

2013 Auckland Region Manual Cycle Monitor

- Waitakere Ward -





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1. WAITAKERE SUMMARY OF RESULTS

1.1 Introduction

The Need For Reliable Cycle Trip Data

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

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

Manual Cycle Monitoring

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

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

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

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



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

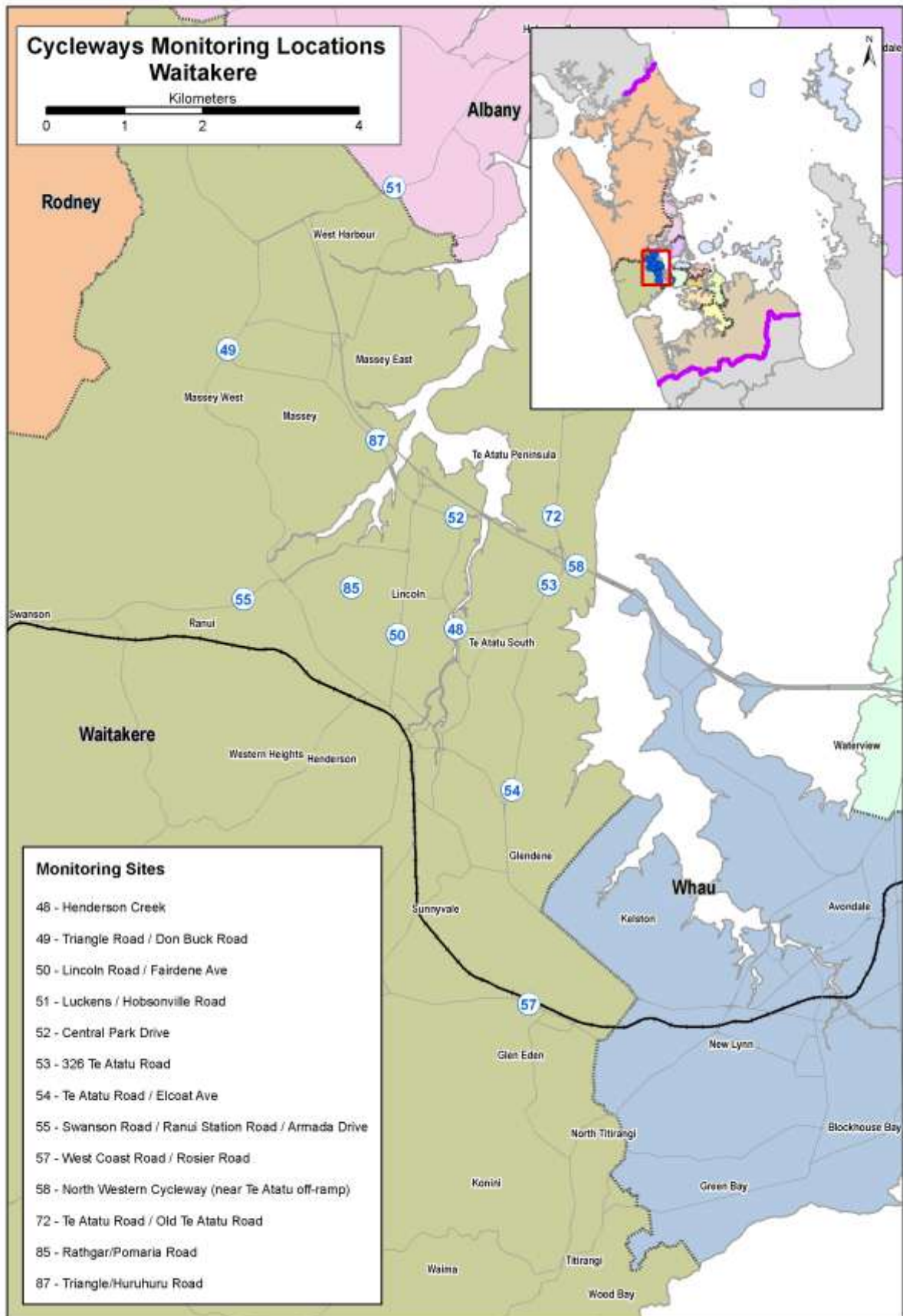
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

This report presents results from manual cycle counts conducted at 13 sites in the Waitakere ward following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a ward and region level. For sites also monitored in previous years

Important Note: This report provides the results of manual cycle monitoring conducted at 13 pre-determined sites in the Waitakere ward only. Site-by-site results and ward summaries for all other Auckland region wards have been provided in separate documents. It is strongly recommended that this report be read in conjunction with the Regional Summary document, which provides aggregated data for the region, as well as a regional comparison of results.

Figure 1.1 shows the locations of the monitoring sites in the Waitakere ward. Note that one site (Luckens/Hobsonville Road in West Harbour - Site 51) lies on the border with the Albany ward. Consequently results for this site have been included in both ward reports.

Figure 1.1: 2013 Cycle Monitoring Locations in Waitakere Ward





1.2 Method

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

Choice of Sites

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

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

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

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

Monitoring Times

Time Of Day

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

Day Of Week

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



Time Of Year

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

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

It was agreed that manual counts would commence on Tuesday the 5th of March and be conducted on the first three fine days of the 5th, 6th, 7th, 12th, 13th, or 14th of March.

Counts were conducted on the following days:

- Tuesday 5th March Albany, North Shore, Waitakere
- Wednesday 6th March Howick, Franklin, Manukau, Waitemata & Gulf
- Thursday 7th March Whau, Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki

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

Weather and Daylight Conditions

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



The weather on the four count days in 2013 was as follows:

Tuesday 5th March

- Sunrise: 7:10am; Sunset: 7:55pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with a few sites experiencing light drizzle in the morning and cloud in the evening.

Wednesday 6th March

- Sunrise: 7:11am; Sunset: 7:53pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with clear sky in the morning and evening shifts.

Thursday 7th March

- Sunrise: 7:12am; Sunset: 7:52pm.
- Highest temperature: 26.0 degrees Celsius.
- Mostly fine weather with some clouds for some sites 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 team³.

During their shift the surveyor collected data on:

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

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

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

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



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

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

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

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

It is acknowledged that the number of cyclists using a site varies by time of day, day of the week and week of the year, and therefore it is not valid to simply multiply manual count data collected over a certain (relatively brief) period out to represent a full day, week or year. However, according to Land Transport New Zealand⁶, Annual Average Daily Traffic (AADT) analysis can be used to estimate the average annual daily flow of cyclists from manual and automated cycle counts conducted at one point in time. The procedure involves deriving scale factors, which account for the time of day, day of the week, and week of the year (which varies with school holidays and season) as well as weather conditions on the count day. These scale factors are then applied to the count data collected to give an AADT estimate.

Using the manual count figures for each site, it has been possible to provide the average annual daily traffic flow of cyclists (cycling AADT) estimate for each site. AADT scale factors (morning and afternoon) were provided by ViaStrada⁷.

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

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



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

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

School Bike Shed Counts

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

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

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

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.

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



2. This email was then sent to all eligible schools in Auckland region (n=306) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.
3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 5th 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 2013, 283 responses were received, a response rate of 92 per cent. (This compares with 74 per cent in 2012).

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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



Bike Shed Counts

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

1.3 Summary of Results

This summary contains the aggregated results of the 13 sites surveyed in the Waitakere ward. It is split into four sections – a summary of results for the morning peak period (6:30am to 9:00am), a summary for the evening peak period (4:00pm to 7:00pm), a summary of aggregated results (morning and evening combined) and a summary of the results from the school bike shed counts.

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

Note: Surveying in the Waitakere ward was undertaken on Tuesday 5th of March, 2013⁹. Sunrise was at 7:10am and sunset was at 7:55pm. The highest temperature was 24 degrees Celsius.

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



1.4 Morning Peak

Environmental Conditions

- All sites had overcast weather throughout the monitoring period, and most experienced light showers or drizzle at various times over the shift.
- At Triangle Rd/Don Buck Rd (Site 49), there was road works and the cycleway lane was closed off.
- At West Coast Rd/Rosier St (Site 57), there were cones in front of the takeaway shop, blocking the footpath.
- At Luckens/Hobsonville Rd (Site 51), a cyclist at 7:16am had to ride on the road because a bus was stopped on the cycleway.
- There were no other road works or accidents that may affect cycle counts in the morning.

Key Points

- A total of 870 cyclist movements were recorded across the 13 sites monitored in the morning peak period (between 6:30am and 9:00am) in 2013. This represents a 7 per cent increase from the 2012 result (811 movements).
- Six per cent (n=53) of the movements were made by cyclists riding as groups. This compared with seven per cent (n=60) in 2012.
- The average number of cycle movements per site has increased from 62 in 2012 to 67 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 (218 movements, also the highest traffic volume recorded at this site since monitoring began).
- Te Atatu Road/Elcoat Avenue had the lowest level of morning cyclist traffic (20 cycle movements, the lowest volume recorded at this site since monitoring began).
- Eight sites have recorded increases in cycle volume over the last 12 months. The most noticeable increases were at:
 - Swanson/Ranui Station Road/Armada Drive – 81 per cent
 - Triangle Road/Don Buck Road, Massey – 53 per cent.
- The other five sites have recorded declines over the last 12 months, the most noticeable decrease being Te Atatu Road/Elcoat Avenue – down 41 per cent.



**Table 1.1: Summary of Morning Cyclist Movements
2007 – 2013 (n)**

Site No	Locations	2007	2008	2009	2010	2011	2012	2013	Change 12-13 (%)	Change 07-13 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	102	121	157	179	155	187	218	17%	114%
52	Central Park Drive, Henderson	61	68	91	94	100	112	135	21%	121%
53	326 Te Atatu Road (Near Covil Ave)	44	52	79	65	73	75	76	1%	73%
55	Swanson/Ranui Station Road/Armada Drive	15	21	37	34	47	27	49	81%	227%
49	Triangle Road/Don Buck Road, Massey	24	29	21	27	35	30	46	53%	92%
51	Luckens/Hobsonville Road	20	25	26	41	14	42	44	5%	120%
50	Lincoln Road/Fairdene Avenue	13	19	21	21	26	34	31	-9%	138%
48	Henderson Creek	14	11	27	38	24	39	30	-23%	114%
57	West Coast/Rosier Road, Glen Eden	19	18	28	31	25	19	24	26%	26%
54	Te Atatu Road/Elcoat Avenue	26	27	37	30	30	34	20	-41%	-23%
	Average per site (10 sites since 2007)	34	39	52	56	53	60	67	12%	97%
	Total (10 sites since 2007)	338	391	524	560	529	599	673	12%	99%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	56	66	105	63	103	88	-15%	-
85	Rathgar/Pomaria Road	-	-	32	53	33	38	36	-5%	-
	Average per site (11 sites in 2008, 12 sites in 2009)	-	41	52	58	52	62	66	6%	-
	Total (11 sites in 2008, 12 sites in 2009)	-	447	622	698	625	740	797	8%	-
87	Triangle/Huruhuru Road	-	-	-	59	52	71	73	3%	-
	Average per site (13 sites since 2010)	-	-	-	58	52	62	67	8%	-
	Total (13 sites since 2010)	-	-	-	757	677	811	870	7%	-



- Overall, 84 per cent of cyclists in the morning peak were adults (up slightly from 81 per cent last year).
- Almost all morning cyclists were wearing a helmet across the Waitakere sites (91 per cent, unchanged since 2011).
- Nearly all the morning cyclists were male (86 per cent).
- Forty-five per cent of morning cyclists were riding on an off-road cycleway, 33 per cent were riding on the road, and the remaining 22 per cent were riding on the footpath. The ratio and percentages were stable from last year's result.

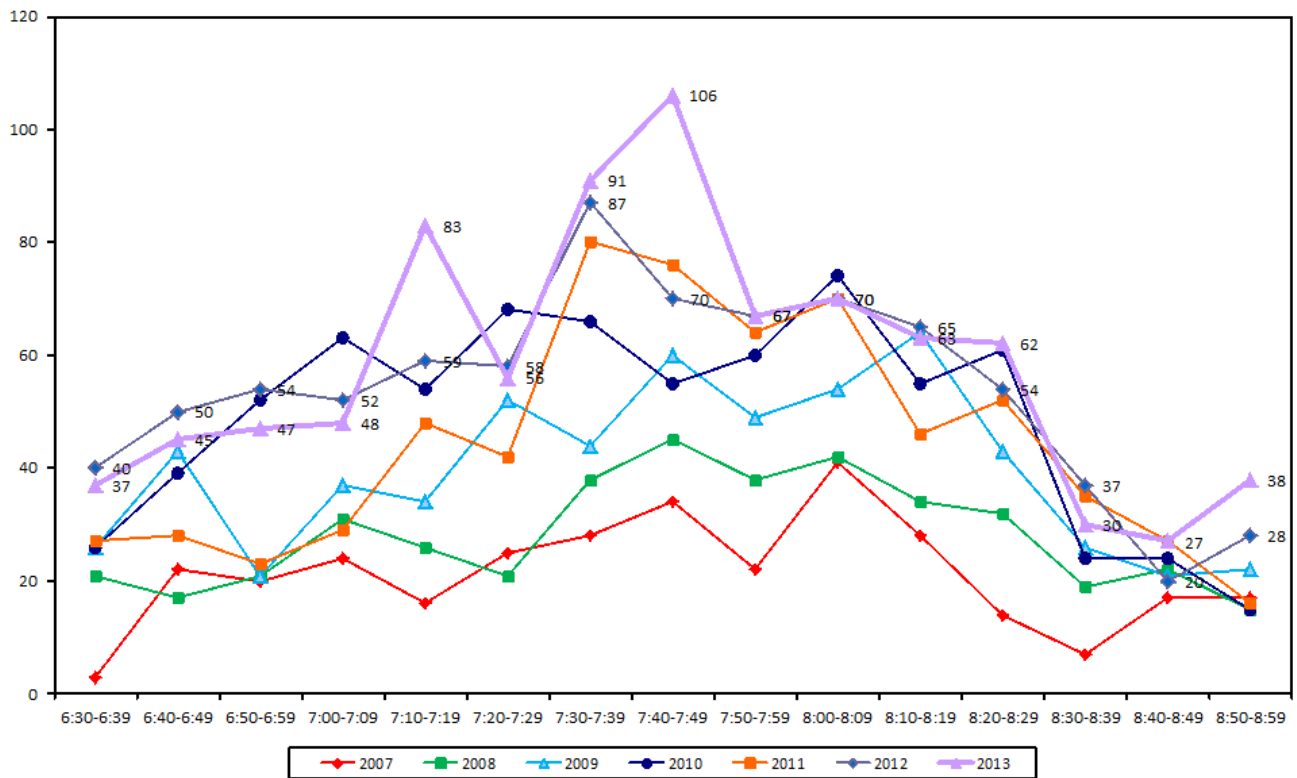
**Table 1.2: Summary of Morning Cyclist Characteristics
2007 – 2013 (%)**

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



- 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 peak of 83 movements between 7:10am to 7:19am. Half an hour later it peaked again (between 7:40am and 7:49am) with 106 movements, then decreased throughout the remainder of the morning peak. The overall trend resembled that in 2012.

**Figure 1.2: Total Cyclist Frequency – Morning Peak
2007 – 2013 (n)**





1.5 Evening Peak

Environmental Conditions

- The weather was overcast throughout the evening shift, and most sites experienced drizzle at various times between 4:00pm to 5:45pm.
- At Triangle Rd/Don Buck Rd (Site 49), there was road works at Don Buck Road and cones were put out.
- There were no other road works or traffic accidents that may affect cycle counts in the evening.

Key Points

- A total of 984 cyclist movements were recorded across the 13 sites in the evening peak period (between 4:00pm and 7:00pm) in 2013. This represents a four per cent decrease from the 2012 result (1026 movements).
- Four per cent (n=42) of the movements were made by cyclists riding as groups. This compares with eight per cent (n=81) in 2012.
- The average volume of evening cyclists across the 13 sites monitored in Waitakere since 2010 was 76 cycle movements. This represents a four per cent decrease from last year.
- Consistent with the morning peak, the North Western Cycleway near the Te Atatu Road off-ramp continued to be the busiest in terms of the evening cyclists' activity, with 236 cycle movements recorded. By contrast, the lowest level of evening cyclist traffic was at the Te Atatu Road/Elcoat Avenue intersection (24 cycle movements).
- Five sites recorded increases this year compared to 2012. These increases were most noticeable at:
 - West Coast/Rosier Road – up 68 per cent;
 - 326 Te Atatu Road (Near Covil Ave) – up 28 per cent
- In contrast, the other eight sites all experienced declines in evening cycle volume, with Henderson Creek showing the biggest decrease of 27 per cent.



**Table 1.3: Summary of Evening Cyclist Movements
2007 – 2013 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	Change 12-13 (%)	Change 07-13 (%)
58	North Western cycleway/near Te Atatu Road off-ramp	130	151	198	209	190	238	236	-1%	82%
52	Central Park Drive, Henderson	66	89	121	106	112	134	138	3%	109%
53	326 Te Atatu Road (Near Covil Ave)	43	55	59	62	54	60	77	28%	79%
55	Swanson/Ranui Station Road/Armada Drive	47	65	66	68	85	88	67	-24%	43%
51	Luckens/Hobsonville Road	12	16	51	54	38	70	60	-14%	400%
48	Henderson Creek	32	19	46	46	42	77	56	-27%	75%
49	Triangle Road/Don Buck Road, Massey	43	32	35	63	53	53	41	-23%	-5%
50	Lincoln Road/Fairdene Avenue	27	36	22	35	28	33	37	12%	37%
57	West Coast/Rosier Road, Glen Eden	29	19	34	29	35	19	32	68%	10%
54	Te Atatu Road/Elcoat Avenue	24	18	32	22	18	23	24	4%	0%
	Average per site (10 sites since 2007)	45	50	66	69	66	80	77	-4%	71%
	Total (10 sites since 2007)	453	500	664	694	655	795	768	-3%	70%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	55	68	102	78	90	104	16%	-
85	Rathgar/Pomaria Road	-	-	53	46	35	35	32	-9%	-
	Average per site (11 sites in 2008, 12 sites in 2009)	-	50	65	70	64	77	75	-3%	-
	Total (11 sites in 2008, 12 sites in 2009)	-	555	785	842	768	920	904	-2%	-
87	Triangle/Huruhuru Road	-	-	-	78	69	106	80	-25%	-
	Average per site (13 sites in 2010)	-	-	-	71	64	79	76	-4%	-
	Total (15 sites in 2010)	-	-	-	920	837	1026	984	-4%	-



- Eighty-six per cent of cyclists in the evening were adults (stable from 87 per cent last year).
- The majority of evening cyclists were wearing a helmet (88 per cent, stable from the previous measure).
- The greatest share of evening cyclists in the Waitakere ward were male (85 per cent).
- Thirty-four per cent of evening cyclists were riding on the road (down from 37 per cent last year), while 43 per cent were riding on an off-road cycleway (stable from 42 per cent last year). The remaining 23 per cent of cyclists are riding on the footpath (stable from 21 per cent last year).

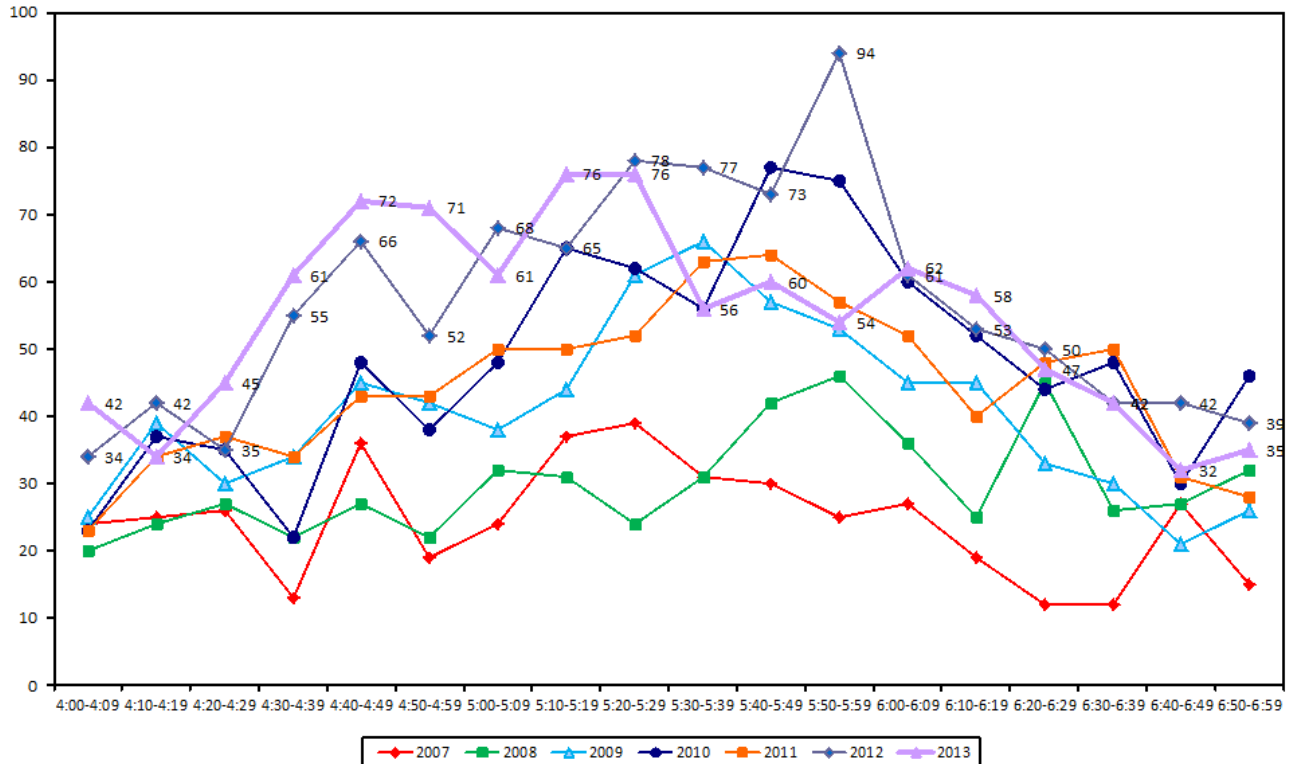
**Table 1.5: Summary of Evening Cyclist Characteristics
2007 – 2013 (%)**

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



- The overall pattern of cyclist volumes by time of trip in the evening has been illustrated in Figure 1.3. This year, evening cyclist volumes peaked between 5:10pm and 5:29pm with 76 movements recorded. Cycle volumes then declined gradually through to the end of the monitoring period. This was fairly consistent with previous years.

**Figure 1.3: Total Cyclist Frequency – Evening Peak
2007 – 2013 (n)**





1.6 Aggregated Total

- Overall, a total of 1854 cyclist movements were recorded across the 13 Waitakere sites in 2013, amongst which five per cent (n=88) were observed cycling as groups. This result represents a 1 per cent increase from 2012 (1837 movements).
- The average number of cycle movements across all 13 sites was 143.
- The busiest site was the North Western Cycleway with a total of 454 movements (up from 425 movements in 2012), while the Te Atatu Road/Elcoat Avenue site contributed the lowest number of cyclist movements (44 movements).
- Seven sites have recorded increases in total cyclist numbers this year compared with 2012. The biggest increase was at West Coast/Rosier Road, Glen Eden (up 47 per cent).
- In contrast, the other six sites have recorded decreases in movements this year. The most notable decline occurred at Henderson Creek (down 26 per cent) and at Te Atatu Road/Elcoat Avenue (down 23 per cent).



**Table 1.6: Summary of Total Cyclist Movements
2007 – 2013 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	Change 12-13 (%)	Change 07-13 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	232	272	355	388	345	425	454	7%	96%
52	Central Park Drive, Henderson	127	157	212	200	212	246	273	11%	115%
53	326 Te Atatu Road (Near Covil Ave)	87	107	138	127	127	135	153	13%	76%
55	Swanson/Ranui Station Road/Armada Drive	62	86	103	102	132	115	116	1%	87%
51	Luckens/Hobsonville Road	32	41	77	95	52	112	104	-7%	225%
49	Triangle Road/Don Buck Road, Massey	67	61	56	90	88	83	87	5%	30%
48	Henderson Creek	46	30	73	84	66	116	86	-26%	87%
50	Lincoln Road/Fairdene Avenue	40	55	43	56	54	67	68	1%	70%
57	West Coast/Rosier Road, Glen Eden	48	37	62	60	60	38	56	47%	17%
54	Te Atatu Road/Elcoat Avenue	50	45	69	52	48	57	44	-23%	-12%
	Average per site (10 sites in 2007)	79	89	119	125	119	139	144	4%	-
	Total (10 sites since 2007)	791	891	1188	1254	1184	1394	1441	4%	82%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	111	134	207	141	193	192	-1%	-
85	Rathgar/Pomaria Road	-	-	85	99	68	73	68	-7%	-
	Average per site (11 sites in 2008, 12 sites in 2009)	-	91	117	130	116	138	142	3%	-
	Total (11 sites in 2008, 12 sites in 2009)	-	1002	1407	1560	1393	1660	1701	2%	-
87	Triangle/Huruhuru Road	-	-	-	137	121	177	153	-14%	-
	Average per site (13 sites since 2010)	-	-	-	131	116	141	143	1%	-
	Total (13 sites since 2010)	-	-	-	1697	1514	1837	1854	1%	-



- Overall cyclist characteristics have been illustrated in Table 1.7. In total, 85 per cent of cyclists were adults (stable from 84 per cent last year).
- The majority of cyclists were wearing a helmet (89 per cent, unchanged from last year).
- Almost all cyclists were male (86 per cent, stable from 2012).
- Approximately one third of cyclists were riding on the road (34 per cent), while 43 per cent were riding on an off-road cycleway and 23 per cent were riding on the footpath. The percentages have not changed over the last 12 months.

