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Research Report Prepared for
Auckland Transport

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2014 Auckland Region Manual Cycle Monitor

- North Shore Ward -

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1.1 Introduction

The Need For Reliable Cycle Trip Data

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

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

Manual Cycle Monitoring

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

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

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

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

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

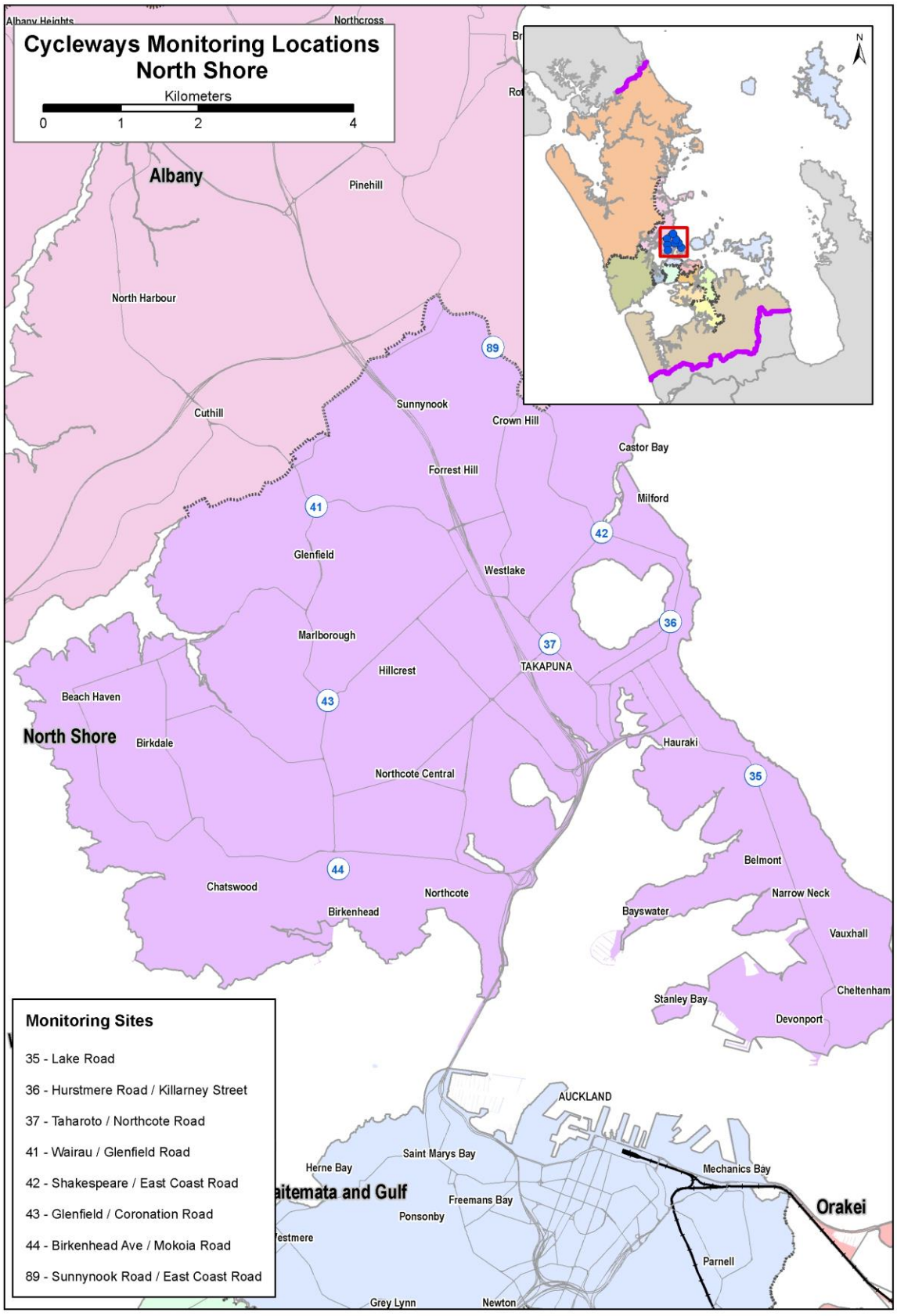
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

This report presents results from manual cycle counts conducted at 8 sites in the North Shore 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, comparative results are provided.

Important Note: This report provides the results of manual cycle monitoring conducted at eight pre-determined sites in the North Shore 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 North Shore ward. Note that one site (Sunnynook/East Coast Road in Sunnynook – Site 89) lies on the border with the Albany ward. Consequently results for this site have been included in both ward reports.

Figure 1.1: 2014 Cycle Monitoring Locations in North Shore Ward



1.2 Methodology

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

Choice of Sites

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

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

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

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

Monitoring Times

Time Of Day

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

Day Of Week

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

Time Of Year

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

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

It was agreed that manual counts would commence on Tuesday the 4th of March and be conducted on the first three fine days of the 4th, 5th, 6th, 7th, 12thor 13th of March.

Counts were conducted on the following days:

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

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

Weather and Daylight Conditions

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

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

Tuesday 4th March

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

Wednesday 5th March

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

Thursday 6th March

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

Conducting The Manual Counts

Scoping Visit

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

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

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

During their shift the surveyor collected data on:

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

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

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

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

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

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

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

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

It is acknowledged that the number of cyclists using a site varies by time of day, day of the week and week of the year, and therefore it is not valid to simply multiply manual count data collected over a certain (relatively brief) period out to represent a full day, week or year. However, according to Land Transport New Zealand[6], Annual Average Daily Traffic (AADT) analysis can be used to estimate the average annual daily flow of cyclists from manual and automated cycle counts conducted at one point in time. The procedure involves deriving scale factors, which account for the time of day, day of the week, and week of the year (which varies with school holidays and season) as well as weather conditions on the count day. These scale factors are then applied to the count data collected to give an AADT estimate.

[6] http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html

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

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

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

School Bike Shed Counts

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

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

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

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

[7] ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.
[8] Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG) (Land Transport New Zealand, 2004)

Methodology

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

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

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

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 4th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).

4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2014, 264 responses were received, a response rate of 88 per cent. (This compares with 92 per cent in 2013).

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

This summary contains the aggregated results of the eight sites surveyed in the North Shore 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 North Shore 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 Nine of this report.

Note: Surveying in the North Shore ward was undertaken on Tuesday 4th of March, 2014. Sunrise was at 7:09am and sunset was at 7:56pm. The highest temperature was 20.0 degrees Celsius.

1.4 Morning Peak

Environmental Conditions

- The weather was generally overcast at the beginning of the shift, then gradually turned sunny as the morning passed. Intermittent light showers were recorded at most sites during first hour of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- A total of 529 cyclist movements were recorded across the eight sites in the morning peak period (between 6:30am and 9:00am) in 2014 – including 6 per cent (n=30) observed cycling in groups This represents a notable decline from 14 per cent (n=120) of group cycle movements last year.
- Over the last 12 months, the number of morning cycle movements observed has decreased by 38 per cent.
- The average volume of morning cyclists across the eight sites monitored in the North Shore ward was 66 cycle movements, down from 106 last year.
- The busiest site in the morning peak was at Lake Road by Takapuna Grammar (126 movements, down from 159 in 2013), whereas Birkenhead Avenue/Mokoia Road had the lowest level of morning cyclist traffic (9 cycle movements, down from 29 last year).
- Only Wairua/Glenfield Road recorded an increase this year, by 16 per cent – from 32 movements to 37 this year.
- The seven remaining sites registered declines in cycle volume, with the most noticeable decrease at Birkenhead Avenue/Mokoia Road (down 69 per cent).

Table 1.1: Summary of Morning Cyclist Movements

2007 – 2014 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14	Change 07-14
35	Lake Road, by Takapuna Grammar	127	200	166	186	220	175	159	**126**	**-21%**	**-1%**
36	Hurstmere Road/Killarney Street	76	134	186	180	191	154	176	**97**	**-45%**	**28%**
42	Shakespeare/East Coast Road	82	127	177	146	181	145	172	**97**	**-44%**	**18%**
37	Taharoto/Northcote Road	111	160	98	117	202	141	152	**90**	**-41%**	**-23%**
41	Wairau/Glenfield Road	34	39	42	38	41	36	32	**37**	**16%**	**9%**
43	Glenfield/Coronation Road	16	36	36	37	27	35	33	**28**	**-15%**	**75%**
44	Birkenhead Ave/Mokoia Road	20	20	27	29	22	17	29	**9**	**-69%**	**-55%**
	Average per site (7 sites since 2007)	**67**	**102**	**105**	**105**	**126**	**100**	**108**	**69**	**-36%**	**3%**
	Total (7 sites since 2007)	**466**	**716**	**732**	**733**	**884**	**703**	**753**	**484**	**-36%**	**4%**
89	Sunnynook Road/East Coast Road	-	-	-	-	81	95	96	**45**	**-53%**	**-**
	Average per site (8 sites since 2011)	**-**	-	**-**	**-**	**121**	**100**	**106**	**66**	**-38%**	**-**
	Total (8 sites since 2011)	**-**	**-**	**-**	**-**	**965**	**798**	**849**	**529**	**-38%**	**-**

- Morning cyclist characteristics are shown in Table 1.2 below. Overall, 76 per cent of cyclists were adults, down from 82 per cent last year.
- Almost all North Shore ward morning cyclists were wearing a helmet (97 per cent, stable from 98 per cent last year).
- The greatest share of morning cyclists in the North Shore ward were male (80 per cent)
- Approximately three in four cyclists were riding on the road (72 per cent, stable from 74 per cent in 2013). However, the share of cyclists riding on the road has increased to 26 per cent.

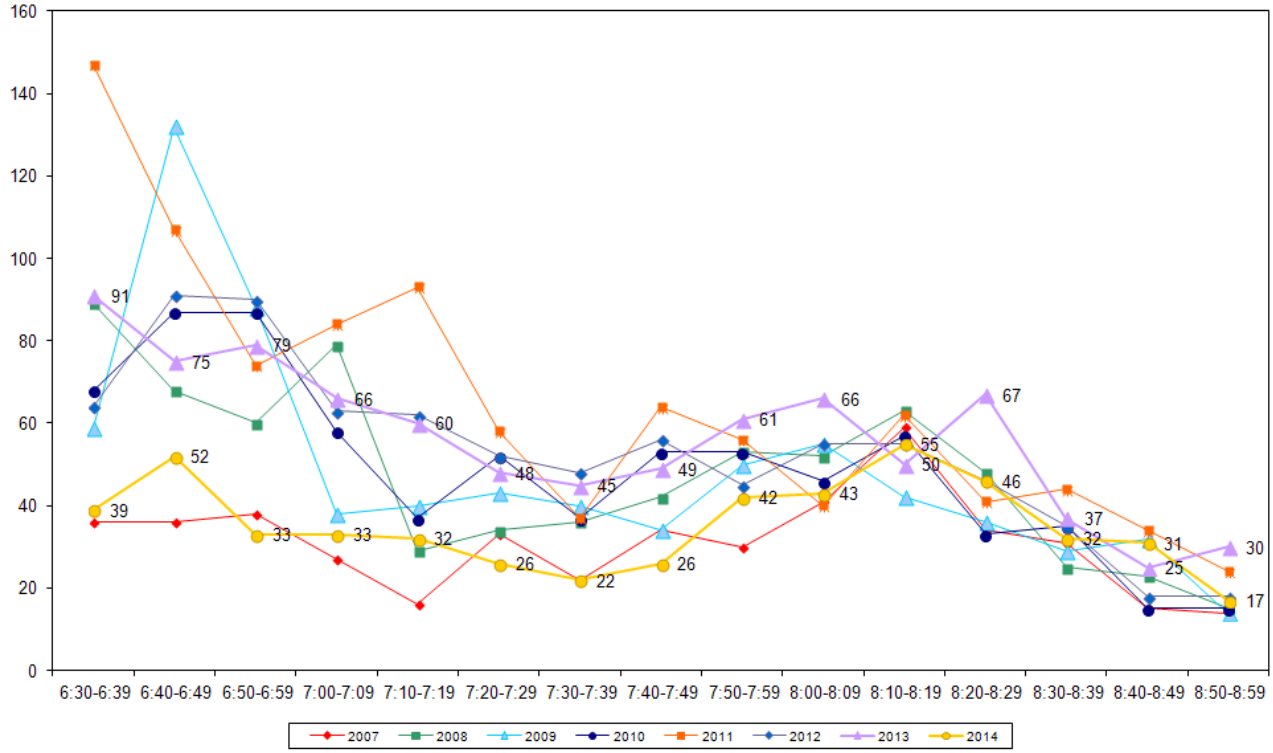
Table 1.2: Summary of Morning Cyclist Characteristics
2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	73	79	85	83	85	83	82	**76**	**-6**
School child	27	21	15	17	15	17	18	**24**	**6**
Helmet Wearing									
Helmet on head	94	98	97	98	99	98	98	**97**	**-1**
No helmet	6	2	3	2	1	2	2	**3**	**1**
Gender									
Male	-	-	-	-	65	78	81	**80**	**-1**
Female	-	-	-	-	16	16	18	**19**	**1**
Can't tell	-	-	-	-	19	6	1	**1**	**0**
Where Riding									
Road	71	80	81	81	80	79	74	**72**	**-2**
Footpath	29	20	19	19	17	18	20	**26**	**6**
Off-road cycleway	0	0	0	0	3	3	6	**2**	**-4**
Base:	***466***	***716***	***732***	***733***	***965***	***798***	***849***	***529***	

- Figure 1.2 illustrates the total number of cyclists in the morning peak by time of movement. The volume of morning cycle movements remained constant throughout the morning monitoring period with no considerable peaks or troughs. The first half of the morning shift observed fewer movements than previous years (with the exception of 2007), only reaching a peak of 52 cyclists at 6:40am-6:49am. The second half of the morning shift was consistent with previous years, following a generally decreasing trend with 55 movements recorded between 8:10am and 8:19am.

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007 – 2014 (n)



1.5 Evening Peak

Environmental Conditions

- The North Shore sites experienced sunny weather, with some sites noting light to moderate winds throughout the evening monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- A total of 512 cyclist movements were recorded across the eight sites in the evening peak period (between 4:00pm and 7:00pm) in 2014 – including two per cent (n=12) observed cycling as groups. This compares with two per cent (n=12) last year.
- Across the sites monitored in both 2013 and 2014, the number of cycle movements has decreased slighty – down from 525 in 2013 to 512 this year, a 2 per cent decrease over the last 12 months.
- The average volume of evening cyclists across the eight sites monitored in the North Shore ward was 64 cycle movements, stable from 66 per cent last year.
- Of the eight sites monitored in the North Shore ward, the site at Shakespear and East Coast Road was the busiest in terms of the evening cycle activities, with 97 cycle movements recorded (up from 94 movements last year).
- The lowest level of evening cyclist traffic was at Birkenhead Avenue/Mokoia Road (22 movements, down from 32 movements last year).
- Four of the eight sites have recorded decreases this year compared to 2013. The most noticeable decreases were at:
  - Birkenhead Avenue/Mokoia Road – down 31 per cent; and
  - Lake Road, by Takapuna Grammar – down 12 per cent.
- Three sites recorded increases this year. The most considerable increases were at:
  - Glenfield/Coronation Road – up 20 per cent; and
  - Wairau/Glenfield Road – up 14 per cent.

Table 1.3: Summary of Evening Cyclist Movements

2007 – 2014 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14	Change 07-14
42	Shakespeare/East Coast Road	55	123	133	159	105	93	94	**97**	**3%**	**76%**
36	Hurstmere Road/Killarney Street	45	118	132	122	113	108	95	**95**	**0**	**111%**
35	Lake Road, by Takapuna Grammar	65	97	129	141	96	146	107	**94**	**-12%**	**45%**
37	Taharoto/Northcote Road	51	110	104	112	105	77	82	**80**	**-2%**	**57%**
41	Wairau/Glenfield Road	30	34	38	53	52	69	37	**42**	**14%**	**40%**
43	Glenfield/Coronation Road	12	39	42	56	25	38	25	**30**	**20%**	**150%**
44	Birkenhead Ave/Mokoia Road	20	29	30	46	23	35	32	**22**	**-31%**	**10%**
	Average per site (7 sites since 2007)	**40**	**79**	**87**	**98**	**74**	**81**	**67**	**66**	**-1%**	**65%**
	Total (7 sites since 2007)	**278**	**550**	**608**	**689**	**519**	**566**	**472**	**460**	**-3%**	**65%**
89	Sunnynook Road/East Coast Road	-	-	-	-	93	60	53	**52**	**-2%**	**-**
	Average per site (8 sites since 2011)	**-**	**-**	**-**	**-**	**77**	**78**	**66**	**64**	**-3%**	**-**
	Total (8 sites since 2011)	**-**	**-**	**-**	**-**	**612**	**626**	**525**	**512**	**-2%**	**-**

- The majority of evening cyclists were adults (85 per cent, down from 90 per cent in 2013).
- Ninety-three per cent of evening cyclists were wearing a helmet (stable from 94 per cent last year).
- The greatest share of evening cyclists were male (78 per cent).
- Three in four cyclists were riding on the road in the evening (75 per cent, stable from 77 per cent in 2013).

Table 1.4: Summary of Evening Cyclist Characteristics

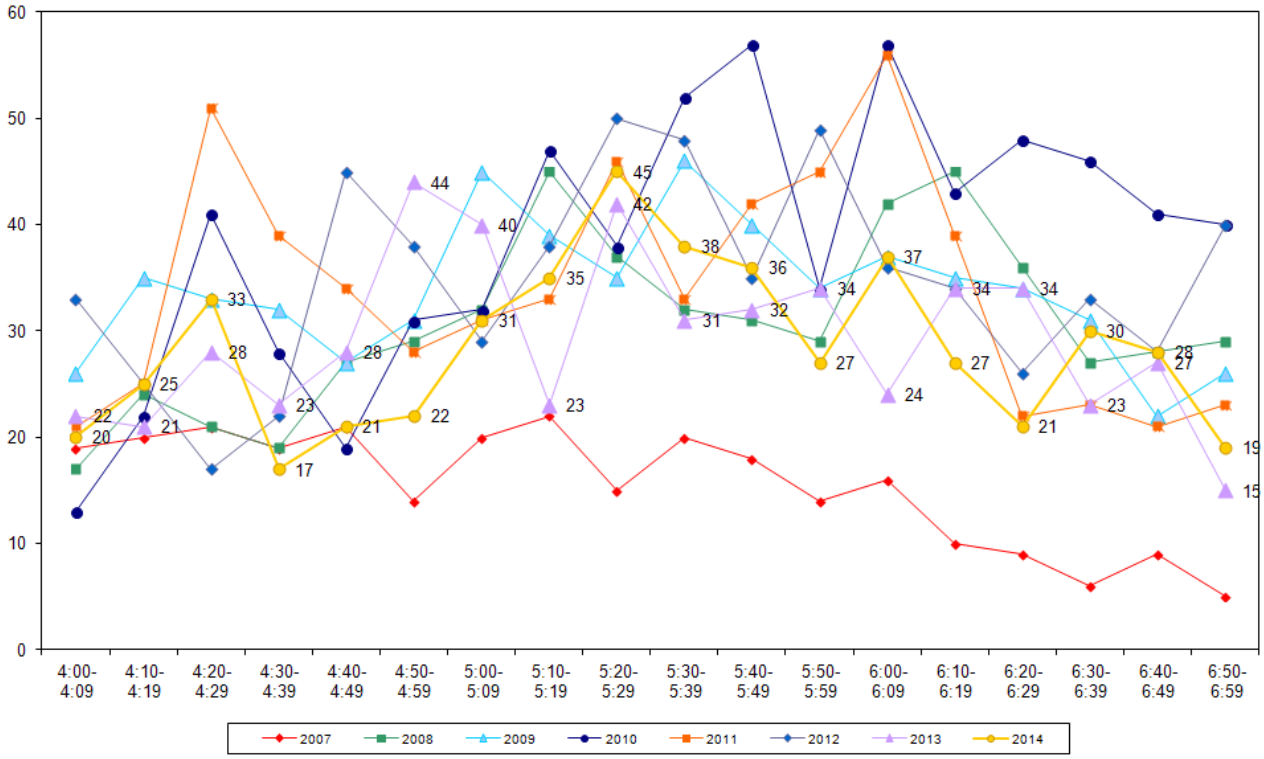
2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	90	85	87	82	85	91	90	**85**	**-5**
School child	10	15	13	18	15	9	10	**15**	**5**
Helmet Wearing									
Helmet on head	87	94	94	93	92	95	94	**93**	**-1**
No helmet	13	6	6	7	8	5	6	**7**	**1**
Gender									
Male	-	-	-	-	85	81	85	**78**	**-7**
Female	-	-	-	-	11	17	14	**20**	**6**
Can't tell	-	-	-	-	4	2	1	**2**	**1**
Where Riding									
Road	81	77	78	72	76	82	77	**75**	**-2**
Footpath	19	23	22	28	18	15	20	**23**	**3**
Off-road cycleway	0	0	0	0	6	3	3	**2**	**-1**
Base:	***278***	***550***	***608***	***689***	***612***	***626***	***525***	***512***	

- The overall pattern of cyclist volumes by time of movement in the evening is illustrated in Figure 1.3. Evening cyclist volumes increased to several peaks; the first being at 4:20pm to 4:29pm with 33 recorded movements. A second peak is evident between 5:20pm and 5:29pm consisting of 45 movements; then followed a generally decreasing trend through to the end of the monitoring period.

