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MONITORING REPORT

**Prepared For Regional Cycle Monitoring Working Group
(Co-ordinated by Auckland Regional Transport Authority)**

MANUAL CYCLE MONITORING IN THE AUCKLAND REGION

March 2009

Papakura District

Prepared by Gravitas Research and Strategy Limited

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1. PAPAURA DISTRICT SUMMARY OF RESULTS

1.1 Introduction

The Need For Reliable Cycle Trip Data

Monitoring cycle trips and cycle traffic is important to the Auckland Regional Transport Authority (ARTA) and the local councils in the Auckland region, to identify where investment may be needed to improve infrastructure for cycling. Cycle traffic data will also help ARTA prioritise future funding through the Auckland Land Transport Programme¹.

Cycle traffic data will help inform a major programme of improvements for cycling in the Auckland region – over \$100 million is planned to be invested in building over 50% of the Regional Cycle Network over the next eight years. Comprehensive cycle data assists with the development of the region's cycle network and prioritization 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 councils to track progress against a quality baseline over the coming decade.

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

Manual Cycle Monitoring

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

Through the Regional Cycle Monitoring Plan, it was proposed that these manual counts be regionally aligned to ensure better regional consistency. Ideally, cycle count monitoring would be carried out at the same time each year across the region, applying a standard methodology. 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 three sites across the Papakura district following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a TA and region level. For sites also monitored in 2007 and 2008, comparative results are provided.

Important Note: This report provides the results of manual cycle monitoring conducted at three pre-determined sites in Papakura district only. Site-by-site results and city/district summaries for all other Auckland region Territorial Authorities 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.

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

1.2 Methodology

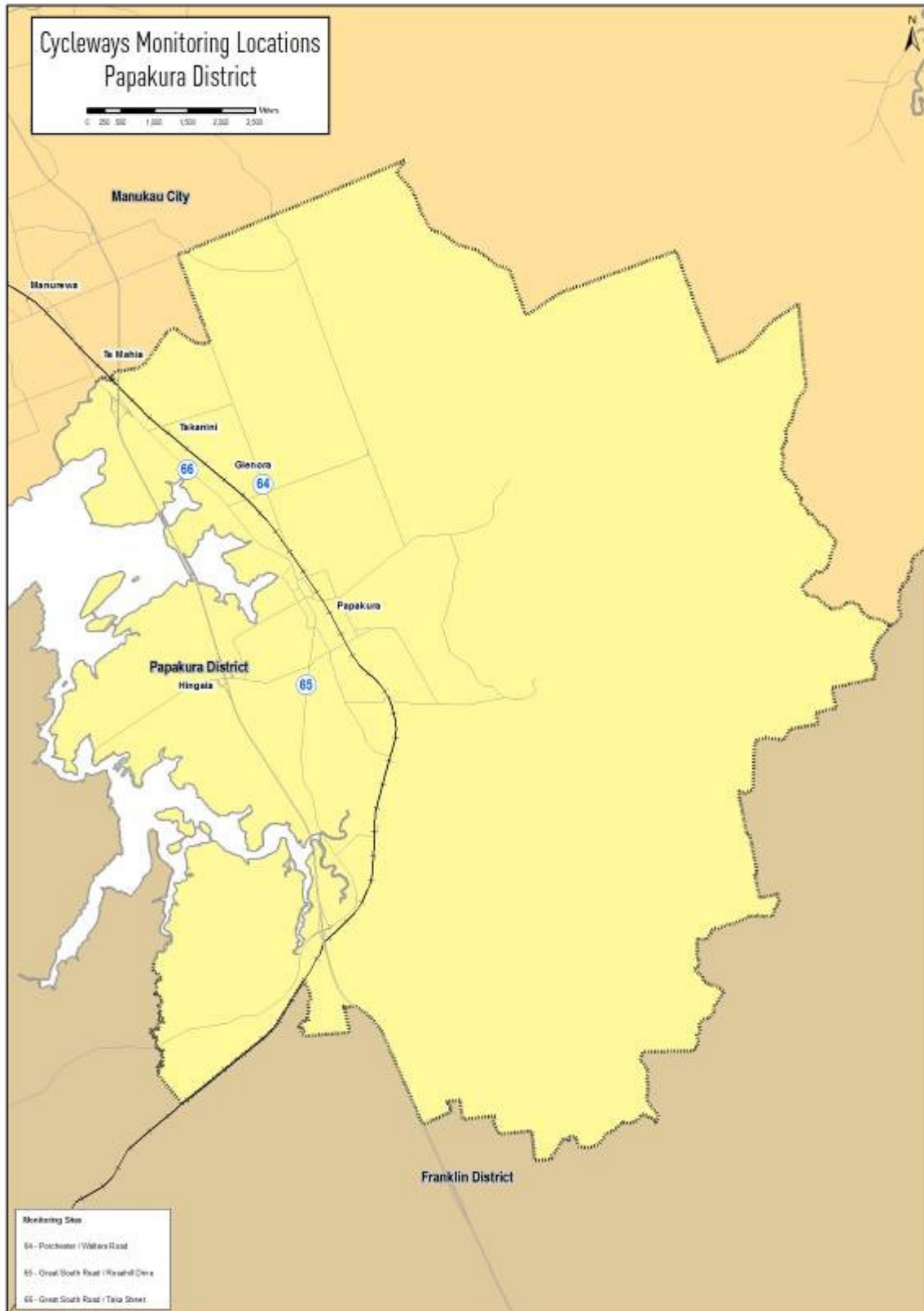
Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below. *Note: To ensure the longitudinal comparability of its cycle data, Gravitas have conducted the regional monitoring using a similar approach to that used to collect manual count data for Auckland City Council between 2001 and 2006.*

Choice Of Sites

Decisions as to which sites were chosen for cycle counts were guided by each respective TA, keeping in mind the planned developments for the Regional Cycle Network. In choosing their sites, TAs were strongly recommended to consider sites that could be retained over time as this will allow for the most accurate longitudinal assessment of change in cycle numbers.

Manual counts were undertaken at 83 different sites throughout the region. Sites were distributed throughout the region as follows:

- Auckland City n=27 sites (12 sites monitored since 2001; 10 sites added in 2007; 5 sites added in 2008; 3 sites relocated, one site dropped and one site added in 2009)
- Manukau City n=14 sites (12 sites monitored since 2007; 1 site added in 2008; one site relocated, 2 sites dropped and 3 sites added in 2009)
- Waitakere City n=14 sites (11 sites monitored since 2007; 2 sites added in 2008; 1 site added in 2009)
- North Shore City n=13
- Rodney District n=8 (5 sites monitored since 2007; 3 sites added in 2009)
- Franklin District n=4 (3 sites monitored since 2007; 1 site added in 2009)
- Papakura District n=3



Monitoring Times

Time Of Day

On the recommendation of the Regional Cycling Monitoring Working Group, manual counts in the morning peak were conducted between **6.30 and 9.00 am**. It should be noted that this is a slightly longer morning peak than was used for manual counts in Auckland city prior to 2007 – 7.00 to 9.00 am. However, to allow for longitudinal comparisons, results for Auckland city have been presented for both 7.00 to 9.00 am and 6.30 to 9.00 am.

Between 2001 and 2006, Gravitas monitored Auckland city evening cycle numbers between 4.00 and 6.00 pm. However, in 2005 and 2006, data collected at some sites had shown upwards trends and notable peaks later in the shift (particularly between 5.50 and 6.00pm) which suggested that cycle numbers after 6.00 pm may remain high or even increase. To capture this trend, Gravitas recommended extending the evening peak monitoring period to **4.00 to 7.00 pm**. Once again, to allow for longitudinal comparisons, results for Auckland city have been presented for 4.00 to 6.00 pm as well as 4.00 to 7.00 pm.

Day Of Week

Previous experience conducting cycle and other traffic manual counts on behalf of Auckland city 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 the Regional Cycle Monitoring Working Group. 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 10th of March and be conducted on the first three fine days of the 10th, 11th, 12th, 17th, 18th or 19th of March.

Counting at sites in **North Shore and Waitakere** cities was completed on **Tuesday the 10th of March**. Counting at sites in **Auckland city** was completed on **Wednesday the 11th of March**. Counts in **Manukau, Rodney, Papakura and Franklin** were completed on **Thursday the 12th of March**. Note: Counts in the morning and evening peaks took place on the same day for each site.

Weather and Daylight Conditions

Auckland city's 2006 cycle monitor provides a clear example of the impact of weather conditions on the validity of the data collected. During the (fine) morning peak, 1579 cyclists were recorded across the twelve monitoring sites. By comparison, in the (wet) evening peak on the same day, only 1050 cyclists were counted, demonstrating that only 66% of those who cycled during the morning peak were counted again in the evening. Such a significant drop in cycle numbers was not observed in previous years, when weather was comparable in the morning and evening peak.

To reduce the impact of weather conditions on cycle numbers, manual counts were conducted on predominantly fine days (although intermittent drizzle was observed at a small number of sites). 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 2009 was as follows:

Tuesday 10th March

(Waitakere and North Shore city sites monitored)

- Sunrise: 7:15am; Sunset: 7:48pm.
- Average temperature: 18 degrees Celsius.
- Fine weather for all but one site in the morning period.
- Weather fine with some cloud throughout the evening shift. Most Waitakere sites and one North Shore site experienced very light drizzle intermittently between 6:30pm and 7:00pm.

Wednesday 11th March

(Auckland city sites monitored)

- Sunrise: 7:15am; Sunset: 7:46pm.
- Average temperature: 17 degrees Celsius.
- Fine weather at most sites in the morning period. Light drizzle and/or showers reported at six of the 27 sites.
- All but three sites experienced intermittent light drizzle and/or showers throughout the evening period.

