

# 2014 Auckland Region Manual Cycle Monitor

- Orakei Ward -





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Appendix One: Annual Average Daily Traffic (AADT) Calculation



# 1. ORAKEI 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:

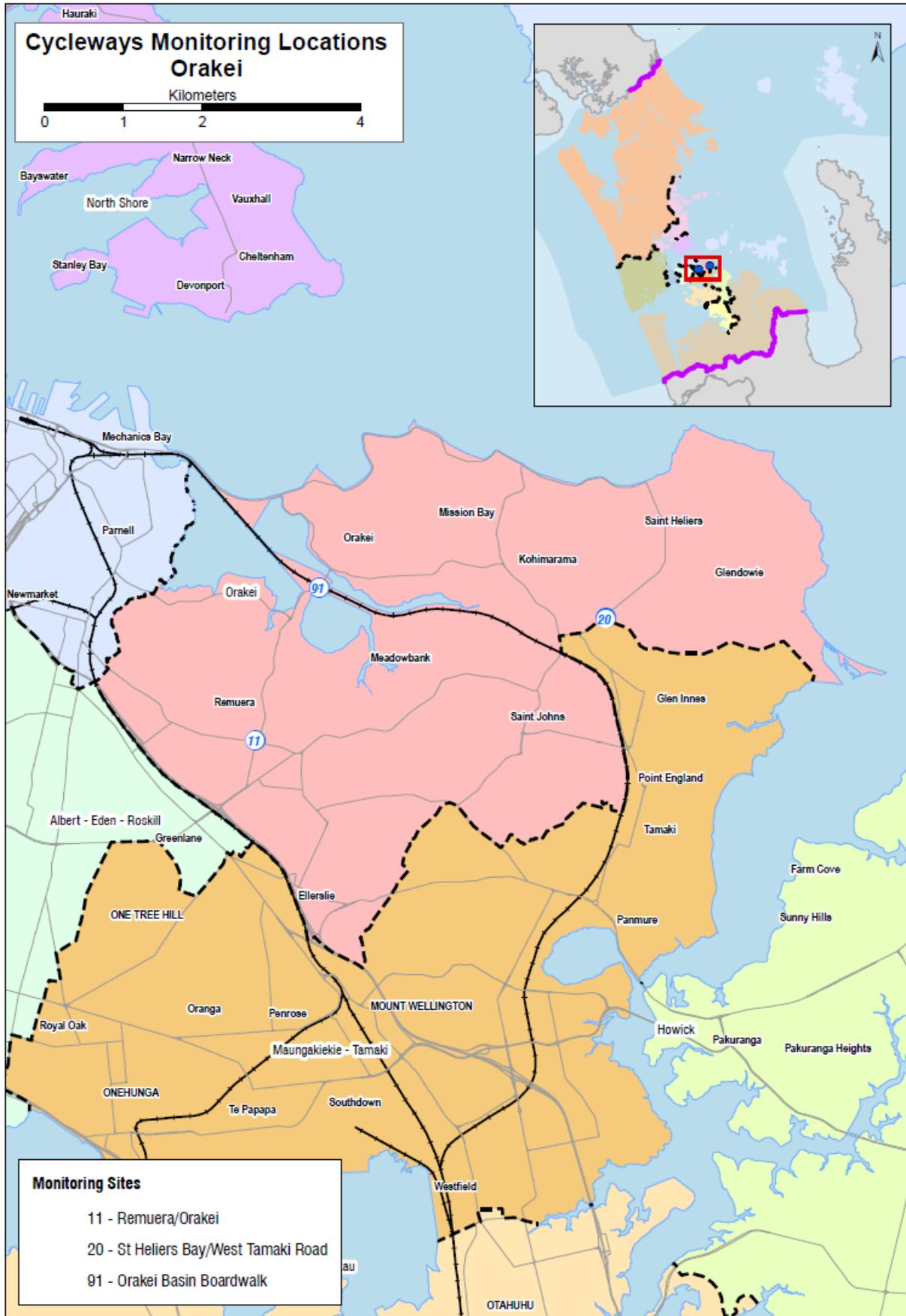
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 two sites in the Orakei 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 three pre-determined sites in the Orakei 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 Orakei ward. Note that one site (St Heliers Bay/West Tamaki Road in Glen Innes (Site 20)) lies on the border with the Maungakiekie-Tamaki ward and consequently has been included in both ward reports.

Figure 1.1: 2014 Cycle Monitoring Locations in Orakei 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 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>, 11<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 2013 was as follows:

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

- Sunrise: 7:09am; Sunset: 7:56pm.
- Highest temperature: 20 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 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

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



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 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.

## **1.3 Summary of Results**

This summary contains the aggregated results of the three sites surveyed in the Orakei 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 Orakei 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 Four of this report.

Note: Surveying in the Orakei ward was undertaken on Thursday 6<sup>th</sup> of March, 2014. Sunrise was at 7:11am and sunset at 7:54pm; highest temperature was 22.0 degree Celsius.



## 1.4 Morning Peak Summary Results

### Environmental Conditions

- All sites monitored in the Orakei ward had fine weather in the morning.
- There were no road works or accidents that would have affected cycle movement counts.

### Key Points

- A total of 377 cyclist movements were recorded across the three sites in the morning peak period in 2014, down from 423 recorded last year.
- Site No. 91 Orakei Basin Boardwalk was surveyed for the second time this year. There were 27 cycle movement recorded. The number of cyclists has doubled from 14 last year.
- Cycle volumes at the two established sites, Remuera/Orakei Road intersection and St Heliers Bay/West Tamaki Road intersection, were found to have decreased this year (16 per cent and 13 per cent respectively).
- The busiest site in the morning continued to be Remuera/Orakei Road (196 cycle movements, down from 232 movements in 2013 to 196 movements this year).
- Of the 377 movements recorded in the morning peak 166 (44 per cent) were those riding as groups. This compares with 51 per cent in 2013 and 36 per cent in 2012.

**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
11	Remuera/Orakei Road	86	100	107	149	173	142	232	196	-16%	128%
20	St Heliers Bay/West Tamaki Road	139	107	61	98	150	86	177	154	-13%	111%
	<b>Average per site (2 sites since 2007)</b>	<b>113</b>	<b>104</b>	<b>84</b>	<b>124</b>	<b>162</b>	<b>114</b>	<b>205</b>	<b>175</b>	<b>-15%</b>	<b>155%</b>
	<b>Total (2 sites since 2007)</b>	<b>225</b>	<b>207</b>	<b>168</b>	<b>247</b>	<b>323</b>	<b>228</b>	<b>409</b>	<b>350</b>	<b>-14%</b>	<b>156%</b>
91	Orakei Basin Boardwalk	-	-	-	-	-	-	14	27	93%	-
	<b>Average per site (3 sites since 2013)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>141</b>	<b>126</b>	<b>-11%</b>	<b>-</b>
	<b>Total (3 sites since 2013)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>423</b>	<b>377</b>	<b>-11%</b>	<b>-</b>



- Ninety-six per cent of cyclists that passed this site were adults (up from 91 per cent in 2013).
- The majority of the morning cyclists were wearing a helmet (99 per cent).
- The majority of morning cyclists this year were male (80 per cent, stable from last year’s result).
- The share of cyclists riding on the road (88 per cent) has remained stable over the last six years of monitoring.

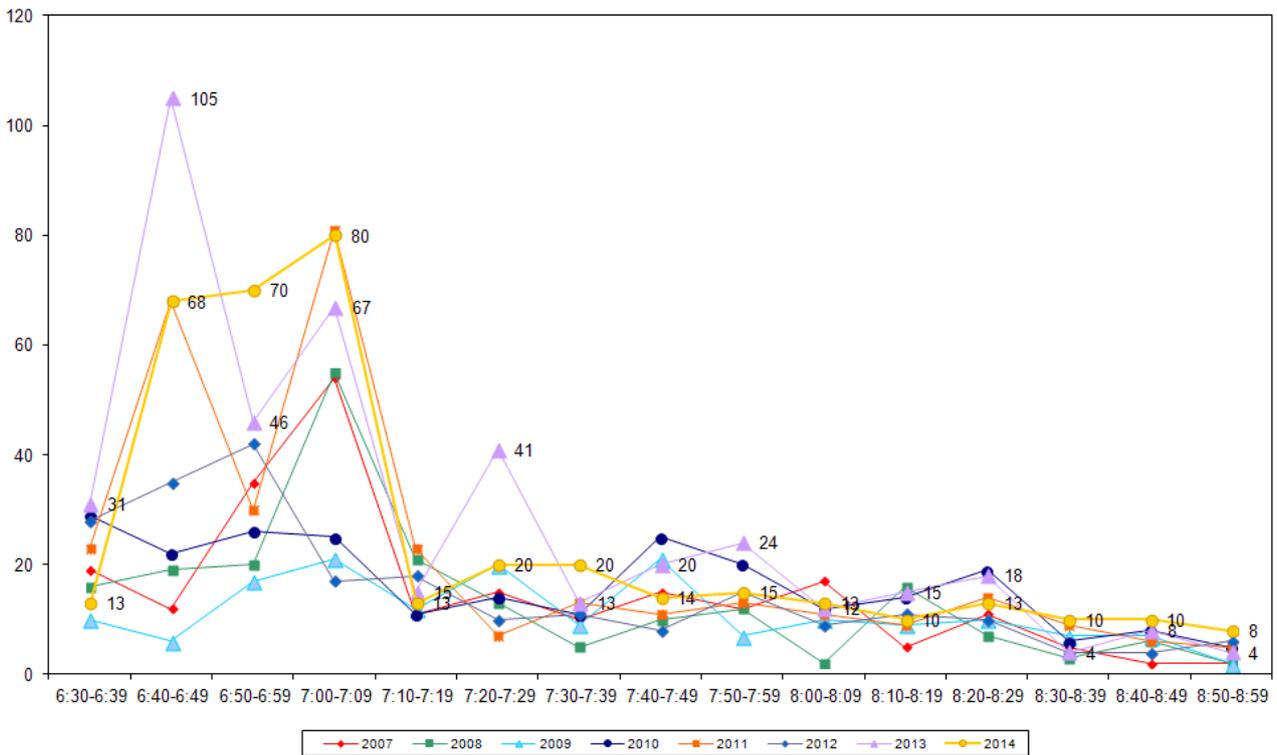
**Table 1.2: Summary of Morning Cyclist Characteristics**  
2007 – 2014 (%)