**Table 1.7: Summary of Total Cyclist Characteristics
2007 – 2013 (%)**

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



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 (659 daily trips, up from 614 daily trips last year) and the lowest is at the Te Atatu Road/Elcoat Avenue intersection (64 daily trips, down from 84 trips last year).
- Seven sites have recorded increases in total AADT estimates this year compared with 2012. The three biggest changes are at:
 - West Coast/Rosier Road – up 47 per cent
 - 326 Te Atatu Road (near Covil Ave) – up 13 per cent
 - Central Park Drive, Henderson – up 12 per cent
- In contrast, the AADT at the remaining six sites is lower than last year, with the most noticeable decreases at:
 - Henderson Creek – down 26 per cent
 - Te Atatu Road/Elcoat Avenue – down 24 per cent
 - Triangle/Huruhuru Road – down 13 per cent



**Table 1.8: AADT Estimates Based on Morning and Evening Cyclist Movements
2007 – 2013 (n)**

Site No.	Locations	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	Change 12-13 (%)	Change 07-13 (%)
58	North Western Cycleway/near Te Atatu Road off-ramp	335	393	513	562	499	614	659	7%	97%
52	Central Park Drive, Henderson	184	227	306	290	307	356	397	12%	116%
72	Te Atatu/Old Te Atatu Road/Tatau Way	-	161	195	301	204	282	278	-1%	-
87	Triangle/Huruhuru Road	-	-	-	198	175	255	222	-13%	-
53	326 Te Atatu Road (Near Covil Ave)	127	155	202	185	186	197	222	13%	75%
55	Swanson/Ranui Station Road/Armada Drive	88	122	148	146	189	162	167	3%	90%
51	Luckens/Hobsonville Road	47	60	110	137	74	161	150	-7%	219%
49	Triangle Road/Don Buck Road, Massey	96	88	80	128	127	119	127	7%	32%
48	Henderson Creek	65	43	105	121	95	166	123	-26%	89%
85	Rathgar/Pomaria Road	-	-	122	144	99	106	99	-7%	-
50	Lincoln Road/Fairdene Avenue	57	79	62	80	78	97	98	1%	72%
57	West Coast/Rosier Road, Glen Eden	69	54	90	87	86	55	81	47%	17%
54	Te Atatu Road/Elcoat Avenue	73	66	101	76	71	84	64	-24%	-12%



1.8 School Bike Shed Count Summary

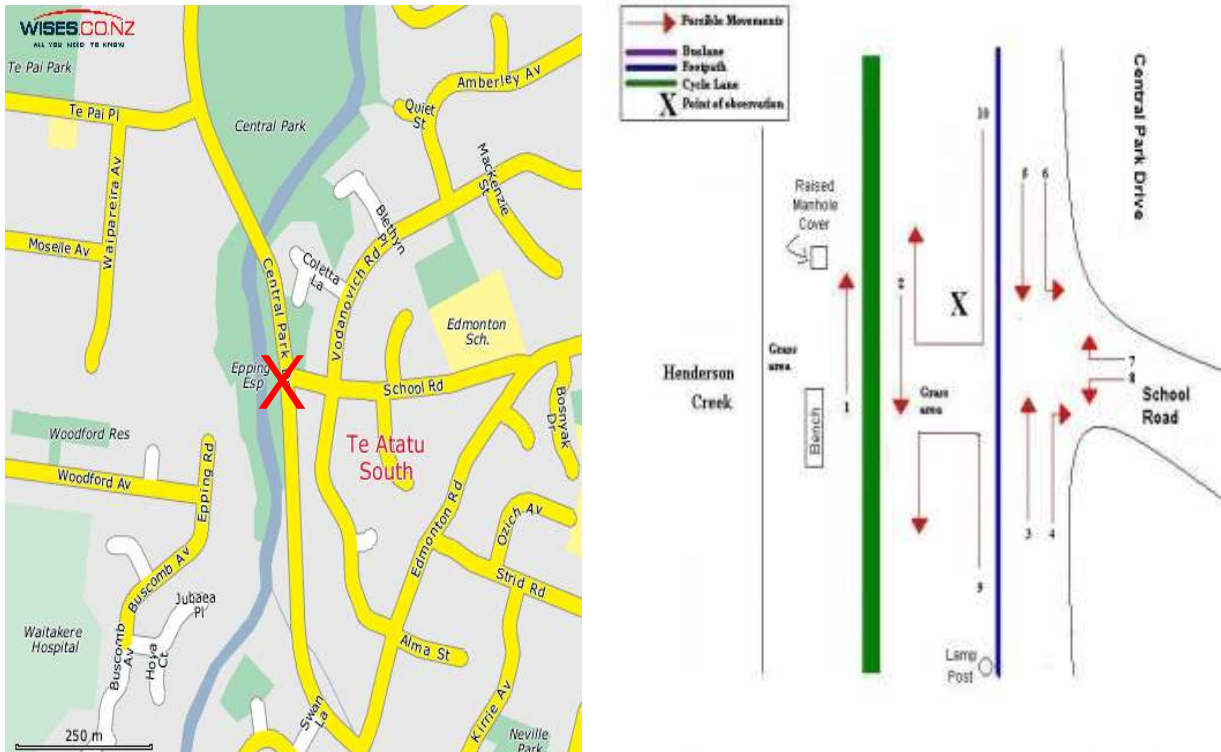
Key Points

- Among those Waitakere schools that responded to the survey, of those eligible to cycle to school, on average two per cent of students are cycling to their schools (stable from 2012).
- Among the schools that responded, n=237 students were reported to be cycling to school.
- This year, Te Atatu Intermediate reported the highest share of cyclists – 8 per cent of all eligible students currently cycling to school (stable from 9 per cent in 2012).
- Of the 25 schools that responded, 8 (32 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (4 per cent, stable from 3 per cent in 2012).

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 for 2012 and 2013 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



2.2 Morning Peak

Environmental Conditions

- The weather was cloudy throughout the morning shift. There were also light showers at: 7.09am to 7.11am, 8.39am to 8.44am, and 8.49am to 8.53am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- In 2013, 30 cycle movements were recorded at this site, a slight decrease of 9 movements from last year.
- Movement 1 and 2 (along the Henderson Creek cycleway) were the most common (6 cyclists for each movement).
- The biggest changes in cycle volumes occurred at Movement 6 – left turn from Central Park Road to School Road and at Movement 7 – right turn from School Road to Central Park Road (both were down 3 cyclists since last year).

**Table 2.1: Morning Cyclist Movements
Henderson Creek 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	6	5	10	19	11	7	6	-1
2	8	6	17	19	13	8	6	-2
3	-	-	-	-	-	6	5	-1
4	-	-	-	-	-	1	1	0
5	-	-	-	-	-	2	3	1
6	-	-	-	-	-	4	1	-3
7	-	-	-	-	-	8	5	-3
8	-	-	-	-	-	3	3	0
9	-	-	-	-	-	0	0	0
10	-	-	-	-	-	0	0	0
Total	14	11	27	38	24	39	30	-9



- Over the morning peak, adults comprised nearly all of the cycle movements (90 per cent, up from 74 per cent in 2012).
- Most cyclists were wearing a helmet (85 per cent, slightly up from 82 per cent last year).
- The majority of morning cyclists (97 per cent) were male. The share of female riders continued to decrease (since first recorded in 2011).
- Forty per cent of the cyclists were riding on the cycleway (stable from last year). There were more cyclists using the road this year (a 14 percentage point increase).

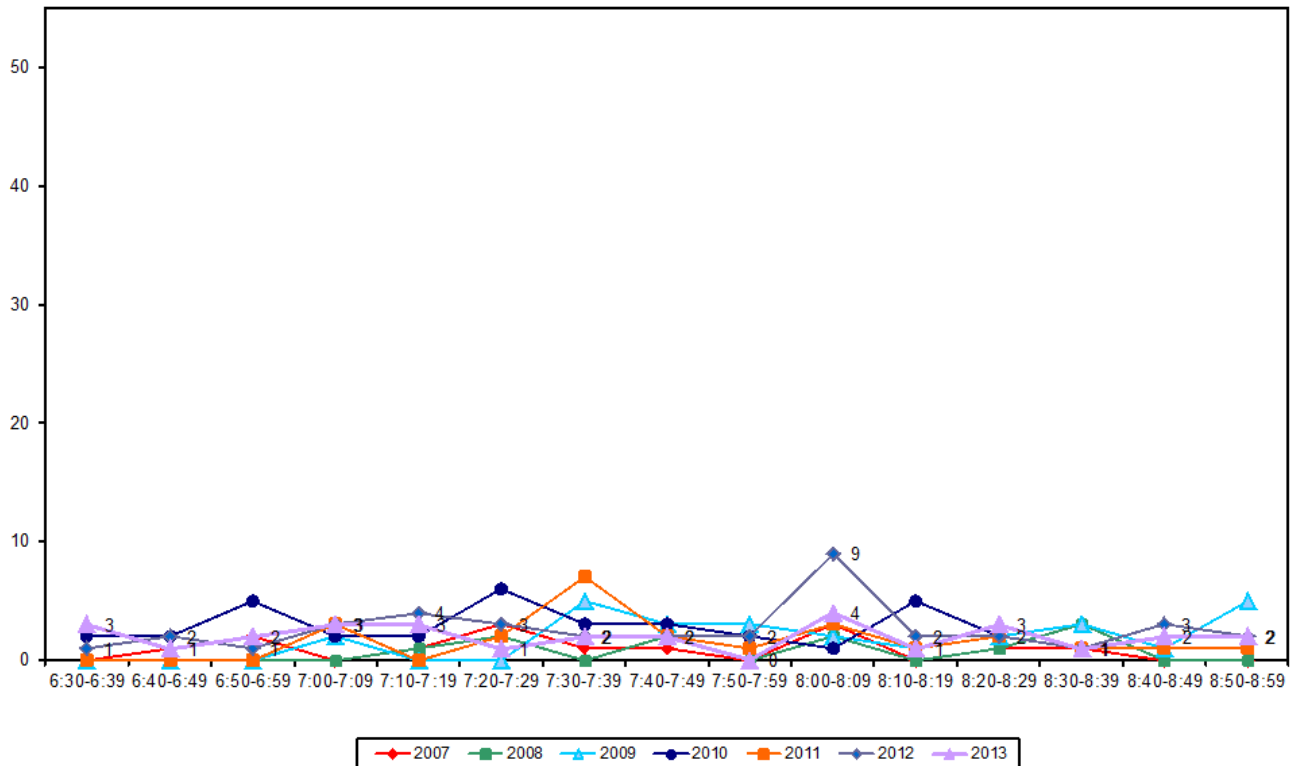
**Table 2.2: Morning Cyclist Characteristics
Henderson Creek 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	93	82	85	97	92	74	90	16
School child	7	18	15	3	8	26	10	-16
Helmet Wearing								
Helmet on head	79	100	93	92	92	82	85	3
No helmet	21	0	7	8	8	18	15	-3
Gender								
Male	-	-	-	-	79	87	97	10
Female	-	-	-	-	21	13	3	-10
Can't tell	-	-	-	-	0	0	0	0
Where Riding								
Road	-	-	-	-	-	13	27	14
Footpath	-	-	-	-	-	48	33	-15
Off-road cycleway	100	100	100	100	100	39	40	1
Base:	14	11	27	38	24	39	30	



- Cyclist volume was low in the morning peak with no more than four cycle movements in any ten minute interval. This is consistent with previous years. There were no obvious peaks or troughs in the cycle traffic.

**Figure 2.2: Morning Peak Cyclist Frequency
Henderson Creek 2007 – 2013 (n)**





2.3 Evening Peak

Environmental Conditions

- The weather was cloudy in the beginning of the evening monitoring period, with light showers at 4.28pm turning to heavy rain from 4.32pm to 4.35pm. The sky gradually cleared up and the weather was fine until the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- A total of 56 cycle movements were observed in the evening peak (down 21 movements from 77 in 2012).
- The most common movement in the evening was heading south along Henderson Creek (Movement 2) – 15 cyclists observed.
- Cycle volume heading north along Henderson Creek (Movement 1) was halved relative to data from last year.

**Table 2.3: Evening Cyclist Movements
Henderson Creek 2007 – 2013 (n)**

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



- Over the evening peak, the majority of cyclists using Henderson Creek were adults (89 per cent, down from 94 per cent in 2012).
- The share of cyclists at this site wearing a helmet has remained stable (86 per cent compared to 82 per cent in 2012).
- Most cyclists (88 per cent) were male.
- The greatest share of cyclists (46 per cent) was riding on the off-road cycleway. Similar to what was observed in the morning, there were more cyclists riding on the main road this year (an 8 percentage point increase).

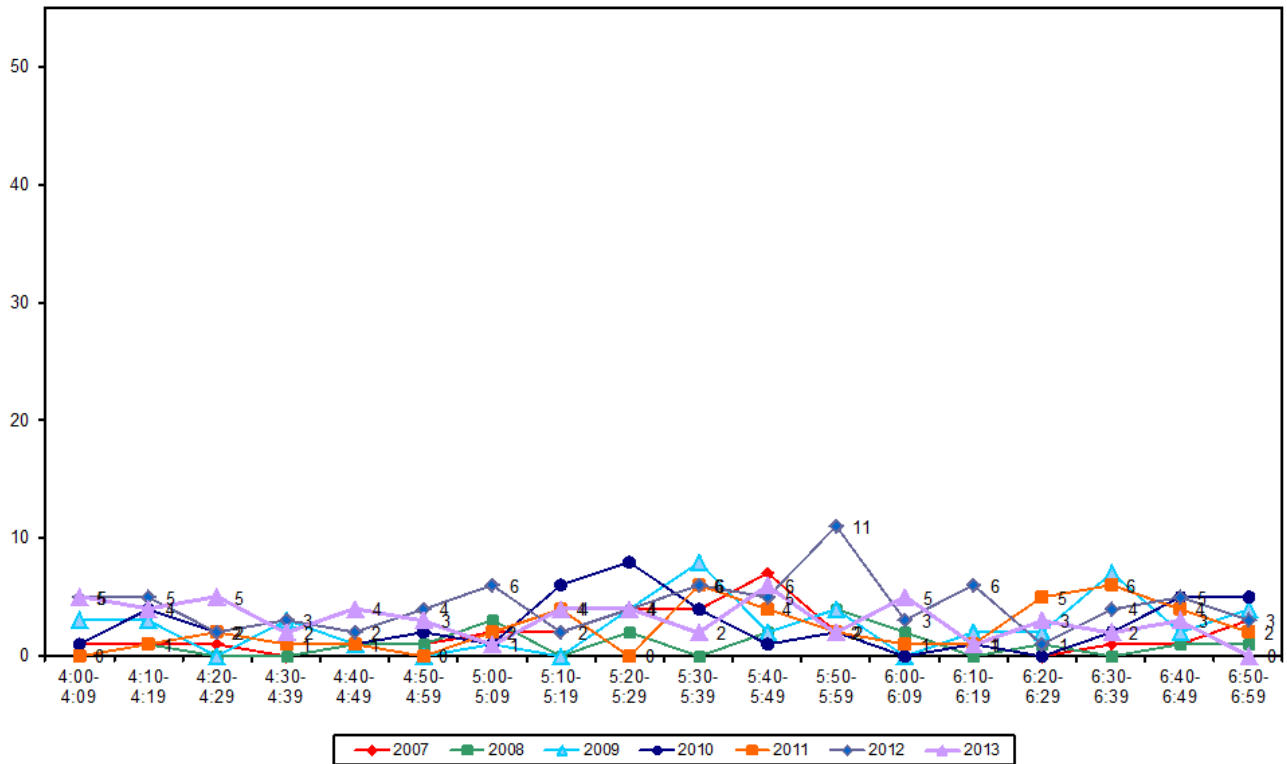
**Table 2.4: Evening Cyclist Characteristics
Henderson Creek 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	100	100	87	100	90	94	89	-5
School child	0	0	13	0	10	6	11	5
Helmet Wearing								
Helmet on head	78	89	91	93	81	82	86	4
No helmet	22	11	9	7	19	18	14	-4
Gender								
Male	-	-	-	-	83	84	88	4
Female	-	-	-	-	17	16	12	-4
Can't tell	-	-	-	-	0	0	0	0
Where Riding								
Road	-	-	-	-	-	16	24	8
Footpath	-	-	-	-	-	29	30	1
Off-road cycleway	100	100	100	100	100	55	46	-9
Base:	32	19	46	46	42	77	56	



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

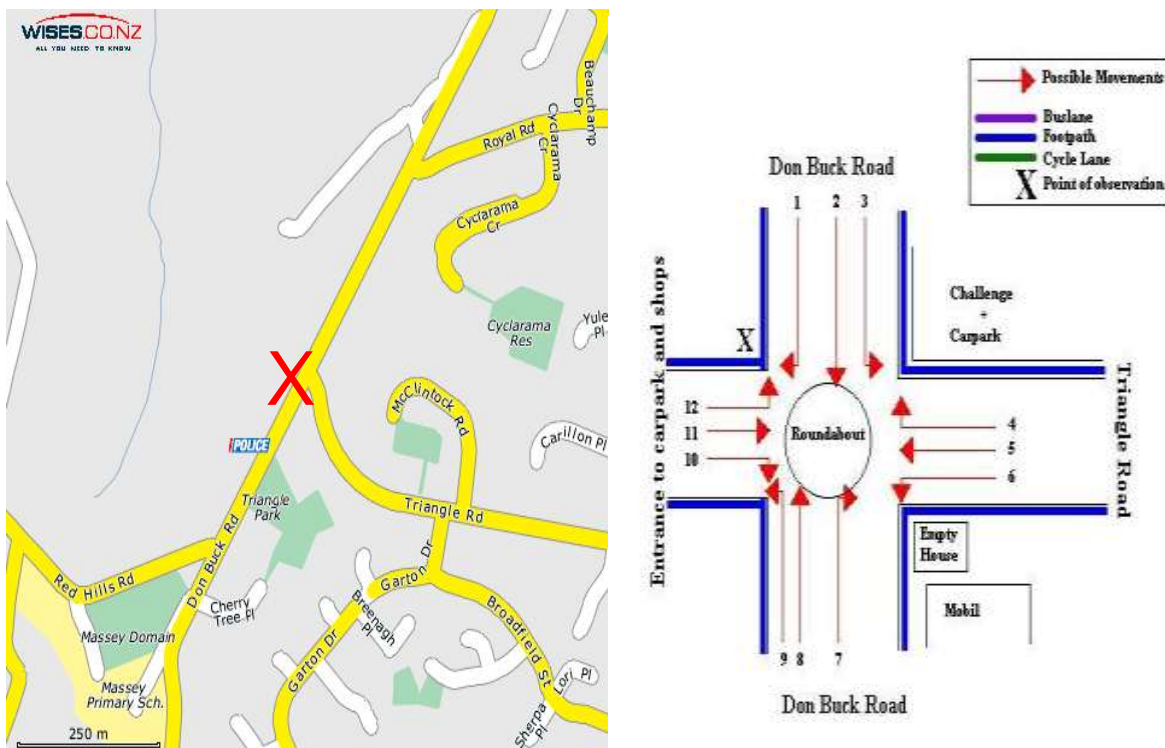
**Figure 2.3: Evening Peak Cyclist Frequency
Henderson Creek 2007 – 2013 (n)**



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



3.2 Morning Peak

Environmental Conditions

- The weather was fine in the beginning of the shift. However, spells of light drizzle were recorded at 7.02am until 7.08am, and again at 8.12am.
- Road cones were observed on the side of the road at this site. These were moved to the middle of the road at 7:30am. A sign placed before Triangle Road indicated that the cycle lane was closed.

Key Points

- In 2013, the volume of morning cyclists recorded at the Triangle Road/Don Buck Road site has increased (46 cycle movements, compared with 30 cycle movements recorded last year).
- The key morning movement continued to be straight along Don Buck Road heading south (Movement 2 = 16 cyclists).
- The most noticeable changes in morning cyclist movements at this site in 2013 were at Movement 3 (up 5 cycle movements from 2012), and at Movement 6 (up 4 movements from 2012).

**Table 3.1: Morning Cyclist Movements
Triangle Road/Don Buck Road 2007 – 2012 (n)**

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



- Over the morning peak, the share of cyclists classified as adults has increased, from 77 per cent last year to 84 per cent this year.
- Helmet wearing was less common this year (89 per cent), down noticeably from 100 per cent last year.
- The greatest share of morning cyclists was male (89 per cent).
- Most cyclists were riding on the road (78 per cent, down from 87 per cent at the previous measure).

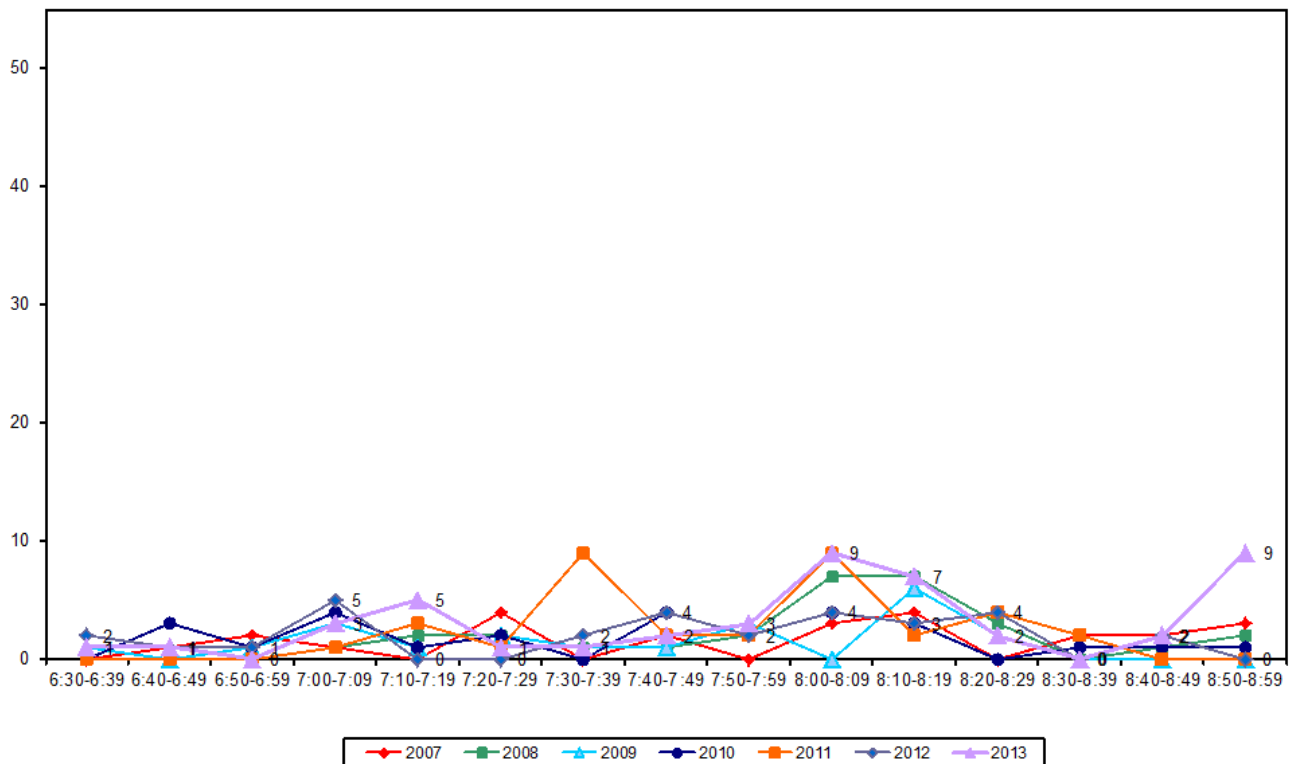
**Table 3.2: Morning Cyclist Characteristics
Triangle Road/Don Buck Road 2007 – 2013 (%)**

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



- As illustrated in Figure 3.2, cycle volume was low in the first half of the morning monitoring period. It reached a peak of nine movements between 8:00am to 8:09am, then declined to zero traffic flow before rising up sharply to nine movements again just before the monitoring period finished. The general trend looked consistent with the ones in previous years, with the exception of the peak at the end of the shift.

Figure 3.2: Morning Peak Cyclist Frequency
Triangle Road/Don Buck Road 2007 – 2013 (n)





3.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- Cones were observed on the sides of Triangle Road throughout the shift.

Key Points

- Compared with last year, the total number of evening peak cycle movements recorded at the Triangle Road/Don Buck Road intersection has decreased by 12 movements to 41 movements.
- The key movements at this site in the evening were straight along Don Buck Road heading south (Movement 2 = 11 cyclists), straight along Don Buck Road heading north (Movement 8 = 9 cyclists) and turning right from Triangle Road into Don Buck Road heading north (Movement 4 = 8 cyclists).
- The most noticeable changes since 2012 were at Movement 8 (down 8 cyclists) and Movement 4 (down 6 cyclists).

Table 3.3: Evening Cyclist Movements
Triangle Road/Don Buck Road 2007 – 2013 (n)

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



- The greatest share of cyclists using the Triangle Road/Don Buck Road intersection was adults (83 per cent, down from 89 per cent in 2012).
- Eighty-three per cent of cyclists at this site were wearing a helmet (down from 89 per cent last year).
- Almost all evening cyclists (88 per cent) were male.
- The majority of cyclists were riding on the road (71 per cent).