Thursday 12th March

(Manukau city and Rodney, Papakura and Franklin district sites monitored)

- Sunrise: 7:16am; Sunset: 7:45pm.
- Average temperature: 16 degrees Celsius.
- Almost all sites had fine weather in the morning period apart from light drizzle at the Rodney sites which cleared by 7am; four sites experienced intermittent light showers throughout the morning period (these sites predominantly in Manukau).
- Weather in the evening period was overcast, with intermittent drizzle throughout the period. Brief, but often heavy, showers were reported at some sites in Manukau and Papakura.

Conducting the Manual Counts

Scoping Visit

Gravitas visited each of the selected 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 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; Auckland city);
- Ferry terminal (Site 22; Auckland city); and
- Beach Road/Browns Bay Road, Mairangi Bay (Site 45; North Shore city).

Briefing Session

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

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

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

Conducting the Manual Counts

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

For consistency with the Auckland city cycle data collected since 2001, during their shift the surveyor collected data on:

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

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

In addition, 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.

³ This letter also contained contact details for the client organisation 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 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).

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

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

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

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

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

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.

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

School Bike Shed Counts

As stated above, manual cycle counts were undertaken during the morning (6.30 am to 9 am) and evening (4 pm to 7 pm) 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).

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.

Methodology

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

1. Gravitas designed a fax information sheet that was distributed to most intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region (note a small number of schools were omitted due to the special nature of the students eg special needs schools). This sheet was designed in consultation with the Regional Cycle Monitoring Working Group to ensure all necessary information was collected. A copy of the information sheet is provided in Appendix Three.
2. Gravitas contacted all intermediate, secondary and composite schools in Auckland region (n=156) to notify them of the bike shed count and to let them know what they would be required to do. Gravitas then sent out the information sheet to all schools that agreed to take part in the bike shed count, along with a cover letter explaining the purpose of the research and providing detail on how to complete and submit the form. A copy of this letter is provided in Appendix Three.
3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 10th 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 were requested to fax or (free) post the information sheets back to Gravitass. Gravitass contacted all participating schools who had not returned their sheets after five working days. All information sheets were checked for completeness before being data-entered into Excel. One hundred and twenty-four response were received, a response rate of 79 per cent.

Reporting

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

Manual Counts - Site Level Reporting

For consistency with Auckland city's cycle monitor, 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
 - 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 city/district 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 TA 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 Papakura district. 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 Papakura district, 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 Papakura district was undertaken on Thursday 12th March, 2009. Sunrise was at 7:16am and sunset was at 7:45pm. The average temperature was 16 degrees Celsius.

Note: To enable comparisons of sites within Papakura district, cyclist volumes at each Papakura district site are considered as:

- “high/heavy” when 30 or more cycle movements are reported;
- “moderate” when between 19 and 29 cycle movements are reported;
- “low/light” when between 0 and 18 cycle movements are reported;
- having “notably” increased/decreased if the change is more than 15% of the data being compared with;
- having “slightly” increased/decreased if the change is less than 5% of the data being compared with.
- being “stable” since last year if the change is less or equal to 3 cycle movements/percentages.

1.4 Morning Peak

Environmental Conditions

- All sites monitored in Papakura district had fine weather in the morning, apart from a period of brief rain at the intersection of Great South Road and Rosehill Drive.
- There were no road works or accidents that may affect cycle counts.

Key Points

- A total of 53 cyclist movements were recorded across the three sites in the morning peak period (between 6:30am and 9:00am) in 2009. This represents a 34 per cent decrease on the result for 2008 (80 movements), and is also down from 2007 (69 movements). However, this decline is not statistically significant – that is, the decrease falls within the margin of error at the 95% confidence interval.
- The busiest site in the morning peak is the intersection of Great South Road and Rosehill Drive (22 cycle movements, down notably from 42 movements in 2008), whereas the Porchester/Walters Road and Great South Road/Taka Street intersections have lower level of morning cyclist traffic (19 and 12 cycle movements respectively).
- The average volume of morning cyclist movements across the three sites monitored in Papakura district is 18. This compares with 27 movements in 2008.

**Table 1.1: Summary Of Morning Cyclist Movements
2007-2009 (n)**

<i>Site Number</i>	<i>Locations</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Change 08-09</i>	<i>Change 07-09</i>
65	Great South Road/Rosehill Drive, Rosehill	29	42	22	-48%	-24%
64	Porchester/Walters Road, Takanini	22	19	19	0%	-14%
66	Great South Road/Taka Street, Conifer Grove	18	19	12	-37%	-33%
	Average	23	27	18	-33%	-22%
	Total	69	80	53	-34%	-23%

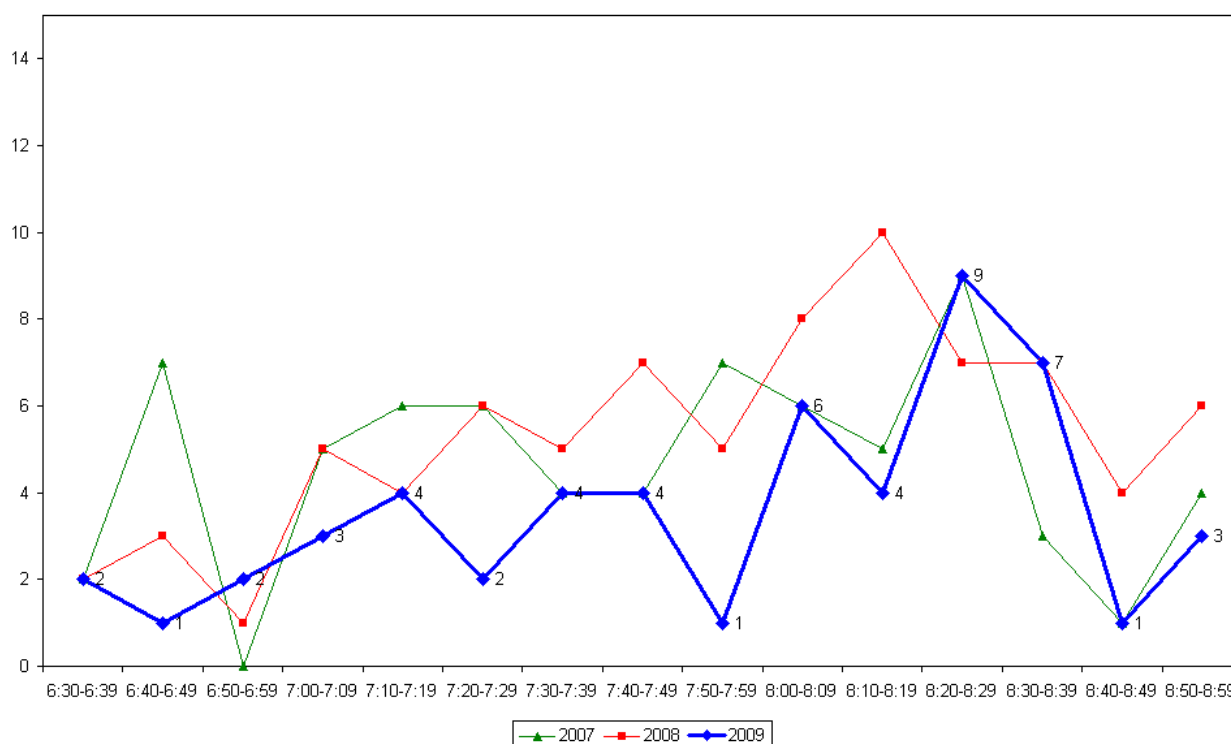
- Morning cyclist characteristics are shown in Table 1.2 below. Overall, 60 per cent of cyclists are adults (unchanged from last year).
- The majority of cyclists across all Papakura district sites are wearing a helmet (87 per cent, stable from 86 per cent in 2008).
- Just less than half of cyclists are riding on the road (45 per cent, compared with 53 per cent in 2008).
- Of the three sites monitored in Papakura district, Great South Road/Rosehill Drive has the highest proportion of cyclists who are school children (68 per cent) and riding on the footpath (64 per cent), while the intersection of Great South Road and Taka Street has the greatest share of cyclists not wearing helmets (33 per cent).

**Table 1.2: Summary of Morning Cyclist Characteristics
2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	72%	60%	60%	0%
School child	28%	40%	40%	0%
Helmet Wearing				
Helmet on head	77%	86%	87%	1%
No helmet	23%	14%	13%	-1%
Where Riding				
Road	51%	53%	45%	-8%
Footpath	49%	47%	55%	8%
Base:	69	80	53	

- Figure 1.1 illustrates the total number of cyclists in the morning peak by time of trip. The volume of morning cycle movements increases after 6:49am, and then reaches the peak between 8:20am and 8:29am (9 movements) – ten minutes later than last year’s peak – after which the number of movements declines through to the end of the monitoring period.

**Figure 1.1: Total Cyclist Frequency
– Morning Peak**



1.5 Evening Peak

Environmental Conditions

- All sites had overcast weather throughout the evening shift, with periods of intermittent showers/rain. The Porchester/Walters Road site experienced a heavy shower in the middle of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- A total of 91 cyclist movements were recorded across the three sites in the evening peak period (between 4:00pm and 7:00pm) in 2009. This represents a 5 per cent decrease on the 2008 result (96 movements), but is consistent with 2007 (92 movements). However, this decline is not statistically significant – that is, the decrease falls within the margin of error at the 95% confidence interval.
- Consistent with the morning peak, the intersection of Great South Road and Rosehill Drive is the busiest in terms of the evening cyclists' activity, with 37 cycle movements recorded (up from 30 movements in 2008). The level of cyclist traffic at the Great South Road/Taka Street intersection is the lowest in the evening shift (24 cycle movements, down notably from 39 movements last year).
- The average volume of evening cyclists across the three sites monitored in Papakura district is 30 cycle movements. This compares with 32 movements in 2008.

