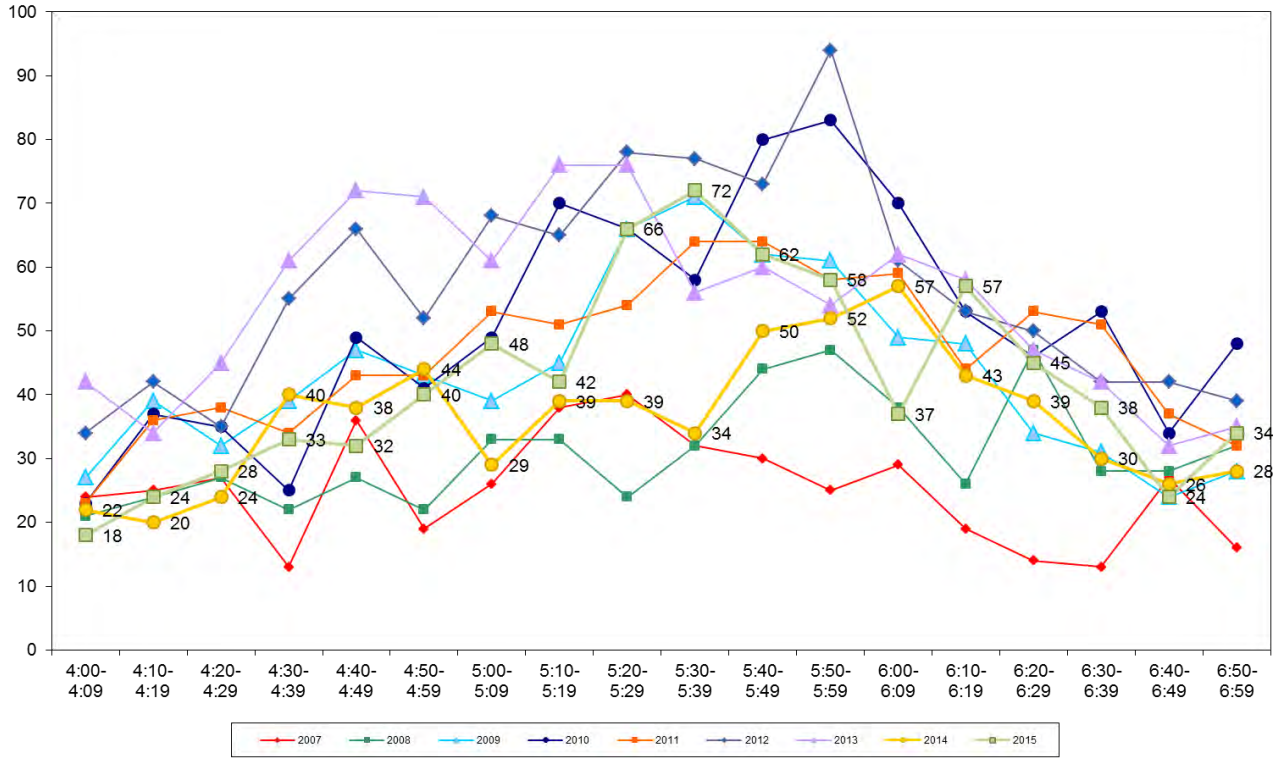
2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	84	83	83	83	86	87	86	87	**90**	**3**
School child	16	17	17	17	14	13	14	13	**10**	**-3**
Helmet Wearing										
Helmet on head	81	80	81	81	83	87	88	87	**89**	**2**
No helmet	19	20	19	19	17	13	12	13	**11**	**-2**
Gender										
Male	-	-	-	-	86	86	85	87	**84**	**-3**
Female	-	-	-	-	12	13	13	13	**15**	**2**
Can't tell	-	-	-	-	2	1	2	0	**1**	**1**
Where Riding*										
Road	32	39	32	42	30	37	34	26	**26**	**0**
Footpath	32	30	31	28	25	21	23	26	**23**	**-3**
Off-road cycleway	36	31	37	30	45	42	43	48	**51**	**3**
Base:	***453***	***555***	***785***	***920***	***837***	***1026***	***984***	***654***	***758***	

- 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 gradually increased for the first hour and a half of monitoring. Evening cyclist volumes reached a large peak between 5:30pm and 5:39pm with 72 movements recorded. Cycle volumes almost halved thirty minutes later with 37 movements being recorded between 6:00pm and 6:09pm. Following this decline, a small peak was evident between 6:09pm and 6:19pm with 57 cyclists recorded. Cycle volumes then declined gradually for the rest of the monitoring period.

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007 – 2015 (n)



1.6 Aggregated Total

- Overall, a total of 1,427 cyclist movements were recorded across the 13 Waitakere sites in 2015, amongst which four per cent (n=57) were observed cycling as groups (up from 3 per cent; n=35 in 2014). This result represents a 24 per cent increase from 2014 (1,147 movements).
- The average number of cycle movements across all 13 sites was 110.
- The busiest site was the North Western Cycleway with a total of 423 movements (up from 304 movements in 2014), while the Te Atatu Road/Elcoat Avenue site contributed the lowest number of cyclist movements (29 movements).
- Ten sites recorded increases in total cyclist numbers this year compared with 2014. The most notable increase in cyclist movements was at the Triangle Road/Don Buck Road, Massey site with 79 cycle movements compared to 40 movements last year (up 98 per cent).
- In contrast, the most notable decline occurred at Swanson Road/Ranui Station Road/Armada Drive (down 19 per cent).

Table 1.6: Summary of Total Cyclist Movements

2007 – 2015 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15	Change 07-15
58	North Western Cycleway/near Te Atatu Road off-ramp	232	272	355	388	345	425	454	304	**423**	**39%**	**82%**
52	Central Park Drive, Henderson	127	157	212	200	212	246	273	125	**161**	**29%**	**27%**
53	326 Te Atatu Road (Near Covil Ave)	87	107	138	127	127	135	153	124	**141**	**14%**	**62%**
48	Henderson Creek	46	30	73	84	66	116	86	87	**101**	**16%**	**120%**
49	Triangle Road/Don Buck Road, Massey	67	61	56	90	88	83	87	40	**79**	**98%**	**18%**
55	Swanson Road/Ranui Station Road/Armada Drive	62	86	103	102	132	115	116	81	**66**	**-19%**	**6%**
51	Luckens Road/Hobsonville Road	32	41	77	95	52	112	104	41	**52**	**27%**	**63%**
57	West Coast/Rosier Road, Glen Eden	48	37	62	60	60	38	56	33	**50**	**52%**	**4%**
50	Lincoln Road/Fairdene Avenue	40	55	43	56	54	67	68	30	**42**	**40%**	**5%**
54	Te Atatu Road/Elcoat Avenue	50	45	69	52	48	57	44	35	**29**	**-17%**	**-42%**
	Average per site (10 sites since 2007)	**79**	**89**	**119**	**125**	**119**	**139**	**144**	**90**	**114**	**27%**	**44%**
	Total (10 sites since 2007)	**791**	**891**	**1188**	**1254**	**1184**	**1394**	**1441**	**900**	**1144**	**27%**	**45%**
72	Te Atatu Road/Old Te Atatu Road/Tatau Way	-	111	134	207	141	193	192	126	**142**	**13%**	**-**
85	Rathgar Road/Pomaria Road	-	-	85	99	68	73	68	55	**53**	**-4%**	**-**
	Average per site (11 sites in 2008, 12 sites since 2009)	-	**91**	**117**	**130**	**116**	**138**	**142**	**90**	**112**	**24%**	**-**
	Total (11 sites in 2008, 12 sites since 2009)	**-**	**1002**	**1407**	**1560**	**1393**	**1660**	**1701**	**1081**	**1339**	**24%**	**-**
87	Triangle Road/Huruhuru Road	-	-	-	137	121	177	153	66	**88**	**33%**	**-**
	Average per site (13 sites since 2010)	-	-	-	**131**	**116**	**141**	**143**	**88**	**110**	**25%**	**-**
	Total (13 sites since 2010)	**-**	**-**	**-**	**1697**	**1514**	**1837**	**1854**	**1147**	**1427**	**24%**	**-**

- Overall cyclist characteristics have been illustrated in Table 1.7. In total, 87 per cent of cyclists were adults (up from 83 per cent last year).
- The majority of cyclists were wearing a helmet (90 per cent, stable from 88 per cent last year).
- Almost all cyclists were male (85 per cent, stable since 2011).
- Fifty-one per cent of cyclists were riding on the off-road cycleway (up from 37 per cent in 2014. One out of four of cyclists were riding on the road (25 per cent), while the remaining 24 per cent were riding on the footpath.

Table 1.7: Summary of Total Cyclist Characteristics

2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	82	80	81	82	81	84	85	83	**87**	**4**
School child	18	20	19	18	19	16	15	17	**13**	**-4**
Helmet Wearing										
Helmet on head	86	85	85	87	86	89	89	88	**90**	**2**
No helmet	14	15	15	13	14	11	11	12	**10**	**-2**
Gender										
Male	-	-	-	-	84	84	86	87	**85**	**-2**
Female	-	-	-	-	14	15	13	12	**14**	**2**
Can't tell	-	-	-	-	2	1	1	1	**1**	**0**
Where Riding*										
Road	33	40	33	44	29	34	34	25	**25**	**0**
Footpath	32	30	31	25	27	23	23	38	**24**	**-14**
Off-road cycleway	35	30	36	31	44	43	43	37	**51**	**14**
Base:	***791***	***1002***	***1407***	***1697***	***1514***	***1837***	***1854***	***1147***	***1427***	

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 (614 daily trips, up from 438 daily trips last year) and the lowest is at Te Atatu Road/Elcoat Avenue intersection (42 daily trips, down from 50 trips last year).
- All but two sites recorded an increase in total AADT estimates this year compared with 2014. Triangle Road/Don Buck Road, Massey experienced the most notable increase in AADT estimates compared to last year (113 daily trips, up 98 per cent).
- In contrast, the most notable decrease in total AADT estimates, compared with 2014, were recorded at:
  - Swanson Road/Ranui Station/Armada Drive – down 17 per cent.
  - Te Atatu Road/Elcoat Avenue – down 16 per cent.

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

2007 – 2015 (n)

Site No.	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	*2012 AADT*	*2013 AADT*	*2014 AADT*	*2015 AADT*	Change 14-15 (%)	Change 07-15 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	335	393	513	562	499	614	659	438	**614**	**40%**	**83%**
52	Central Park Drive, Henderson	184	227	306	290	307	356	397	181	**233**	**29%**	**27%**
72	Te Atatu Road/Old Te Atatu Road/Tatau Way	-	161	195	301	204	282	278	182	**208**	**14%**	**-**
53	326 Te Atatu Road (Near Covil Ave)	127	155	202	185	186	197	222	180	**205**	**14%**	**61%**
48	Henderson Creek	65	43	105	121	95	166	123	125	**145**	**16%**	**123%**
87	Triangle Road/Huruhuru Road	-	-	-	198	175	255	222	95	**128**	**35%**	**-**
49	Triangle Road/Don Buck Road, Massey	96	88	80	128	127	119	127	57	**113**	**98%**	**18%**
55	Swanson Road/Ranui Station Road/Armada Drive	88	122	148	146	189	162	167	116	**96**	**-17%**	**10%**
85	Rathgar Road/Pomaria Road	-	-	122	144	99	106	99	80	**77**	**-4%**	**-**
51	Luckens Road/Hobsonville Road	47	60	110	137	74	161	150	59	**74**	**25%**	**57%**
57	West Coast/Rosier Road, Glen Eden	69	54	90	87	86	55	81	48	**72**	**50%**	**4%**
50	Lincoln Road/Fairdene Avenue	57	79	62	80	78	97	98	44	**61**	**39%**	**7%**
54	Te Atatu Road/Elcoat Avenue	73	66	101	76	71	84	64	50	**42**	**16%**	**-42%**

1.8 School Bike Shed Count Summary

Cycle Counts

- Among the surveyed schools, of those eligible to cycle to school, on average, two per cent of students are cycling to their schools. The share is up from 1 per cent in 2014.
- Lincoln Heights School reported the highest share of cyclists – 23 per cent of all eligible students currently cycling to school. This share has increased notably from 4 per cent in 2014.
- In total, n=231 students from the responding schools were reported to be cycling to school.
- Of the 17 schools that participated in the count in both 2014 and 2015, 6 (35 per cent) reported an increase in the share of students cycling in contrast, 3 (18 per cent) reported a decrease in the share of students cycling.

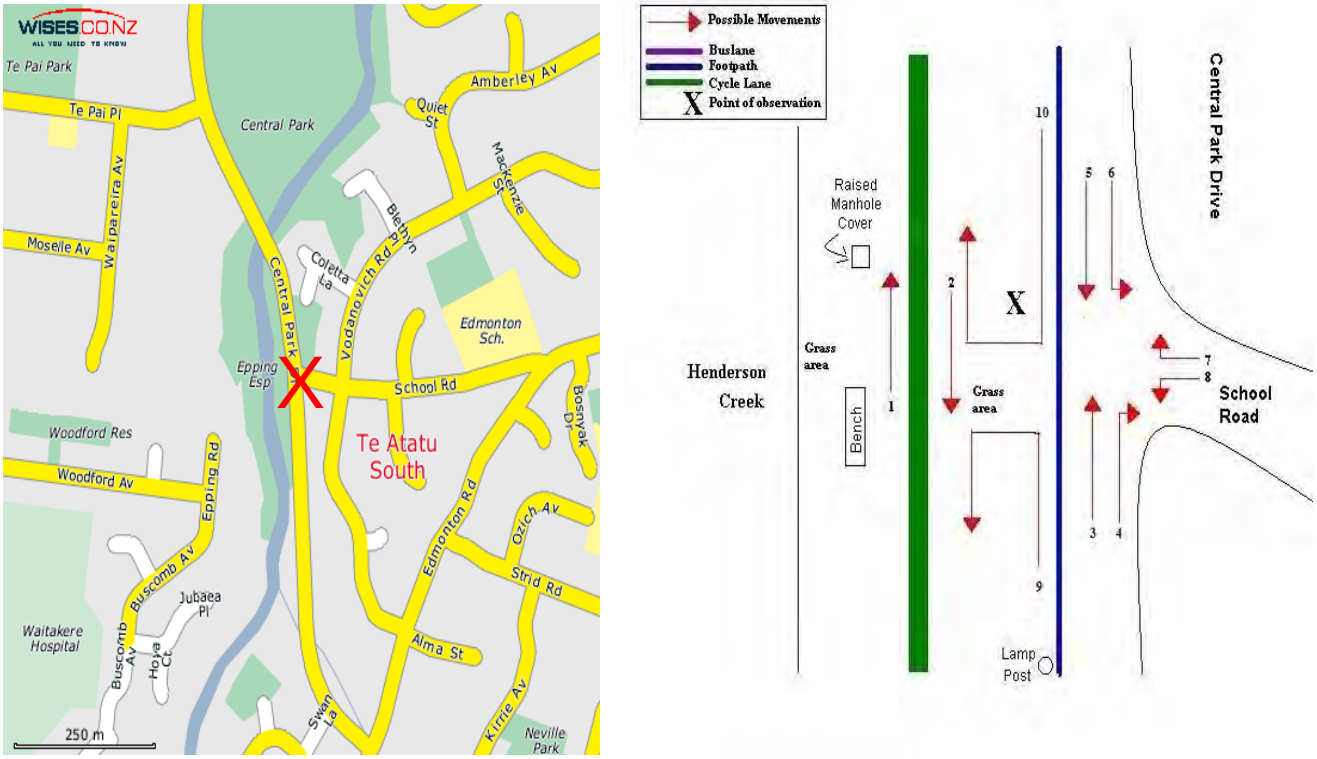
Scooter Counts

- Among the surveyed schools, of those eligible to scooter, on average, one per cent of students are scooting to their schools, unchanged from 2014.
- Lincoln Heights School reported the highest share of scooters – 16 per cent of all eligible students currently scooting to school, up from 4 per cent in 2014.
- In total, n=124 students from the responding schools were reported to be scooting to school.
- Of the 16 schools that participated in the count in both 2014 and 2015, 5 (31 per cent) reported an increase in the share of students cycling.

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
2015	**41**	**60**	**101**	**145**

2.2 Morning Peak

Environmental Conditions

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

Key Points

- In 2015, 41 cycle movements were recorded at this site, an increase of 9 movements from last year.
- Movements 1 and 2 were the most common movements during the morning shift (15 and 6 cyclists respectively).
- The biggest changes in cycle volume occurred at Movement 1 – heading north on the cycleway, parallel with Henderson Creek (up 10 cyclists since last year).

Table 2.1: Morning Cyclist Movements

Henderson Creek 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	6	5	10	19	11	7	6	5	**15**	**10**
2	8	6	17	19	13	8	6	5	**6**	**1**
3	-	-	-	-	-	6	5	5	**4**	**-1**
4	-	-	-	-	-	1	1	0	**1**	**1**
5	-	-	-	-	-	2	3	1	**1**	**0**
6	-	-	-	-	-	4	1	9	**4**	**-5**
7	-	-	-	-	-	8	5	6	**6**	**0**
8	-	-	-	-	-	3	3	1	**4**	**3**
9	-	-	-	-	-	0	0	0	**0**	**0**
10	-	-	-	-	-	0	0	0	**0**	**0**
Total	**14**	**11**	**27**	**38**	**24**	**39**	**30**	**32**	**41**	**9**

- Over the morning peak, 90 per cent of cyclists were adults (up from 63 per cent in 2014).
- Most cyclists were wearing a helmet (90 per cent, stable from 88 per cent last year).
- Three out of four morning cyclists were male (76 per cent, down from 88 per cent in 2014).
- Just over half of the cyclists were riding on the off-road cycleway (52 per cent, up from 28 per cent last year). There has been a corresponding decrease in the share of cyclists using the footpath this year (down 23 percentage points to 24 per cent).

Table 2.2: Morning Cyclist Characteristics

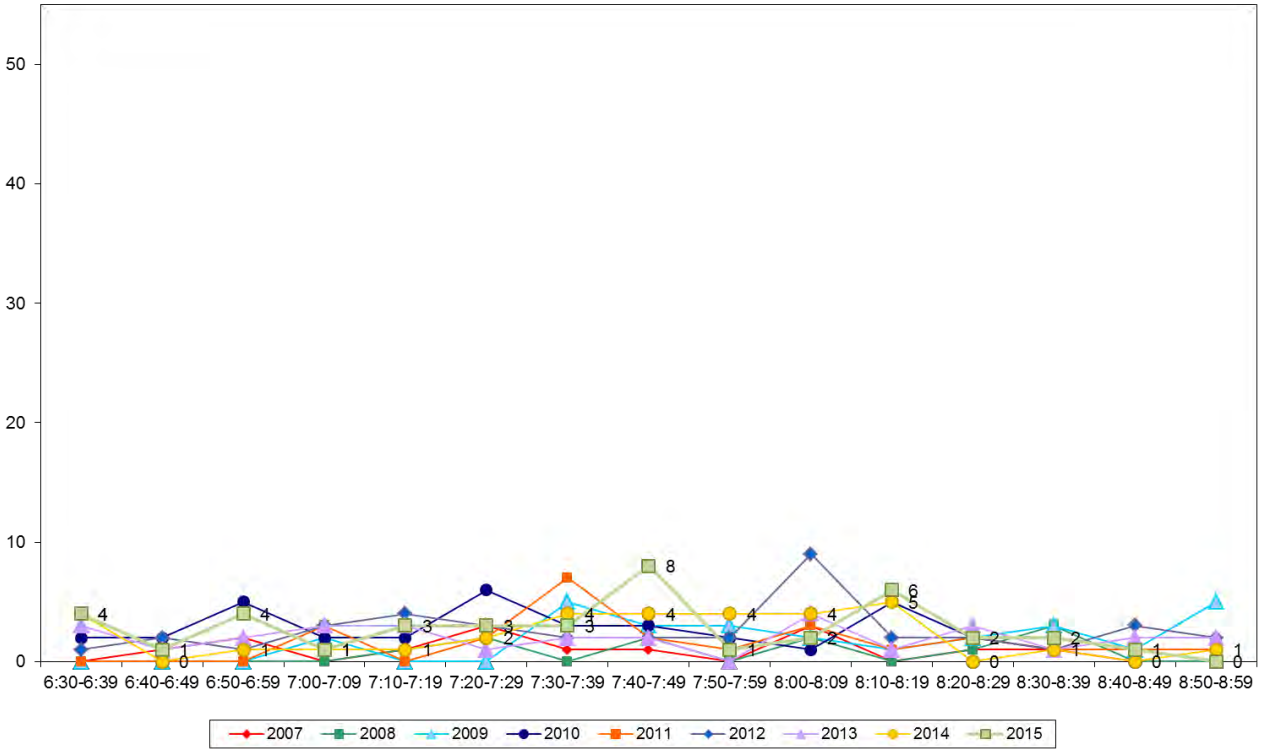
Henderson Creek 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	93	82	85	97	92	74	90	63	**90**	**27**
School child	7	18	15	3	8	26	10	37	**10**	**-27**
Helmet Wearing										
Helmet on head	79	100	93	92	92	82	85	88	**90**	**2**
No helmet	21	0	7	8	8	18	15	12	**10**	**-2**
Gender										
Male	-	-	-	-	79	87	97	88	**76**	**-12**
Female	-	-	-	-	21	13	3	6	**22**	**16**
Can't tell	-	-	-	-	0	0	0	6	**2**	**-4**
Where Riding										
Road	-	-	-	-	-	13	27	25	**24**	**-1**
Footpath	-	-	-	-	-	48	33	47	**24**	**-23**
Off-road cycleway	100	100	100	100	100	39	40	28	**52**	**24**
Base:	***14***	***11***	***27***	***38***	***24***	***39***	***30***	***32***	***41***	

- Cyclist volumes were low in the morning peak with no more than eight cycle movements in any ten minute interval. This is consistent with previous years. The busiest period occurred between 7:40am and 7:49am with eight cyclists observed.

Figure 2.2: Morning Peak Cyclist Frequency

Henderson Creek 2007 – 2015 (n)



2.3 Evening Peak

Environmental Conditions

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

Key Points

- A total of 60 cycle movements were observed in the evening peak (up from 55 movements in 2014).
- The most common movements in the evening were heading south and north along Henderson Creek (Movement 2 = 20 cyclists and Movement 1 = 14 cyclists).
- Cycle volume heading south along Henderson Creek (Movement 2) has observed the largest change this year, with an increase of 7 cyclists compared to last year.

Table 2.3: Evening Cyclist Movements

Henderson Creek 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	15	7	19	22	21	22	11	18	**14**	**-4**
2	17	12	27	24	21	21	15	13	**20**	**7**
3	-	-	-	-	-	6	6	2	**3**	**1**
4	-	-	-	-	-	4	2	4	**3**	**-1**
5	-	-	-	-	-	6	8	6	**5**	**-1**
6	-	-	-	-	-	9	5	4	**3**	**-1**
7	-	-	-	-	-	9	4	5	**9**	**4**
8	-	-	-	-	-	0	5	3	**3**	**0**
9	-	-	-	-	-	0	0	0	**0**	**0**
10	-	-	-	-	-	0	0	0	**0**	**0**
Total	**32**	**19**	**46**	**46**	**42**	**77**	**56**	**55**	**60**	**5**

- Over the evening peak, the majority of cyclists using Henderson Creek were adults (80 per cent, up from 73 per cent in 2014).
- The share of cyclists at this site wearing a helmet has remained stable (87 per cent, compared to 85 per cent in 2014).
- Most cyclists were male (73 per cent). This year, the share of female cyclists was at its highest since 2011 (27 per cent, up from 16 per cent in 2014).
- The greatest share of cyclists were riding on the off-road cycleway (57 per cent, a decrease of 5 percentage points from last year).