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007 – 2014 (n)



1.6 Aggregated Total

- A total of 1,041 cyclist movements were recorded across the eight sites in 2014. Four per cent (n=42) of the total cycle movements were observed cycling as groups (compared with 10 per cent and n=132 in 2013).
- The total number of cycle movements has declined since last year – from 1,374 to 1,041 this year. This represents a 24 per cent decrease over the last 12 months.
- The busiest site this year was at Lake Road by Takapuna Grammar, with a total of 220 movements recorded, while the Birkenhead Avenue/Mokoia Road intersection had the fewest cyclists (31 movements).
- Cyclist volumes have increased at one of the eight sites since last year, Wairau/Glenfield Road (up 14 per cent, from 69 movements in 2013 to 79 movements this year).
- The most notable decrease was at Sunnynook Road/East Coast Road (down from 149 in 2013 to 97 this year).

Table 1.5: Summary of Total Cyclist Movements

2007 – 2014 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14	Change 07-14
35	Lake Road, by Takapuna Grammar	192	297	295	327	316	321	266	**220**	**-17%**	**15%**
42	Shakespeare/East Coast Road	137	250	310	305	286	238	266	**194**	**-27%**	**42%**
36	Hurstmere Road/Killarney Street	121	252	318	302	304	262	271	**192**	**-29%**	**59%**
37	Taharoto/Northcote Road	162	270	202	229	307	218	234	**170**	**-27%**	**5%**
41	Wairau/Glenfield Road	64	73	80	91	93	105	69	**79**	**14%**	**23%**
43	Glenfield/Coronation Road	28	75	78	93	52	73	58	**58**	**0**	**107%**
44	Birkenhead Ave/Mokoia Road	40	49	57	75	45	52	61	**31**	**-49%**	**-23%**
	Average per site (7 sites since 2007)	**106**	**181**	**191**	**203**	**200**	**181**	**175**	**135**	**-23%**	**27%**
	Total (7 sites since 2007)	**744**	**1266**	**1340**	**1422**	**1403**	**1269**	**1225**	**944**	**-23%**	**27%**
89	Sunnynook Road/East Coast Road	-	-	-	-	174	155	149	**97**	**-35%**	**-**
	Average per site (8 sites since 2011)	**-**	-	**-**	**-**	**197**	**178**	**172**	**130**	**-24%**	**-**
	Total (8 sites since 2011)	**-**	**-**	**-**	**-**	**1577**	**1424**	**1374**	**1041**	**-24%**	**-**

- Overall cyclist characteristics are illustrated in Table 1.6. In total, 80 per cent of cyclists were adults, down from 85 per cent in 2013.
- Almost all cyclists were wearing a helmet (95 per cent, stable from last year).
- The greatest share of North Shore cyclists were male (79 per cent), although female cyclists have continued to increase since 2011.
- Three in four cyclists were riding on the road (73 per cent, stable from 75 per cent in 2013).

Table 1.6: Summary of Total Cyclist Characteristics

2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	79	82	86	82	85	86	85	**80**	**-5**
School child	21	18	14	18	15	14	15	**20**	**5**
Helmet Wearing									
Helmet on head	91	97	96	96	96	97	96	**95**	**-1**
No helmet	9	3	4	4	4	3	4	**5**	**1**
Gender									
Male	-	-	-	-	73	80	83	**79**	**-4**
Female	-	-	-	-	14	16	16	**20**	**4**
Can't tell	-	-	-	-	13	4	1	**1**	**0**
Where Riding									
Road	75	79	80	76	79	80	75	**73**	**-2**
Footpath	25	21	20	24	17	17	20	**25**	**5**
Off-road cycleway	0	0	0	0	4	3	5	**2**	**-3**
Base:	***744***	***1266***	***1340***	***1422***	***1577***	***1424***	***1374***	***1041***	

1.7 Average Annual Daily Traffic (AADT) Estimate

AADT Estimate

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at the Lake Road, by Takapuna Grammar site (322 daily movements, down by 18 per cent from last year) and the lowest is at Birkenhead Avenue/Mokoia Road (44 daily movements, down from 88 movements last year).
- One site recorded an increase in total AADT estimates this year compared with 2013; the Wairau/Glenfield intersection which has increased by 14 per cent.
- In contrast, the number of total cyclists recorded at the other seven sites is lower than last year. The most noticeable decreases are at:
  - Birkenhead Avenue/Mokia Road – down 50 per cent
  - Sunnynook Road/East Coast Road – down 34 per cent; and
  - Hurstmere Road/Killarney Street – down 30 per cent.

Table 1.7: AADT Estimates Based on Morning and Evening Cyclist Movements 2007 – 2014 (n)

Site No.	*Locations*	*2007*[9]	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14	Change 07-14
35	Lake Road, by Takapuna Grammar	444	440	432	479	469	469	391	**322**	**-18%**	**-27%**
42	Shakespeare/East Coast Road	314	364	454	442	422	350	393	**282**	**-28%**	**-10%**
36	Hurstmere Road/Killarney Street	279	368	466	443	448	384	400	**279**	**-30%**	**0**
37	Taharoto/Northcote Road	375	396	293	333	454	322	346	**248**	**-28%**	**-34%**
89	Sunnynook Road/East Coast Road	-	-	-	-	252	228	211	**140**	**-34%**	**-**
41	Wairau/Glenfield Road	93	107	117	131	134	150	100	**114**	**14%**	**23%**
43	Glenfield/Coronation Road	64	109	113	134	76	106	85	**84**	**-1%**	**31%**
44	Birkenhead Ave/Mokoia Road	58	71	83	108	65	74	88	**44**	**-50%**	**-24%**

[9] As in 2008 and 2009, the AADT estimates for North Shore city this year are calculated under "dry" weather factor, whereas a "wet" factor was applied to AADT calculations in 2007.

1.8 North Shore Ferry Wharf Bike Count Summary

Key Points

- In the morning, seven cycles were observed at the Devonport Ferry Terminal at 6:10am and 50 were observed at 9:10am, suggesting 43 passengers cycled to the ferry (compared with 57 in 2013). In the afternoon, 62 cycles were recorded at the Devonport Ferry Terminal at 3:30pm and 13 were observed at 7:10pm, suggesting that 49 ferry passengers cycled home after disembarking (compared with 45 in 2013).
- In the morning, one cycle was observed at the Bayswater Ferry Terminal at 6:10am and 20 were observed at 9:10am, suggesting 19 passengers cycled to the ferry. In the afternoon, 22 cycles were recorded at the Bayswater Ferry Terminal at 3:30pm and 15 were observed at 7:10pm, suggesting seven ferry passengers collected their bikes after disembarking and cycled home.
- One cycle was observed at Northcote Ferry Wharf at 3:30pm. No cycles were observed at any other observation time at the ferry terminal.
- In 2014, no cycles recorded at any time during the day at the Stanley Bay or Birkenhead Ferry Wharves.

1.9 School Bike Shed Count Summary

Cycle Counts

- Among the surveyed schools, of those eligible to cycle to school, on average, four per cent of students are cycling to their schools, unchanged since 2011.
- Belmont Intermediate School reported the highest share of cyclists – 32 per cent of all eligible students currently cycling to school, up from 25 per cent last year.
- In total, n=550 students from the responding schools were reported to be cycling to school.
- Of the 17 schools that responded, three (18 per cent) had no students cycling to school.
- Rates of cycling to school are highest for intermediate schools (12 per cent), stable from 11 per cent in 2013.

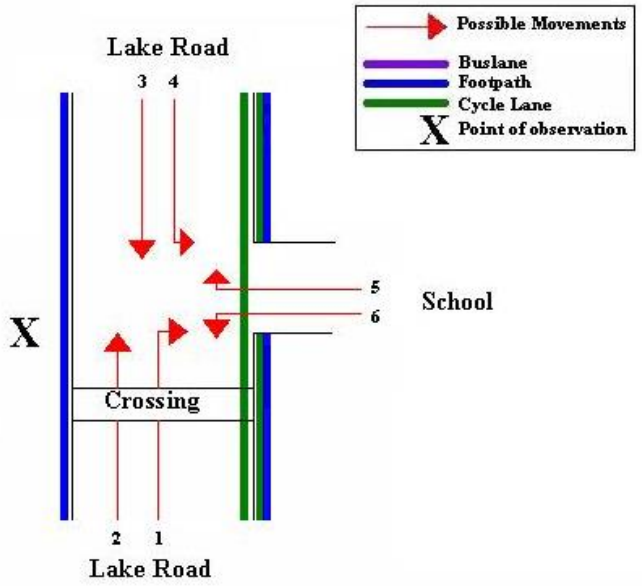
Scooter Counts

- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scootering to their schools.
- Northcote Intermediate School reported the highest share of scooters – 6 per cent of all eligible students currently scootering to school.
- In total, n=46 students from the responding schools were reported to be scootering to school.
- Of the 16 schools that responded, nine (56 per cent) had no students scootering to school.
- Rates of scootering to school are highest for the intermediate schools (2 per cent).

2. LAKE ROAD, TAKAPUNA (SITE 35)

Figure 2.1 shows the possible cyclist movements at this site.

Figure 2.1: Cycle Movements: Lake Road



2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	127	65	192	444
2008	200	97	297	440
2009	166	129	295	432
2010	186	141	327	479
2011	220	96	316	469
2012	175	146	321	469
2013	159	107	266	391
2014	**126**	**94**	**220**	**322**

2.2 Morning Peak

Environmental Conditions

- The weather was cloudy throughout the morning shift, with regular showers over the monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cyclist movements have decreased at the Lake Road site, from 159 movements last year to 126 movements this year.
- Key morning movements were straight along Lake Road in both directions (Movement 3 = 73 movements; Movement 2 = 45 movements).
- Movement 3 (down 32 movements) saw the greatest change in cyclist movements over the last 12 months.

Table 2.1: Morning Cyclist Movements

Lake Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	0	3	1	2	0	0	**1**	**1**
2	40	68	50	51	89	51	50	**45**	**-5**
3	85	132	110	131	122	121	105	**73**	**-32**
4	1	0	3	3	6	3	4	**5**	**1**
5	0	0	0	0	1	0	0	**0**	**0**
6	0	0	0	0	0	0	0	**0**	**0**
Don't know	0	0	0	0	0	0	0	**2**	**2**
Total	**127**	**200**	**166**	**186**	**220**	**175**	**159**	**126**	**-33**

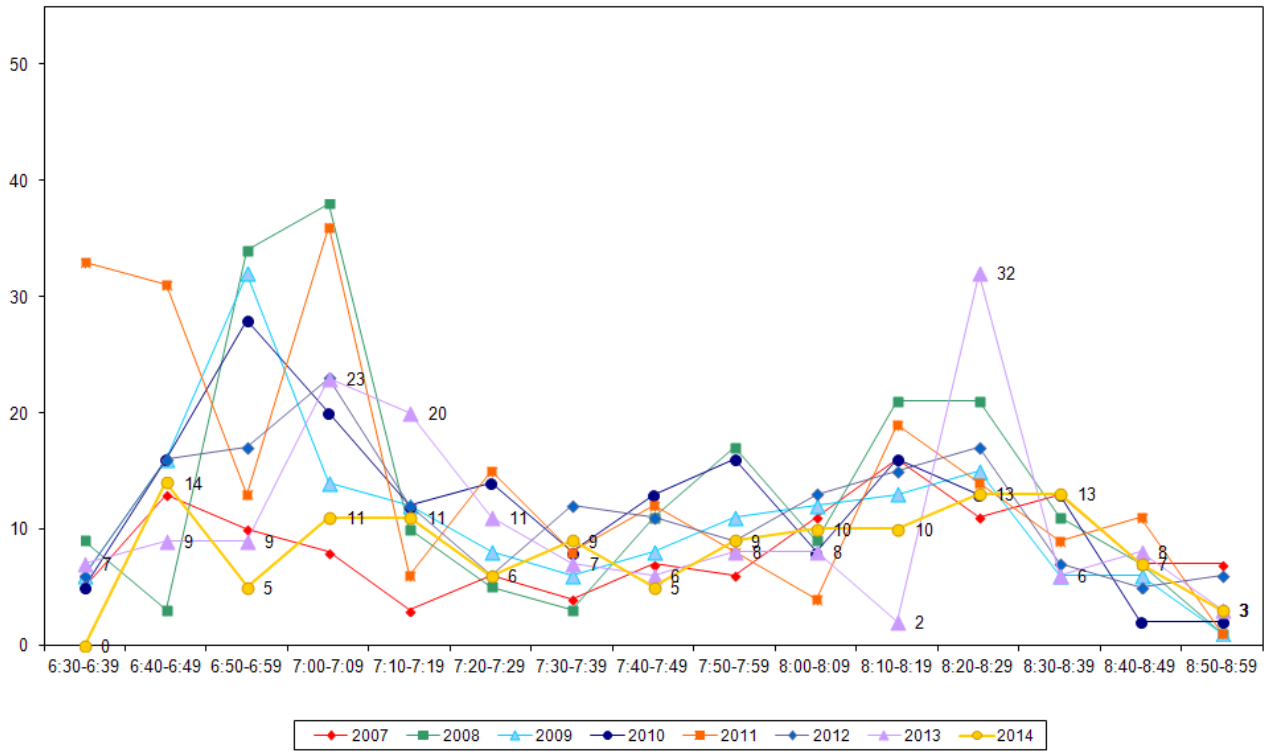
- Over the morning peak in 2014, adults comprised the greatest share of cycle movements (73 per cent, down from 79 per cent in 2013).
- The majority of cyclists were wearing a helmet (97 per cent, stable from 2013).
- The majority of morning cyclists continued to be male (79 per cent, stable from last year).
- Most cyclists were riding on the road (76 per cent, up from 65 per cent in 2013).

Table 2.2: Morning Cyclist Characteristics
Lake Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	65	77	83	81	80	82	79	**73**	**-6**
School child	36	23	17	19	20	18	21	**27**	**6**
Helmet Wearing									
Helmet on head	98	98	98	97	98	98	98	**97**	**-1**
No helmet	2	2	2	3	2	2	2	**3**	**1**
Gender									
Male	-	-	-	-	58	84	78	**79**	**1**
Female	-	-	-	-	16	14	21	**19**	**-2**
Can't tell	-	-	-	-	26	2	1	**2**	**1**
Where Riding									
Road	77	78	77	84	83	82	65	**76**	**11**
Footpath	23	22	23	16	17	4	14	**8**	**-6**
Cycleway	-	-	-	-	-	14	21	**16**	**-5**
Base:	***127***	***200***	***166***	***186***	***220***	***175***	***159***	***126***	

- The volume of morning cycle movements varied throughout the monitoring period, with a peak evident from 6:40am to 6:49am (14 cycle movements). Unlike previous years there was no considerable peak within the first forty minutes of the shift. For the remainder of the shift, cycle volumes remained consistent with previous years.

Figure 2.2: Morning Peak Cyclist Frequency
Lake Road 2007 – 2014 (n)



Note: In 2014, 4 cyclists (3 per cent of all morning peak cycle movements at this site) were observed riding together at 8:05am. This compares with 26 per cent of total cycle movements (n=41) in the morning peak in 2013 being identified as pelotons (and 10 per cent in 2012).

2.3 Evening Peak

Environmental Conditions

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

Key Points

- In the last 12 months, the volume of evening cyclist movements has decreased from 107 movements to 94 movements.
- Consistent with last year, the most common movements in the evening were straight along Lake Road in both directions (Movement 2 = 47 cyclists; Movement 3 = 37 cyclists).
- The most noticeable differences in evening cyclist volumes between this year and last occurred at Movement 2 (down 15 movements).

Table 2.3: Evening Cyclist Movements

Lake Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	0	2	0	0	1	0	**0**	**0**
2	27	38	64	92	54	83	62	**47**	**-15**
3	34	56	53	44	32	57	37	**37**	**0**
4	1	3	2	3	3	1	3	**3**	**0**
5	2	0	5	1	4	4	3	**7**	**4**
6	1	0	3	1	3	0	2	**0**	**-2**
Total	**65**	**97**	**129**	**141**	**96**	**146**	**107**	**94**	**-13**

- The majority of cyclists using this site in the evening were adults (79 per cent, down from 83 per cent in 2013).
- Almost all cyclists were wearing a helmet (95 per cent, down stable from last year).
- The majority of cyclists continued to be male (80 per cent, stable from last year).
- Almost three in four cyclists (71 per cent) were riding on the road (down from 80 per cent last year).