**Table 1.3: Summary Of Evening Cyclist Movements
2007-2009 (n)**

Site Number	Locations	2007	2008	2009	Change 08-09	Change 07-09
65	Great South Road/Rosehill Drive, Rosehill	24	30	37	23%	54%
64	Porchester/Walters Road, Takanini	28	27	30	11%	7%
66	Great South Road/Taka Street, Conifer Grove	40	39	24	-38%	-40%
	Average per site	31	32	30	-6%	-3%
	Total	92	96	91	-5%	-1%

Table 1.4 shows the percentage change in cyclist movements from morning to evening at each site monitored in Papakura district.

Note that there are three hours for the evening monitoring period compared with 2.5 hours in the morning. To enable the morning and evening cyclist volumes to be fairly compared, a scale factor has been applied so that the count numbers for both periods are based on the same length of time (2.5 hours). However, the limitation of this approach is that it does not take into account the variation in cycle movement numbers that exist over the course of a shift (as illustrated in Figures 1.1 and 1.3); rather, the number of cycle movements is assumed to be consistent throughout the monitoring period. Consequently, the results presented in Table 1.4 should be considered indicative only.

- Overall, the number of evening cycle movements across the three sites is greater than the number recorded in the morning shift (up 30 per cent).
- All sites have an evening cycle volume greater than the morning cycle volume. This increase is most notable at the Great South Road/Taka Street intersection (up 40 per cent from 12 in the morning to 20 movements in the evening).

**Table 1.4: Summary Of Change in Cyclist Movements from Morning to Evening
2009 (%)**

Site Number	Locations	AM	PM⁹	Change
66	Great South Road/Taka Street, Conifer Grove	12	20	40%
65	Great South Road/Rosehill Drive, Rosehill	22	31	29%
64	Porchester/Walters Road, Takanini	19	25	24%
	Total	53	76	30%

⁹ A scale factor of 5/6 has been applied to reduce the evening cyclist volumes to a 2.5 hour interval, consistent with the morning monitoring period.

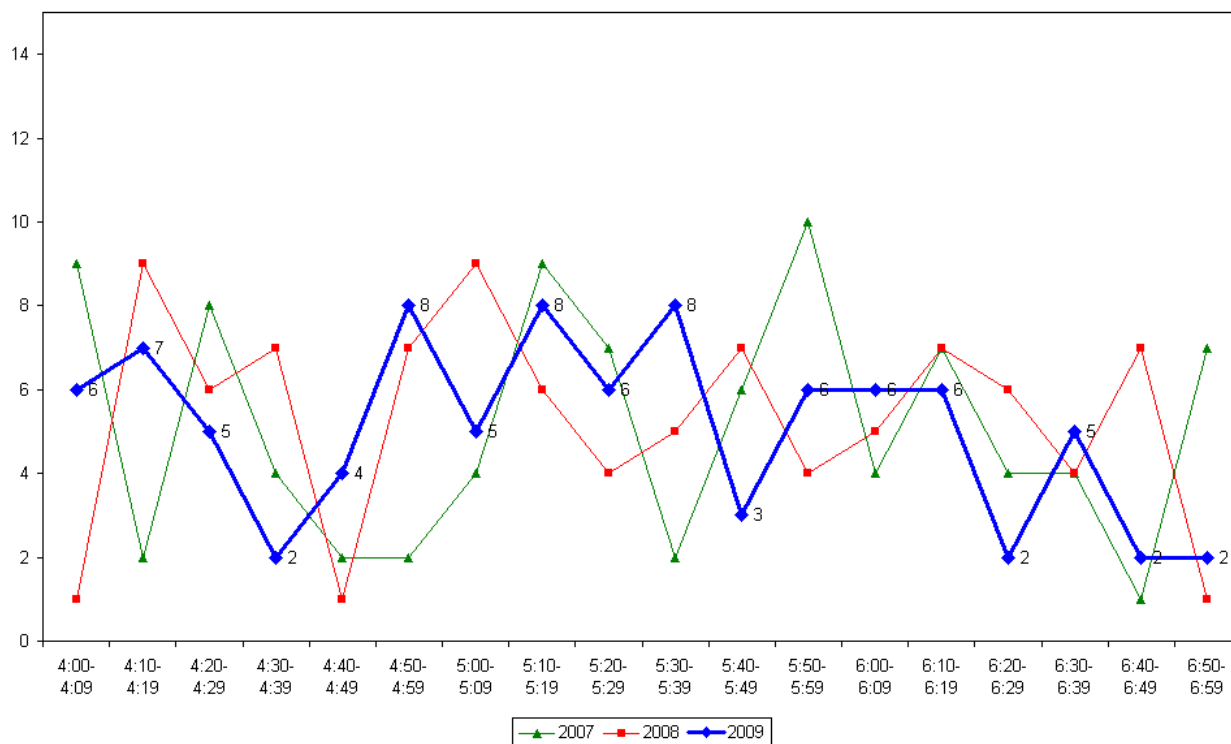
- Two-thirds of evening cyclists are adults (68 per cent, stable from 67 per cent in 2008).
- Two-thirds of evening cyclists are wearing a helmet (67 per cent, down from 77 per cent last year).
- Just over three in five cyclists are riding on the road in the evening (64 per cent, up from 51 per cent last year).
- Porchester/Walters Road has the highest proportion of cyclists who are school children (43 per cent) and not wearing helmets (43 per cent) while the intersection of Great South Road/Rosehill Drive has the greatest share of cyclists riding on the footpath (57 per cent).

**Table 1.5: Summary of Evening Cyclist Characteristics
2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	74%	67%	68%	1%
School child	26%	33%	32%	-1%
Helmet Wearing				
Helmet on head	64%	77%	67%	-10%
No helmet	36%	23%	33%	10%
Where Riding				
Road	53%	51%	64%	13%
Footpath	47%	49%	36%	-13%
Base:	92	96	91	

- The overall pattern of cyclist volumes by time of trip in the evening is illustrated in Figure 1.2. Evening cyclist volumes fluctuate over the monitoring period, with slight peaks evident between 4:50pm and 4:59pm, 5:10pm and 5:19pm and again between 5:30pm and 5:39pm (8 cyclists over each ten minute interval).

**Figure 1.2: Total Cyclist Frequency
– Evening Peak**



1.6 Aggregated Total

- A total of 144 cyclist movements were recorded across the three sites in 2009. This represents an 18 per cent decrease when compared with 2008 (176 movements) – not statistically significant at the 95% confidence interval. The number of evening cyclists comprises a larger share (63 per cent) of the total number of cycle movements than the morning cyclists (37 per cent).
- Overall, the intersection of Great South Road and Rosehill Drive has the greatest number of cyclists (59 movements, down from 72 movements last year), while the Great South Road/Taka Street intersection has the lowest level of cyclist traffic (36 movements, down from 58 movements in 2008).
- Overall cycle movements at the Porchester/Walters Road site have increased slightly (up from 46 in 2008 to 49 in 2009).

**Table 1.6: Summary Of Total Cyclist Movements
2007-2009 (n)**

Site Number	Locations	2007	2008	2009	Change 08-09	Change 07-09
65	Great South Road/Rosehill Drive, Rosehill	53	72	59	-18%	11%
64	Porchester/Walters Road, Takanini	50	46	49	7%	-2%
66	Great South Road/Taka Street, Conifer Grove	58	58	36	-38%	-38%
	Total	161	176	144	-18%	-11%

- Overall cyclist characteristics are illustrated in Table 1.7. In total, 65 per cent of cyclists are adults (stable from 64 per cent in 2008).
- On average, three in four are wearing a helmet (74 per cent, down from 81 per cent last year).
- Just over half of cyclists are riding on the road (57 per cent, up from 52 per cent last year).

**Table 1.7: Summary of Total Cyclist Characteristics
2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	73%	64%	65%	1%
School child	27%	36%	35%	-1%
Helmet Wearing				
Helmet on head	70%	81%	74%	-7%
No helmet	30%	19%	26%	7%
Where Riding				
Road	52%	52%	57%	5%
Footpath	48%	48%	43%	-5%
Base:	161	176	144	

1.7 Average Annual Daily Traffic (AADT) Estimate

Note: A discussion of Average Annual Daily Traffic Estimates is provided in Section 1.2. 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 1.8 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- Based on the dry weather factor, the highest AADT is at Great South Road/Rosehill Drive (85 daily trips, down from 106 trips in 2008) and the lowest is at Great South Road/Taka Street (51 daily trips, down from 83 trips last year).

Table 1.8: Dry Weather Factor AADT Estimates Based on Morning and Evening Cyclist Movements 2007-2009 (n)

Site Number	Locations	2007 AADT	2008 AADT	2009 AADT	Change 08-09	Change 07-09
65	Great South Road/Rosehill Drive, Rosehill	77	106	85	-20%	10%
64	Porchester/Walters Road, Takanini	72	66	70	6%	-3%
66	Great South Road/Taka Street, Conifer Grove	83	83	51	-39%	-39%

Note: Despite evidence of intermittent rain at at least one site during the morning and/or evening monitoring periods, the dry weather factor has been applied in calculating the AADT estimates. For the purpose of comparison, Appendix Two provides comparative 2009 AADT estimates using both the dry and wet weather factors.