Table 2.4: Evening Cyclist Characteristics

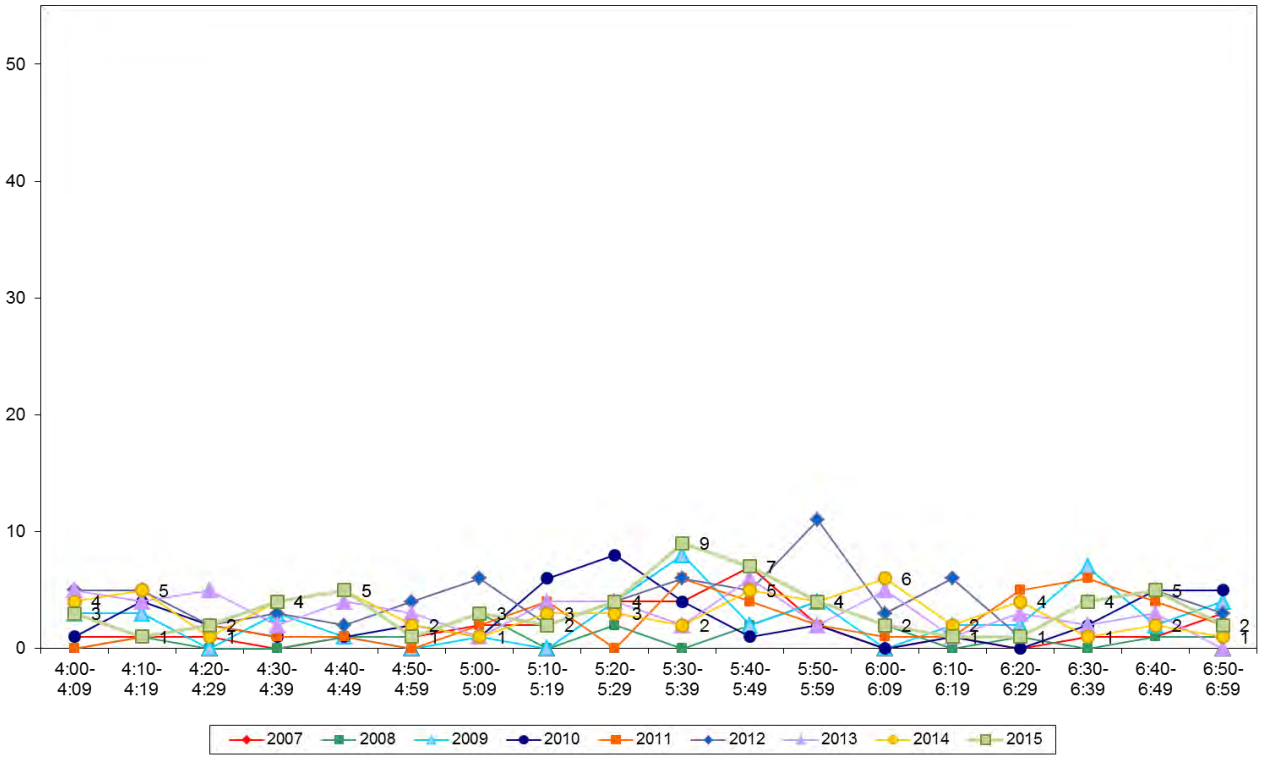
Henderson Creek 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	100	100	87	100	90	94	89	73	**80**	**7**
School child	0	0	13	0	10	6	11	27	**20**	**-7**
Helmet Wearing										
Helmet on head	78	89	91	93	81	82	86	85	**87**	**2**
No helmet	22	11	9	7	19	18	14	15	**13**	**-2**
Gender										
Male	-	-	-	-	83	84	88	82	**73**	**-9**
Female	-	-	-	-	17	16	12	16	**27**	**11**
Can't tell	-	-	-	-	0	0	0	2	**0**	**-2**
Where Riding										
Road	-	-	-	-	-	16	24	14	**15**	**1**
Footpath	-	-	-	-	-	29	30	24	**28**	**4**
Off-road cycleway	100	100	100	100	100	55	46	62	**57**	**-5**
Base:	***32***	***19***	***46***	***46***	***42***	***77***	***56***	***55***	***60***	

- The number of evening cycle movements by time of trip has been illustrated in Figure 2.3. Although cycle traffic fluctuated during the monitoring period, it remained low, not exceeding nine movements during any ten minute intervals. The busiest period was between 5:30pm and 5:59pm where a total of 20 cycle movements were recorded.

Figure 2.3: Evening Peak Cyclist Frequency

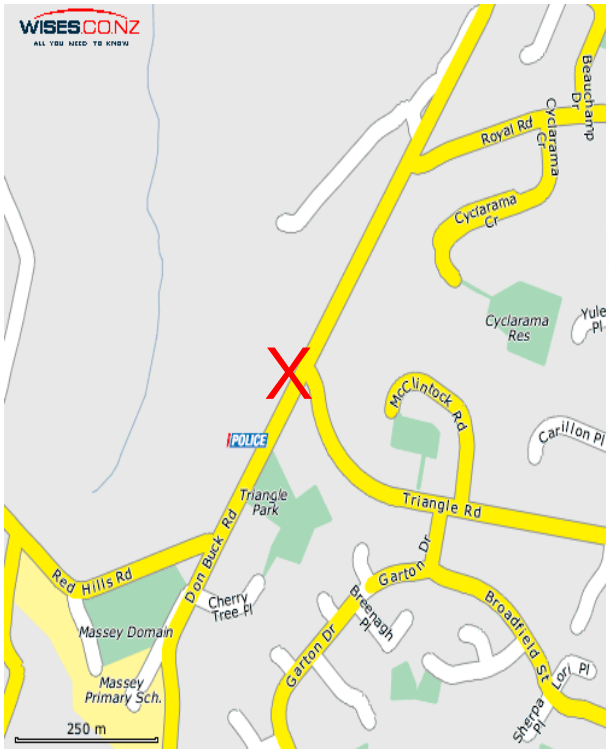
Henderson Creek 2007 – 2015 (n)

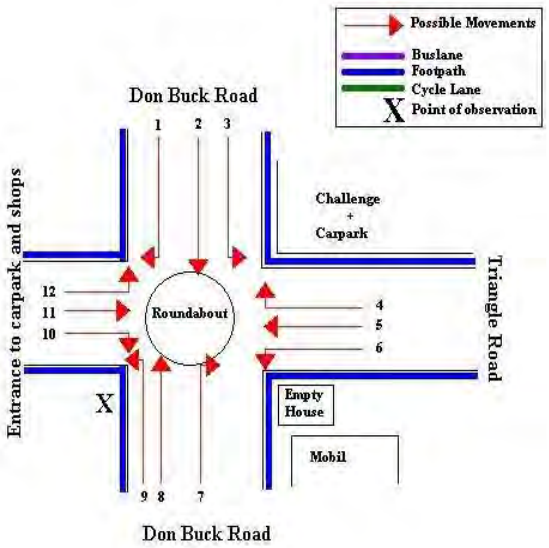


3. TRIANGLE ROAD/DON BUCK ROAD, HENDERSON (SITE 49)

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
2015	**26**	**53**	**79**	**113**

3.2 Morning Peak

Environmental Conditions

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

Key Points

- In 2015, the volume of morning cyclists recorded at the Triangle Road/Don Buck Road site has increased (26 cycle movements, compared with 12 cycle movements recorded last year).
- The key morning movement was travelling south, straight along Don Buck Road (Movement 2 = 12 cyclists).
- Movement 2 also recorded the most notable change in morning cyclist movements at this site in 2015 (up 10 cycle movements from 2014).

Table 3.1: Morning Cyclist Movements

Triangle Road/Don Buck Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	2	4	0	0	5	0	0	0	**4**	**4**
2	10	9	9	8	8	18	16	2	**12**	**10**
3	3	4	7	8	6	5	10	7	**3**	**-4**
4	3	3	0	1	3	1	3	2	**2**	**0**
5	0	1	0	0	0	0	1	0	**0**	**0**
6	3	4	2	1	3	2	6	1	**0**	**-1**
7	2	1	1	5	7	2	2	0	**1**	**1**
8	0	3	2	2	2	2	5	0	**2**	**2**
9	0	0	0	0	0	0	0	0	**0**	**0**
10	1	0	0	0	0	0	0	0	**0**	**0**
11	0	0	0	0	0	0	2	0	**0**	**0**
12	0	0	0	2	1	0	0	0	**2**	**2**
Don't know	-	-	-	-	-	-	1	0	**0**	**0**
Total	**24**	**29**	**21**	**27**	**35**	**30**	**46**	**12**	**26**	**14**

- Over the morning peak, the share of cyclists classified as adults has continued to decrease, from 75 per cent last year to 58 per cent this year.
- The majority of cyclists were wearing a helmet this year (88 per cent), down notably from 100 per cent last year.
- The greatest share of morning cyclists was male (92 per cent, unchanged form 2014).
- Whilst the greatest share of cyclists continue to ride on the road (64 per cent) the share of cyclists on the road has declined notably (down from 92 per cent in 2014). As a result, the share of cyclists travelling on the footpath has increased notably (38 per cent, up from 8 per cent in 2014).

Table 3.2: Morning Cyclist Characteristics

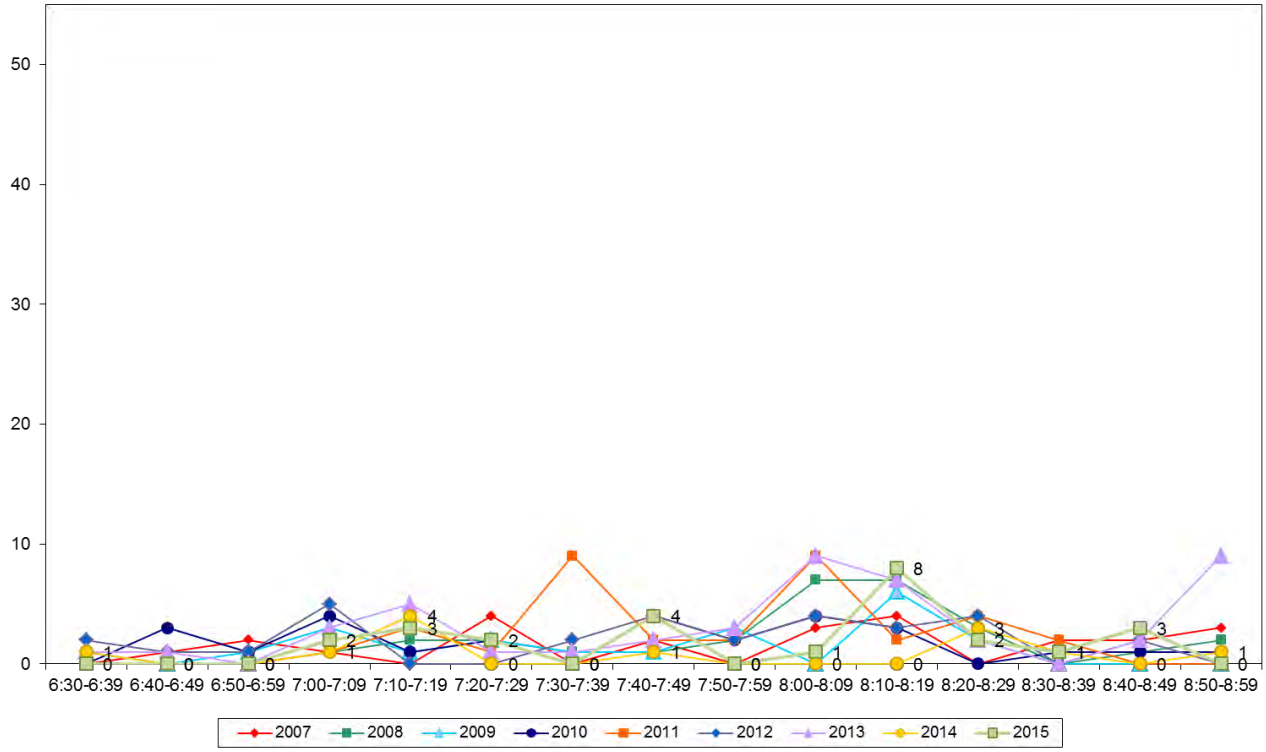
Triangle Road/Don Buck Road 2007 – 2015 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	**Change 14-15**
Cyclist Type										
Adult	79	41	67	74	57	77	84	75	**58**	**-17**
School child	21	59	33	26	43	23	16	25	**42**	**17**
Helmet Wearing										
Helmet on head	87	97	86	93	74	100	89	100	**88**	**-12**
No helmet	13	3	14	7	26	0	11	0	**12**	**12**
Gender										
Male	-	-	-	-	75	100	89	92	**92**	**0**
Female	-	-	-	-	11	0	9	8	**0**	**-8**
Can't tell	-	-	-	-	14	0	2	0	**8**	**8**
Where Riding										
Road	62	48	71	78	63	87	78	92	**62**	**-30**
Footpath	38	52	29	22	37	13	22	8	**38**	**30**
Base:	***24***	***29***	***21***	***27***	***35***	***30***	***46***	***12***	***26***	

- As illustrated in Figure 3.2, cycle volumes were low throughout the morning monitoring period. There was a peak of 8 cyclists between 8:10am and 8:19am. The general trend is consistent with previous years.

Figure 3.2: Morning Peak Cyclist Frequency

Triangle Road/Don Buck Road 2007 – 2015 (n)



3.3 Evening Peak

Environmental Conditions

- The weather was sunny 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 increased by 25 movements to 53 movements.
- The key movements at this site in the evening were straight along Don Buck Road heading south (Movement 2 = 22 cyclists), turning right from Triangle Road into Don Buck Road heading north (Movement 4 = 10 cyclists) and straight along Don Buck Road heading north (Movement 8 = 8 cyclists).
- The most notable change since 2014 was at Movement 2 (up 16 cyclists).

Table 3.3: Evening Cyclist Movements

Triangle Road/Don Buck Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	1	0	0	1	1	0	1	1	3	**2**
2	8	7	4	10	12	12	11	6	22	**16**
3	7	4	4	3	10	3	4	3	2	**-1**
4	4	4	6	8	7	14	8	9	10	**1**
5	1	0	0	2	0	0	1	0	0	**0**
6	10	9	5	11	3	6	6	2	1	**-1**
7	4	3	3	11	1	1	1	0	3	**3**
8	4	4	13	13	17	17	9	6	8	**2**
9	0	0	0	0	0	0	0	0	0	**0**
10	0	0	0	0	0	0	0	0	0	**0**
11	0	1	0	1	0	0	0	0	0	**0**
12	4	0	0	3	2	0	0	1	4	**3**
Total	**43**	**32**	**35**	**63**	**53**	**53**	**41**	**28**	**53**	**25**

- The greatest share of cyclists using the Triangle Road/Don Buck Road intersection were adults (66 per cent, a notable decrease from 86 per cent in 2014). Consequently, the share of school children cyclists was at its highest since monitoring began (34 per cent, up from 14 per cent in 2014).
- Almost all of the cyclists at this site were wearing a helmet (91 per cent, up from 75 per cent last year).
- Most of the evening cyclists were male (92 per cent, up from 75 per cent last year).
- The majority of cyclists were riding on the road (83 per cent, up from 61 per cent last year). The share of cyclists on the footpath decreased by 22 percentage points this year (17 per cent, down from 39 per cent in 2014).

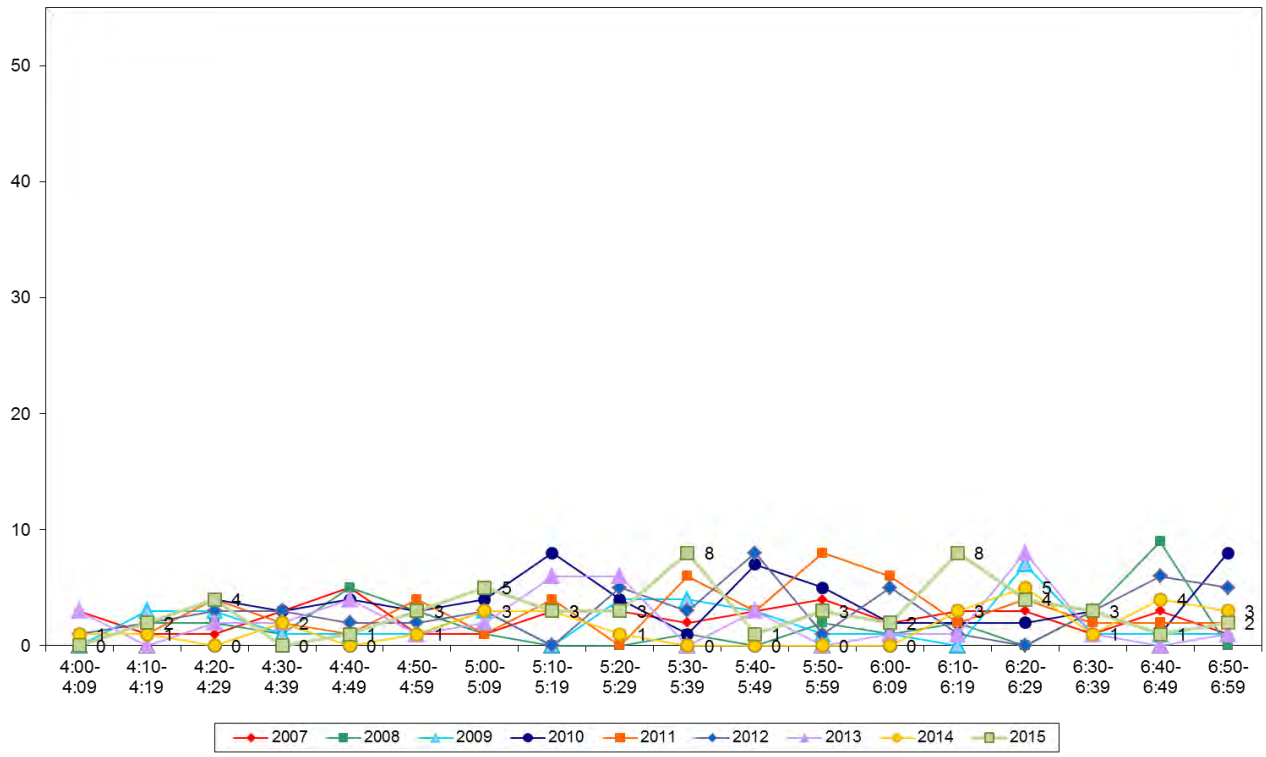
Table 3.4: Evening Cyclist Characteristics

Triangle Road/Don Buck Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	74	78	80	67	87	89	83	86	**66**	**-20**
School child	26	22	20	33	13	11	17	14	**34**	**20**
Helmet Wearing										
Helmet on head	63	78	77	76	87	89	83	75	**91**	**16**
No helmet	37	22	23	24	13	11	17	25	**9**	**-16**
Gender										
Male	-	-	-	-	86	89	88	75	**92**	**17**
Female	-	-	-	-	8	11	7	25	**8**	**-17**
Can't tell	-	-	-	-	6	0	5	0	**0**	**0**
Where Riding										
Road	58	72	71	63	85	83	71	61	**83**	**22**
Footpath	42	28	29	37	15	17	22	39	**17**	**-22**
Unsure	-	-	-	-	-	-	7	0	**0**	**0**
Base:	***43***	***32***	***35***	***63***	***53***	***53***	***41***	***28***	***53***	

- Cyclist volumes in the evening were low for the majority of the monitoring period, with the exception of two peaks of 8 movements that occurred between 5:30pm and 5:39pm, and 6:10pm and 6:19pm.

Figure 3.3: Evening Peak Cyclist Frequency
Triangle Road/Don Buck Road 2007 – 2015 (n)



Note: In 2015, 23 per cent of the evening peak cycle movements (n=12) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following time:

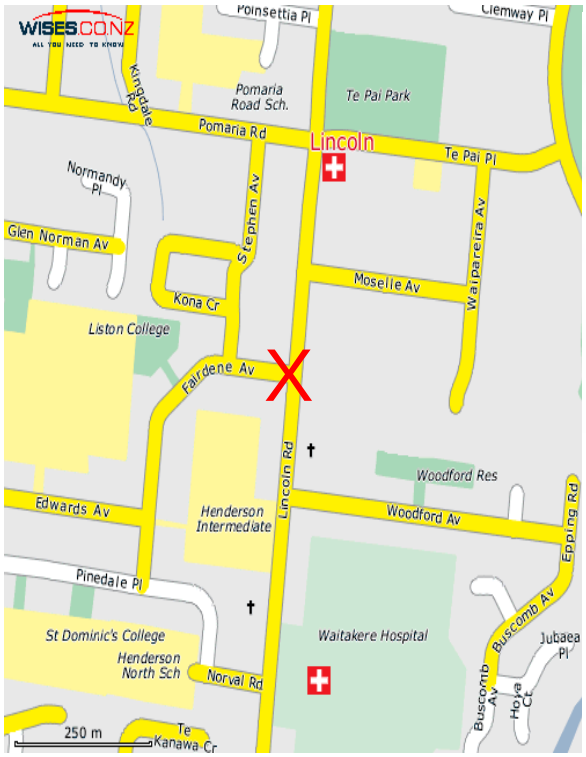
- *5 cyclists at 5:37pm*
- *7 cyclists at 6:11pm.*

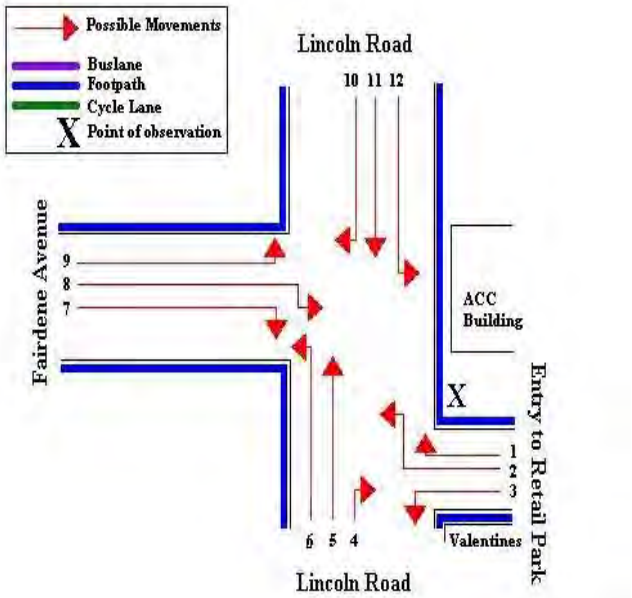
No pelotons were observed at this site in 2014.

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
2015	**18**	**24**	**42**	**61**

4.2 Morning Peak

Environmental Conditions

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

Key Points

- The level of morning cyclist traffic has remained the same at the intersection of Lincoln Road and Fairdene Avenue compared with last year (18 cycle movements)
- The most common movement in the morning was straight along Lincoln Road heading north (Movement 5 = 8 cyclists). Movement 5 also recorded the most notable change, up 6 cyclists from 2014.

Table 4.1: Morning Cyclist Movements

Lincoln Road/Fairdene Avenue 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	0	1	0	1	1	2	0	1	0	**-1**
2	3	0	0	0	0	0	1	0	1	**1**
3	1	0	1	3	1	1	1	0	1	**1**
4	2	2	2	0	1	1	3	0	1	**1**
5	1	3	11	7	10	14	10	2	8	**6**
6	3	0	1	0	0	0	2	1	1	**0**
7	1	4	0	1	2	1	2	2	2	**0**
8	0	0	0	0	0	0	0	0	0	**0**
9	2	0	0	1	1	0	1	3	1	**-2**
10	0	1	0	2	2	3	4	3	0	**-3**
11	0	8	6	6	7	11	7	6	3	**-3**
12	0	0	0	0	1	1	0	0	0	**0**
Total	**13**	**19**	**21**	**21**	**26**	**34**	**31**	**18**	**18**	**0**

- Over the morning peak, adults comprised 78 per cent of the cycle movements (up from 61 per cent last year).
- Eighty-three per cent of all cyclists at this site were wearing a helmet (up 11 percentage points from last year).
- The majority of cyclists were male (83 per cent, unchanged from 2014).
- Almost three-quarters of cyclists were riding on the footpath (72 per cent, down from 89 per cent last year). However, the share of cyclists travelling on the road increased this year (28 per cent, up from 11 per cent in 2014).

Table 4.2: Morning Cyclist Characteristics

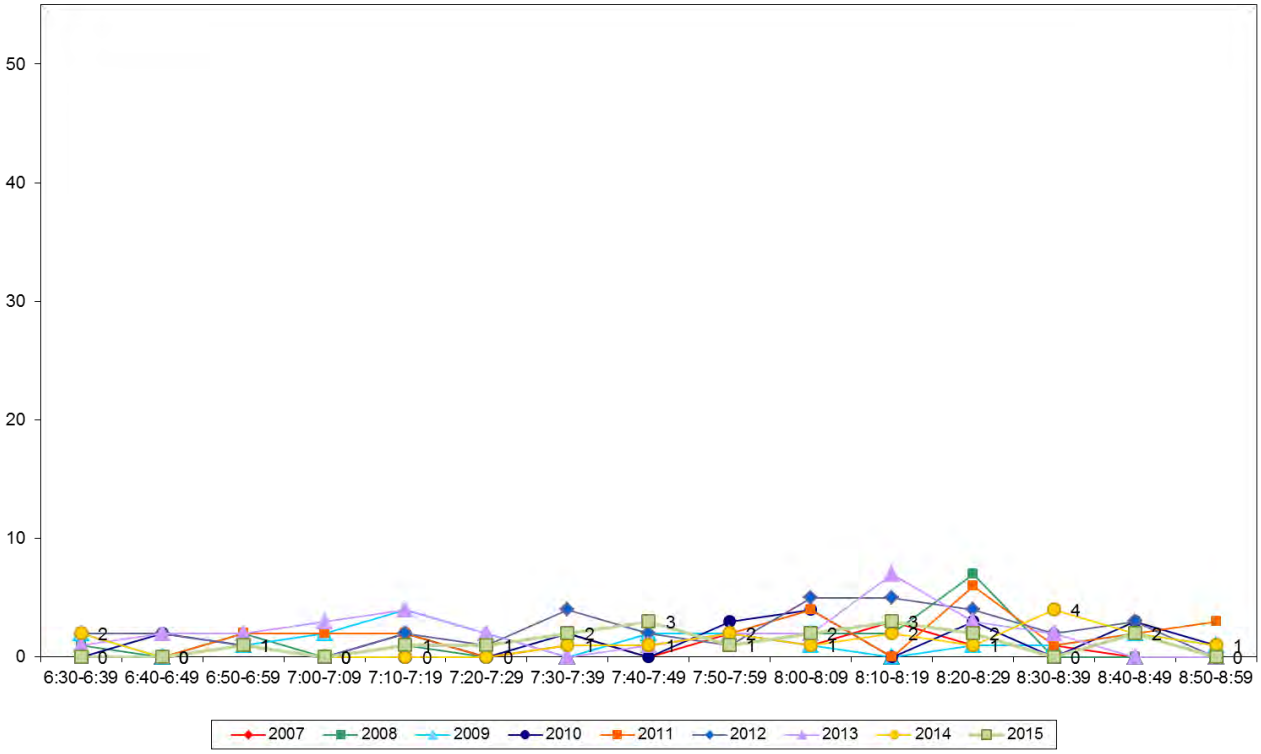
Lincoln Road/Fairdene Avenue 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	62	58	76	71	79	74	74	61	**78**	**17**
School child	38	42	24	29	21	26	26	39	**22**	**-17**
Helmet Wearing										
Helmet on head	92	89	62	67	54	76	77	72	**83**	**11**
No helmet	8	11	38	33	46	24	23	28	**17**	**-11**
Gender										
Male	-	-	-	-	75	79	81	83	**83**	**0**
Female	-	-	-	-	25	21	16	17	**11**	**-6**
Can't tell	-	-	-	-	0	0	3	0	**6**	**6**
Where Riding										
Road	31	37	38	19	32	35	37	11	**28**	**17**
Footpath	69	63	62	81	68	65	63	89	**72**	**-17**
Base:	***13***	***19***	***21***	***21***	***26***	***34***	***31***	***18***	***18***	

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

Figure 4.2: Morning Peak Cyclist Frequency

Lincoln Road/Fairdene Avenue 2007 – 2015 (n)



4.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded in the evening at the Lincoln Road/Fairdene Avenue intersection has increased, from 12 movements in 2014 to 24 movements this year.
- The key movement in the evening was straight along Lincoln Road heading south (Movement 11 = 8 cyclists). Movement 11 was also the site that recorded the most notable change compared with last year (up 5 cyclists).

