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Research Report Prepared for
Auckland Transport

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2012 Auckland Region Manual Cycle Monitor

- Orakei Ward -

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1.1 Introduction

The Need For Reliable Cycle Trip Data

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

Cycle traffic data will help inform a major programme of improvements for cycling in the Auckland region. In 2007, over $100 million was planned to be invested in building over 50% of the Regional Cycle Network by 2016. By mid 2009, 21% of the Regional Cycle Network had been built. Comprehensive cycle data assists with the development of the region's cycle network and prioritisation of projects.

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

Manual Cycle Monitoring

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

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

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

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

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

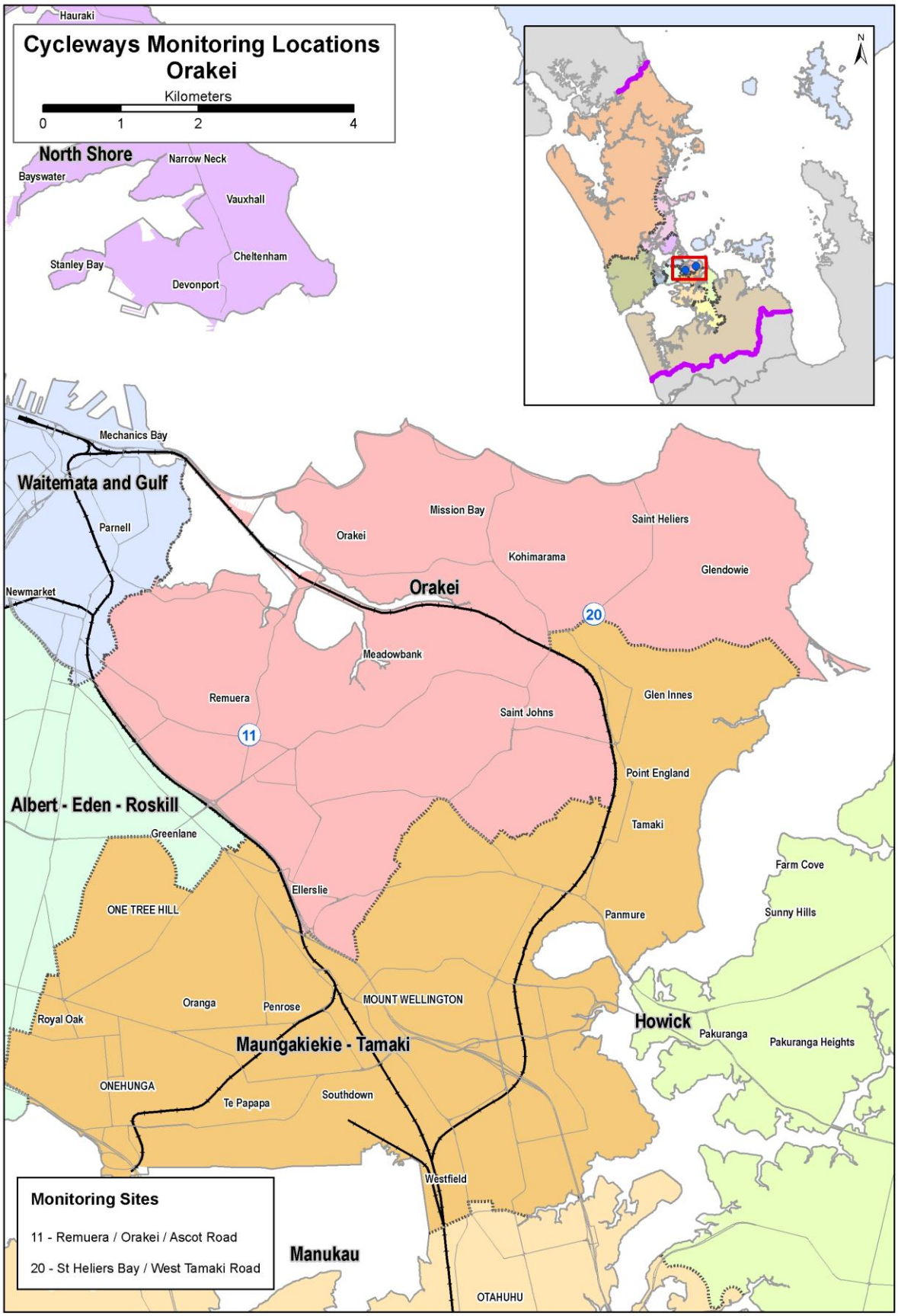
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

This report presents results from manual cycle counts conducted at 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 2007, 2008, 2009, 2010 and/or 2011, comparative results are provided.

Important Note: This report provides the results of manual cycle monitoring conducted at two 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: 2011 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 83 different sites throughout the region. Sites were distributed by ward as follows:

- Albany 15 sites
- Albert-Eden–Roskill 10 sites
- Franklin 2 sites
- Howick 5 sites
- Manukau 10 sites
- Manurewa-Papakura 4 sites
- Maungakiekie-Tamaki 7 sites
- North Shore 8 sites
- Orakei 2 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 6th of March and be conducted on the first three fine days of the 6th, 7th, 8th, 13th, 14th, or 15th of March.

Counts were conducted on the following days:

• Tuesday 6th March	Albany, North Shore, Waitakere
• Wednesday 7th March	Whau, Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki
• Tuesday 13th March	Howick, Franklin, Manukau, Waitemata & Gulf

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 2012 was as follows:

Tuesday 6th March

- Sunrise: 7:11am; Sunset: 7:52pm.
- Highest temperature: 21.3 degrees Celsius.
- Mostly fine weather with some cloud for some sites in the morning and afternoon shifts.

Wednesday 7th March

- Sunrise: 7:12am; Sunset: 7:51pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with some cloud for all sites in the morning, some sites experienced showers intermittently from 16:00 until the end of the evening monitoring period.

Tuesday 13th March

- Sunrise: 7:17am; Sunset: 7:43pm.
- Highest temperature: 21.3 degrees Celsius.
- Mostly fine weather with some cloud for some sites in the morning and afternoon shifts.

Conducting The Manual Counts

Scoping Visit

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

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

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

During their shift the surveyor collected data on:

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

[3] This letter also contained contact details for Auckland Transport and Gravitas Research and Strategy for any member of the public or local business owners who had queries about the work being undertaken.
[4] To ensure consistency across all surveyors, a "cycle" was defined as being non-motorised, with one or two wheels and requiring pedalling to make it move. Note that this definition did not include scooters.
[5] Note: For the purpose of this project, an off-road cycleway is defined as designated off-road path for cycles. This includes exclusive cycle paths, separated paths (such as the footpath on Tamaki Drive) and shared-use paths (available to cyclists and pedestrians). It excludes on-road cycle lanes (that is, designated lanes marked on the road).

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

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

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

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

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

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

[6] http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html
[7] ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.

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

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

School Bike Shed Counts

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

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

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

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

Methodology

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

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

2. This email was then sent to all eligible schools in Auckland region (n=317) 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 6th 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 2012, 233 responses were received, a response rate of 74 per cent. (This compares with 68 per cent in 2011).

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 four 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 and Three of this report.