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	88	95	93	92	94	89	91	<b>96</b>	<b>5</b>
School child	12	5	7	8	6	11	9	<b>4</b>	<b>-5</b>
<b>Helmet Wearing</b>									
Helmet on head	99	98	98	98	99	100	92	<b>99</b>	<b>7</b>
No helmet	1	2	2	2	1	0	1	<b>1</b>	<b>0</b>
Can't tell	-	-	-	-	-	-	7	<b>0</b>	<b>-7</b>
<b>Gender</b>									
Male	-	-	-	-	70	79	81	<b>80</b>	<b>-1</b>
Female	-	-	-	-	16	14	19	<b>19</b>	<b>0</b>
Can't tell	-	-	-	-	14	7	0	<b>1</b>	<b>1</b>
<b>Where Riding</b>									
Road	88	92	94	92	92	94	91	<b>88</b>	<b>-3</b>
Footpath	12	8	6	8	8	6	5	<b>5</b>	<b>0</b>
Off-road cycleway	-	-	-	-	-	-	3	<b>7</b>	<b>4</b>
Unsure	-	-	-	-	-	-	1	<b>0</b>	<b>-1</b>
<b>Base:</b>	<b>225</b>	<b>207</b>	<b>168</b>	<b>247</b>	<b>323</b>	<b>228</b>	<b>423</b>	<b>377</b>	



- Figure 1.2 illustrates the total number of morning cyclists by time of movement at the three sites in the Orakei ward. The graph shows a sharp peak in cycle volumes between 6:40am and 7:09am having a combined total of 218 movements. Shortly after this peak, cyclist numbers decreased considerably and remained no higher than 20 for the remainder of the morning shift. The pattern of cycle volumes was quite consistent with that observed in previous years.

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





## 1.5 Evening Peak Summary Results

### Environmental Conditions

- All sites monitored in the Orakei ward had fine weather in the evening.
- No site had road works or accidents that would have affected cycle movement counts.

### Key Points

- This year the total number of evening cyclist movements in the Orakei ward was 172.
- Site No. 91 Orakei Basin Boardwalk was monitored for the second time this year. Twenty-five cycle movement have been recorded this year, up from 18 cycle movements recorded last year.
- The two established sites, Remuera/Orakei Road intersection and St Heliers Bay/West Tamaki Road intersection, have experienced decreases in cycle traffic (29 per cent and 8 per cent respectively).
- The busiest site in the evening continued to be Remuera/Orakei Road (82 cycle movements, down from 116 movements in 2013).
- There were no pelotons riding through this site during the evening shift.

**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
11	Remuera/Orakei Road	109	89	80	95	107	71	116	82	-29%	-25%
20	St Heliers Bay/West Tamaki Road	69	60	47	72	74	49	71	65	-8%	-6%
	<b>Average per site (2 sites since 2007)</b>	<b>89</b>	<b>75</b>	<b>64</b>	<b>84</b>	<b>91</b>	<b>60</b>	<b>94</b>	<b>74</b>	<b>-21%</b>	<b>-17%</b>
	<b>Total (2 sites since 2007)</b>	<b>178</b>	<b>149</b>	<b>127</b>	<b>167</b>	<b>181</b>	<b>120</b>	<b>187</b>	<b>147</b>	<b>-21%</b>	<b>-17%</b>
91	Orakei Basin Boardwalk	-	-	-	-	-	-	18	25	39%	-
	<b>Average per site (3 sites since 2013)</b>	-	-	-	-	-	-	<b>68</b>	<b>57</b>	<b>-16%</b>	-
	<b>Total (3 sites since 2013)</b>	-	-	-	-	-	-	<b>205</b>	<b>172</b>	<b>-16%</b>	-



- Eighty-nine per cent of evening cyclists this year were adults (unchanged from 2013).
- Most cyclists were wearing a helmet in the evening (96 per cent, unchanged from 2013).
- The majority of evening cyclists were male (79 per cent, a slight decrease from 84 per cent last year).
- The majority of evening cyclists were riding on the road (74 per cent, down from 81 per cent in 2013).

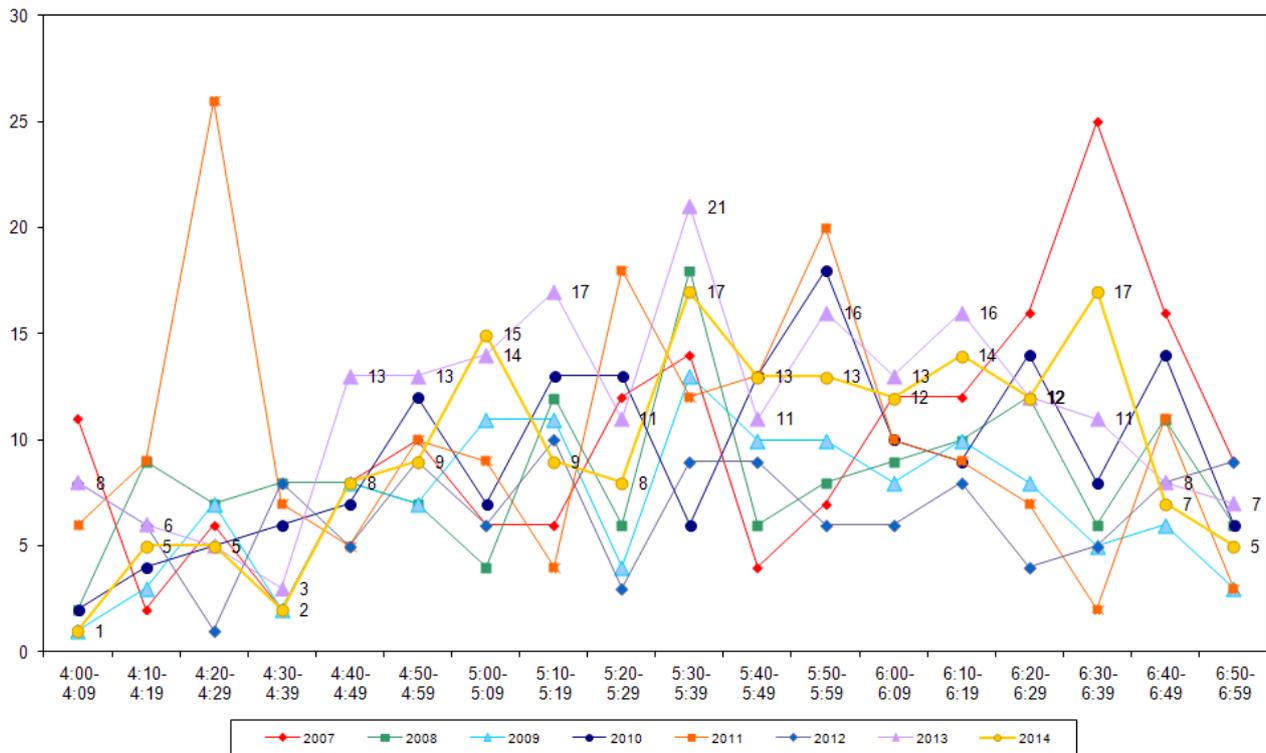
**Table 1.4: Summary of Evening Cyclist Characteristics  
2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	94	89	95	95	86	82	89	<b>89</b>	<b>0</b>
School child	6	11	5	5	14	18	11	<b>10</b>	<b>-1</b>
Don't know	0	0	0	0	0	0	0	<b>1</b>	<b>1</b>
<b>Helmet Wearing</b>									
Helmet on head	98	94	97	95	95	96	96	<b>96</b>	<b>0</b>
No helmet	2	6	3	5	5	4	4	<b>4</b>	<b>0</b>
<b>Gender</b>									
Male	-	-	-	-	83	80	84	<b>79</b>	<b>-5</b>
Female	-	-	-	-	10	19	16	<b>20</b>	<b>4</b>
Can't tell	-	-	-	-	7	1	0	<b>1</b>	<b>1</b>
<b>Where Riding</b>									
Road	90	88	89	91	86	85	81	<b>74</b>	<b>-7</b>
Footpath	10	12	11	9	14	15	10	<b>12</b>	<b>2</b>
Off-road cycleway	-	-	-	-	-	-	9	<b>14</b>	<b>5</b>
<b>Base:</b>	<b>178</b>	<b>149</b>	<b>127</b>	<b>167</b>	<b>181</b>	<b>120</b>	<b>205</b>	<b>172</b>	



- Figure 1.3 illustrates the total number of evening cyclists by time of movement at the three sites in the Orakei ward. Cyclist volumes fluctuated throughout the evening monitoring period. However, it was still possible to identify that the greatest share of movements occurred during the middle part of the evening shift (about 5:00pm to 6:39pm). There was a peak of 17 movements recorded between 5:30pm and 5:39pm and also from 6:30pm to 6:39pm.