1.8 School Bike Shed Count Summary

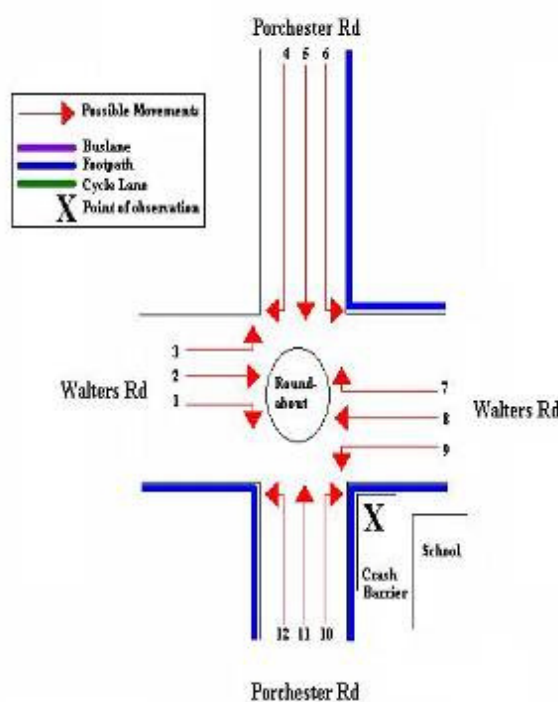
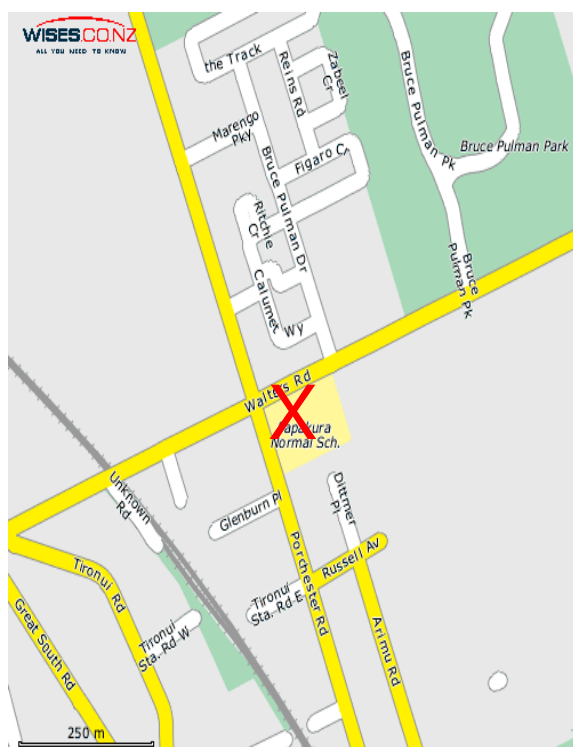
Key Points

- Of those students eligible to cycle, on average, one per cent of students are currently cycling to their schools (unchanged from last year).
- In total, n=41 students from the four responding schools were reported as cycling to school.
- Of the four schools that responded, all had students cycling to school. This compares with one school having no cyclists last year.
- Rates of cycling to school are the highest at the intermediate school (Rosehill Intermediate – 6 per cent) and lowest at the composite school (ACG Strathallan College – <1 per cent).

2. PORCHESTER ROAD/WALTERS ROAD, TAKANINI (SITE 64)

Figure 2.1 shows the possible cyclist movements at this intersection.

Figure 2.1: Cycle Movements: Porchester/Walters Road



AADT Estimate

- The AADT for this site is 70 cycle movements per day. This compares with:
 - 66 movements in 2008
 - 72 movements in 2007.

2.1 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists recorded at the Porchester/Walters Road intersection is unchanged from last year, with 19 movements recorded in both 2008 and 2009.
- The most common movements in the morning are straight along Prochester Road heading north (Movement 11 = 5 movements) and turning right from Porchester Road into Walters Road heading east (Movement 10 = 4 movements).
- Cycle volumes at all movements are stable from last year.

**Table 2.1: Morning Cyclist Movements
Porchester/Walters Road 2007-2009 (n)**

Movement	2007	2008	2009	Change 08-09
1	3	6	3	-3
2	1	2	1	-1
3	0	0	1	1
4	2	0	2	2
5	5	4	1	-3
6	0	2	2	0
7	1	1	0	-1
8	0	0	0	0
9	3	2	0	-2
10	1	0	4	4
11	4	2	5	3
12	2	0	0	0
Total	22	19	19	0

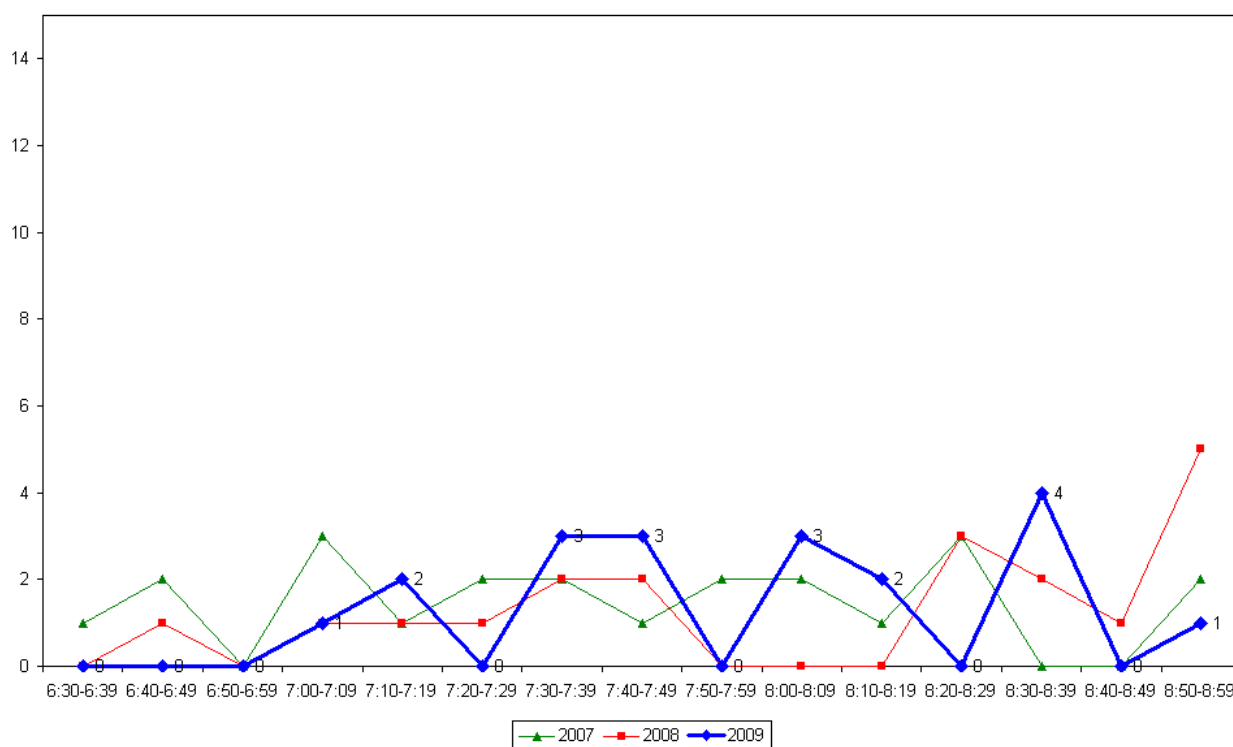
- Over the morning peak, adults comprise the majority of cycle movements (68 per cent, unchanged from last year).
- Almost all cyclists are wearing a helmet (95 per cent, up notably from 79 per cent in 2008).
- Just less than three in five cyclists are riding on the footpath (58 per cent, compared with 53 per cent last year).

**Table 2.2: Morning Cyclist Characteristics
Porchester/Walters Road 2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	82	68	68	0
School child	18	32	32	0
Helmet Wearing				
Helmet on head	73	79	95	16
No helmet	27	21	5	-16
Where Riding				
Road	50	47	42	-5
Footpath	50	53	58	5
Base:	22	19	19	

- Morning cyclist volumes are relatively low over the entire peak period, with no more than three cyclists recorded within most ten minute intervals. A slight peak occurs between 8:30am and 8:39am (4 movements).

Figure 2.2: Porchester/Walters Road Cyclist Frequency – Morning Peak



2.2 Evening Peak

Environmental Conditions

- The weather was overcast throughout the evening shift, with a heavy shower at approximately 5:15pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- In 2009, the volume of evening cyclist traffic at the Porchester/Walters Road intersection has increased slightly from last year, up from 27 movements to 30.
- Key evening movements are the left turn from Walters Road into Porchester Road heading south (Movement 9 = 9 movements) and straight along Porchester Road heading south (Movement 5 = 7 movements).
- Most of the possible movements at this intersection are stable since last year, with change most notable at Movement 9 (up 6 cyclists).