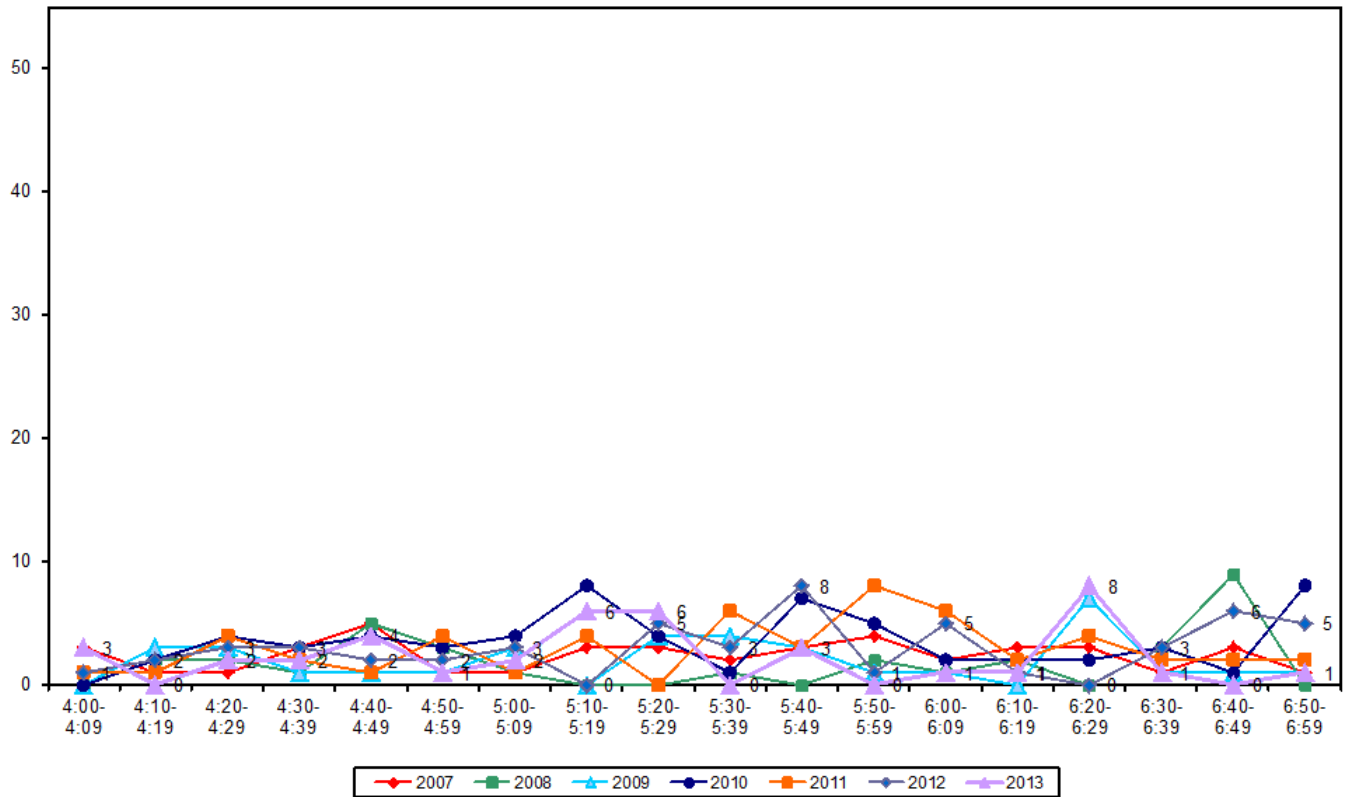
**Table 3.4: Evening Cyclist Characteristics
Triangle Road/Don Buck Road 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	74	78	80	67	87	89	83	-6
School child	26	22	20	33	13	11	17	6
Helmet Wearing								
Helmet on head	63	78	77	76	87	89	83	-6
No helmet	37	22	23	24	13	11	17	6
Gender								
Male	-	-	-	-	86	89	88	-1
Female	-	-	-	-	8	11	7	-4
Can't tell	-	-	-	-	6	0	5	5
Where Riding								
Road	58	72	71	63	85	83	71	-12
Footpath	42	28	29	37	15	17	22	5
Unsure	-	-	-	-	-	-	7	7
Base:	43	32	35	63	53	53	41	



- Cyclist volumes in the evening gradually came to a gentle peak of six movements from 5:10pm to 5:29pm. From there, the traffic remained low until 6:20pm when it peaked with eight movements.

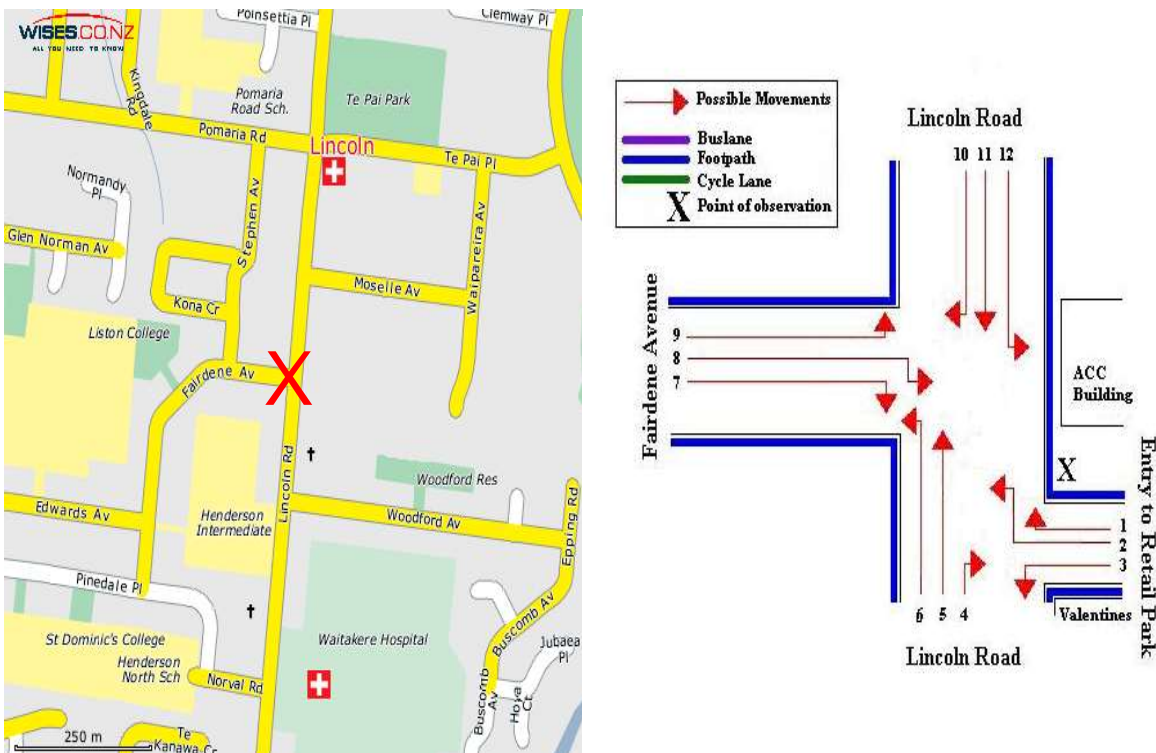
Figure 3.3: Evening Peak Cyclist Frequency
Triangle Road/Don Buck Road 2007 – 2013 (n)



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

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Lincoln Road/Fairdene Avenue



4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	13	27	40	57
2008	19	36	55	79
2009	21	22	43	62
2010	21	35	56	80
2011	26	28	54	78
2012	34	33	67	97
2013	31	37	68	98



4.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the monitoring period, with the exception of very light showers from 8:37am until the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The level of morning cyclist traffic has decreased at the intersection of Lincoln Road and Fairdene Avenue compared with last year (31 cycle movements, compared with 34 in 2012).
- The most common movements in the morning were straight along Lincoln Road heading north (Movement 5 = 10 cyclists) and straight along Lincoln Road heading south (Movement 11 = 7 cyclists).
- The most notable changes in morning cyclist volumes were at Movements 5 and 11, both down 4 cyclists from 2012.

**Table 4.1: Morning Cyclist Movements
Lincoln Road/Fairdene Avenue 2007 – 2013 (n)**

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



- Over the morning peak, adults comprised 74 per cent of the cycle movements (unchanged from last year).
- Just over three-quarters of all cyclists at this site were wearing a helmet (stable from last year).
- The majority of cyclists were male (81 per cent).
- Riding on the footpath (63 per cent, stable from last year) continued to be much more common than riding on the road (37 per cent).

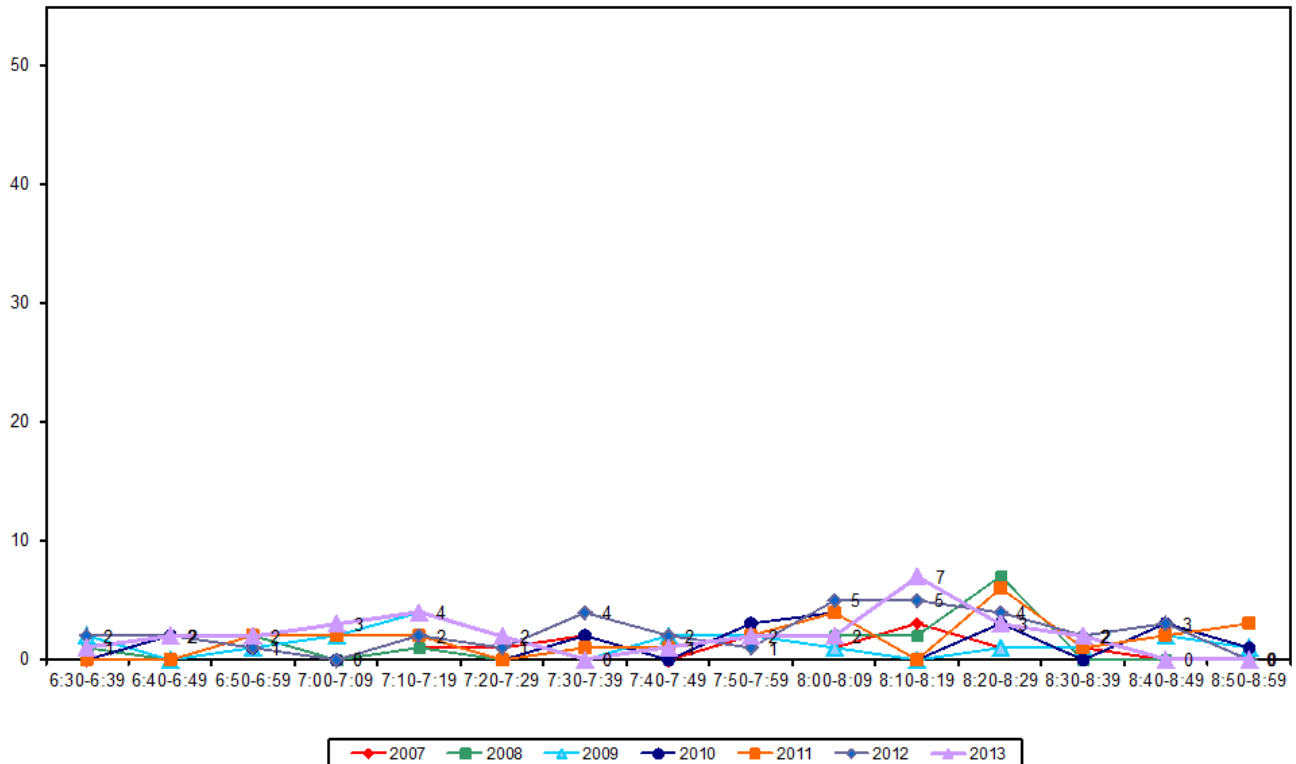
**Table 4.2: Morning Cyclist Characteristics
Lincoln Road/Fairdene Avenue 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	62	58	76	71	79	74	74	0
School child	38	42	24	29	21	26	26	0
Helmet Wearing								
Helmet on head	92	89	62	67	54	76	77	1
No helmet	8	11	38	33	46	24	23	-1
Gender								
Male	-	-	-	-	75	79	81	2
Female	-	-	-	-	25	21	16	-5
Can't tell	-	-	-	-	0	0	3	3
Where Riding								
Road	31	37	38	19	32	35	37	2
Footpath	69	63	62	81	68	65	63	-2
Base:	13	19	21	21	26	34	31	



- The volume of morning cycle movements was low at this site, consistent with the trend from previous years. Cycle movements peaked slightly between 8:10am and 8:19am (7 cyclists), otherwise volumes were low across the entire morning monitoring period, with no more than four cyclists recorded over all other ten minute intervals.

**Figure 4.2: Morning Peak Cyclist Frequency
Lincoln Road/Fairdene Avenue 2007 – 2013 (n)**





4.3 Evening Peak

Environmental Conditions

- The weather was overcast throughout the evening shift. There was a spell of rain from 4.30pm to 4.40pm.
- 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 33 movements in 2012 to 37 movements this year.
- The key movement in the evening was straight along Lincoln Road heading south (Movement 11 = 13 cyclists).
- Of the 12 movements possible at this site, the most notable change compared with last year was at Movement 3 – left turn from retail park into Lincoln Road (up 4 cyclists).

**Table 4.3: Evening Cyclist Movements
Lincoln Road/Fairdene Avenue 2007 – 2013 (n)**

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



- Similar to last year, a greater share of cyclists using this intersection were adults (57 per cent, down from 64 per cent in 2012).
- Sixty-five per cent of cyclists were wearing a helmet (down 9 percentage points from last year).
- Four in five cyclists were male (81 per cent, slightly up from 76 per cent in 2012).
- The incidence of cyclists riding on the footpath was higher when compared with last year (79 per cent this year, 10 percentage point increase from 2012).

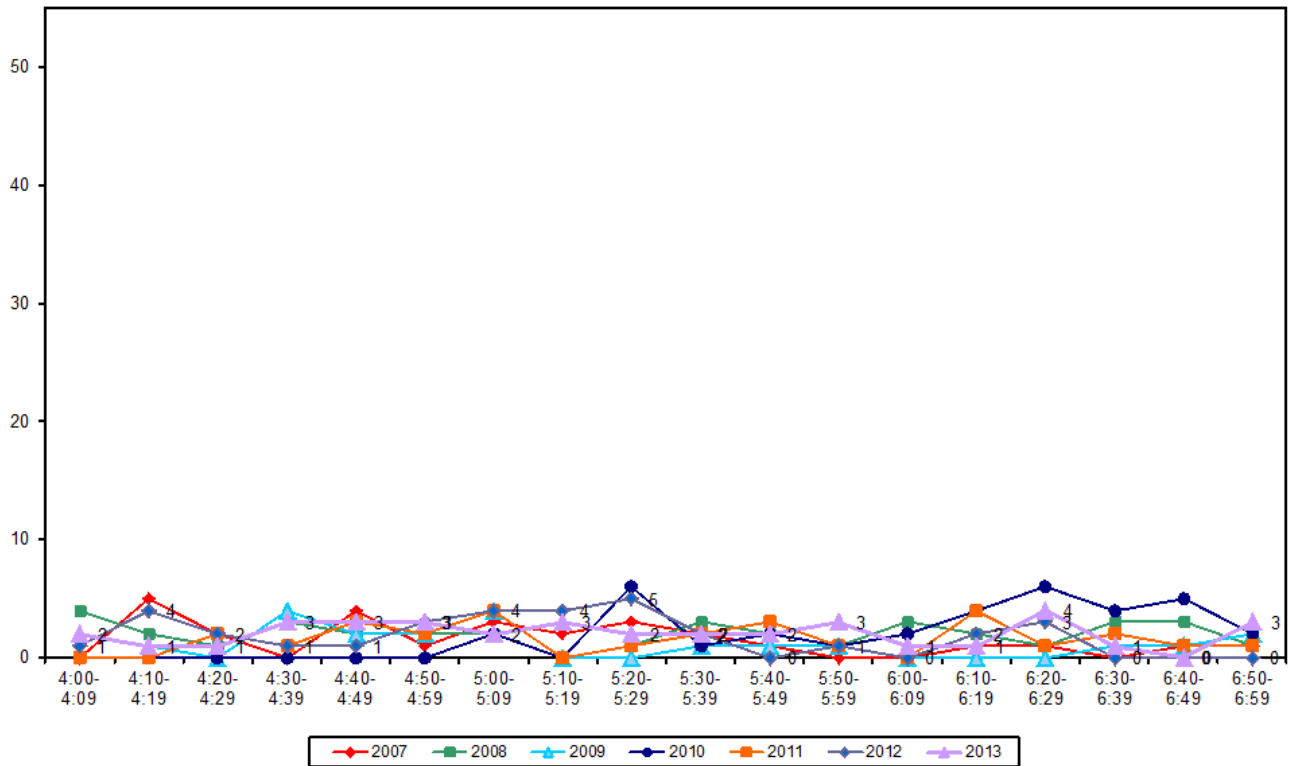
**Table 4.4: Evening Cyclist Characteristics
Lincoln Road/Fairdene Avenue 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	89	44	59	71	79	64	57	-7
School child	11	56	41	29	21	36	35	-1
Unsure	-	-	-	-	-	-	8	8
Helmet Wearing								
Helmet on head	52	67	50	71	54	76	65	-9
No helmet	48	33	50	29	46	24	35	9
Gender								
Male	-	-	-	-	75	76	81	5
Female	-	-	-	-	25	24	19	-5
Can't tell	-	-	-	-	0	0	0	0
Where Riding								
Road	19	11	9	29	32	31	21	-10
Footpath	81	89	91	71	68	69	79	10
Base:	27	36	22	35	28	33	37	



- Similar to the observation from the morning shift, volume of cycle movements was low. There were no more than four cyclists recorded overall but one of the ten minute intervals monitored. This exception occurred between 6:20pm and 6:29pm, with four cyclist movements recorded.

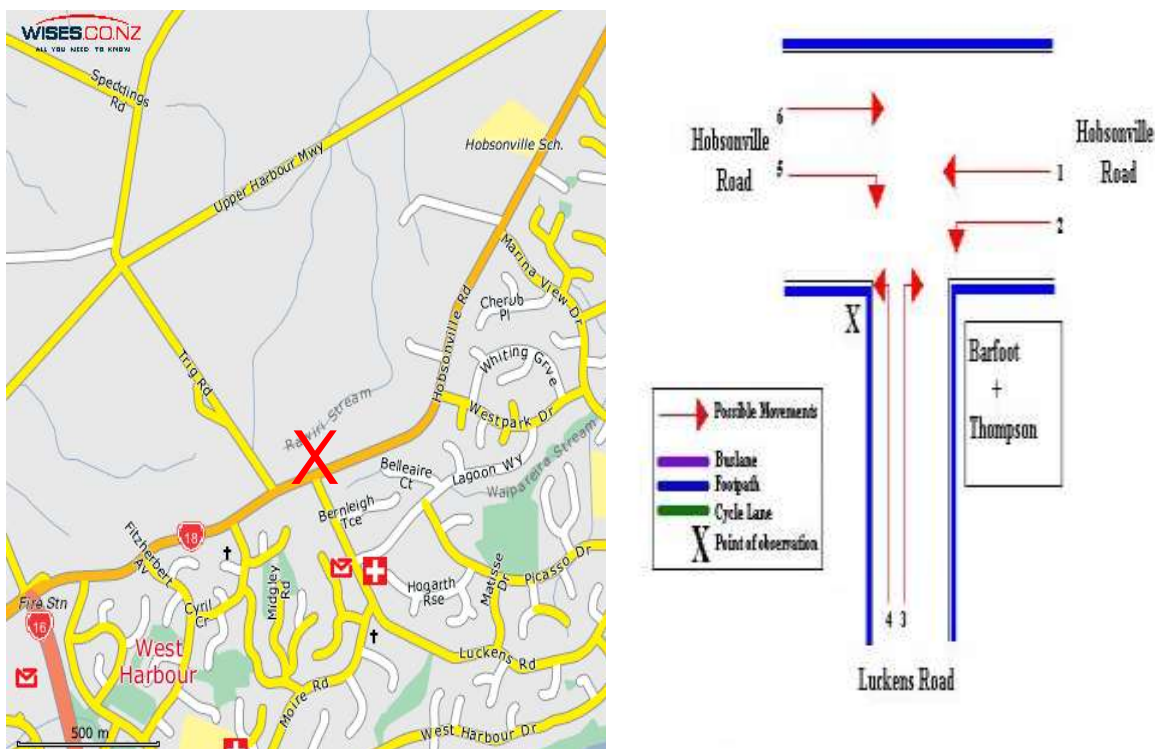
**Figure 4.3: Evening Peak Cyclist Frequency
Lincoln Road/Fairdene Avenue 2007 – 2013 (n)**



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



5.2 Morning Peak

Environmental Conditions

- The weather was overcast throughout the morning shift. Light drizzle was reported at 6.55am, 8.22am, 8.35am, and at 8.50am.
- At 7:16am a cyclist had to ride on the road because a bus was stopped on the cycleway.
- There were no other road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclists at the Luckens/Hobsonville Road intersection has remained stable from last year.
- The key morning movement was travelling straight along Hobsonville Road heading southwest (Movement 1 = 14 cyclists).
- Of the six movements possible at this intersection, the most noticeable change was at Movement 4, a left turn from Luckens Road into Hobsonville Road (up 5 cyclists).

**Table 5.1: Morning Cyclist Movements
Luckens/Hobsonville Road 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	5	3	7	7	7	15	14	-1
2	3	8	9	9	4	11	10	-1
3	2	7	1	6	0	3	3	0
4	2	3	6	7	2	5	10	5
5	0	2	2	1	0	1	0	-1
6	8	2	1	11	1	7	7	0
Total	20	25	26	41	14	42	44	2



- Over the morning peak, adults comprised the greatest share of cycle movements (98 per cent, up slightly from 93 per cent in 2012).
- Almost all cyclists were wearing a helmet (98 per cent, slightly up from 95 per cent of cyclists in 2012).
- The majority of cyclists recorded were male (90 per cent).
- Almost all of the cyclists were riding on the road (98 per cent, a 12 percentage point increase from 2012).

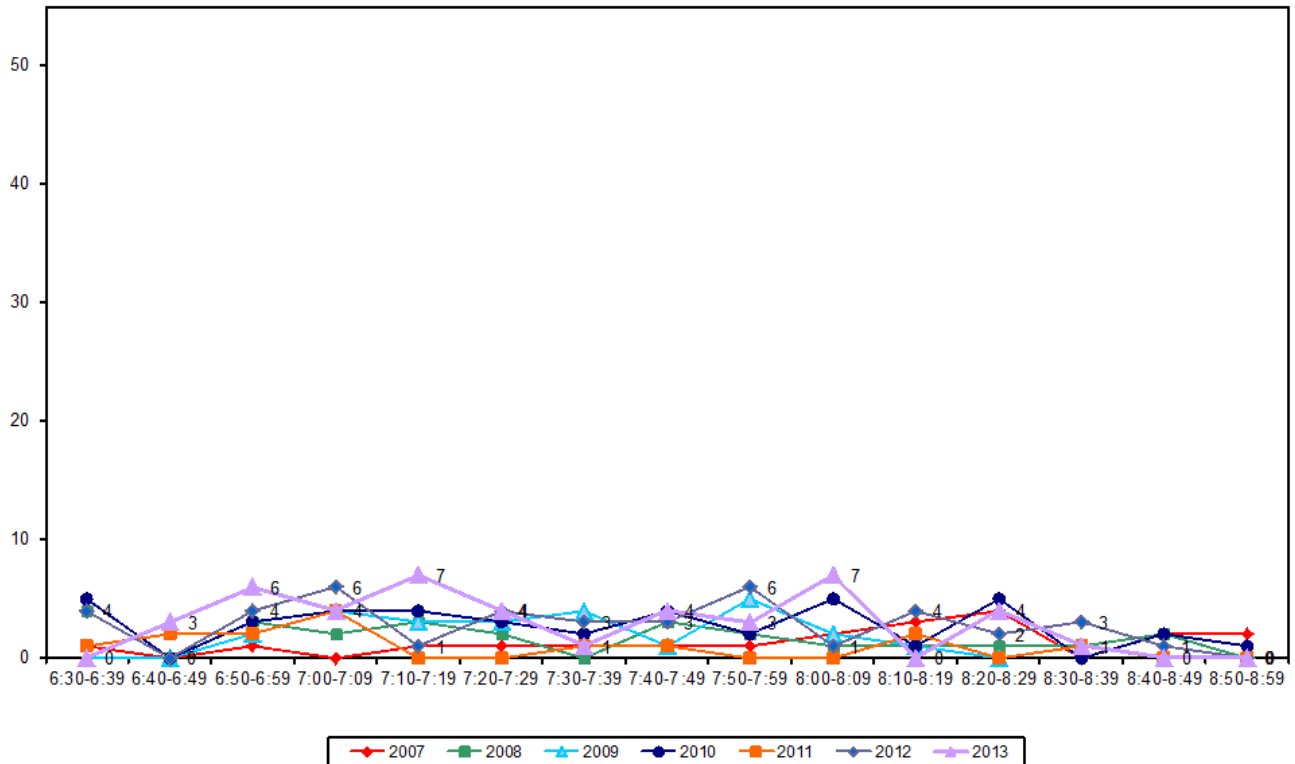
**Table 5.2: Morning Cyclist Characteristics
Luckens/Hobsonville Road 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	75	88	88	83	86	93	98	5
School child	25	12	12	17	14	7	2	-5
Helmet Wearing								
Helmet on head	100	100	96	98	93	95	98	3
No helmet	0	0	4	2	7	5	2	-3
Gender								
Male	-	-	-	-	100	83	90	7
Female	-	-	-	-	0	17	5	-12
Can't tell	-	-	-	-	0	0	5	5
Where Riding								
Road	70	80	81	80	79	86	98	12
Footpath	30	20	19	20	21	14	2	-12
Base:	20	25	26	41	14	42	44	



- The volume of cycle movements was low throughout the morning peak monitoring period. The highest volume of cyclist movements was between 7:10am and 7:19am (7 cyclist movements) and again between 8:00am and 8:09am (7 movements). Both peaks were 10 minutes later than those observed last year.