Note: Surveying in the Orakei ward was undertaken on Wednesday 7th of March, 2012. Sunrise was at 7:12am and sunset at 7:51pm. The highest temperature was 24.0 degrees Celsius.

1.4 Morning Peak Summary Results

Environmental Conditions

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

Key Points

- A total of 228 cyclist movements were recorded across the two sites in the morning peak period (between 6:30am and 9:00am) in 2012. This represents a 29 per cent decrease from 2011.
- Thirty-six per cent of these movements (n=83) were made by cyclists riding in groups. This compares with 46 per cent (n=150) in 2011.
- The average volume of morning cyclists in the Orakei ward is 114 cycle movements, compared to 162 movements in 2011, a 30 per cent decrease.
- The busiest site in the morning continues to be Remuera/Orakei Road (142 cycle movements, down from 173 movements in 2011).
- Both sites saw decreases in cycle movement volumes this year when compared to 2011:
  - Remuera/Orakei Road – down 18 per cent
  - St. Heliers Bay/West Tamaki Road – down 43 per cent.

Table 1.1: Summary of Morning Cyclist Movements

2007 – 2012 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	2012	Change 11-12	Change 07-12
11	Remuera/Orakei Road	86	100	107	149	173	**142**	**-18%**	**65%**
20	St Heliers Bay/West Tamaki Road	139	107	61	98	150	**86**	**-43%**	**-38%**
	Average per site	**113**	**104**	**84**	**124**	**162**	**114**	**-30%**	**1%**
	Total	**225**	**207**	**168**	**247**	**323**	**228**	**-29%**	**1%**

- Morning cyclist characteristics this year are similar to those reported in 2011. In particular, 89 per cent of cyclists this year are adults (down from 94 per cent in 2011).
- All morning cyclists are wearing a helmet (100 per cent in 2012, stable from 2011).
- The majority of morning cyclists this year were male (79 per cent).
- The share of cyclists riding on the road (94 per cent) has remained stable over the last five years of monitoring.

Table 1.2: Summary of Morning Cyclist Characteristics

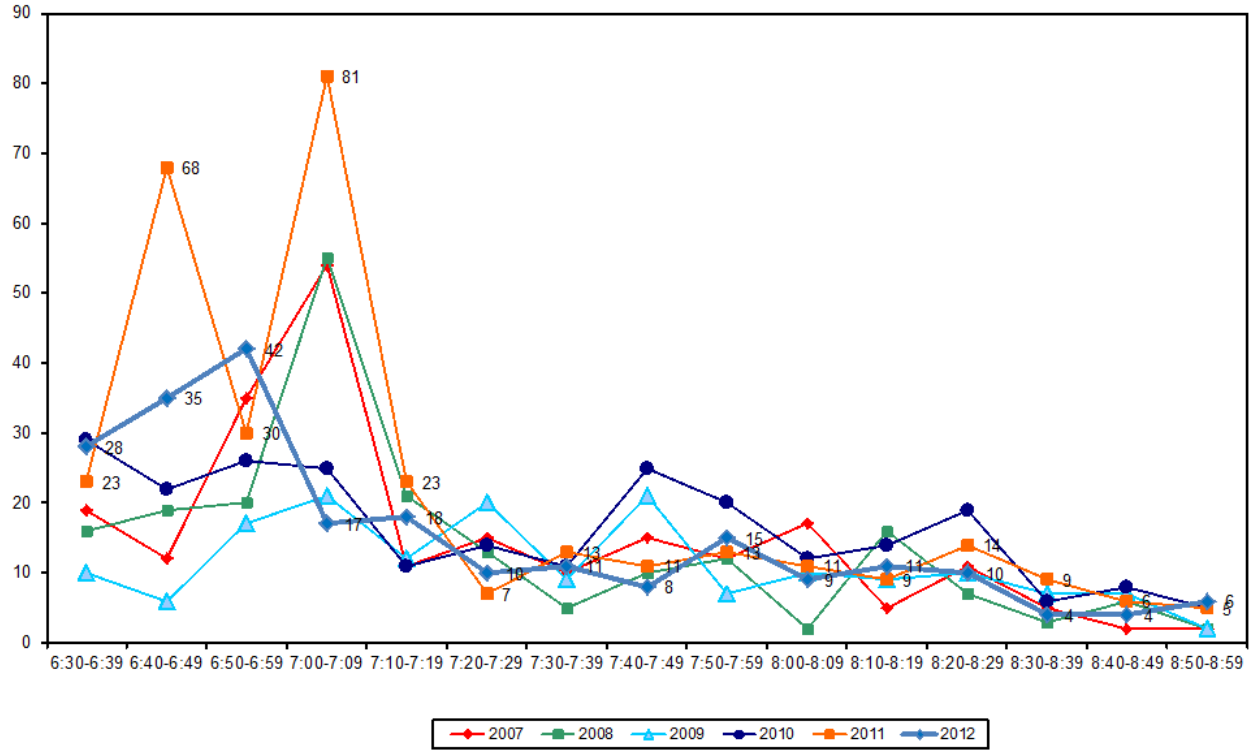
2007 – 2012 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	**Change 11-12**
Cyclist Type							
Adult	88	95	93	92	94	**89**	**-5**
School child	12	5	7	8	6	**11**	**5**
Helmet Wearing							
Helmet on head	99	98	98	98	99	**100**	**1**
No helmet	1	2	2	2	1	**0**	**-1**
Gender							
Male	-	-	-	-	70	**79**	**9**
Female	-	-	-	-	16	**14**	**-2**
Can't tell	-	-	-	-	14	**7**	**-7**
Where Riding*							
Road	88	92	94	92	92	**94**	**2**
Footpath	12	8	6	8	8	**6**	**-2**
Base:	***225***	***207***	***168***	***247***	***323***	***228***	

- Figure 1.2 illustrates the total number of morning cyclists by time of movement at the two sites in the Orakei ward. The graph shows a peak in cycle volumes between 6:50am and 6:59am (42 movements). Cyclist numbers then decrease and remain steady throughout the remainder of the morning monitoring period.

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007 – 2012 (n)



1.5 Evening Peak Summary Results

Environmental Conditions

- Both sites monitored in the Orakei ward had mostly fine weather in the evening, with the exception of rain observed between 4:25pm and 6:00pm.
- No site had road works or accidents that would have affected cycle movement counts

Key Points

- The total volume of morning cyclist movements in the Orakei ward has decreased from 181 in 2011 to 120 in 2012 – a 34 per cent decrease.
- No cyclists were observed riding in groups in 2012. This compares with 9 per cent (n=17) in 2011.
- The average volume of morning cyclists in the Orakei ward has decreased, from 91 movements in 2011 to 60 in 2012, a 34 per cent decrease.
- The busiest site in the morning is Remuera/Orakei Road (71 cycle movements, down from 107 movements in 2011).
- Both sites saw decreases in cycle movement volumes this year when compared to 2011:
  - Remuera/Orakei Road – down 34 per cent
  - St. Heliers Bay/West Tamaki Road – down 34 per cent.

