

# 2014 Auckland Region Manual Cycle Monitor

- Howick Ward -





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**APPENDICES**

Appendix One: Annual Average Daily Traffic (AADT) Calculation



# 1. HOWICK WARD SUMMARY OF RESULTS

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## 1.1 Introduction

### *The Need For Reliable Cycle Trip Data*

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

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

### *Manual Cycle Monitoring*

Historically, manual cycle monitoring had been carried out in four of the seven Auckland region Territorial Authorities (TAs). However, each monitor had been undertaken using a different methodology<sup>2</sup>. 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.

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<sup>1</sup> Auckland Regional Transport Authority (2006) *Regional Cycle Monitoring Plan (Provisional Guidelines)*

<sup>2</sup> 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:

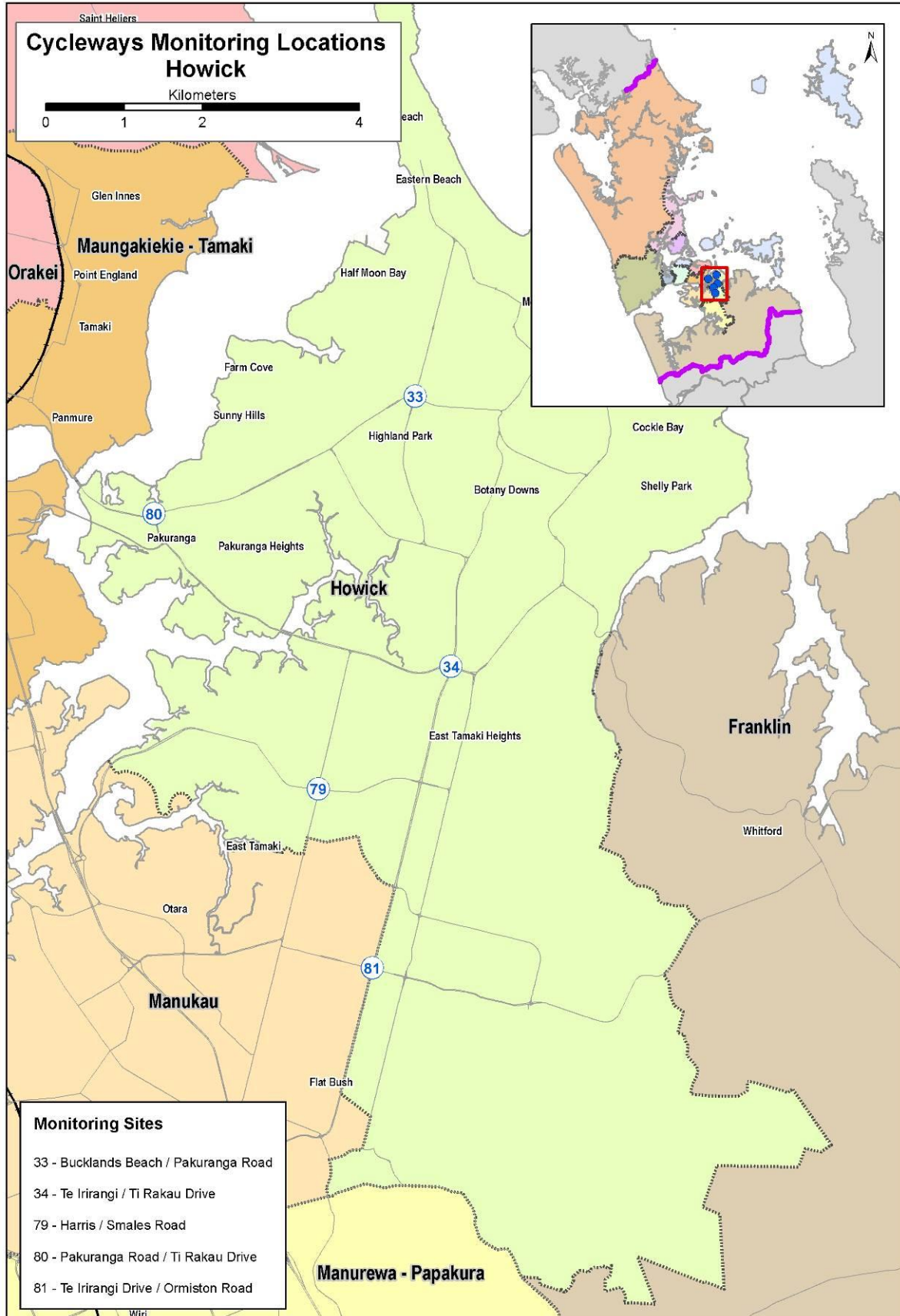
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 five sites (and one ferry terminal) in the Howick 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 five pre-determined sites in the Howick 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 Howick ward. Note that one site (Te Irirangi Drive/Ormiston Road in Flat Bush – Site 81) lies on the border with the Manukau ward and consequently has been included in both ward reports.

Figure 1.1: 2014 Cycle Monitoring Locations in Howick 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 4<sup>th</sup> of March and be conducted on the first three fine days of the 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup>, 12<sup>th</sup> or 13<sup>th</sup> of March.

Counts were conducted on the following days:

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

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

### *Weather and Daylight Conditions*

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





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

#### **Tuesday 4<sup>th</sup> March**

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

#### **Wednesday 5<sup>th</sup> March**

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

#### **Thursday 6<sup>th</sup> March**

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

### ***Conducting The Manual Counts***

#### ***Scoping Visit***

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

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

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



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

### *Briefing Session*

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

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

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

### *Conducting The Manual Counts*

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

During their shift the surveyor collected data on:

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

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<sup>3</sup> 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.

<sup>4</sup> 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.

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



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

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

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

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

### ***Data Analysis***

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

### ***Annual Average Daily Traffic (AADT) Analysis***

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

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

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

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



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

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

### **School Bike Shed Counts**

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

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

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

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

### **Methodology**

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

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

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



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

2. This email was then sent to all eligible schools in Auckland region (n=306) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.
3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 4<sup>th</sup> March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).
4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2014, 264 responses were received, a response rate of 88 per cent. (This compares with 92 per cent in 2013).

### **Reporting**

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

#### *Manual Counts - Site Level Reporting*

The following results have been reported for each site:

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

#### *Manual Counts - Aggregated Reporting*

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



### *Bike Shed Counts*

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

## **1.3 Summary of Results**

This summary contains the aggregated results of the five sites surveyed in the Howick 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 Howick 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 Six of this report.

Note: Surveying in the Franklin ward was undertaken on Wednesday 5<sup>th</sup> of March, 2014. Sunrise was at 7:10am and sunset was at 7:55pm. The highest temperature was 20 degrees Celsius.



## 1.4 Morning Peak

### Environmental Conditions

- All sites in the Howick ward experienced cloudy and windy weather in the morning peak.
- There were no road works or accidents that may affect cycle counts in the morning.

### Key Points

- Across the five sites monitored in the Howick ward, the number of cyclist movements has decreased by 24 per cent (137 movements, compared with 180 in 2013).
- The average volume of morning cyclists across the five sites monitored was 27 cycle movements, down from 36 cycle movements in 2013.
- No morning cyclists were riding in groups. This result is consistent with previous year’s results.
- The busiest site in the morning peak was the intersection of Ti Rakau Drive/Pakuranga Road (39 movements, down from 55 movements last year), whereas the site at Te Irirangi Drive/Ormiston Road had the lowest level of morning cyclist traffic (15 cycle movements).
- Two sites have experienced increases over the last 12 months. They were the Harris/Smales Road intersection and the Bucklands Beach/Pakuranga Road intersection (up 22 per cent and 19 per cent respectively).
- In contrast, the other three sites recorded decreases in cycle volumes since the last monitor, most notable at the Te Irirangi Drive/Ti Rakau Drive intersection and the Te Irirangi Drive/Ormiston Road intersection (down 54 per cent and 52 per cent respectively).

**Table 1.1: Summary of Morning Cyclist Movements  
2007 – 2014 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14	Change 07-14
33	Bucklands Beach/Pakuranga Road	68	53	51	45	43	40	26	31	19%	-54%
34	Te Irirangi Drive/Ti Rakau Drive	36	36	30	30	37	30	41	19	-54%	-47%
	<b>Average per site (for 2 sites since 2007)</b>	<b>52</b>	<b>45</b>	<b>41</b>	<b>37</b>	<b>40</b>	<b>35</b>	<b>34</b>	<b>25</b>	<b>-26%</b>	<b>-52%</b>
	<b>Total (for 2 sites since 2007)</b>	<b>104</b>	<b>89</b>	<b>81</b>	<b>75</b>	<b>80</b>	<b>70</b>	<b>67</b>	<b>50</b>	<b>-25%</b>	<b>-52%</b>
80	Pakuranga Road/Ti Rakau Drive	-	-	46	70	59	51	55	39	-29%	-
79	Harris/Smales Road	-	-	35	25	35	20	27	33	22%	-
81	Te Irirangi Drive/Ormiston Road	-	-	13	25	24	18	31	15	-52%	-
	<b>Average per site (all sites)</b>	<b>-</b>	<b>-</b>	<b>35</b>	<b>39</b>	<b>40</b>	<b>32</b>	<b>36</b>	<b>27</b>	<b>-25%</b>	<b>-</b>
	<b>Total (all sites)</b>	<b>-</b>	<b>-</b>	<b>175</b>	<b>195</b>	<b>198</b>	<b>159</b>	<b>180</b>	<b>137</b>	<b>-24%</b>	<b>-</b>



- The majority of morning cyclists were adults (87 per cent, down slightly from 92 per cent last year).
- Helmet-wearing continued to be widespread (88 per cent, down slightly by 3 percentage points from last year).
- Eighty-eight per cent of the morning cyclists were males (up from 81 per cent in 2013).
- The share of cyclists using the footpath was 43 per cent, while the remaining 57 per cent rode on the road.

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

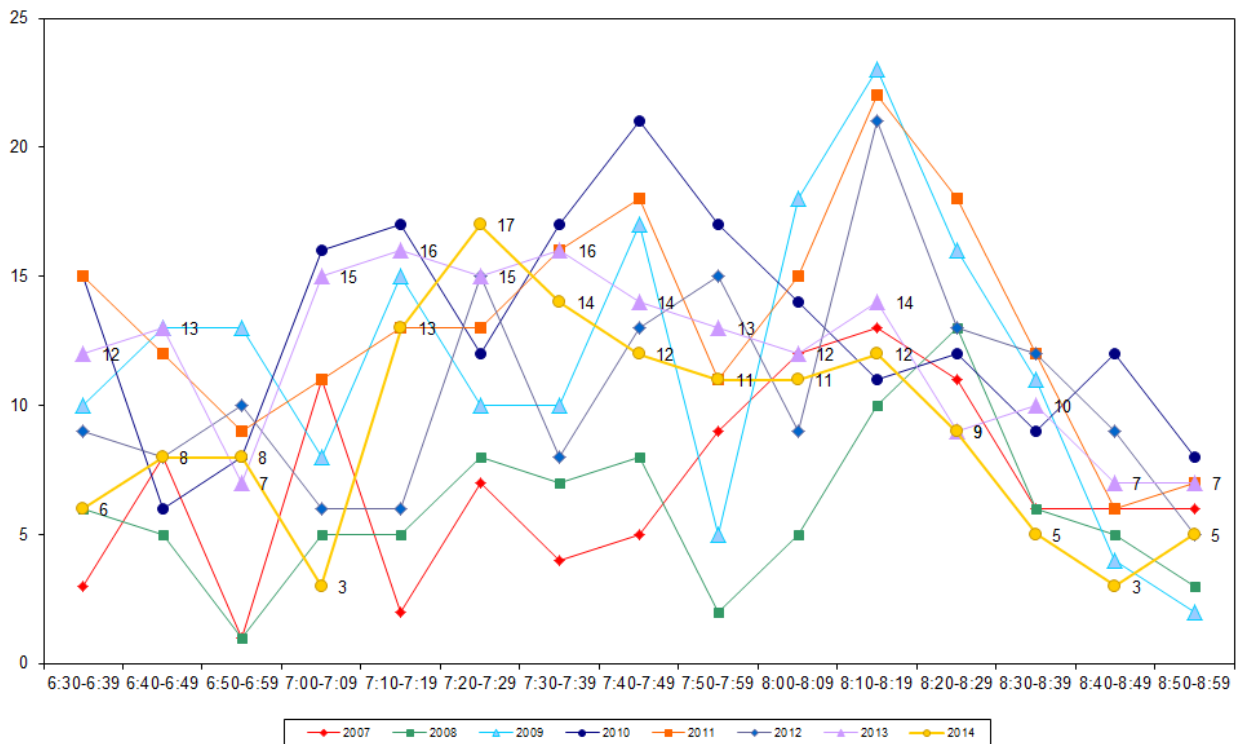
	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	62	73	76	85	84	81	92	<b>87</b>	<b>-5</b>
School child	38	27	24	15	16	19	8	<b>13</b>	<b>5</b>
<b>Helmet Wearing</b>									
Helmet on head	80	92	90	93	95	90	91	<b>88</b>	<b>-3</b>
No helmet	20	8	10	7	5	10	9	<b>12</b>	<b>3</b>
<b>Gender</b>									
Male	-	-	-	-	89	88	81	<b>88</b>	<b>7</b>
Female	-	-	-	-	7	8	11	<b>8</b>	<b>-3</b>
Can't tell	-	-	-	-	4	4	8	<b>4</b>	<b>-4</b>
<b>Where Riding</b>									
Road	42	65	58	68	63	58	69	<b>57</b>	<b>-12</b>
Footpath	58	35	42	32	37	42	31	<b>43</b>	<b>12</b>
<b>Base:</b>	<b>104</b>	<b>89</b>	<b>175</b>	<b>195</b>	<b>198</b>	<b>159</b>	<b>180</b>	<b>137</b>	





- Figure 1.2 illustrates the total number of cycle movements in the morning peak by time of movement. In general, it followed last year's pattern but with a smaller volume. It started with less than 10 movements per 10-minute interval, then peaked with a total of 17 movements between 7:20am to 7:29am. From there, cycle volume gradually decreased until the end of the monitoring period.

**Figure 1.2: Total Cyclist Frequency – Morning Peak  
2007 – 2014 (n)**





## 1.5 Evening Peak

### Environmental Conditions

- All sites had fine and sunny weather in the evening peak.
- There were no road works or accidents that may affect cycle counts at all sites.

