

2015 Auckland Region Manual Cycle Monitor

Maungakiekie Tamaki Ward





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1. MAUNGAKIEKIE-TAMAKI WARD SUMMARY OF RESULTS

1.1 Introduction

The Need For Reliable Cycle Trip Data

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

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

Manual Cycle Monitoring

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

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

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

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



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

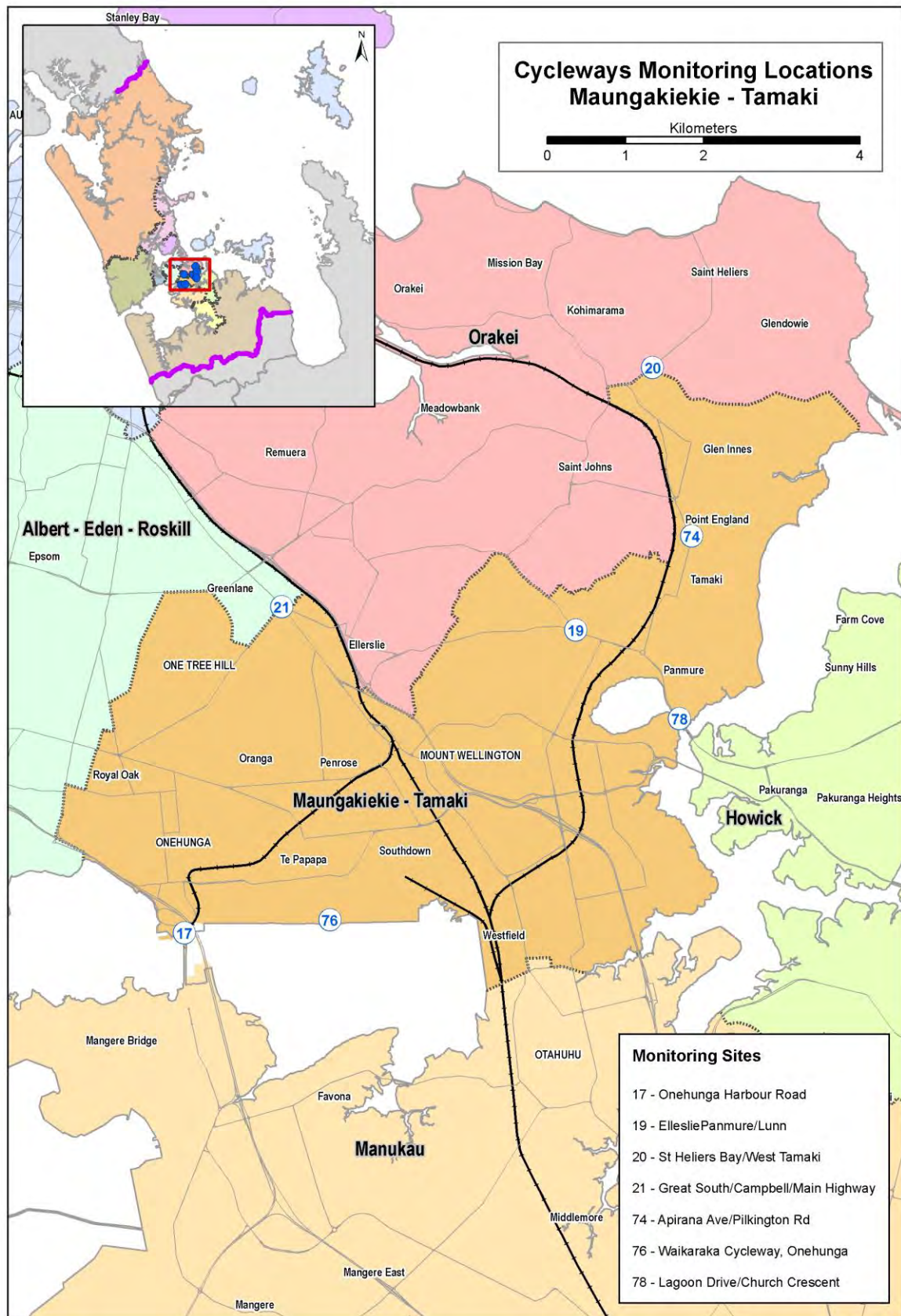
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

This report presents results from manual cycle counts conducted at seven sites in the Maungakiekie-Tamaki 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 seven pre-determined sites in the Maungakiekie-Tamaki 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 Maungakiekie-Tamaki ward. Note that two sites (Great South/Campbell Road/Main Highway in Ellerslie (Site 21) and St Heliers Bay/West Tamaki Road in Glen Innes (Site 20)) lie on the border with the other wards (Albert-Eden-Roskill and Orakei respectively). Consequently these sites have been included in both ward reports.

Figure 1.1: 2015 Cycle Monitoring Locations in Maungakiekie-Tamaki Ward





1.2 Methodology

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

Choice of Sites

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

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

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

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

Monitoring Times

Time Of Day

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

Day Of Week

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



Time Of Year

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

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

It was agreed that manual counts would commence on Tuesday the 3rd of March and be conducted on the first three fine days of the 3rd, 4th, 5th, 10th, 11th or 12th of March.

Counts were conducted on the following days:

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

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

Weather and Daylight Conditions

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



The weather on the three count days in 2015 was as follows:

Tuesday 3rd March

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

Wednesday 4th March

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

Thursday 5th March

- Sunrise: 7:09am; Sunset: 7:55pm.
- Highest temperature: 27 degrees Celsius. Lowest temperature: 17 degree Celsius.
- Fine weather in the morning and evening shifts.

Conducting The Manual Counts

Scoping Visit

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

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

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

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



Briefing Session

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

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

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

Conducting The Manual Counts

Each site was assigned to a surveyor, who was issued with a map that showed the range of movements a cyclist could make through that site. In addition to the map, surveyors were issued with a clipboard, a safety vest and a letter identifying them as a member of a Gravitas research team³.

During their shift the surveyor collected data on:

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

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

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

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



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

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

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

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

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

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

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

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



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

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

School Bike Shed Counts

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

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

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

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

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



Methodology

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

1. Gravitas designed an information sheet that was distributed to most full primary, intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region via email (note a small number of schools were omitted due to the special nature of the students e.g. boarding schools, special needs schools). This sheet was designed in consultation with Auckland Transport to ensure all necessary information was collected.
2. This email was then sent to all eligible schools in Auckland region (n=300) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.
3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 3rd March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).
4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2015, 201 responses were received, a response rate of 64 per cent. (This compares with 88 per cent in 2014).

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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



Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

This summary contains the aggregated results of the seven sites surveyed in the Maungakiekie-Tamaki 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 Maungakiekie-Tamaki 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 Eight of this report.

Note: Surveying in the Maungakiekie-Tamaki ward was undertaken on Tuesday 3rd of March. Sunrise was at 7:08am and sunset at 7:58pm; highest temperature was 25.0 degree Celsius.



1.4 Morning Peak Summary Results

Environmental Conditions

- All sites monitored in Maungakiekie-Tamaki ward had fine weather in the morning.
- There were no road works or accidents that may have affected cycle counts. However, between 7:15am to 7:18am, the surveyor had difficulty observing Movements 2, 7 and 8. A truck was stuck in the middle of the intersection due to traffic, and consequently blocked the surveyor's view.

Key Points

- A total of 550 cyclist movements were recorded across the seven sites in the morning peak period (between 6:30am and 9:00am) in 2015, a 3 per cent decrease from 12 months ago.
- The average volume of morning cyclists across the seven sites in this ward was 79 cycle movements. This compares with 81 movements in 2014 (a 2 per cent decrease).
- Fifteen per cent (n=85) of the total cycle movements in the morning peak were made by those cycling in groups. This compares with 19 per cent (n=110) last year.
- The busiest site in the morning peak was St Heliers Bay/West Tamaki Road (141 cycle movements, down from 154 movements in 2014), whereas the Apirana Avenue/Pilkington/Tripoli site has the lowest volume of morning cyclists (28 cycle movements)
- Compared to 2014, the most notable increases were at the Waikaraka Cycleway (up 45 per cent to 32 movements) and Great South Road/Campbell Road/Main Highway (up 41 per cent to 111). The most notable decrease was at Onehunga Harbour Road (down 37 per cent, to 119)



**Table 1.1: Summary of Morning Cyclist Movements
2007 – 2015 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15	Change 07-15
20	St Heliers Bay/West Tamaki Road	139	107	61	98	150	86	177	154	141	-9%	-1%
17	Onehunga Harbour Road	93	88	74	98	139	171	178	189	119	-37%	28%
21	Great South Road/ Campbell Road/Main Highway	89	53	64	69	60	68	77	79	111	41%	-25%
19	Ellerslie Panmure Highway/ Lunn Ave	52	42	31	44	31	40	41	33	45	36%	-13%
	Average per site (4 sites since 2007)	93	73	58	77	95	91	118	114	104	-10%	12%
	Total (4 sites since 2007)	373	290	230	309	380	365	473	455	416	-9%	12%
78	Lagoon Drive/Church Crescent	-	-	57	100	65	66	72	70	74	6%	-
76	Waikaraka Cycleway	-	13	18	7	29	28	29	22	32	45%	-
74	Apirana Avenue/Pilkington/ Tripoli Road	-	22	12	30	14	19	20	22	28	27%	-
	Average per site (6 sites in 2008, 7 sites since 2009)	-	54	45	64	70	68	85	81	79	-2%	-
	Total (6 sites in 2008, 7 sites since 2009)	-	325	317	446	488	478	594	569	550	-3%	-



- Ninety-one per cent of cyclists this year were adults (stable from 92 per cent in 2014).
- Almost all cyclists were wearing a helmet (97 per cent, stable from 95 in 2014).
- The greatest share of morning cyclists were male (84 per cent, unchanged from last year).
- The road continued to be most dominant location for cyclists (73 per cent, down 3 per cent from last year). Eight per cent cyclists were recorded traveling on the off-road cycleway (up 2 per cent from 2014).

Table 1.2: Summary of Morning Cyclist Characteristics
2007 – 2015 (%)

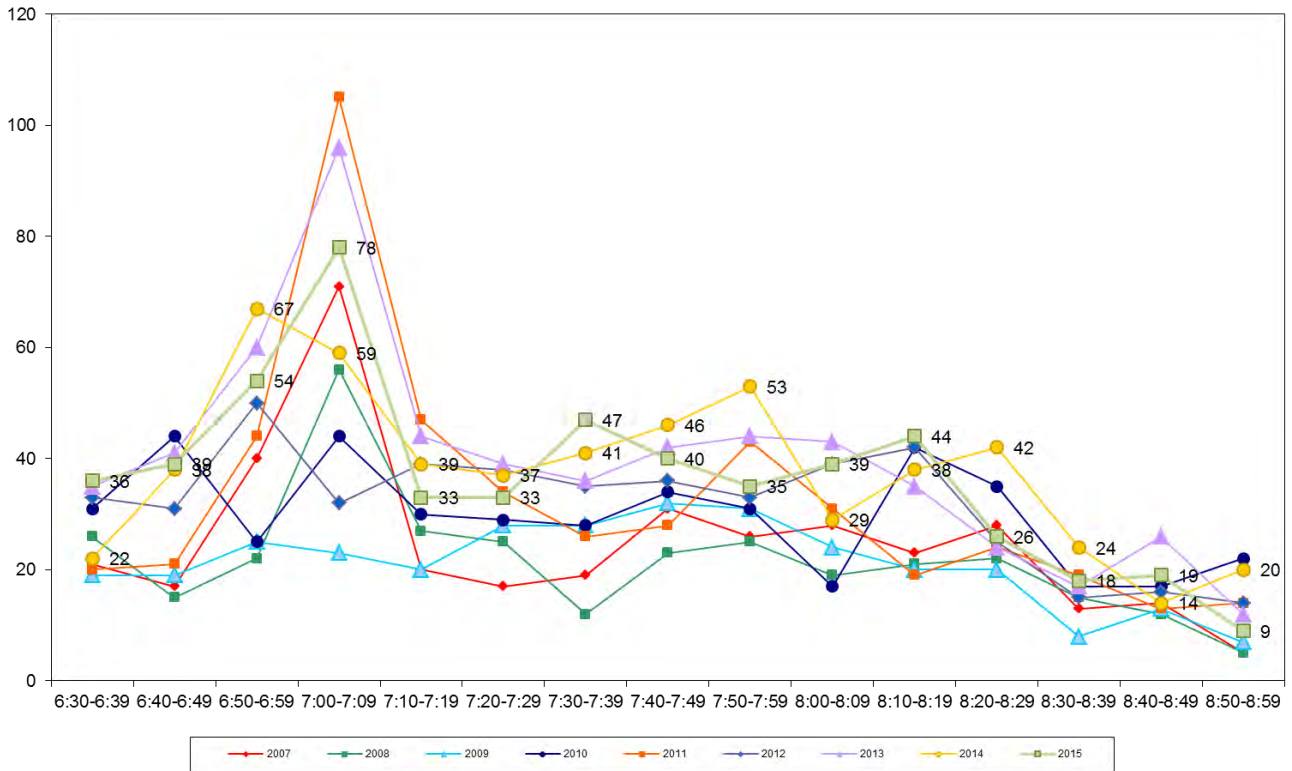
	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	88	89	88	91	90	92	91	92	91	-1
School child	12	11	12	9	10	8	9	8	8	0
Don't know	-	-	-	-	-	-	-	-	1	1
Helmet Wearing										
Helmet on head	94	93	94	94	94	93	93	95	97	2
No helmet	6	7	6	6	6	7	4	5	3	-2
Can't tell	-	-	-	-	-	-	3	0	0	0
Gender										
Male	-	-	-	-	83	82	85	84	84	0
Female	-	-	-	-	16	14	13	15	14	-1
Can't tell	-	-	-	-	1	4	2	1	2	1
Where Riding*										
Road	85	78	75	81	75	75	76	76	73	-3
Footpath	15	17	18	17	17	16	17	18	19	1
Off-road cycleway	0	5	7	2	8	9	7	6	8	2
Base:	373	325	317	446	488	478	594	569	550	

*The Onehunga Harbour Road site is not included in the results regarding where cyclists were riding as cyclists could use multiple riding locations during a single trip through the site.



- Figure 1.2 shows the overall pattern of morning cyclist volumes recorded from the seven sites monitored in 2015. Morning cyclist numbers peaked sharply between 7:00am and 7:09am (78 movements). There were two smaller peaks recorded at 7:30am -7:39am (47 movements) and 8:10am - 8:19am (44 movements). The overall trend was consistent with previous years.

**Figure 1.2: Total Cyclist Frequency – Morning Peak
2007 – 2015 (n)**





1.5 Evening Peak Summary Results

Environmental Conditions

- All sites monitored in Maungakiekie-Tamaki ward had fine weather in the evening.
- No sites reported any road works or accidents that may have affected cycle counts.

Key Points

- A total of 663 cyclist movements were recorded across the seven sites in the evening peak period (between 4:00pm and 7:00pm) in 2015, a 14 per cent increase from 12 months ago.
- The average volume of evening cycle movements across all seven sites monitored in 2015 was 95 cycle movements, up from 83 last year.
- Twenty-one per cent of the total cycle movements (n=139) in the evening peak were made by those cycling in groups. This compares with seven per cent (n=40) last year.
- Of the seven sites, the volume of cyclists was the largest at the Onehunga Harbour Road intersection, with 265 movements recorded (the largest volume at this site since monitoring began in 2007). The site with the lowest volume of evening cyclists was at Apirana Avenue/Pilkington/Tripoli Road (23 cycle movements). (This site also recorded the lowest volume of morning cyclists.)
- The site that experienced the most notable increase was the Ellerslie Panmure Highway/Lunn Avenue (up 79 per cent from last year). The largest decrease this year compared to 2014 was the Waikaraka Cycleway (down 12 per cent).



**Table 1.3: Summary of Evening Cyclist Movements
2007 – 2015 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15	Change 07-15
17	Onehunga Harbour Road	156	132	106	159	171	152	248	253	265	5%	70%
21	Great South Road/ Campbell Road/Main Highway	85	61	87	102	78	64	69	70	90	29%	6%
20	St Heliers Bay/West Tamaki Road	69	60	47	72	74	49	71	65	75	15%	9%
19	Ellerslie Panmure Highway/ Lunn Ave	66	52	51	56	46	39	53	33	59	79%	-11%
	Average per site (4 sites since 2007)	94	76	73	97	92	76	110	105	122	16%	30%
	Total (4 sites since 2007)	376	305	291	389	369	304	441	421	489	16%	30%
78	Lagoon Drive/Church Crescent	-	-	72	95	98	71	110	85	106	25%	-
76	Waikaraka Cycleway	-	41	33	35	36	24	54	51	45	-12%	-
74	Apirana Avenue/Pilkington/ Tripoli Road	-	39	20	30	41	27	19	25	23	-8%	-
	Average per site (6 sites in 2008, 7 sites since 2009)	-	57	59	78	78	61	89	83	95	14%	-
	Total (6 sites in 2008, 7 sites since 2009)	-	344	416	549	544	426	624	582	663	14%	-



- Eighty-three per cent of the evening cyclists were adults, down from 94 per cent in 2015.
- Seventeen per cent of the evening cyclists were school children, the highest percentage since monitoring began in 2007.
- Most cyclists were wearing a helmet in the evening (93 per cent, stable from 94 per cent in 2014).
- The majority of the evening peak cyclists were male (72 per cent, down from 83 per cent last year).
- Sixty-three per cent of the cyclists were riding on the road (stable from 61 per cent last year). There has been a decrease in the number of cyclists making use of the off-road-cycleway (down from 16 per cent to 11 per cent this year). Cycle volumes on the footpath have remained stable (25 per cent this year, 23 per cent in 2014).