Table 1.3: Summary of Evening Cyclist Movements
2007 – 2012 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12	Change 07-12
11	Remuera/Orakei Road	109	89	80	95	**107**	**71**	**-34%**	**-35%**
20	St Heliers Bay/West Tamaki Road	69	60	47	72	**74**	**49**	**-34%**	**-29%**
	Average per site	**89**	**75**	**64**	**84**	**91**	**60**	**-34%**	**-33%**
	Total	**178**	**149**	**127**	**167**	**181**	**120**	**-34%**	**-33%**

- Eighty-two per cent of evening cyclists this year are adults (down from 86 per cent in 2011).
- Most cyclists are wearing a helmet in the evening (96 per cent, stable from 2011).
- The majority of evening cyclists were male (80 per cent).
- The majority of evening cyclists are riding on the road (85 per cent, stable from 86 per cent in 2011).

Table 1.4: Summary of Evening Cyclist Characteristics

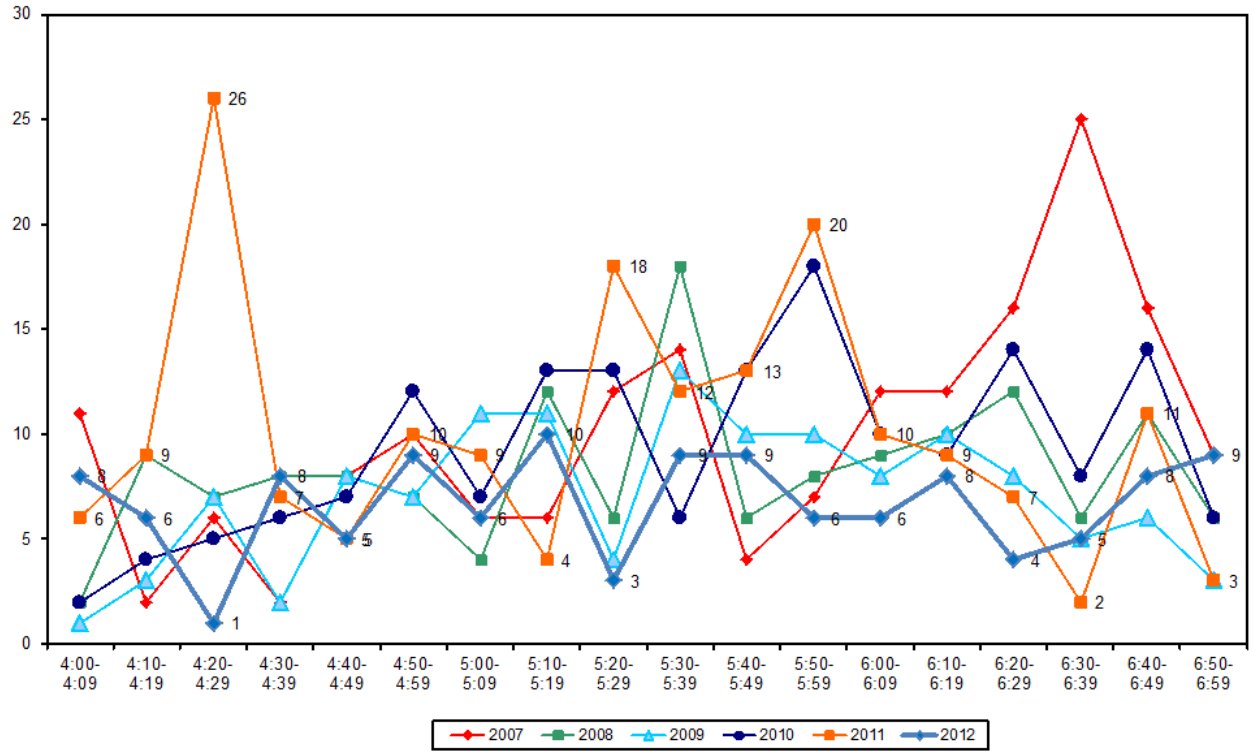
2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	94	89	95	95	86	**82**	**-4**
School child	6	11	5	5	14	**18**	**4**
Helmet Wearing							
Helmet on head	98	94	97	95	95	**96**	**1**
No helmet	2	6	3	5	5	**4**	**-1**
Gender							
Male	-	-	-	-	83	**80**	**-3**
Female	-	-	-	-	10	**19**	**9**
Can't tell	-	-	-	-	7	**1**	**-6**
Where Riding*							
Road	90	88	89	91	86	**85**	**-1**
Footpath	10	12	11	9	14	**15**	**1**
Base:	***178***	***149***	***127***	***167***	***181***	***120***	

- Cyclist volumes fluctuate throughout the evening monitoring period, with a peak of 10 movements between 5:10pm and 5:19pm.

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007 – 2012 (n)



1.6 Aggregated Total Summary Results

- Overall, a total of 348 cyclist movements were recorded across the two sites monitored in 2012 - 24 per cent of these cyclists (n=83) observed as cycling in groups. This compares with 33 per cent (n=169) in 2011.
- The average number of cycle movements per monitoring site is 174, a decrease of 31 per cent from last year.
- Of the two sites in the Orakei ward, the busiest continues to be Remuera/Orakei Road with a total of 213 movements this year (down 24 per cent from 280 in 2011).

Table 1.5: Summary of Total Cyclist Movements

2007 – 2012 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12	Change 07-12
11	Remuera/Orakei Road	195	189	187	244	280	**213**	**-24%**	**9%**
20	St Heliers Bay/West Tamaki Road	208	167	108	170	224	**135**	**-40%**	**-35%**
	Average per site	**202**	**178**	**148**	**207**	**252**	**174**	**-31%**	**-14%**
	Total	**403**	**356**	**295**	**414**	**504**	**348**	**-31%**	**-14%**

- The majority of cyclists continue to be adults (86 per cent of all cyclists this year).
- Almost all cyclists are wearing a helmet (98 per cent, unchanged from 2011).
- Seventy-nine per cent of the total cyclist movements in Orakei ward were made by male cyclists.
- The majority of cyclists are riding on the road (91 per cent, stable from 90 per cent in 2011).

Table 1.6: Summary of Total Cyclist Characteristics

2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	91	92	94	93	91	**86**	**-5**
School child	9	8	6	7	9	**14**	**5**
Helmet Wearing							
Helmet on head	99	96	97	97	98	**98**	**0**
No helmet	1	4	3	3	2	**2**	**0**
Gender							
Male	-	-	-	-	75	**79**	**4**
Female	-	-	-	-	14	**16**	**2**
Can't tell	-	-	-	-	11	**5**	**-6**
Where Riding*							
Road	89	90	92	92	90	**91**	**1**
Footpath	11	10	8	8	10	**9**	**-1**
Base:	***403***	***356***	***295***	***414***	***504***	***348***	

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 (315 daily movements, down from 412 movements in 2011).
- Both sites have recorded decreases in total AADT estimates this year compared with 2011:
  - Remuera/Orakei Road – down 24 per cent
  - St. Heliers Bay/West Tamaki Road – down 40 per cent

Table 1.7: AADT Estimates Based on Morning and Evening Cyclist Movements 2007 – 2012 (n)