### Key Points

- Across the five sites monitored in the Howick ward, the number of evening cycle movements has decreased by 8 per cent, from 274 movements in 2013 to 251 movements this year.
- Twenty-four movements (10 per cent) were made by cyclists riding in groups. This compares with 22 movements (8 per cent) in 2013.
- The average volume of evening cyclists across all five sites was 50, down from 55 movements last year.
- The Pakuranga Road/Ti Rakau Drive intersection continues to be the busiest in terms of the evening cyclists' activity (79 cycle movements, unchanged from last year). The intersection of Harris/Smales Road has the lowest level of evening cyclist traffic (31 cycle movements, up from 30 movements last year).
- Two sites recorded increases in cycle movements over the last 12 months, the most noticeable being Bucklands Beach/Pakuranga Road (up 31 per cent).
- In contrast, two sites recorded decreases in cycle volume over the same period, the most noticeable being Te Irirangi/Ti Rakau Drive (down 45 per cent).

**Table 1.3: Summary of Evening Cyclist Movements  
2007 – 2014 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14	Change 07-14
33	Bucklands Beach/Pakuranga Road	72	77	43	69	64	45	45	59	31%	-18%
34	Te Irirangi Drive/Ti Rakau Drive	45	39	29	48	39	56	66	36	-45%	-20%
	<b>Average per site (for 2 sites since 2007)</b>	<b>59</b>	<b>58</b>	<b>36</b>	<b>59</b>	<b>52</b>	<b>51</b>	<b>56</b>	<b>48</b>	<b>-14%</b>	<b>-19%</b>
	<b>Total (for 2 sites since 2007)</b>	<b>117</b>	<b>116</b>	<b>72</b>	<b>117</b>	<b>103</b>	<b>101</b>	<b>111</b>	<b>95</b>	<b>-14%</b>	<b>-19%</b>
80	Pakuranga Road/Ti Rakau Drive	-	-	77	92	65	76	79	79	0%	-
81	Te Irirangi Drive/Ormiston Road	-	-	20	41	32	32	54	46	-15%	-
79	Harris/Smales Road	-	-	25	37	40	24	30	31	3%	-
	<b>Average per site (all sites)</b>	<b>-</b>	<b>-</b>	<b>39</b>	<b>57</b>	<b>48</b>	<b>47</b>	<b>55</b>	<b>50</b>	<b>-9%</b>	<b>-</b>
	<b>Total (all sites)</b>	<b>-</b>	<b>-</b>	<b>194</b>	<b>287</b>	<b>240</b>	<b>233</b>	<b>274</b>	<b>251</b>	<b>-8%</b>	<b>-</b>



- Evening cyclist characteristics this year showed that the majority of evening cyclists in this ward were adults (83 per cent, down from 92 per cent last year).
- Eighty-nine per cent of the cyclists were wearing a helmet (down slightly from 93 per cent in 2013)
- Most evening peak cyclists were male (83 per cent, stable from last year).
- Riding on the road continued to be the most common (70 per cent, stable from last year).

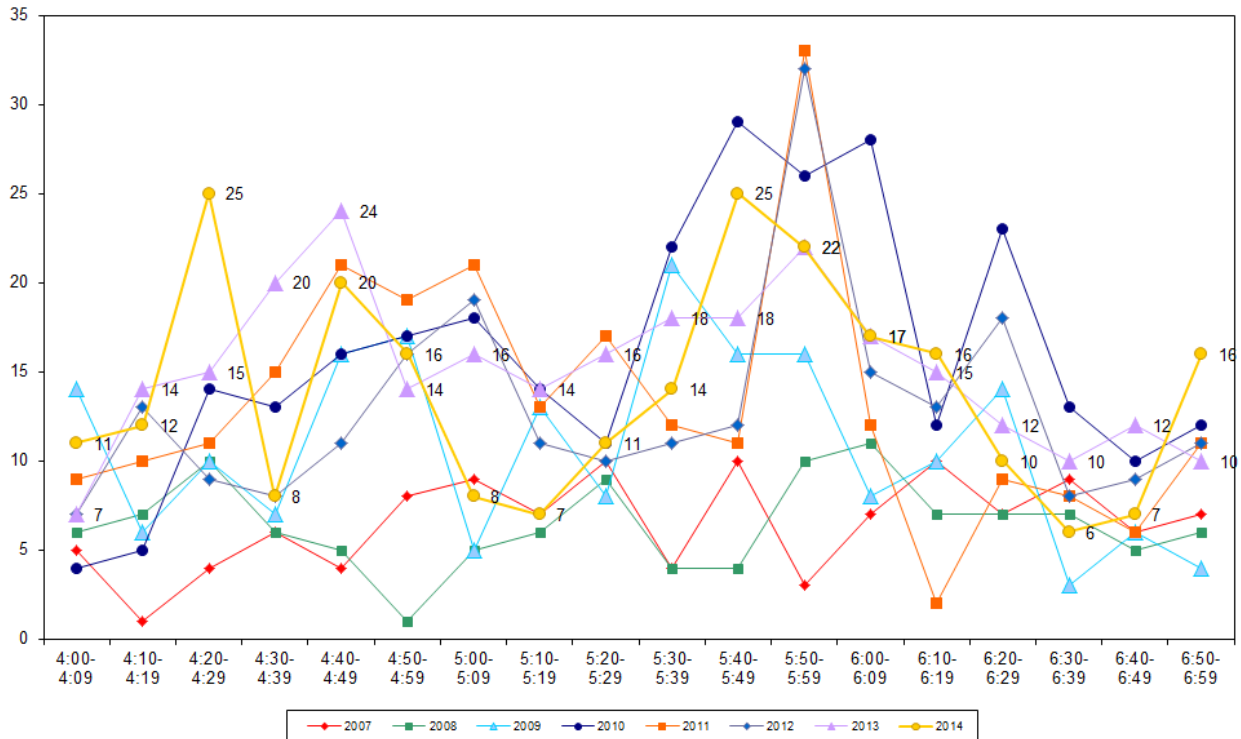
**Table 1.4: Summary of Evening Cyclist Characteristics  
2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	84	75	93	85	89	95	92	<b>83</b>	<b>-9</b>
School child	16	25	7	15	11	5	8	<b>17</b>	<b>9</b>
<b>Helmet Wearing</b>									
Helmet on head	75	79	89	90	89	92	93	<b>89</b>	<b>-4</b>
No helmet	25	21	11	10	11	8	7	<b>10</b>	<b>3</b>
Can't tell	-	-	-	-	-	-	0	<b>1</b>	<b>1</b>
<b>Gender</b>									
Male	-	-	-	-	90	86	85	<b>83</b>	<b>-2</b>
Female	-	-	-	-	5	8	8	<b>12</b>	<b>4</b>
Can't tell	-	-	-	-	5	6	7	<b>5</b>	<b>-2</b>
<b>Where Riding</b>									
Road	46	54	65	72	65	64	71	<b>70</b>	<b>-1</b>
Footpath	54	46	35	28	35	36	29	<b>30</b>	<b>1</b>
<b>Base:</b>	<b>117</b>	<b>116</b>	<b>194</b>	<b>287</b>	<b>240</b>	<b>233</b>	<b>274</b>	<b>251</b>	



- The overall pattern of cyclist volumes by time of movement in the evening is illustrated in Figure 1.3. Evening cyclist volumes peaked twice during the observation period, once between 4:20pm and 4:29pm (25 movements) and again between 5:40pm and 5:49pm (25 movements). Both peaks occurred slightly earlier than last year's corresponding peaks.

**Figure 1.3: Total Cyclist Frequency – Evening Peak**  
2007 – 2014 (n)





## 1.6 Aggregate Total

- A total of 388 cyclist movements were recorded across the five sites in 2014. This result is down from 454 movements in 2013, a 15 per cent decrease.
- Six per cent (n=24) of the total movements were made by pelotons. This compares with five per cent (n=22) in 2013.
- The average number of movements per site was down from 91 last year to 78 this year.
- The busiest site continued to be the intersection of Pakuranga Road and Ti Rakau Drive, with a total of 118 movements (down from 134 movements in 2013), while Te Irirangi Drive/Ti Rakau Drive had the lowest number of cyclist volumes (55 movements, down significantly from 107 movements last year).
- Two sites recorded increases this year, with the most notable being Bucklands Beach/Pakuranga Road (up 27 per cent from 2013).
- In contrast, the remaining three sites registered decreases in total cycle counts, with the most notable being Te Irirangi Drive/Ti Rakau Drive (down 49 per cent from 2013).

**Table 1.5: Summary of Total Cyclist Movements  
2007 – 2014 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14	Change 07-14
33	Bucklands Beach/Pakuranga Road	140	130	94	114	107	85	71	<b>90</b>	<b>27%</b>	<b>-36%</b>
34	Te Irirangi Drive/Ti Rakau Drive	81	75	59	78	76	86	107	<b>55</b>	<b>-49%</b>	<b>-32%</b>
	<b>Average per site ( for 2 sites since 2007)</b>	<b>111</b>	<b>103</b>	<b>77</b>	<b>96</b>	<b>92</b>	<b>86</b>	<b>89</b>	<b>73</b>	<b>-18%</b>	<b>-34%</b>
	<b>Total (for 2 sites since 2007)</b>	<b>221</b>	<b>205</b>	<b>153</b>	<b>192</b>	<b>183</b>	<b>171</b>	<b>178</b>	<b>145</b>	<b>-19%</b>	<b>-34%</b>
80	Pakuranga Road/Ti Rakau Drive	-	-	123	162	124	127	134	<b>118</b>	<b>-12%</b>	-
79	Harris/Smales Road	-	-	60	62	75	44	57	<b>64</b>	<b>12%</b>	-
81	Te Irirangi Drive/Ormiston Road	-	-	33	66	56	50	85	<b>61</b>	<b>-28%</b>	-
	<b>Average per site (all sites)</b>	-	-	<b>74</b>	<b>96</b>	<b>88</b>	<b>78</b>	<b>91</b>	<b>78</b>	<b>-14%</b>	-
	<b>Total (all sites)</b>	-	-	<b>369</b>	<b>482</b>	<b>438</b>	<b>392</b>	<b>454</b>	<b>388</b>	<b>-15%</b>	-



- Overall cyclist characteristics are illustrated in Table 1.6. In total, 85 per cent of cyclists were adults (down from 92 per cent in 2013). The share of school child cyclists has increased from 8 per cent to 15 per cent this year.
- Most cyclists were wearing a helmet (88 per cent, down slightly from last year).
- Almost all cyclists were male (85 per cent, stable from last year).
- Sixty-five per cent of cyclists were riding on the road (down slightly from 70 per cent in 2013).

**Table 1.6: Summary of Total Cyclist Characteristics  
2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	74	74	85	85	86	89	92	<b>85</b>	<b>-7</b>
School child	26	26	15	15	14	11	8	<b>15</b>	<b>7</b>
<b>Helmet Wearing</b>									
Helmet on head	77	85	89	91	91	91	92	<b>88</b>	<b>-4</b>
No helmet	23	15	11	9	9	9	8	<b>11</b>	<b>3</b>
Can't tell	-	-	-	-	-	-	0	<b>1</b>	<b>1</b>
<b>Gender</b>									
Male	-	-	-	-	89	87	83	<b>85</b>	<b>2</b>
Female	-	-	-	-	6	8	9	<b>10</b>	<b>1</b>
Can't tell	-	-	-	-	5	5	8	<b>5</b>	<b>-3</b>
<b>Where Riding</b>									
Road	44	59	62	70	64	61	70	<b>65</b>	<b>-5</b>
Footpath	56	41	38	30	36	39	30	<b>35</b>	<b>5</b>
<b>Base:</b>	<b>221</b>	<b>205</b>	<b>369</b>	<b>482</b>	<b>438</b>	<b>392</b>	<b>454</b>	<b>388</b>	



### 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.

#### AADT Estimate

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT was at Pakuranga Road/Ti Rakau Drive (168 daily movements) and the lowest is at Te Irirangi Drive/Ti Rakau Drive (79 daily movements).
- Bucklands Beach/Pakuranga Road intersection and Harris/Smales Road intersection were the two sites that recorded increases in cycle traffic this year (up 26 per cent and 12 per cent respectively).
- The other three sites all registered decreases in cycle traffic, most notable at Te Irirangi Drive/Ti Rakau Drive which had a 49 per cent decrease.

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

Site No.	Locations	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	2013 AADT	2014 AADT	Change 13-14	Change 07-14
80	Pakuranga Road/Ti Rakau Drive	-	-	176	234	180	183	193	<b>168</b>	<b>-13%</b>	-
33	Bucklands Beach/Pakuranga Road	203	187	137	164	154	123	102	<b>129</b>	<b>26%</b>	<b>-36%</b>
79	Harris/Smales Road	-	-	88	89	109	64	83	<b>93</b>	<b>12%</b>	-
81	Te Irirangi Drive/Ormiston Road	-	-	47	95	81	72	122	<b>86</b>	<b>-30%</b>	-
34	Te Irirangi Drive/Ti Rakau Drive	117	109	86	112	110	123	154	<b>79</b>	<b>-49%</b>	<b>-32%</b>



## 1.8 Ferry Wharf Bike Count Summary

### *Key Points*

No cycles were observed at the Half Moon Bay Ferry Wharf in the morning or in the evening.

## 1.9 School Bike Shed Count Summary

### *Cycle Counts*

- Among the surveyed schools, of those eligible to cycle to school, on average, one per cent of students are cycling to their schools, unchanged from 2011.
- Farm Cove Intermediate reported the highest share of cyclists – 9 per cent of all eligible students currently cycling to school, up from 5 per cent last year.
- In total, n=184 students from the responding schools were reported to be cycling to school.
- Of the 13 schools that responded, 2 (15 per cent) had no students cycling to school.
- Rates of cycling to school are highest for intermediate schools (5 per cent), up from 2 per cent in 2013.