Table 4.3: Evening Cyclist Movements

Lincoln Road/Fairdene Avenue 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	1	0	1	2	0	1	1	0	**2**	**2**
2	2	2	0	0	0	2	0	1	**0**	**-1**
3	3	1	3	1	1	1	5	1	**1**	**0**
4	5	2	2	0	1	0	2	1	**2**	**1**
5	1	13	5	13	8	6	7	5	**5**	**0**
6	1	1	1	3	1	0	3	0	**1**	**1**
7	3	2	0	2	1	4	1	0	**1**	**1**
8	3	3	0	0	0	2	0	0	**0**	**0**
9	5	0	0	2	1	1	3	0	**0**	**0**
10	0	2	1	1	3	2	0	0	**3**	**3**
11	1	10	9	11	12	13	13	3	**8**	**5**
12	2	0	0	0	0	1	2	1	**1**	**0**
Total	**27**	**36**	**22**	**35**	**28**	**33**	**37**	**12**	**24**	**12**

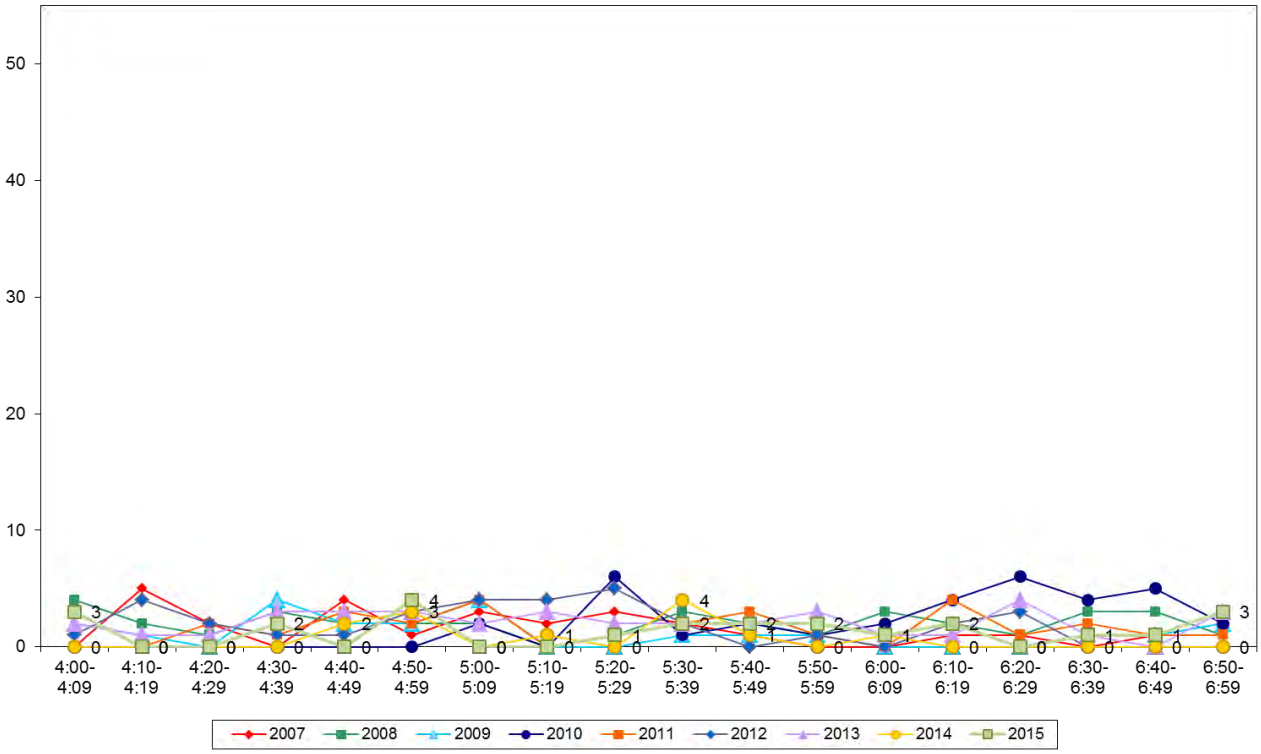
- The majority of the cyclists using this intersection in 2015 were adults (79 per cent, down from 100 per cent in 2014).
- Half of the cyclists were wearing a helmet (down 8 percentage points from last year).
- The majority of recorded cyclists during the evening monitoring period were male (84 per cent, down from 100 per cent in 2014).
- The share of cyclists riding on the footpath was notably higher when compared with last year (79 per cent this year, a 21 percentage point increase from 2014).

Table 4.4: Evening Cyclist Characteristics
Lincoln Road/Fairdene Avenue 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	89	44	59	71	79	64	57	100	**79**	**-21**
School child	11	56	41	29	21	36	35	0	**21**	**21**
Unsure	-	-	-	-	-	-	8	0	**0**	**0**
Helmet Wearing										
Helmet on head	52	67	50	71	54	76	65	58	**50**	**-8**
No helmet	48	33	50	29	46	24	35	42	**50**	**8**
Gender										
Male	-	-	-	-	75	76	81	100	**84**	**-16**
Female	-	-	-	-	25	24	19	0	**8**	**8**
Can't tell	-	-	-	-	0	0	0	0	**8**	**8**
Where Riding										
Road	19	11	9	29	32	31	21	42	**21**	**-21**
Footpath	81	89	91	71	68	69	79	58	**79**	**21**
Base:	***27***	***36***	***22***	***35***	***28***	***33***	***37***	***12***	***24***	

- Similar to the observation from the morning shift, the volumes of cycle movements were low. There were no more than four cyclists recorded at any ten minute interval monitored. Four cyclist movements were recorded between 4:50pm and 4:59pm.

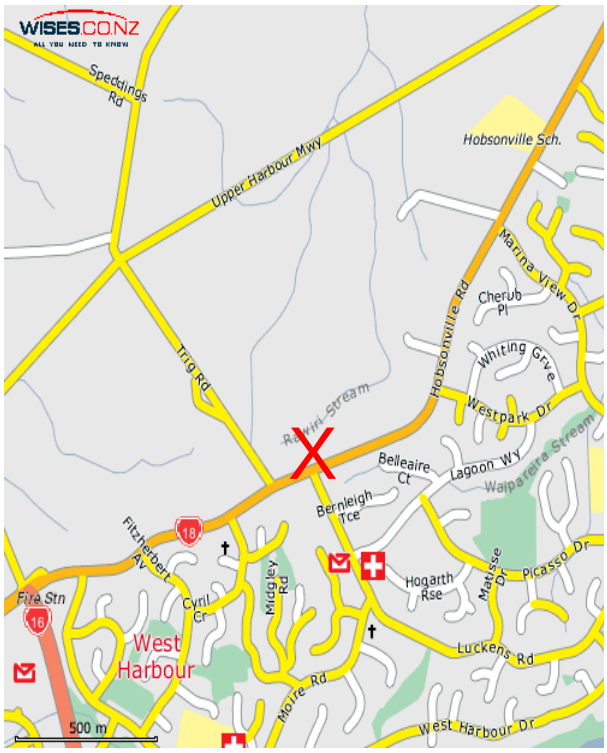
Figure 4.3: Evening Peak Cyclist Frequency
Lincoln Road/Fairdene Avenue 2007 – 2015 (n)

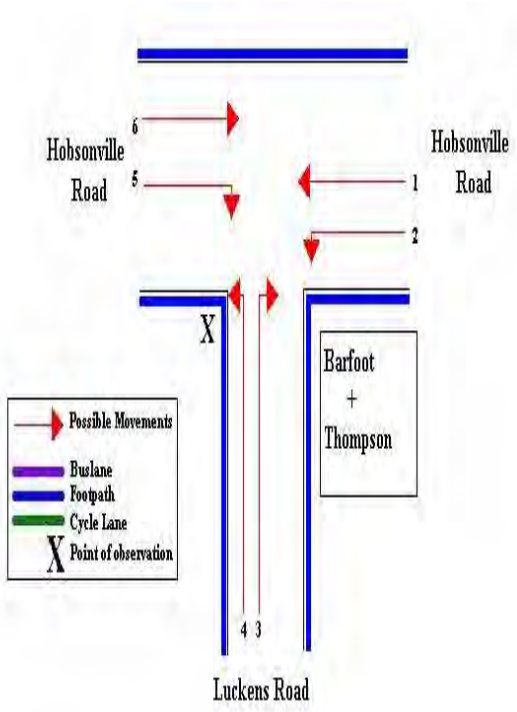


5. LUCKENS ROAD/HOBSONVILLE ROAD, WEST HARBOUR (SITE 51)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movement: Luckens Road/Hobsonville Road





5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	20	12	32	47
2008	25	16	41	60
2009	26	51	77	110
2010	41	54	95	137
2011	14	38	52	74
2012	42	70	112	161
2013	44	60	104	150
2014	17	24	41	59
2015	**17**	**35**	**52**	**74**

5.2 Morning Peak

Environmental Conditions

- The weather was mostly fine throughout the morning shift. It was foggy and cloudy at the start but cleared away when the sun came out.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclists at the Luckens Road/Hobsonville Road intersection has not changed from last year (17 cycle movements).
- The most common movement in the morning, and the movement with the largest change was turning right out of Luckens Road onto Hobsonville Road (Movement 3 = up 5 cyclists).
- Three cyclists were recorded each at Movements 5 and 6.

Table 5.1: Morning Cyclist Movements

Luckens Road/Hobsonville Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	5	3	7	7	7	15	14	4	**2**	**-2**
2	3	8	9	9	4	11	10	3	**2**	**-1**
3	2	7	1	6	0	3	3	0	**5**	**5**
4	2	3	6	7	2	5	10	4	**2**	**-2**
5	0	2	2	1	0	1	0	1	**3**	**2**
6	8	2	1	11	1	7	7	4	**3**	**-1**
Don't know	0	0	0	0	0	0	0	1	**0**	**-1**
Total	**20**	**25**	**26**	**41**	**14**	**42**	**44**	**17**	**17**	**0**

- Over the morning peak, the share of cyclists recorded as a school child increased notably, from no school children last year to 35 per cent this year.
- All cyclists were wearing a helmet (unchanged from 2014).
- The majority of cyclists recorded were male (82 per cent, down from 88 per cent last year).
- The share of cyclists riding on the footpath increased notably (35 per cent, up from 6 per cent in 2014).

Table 5.2: Morning Cyclist Characteristics

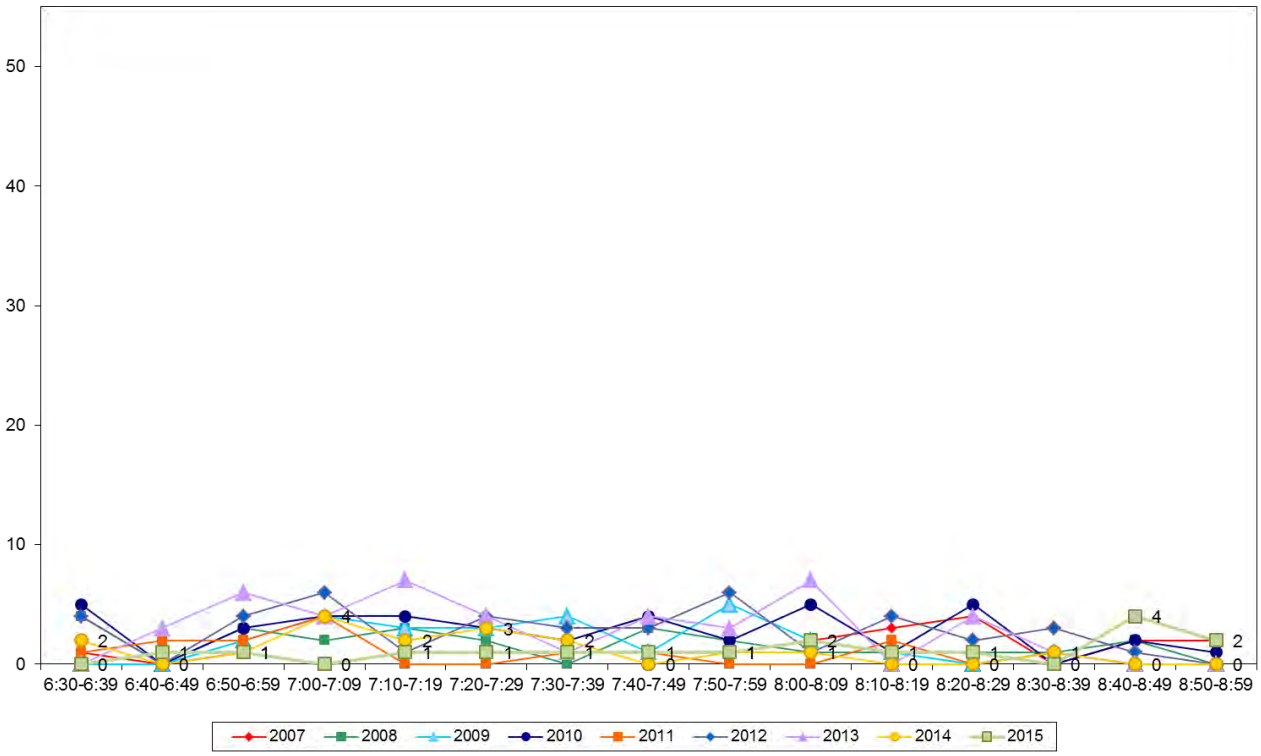
Luckens Road/Hobsonville Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	75	88	88	83	86	93	98	100	**65**	**-35**
School child	25	12	12	17	14	7	2	0	**35**	**35**
Helmet Wearing										
Helmet on head	100	100	96	98	93	95	98	100	**100**	**0**
No helmet	0	0	4	2	7	5	2	0	**0**	**0**
Gender										
Male	-	-	-	-	100	83	90	88	**82**	**-6**
Female	-	-	-	-	0	17	5	12	**18**	**6**
Can't tell	-	-	-	-	0	0	5	0	**0**	**0**
Where Riding										
Road	70	80	81	80	79	86	98	94	**65**	**-29**
Footpath	30	20	19	20	21	14	2	6	**35**	**29**
Base:	***20***	***25***	***26***	***41***	***14***	***42***	***44***	***17***	***17***	

- The volumes of cycle movements were low throughout the morning monitoring period. The highest volume of cyclist movements was between 8:40am and 8:49am (4 movements).

Figure 5.2: Morning Peak Cyclist Frequency

Luckens Road/Hobsonville Road 2007 – 2015 (n)



5.3 Evening Peak

Environmental Conditions

- The weather was sunny 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 Road/Hobsonville Road intersection has increased, with 35 movements recorded, compared with 24 movements last year.
- The largest change in cycle volumes in the evening was travelling straight along Hobsonville Road heading west (Movement 1, up 7 cyclists).

Table 5.3: Evening Cyclist Movements

Luckens Road/Hobsonville Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	6	1	8	12	13	13	9	6	**13**	**7**
2	3	6	4	6	4	1	6	2	**6**	**4**
3	1	2	13	10	6	28	19	4	**4**	**0**
4	2	2	2	5	4	4	4	1	**3**	**2**
5	0	0	3	4	6	8	14	5	**2**	**-3**
6	0	5	21	17	5	16	8	6	**7**	**1**
Total	**12**	**16**	**51**	**54**	**38**	**70**	**60**	**24**	**35**	**11**

- All of the cyclists using this intersection were adults (unchanged from 2014).
- Helmets continued to be worn by all cyclists (unchanged from 2014).
- The majority of cyclists were male (91 per cent, up 20 percentage points from 2014).
- All cyclists were riding on the road (up from 79 per cent in 2014).

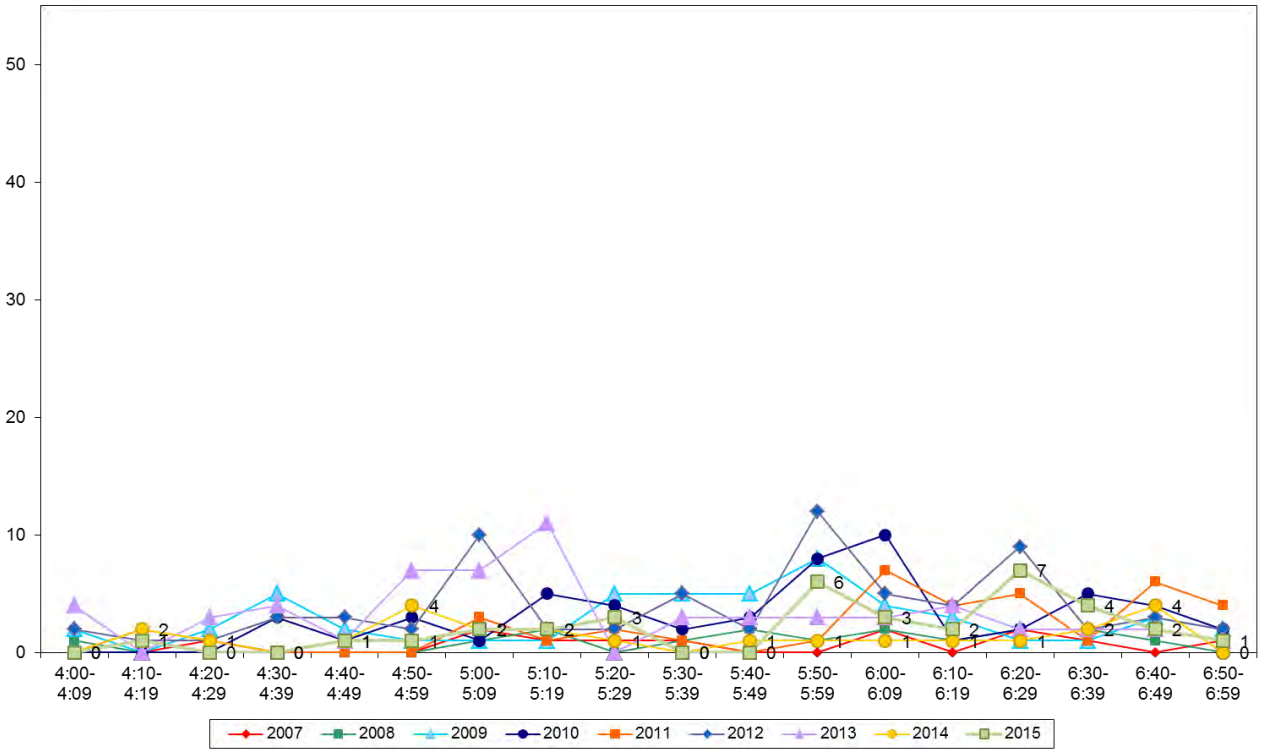
Table 5.4: Evening Cyclist Characteristics

Luckens Road/Hobsonville Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	100	94	100	91	66	89	90	100	**100**	**0**
School child	0	6	0	9	34	11	10	0	**0**	**0**
Helmet Wearing										
Helmet on head	100	69	98	94	74	97	92	100	**100**	**0**
No helmet	0	31	2	6	26	3	8	0	**0**	**0**
Gender										
Male	-	-	-	-	87	87	90	71	**91**	**20**
Female	-	-	-	-	5	13	10	29	**9**	**-20**
Can't tell	-	-	-	-	8	0	0	0	**0**	**0**
Where Riding										
Road	100	81	90	81	53	91	83	79	**100**	**21**
Footpath	0	19	10	19	47	9	17	21	**0**	**-21**
Base:	***12***	***16***	***51***	***54***	***38***	***70***	***60***	***24***	***35***	

- Cycle volumes were low throughout the evening monitoring period, with no more than seven cycle movements recorded at any ten minute interval. Cycle movement volumes were highest during the second half of the evening shift, between 5:50pm and 6:39pm, with a total of 22 cyclists recorded.

Figure 5.3: Evening Peak Cyclist Frequency
Luckens Road/Hobsonville Road 2007 – 2015 (n)

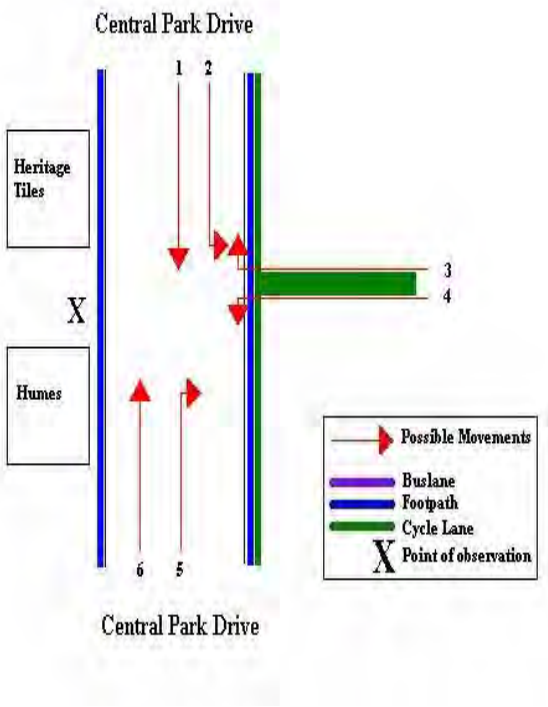


Note: In 2015, 11 per cent of the morning peak cycle movements (n=4) at this site were identified as cycling in groups. The group rode past at 5:58pm. No groups or pelotons were observed in 2014.

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
2015	**76**	**85**	**161**	**233**

6.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning peak cycle volumes at Central Park Drive have increased this year, with 76 cycle movements recorded (compared with 56 movements in 2014).
- The most common movements in the morning were turning off the southern end of Central Park Drive into the cycle way (Movement 5 = 31 cyclists) and turning off the northern end of Central Park Drive into the cycle way (Movement 2 = 24 cyclists).
- Of the six possible movements at this site, the most notable change since 2014 has been at Movement 5 (up 10 cyclists).

Table 6.1: Morning Cyclist Movements

Central Park Drive 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	8	4	0	10	12	6	9	5	**1**	**-4**
2	20	34	36	35	32	46	46	19	**24**	**5**
3	8	12	12	9	9	14	13	1	**7**	**6**
4	8	7	11	14	14	14	13	5	**12**	**7**
5	14	10	20	25	29	30	42	21	**31**	**10**
6	3	1	12	1	4	2	7	5	**1**	**-4**
Don't Know	-	-	-	-	-	-	5	0	**0**	**0**
Total	**61**	**68**	**91**	**94**	**100**	**112**	**135**	**56**	**76**	**20**

- Over the morning peak, almost all cyclists were adults (99 per cent, up from 95 per cent at the previous measure).
- Most cyclists were wearing a helmet (96 per cent, stable since 2009).
- The greatest share of morning cyclists were male (91 per cent, up from 86 per cent last year).
- Half of the morning cyclists were riding on the cycleway (a notable decline from 73 per cent in 2014). Eleven per cent of cyclists were riding on the footpath (up from 4 per cent in 2014).