**Figure 5.2: Morning Peak Cyclist Frequency
Luckens/Hobsonville Road 2007 – 2013 (n)**





5.3 Evening Peak

Environmental Conditions

- The weather was cloudy with spells of light showers from time to time throughout the evening. Towards the end of the shift, the sky was gradually clearing up.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening cycle movements recorded at the Luckens/Hobsonville Road intersection has decreased from last year, with 60 movements recorded, compared with 70 movements in 2012.
- The most common movement in the evening was turning right into Hobsonville Road from Luckens Road (Movement 3 = 19 cyclists).
- Of the six possible movements, the most notable change this year was at Movement 3 (down 9 cyclists) and Movement 6 (down 8). Both movements were heading north onto Hobsonville Road.

**Table 5.3: Evening Cyclist Movements
Luckens/Hobsonville Road 2007 – 2013 (n)**

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



- Most cyclists using this intersection were adults (90 per cent, stable from the previous year).
- Helmet-wearing continued to be wide-spread (92 per cent, slight decrease from 97 per cent last year).
- Most cyclists were male (90 per cent).
- The majority of cyclists were riding on the road (83 per cent, down from 91 per cent in 2012).

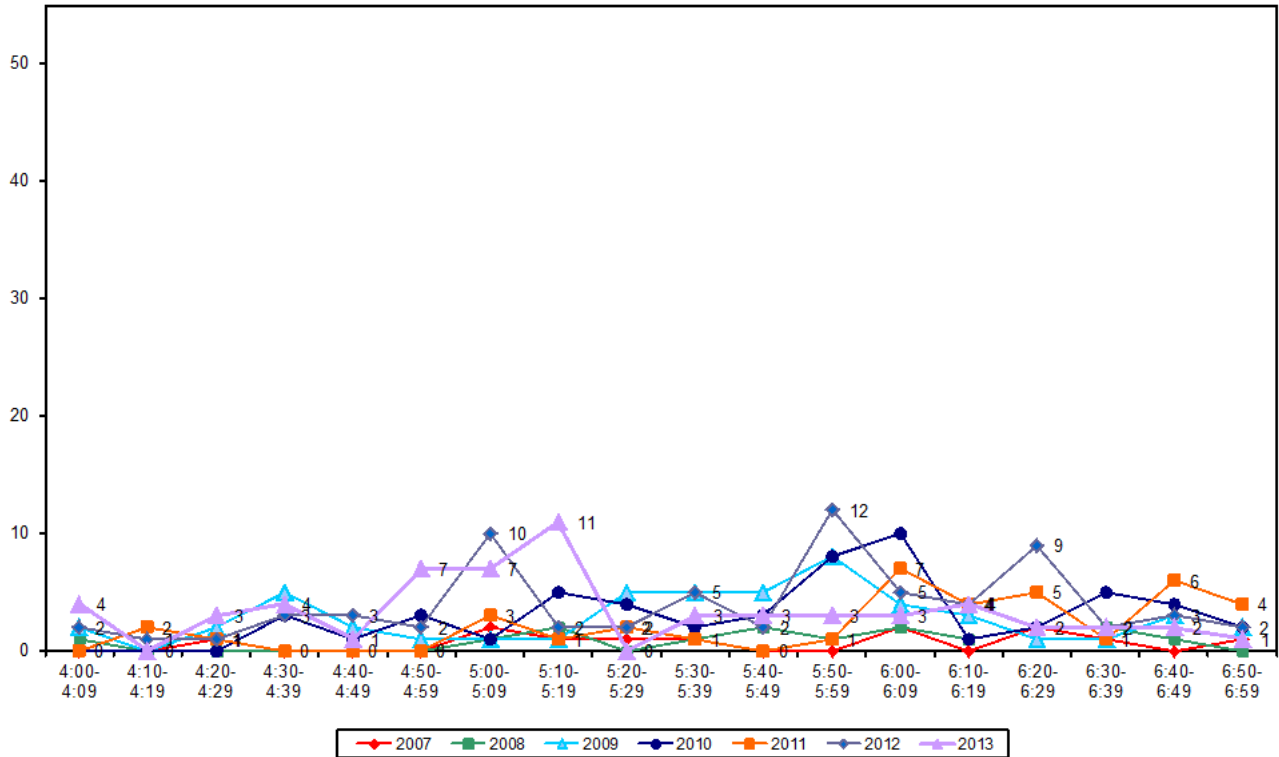
**Table 5.4: Evening Cyclist Characteristics
Luckens/Hobsonville Road 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	100	94	100	91	66	89	90	1
School child	0	6	0	9	34	11	10	-1
Helmet Wearing								
Helmet on head	100	69	98	94	74	97	92	-5
No helmet	0	31	2	6	26	3	8	5
Gender								
Male	-	-	-	-	87	87	90	3
Female	-	-	-	-	5	13	10	-3
Can't tell	-	-	-	-	8	0	0	0
Where Riding								
Road	100	81	90	81	53	91	83	-8
Footpath	0	19	10	19	47	9	17	8
Base:	12	16	51	54	38	70	60	



- Cycle volumes have been low this year, except for the half an hour from 4:40pm to 5:19pm. Within this time frame, there was a peak from 5:10pm to 5:19pm (11 cyclists recorded).

**Figure 5.3: Evening Peak Cyclist Frequency
Luckens/Hobsonville Road 2007 – 2013 (n)**

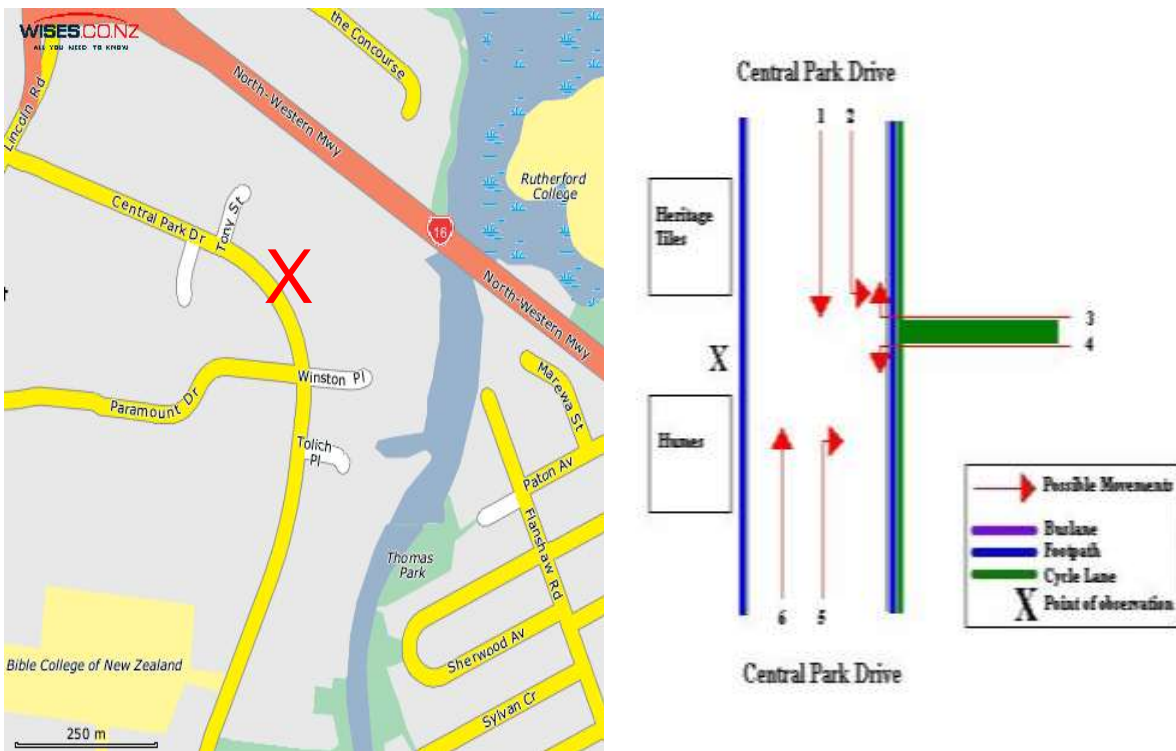


Note: Six cycle movements (10 per cent) in the evening peak were identified as cycling in groups/pelotons. The group passed the site at 5:11pm. This compared with 23 per cent (n=16) last year.

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



6.2 Morning Peak

Environmental Conditions

- The weather was cloudy throughout the morning monitoring period. Light showers were recorded between 8.42 and 8.46am, and again between 8.51 and 8.58am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning peak cycle volumes at Central Park Drive have increased slightly this year, with 135 cycle movements recorded (compared with 112 movements in 2012).
- The most common movement in the morning was turning off the northern end of Central Park Drive into the cycle way (Movement 2 = 46 cyclists).
- Of the six possible movements at this site, the most notable change since 2012 has been at Movement 5 (up 12 cyclists).

**Table 6.1: Morning Cyclist Movements
Central Park Drive 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	8	4	0	10	12	6	9	3
2	20	34	36	35	32	46	46	0
3	8	12	12	9	9	14	13	-1
4	8	7	11	14	14	14	13	-1
5	14	10	20	25	29	30	42	12
6	3	1	12	1	4	2	7	5
Don't Know	-	-	-	-	-	-	5	5
Total	61	68	91	94	100	112	135	23



- Over the morning peak, almost all cyclists were adults (96 per cent, slightly up from 92 per cent at the previous measure).
- Most cyclists were wearing a helmet (96 per cent, unchanged since 2011).
- The greatest share of morning cyclists were male (82 per cent, stable from 80 per cent last year).
- Nearly half of all morning cyclists (46 per cent, up from 39 per cent in 2012) continued to ride on the road. The remainder were mostly riding on the cycleway (42 per cent, down 14 percentage points from last year), while 12 per cent were riding on the footpath.

**Table 6.2: Morning Cyclist Characteristics
Central Park Drive 2007 – 2013 (%)**

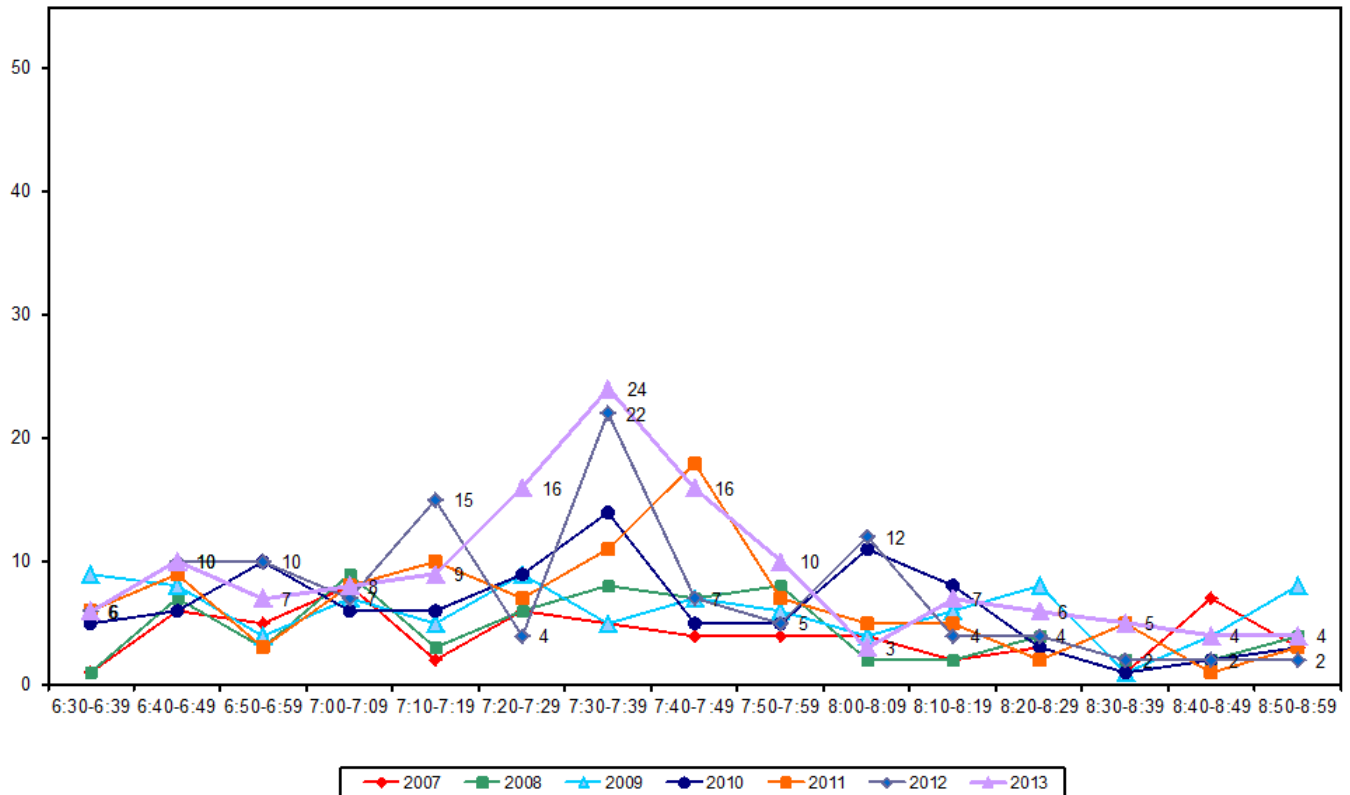
	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	98	99	96	97	97	92	96	4
School child	2	1	4	3	3	8	4	-4
Helmet Wearing								
Helmet on head	92	94	97	98	96	96	96	0
No helmet	8	6	3	2	4	4	4	0
Gender								
Male	-	-	-	-	81	80	82	2
Female	-	-	-	-	19	20	13	-7
Can't tell	-	-	-	-	0	0	5	5
Where Riding								
Road	74	99	59	71	39	39	46	7
Footpath	26	1	3	6	5	5	12	7
Off-road cycleway ¹⁰	-	-	38	23	56	56	42	-14
Base:	61	68	91	94	100	112	135	

¹⁰ From 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.



- The volume of cycle movements was the heaviest in the hour from 7:00am – 8:00am, and peaked between 7:30am and 7:39am (24 cyclists), consistent with last year.

**Figure 6.2: Morning Peak Cyclist Frequency
Central Park Drive 2007 – 2013 (n)**



Note: In 2013, 12 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- Nine cyclists at 7:39am
- Seven cyclists at 7:41am



6.3 Evening Peak

Environmental Conditions

- The weather was cloudy in the beginning of the evening monitoring period, with light showers from 4:58pm to 5:04pm. The sky gradually cleared up and the weather was fine until the end of the shift.
- 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 slightly over the last 12 months, from 134 in 2012 to 138 movements this year.
- In contrast to the morning shift, the most common movement in the evening was turning out of the cycleway onto Central Park Drive heading north (Movement 3 = 62 cyclists).
- The most noticeable change since last year was at Movement 3 (down 7 cyclists).

Table 6.3: Evening Cyclist Movements
Central Park Drive 2007 – 2013 (n)

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



- Over the evening peak, most cyclists at this site were adults (96 per cent, stable from 94 per cent in the previous year).
- Helmet wearing was still common in the evening (93 per cent, stable from 94 per cent in 2012).
- Almost all evening peak cyclists were male (83 per cent, down 7 percentage points from last year).
- This year 49 per cent of cyclists in the evening were riding on the road (down from 54 per cent last year). Riding on the off-road cycleway has increased to 49 per cent from 42 per cent last year.

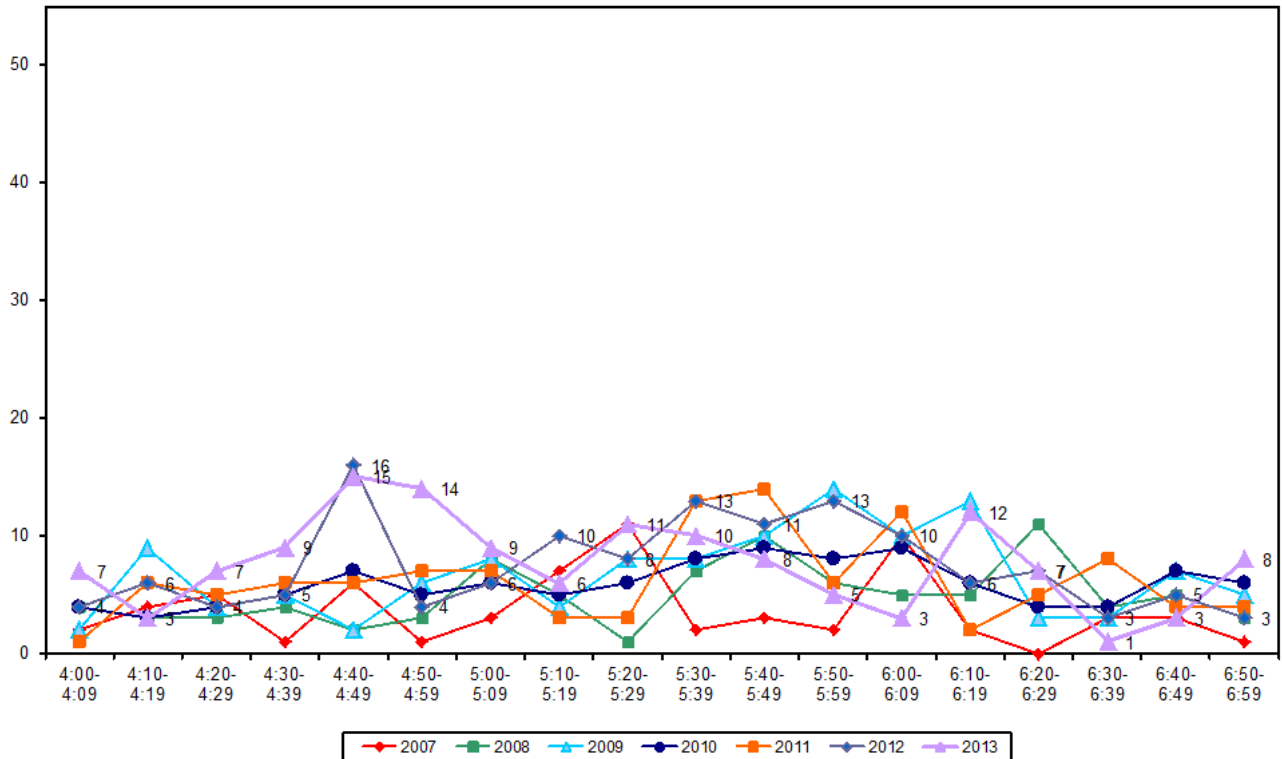
**Table 6.4: Evening Cyclist Characteristics
Central Park Drive 2007 – 2013 (%)**

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



- The volume of evening cyclist movements peaked three times over the monitoring period: between 4:40pm and 4:59pm (a total of 29 cyclists), between 5:20pm and 5:29pm (11 cyclists), and between 6:10pm and 6:19pm (12 cyclists).

Figure 6.3: Evening Peak Cyclist Frequency
Central Park Drive 2007 – 2013 (n)

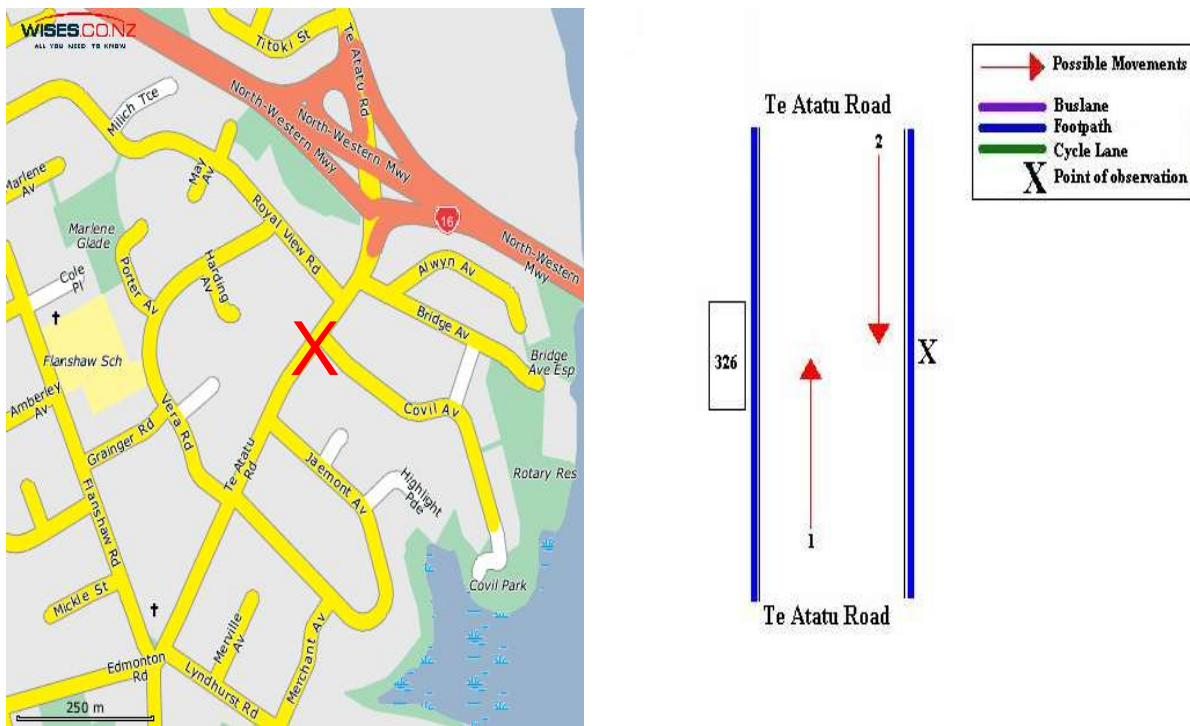


Note: In 2013, six cyclists (4 per cent of the evening cycle movements at this site) were identified as cycling in groups. They passed the site at 4:53pm.

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



7.2 Morning Peak

Environmental Conditions

- The weather was cloudy throughout the morning shift. Light drizzle was recorded from 8.45am to 8.55am.
- 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 2013 was 76, stable from 75 movements recorded in 2012.
- The most common movement was straight along Te Atatu Road heading north (Movement 1 = 70 cyclists).

**Table 7.1: Morning Cyclist Movements
326 Te Atatu Road 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	35	42	60	59	64	64	70	6
2	9	10	19	6	9	11	6	-5
Total	44	52	79	65	73	75	76	1



- Over the morning peak, school children comprised 38 per cent of cycle movements (down from 49 per cent last year). It has been a decreasing trend since 2010.
- Most cyclists were wearing a helmet (92 per cent, up from 87 per cent in 2012).
- Almost all morning cyclists (88 per cent) were male.
- Of the 13 Waitakere sites monitored in the morning, this site had the highest proportion of morning cyclists riding on the footpath (84 per cent, down from 89 per cent last year).

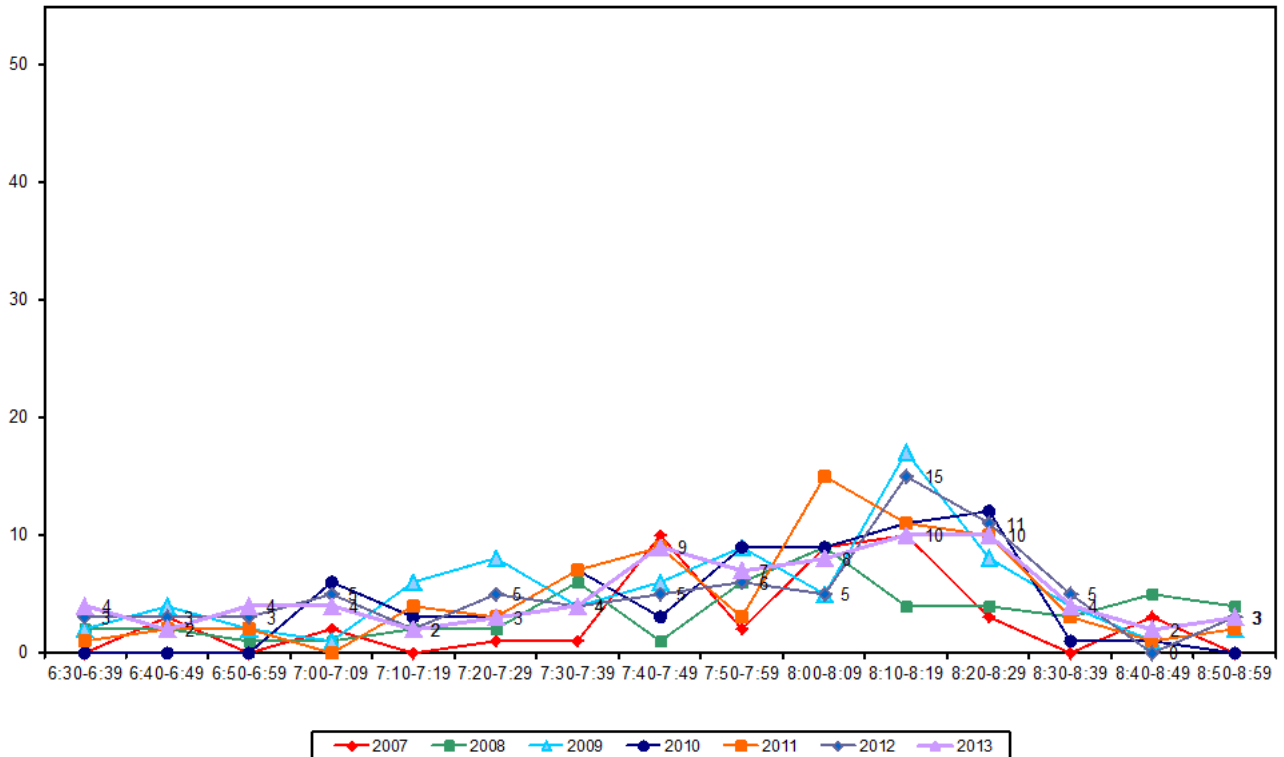
Table 7.2: Morning Cyclist Characteristics
326 Te Atatu Road 2007 – 2013 (%)

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	43	52	46	34	42	51	62	9
School child	57	48	54	66	58	49	38	-9
Helmet Wearing								
Helmet on head	84	87	94	88	92	87	92	5
No helmet	16	13	6	12	8	13	8	-5
Gender								
Male	-	-	-	-	90	94	88	-6
Female	-	-	-	-	10	5	12	7
Can't tell	-	-	-	-	0	1	0	-1
Where Riding								
Road	11	8	18	11	10	11	16	5
Footpath	89	92	82	89	90	89	84	-5
Base:	44	52	79	65	73	75	76	



- Volume of morning cycle movements started off low, but gradually increased to a small peak between 8:10am and 8:19am (a total of 20 cyclists in this time frame). This peak occurred at a same time as the peak observed last year, but with a smaller traffic volume (a total of 26 cycle movements during this peak in 2012).