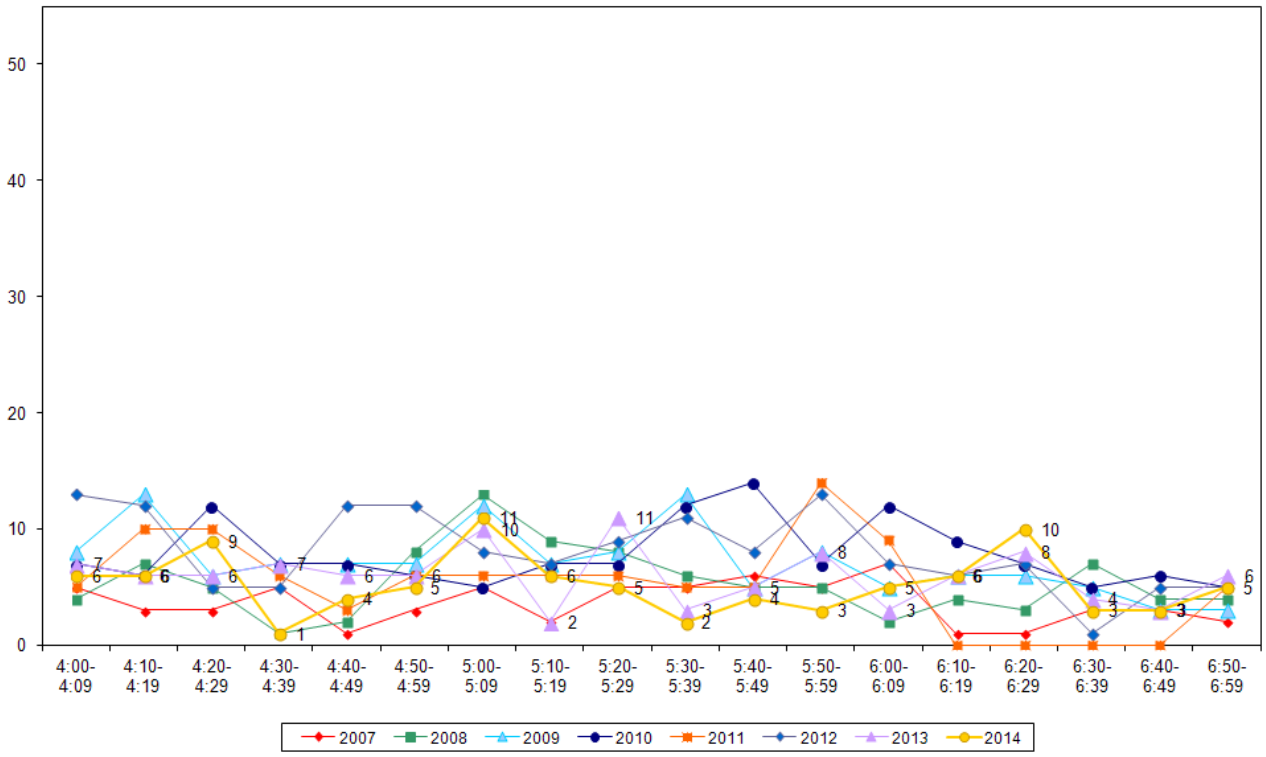
Table 2.4: Evening Cyclist Characteristics

Lake Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	97	85	85	85	82	97	83	**79**	**-4**
School child	3	15	15	15	18	3	17	**21**	**4**
Helmet Wearing									
Helmet on head	94	92	94	91	84	97	97	**95**	**-2**
No helmet	6	8	6	9	16	3	3	**4**	**1**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Gender									
Male	-	-	-	-	90	84	82	**80**	**-2**
Female	-	-	-	-	9	16	17	**17**	**0**
Can't tell	-	-	-	-	1	0	1	**3**	**2**
Where Riding									
Road	95	76	74	76	71	87	80	**71**	**-9**
Footpath	5	24	26	24	29	5	13	**18**	**5**
Cycleway	-	-	-	-	-	8	7	**10**	**3**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Base:	***65***	***97***	***129***	***141***	***96***	***146***	***107***	***94***	

- Cycle traffic volumes on Lake Road varied during the evening shift, fluctuating between one and eleven cyclists each ten-minute interval with no noticeable peaks.

Figure 2.3: Evening Peak Cyclist Frequency
Lake Road 2007 – 2014 (n)



Note: In 2014, 10 per cent of the total cycle movements (n=94) 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:

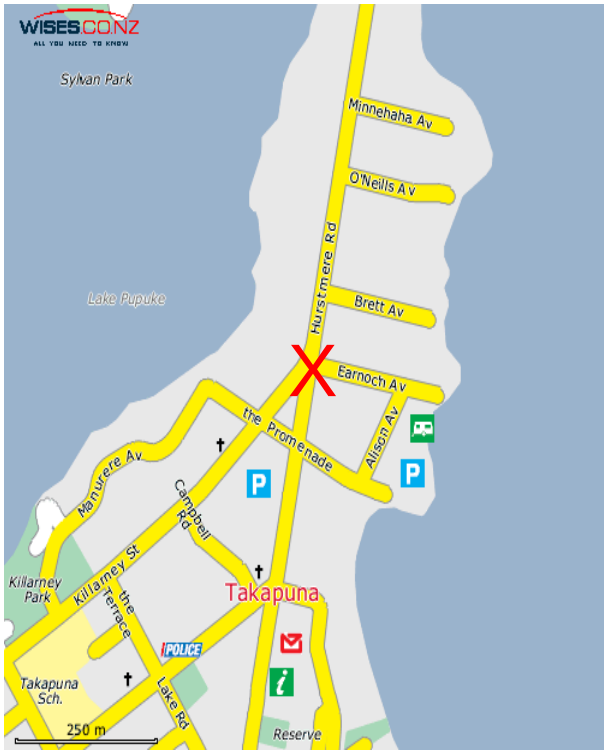
- *3 cyclists at 5:05pm*
- *3 cyclists at 5:09pm*
- *3 cyclists at 6:24pm.*

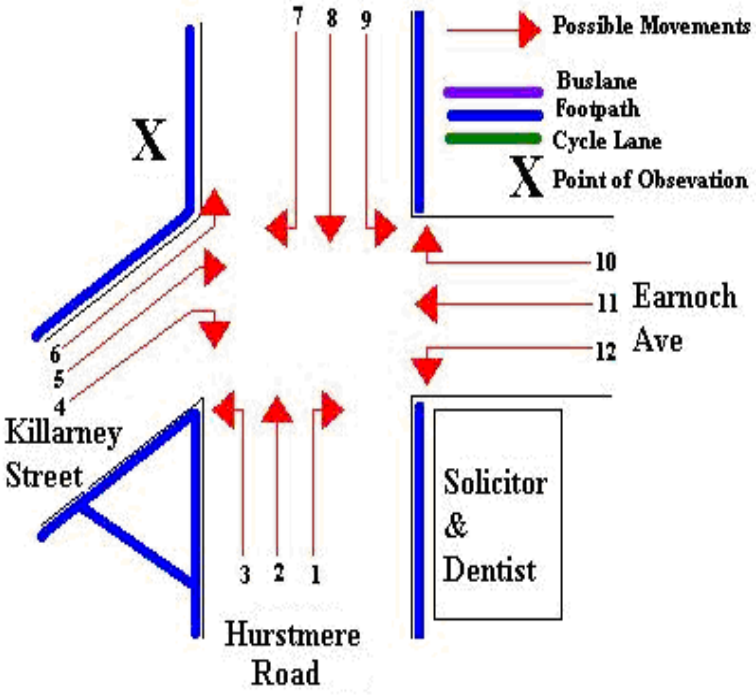
(This compares with 8 per cent of cycle movements in 2013).

3. HURSTMERE ROAD/KILLARNEY STREET, TAKAPUNA (SITE 36)

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Hurstmere Road/Killarney Street





3.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	76	45	121	279
2008	134	118	252	368
2009	186	132	318	466
2010	180	122	302	443
2011	191	113	304	448
2012	154	108	262	384
2013	176	95	271	400
2014	**97**	**95**	**192**	**279**

3.2 Morning Peak

Environmental Conditions

- The weather was cloudy with light showers at the start of the shift, the light showers stopping around 7:00am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclist movements at the Hurstmere Road/Killarney Street intersection was down from 176 movements in 2013 to 97 movements in 2014.
- The key movements in the morning were straight along Hurstmere Road in both directions (Movement 8 = 61 movements; Movement 2 = 21 movements).
- The most noticeable decreases were at Movement 8 (down 44 movements) and Movement 6 (down 28 movements).

Table 3.1: Morning Cyclist Movements

Hurstmere Road/Killarney Street 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	0	2	0	0	0	0	**0**	**0**
2	15	43	44	33	43	37	23	**21**	**-2**
3	0	1	1	5	1	1	0	**0**	**0**
4	0	3	0	1	0	2	2	**1**	**-1**
5	0	0	0	0	0	0	1	**0**	**-1**
6	9	46	15	42	62	15	33	**5**	**-28**
7	6	6	6	7	6	11	11	**7**	**-4**
8	44	33	117	91	76	88	105	**61**	**-44**
9	2	1	0	1	0	0	1	**1**	**0**
10	0	1	0	0	3	0	0	**0**	**0**
11	0	0	0	0	0	0	0	**0**	**0**
12	0	0	1	0	0	0	0	**1**	**1**
Total	**76**	**134**	**186**	**180**	**191**	**154**	**176**	**97**	**-79**

- Over the morning peak, most cyclists using this intersection were adults (89 per cent, stable from last year).
- All cyclists were wearing a helmet (100 per cent, stable from previous measure).
- Four out of five cyclists were male (80 per cent, slightly stable from 2013).
- Most cyclists were riding on the road (92 per cent, stable from 93 per cent last year).

Table 3.2: Morning Cyclist Characteristics

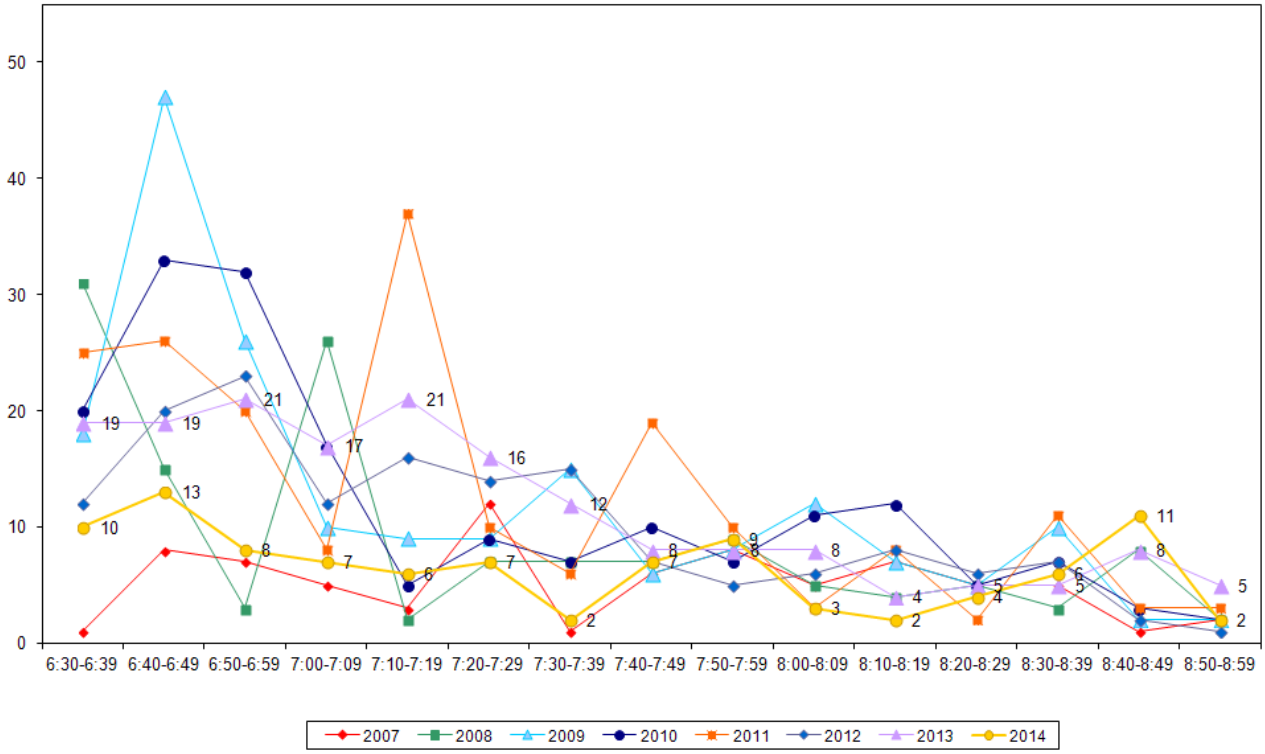
Hurstmere Road/Killarney Street 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	87	75	94	92	95	91	91	**89**	**-2**
School child	13	25	6	8	5	9	9	**11**	**2**
Helmet Wearing									
Helmet on head	93	99	98	99	100	100	99	**100**	**1**
No helmet	7	1	2	1	0	0	1	**0**	**-1**
Gender									
Male	-	-	-	-	80	88	82	**80**	**-2**
Female	-	-	-	-	20	10	17	**20**	**3**
Can't tell	-	-	-	-	0	2	1	**0**	**-1**
Where Riding									
Road	83	93	90	90	94	90	93	**92**	**-1**
Footpath	17	7	10	10	6	10	7	**8**	**1**
Base:	***76***	***134***	***186***	***180***	***191***	***154***	***176***	***97***	

- The volume of morning cycle movements remained low and consistent throughout the morning monitoring period. In contrast to previous years, there was no notable peak at the start of the shift.

Figure 3.2: Morning Peak Cyclist Frequency

Hurstmere Road/Killarney Street 2007 – 2014 (n)



Note that no pelotons were observed at this site in 2014. This compares with 2013 where peloton movements (n=47) comprised 27 per cent of the morning cycle movements at this site (and 14 per cent in 2012).

Evening Peak

Environmental Conditions

- The weather was fine at the start of the shift, then gradually turned cloudy over the course of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of evening cyclist movements at the Hurstmere Road/Killarney Street intersection remained the same at 95 movements this year.
- The key movements in the morning were straight along Hurstmere Road heading in either direction (Movement 2 = 53 movements and Movement 8 = 16 movements) and turning left from Killarney Street onto Hurstmere Road heading north (Movement 6 = 15 movements).
- Movement 2 saw the greatest decrease in volume from 2012 (down 9 movements), while Movement 7 and Movement 8 had the greatest increases (up 2 movements each).

Table 3.3: Evening Cyclist Movements

Hurstmere Road/Killarney Street 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	0	0	0	0	0	0	**0**	**0**
2	24	42	81	53	62	56	62	**53**	**-9**
3	0	0	2	1	0	0	0	**1**	**1**
4	0	0	0	1	3	1	0	**0**	**0**
5	0	1	0	0	0	0	0	**1**	**1**
6	7	48	27	31	24	23	14	**15**	**1**
7	2	5	3	6	6	4	2	**4**	**2**
8	10	20	19	25	18	22	14	**16**	**2**
9	2	0	0	0	0	0	2	**1**	**-1**
10	0	2	0	5	0	1	1	**2**	**1**
11	0	0	0	0	0	0	0	**1**	**1**
12	0	0	0	0	0	1	0	**1**	**1**
Total	**45**	**118**	**132**	**122**	**113**	**108**	**95**	**95**	**0**

- Over the evening peak, the greatest share of cyclists using the Hurstmere Road/Killarney Street intersection were adults (94 per cent, down from 97 per cent in 2013).
- Most cyclists (96 per cent) were wearing a helmet, this share unchanged from last year.
- Although the majority of the cyclists were male (68 per cent), the share of female cyclists has been increasing since 2011.
- Almost all cyclists were riding on the road (84 per cent), down from 88 per cent in 2013.

Table 3.4: Evening Cyclist Characteristics

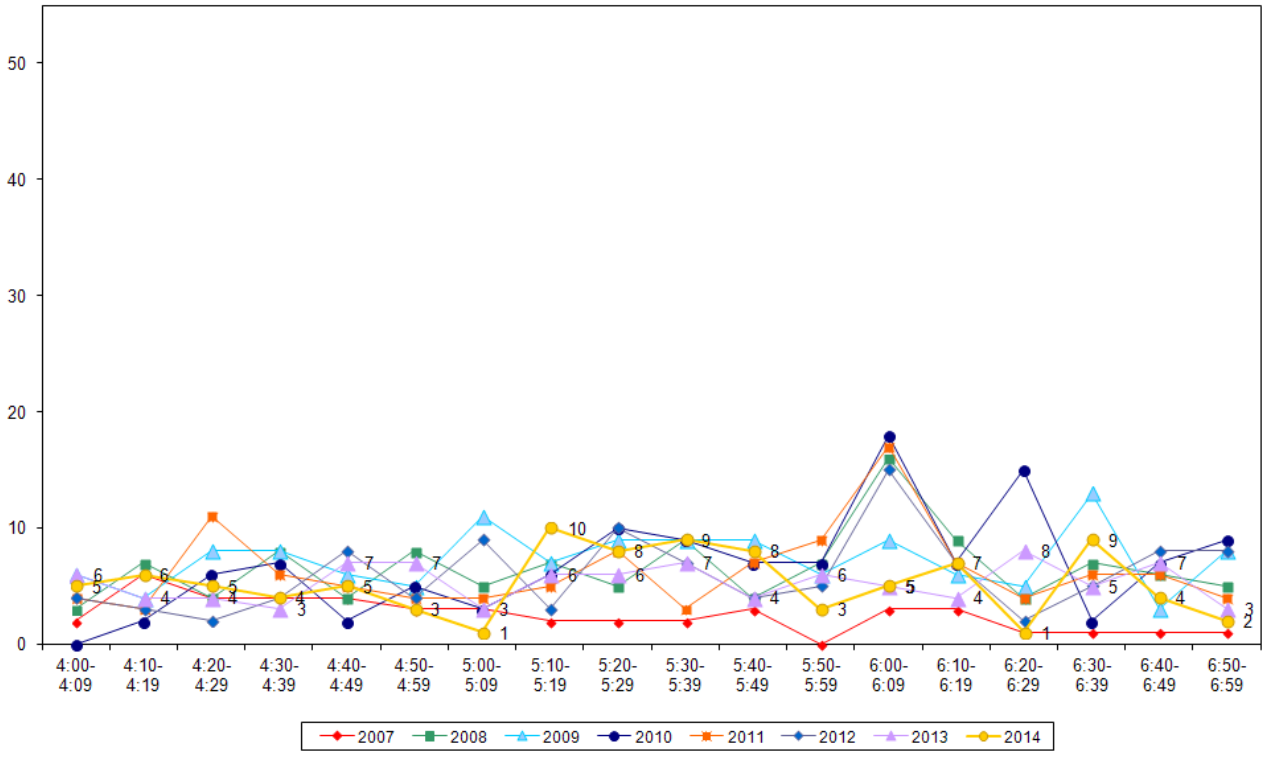
Hurstmere Road/Killarney Street 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	89	81	92	78	88	89	97	**94**	**-3**
School child	11	19	8	22	12	11	3	**5**	**2**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Helmet Wearing									
Helmet on head	89	92	96	93	93	95	96	**96**	**0**
No helmet	11	8	4	7	7	5	4	**4**	**0**
Gender									
Male	-	-	-	-	92	89	84	**68**	**-16**
Female	-	-	-	-	8	11	15	**31**	**16**
Can't tell	-	-	-	-	0	0	1	**1**	**0**
Where Riding									
Road	82	79	89	72	88	90	88	**84**	**-4**
Footpath	18	21	11	28	12	10	12	**16**	**4**
Base:	***45***	***118***	***132***	***122***	***113***	***108***	***95***	***95***	

- This year, the volume of evening cyclist movements stayed relatively stable throughout the evening peak period, with no noticeable peaks observed. The overall trend is consistent with previous years, however the peak previously observed between 6:00pm and 6:09pm was not evident this year.

Figure 3.3: Evening Peak Cyclist Frequency

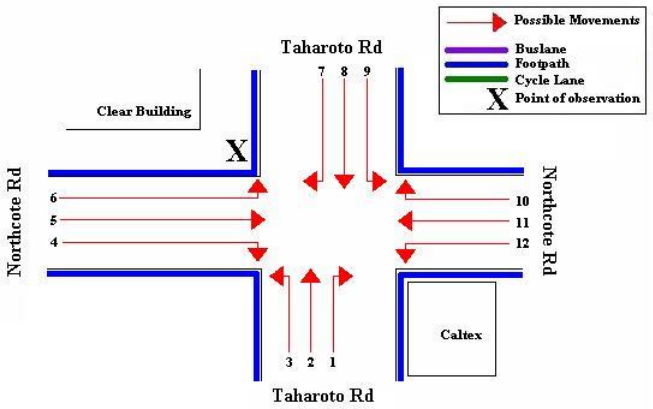
Hurstmere Road/Killarney Street 2007 – 2014 (n)



4. TAHAROTO ROAD/NORTHCOTE ROAD, TAKAPUNA (SITE 37)

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Taharoto/Northcote Road



4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	109	50	159	375
2008	160	110	270	396
2009	98	104	202	293
2010	117	112	229	333
2011	202	105	307	454
2012	141	77	218	322
2013	152	82	234	346
2014	**90**	**80**	**170**	**248**

4.2 Morning Peak

Environmental Conditions

- The weather was fine with light winds throughout the morning shift, with occasional light showers recorded during the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Cyclist volumes have decreased this year, from 152 movements in 2013 to 90 this year.
- The key morning movement was straight along Taharoto Road heading southeast (Movement 8 = 50 cyclists).
- Movement 8 saw the greatest change in morning cycle activities – down 34 movements from last year.