### *Scooter Counts*

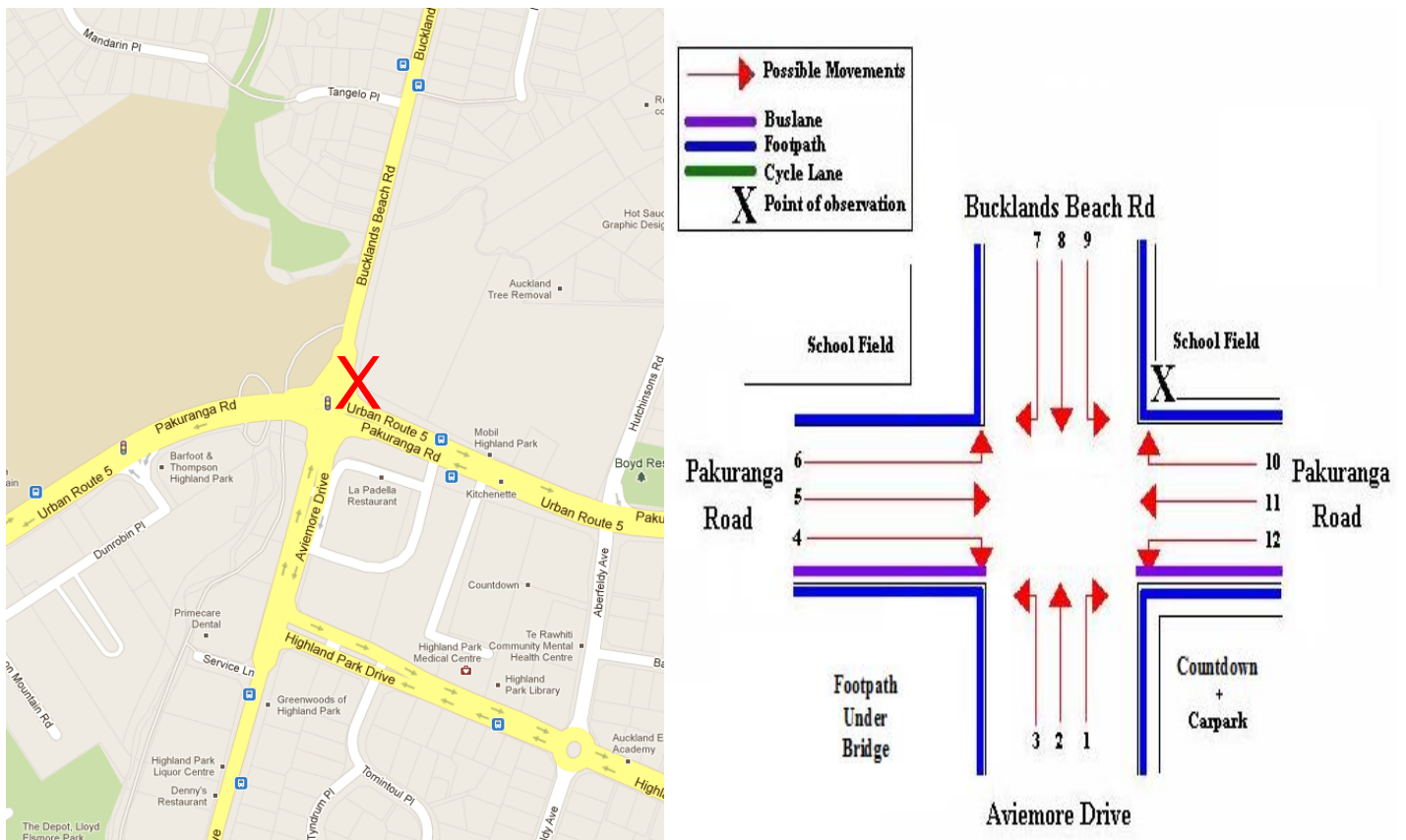
- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scootering to their schools.
- Elim Christian Character – Junior Campus reported the highest share of scooters – 5 per cent of all eligible students currently scootering to school.
- In total, n=48 students from the responding schools were reported to be scootering to school.
- Of the 12 schools that responded, 7 (58 per cent) had no students scootering to school.



## 2. BUCKLANDS BEACH ROAD/PAKURANGA ROAD, PAKURANGA (SITE 33)

Figure 2.1 shows the possible cyclist movements at this intersection.

**Figure 2.1: Cycle Movements: Bucklands Beach/Pakuranga Road**



### 2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	68	72	140	203
2008	53	77	130	187
2009	51	43	94	137
2010	45	69	114	164
2011	43	64	107	154
2012	40	45	85	123
2013	26	45	71	102
<b>2014</b>	<b>31</b>	<b>59</b>	<b>90</b>	<b>129</b>



## 2.2 Morning Peak

### Environmental Conditions

- The weather was cloudy throughout the morning shift with light drizzle recorded at the beginning of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### Key Points

- A total of 31 cyclist movements were recorded during the morning peak, five more than last year.
- The most common morning movement was straight along Pakuranga Road heading west (Movement 11 = 11 movements).
- The most noticeable decrease was reported for Movement 9 – turning left from Bucklands Beach Road into Pakuranga Road (down 4 movements) while the largest increase reported was for Movement 11 – riding straight along Pakuranga Road heading west (up 8 movements).

**Table 2.1: Morning Cyclist Movements**  
**Bucklands Beach/Pakuranga Road 2007 – 2014 (n)**

Movement	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
1	0	0	0	0	1	0	0	0	0
2	7	6	3	3	3	0	5	2	-3
3	15	8	12	6	4	9	3	5	2
4	1	0	2	4	1	0	3	1	-2
5	3	3	6	7	2	1	2	0	-2
6	2	3	2	2	2	1	0	1	1
7	5	3	2	4	6	5	1	6	5
8	5	8	9	3	8	7	4	4	0
9	5	3	1	2	1	4	4	0	-4
10	2	2	0	4	2	1	1	1	0
11	22	16	14	9	13	12	3	11	8
12	1	1	0	1	0	0	0	0	0
<b>Total</b>	<b>68</b>	<b>53</b>	<b>51</b>	<b>45</b>	<b>43</b>	<b>40</b>	<b>26</b>	<b>31</b>	<b>5</b>



- There has been a 29 percentage point change in the share of school children and adult cyclists since 2013. This year 48 per cent of cyclists were recorded as children.
- Most cyclists were wearing a helmet (84 per cent, stable from the previous year).
- The majority of the cyclists were male (80 per cent).
- The incidence of cyclists riding on the footpath has increased slightly (68 per cent, compared with 62 per cent last year).

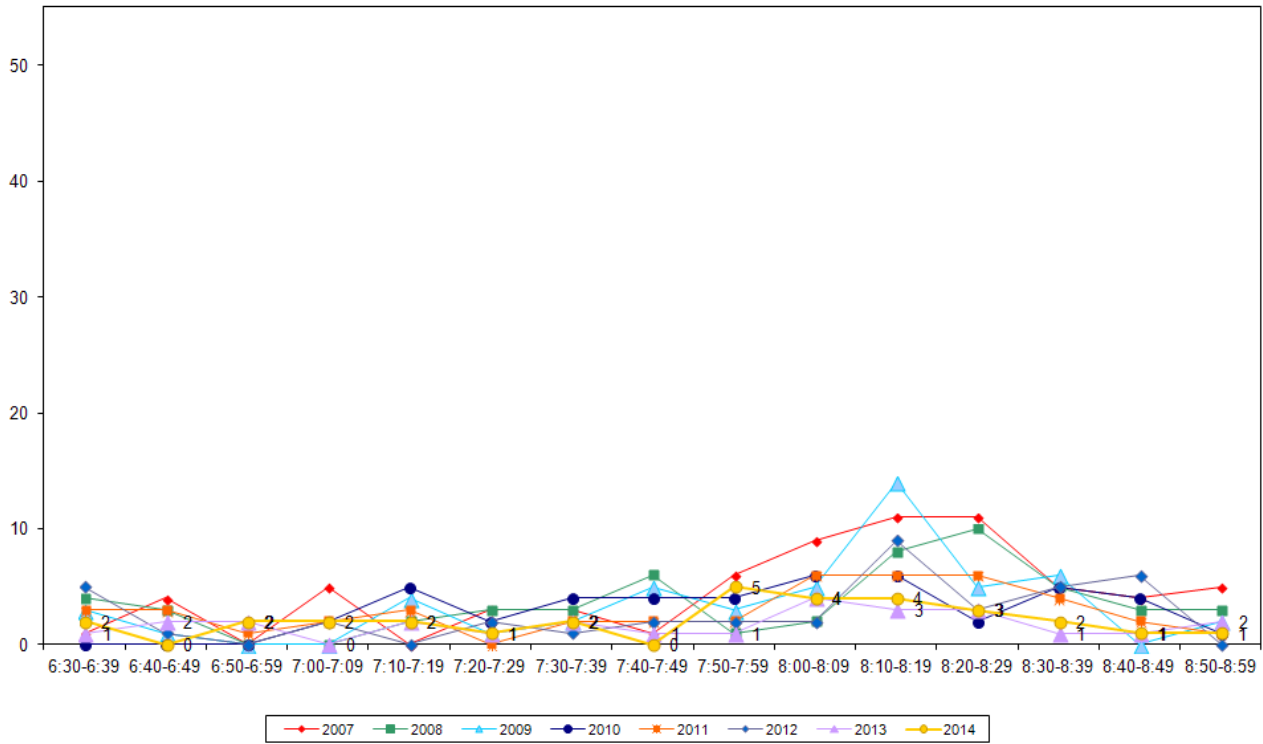
**Table 2.2: Morning Cyclist Characteristics  
Bucklands Beach/Pakuranga Road 2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	43	58	45	62	60	48	81	52	-29
School child	57	42	55	38	40	52	19	48	29
<b>Helmet Wearing</b>									
Helmet on head	75	91	90	87	88	85	85	84	-1
No helmet	25	9	10	13	12	15	15	16	1
<b>Gender</b>									
Male	-	-	-	-	86	95	81	80	-1
Female	-	-	-	-	5	0	15	10	-5
Can't tell	-	-	-	-	9	5	4	10	6
<b>Where Riding</b>									
Road	24	47	39	36	44	33	38	32	-6
Footpath	76	53	61	64	56	67	62	68	6
<b>Base:</b>	<b>68</b>	<b>53</b>	<b>51</b>	<b>45</b>	<b>43</b>	<b>40</b>	<b>26</b>	<b>31</b>	



- The volume of morning cyclist movements has been very low this year, with no ten-minute intervals having more than five cyclists riding past.

**Figure 2.2: Morning Peak Cyclist Frequency**  
**Buckland's Beach/Pakuranga Road 2007 – 2014 (n)**





## 2.3 Evening Peak

### Environmental Conditions

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

### Key Points

- A total of 59 cycle movements were recorded at this site in the evening, 14 more than last year.
- The most common movement in the evening was straight along Pakuranga Road heading east (Movement 5 = 12 movements).
- Across the 12 movements possible at this intersection, the most noticeable change has been at Movement 7 – riding from Bucklands Beach Road turning right onto Pakuranga Road (up 6 movements).

**Table 2.3: Evening Cyclist Movements  
Bucklands Beach/Pakuranga Road 2007 – 2014 (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>Change 13-14</i>
1	0	1	0	0	0	1	0	1	1
2	4	7	11	9	10	5	5	3	-2
3	4	8	2	1	3	3	4	3	-1
4	11	10	4	6	1	4	6	5	-1
5	10	9	7	11	14	4	8	12	4
6	7	6	2	7	2	4	4	5	1
7	11	9	5	2	3	5	4	10	6
8	7	7	6	12	14	11	4	9	5
9	4	4	1	6	7	2	2	1	-1
10	4	8	0	0	5	1	2	0	-2
11	10	6	4	14	4	5	6	8	2
12	0	2	1	1	1	0	0	0	0
Don't know	0	0	0	0	0	0	0	2	2
<b>Total</b>	<b>72</b>	<b>77</b>	<b>43</b>	<b>69</b>	<b>64</b>	<b>45</b>	<b>45</b>	<b>59</b>	<b>14</b>



- The share of cyclists who are adults has increased by 14 percentage points over the last 12 months to comprise 78 per cent of the evening cycle volume.
- Most cyclists at this site were wearing a helmet (88 per cent, stable from 87 per cent last year).
- The majority of cyclists were male (85 per cent, stable from 84 per cent last year).
- Compared with last year, the share of cyclists riding on the road has increased by 19 percentage points to 58 per cent.

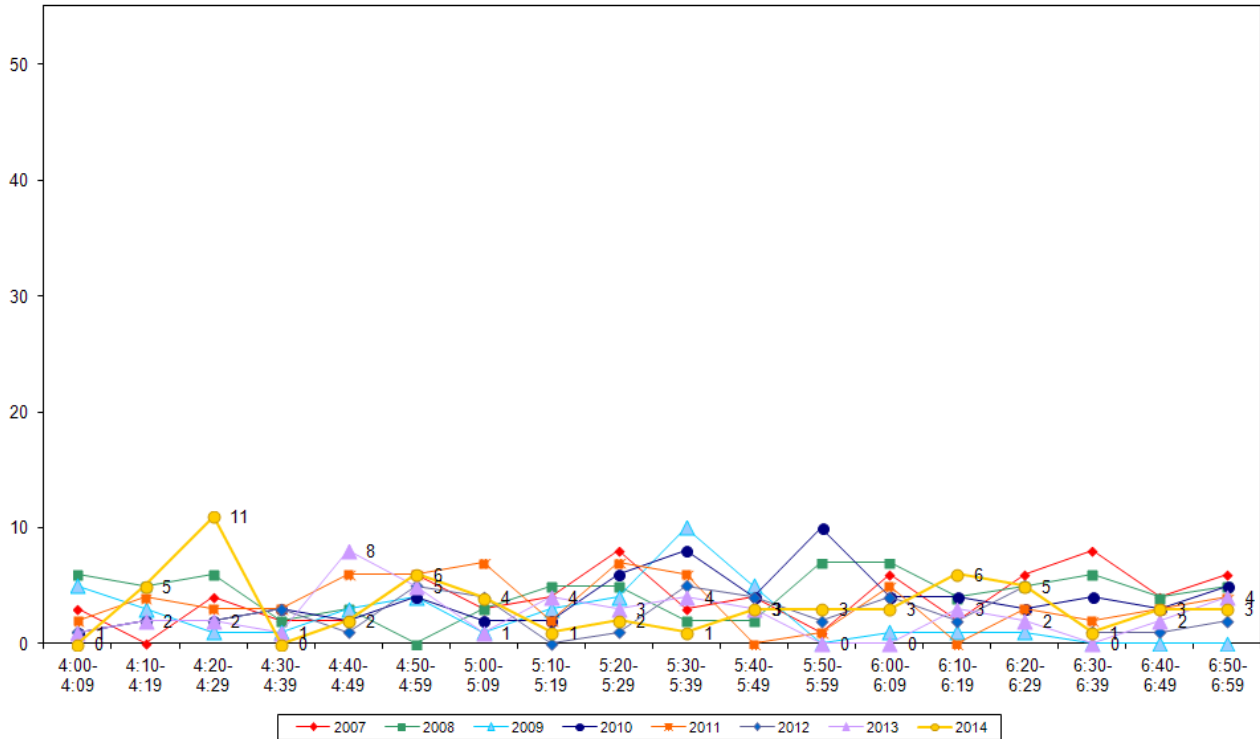
**Table 2.4: Evening Cyclist Characteristics**  
**Bucklands Beach/Pakuranga Road 2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	76	65	91	70	75	87	64	<b>78</b>	<b>14</b>
School child	24	35	9	30	25	13	36	<b>22</b>	<b>-14</b>
<b>Helmet Wearing</b>									
Helmet on head	68	77	86	81	83	89	87	<b>88</b>	<b>1</b>
No helmet	32	23	14	19	17	11	13	<b>12</b>	<b>-1</b>
<b>Gender</b>									
Male	-	-	-	-	88	89	84	<b>85</b>	<b>1</b>
Female	-	-	-	-	3	9	16	<b>12</b>	<b>-4</b>
Can't tell	-	-	-	-	9	2	0	<b>3</b>	<b>3</b>
<b>Where Riding</b>									
Road	38	44	53	64	58	58	39	<b>58</b>	<b>19</b>
Footpath	62	56	47	36	42	42	61	<b>42</b>	<b>-19</b>
<b>Base:</b>	<b>72</b>	<b>77</b>	<b>43</b>	<b>69</b>	<b>64</b>	<b>45</b>	<b>45</b>	<b>59</b>	



- This year, the number of cyclist movements varied over time, although no more than six cyclists were observed during most ten minute intervals. The exception to this occurred between 4:20pm to 4:29pm when a group of 9 cyclists was observed travelling through the site. This resulted in the evening peak of 11 cycle movements during this period.