Site No.	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	2012 AADT	11-12 Change	07-12 Change
11	Remuera/Orakei Road	282	276	274	359	412	**315**	**-24%**	**12%**
20	St Heliers Bay/West Tamaki Road	308	246	158	249	331	**199**	**-40%**	**-35%**

1.8 School Bike Shed Count Summary

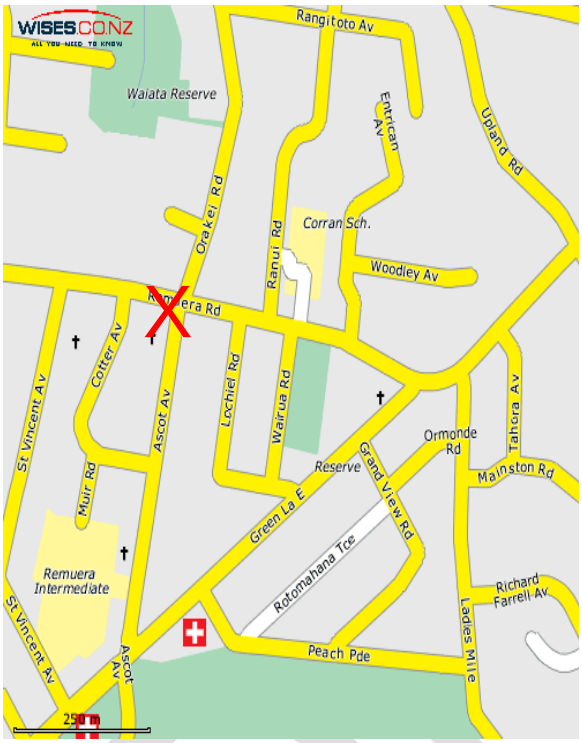
Key Points

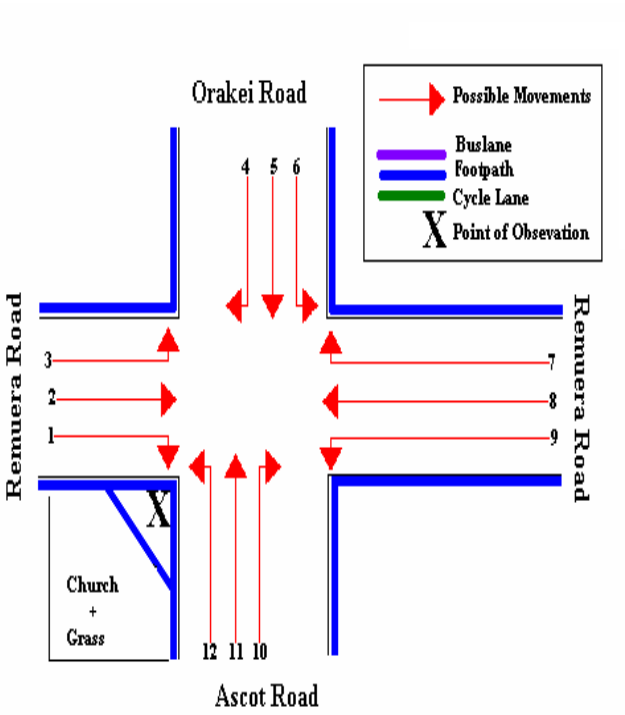
- Of those eligible to cycle, on average, two per cent of students are cycling to their schools (unchanged from 2011).
- Across the 14 eligible schools that responded, n=166 students were reported to cycle to school.
- Churchill Park School reported the highest share of cyclists – 6 per cent of all eligible students currently cycling (up from 2 per cent last year).
- Of the 14 eligible schools that responded, 3 (21 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (6 per cent, unchanged from 2011). Intermediate/secondary schools had the lowest rates of cycling (less than one per cent).

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**

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 in 2012 have decreased since last year (142 movements, compared with 173 movements in 2011).
- This year, the most common movement at this site is heading west on Remuera Road (Movement 8 = 60 cyclists).
- The most notable change in cyclist volumes is Movement 4 (down 56 cyclists from 2011).

Note: 2001, Movement 4 was predominantly made by a peloton of 54 riders moving through this site between 6:38am and 6:48am.

Table 2.1: Morning Cyclist Movements

Remuera/Orakei/Ascot 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	0	0	0	0	2	**1**	**-1**
2	19	25	24	56	30	**56**	**26**
3	4	1	3	5	3	**4**	**1**
4	3	9	12	10	70	**14**	**-56**
5	2	4	3	7	4	**4**	**0**
6	3	9	1	4	5	**1**	**-4**
7	0	0	4	2	3	**1**	**-2**
8	52	45	56	63	55	**60**	**5**
9	0	0	0	2	0	**0**	**0**
10	0	1	0	0	0	**0**	**0**
11	1	2	1	0	1	**0**	**-1**
12	2	4	3	0	0	**1**	**1**
Total	**86**	**100**	**107**	**149**	**173**	**142**	**-31**

- Eighty-nine per cent of cyclists in the morning at this site are adults (down slightly from 94 per cent last year).
- Helmet wearing continues to be widespread (100 per cent, stable from 99 per cent last year).
- Eighty-five per cent of the cyclists are male (up from 58 per cent in 2011).
- The share of cyclists riding on the road has remained stable (95 per cent, compared with 92 per cent 12 months ago).

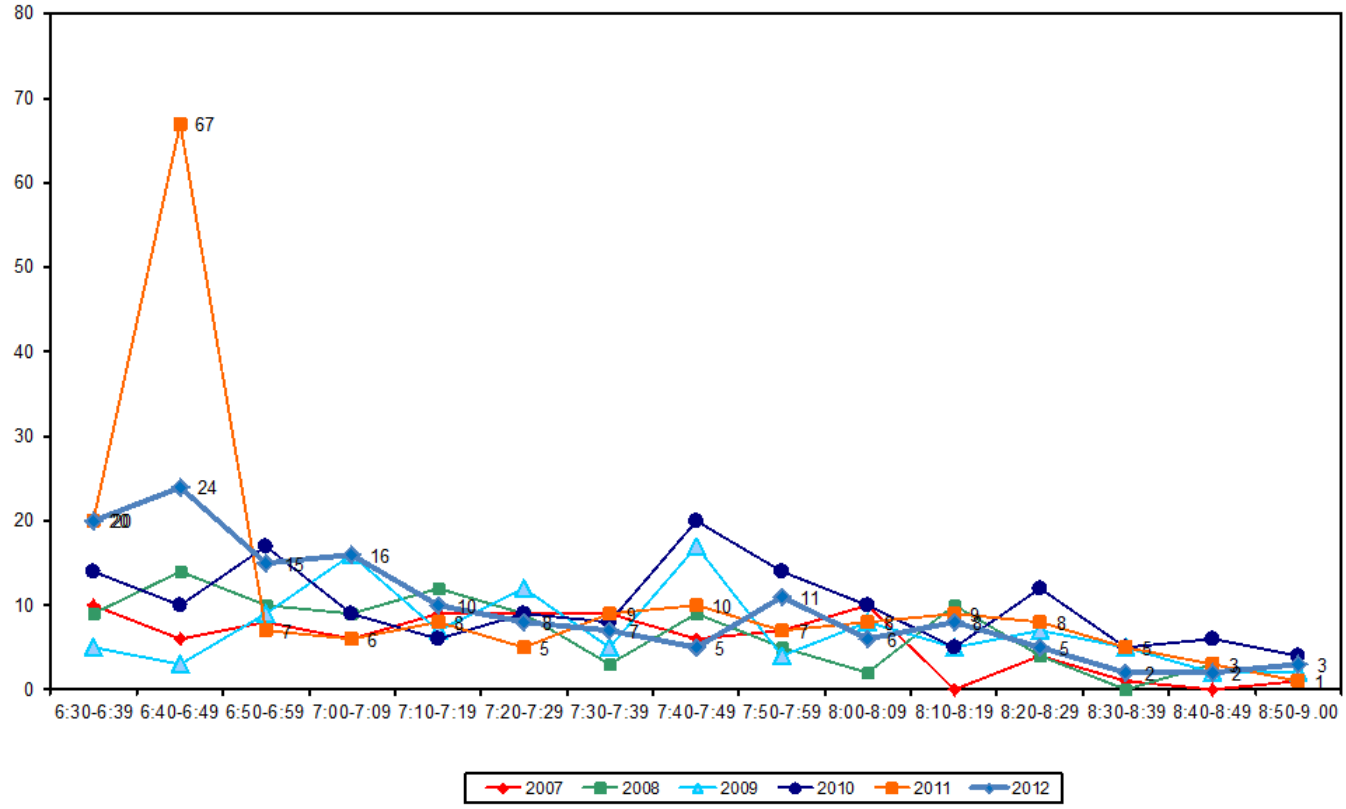
Table 2.2: Morning Cyclist Characteristics