Table 4.1: Morning Cyclist Movements

Taharoto/Northcote Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	4	4	4	5	3	6	**4**	**-2**
2	9	21	21	17	28	31	26	**14**	**-12**
3	12	3	2	1	5	5	5	**1**	**-4**
4	19	14	14	12	8	4	14	**2**	**-12**
5	3	2	2	5	1	3	4	**2**	**-2**
6	3	7	2	0	6	2	3	**1**	**-2**
7	1	3	4	2	5	3	7	**4**	**-3**
8	42	78	44	69	122	85	84	**50**	**-34**
9	0	0	1	0	7	0	1	**3**	**2**
10	0	0	0	0	1	0	0	**0**	**0**
11	2	1	1	3	1	2	0	**5**	**5**
12	16	27	3	4	13	3	2	**3**	**1**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Total	**109**	**160**	**98**	**117**	**202**	**141**	**152**	**90**	**-62**

- Over the morning peak, school children comprise 42 per cent of the cyclist movements (up from 29 per cent last year, an increasing trend since 2011).
- Helmet wearing continued to be widespread at this site in the morning (99 per cent, an increase from 96 per cent in 2013).
- Approximately four in five cyclists were identified as male (84 per cent, stable from 82 per cent last year).
- Fifty per cent of cyclists were riding on the footpath (an increase of 7 percentage points from last year).

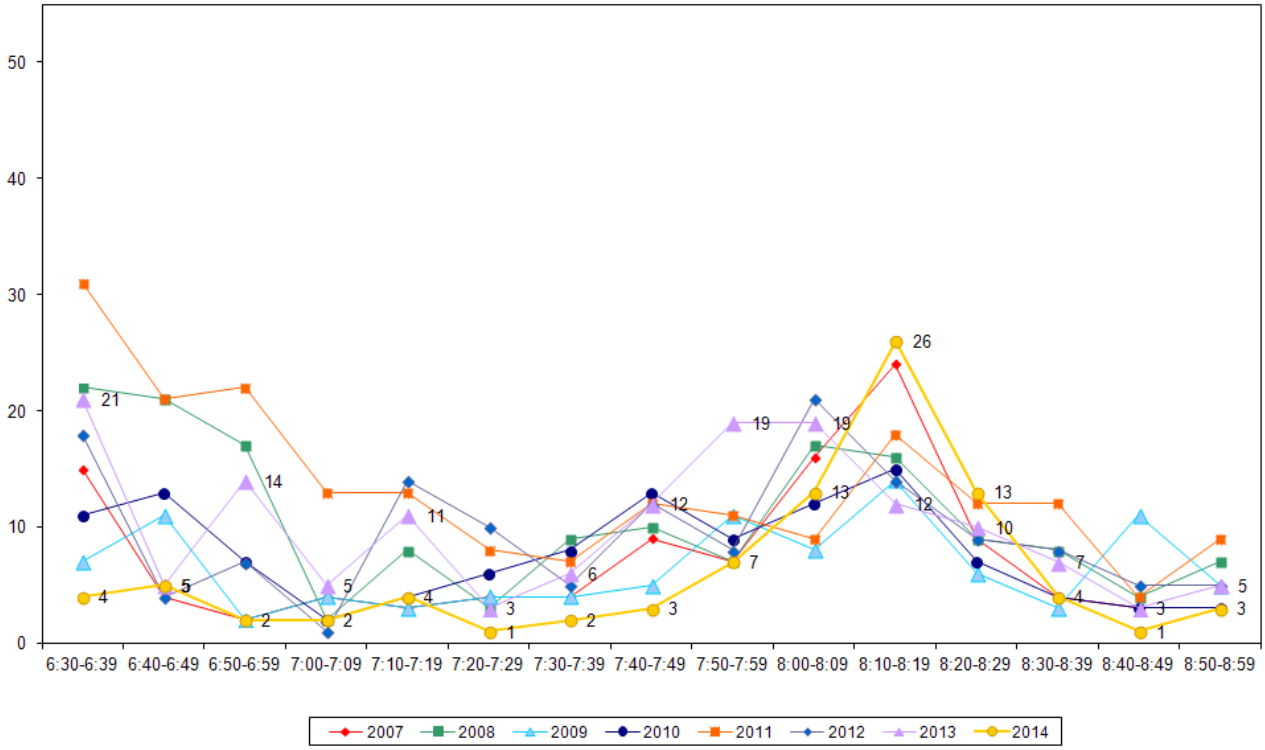
Table 4.2: Morning Cyclist Characteristics
Taharoto/Northcote Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	54	78	72	72	77	66	71	**58**	**-13**
School child	46	22	28	28	23	34	29	**42**	**13**
Helmet Wearing									
Helmet on head	94	99	93	98	98	95	96	**99**	**3**
No helmet	6	1	7	2	2	5	4	**1**	**-3**
Gender									
Male	-	-	-	-	39	74	82	**84**	**2**
Female	-	-	-	-	7	24	18	**16**	**-2**
Can't tell	-	-	-	-	54	2	0	**0**	**0**
Where Riding									
Road	47	70	68	65	67	56	57	**50**	**-7**
Footpath	53	30	32	35	33	44	43	**50**	**7**
Base:	***109***	***160***	***98***	***117***	***202***	***140***	***152***	***90***	

- Morning cyclist numbers varied throughout the monitoring period, with low volumes recorded in the first half of the morning shift. A notable peak was evident between 8:10am and 8:19am accounting for approximately 30 percent (n=26) of all morning cyclists. This peak is consistent with previous years.

Figure 4.2: Morning Peak Cyclist Frequency

Taharoto /Northcote Road 2007 – 2014 (n)



Note: In 2014, 9 per cent of the total cycle movements (n=8) 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:

- *4 cyclists at 6:40am*
- *4 cyclists at 8:05am.*

4.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cyclist movements observed at the Taharoto/Northcote Road intersection has remained stable, from 82 movements last year to 80 this year.
- The key evening movements at this site were straight along Taharoto Road in a south-easterly direction (Movement 8 = 33 cyclists) and straight along Taharoto Road in a north-westerly direction (Movement 2 = 13).
- Movement 8 experienced the largest increase in cycle volume (up 5 movements), while Movement 2 saw the greatest decrease, down by 8 movements.

Table 4.3: Evening Cyclist Movements

Taharoto/Northcote Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	4	2	1	1	0	2	**6**	**4**
2	8	23	20	28	21	20	21	**13**	**-8**
3	12	13	11	7	11	4	11	**6**	**-5**
4	10	3	6	8	7	2	6	**6**	**0**
5	0	2	1	1	0	1	0	**1**	**1**
6	0	3	6	6	7	5	5	**6**	**1**
7	3	3	2	2	0	2	1	**1**	**0**
8	11	52	45	53	45	35	28	**33**	**5**
9	0	0	0	0	3	2	0	**1**	**1**
10	0	0	0	1	0	0	0	**0**	**0**
11	3	2	5	2	0	3	1	**1**	**0**
12	2	5	6	3	10	3	7	**6**	**-1**
Total	**50**	**110**	**104**	**112**	**105**	**77**	**82**	**80**	**-2**

- Over the evening peak, the greatest share of cyclists using this intersection were adults (93 per cent, stable from 91 per cent in 2013).
- Almost all cyclists at this site were wearing a helmet (96 per cent, up from 91 per cent in 2013).
- The majority of cyclists continued to be male (77 per cent).
- Seventy-nine per cent of the cyclists were riding on the road (up from 72 per cent in 2013), while the remaining 21 per cent were riding on the footpath.

Table 4.4: Evening Cyclist Characteristics

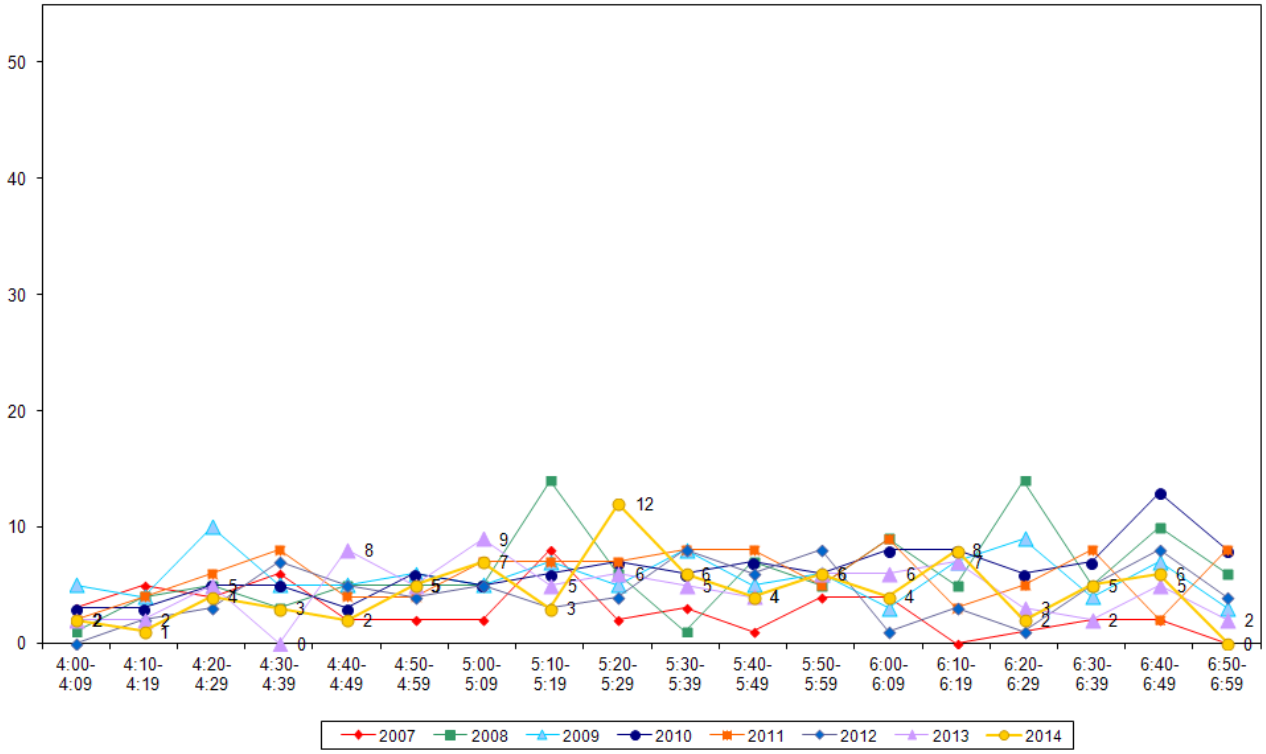
Taharoto/Northcote Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	84	90	92	81	84	94	91	**93**	**2**
School child	16	10	8	19	16	6	9	**7**	**-2**
Helmet Wearing									
Helmet on head	82	97	94	96	92	95	91	**96**	**5**
No helmet	18	3	6	4	8	5	9	**4**	**-5**
Gender									
Male	-	-	-	-	67	79	82	**77**	**-5**
Female	-	-	-	-	10	21	18	**19**	**1**
Can't tell	-	-	-	-	23	0	0	**4**	**4**
Where Riding									
Road	69	75	81	70	73	83	72	**79**	**7**
Footpath	31	25	19	30	27	17	28	**21**	**-7**
Base:	***50***	***110***	***104***	***112***	***105***	***77***	***82***	***80***	

- Cyclist movement volumes during the evening remained relatively steady, with no evident peak observed. The highest count of cyclists per ten-minute interval was 12, which occurred between 5:20pm and 5:29pm. The overall pattern was consistent with previous years.

Figure 4.3: Evening Peak Cyclist Frequency

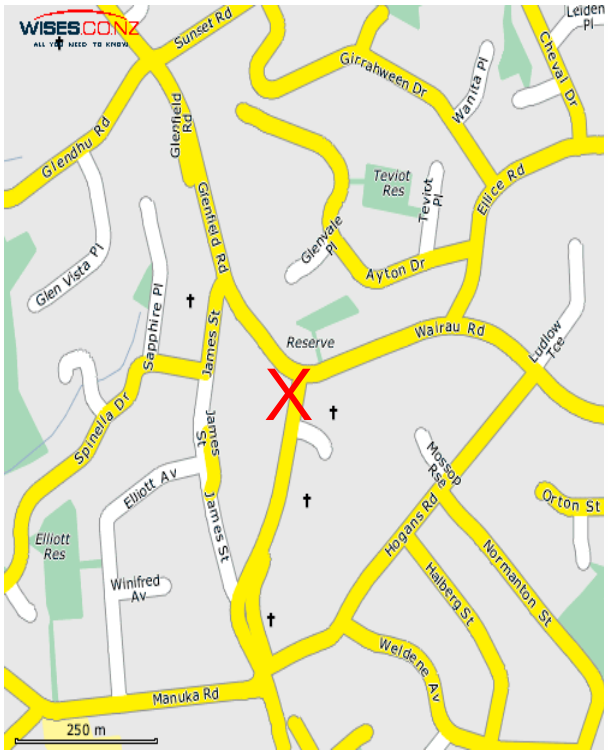
Taharoto/Northcote Road 2007 – 2014 (n)

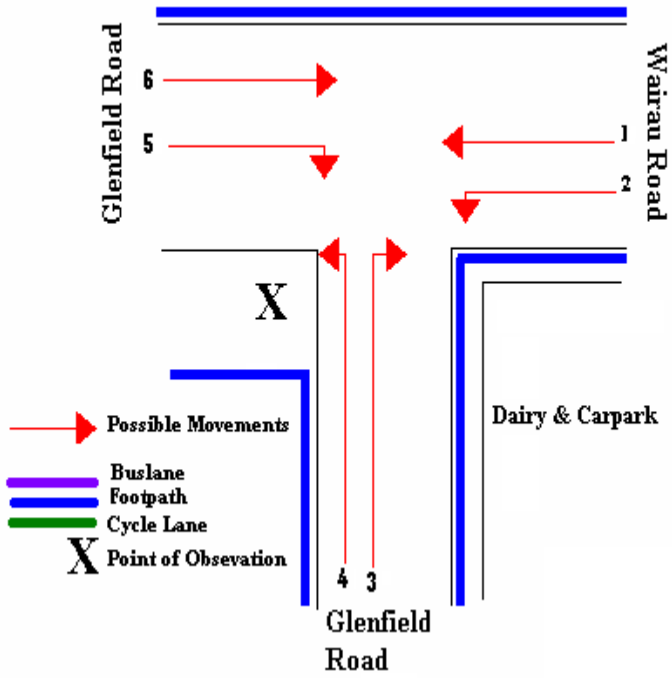


5. WAIRAU ROAD/GLENFIELD ROAD, GLENFIELD (SITE 41)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: Wairau/Glenfield Road





5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	34	30	64	93
2008	39	34	73	107
2009	42	38	80	117
2010	38	53	91	131
2011	41	52	93	134
2012	36	69	105	150
2013	32	37	69	100
2014	**37**	**42**	**79**	**114**

5.2 Morning Peak

Environmental Conditions

- The weather was fine at the beginning of the shift, then gradually turned cloudy with occasional light drizzle observed.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cyclist movements increased in 2014 (37 movements, compared to 32 movements in 2013).
- The most common movement in the morning was travelling northwest along Glenfield Road (Movement 4 = 15 movements).
- Cyclist traffic at Movement 5 has increased from 6 cyclists to 10 cyclists this year.

Table 5.1: Morning Cyclist Movements

Wairau/Glenfield Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	2	6	8	9	6	11	3	**4**	**1**
2	2	4	1	1	0	1	2	**3**	**1**
3	4	2	3	1	6	4	2	**1**	**-1**
4	11	11	17	17	13	7	14	**15**	**1**
5	9	8	4	4	8	2	6	**10**	**4**
6	6	8	9	6	8	11	5	**4**	**-1**
Total	**34**	**39**	**42**	**38**	**41**	**36**	**32**	**37**	**5**

- Over the morning peak, adults comprised the greatest share of cycle movements (95 per cent). There has been a seven percentage point decrease in the share of school children cycling at this site.
- Almost all cyclists were wearing a helmet at this site (95 per cent, up from 91 per cent in 2013).
- The majority of cyclists were male (78 per cent).
- There has been an increase in the number of cyclists riding on the road (81 per cent, up from 72 per cent last year).

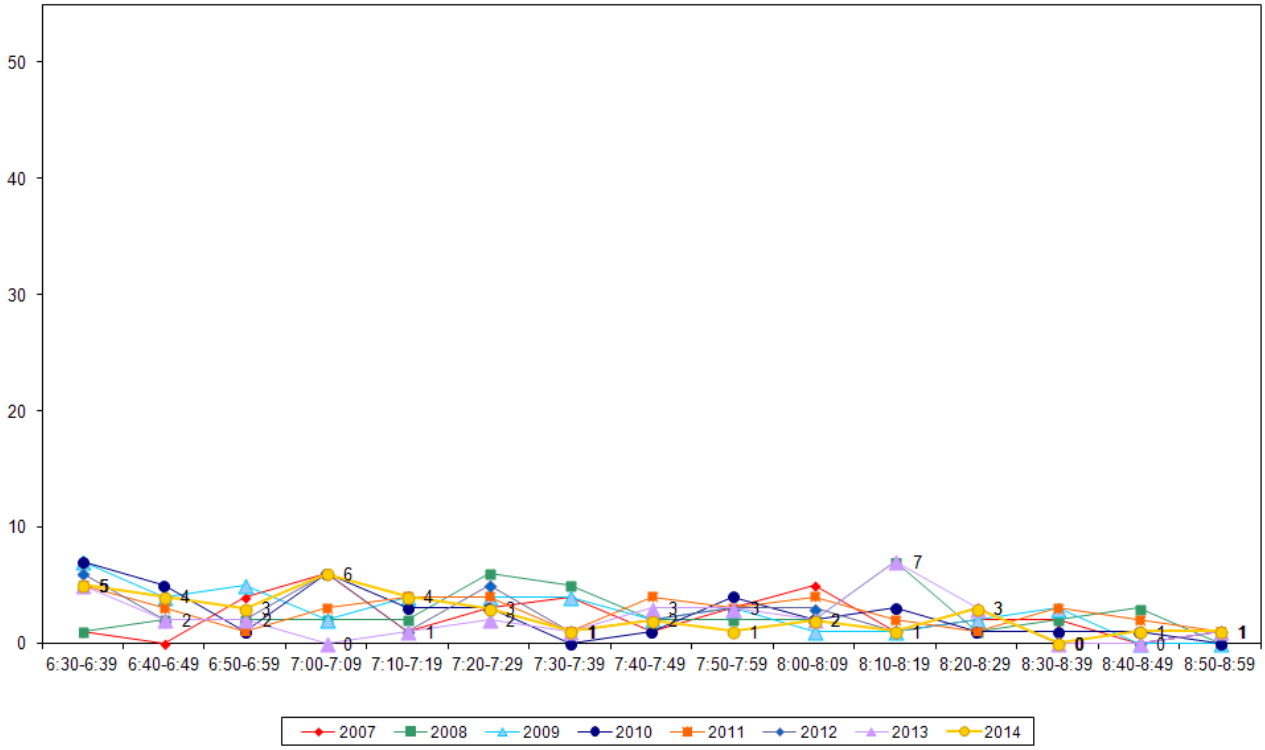
Table 5.2: Morning Cyclist Characteristics
Wairau/Glenfield Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	91	87	93	97	98	97	88	**95**	**7**
School child	9	13	7	3	2	3	12	**5**	**-7**
Helmet Wearing									
Helmet on head	82	97	100	95	98	100	91	**95**	**4**
No helmet	18	3	0	5	2	0	9	**5**	**-4**
Gender									
Male	-	-	-	-	93	86	81	**78**	**-3**
Female	-	-	-	-	7	14	0	**22**	**22**
Can't tell	-	-	-	-	0	0	19	**0**	**-19**
Where Riding									
Road	62	82	95	97	83	92	72	**81**	**9**
Footpath	38	18	5	3	17	8	28	**19**	**-9**
Base:	***34***	***39***	***42***	***38***	***41***	***36***	***32***	***37***	

- The volume of morning cycle movements remained low throughout the shift, with the highest volume of cyclists recorded at 7:00am – 7:19am with six cycle movements. Cyclist numbers have remained relatively stable over the past several years.