Table 6.2: Morning Cyclist Characteristics

Central Park Drive 2007 – 2015 (%)

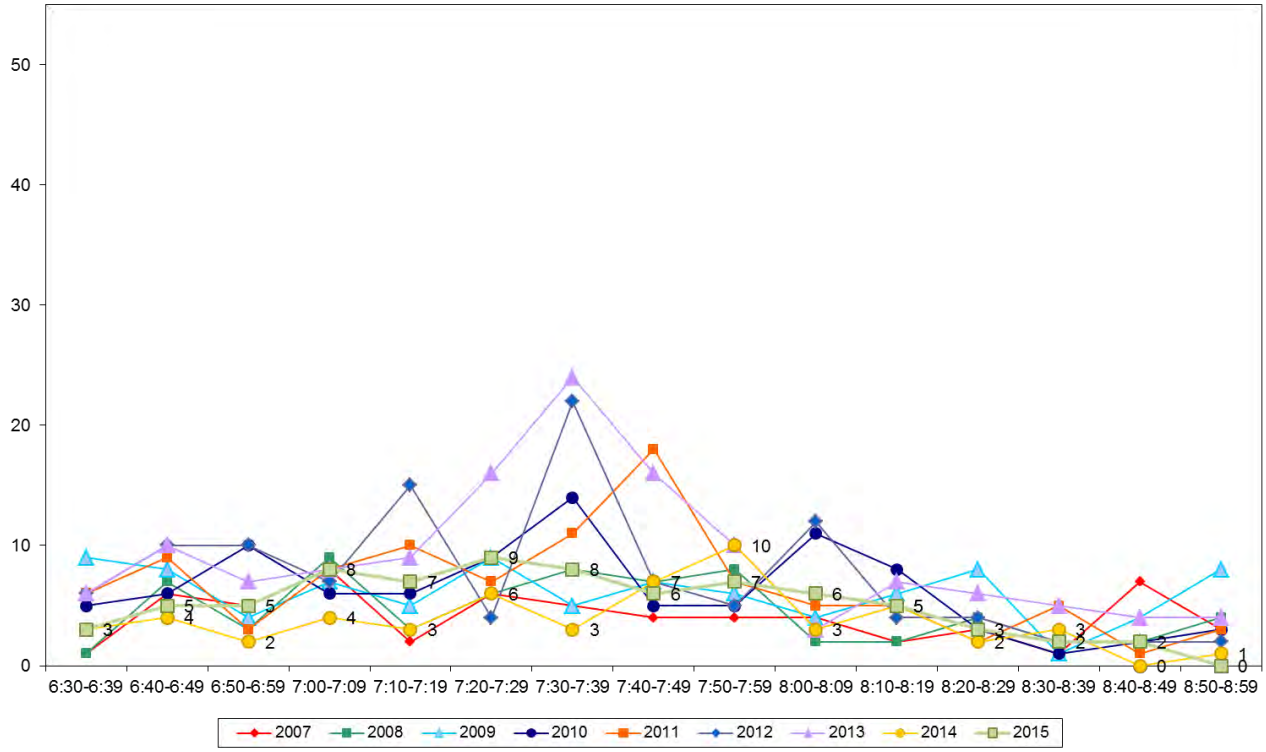
	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	98	99	96	97	97	92	96	95	**99**	**4**
School child	2	1	4	3	3	8	4	5	**1**	**-4**
Helmet Wearing										
Helmet on head	92	94	97	98	96	96	96	95	**96**	**1**
No helmet	8	6	3	2	4	4	4	5	**4**	**-1**
Gender										
Male	-	-	-	-	81	80	82	86	**91**	**5**
Female	-	-	-	-	19	20	13	11	**9**	**-2**
Can't tell	-	-	-	-	0	0	5	3	**0**	**-3**
Where Riding										
Road	74	99	59	71	39	39	46	23	**39**	**16**
Footpath	26	1	3	6	5	5	12	4	**11**	**7**
Off-road cycleway[9]	-	-	38	23	56	56	42	73	**50**	**-23**
Base:	***61***	***68***	***91***	***94***	***100***	***112***	***135***	***56***	***76***	

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

- The volumes of cycle movements were low this year. During the first hour of monitoring, cycle movements gradually increased to a peak of 9 cyclists between 7:20am and 7:29am. Cyclist movements then declined for the rest of the monitoring period.

Figure 6.2: Morning Peak Cyclist Frequency

Central Park Drive 2007 – 2015 (n)



Note: In 2015, 13 per cent of the morning peak cycle movements (n=10) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following time:

- *4 cyclists at 7:43am*
- *6 cyclists at 7:51am.*

No cyclists were observed riding in groups in 2014. In 2013, 12 per cent of morning cycle movements at this site (n=16) were observed riding in groups.

6.3 Evening Peak

Environmental Conditions

- The weather was sunny with light wind 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 increased over the last 12 months, from 69 movements in 2014 to 85 movements this year.
- The most common movement in the evening was turning out of the cycleway onto Central Park Drive heading north (Movement 3 = 41 cyclists). Movement 3 experienced the most notable change since last year (up 15 cyclists).

Table 6.3: Evening Cyclist Movements

Central Park Drive 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	5	5	1	3	2	3	8	3	**7**	**4**
2	12	14	17	11	18	19	15	5	**6**	**1**
3	22	38	49	34	43	69	62	26	**41**	**15**
4	14	10	33	28	19	21	26	20	**20**	**0**
5	11	17	11	21	22	15	17	11	**5**	**-6**
6	2	5	10	9	8	7	9	4	**5**	**1**
Don't Know	-	-	-	-	-	-	1	0	**1**	**1**
Total	**66**	**89**	**121**	**106**	**112**	**134**	**138**	**69**	**85**	**16**

- Over the evening peak, all cyclists at this site were adults (up from 97 per cent in the previous year).
- Helmet wearing was still common in the evening (99 per cent, stable from 97 per cent in 2014).
- Almost all evening peak cyclists were male (85 per cent, down 3 percentage points from last year).
- This year only 12 per cent of cyclists in the evening were riding on the road (down from 45 per cent last year). Riding on the off-road cycleway has increased notably to 82 per cent (from 54 per cent last year).

Table 6.4: Evening Cyclist Characteristics

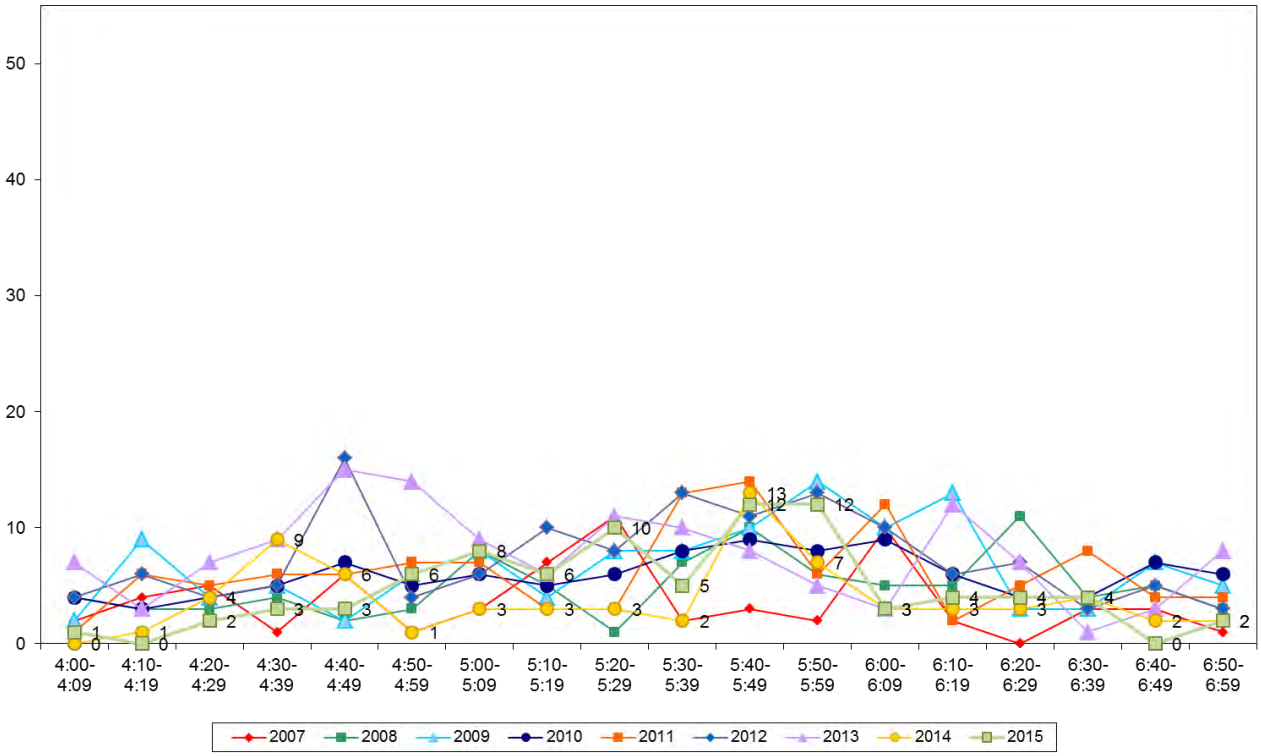
Central Park Drive 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	100	97	97	95	96	94	96	97	**100**	**3**
School child	0	3	3	5	4	6	4	3	**0**	**-3**
Helmet Wearing										
Helmet on head	94	91	93	94	96	94	93	97	**99**	**2**
No helmet	6	9	7	6	4	6	7	3	**1**	**-2**
Gender										
Male	-	-	-	-	90	90	83	88	**85**	**-3**
Female	-	-	-	-	10	10	12	12	**15**	**3**
Can't tell	-	-	-	-	0	0	5	0	**0**	**0**
Where Riding										
Road	83	97	55	70	37	54	49	45	**12**	**-33**
Footpath	17	3	2	6	3	4	2	1	**6**	**5**
Off-road cycleway	-	-	43	24	60	42	49	54	**82**	**28**
Base:	***66***	***89***	***121***	***106***	***112***	***134***	***138***	***69***	***85***	

- The volumes of evening cyclist movements were relativity low over the monitoring period. Volumes fluctuated at the start of the evening period, increasing up to a peak of 12 cyclists between 5:40pm and 5:49pm and between 5:50pm and 5:59pm. Following these peaks, there was a rapid decline in cyclist frequency.

Figure 6.3: Evening Peak Cyclist Frequency

Central Park Drive 2007 – 2015 (n)



Note: In 2015, seven per cent of the evening peak cycle movements (n=6) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

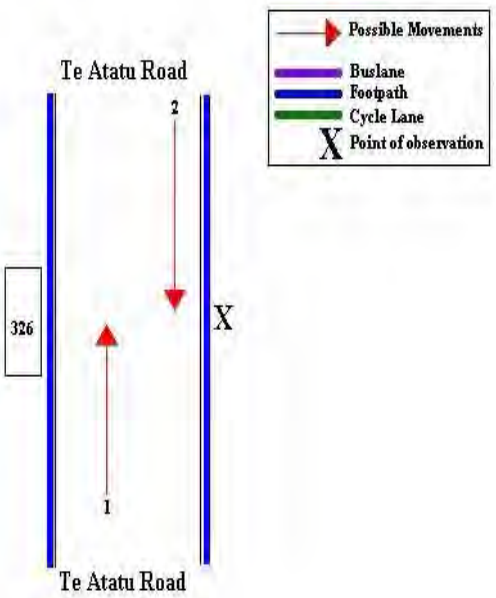
- *3 cyclists at 5:47pm*
- *3 cyclists at 5:55pm.*

No cyclists were observed riding in groups in 2014. In 2013, four 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
2015	**69**	**72**	**141**	**205**

7.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift at this site.
- 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 2015 was 69, up from 63 movements recorded in 2014.
- The most common movement was straight along Te Atatu Road heading north (Movement 1 = 62 cyclists).

Table 7.1: Morning Cyclist Movements

326 Te Atatu Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	35	42	60	59	64	64	70	56	**62**	**6**
2	9	10	19	6	9	11	6	7	**7**	**0**
Total	**44**	**52**	**79**	**65**	**73**	**75**	**76**	**63**	**69**	**6**

- Over the morning peak, school children comprised 30 per cent of cycle movements (down from 43 per cent last year).
- Most cyclists were wearing a helmet (86 per cent, down from 89 per cent in 2014).
- Almost all morning cyclists (88 per cent) were male.
- The majority of morning cyclists were riding on the footpath (81 per cent, down from 92 per cent last year).

Table 7.2: Morning Cyclist Characteristics

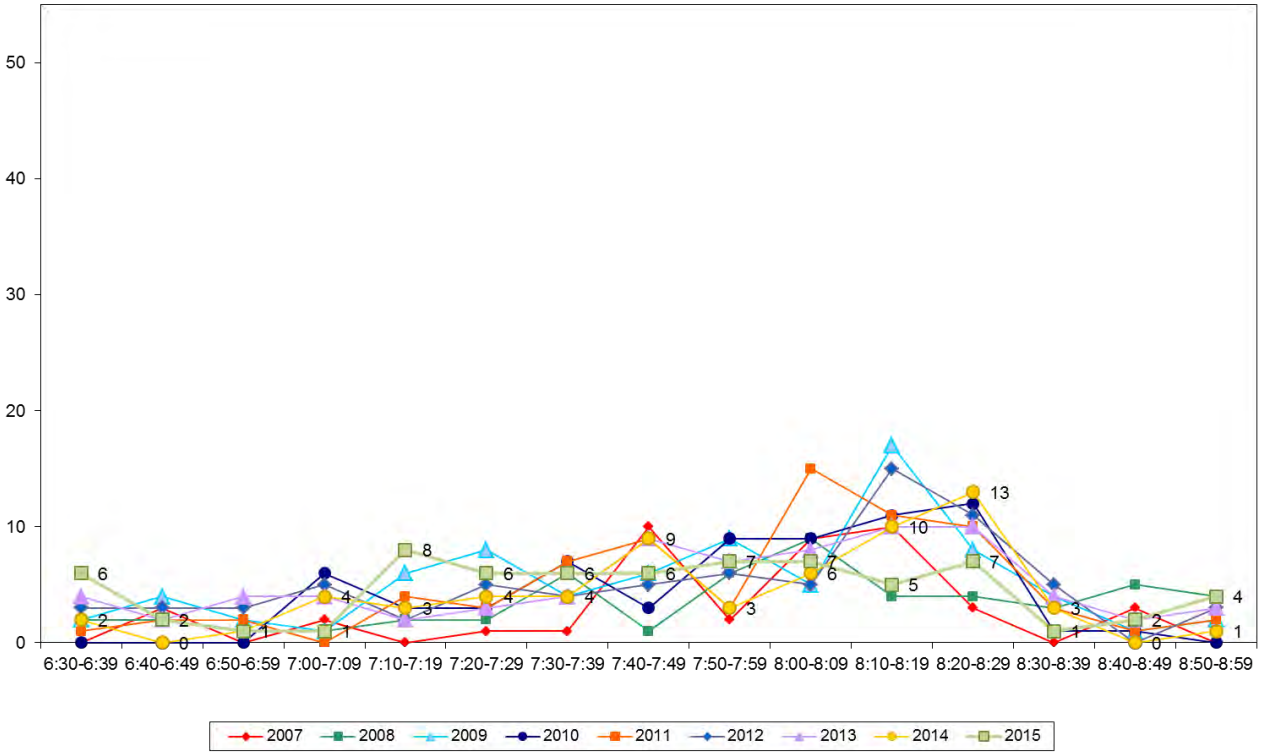
326 Te Atatu Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	43	52	46	34	42	51	62	57	**70**	**13**
School child	57	48	54	66	58	49	38	43	**30**	**-13**
Helmet Wearing										
Helmet on head	84	87	94	88	92	87	92	89	**86**	**-3**
No helmet	16	13	6	12	8	13	8	11	**14**	**3**
Gender										
Male	-	-	-	-	90	94	88	86	**88**	**2**
Female	-	-	-	-	10	5	12	14	**12**	**-2**
Can't tell	-	-	-	-	0	1	0	0	**0**	**0**
Where Riding										
Road	11	8	18	11	10	11	16	8	**19**	**11**
Footpath	89	92	82	89	90	89	84	92	**81**	**-11**
Base:	***44***	***52***	***79***	***65***	***73***	***75***	***76***	***63***	***69***	

- The volume of morning cycle movements started off low, but increased to a peak between 7:10am and 7:19am (8 cyclists). Cycle volumes remained steady for most of the shift, only falling sharply after the ten minute interval 8:20am and 8:29am (7 cyclists).

Figure 7.2: Morning Peak Cyclist Frequency

326 Te Atatu Road 2007 – 2015 (n)



7.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded in the evening at the 326 Te Atatu Road site has increased, from 61 in 2014 to 72 movements this year.
- The most common movement in the evening was straight along Te Atatu Road heading south - the opposite direction from the morning shift (Movement 2 = 56 cyclists).
- The most notable change in cyclist volume was at Movement 2 (up 9 cyclists).

Table 7.3: Evening Cyclist Movements

326 Te Atatu Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	16	15	17	13	16	12	19	14	**16**	**2**
2	27	40	42	49	38	48	58	47	**56**	**9**
Total	**43**	**55**	**59**	**62**	**54**	**60**	**77**	**61**	**72**	**11**

- The greatest share of cyclists using this site in the evening were adults (88 per cent, up from 93 per cent in the previous year).
- A large proportion of cyclists were wearing a helmet (86 per cent, stable from 84 per cent in 2014).
- The greatest share of evening cyclists were male (86 per cent, stable from 88 per cent last year).
- Almost all cyclists were riding on the footpath (90 per cent, stable from 89 per cent last year).

Table 7.4: Evening Cyclist Characteristics

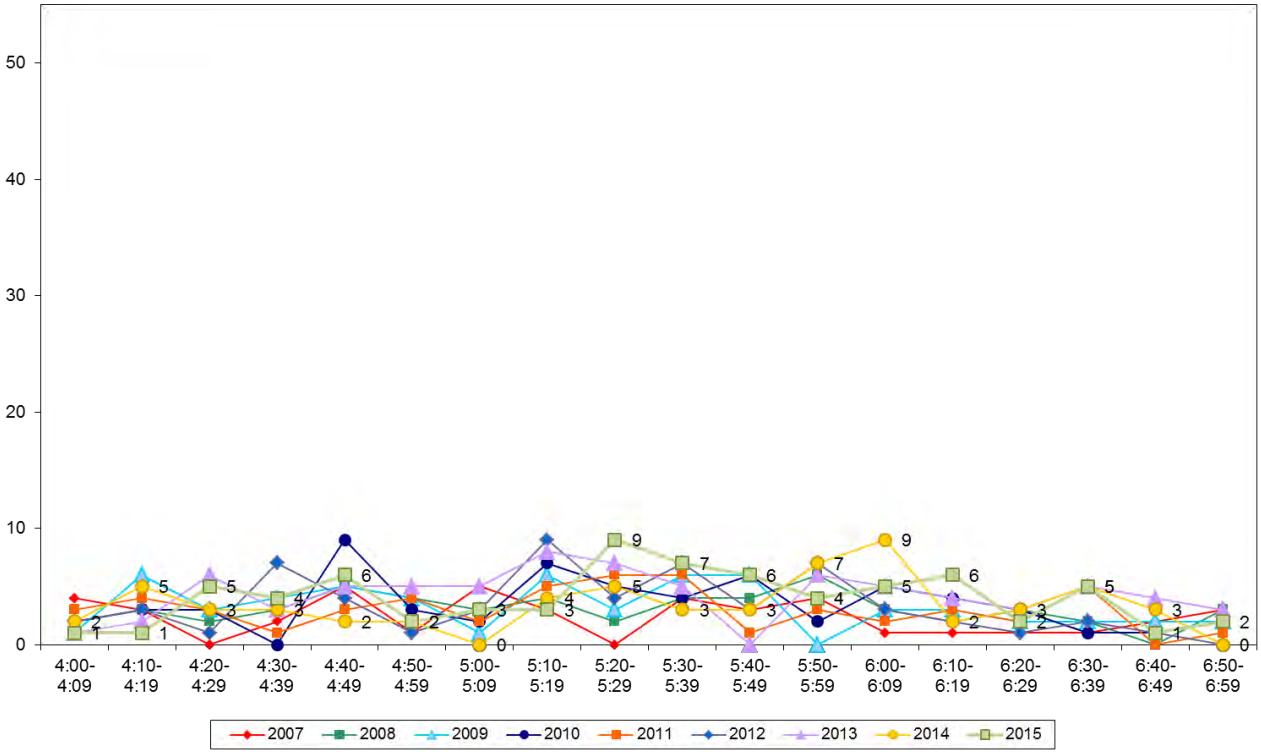
326 Te Atatu Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	72	91	80	90	89	83	86	93	**88**	**-5**
School child	28	9	20	10	11	17	14	7	**12**	**5**
Helmet Wearing										
Helmet on head	88	84	80	74	91	87	83	84	**86**	**2**
No helmet	12	16	20	26	9	13	17	16	**14**	**-2**
Gender										
Male	-	-	-	-	85	87	86	88	**86**	**-2**
Female	-	-	-	-	15	13	14	10	**14**	**4**
Can't tell	-	-	-	-	0	0	0	2	**0**	**-2**
Where Riding										
Road	16	24	22	19	20	17	6	11	**10**	**-1**
Footpath	84	76	78	81	80	83	94	89	**90**	**1**
Base:	***43***	***55***	***59***	***62***	***54***	***60***	***77***	***61***	***72***	

- The overall pattern of evening cycle traffic was low this year, with no more than nine cyclists during any ten minute interval. Cycle volume peaked between 5:20pm and 5:29pm (9 cyclists), then returned gradually to low levels for the remainder of the shift.

Figure 7.3: Evening Peak Cyclist Frequency

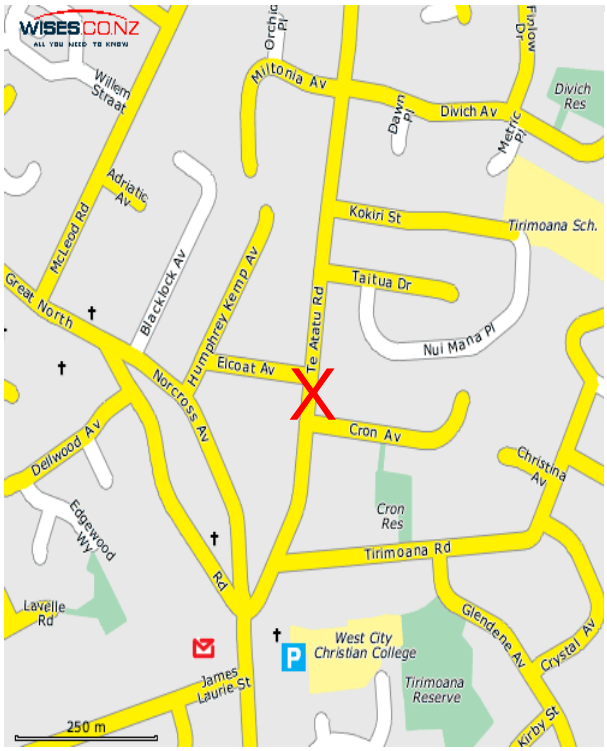
326 Te Atatu Road 2007 – 2015 (n)

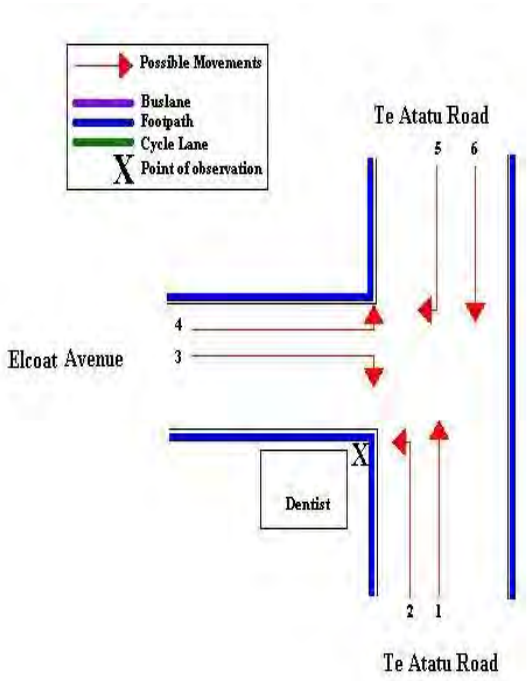


8. TE ATATU ROAD/ELCOAT AVENUE, HENDERSON (SITE 54)

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
2015	**15**	**14**	**29**	**42**

8.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning peak at this site.
- 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 increased from last year (15 cycle movements, up from 12 movements in 2014).
- The most common morning movement continued to be heading north up Te Atatu Road (Movement 1 = 14 cyclists).
- The most notable change in cyclist volumes occurred at Movement 1 (up 5 movements from last year).

Table 8.1: Morning Cyclist Movements

Te Atatu Road/Elcoat Avenue 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	16	19	28	26	22	26	15	9	**14**	**5**
2	0	0	1	0	0	0	0	0	**0**	**0**
3	0	0	0	0	0	1	0	0	**0**	**0**
4	2	1	2	1	3	2	2	0	**0**	**0**
5	0	0	1	0	0	1	0	1	**0**	**-1**
6	8	7	5	3	5	4	3	2	**1**	**-1**
Total	**26**	**27**	**37**	**30**	**30**	**34**	**20**	**12**	**15**	**3**

- Over the morning peak, school children comprised 67 per cent of the total number of cycle movements, a notable 42 percentage point increase from last year.
- The majority of cyclists were wearing a helmet (93 per cent, up from 75 per cent at the last measure).
- The share of female morning cyclists increased notably this year, reaching its highest percentage recorded since 2011 (33 per cent, up from 8 per cent in 2014).
- Sixty-seven per cent of cyclists were riding on the footpath in the morning (up 17 percentage points from last year) with the remaining 33 per cent riding on the road.