**Figure 2.3: Evening Peak Cyclist Frequency  
Buckland's Beach/Pakuranga Road 2007 – 2014 (n)**



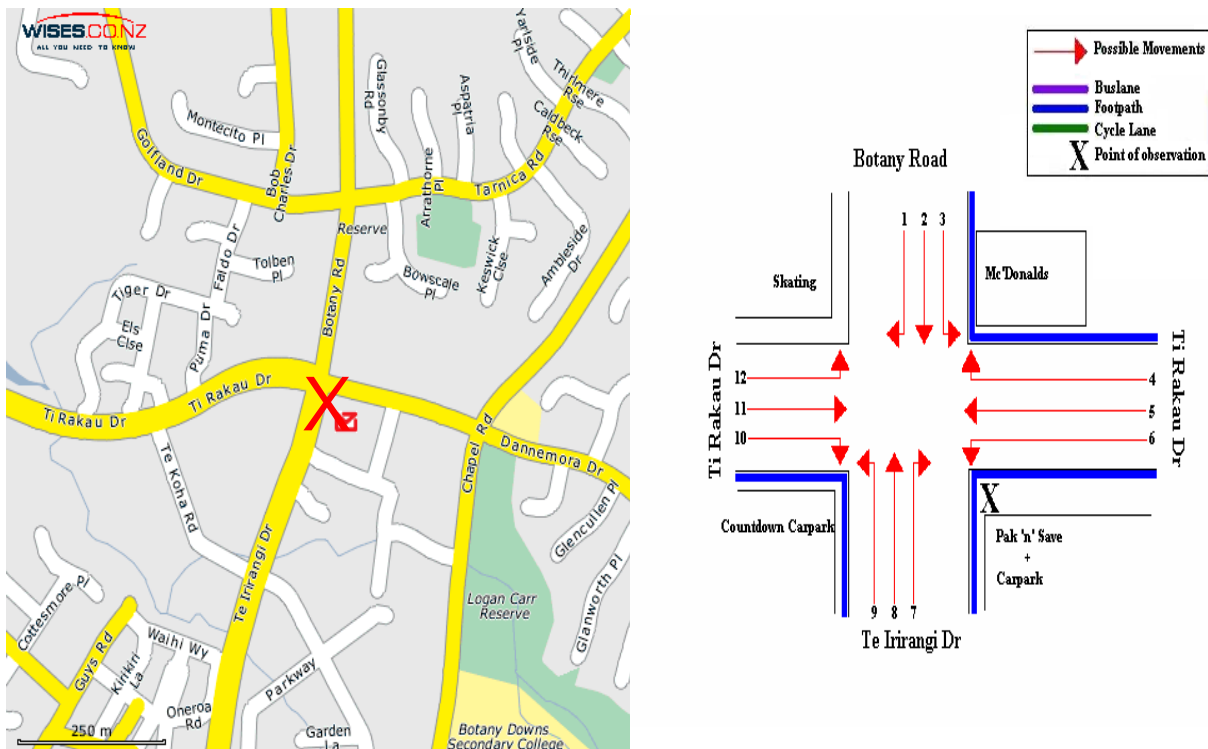
Note: In 2014, 20 per cent of the total cycle movements (n=59) in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- 9 cyclists at 4:27pm
- 3 cyclists at 4:59pm.

### 3. TE IRIRANGI DRIVE/TI RAKAU DRIVE, BOTANY DOWNS (SITE 34)

Figure 3.1 shows the possible cyclist movements at this intersection.

**Figure 3.1: Cycle Movements: Te Irirangi /Ti Rakau Drive**



#### 3.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	36	45	81	117
2008	36	39	75	109
2009	30	29	59	86
2010	30	48	78	112
2011	37	39	76	110
2012	30	56	86	123
2013	41	66	107	154
<b>2014</b>	<b>19</b>	<b>36</b>	<b>55</b>	<b>79</b>





## 3.2 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- The number of cyclist movements recorded at the Te Irirangi/Ti Rakau Drive intersection has decreased notably, from 41 movements in 2013 to 19 movements in 2014.
- The key movement in the morning was straight along Botany Road heading south (Movement 2 = 10 movements).
- The most noticeable changes occurred at Movement 11 (down 4 cyclists) and at Movement 1 (down 4 cyclists).

**Table 3.1: Morning Cyclist Movements**  
Te Irirangi /Ti Rakau Drive 2007 – 2014 (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>Change 13-14</i>
1	13	10	6	4	7	9	9	5	-4
2	8	12	13	12	14	11	13	10	-3
3	1	0	2	1	0	2	3	0	-3
4	0	0	0	0	1	0	2	0	-2
5	6	6	4	4	4	1	3	1	-2
6	1	0	0	0	2	1	0	0	0
7	1	0	0	1	1	0	0	0	0
8	4	3	2	1	3	2	1	0	-1
9	1	1	0	0	1	2	0	0	0
10	1	1	0	5	2	0	3	0	-3
11	0	2	3	1	1	2	6	2	-4
12	0	1	0	1	1	0	1	1	0
<b>Total</b>	<b>36</b>	<b>36</b>	<b>30</b>	<b>30</b>	<b>37</b>	<b>30</b>	<b>41</b>	<b>19</b>	<b>-22</b>



- Over the morning peak, most cyclists were adults (84 per cent, down slightly from the previous measure of 88 per cent).
- Almost all cyclists were wearing a helmet (95 per cent, stable from 93 per cent last year).
- Four in five cyclists were male (90 per cent, an increase from 71 per cent last year).
- The percentage of cyclists riding on the footpath has increased in comparison to last year, up 18 percentage points since 2013, to 42 per cent.

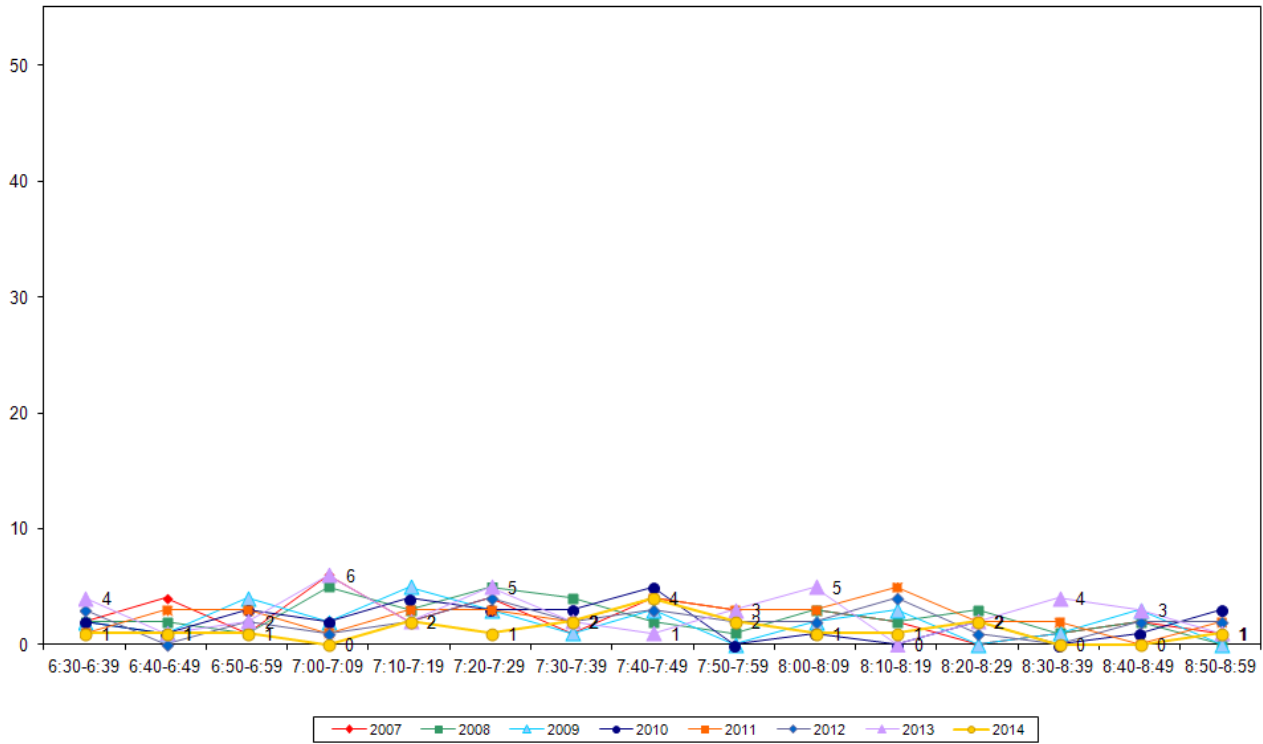
**Table 3.2: Morning Cyclist Characteristics  
Te Irirangi /Ti Rakau Drive 2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	97	94	93	87	89	87	88	<b>84</b>	<b>-4</b>
School child	3	6	7	13	11	13	12	<b>16</b>	<b>4</b>
<b>Helmet Wearing</b>									
Helmet on head	89	94	90	100	97	97	93	<b>95</b>	<b>2</b>
No helmet	11	6	10	0	3	3	7	<b>5</b>	<b>-2</b>
<b>Gender</b>									
Male	-	-	-	-	86	67	71	<b>90</b>	<b>19</b>
Female	-	-	-	-	14	20	12	<b>5</b>	<b>-7</b>
Can't tell	-	-	-	-	0	13	17	<b>5</b>	<b>-12</b>
<b>Where Riding</b>									
Road	58	75	70	83	68	63	76	<b>58</b>	<b>-18</b>
Footpath	42	25	30	17	32	37	24	<b>42</b>	<b>18</b>
<b>Base:</b>	<b>36</b>	<b>36</b>	<b>30</b>	<b>30</b>	<b>37</b>	<b>30</b>	<b>41</b>	<b>19</b>	



- Morning cycle volume was low throughout the monitoring period. The greatest number of cycle movements occurred between 7:40am and 7:49am (4 movements).

**Figure 3.2: Morning Peak Cyclist Frequency**  
**Te Irirangi /Ti Rakau Drive 2007 – 2014 (n)**





### 3.3 Evening Peak

#### Environmental Conditions

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

#### Key Points

- The total number of evening cyclist movements observed at the Te Irirangi/Ti Rakau Drive intersection has decreased notably, from 66 movements in 2013 to 36 movements this year.
- The most common evening movement was travelling along Ti Rakau Drive from the east and turning left onto Te Irirangi Drive (Movement 6 = 12 movements).
- Movement 8 experienced the greatest change in cyclist volume when compared to last year’s counts, decreasing by 9 movements.

**Table 3.3: Evening Cyclist Movements**  
**Te Irirangi /Ti Rakau Drive 2007 – 2014 (n)**

<b>Movement</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
1	3	1	0	9	2	2	1	0	-1
2	11	3	4	2	5	6	12	5	-7
3	3	0	0	1	4	3	3	1	-2
4	5	1	0	2	0	4	5	0	-5
5	0	4	7	5	6	2	1	2	1
6	0	0	0	0	0	0	14	12	-2
7	1	2	0	2	6	3	2	1	-1
8	11	16	5	6	1	15	17	8	-9
9	0	0	0	1	0	3	1	0	-1
10	4	0	6	3	2	4	4	0	-4
11	3	7	5	10	12	2	2	3	1
12	4	5	2	7	1	12	4	4	0
<b>Total</b>	<b>45</b>	<b>39</b>	<b>29</b>	<b>48</b>	<b>39</b>	<b>56</b>	<b>66</b>	<b>36</b>	<b>-30</b>



- All cyclists using this intersection during the evening period were adults.
- Almost all cyclists at this site were wearing a helmet (94 per cent, down slightly from 98 per cent 2013).
- Eighty-eight per cent of the cyclists were male (up 20 percentage points from 2013).
- The majority of the cyclists were riding on the road (69 per cent, a 19 percentage point decrease from last year).

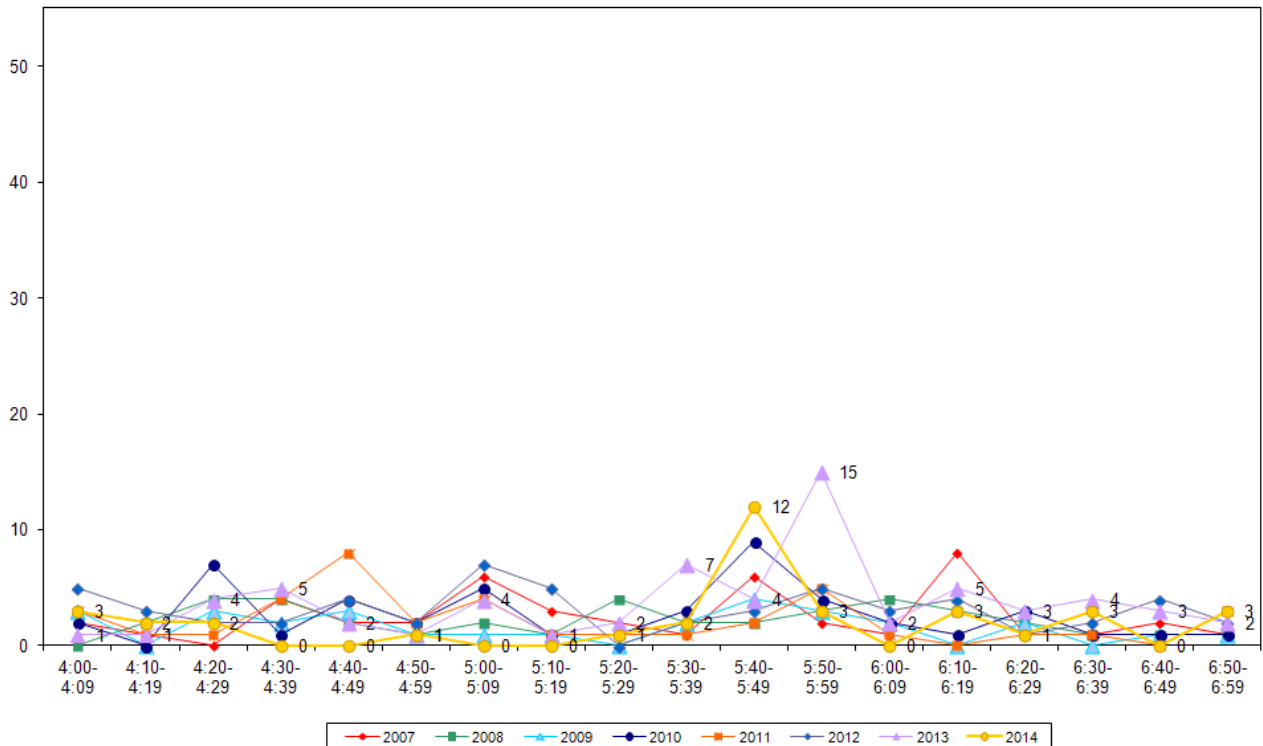
**Table 3.4: Evening Cyclist Characteristics  
Te Irirangi /Ti Rakau Drive 2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	98	95	90	81	95	98	100	<b>100</b>	<b>0</b>
School child	2	5	10	19	5	2	0	<b>0</b>	<b>0</b>
<b>Helmet Wearing</b>									
Helmet on head	87	82	97	94	97	98	98	<b>94</b>	<b>-4</b>
No helmet	13	18	3	6	3	2	2	<b>6</b>	<b>4</b>
<b>Gender</b>									
Male	-	-	-	-	92	68	68	<b>88</b>	<b>20</b>
Female	-	-	-	-	8	11	6	<b>6</b>	<b>0</b>
Can't tell	-	-	-	-	0	21	26	<b>6</b>	<b>-20</b>
<b>Where Riding</b>									
Road	58	59	59	69	69	66	88	<b>69</b>	<b>-19</b>
Footpath	42	41	41	31	31	34	12	<b>31</b>	<b>19</b>
<b>Base:</b>	<b>45</b>	<b>39</b>	<b>29</b>	<b>48</b>	<b>39</b>	<b>56</b>	<b>66</b>	<b>36</b>	



- The volume of cyclist movements in the evening was generally low throughout the entire monitoring period. However, a sharp peak was observed between 5:40pm and 5:49pm (12 movements).