Figure 5.2: Morning Peak Cyclist Frequency

Wairau/Glenfield Road 2007 – 2014 (n)



Note: In 2014, 5 cyclists (14 per cent of all morning peak cycle movements at this site) were observed riding together at 7:02am. This compares with no cyclists observed riding together in 2013.

5.3 Evening Peak

Environmental Conditions

- The weather was fine with wind strengthening over the course of the evening monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- This year, the total number of evening cyclist movements observed at the Wairau/Glenfield Road intersection has increased (42 movements, up from 37).
- The key movement in the evening was south along Glenfield Road (Movement 5 = 12 cyclists).
- The most noticeable change from last year occurred at Movement 3 (cycle volume up 4 movements).

Table 5.3: Evening Cyclist Movements

Wairau/Glenfield Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	6	4	8	14	13	28	10	**7**	**-3**
2	2	3	1	6	6	3	6	**7**	**1**
3	3	1	1	0	1	2	0	**4**	**4**
4	7	5	8	11	7	3	5	**6**	**1**
5	8	16	18	15	22	19	10	**12**	**2**
6	4	5	2	7	3	14	6	**6**	**0**
Total	**30**	**34**	**38**	**53**	**52**	**69**	**37**	**42**	**5**

- Over the evening period, 81 per cent of cyclists using this site were adults (down 19 percentage points from the previous year).
- Helmet wearing was less widespread in the evening this year (81 per cent, down from 84 per cent in 2012).
- The majority of cyclists were male (83 per cent).
- Three-fifths of the cyclists were riding on the road, this share down from 73 per cent last year.

Table 5.4: Evening Cyclist Characteristics

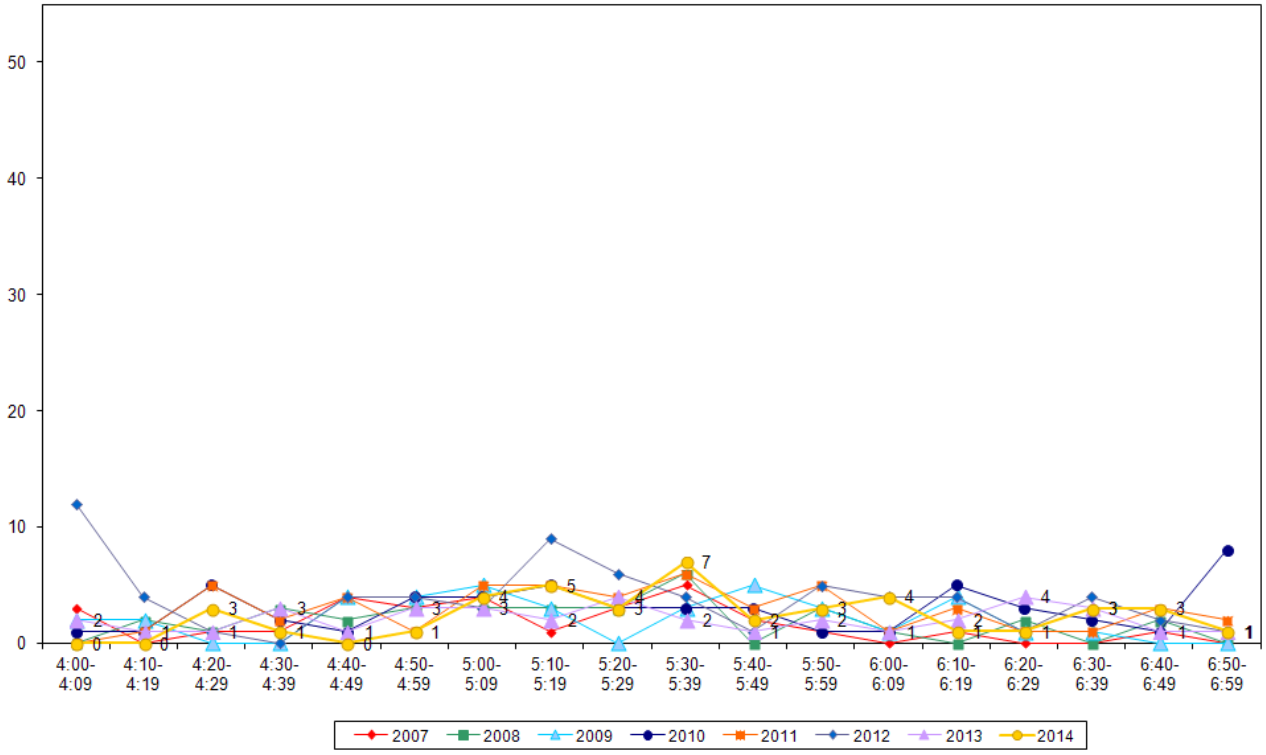
Wairau/Glenfield Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	91	95	91	92	99	100	**81**	**-19**
School child	0	9	5	9	8	1	0	**19**	**19**
Helmet Wearing									
Helmet on head	87	97	92	94	98	99	84	**81**	**-3**
No helmet	13	3	8	6	2	1	16	**19**	**3**
Gender									
Male	-	-	-	-	94	74	95	**83**	**-12**
Female	-	-	-	-	6	26	5	**12**	**7**
Can't tell	-	-	-	-	0	0	0	**5**	**5**
Where Riding									
Road	73	85	95	89	83	94	73	**60**	**-13**
Footpath	27	15	5	11	17	6	27	**40**	**13**
Base:	***30***	***34***	***38***	***53***	***52***	***69***	***37***	***42***	

- The number of evening cyclist movements remained low throughout the monitoring period, with no apparent peak observed. There were no more than seven cyclists passing by this site in any ten-minute interval.

Figure 5.3: Evening Peak Cyclist Frequency

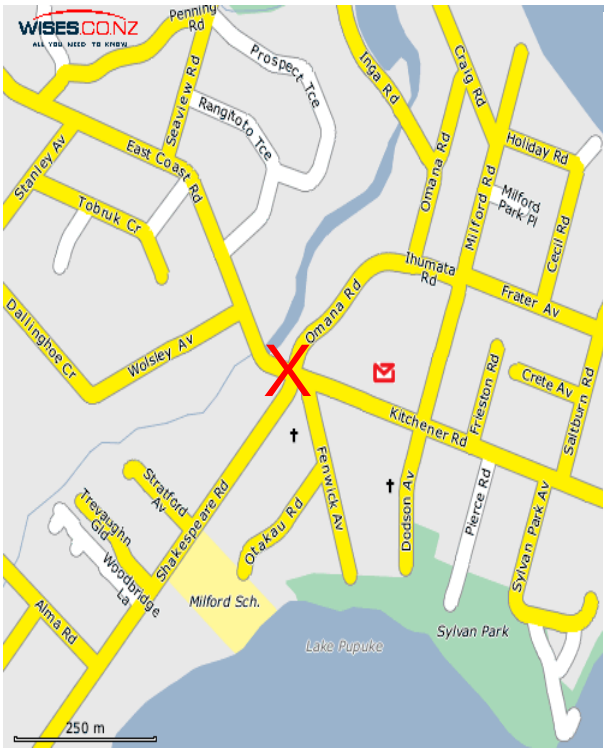
Wairau/Glenfield Road 2007 – 2014 (n)

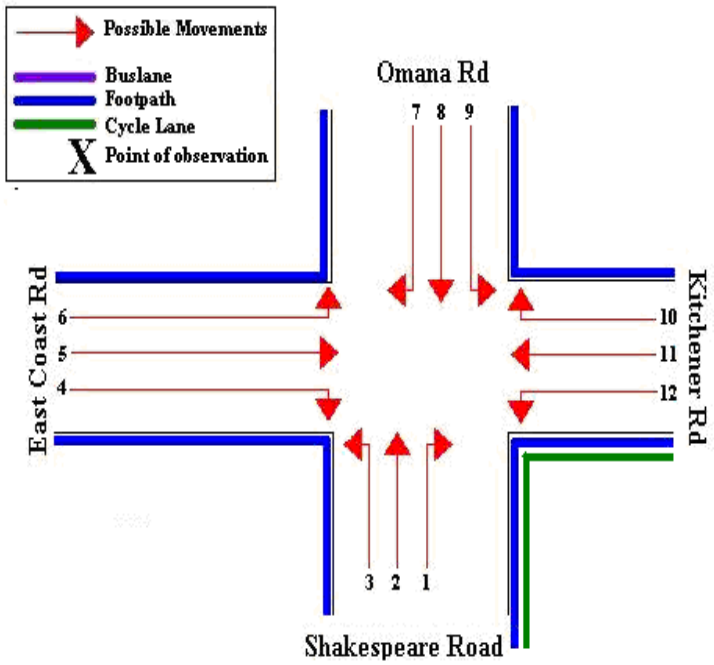


6. SHAKESPEARE ROAD/EAST COAST ROAD, MILFORD (SITE 42)

Figure 6.1 shows the possible cyclist movements at this intersection.

Figure 6.1: Cycle Movements: Shakespeare/East Coast Road





6.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	82	55	137	314
2008	127	123	250	364
2009	177	133	310	454
2010	146	159	305	442
2011	181	105	286	422
2012	145	93	238	350
2013	172	94	266	393
2014	**97**	**97**	**194**	**282**

6.2 Morning Peak

Environmental Conditions

- The weather was fine for the majority of the morning shift. Light showers were recorded between 6:30am to 6:40am and 7:20am to 7:30am. The weather became sunny towards the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of cyclist movements recorded at the Shakespeare/East Coast Road intersection has decreased notably since last year (97 movements, down from 172 movements in 2013).
- The most common movements were travelling southeast from East Coast Road into Kitchener Road (Movement 5 = 26 movements) and turning left from Kitchener Road onto Shakespeare Road heading south (Movement 12 = 29 movements).
- The most noticeable changes occurred at Movement 5 (down 25 movements) and Movement 12 (down 13 movements).

Table 6.1: Morning Cyclist Movements

Shakespeare/East Coast Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	13	7	9	6	26	5	11	**4**	**-7**
2	3	0	3	1	5	2	2	**1**	**-1**
3	1	1	0	4	4	0	2	**3**	**1**
4	5	8	9	16	24	13	23	**14**	**-9**
5	28	26	96	46	22	67	51	**26**	**-25**
6	1	0	2	1	1	0	2	**2**	**0**
7	0	0	0	1	0	0	4	**1**	**-3**
8	3	6	15	9	6	15	18	**9**	**-9**
9	2	0	0	2	0	1	4	**0**	**-4**
10	0	0	0	4	0	0	0	**0**	**0**
11	5	13	16	26	23	12	13	**8**	**-5**
12	21	66	27	30	70	30	42	**29**	**-13**
Total	**82**	**127**	**177**	**146**	**181**	**145**	**172**	**97**	**-75**

- Over the morning peak, adults comprised the greatest share of cycle movements (67 per cent, down from 76 per cent last year).
- Almost all cyclists were wearing a helmet (96 per cent, stable from 98 per cent in 2013).
- The majority of cyclists continued to be male (78 per cent).
- Eleven per cent of the cyclists were riding on the off-road cycleway, stable from last year. There were fewer cyclists riding on the road (down 13 percentage points to 56 per cent) while the share riding on the footpath has increased (up 12 percentage points to 32 per cent) this year.

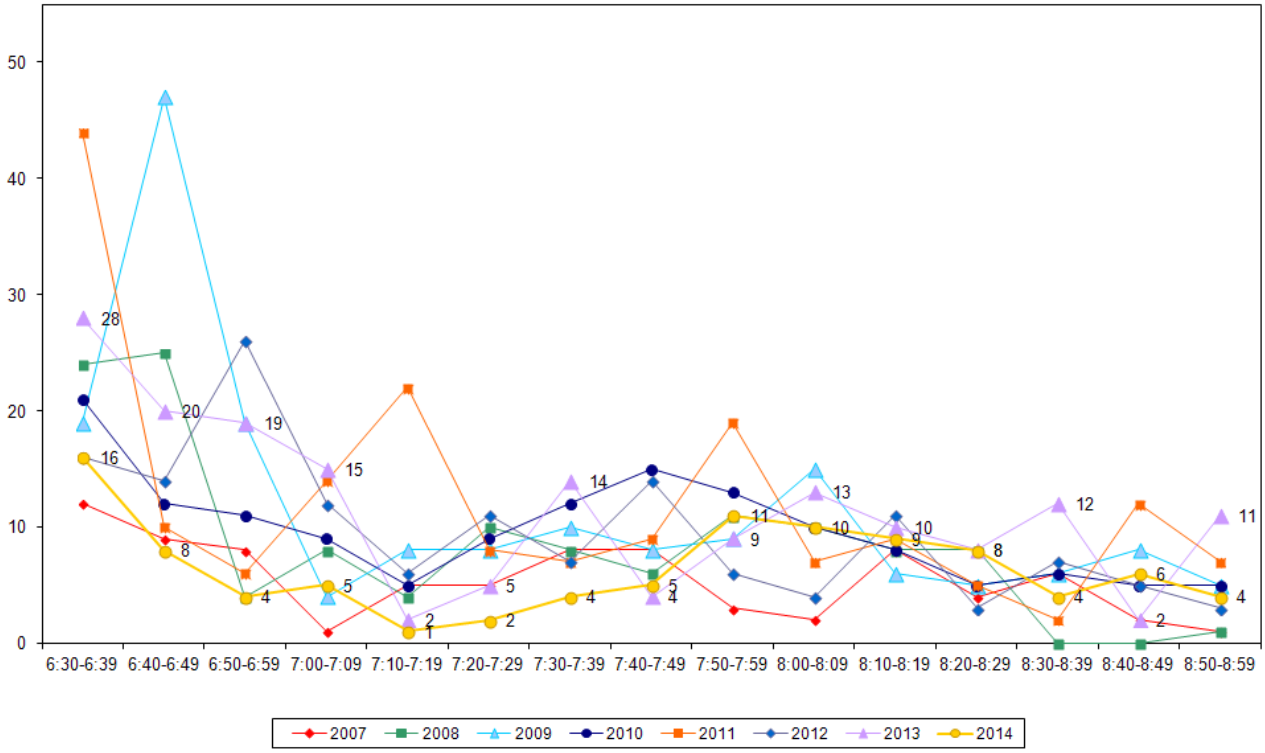
Table 6.2: Morning Cyclist Characteristics

Shakespeare/East Coast Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	83	82	83	77	85	82	76	**67**	**-9**
School child	17	18	17	23	15	18	24	**33**	**9**
Helmet Wearing									
Helmet on head	96	98	98	100	98	99	98	**96**	**-2**
No helmet	4	2	2	0	2	1	2	**4**	**2**
Gender									
Male	-	-	-	-	73	56	77	**78**	**1**
Female	-	-	-	-	23	19	23	**22**	**-1**
Can't tell	-	-	-	-	4	25	0	**0**	**0**
Where Riding									
Road	77	81	79	71	76	75	69	**56**	**-13**
Footpath	23	19	21	29	18	25	20	**32**	**12**
Off-road cycle way	-	-	-	-	6	0	11	**11**	**0**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Base:	***82***	***127***	***177***	***146***	***181***	***145***	***172***	***97***	

- Morning cyclist movement numbers started off with a peak between 6:30am and 6:39am (16 movements) then decreased until the end of the monitoring period. This is a similar trend to what was evident the previous year.

Figure 9.2: Morning Peak Cyclist Frequency
Shakespeare/East Coast Road 2007 – 2014 (n)



Note: In 2014, 3 cyclists (3 per cent of all morning peak cycle movements at this site) were observed riding together at 7:56am. This compares with 6 per cent of the total cycle movements in 2013 (nil) being identified as those riding in groups.

6.3 Evening Peak

Environmental Conditions

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

Key Points

- The volume of evening cyclist movements recorded at the Shakespeare/East Coast Road intersection in 2013 has remained stable since last year (97 movements, compared with 94 movements in 2013).
- The most common movements in the evening were straight along Kitchener Road into East Coast Road travelling in a north-westerly direction (Movement 11 = 26 movements) and the left turn from Kitchener Road onto Shakespeare Road travelling south-west (Movement 12 = 27 movements).
- The most noticeable increase since 2013 has been at Movement 1 (up 6 movements).

Table 6.3: Evening Cyclist Movements

Shakespeare/East Coast Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	5	15	5	28	11	8	6	**12**	**6**
2	3	2	8	11	6	6	3	**5**	**2**
3	6	1	5	5	7	9	7	**5**	**-2**
4	2	4	6	3	1	3	6	**5**	**-1**
5	6	11	12	21	7	7	12	**10**	**-2**
6	4	3	3	2	6	0	3	**5**	**2**
7	0	0	0	2	0	0	0	**0**	**0**
8	1	3	2	8	10	4	1	**2**	**1**
9	0	0	1	1	0	0	0	**0**	**0**
10	0	0	2	0	1	0	0	**0**	**0**
11	13	27	47	40	27	27	31	**26**	**-5**
12	15	57	42	38	29	29	25	**27**	**2**
Total	**55**	**123**	**133**	**159**	**105**	**93**	**94**	**97**	**3**

- Over the evening peak, the majority of cyclists using this intersection were adults (77 per cent, down from 87 per cent last year).
- Most cyclists were wearing a helmet (93 per cent, down slightly from 96 per cent in 2013).
- Approximately three in four cyclists were male (73 per cent, down from 81 per cent from last year).
- Nearly two thirds of cyclists were riding on the road (63 per cent, stable from last year). The remaining cyclists were riding on either the footpath (28 per cent) or on the off-road cycle way (8 per cent).