Remuera/Orakei/Ascot 2004 – 2012(%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type										
Adult	89	85	89	91	97	94	91	94	**89**	**-5**
School child	11	15	11	9	3	6	9	6	**11**	**5**
Helmet Wearing										
Helmet on head	98	97	99	98	98	98	97	99	**100**	**1**
No helmet	2	3	1	2	2	2	3	1	**0**	**-1**
Gender										
Male	-	-	-	-	-	-	-	58	**85**	**27**
Female	-	-	-	-	-	-	-	16	**14**	**-2**
Can't tell	-	-	-	-	-	-	-	26	**1**	**-25**
Where Riding										
Road	83	79	86	90	92	94	90	92	**95**	**3**
Footpath	17	21	14	10	8	6	10	8	**5**	**-3**
Base:	***46***	***78***	***73***	***86***	***100***	***107***	***149***	***173***	***142***	

- This year, morning cyclist volumes start relatively high with 20 cyclists between 6:30am and 6:39am. There is a very slight peak between 6:40am and 6:49am (24 cyclist movements). From 6:50am onwards, morning cyclist volumes gradually decrease until the end of the monitoring period.

Figure 2.2: Morning Peak Cyclist Frequency
Remuera/Orakei/Ascot 2007 – 2012 (n)



Note: In 2012, 39 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Five cyclists at 6:34am*
- *Seven cyclists at 6:39am*
- *Four cyclists at 6:40am*
- *Three cyclists at 6:42am*
- *Fourteen cyclists at 6:47am*
- *Seven cyclists at 6:50am*
- *Four cyclists at 6:54am*
- *Eight cyclists at 7:01am*
- *Four cyclists at 7:26am*

2.3 Evening Peak

Environmental Conditions

- The weather was fine throughout most of the evening monitoring period, with the exception of rain observed between 4:25pm and 6:00pm.
- 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 2012 (71 movements) is a decrease from that recorded last year (107 movements).
- The key movement in the evening at this site is east along Remuera Road (Movement 2 = 48 cyclists).
- The most notable change in cyclist volumes recorded is at Movement 2 (down 30 cyclists).

Table 2.3: Evening Cyclist Movements

Remuera/Orakei/Ascot 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	3	3	2	0	1	**2**	**1**
2	60	49	41	60	78	**48**	**-30**
3	6	4	6	8	2	**4**	**2**
4	4	0	2	2	1	**0**	**-1**
5	4	0	1	0	1	**1**	**0**
6	1	5	2	3	2	**0**	**-2**
7	2	5	1	0	2	**0**	**-2**
8	22	16	19	17	17	**9**	**-8**
9	0	0	1	0	1	**1**	**0**
10	1	1	0	1	0	**1**	**1**
11	5	6	5	3	2	**3**	**1**
12	1	0	0	1	0	**2**	**2**
Total	**109**	**89**	**80**	**95**	**107**	**71**	**-36**

- The majority of cyclists in the evening are adults (87 per cent, stable from 84 per cent last year).
- Almost all cyclists are wearing a helmet (stable from 100 per cent in 2011).
- Most cyclists are male (86 per cent, up from 79 per cent last year).
- Compared with last year, the incidence of riding on the road has decreased to 87 per cent (down from 93 per cent). The remaining 13 per cent of cyclists were observed riding on the footpath (up from 7 per in 2011).

Table 2.4: Evening Cyclist Characteristics

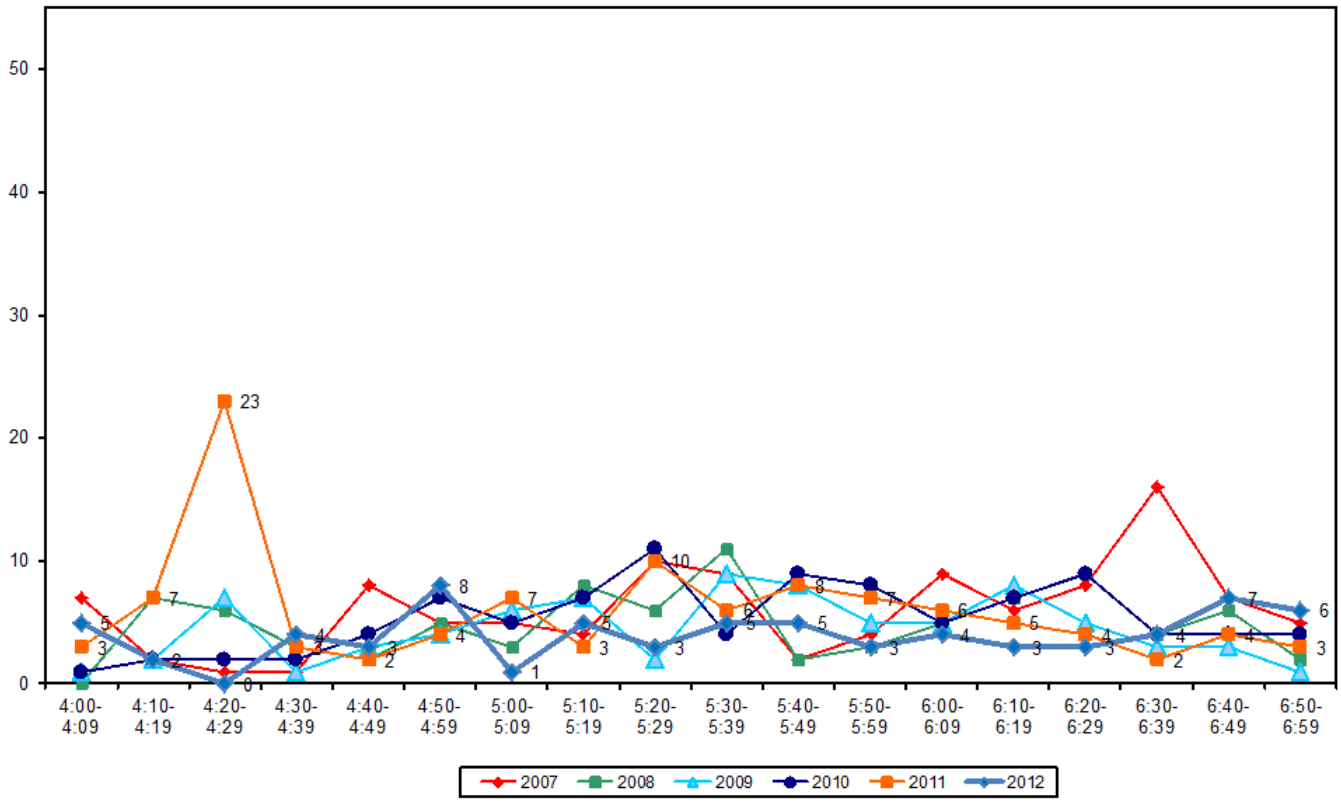
Remuera/Orakei/Ascot 2004 – 2012 (%)