**Table 1.4: Summary of Evening Cyclist Characteristics
2007 – 2015 (%)**

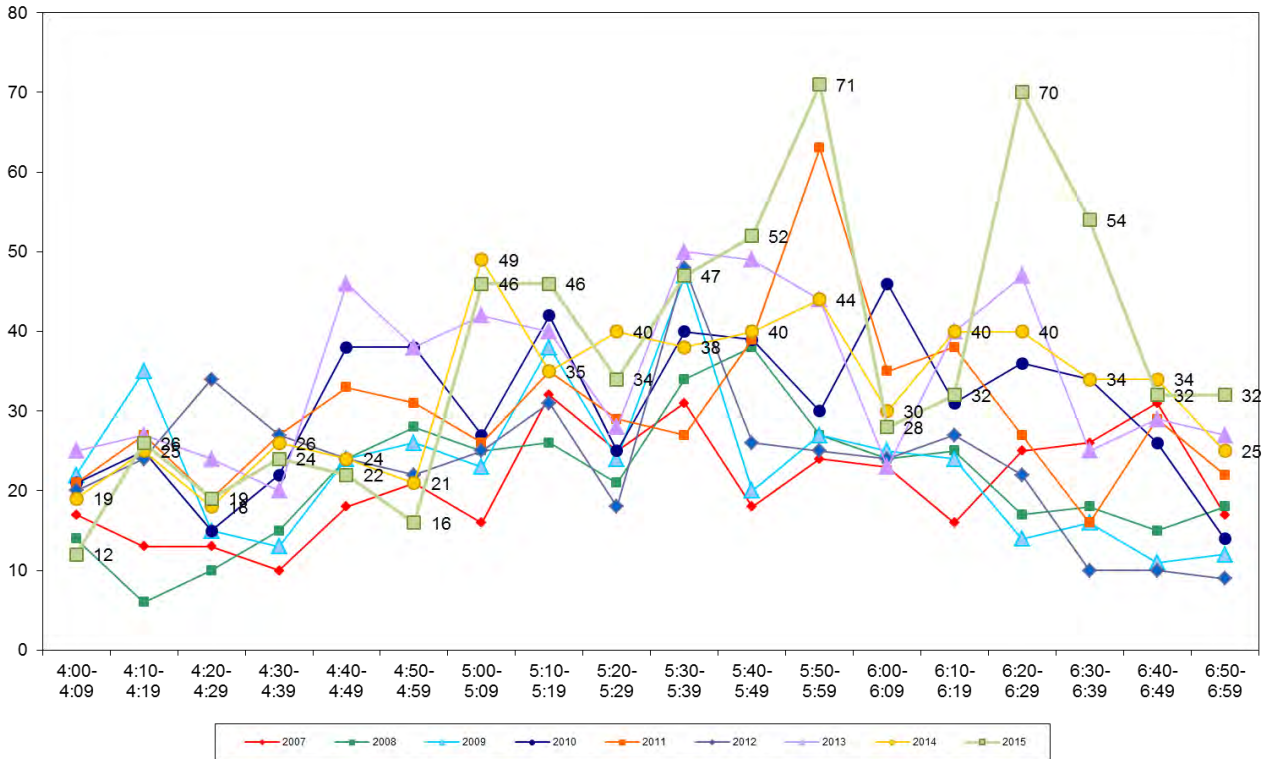
	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	95	92	94	94	91	92	92	94	83	-11
School child	5	8	6	6	9	8	7	6	17	11
Can't tell	-	-	-	-	-	-	1	0	0	0
Helmet Wearing										
Helmet on head	91	89	89	92	89	92	91	94	93	-1
No helmet	9	11	11	8	11	8	9	6	7	1
Gender										
Male	-	-	-	-	84	86	83	83	72	-11
Female	-	-	-	-	15	13	15	16	16	0
Can't tell	-	-	-	-	1	1	2	1	12	11
Where Riding*										
Road	83	67	70	78	66	63	63	61	63	2
Footpath	17	17	19	13	24	29	23	23	25	2
Off-road cycleway	0	16	11	9	10	8	14	16	11	-5
Don't know	-	-	-	-	-	-	-	-	1	1
<i>Base:</i>	376	344	416	549	544	426	624	582	663	

**The Onehunga Harbour Road site is not included in the results regarding where cyclists were riding as cyclists could use multiple riding locations during a single trip through the site.*



- The overall pattern of evening cyclist volumes derived from the seven sites in the Maungakiekie-Tamaki ward is illustrated in Figure 1.3. Evening cyclist numbers fluctuated throughout the monitoring period, peaking most notably between 5:50pm - 5:59pm (71 movements) and 6:20pm - 6:29pm (70 movements).

**Figure 1.3: Cyclist Frequency – Evening Peak
2007 – 2015 (n)**





1.6 Aggregated Total Summary Results

- Overall, a total of 1213 cyclist movements were recorded across the seven sites monitored in 2015, among which 150 of them (12 per cent) were observed as peloton movements. This compares with 14 per cent in 2013.
- The average number of cycle movements for the seven sites monitored in 2015 is 173, a 5 per cent increase from 164 last year.
- Of the seven sites in this ward, the busiest site continued to be Onehunga Harbour Road with a total of 384 movements, while Apirana Avenue/Pilkington/Tripoli Road has the fewest cyclists (51 movements).
- Overall, the most notable increase in cycle traffic since last year was at Ellerslie Panmure Highway/Lunn Avenue – up 58 per cent, with 104 movements. The most notable decrease in cycle volume over the last 12 months was at Onehunga Harbour Road – down 13 per cent.

**Table 1.5: Summary of Total Cyclist Movements
2007 – 2015 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15	Change 07-15
17	Onehunga Harbour Road	249	220	180	257	310	323	426	441	384	-13%	54%
20	St Heliers Bay/West Tamaki Road	208	167	108	170	224	135	248	220	216	-2%	4%
21	Great South Road/ Campbell Road/Main Highway	174	114	151	171	138	132	146	149	201	35%	16%
19	Ellerslie Panmure Highway/ Lunn Ave	118	94	82	100	77	79	94	66	104	58%	-12%
	Average per site (4 sites since 2007)	187	149	130	175	187	167	229	219	226	3%	21%
	Total (4 sites since 2007)	749	595	521	698	749	669	914	876	905	3%	21%
78	Lagoon Drive/Church Crescent	-	-	129	195	163	137	182	155	180	16%	-
76	Waikaraka Cycle Way	-	54	51	42	65	52	83	73	77	5%	-
74	Apirana Avenue/Pilkington/ Tripoli Road	-	61	32	60	55	46	39	47	51	9%	-
	Average per site (6 sites in 2008, 7 sites since 2009)	-	109	105	142	147	129	174	164	173	5%	-
	Total (6 sites in 2008, 7 sites since 2009)	-	656	733	995	1032	904	1218	1151	1213	5%	-



- Eighty-six per cent of evening cyclists this year were adults (down from 93 per cent last year).
- The share of cyclists wearing a helmet has remained the same, at 94 per cent.
- Just over three-quarters of the cyclists were male (77 per cent, down 7 per cent from last year).
- The greatest share of cyclists continued to ride on the road (68 per cent, stable from 70 per cent last year). Cycle volumes on the footpath throughout Maungakiekie-Tamaki also remained stable compared to 2014 (22 per cent, stable from 20 per cent last year).

Table 1.6: Summary of Total Cyclist Characteristics
2007 – 2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	91	91	91	93	91	83	92	93	86	-7
School child	9	9	9	7	9	17	8	7	13	6
Don't know	-	-	-	-	-	-	-	-	1	1
Helmet Wearing										
Helmet on head	93	91	92	93	92	92	92	94	94	0
No helmet	7	9	8	7	8	8	7	6	6	0
Can't tell	-	-	-	-	-	-	1	0	0	0
Gender										
Male	-	-	-	-	84	84	84	84	77	-7
Female	-	-	-	-	15	13	14	15	15	0
Can't tell	-	-	-	-	1	3	2	1	8	7
Where Riding*										
Road	84	72	72	79	71	70	70	70	68	-2
Footpath	16	17	18	15	20	21	20	20	22	2
Off-road cycleway	0	11	9	6	9	9	10	10	10	0
Base:	749	656	733	995	1032	904	1218	1151	1213	

**The Onehunga Harbour Road site is not included for results regarding where cyclists were riding as cyclists could use multiple riding locations during a single trip through this site.*



1.7 Average Annual Daily Traffic (AADT) Estimate

Note: A discussion of Average Annual Daily Traffic Estimates is provided in Section 1.1. A full description of the tool, the calculation used, and the limitations of the estimates are provided in Appendix One. Readers are encouraged to review these sections in conjunction with the data presented here.

- 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 Onehunga Harbour Road (547 daily movements, down from 636 movements in 2014) and the lowest is at Apirana Avenue/Pilkington/Tripoli Road (75 daily movements, up from 68 movements last year).
- All but two sites have experienced increases this year compared to 2014. The most notably increase in AADT percentage was the Ellerslie Panmure Highway/Lunn Avenue (up 56 per cent from last year). The two locations that recorded a decrease were Onehunga Harbour Road (down 14 per cent) and St Heliers Bay/West Tamaki Road (down 2 per cent).

**Table 1.7: AADT Estimates Based on Morning and Evening Cyclist Movements
2007 – 2015 (n)**

Site No.	Locations	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2014 AADT	2015 AADT	Change 14-15	Change 07-15
17	Onehunga Harbour Road	357	316	259	369	448	471	614	636	547	-14%	53%
20	St Heliers Bay/ West Tamaki Road	308	246	158	249	331	199	369	325	319	-2%	4%
21	Great South Road/ Campbell Road/Main Highway	253	165	218	246	246	192	213	217	294	35%	16%
78	Lagoon Drive/Church Crescent	-	-	186	284	234	199	262	224	259	16%	-
19	Ellerslie Panmure Highway/ Lunn Ave	170	136	118	144	111	115	136	96	150	56%	-12
76	Waikaraka Cycleway	-	76	73	59	94	76	119	104	111	7%	-
74	Apirana Avenue/Pilkington/ Tripoli Road	-	87	46	87	78	66	57	68	75	10%	-



1.8 School Bike Shed Count Summary

Cycle Counts

- Of those students eligible to cycle, on average one per cent of students are currently cycling to their schools (stable since 2013).
- In total, n=39 students from the 15 responding schools were reported as cycling to school.
- Ellerslie School reported the highest share of cyclists this year, with 5 per cent of students cycling to school.
- Of the 15 schools that responded, 12 (80 per cent) had no students cycling to school.
- Of the 15 schools that participated in the count in both 2014 and 2015, 3 (20 per cent) reported an increase in the share of students cycling.

Scooter Counts

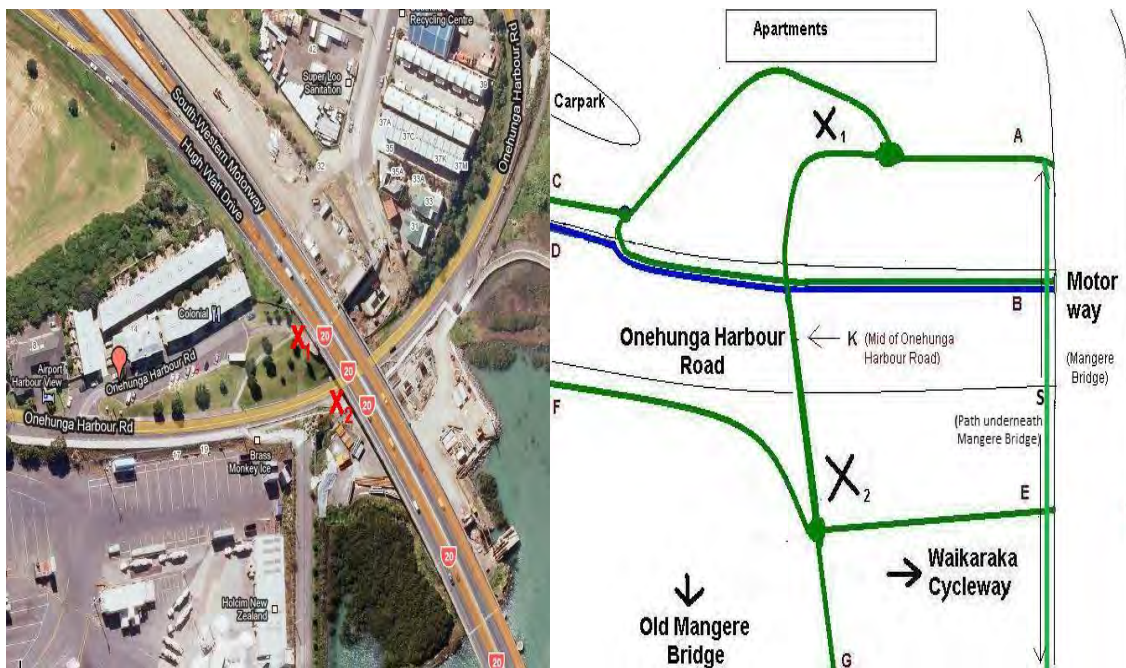
- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scooting to their schools. This result is unchanged from 2014.
- Tamaki Primary School reported the highest share of scooters with 2 per cent of all eligible students currently scooting to school.
- In total, n=10 students from the responding schools were reported to be scooting to school.
-

2. ONEHUNGA HARBOUR ROAD, ONEHUNGA (SITE 17)

Figure 2.1 shows the possible cyclist movements at this site.

Note: Due to the complexity of this site, the map and movement directions were re-designed in 2011 to more accurately capture how this site is used by cyclists. Rather than trying to keep track of cyclists as they move around the site, surveyors were instead required to record the zone at which each cyclist entered the site (represented by letters on the map), and the zone from which they exited. As a result, movement numbers are not directly comparable with previous years.

Figure 2.1: Cycle Movements: Onehunga Harbour Road



2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	93	156	249	357
2008	88	132	220	316
2009	74	68	142	259
2010	98	159	257	369
2011	139	171	310	448
2012	171	152	323	471
2013	178	248	426	614
2014	189	253	441	636
2015	119	265	384	547



2.2 Morning Peak

Environmental Conditions

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

Key Points

- Compared with the previous year, the volume of morning cyclists at Onehunga Harbour Road has declined notably (119 movements, down from 189 cycle movements recorded in 2014).
- The most common entry point in the morning peak was at Zone G, with 63 cyclists entering the site from Old Mangere Bridge.
- The most frequently used exit point was also Zone G, with 52 cyclists leaving the site via Old Mangere Bridge.
- The most common movement in the morning peak was entering the site in Zone E and exiting in Zone G (28 movements).

**Table 2.1A: Morning Cyclist Movements
Onehunga Harbour Road 2015 (n)**

Entry	Exit										Total
	A	B	C	D	E	F	G	K	S	DK	
A	0	1	0	0	0	0	0	1	0	0	2
B	0	0	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	28	1	0	0	29
F	0	0	0	0	3	0	22	2	0	0	27
G	0	0	0	0	19	22	0	22	0	0	63
K	23	0	0	0	0	0	2	0	0	2	27
S	0	0	0	0	0	0	0	0	0	0	0
DK	0	0	0	0	0	0	0	1	0	0	1
Total	23	1	0	0	22	22	52	27	0	2	149

**Table 2.1B: Morning Cyclist Movements
Onehunga Harbour Road 2007 – 2015 (n)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Total Movements	93	88	74	98	139	171	178	189	119	-70

Note: Due to the complicity of this site, prior to 2015, some movements have been double counted.



- Eighty-eight per cent of cyclists using this site were adults (stable from 90 per cent last year).
- Helmet wearing was wide-spread this year (95 per cent, unchanged from 2014).
- The greatest share of morning cyclists continued to be male (79 per cent).

**Table 2.2: Morning Cyclist Characteristics
Onehunga Harbour Road 2007 – 2015 (%)**

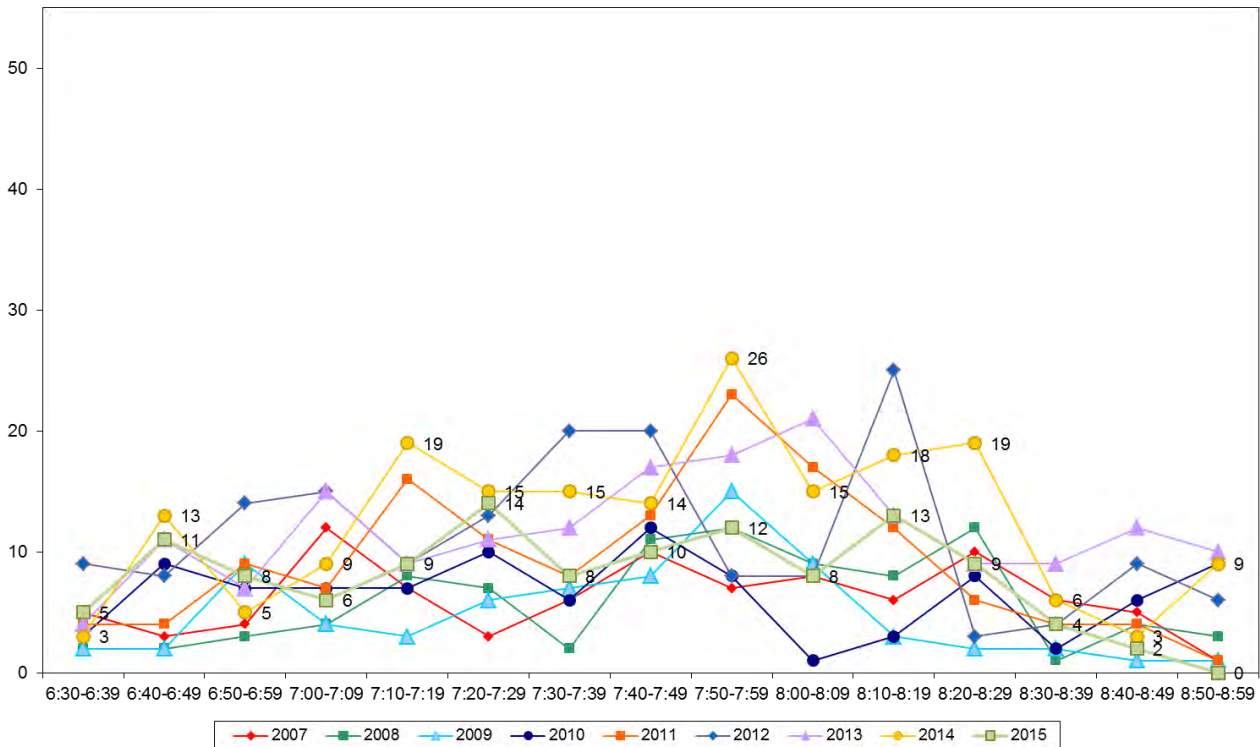
	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	83	77	80	81	81	88	86	90	88	-2
School child	17	23	20	19	19	12	14	10	12	2
Helmet Wearing										
Helmet on head	84	84	95	88	91	86	96	95	95	0
No helmet	16	16	5	12	9	14	2	5	5	0
Unsure	-	-	-	-	-	-	2	0	0	0
Gender										
Male	-	-	-	-	82	85	87	86	79	-7
Female	-	-	-	-	17	14	12	14	18	4
Can't tell	-	-	-	-	1	1	1	0	3	3
Base:	93	88	74	98	139	171	178	189	119	

Note: No cyclists had crossed the Onehunga Harbour Road on road level this year.