**Figure 3.3: Evening Peak Cyclist Frequency**  
**Te Irirangi/Ti Rakau Drive 2007 – 2014 (n)**

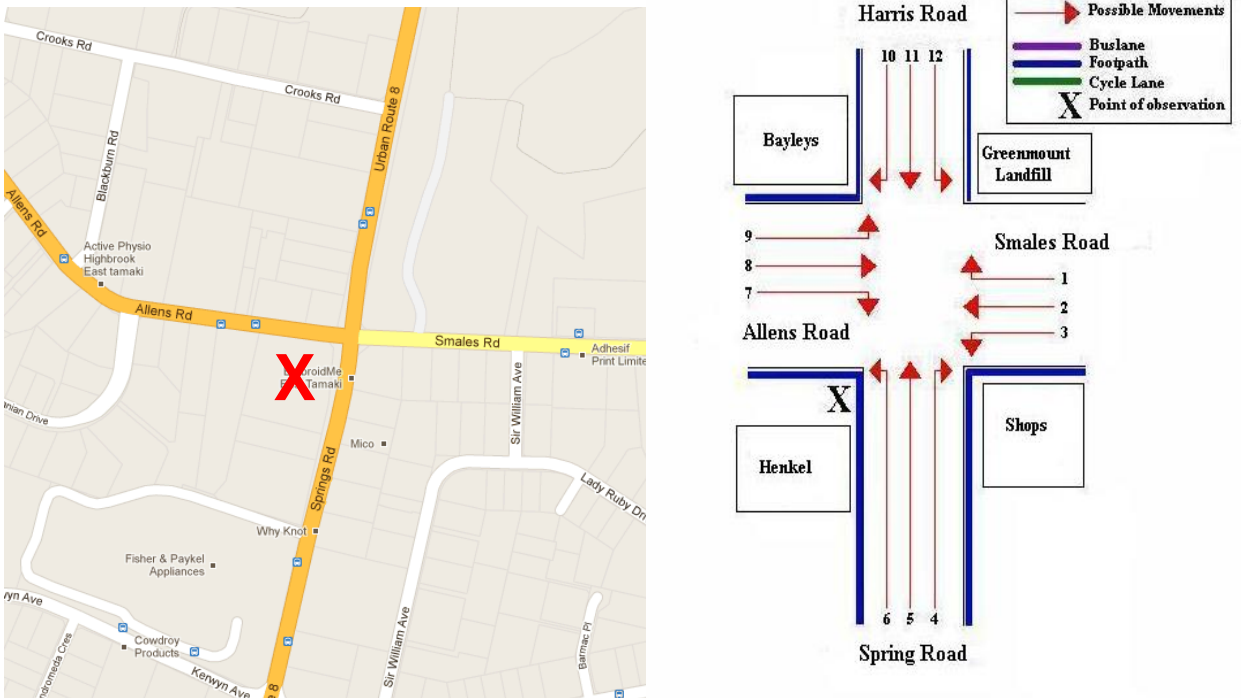


*Note: In 2014, 12 cyclists (33 per cent of all evening peak cycle movements at this site) were observed riding together at 5:48pm.*

# 4. HARRIS/SMALES ROAD, EAST TAMAKI (SITE 79)

Figure 4.1 shows the possible cyclist movements at this intersection.

**Figure 4.1: Cycle Movements: Harris/Smales Road**



## 4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2009	35	25	60	88
2010	25	37	62	89
2011	35	40	75	109
2012	20	24	44	64
2013	27	30	57	83
<b>2014</b>	<b>33</b>	<b>31</b>	<b>64</b>	<b>93</b>



## 4.2 Morning Peak

### Environmental Conditions

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

### Key Points

- Cycle volumes at the Harris Road/Smales Road site over the morning monitoring period increased from last year (33 movements, up from 27 in 2013).
- The key movement in the morning was heading west on Smales Road straight onto Allens Road (Movement 2 = 7 movements).
- The most noticeable change in cycle traffic occurred at Movement 7 – turning right from Allens Road onto Spring Road (up 5 movements).

**Table 4.1: Morning Cyclist Movements  
Harris/Smales Road 2009 – 2014 (n)**

<b>Movement</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
1	2	0	0	1	1	5	4
2	8	5	7	5	8	7	-1
3	3	2	4	2	2	4	2
4	1	0	0	0	0	0	0
5	9	2	3	3	1	3	2
6	1	3	5	1	1	2	1
7	0	2	2	0	1	6	5
8	0	0	0	0	4	0	-4
9	2	1	1	0	0	0	0
10	2	2	4	1	1	0	-1
11	4	6	5	4	7	6	-1
12	3	2	4	3	1	0	-1
<b>Total</b>	<b>35</b>	<b>25</b>	<b>35</b>	<b>20</b>	<b>27</b>	<b>33</b>	<b>6</b>





- Over the morning peak, all cyclists riding through the Harris/Smales Road intersection were adults (unchange since 2010).
- Most cyclists were wearing a helmet (85 per cent, down from 96 per cent last year).
- Almost all cyclists were male (91 per cent).
- Approximately half of all cyclists at this site were recorded as riding on the footpath (52 per cent, up from 26 per cent in 2013).

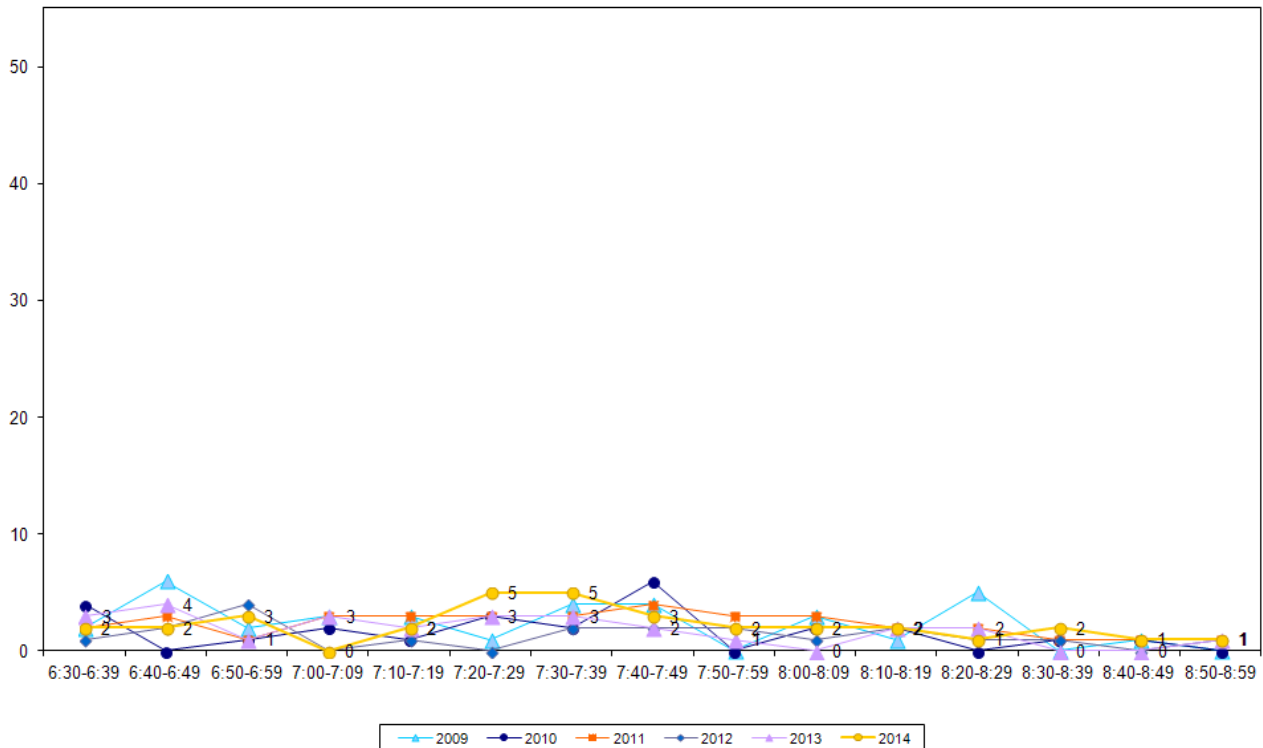
**Table 4.2: Morning Cyclist Characteristics  
Harris/Smales Road 2009 – 2014 (%)**

	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>							
Adult	97	100	100	100	100	<b>100</b>	<b>0</b>
School child	3	0	0	0	0	<b>0</b>	<b>0</b>
<b>Helmet Wearing</b>							
Helmet on head	83	88	89	90	96	<b>85</b>	<b>-11</b>
No helmet	17	12	11	10	4	<b>15</b>	<b>11</b>
<b>Gender</b>							
Male	-	-	91	100	100	<b>91</b>	<b>-9</b>
Female	-	-	0	0	0	<b>9</b>	<b>9</b>
Can't tell	-	-	9	0	0	<b>0</b>	<b>0</b>
<b>Where Riding</b>							
Road	51	64	51	70	74	<b>48</b>	<b>-26</b>
Footpath	49	36	49	30	26	<b>52</b>	<b>26</b>
<b>Base:</b>	<b>35</b>	<b>25</b>	<b>35</b>	<b>20</b>	<b>27</b>	<b>33</b>	



- The volume of morning cyclist movements has remained low, with no ten-minute intervals having more than five cyclists riding past. A small increase of cycle traffic was observed between 7:20am and 7:39am with 5 cyclists observed within each 10 minute interval during this time period.

**Figure 4.2: Morning Peak Cyclist Frequency**  
**Harris/Smales Road 2009 – 2014 (n)**





### 4.3 Evening Peak

#### Environmental Conditions

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

#### Key Points

- The number of cyclist movements recorded at the Harris/Smales Road intersection has remained stable in 2014 (31 movements compared to 30 movements last year).
- The most common movement in the evening was heading from Allens Road straight onto Smales Road (Movement 8 = 8 cyclists).
- The most notable decrease was observed at Movement 11, which experienced a decline of 6 cyclists resulting in only 2 movements this year.

**Table 4.3: Evening Cyclist Movements  
Harris/Smales Road 2009 – 2014 (n)**

<i>Movement</i>	2009	2010	2011	2012	2013	2014	Change 13-14
1	2	3	4	2	4	2	-2
2	1	1	0	1	2	1	-1
3	0	0	0	0	0	1	1
4	3	2	3	2	3	4	1
5	3	6	5	3	4	6	2
6	0	0	0	1	0	1	1
7	3	6	8	2	2	4	2
8	4	9	10	3	4	8	4
9	1	1	2	1	0	1	1
10	0	1	1	2	1	0	-1
11	6	8	7	6	8	2	-6
12	2	0	0	1	2	1	-1
<b>Total</b>	<b>25</b>	<b>37</b>	<b>40</b>	<b>24</b>	<b>30</b>	<b>31</b>	<b>1</b>



- All evening cyclists at this site were adults (100 per cent, unchanged since 2011).
- Most cyclists were wearing a helmet (87 per cent, down 6 percentage points since last year).
- Most cyclists were male (97 per cent, unchanged from last year).
- Fifty-five per cent of cyclists were riding on the road (down from 67 per cent in 2013).