Figure 7.2: Morning Peak Cyclist Frequency
326 Te Atatu Road 2007 – 2013 (n)





7.3 Evening Peak

Environmental Conditions

- The weather was cloudy throughout the evening shift, with light showers from 4.30pm to 4.35pm.
- 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 60 in 2012 to 77 movements this year.
- The most common movement in the evening was straight along Te Atatu Road in the opposite direction from the morning shift (Movement 2 = 58 cyclists travelling south).
- The most noticeable change in cyclist volume was at Movement 2 (up 10 cyclists).

**Table 7.3: Evening Cyclist Movements
326 Te Atatu Road 2007 – 2013 (n)**

Movement	2007	2008	2009	2010	2011	2012	2013	Change 12-13
1	16	15	17	13	16	12	19	7
2	27	40	42	49	38	48	58	10
Total	43	55	59	62	54	60	77	17



- The greatest share of cyclists using this site in the evening were adults (86 per cent, up from 83 per cent in the previous year).
- A large proportion of cyclists were wearing a helmet (83 per cent, down slightly from 87 per cent in 2012).
- The greatest share of evening cyclists were male (86 per cent, stable from 87 per cent last year).
- Almost all cyclists were riding on the footpath (94 per cent, up 11 percentage point from last year).

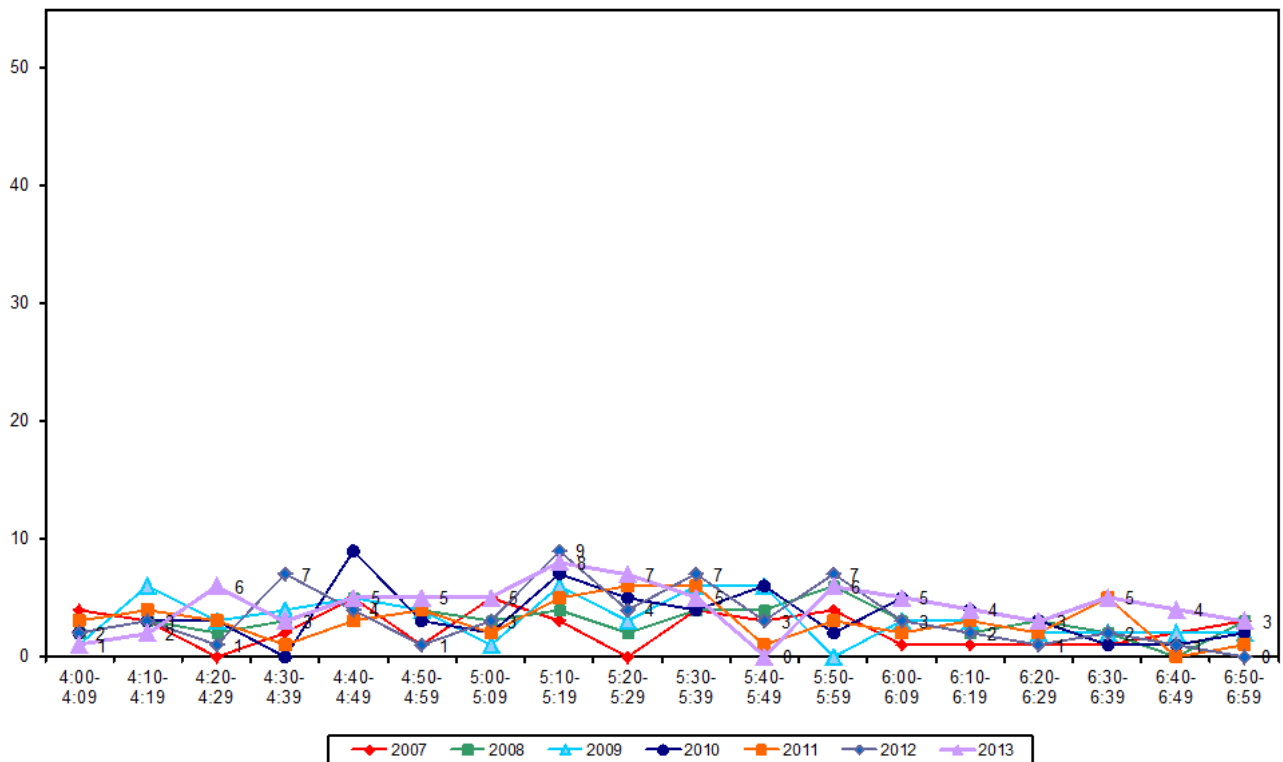
**Table 7.4: Evening Cyclist Characteristics
326 Te Atatu Road 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	72	91	80	90	89	83	86	3
School child	28	9	20	10	11	17	14	-3
Helmet Wearing								
Helmet on head	88	84	80	74	91	87	83	-4
No helmet	12	16	20	26	9	13	17	4
Gender								
Male	-	-	-	-	85	87	86	-1
Female	-	-	-	-	15	13	14	1
Can't tell	-	-	-	-	0	0	0	0
Where Riding								
Road	16	24	22	19	20	17	6	-11
Footpath	84	76	78	81	80	83	94	11
Base:	43	55	59	62	54	60	77	



- The overall pattern of evening cycle traffic was low this year, with no more than eight cyclists during any ten minute interval. Cycle volumes peaked slightly between 5:10pm and 5:19pm (8 cyclists), then dropped down to no traffic movements between 5:40pm and 5:49pm before picking up again ten minutes later. This compares with slight peaks between 5:20pm and 5:39pm (6 cyclists per ten minute interval) and between 6:30pm and 6:39pm (5 cyclists) last year.

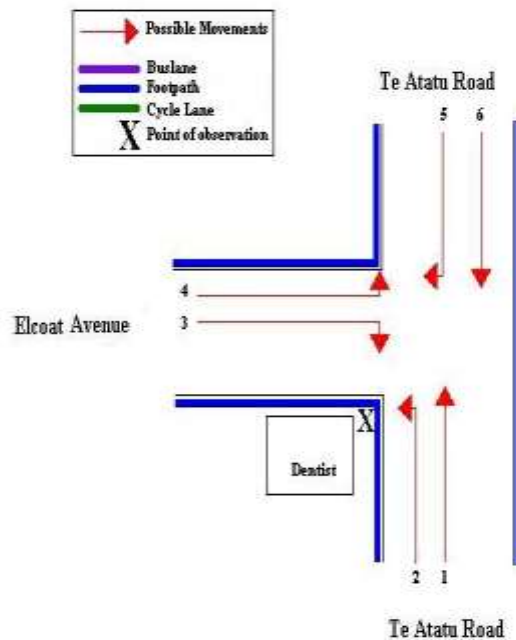
Figure 7.3: Evening Peak Cyclist Frequency
326 Te Atatu Road 2007 – 2013 (n)



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



8.2 Morning Peak

Environmental Conditions

- The weather was overcast throughout the morning peak. Intermittent light drizzle was observed from 7:10am until 8:00am. From 8.40am onwards, the rain was more constant and heavier.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclists at the Te Atatu Road/Elcoat Avenue intersection has decreased from last year (20 cycle movements, down from 34 movements in 2012).
- The most common morning movement continued to be heading north up Te Atatu Road (Movement 1 = 15 cyclists).
- The most notable change in cyclist volumes occurred at Movement 1 (down by 11 movements from last year).

**Table 8.1: Morning Cyclist Movements
Te Atatu Road/Elcoat Avenue 2007 – 2013 (n)**

Movement	2007	2008	2009	2010	2011	2012	2013	Change 12-13
1	16	19	28	26	22	26	15	-11
2	0	0	1	0	0	0	0	0
3	0	0	0	0	0	1	0	-1
4	2	1	2	1	3	2	2	0
5	0	0	1	0	0	1	0	-1
6	8	7	5	3	5	4	3	-1
Total	26	27	37	30	30	34	20	-14



- Over the morning peak, school children comprised 70 per cent of the total number of cycle movements (a 14 percentage point increase from last year).
- Most cyclists were wearing a helmet (85 per cent, slightly down from 88 per cent at the last measure).
- The greatest share of morning cyclists was male (95 per cent, up from 88 per cent last year).
- Seventy per cent of cyclists were riding on the footpath in the morning (up 17 percentage points from last year).

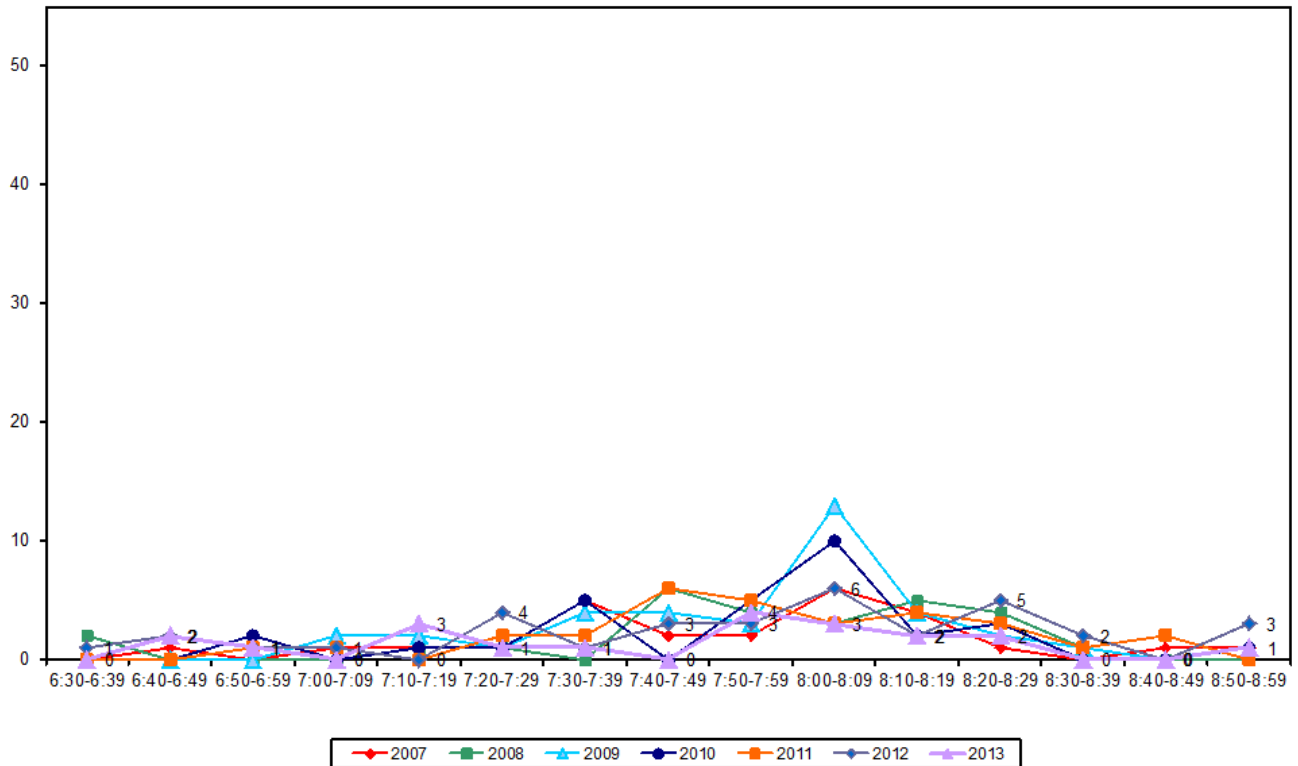
**Table 8.2: Morning Cyclist Characteristics
Te Atatu Road/Elcoat Avenue 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	46	37	32	20	20	44	30	-14
School child	54	63	68	80	80	56	70	14
Helmet Wearing								
Helmet on head	88	89	86	97	93	88	85	-3
No helmet	12	11	14	3	7	12	15	3
Gender								
Male	-	-	-	-	83	88	95	7
Female	-	-	-	-	17	9	5	-4
Can't tell	-	-	-	-	0	3	0	-3
Where Riding								
Road	38	26	19	20	17	47	30	-17
Footpath	62	74	81	80	83	53	70	17
Base:	26	27	37	30	30	34	20	



- This year, the volume of morning cycle movements has been very low throughout the monitoring period. There were no obvious peaks or troughs in the traffic flow. There were also no pelotons riding past the site this year (compared with last year where 18 per cent of the evening cyclists were riding in groups).

**Figure 8.2: Morning Peak Cyclist Frequency
Te Atatu Road/Elcoat Avenue 2007 – 2013 (n)**





8.3 Evening Peak

Environmental Conditions

- The weather was overcast throughout the evening shift. Short spells of rain were recorded from 4.25pm to 4.35pm, and again from 5.10pm to 5.20pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of cycle movements recorded in the evening has remained stable over the last 12 months, from 23 movements last year to 24 movements in 2013.
- The most common movement in the evening was heading south down Te Atatu Road (Movement 6 = 12 cyclists).
- No notable changes in cyclist volumes were evident at any movement over the last 12 months.

**Table 8.3: Evening Cyclist Movements
Te Atatu Road/Elcoat Avenue Road 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	9	2	7	7	5	8	9	1
2	0	2	1	0	0	0	0	0
3	0	0	2	0	0	0	0	0
4	1	0	3	0	0	1	1	0
5	1	2	1	0	1	2	2	0
6	13	12	18	15	12	12	12	0
Total	24	18	32	22	18	23	24	1



- The majority of the cyclists using this intersection were adults (71 per cent, down from 87 per cent last year).
- Almost all cyclists observed at this site were wearing helmets (96 per cent, up 5 percentage point since last year).
- Most evening cyclists were male (96 per cent, up 5 percentage point since last year).
- Sixty-two per cent of cyclists were riding on the road (down from 74 per cent at the previous measure).

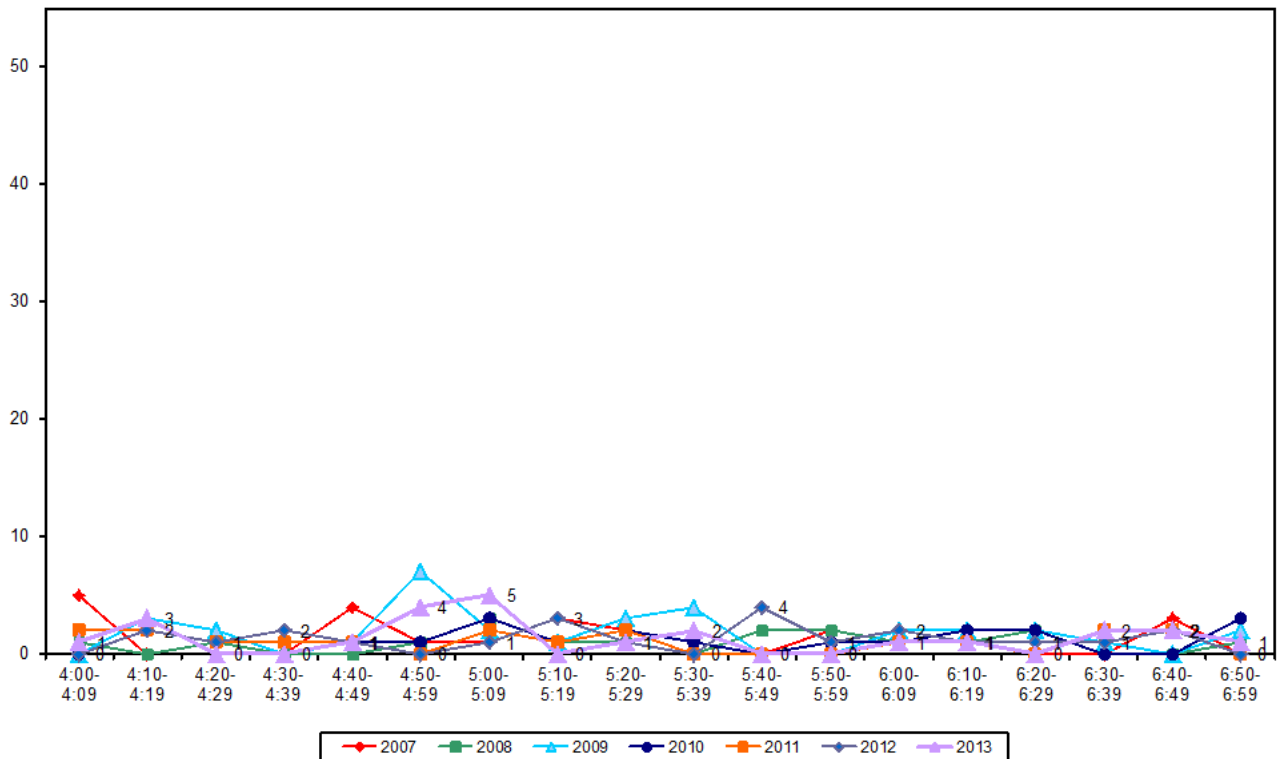
**Table 8.4: Evening Cyclist Characteristics
Te Atatu Road/Elcoat Avenue 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	58	83	53	82	78	87	71	-16
School child	42	17	47	18	22	13	29	16
Helmet Wearing								
Helmet on head	87	78	66	77	100	91	96	5
No helmet	13	22	34	23	0	9	4	-5
Gender								
Male	-	-	-	-	100	91	96	5
Female	-	-	-	-	0	9	4	-5
Can't tell	-	-	-	-	0	0	0	0
Where Riding								
Road	50	50	19	55	50	74	62	-12
Footpath	50	50	81	45	50	26	38	12
Base:	24	18	32	22	18	23	24	



- This year, evening cycle volumes were consistently low across the entire monitoring period. A slight peak occurred between 4:50pm and 5:09pm (a total of 9 cyclists), 40 minutes earlier than the peak in 2012.

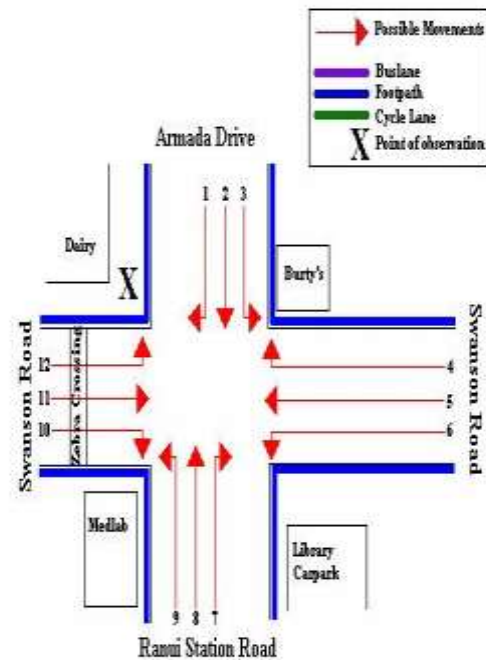
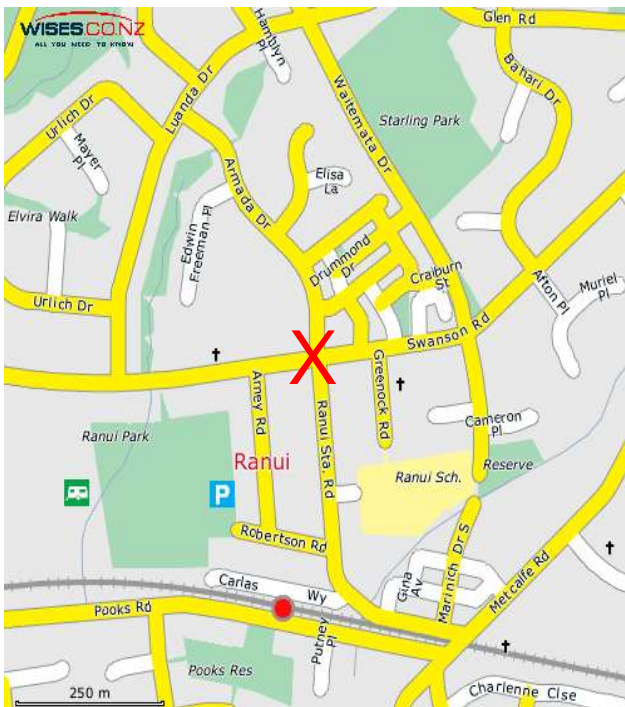
Figure 8.3: Evening Peak Cyclist Frequency
Te Atatu Road/Elcoat Avenue 2007 – 2013 (n)



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



9.2 Morning Peak

Environmental Conditions

- The weather was cloudy throughout the morning shift. A couple of very light showers were recorded from 8.00am until the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclists at the Swanson Road/Armada Drive intersection has increased, from 27 in 2012 to 49 cycle movements this year.
- The most common movement was straight along Swanson Road heading east (Movement 11 = 18 cyclists).
- The most notable increase in cycle volumes was at Movement 1 (up 6 cyclists).

**Table 9.1: Morning Cyclist Movements
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	0	2	3	2	7	1	7	6
2	0	0	2	3	1	0	4	4
3	1	0	0	1	0	2	0	-2
4	0	2	0	0	0	0	0	0
5	1	3	2	6	6	3	5	2
6	1	1	1	3	4	1	5	4
7	0	0	0	0	1	1	0	-1
8	1	0	1	1	0	0	0	0
9	1	0	0	0	1	1	1	0
10	0	0	3	0	5	2	5	3
11	10	13	23	17	18	16	18	2
12	0	0	2	1	4	0	4	4
Total	15	21	37	34	47	27	49	22



- Over the morning peak, adults comprise the greatest share of cycle movements (61 per cent, down from 81 per cent last year).
- Over half of the cyclists were wearing a helmet (59 per cent, down from 78 per cent last year).
- The majority of cyclists were male (80 per cent, down slightly from 85 per cent at the previous measure).
- The share of footpath riding has increased over the last 12 months, up from 44 per cent in 2012 to 55 per cent in 2013.

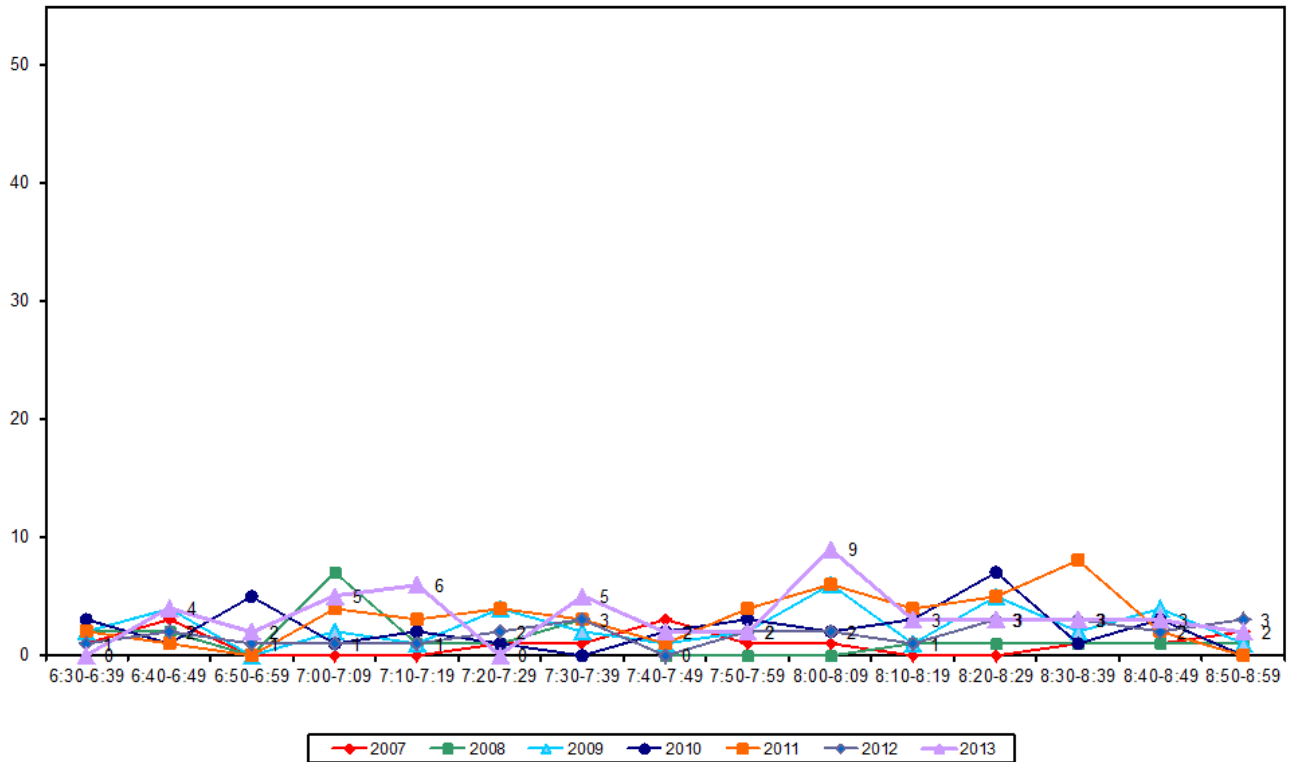
Table 9.2: Morning Cyclist Characteristics
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2013 (%)

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



- Figure 9.2 illustrates the cycle traffic at this site in the morning. Cycle volumes varied between zero to six movements across the first half of the monitoring period, then peaked between 8:00am to 8:09am with nine movements.