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





## 1.6 Aggregated Total Summary Results

- Overall, the Orakei ward has experienced a decrease in cycle traffic over the last 12 months. A total of 549 cyclist movements were recorded across the three sites monitored, a decrease from the 628 movements recorded last year.
- Thirty per cent of these cyclists (n=166) were observed as cycling in groups. This compares with 35 per cent (n=217) in 2013.
- Looking at the two major sites only (Remuera/Orakei Road and St Heliers Bay/West Tamaki Road), the average number of cycle movements per monitoring site was 249, a 16 per cent decrease from last year (298).
- The average across all three sites this year was 183 cycle movements.

**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
11	Remuera/Orakei Road	195	189	187	244	280	213	348	<b>278</b>	<b>-20%</b>	<b>43%</b>
20	St Heliers Bay/West Tamaki Road	208	167	108	170	224	135	248	<b>219</b>	<b>-12%</b>	<b>5%</b>
	<b>Average per site (2 sites since 2007)</b>	<b>202</b>	<b>178</b>	<b>148</b>	<b>207</b>	<b>252</b>	<b>174</b>	<b>298</b>	<b>249</b>	<b>-16%</b>	<b>23%</b>
	<b>Total (2 sites since 2007)</b>	<b>403</b>	<b>356</b>	<b>295</b>	<b>414</b>	<b>504</b>	<b>348</b>	<b>596</b>	<b>497</b>	<b>-17%</b>	<b>23%</b>
91	Orakei Basin Boardwalk	-	-	-	-	-	-	32	<b>52</b>	<b>63%</b>	-
	<b>Average per site (3 sites since 2013)</b>	-	-	-	-	-	-	<b>210</b>	<b>183</b>	<b>-13%</b>	-
	<b>Total (3 sites since 2013)</b>	-	-	-	-	-	-	<b>628</b>	<b>549</b>	<b>-13%</b>	-



- The majority of cyclists continued to be adults (94 per cent, up 3 percentage points from last year).
- Almost all cyclists were wearing a helmet (98 per cent, up from 94 per cent in 2013).
- Four fifths of the total cyclist movements in Orakei ward were made by male cyclists.
- The majority of cyclists were riding on the road (83 per cent, slightly down from 87 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	91	92	94	93	91	86	91	<b>94</b>	<b>3</b>
School child	9	8	6	7	9	14	9	<b>6</b>	<b>-3</b>
<b>Helmet Wearing</b>									
Helmet on head	99	96	97	97	98	98	94	<b>98</b>	<b>4</b>
No helmet	1	4	3	3	2	2	2	<b>2</b>	<b>0</b>
Can't tell	-	-	-	-	-	-	4	<b>0</b>	<b>-4</b>
<b>Gender</b>									
Male	-	-	-	-	75	79	82	<b>80</b>	<b>-2</b>
Female	-	-	-	-	14	16	18	<b>19</b>	<b>1</b>
Can't tell	-	-	-	-	11	5	0	<b>1</b>	<b>1</b>
<b>Where Riding*</b>									
Road	89	90	92	92	90	91	87	<b>83</b>	<b>-4</b>
Footpath	11	10	8	8	10	9	7	<b>7</b>	<b>0</b>
Off-road cycleway	-	-	-	-	-	-	5	<b>10</b>	<b>5</b>
Can't tell	-	-	-	-	-	-	1	<b>0</b>	<b>-1</b>
<b>Base:</b>	<b>403</b>	<b>356</b>	<b>295</b>	<b>414</b>	<b>504</b>	<b>348</b>	<b>628</b>	<b>549</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.*

- 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 Remuera/Orakei Road (413 daily movements, down from 515 movements in 2013).
- Remuera/Orakei Road (Site 11) and St Heliers Bay/West Tamaki Road (Site 20) have both recorded decreases in total AADT estimates this year compared to last year.
- Orakei Basin Boardwalk (Site 91) has recorded a considerable increase in total AADT estimate this year with an increase of 65 per cent on 2013.

**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
11	Remuera/Orakei Road	282	276	274	359	412	315	515	<b>413</b>	<b>-20%</b>	<b>46%</b>
20	St Heliers Bay/West Tamaki Road	308	246	158	249	331	199	369	<b>325</b>	<b>-12%</b>	<b>6%</b>
91	Orakei Basin Boardwalk	-	-	-	-	-	-	46	<b>76</b>	<b>65%</b>	<b>-</b>



## 1.8 School Bike Shed Count Summary

### *Cycle Counts*

- Of those eligible to cycle, on average two per cent of students are cycling to their schools (unchanged from 2011).
- Stonefields School reported the highest share of cyclists – 16 per cent of all eligible students currently cycling to school, up from 10 per cent last year.
- In total, n=133 students from the responding schools were reported to be cycling to school.
- Of the 15 schools that responded, four (27 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (6 per cent, unchanged from 2011).

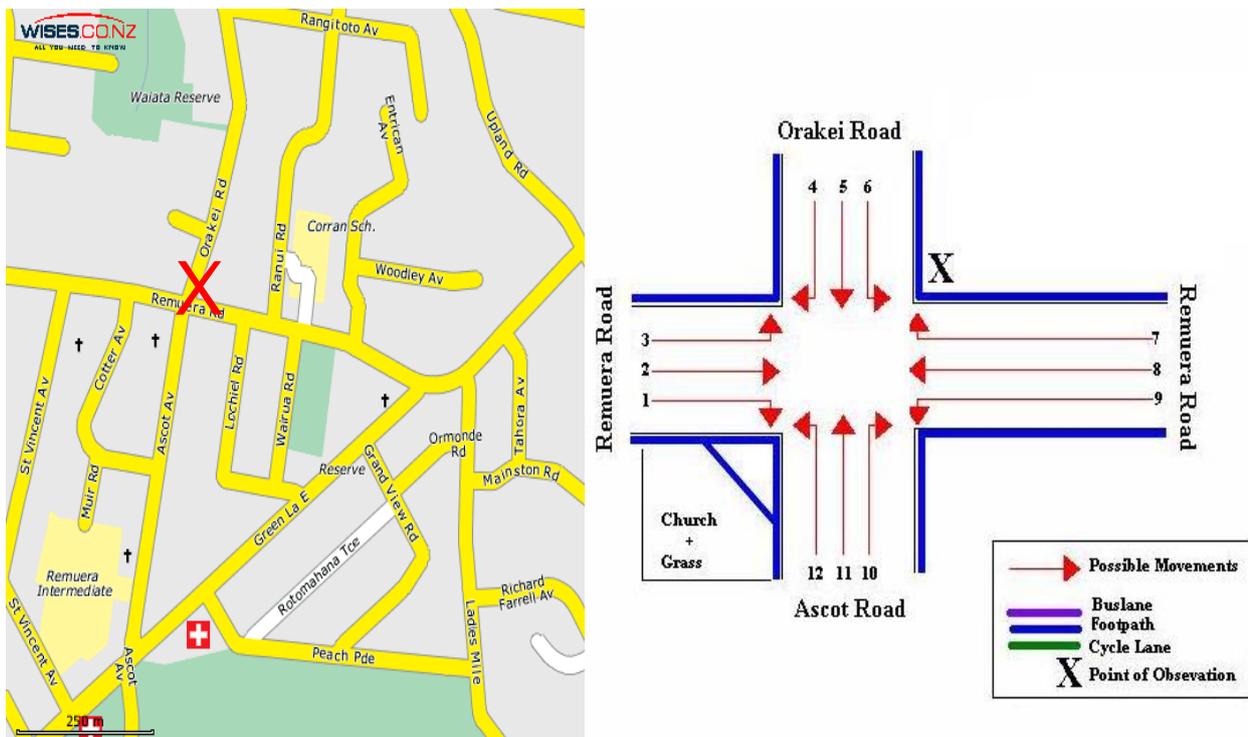
### *Scooter Counts*

- Among the surveyed schools, of those eligible to scooter, on average, four per cent of students are scootering to their schools.
- Mt Hobson Middle School reported the highest share of scooters – 10 per cent of all eligible students currently scootering to school.
- In total, n=97 students from the responding schools were reported to be scootering to school.
- Of the 15 schools that responded, six (40 per cent) had no students scootering to school.

## 2. REMUERA/ORAKEI/ASCOT ROAD, REMUERA (SITE 11)

Figure 2.1 shows the possible cyclist movements at this intersection.

**Figure 2.1: Cycle Movements: Remuera/Orakei/Ascot**



### 2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2007	86	109	195	282
2008	100	89	189	276
2009	107	80	187	274
2010	149	95	244	359
2011	173	107	280	412
2012	142	71	213	315
2013	232	116	348	515
<b>2014</b>	<b>196</b>	<b>82</b>	<b>278</b>	<b>413</b>



## 2.2 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- Morning cyclist numbers recorded at the Remuera/Orakei/Ascot intersection decreased over the past year to 196 movements, down from 232 recorded at the previous measure.
- The most common movement at this site was heading east on Remuera Road (Movement 2 = 82 cyclists).
- The most notable changes in cyclist volumes from last year were Movement 2 (up by 40 cyclists) and Movement 3 (down by 32 cyclists).