Table 8.2: Morning Cyclist Characteristics

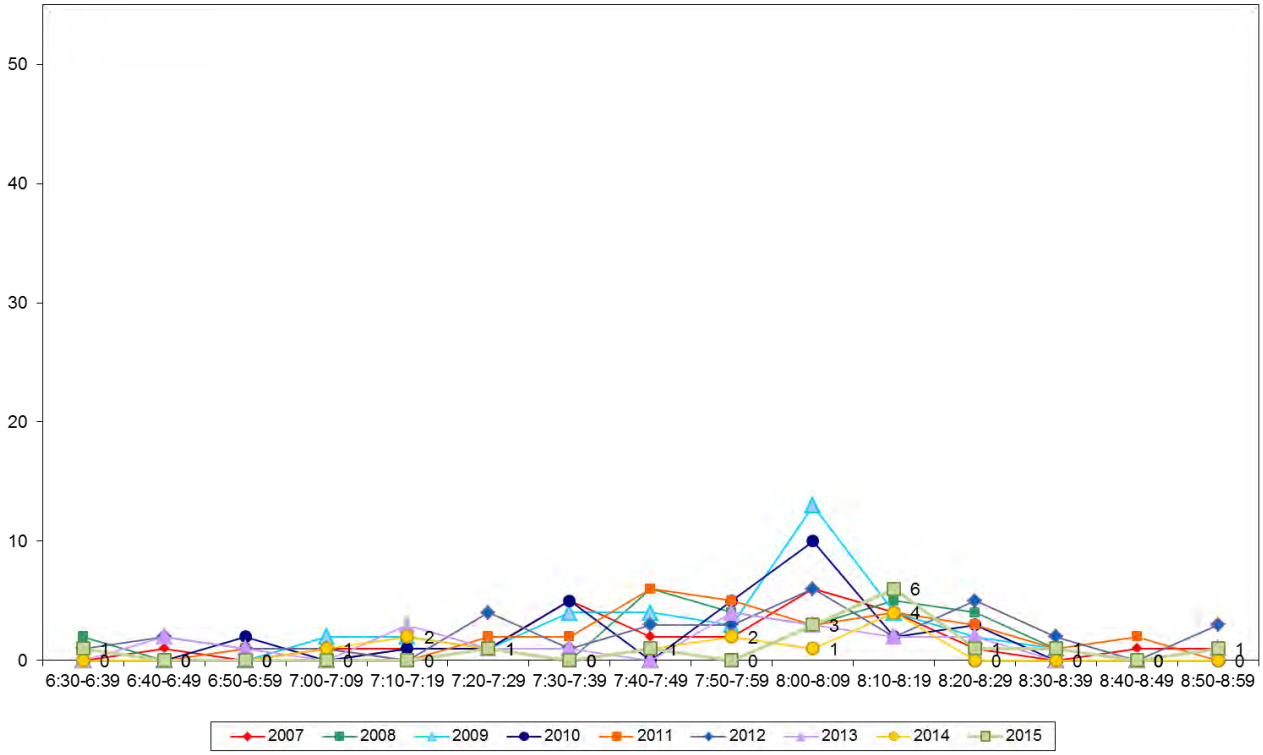
Te Atatu Road/Elcoat Avenue 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	46	37	32	20	20	44	30	75	**33**	**-42**
School child	54	63	68	80	80	56	70	25	**67**	**42**
Helmet Wearing										
Helmet on head	88	89	86	97	93	88	85	75	**93**	**18**
No helmet	12	11	14	3	7	12	15	25	**7**	**-18**
Gender										
Male	-	-	-	-	83	88	95	92	**67**	**-25**
Female	-	-	-	-	17	9	5	8	**33**	**25**
Can't tell	-	-	-	-	0	3	0	0	**0**	**0**
Where Riding										
Road	38	26	19	20	17	47	30	50	**33**	**-17**
Footpath	62	74	81	80	83	53	70	50	**67**	**17**
Base:	***26***	***27***	***37***	***30***	***30***	***34***	***20***	***12***	***15***	

- This year, the volume of morning cycle movements has been very low throughout the monitoring period. There was one small peak of 6 cyclists between 8:10am and 8:19am. Out of the fifteen time intervals monitored, it was only during two intervals that cyclist volume was above 1.

Figure 8.2: Morning Peak Cyclist Frequency

Te Atatu Road/Elcoat Avenue 2007 – 2015 (n)



8.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded in the evening has decreased over the last 12 months, from 23 movements last year to 14 movements in 2015.
- Although the most common movement in the evening was heading south down Te Atatu Road (Movement 6 = 11 cyclists), Movement 6 also recorded the most notable change at this site, a decrease of 5 cycle movements compared to last year.

Table 8.3: Evening Cyclist Movements

Te Atatu Road/Elcoat Avenue Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	9	2	7	7	5	8	9	3	**2**	**-1**
2	0	2	1	0	0	0	0	0	**0**	**0**
3	0	0	2	0	0	0	0	0	**0**	**0**
4	1	0	3	0	0	1	1	1	**1**	**0**
5	1	2	1	0	1	2	2	3	**0**	**-3**
6	13	12	18	15	12	12	12	16	**11**	**-5**
Total	**24**	**18**	**32**	**22**	**18**	**23**	**24**	**23**	**14**	**-9**

- All of the cyclists using this intersection were adults (up from 52 per cent last year).
- The majority of cyclists observed at this site were wearing helmets (86 per cent, up 8 percentage points since last year).
- Most evening cyclists were male (93 per cent, up 15 percentage points since last year).
- Seventy-one per cent of cyclists were riding on the road, up notably from 39 per cent at the previous measure.

Table 8.4: Evening Cyclist Characteristics

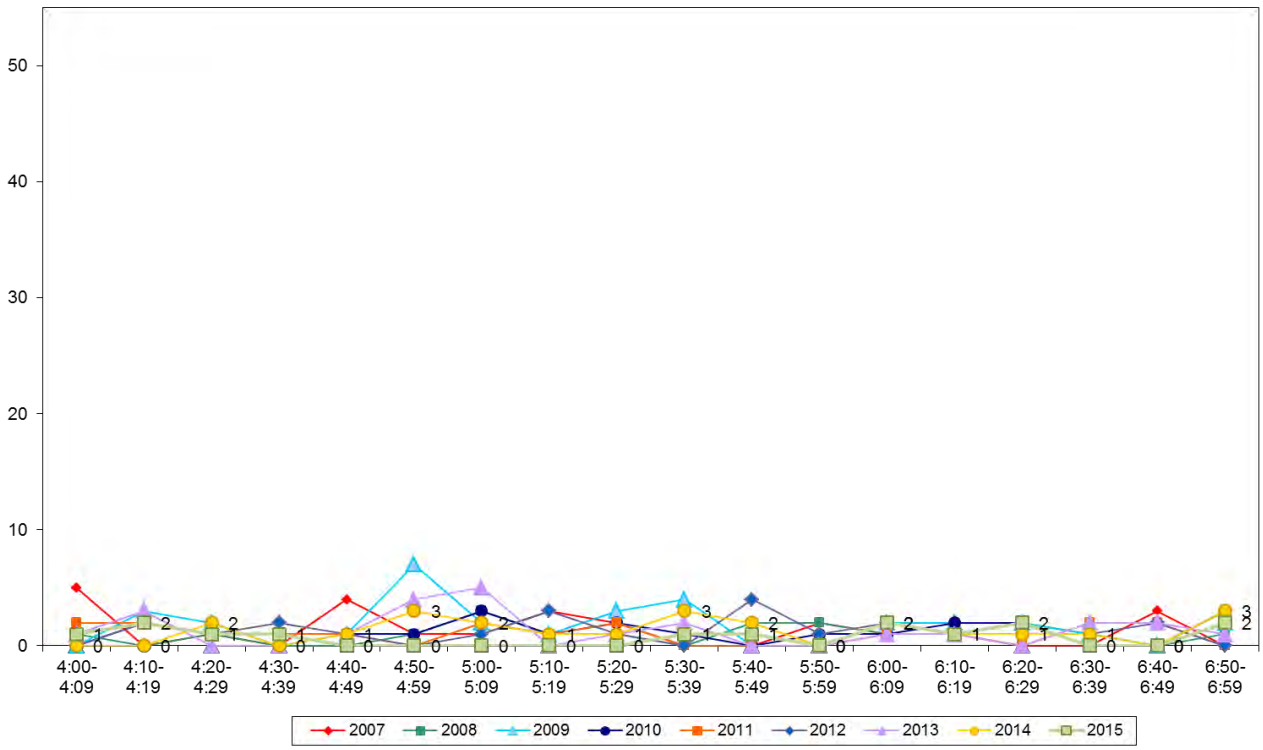
Te Atatu Road/Elcoat Avenue 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	58	83	53	82	78	87	71	52	**100**	**48**
School child	42	17	47	18	22	13	29	48	**0**	**-48**
Helmet Wearing										
Helmet on head	87	78	66	77	100	91	96	78	**86**	**8**
No helmet	13	22	34	23	0	9	4	22	**14**	**-8**
Gender										
Male	-	-	-	-	100	91	96	78	**93**	**15**
Female	-	-	-	-	0	9	4	22	**7**	**-15**
Can't tell	-	-	-	-	0	0	0	0	**0**	**0**
Where Riding										
Road	50	50	19	55	50	74	62	39	**71**	**32**
Footpath	50	50	81	45	50	26	38	61	**29**	**-32**
Base:	***24***	***18***	***32***	***22***	***18***	***23***	***24***	***23***	***14***	

- 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 two.

Figure 8.3: Evening Peak Cyclist Frequency

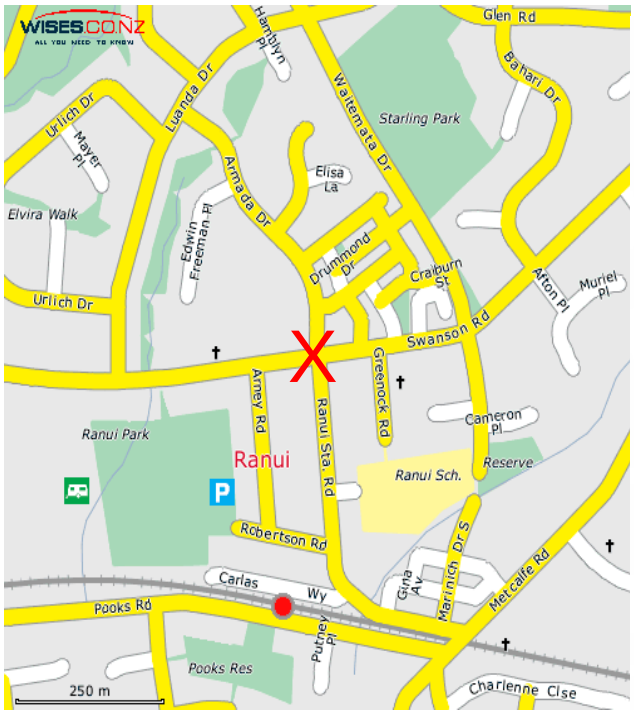
Te Atatu Road/Elcoat Avenue 2007 – 2015 (n)

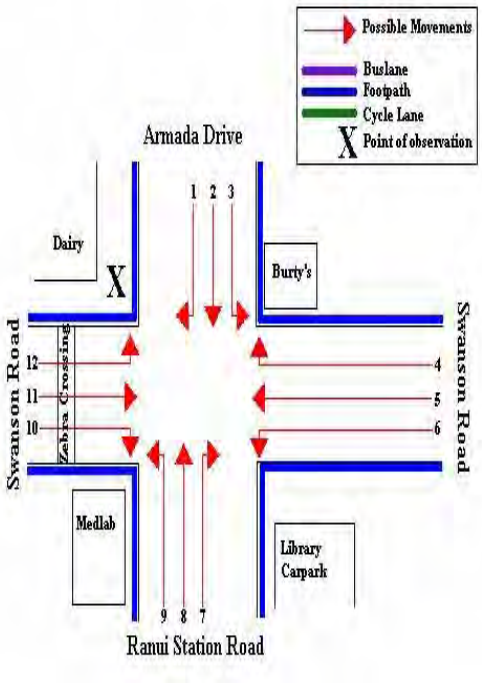


9. SWANSON ROAD/RANUI STATION ROAD/ARMADA DRIVE, RANUI (SITE 55)

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
2015	**31**	**35**	**66**	**96**

9.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Swanson Road/Armada Drive intersection has increased, from 28 in 2014 to 31 cycle movements this year.
- The most common movement was straight along Swanson Road heading east (Movement 11 = 15 cyclists).
- The most notable change in cycle volumes was at Movement 5, travelling west on Swanson Road (up 5 cyclists).

Table 9.1: Morning Cyclist Movements

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	0	2	3	2	7	1	7	1	**3**	**2**
2	0	0	2	3	1	0	4	0	**0**	**0**
3	1	0	0	1	0	2	0	0	**1**	**1**
4	0	2	0	0	0	0	0	0	**0**	**0**
5	1	3	2	6	6	3	5	1	**6**	**5**
6	1	1	1	3	4	1	5	2	**1**	**-1**
7	0	0	0	0	1	1	0	1	**0**	**-1**
8	1	0	1	1	0	0	0	1	**1**	**0**
9	1	0	0	0	1	1	1	0	**0**	**0**
10	0	0	3	0	5	2	5	1	**1**	**0**
11	10	13	23	17	18	16	18	19	**15**	**-4**
12	0	0	2	1	4	0	4	2	**3**	**1**
Total	**15**	**21**	**37**	**34**	**47**	**27**	**49**	**28**	**31**	**3**

- Over the morning peak, adults comprise the majority of cycle movements (68 per cent, up from 57 per cent last year).
- The greatest share of the cyclists were wearing a helmet (74 per cent, down from 86 per cent last year).
- The majority of cyclists were male (84 per cent, up from 79 per cent in 2014).
- The share of cyclists riding on the footpath has increased notably - 48 per cent, up from 21 per cent in 2014.

Table 9.2: Morning Cyclist Characteristics

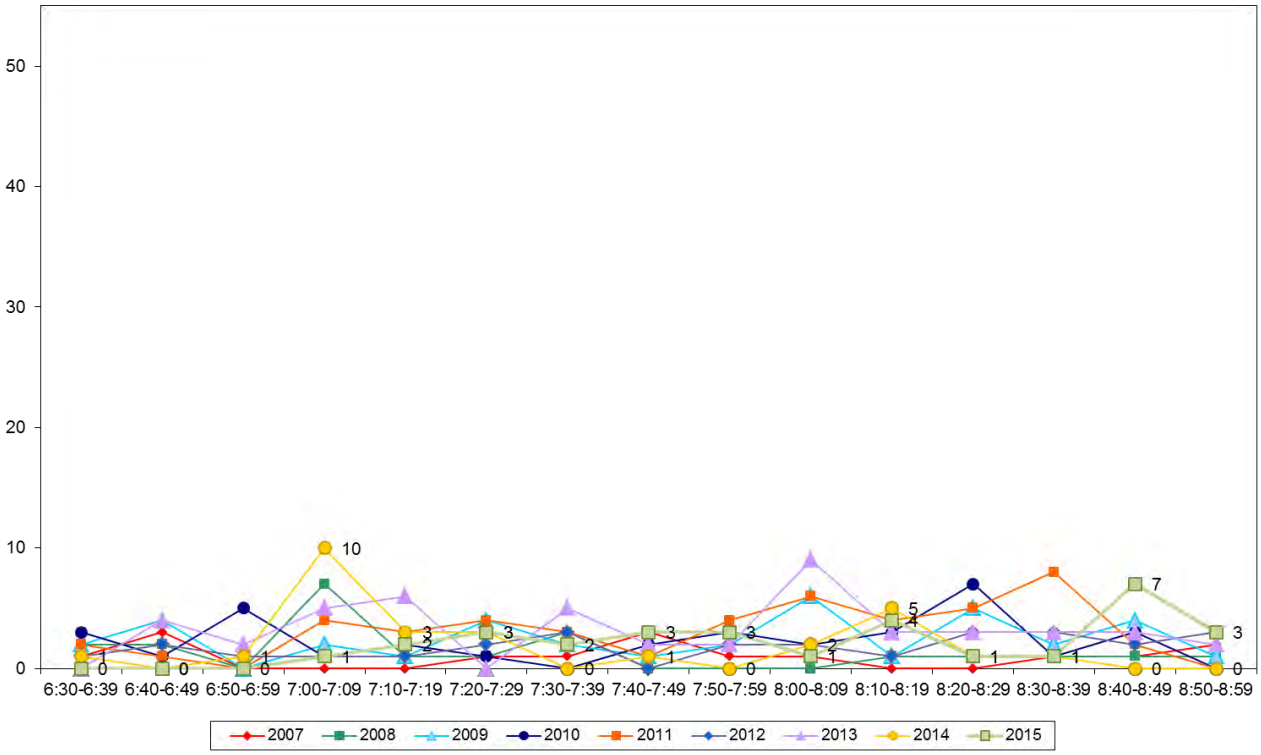
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	87	81	81	79	72	81	61	57	**68**	**11**
School child	13	19	19	21	28	19	39	43	**32**	**-11**
Helmet Wearing										
Helmet on head	93	67	81	76	66	78	59	86	**74**	**-12**
No helmet	7	33	19	24	34	22	41	14	**26**	**12**
Gender										
Male	-	-	-	-	77	85	80	79	**84**	**5**
Female	-	-	-	-	23	15	20	21	**16**	**-5**
Can't tell	-	-	-	-	0	0	0	0	**0**	**0**
Where Riding										
Road	73	62	54	68	47	56	45	79	**52**	**-27**
Footpath	27	38	46	32	53	44	55	21	**48**	**27**
Base:	***15***	***21***	***37***	***34***	***47***	***27***	***49***	***28***	***31***	

- Figure 9.2 illustrates the cycle traffic at this site in the morning. Cycle volumes varied between none and three movements across majority of the morning monitoring period, with the exception of 4 cyclists between 8:10am and 8:19am and a peak between 8:40am and 8:49am with 7 cyclists.

Figure 9.2: Morning Peak Cyclist Frequency

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2015 (n)



Note: In 2015, no group cyclists or pelotons rode past this site in the morning. This compares with 10 cyclists (36 per cent of all morning peak cycle movements at this site) in 2014.

9.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of evening cycle movements recorded at the Swanson Road/Armada Drive intersection has decreased for the third consecutive year (35 movements, compared with 53 movements in 2014).
- The key movement in the evening was Movement 5 (travelling straight along Swanson Road heading west, 15 cyclists).
- The most notable change since last year was at Movement 12, turning left from Swanson Road onto Armada Drive (up 7 cyclists).

Table 9.3: Evening Cyclist Movements

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	2	15	8	5	9	9	6	4	**2**	**-2**
2	4	4	2	1	1	0	9	4	**0**	**-4**
3	0	0	2	0	2	1	0	0	**0**	**0**
4	0	0	1	1	0	4	2	0	**0**	**0**
5	11	10	20	16	20	24	20	20	**15**	**-5**
6	2	0	0	7	9	3	6	2	**0**	**-2**
7	1	1	3	7	5	4	0	4	**2**	**-2**
8	7	0	3	9	4	5	5	3	**0**	**-3**
9	2	7	0	4	2	6	4	2	**3**	**1**
10	4	2	5	2	6	4	3	6	**2**	**-4**
11	11	9	11	12	21	21	6	6	**3**	**-3**
12	3	17	11	4	6	7	6	1	**8**	**7**
DK	-	-	-	-	-	-	-	1	**0**	**-1**
Total	**47**	**65**	**66**	**68**	**85**	**88**	**67**	**53**	**35**	**-18**

- The share of adults using the Swanson Road/Armada Drive intersection in the evening was 71 per cent, an 11 percentage point increase from last year.
- Sixty-six per cent of the cyclists at this site were wearing a helmet (an increase from 58 per cent recorded in 2014).
- The greatest share of evening cyclists were male (74 per cent, down from 91 per cent in 2014).
- Over half of the cyclists were riding on the footpath (57 per cent), while the remaining cyclists were riding on road (43 per cent, down from 47 per cent last year).

Table 9.4: Evening Cyclist Characteristics

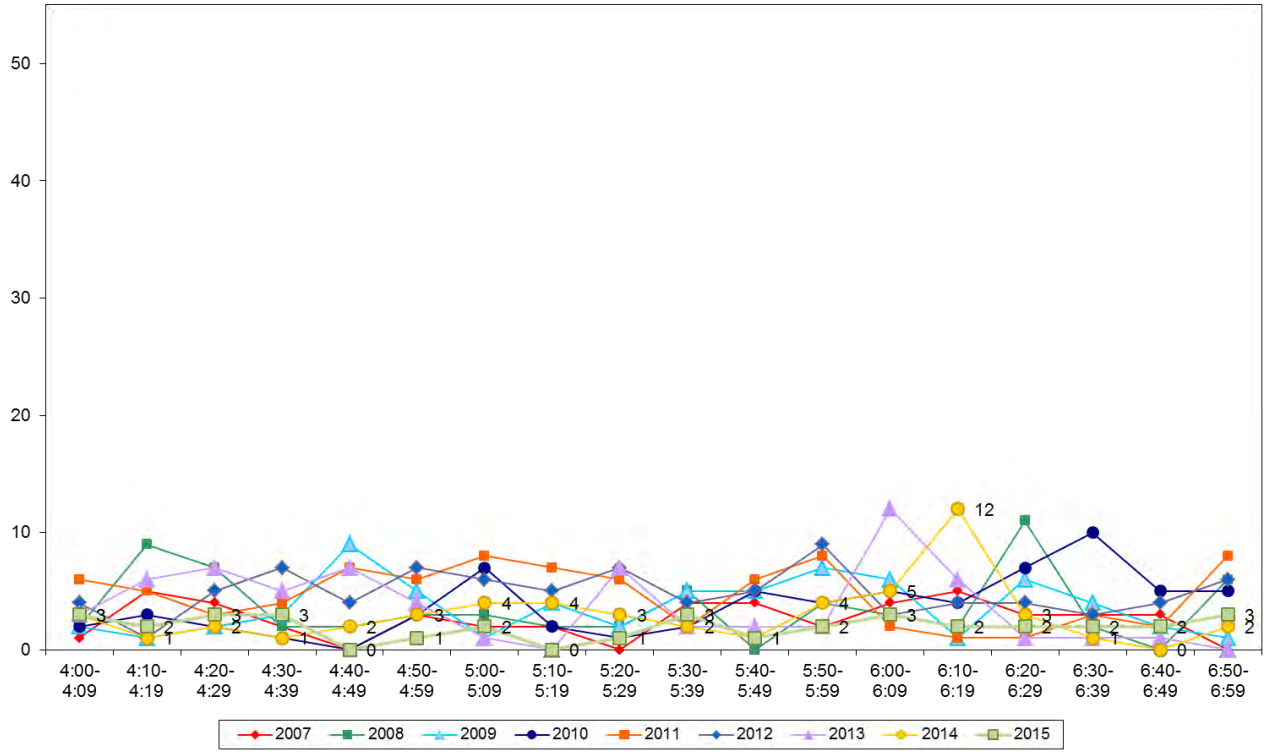
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	68	32	47	44	62	65	51	60	**71**	**11**
School child	32	68	53	56	38	35	49	40	**29**	**-11**
Helmet Wearing										
Helmet on head	60	31	42	44	49	59	67	58	**66**	**8**
No helmet	40	69	58	56	51	41	33	42	**34**	**-8**
Gender										
Male	-	-	-	-	85	81	76	91	**74**	**-17**
Female	-	-	-	-	14	19	21	9	**26**	**17**
Can't tell	-	-	-	-	1	0	3	0	**0**	**0**
Where Riding										
Road	43	23	36	35	32	37	49	47	**43**	**-4**
Footpath	57	77	64	65	68	63	51	53	**57**	**4**
Base:	***47***	***65***	***66***	***68***	***85***	***88***	***67***	***53***	***35***	

- Evening cycle traffic remained low throughout entire evening monitoring period with no more than three cycle movements in any ten minute interval. In contrast with previous years, no peak was recorded throughout the shift.

Figure 9.3: Evening Peak Cyclist Frequency

Swanson Road/Ranui Station Road/Armada Drive 2007 – 2015 (n)

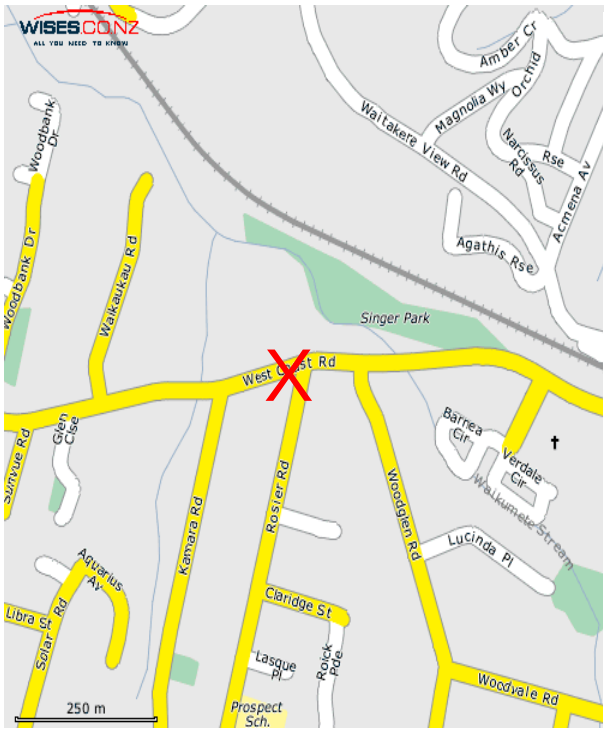


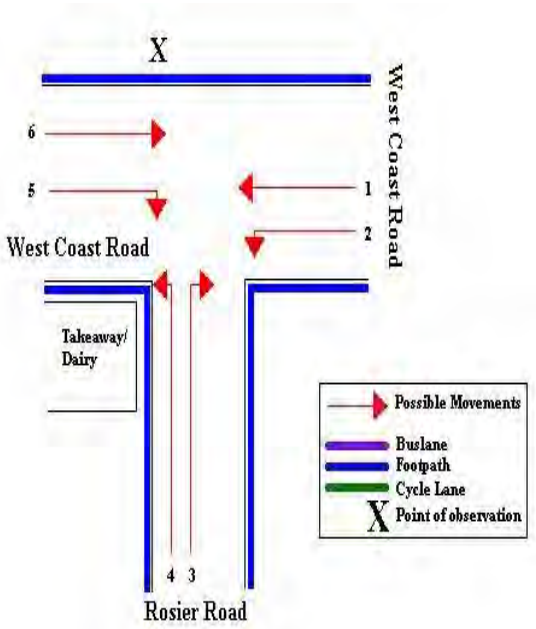
Note: In 2015, no group cyclists or pelotons rode past this site in the evening. This compares with 15 per cent of all evening peak cycle movements at this site (n=8) in 2014 and 22 per cent of all evening peak cyclists (n=15) in 2013.

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
2015	**23**	**27**	**50**	**72**

10.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning peak at this site.
- 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 increased this year, up from 17 movements in 2014 to 23 movements in this year.
- The most common movements in the morning were straight along West Coast Road heading west (Movement 1) and travelling in opposite direction, straight along West Coast Road heading east (Movement 6). Both movements recorded 8 cyclists.
- Movement 6 experienced the most notable change, up 4 movements over the past 12 months.