The volume of morning cycle movements increased to a peak between 7:20am - 7:29am (14 cyclists), with a second peak evident between 8:10am – 8: 19am (13 movements). Cycle volumes then declined through to the end of the shift.

**Figure 2.2: Morning Peak Cyclist Frequency
Onehunga Harbour Road 2007 – 2015 (n)**



Note: In 2015, 12 per cent of the morning peak cycle movements (n=14) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- 7 cyclists at 6:40am
- 7 cyclists at 7:29am

This compares with 14 per cent of morning peak cycle movements (n=26) cycling as groups in 2014, and 14 per cent in 2013.

2.3 Evening Peak

Environmental Conditions

- The weather was overcast throughout the evening shift.
- There were no road works or accidents that may have affected cycle counts. However, there was a group of 45 children and parents from the local kindergarten cycling past at 6:27pm. The surveyor tried noting down as much information as possible.

Key Points

- Compared with the previous year, the volume of evening cyclists at Onehunga Harbour Road has increased (265 movements, up from 253 cycle movements recorded in 2014).
- The most common entry point in the evening peak was at Zone G, 131 cyclists entering the site via Old Mangere Bridge.
- The most frequently used exit point was also Zone G, 114 cyclists leaving the site via Old Mangere Bridge.
- The most common movement in the evening peak was entering the site in Zone G and exiting in Zone E (84 movements).

**Table 2.3A: Evening Cyclist Movements
Onehunga Harbour Road 2015 (n)**

Entry	Exit										Total
	A	B	C	D	E	F	G	K	S	DK	
A	1	0	0	0	0	0	0	18	0	0	19
B	0	0	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	5	82	4	0	0	91
F	0	0	0	0	6	0	16	0	0	0	22
G	0	0	0	0	84	19	0	27	0	1	131
K	32	0	1	0	0	1	16	0	0	1	51
S	0	0	0	0	0	0	0	0	0	0	0
DK	0	0	0	0	0	0	0	2	0	0	2
Total	33	0	1	0	90	25	114	51	0	2	316

**Table 2.3B: Evening Cyclist Movements
Onehunga Harbour Road 2007 – 2015 (n)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Total Movements	156	132	68	159	171	152	248	253	265	12



- Reflecting the large group of kindergarten children using the site this year. The share of children has increased notably - up 24 percentage points to 29 per cent.
- The majority of cyclists were wearing a helmet (95 per cent stable from 97 per cent last year).
- The greatest share of evening cyclists were male (59 per cent).

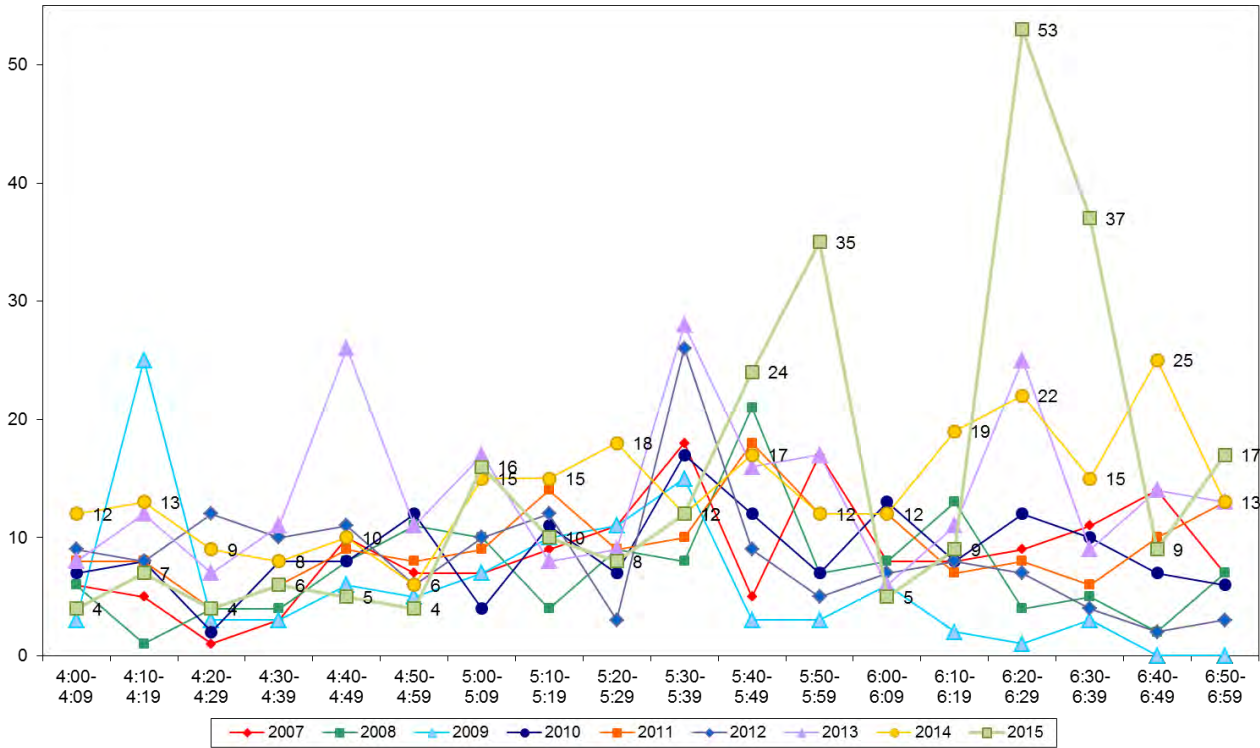
**Table 2.4: Evening Cyclist Characteristics
Onehunga Harbour Road 2007 – 2015 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	96	93	92	91	95	97	93	95	71	-24
School child	4	7	8	9	5	3	7	5	29	24
Helmet Wearing										
Helmet on head	83	91	97	94	89	93	94	97	95	-2
No helmet	17	9	3	6	11	7	6	3	5	2
Gender										
Male	-	-	-	-	86	88	85	80	59	-21
Female	-	-	-	-	12	11	14	19	13	-6
Can't tell	-	-	-	-	2	1	1	1	28	27
Base:	156	132	68	159	171	152	248	253	265	



- The volume of evening cyclists fluctuated throughout the monitoring period. Two main peaks occurred – one at 5:40pm – 5:59pm (59 movements) and 6:20pm – 6:39pm (90 movements)

**Figure 2.3: Evening Peak Cyclist Frequency
Onehunga Harbour Road 2007 – 2015 (n)**



Note: In 2015, 46 per cent of the total cycle movements (n=121) 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:

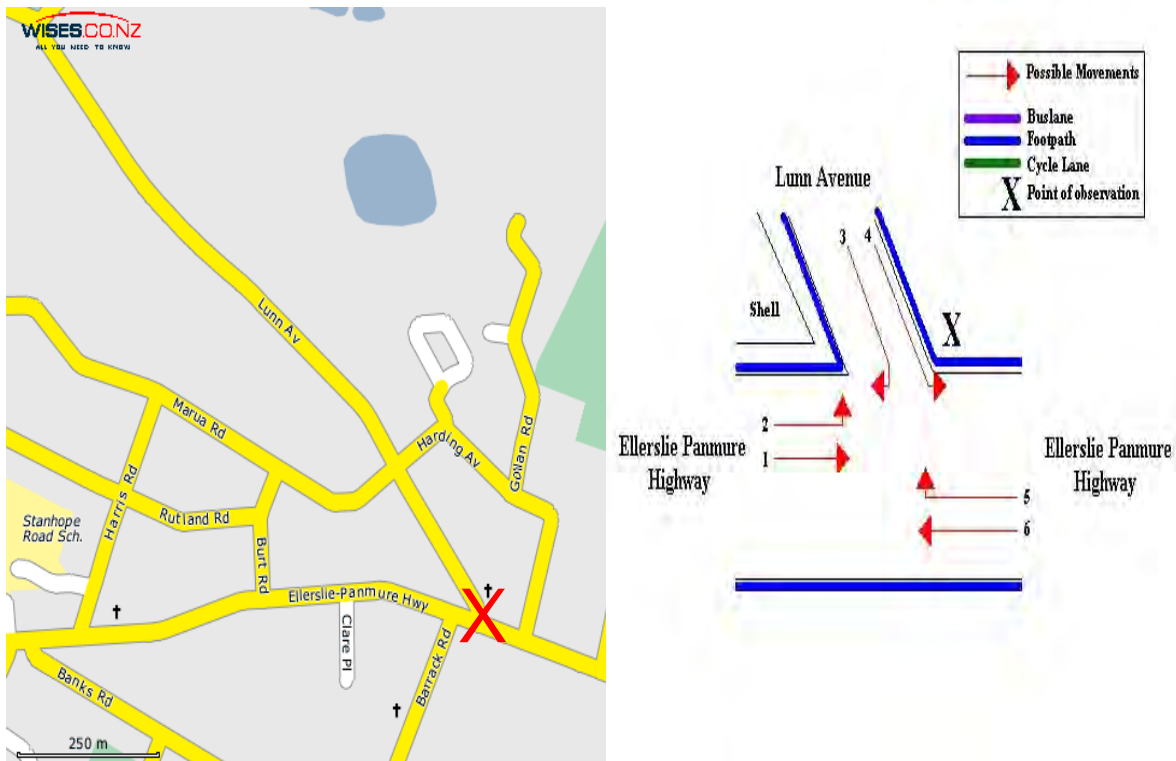
- 12 cyclists at 5:44pm
- 4 cyclists at 5:46pm
- 21 cyclists at 5:51pm
- 45 cyclists at 6:27pm (Kea Group - Kindergarten children with parents and caregivers)
- 8 cyclists at 6:31pm
- 9 cyclists at 6:36pm
- 4 cyclists at 6:45pm
- 4 cyclists at 6:47pm
- another group of 3 cyclists at 6:47pm
- 3 cyclists at 6:52pm
- 8 cyclists at 6:57pm

This compares with 27 cyclists (11 per cent) identified as cycling in groups last year, and 17 per cent in 2013.

3. ELLERSLIE PANMURE HIGHWAY/LUNN AVENUE, PANMURE (SITE 19)

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Ellerslie Panmure Highway/Lunn Avenue



3.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	52	66	118	170
2008	42	52	94	136
2009	31	51	82	118
2010	44	56	100	144
2011	31	46	77	111
2012	40	39	79	115
2013	41	53	94	136
2014	33	33	66	96
2015	45	59	104	150



3.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift
- There were no road works or accidents that may have affected cycle counts. However, between 7:15am to 7:18am, the surveyor had difficulty observing Movements 2, 7 and 8. A truck was stuck in the middle of the intersection due to traffic, and consequently blocked the surveyor's view.

Key Points

- Morning cyclist volumes recorded at the Ellerslie Panmure Highway/Lunn Avenue intersection have increased from last year, with 45 cycle movements recorded this year.
- The most common morning movement was turning left from Lunn Ave into Ellerslie Panmure Highway heading east (Movement 4 = 16 cyclists).
- The most notable increase was at Movement 1 (up 8 cyclists), while the most notable decrease occurred at Movement 5 (down 3 cyclists).

Table 3.1: Morning Cyclist Movements
Ellerslie Panmure Highway/Lunn Avenue 2007 – 2015 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	15	7	8	10	7	1	13	4	12	8
2	1	3	1	2	0	11	1	0	2	2
3	2	8	2	8	2	2	1	1	0	-1
4	12	8	8	7	8	8	6	10	16	6
5	3	3	8	4	1	7	2	9	6	-3
6	19	13	4	13	13	11	18	9	9	0
Total	52	42	31	44	31	40	41	33	45	12



- Over the morning peak, adults comprised the majority of all cycle movements (89 per cent, down from 97 per cent last year).
- Almost all cyclists were wearing a helmet over the morning peak at this site (93 per cent, down from 97 per cent in 2014).
- The majority of morning cyclists were male (76 per cent).
- Thirty-one percent of cyclists were riding on the footpath (up from 24 per cent last year).

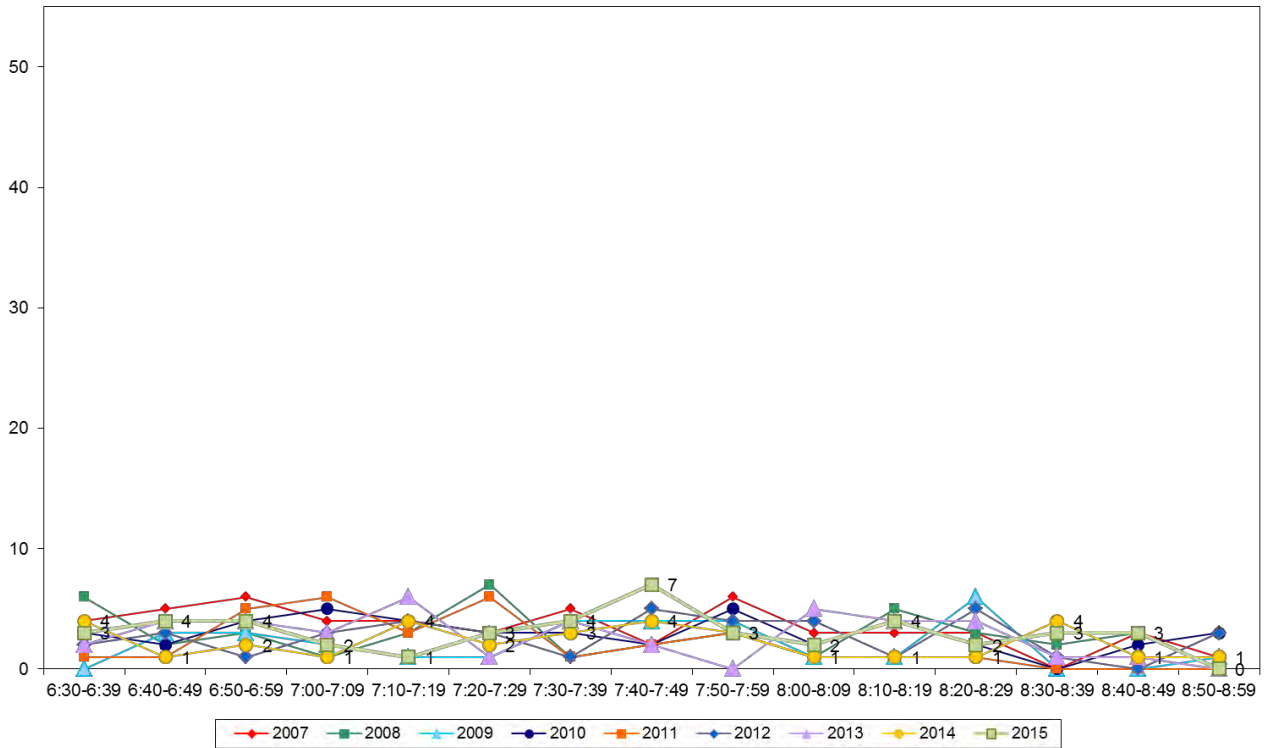
Table 3.2: Morning Cyclist Characteristics
Ellerslie Panmure Highway/Lunn Avenue 2007 – 2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	88	90	100	100	90	98	98	97	89	-8
School child	12	10	0	0	10	2	2	3	9	6
Don't know	-	-	-	-	-	-	-	-	2	2
Helmet Wearing										
Helmet on head	94	98	97	95	100	95	85	97	93	-4
No helmet	6	2	3	5	0	5	15	3	7	4
Gender										
Male	-	-	-	-	91	90	88	91	76	-15
Female	-	-	-	-	6	10	12	9	16	7
Can't tell	-	-	-	-	3	0	0	0	8	8
Where Riding										
Road	77	79	81	80	81	78	68	76	69	-7
Footpath	23	21	19	20	19	22	32	24	31	7
Base:	52	42	31	44	31	40	41	33	45	



- Morning cycle volumes were relatively low over the entire monitoring period. No notable peaks occurred over the morning period, with seven movements being the largest number recorded at any ten minute interval. This trend of low volumes across the monitoring period was consistent with previous years.

Figure 3.2: Morning Peak Cyclist Frequency
Ellerslie Panmure Highway/Lunn Avenue 2007 – 2015 (n)





3.3 Evening Peak

Environmental Conditions

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

Key Points

- The number of evening cycle movements at the Ellerslie Panmure Highway/Lunn Avenue intersection has increased, from 33 movements recorded in 2014 to 59 movements this year.
- The key evening movement was traveling straight on Ellerslie Panmure Highway heading east (Movement 1 = 15 cyclists).
- The most notable changes were recorded at Movement 1, 5 and 6 (all up 7 cyclist movements).