	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 10-11
Cyclist Type										
Adult	73	99	97	94	89	98	94	84	**87**	**3**
School child	27	1	3	6	11	2	6	16	**13**	**-3**
Helmet Wearing										
Helmet on head	94	100	100	98	96	98	95	100	**99**	**-1**
No helmet	6	0	0	2	4	2	5	0	**1**	**1**
Gender										
Male	-	-	-	-	-	-	-	79	**86**	**7**
Female	-	-	-	-	-	-	-	10	**14**	**4**
Can't tell	-	-	-	-	-	-	-	11	**0**	**-11**
Where Riding										
Road	86	75	84	92	89	90	87	93	**87**	**-6**
Footpath	14	25	16	8	11	10	13	7	**13**	**6**
Base:	***49***	***73***	***32***	***109***	***89***	***80***	***95***	***107***	***71***	

- This year, evening cyclist volumes peak between 4:50pm and 4:59pm (8 cyclists).
- No pelotons were evident at this site in the evening. This is contrast with 2011 where a peloton of 14 riders was observed at 4:20pm.

Figure 2.3: Evening Peak Cyclist Frequency

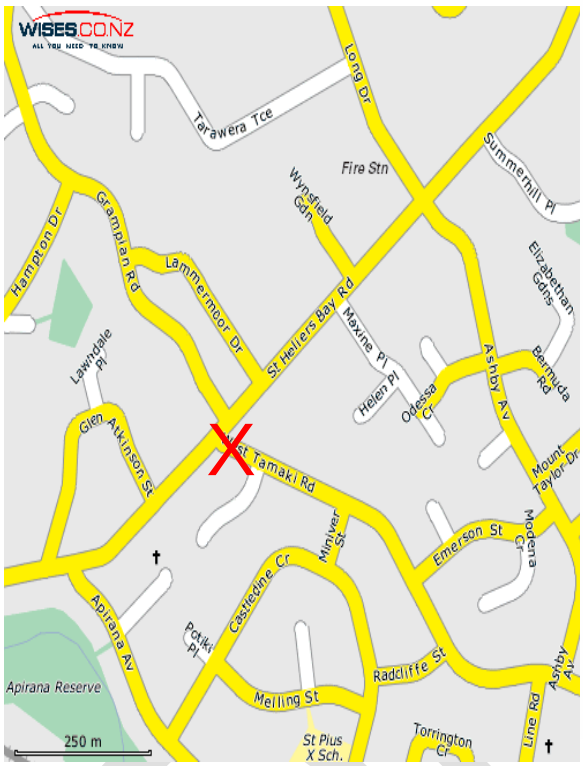
Remuera/Orakei/Ascot 2007 – 2012 (n)

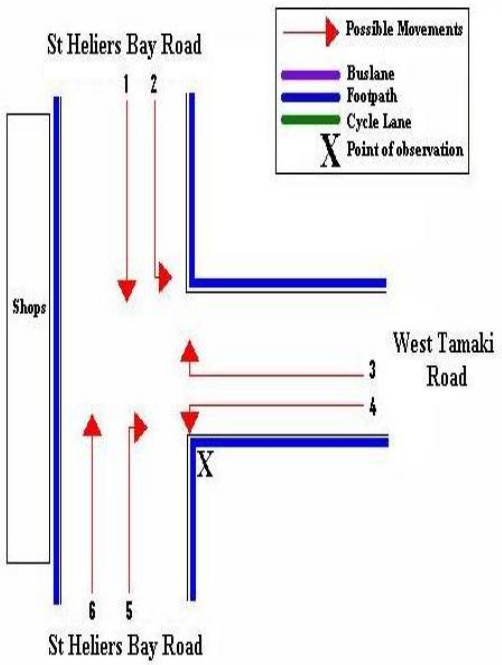


3. ST HELIERS BAY ROAD/WEST TAMAKI ROAD, GLEN INNES (SITE 20)

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**

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 notably from last year – down from 150 to 86 movements this year. Note: In 2011, n=73 cyclists were observed riding together at this site between 7:00am and 7:06am. This peloton will have accounted for the notable increase in cycle volume last year.
- The key morning movement is riding along St Heliers Bay Road in a north-easterly direction (Movement 6 = 26 cyclists) and turning right on to West Tamaki Road from St Heliers Bay Road (Movement 5 = 25 cyclists).
- The most notable change is at Movement 5 - down 36 cyclists from 2011.

Table 3.1: Morning Cyclist Movements

St Heliers Bay/West Tamaki Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	17	14	16	20	19	**17**	**-2**
2	4	4	1	5	4	**3**	**-1**
3	21	7	5	7	6	**3**	**-3**
4	5	14	12	12	33	**12**	**-21**
5	69	53	7	21	61	**25**	**-36**
6	23	15	20	33	27	**26**	**-1**
Total	**139**	**107**	**61**	**98**	**150**	**86**	**-64**

- Over the morning peak, adults comprise the greatest share of cycle movements (88 per cent, down from 95 per cent the previous year).
- Nearly all cyclists are wearing a helmet (99 per cent, unchanged with last year).
- Sixty-nine per cent of cyclists are male, compared to 15 per cent being female.
- Consistent with last year, the majority of cyclists are riding on the road (93 per cent, unchanged from the last measure).