Table 10.1: Morning Cyclist Movements

West Coast Road/Rosier Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	4	7	13	19	6	8	3	9	**8**	**-1**
2	0	0	0	0	0	0	0	1	**0**	**-1**
3	4	2	3	1	2	3	2	2	**3**	**1**
4	1	1	2	1	8	1	5	1	**1**	**0**
5	1	2	1	0	0	0	0	0	**3**	**3**
6	9	6	9	10	9	7	14	4	**8**	**4**
Total	**19**	**18**	**28**	**31**	**25**	**19**	**24**	**17**	**23**	**6**

- Over the morning peak, adults comprised the greatest share of cycle movements (83 per cent, down from 94 per cent in 2014).
- Helmet wearing notably increased this year (83 per cent, a 24 percentage point increase since last year).
- Approximately three out of four morning peak cyclists were male (78 per cent, down from 82 per cent last year).
- Sixty-one per cent of the cyclists were riding on the footpath, an increasing trend since 2011.

Table 10.2: Morning Cyclist Characteristics

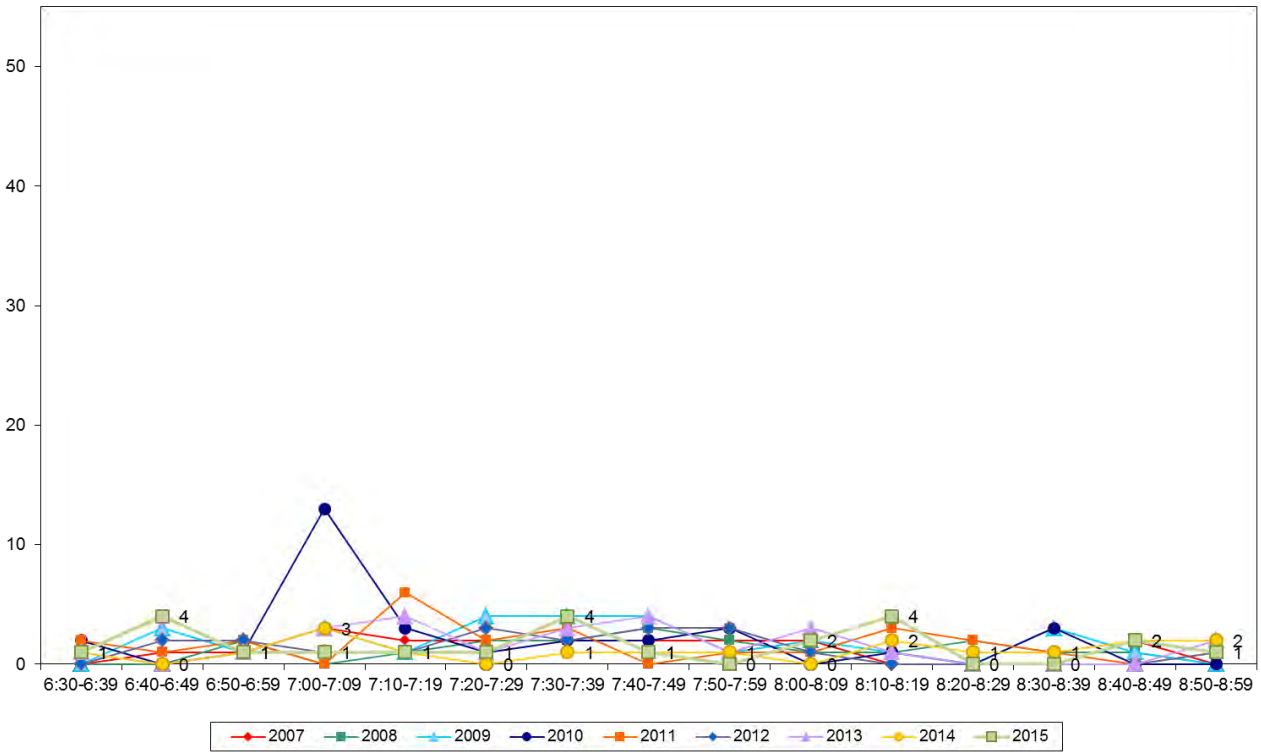
West Coast Road/Rosier Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	74	72	93	87	80	95	92	94	**83**	**-11**
School child	26	28	7	13	20	5	8	6	**17**	**11**
Helmet Wearing										
Helmet on head	84	78	93	90	96	74	92	59	**83**	**24**
No helmet	16	22	7	10	4	26	8	41	**17**	**-24**
Gender										
Male	-	-	-	-	88	89	92	82	**78**	**-4**
Female	-	-	-	-	8	11	8	18	**22**	**4**
Can't tell	-	-	-	-	4	0	0	0	**0**	**0**
Where Riding										
Road	74	56	71	71	68	63	60	41	**39**	**-2**
Footpath	26	44	29	29	32	37	40	59	**61**	**2**
Base:	***19***	***18***	***28***	***31***	***25***	***19***	***24***	***17***	***23***	

- Morning cycle volumes were very low over the entire monitoring period, with no more than four 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 – 2015 (n)



10.3 Evening Peak

Environmental Conditions

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

Key Points

- Compared with 2014, the total number of cycle movements recorded at the West Coast Road/Rosier Road intersection in the evening has increased, from 16 movements to 27 movements this year.
- The key movements in the evening were straight along West Coast Road heading east (Movement 6 = 12 cyclists) and the opposite direction; straight on West Coast Road heading west (Movement 1 = 8 cyclists).
- Of the six movements possible at this site, the most notable change in terms of evening cyclist numbers was at Movement 6 (up 5 cyclists).

Table 10.3: Evening Cyclist Movements

West Coast Road/Rosier Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	8	3	13	8	12	7	17	7	**8**	**1**
2	3	2	2	3	1	2	4	1	**5**	**4**
3	1	3	1	0	0	0	0	0	**0**	**0**
4	5	2	1	3	4	0	0	0	**1**	**1**
5	4	1	1	1	6	0	0	1	**1**	**0**
6	8	8	16	14	12	10	11	7	**12**	**5**
Total	**29**	**19**	**34**	**29**	**35**	**19**	**32**	**16**	**27**	**11**

- The majority of evening cyclists using the West Coast Road/Rosier Road intersection were adults (78 per cent, down from 100 per cent in 2014).
- Seventy per cent of cyclists at this site were wearing a helmet, down from 94 per cent last year.
- Almost all evening cyclists were male (89 per cent, down 5 percentage points from the last measure).
- The greatest share of cyclists at this site were riding on the footpath (59 per cent, a notable increase from 37 per cent in 2014).

Table 10.4: Evening Cyclist Characteristics

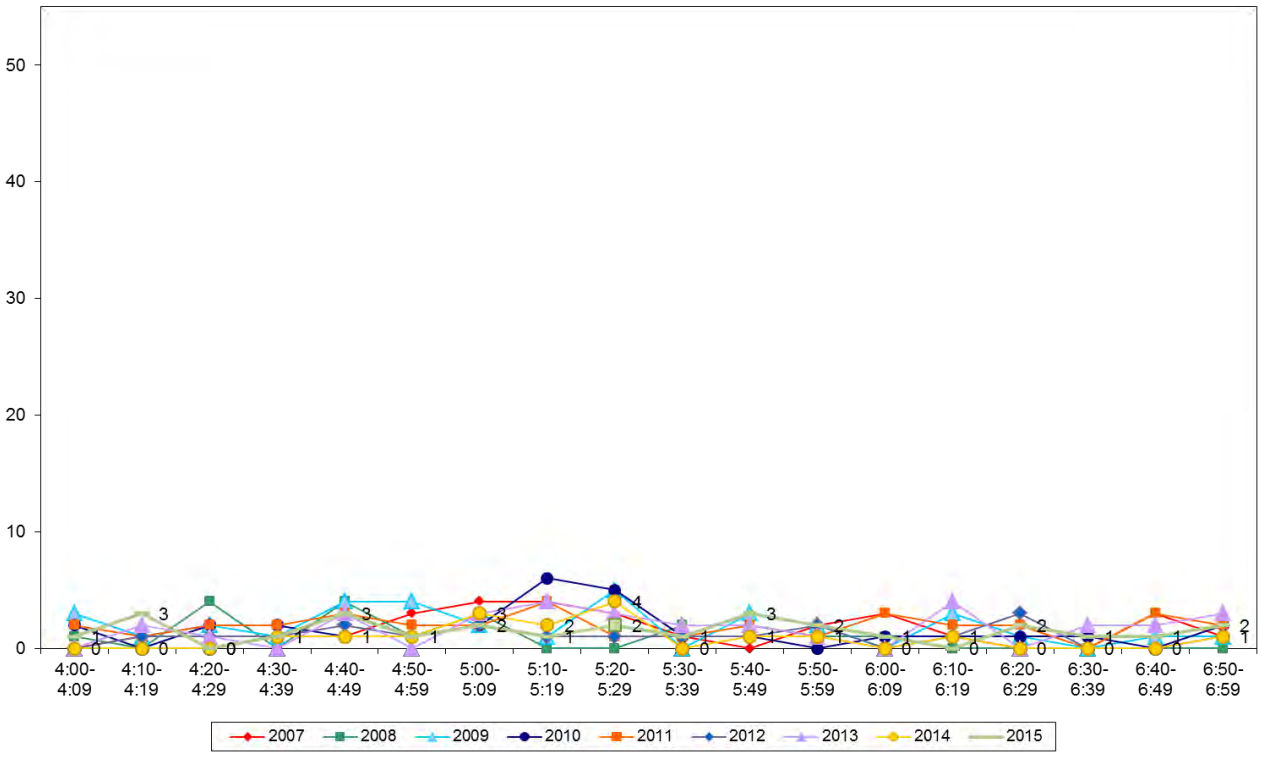
West Coast Road/Rosier Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	66	74	88	76	80	79	83	100	**78**	**-22**
School child	34	26	12	24	20	21	17	0	**22**	**22**
Helmet Wearing										
Helmet on head	59	74	79	72	71	79	88	94	**70**	**-24**
No helmet	41	26	21	28	29	21	12	6	**30**	**24**
Gender										
Male	-	-	-	-	89	89	81	94	**89**	**-5**
Female	-	-	-	-	6	11	13	6	**11**	**5**
Can't tell	-	-	-	-	5	0	6	0	**0**	**0**
Where Riding										
Road	34	58	47	59	54	58	62	63	**41**	**-22**
Footpath	66	42	53	41	46	42	38	37	**59**	**22**
Base:	***29***	***19***	***34***	***29***	***35***	***19***	***32***	***16***	***27***	

- Evening cyclist volumes remained low throughout the monitoring period, with no peaks recorded. There were no more than three cyclists passing the site during any ten minute interval. This trend was consistent with that observed in 2014.

Figure 10.3: Evening Peak Cyclist Frequency

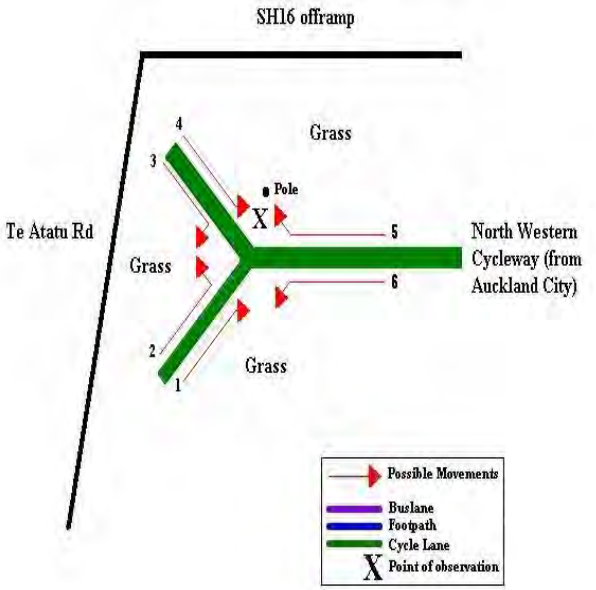
West Coast Road/Rosier Road 2007 – 2015 (n)



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
2015	**205**	**218**	**423**	**614**

11.2 Morning Peak

Environmental Conditions

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

Key Points

- In 2015, 205 cyclist movements were recorded at the North Western Cycleway, a notable increase from the 125 movements recorded last year.
- The key morning movement was Movement 4 (116 cyclists, up from 78 movements in 2014).

Table 11.1: Morning Cyclist Movements

North Western Cycleway 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	16	22	30	22	30	27	36	31	**59**	**28**
2	0	0	0	0	0	0	0	0	**1**	**1**
3	0	0	0	0	0	0	0	0	**0**	**0**
4	58	74	85	118	97	124	148	78	**116**	**38**
5	25	23	27	31	20	30	29	13	**20**	**7**
6	3	2	15	8	8	6	5	3	**9**	**6**
Total	**102**	**121**	**157**	**179**	**155**	**187**	**218**	**125**	**205**	**80**

- Over the morning peak, nearly all cyclists were adults (99 per cent, unchanged from last year)
- Most cyclists were wearing a helmet (98 per cent, stable since monitoring began).
- The greatest share of morning cyclists were male (87 per cent, a decrease from 91 per cent in 2014).

Table 11.2: Morning Cyclist Characteristics

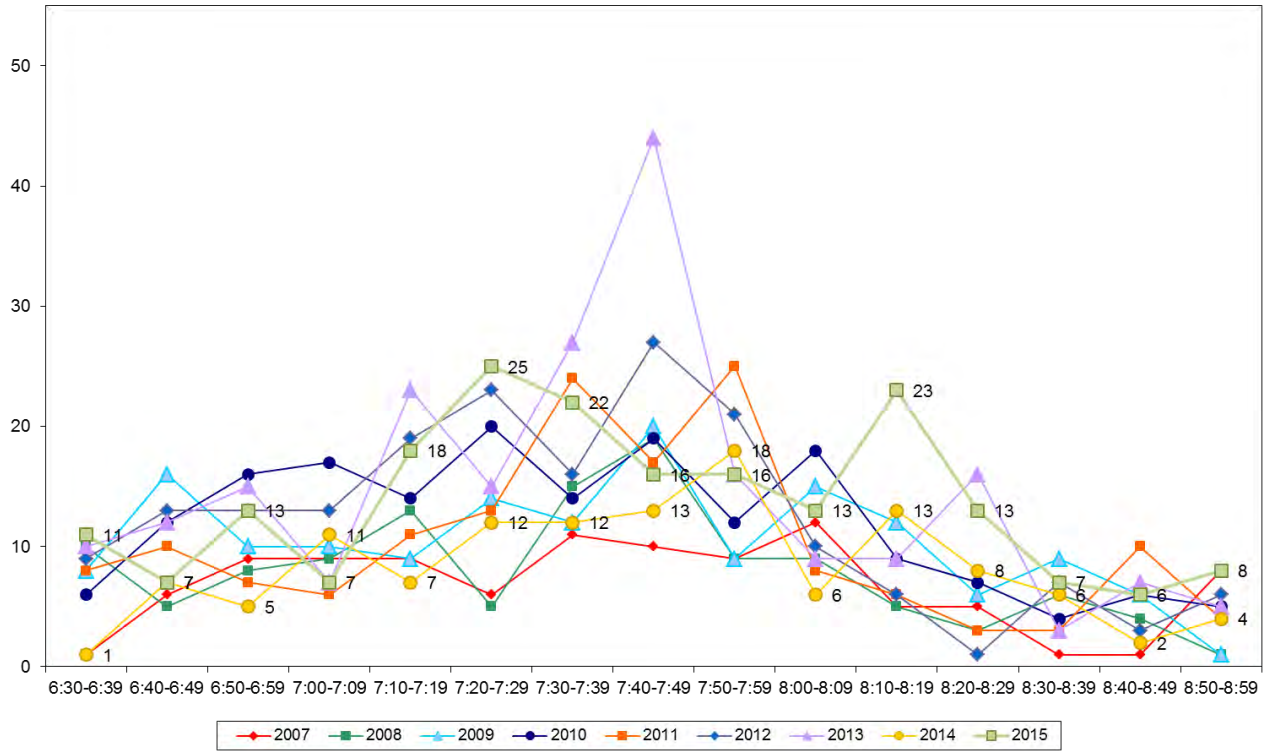
North Western Cycleway 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	95	99	99	100	99	99	96	99	**99**	**0**
School child	5	1	1	0	1	1	4	1	**1**	**0**
Helmet Wearing										
Helmet on head	97	95	96	97	97	98	96	97	**98**	**1**
No helmet	3	5	4	3	3	2	4	3	**2**	**-1**
Gender										
Male	-	-	-	-	85	84	87	91	**87**	**-2**
Female	-	-	-	-	15	15	13	9	**11**	**2**
Can't tell	-	-	-	-	0	1	0	0	**0**	**0**
Where Riding										
Cycleway	100	100	100	100	100	100	100	100	**100**	**0**
Base:	***102***	***121***	***157***	***179***	***155***	***187***	***218***	***125***	***205***	

- Morning cycle volumes fluctuated throughout the monitoring period. Two peaks were present, the first was observed between 7:20am and 7:29am (25 movements) and the second, smaller peak was observed between 8:10am and 8:19am (23 movements). The number of cyclists then decreased notably for the remainder of the shift.

Figure 11.2: Morning Peak Cyclist Frequency

North Western Cycleway 2007 – 2015 (n)



Note: In 2015, a group of four cyclists rode past at 8:10am (two per cent of this site's morning cycle traffic). This compares with six per cent of morning peak cyclists in 2014 (n=7) and 10 per cent in 2013 (n=22).

11.3 Evening Peak

Environmental Conditions

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

Key Points

- This year, 218 evening cycle movements were recorded at the North Western Cycleway, up from 179 movements in 2014.
- The most common movement in the evening was Movement 5, turning right from the North Western Cycleway (144 cyclists).
- Of the six movements possible at this intersection, Movement 5 recorded the most notable change (up 49 cyclists).

Table 11.3: Evening Cyclist Movements

North Western Cycleway 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	15	3	11	7	11	9	9	10	**5**	**-5**
2	0	0	0	0	0	0	0	0	**0**	**0**
3	0	0	0	0	0	0	0	0	**0**	**0**
4	27	36	32	48	44	41	36	27	**18**	**-9**
5	58	75	113	118	102	152	146	95	**144**	**49**
6	30	37	42	36	33	36	45	47	**51**	**4**
Total	**130**	**151**	**198**	**209**	**190**	**238**	**236**	**179**	**218**	**39**

- Over the evening peak, almost all cyclists using this cycleway were adults (99 per cent, stable since 2008).
- Most cyclists at this site were wearing a helmet (98 per cent, stable from 97 per cent in 2014).
- The greatest share of evening cyclists were male (83 per cent, down 6 percentage points from last year).

Table 11.4: Evening Cyclist Characteristics

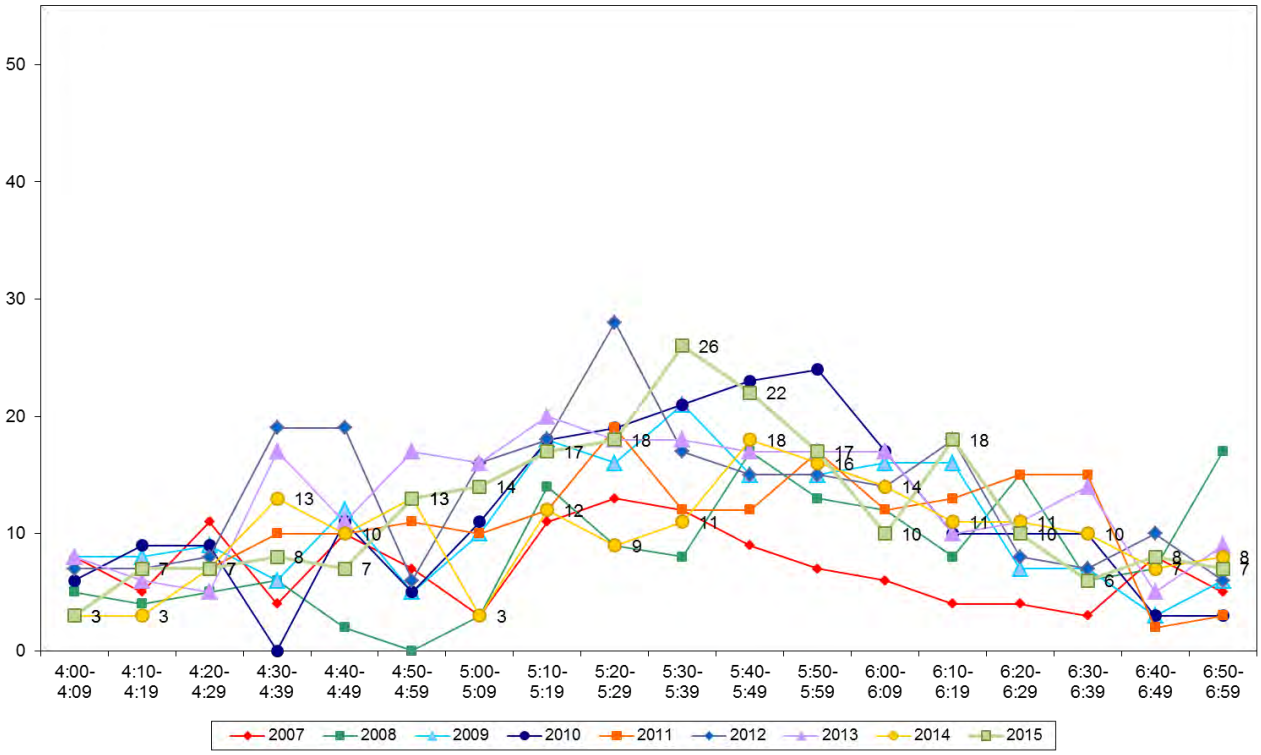
North Western Cycleway 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	91	100	99	99	100	98	96	98	**99**	**1**
School child	9	0	1	1	0	2	4	2	**1**	**-1**
Helmet Wearing										
Helmet on head	95	95	95	96	98	96	97	97	**98**	**1**
No helmet	5	5	5	4	2	4	3	3	**2**	**-1**
Gender										
Male	-	-	-	-	85	88	86	89	**83**	**-6**
Female	-	-	-	-	15	12	14	11	**15**	**4**
Can't tell	-	-	-	-	0	0	0	0	**2**	**2**
Where Riding										
Cycleway	100	100	100	100	100	100	100	100	**100**	**0**
Base:	***130***	***151***	**198**	**209**	***190***	***238***	***236***	***179***	***218***	

- Figure 11.3 below illustrates the total number of evening cyclists by time of movement in the evening shift. Cyclist volumes fluctuated throughout the monitoring period. Evening cycle volumes were highest between 5:00pm and 5:59pm. A gradual increase in volume was observed at the start of the shift, reaching a peak of 26 cyclists between 5:30pm and 5:39pm.

Figure 11.3: Evening Peak Cyclist Frequency

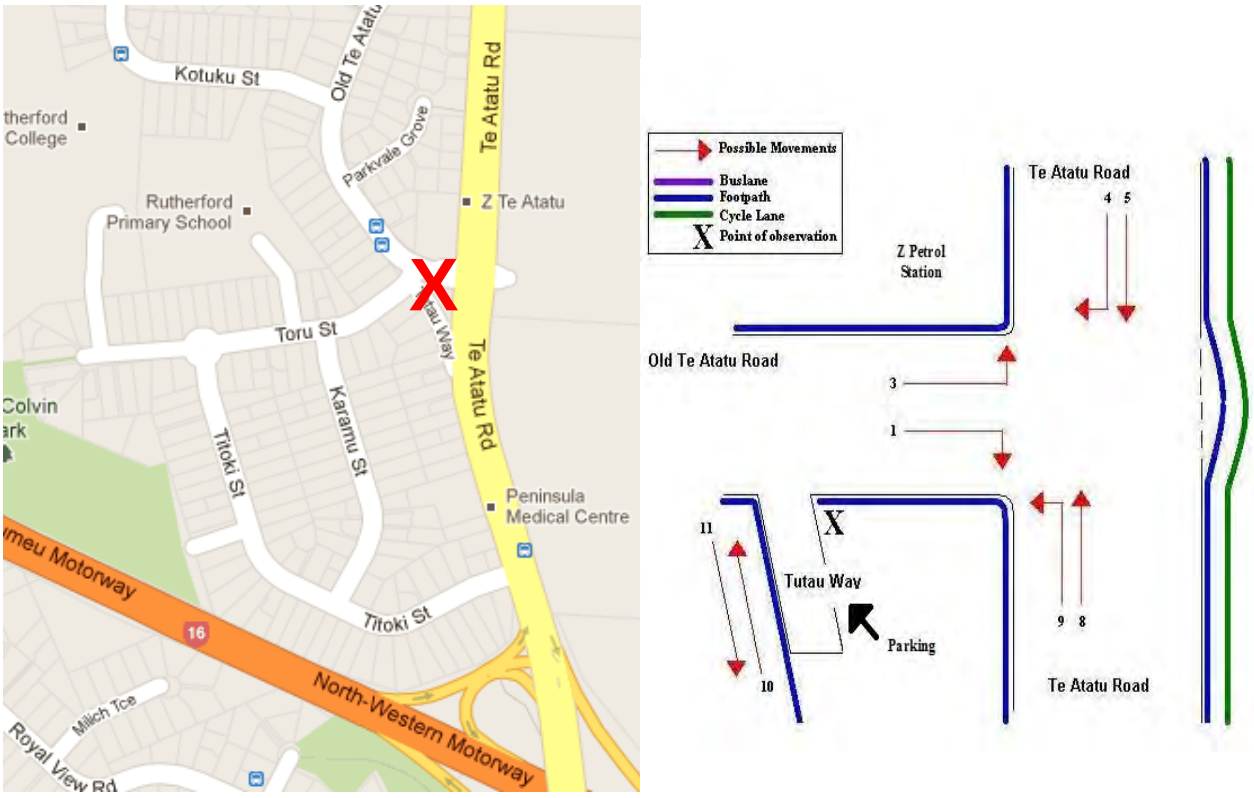
North Western Cycleway 2007 – 2015 (n)



12. TE ATATU ROAD/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 Road/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
2015	**79**	**63**	**142**	**208**

12.2 Morning Peak

Environmental Conditions

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

Key Points

- This year, morning cycle volumes at the Te Atatu Road/Old Te Atatu Road/Tatau Way site have increased, from 58 movements in 2014 to 79 movements in this year.
- The key morning movements were travelling south down Te Atatu Road (Movement 5 = 42 cyclists) and heading north on Te Atatu Road (Movement 8 = 17 cyclists).
- Of the possible 11 movements at this site, the most notable increase was at Movement 5 (up 12 cyclists).