**Table 2.1: Morning Cyclist Movements  
Remuera/Orakei/Ascot 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	0	0	0	2	1	19	2	-17
2	19	25	24	56	30	56	42	82	40
3	4	1	3	5	3	4	72	40	-32
4	3	9	12	10	70	14	9	9	0
5	2	4	3	7	4	4	6	4	-2
6	3	9	1	4	5	1	0	2	2
7	0	0	4	2	3	1	1	2	1
8	52	45	56	63	55	60	80	53	-27
9	0	0	0	2	0	0	1	0	-1
10	0	1	0	0	0	0	0	0	0
11	1	2	1	0	1	0	0	2	2
12	2	4	3	0	0	1	2	0	-2
<b>Total</b>	<b>86</b>	<b>100</b>	<b>107</b>	<b>149</b>	<b>173</b>	<b>142</b>	<b>232</b>	<b>196</b>	<b>-36</b>

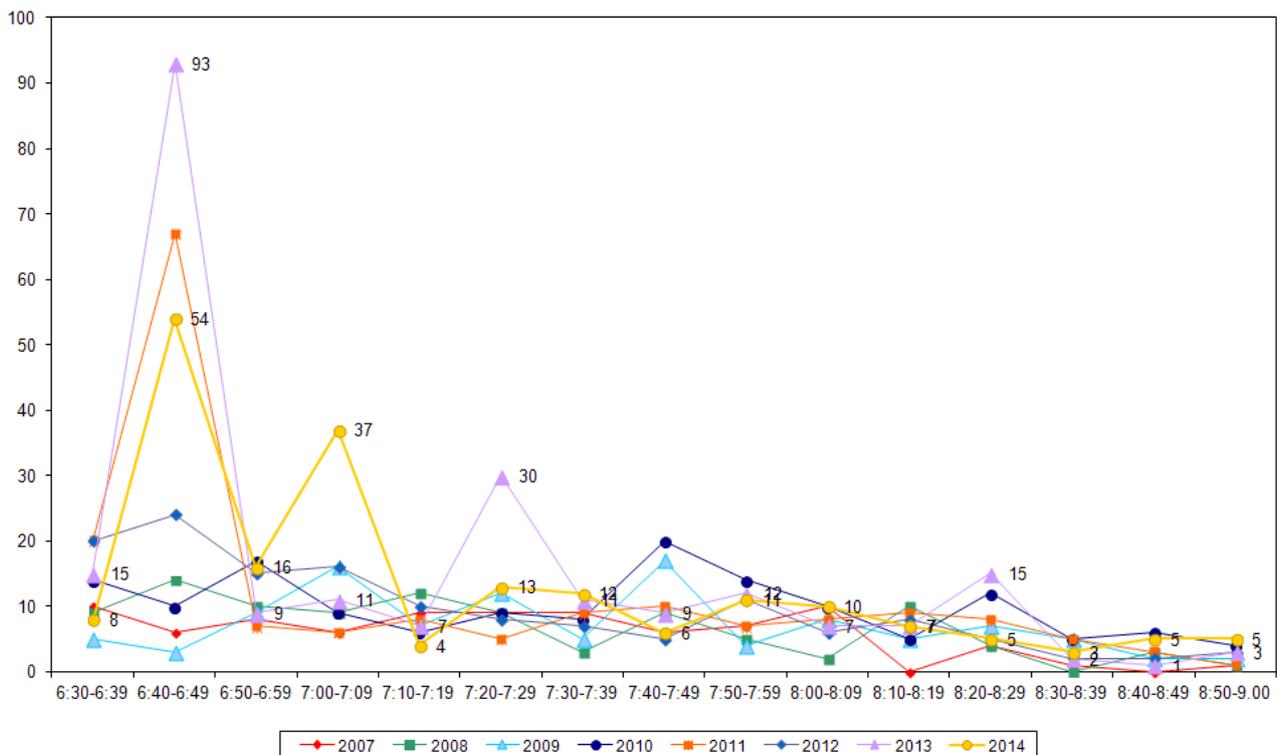
- Ninety-six per cent of cyclists in the morning at this site were adults (up from 90 per cent last year).
- Helmet wearing continued to be widespread, reaching 100 per cent (up from 92 per cent last year).
- Eighty-one per cent of the cyclists were male (stable from 78 per cent in 2013).
- The share of cyclists riding on the road has remained stable (93 per cent, compared with 96 per cent 12 months ago).

**Table 2.2: Morning Cyclist Characteristics  
Remuera/Orakei/Ascot 2004 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	91	97	94	91	94	89	90	96	6
School child	9	3	6	9	6	11	10	4	-6
<b>Helmet Wearing</b>									
Helmet on head	98	98	98	97	99	100	92	100	8
No helmet	2	2	2	3	1	0	1	0	-1
Can't tell	-	-	-	-	-	-	7	0	-7
<b>Gender</b>									
Male	-	-	-	-	58	85	78	81	3
Female	-	-	-	-	16	14	22	19	-3
Can't tell	-	-	-	-	26	1	0	0	0
<b>Where Riding</b>									
Road	90	92	94	90	92	95	96	93	-3
Footpath	10	8	6	10	8	5	4	6	2
Don't know	0	0	0	0	0	0	0	1	1
<b>Base:</b>	<b>86</b>	<b>100</b>	<b>107</b>	<b>149</b>	<b>173</b>	<b>142</b>	<b>232</b>	<b>196</b>	

- Due to the presence of three pelotons this year, morning cyclist volume started with a particularly noticeable peak of 54 cyclists between 6:40am and 6:49am. The volume then declined before increasing again between 7:00am and 7:09am (37 cyclist movements). From 7:30am onwards, the number of morning cyclist remained at or below 12 until the end of the monitoring period.

**Figure 2.2: Morning Peak Cyclist Frequency  
Remuera/Orakei/Ascot 2007 – 2014 (n)**



- *Note: In 2014, 42 per cent of the morning peak cycle movements (n=196) 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:*
  - 10 cyclists at 6:44am
  - 13 cyclists at 6:45am
  - another group of 18 cyclists at 6:45am
  - 8 cyclists at 6:53pm
  - 33 cyclists at 7:04am.



## 2.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- The volume of cyclists recorded between 4:00pm and 7:00pm at this site in 2014 (82 movements) showed a decrease from that recorded last year (116 movements).
- The key movement in the evening at this site was east along Remuera Road (Movement 2 = 57 cyclists).
- The most noticeable change in cyclist volumes recorded was at Movement 2 (down 14 cyclists).

**Table 2.3: Evening Cyclist Movements**  
Remuera/Orakei/Ascot 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	3	3	2	0	1	2	4	2	-2
2	60	49	41	60	78	48	71	57	-14
3	6	4	6	8	2	4	12	6	-6
4	4	0	2	2	1	0	7	1	-6
5	4	0	1	0	1	1	2	1	-1
6	1	5	2	3	2	0	1	1	0
7	2	5	1	0	2	0	1	1	0
8	22	16	19	17	17	9	14	10	-4
9	0	0	1	0	1	1	0	0	0
10	1	1	0	1	0	1	0	0	0
11	5	6	5	3	2	3	2	3	1
12	1	0	0	1	0	2	2	0	-2
<b>Total</b>	<b>109</b>	<b>89</b>	<b>80</b>	<b>95</b>	<b>107</b>	<b>71</b>	<b>116</b>	<b>82</b>	<b>-34</b>



- The majority of cyclists in the evening were adults (95 per cent, up from 90 per cent last year).
- Almost all cyclists were wearing a helmet (96 per cent, down slightly from 100 per cent in 2013).
- Most cyclists were male (78 per cent, down from 84 per cent last year).
- Compared with last year, the incidence of riding on the road has remained stable at 93 per cent (from 92 per cent last year). The remaining 7 per cent of cyclists were observed riding on the footpath.

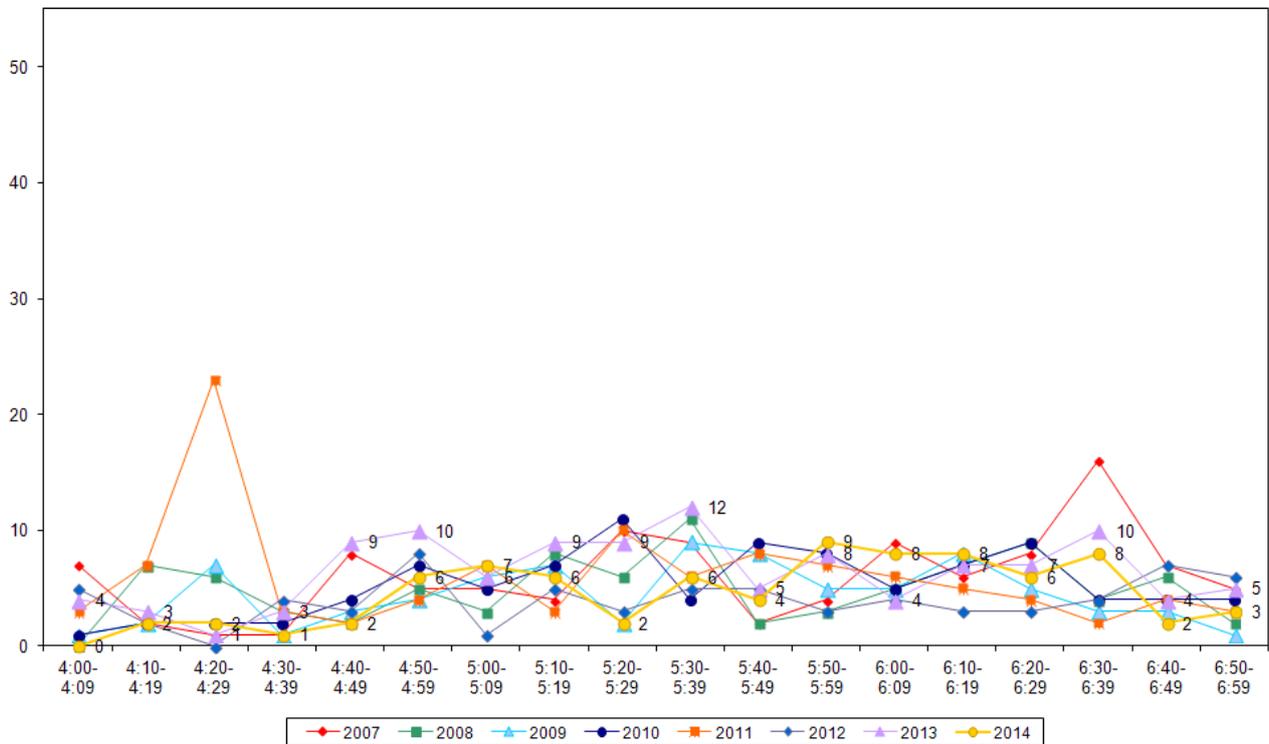
**Table 2.4: Evening Cyclist Characteristics  
Remuera/Orakei/Ascot 2004 – 2013 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	94	89	98	94	84	87	90	95	5
School child	6	11	2	6	16	13	10	5	-5
<b>Helmet Wearing</b>									
Helmet on head	98	96	98	95	100	99	100	96	-4
No helmet	2	4	2	5	0	1	0	4	4
<b>Gender</b>									
Male	-	-	-	-	79	86	84	78	-6
Female	-	-	-	-	10	14	16	22	6
Can't tell	-	-	-	-	11	0	0	0	0
<b>Where Riding</b>									
Road	92	89	90	87	93	87	92	93	1
Footpath	8	11	10	13	7	13	8	7	-1
<b>Base:</b>	<b>109</b>	<b>89</b>	<b>80</b>	<b>95</b>	<b>107</b>	<b>71</b>	<b>116</b>	<b>82</b>	