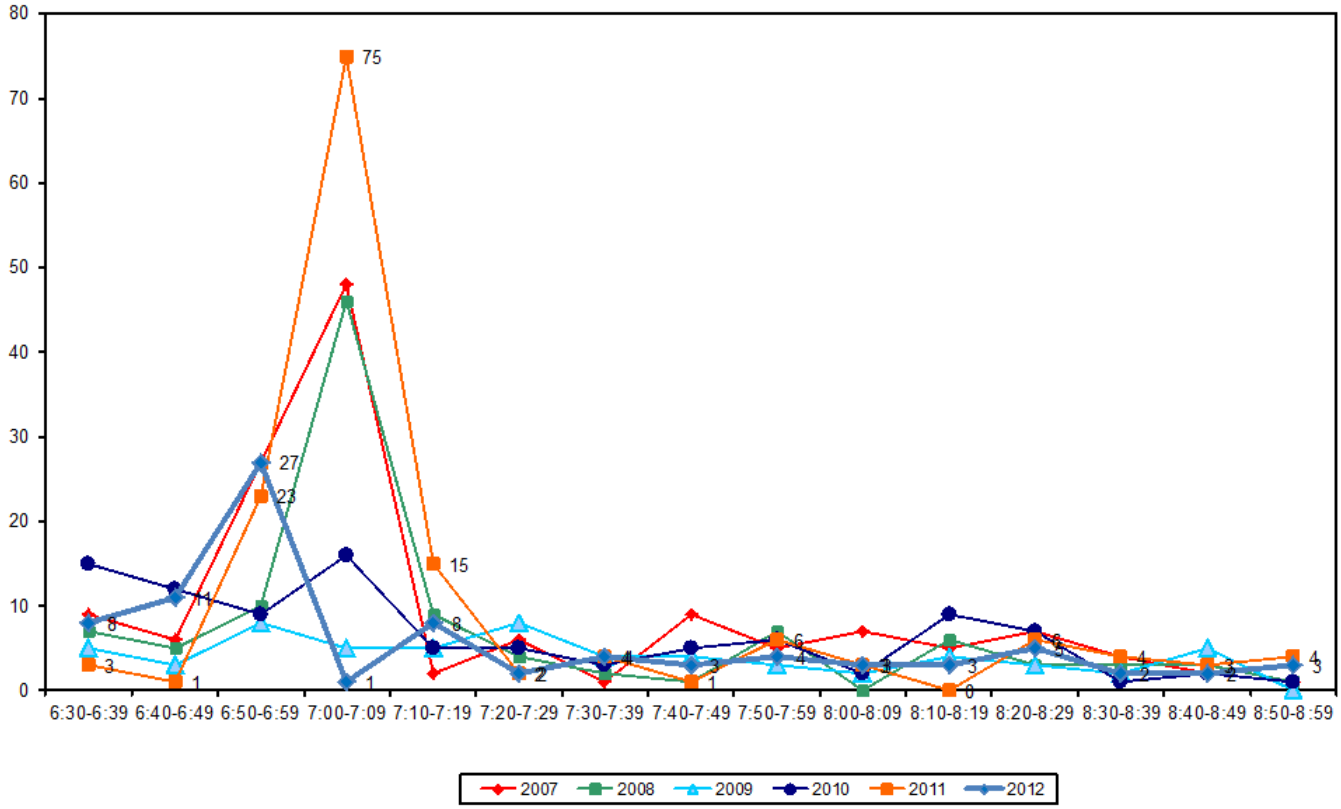
Table 3.2: Morning Cyclist Characteristics

St Heliers Bay/West Tamaki Road 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	87	93	92	93	95	**88**	**-7**
School child	13	7	8	7	5	**12**	**7**
Helmet Wearing							
Helmet on head	100	97	98	100	99	**99**	**0**
No helmet	0	3	2	0	1	**1**	**0**
Gender							
Male	-	-	-	-	84	**69**	**-15**
Female	-	-	-	-	16	**15**	**-1**
Can't tell	-	-	-	-	0	**16**	**16**
Where Riding							
Road	87	92	93	95	93	**93**	**0**
Footpath	13	8	7	5	7	**7**	**0**
Base:	***139***	***107***	***61***	***98***	***150***	***86***	

- There is a sharp peak between 6:50am and 6:59am (27 cyclist movements) which then falls to become a stable volume of movements for the remainder of the monitoring period. This trend is consistent with previous years.

Figure 3.2: Morning Peak Cyclist Frequency
St Heliers Bay/West Tamaki Road 2007 – 2012 (n)



Note: In 2012, 27 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *Five cyclists at 6:44am*
- *Seven cyclists at 6:50am*
- *Eleven cyclists at 6:51am*

3.3 Evening Peak

Environmental Conditions

- The weather was fine for the first half of the evening shift followed by showers from 4:23pm until 6:20pm
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening cycle movements recorded at the St Heliers Bay/West Tamaki Road intersection has declined notably, from 74 last year to 49 movements in 2012.
- The key movement at this site in the evening is straight along St Heliers Bay Road heading north (Movement 6 = 21 cyclists).
- The most notable decreases are at Movement 1 (down 8 cyclists) and Movement 6 (down 7 cyclists).

Table 3.3: Evening Cyclist Movements

St Heliers Bay/West Tamaki Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	2012	Change 11-12
1	22	19	15	23	17	**9**	**-8**
2	6	6	7	6	6	**5**	**-1**
3	4	8	6	2	4	**1**	**-3**
4	5	5	5	6	8	**4**	**-4**
5	3	12	7	9	11	**9**	**-2**
6	29	10	7	26	28	**21**	**-7**
Total	**69**	**60**	**47**	**72**	**74**	**49**	**-25**

- Consistent with the morning peak, the greatest share of cyclists using this intersection are adults (73 per cent, down from 89 per cent in 2011).
- Most cyclists at this site are wearing a helmet (92 per cent, up from 88 per cent last year).
- Seventy-one per cent of cyclists are male, down from 91 per cent last year.
- The majority of cyclists are riding on the road (82 per cent, up from 76 per cent last year).