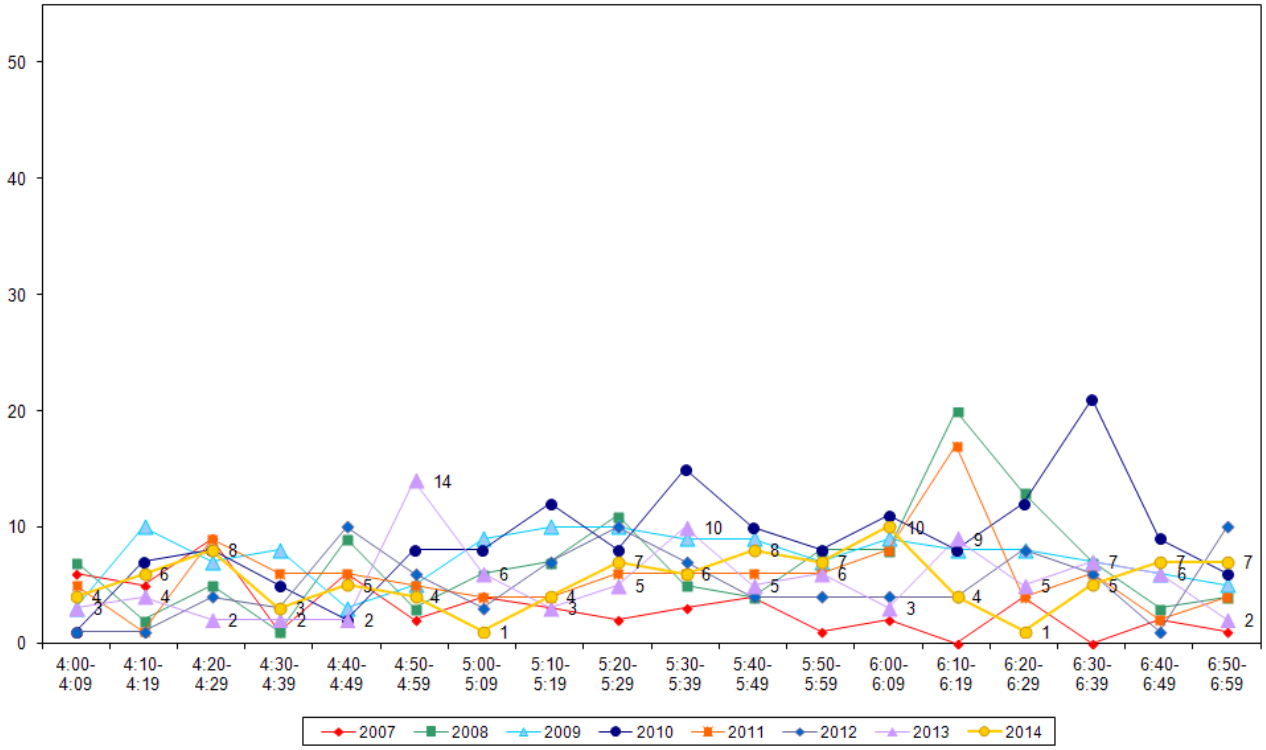
Table 6.4: Evening Cyclist Characteristics

Shakespeare/East Coast Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	82	76	81	74	80	88	87	**77**	**-10**
School child	18	24	19	26	20	12	13	**23**	**10**
Helmet Wearing									
Helmet on head	82	94	97	99	90	97	96	**93**	**-3**
No helmet	18	6	3	1	10	3	4	**7**	**3**
Gender									
Male	-	-	-	-	81	79	81	**73**	**-8**
Female	-	-	-	-	19	21	18	**27**	**9**
Can't tell	-	-	-	-	0	0	1	**0**	**-1**
Where Riding									
Road	73	72	69	60	64	65	65	**63**	**-2**
Footpath	27	28	31	40	17	27	30	**28**	**-2**
Off-road cycle way	-	-	-	-	19	8	5	**8**	**3**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Base:	***55***	***123***	***133***	***159***	***105***	***93***	***94***	***97***	

- The volume of cycle movements remained at or below 10 per ten minute for the entire monitoring period. There are no notable peaks evident and the volumes of cycle movements appear to be mostly similar to that of previous years.

Figure 6.3: Evening Cyclist Frequency
Shakespeare/East Coast Road 2007 – 2014 (n)

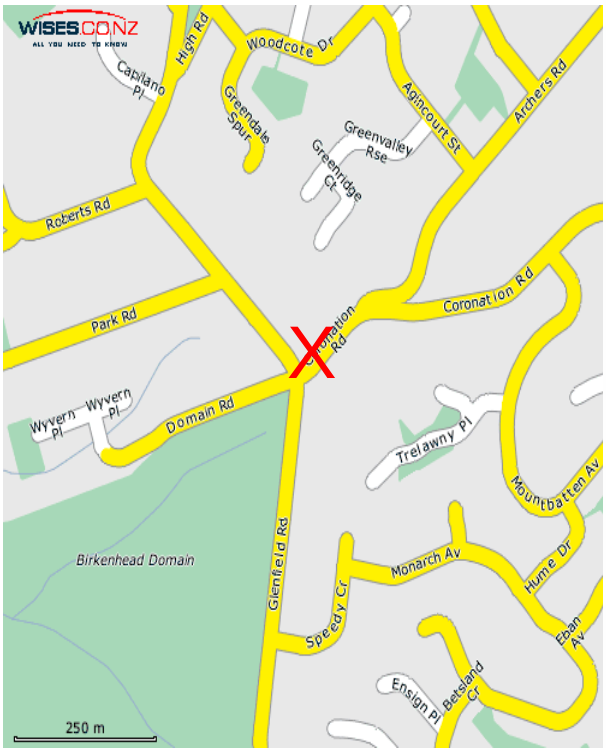


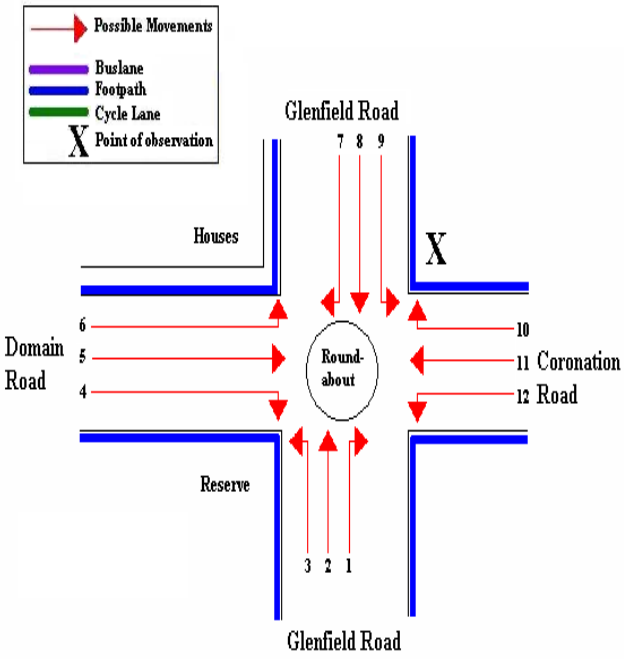
Note: In 2014, 3 cyclists (3 per cent of all evening peak cycle movements at this site) were observed riding together at 5:20pm.

7. GLENFIELD ROAD/CORONATION ROAD, HILLCREST (SITE 43)

Figure 7.1 shows the possible cyclist movements at this intersection.

Figure 7.1: Cycle Movements: Glenfield/Coronation Road





7.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	16	12	28	64
2008	36	39	75	109
2009	36	42	78	113
2010	37	56	93	134
2011	27	25	52	76
2012	35	38	73	106
2013	33	25	58	85
2014	**28**	**30**	**58**	**84**

7.2 Morning Peak

Environmental Conditions

- The weather was fine at the beginning of the shift. Light showers developed around 6:25am and 7:30am each lasting around 10 minutes each. The weather remained dry but overcast for the remainder of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclists at the Glenfield/Coronation Road intersection has decreased slightly from last year (28 movements, compared with 33 movements in 2013).
- The most common movement in the morning was heading north along Glenfield Road (Movement 2 = 9 cyclists).
- Movement 1 saw the greatest change in morning cyclist movement numbers (down 5 movements).

Table 7.1: Morning Cyclist Movements

Glenfield/Coronation Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	2	7	13	6	4	3	10	**5**	**-5**
2	1	5	5	7	10	17	6	**9**	**3**
3	0	0	0	0	0	2	0	**0**	**0**
4	0	0	0	0	1	0	0	**0**	**0**
5	0	0	0	0	0	1	0	**0**	**0**
6	0	0	0	0	0	0	0	**0**	**0**
7	0	0	0	0	0	1	0	**0**	**0**
8	7	9	6	11	4	3	5	**2**	**-3**
9	6	8	9	9	2	3	5	**4**	**-1**
10	0	5	3	2	2	4	4	**3**	**-1**
11	0	0	0	0	0	0	0	**0**	**0**
12	0	2	0	2	4	1	3	**5**	**2**
Total	**16**	**36**	**36**	**37**	**27**	**35**	**33**	**28**	**-5**

- Over the morning peak, adults comprised the greatest share of cycle movements (79 per cent, down from 88 per cent in 2013).
- Most cyclists were wearing a helmet (86 per cent, down from 97 per cent in 2013).
- The majority of cyclists were male (86 per cent, up from 82 per cent last year).
- Most cyclists were riding on the road (75 per cent, down from 85 per cent in 2013).

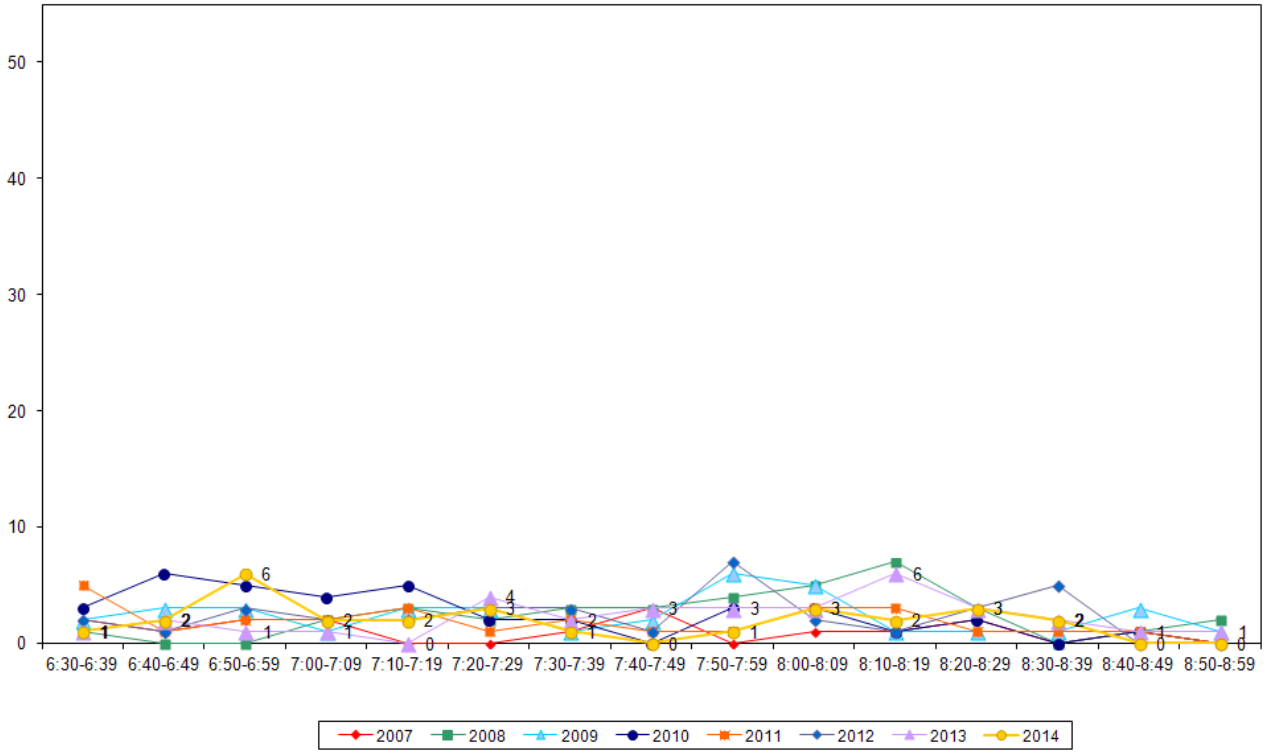
Table 7.2: Morning Cyclist Characteristics

Glenfield/Coronation Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	94	83	75	84	85	77	88	**79**	**9**
School child	6	17	25	16	15	23	12	**21**	**-9**
Helmet Wearing									
Helmet on head	87	100	97	95	100	91	97	**86**	**-11**
No helmet	13	0	3	5	0	9	3	**14**	**11**
Gender									
Male	-	-	-	-	70	91	82	**86**	**4**
Female	-	-	-	-	30	9	15	**7**	**-8**
Can't tell	-	-	-	-	0	0	3	**7**	**4**
Where Riding									
Road	87	83	69	76	81	83	85	**75**	**-10**
Footpath	13	17	31	24	19	17	15	**25**	**10**
Base:	***16***	***36***	***36***	***37***	***27***	***35***	***33***	***28***	

- As in previous years, morning cyclist volumes were low over the entire monitoring period, with a slight peak was observed between 6:50 am and 6:59am (6 movements). This is compared with a peak between 8:10am and 8:19am (6 movements) last year.

Figure 7.2: Morning Peak Cyclist Frequency
Glenfield/Coronation Road 2007 – 2014 (n)



Note: In 2014, 5 cyclists (22 per cent of all morning peak cycle movements at this site) were observed riding together at 6:56am. This compares with no cyclists riding together in the morning peak in 2013.

7.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cyclist movements recorded at the Glenfield/Coronation Road intersection in the evening has increased from 2013 (30 movements, up from 25 movements last year).
- The key movements in the evening were going from Coronation Road to Domain Road (Movement 12 = 7 movements), and travelling along Glenfield Road heading north (Movement 2 = 8 movements).
- Movement 8 recorded the greatest decrease, with three fewer cyclists, and Movement 10 recorded the greatest increase, having three more cyclists than last year.

Table 7.3: Evening Cyclist Movements

Glenfield/Coronation Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	3	6	1	2	3	2	**4**	**2**
2	4	6	7	16	9	10	6	**8**	**2**
3	0	3	0	0	0	0	1	**1**	**0**
4	0	0	0	0	0	0	0	**0**	**0**
5	0	0	0	0	0	0	0	**0**	**0**
6	0	0	0	0	0	0	0	**0**	**0**
7	0	0	0	0	0	0	0	**1**	**1**
8	5	6	8	9	7	11	7	**4**	**-3**
9	0	4	3	9	0	5	1	**1**	**0**
10	1	4	6	11	3	2	0	**3**	**3**
11	0	0	0	0	0	1	0	**1**	**1**
12	2	13	12	10	4	6	8	**7**	**-1**
Total	**12**	**39**	**42**	**56**	**25**	**38**	**25**	**30**	**5**

- Nearly all cyclists at this location were adults (83 per cent, down from 92 per cent in 2013).
- Four in five cyclists were wearing a helmet (80 per cent, down from 88 per cent from last year).
- Most cyclists were male with female cyclists accounting for only seven per cent of cyclists.
- One-thirds of cyclists were riding on the footpath (up from 20 per cent in 2013).

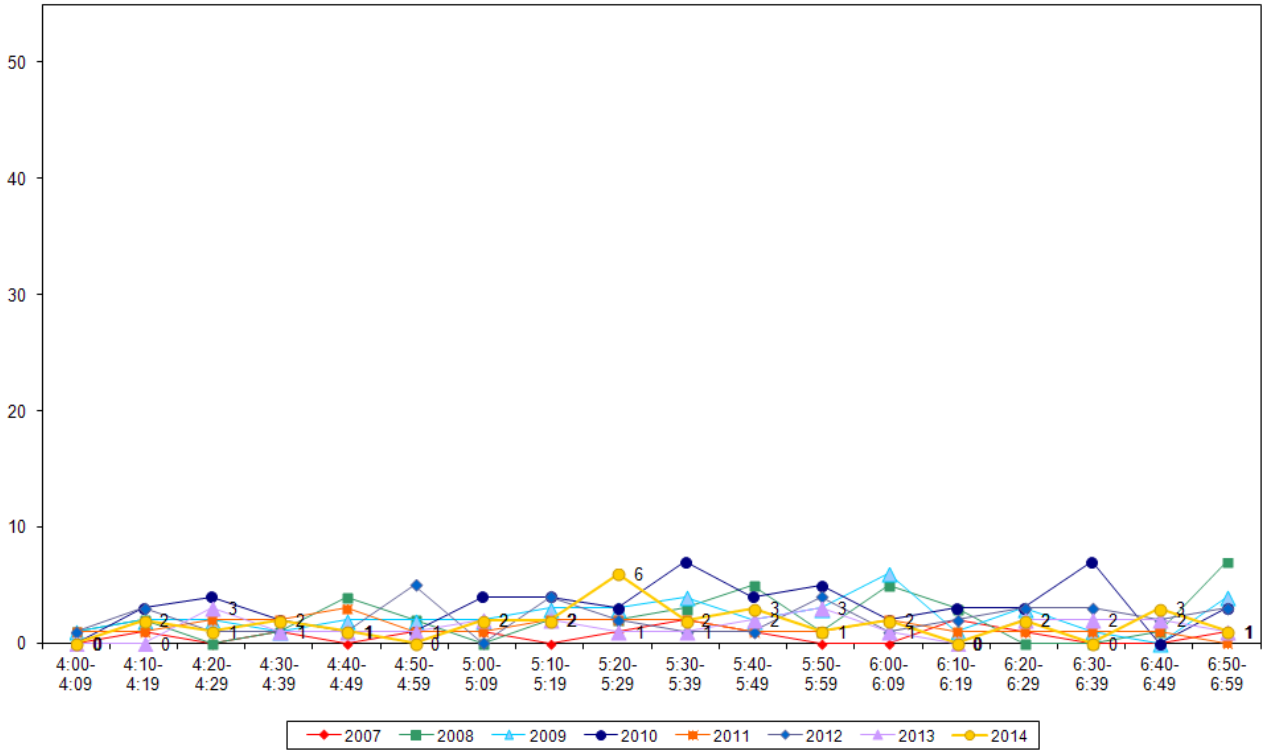
Table 7.4: Evening Cyclist Characteristics

Glenfield/Coronation Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	83	95	76	89	100	79	92	**83**	**-9**
School child	17	5	24	11	0	21	8	**17**	**9**
Helmet Wearing									
Helmet on head	75	95	81	91	96	89	88	**80**	**-8**
No helmet	25	5	19	9	4	11	12	**20**	**8**
Gender									
Male	-	-	-	-	96	89	100	**93**	**-7**
Female	-	-	-	-	4	11	0	**7**	**7**
Can't tell	-	-	-	-	0	0	0	**0**	**0**
Where Riding									
Road	83	77	69	77	100	76	80	**67**	**-13**
Footpath	17	23	31	23	0	24	20	**33**	**13**
Base:	***12***	***39***	***42***	***56***	***25***	***38***	***25***	***30***	

- Evening cyclist movement volumes remained very low throughout the observation period, with no more than three cyclists riding past the site during any ten-minute interval. The exception to this was a small peak of 6 cyclists recorded between 5:20pm to 5:29pm.