**Table 2.3: Evening Cyclist Movements
Porchester/Walters Road 2007-2009 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Change 08-09</i>
1	3	3	2	-1
2	0	1	0	-1
3	4	1	2	1
4	1	1	0	-1
5	3	4	7	3
6	1	2	0	-2
7	1	2	0	-2
8	1	1	2	1
9	4	3	9	6
10	4	1	5	4
11	4	4	3	-1
12	2	4	0	-4
Total	28	27	30	3

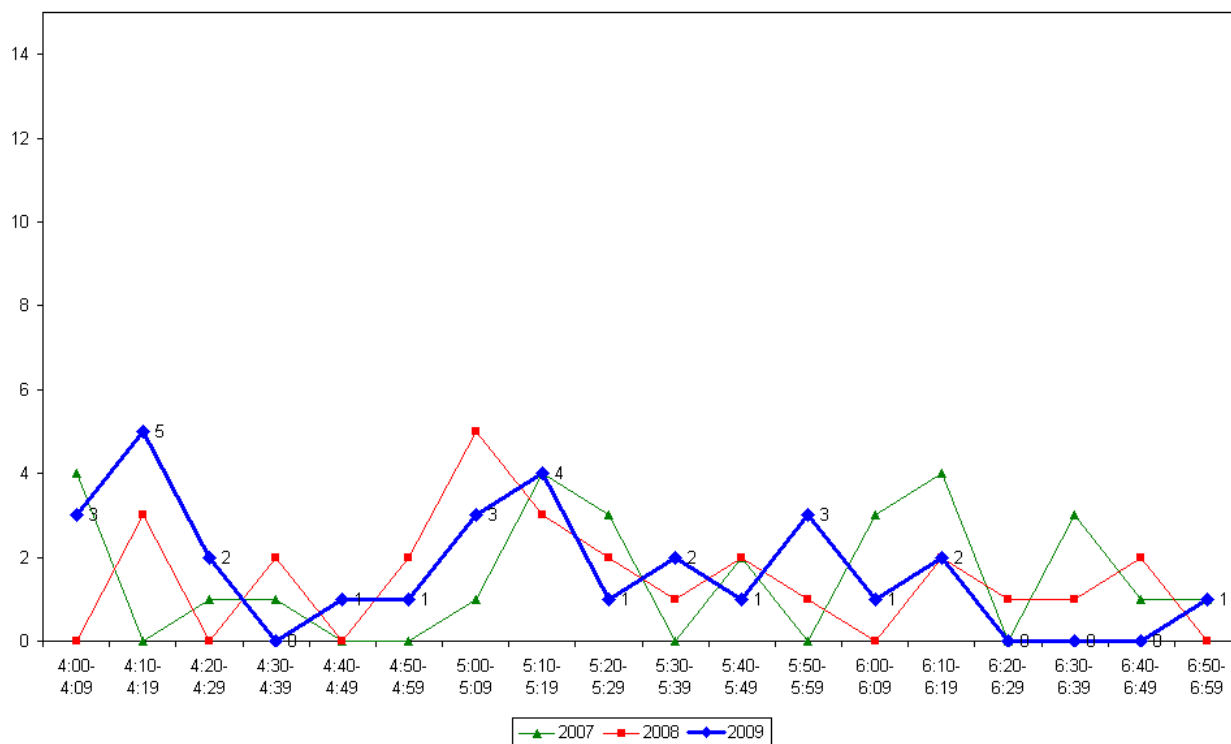
- Consistent with the morning peak, the greatest share of cyclists using the Porchester/Walters Road intersection are adults (57 per cent, down notably from 89 per cent last year).
- On average, just less than three in five cyclists at this site are wearing a helmet (57 per cent, down notably from 81 per cent in 2008).
- Four in five cyclists are riding on the road (80 per cent), this share up from 67 per cent last year.

**Table 2.4: Evening Cyclist Characteristics
Porchester/Walters Road 2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	82	89	57	-32
School child	18	11	43	32
Helmet Wearing				
Helmet on head	61	81	57	-24
No helmet	39	19	43	24
Where Riding				
Road	54	67	80	13
Footpath	46	33	20	-13
Base:	28	27	30	

- The volume of cycle movements peaks between 4:10pm and 4:19pm (5 movements), with another slight peak of 4 cyclists an hour later (between 5:10pm and 5:19pm). This compares with the peak which occurred between 5:00pm and 5:09pm (5 cyclists) in 2008.

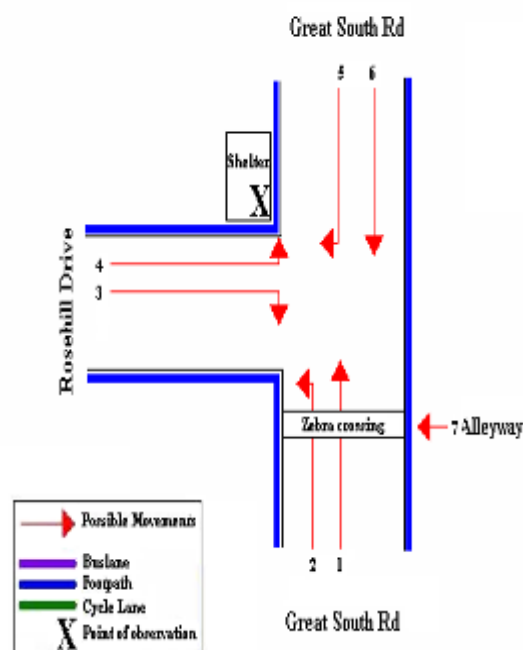
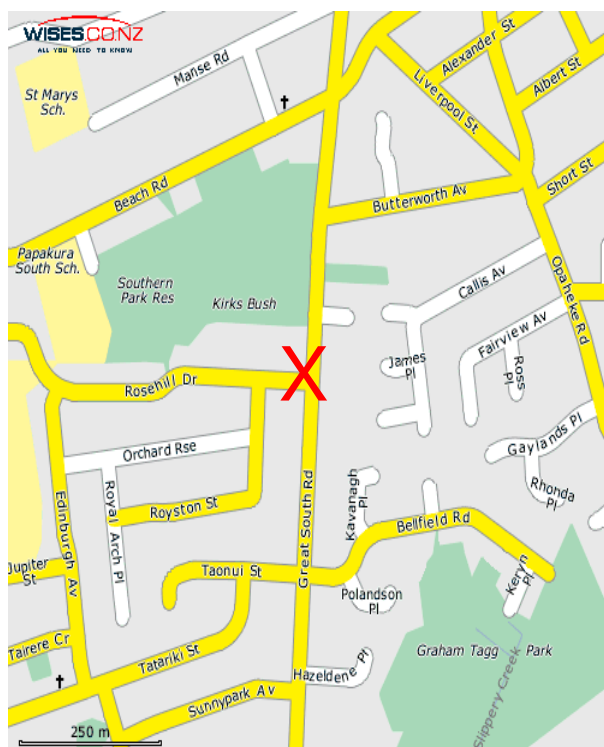
Figure 2.3: Porchester/Walters Road Cyclist Frequency – Evening Peak



3. GREAT SOUTH ROAD/ROSEHILL DRIVE, ROSEHILL (SITE 65)

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Great South Road/Rosehill Drive



AADT Estimate

- The AADT for this site is 85 cycle movements per day. This compares with:
 - 106 movements in 2008
 - 77 movements in 2007.

3.1 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift, apart from a brief period of rain at 7:40am.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Of the three sites monitored in Papakura district, the intersection of Great South Road and Rosehill Drive is the busiest in terms of morning cyclist activity, with 22 movements recorded (down notably from 42 movements last year).
- The key morning movement is the right turn out of Great South Road into Rosehill Drive (Movement 5 = 14 cyclists).
- The most notable change since 2008 is at Movement 1 (down 8 cyclists).

**Table 3.1: Morning Cyclist Movements
Great South Road/Rosehill Drive 2007-2009 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Change 08-09</i>
1	8	13	5	-8
2	2	6	2	-4
3	1	1	0	-1
4	5	4	1	-3
5	7	10	14	4
6	6	5	0	-5
7	-	3	0	-3
Total	29	42	22	-20

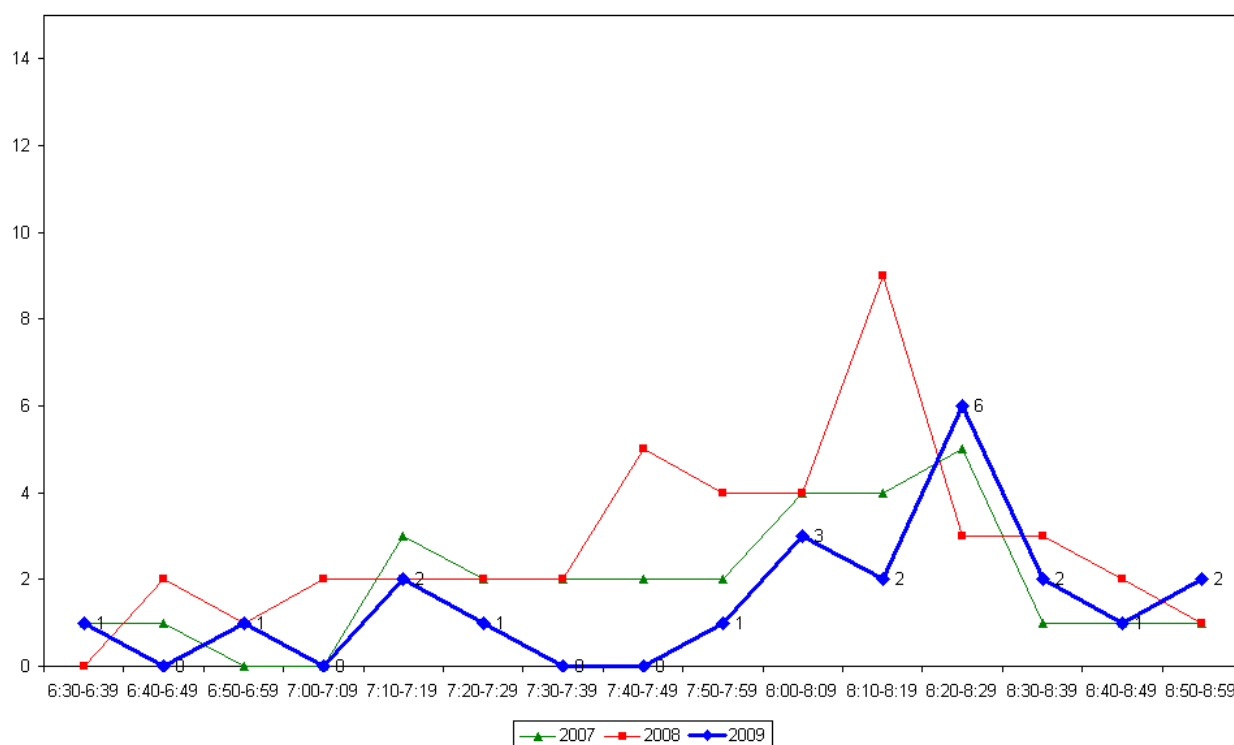
- Over the morning peak, two in three cyclists are school children (68 per cent, up from 60 per cent last year).
- Most cyclists are wearing a helmet (91 per cent, stable from 95 per cent in 2008).
- More cyclists are riding on the footpath (64 per cent, up slightly from 57 per cent last year).