Table 12.1: Morning Cyclist Movements

Te Atatu Road/Old Te Atatu Road/Tatau Way 2008 – 2015 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	5	1	2	6	4	5	3	**4**	**1**
2	0	0	0	0	0	0	0	**0**	**0**
3	0	0	1	0	0	0	1	**1**	**0**
4	0	0	2	1	2	2	0	**7**	**7**
5	17	27	48	28	50	42	30	**42**	**12**
6	0	0	0	0	1	0	0	**0**	**0**
7	0	0	0	0	0	0	0	**0**	**0**
8	6	3	22	10	21	22	15	**17**	**2**
9	0	2	5	11	14	12	8	**6**	**-2**
10	15	18	22	6	8	2	1	**1**	**0**
11	13	15	3	1	3	3	0	**1**	**1**
Total	**56**	**66**	**105**	**63**	**103**	**88**	**58**	**79**	**21**

- Over the morning peak, most cyclists at this site were adults (76 per cent, up from 64 per cent last year).
- Most cyclists were wearing a helmet (89 per cent, down from 97 per cent in 2014).
- Eighty-four per cent of evening peak cyclists were male.
- Three out of four cyclists were riding on the cycleway (down from 90 per cent in 2014). Nineteen per cent of cyclists were riding on the footpath and the remaining 6 per cent were riding on the road.

Table 12.2: Morning Cyclist Characteristics

Te Atatu Road/Old Te Atatu Road/Tatau Way 2008 – 2015 (%)

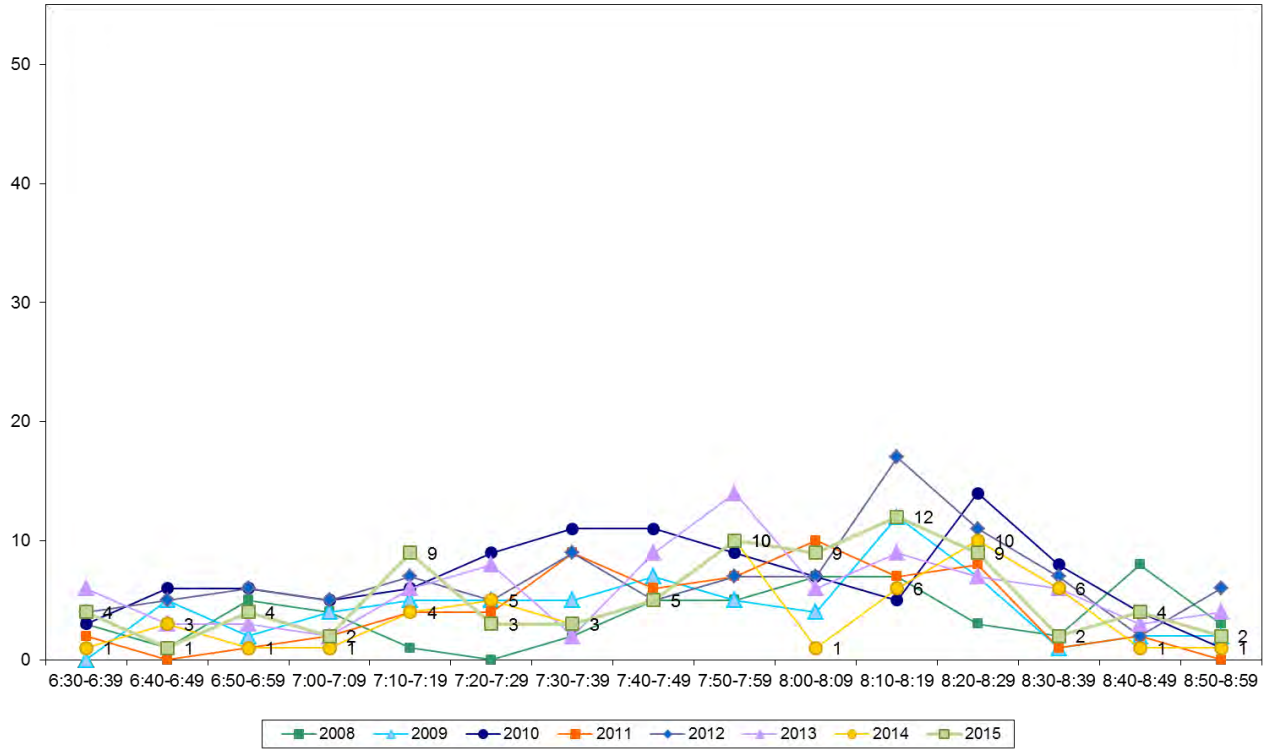
	2008	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	**Change 14-15**
Cyclist Type									
Adult	59	71	69	63	68	69	64	**76**	**12**
School child	41	29	31	37	32	31	36	**24**	**-12**
Helmet Wearing									
Helmet on head	95	91	95	97	88	93	97	**89**	**8**
No helmet	5	9	5	3	12	7	3	**11**	**-8**
Gender									
Male	-	-	-	84	83	89	91	**84**	**-7**
Female	-	-	-	11	17	9	5	**15**	**10**
Can't tell	-	-	-	5	0	2	4	**1**	**-3**
Where Riding									
Road	75	58	90	5	18	10	0	**6**	**6**
Footpath	25	42	10	27	9	15	10	**19**	**9**
Off-road cycleway	-	-	-	68	73	75	90	**75**	**-15**
Base:	***56***	***66***	***105***	***63***	***103***	***88***	***58***	***79***	

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. One trough was present between 7:10am and 7:50am. A peak of 12 cyclists was observed between 8:10am and 8:19am.

Figure 12.2: Morning Peak Cyclist Frequency

Te Atatu Road/Old Te Atatu Road/Tatau Way 2008 – 2015 (n)



Note: In 2015, a group of three cyclists rode past at 8:05am (four per cent of this site's morning cycle traffic).

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 Road/Old Te Atatu Road/Tatau Way site has decreased slightly this year to 63 movements (down from 68 movements last year).
- The most common movement in the evening was travelling straight on Te Atatu Road heading north (Movement 8 = 46 cyclists).
- The most notable change from 2014 was Movement 5, travelling straight on Te Atatu Road heading south (down 4 cyclists).

Table 12.3: Evening Cyclist Movements

Te Atatu Road/Old Te Atatu Road/Tatau Way 2008 – 2015 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	3	4	3	1	2	5	4	**1**	**-3**
2	0	0	0	0	0	0	0	**0**	**0**
3	0	0	1	1	1	0	0	**3**	**3**
4	0	0	1	1	1	1	0	**0**	**0**
5	7	7	26	14	16	21	12	**8**	**-4**
6	0	0	0	0	0	0	0	**0**	**0**
7	0	0	0	0	0	1	0	**0**	**0**
8	17	27	55	48	56	60	49	**46**	**-3**
9	2	5	2	2	5	3	1	**2**	**1**
10	20	19	6	11	6	7	1	**2**	**1**
11	6	6	8	0	3	6	1	**1**	**0**
Total	**55**	**68**	**102**	**78**	**90**	**104**	**68**	**63**	**-5**

- Over the evening peak, the greatest share of cyclists using this site were adults (95 per cent, up from 81 per cent last year). For the first time since 2011, there was a decline in the share of school children cycling (5 per cent, down from 19 per cent in 2014)
- Most cyclists at this site were wearing a helmet (90 per cent, a 3 percentage point decrease from the last measure).
- The greatest share of evening cyclists were male (84 per cent, down from 91 per cent last year).
- Four out of five cyclists at this site were riding on the off-road cycleway (80 per cent, stable from 78 in 2014).

Table 12.4: Evening Cyclist Characteristics

Te Atatu Road/Old Te Atatu Road/Tatau Way 2008 – 2015 (%)

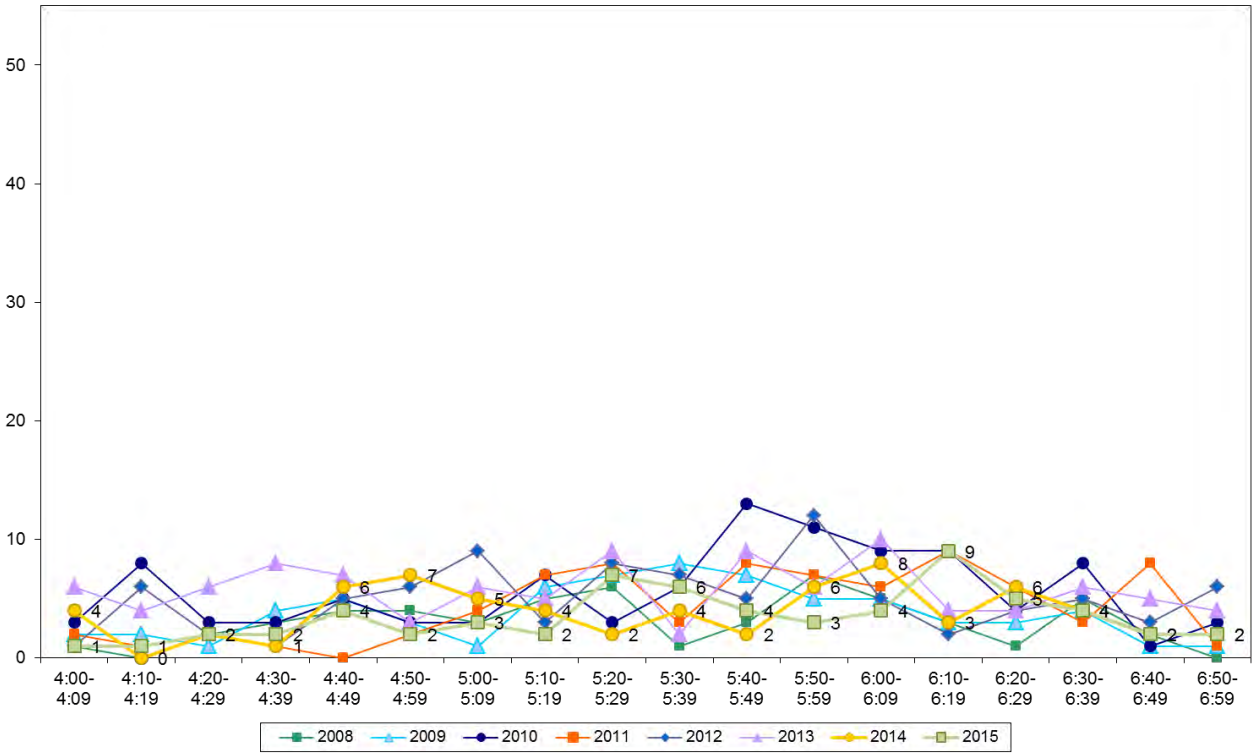
	2008	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type									
Adult	91	90	85	97	93	86	81	**95**	**14**
School child	9	10	15	3	7	14	19	**5**	**-14**
Helmet Wearing									
Helmet on head	87	84	84	94	81	90	93	**90**	**-3**
No helmet	13	16	16	6	19	10	7	**10**	**3**
Gender									
Male	-	-	-	83	86	86	91	**84**	**-7**
Female	-	-	-	9	14	14	9	**16**	**7**
Can't tell	-	-	-	8	0	0	0	**0**	**0**
Where Riding									
Road	82	49	75	12	17	15	9	**14**	**5**
Footpath	18	51	25	12	9	11	13	**6**	**-7**
Off-road cycleway	-	-	-	76	74	74	78	**80**	**2**
Base:	***55***	***68***	***102***	***78***	***90***	***104***	***68***	***63***	

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 peak. Evening cycle volumes fluctuated throughout the monitoring period, with a maximum of nine cyclists (between 6:10pm and 6:19pm) and a minimum of 1 cyclist per ten minute interval (4:00pm and 4:09pm; 4:10 and 4:19pm).

Figure 12.3: Evening Peak Cyclist Frequency

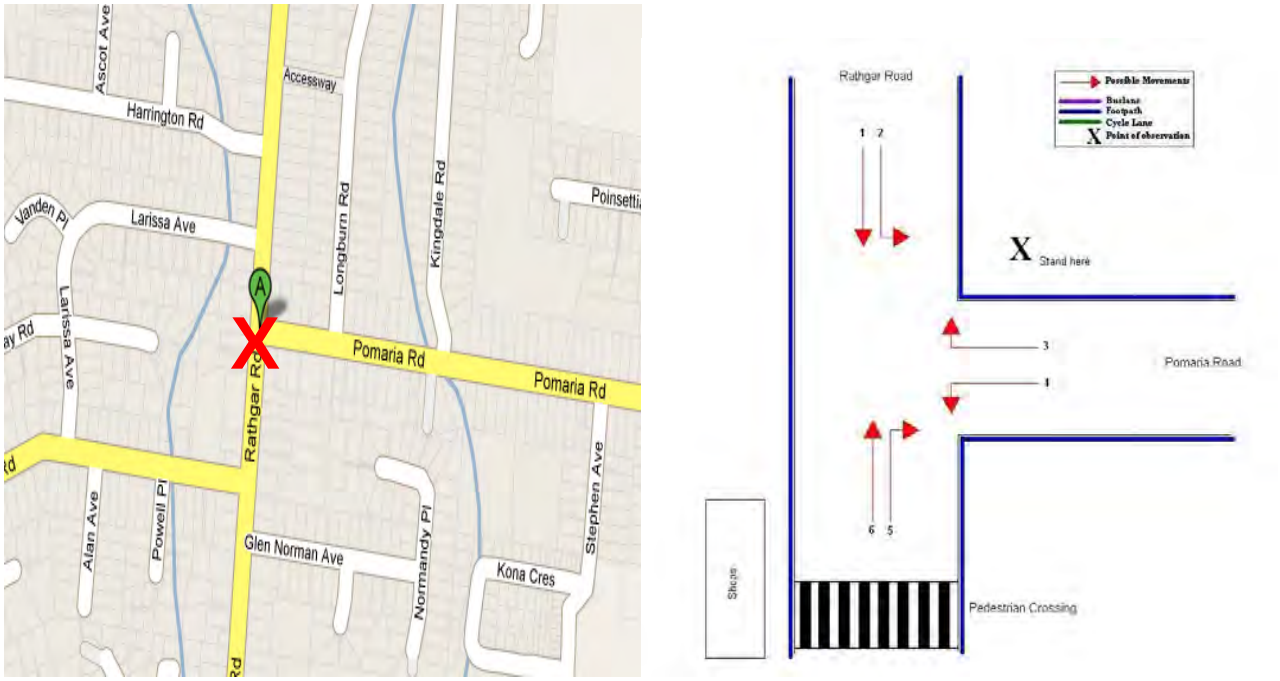
Te Atatu Road/Old Te Atatu Road/Tatau Way 2008 – 2015 (n)



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

Figure 13.1 shows the possible cyclist movements at this intersection.

Figure 13.1: Cycle Movements: Rathgar Road/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
2015	**24**	**29**	**53**	**77**

13.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- Major road works was being carried out on the odd-numbered side of Pomaria Road. The surveyor also noted that there was gravel everywhere and the road surface was very rough along Pomaria Road.
- There were no other road works or accidents that may affect cycle counts.

Key Points

- The morning cycle volume at the Rathgar Road/Pomaria Road site was 24 cyclists this year, down from 30 cycle movements in 2014.
- The key morning movement was the right turn from Rathgar Road into Pomaria Road (Movement 5 = 10 cyclists).
- The biggest change in cyclist volume occurred at Movement 1 – travelling straight on Rathgar Road heading south (down 3 movements).

Table 13.1: Morning Cyclist Movements

Rathgar Road/Pomaria Road 2009 – 2015 (n)

Movement	2009	2010	2011	2012	2013	2014	2015	Change 14-15
1	4	10	5	5	6	8	**5**	**-3**
2	3	3	1	6	3	4	**3**	**-1**
3	2	3	0	0	2	1	**0**	**-1**
4	10	15	10	7	4	1	**1**	**0**
5	12	20	15	19	21	12	**10**	**-2**
6	1	2	2	1	0	3	**5**	**2**
Don't know	0	0	0	0	0	1	**0**	**-1**
Total	**32**	**53**	**33**	**38**	**36**	**30**	**24**	**-6**

- The share of cyclists who are school children has declined notably over the last 12 months – down 67 per cent to 29 per cent. This share is more consistent with that reported in 2012 and 2013.
- Three-quarters of cyclists were wearing a helmet (stable from 73 per cent last year).
- The majority of morning cyclists were male (92 per cent, down 5 percentage points from 2014).
- The share of cyclists travelling on the footpath has decreased notably (42 per cent, down from 67 per cent in 2014).

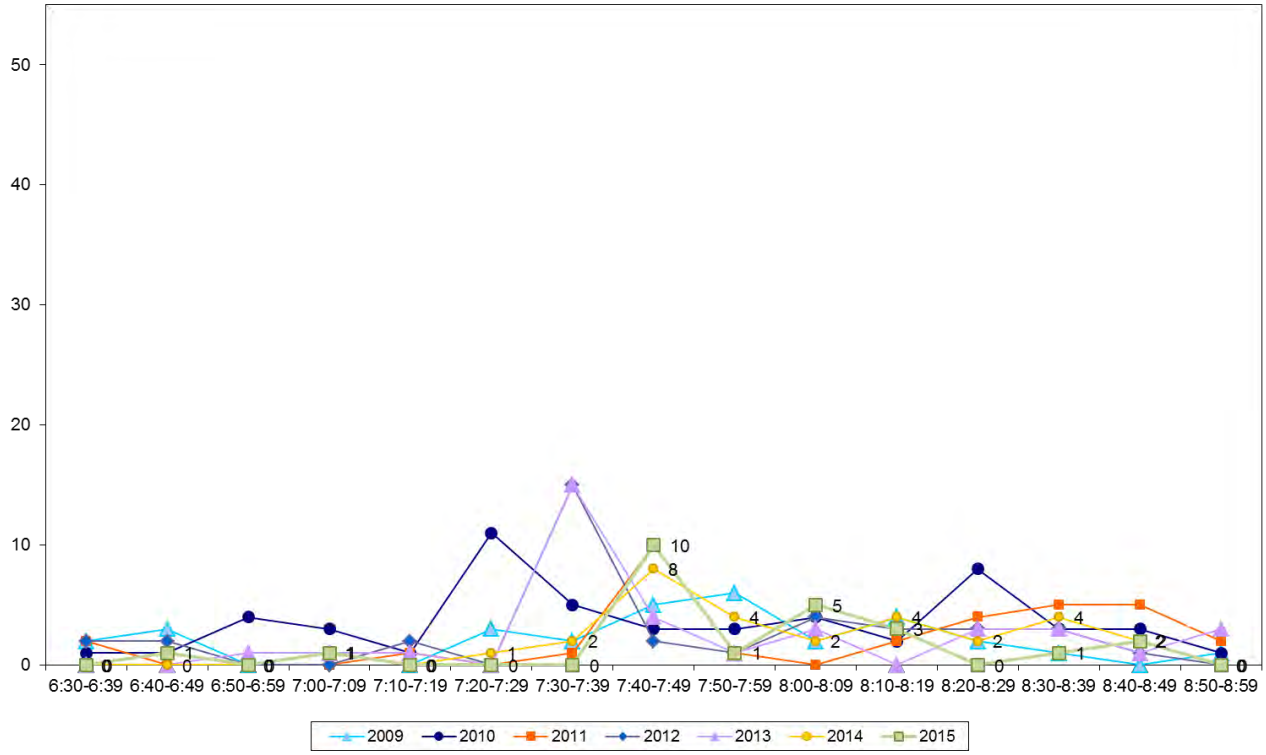
Table 13.2: Morning Cyclist Characteristics

Rathgar Road/Pomaria Road 2009 – 2015 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type								
Adult	53	75	45	71	72	33	**71**	**38**
School child	47	25	55	29	28	67	**29**	**-38**
Helmet Wearing								
Helmet on head	69	85	94	89	89	73	**75**	**2**
No helmet	31	15	6	11	11	27	**25**	**-2**
Gender								
Male	-	-	94	87	75	97	**92**	**-5**
Female	-	-	6	11	25	3	**8**	**5**
Can't tell	-	-	0	2	0	0	**0**	**0**
Where Riding								
Road	50	60	55	57	69	33	**58**	**25**
Footpath	50	40	45	43	31	67	**42**	**-25**
Base:	***32***	***53***	***33***	***38***	***36***	***30***	***24***	

- Consistent with 2014, morning cyclist volumes peaked between 7:40am and 7:49am (10 cyclists). This peak was comprised of two cycling groups. Volumes remained low throughout the remainder of the morning peak period, with no more than five cyclists per ten minute interval.

Figure 13.2: Morning Peak Cyclist Frequency
Rathgar Road/Pomaria Road 2009 – 2015 (n)



Note: In 2015, 42 per cent of the morning peak cycle movements (n=10) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following time:

- *4 cyclists at 7:40am*
- *6 cyclists at 7:48am.*

This compares with 13 per cent (n=4) in 2014 and 27 per cent (n=9) in 2013.

13.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening monitoring period.
- Major road works were being carried out on the odd-numbered side of Pomaria Road. The surveyor also noted that there was gravel everywhere and the road surface was very rough along Pomaria Road.
- From 6:20pm, the odd-numbered side of Pomaria Road was completely closed. Referring to the map above, this means no traffic was allowed from Rathgar Road onto Pomaria Road ie. Movements 2 and 5 were not allowed.
- There were no other road works or accidents that may affect cycle counts.

Key Points

- The total number of cycle movements recorded at the Rathgar Road/Pomaria Road site in the evening has increased slightly from 25 movements last year to 29 movements this year.
- The most common movement in the evening was turning left from Pomaria Road onto Rathgar Road (Movement 4 = 9 cyclists). This movement also recorded the most notable change (up 5 cyclists).

Table 13.3: Evening Cyclist Movements

Rathgar Road/Pomaria Road 2009 – 2015 (n)

Movement	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	14	10	5	8	5	8	**4**	**-4**
2	1	6	0	0	2	1	**1**	**0**
3	3	5	1	4	6	4	**7**	**3**
4	16	5	9	10	7	4	**9**	**5**
5	9	13	9	7	8	4	**3**	**-1**
6	10	7	11	6	4	4	**5**	**1**
Total	**53**	**46**	**35**	**35**	**32**	**25**	**29**	**4**

- Over the evening peak, approximately three-quarters of the cyclists using this intersection were adults (76 per cent, a notable increase from 52 per cent in 2014). Consequently, the share of school children cyclists declined notably (24 per cent, down from 48 per cent in 2014).
- Fifty-nine per cent of the cyclists using the site in the evening were wearing a helmet (down from 68 per cent on last year).
- The majority of evening peak cyclists were male (83 per cent, up from 76 per cent last year).
- The greatest share of evening cyclists continue to be riding on the footpath (66 per cent, down from 80 per cent in 2014).