Table 3.3: Evening Cyclist Movements
Ellerslie Panmure Highway/Lunn Avenue 2007 – 2015 (n)

Movement	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
1	16	14	24	16	14	15	22	8	15	7
2	5	4	1	4	2	2	3	1	2	1
3	6	5	1	0	3	1	5	1	3	2
4	14	12	7	14	9	9	8	11	13	2
5	4	8	6	12	5	3	5	5	12	7
6	21	9	12	10	13	9	10	7	14	7
Total	66	52	51	56	46	39	53	33	59	26



- The majority of cyclists using this intersection were adults (90 per cent, down from 97 per cent last year).
- Helmet wearing was still common over the evening peak (88 per cent, down slightly from 91 per cent in 2014).
- The majority of evening peak cyclists were male (85 per cent, down from 91 per cent in 2014).
- Seventy-six per cent of cyclists were riding on the road, compared with 70 per cent in 2014.

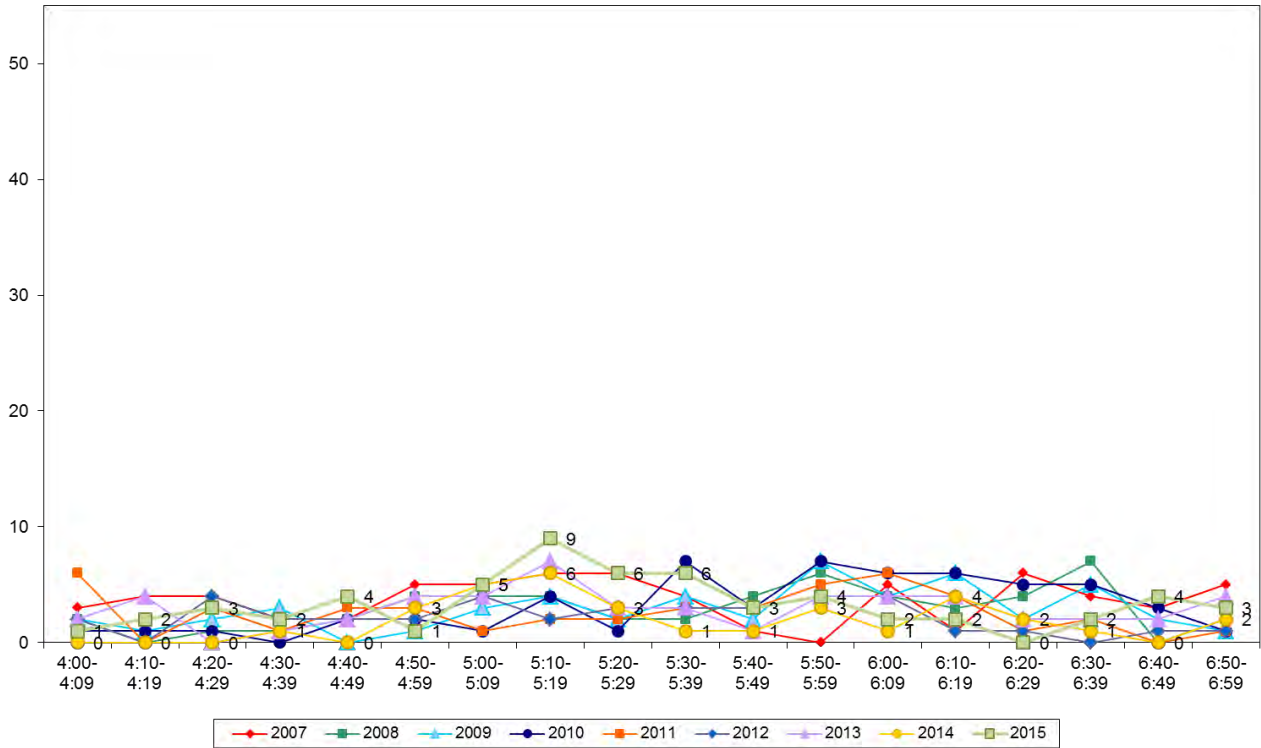
**Table 3.4: Evening Cyclist Characteristics
Ellerslie Panmure Highway/Lunn Avenue 2007 – 2015 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	86	88	98	95	87	97	92	97	90	-7
School child	14	12	2	5	13	3	8	3	7	4
Don't know	-	-	-	-	-	-	-	-	3	3
Helmet Wearing										
Helmet on head	95	92	88	89	89	90	94	91	88	-3
No helmet	5	8	12	11	11	10	6	9	12	3
Gender										
Male	-	-	-	-	91	95	87	91	85	-6
Female	-	-	-	-	9	5	11	6	13	7
Can't tell	-	-	-	-	0	0	2	3	2	-1
Where Riding										
Road	73	73	78	79	65	64	79	70	76	6
Footpath	27	27	22	21	35	36	21	30	24	-6
Base:	66	52	51	56	46	39	53	33	59	



- The volume of evening cycle movements at this site was low throughout the monitoring period, despite a clear peak of 9 cyclists being recorded at the interval 5:10am - 5:19am.

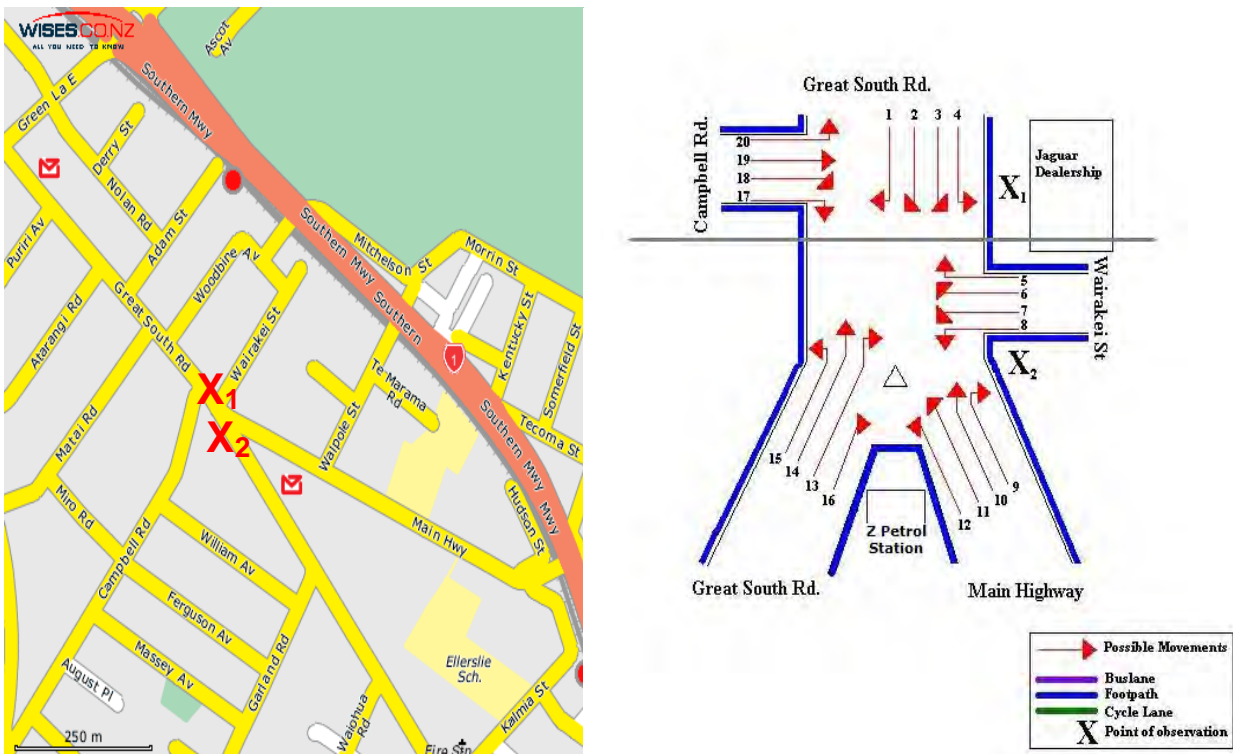
Figure 3.3: Evening Peak Cyclist Frequency
Ellerslie Panmure Highway/Lunn Avenue 2007 – 2015 (n)



4. GREAT SOUTH ROAD/CAMPBELL ROAD/MAIN HIGHWAY, GREENLANE (SITE 21)

Figure 3.1 shows the possible cyclist movements at this intersection. *Note: Due to the size of this intersection, two surveyors were used to conduct the cycle counts.*

Figure 3.1: Cycle Movements: Great South/Campbell Road



4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	89	85	174	253
2008	53	61	114	165
2009	64	87	151	218
2010	69	102	171	246
2011	60	78	138	199
2012	68	64	132	192
2013	77	69	146	213
2014	79	70	149	217
2015	111	90	201	294



4.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Great South/Campbell Road intersection has increased (from 79 movements last year to 111 this year).
- Key morning movements were travelling straight on Great South Road heading south (Movement 2 = 24 cyclists, unchanged from last year), heading straight on Great South Road heading north (Movement 14 = 23 cyclists) and from Great South Road heading south onto the Main Highway (Movement 3 = 14 cyclists, stable from last year).
- The most notable increases were at Movement 14 (up 9 cyclists) and Movement 19 (up 8 cyclists)

**Table 3.1: Morning Cyclist Movements
Great South/Campbell Road 2007 – 2015 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	3	1	2	5	1	0	2	1	4	3
2	20	9	19	3	19	15	18	24	24	0
3	14	7	9	8	6	13	12	13	14	1
4	2	0	0	7	0	0	0	2	0	-2
5	2	0	1	0	0	1	2	1	1	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	4	2	3	2	1	3	2
8	1	0	0	0	0	0	0	1	2	1
9	0	0	0	0	0	0	0	0	0	0
10	15	12	8	11	10	8	19	10	11	1
11	1	0	0	2	2	2	1	0	0	0
12	1	0	2	3	0	0	1	1	1	0
13	0	0	0	0	1	0	0	2	1	-1
14	15	9	12	17	11	17	15	14	23	9
15	2	4	0	0	1	2	0	0	1	1
16	2	0	0	0	0	0	0	0	0	0
17	1	1	1	1	2	1	0	0	4	4
18	5	1	2	4	2	3	1	0	4	4
19	3	4	2	0	0	0	0	0	8	8
20	2	5	6	4	3	3	1	9	9	0
Don't know	-	-	-	-	-	-	3	0	1	1
Total	89	53	64	69	60	68	77	79	111	32



- Over the morning peak, adults comprised the greatest share of cycle movements (86 per cent, stable from 85 per cent in 2014).
- Almost all recorded cyclists were wearing a helmet (99 per cent, stable from 100 per cent in 2014).
- The greatest share of cyclists continued to be male (86 per cent).
- The majority of cyclists were riding on the road (76 per cent, stable from 75 per cent in 2014).

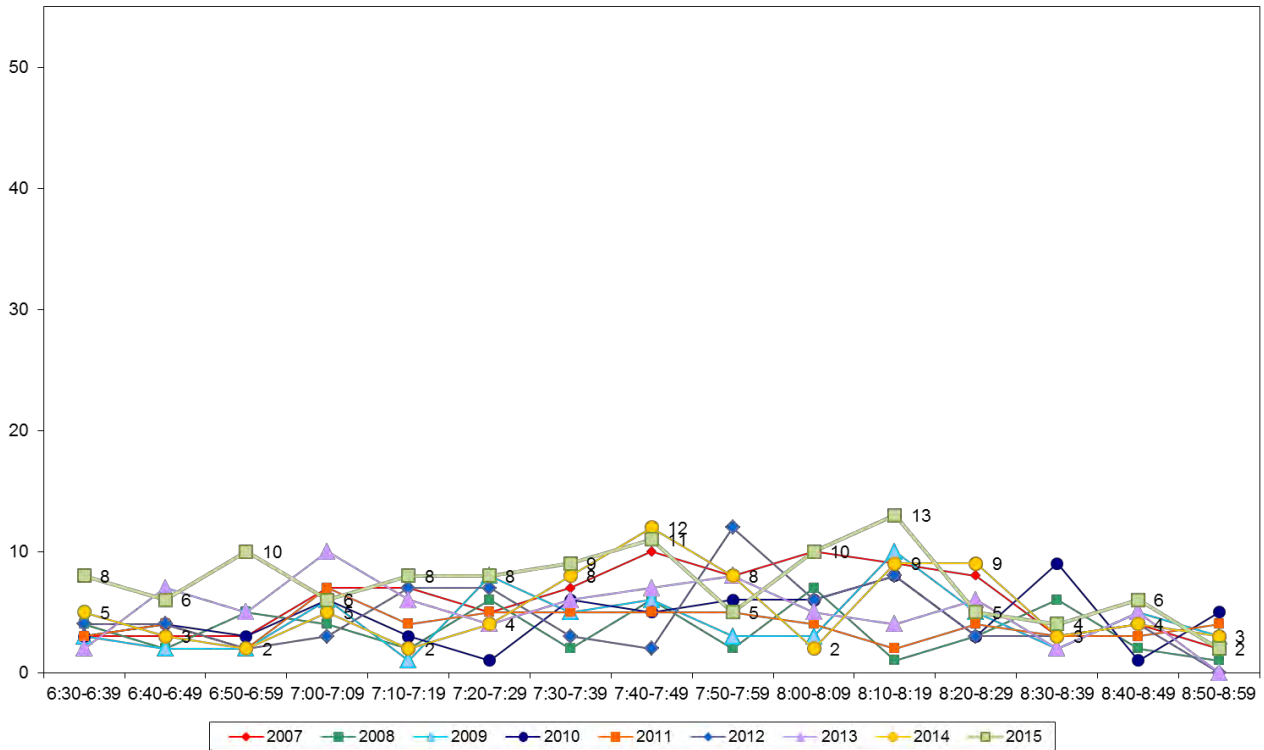
**Table 3.2: Morning Cyclist Characteristics
Great South/Campbell Road 2007 – 2015 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	94	92	88	93	95	97	92	85	86	1
School child	6	8	12	7	5	3	8	15	12	-3
Don't know	-	-	-	-	-	-	-	-	2	2
Helmet Wearing										
Helmet on head	97	94	95	96	95	97	99	100	99	-1
No helmet	3	6	5	4	5	3	1	0	1	1
Gender										
Male	-	-	-	-	84	79	73	89	86	-3
Female	-	-	-	-	13	18	22	11	12	1
Can't tell	-	-	-	-	3	3	5	0	2	2
Where Riding										
Road	87	68	84	83	82	81	84	75	76	1
Footpath	13	32	16	17	18	19	16	25	23	-2
Don't know	-	-	-	-	-	-	-	-	1	1
Base:	89	53	64	69	60	68	77	79	111	



- Morning cyclist volumes were relevantly stable throughout the monitoring period. A gradual increase in cyclist frequency occurred from 7:00am -7:49am. A drop to 5 cyclists occurred during the time interval 7:50am - 7:59am before frequency increased again, to a clear peak of 13 cyclists, recorded at 8:10am - 8:19am.

**Figure 3.2: Morning Peak Cyclist Frequency
Great South/Campbell Road 2007 – 2015 (n)**



Note: In 2015, 7 per cent of the morning peak cycle movements (n=8) at this site were identified as cycling in groups. The group rode past at 6:51am.



4.3 Evening Peak

Environmental Conditions

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

Key Points

- The volume of evening cyclists at the Great South/Campbell Road intersection has notably increased – 90 cycle movement this year, up from 70 cycle movements in 2014.
- Consistent with last year, the key movement was straight along Great South Road heading north (Movement 14 = 33 cyclists).
- The most notable increase in cyclist movements was at Movement 14 (up 15 cyclists). The largest decrease occurred at Movement 1 – traveling on Great South Road turning right onto Campbell Road (down 5 cyclists).

**Table 3.3: Evening Cyclist Movements
Great South/Campbell Road 2007 – 2015 (n)**

Movement	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
1	2	3	5	5	1	3	1	7	2	-5
2	14	7	13	14	16	16	9	13	13	0
3	16	8	10	19	14	15	17	13	14	1
4	1	0	4	2	0	1	1	0	0	0
5	0	0	0	1	0	0	0	0	1	1
6	0	0	0	0	0	0	0	0	0	0
7	0	0	2	0	0	1	0	0	1	1
8	0	0	0	1	0	1	2	1	1	0
9	0	0	0	1	0	1	1	1	1	0
10	14	7	8	12	7	3	3	11	12	1
11	4	5	4	6	3	2	3	1	1	0
12	1	0	0	1	0	1	1	2	1	-1
13	0	0	1	0	1	0	0	0	1	1
14	15	13	28	34	30	17	24	18	33	15
15	5	8	2	1	3	0	2	1	1	0
16	3	1	1	1	0	0	1	0	1	1
17	2	2	1	0	0	0	0	1	2	1
18	4	1	5	0	0	1	1	1	2	1
19	0	3	0	0	1	0	0	0	0	0
20	4	3	3	4	2	2	0	0	3	3
Don't know	-	-	-	-	-	-	3	0	0	0
Total	85	61	87	102	78	64	69	70	90	20



- Over the evening peak, almost all cyclists using this intersection were adults (93 per cent, down from 97 per cent last year).
- Most cyclists at this site were wearing a helmet (93 per cent, down from 99 per cent in 2014).
- Approximately three out of four cyclists were recorded as male (78 per cent, down 21 percentage points from last year).
- The majority of cyclists were riding on the road (65 per cent, down 6 percentage points from last year).