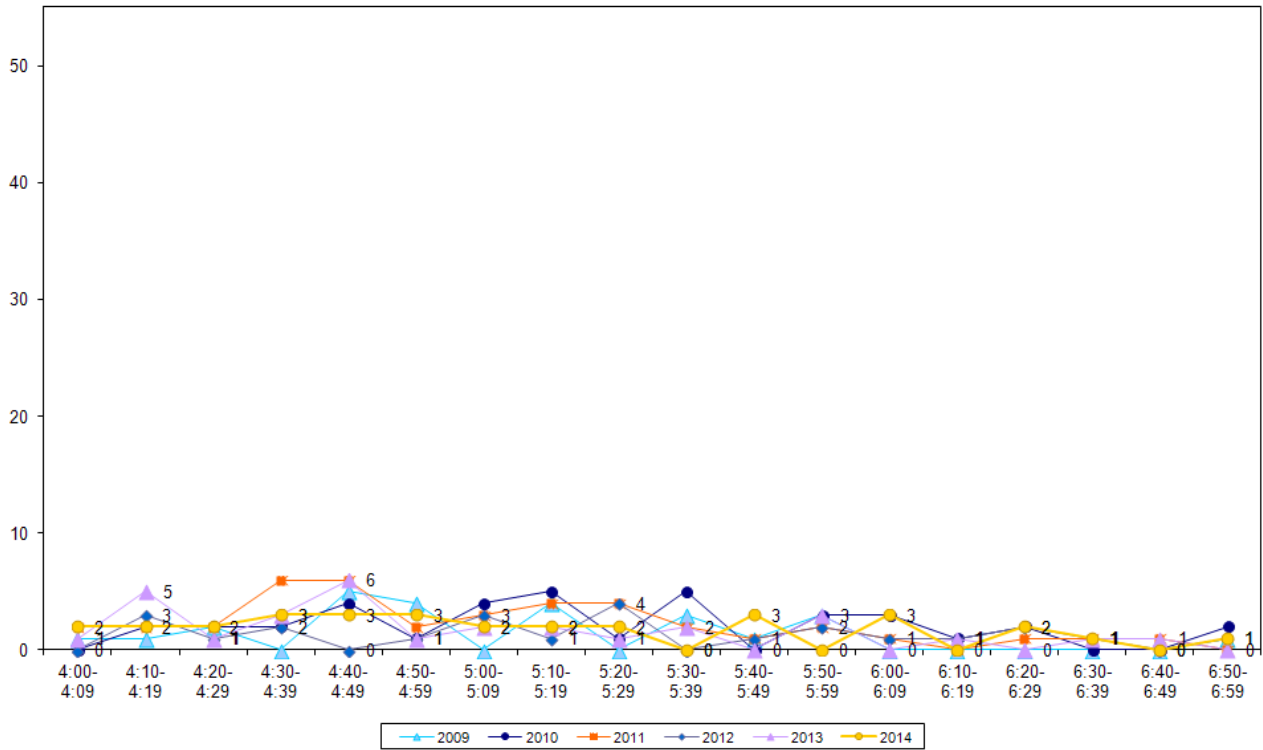
**Table 4.4: Evening Cyclist Characteristics  
Harris/Smales Road 2009 – 2014 (%)**

	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>							
Adult	96	95	100	100	100	<b>100</b>	<b>0</b>
School child	4	5	0	0	0	<b>0</b>	<b>0</b>
<b>Helmet Wearing</b>							
Helmet on head	84	95	83	83	93	<b>87</b>	<b>-6</b>
No helmet	16	5	17	17	7	<b>13</b>	<b>6</b>
<b>Gender</b>							
Male	-	-	88	92	97	<b>97</b>	<b>0</b>
Female	-	-	8	8	3	<b>3</b>	<b>0</b>
Can't tell	-	-	5	0	0	<b>0</b>	<b>0</b>
<b>Where Riding</b>							
Road	56	65	60	54	67	<b>55</b>	<b>-12</b>
Footpath	44	35	40	46	33	<b>45</b>	<b>12</b>
<b>Base:</b>	<b>25</b>	<b>37</b>	<b>40</b>	<b>24</b>	<b>30</b>	<b>31</b>	



- The volume of cycle movements was low in the evening, no ten-minute intervals having more than three cyclists riding past. This pattern is consistent with previous years.

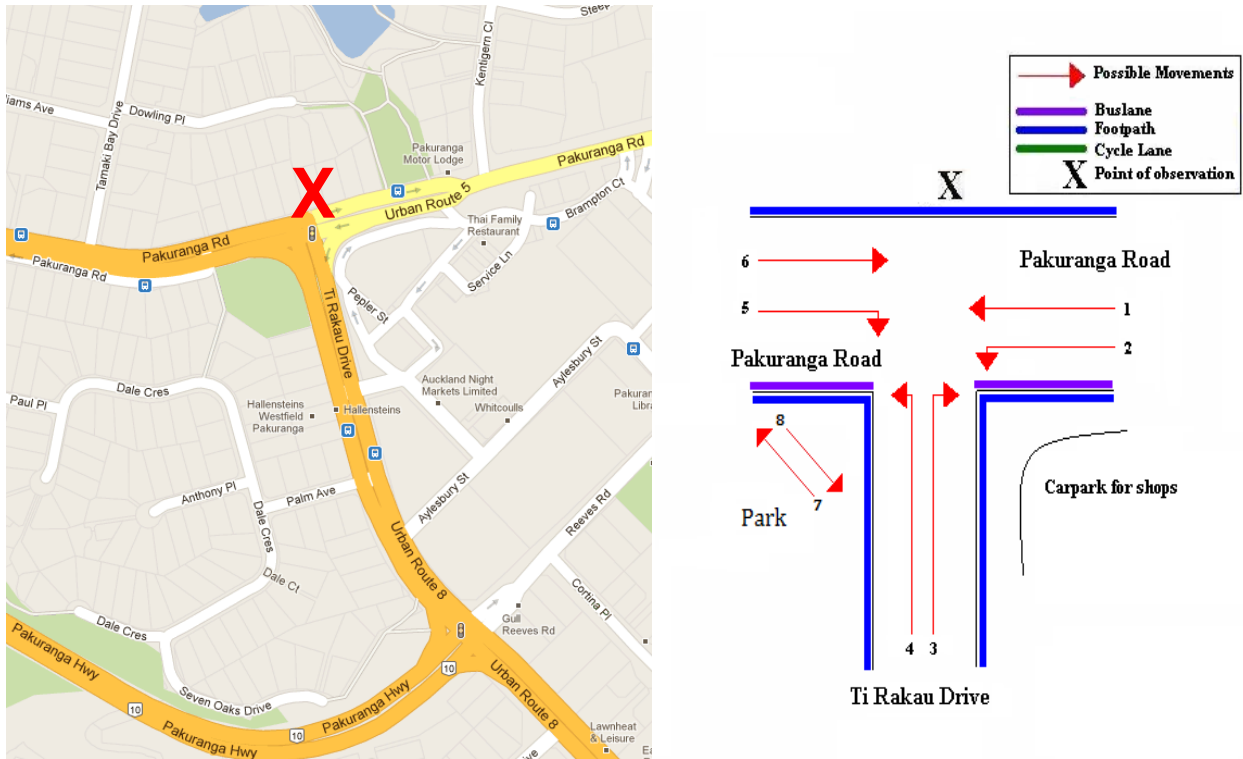
**Figure 4.3: Evening Peak Cyclist Frequency**  
**Harris/Smales Road 2009 – 2014 (n)**



# 5. PAKURANGA ROAD/TI RAKAU DRIVE, PAKURANGA (SITE 80)

Figure 5.1 shows the possible cyclist movements at this intersection.

**Figure 5.1: Cycle Movements: Pakuranga Road/Ti Rakau Drive**



## 5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2009	46	77	123	176
2010	70	92	162	234
2011	59	65	124	180
2012	51	76	127	183
2013	55	79	134	193
<b>2014</b>	<b>39</b>	<b>79</b>	<b>118</b>	<b>168</b>

## 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 number of cycle movements recorded at the Pakuranga Road/Ti Rakau Drive intersection has decreased by 16 movements since 2013, to a total of 39 movements this year.
- The key movements in the morning were turning right from Pakuranga Road into Ti Rakau Drive (Movement 5 = 14 movements) and riding straight along Pakuranga Road heading west (Movement 1 = 14 cyclists).
- The most notable change in cycle volumes was at Movement 5 (down 11 from 2013).

**Table 5.1: Morning Cyclist Movements  
Pakuranga Road/Ti Rakau Drive 2009 – 2014 (n)**

<i>Movement</i>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
1	10	19	17	18	17	<b>14</b>	<b>-3</b>
2	4	0	3	2	1	<b>0</b>	<b>-1</b>
3	0	0	3	1	0	<b>1</b>	<b>1</b>
4	2	8	5	7	8	<b>6</b>	<b>-2</b>
5	22	30	26	18	25	<b>14</b>	<b>-11</b>
6	8	13	5	5	4	<b>3</b>	<b>-1</b>
7	-	-	-	-	-	<b>1</b>	<b>1</b>
8	-	-	-	-	-	<b>0</b>	<b>0</b>
<b>Total</b>	<b>46</b>	<b>70</b>	<b>59</b>	<b>51</b>	<b>55</b>	<b>39</b>	<b>-16</b>



- Over the morning peak, all cyclists riding through the Pakuranga Road/Ti Rakau Drive intersection were adults (up from 95 per cent in 2013).
- Almost all cyclists were wearing a helmet (90 per cent, down slightly from 95 per cent last year).
- The majority of cyclists were male (87 per cent, unchanged from last year).
- Seventy-four per cent of cyclists were riding on the road (down 4 percentage points since 2013).

**Table 5.2: Morning Cyclist Characteristics  
Pakuranga Road/Ti Rakau Drive 2009 – 2014 (%)**

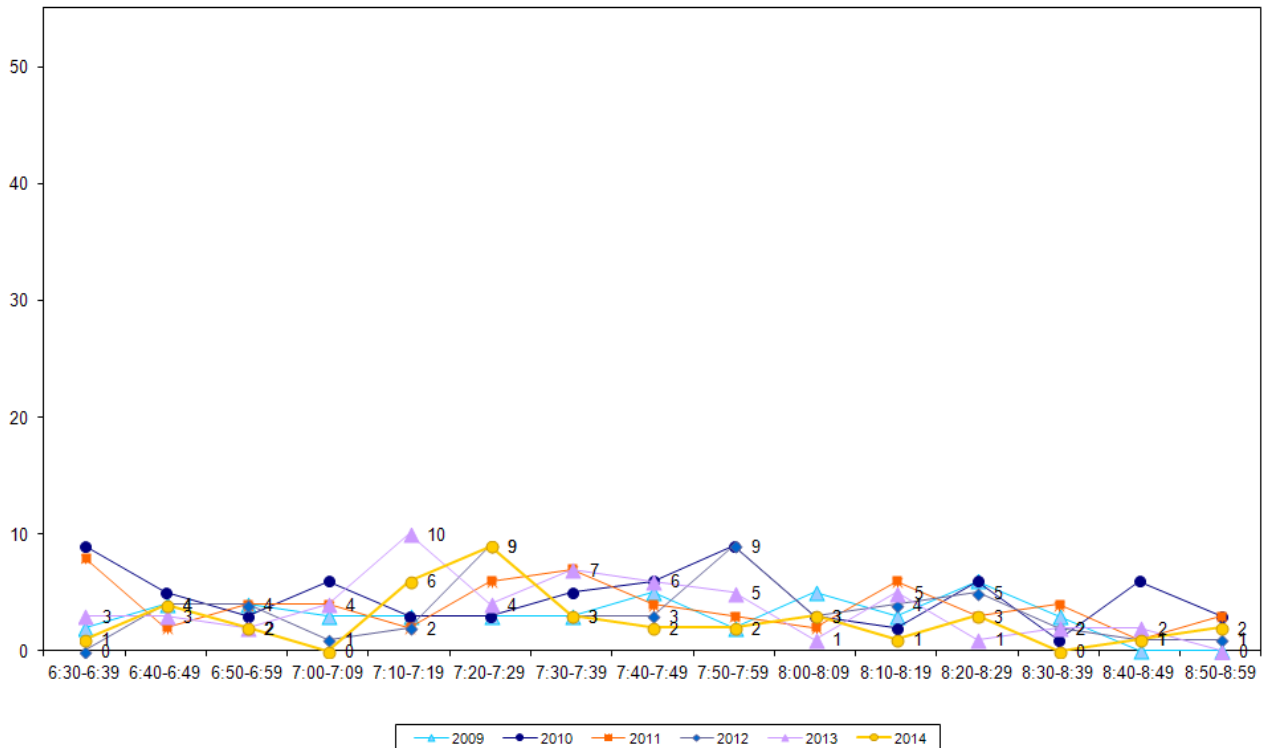
	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>							
Adult	85	96	88	92	95	<b>100</b>	<b>5</b>
School child	15	4	12	8	5	<b>0</b>	<b>-5</b>
<b>Helmet Wearing</b>							
Helmet on head	96	97	100	94	95	<b>90</b>	<b>-5</b>
No helmet	4	3	0	6	5	<b>10</b>	<b>5</b>
<b>Gender</b>							
Male	-	-	90	90	87	<b>87</b>	<b>0</b>
Female	-	-	8	10	11	<b>10</b>	<b>-1</b>
Can't tell	-	-	2	0	2	<b>3</b>	<b>1</b>
<b>Where Riding</b>							
Road	63	79	68	69	78	<b>74</b>	<b>-4</b>
Footpath	37	21	32	31	22	<b>26</b>	<b>4</b>
<b>Base:</b>	<b>46</b>	<b>70</b>	<b>59</b>	<b>51</b>	<b>55</b>	<b>39</b>	





- The volume of cyclist movements was low throughout the morning monitoring period. A peak occurred between 7:20am and 7:29am with 9 cyclists travelling through this interval. Excepting the 7:20am to 7:29 period, no more than 6 cyclists were observed at any 10 minute interval.

**Figure 5.2: Morning Peak Cyclist Frequency  
Pakuranga Road/Ti Rakau Drive 2009 – 2014 (n)**





### 5.3 Evening Peak

#### Environmental Conditions

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

#### Key Points

- The volume of evening cycle movements remained the same (79 cyclists recorded both this year and last year).
- The most common movements in the evening were travelling straight along Pakuranga Road heading west (Movement 1 = 18 cyclists) and riding straight along Pakuranga Road heading east (Movement 6 = 38 cyclists).
- Cyclist volumes at this site have changed most noticeably for Movement 6 (up 18 cyclists), Movement 4 (down 12 cyclists) and Movement 5 (down 13 cyclists).

**Table 5.3: Evening Cyclist Movements  
Pakuranga Road/Ti Rakau Drive 2009 – 2014 (n)**

<i>Movement</i>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
1	19	32	28	26	11	<b>18</b>	<b>7</b>
2	1	0	3	2	1	<b>0</b>	<b>-1</b>
3	1	2	1	0	1	<b>2</b>	<b>1</b>
4	24	9	1	12	21	<b>9</b>	<b>-12</b>
5	11	16	12	7	25	<b>12</b>	<b>-13</b>
6	21	33	20	29	20	<b>38</b>	<b>18</b>
7	-	-	-	-	-	<b>0</b>	<b>0</b>
8	-	-	-	-	-	<b>0</b>	<b>0</b>
<b>Total</b>	<b>77</b>	<b>92</b>	<b>65</b>	<b>76</b>	<b>79</b>	<b>79</b>	<b>0</b>



- While the majority of evening cyclists using this intersection were adults (71 per cent), the share of children cycling at this site has increased considerably, by 28 percentage points this year.
- Eighty-nine per cent of cyclists were wearing a helmet.
- Fourteen per cent of cyclists were female (up from 5 per cent last year).
- Almost three-quarters of cyclists were riding on the road (72 per cent, stable from 73 per cent in 2013).