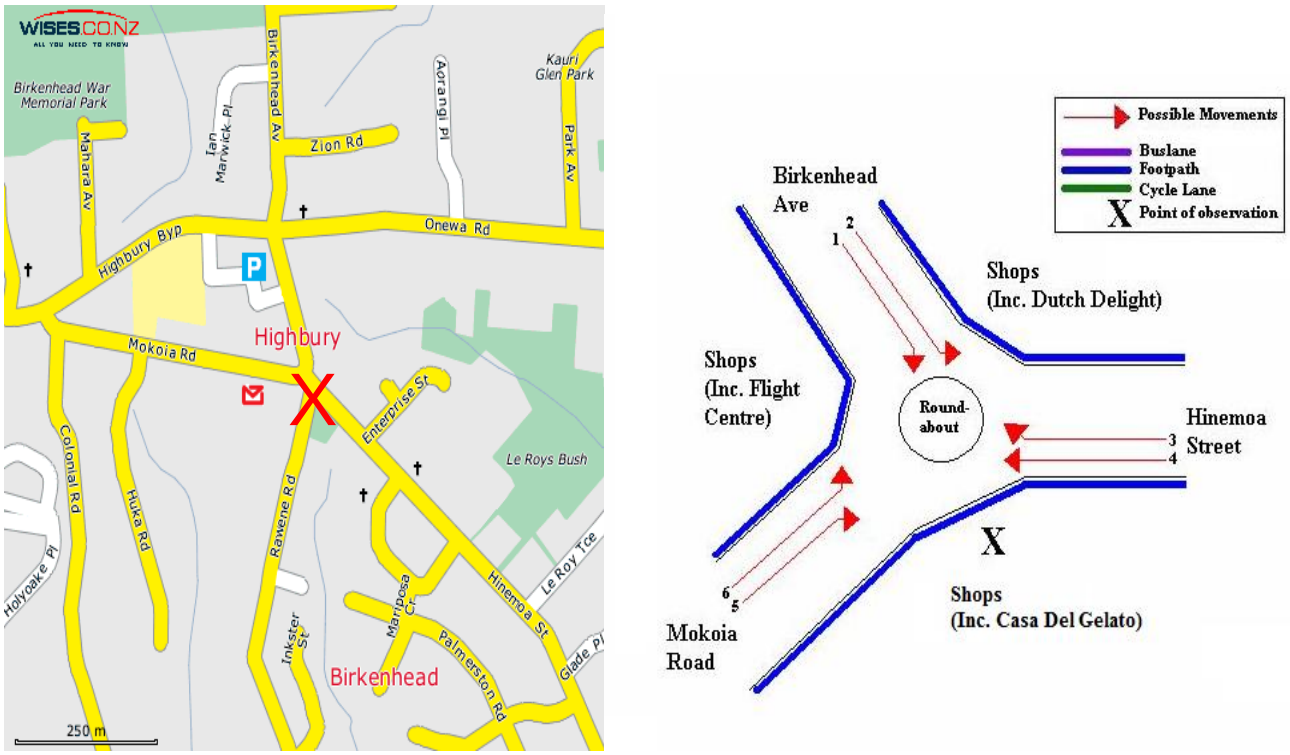
Figure 7.3: Evening Peak Cyclist Frequency
Glenfield/Coronation Road 2007 – 2014 (n)



8. BIRKENHEAD AVENUE/MOKOIA ROAD, BIRKENHEAD (SITE 44)

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: Birkenhead/Mokoia Road



8.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	20	20	40	58
2008	20	29	49	71
2009	27	30	57	83
2010	29	46	75	108
2011	22	23	45	65
2012	17	35	52	74
2013	29	32	61	88
2014	**9**	**22**	**32**	**44**

8.2 Morning Peak

Environmental Conditions

- The weather was generally fine during the morning shift. Occasional periods of light drizzle were recorded.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclists at the Birkenhead Avenue/Mokoia Road intersection has decreased notably from last year (down from 29 cycle movements to 9 this year).
- The key movement in the morning was the right turn from Mokoia Road into Hinemoa Street travelling in a south-easterly direction (Movement 5 = 4 cyclists).
- All but two movements (Movement 1 and Movement 4 which recorded no change) recorded a decrease in cycle volumes. The most noticeable decrease occurred at Movement 5 (down 8 movements).

Table 8.1: Morning Cyclist Movements

Birkenhead Avenue/Mokoia Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	1	0	1	1	0	1	**1**	**0**
2	7	6	12	16	9	5	7	**1**	**-6**
3	1	4	4	1	6	3	7	**2**	**-5**
4	2	0	0	2	0	1	0	**0**	**0**
5	8	7	9	9	5	7	12	**4**	**-8**
6	1	2	2	0	1	1	2	**1**	**-1**
Total	**20**	**20**	**27**	**29**	**22**	**17**	**29**	**9**	**-20**

- Over the morning peak, all cyclists using the Birkenhead Avenue/Mokoia Road intersection were adults (stable from the last two years).
- All cyclists wore a helmet (unchanged since 2011).
- A notable increase to female riders was present this year (33 per cent, up from 7 per cent last year).
- Most cyclists were riding on the road (89 per cent, down from 100 per cent in 2013).

Table 8.2: Morning Cyclist Characteristics

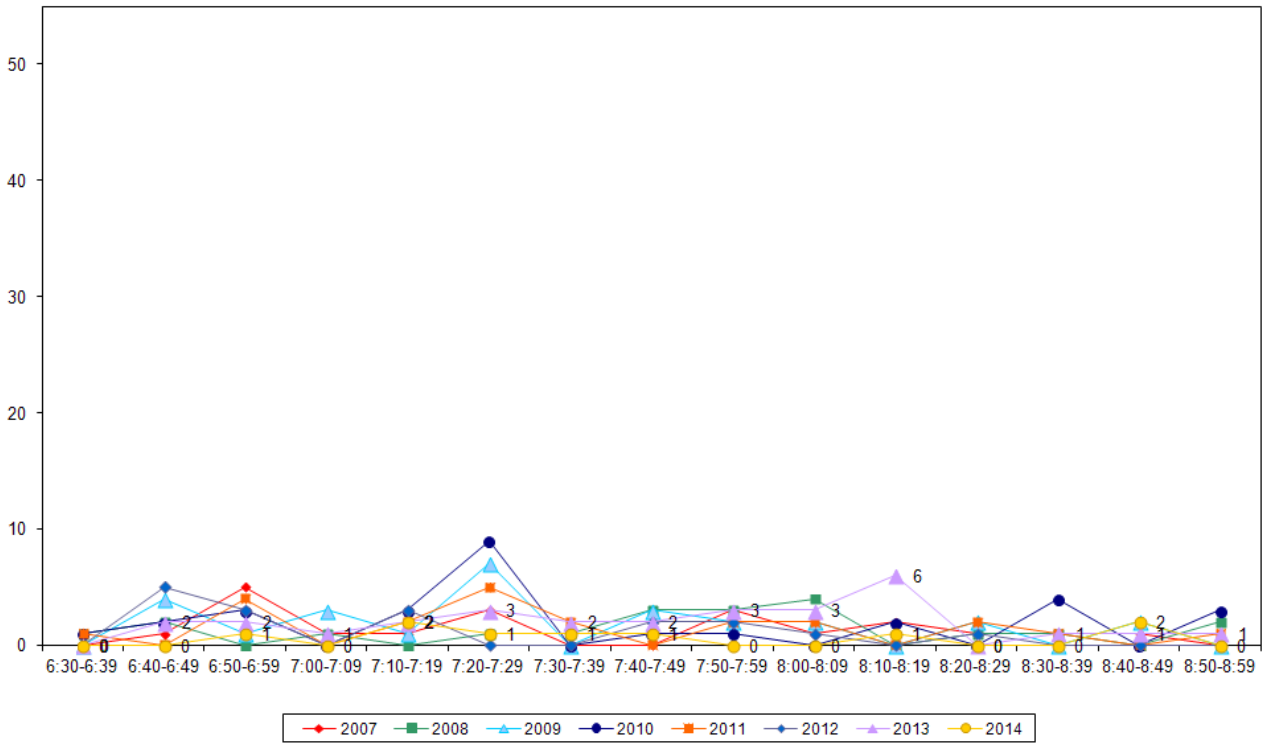
Birkenhead Avenue/Mokoia Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	95	100	100	91	100	100	**100**	**0**
School child	0	5	0	0	9	0	0	**0**	**0**
Helmet Wearing									
Helmet on head	80	100	96	90	100	100	100	**100**	**0**
No helmet	20	0	4	10	0	0	0	**0**	**0**
Gender									
Male	-	-	-	-	100	88	93	**67**	**-26**
Female	-	-	-	-	0	12	7	**33**	**26**
Can't tell	-	-	-	-	0	0	0	**0**	**0**
Where Riding									
Road	90	90	96	97	86	94	100	**89**	**-11**
Footpath	10	10	4	3	14	6	0	**11**	**11**
Base:	***20***	***20***	***27***	***29***	***22***	***17***	***29***	***9***	

- The volume of morning cycle movements is low over the entire monitoring period with no more than two movements recorded during any ten-minute interval.

Figure 8.2: Morning Peak Cyclist Frequency

Birkenhead Avenue/Mokoia Road 2007 – 2014 (n)



8.3 Evening Peak

Environmental Conditions

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

Key Points

- The volume of evening cyclists at the Birkenhead Avenue/Mokoia Road intersection has decreased from last year (down from 32 cycle movements to 22).
- The most common movement in the evening was turning from Hinemoa Road onto Birkenhead Avenue Road (Movement 3 = 8 movements).
- Movement 2 and Movement 4 each recorded a decrease of 5 cycle movements. Movement 6 (Mokoia Road to Birkenhead Avenue) continued last year's trend of no cyclists making this movement.

Table 8.3: Evening Cyclist Movements

Birkenhead Avenue/Mokoia Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	6	2	8	2	4	6	**2**	**-4**
2	1	2	3	4	4	7	7	**2**	**-5**
3	8	8	11	17	9	6	6	**8**	**2**
4	8	10	12	13	7	12	12	**7**	**-5**
5	2	2	1	1	0	1	1	**3**	**2**
6	0	1	1	3	1	5	0	**0**	**0**
Total	**20**	**29**	**30**	**46**	**23**	**35**	**32**	**22**	**-10**

- Over the evening peak, most cyclists using this intersection were adults (91 per cent, up slightly from last year).
- Helmet wearing has increased slightly in 2014 (95 per cent, up from 91 per cent in 2013).
- The greatest share of evening cyclists continued to be male (82 per cent, down from 91 per cent at the previous measure).
- The share of cyclists on the road remained constant from the previous year, at 82 per cent (compared with 81 per cent last year).

Table 8.4: Evening Cyclist Characteristics

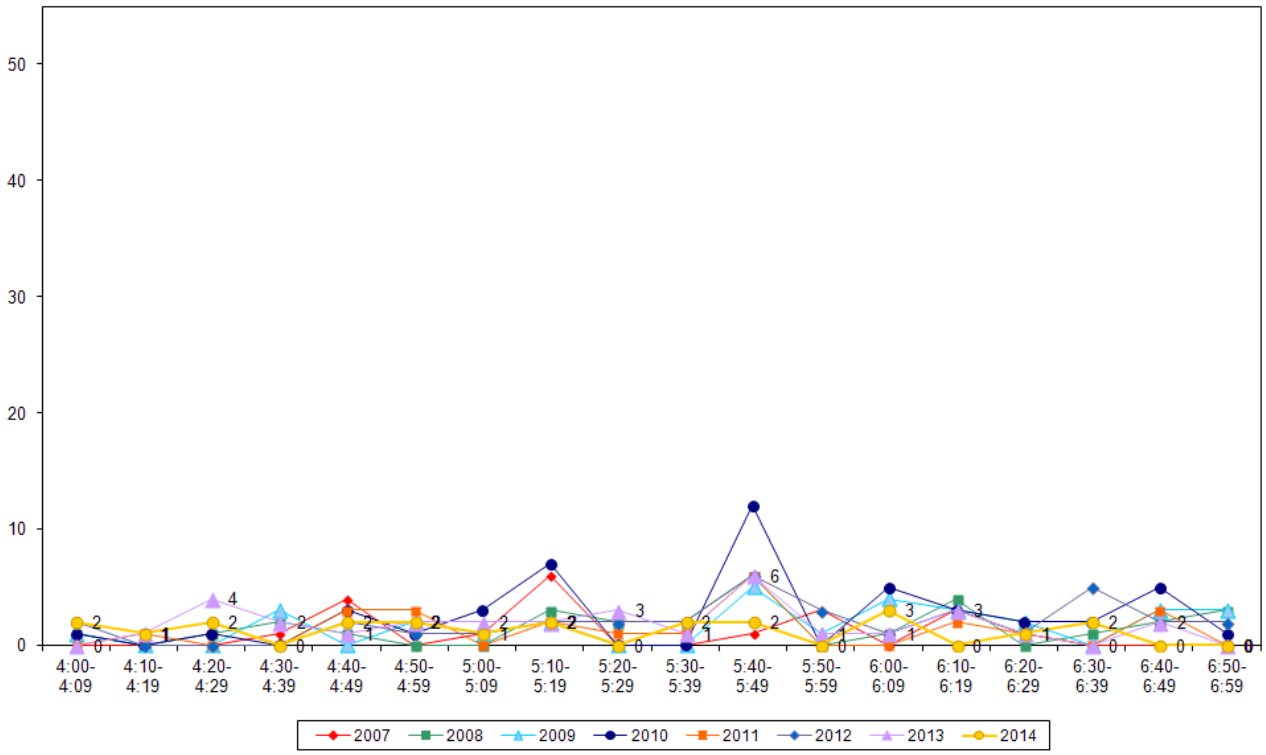
Birkenhead Avenue/Mokoia Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	95	93	93	87	91	91	88	**91**	**3**
School child	5	7	7	13	9	9	12	**9**	**-3**
Helmet Wearing									
Helmet on head	95	93	93	80	87	83	91	**95**	**4**
No helmet	5	7	7	20	13	17	9	**5**	**-4**
Gender									
Male	-	-	-	-	83	89	91	**82**	**-9**
Female	-	-	-	-	17	11	6	**18**	**12**
Can't tell	-	-	-	-	0	0	3	**0**	**-3**
Where Riding									
Road	100	93	80	76	78	63	81	**82**	**1**
Footpath	0	7	20	24	22	37	19	**18**	**-1**
Base:	***20***	***29***	***30***	***46***	***23***	***35***	***32***	***22***	

- In 2014, the cyclist movement volumes were low and reached no more than three movements per ten minute interval.

Figure 8.3: Evening Peak Cyclist Frequency

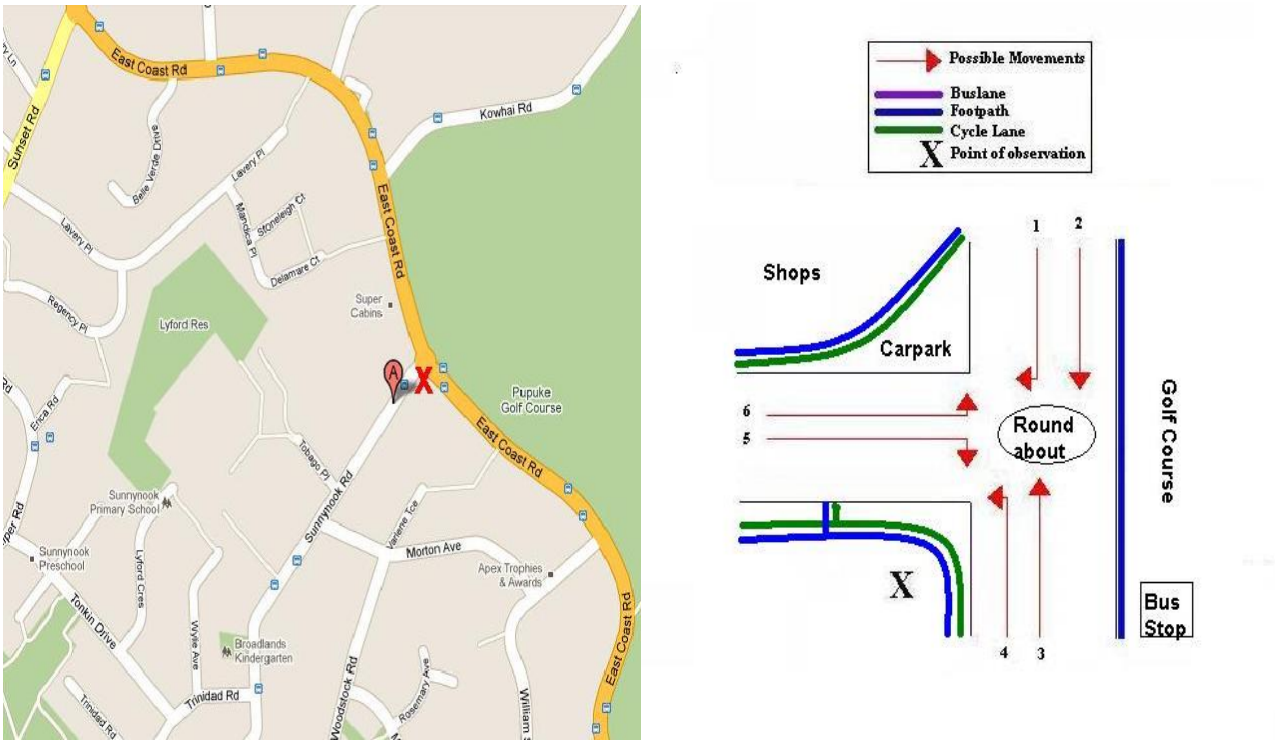
Birkenhead Avenue/Mokoia Road 2007 – 2014 (n)



9. SUNNYNOOK ROAD/EAST COAST ROAD, SUNNYNOOK (SITE 89)

Figure 9.1 shows the possible cyclist movements at this intersection.

Figure 9.1: Sunnynook Road/East Coast Road, Sunnynook



Note: This site was monitored for the first time in 2011.

9.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2011	81	93	174	252
2012	95	60	155	228
2013	96	53	149	211
2014	**45**	**52**	**97**	**140**

9.2 Morning Peak

Environmental Conditions

- The weather remained overcast throughout the morning shift. There were patches of rain recorded at 6:31am to 6:48am and from 7:16 am to 7:31am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of morning cyclist movements recorded at the Sunnynook/East Coast Road intersection in 2013 has decreased since last year (45 movements observed this year, compared with 96 in 2013).
- The key morning movement was continuing straight along East Coast Road travelling in a south-easterly direction (Movement 2 = 25 movements).
- The most noticeable change in morning cyclist movements was at Movement 2 (down 40 movements from 2013).

Table 9.1: Morning Cyclist Movements

Sunnynook Road/East Coast Road, Sunnynook 2011 – 2014 (n)

Movement	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	5	1	2	**2**	**0**
2	42	74	65	**25**	**-40**
3	25	17	22	**16**	**-6**
4	6	0	0	**0**	**0**
5	0	2	3	**1**	**-2**
6	3	1	4	**1**	**-3**
Total	**81**	**95**	**96**	**45**	**-51**

- Over the morning peak, the majority of cyclists were adults (87 per cent, stable from 85 per cent at the previous measure).
- Almost cyclists were wearing a helmet (98 per cent, stable from last year).
- The majority of cyclists continued to be male (78 per cent, down from 84 per cent in 2013).
- Most cyclists were riding on the road (78 per cent, up from 75 per cent last year).

Table 9.2: Morning Cyclist Characteristics

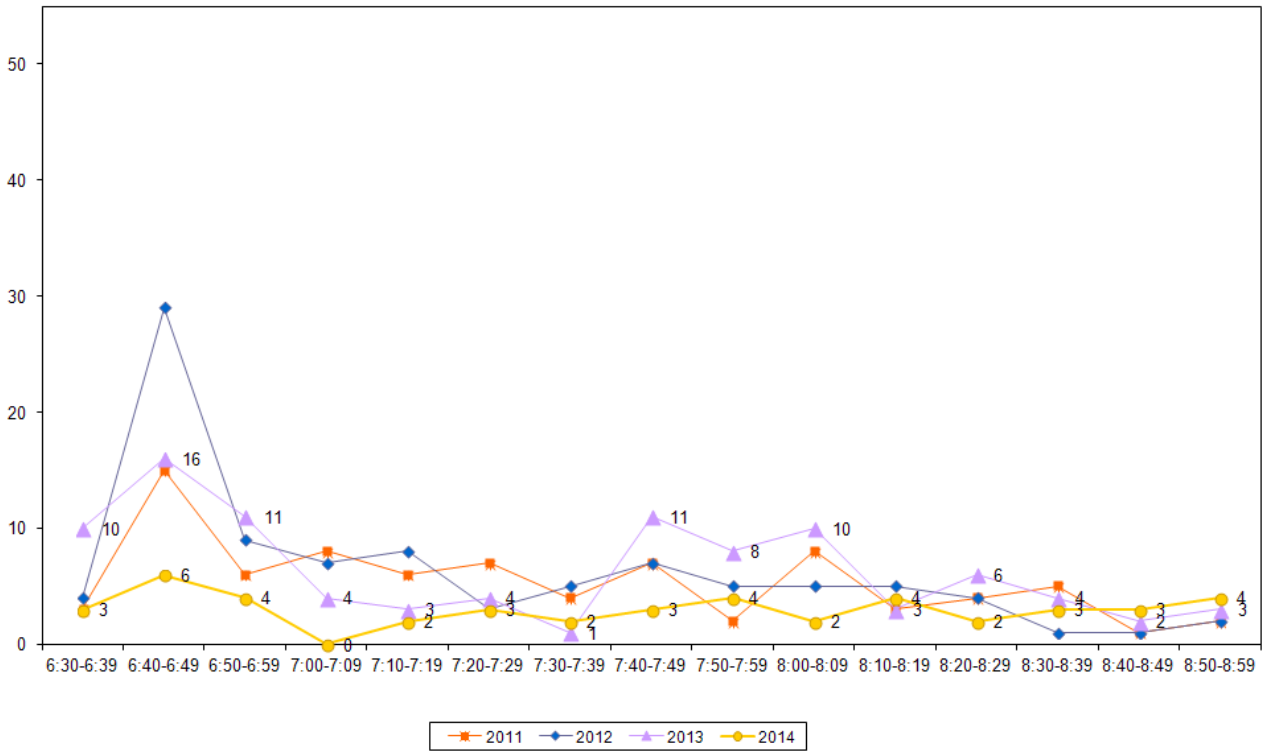
Sunnynook Road/East Coast Road, Sunnynook 2011 – 2014 (%)

	2011	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type					
Adult	88	93	85	**87**	**2**
School child	12	7	15	**13**	**-2**
Helmet Wearing					
Helmet on head	99	100	98	**98**	**0**
No helmet	1	0	2	**2**	**0**
Gender					
Male	77	84	84	**78**	**-6**
Female	23	16	15	**22**	**7**
Can't tell	0	0	1	**0**	**-1**
Where Riding					
Road	79	88	75	**78**	**3**
Footpath	2	12	25	**22**	**-3**
Off-road cycle way	19	0	0	**0**	**0**
Base:	***81***	***95***	***96***	***45***	

- Morning cyclist movement volumes remained low throughout the morning monitoring period with no more than four cyclists recorded at any ten minute interval. The exception to this was recorded at 6:40am – 6:49am which reached six cycle movements. The remainder of the shift remained consistent.