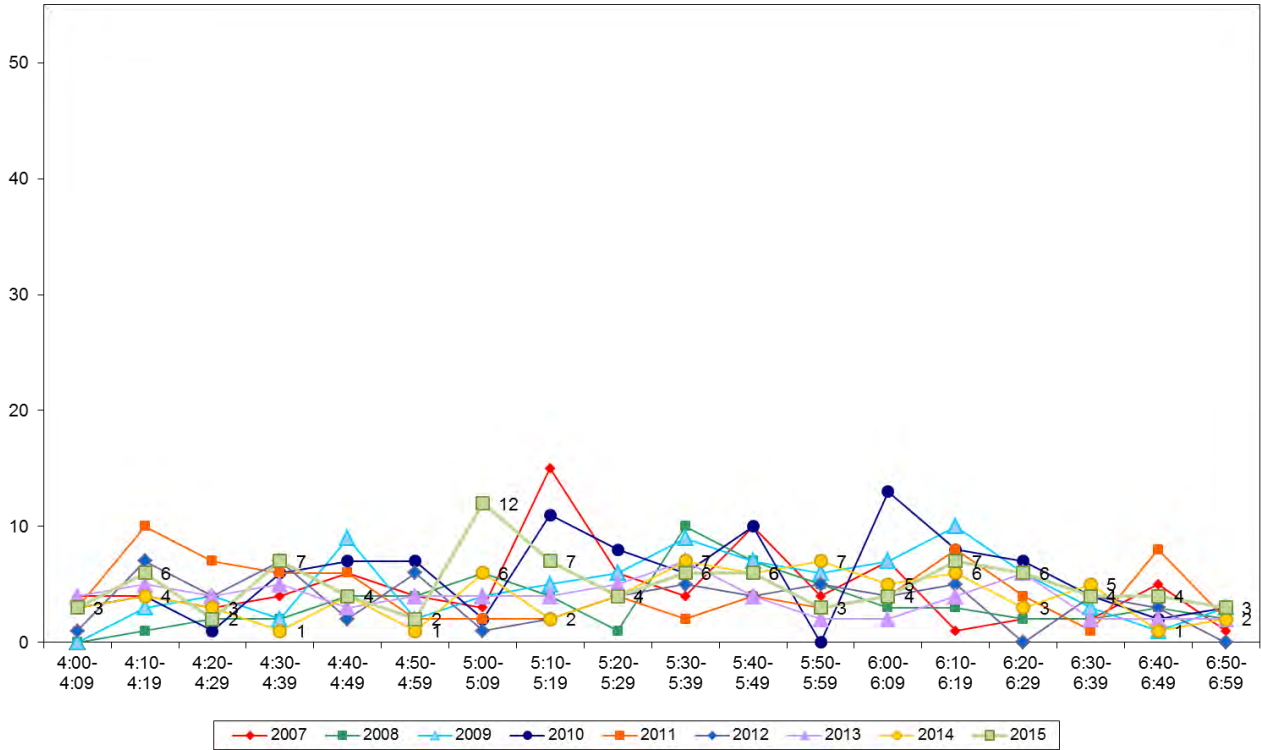
**Table 3.4: Evening Cyclist Characteristics
Great South/Campbell Road 2007 – 2015 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	100	97	97	95	97	97	91	97	93	-4
School child	0	3	3	5	3	3	9	3	7	4
Helmet Wearing										
Helmet on head	95	89	98	92	99	92	97	99	93	-6
No helmet	5	11	2	8	1	8	3	1	6	5
Don't know	-	-	-	-	-	-	-	-	1	1
Gender										
Male	-	-	-	-	82	83	74	99	78	-21
Female	-	-	-	-	17	14	23	1	18	17
Can't tell	-	-	-	-	1	3	3	0	4	4
Where Riding										
Road	87	82	83	89	85	77	74	71	65	-6
Footpath	13	18	17	11	15	23	26	29	33	4
Don't know	-	-	-	-	-	-	-	-	2	2
Base:	85	61	87	102	78	64	69	70	90	



- Evening cycle volume was relatively steady, with one clear peak recorded at 5:00pm - 5:09pm (12 cyclists).

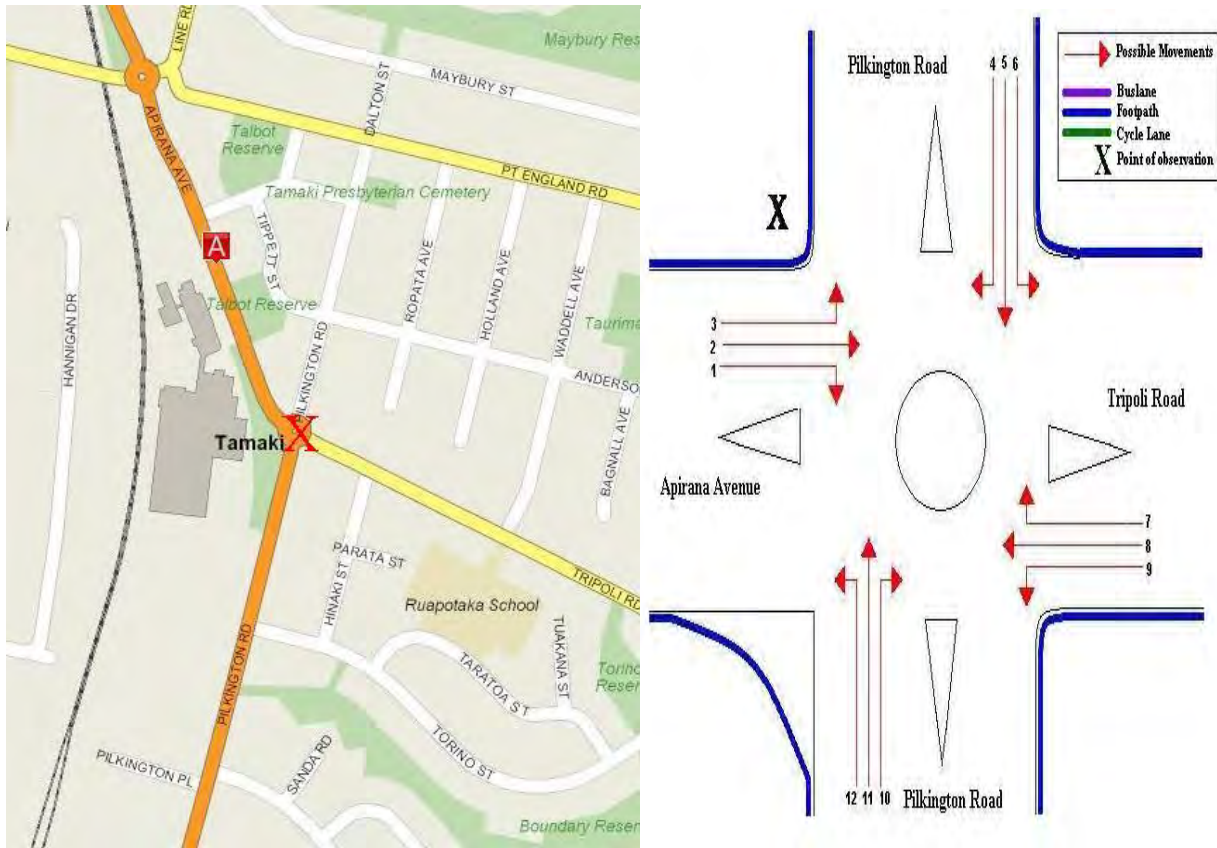
**Figure 3.3: Evening Peak Cyclist Frequency
Great South/Campbell Road 2007 – 2015 (n)**



5. APIRANA AVENUE/PILKINGTON ROAD/TRIPOLI ROAD, POINT ENGLAND (SITE 74)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: Apirana Avenue/Pilkington Road/Tripoli Road



5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2008	22	39	61	87
2009	12	20	32	46
2010	30	30	60	87
2011	14	41	55	78
2012	19	27	46	66
2013	20	19	39	57
2014	22	25	47	68
2015	28	23	51	75



5.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Apirana Avenue/Pilkington Road/Tripoli Road site was low with 28 cycle movements recorded. This result has increased by six since last year.
- The most common morning movement was turning left from Pilkington Road onto Apirana Avenue (Movement 12 = 8 cyclists). Compared with last year, the most notable change occurred at Movement 12 (up 4 cyclists).

Table 5.1: Morning Cyclist Movements
Apirana Avenue/Pilkington Road/Tripoli Road 2008 – 2015 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	6	3	10	4	7	6	5	6	1
2	0	0	13	0	2	0	2	2	0
3	1	0	0	0	0	0	0	0	0
4	0	0	0	0	0	1	0	0	0
5	0	2	2	2	1	2	3	3	0
6	0	0	0	0	0	0	0	1	1
7	1	1	0	2	0	0	1	1	0
8	9	0	2	3	1	4	3	4	1
9	1	0	0	0	1	1	0	0	0
10	1	0	0	0	1	1	2	2	0
11	0	2	0	1	1	1	2	1	-1
12	3	4	3	2	5	4	4	8	4
Total	22	12	30	14	19	20	22	28	6



- Over the morning peak, all of the cyclists were adults, up from 91 per cent last year.
- Approximately five out of six cyclists were wearing a helmet (86 per cent, up from 68 per cent last year).
- The majority of morning cyclists continued to be male (79 per cent, down from 86 per cent in 2014).
- Most cyclists were riding on the road (68 per cent, unchanged from last year).

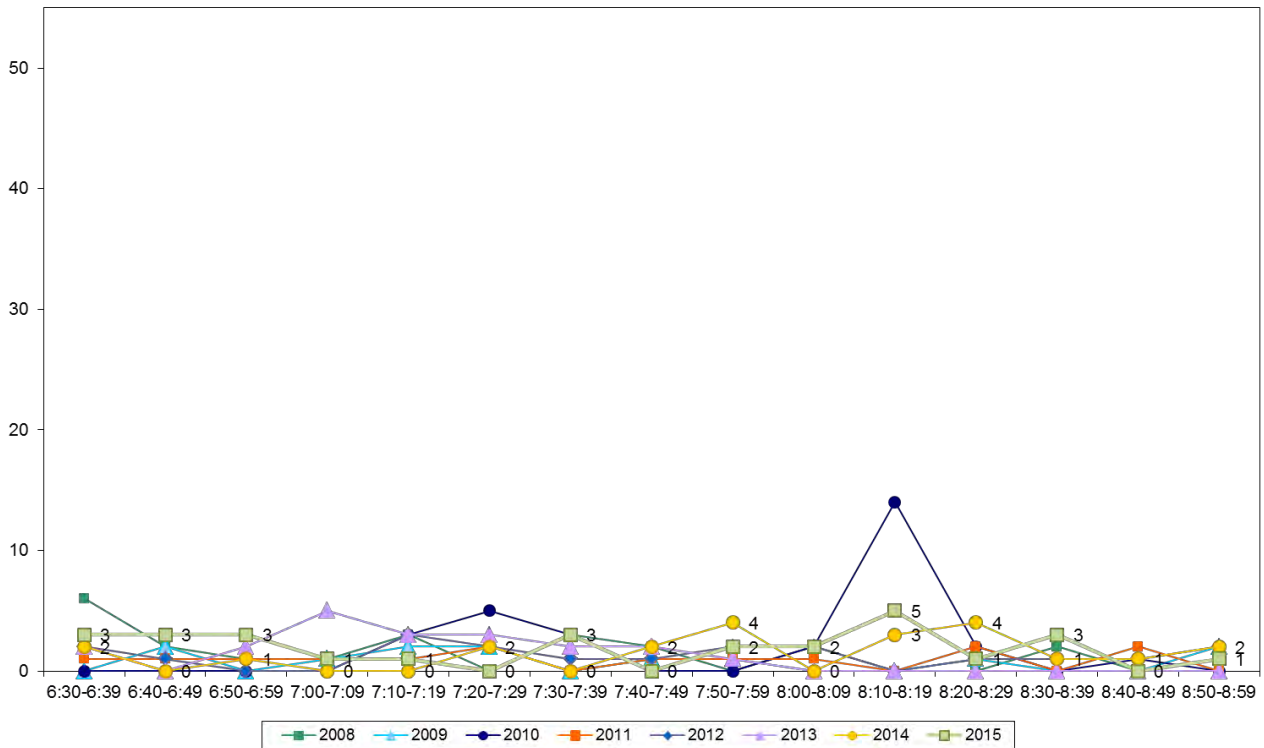
Table 5.2: Morning Cyclist Characteristics
Apirana Avenue/Pilkington Road/Tripoli Road 2008 – 2015 (%)

	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type									
Adult	95	92	100	79	100	80	91	100	9
School child	5	8	0	21	0	20	9	0	-9
Helmet Wearing									
Helmet on head	100	83	97	71	79	75	68	86	18
No helmet	0	17	3	29	21	25	32	14	-18
Gender									
Male	-	-	-	93	84	90	86	79	-7
Female	-	-	-	7	16	10	14	7	-7
Can't tell	-	-	-	0	0	0	0	14	14
Where Riding									
Road	73	67	93	57	89	70	68	68	0
Footpath	27	33	7	43	11	30	32	32	0
Base:	22	12	30	14	19	20	22	28	



- Morning cycle volumes were low throughout most of the shift, with no more than five cyclists per ten minute monitoring interval.

Figure 5.2: Morning Cyclist Frequency
Apirana Avenue/Pilkington Road/Tripoli Road 2008 – 2015 (n)





5.3 Evening Peak

Environmental Conditions

- The weather was partly cloudy in the beginning, but cleared away through the evening shift.
- There were no road works or accidents that may have affected cycle counts.

Key Points

- This year, the total number of cycle movements recorded at the Apirana Avenue/Pilkington Road/Tripoli Road site was 23, stable from the 25 cyclists recorded last year.
- The most common movements in the evening were traveling straight from Apirana Avenue to Tripoli Road Road heading east (Movement 2 = 6 cyclists) and entering the intersection from Pilkington Road and turning left into Apirana Avenue (Movement 12 = 5 cyclists).
- No cycle movements at this site experienced any considerable change in numbers from the previous year.

Table 5.3: Evening Cyclist Movements
Apirana Avenue/Pilkington Road/Tripoli Road 2008 – 2015 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	12	5	7	5	5	3	4	1	-3
2	7	2	2	5	0	4	3	6	3
3	1	0	0	0	1	1	0	0	0
4	0	0	1	0	0	0	0	0	0
5	0	1	0	1	2	0	2	1	-1
6	1	1	1	9	2	3	2	1	-1
7	1	1	2	4	4	2	3	0	-3
8	5	0	3	5	2	0	2	2	0
9	1	3	2	3	1	0	2	1	-1
10	2	0	0	1	3	1	1	2	1
11	2	5	2	4	4	2	2	4	2
12	7	2	10	4	3	3	4	5	1
Total	39	20	30	41	27	19	25	23	-2



- Eighty-seven per cent of cyclists in the evening peak were adults (up from 68 per cent last year).
- There has been a notable increase in helmet wearing this year (91 per cent, up from 64 per cent from 2014).
- Ninety-two per cent of evening cyclists were male this year.
- Three quarters of the evening cyclists at this site were riding on the road (74 per cent, stable from 72 per cent last year).

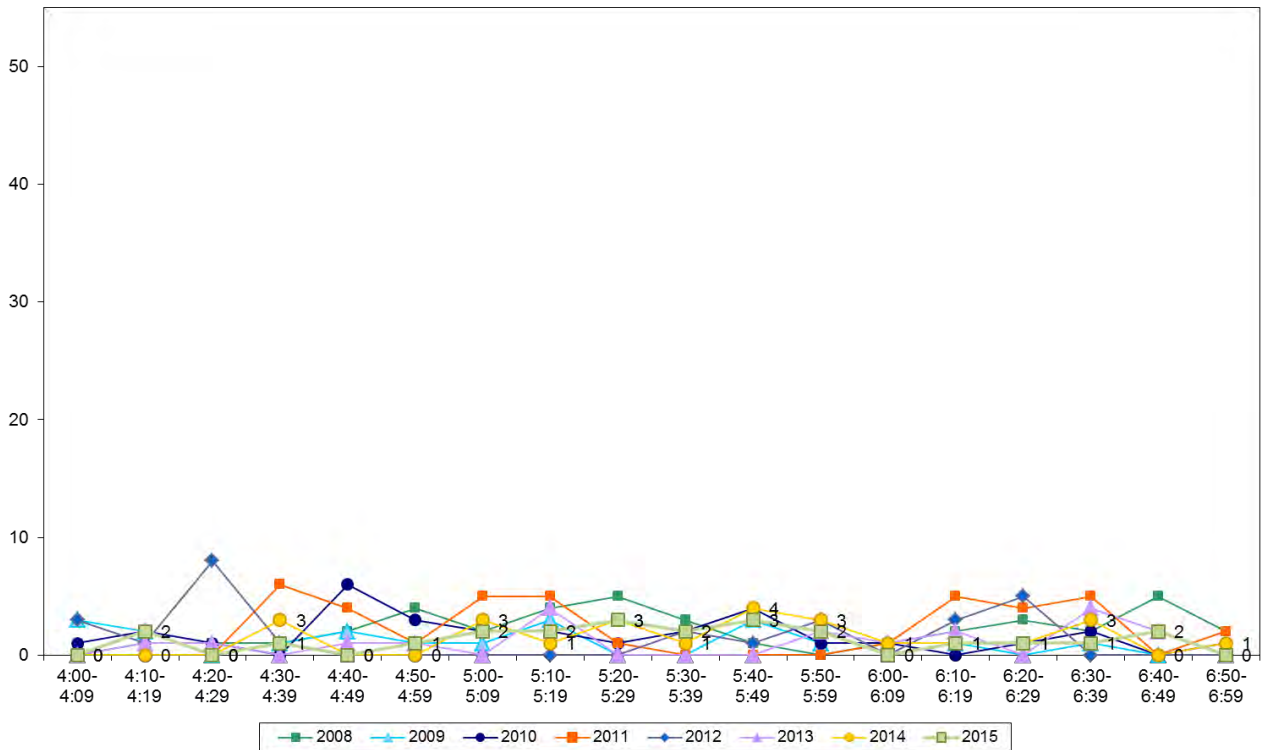
Table 5.4: Evening Cyclist Characteristics
Apirana Avenue/Pilkington Road/Tripoli Road 2008 – 2015 (%)

	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type									
Adult	92	75	97	61	74	89	68	87	19
School child	8	25	3	39	26	11	24	13	-11
Don't know	0	0	0	0	0	0	8	0	-8
Helmet Wearing									
Helmet on head	72	40	83	56	63	58	64	91	27
No helmet	28	60	17	44	37	42	36	9	-27
Gender									
Male	-	-	-	61	85	100	80	92	12
Female	-	-	-	39	15	0	20	4	-16
Can't tell	-	-	-	0	0	0	0	4	4
Where Riding									
Road	74	40	77	51	44	37	72	74	2
Footpath	26	60	23	49	56	63	28	26	-2
Base:	39	20	30	41	27	19	25	23	



- Evening cycle volumes were low throughout the shift, with no more than three cyclists per ten minute monitoring interval.