- This year, evening cyclist volume remained low. There was no obvious peak or trough in cycle movements. The maximum number of cyclists was 9, occurring between 5:50pm to 5:59pm. No pelotons were evident at this site in the evening.

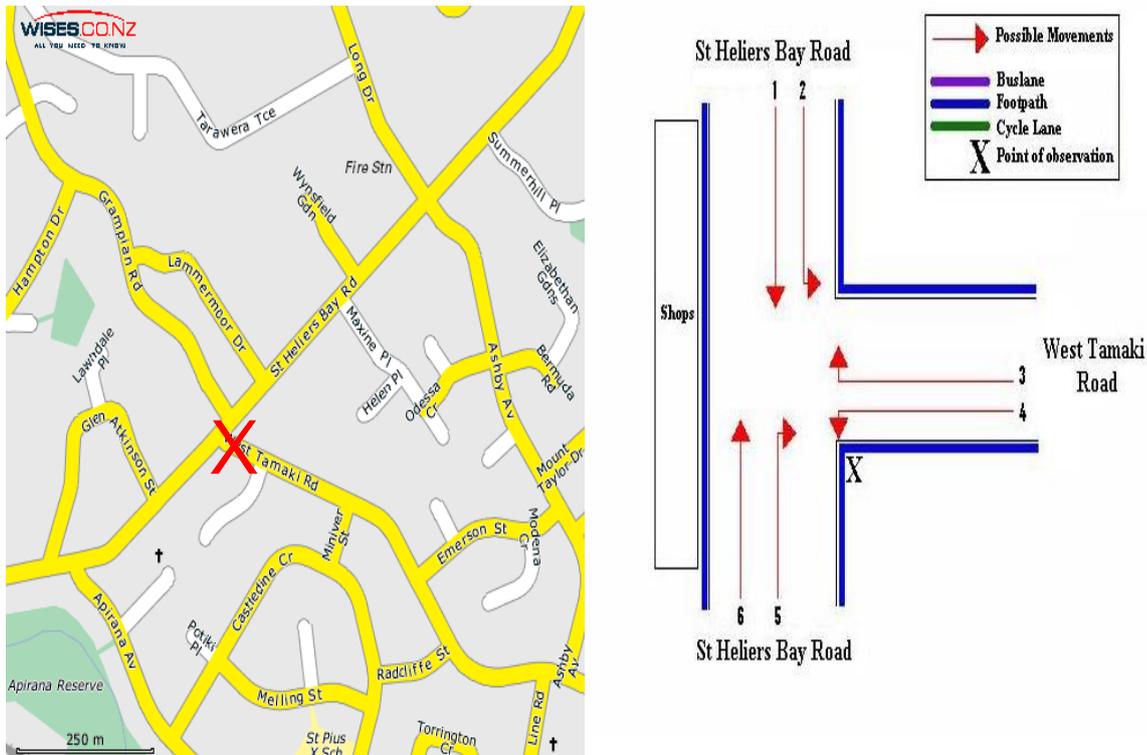
**Figure 2.3: Evening Peak Cyclist Frequency**  
**Remuera/Orakei/Ascot 2007 – 2014 (n)**



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

Figure 3.1 shows the possible cyclist movements at this intersection.

**Figure 3.1: Cycle Movements: St Heliers Bay/West Tamaki Road**



#### 3.1 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
<b>2014</b>	<b>154</b>	<b>65</b>	<b>220</b>	<b>325</b>



### 3.2 Morning Peak

#### Environmental Conditions

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

#### Key Points

- The volume of morning peak cyclists at the St Heliers Bay/West Tamaki Road intersection has decreased from last year – down from 177 to 154 movements this year.
- The key morning movement was turning right on to West Tamaki Road from St Heliers Bay Road (Movement 5 = 70 cyclists). There have been 16 fewer cyclists making this movement this year compared with last year.

**Table 3.1: Morning Cyclist Movements**  
**St Heliers Bay/West Tamaki 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	17	14	16	20	19	17	24	17	-7
2	4	4	1	5	4	3	3	10	7
3	21	7	5	7	6	3	28	23	-5
4	5	14	12	12	33	12	19	12	-7
5	69	53	7	21	61	25	86	70	-16
6	23	15	20	33	27	26	17	22	5
<b>Total</b>	<b>139</b>	<b>107</b>	<b>61</b>	<b>98</b>	<b>150</b>	<b>86</b>	<b>177</b>	<b>154</b>	<b>-23</b>



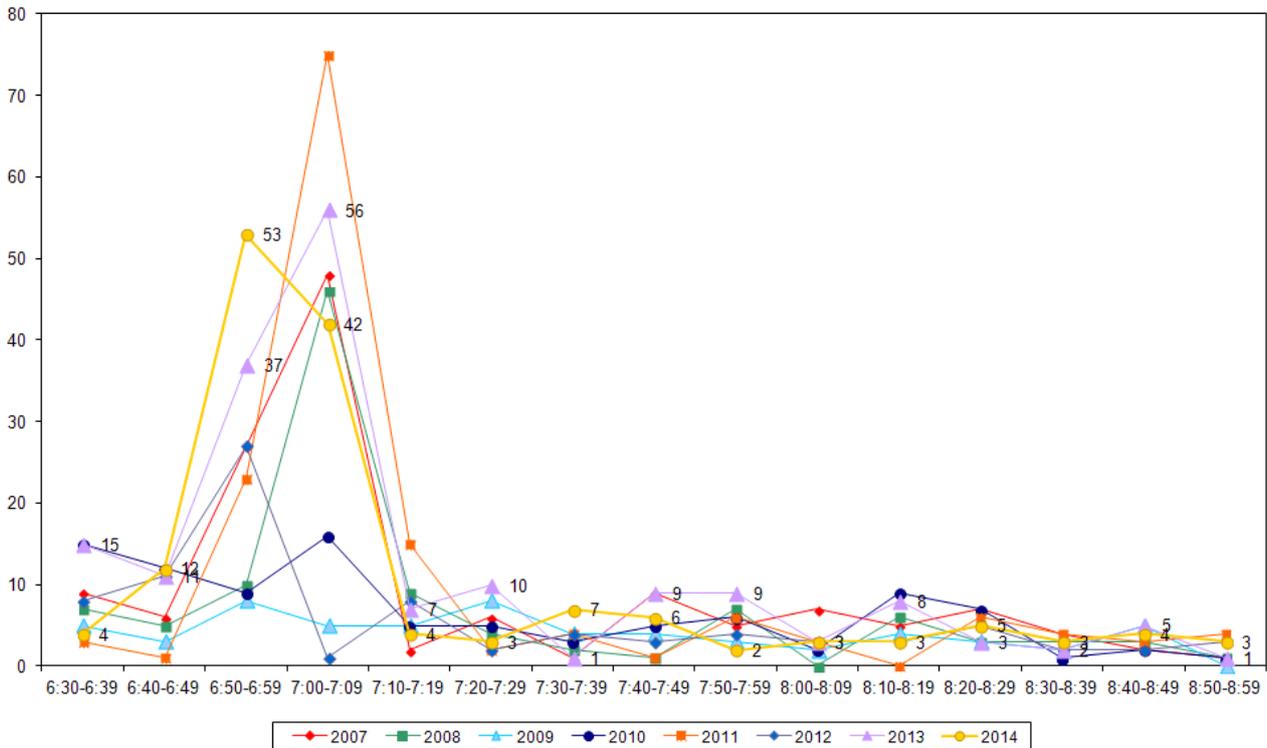
- Over the morning peak, adults comprised the greatest share of cycle movements (94 per cent, stable from 92 per cent the previous year).
- Nearly all cyclists were wearing a helmet (99 per cent, up from 92 per cent last year).
- Seventy-eight per cent of cyclists were male.
- Consistent with last year, the majority of cyclists are riding on the road (96 per cent, up slightly by 3 per cent from the last measure).

**Table 3.2: Morning Cyclist Characteristics**  
**St Heliers Bay/West Tamaki Road 2007 – 2014 (%)**

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

- Due to the presence of pelotons, there was a sharp peak in cycle movements between 6:50am and 7:09am (a total of 95 cyclists) which then fell to a stable volume of movements for the remainder of the monitoring period. This trend was consistent with previous years.