Figure 9.2: Morning Peak Cyclist Frequency

Sunnynook Road/East Coast Road, Sunnynook 2011 – 2014 (n)



Note: In 2014, no cyclists were observed riding together in the morning peak. This compares with 16 per cent (n=16) cyclists in 2013 identified as riding in groups (and 21 per cent: n=20 in 2012).

9.3 Evening Peak

Environmental Conditions

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

Key Points

- Cyclist movement volumes have remained stable this year at 52 movements, in comparison with 53 movements in 2013.
- The key movements were continuing straight along East Coast Road in a north/north westerly direction (Movement 3 = 29 movements) and continuing straight on East Coast Road travelling in a south-easterly direction (Movement 2 = 19 movements).
- The only observed change from last year was at Movement 4, which had a decrease of one cycle movement.

Table 9.3: Evening Cyclist Movements

Sunnynook Road/East Coast Road, Sunnynook 2011 – 2014 (n)

Movement	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	2	1	1	**1**	**0**
2	33	22	19	**19**	**0**
3	49	35	29	**29**	**0**
4	2	0	2	**1**	**-1**
5	4	0	1	**1**	**0**
6	3	2	1	**1**	**0**
Total	***93***	***60***	***53***	***52***	***-1***

- Almost all cyclists at this site were adults (88 per cent, down 4 percentage points relative to the previous measure).
- Almost all cyclists were wearing a helmet (96 per cent, stable from 2013).
- The majority of cyclists continued to be male (87 per cent, down from 91 per cent last year).
- Approximately nine out of ten cyclists were riding on the road (92 per cent, up from 81 per cent in 2013), while the remaining 8 per cent were riding on the footpath.

Table 9.4: Evening Cyclist Characteristics

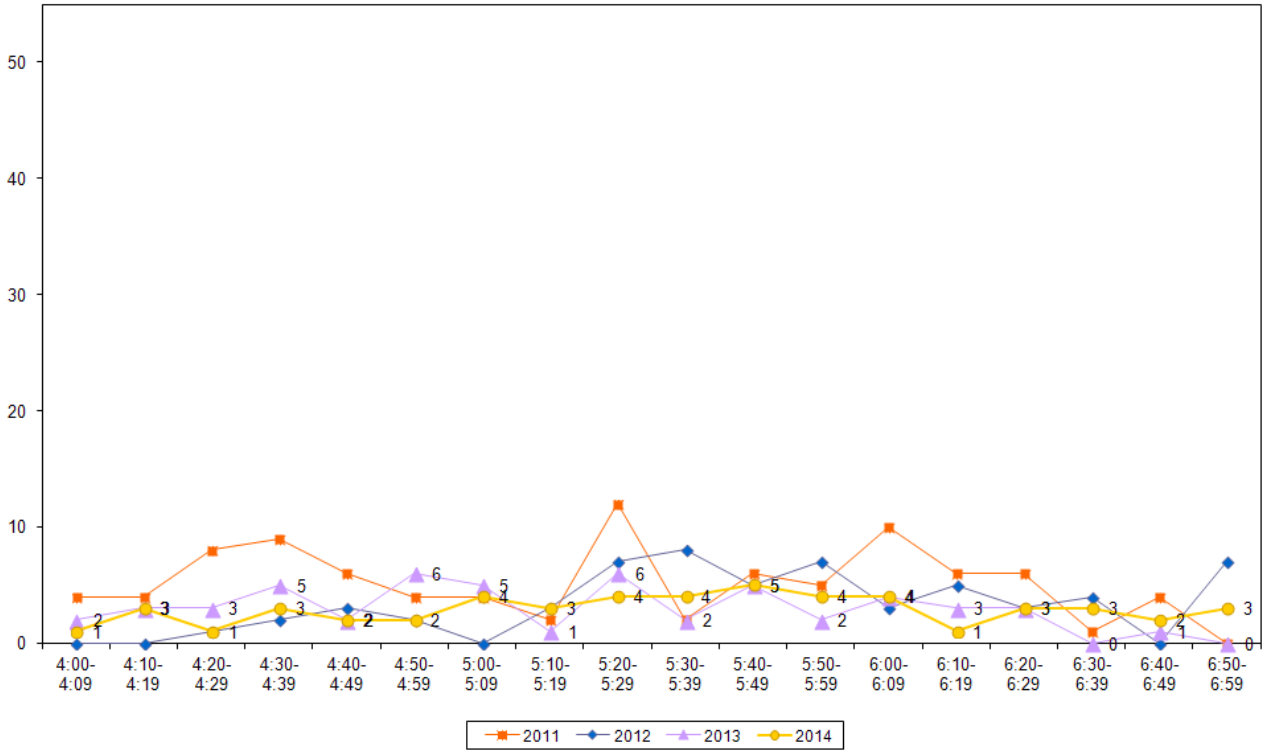
Sunnynook Road/East Coast Road, Sunnynook 2011 – 2014 (%)

	2011	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type					
Adult	82	78	92	**88**	**-4**
School child	18	22	8	**12**	**4**
Helmet Wearing					
Helmet on head	97	98	98	**96**	**-2**
No helmet	3	2	2	**4**	**2**
Gender					
Male	91	83	91	**87**	**-4**
Female	9	17	9	**13**	**4**
Can't tell	0	0	0	**0**	
Where Riding					
Road	78	79	81	**92**	**11**
Footpath	7	21	19	**8**	**-11**
Off-road cycle way	15	0	0	**0**	**0**
Base:	***93***	***60***	***53***	***52***	

- Cyclist movement volumes in the evening were low, fluctuating between zero to five cyclists per ten-minute interval. This is consistent with previous years which have also recorded continuous low numbers throughout the evening monitoring period.

Figure 9.3: Evening Peak Cyclist Frequency

Sunnynook Road/East Coast Road, Sunnynook 2011 – 2014 (n)



10. NORTH SHORE FERRY WHARVES

Environmental Conditions

- Stationary cycle counts at various ferry wharves were conducted on Tuesday 4th March 2014 (the same day as the cycle counts in the North Shore ward).
- The bike stand at Victoria Wharf, next to Devonport Ferry Terminal, was temporarily closed on the cycle monitoring day.
- There were no other road works or incidents that may affect cycle counts.

Devonport Ferry Terminal - Key Points

- In the morning, seven cycles were observed at the Devonport Ferry Terminal at 6:10am and 50 were observed at 9:10am. This suggests around 43 passengers rode to the ferry and parked their cycles in the morning peak. This figure is down from 57 in 2013.
- In the afternoon, 62 cycles were recorded at the Devonport Ferry Terminal at 3:30pm and 13 were observed at 7:10pm. This suggests 49 ferry passengers collected their bikes after disembarking and cycled home in the evening peak. This figure is up from 45 last year.

Table 10.1: Devonport Ferry Terminal Cycle Counts (n)

	2011	*2012**	*2013*	*2014*	Change 13-14
Morning Peak					
6:10am	5	3	4	**7**	**3**
9:10am	47	43	61	**50**	**-11**
Evening Peak					
3:30pm	79	26	57	**62**	**5**
7:10pm	11	4	12	**13**	**1**

** Counts conducted in early June 2012*

Bayswater Ferry Terminal - Key Points

- In the morning, one cycle was observed at the Bayswater Ferry Terminal at 6:10am and 20 were observed at 9:10am. This suggests around 19 passengers cycled to the ferry and parked their cycles in the morning peak.
- In the afternoon, 22 cycles were recorded at the Bayswater Ferry Terminal at 3:30pm and 15 were observed at 7:10pm. This suggests seven ferry passengers collected their bikes after disembarking and cycled home in the evening peak.

Note: Prior to 2014, a single count was undertaken at Bayswater Ferry Terminal (this count conducted at the end of the morning peak, around 9.10am). In 2014, four counts were conducted - just prior to and immediately after, both the morning and afternoon peaks.

Table 10.2: Bayswater Ferry Terminal Cycle Counts (n)

	2011	*2012*	*2013*	*2014*
Morning Peak				
6:10am	-	-	-	**1**
9:10am	**5**	**11**	**22**	**20**
Evening Peak				
3:30pm	-	-	-	**22**
7:10pm	-	-	-	**15**

Stanley Bay Ferry Terminal - Key Points

- In 2014, no cycles recorded at any time during the day at the Stanley Bay Ferry Wharf.

Note: Observation of stationary cycles was conducted for the first time in 2014.

Table 10.3: Stanley Bay Ferry Wharf Cycle Counts 2014 (n)

	2014
Morning Peak	
6:10am	**0**
9:10am	**0**
Evening Peak	
3:30pm	**0**
7:10pm	**0**

Northcote Point Ferry Terminal - Key Points

- In the morning, no cycles were observed at the Beachhaven Ferry Wharf at either 6:10 am or 9:10am.
- One cycle was observed at the wharf at 3:30pm. By 7:10 pm, the cycle had gone.

Note: Observation of stationary cycles was conducted for the first time in 2014.

Table 10.4: Northcote Point Ferry Wharf Cycle Counts 2014 (n)

	2014
Morning Peak	
6:10am	**0**
9:10am	**0**
Evening Peak	
3:30pm	**1**
7:10pm	**0**

Birkenhead Ferry Terminal - Key Points

- In 2014, no cycles were recorded at the Birkenhead Ferry Wharf at any of the four monitoring times.

Note: Observation of stationary cycles was conducted for the first time in 2014.

Table 10.5: Birkenhead Ferry Wharf Cycle Counts 2014 (n)

	2014
Morning Peak	
6:10am	**0**
9:10am	**0**
Evening Peak	
3:30pm	**0**
7:10pm	**0**

11. SCHOOL BIKE SHED COUNT

11.1 Cycle Count Background Information

- A total of 17 schools in the North Shore ward participated in the school bike shed count. No schools that responded to the survey stated that they had policies that restrict students cycling to school.
- Some schools reported an event or issue that may affect cycle counts[10].
- Although the designated count day was Tuesday 4th of March 2014, more than half of the schools in the North Shore ward completed their count on an alternative day [11].

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

11.2 Cycle Count Key Points

- Among the surveyed schools, of those eligible to cycle to school, on average, four per cent of students are cycling to their schools, unchanged since 2011.
- Belmont Intermediate School reported the highest share of cyclists – 32 per cent of all eligible students currently cycling to school, up from 25 per cent last year.
- In total, n=550 students from the responding schools were reported to be cycling to school.
- Of the 17 schools that responded, three (18 per cent) had no students cycling to school.
- Of the 17 schools that participated in the count in both 2013 and 2014, four (24 per cent) reported an increase in the share of students cycling, the most notable increases being:
  - Belmont Intermediate School (32 per cent, up from 25 per cent)
  - Northcote Intermediate School (4 per cent, up from <1 per cent)

[10] The following schools reported events or issues that may affect cycle counts:
- Carmel College *"Year 12 students away at camp, but unlikely to make much difference to cycle count numbers"*
- Wairau Intermediate School *"First real cold morning of Autumn today with rain (only 10°C)"*

[11] The following schools undertook counts on alternative days:
- Birkdale Intermediate School – 12th March 2014
- Carmel College – 6th March 2014
- Glenfield College –26th March 2014
- Glenfield Intermediate School – 13th March 2014
- Hato Patera College – 13th March 2014
- Northcote Intermediate School – 27th March 2014
- Rosmini College – 18th March 2014
- Takapuna Normal Intermediate School – 17th March 2014
- Westlake Boys' High School – 18th March 2014
- Westlake Girls' High School – 18th March 2014

Table 11.1 shows the results of the 17 schools surveyed in the North Shore ward.

Table 11.1: Summary Table of School Bike Count

2007 – 2014 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[12]							
				2014	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Belmont Intermediate School	Intermediate	541	171	**32%**	25%	31%	30%	33%	22%	26%	3%
Takapuna Grammar School	Secondary	1650	175	**11%**	10%	9%	9%	8%	9%	6%	8%
Takapuna Normal Intermediate School	Intermediate	600	67	**11%**	17%	8%	-	-	-	-	-
Northcote Intermediate School	Intermediate	235	9	**4%**	<1%	2%	3%	5%	2%	3%	2%
Wairau Intermediate School	Intermediate	285	11	**4%**	4%	3%	4%	6%	5%	7%	4%
Birkdale Intermediate School	Intermediate	410	11	**3%**	5%	2%	2%	2%	1%	<1%	-
Westlake Boys' High School	Secondary	2291	63	**3%**	3%	2%	4%	3%	2%	<1%	2%
Glenfield Intermediate School	Intermediate	329	7	**2%**	1%	0%	1%	1%	3%	2%	4%
Rosmini College	Intermediate/Secondary	1150	22	**2%**	3%	3%	5%	3%	3%	4%	3%
Northcote College	Secondary	1157	6	**1%**	1%	1%	<1%	<1%	0%	-	-
Birkenhead College	Secondary	740	1	**<1%**	<1%	<1%	<1%	1%	-	-	-
Carmel College	Intermediate/Secondary	1045	2	**<1%**	<1%	<1%	<1%	0%	0%	<1%	0%
Glenfield College	Secondary	700	2	**<1%**	1%	-	-	1%	1%	-	-
Westlake Girls' High School	Secondary	2197	3	**<1%**	<1%	<1%	<1%	<1%	0%	<1%	<1%
Hato Petera College	Secondary	116	0	**0%**	-	0%	-	-	-	-	-
Saint Mary's School	Full Primary	400	0	**0%**	-	0%	0%	-	-	-	-
Westminster Christian School	Full Primary	214	0	**0%**	0%	0%	0%	-	-	-	-
Total		**14060**	**550**	**4%**	**4%**	**4%**	**4%**	**-**	**-**	**-**	**-**

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

Table 11.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (12 per cent, stable from 11 per cent in 2013) and lowest for full primary schools (no cyclists).

Table 11.2: Summary Table of School Bike Count by School Type

2007 – 2014 (%)

Year Levels	*Number of Schools Responded in 2014*	*Cyclists as share of those eligible*								
		2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Intermediate	6	11%	8%	7%	9%	10%	10%	11%	**12%**	**1%**
Secondary	7	4%	2%	3%	3%	3%	2%	3%	**3%**	**0%**
Intermediate/Secondary	2	2%	2%	2%	2%	2%	1%	2%	**1%**	**-1%**
Full Primary	2	-	-	-	-	0%	0%	0%	**0%**	**0%**
Composite	-	-	-	-	-	0%	0%	-	**-**	**-**

11.3 Scooter Count Background Information

- A total of 16 schools in the North Shore ward participated in the school bike shed scooter count. No schools that responded to the survey stated that they had policies that restrict students cycling to school.
- Some schools reported an event or issue that may affect scooter counts[13].
- Although the designated count day was Tuesday 4th of March 2014, more than half of the schools in the North Shore ward completed their count on an alternative day [14].

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

11.4 Scooter Count Key Points

- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scootering to their schools.
- Northcote Intermediate School reported the highest share of scooters – 6 per cent of all eligible students currently scootering to school.
- In total, n=46 students from the responding schools were reported to be scootering to school.
- Of the 16 schools that responded, nine (56 per cent) had no students scootering to school.

[13] The following schools reported events or issues that may affect cycle counts:
- Carmel College *"Year 12 students away at camp, but unlikely to make much difference to scooter count numbers"*
- Wairau Intermediate School *"First real cold morning of Autumn today with rain (only 10°C)"*

[14] The following schools undertook counts on alternative days:
- Birkdale Intermediate School – 12th March 2014
- Carmel College – 6th March 2014
- Glenfield College –26th March 2014
- Glenfield Intermediate School – 13th March 2014
- Hato Patera College – 13th March 2014
- Northcote Intermediate School – 27th March 2014
- Rosmini College – 18th March 2014
- Takapuna Normal Intermediate School – 17th March 2014
- Westlake Boys' High School – 18th March 2014
- Westlake Girls' High School – 18th March 2014

Table 11.3 shows the results of the 16 schools surveyed in the North Shore ward.

Table 11.3: Summary Table Of School Scooter Count

2007 – 2014 (n)

School Name	*School Type*	*School Roll Eligible To Scooter*	*No. of Scooters Counted*	*Scooters as share of those eligible*[15]
				2014
Northcote Intermediate School	Intermediate	235	15	**6%**
Takapuna Normal Intermediate School	Intermediate	285	8	**3%**
Glenfield Intermediate	Intermediate	329	7	**2%**
Belmont Intermediate School	Intermediate	541	3	**1%**
Birkdale Intermediate	Intermediate	410	5	**1%**
Westminster Christian School	Full Primary	541	3	**1%**
Northcote College	Secondary	1157	2	**<1%**
Takapuna Grammar School	Secondary	1650	6	**<1%**
Birkenhead College	Secondary	740	0	**0%**
Carmel College	Intermediate/ Secondary	1045	0	**0%**
Glenfield College	Secondary	700	0	**0%**
Hato Petera College	Secondary	116	0	**0%**
Rosmini College	Intermediate/ Secondary	1150	0	**0%**
Saint Mary's Northcote	Full Primary	400	0	**0%**
Wairau Intermediate School	Intermediate	2291	0	**0%**
Westlake Boys' High School	Secondary	2197	0	**0%**
Westlake Girls' High School	Secondary	214	0	**0%**
Total		**14060**	**46**	**<1%**

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

Table 11.4 illustrates the rates of scootering to school at different school levels. Rates of scootering to school are highest for the intermediate schools (2 per cent).

Table 11.4: Summary Table Of School Scooter Count by School Type

2007 – 2014 (%)

School Type	*Number of Schools Responded in 2014 (n)*	*Scooter riders as share of those eligible*
		2014
Intermediate	5	**2%**
Intermediate/Secondary	7	**<1%**
Full Primary	2	**0%**
Secondary	2	**0%**
Composite	-	**-**

APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[16] 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)[17], 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.

[16] Annual average daily traffic

[17] LTSA, 2004

For the Gravitas counts, the following factors apply:

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

D = 14

W = 0.9

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

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

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

Worked Example

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

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

Appendix Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%