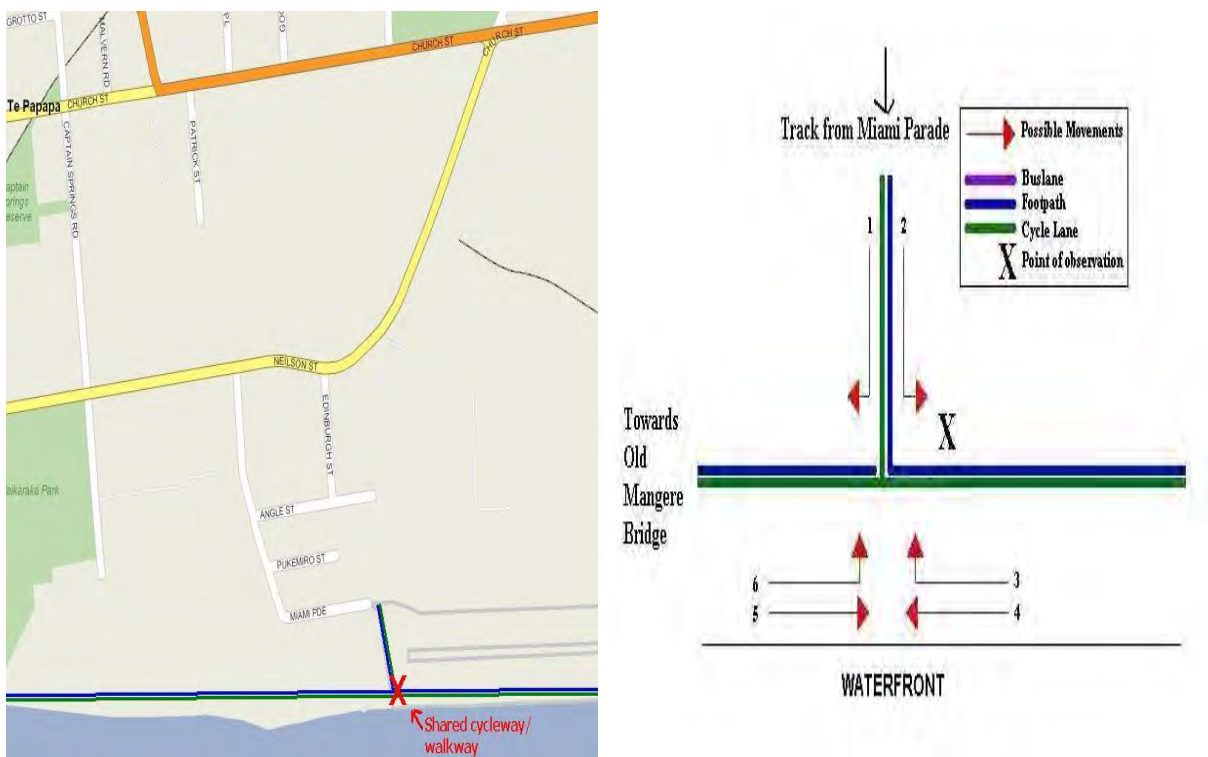
Figure 5.3: Evening Peak Cyclist Frequency
Apirana Avenue/Pilkington Road/Tripoli Road 2008 – 2015 (n)



6. WAIKARAKA CYCLEWAY, ONEHUNGA SOUTH (SITE 76)

Figure 6.1 shows the possible cyclist movements at this site.

Figure 6.1: Cycle Movements: Waikaraka Cycleway, Onehunga South



6.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2008	13	41	54	76
2009	18	33	51	73
2010	7	35	42	59
2011	29	36	65	94
2012	28	24	52	76
2013	29	54	83	119
2014	22	51	73	104
2015	32	45	77	111



6.2 Morning Peak

Environmental Conditions

- The weather was cloudy at the beginning but cleared away through the morning shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of cycle movements recorded in the morning shift has increased, from 22 in 2014 to 32 this year.
- Consistent with previous years, the key morning movement was straight along the waterfront, heading east (Movement 5 = 18 cyclists).
- The most notable increase in cyclist volumes across the six possible movements at this site was at Movement 5 (up 6 cyclists). All other movements remained stable from last year.

Table 6.1: Morning Cyclist Movements
Waikaraka Cycleway, Onehunga South 2008 – 2015 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	0	0	0	0	1	0	0	1	1
2	0	0	0	0	0	1	0	0	0
3	1	1	0	0	1	0	0	0	0
4	2	3	2	11	3	6	7	10	3
5	9	11	1	17	20	20	12	18	6
6	1	3	4	1	3	2	3	3	0
Total	13	18	7	29	28	29	22	32	10



- Over the morning peak, almost all of the cyclists were adults (94 per cent, down from 100 per cent in 2014). For only the second time since monitoring started at this site, school children were observed at this site (6 per cent, up from 0 per cent in 2014)
- There was an increase in the share of cyclists wearing a helmet (97 per cent, up from 82 per cent in 2014).
- Almost all cyclists (97 per cent) were male, stable from last year.

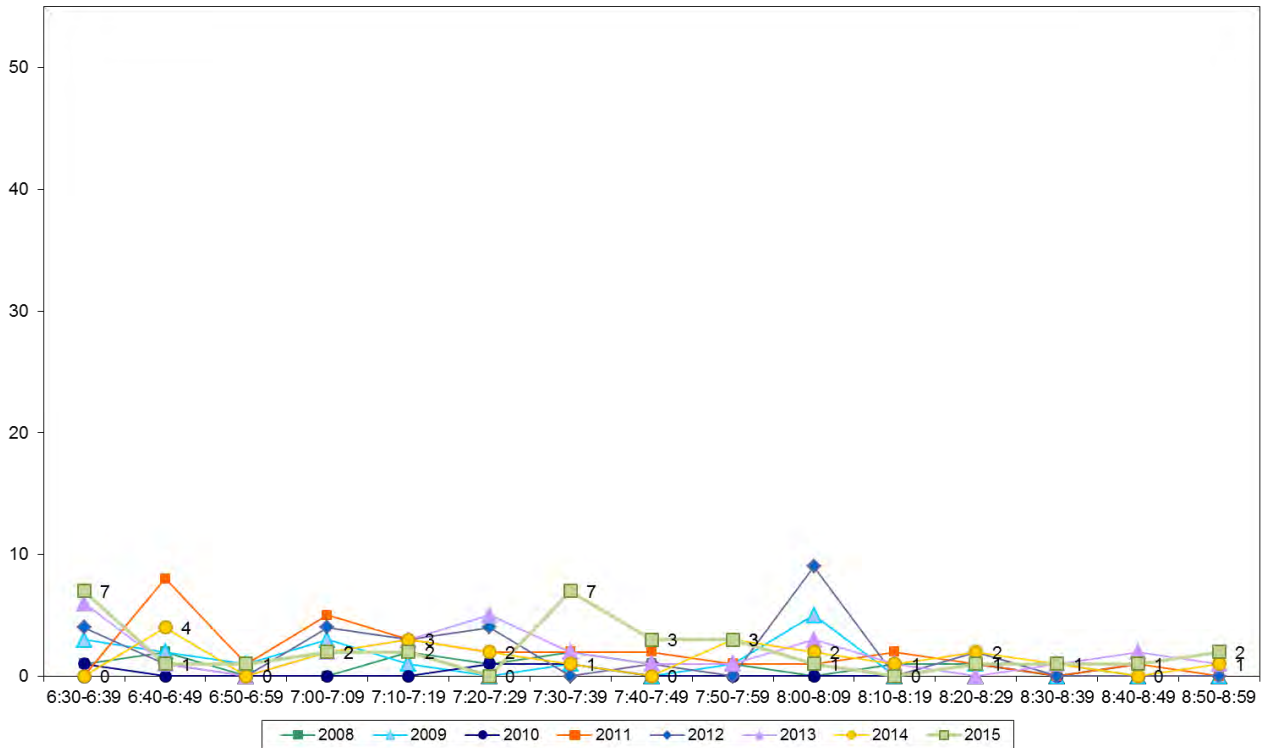
Table 6.2: Morning Cyclist Characteristics
Waikaraka Cycleway, Onehunga South 2008 – 2015 (%)

	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type									
Adult	100	100	100	100	100	96	100	94	-6
School child	0	0	0	0	0	4	0	6	6
Helmet Wearing									
Helmet on head	85	89	86	86	100	83	82	97	15
No helmet	15	11	14	14	0	10	18	3	-15
Unsure	-	-	-	-	-	7	0	0	0
Gender									
Male	-	-	-	66	82	83	95	97	2
Female	-	-	-	34	14	14	5	3	-2
Can't tell	-	-	-	0	4	3	0	0	0
Where Riding									
Off-road cycle way	100	100	100	100	100	100	100	100	0
Base:	13	18	7	29	28	29	22	32	



- Morning cycle volumes were low throughout the morning monitoring period, with two small peaks present. The first peak was at the start of the shift between 6:30am - 6:39am, the second occurred between 7:30am - 7:39am (both recording 7 movements). No more than three cyclists were recorded during any ten minute period for the remainder of the morning.

Figure 6.2: Morning Peak Cyclist Frequency
Waikaraka Cycleway, Onehunga South 2008 – 2015 (n)



Note: Note: In 2015, 25 per cent of the morning peak cycle movements (n=8) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following time:

- 5 cyclists at 6:37am
- 3 cyclists at 7:33am.

No pelotons were observed at this site in 2014. This compares with 10 per cent (n=3) riding as a group in the morning peak in 2013.



6.3 Evening Peak

Environmental Conditions

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

Key Points

- Evening cycle volume at the Waikaraka Cycleway site have decreased in 2015, with 45 cycle movements recorded, down from 51 in 2014.
- The most common movements in the evening were travelling west towards the Old Mangere Bridge (Movement 4 = 22 cyclists) and travelling east along the waterfront (Movement 5 = 22 cyclists).
- The most notable changes in cyclist volumes across the six possible movements at this site were at Movement 4 (down 9 cyclists) and at Movement 5 (up 5 cyclists).

Table 6.3: Evening Cyclist Movements
Waikaraka Cycleway, Onehunga South 2008 – 2015 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	1	2	3	2	2	4	3	1	-2
2	1	1	2	0	2	1	0	0	0
3	0	0	1	0	0	1	0	0	0
4	21	19	18	21	16	27	31	22	-9
5	15	8	9	13	4	17	17	22	5
6	3	3	2	0	0	4	0	0	0
Total	41	33	35	36	24	54	51	45	-6



- Over the evening peak, the majority of the cyclists using this cycleway were adults (93 per cent, down from 100 per cent in 2014).
- Ninety-eight per cent of cyclists were wearing a helmet (up from 90 per cent from last year).
- Although declined, the greatest share of evening cyclists has continued to be male (58 per cent, down from 65 per cent last year). Female cyclist numbers have continued to rise over the past four years, reaching 42 per cent this year.

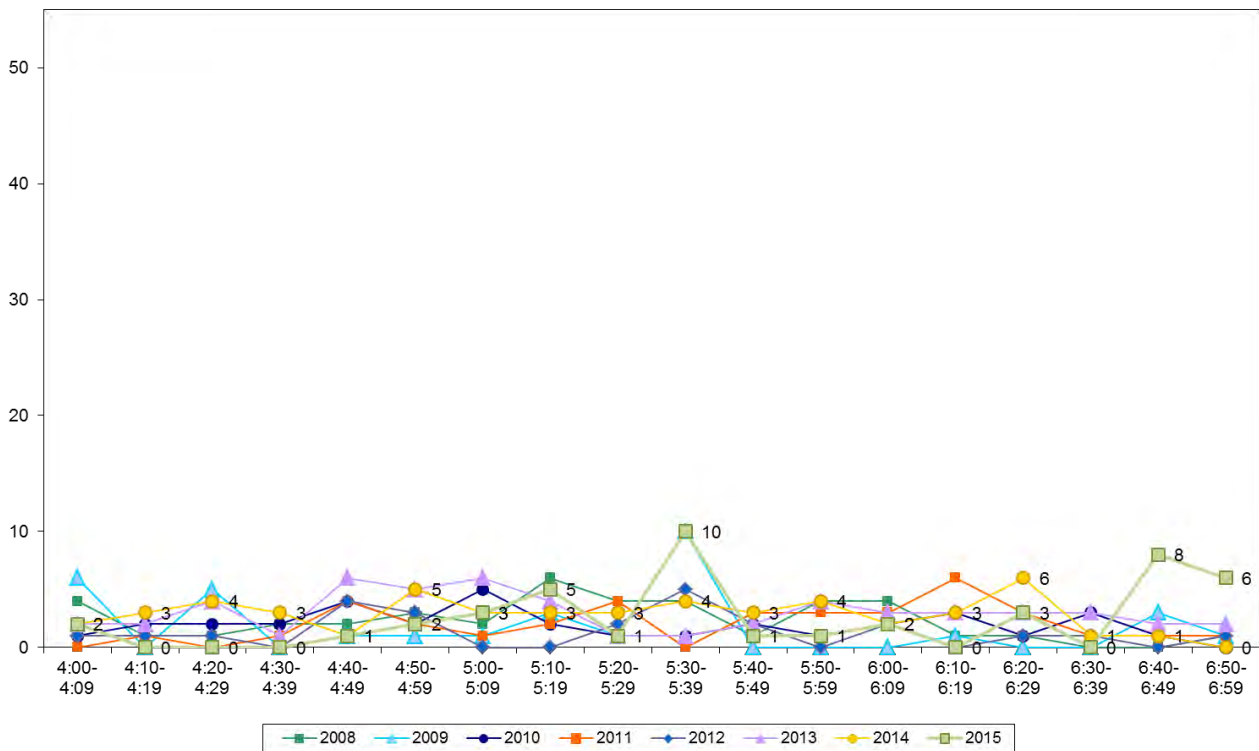
Table 6.4: Evening Cyclist Characteristics
Waikaraka Cycleway, Onehunga South 2008 – 2015 (%)

	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type									
Adult	95	100	97	100	100	94	100	93	-7
School child	5	0	3	0	0	6	0	7	7
Helmet Wearing									
Helmet on head	88	79	97	89	100	79	90	98	8
No helmet	12	21	3	11	0	21	10	2	-8
Gender									
Male	-	-	-	83	92	81	65	58	-7
Female	-	-	-	17	8	13	35	42	7
Can't tell	-	-	-	0	0	6	0	0	0
Where Riding									
Off-road cycle way	100	100	100	100	100	100	100	100	0
Base:	41	33	35	36	24	54	51	45	



- Evening cycle volumes were slightly lower than the previous year, however this year's trend is quite different to previous years. There are two peaks present. The first peak of 10 cyclists occurred between 5:30pm - 5:39pm, the second between 6:40pm - 6:59pm (two ten minute intervals) with a total of 14 cyclists (this total includes one group of 5 cyclists traveling through at 6:42pm).

Figure 6.3: Evening Peak Cyclist Frequency
Waikaraka Cycleway, Onehunga South 2008 – 2015 (n)

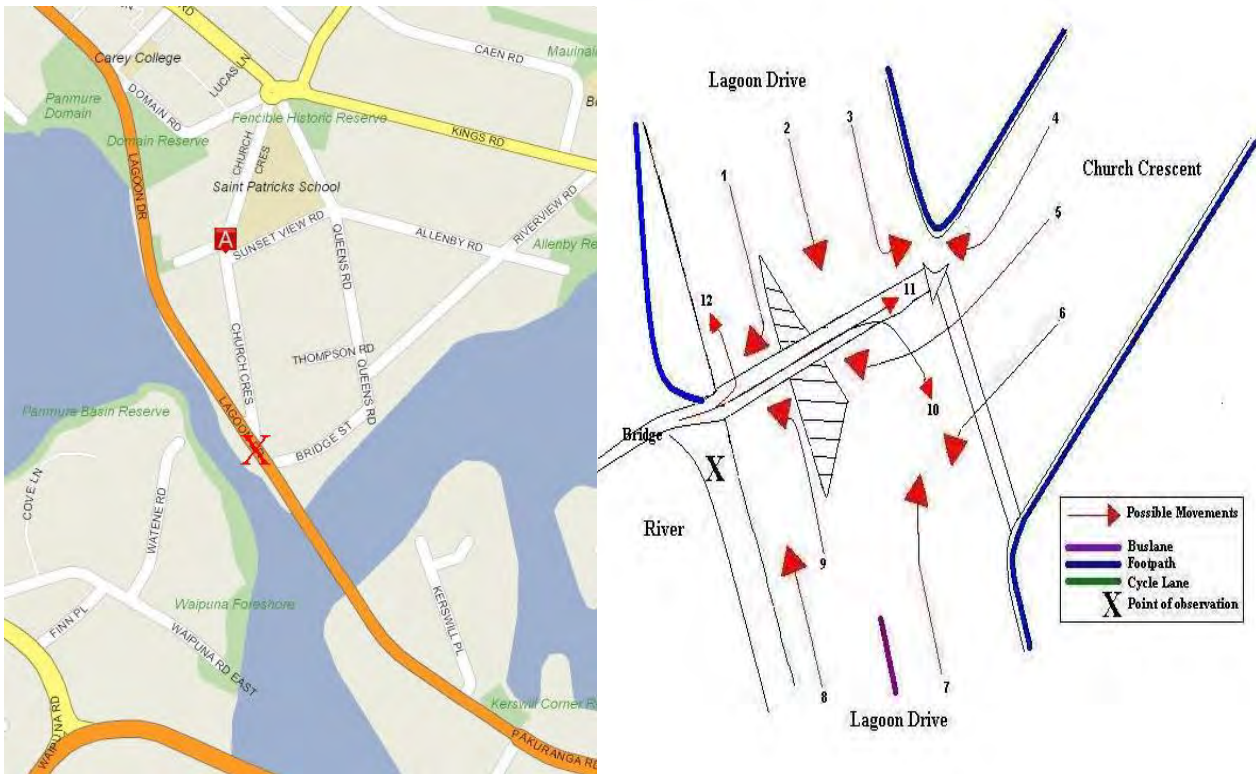


Note: In 2015, a group of five cyclists (11 per cent of this site's evening cycle traffic) rode past at 6:42pm. This compares with 12 per cent in 2014.