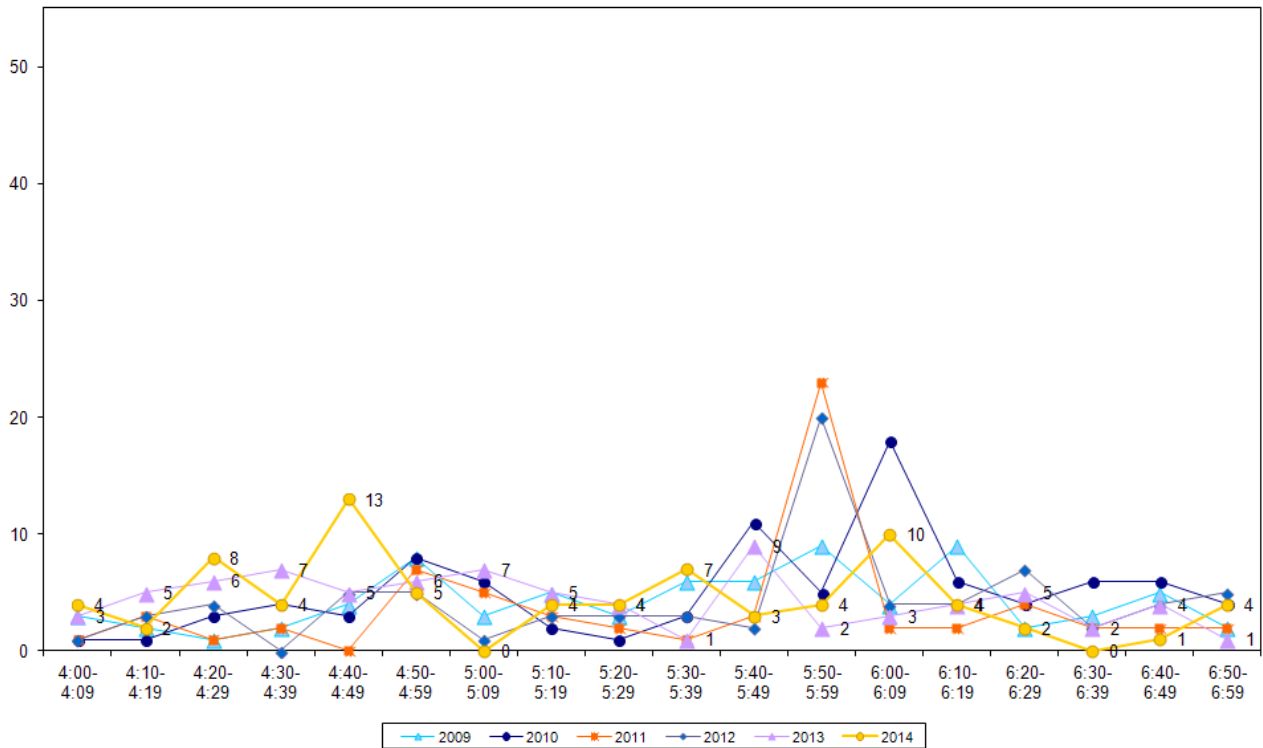
**Table 5.4: Evening Cyclist Characteristics  
Pakuranga Road/Ti Rakau Drive 2009 – 2014 (%)**

	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>							
Adult	94	96	88	96	99	71	-28
School child	6	4	12	4	1	29	28
<b>Helmet Wearing</b>							
Helmet on head	87	98	89	93	95	89	-6
No helmet	13	2	11	7	5	11	6
<b>Gender</b>							
Male	-	-	92	93	94	73	-21
Female	-	-	5	7	5	14	9
Can't tell	-	-	3	0	1	13	12
<b>Where Riding</b>							
Road	65	74	62	66	73	72	-1
Footpath	35	26	38	34	27	28	1
<b>Base:</b>	<b>77</b>	<b>92</b>	<b>65</b>	<b>76</b>	<b>79</b>	<b>79</b>	



- Cycle movements this year differed from previous years with two peaks observed during the evening shift. The first of these occurred at 4:40pm to 4:49 with 13 cycle movements recorded. The second evening peak was between 6:00pm and 6:09pm and consisted of 10 cyclist movements.

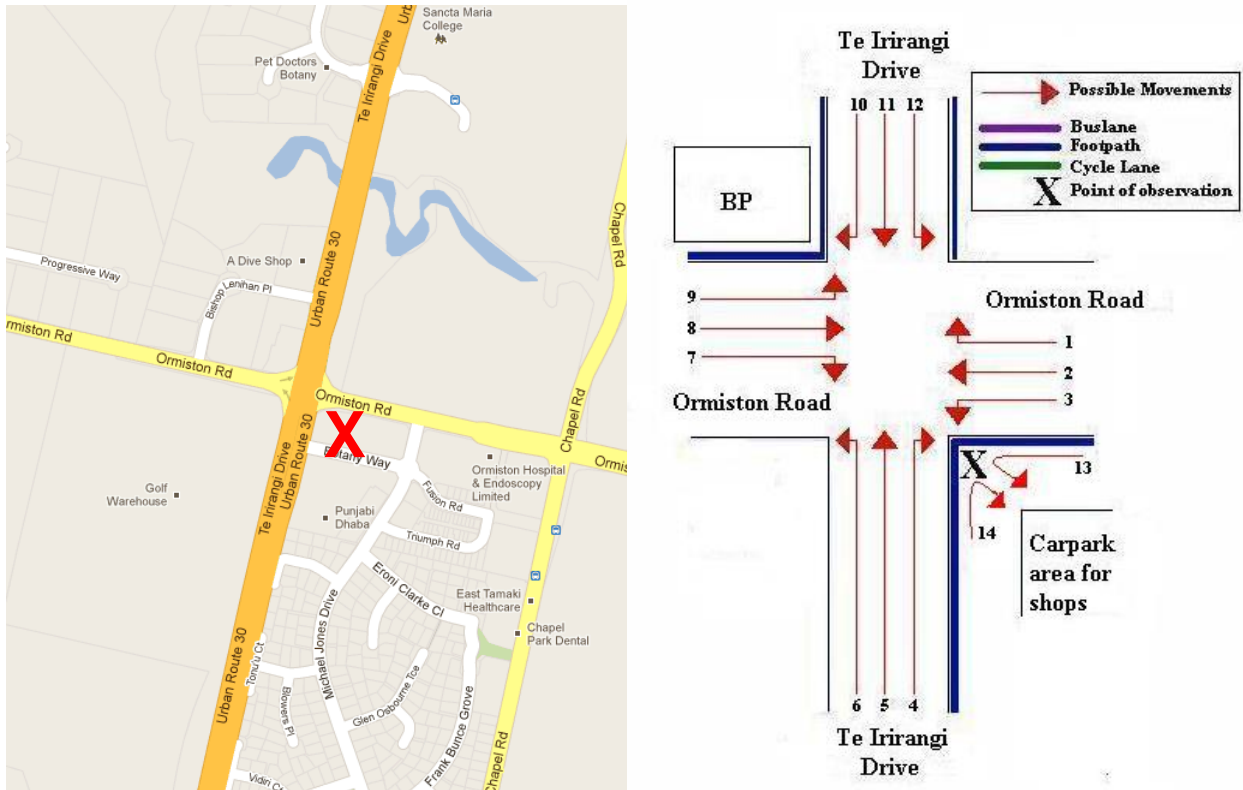
**Figure 5.3: Evening Peak Cyclist Frequency**  
**Pakuranga Road/Ti Rakau Drive 2009 – 2014 (n)**



## 6. TE IRIRANGI DRIVE/ORMISTON ROAD, EAST TAMAKI (SITE 81)

Figure 6.1 shows the possible cyclist movements at this intersection.

**Figure 6.1: Cycle Movements: Te Irirangi Drive/Ormiston Road**



### 6.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2009	13	20	33	47
2010	25	41	66	95
2011	24	32	56	81
2012	18	32	50	72
2013	31	54	85	122
<b>2014</b>	<b>15</b>	<b>46</b>	<b>61</b>	<b>86</b>



## 6.2 Morning Peak

### Environmental Conditions

- The weather was fine at the beginning of the shift but gradually became cloudy and windy towards the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### Key Points

- Morning cyclist traffic at the intersection of Te Irirangi Drive and Ormiston Road has halved this year, with 15 cycle movements recorded (down from 31 movements in 2013).
- The key movement in the morning at this site was heading south straight along Te Irirangi Drive (Movement 11 = 5 cyclists).
- Movement 11 also experienced the greatest decrease in cycle volume (down 6 cyclists from last year).

**Table 6.1: Morning Cyclist Movements  
Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)**

<b>Movement</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
1	4	1	1	4	2	0	-2
2	1	2	4	4	4	4	0
3	0	3	1	1	1	2	1
4	0	0	0	0	0	0	0
5	4	3	8	6	5	2	-3
6	0	0	1	0	2	1	-1
7	0	0	0	0	1	0	-1
8	0	3	0	0	2	0	-2
9	0	0	0	0	1	0	-1
10	0	1	1	0	0	1	1
11	4	12	8	3	11	5	-6
12	0	0	0	0	2	0	-2
13	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0
<b>Total</b>	<b>13</b>	<b>25</b>	<b>24</b>	<b>18</b>	<b>31</b>	<b>15</b>	<b>-16</b>



- Over the morning peak, all cyclists riding through this intersection were adults (up from 94 per cent last year).
- The majority of cyclists were wearing a helmet (93 per cent, up from 79 per cent in 2013).
- Almost all of the recorded cyclists using this site (93 per cent) were male, up from 68 per cent in 2013.
- The majority of cyclists were riding on the road (80 per cent, up from 65 per cent last year).

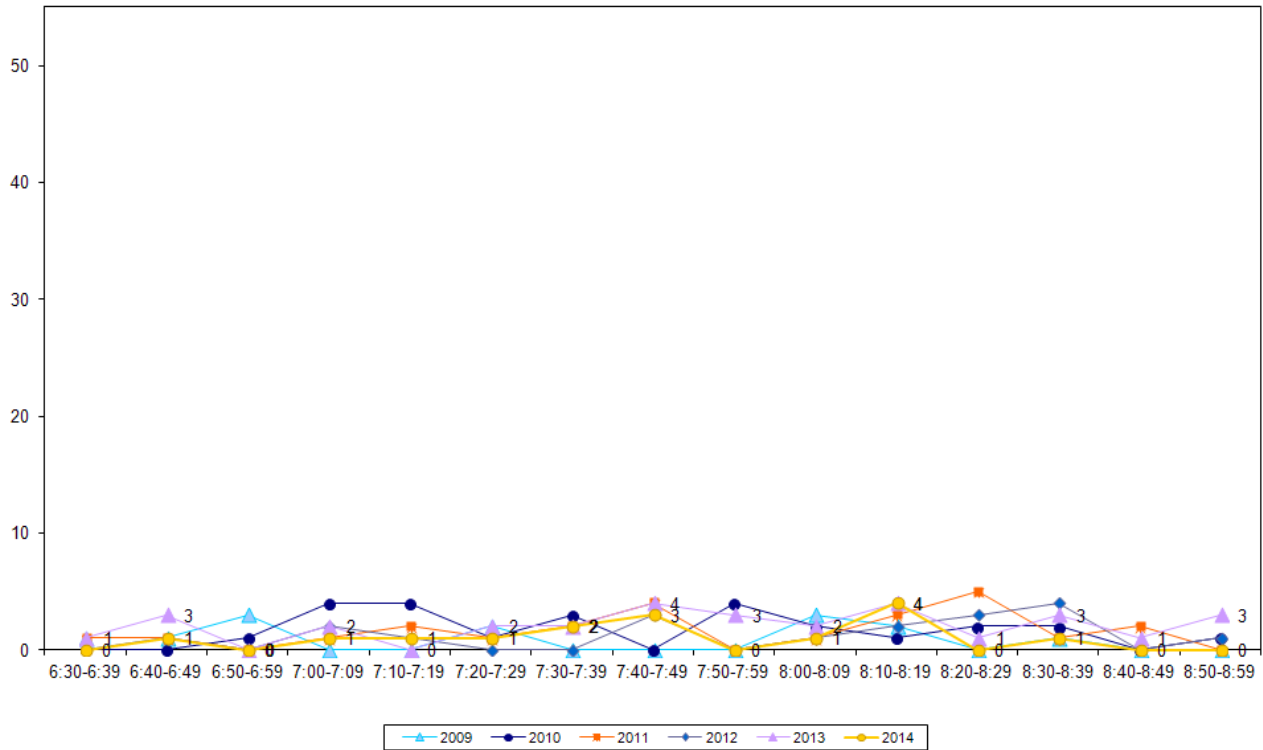
**Table 6.2: Morning Cyclist Characteristics**  
**Te Irirangi Drive/Ormiston Road 2009 – 2014 (%)**

	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>							
Adult	69	80	83	89	94	<b>100</b>	<b>6</b>
School child	31	20	17	11	6	<b>0</b>	<b>-6</b>
<b>Helmet Wearing</b>							
Helmet on head	85	92	100	83	79	<b>93</b>	<b>14</b>
No helmet	15	8	0	17	21	<b>7</b>	<b>-14</b>
<b>Gender</b>							
Male	-	-	75	89	68	<b>93</b>	<b>25</b>
Female	-	-	25	11	16	<b>0</b>	<b>-16</b>
Can't tell	-	-	0	0	16	<b>7</b>	<b>-9</b>
<b>Where Riding</b>							
Road	69	64	67	56	65	<b>80</b>	<b>15</b>
Footpath	31	36	33	44	35	<b>20</b>	<b>-15</b>
<b>Base:</b>	<b>13</b>	<b>25</b>	<b>24</b>	<b>18</b>	<b>31</b>	<b>15</b>	



- The volume of morning cycle movements was relatively low over the entire monitoring period, with no more than four cyclists recorded passing during any ten minute interval.

**Figure 6.2: Morning Peak Cyclist Frequency**  
**Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)**







## 6.3 Evening Peak

### Environmental Conditions

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

### Key Points

- Evening cyclist volume at the Te Irirangi Drive/Ormiston Road intersection has decreased over the last 12 months, from 52 movements in 2013 to 46 movements this year.
- The most common movement in the evening was riding straight along Te Irirangi Drive heading south (Movement 11 = 14 cyclists).
- Since 2013, evening cyclist volumes have decreased most noticeably at Movement 11 (down 9 cyclists) and at Movement 5 (down 8 cyclists).

**Table 6.3: Evening Cyclist Movements**  
Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)

<b>Movement</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
1	0	1	1	0	0	0	0
2	1	4	2	2	3	3	0
3	0	0	3	1	0	0	0
4	0	0	1	1	0	2	2
5	2	8	11	5	13	5	-8
6	0	0	0	0	0	1	1
7	1	0	2	1	2	5	3
8	1	6	1	4	5	7	2
9	1	1	1	3	4	5	1
10	0	0	0	0	0	0	0
11	13	20	9	10	23	14	-9
12	1	1	1	5	4	1	-3
13	0	0	0	0	0	1	1
14	0	0	0	0	0	2	2
<b>Total</b>	<b>20</b>	<b>41</b>	<b>32</b>	<b>32</b>	<b>54</b>	<b>46</b>	<b>-8</b>



- Most evening cyclists using this site were adults (85 per cent, down from 91 per cent in 2013).
- Most cyclists were wearing a helmet (85 per cent, down from 89 per cent last year).
- Eighty-three per cent of cyclists at this site are male (down from 87 per cent in 2013).
- The majority of cyclists were riding on the road (89 per cent, up from 78 per cent in 2013).