Figure 9.2: Morning Peak Cyclist Frequency
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2013 (n)





9.3 Evening Peak

Environmental Conditions

- Drizzle was recorded from beginning of the shift until 5:30pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Compared with the previous year, the total number of evening cycle movements recorded at the Swanson Road/Armada Drive intersection has decreased (67 movements, compared with 88 movements in 2012).
- The key movement in the evening was Movement 5 (riding straight along Swanson Road heading west, 20 cyclists).
- The most notable change since last year has been at Movement 11 (down 15 cyclists).

**Table 9.3: Evening Cyclist Movements
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2013 (n)**

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



- The share of children using the Swanson Road/Armada Drive intersection in the evening was 49 per cent, a 14 percentage point increase from last year.
- Two-thirds of the cyclists at this site were wearing a helmet (67 per cent, an increasing trend since 2008).
- The greatest share of evening cyclists were male (76 per cent).
- About half of the cyclists (49 per cent) were riding on the road, while the other half were riding on footpath.

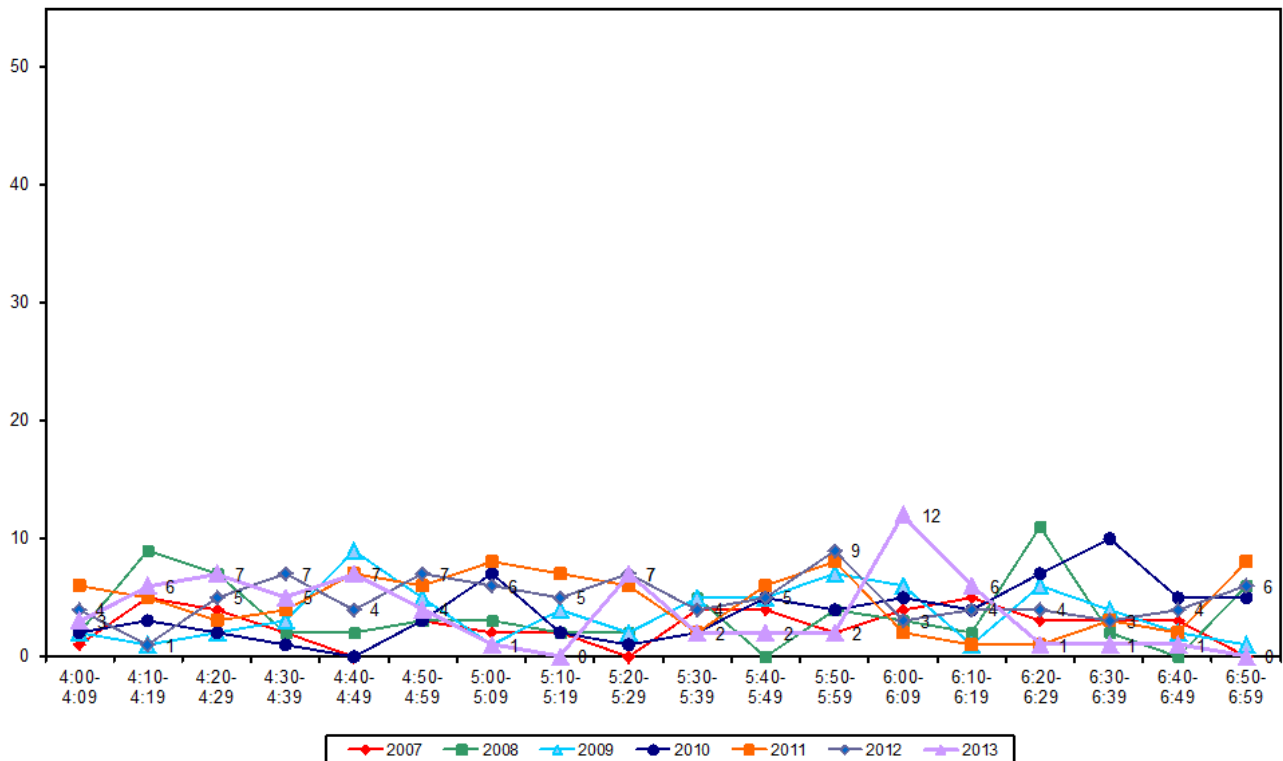
Table 9.4: Evening Cyclist Characteristics
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2013 (%)

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	68	32	47	44	62	65	51	-14
School child	32	68	53	56	38	35	49	14
Helmet Wearing								
Helmet on head	60	31	42	44	49	59	67	8
No helmet	40	69	58	56	51	41	33	-8
Gender								
Male	-	-	-	-	85	81	76	-5
Female	-	-	-	-	14	19	21	2
Can't tell	-	-	-	-	1	0	3	3
Where Riding								
Road	43	23	36	35	32	37	49	12
Footpath	57	77	64	65	68	63	51	-12
Base:	47	65	66	68	85	88	67	



- Evening cycle traffic was slightly heavier during the first hour of the monitoring period. From then it fluctuated until the end of the shift, with a maximum of 12 movements (between 6:00pm to 6:09pm) and a minimum of zero movement (6:50pm to 7:00pm).

Figure 9.3: Evening Peak Cyclist Frequency
Swanson Road/Ranui Station Road/Armada Drive 2007 – 2013 (n)



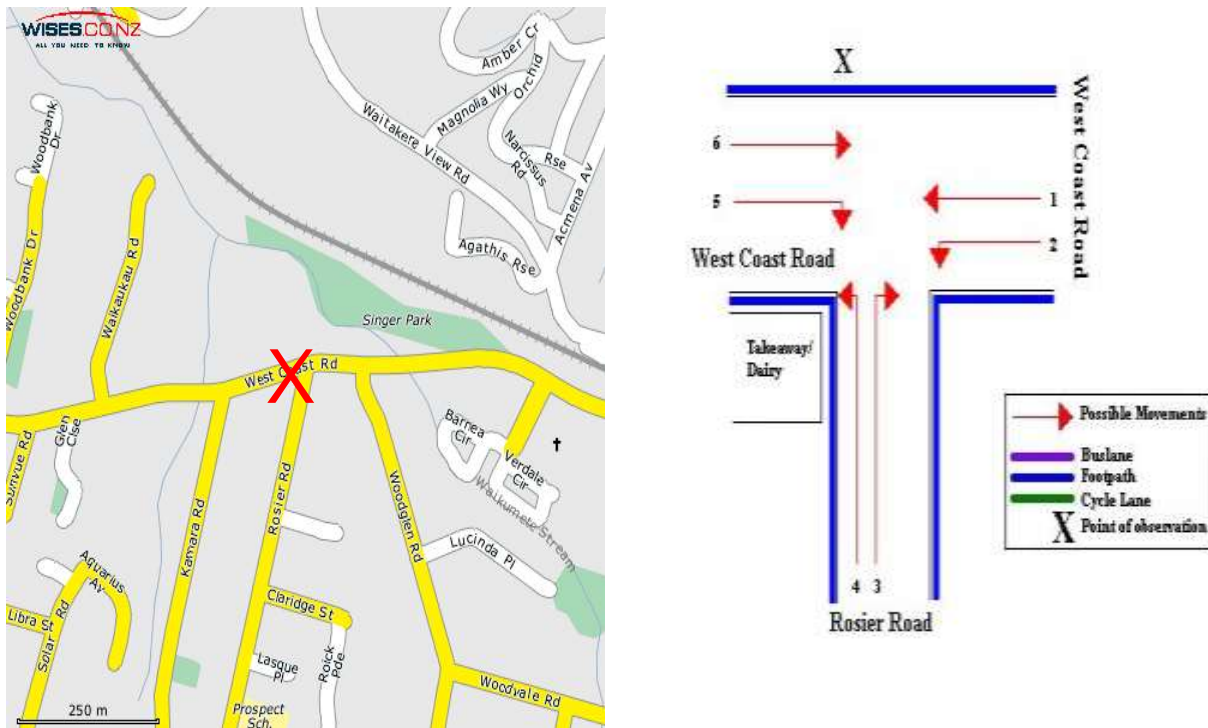
Note: In 2013, 22 per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- Three cyclists at 4:19pm
- Three cyclists at 4:29pm
- Five cyclists at 6:01pm
- Four cyclists at 6:15pm

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



10.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift, with the exception of light drizzle observed between 8:30am and 8:48am.
- There were cones in front of the takeaway shop, blocking the footpath. There were no other 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 19 movements in 2012 to 24 movements in this year.
- The most common movement in the morning was straight along West Coast heading east (Movement 6 = 14 cyclists).
- Cyclist volume for Movement 6 has doubled from 12 months ago.

**Table 10.1: Morning Cyclist Movements
West Coast Road/Rosier Road 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	4	7	13	19	6	8	3	-5
2	0	0	0	0	0	0	0	0
3	4	2	3	1	2	3	2	-1
4	1	1	2	1	8	1	5	4
5	1	2	1	0	0	0	0	0
6	9	6	9	10	9	7	14	7
Total	19	18	28	31	25	19	24	5



- Over the morning peak, adults comprised most cycle movements (92 per cent, slightly down from 95 per cent in 2012).
- Almost all cyclists were wearing a helmet (92 per cent, an 18 percentage point increase since last year).
- Almost all morning peak cyclists were male (92 per cent, slightly up from 89 per cent last year).
- Forty per cent of the cyclists were riding on the footpath, an increasing trend since 2009.

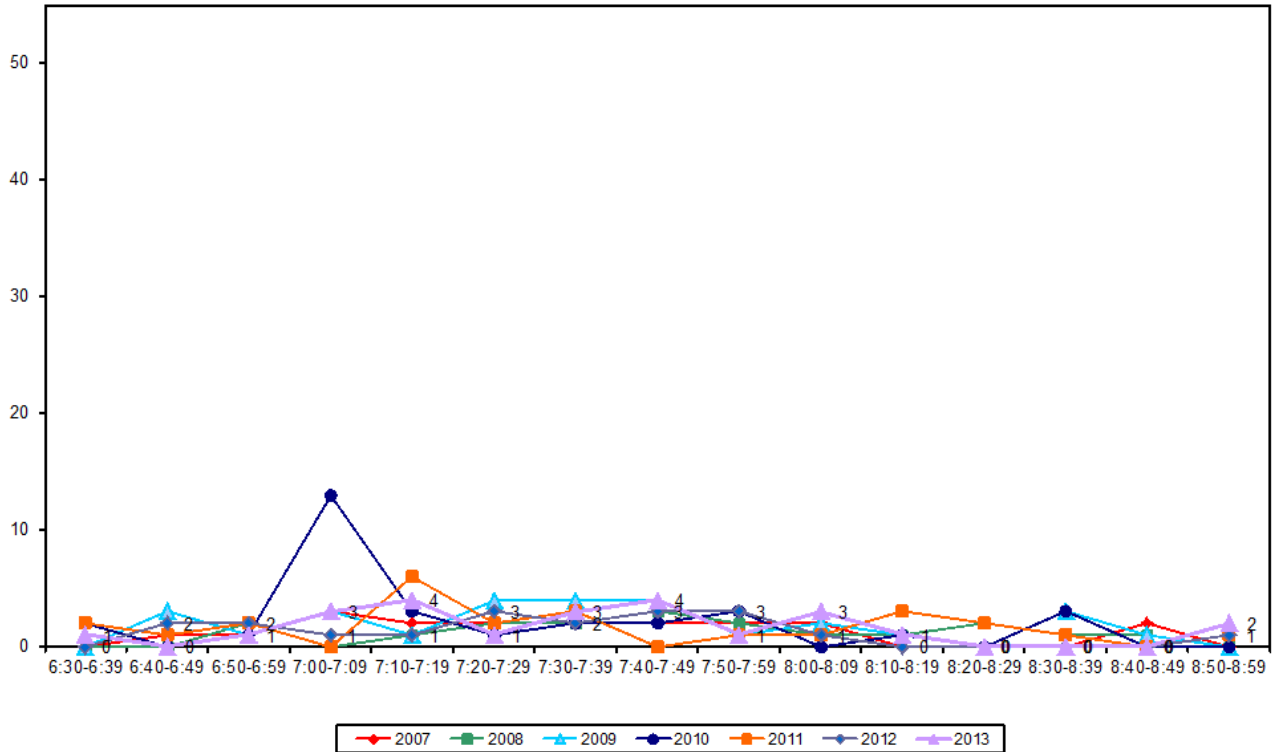
**Table 10.2: Morning Cyclist Characteristics
West Coast Road/Rosier Road 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	74	72	93	87	80	95	92	-3
School child	26	28	7	13	20	5	8	3
Helmet Wearing								
Helmet on head	84	78	93	90	96	74	92	18
No helmet	16	22	7	10	4	26	8	-18
Gender								
Male	-	-	-	-	88	89	92	3
Female	-	-	-	-	8	11	8	-3
Can't tell	-	-	-	-	4	0	0	0
Where Riding								
Road	74	56	71	71	68	63	60	-3
Footpath	26	44	29	29	32	37	40	3
Base:	19	18	28	31	25	19	24	



- Morning cycle volume was 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 – 2013 (n)**



Note: A group of three cyclists (13 per cent of the morning cycle volume at this site) rode past at 7:17am.



10.3 Evening Peak

Environmental Conditions

- The weather was overcast throughout the evening shift, with rain reported from 4.52pm to 5.20pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Compared with the previous year, the total number of cycle movements recorded at the West Coast Road/Rosier Road intersection in the evening has increased, from 19 movements in 2012 to 32 movements this year.
- The key movement in the evening was straight along West Coast Road heading west (Movement 1 = 17 cyclists).
- Of the six movements possible at this site, the most noticeable change in terms of evening cyclist numbers was at Movement 1 (up 10 cyclists).

**Table 10.3: Evening Cyclist Movements
West Coast Road/Rosier Road 2007 – 2013 (n)**

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



- Most evening cyclists using the West Coast Road/Rosier Road intersection were adults (83 per cent, slightly up from 79 per cent in 2012).
- Eighty-eight per cent of cyclists at this site were wearing a helmet (up from 79 per cent last year).
- Almost all evening cyclists were male (81 per cent, down 8 percentage points from last measure).
- The greater share of cyclists at this site were riding on the road this year (62 per cent, up slightly from 58 per cent in the previous year).

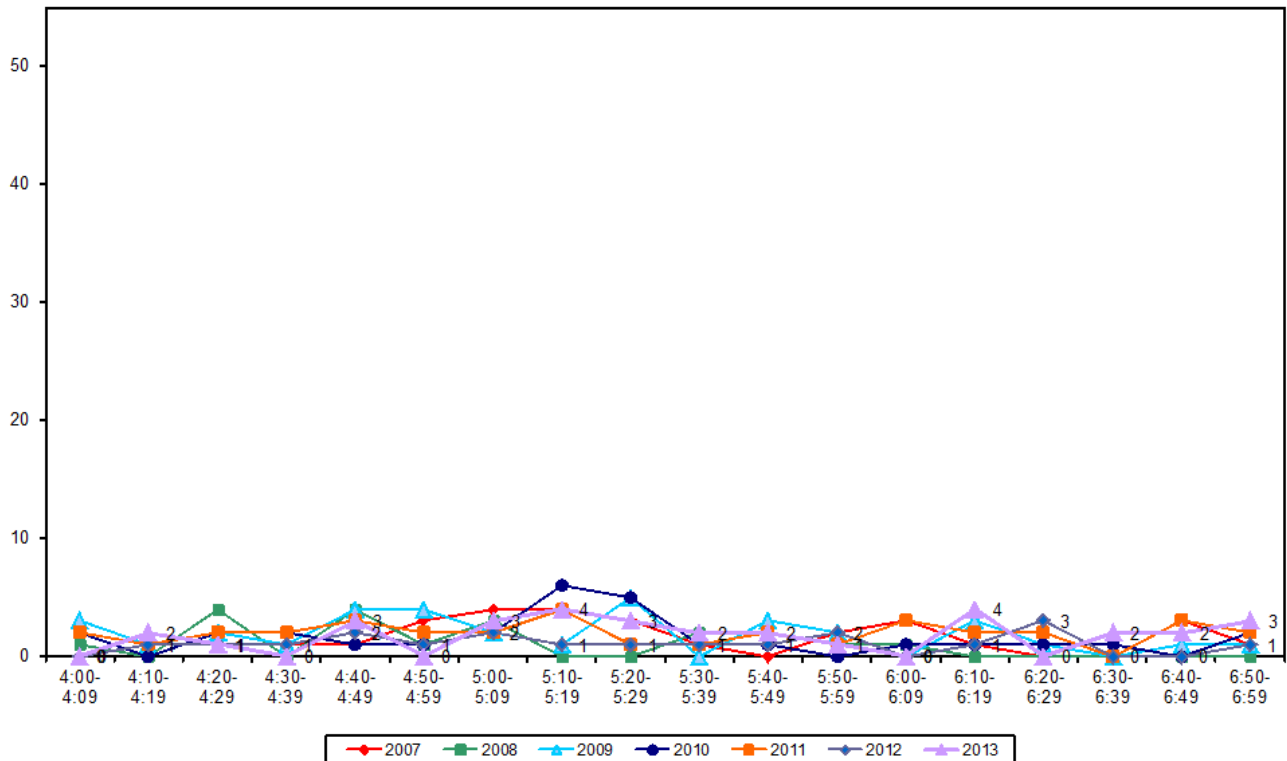
**Table 10.4: Evening Cyclist Characteristics
West Coast Road/Rosier Road 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	66	74	88	76	80	79	83	4
School child	34	26	12	24	20	21	17	-4
Helmet Wearing								
Helmet on head	59	74	79	72	71	79	88	9
No helmet	41	26	21	28	29	21	12	-9
Gender								
Male	-	-	-	-	89	89	81	-8
Female	-	-	-	-	6	11	13	2
Can't tell	-	-	-	-	5	0	6	6
Where Riding								
Road	34	58	47	59	54	58	62	4
Footpath	66	42	53	41	46	42	38	-4
Base:	29	19	34	29	35	19	32	



- Evening cyclist volumes remained low throughout the monitoring period, with no noticeable peaks recorded. There were no more than four cyclists passing the site during any ten minute interval. This trend was consistent with that observed in 2012.

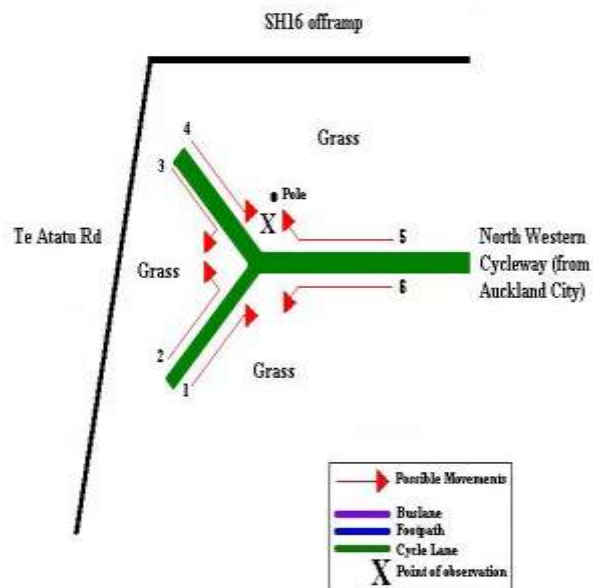
Figure 10.3: Evening Peak Cyclist Frequency
West Coast Road/Rosier Road 2007 – 2013 (n)



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



11.2 Morning Peak

Environmental Conditions

- The weather was fine at the start of the morning peak but had turned cloudy by the end of the shift. Two light showers were recorded at 7.10am and at 8.35am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- In 2013, 218 cyclist movements were recorded at the North Western Cycleway, the highest record since first monitoring began in 2007.
- The key morning movement was Movement 4 (148 cyclists, up from 24 movements 12 months ago).

**Table 11.1: Morning Cyclist Movements
North Western Cycleway 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	16	22	30	22	30	27	36	9
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	58	74	85	118	97	124	148	24
5	25	23	27	31	20	30	29	-1
6	3	2	15	8	8	6	5	-1
Total	102	121	157	179	155	187	218	31



- Over the morning peak, nearly all cyclists were adults (96 per cent, down slightly from 99 per cent last year).
- Most cyclists were wearing a helmet (96 per cent, stable from 98 per cent in 2012).
- The greatest share of morning cyclists were male (87 per cent, a small increase from 84 per cent in 2012).

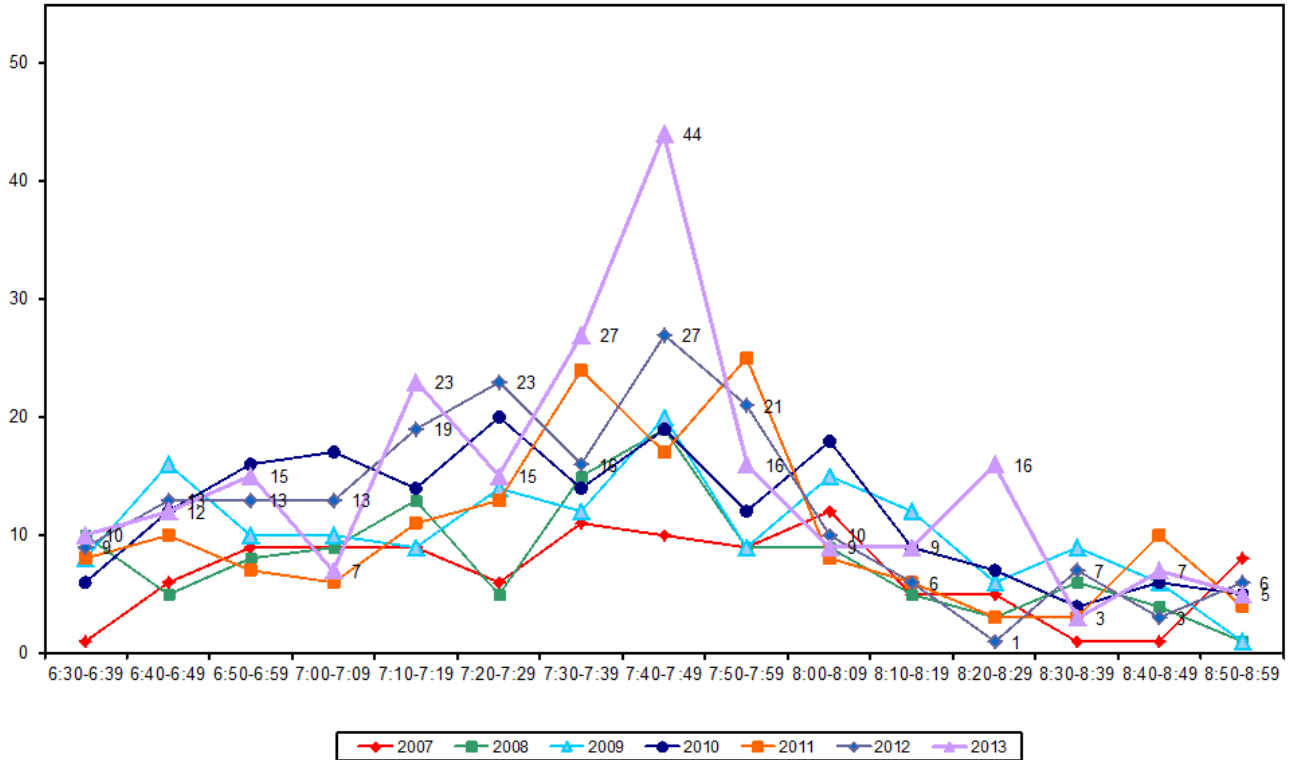
**Table 11.2: Morning Cyclist Characteristics
North Western Cycleway 2007 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type								
Adult	95	99	99	100	99	99	96	-3
School child	5	1	1	0	1	1	4	3
Helmet Wearing								
Helmet on head	97	95	96	97	97	98	96	-2
No helmet	3	5	4	3	3	2	4	2
Gender								
Male	-	-	-	-	85	84	87	3
Female	-	-	-	-	15	15	13	-2
Can't tell	-	-	-	-	0	1	0	-1
Where Riding								
Cycleway	100	100	100	100	100	100	100	0
Base:	102	121	157	179	155	187	218	



- Morning cycle volumes increased over the monitoring period to a sharp peak between 7:40am and 7:49am (44 movements) before decreasing toward the end of the monitoring period. There were also two smaller peaks observed in the graph (between 7:10am-7:19am and between 8:20am-8:29am).

**Figure 11.2: Morning Peak Cyclist Frequency
North Western Cycleway 2007 – 2013 (n)**



Note: In 2013, ten per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- Fourteen cyclists at 7:45am
- Eight cyclists at 7:47am



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, 236 evening cycle movements were recorded at the North Western Cycleway, stable from 238 movements in 2012.
- The most common movement in the evening was Movement 5, turning right from the North Western Cycleway (146 cyclists).
- Of the six movements possible at this intersection, the most noticeable change was at Movement 6, turning left from North Western Cycleway (up 9 cyclists).

**Table 11.3: Evening Cyclist Movements
North Western Cycleway 2007 – 2013 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	15	3	11	7	11	9	9	0
2	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0
4	27	36	32	48	44	41	36	-5
5	58	75	113	118	102	152	146	-6
6	30	37	42	36	33	36	45	9
Total	130	151	198	209	190	238	236	-2



- Over the evening peak, almost all cyclists using this cycleway were adults (96 per cent, stable from 98 per cent last year).
- Most cyclists at this site were wearing a helmet (97 per cent, stable from 96 per cent in 2012).
- The greatest share of evening cyclists were male (86 per cent, stable from 88 per cent last year).