**Figure 3.2: Morning Peak Cyclist Frequency  
St Heliers Bay/West Tamaki Road 2007 – 2014 (n)**



- Note: In 2014, 55 per cent of the morning peak cycle movements (n=154) at this site were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:
  - 3 cyclists at 6:40am
  - 3 cyclists at 6:45am
  - 18 cyclists at 6:50am
  - 13 cyclists at 6:58am
  - 16 cyclists at 6:59am
  - 3 cyclists at 7:00am
  - 4 cyclists at 7:02am
  - 24 cyclists at 7:04am.



### 3.3 Evening Peak

#### Environmental Conditions

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

#### Key Points

- In 2014, the number of evening cycle movements recorded at the St Heliers Bay/West Tamaki Road intersection has decreased by 6, to a total of 65 movements.
- The key movement at this site in the evening was straight along St Heliers Bay Road heading south (Movement 1 = 22 cyclists).
- The most noticeable increase was at Movement 1 (up 8 cyclists) while the most notable decrease was at Movement 6 (down 12 cyclists).

**Table 3.3: Evening Cyclist Movements**  
**St Heliers Bay/West Tamaki 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	22	19	15	23	17	9	14	22	8
2	6	6	7	6	6	5	4	5	1
3	4	8	6	2	4	1	1	5	4
4	5	5	5	6	8	4	10	5	-5
5	3	12	7	9	11	9	16	14	-2
6	29	10	7	26	28	21	26	14	-12
<b>Total</b>	<b>69</b>	<b>60</b>	<b>47</b>	<b>72</b>	<b>74</b>	<b>49</b>	<b>71</b>	<b>65</b>	<b>-6</b>



- Consistent with the morning peak, the greatest share of cyclists using this intersection were adults (78 per cent, down from 86 per cent in 2013).
- Most cyclists at this site were wearing a helmet (94 per cent, up 2 percentage points from last year).
- Seventy-eight per cent of cyclists were male, down from 83 per cent last year.
- The majority of cyclists were riding on the road (78 per cent, down slightly from 83 per cent last year).

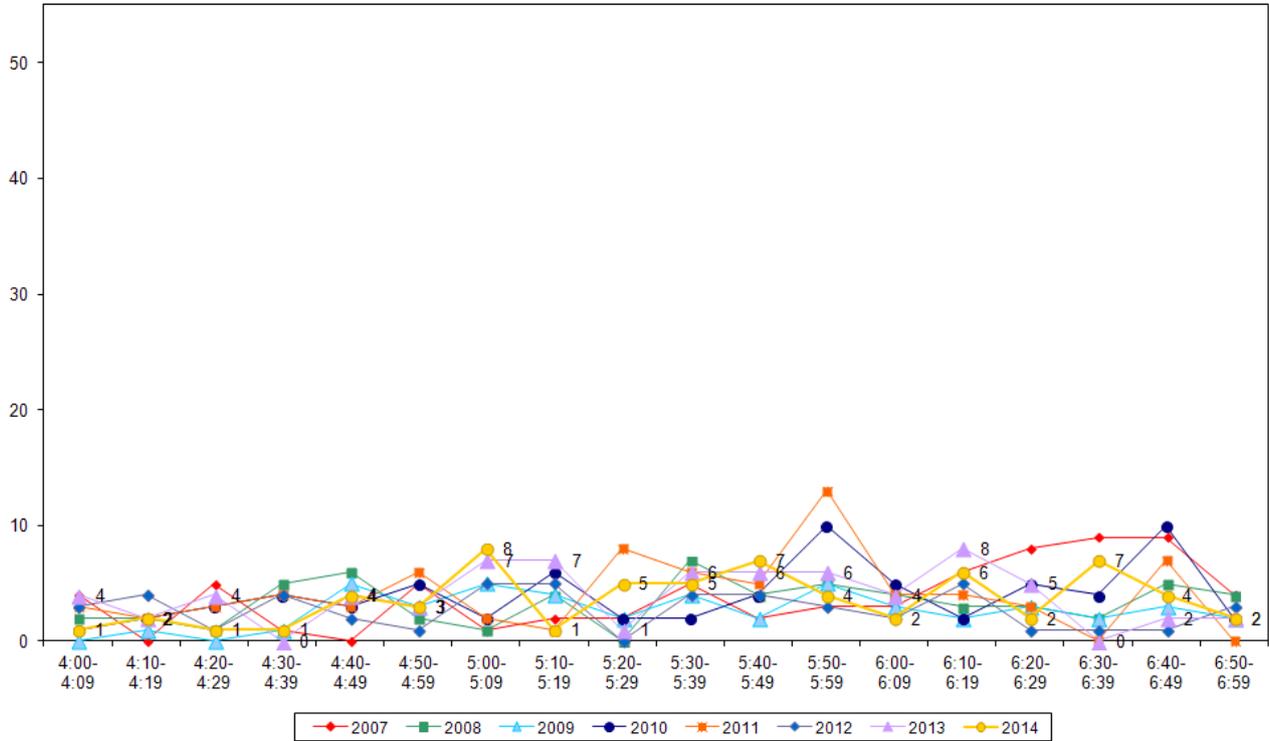
**Table 3.4: Evening Cyclist Characteristics**  
**St Heliers Bay/West Tamaki Road 2007 – 2014 (%)**

	2007	2008	2009	2010	2011	2012	2013	2014	Change 13-14
<b>Cyclist Type</b>									
Adult	93	88	89	96	89	73	86	<b>78</b>	<b>-8</b>
School child	7	12	11	4	11	27	14	<b>20</b>	<b>6</b>
Don't know	0	0	0	0	0	0	0	<b>2</b>	<b>2</b>
<b>Helmet Wearing</b>									
Helmet on head	99	92	94	96	88	92	92	<b>94</b>	<b>2</b>
No helmet	1	8	6	4	12	8	8	<b>6</b>	<b>-2</b>
<b>Gender</b>									
Male	-	-	-	-	91	71	83	<b>78</b>	<b>-5</b>
Female	-	-	-	-	9	27	17	<b>20</b>	<b>3</b>
Can't tell	-	-	-	-	0	2	0	<b>2</b>	<b>2</b>
<b>Where Riding</b>									
Road	88	87	87	96	76	82	83	<b>78</b>	<b>-5</b>
Footpath	12	13	13	4	24	18	17	<b>22</b>	<b>5</b>
<b>Base:</b>	<b>69</b>	<b>60</b>	<b>47</b>	<b>72</b>	<b>74</b>	<b>49</b>	<b>71</b>	<b>65</b>	



- The volume of evening cycle movements was relatively stable throughout the monitoring period, with a maximum of eight cyclists from 5:00pm to 5:09pm. The trough observed in previous years at 5:20pm to 5:29pm has shifted this year, being slightly earlier (at 5:10pm to 5:19pm).

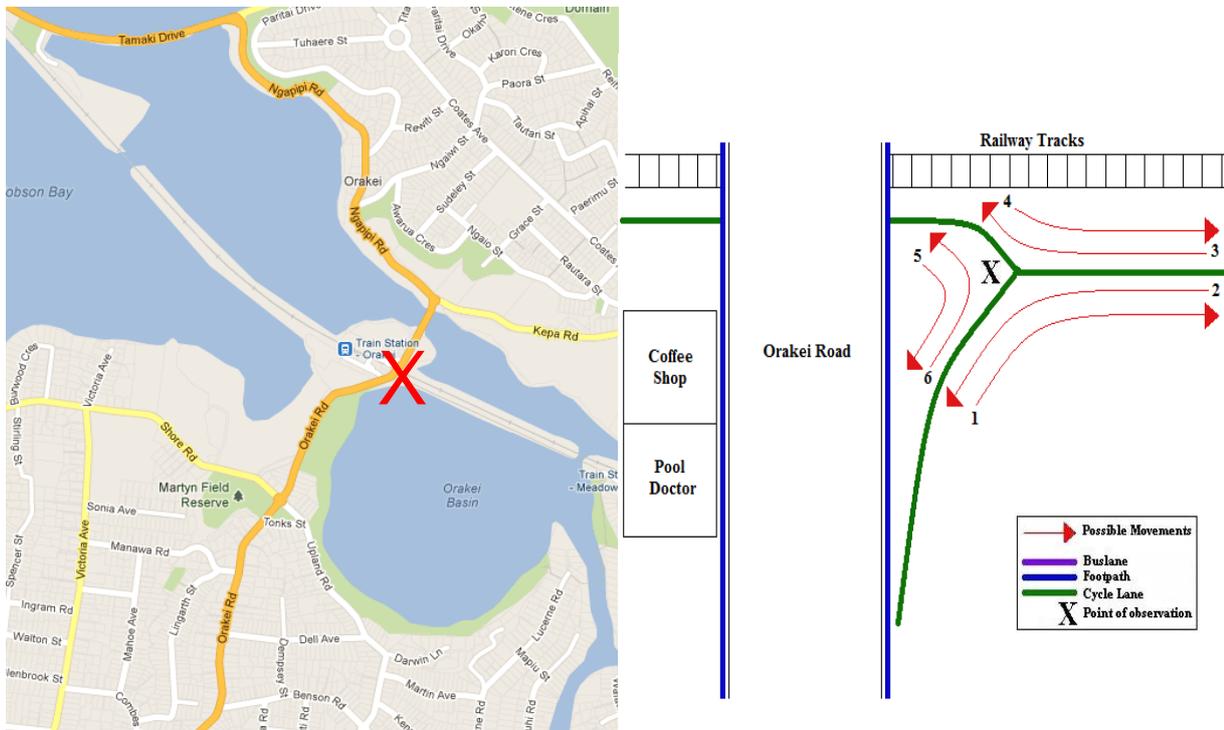
**Figure 3.3: Evening Peak Cyclist Frequency  
St Heliers Bay/West Tamaki Road 2007 – 2014 (n)**



# 4. ORAKEI BASIN BOARDWALK, ORAKEI (SITE 91)

Figure 4.1 shows the possible cyclist movements at this site.