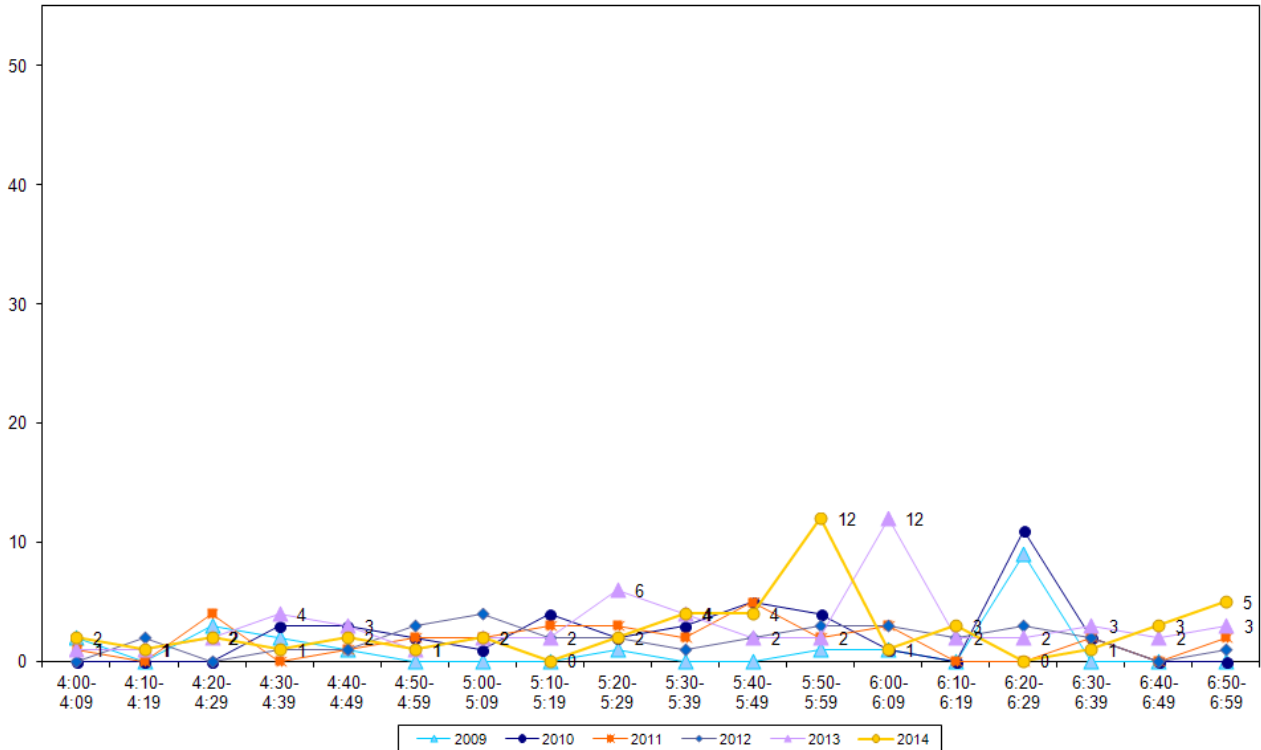
**Table 6.4: Evening Cyclist Characteristics**  
**Te Irirangi Drive/Ormiston Road 2009 – 2014 (%)**

	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>							
Adult	95	83	97	94	91	<b>85</b>	<b>-6</b>
School child	5	17	3	6	9	<b>13</b>	<b>4</b>
Don't know	0	0	0	0	0	<b>2</b>	<b>2</b>
<b>Helmet Wearing</b>							
Helmet on head	95	78	97	88	89	<b>85</b>	<b>-4</b>
No helmet	5	22	3	12	11	<b>9</b>	<b>-2</b>
Don't know	0	0	0	0	0	<b>6</b>	<b>6</b>
<b>Gender</b>							
Male	-	-	78	94	87	<b>83</b>	<b>-4</b>
Female	-	-	16	6	9	<b>17</b>	<b>8</b>
Can't tell	-	-	6	0	4	<b>0</b>	<b>-4</b>
<b>Where Riding</b>							
Road	95	76	88	72	78	<b>89</b>	<b>11</b>
Footpath	5	24	12	28	22	<b>9</b>	<b>-13</b>
Don't know	0	0	0	0	0	<b>2</b>	<b>2</b>
<b>Base:</b>	<b>20</b>	<b>41</b>	<b>32</b>	<b>32</b>	<b>54</b>	<b>46</b>	



- Evening cyclist volumes were generally stable and low throughout the monitoring period this year, with no more than six cycle movements in any ten minute interval. However, a sharp peak was observed between 5:50pm and 5:59pm (12 movements). This sharp peak in the evening occurred slightly earlier than the peak observed last year.

**Figure 6.3: Evening Peak Cyclist Frequency**  
**Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)**





## 7. HALF MOON BAY FERRY WHARF

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### Key Points

- No cycles were observed at the Half Moon Bay Ferry Wharf in the morning or in the evening this year.

**Table 7.1: Half Moon Bay Ferry Wharf Cycle Counts 2010 – 2014 (n)**

	2010	2011	2012	2013	2014	Change 13-14
<b>Morning Peak</b>						
6:10am	2	0	0	0	0	0
9:10am	0	0	0	2	0	-2
<b>Evening Peak</b>						
3:30pm	1	0	0	0	0	0
7:10pm	0	1	0	0	0	0



## 8. SCHOOL BIKE SHED COUNT

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### 8.1 Cycle Count Background Information

- A total of 13 schools in the Howick ward participated in the school bike shed count. Of the schools that responded to the survey, no schools reported policies that restrict students cycling to school.
- Some schools reported an event or issue that may affect cycle counts<sup>9</sup>.
- Although the designated count day was Tuesday 4<sup>th</sup> of March 2014, most schools in the Howick ward completed their count on an alternative day<sup>10</sup>.

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

### 8.2 Cycle Count Key Points

- Among the surveyed schools, of those eligible to cycle to school, on average, one per cent of students are cycling to their schools, unchanged from 2011.
- Farm Cove Intermediate reported the highest share of cyclists – 9 per cent of all eligible students currently cycling to school, up from 5 per cent last year.
- In total, n=184 students from the responding schools were reported to be cycling to school.
- Of the 13 schools that responded, 2 (15 per cent) had no students cycling to school.
- Of the 13 schools that participated in the count in both 2013 and 2014, 5 (38 per cent) reported an increase in the share of students cycling, the most notable increases being:
  - Farm Cove Intermediate (9 per cent, up from 5 per cent)
  - Pakuranga Intermediate School (3 per cent, up from 1 per cent)
  - Howick Intermediate School (2 per cent, up from <1 per cent).

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<sup>9</sup> The following schools reported events or issues that may affect cycle counts:

- Elim Christian Character Junior Campus *“Wet weather the previous day, so there may have been less cycles used”*
- Elim Christian College Senior Campus *“Half of year 9 students away on camp; 25% of year 10 students on class trip”*
- Farm Cove Intermediate School *“Wet weather the morning of the cycle count”*
- Pakuranga Intermediate School *Some students away on sporting activities”*

<sup>10</sup> The following schools undertook counts on alternative days:

- Botany Downs Secondary College – 9<sup>th</sup> March 2014
- Edgewater College – 26<sup>th</sup> March 2014
- Elim Christian Character Junior Campus – 5<sup>th</sup> March 2014
- Howick College – 26<sup>th</sup> March 2014
- Macleans College – 13<sup>th</sup> March 2014
- Pakuranga College – 13<sup>th</sup> March 2014
- Pakuranga Intermediate School – 9<sup>th</sup> March 2014
- Saint Kentigern College – 17<sup>th</sup> March 2014
- Sancta Maria College – 17<sup>th</sup> March 2014
- Tyndale Park Christian School – 27<sup>th</sup> February 2014



- Of the 13 schools that participated in the count in both 2013 and 2014, 2 (15 per cent) reported a decrease in the share of students cycling.



Table 8.1 shows the results of the 13 schools surveyed in the Howick ward.

**Table 8.1: Summary Table Of School Bike Count  
2007 – 2014 (n)**

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible <sup>11</sup>							
				2014	2013	2012	2011	2010	2009	2008	2007
Farm Cove Intermediate	Intermediate	613	56	9%	5%	5%	7%	7%	9%	6%	4%
Pakuranga Intermediate School	Intermediate	312	8	3%	1%	3%	-	-	-	-	-
Botany Downs Secondary College	Secondary	1800	42	2%	2%	2%	-	-	-	-	-
Howick Intermediate School	Intermediate	376	6	2%	<1%	<1%	-	-	-	-	-
Elim Christian Character - Junior Campus	Full Primary	370	3	1%	-	1%	-	-	-	-	-
Elim Christian College - Senior Campus	Intermediate/Secondary	606	8	1%	2%	3%	-	-	-	-	-
Howick College	Secondary	1800	1	<1%	<1%	0%	-	-	-	-	-
Macleans College	Secondary	2560	16	1%	1%	1%	<1%	-	2%	1%	-
Pakuranga College	Secondary	2000	25	1%	-	-	-	2%	2%	3%	-
Sancta Maria College	Intermediate/Secondary	1000	7	1%	<1%	1%	1%	1%	1%	1%	2%
St Kentigern College	Intermediate/Secondary	1800	12	1%	0%	-	<1%	<1%	1%	-	-
Edgewater College	Secondary	780	0	0%	1%	1%	2%	2%	2%	2%	-
Tyndale Park Christian School	Composite	125	0	0%	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>		<b>14142</b>	<b>184</b>	<b>1%</b>	1%	1%	1%	-	-	-	-

<sup>11</sup> 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 8.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school continue to be highest among intermediate schools (5 per cent, up from 2 per cent in 2013).

**Table 8.2: Summary Table Of School Bike Count by School Type  
2007 – 2014 (%)**

<i>School Type</i>	<i>Number of Schools Responded in 2014 (n)</i>	<i>Cyclists as share of those eligible</i>								<i>Change 13-14</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>	
Intermediate	3	4%	5%	6%	6%	3%	3%	2%	5%	3%
Composite	1	0%	3%	4%	1%	1%	0%	2%	0%	-2%
Secondary	5	-	1%	2%	2%	1%	1%	1%	1%	-
Intermediate/Secondary	3	2%	1%	2%	2%	1%	1%	<1%	1%	<1%
Full Primary	1	-	-	-	-	-	1%	-	1%	1%





### 8.3 Scooter Count Background Information

- A total of 12 schools in the Howick ward participated in the school bike shed scooter count. Of the schools that responded to the survey, most had no policies that restrict students scootering to school<sup>12</sup>.
- Some schools reported an event or issue that may affect scooter counts<sup>13</sup>.
- Although the designated count day was Tuesday 4<sup>th</sup> of March 2014, most schools in the Howick ward completed their count on an alternative day<sup>14</sup>.

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

### 8.4 Scooter Count Key Points

- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scootering to their schools.
- Elim Christian Character – Junior Campus reported the highest share of scooters – 5 per cent of all eligible students currently scootering to school.
- In total, n=48 students from the responding schools were reported to be scootering to school.
- Of the 12 schools that responded, 7 (58 per cent) had no students scootering to school.

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<sup>12</sup> The following schools have policies surrounding scootering to school:

- Pakuranga College *"Scooters not allowed due to safety reason – school is located near a main highway"*

<sup>13</sup> The following schools reported events or issues that may affect cycle counts:

- Elim Christian Character Junior Campus *"Wet weather the previous day, so there may have been less cycles used"*
- Elim Christian College Senior Campus *"Half of year 9 students away on camp; 25% of year 10 students on class trip"*
- Farm Cove Intermediate School *"Wet weather the morning of the cycle count"*
- Pakuranga Intermediate School *Some students away on sporting activities"*

<sup>14</sup> The following schools undertook counts on alternative days:

- Botany Downs Secondary College – 9<sup>th</sup> March 2014
- Edgewater College – 26<sup>th</sup> March 2014
- Elim Christian Character Junior Campus – 5<sup>th</sup> March 2014
- Howick College – 26<sup>th</sup> March 2014
- Macleans College – 13<sup>th</sup> March 2014
- Pakuranga College – 13<sup>th</sup> March 2014
- Pakuranga Intermediate School – 9<sup>th</sup> March 2014
- Saint Kentigern College – 17<sup>th</sup> March 2014
- Sancta Maria College – 17<sup>th</sup> March 2014
- Tyndale Park Christian School – 27<sup>th</sup> February 2014



Table 8.3 shows the results of the 12 schools surveyed in the Howick ward.

**Table 8.3: Summary Table Of School Scooter Count  
2007 – 2014 (n)**

School Name	School Type	School Roll Eligible To Scooter	No. of Scooters Counted	Scooters as share of those eligible <sup>15</sup>
				2014
Elim Christian Character - Junior Campus	Full Primary	370	18	5%
Howick Intermediate School	Intermediate	376	10	3%
Pakuranga Intermediate School	Intermediate	312	10	3%
Farm Cove Intermediate	Intermediate	613	8	1%
Elim Christian College - Senior Campus	Intermediate/ Secondary	606	2	<1%
Botany Downs Secondary College	Secondary	1800	0	0%
Edgewater College	Secondary	780	0	0%
Howick College	Secondary	1800	0	0%
Macleans College	Secondary	2560	0	0%
Pakuranga College	Secondary	2000	0	0%
Sancta Maria College	Intermediate/ Secondary	1000	0	0%
Tyndale Park Christian School	Composite	125	0	0%
<b>Total</b>		<b>10342</b>	<b>48</b>	<b>&lt;1%</b>

<sup>15</sup> 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 8.4 illustrates the rates of scootering to school at different school levels. Rates of scootering to school are highest for full primary schools (5 per cent).

**Table 8.4: Summary Table Of School Scooter Count by School Type  
2007 – 2014 (%)**

<i>School Type</i>	<i>Number of Schools Responded in 2014 (n)</i>	<i>Scooter riders as share of those eligible</i>
		<i>2014</i>
Full Primary	1	5%
Intermediate	3	2%
Intermediate/Secondary	2	<1%
Composite	1	0%
Secondary	5	0%



gravitas

## **APPENDICES**

Appendix One: Annual Average Daily Traffic (AADT) Calculation



## APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

### Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT<sup>16</sup> in the Auckland region from any Gravitas manual count.

### Method for Estimating AADT

The methodology is based on that published in Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG)<sup>17</sup>, 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.

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<sup>16</sup> Annual average daily traffic

<sup>17</sup> LTSA, 2004



For the Gravitas counts, the following factors apply:

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

$$D = 14$$

$$W = 0.9$$

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

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

	Morning	Afternoon
Dry weather	3.06	2.78
Wet weather	4.78	4.35

### Worked Example

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

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



Figure 1: Scale Factors for Auckland Region

Period Starting	Period Ending	Interval (hours)	H <sub>Weekday</sub>		H <sub>Weekend</sub>	
			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%