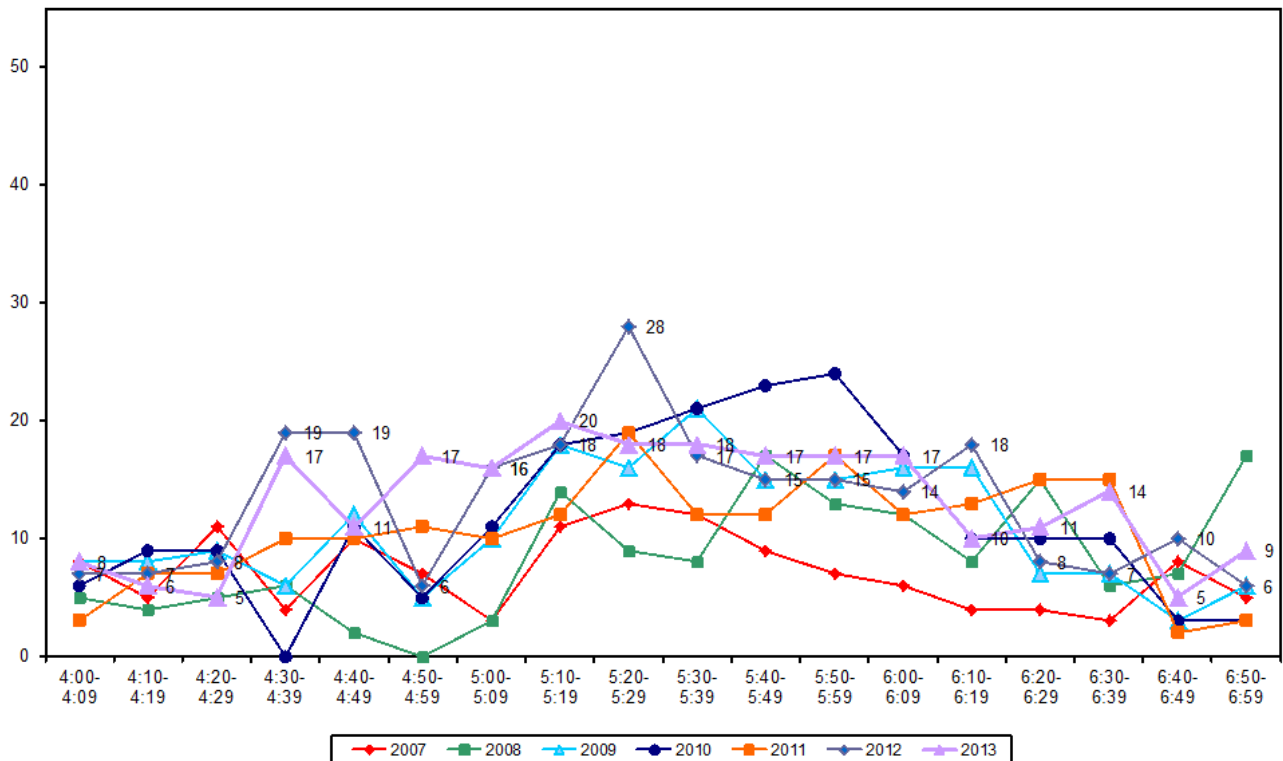
**Table 11.4: Evening Cyclist Characteristics
North Western Cycleway 2007 – 2013 (%)**

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



- Figure 11.3 below illustrated the total number of evening cyclists by time of movement in the evening shift. Evening cycle volume was heavier in the middle section of the monitoring period and peaked slightly between 5:10pm to 5:19pm (20 movements).

**Figure 11.3: Evening Peak Cyclist Frequency
North Western Cycleway 2007 – 2013 (n)**

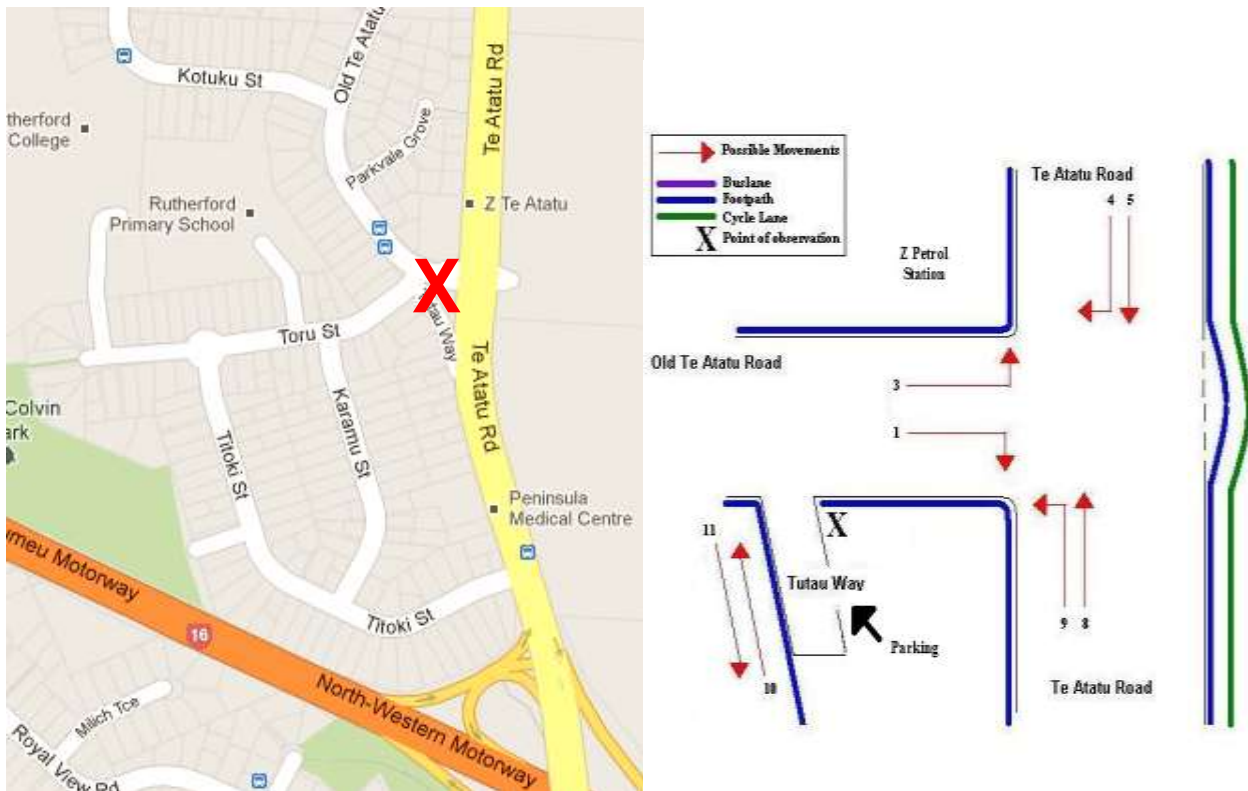


Note: A group of six cyclists (3 per cent of the evening cycle volume at this site) rode past at 4:35pm.

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

Figure 12.1 shows the possible cyclist movements at this intersection.

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



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

12.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2008	56	55	111	161
2009	66	68	134	195
2010	105	102	207	301
2011	63	78	141	204
2012	103	90	193	282
2013	88	104	192	278



12.2 Morning Peak

Environmental Conditions

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

Key Points

- This year, morning cycle volumes at the Te Atatu/Old Te Atatu Road/Tatau Way site have decreased, from 103 movements in 2012 to 88 movements in this year.
- The key morning movements were riding southwards down Te Atatu Road (Movement 5 = 42 cyclists), heading north on Te Atatu Road (Movement 8 = 22 cyclists) and turning left from Te Atatu Road into Old Te Atatu Road (Movement 9 = 12 cyclists) .
- Of the 11 possible movements at this site, the most noticeable increase was at Movement 5 (down 8 cyclists).

Table 12.1: Morning Cyclist Movements
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2013 (n)

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



- Over the morning peak, most cyclists at this site were adults (69 per cent, stable from 68 per cent last year).
- Most cyclists were wearing a helmet (93 per cent, up from 88 per cent in 2012).
- Eighty-nine per cent of evening peak cyclists was male.
- Almost all cyclists were riding on the cycleway (75 per cent, stable from 73 per cent last year). The remainder were riding on the road (10 per cent) or on the footpath (15 per cent).

**Table 12.2: Morning Cyclist Characteristics
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2013 (%)**

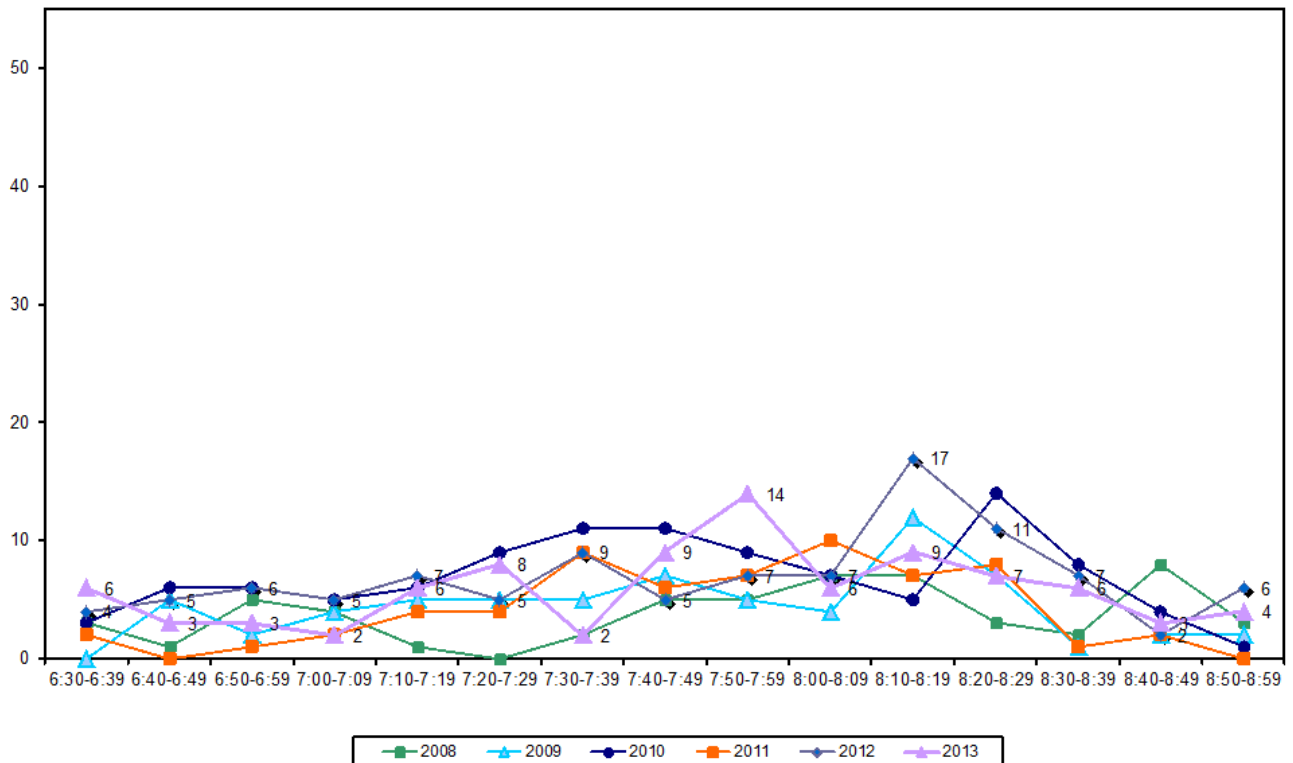
	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type							
Adult	59	71	69	63	68	69	1
School child	41	29	31	37	32	31	-1
Helmet Wearing							
Helmet on head	95	91	95	97	88	93	5
No helmet	5	9	5	3	12	7	-5
Gender							
Male	-	-	-	84	83	89	6
Female	-	-	-	11	17	9	-8
Can't tell	-	-	-	5	0	2	2
Where Riding							
Road	75	58	90	5	18	10	-8
Footpath	25	42	10	27	9	15	6
Off-road cycleway	-	-	-	68	73	75	2
Base:	56	66	105	63	103	88	

Note: A cycleway was constructed at this site in 2010



- Figure 12.2 below illustrates the total number of morning cyclists by time of movement in the morning shift. Cycle volumes varied over the first half of the morning peak, reaching a peak between 7:50am and 7:59am (14 cyclists), 20 minutes earlier than the peak observed in 2012 (17 cyclists).

Figure 12.2: Morning Peak Cyclist Frequency
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2013 (n)





12.3 Evening Peak

Environmental Conditions

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

Key Points

- The number of evening cycle movements recorded at the Te Atatu/Old Te Atatu Road/Tatau Way site has increased this year to 104 movements (highest count since monitoring began in 2008).
- The most common movements in the evening were along Te Atatu Road in both directions (Movement 8 = 60 cyclists; Movement 5 = 21 cyclists).
- The most noticeable change from 2012 was at Movement 5 (up 5 cyclists).

**Table 12.3: Evening Cyclist Movements
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2013 (n)**

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



- Over the evening peak, the greatest share of cyclists using this site were adults (86 per cent, down slightly from 93 per cent last year). There were more school children cycling this year (14 per cent, an increasing trend since 2011).
- Most cyclists at this site were wearing a helmet (90 per cent, a 9 percentage point increase from the last measure).
- The greatest share of evening cyclists were male (86 per cent, unchanged from last year).
- Three in four cyclists at this site were riding on the cycleway (74 per cent, unchanged from the previous measure).

**Table 12.4: Evening Cyclist Characteristics
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2013 (%)**

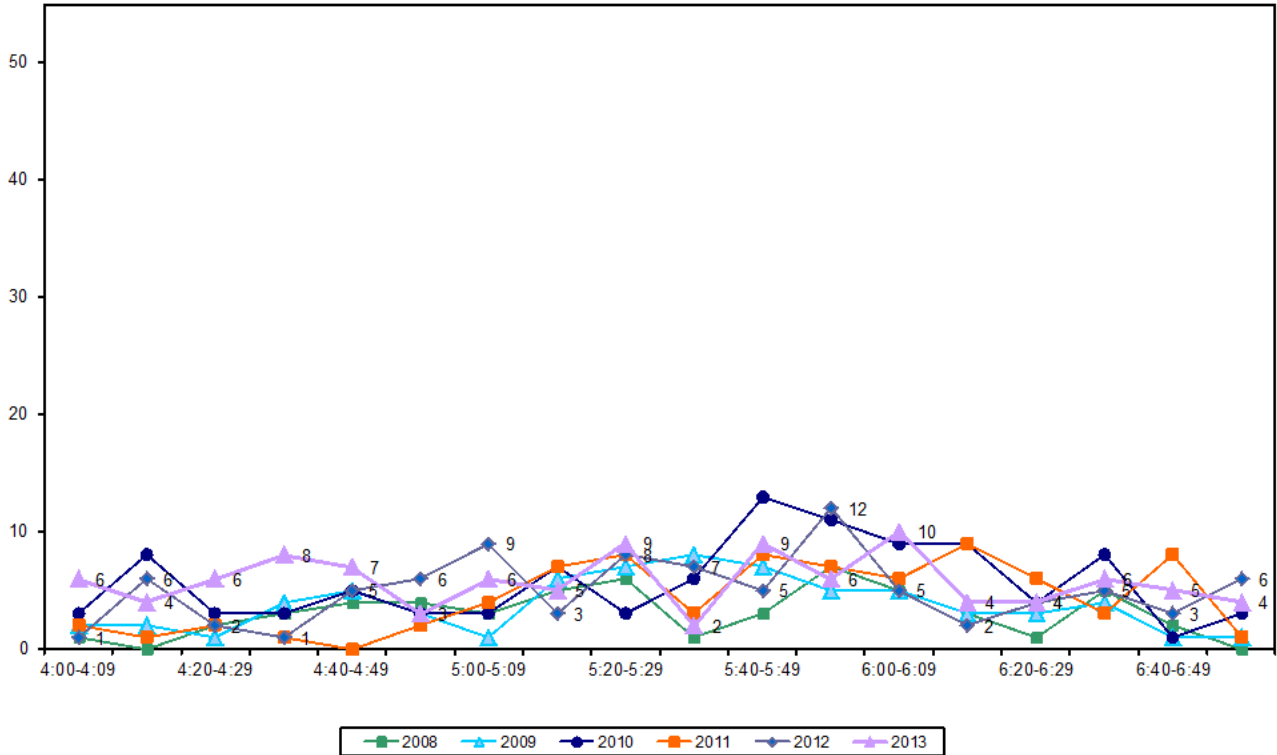
	2008	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type							
Adult	91	90	85	97	93	86	-7
School child	9	10	15	3	7	14	7
Helmet Wearing							
Helmet on head	87	84	84	94	81	90	9
No helmet	13	16	16	6	19	10	-9
Gender							
Male	-	-	-	83	86	86	0
Female	-	-	-	9	14	14	0
Can't tell	-	-	-	8	0	0	0
Where Riding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

Note: A cycleway was constructed at this site in 2010



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

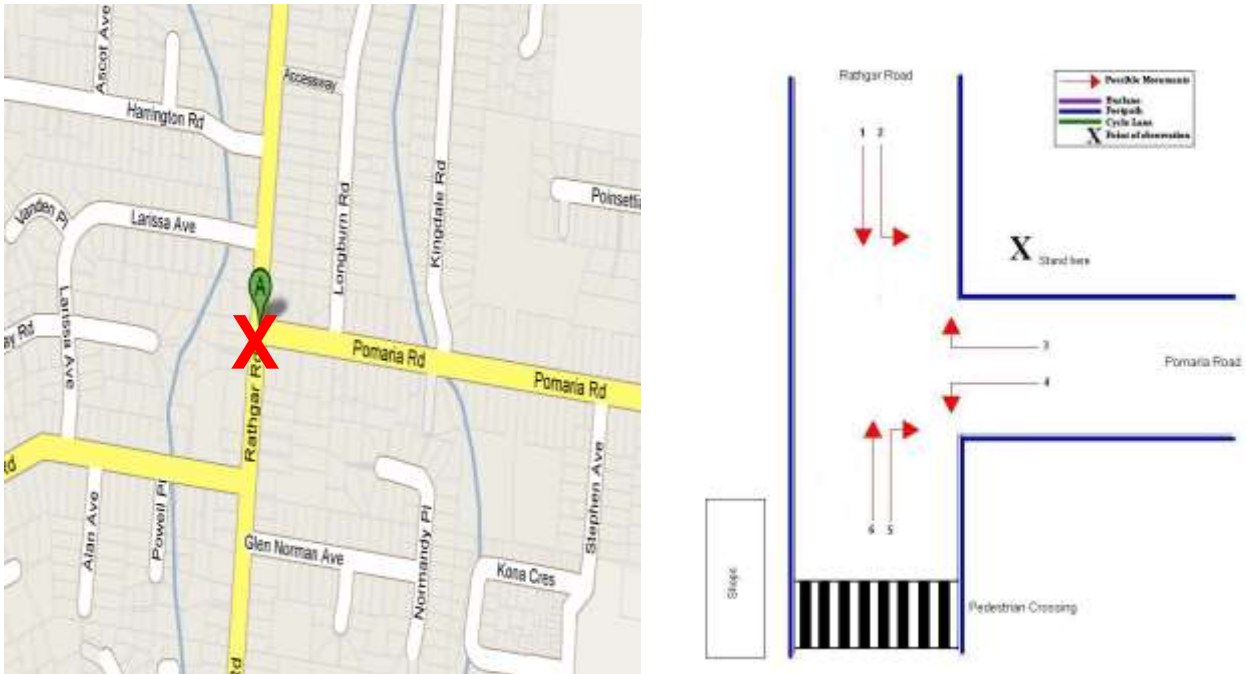
Figure 12.3: Evening Peak Cyclist Frequency
Te Atatu/Old Te Atatu Road/Tatau Way 2008 – 2013 (n)



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

Figure 13.1 shows the possible cyclist movements at this intersection.

Figure 13.1: Cycle Movements: Rathgar/Pomaria Road



13.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2009	32	53	85	122
2010	53	46	99	144
2011	33	35	68	99
2012	38	35	73	106
2013	36	32	68	99



13.2 Morning Peak

Environmental Conditions

- The weather was overcast throughout the morning shift. There was light drizzle recorded from 7.06am to 7.16am, 8.42am to 8.47am and 8.54am to 8.57am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cycle volume at the Rathgar/Pomaria Road site was 36 cyclists this year (stable from 38 cycle movements in 2011).
- The key morning movement was the right turn from Rathgar Road into Pomaria Road (Movement 5 = 21 cyclists).
- The biggest changes in cyclist volume occurred at Movement 4 – left turn from Pomaria Road onto Rathgar Road (down 3 movements) and at Movement 2 – left turn from Rathgar Road onto Pomaria Road (down 3 movements also).

**Table 13.1: Morning Cyclist Movements
Rathgar/Pomaria Road 2009 – 2013 (n)**

<i>Movement</i>	2009	2010	2011	2012	2013	Change 12-13
1	4	10	5	5	6	1
2	3	3	1	6	3	-3
3	2	3	0	0	2	2
4	10	15	10	7	4	-3
5	12	20	15	19	21	2
6	1	2	2	1	0	-1
Total	32	53	33	38	36	-2



- Over the morning peak, more than two thirds of all cyclists were adults (72 per cent, stable from 71 per cent in 2012).
- Most cyclists were wearing a helmet (89 per cent, unchanged from last year).
- Most morning cyclists were male (75 per cent, down 12 percentage points from 2012).
- Two-thirds of the cyclists at this site (69 per cent) were riding on the road (a 12 per cent increase since 2012).

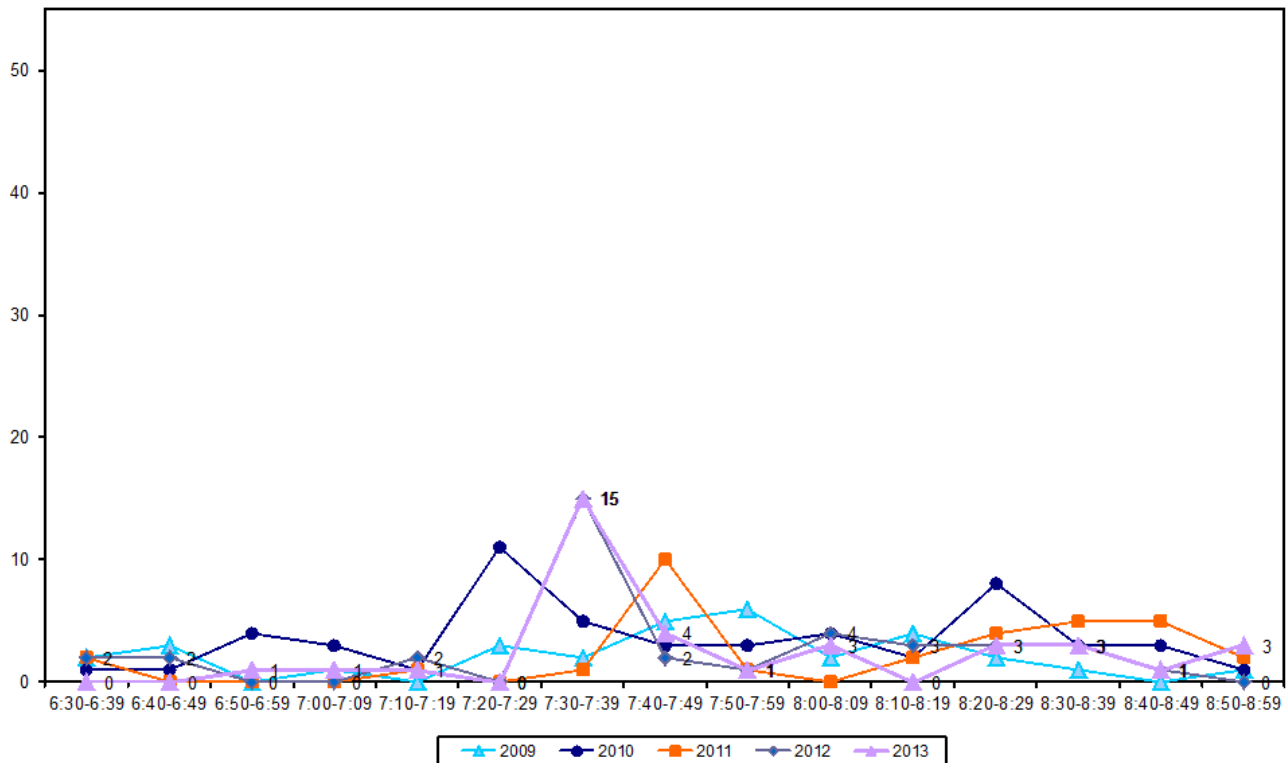
**Table 13.2: Morning Cyclist Characteristics
Rathgar/Pomaria Road 2009 – 2013 (%)**

	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type						
Adult	53	75	45	71	72	1
School child	47	25	55	29	28	-1
Helmet Wearing						
Helmet on head	69	85	94	89	89	0
No helmet	31	15	6	11	11	0
Gender						
Male	-	-	94	87	75	-12
Female	-	-	6	11	25	14
Can't tell	-	-	0	2	0	-2
Where Riding						
Road	50	60	55	57	69	12
Footpath	50	40	45	43	31	-12
Base:	32	53	33	38	36	



- Morning cycle movements peaked between 7:30am and 7:39am (15 movements, amongst which there were 3 pelotons), the same time and the same traffic volume as the peak from last year. Otherwise traffic remained low throughout the morning peak period, with no more than four cyclists per ten minute interval.