**Figure 4.1: Cycle Movements: Orakei Basin Boardwalk**



## 4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	Evening Peak	Total	Total
2013	14	18	32	46
2014	27	25	52	76

## 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*

- Twenty-seven movements were recording during the morning shift, approximately twice as many as the 14 recorded last year.
- The key morning movement was riding from Orakei Basin towards Ngapipi Road (Movement 3 = 14 cyclists).
- All movements observed either no change or increases in number of movements being made, the greatest of which was at Movement 3 with five more cyclists this year.

**Table 4.1: Morning Cyclist Movements  
Orakei Basin Boardwalk 2013 – 2014 (n)**

<i><b>Movement</b></i>	<i><b>2013</b></i>	<i><b>2014</b></i>	<i><b>Change 13-14</b></i>
1	3	5	2
2	2	6	4
3	9	14	5
4	0	0	0
5	0	0	0
6	0	2	2
<b>Total</b>	<b>14</b>	<b>27</b>	<b>13</b>



- All cyclists at this site were adults, the same result as last year.
- Most cyclists were wearing a helmet (96 per cent, a decrease of 4 percentage points from last year).
- Eighty-nine per cent of cyclists were male, an increase of three percentage points from 2013.

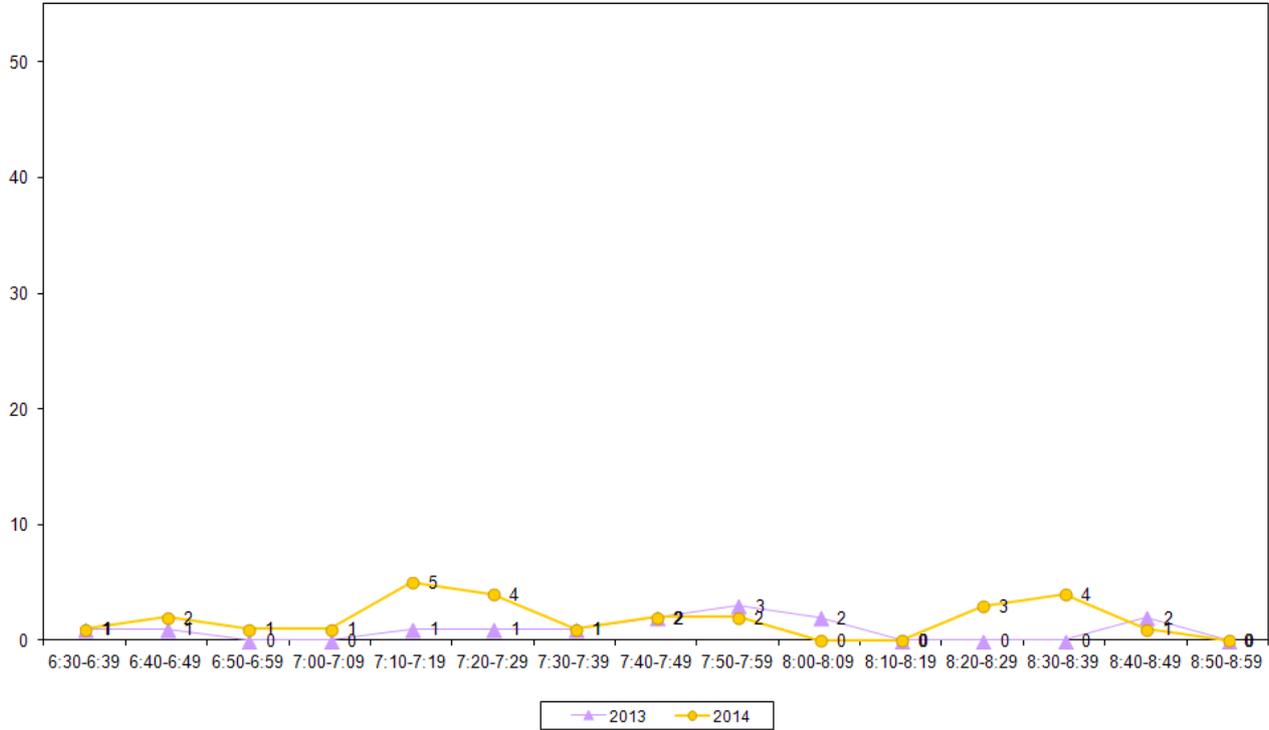
**Table 4.2: Morning Cyclist Characteristics  
Orakei Basin Boardwalk 2013 – 2014 (%)**

	2013	2014	Change 13-14
<b>Cyclist Type</b>			
Adult	100	100	0
School child	0	0	0
<b>Helmet Wearing</b>			
Helmet on head	100	96	-4
No helmet	0	4	4
<b>Gender</b>			
Male	86	89	3
Female	14	11	-3
Can't tell	0	0	
<b>Where Riding</b>			
Road	0	0	0
Footpath	0	0	0
Off-road cycleway	100	100	0
<b>Base:</b>	<b>14</b>	<b>27</b>	



- Morning cycle volume was very low at this site, with no more than five cycle movements during any ten minute interval. Peaks in cycle activity were recorded between 7:10am and 7:29am with 9 movements and between 8:20am and 8:39am with 7 movements.

**Figure 4.2: Morning Peak Cyclist Frequency  
Orakei Basin Boardwalk 2013 – 2014 (n)**





### 4.3 Evening Peak

#### Environmental Conditions

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

#### Key Points

- Twenty-five cycle movements were recorded in the evening shift, an increase from the 18 movements recorded last year.
- The key evening movements observed were heading from towards Orakei Basin from both directions of Ngapipi Road (from the north end; Movement 4 = 9 cyclists and from the south end; Movement 1 = 11 cyclists).

**Table 4.3: Evening Cyclist Movements  
Orakei Basin Boardwalk 2013 – 2014 (n)**

<b>Movement</b>	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
1	7	11	4
2	0	1	1
3	2	2	0
4	9	9	0
5	0	2	2
6	0	0	0
<b>Total</b>	<b>18</b>	<b>25</b>	<b>7</b>



- All cyclists at this site in the evening were adults, unchanged from last year.
- All cyclists at this site were wearing a helmet, an increase of 17 percentage points on the previous measure.
- Eighty-eight per cent of cyclists were male (up 5 per cent from last year).

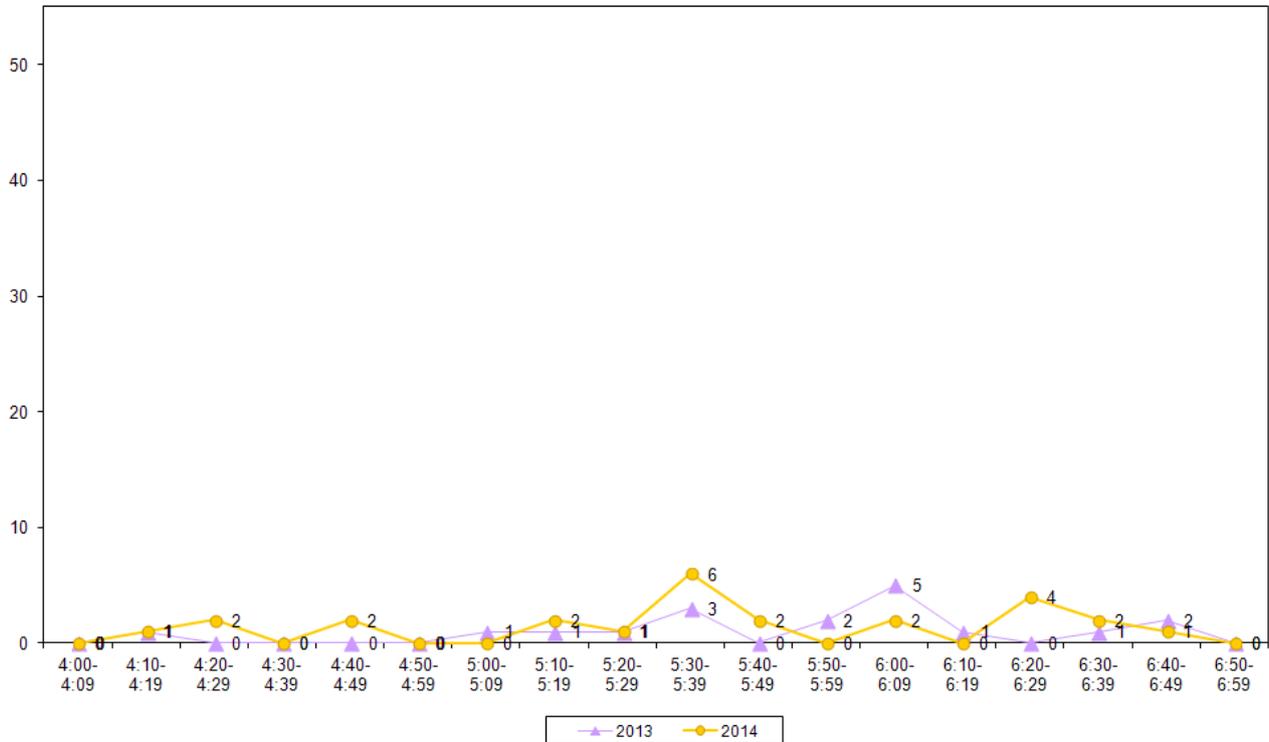
**Table 4.4: Evening Cyclist Characteristics  
Orakei Basin Boardwalk 2013 – 2014 (%)**

	<b>2013</b>	<b>2014</b>	<b>Change 13-14</b>
<b>Cyclist Type</b>			
Adult	100	<b>100</b>	<b>0</b>
School child	0	<b>0</b>	<b>0</b>
<b>Helmet Wearing</b>			
Helmet on head	83	<b>100</b>	<b>17</b>
No helmet	17	<b>0</b>	<b>-17</b>
<b>Gender</b>			
Male	83	<b>88</b>	<b>5</b>
Female	17	<b>12</b>	<b>-5</b>
Can't tell	0	<b>0</b>	<b>0</b>
<b>Where Riding</b>			
Road	0	<b>0</b>	<b>0</b>
Footpath	0	<b>0</b>	<b>0</b>
Off-road cycleway	100	<b>100</b>	<b>0</b>
<b>Base:</b>	<b>18</b>	<b>25</b>	



- Figure 4.3 illustrates the total number of cyclists by time of movement in the evening shift. The first half of the evening was very quiet. From 5:30pm the site became slightly busier, with two small peaks visible (5:30pm – 5:39pm with 6 cyclists and 6:20pm – 6:29pm with 4 cyclists).