**Table 3.2: Morning Cyclist Characteristics
Great South Road/Rosehill Drive 2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	55	40	32	-8
School child	45	60	68	8
Helmet Wearing				
Helmet on head	72	95	91	-4
No helmet	28	5	9	4
Where Riding				
Road	45	43	36	-7
Footpath	55	57	64	7
Base:	29	42	22	

- Morning cyclist volumes in 2009 start off relatively low, peak strongly between 8:20am and 8:29am (6 movements), before tailing off towards the end of the monitoring period. This compares with a strong peak between 8:10am and 8:19am last year (9 movements).

Figure 3.2: Great South Road/Rosehill Drive Cyclist Frequency – Morning Peak



3.2 Evening Peak

Environmental Conditions

- The weather was overcast throughout the evening shift, with periods of heavy rain between 4:00pm and 4:08pm and between 4:54pm and 5:10pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Evening cyclist volumes at the Great South Road/Rosehill Drive intersection have increased, from 30 in 2008 to 37 this year – the busiest of the three monitored sites in Papakura district.
- In contrast to the morning shift, the most common movements in the evening are south along Great South Road (Movement 6 = 18 cyclists) and north along Great South Road (Movement 1 = 14 cyclists).
- Evening cyclist volumes at this intersection remain mostly stable, with the most notable change at Movement 6 (up 12 cyclists).

**Table 3.3: Evening Cyclist Movements
Great South Road/Rosehill Drive 2007-2009 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Change 08-09</i>
1	7	10	14	4
2	2	6	1	-5
3	2	0	0	0
4	2	4	3	-1
5	3	1	1	0
6	8	6	18	12
7	-	3	0	-3
Total	24	30	37	7

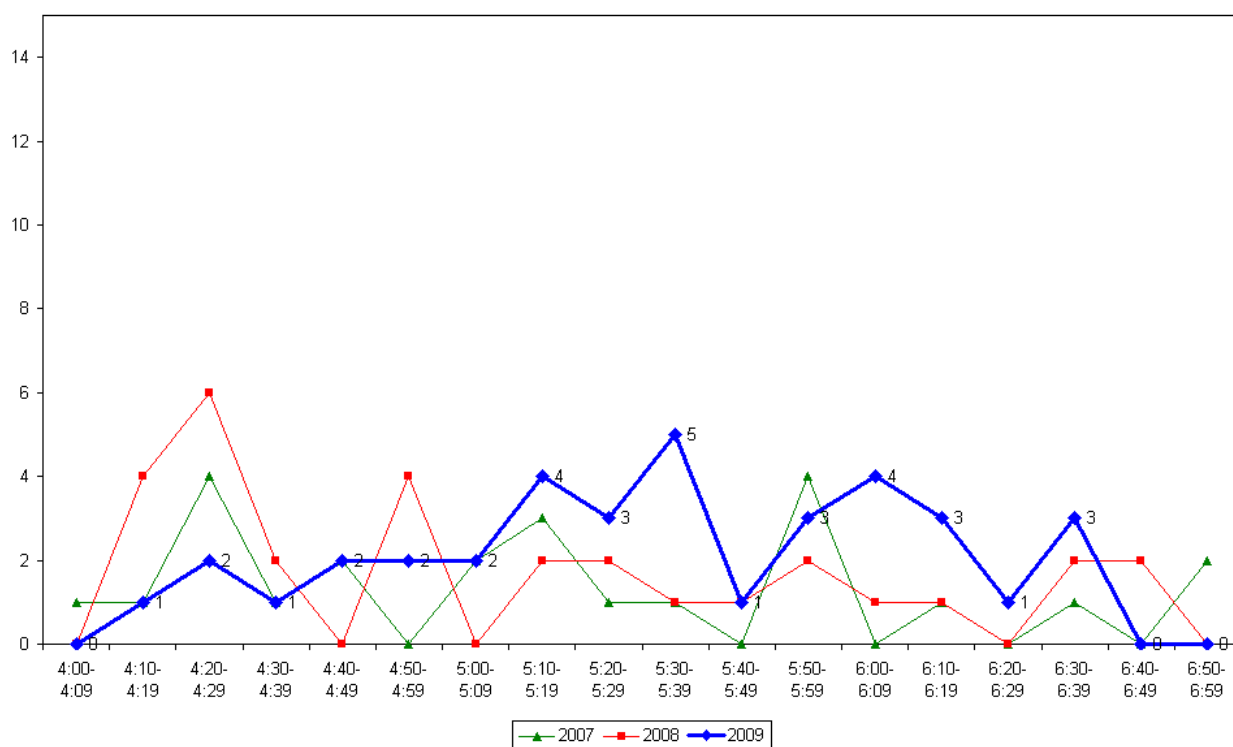
- Two-thirds of cyclists using this intersection are adults (68 per cent, up notably from 33 per cent in 2008).
- Sixty-five per cent of cyclists at this site are wearing a helmet (down from 77 per cent last year).
- The majority of cyclists are riding on the footpath (57 per cent, down notably from 73 per cent last year).

**Table 3.4: Evening Cyclist Characteristics
Great South Road/Rosehill Drive 2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	58	33	68	35
School child	42	67	32	-35
Helmet Wearing				
Helmet on head	67	77	65	-12
No helmet	33	23	35	12
Where Riding				
Road	42	27	43	16
Footpath	58	73	57	-16
Base:	24	30	37	

- Evening cyclist numbers peak slightly in the middle of the monitoring period, with 5 movements between 5:30pm and 5:39pm. This compares to previous years where peaks occurred early in the evening.

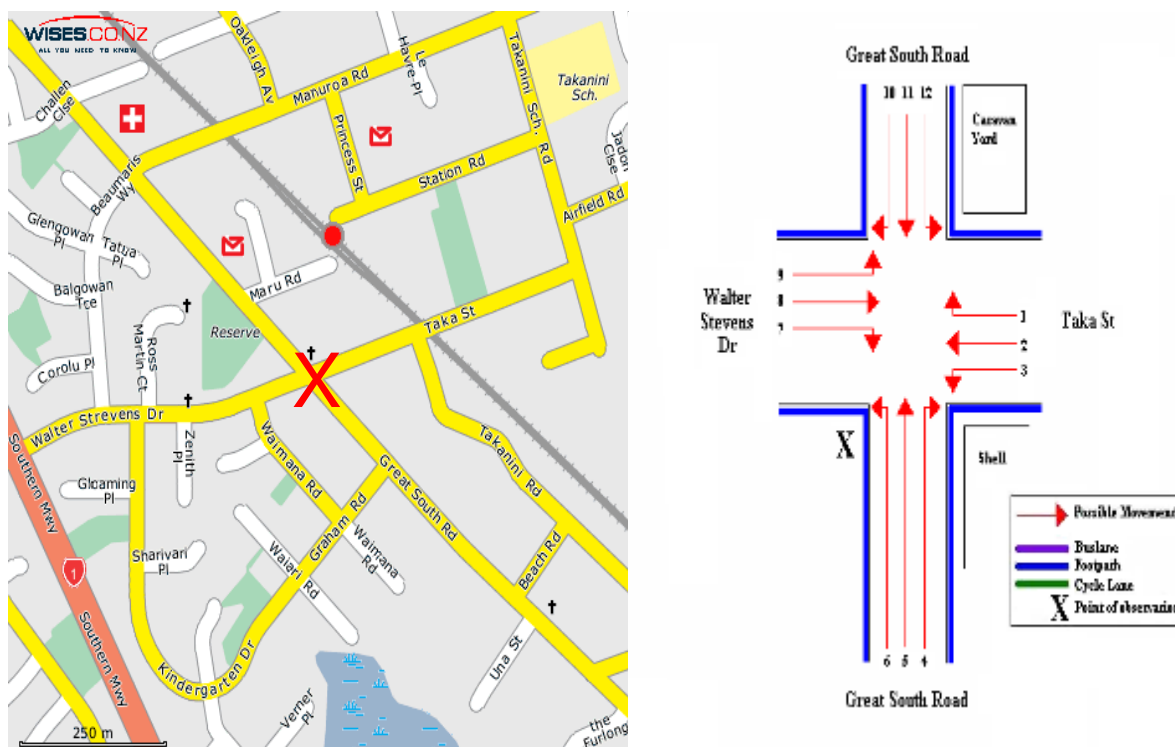
Figure 3.3: Great South Road/Rosehill Drive Cyclist Frequency – Evening Peak



4. GREAT SOUTH ROAD/TAKA STREET, CONIFER GROVE (SITE 66)

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Great South Road/Taka Street



AADT Estimate

- The AADT for this site is 51 cycle movements per day. This compares with:
 - 83 movements in 2008
 - 83 movements in 2007.