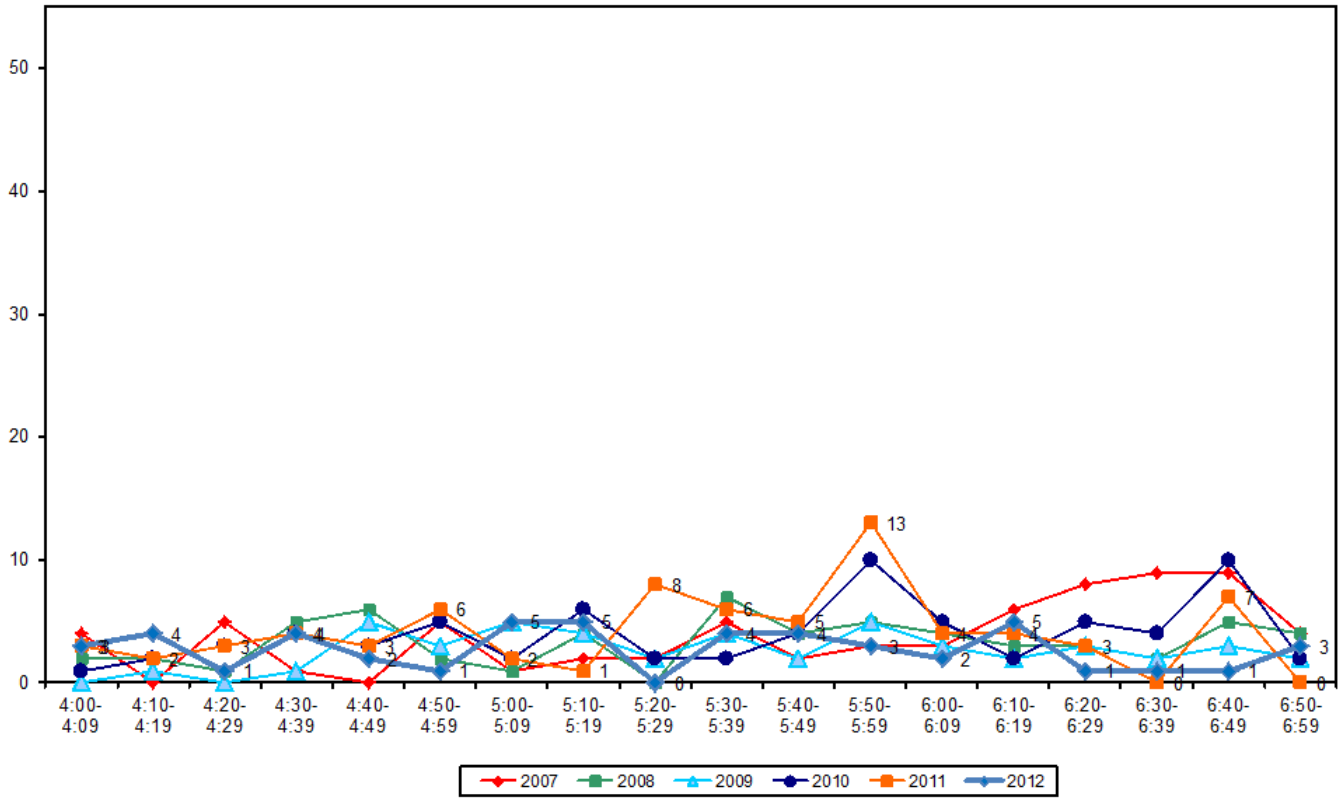
Table 3.4: Evening Cyclist Characteristics

St Heliers Bay/West Tamaki Road 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	93	88	89	96	89	**73**	**-16**
School child	7	12	11	4	11	**27**	**16**
Helmet Wearing							
Helmet on head	99	92	94	96	88	**92**	**4**
No helmet	1	8	6	4	12	**8**	**-4**
Gender							
Male	-	-	-	-	91	**71**	**-20**
Female	-	-	-	-	9	**27**	**18**
Can't tell	-	-	-	-	0	**2**	**2**
Where Riding							
Road	88	87	87	96	76	**82**	**6**
Footpath	12	13	13	4	24	**18**	**-6**
Base:	***69***	***60***	***47***	***72***	***74***	***49***	

- The volume of evening cycle movements is relatively stable throughout the evening period and peaks slightly between 5:00pm and 5:19pm (5 cyclists in each 10 minute interval).

Figure 3.3: Evening Peak Cyclist Frequency
St Heliers Bay/West Tamaki Road 2007 – 2012 (n)



4. SCHOOL BIKE SHED COUNT

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

Background Information

- A total of 14 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[9].
- No schools reported any events that may have affected the cycle count.
- The designated count day was Tuesday 6th of March 2012[10].

Key Points

- Of those eligible to cycle, on average, two per cent of students are cycling to their schools (unchanged from 2011).
- Across the 14 eligible schools that responded, n=166 students were reported to cycle to school.
- Churchill Park School reported the highest share of cyclists – 6 per cent of all eligible students currently cycling (up from 2 per cent last year).
- Of the eight schools that participated in the survey in both 2011 and 2012, only Churchill Park School and The Bridge Academy have increased the share of students that cycle.
- Of the 14 eligible schools that responded, 3 (21 per cent) had no students cycling to school.

[9] The following schools had polices surrounding riding bicycles to school:
- Churchill Park School "*10 years or older are permitted to cycle to school*"
- Glendowie Primary School "*10 years or older are permitted to cycle to school or with Principal's permission*"
- Kings School "Years 5-8 may ride to school"
- Kohimaramara School "*Only Years 6, 7, 8 bike*"
- Stonefields School "*10 years or older are permitted to cycle to school*"

[10] The following schools undertook counts on alternative days:
- Remuera Intermediate, The Bridge Adademy – Thursday 1st March 2012
- Glen Taylor School, Stonefields School – Tuesday 13th March 2012
- Glendowie Primary School – Wednesday 14th March 2012
- Mt Hobson Middle School – Thursday 15th March 2012
- Churchill Park School – Wednesday 4th April

Table 4.1 shows the results of the 14 schools surveyed in the Orakei ward.

Table 4.1: Summary Table of School Bike Count

2007 – 2012 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles*	*Cyclists as share of those eligible[1]*					
				2012	*2011*	*2010*	*2009*	*2008*	*2007*
The Bridge Academy	Composite	2	2	**100%**	0%	0%	-	-	-
Churchill Park School	Full Primary	470	30	**6%**	2%	-	-	-	-
Mt Hobson Middle School	Intermediate/Secondary	52	3	**6%**	-	-	-	-	-
Remuera Intermediate	Intermediate	950	53	**6%**	6%	5%	7%	5%	9%
Stonefields School	Full Primary	148	8	**5%**	-	-	-	-	-
Glendowie Primary	Full Primary	608	13	**2%**	4%	-	-	-	-
Selwyn College	Secondary	826	19	**2%**	2%	2%	2%	1%	-
St Heliers School	Full Primary	740	18	**2%**	-	-	-	-	-
Glendowie College	Secondary	1004	12	**1%**	1%	1%	1%	-	-
Kings School	Full Primary	650	2	**<1%**	-	-	-	-	-
Kohimarama School	Full Primary	509	6	**1%**	-	-	-	-	-
Baradene College	Intermediate/Secondary	1120	0	**0%**	0%	0%	0%	<1%	0%
Glen Taylor School	Full Primary	296	0	**0%**	-	-	-	-	-
Saint Kentigern School for Girls - Corran	Full Primary	130	0	**0%**	0%	0%	-	-	-
Total		**7505**	**166**	**2%**	2%	-	-	-	-

Table 4.2 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). Intermediate/secondary schools had the lowest rates of cycling (less than one per cent cyclists).

Table 4.2: Summary Table of School Bike Count by School Type

2007 – 2012 (%)

School Type	*Number of Schools Responded in 2012*	*Cyclists as share of those eligible*						
		2007	*2008*	*2009*	*2010*	*2011*	2012	Change 11-12
Composite	1	-	-	-	0%	0%	**100%**	**100**
Intermediate	1	9%	5%	7%	5%	6%	**6%**	**0**
Full primary	8	-	-	-	-	2%	**2%**	**0**
Secondary	2	-	1%	1%	1%	2%	**2%**	**0**
Intermediate/Secondary	2	0%	<1%	<1%	0%	1%	**<1%**	**0**

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APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[11] 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)[12], 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.

[11] Annual average daily traffic

[12] LTSA, 2004

For the Gravitas counts, the following factors apply:

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

D = 14%

W = 0.9

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

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

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

Worked Example

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

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

Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%