**Figure 4.3: Evening Peak Cyclist Frequency  
Orakei Basin Boardwalk 2013 – 2014 (n)**



## 5. SCHOOL BIKE SHED COUNT

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### 5.1 Cycle Count Background Information

- A total of 15 schools in the Orakei ward participated in the school bike shed count.
- Of the schools that responded to the survey, most did not have policies that restrict students cycling to school<sup>9</sup>.
- One school reported an event or issue that may affect cycle counts<sup>10</sup>.
- Although the designated count day was Tuesday 4<sup>th</sup> of March 2014, most schools in the Orakei ward completed their count on an alternative day<sup>11</sup>.

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

### 5.2 Cycle Count Key Points

- Of those eligible to cycle, on average two per cent of students are cycling to their schools (unchanged from 2011).
- Across the 15 eligible schools that responded, n=133 students were reported cycling to school.
- Stonefields School reported the highest share of cyclists –16 per cent of all eligible students currently cycling.
- Of the 14 schools that participated in the survey in both 2013 and 2014, three schools (Stonefields School, St Heliers School and St Kentigern Primary School) have increased the share of students that cycle.
- Of the 14 schools that participated in the count in both 2013 and 2014, four schools reported a decrease in the share of students cycling.
- Of the 15 eligible schools that responded, four (27 per cent) had no students cycling to school.

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<sup>9</sup> The following schools had policies surrounding riding bicycles to school:

- Churchill Park School *"Students must be aged 10 years or older (Years 6,7,8)"*
- King's Preparatory School *"Pupils from Years 5 to 8 may ride to school"*
- St Heliers School *"All student cyclists must wear a helmet"*
- St Kentigern Primary School *"Only years 7 and 8 may cycle to school"*
- Stonefields School *"Only students over the age of 10 may cycle unless accompanied by a parent"*

<sup>10</sup> The following schools reported events or issues that may affect cycle counts:

- King's Preparatory School *"Years 5-7 are on school camp"*

<sup>11</sup> The following schools undertook counts on alternative days:

- Churchill Park School – 12<sup>th</sup> March 2014
- Glen Taylor School – 12<sup>th</sup> March 2014
- Michael Park School – 20<sup>th</sup> March 2014
- Orakei School – 14<sup>th</sup> March 2014
- Remuera Intermediate School – 27<sup>th</sup> March 2014
- Sacred Heart College – 17<sup>th</sup> March 2014
- Saint Heliers School – 6<sup>th</sup> March 2014
- Saint Kentigern Girls' School – 27<sup>th</sup> February 2014
- Saint Kentigern Primary School (Remuera) – 27<sup>th</sup> March 2014



Table 5.1 shows the results of the 15 schools surveyed in the Orakei ward.

**Table 5.1: Summary Table of School Bike Count  
2007 – 2014 (n)**

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles	Cyclists as share of those eligible <sup>12</sup>							
				2014	2013	2012	2011	2010	2009	2008	2007
Stonefields School	Full Primary	87	14	16%	10%	5%	-	-	-	-	-
Remuera Intermediate	Intermediate	952	54	6%	6%	6%	6%	5%	7%	5%	9%
Mt Hobson Middle School	Intermediate/Secondary	48	2	4%	7%	6%	-	-	-	-	-
Churchill Park School	Full Primary	146	3	2%	10%	6%	2%	-	-	-	-
Selwyn College	Secondary	932	15	2%	3%	2%	2%	2%	2%	1%	-
St Heliers School	Full Primary	728	13	2%	1%	2%	-	-	-	-	-
Saint Kentigern Primary School (Remuera)	Full Primary	200	4	2%	1%	-	-	-	-	-	-
Glendowie College	Secondary	1099	11	1%	1%	1%	1%	1%	1%	-	-
Michael Park School	Composite	422	6	1%	-	-	-	-	-	-	-
Orakei School	Full Primary	176	1	1%	1%	-	-	-	-	-	-
Sacred Heart College	Intermediate/Secondary	1200	10	1%	1%	-	1%	-	1%	1%	-
Baradene College of the Sacred Heart	Intermediate/Secondary	1122	0	0%	0%	0%	0%	0%	0%	<1%	0%
Glen Taylor School	Full Primary	240	0	0%	1%	0%	-	-	-	-	-
King's Preparatory School	Full Primary	430	0	0%	0%	<1%	-	-	-	-	-
Saint Kentigern Girls' School	Full Primary	176	0	0%	0%	0%	0%	0%	-	-	-
<b>Total</b>		<b>7958</b>	<b>133</b>	<b>2%</b>	<b>2%</b>	<b>2%</b>	<b>2%</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

<sup>12</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 5.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (6 per cent, unchanged from 2011).

**Table 5.2: Summary Table of School Bike Count by School Type  
2007 – 2014 (%)**

<i>School Type</i>	<i>Number of Schools Responded in 2014</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	1	9%	5%	7%	5%	6%	6%	6%	6%	-
Composite	1	-	-	-	0%	0%	100%	0%	1%	1%
Intermediate/Secondary	3	0%	<1%	<1%	0%	1%	<1%	1%	1%	-
Full Primary	8	-	-	-	-	2%	2%	2%	1%	-1%
Secondary	2	-	1%	1%	1%	2%	2%	2%	1%	-1%



### 5.3 Scooter Count Background Information

- A total of 15 schools in the Orakei 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>13</sup>.
- No schools surveyed reported any events or issues that may affect the scooter counts<sup>14</sup>.
- The designated count day was Tuesday 4<sup>th</sup> of March 2014<sup>15</sup>.

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

### 5.4 Scooter Count Key Points

- Among the surveyed schools, of those eligible to scooter, on average, four per cent of students are scootering to their schools.
- Mt Hobson Middle School reported the highest share of scooters – 10 per cent of all eligible students currently scootering to school.
- In total, n=97 students from the responding schools were reported to be scootering to school.
- Of the 15 schools that responded, six (40 per cent) had no students scootering to school.

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<sup>13</sup> The following schools have policies surrounding scootering to school:

- King's Preparatory School "*Pupils from Years 5 to 8 may ride to school*"
- St Kentigern Primary School "*Only years 7 and 8 may cycle to school*"

<sup>14</sup> The following schools reported events or issues that may affect cycle counts:

- King's Preparatory School "*Years 5-7 are on school camp*"

<sup>15</sup> The following schools undertook counts on alternative days:

- Churchill Park School – 12<sup>th</sup> March 2014
- Glen Taylor School – 12<sup>th</sup> March 2014
- Michael Park School – 20<sup>th</sup> March 2014
- Orakei School – 14<sup>th</sup> March 2014
- Remuera Intermediate School – 27<sup>th</sup> March 2014
- Sacred Heart College – 17<sup>th</sup> March 2014
- Saint Heliers School – 6<sup>th</sup> March 2014
- Saint Kentigern Girls' School – 27<sup>th</sup> February 2014
- Saint Kentigern Primary School (Remuera) – 27<sup>th</sup> March 2014



Table 5.3 shows the results of the 15 schools surveyed in the Orakei ward.

**Table 5.3: 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>16</sup>
				2014
Mt Hobson Middle School	Intermediate/ Secondary	48	5	10%
Stonefields School	Full Primary	323	21	7%
Orakei School	Full Primary	176	8	5%
Saint Heliers School	Full Primary	728	28	4%
Churchill Park School	Full Primary	413	12	3%
Remuera Intermediate School	Intermediate	952	16	2%
Michael Park School	Composite	422	5	1%
Saint Kentigern Primary School	Full Primary	200	1	1%
Sacred Heart College	Intermediate/ Secondary	1200	1	<1%
Baradene College of the Sacred Heart	Intermediate/ Secondary	1122	0	0%
Glen Taylor School	Full Primary	240	0	0%
Glendowie College	Secondary	1099	0	0%
King's Preparatory School	Full Primary	430	0	0%
Saint Kentigern Girls' School	Full Primary	176	0	0%
Selwyn College	Secondary	932	0	0%
<b>Total</b>		<b>8461</b>	<b>97</b>	<b>4%</b>

<sup>16</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 5.4 illustrates the rates of scootering to school at different school levels. Rates of scootering to school are highest for the full primary schools (3 per cent).

**Table 5.4: 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	8	3%
Intermediate	1	2%
Composite	1	1%
Intermediate/Secondary	3	<1%
Secondary	2	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>17</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>18</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>17</sup> Annual average daily traffic

<sup>18</sup> 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 <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%