7. LAGOON DRIVE/CHURCH CRESCENT, PANMURE (SITE 78)

Figure 7.1 shows the possible cyclist movements at this intersection.

Figure 7.1: Cycle Movements: Lagoon Drive/Church Crescent, Panmure



7.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2009	57	72	129	186
2010	100	95	195	284
2011	65	98	163	234
2012	66	71	137	199
2013	72	110	182	262
2014	70	85	155	224
2015	74	106	180	259



7.2 Morning Peak

Environmental Conditions

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

Key Points

- Seventy-four cycle movements were recorded at this site in the morning peak, a slight increase from the 70 recorded in 2014.
- The key movements in the morning were turning left from Lagoon Drive onto the foot bridge (Movement 9 = 18 cyclists) and turning left from Church Crescent onto the foot bridge (Movement 6 = 17 cyclists).
- The most notable increase in cyclist volumes was at Movement 6 (up 7 cyclists). The most notable decrease was at Movement 9 (down 8 cyclists)

Table 7.1: Morning Cyclist Movements
Lagoon Drive/Church Crescent, Panmure 2009 – 2015 (n)

<i>Movement</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	0	0	0	0	0	0	2	2
2	8	9	6	7	3	9	4	-5
3	1	0	0	2	0	0	2	2
4	0	0	0	0	0	0	0	0
5	3	3	2	1	0	2	2	0
6	9	15	11	15	12	10	17	7
7	6	10	7	7	16	11	10	-1
8	12	15	11	5	11	10	12	2
9	8	26	19	21	20	26	18	-8
10	10	21	9	3	9	2	4	2
11	0	1	0	1	0	0	0	0
12	0	0	0	4	0	0	3	3
Don't know	-	-	-	-	1	0	0	0
Total	57	100	65	66	72	70	74	4



- All morning cyclists at this site were adults.
- Almost all of the cyclists were wearing a helmet (96 per cent, down from 90 per cent in 2014).
- Eighty-nine per cent of the cyclists were male.
- Two-thirds of cyclists were riding on the road (68 per cent, up from 63 in 2014).

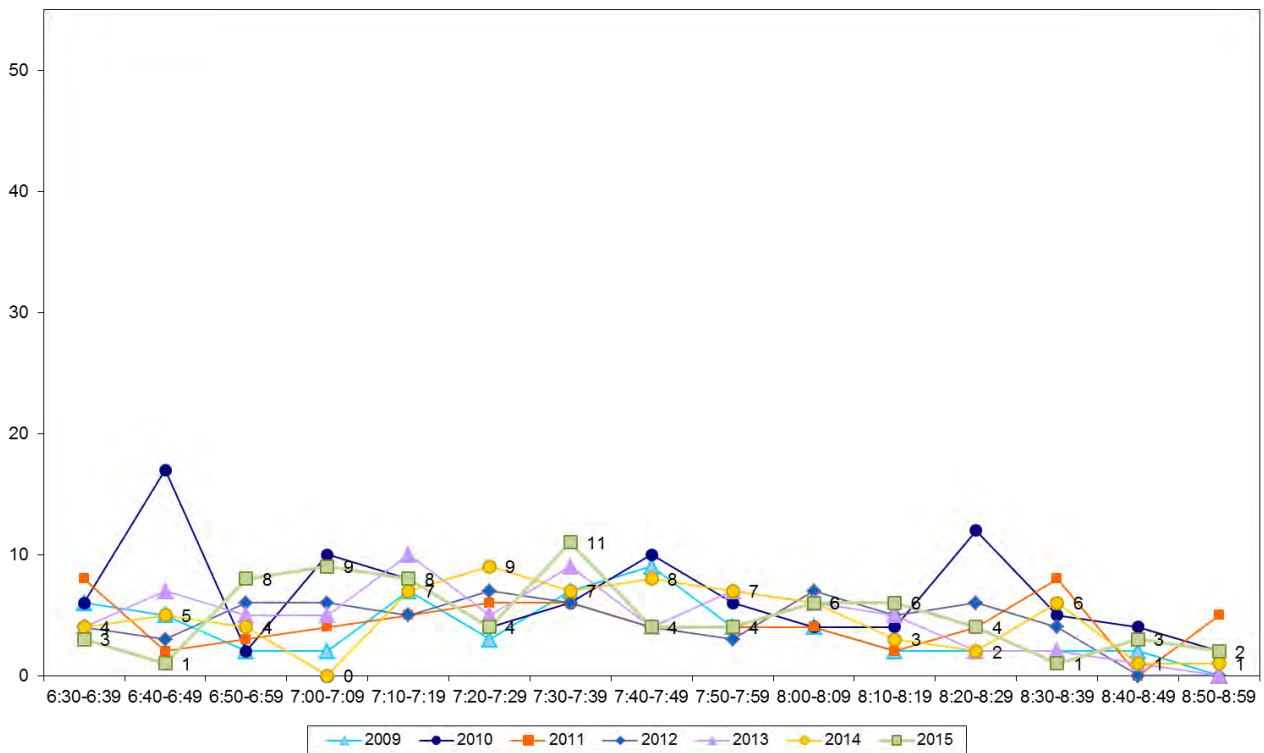
Table 7.2: Morning Cyclist Characteristics
Lagoon Drive/Church Crescent, Panmure 2009 – 2015 (%)

	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type								
Adult	82	93	92	-	94	99	100	1
School child	18	7	8	-	6	1	0	-1
Helmet Wearing								
Helmet on head	89	94	98	98	96	90	96	6
No helmet	11	6	2	2	4	9	4	-5
Don't know	0	0	0	0	0	1	0	-1
Gender								
Male	-	-	86	88	90	83	89	6
Female	-	-	14	11	6	16	8	-8
Can't tell	-	-	0	1	4	1	3	2
Where Riding								
Road	68	67	62	73	62	63	68	5
Footpath	32	33	38	27	38	37	32	-5
Base:	57	100	65	66	72	70	74	



- Morning cycle volumes were relatively low throughout the shift. The largest cycle volume observed during any ten minute interval was between 7:30am - 7:39am, with 11 cyclists recorded. Cyclist frequency was higher at the beginning of the monitoring period this year compared to 2014, in particular during the ten minute intervals of 6:50am - 6:59am, 7:00am - 7:09am and 7:10am - 7:19am.

Figure 7.2: Morning Peak Cyclist Frequency
Lagoon Drive/Church Crescent, Panmure 2009 – 2015 (n)





7.3 Evening Peak

Environmental Conditions

- The weather was fine over the evening monitoring period.
- There were no road works or accidents that may have affected cycle counts.

Key Points

- One hundred and six movements were recorded over the evening shift at the Lagoon Drive and Church Crescent site, up from 85 last year.
- The most common movements in the evening were the right turn from Lagoon Drive into Church Crescent (Movement 7 = 28 cyclists) and turning right onto Lagoon Drive from the foot bridge (Movement 10 = 22 cyclists), as well as Church Crescent to the foot bridge (Movement 6 = 21 cyclists).
- The most notable change in cyclist movements occurred at Movement 7 (up 9 cyclists).

Table 7.3: Evening Cyclist Movements
Lagoon Drive/Church Crescent, Panmure 2009 – 2015 (n)

<i>Movement</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	0	0	0	0	0	0	0	0
2	10	12	12	10	18	13	12	-1
3	0	0	1	0	0	0	0	0
4	0	0	0	0	1	0	0	0
5	0	0	0	1	1	0	0	0
6	10	20	13	12	23	16	21	5
7	17	19	34	10	27	19	28	9
8	9	11	10	12	13	10	15	5
9	6	10	6	8	3	3	5	2
10	15	18	19	18	21	23	22	-1
11	5	5	3	0	3	1	3	2
12	0	0	0	0	0	0	0	0
Total	72	95	98	71	110	85	106	21



- Ninety-eight per cent of evening cyclists were adults (stable from 100 per cent in 2014).
- Most cyclists were wearing a helmet (92 per cent).
- The greatest share of evening cyclists were male (92 per cent, unchanged from last year).
- Seventy-one per cent of the cyclists were riding on the road (stable from 70 per cent in 2014).

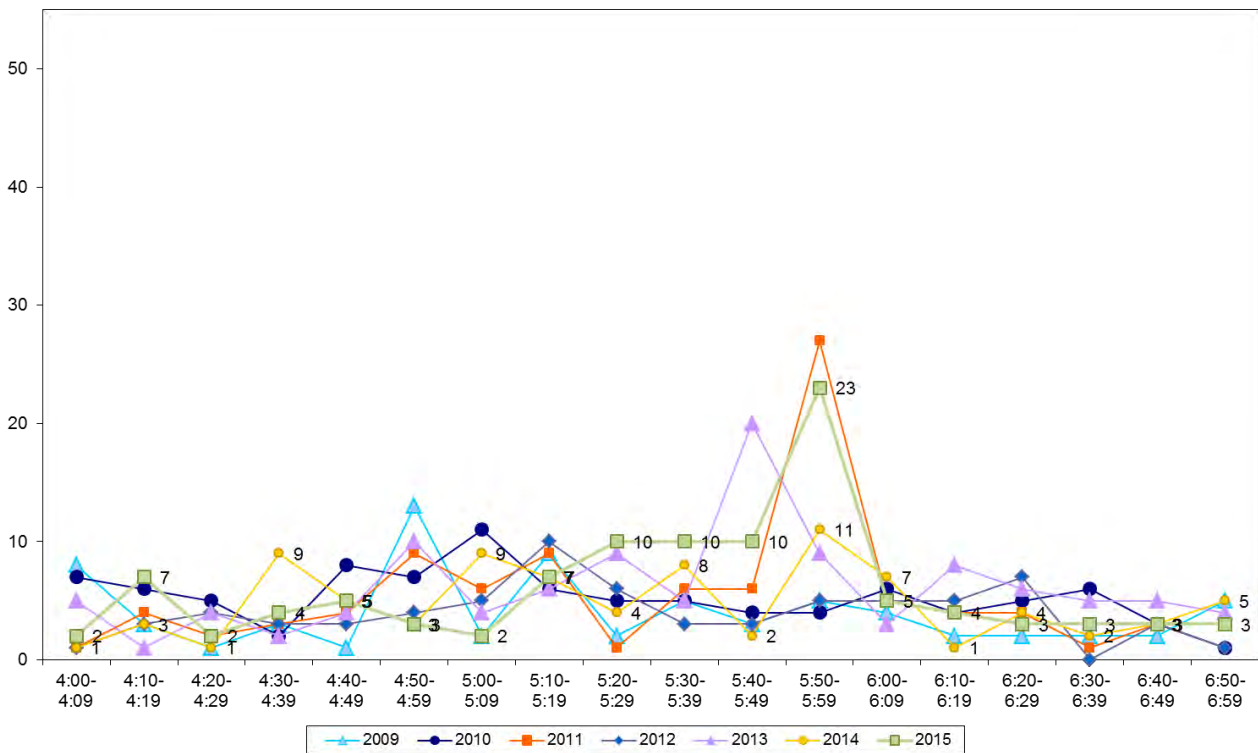
Table 7.4: Evening Cyclist Characteristics
Lagoon Drive/Church Crescent, Panmure 2009 – 2015 (%)

	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type								
Adult	96	93	94	-	98	100	98	-2
School child	4	7	6	-	2	0	2	2
Helmet Wearing								
Helmet on head	89	89	98	96	92	89	92	3
No helmet	11	11	2	4	8	11	8	-3
Gender								
Male	-	-	86	88	82	92	92	0
Female	-	-	14	11	13	8	8	0
Can't tell	-	-	0	1	5	0	0	0
Where Riding								
Road	79	81	77	65	71	70	71	1
Footpath	21	19	23	35	29	29	29	0
Don't know	0	0	0	0	0	1	0	-1
Base:	72	95	98	71	110	85	106	



- Cyclist volumes in the evening fluctuated considerably over the duration of the monitoring period. Unlike other years, frequency of cyclists remained stable, with 10 cyclists recorded, for 30 minutes during the monitoring period, from 5:20pm - 5:49pm. A peak occurred between 5:50pm - 5:59pm which consisted of 23 cyclists. This is an increase from the 11 cyclists recorded last year during the same time interval.

Figure 7.3: Evening Peak Cyclist Frequency
Lagoon Drive/Church Crescent, Panmure 2009 – 2015 (n)

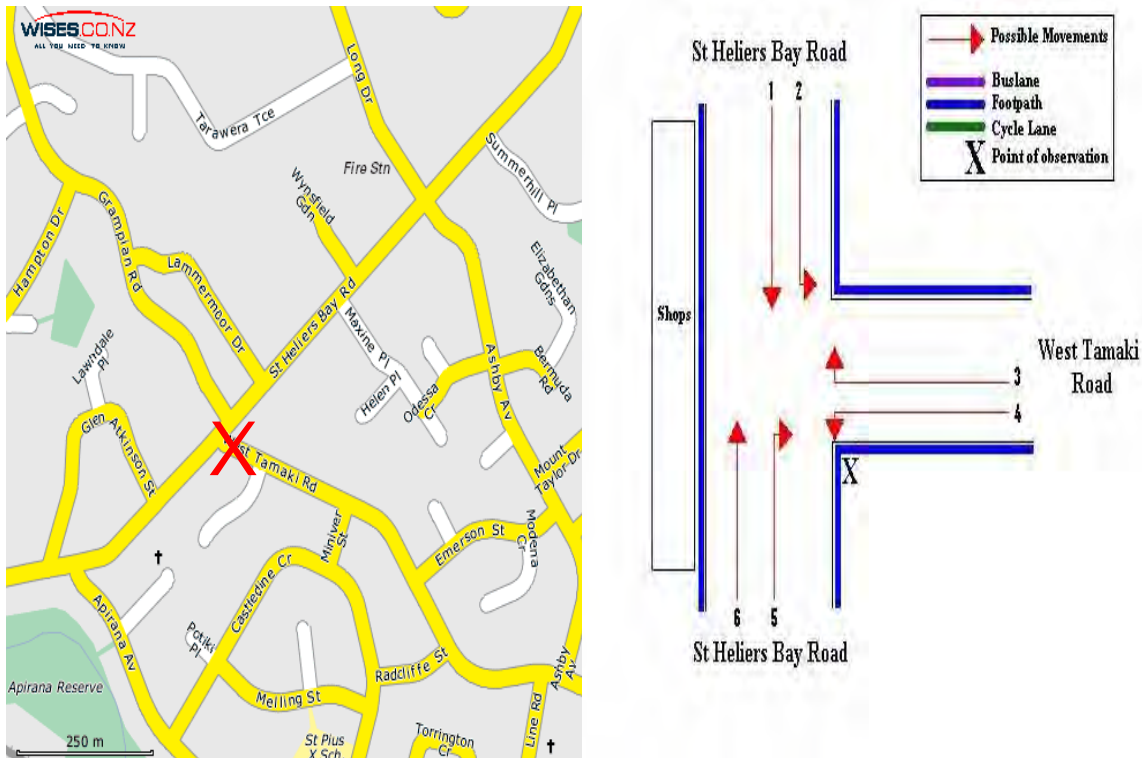


Note: In 2015, 13 cyclists (12 per cent of all evening peak cycle movements at this site) were observed riding together at 5:52pm. This compares with 13 per cent (n=14) riding together in 2014 and 13 per cent in 2013.

8. ST HELIERS BAY ROAD/WEST TAMAKI ROAD, GLEN INNES (SITE 20)

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: St Heliers Bay/West Tamaki Road



8.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	139	69	208	308
2008	107	60	167	246
2009	61	47	108	158
2010	98	72	170	249
2011	150	74	224	331
2012	86	49	135	199
2013	177	71	248	369
2014	154	65	220	325
2015	141	75	216	319



8.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning peak cyclists at the St Heliers Bay/West Tamaki Road intersection has continued to decrease – down from 154 last year to 141 movements this year.
- The key morning movement was turning right on to West Tamaki Road from St Heliers Bay Road (Movement 5 = 72 counts).
- The most notable changes in cycle volumes occurred at Movement 3 (turning right into St Heliers Bay Road from West Tamaki Road, down 17 cycle movements) and Movement 4 (turning left into St Heliers Bay Road from west Tamaki Road, up 12 movements).

**Table 8.1: Morning Cyclist Movements
St Heliers Bay/West Tamaki Road 2007 – 2015 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
1	17	14	16	20	19	17	24	17	11	-6
2	4	4	1	5	4	3	3	10	13	3
3	21	7	5	7	6	3	28	23	6	-17
4	5	14	12	12	33	12	19	12	24	12
5	69	53	7	21	61	25	86	70	72	2
6	23	15	20	33	27	26	17	22	15	-7
Total	139	107	61	98	150	86	177	154	141	-18



- Over the morning peak, adults comprised the greatest share of cycle movements (91 per cent, stable from 94 per cent the previous year).
- Nearly all cyclists were wearing a helmet (99 per cent, same as last year).
- Eighty-four per cent of cyclists were male (up 6 percentage points from 2014)
- Consistent with last year, the majority of cyclists are riding on the road (94 per cent, stable from the last measure).