Table 13.4: Evening Cyclist Characteristics

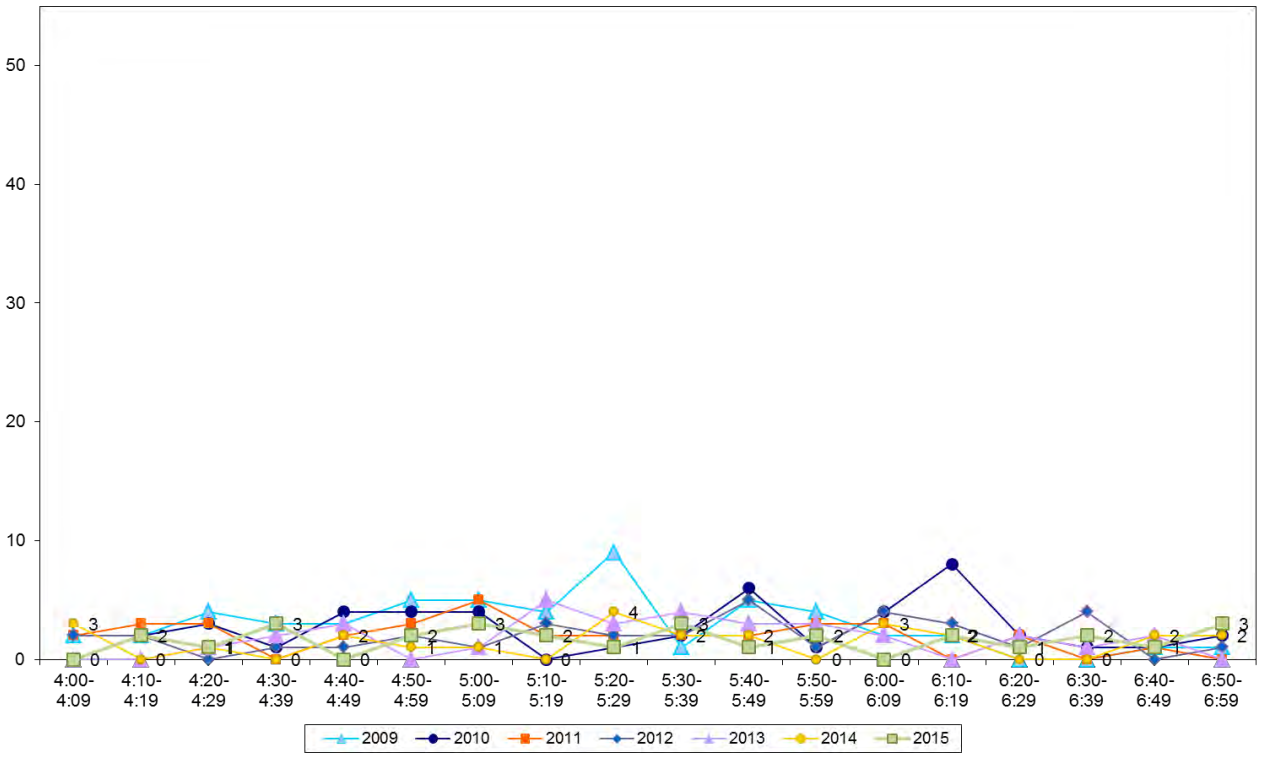
Rathgar Road/Pomaria Road 2009 – 2014 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type								
Adult	42	43	40	80	59	52	**76**	**24**
School child	58	57	60	20	41	48	**24**	**-24**
Helmet Wearing								
Helmet on head	49	46	37	74	47	68	**59**	**-9**
No helmet	51	54	63	26	53	32	**41**	**9**
Gender								
Male	-	-	83	94	72	76	**83**	**7**
Female	-	-	17	6	28	24	**17**	**-7**
Can't tell	-	-	0	0	0	0	**0**	**0**
Where Riding								
Road	32	37	31	46	34	20	**34**	**14**
Footpath	68	63	69	54	66	80	**66**	**-14**
Base:	***53***	***46***	***35***	***35***	***32***	***25***	***29***	

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

Figure 13.3: Evening Peak Cyclist Frequency

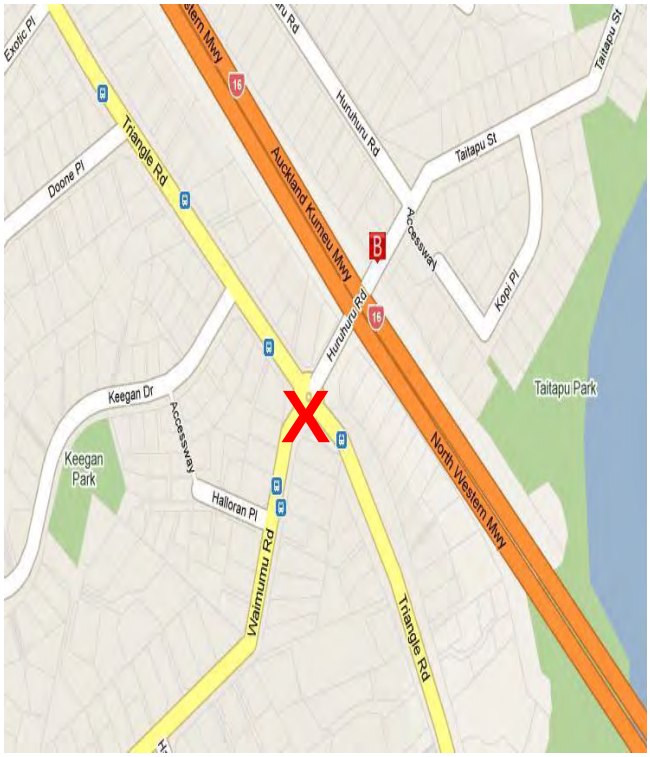
Rathgar Road/Pomaria Road 2009 – 2014 (n)

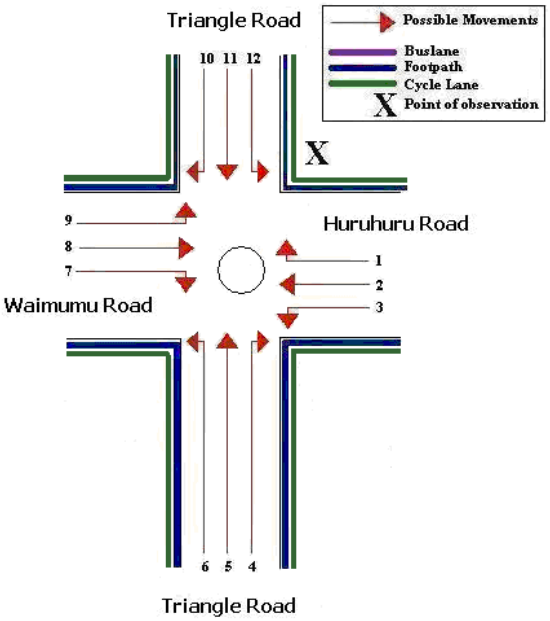


14. TRIANGLE ROAD/HURUHURU ROAD (SITE 87)

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 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
2015	**45**	**43**	**89**	**128**

14.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning peak cycle volumes at the Triangle Road/Huruhuru Road site have increased notably this year, with 45 cycle movements recorded (up from 25 movements in 2014).
- The key morning movement remained travelling straight along Triangle Road heading southeast (Movement 11 = 16 cyclists).
- Movement 5, travelling straight on Triangle Road heading north recorded the largest volume change from last year (up 6 movements).

Table 14.1: Morning Cyclist Movements

Triangle Road/Huruhuru Road 2010 – 2015 (n)

Movement	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	0	2	0	0	0	**1**	**1**
2	0	0	1	1	0	**0**	**0**
3	4	1	8	7	1	**5**	**4**
4	0	0	1	0	0	**4**	**4**
5	6	5	10	11	1	**7**	**6**
6	1	7	1	1	0	**2**	**2**
7	8	3	14	10	5	**5**	**0**
8	1	0	0	1	0	**0**	**0**
9	0	0	0	0	0	**4**	**4**
10	0	0	0	1	0	**0**	**0**
11	39	34	36	41	18	**16**	**-2**
12	0	0	0	0	0	**1**	**1**
Total	**59**	**52**	**71**	**73**	**25**	**45**	**20**

- Over the morning peak, most cyclists were adults (93 per cent, up from 88 per cent in 2014).
- Almost all cyclists were wearing a helmet (93 per cent, up from 88 per cent last year).
- The majority of cyclists at this site were male (91 per cent, stable from 92 per cent in 2014).
- Thirty-eight per cent of cyclists were riding on the off-road cycle way (a 2 percentage point decrease from 2014). The remaining 62 per cent of cyclists travelled on the road.

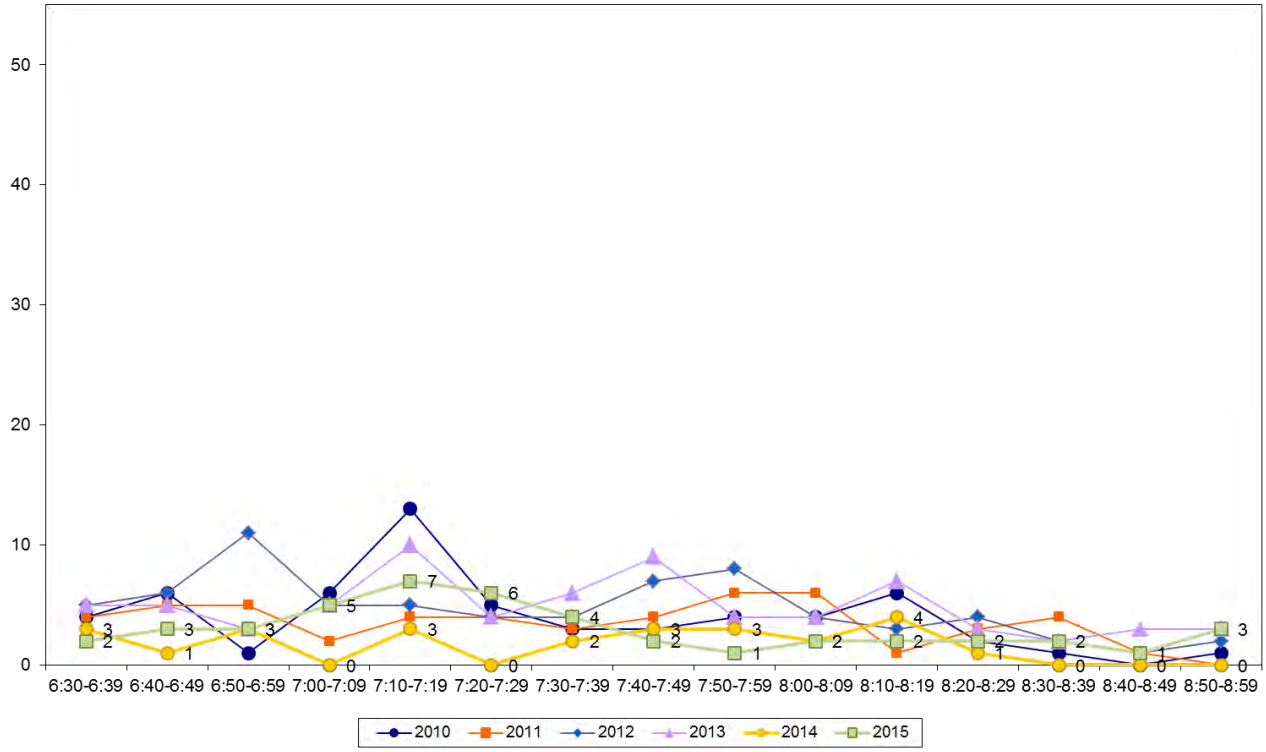
Table 14.2: Morning Cyclist Characteristics

Triangle Road/Huruhuru Road 2010 – 2015 (%)

	2010	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type							
Adult	95	77	87	92	88	**93**	**5**
School child	5	23	13	8	12	**7**	**-5**
Helmet Wearing							
Helmet on head	97	96	92	93	88	**93**	**5**
No helmet	3	4	8	7	12	**7**	**-5**
Gender							
Male	-	73	89	88	92	**91**	**-1**
Female	-	15	11	12	8	**9**	**1**
Can't tell	-	12	0	0	0	**0**	**0**
Where Riding							
Road	95	71	60	56	60	**62**	**2**
Footpath	5	2	15	0	0	**0**	**0**
Off-road cycle way	-	27	25	44	40	**38**	**-2**
Base:	***59***	***52***	***71***	***73***	***25***	***45***	

- Morning cycle volumes remained low throughout the morning period. The highest number of cyclists recorded at any ten minute interval was between 7:10am to 7:19am with seven cycle movements.

Figure 14.2: Morning Peak Cyclist Frequency
Triangle Road/Huruhuru Road 2010 – 2015 (n)



Note: In 2015, no group cyclists or pelotons rode past in the morning. This compares with 12 per cent of morning peak cyclists in 2014 (n=3) and 4 per cent in 2013 (n=3).

14.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded at the Triangle Road/Huruhuru Road site in the evening has remained stable since last year, with 43 movements recorded (41 movements recorded in 2014).
- Consistent with previous years, the most common movement in the evening was straight along Triangle Road heading north (Movement 5 = 17 cyclists).
- The most notable changes were at Movement 3 (up 7 movements from last year) and Movement 5 (down 6 cyclists).

Table 14.3: Evening Cyclist Movements

Triangle Road/Huruhuru Road 2010 – 2015 (n)

Movement	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	1	0	0	0	0	**0**	**0**
2	1	0	2	0	0	**0**	**0**
3	5	2	0	1	0	**7**	**7**
4	4	3	7	6	3	**2**	**-1**
5	39	39	60	47	23	**17**	**-6**
6	9	6	14	12	9	**5**	**-4**
7	3	1	5	1	3	**1**	**-2**
8	1	0	0	0	0	**1**	**1**
9	2	2	4	2	0	**3**	**3**
10	0	5	2	0	0	**1**	**1**
11	13	10	10	11	2	**5**	**3**
12	0	1	2	0	0	**1**	**1**
Don't know	0	0	0	0	1	**0**	**-1**
Total	**78**	**69**	**106**	**80**	**41**	**43**	**2**

- Over the evening peak, the majority of cyclists using this intersection were adults (86 per cent last, down from 100 per cent last year).
- Almost all cyclists using the site in the evening were wearing a helmet (88 per cent, unchanged from 2014).
- The majority of evening cyclists were male (91 per cent, up from 83 per cent in 2014).
- Sixty-seven per cent of evening cyclists were riding on the road (down from 71 per cent in 2014). There was a slight increase in cyclists travelling on the off-road cycleway (33 per cent, up from 29 per cent last year).

Table 14.4: Evening Cyclist Characteristics

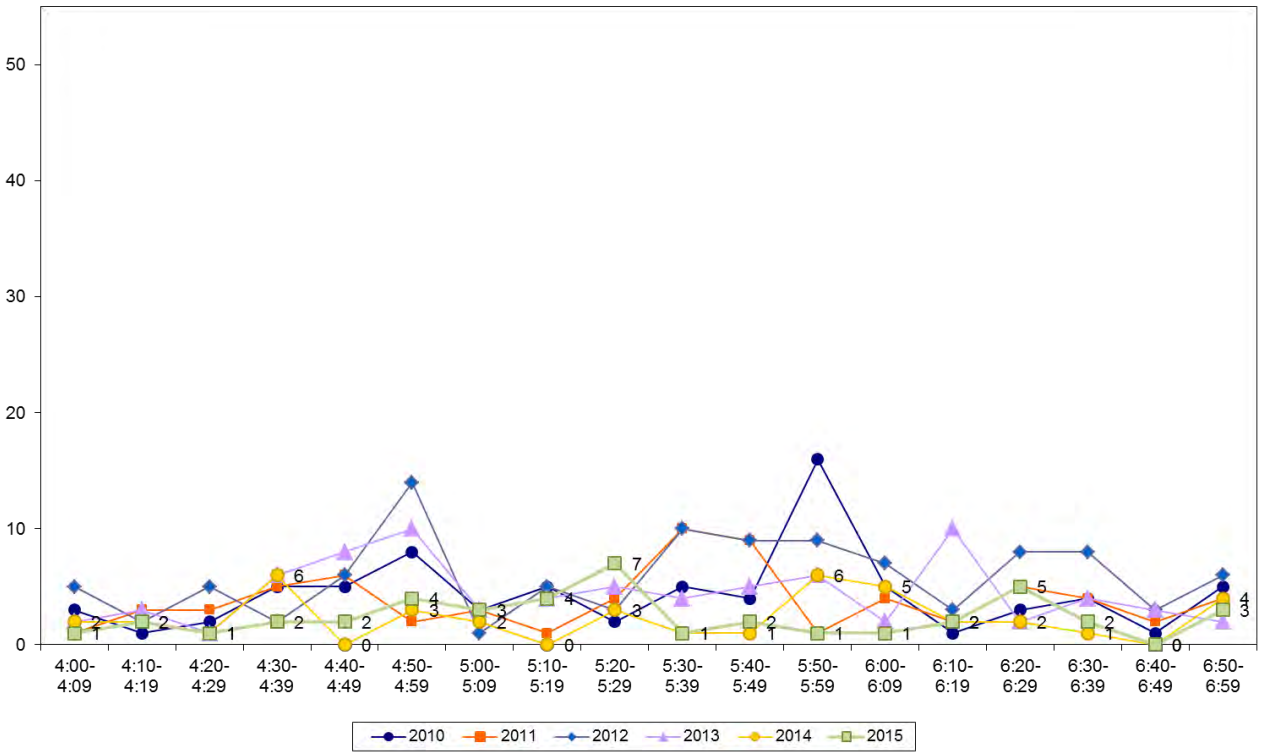
Triangle Road/Huruhuru Road 2010 – 2015 (%)

	2010	***2011***	***2012***	***2013***	***2014***	***2015***	**Change 14-15**
Cyclist Type							
Adult	77	80	75	97	100	**86**	**-14**
School child	23	20	25	3	0	**14**	**14**
Helmet Wearing							
Helmet on head	76	84	89	94	88	**88**	**0**
No helmet	24	16	11	6	12	**12**	**0**
Gender							
Male	-	87	80	91	83	**91**	**8**
Female	-	13	11	8	17	**9**	**-8**
Can't tell	-	0	9	1	0	**0**	
Where Riding							
Road	71	74	72	85	71	**67**	**-4**
Footpath	29	0	7	0	0	**0**	**0**
Off-road cycle way	-	26	21	15	29	**33**	**4**
Base:	***78***	***69***	***106***	***80***	***41***	***43***	

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

Figure 14.3: Evening Peak Cyclist Frequency

Triangle Road/Huruhuru Road 2010 – 2014 (n)



Note: In 2015, 19 per cent of the evening peak cycle movements (n=8) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following time:

- *4 cyclists at 5:21pm*
- *4 cyclists at 6:27pm.*

This compares with no cycle groups in 2014 and 11 per cent of evening peak cyclists in 2013 (n=9).

15. WEST HARBOUR FERRY WHARF

No cycle counts were undertaken at the West Harbour ferry wharf in 2015.

16. SCHOOL BIKE SHED COUNT

16.1 Cycle Count Background Information

- A total of 19 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[10].
- No schools surveyed reported any events or issues that may affect the cycle counts.
- The designated count day was Tuesday 3rd of March 2015[11].

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, two per cent of students are cycling to their schools. This share is up from 1 per cent in 2014.
- Lincoln Heights School reported the highest share of cyclists – 23 per cent of all eligible students currently cycling to school. This share has increased notably from 4 per cent in 2014.
- In total, n=231 students from the responding schools were reported to be cycling to school.
- Of the 19 schools that responded, 6 (32 per cent) had no students cycling to school.
- Of the 17 schools that participated in the count in both 2014 and 2015, 6 (35 per cent) reported an increase in the share of students cycling, the most notable increases being:
  - Lincoln Heights School (23 per cent, up from 4 per cent)
  - Rangeview Intermediate (5 per cent, up from 1 per cent).
  - Titirangi Rudolf Steiner School (3 per cent, up from 0 per cent).
- Of the 17 schools that participated in the count in both 2014 and 2015, 3 (18 per cent) reported a decrease in the share of students cycling.

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

[10] The following school have policies surrounding cycling to school:
- Lincoln Heights School *"Years 5 to 8 may ride with permission."*

[11] The following schools conducted their counts on alternative days:
- Birdwood School – 20th March 2015
- Don Buck School – 6th March 2015
- Lincoln Heights School – 10th March 2015
- Liston College – 9th March 2015
- Massey High School – 11th March 2015
- Nga Kakano Christian Reo Rua Kura – 9th March 2015
- Royal Road School – 5th March 2015
- Rutherford College – 4th March 2015
- Titirangi Rudolf Steiner School – 6th March 2015

Table 16.1: Summary Table of School Bike Count

2007 – 2015 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[12]								
				2015	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Lincoln Heights School	Full Primary	184	42	**23%**	4%	2%	0%	0%	-	-	-	-
Te Atatu Intermediate	Intermediate	340	44	**13%**	-	8%	9%	8%	8%	9%	7%	10%
Rangeview Intermediate	Intermediate	590	31	**5%**	1%	4%	3%	-	-	-	-	-
Henderson Intermediate	Intermediate	512	21	**4%**	-	3%	4%	-	-	-	-	-
Bruce McLaren Intermediate	Intermediate	215	8	**4%**	2%	2%	1%	<1%	3%	4%	2%	2%
Titirangi Rudolf Steiner School	Full Primary	77	2	**3%**	0%	0%	0%	0%	0%	0%	0%	0%
Liston College	Intermediate/Secondary	750	19	**3%**	4%	1%	3%	-	-	-	-	-
Henderson High School	Secondary	650	15	**2%**	3%	1%	1%	-	-	-	-	-
Rutherford College	Secondary	1380	29	**2%**	2%	3%	4%	-	-	-	-	-
ACG Sunderland	Composite	293	3	**1%**	1%	3%	2%	<1%	4%	2%	1%	-
Birdwood School	Full Primary	211	2	**1%**	<1%	2%	0%	0%	-	-	-	-
Massey High School	Secondary	2012	13	**1%**	<1%	1%	-	-	<1%	1%	1%	1%
West Harbour School	Full Primary	347	2	**1%**	1%	0%	-	-	-	-	-	-
Don Buck Primary School	Full Primary	231	0	**0%**	0%	0%	0%	0%	-	-	-	-
Massey Primary School	Full Primary	410	0	**0%**	0%	<1%	-	-	-	-	-	-
Ngā Kakano Christian Reo Rua Kura	Composite	85	0	**0%**	0%	0%	6%	2%	-	6%	7%	7%
Royal Road School	Full Primary	279	0	**0%**	0%	0%	0%	0%	-	-	-	-
St Dominic's College	Intermediate/Secondary	900	0	**0%**	0%	0%	0%	0%	-	<1%	<1%	<1%
Te Kura Kaupapa Māori o Hoani Waititi Marae	Composite	168	0	**0%**	2%	0%	0%	2%	2%	0%	0%	-
Total		**9634**	**231**	**2%**	**1%**	**2%**	**2%**	**1%**	**-**	**-**	**-**	**-**

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

Table 16.2 illustrates the rates of cycling to school at different school levels. The highest rate of school cycling this year was 6 per cent, observed among intermediate schools.

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

2007 – 2015 (%)

School Types	*Number of Schools Responded in 2015*	*Cyclists as share of those eligible*									Change 14-15
		2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	
Intermediate	4	6%	5%	5%	4%	3%	3%	4%	2%	**6%**	**4%**
Full Primary	7	-	-	-	-	1%	1%	1%	1%	**3%**	**2%**
Composite	3	7%	3%	3%	3%	1%	2%	1%	1%	**1%**	**0%**
Intermediate/Secondary	2	<1%	<1%	<1%	-	0%	1%	1%	2%	**1%**	**-1%**
Secondary		0%	0%	0%	0%	0%	2%	2%	1%	**1%**	**0%**

16.3 Scooter Count Background Information

- A total of 18 schools in the Waitakere ward participated in the school bike shed scooter count. Of the schools that responded to the survey, no schools had policies that restrict students scooting to school.
- No schools surveyed reported any events or issues that may affect the scooter counts.
- The designated count day was Tuesday 3rd of March 2015[13].

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 scooting to their schools. This share is unchanged from 2014.
- Lincoln Heights School reported the highest share of scooters – 16 per cent of all eligible students currently scooting to school, up from 4 per cent in 2014.
- In total, n=124 students from the responding schools were reported to be scooting to school.
- Of the 18 schools that responded, 10 (56 per cent) had no students scooting to school.
- Of the 16 schools that participated in the count in both 2014 and 2015, 5 (31 per cent) reported an increase in the share of students cycling, the most notable increases being:
  - Lincoln Heights School (16 per cent, up from 4 per cent)
  - Bruce McLaren Intermediate (12 per cent, up from 6 per cent).
  - Nga Kakano Christian Reo Rua Kura (6 per cent, up from 0 per cent).

[13] The following schools conducted their counts on alternative days:
- Birdwood School – 20th March 2015
- Don Buck School – 6th March 2015
- Lincoln Heights School – 10th March 2015
- Liston College – 9th March 2015
- Massey High School – 11th March 2015
- Nga Kakano Christian Reo Rua Kura – 9th March 2015
- Royal Road School – 5th March 2015
- Rutherford College – 4th March 2015
- Titirangi Rudolf Steiner School – 6th March 2015

Table 16.3 shows the results of the 18 schools surveyed in the Waitakere ward.

Table 16.3: Summary Table of School Scooter Count

2014 – 2015 (n)

School Name	*School Type*	*School Roll Eligible To Scooter*	*No. of Scooters Counted*	*Scooters as share of those eligible*[14]	
				2015	*2014*
Lincoln Heights School	Full Primary	400	64	**16%**	4%
Bruce McLaren Intermediate	Intermediate	215	25	**12%**	6%
Nga Kakano Christian Reo Rua Kura	Composite	85	5	**6%**	0%
Te Atatu Intermediate	Intermediate	340	10	**3%**	-
Royal Road School	Full Primary	279	5	**2%**	0%
Henderson Intermediate	Intermediate	512	8	**2%**	-
Massey Primary School	Full Primary	410	3	**1%**	0%
Liston College	Intermediate/ Secondary	750	4	**1%**	1%
ACG Sunderland	Composite	293	0	**0%**	0%
Birdwood School	Full Primary	211	0	**0%**	0%
Don Buck School	Full Primary	231	0	**0%**	0%
Henderson High SChool	Secondary	650	0	**0%**	0%
Massey High School	Secondary	2012	0	**0%**	0%
Rangeview Intermediate	Intermediate	590	0	**0%**	0%
St Dominic's College	Intermediate/ Secondary	900	0	**0%**	0%
Te Kura Kaupapa Maori o Hoani Waititi Marae	Composite	168	0	**0%**	1%
Titirangi Rudolf Steiner School	Full Primary	182	0	**0%**	0%
West Harbour School	Full Primary	347	0	**0%**	0%
Total		**8575**	**124**	**1%**	**1%**

[14] 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 scooting to school at different school levels. Rates of scooting to school are highest for the intermediate schools (3 per cent).

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

2014 – 2015 (%)

School Type	***Number of Schools Responded in 2015 (n)***	***Scooter riders as share of those eligible***		**Change 14-15**
		2014	***2015***	
Full Primary	7	1%	**3%**	**2%**
Intermediate	4	3%	**3%**	**0%**
Composite	3	<1%	**1%**	**<1%**
Intermediate/Secondary	2	<1%	**<1%**	**0%**
Secondary	2	0%	**0%**	**0%**

APPENDIX

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[15] 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)[16], 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.

[15] Annual average daily traffic

[16] 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%