4.1 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

- Consistent with last year, the volume of morning cyclists at the Great South Road/Taka Street intersection is the lightest of the three sites in Papakura district (12 movements, down from 19 movements last year).
- Key morning movements are straight along Great South Road in both directions (Movement 5 = 5 cyclists; Movement 11 = 4 cyclists).
- Morning cyclist volumes at all movements are stable since last year, with the change most notable at Movement 8 (down 4 cyclists).

**Table 4.1: Morning Cyclist Movements
Great South Road/Taka Street 2007-2009 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Change 08-09</i>
1	0	0	0	0
2	1	2	1	-1
3	0	0	0	0
4	0	0	1	1
5	6	6	5	-1
6	0	0	0	0
7	2	0	0	0
8	1	4	0	-4
9	0	0	1	1
10	0	0	0	0
11	8	7	4	-3
12	0	0	0	0
Total	18	19	12	-7

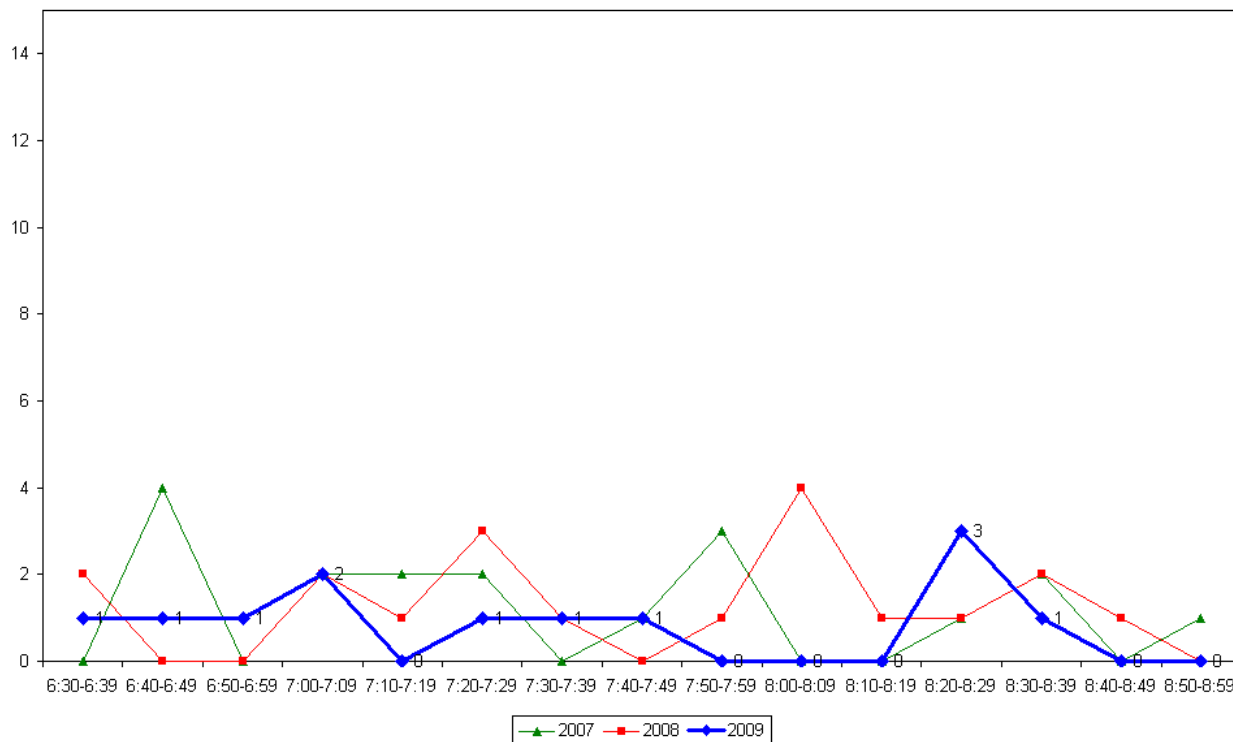
- Over the morning peak, all cyclists are adults (100 per cent, up slightly from 95 per cent last year).
- Two-thirds of cyclists are wearing a helmet (67 per cent, down from 74 per cent in 2008).
- Compared with other Papakura district sites, the incidence of riding on the footpath in the morning is the lowest at this intersection (33 per cent, up from 21 per cent last year).

**Table 4.2: Morning Cyclist Characteristics
Great South Road/Taka Street 2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	89	95	100	5
School child	11	5	0	-5
Helmet Wearing				
Helmet on head	89	74	67	-7
No helmet	11	26	33	7
Where Riding				
Road	61	79	67	-12
Footpath	39	21	33	12
Base:	18	19	12	

- As in 2008, the volume of cycle movements is relatively low over the entire morning shift, with no more than one cyclist recorded passing over during most ten minute intervals. A slight peak occurs between 8:20pm and 8:29pm (3 movements), 20 minutes later than the peak last year.

Figure 4.2: Great South Road/Taka Street Cyclist Frequency – Morning Peak



4.2 Evening Peak

Environmental Conditions

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

Key Points

- Consistent with the morning shift, the intersection of Great South Road and Taka Street has the lowest volume of evening cyclist traffic, with 24 movements recorded (down notably from 39 movements in 2008).
- The most common movement in the evening is straight along Great South Road heading south (Movement 11 = 11 cyclists).
- Cycle volumes at Movements 2, 5 and 8 have declined since last year (each down 4 cyclists).

**Table 4.3: Evening Cyclist Movements
Great South Road/Taka Street 2007-2009 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>Change 08-09</i>
1	5	0	4	4
2	3	4	0	-4
3	3	4	2	-2
4	4	4	1	-3
5	11	6	2	-4
6	1	2	2	0
7	0	1	1	0
8	2	4	0	-4
9	0	1	0	-1
10	10	0	1	1
11	1	10	11	1
12	0	3	0	-3
Total	40	39	24	-15

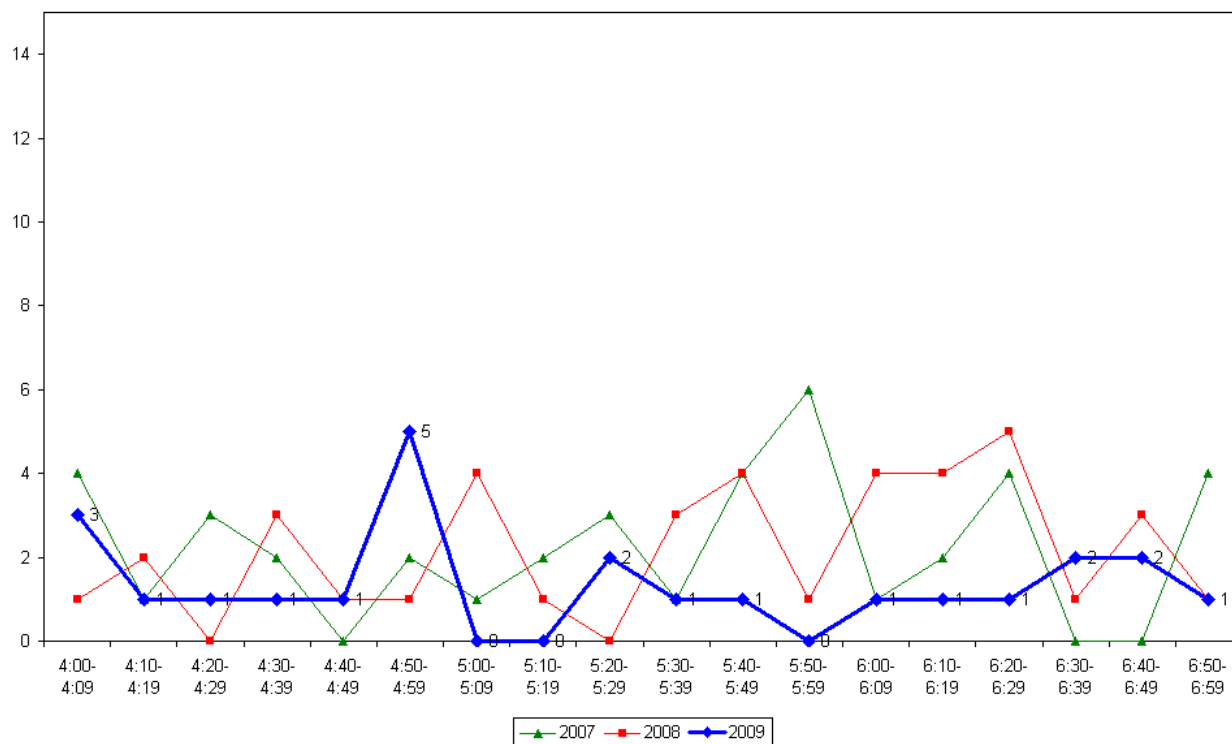
- Consistent with last year, most cyclists using this intersection are adults (83 per cent, up from 77 per cent in 2008).
- The majority of cyclists at this site are wearing a helmet (83 per cent, up from 74 per cent last year).
- Three-quarters of cyclists are riding on the road (75 per cent, up notably from 59 per cent in 2008).

**Table 4.4: Evening Cyclist Characteristics
Great South Road/Taka Street 2007-2009 (%)**

	2007	2008	2009	Change 08-09
Cyclist Type				
Adult	77	77	83	6
School child	23	23	17	-6
Helmet Wearing				
Helmet on head	65	74	83	9
No helmet	35	26	17	-9
Where Riding				
Road	60	59	75	16
Footpath	40	41	25	-16
Base:	40	39	24	

- Evening cyclist volumes peak between 4:50pm and 4:59pm (5 movements) – 90 minutes earlier than the peak recorded last year.