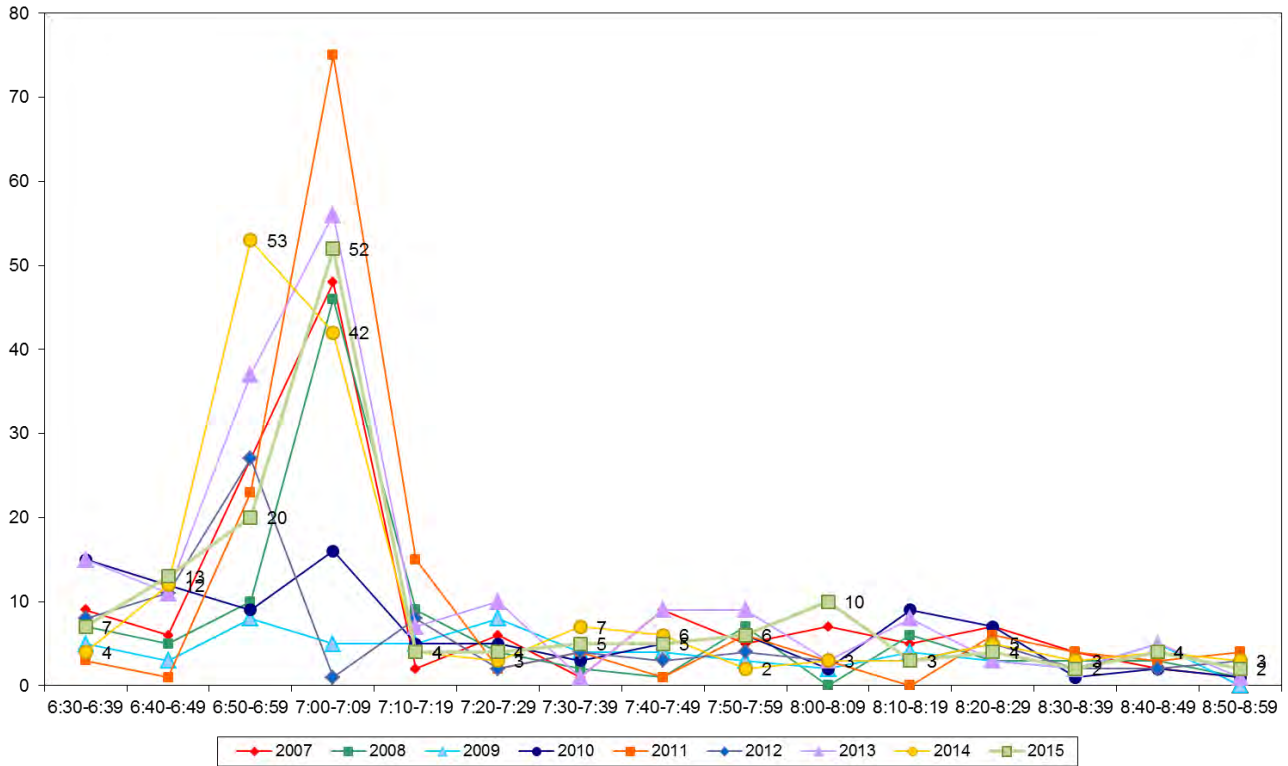
Table 8.2: Morning Cyclist Characteristics
St Heliers Bay/West Tamaki Road 2007 – 2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	87	93	92	93	95	88	92	94	91	-3
School child	13	7	8	7	5	12	8	5	9	4
Don't know	0	0	0	0	0	0	0	1	0	-1
Helmet Wearing										
Helmet on head	100	97	98	100	99	99	92	99	99	0
No helmet	0	3	2	0	1	1	2	1	1	0
Can't tell	-	-	-	-	-	-	6	0	0	0
Gender										
Male	-	-	-	-	84	69	85	78	84	6
Female	-	-	-	-	16	15	15	19	16	-3
Can't tell	-	-	-	-	0	16	0	3	0	-3
Where Riding										
Road	87	92	93	95	93	93	93	96	94	-2
Footpath	13	8	7	5	7	7	7	4	6	2
Base:	139	107	61	98	150	86	177	154	141	



- Due to the presence of pelotons, there was a sharp peak in cycle movements between 7:00am and 7:09am (52 cycle counts) which then fell to a stable volume of movements for the remainder of the monitoring period. This trend was consistent with previous years.

**Figure 8.2: Morning Peak Cyclist Frequency
St Heliers Bay/West Tamaki Road 2007 – 2015 (n)**



Note: In 2015, 39 per cent of the morning peak cycle movements (n=55) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- 15 cyclists at 7:00am
- 15 cyclists at 7:03am
- 25 cyclists at 7:08am



8.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the entire evening shift.
- There was power line maintenance work on West Tamaki Road, about 50 metres away from this site.
- There were no other road works or accidents that may affect cycle counts.

Key Points

- In 2015, the number of evening cycle movements recorded at the St Heliers Bay/West Tamaki Road intersection has increased by 10, to a total of 75 movements.
- The key movement at this site in the evening was straight along St Heliers Bay Road heading north (Movement 6 = 21 cyclists).
- The most notable decrease was at Movement 1 (down 7 counts) while the most notable increase was at Movement 6 (up 7 cycle counts).

Table 8.3: Evening Cyclist Movements
St Heliers Bay/West Tamaki Road 2007 – 2015 (n)

Movement	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
1	22	19	15	23	17	9	14	22	15	-7
2	6	6	7	6	6	5	4	5	9	4
3	4	8	6	2	4	1	1	5	3	-2
4	5	5	5	6	8	4	10	5	7	2
5	3	12	7	9	11	9	16	14	20	6
6	29	10	7	26	28	21	26	14	21	7
Total	69	60	47	72	74	49	71	65	75	10



- Consistent with the morning peak, the greatest share of cyclists using this intersection were adults (76 per cent, stable from 78 per cent in 2014).
- About four in five cyclists at this site were riding with helmets on (83 per cent, down 11 percentage points from last year).
- Seventy-three per cent of cyclists were male, down from 78 per cent last year.
- The majority of cyclists were riding on the road (76 per cent, stable from 78 per cent last year).

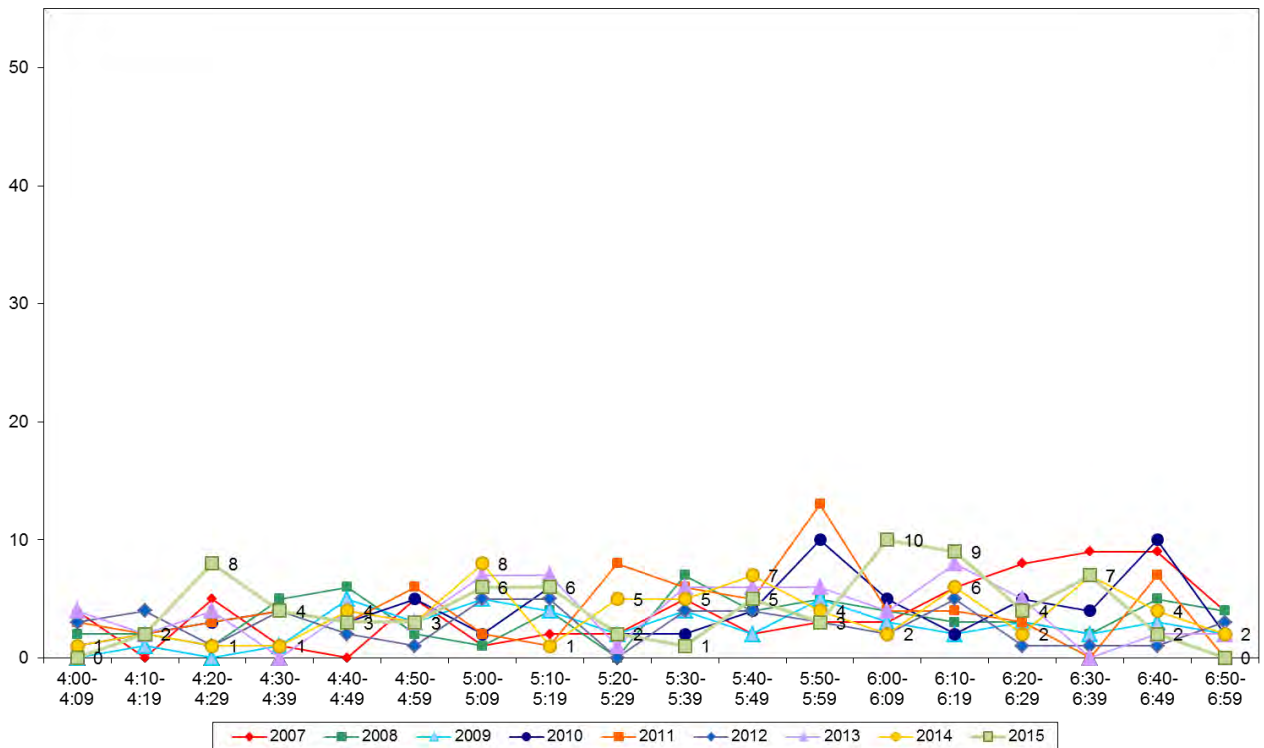
Table 8.4: Evening Cyclist Characteristics
St Heliers Bay/West Tamaki Road 2007 – 2015 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 14-15
Cyclist Type										
Adult	93	88	89	96	89	73	86	78	76	-2
School child	7	12	11	4	11	27	14	20	24	4
Don't know	0	0	0	0	0	0	0	2	0	-2
Helmet Wearing										
Helmet on head	99	92	94	96	88	92	92	94	83	-11
No helmet	1	8	6	4	12	8	8	6	17	11
Gender										
Male	-	-	-	-	91	71	83	78	73	-5
Female	-	-	-	-	9	27	17	20	27	5
Can't tell	-	-	-	-	0	2	0	2	0	
Where Riding										
Road	88	87	87	96	76	82	83	78	76	-2
Footpath	12	13	13	4	24	18	17	22	24	2
Base:	69	60	47	72	74	49	71	65	75	



- The volume of evening cycle movements was low throughout the monitoring period. Two peaks were observed this year – one between 4:20pm and 4:29pm (8 cycle counts) and one between 6:00pm and 6:19pm (a total of 19 cycle movements).

**Figure 8.3: Evening Peak Cyclist Frequency
St Heliers Bay/West Tamaki Road 2007 – 2015 (n)**





9. SCHOOL BIKE SHED COUNT

9.1 Cycle Count Background Information

- A total of 15 schools in the Maungakiekie-Tamaki ward participated in the school bike shed count. Of the schools that responded to the survey, most do not have policies that restrict students cycling to school⁹.
- One school reported an event that may affect cycle counts¹⁰.
- Although the designated count day was Tuesday 3rd of March 2015, nine schools in the Maungakiekie-Tamaki ward completed their count on an alternative day¹¹.

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

9.2 Cycle Count Key Points

- Of those students eligible to cycle, on average one per cent of students are currently cycling to their schools (stable since 2013).
- In total, n=39 students from the 15 responding schools were reported as cycling to school.
- Ellerslie School reported the highest share of cyclists this year, with 5 per cent of students cycling to school.
- Of the 15 schools that responded, 12 (80 per cent) had no students cycling to school.
- Of the 15 schools that participated in the count in both 2014 and 2015, 3 (20 per cent) reported an increase in the share of students cycling.

⁹ The following schools had policies surrounding the riding of bicycles to school:

- Ellerslie School *"From 10 years of age or Y6 up. A couple from younger age groups come accompanied by parents"*
- Stanhope Road School *"Years 5-8, but if parents write a letter of supervision younger ages are allowed."*
- Sylvia Park School *"Children will be able to ride bicycles or scooters from 8 years upwards unless accompanied by parents."*

¹⁰ The following school reported an event or issue that may have had an effect on the cycle count:

- Ellerslie School *"20 students out for softball tournament."*

¹¹ The following schools undertook counts on alternative days:

- Bailey Road School – 4th March 2015
- Golden Grove School – 6th March 2015
- Panmure District School – 19th March 2015
- Ruapotaka School – 26th February 2015
- St Mary's School (Ellerslie) – 5th March 2015
- St Patrick's School (Panmure) – 27th February 2015
- St Pius X School (Glen Innes) – 5th March 2015
- Stanhope Road School – 5th March 2015
- Tamaki Primary School – 5th March 2015



Table 9.1 shows the results of the 15 schools surveyed in the Maungakiekie-Tamaki ward.

**Table 9.1: Summary Table of School Bike Count
2007 – 2015 (n)**

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles	Cyclists as share of those eligible ¹²								
				2015	2014	2013	2012	2011	2010	2009	2008	2007
Ellerslie School	Full Primary	170	8	5%	2%	1%	0%	1%	-	-	-	-
Tamaki College	Secondary	570	25	4%	1%	0%	-	-	0%	0%	<1%	<1%
Tamaki Primary School	Full Primary	255	6	2%	1%	1%	-	-	-	-	-	-
Bailey Road School	Full Primary	435	0	0%	0%	0%	0%	0%	-	-	-	-
Golden Grove School	Full Primary	40	0	0%	0%	0%	0%	0%	-	-	-	-
Panmure Bridge School	Full Primary	210	0	0%	0%	0%	-	-	-	-	-	-
Panmure District School	Full Primary	130	0	0%	0%	0%	0%	1%	-	-	-	-
Pt England School	Full Primary	598	0	0%	0%	0%	0%	0%	-	-	-	-
Ruapotaka School	Full Primary	175	0	0%	0%	0%	0%	-	-	-	-	-
St Joseph's School (Onehunga)	Full Primary	252	0	0%	0%	-	0%	-	-	-	-	-
St Mary's School (Ellerslie)	Full Primary	350	0	0%	-	-	0%	1%	-	-	-	-
St Patrick's School (Panmure)	Full Primary	105	0	0%	0%	0%	0%	-	-	-	-	-
St Pius X School (Glen Innes)	Full Primary	114	0	0%	0%	0%	0%	1%	-	-	-	-
Stanhope Road Primary	Full Primary	209	0	0%	1%	<1%	0%	<1%	-	-	-	-
Sylvia Park School	Full Primary	261	0	0%	0%	0%	-	0%	-	-	-	-
Total		3874	39	1%	1%	1%	0%	-	-	-	-	-

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



Table 9.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among secondary schools (4 per cent).

**Table 9.2: Summary Table of School Bike Count by School Type
2007 – 2015 (%)**

<i>Year Levels</i>	<i>Number of Schools Responded in 2015</i>	<i>Cyclists as share of those eligible</i>									
		<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>Change 14-15</i>
Secondary	1	-	-	-	-	-	-	1%	2%	4%	2%
Full Primary	14	-	-	-	-	<1%	0%	<1%	<1%	<1%	0%
Intermediate	-	3%	0%	1%	0%	1%	0%	1%	2%	-	-
Composite	-	-	-	-	-	0%	0%	0%	1%	-	-
Intermediate/Secondary	-	-	-	-	-	-	-	-	-	-	-



9.3 Scooter Count Background Information

- A total of 14 schools in the Maungakiekie-Tamaki ward participated in the school bike shed scooter count. Of the schools that responded to the survey, most do not have policies that restrict students scooting to school¹³.
- No schools reported any events or issues that may affect scooter counts.
- Although the designated count day was Tuesday 3rd of March 2015, nine schools in the Maungakiekie-Tamaki ward completed their count on an alternative day¹⁴.

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

9.4 Scooter Count Key Points

- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scooting to their schools. This is unchanged from 2014.
- Tamaki Primary School reported the highest share of scooters with 2 per cent of all eligible students currently scooting to school.
- In total, n=10 students from the responding schools were reported to be scooting to school.
- Of the 14 schools that responded, 10 (71 per cent) had no students scooting to school.

¹³ The following school had policies surrounding the riding of bicycles to school:

- Sylvia Park School “Children will be able to ride bicycles or scooters from 8 years upwards unless accompanied by parents.”

¹⁴ The following schools undertook counts on alternative days:

- Bailey Road School – 4th March 2015
- Golden Grove School – 6th March 2015
- Panmure District School – 19th March 2015
- Ruapotaka School – 26th February 2015
- St Mary’s School (Ellerslie) – 5th March 2015
- St Patrick’s School (Panmure) – 27th February 2015
- St Pius X School (Glen Innes) – 5th March 2015
- Stanhope Road School – 5th March 2015
- Tamaki Primary School – 5th March 2015



Table 9.3 shows the results of the 14 schools surveyed in the Maungakiekie-Tamaki ward.

**Table 9.3: Summary Table of School Scooter Count
2014 – 2015 (n)**

School Name	School Type	School Roll Eligible To Scooter	No. of Scooters Counted	Scooters as share of those eligible ¹⁵	
				2015	2014
Tamaki Primary School	Full Primary	255	4	2%	2%
Stanhope Road Primary	Full Primary	462	3	1%	0%
Ellerslie School	Full Primary	586	1	<1%	0%
Sylvia Park School	Full Primary	461	2	<1%	<1%
Bailey Road School	Full Primary	435	0	0%	0%
Golden Grove School	Full Primary	40	0	0%	0%
Panmure Bridge School	Full Primary	210	0	0%	0%
Panmure District School	Full Primary	130	0	0%	0%
Pt England School	Full Primary	598	0	0%	0%
Ruapotaka School	Full Primary	175	0	0%	0%
St Joseph's School (Onehunga)	Full Primary	252	0	0%	0%
St Mary's School (Ellerslie)	Full Primary	350	0	0%	-
St Patrick's School (Panmure)	Full Primary	105	0	0%	0%
St Pius X School (Glen Innes)	Full Primary	114	0	0%	0%
Total		4173	10	<1%	<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 9.4 illustrates the rates of scooting to school at different school levels.

**Table 9.4: Summary Table of School Scooter Count by School Type
2007 – 2015 (%)**

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



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 AADT¹⁶ in the Auckland region from any Gravitax 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:

$\Sigma H_{AM} = 30\%$; $\Sigma H_{PM} = 33.3\%$; (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 $3.06 \times 102 = 312$.
- The AADT from the afternoon survey is estimated as $2.78 \times 130 = 359$.
- The average of these two estimates is 335; this is the estimate of AADT for this site, based on the two surveys.



Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%