**Figure 13.2: Morning Peak Cyclist Frequency
Rathgar/Pomaria Road 2009 – 2013 (n)**



Note: In 2013, 25 per cent of the total cycle movements in the morning peak were identified as cycling in groups/pelotons. Three or more cyclists were observed travelling in groups at this site at the following times:

- Three cyclists at 7:35am
- Three cyclists at 7:38am
- Three cyclists at 7:39am



13.3 Evening Peak

Environmental Conditions

- The weather was overcast and windy at the start of the shift, gradually clearing up towards the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of cycle movements recorded at the Rathgar/Pomaria Road site in the evening has remained stable from last year, with 32 movements recorded.
- The most common movement in the evening was turning right from Pomaria Road into Rathgar Road (Movement 4 = 8 cyclists).
- The most noticeable change occurred at Movement 6 (down 6 cyclists from 2012).

**Table 13.3: Evening Cyclist Movements
Rathgar/Pomaria Road 2009 – 2013 (n)**

<i>Movement</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	14	10	5	8	5	-3
2	1	6	0	0	2	2
3	3	5	1	4	6	2
4	16	5	9	10	8	-2
5	9	13	9	7	4	-3
6	10	7	11	6	0	-6
Total	53	46	35	35	32	-3



- Over the evening peak, just less than half of the cyclists using this intersection were school children (41 per cent, up from 20 per cent in 2012).
- Half of the cyclists using the site in the evening were not wearing a helmet (53 per cent, up from 26 per cent on last year).
- The majority of evening peak cyclists were male (72 per cent, down from 94 per cent last year).
- The greatest share of evening cyclists were riding on the footpath (66 per cent, down from 54 per cent in 2012).

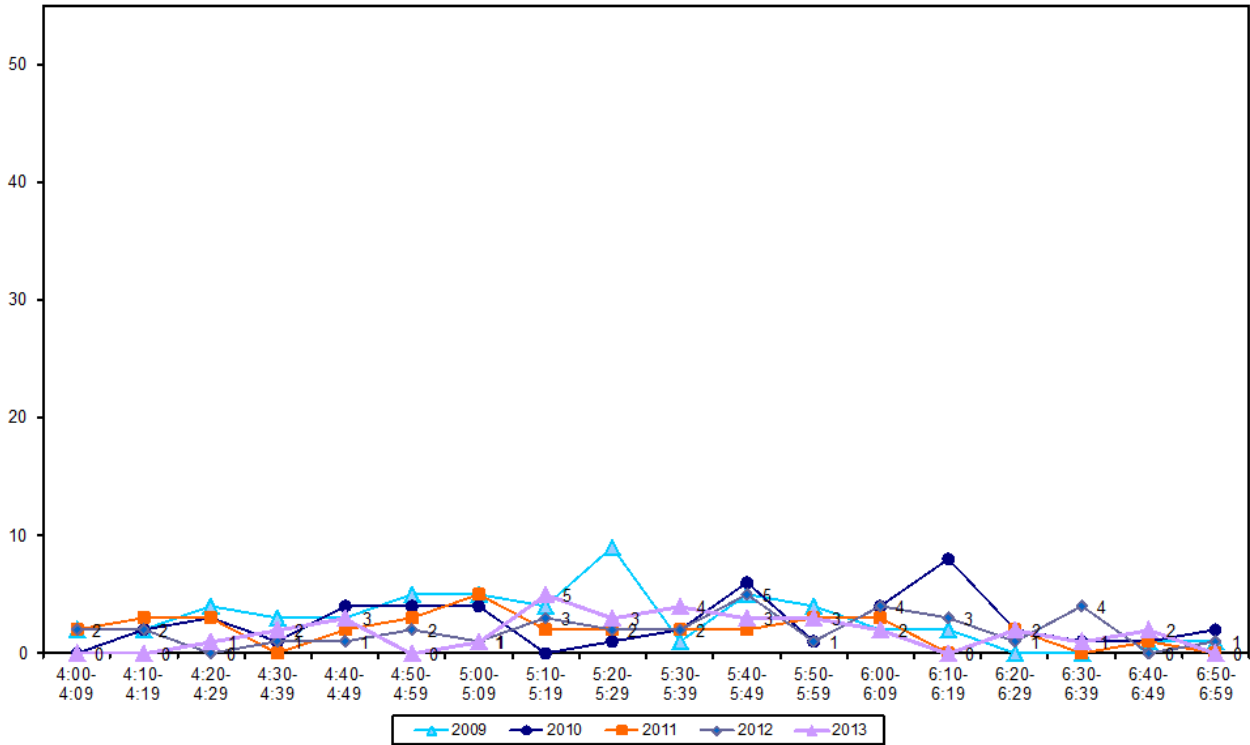
**Table 13.4: Evening Cyclist Characteristics
Rathgar/Pomaria Road 2009 – 2013 (%)**

	2009	2010	2011	2012	2013	Change 12-13
Cyclist Type						
Adult	42	43	40	80	59	-21
School child	58	57	60	20	41	21
Helmet Wearing						
Helmet on head	49	46	37	74	47	27
No helmet	51	54	63	26	53	-27
Gender						
Male	-	-	83	94	72	22
Female	-	-	17	6	28	-22
Can't tell	-	-	0	0	0	0
Where Riding						
Road	32	37	31	46	34	-12
Footpath	68	63	69	54	66	12
Base:	53	46	35	35	32	



- Consistent with 2012, evening cycle volumes remained low throughout the evening peak period. No more than five cyclists rode past the site during any ten minute interval.

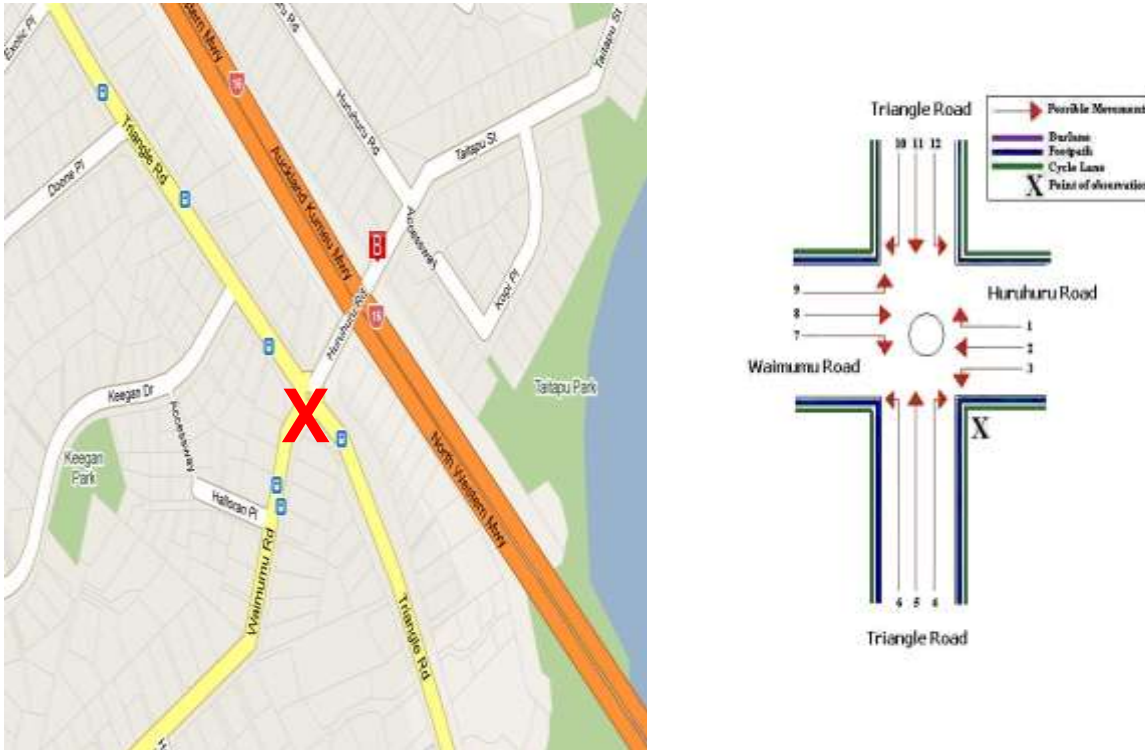
Figure 13.3: Evening Peak Cyclist Frequency
Rathgar/Pomaria Road 2009 – 2013 (n)



14. TRIANGLE/HURUHURU ROAD (SITE 87)

Figure 14.1 shows the possible cyclist movements at this intersection.

Figure 16.1: Cycle Movements: Triangle/Huruhuru Road



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

14.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2010	59	78	137	198
2011	52	69	121	175
2012	71	106	177	255
2013	73	80	153	222



14.2 Morning Peak

Environmental Conditions

- The weather was overcast with spells of light drizzle throughout the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning peak cycle volumes at the Triangle/Huruhuru Road site remained moderate, with 73 cycle movements recorded (stable from 71 movements in 2012).
- The key morning movement was travelling straight along Triangle Road heading southeast (Movement 11 = 41 cyclists).
- Movement 11 also registered the biggest volume change from last year (up 5 movements).

**Table 14.1: Morning Cyclist Movements
Triangle/Huruhuru Road 2010 – 2013 (n)**

<i>Movement</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	0	2	0	0	0
2	0	0	1	1	0
3	4	1	8	7	-1
4	0	0	1	0	-1
5	6	5	10	11	1
6	1	7	1	1	0
7	8	3	14	10	-4
8	1	0	0	1	1
9	0	0	0	0	0
10	0	0	0	1	1
11	39	34	36	41	5
12	0	0	0	0	0
Total	59	52	71	73	2



- Over the morning peak, most cyclists were adults (92 per cent, up from 87 per cent in 2012).
- Almost all cyclists are wearing a helmet (93 per cent, stable from 92 per cent last year).
- The majority of cyclists at this site were male (88 per cent, stable from 89 per cent in 2012).
- No cyclists were riding on the footpath, nearly half of them were using the off-road cycleway (44 per cent, a 19 percentage point increase from 2012).

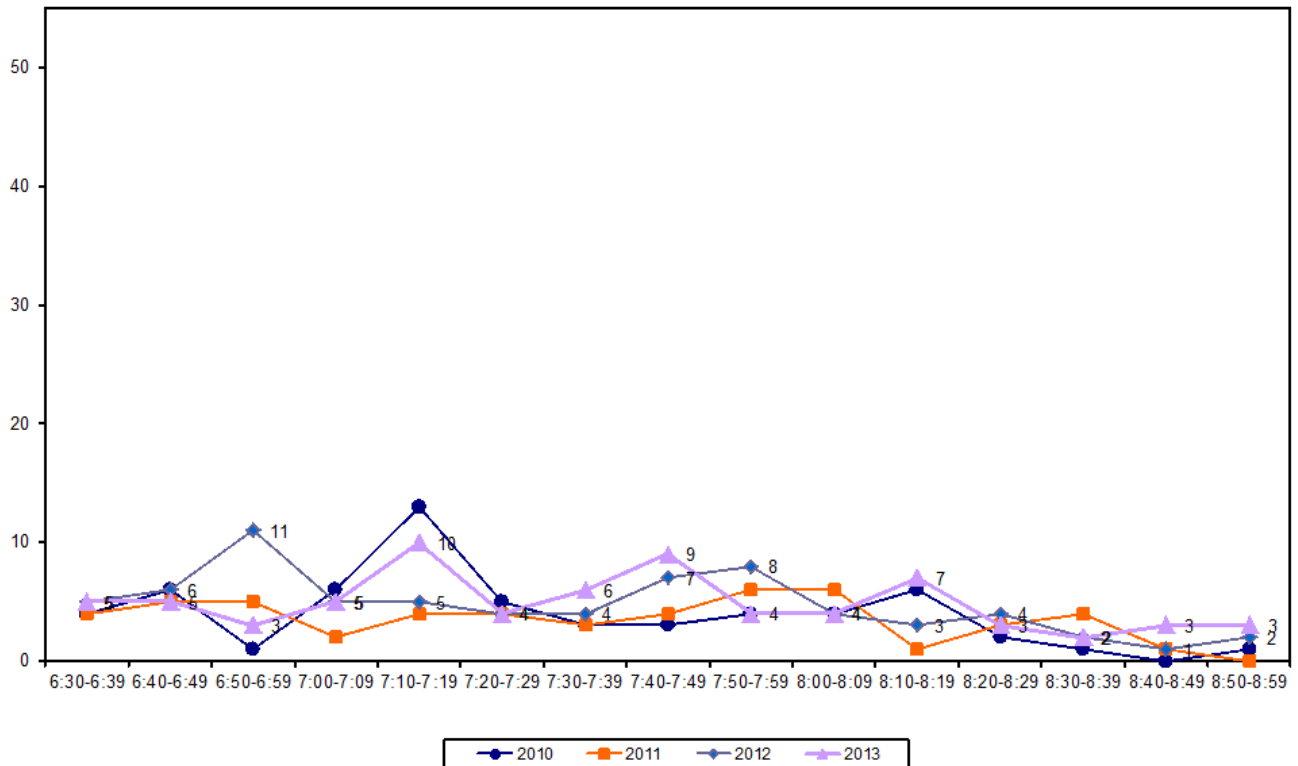
**Table 14.2: Morning Cyclist Characteristics
Triangle/Huruhuru Road 2010 – 2013 (%)**

	2010	2011	2012	2013	Change 12-13
Cyclist Type					
Adult	95	77	87	92	5
School child	5	23	13	8	-5
Helmet Wearing					
Helmet on head	97	96	92	93	1
No helmet	3	4	8	7	-1
Gender					
Male	-	73	89	88	-1
Female	-	15	11	12	1
Can't tell	-	12	0	0	0
Where Riding					
Road	95	71	60	56	-4
Footpath	5	2	15	0	-15
Off-road cycle way	-	27	25	44	19
Base:	59	52	71	73	



- Morning cycle volume started off low and peaked with ten movements between 7:10am – 7:19am. From there the traffic volume varied until the end of the monitoring period, but the overall trend was a decreasing one.

Figure 14.2: Morning Peak Cyclist Frequency
Triangle/Huruhuru Road 2010 – 2013 (n)



Note: A group of three cyclists (4 per cent of the morning cycle volume at this site) rode past at 7:19am.



14.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded at the Triangle/Huruhuru Road site in the evening has decreased, with 80 movements recorded (down from 106 movements in 2012).
- The most common movement in the evening was straight along Triangle Road heading northeast (Movement 5 = 47 cyclists).
- The most noticeable change was at Movement 5 (down 13 movements from last year).

**Table 14.3: Evening Cyclist Movements
Triangle/Huruhuru Road 2010 – 2013 (n)**

<i>Movement</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>Change 12-13</i>
1	1	0	0	0	0
2	1	0	2	0	-2
3	5	2	0	1	1
4	4	3	7	6	-1
5	39	39	60	47	-13
6	9	6	14	12	-2
7	3	1	5	1	-4
8	1	0	0	0	0
9	2	2	4	2	-2
10	0	5	2	0	-2
11	13	10	10	11	1
12	0	1	2	0	-2
Total	78	69	106	80	-26



- Over the evening peak, nearly all cyclists using this intersection were adults (97 per cent, up from 75 per cent last year).
- Almost all cyclists using the site in the evening were wearing a helmet (94 per cent, up from 89 per cent in 2012).
- Almost all evening cyclists were male (91 per cent).
- The majority of evening cyclists are riding on the road (85 per cent, up from 72 per cent in 2012), while there has been a decline in use of the off-road cycleway since 2011.

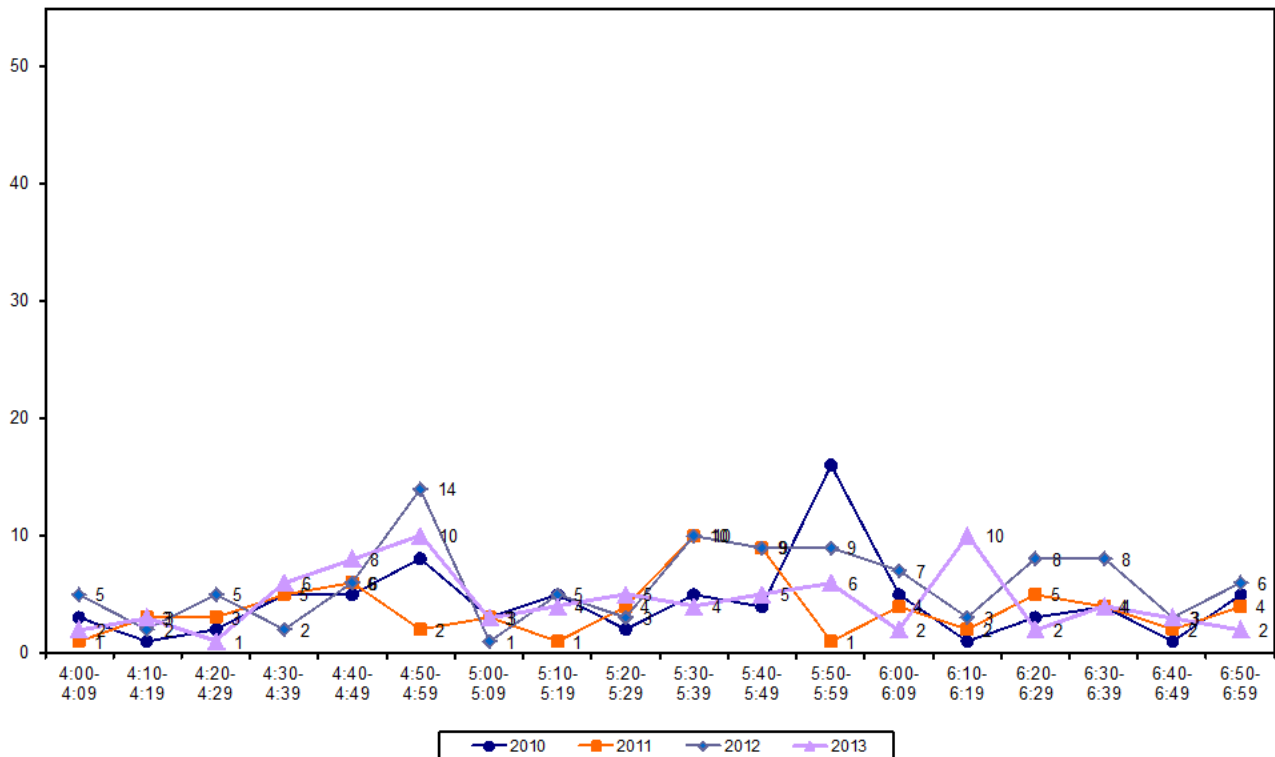
**Table 14.4: Evening Cyclist Characteristics
Triangle/Huruhuru Road 2010 – 2013 (%)**

	2010	2011	2012	2013	Change 12-13
Cyclist Type					
Adult	77	80	75	97	22
School child	23	20	25	3	-22
Helmet Wearing					
Helmet on head	76	84	89	94	5
No helmet	24	16	11	6	-5
Gender					
Male	-	87	80	91	11
Female	-	13	11	8	-3
Can't tell	-	0	9	1	-8
Where Riding					
Road	71	74	72	85	13
Footpath	29	0	7	0	-7
Off-road cycle way	-	26	21	15	-6
Base:	78	69	106	80	



- Cycle volume in the evening was generally low but peaked twice (between 4:50pm - 4:59pm and between 6:10pm – 6:19pm, with 10 cyclists recorded during each peak). Otherwise there were no more than six cyclists passing the site per ten minute interval.

Figure 14.3: Evening Peak Cyclist Frequency
Triangle/Huruhuru Road 2010 – 2013 (n)



Note: In 2013, 11 per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- Six cyclists at 4:56pm
- Three cyclists at 6:16pm



15. WEST HARBOUR FERRY WHARF

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



16. SCHOOL BIKE SHED COUNT - WAITAKERE

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

Background Information

- A total of 25 schools in the Waitakere ward participated in the school bike shed count.
- Most of the schools that responded to the survey have no policies that restrict students cycling to school¹¹.
- Most schools did not report any events or issues that may affect cycle counts¹².
- The designated count day was Tuesday 5th of March 2013¹³.

Key Points

- Among those Waitakere schools that responded to the survey, of those eligible to cycle to school, on average two per cent of students are cycling to their schools (stable from 2012).
- Among the schools that responded, n=237 students were reported to be cycling to school.
- This year, Te Atatu Intermediate reported the highest share of cyclists – 8 per cent of all eligible students currently cycling to school (stable from 9 per cent in 2012).
- Of the 21 schools that participated in the count in both 2012 and 2013, 9 (43 per cent) schools reported an increase in the share of students cycling to school.

¹¹ The following schools had policies surrounding riding a bicycle to school:

- ACG Sunderland *"Students in Year 7 and above may bike to school"*
- Birdwood School *"Not policy but recommendation in parent booklet. Only students in Years 6-8 may cycle to school"*
- Don Buck School *"Students must be 10 years or over"*
- Lincoln Heights School *"Students in Years 5,6,7,8 may cycle to school"*
- Massey Primary School *"Students need parents' permission"*
- Royal Road School *"Senior students may ride to school by applying in writing to the Principal. Only students who have permission to ride may bring their bikes to school"*
- Swanson School *"Students need a note from parents (and must be aged over 10 years)"*

¹² The following schools reported events or issues that had an effect on the cycle count:

- Lincoln Heights School *"Normally five children cycle but one didn't today in case he was late"*
- Ngā Kakano Christian Reo Rua Kura *"Away getting ready for Polyfest – on average usually 5 bicycles"*

¹³ The following schools conducted counts on alternative count days

- ACG Sunderland – 28th February 2013
- Colwill School – 13th March 2013
- Henderson High School – 13th March 2013
- Holy Cross School (Henderson) – 13th March 2013
- Liston College – 13th March 2013
- Massey Primary School – 14th March 2013
- Ngā Kakano Christian Reo Rua Kura – 13th March 2013
- Swanson School – 13th March 2013
- Te Kura Kaupapa Māori o Te Kotuku – 13th March 2013
- Titirangi Rudolf Steiner School – 1st March 2013
- West Harbour School – 14th March 2013



- Of the 21 schools that participated in the count in both 2012 and 2013, 6 (29 per cent) reported a decrease in the share of students cycling.
- Of the 25 schools that responded, 8 (32 per cent) had no students cycling to school.

Table 16.1 shows the results of the 25 schools in Waitakere that responded to the survey.

**Table 16.1: Summary Table of School Bike Count
2007 – 2013 (n)**

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible ¹⁴						
				2013	2012	2011	2010	2009	2008	2007
Te Atatu Intermediate	Intermediate	320	26	8%	9%	8%	8%	9%	7%	10%
Rangeview Intermediate	Intermediate	785	29	4%	3%	-	-	-	-	-
ACG Sunderland	Composite	200	5	3%	2%	<1%	4%	2%	1%	-
Glen Eden Intermediate School	Intermediate	969	26	3%	1%	1%	1%	3%	-	-
Henderson Intermediate	Intermediate	525	14	3%	4%	-	-	-	-	-
Rutherford College	Secondary	1400	46	3%	4%	-	-	-	-	-
Waitakere College	Secondary	1400	37	3%	2%	-	-	-	-	-
Birdwood School	Full Primary	214	5	2%	0%	0%	-	-	-	-
Bruce McLaren Intermediate	Intermediate	249	4	2%	1%	<1%	3%	4%	2%	2%
Lincoln Heights School	Full Primary	232	4	2%	0%	0%	-	-	-	-
Colwill School	Full Primary	200	1	1%	0%	<1%	-	-	-	-
Henderson High School	Secondary	700	5	1%	1%	-	-	-	-	-
Liston College	Intermediate/Secondary	787	10	1%	3%	-	-	-	-	-
Massey High School	Secondary	2199	19	1%	-	-	<1%	1%	1%	1%
Swanson School	Full Primary	458	4	1%	2%	7%	-	-	-	-
Holy Cross School (Henderson)	Full Primary	390	1	<1%	0%	0%	-	-	-	-
Massey Primary School	Full Primary	420	1	<1%	-	-	-	-	-	-
Don Buck Primary School	Full Primary	67	0	0%	0%	0%	-	-	-	-

¹⁴ This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible ¹⁴						
				2013	2012	2011	2010	2009	2008	2007
Ngā Kakano Christian Reo Rua Kura	Composite	73	0	0%	6%	2%	-	6%	7%	7%
Royal Road School	Full Primary	67	0	0%	0%	0%	-	-	-	-
St Dominic's College	Intermediate/Secondary	910	0	0%	0%	0%	-	<1%	<1%	<1%
Te Kura Kaupapa Māori o Hoani Waititi Marae	Composite	168	0	0%	0%	2%	2%	0%	0%	-
Te Kura Kaupapa Māori o Te Kotuku	Full Primary	59	0	0%	-	-	-	-	-	-
Titirangi Rudolf Steiner School	Full Primary	150	0	0%	0%	0%	0%	0%	0%	0%
West Harbour School	Full Primary	330	0	0%	-	-	-	-	-	-
Total		13272	237	2%	2%	1%	-	-	-	-



Table 16.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (4 per cent, stable from 3 per cent last year).

**Table 16.2: Summary Table of School Bike Count by School Type
2007 – 2013 (%)**

<i>School Types</i>	<i>Number of Schools Responded in 2013</i>	<i>Cyclists as share of those eligible</i>							<i>Change 12-13</i>
		<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	
Intermediate	5	6%	5%	5%	4%	3%	3%	4%	1%
Secondary	4	0%	0%	0%	0%	0%	2%	2%	0%
Composite	4	7%	3%	3%	3%	1%	2%	1%	-1%
Full Primary	10	-	-	-	-	1%	1%	1%	0%
Intermediate/Secondary	2	<1%	<1%	<1%	-	0%	1%	1%	0%



gravitas

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 AADT¹⁵ 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:

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

$$D = 14$$

$$W = 0.9$$

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

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

	Morning	Afternoon
Dry weather	3.06	2.78
Wet weather	4.78	4.35

Worked Example

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

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



Appendix Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%