Figure 4.3: Great South Road/Taka Street Cyclist Frequency – Evening Peak



5. SCHOOL BIKE SHED COUNT – PAPA KURA DISTRICT

Background Information

- A total of six schools were contacted in Papakura district. Of the four schools (67 per cent) that responded to the survey, none have policies that restrict students cycling to school.
- No school surveyed reported events or issues that may affect the cycle counts.
- The designated count day was Tuesday 10th of March¹⁰.

Key Points

- Of those students eligible to cycle, on average, one per cent of students are currently cycling to their schools (unchanged from last year).
- In total, n=41 students from the four responding schools were reported as cycling to school.
- Rosehill Intermediate reported the highest share of cyclists – 6 per cent of all eligible students currently cycling to school.
- Of the four schools that responded, all had students cycling to school. This compares with one school having no cyclists last year.

¹⁰ Papakura High School conducted their count on Thursday 26th March.

Table 5.1 shows the results of the four schools surveyed in Papakura district.

**Table 5.1: Summary Table Of School Bike Count
2007-2009 (n)**

School Name	Year Levels	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible¹¹ (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Rosehill Intermediate	Intermediate	339	21	6%	-	-
Rosehill College	Secondary	1850	11	1%	1%	<1%
Papakura High School	Secondary	1127	5	<1%	<1%	<1%
ACG Strathallan College	Composite	1003	4	<1%	1%	-
Total		4319	41	1%	1%	1%

**Table 5.1a: Summary Table Of Non-Participating Schools
2007-2009 (n)**

School Name	Year Levels	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible (2009)	Cyclists as share of those eligible (2008)	Cyclists as share of those eligible (2007)
Mansell Senior School	Intermediate	240	-	-	-	-
Drury Christian School	Composite	19	-	-	0%	-

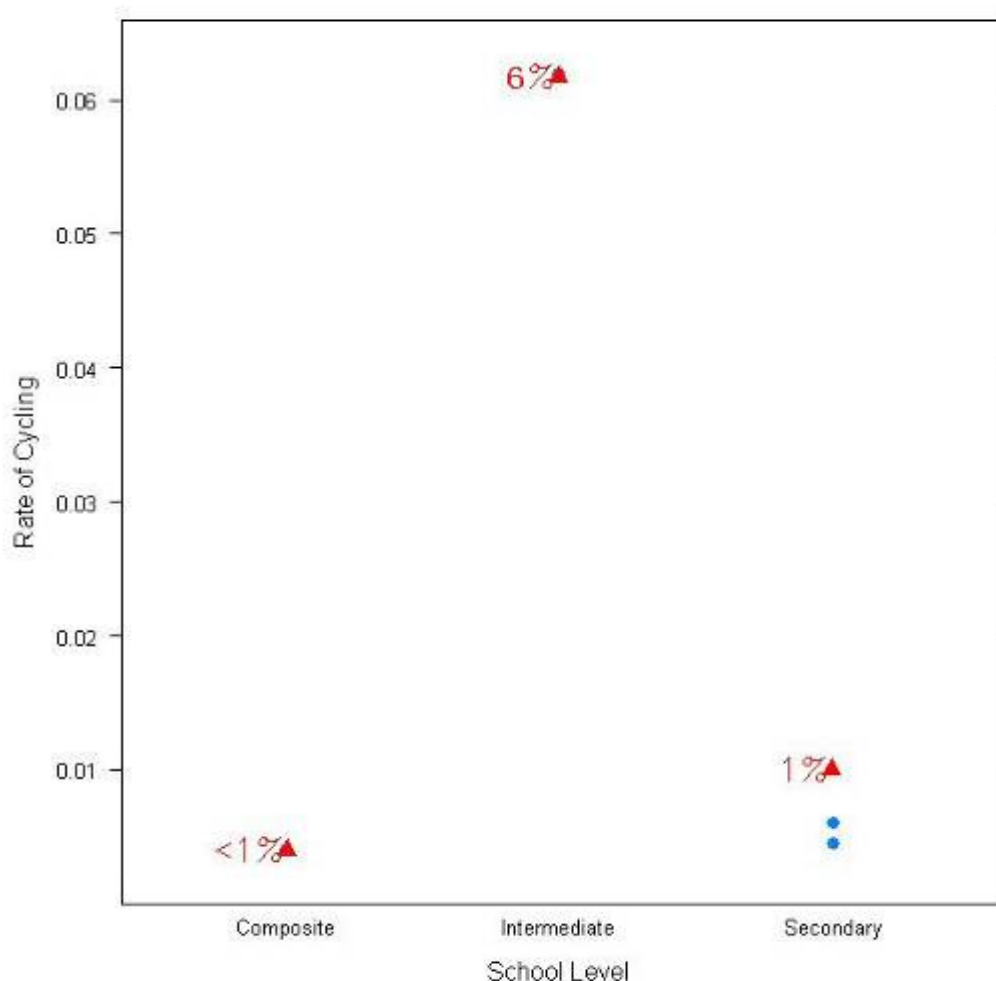
¹¹ This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.

- Table 5.2 and Figure 5.1 illustrate the rates of cycling to school at different school levels. Rates of cycling to school are the highest at the intermediate school (Rosehill Intermediate – 6 per cent) and lowest at the composite school (ACG Strathallan College – <1 per cent).

**Table 5.2: Summary Table Of School Bike Count by Year Levels
2007-2009 (%)**

Year Levels	Number of Schools Responded in 2009	Cyclists as share of those eligible - 2007	Cyclists as share of those eligible - 2008	Cyclists as share of those eligible - 2009	Change 08-09
Intermediate	1	-	-	6	-
Secondary	2	1	1	1	0
Composite	1	-	1	<1	0
Total	4	1	1	1	0

**Figure 5.1: Cycling Rates by School Level
2009 (%)**



APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

Appendix Two: Comparative 2009 AADT Estimates Using Dry and
Wet Weather Factors

Appendix Three: School Bike Shed Information Sheet And Cover
Letter

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 AADT¹² 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)¹³, 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.

¹² Annual average daily traffic

¹³ LTSA, 2004

For the Gravitas counts, the following factors apply:

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

$$D = 14$$

$$W = 0.9$$

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

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

	Morning	Afternoon
Dry weather	3.06	2.78
Wet weather	4.78	4.35

Worked Example

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

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

Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%

APPENDIX TWO: COMPARATIVE 2009 AADT ESTIMATES USING DRY AND WET WEATHER FACTORS

Table 1: Dry Weather Factor AADT Estimates Based on Morning and Evening Cyclist Movements 2007-2009 (n)

Site Number	Locations	2007 AADT	2008 AADT	2009 AADT	Change 08-09	Change 07-09
65	Great South Road/Rosehill Drive, Rosehill	77	106	85	-20%	10%
64	Porchester/Walters Road, Takanini	72	66	70	6%	-3%
66	Great South Road/Taka Street, Conifer Grove	83	83	51	-39%	-39%

Table 2: Wet Weather Factor AADT Estimates Based on Morning and Evening Cyclist Movements in 2009 (n)

Site Number	Locations	2007 AADT	2008 AADT	2009 AADT	Change 08-09	Change 07-09
65	Great South Road/Rosehill Drive, Rosehill	77	106	132	25%	71%
64	Porchester/Walters Road, Takanini	72	66	110	67%	53%
66	Great South Road/Taka Street, Conifer Grove	83	83	80	-4%	-4%

APPENDIX THREE: SCHOOL BIKE SHED INFORMATION SHEET AND COVER LETTER

AUCKLAND REGIONAL CYCLE MONITOR - 2009 SCHOOL CYCLE COUNT -

ABOUT YOUR SCHOOL (To be completed by staff member)

Name of school: _____

Physical address of school: _____

This school caters for students from Year to Year

Current school roll (total number of students):

Does the school have a policy which recommends only certain Year levels should cycle to school?
(Please tick one box only)

No

Yes Please outline which Year levels the policy recommends should cycle to school:

If school policy recommends only certain Year levels should cycle to and from school, please tell us the current school roll of students in Year levels allowed to cycle to school:

Is there any reason why this cycle count may NOT be representative of the usual number of students who cycle to school? eg students away at school camp, senior study break etc. *Please write in.*

In case we need to contact you about the information you have provided:

Contact staff member's name _____ Contact phone number: _____

**AUCKLAND REGIONAL CYCLE MONITOR
- 2009 SCHOOL CYCLE COUNT -**

THE CYCLE COUNT (Can be completed by staff member or student)

Name of school: _____

Date of cycle count: _____

(Note: The preferred day is Tuesday 10th of March)

Total number of cycles counted:

Name of counter: _____

Postal address: _____

(Please note that your personal details will only be used by Gravitass if we need to contact you for clarification of your school or count information. Your personal details will not be passed on to any other organisation or used for any purpose other than this research).

Thank you for your assistance with the project – your contribution is much appreciated.

Once completed, please place this form (check you have both pages) in the stamped addressed envelope provided and post no later than Friday March 13 2009.

26 February 2009

«Staff_Member_Name»

«Schools_Name»

«Address_1_1»

«Address_2_suburb»

«Address_3»

Dear «Staff_Member»

Re: Regional Cycle Monitoring Programme – Student Cyclists

In conjunction with a larger region-wide cycle monitoring programme being undertaken in early March, intermediate and secondary schools in the Auckland region are being invited to play a part in building a greater understanding of how students get to school. The data provided by schools, along with counts of cyclists at major intersections throughout the Auckland region, will provide local Councils and the Auckland Regional Transport Authority with the information they need to ensure future funding for improvements to cycle infrastructure.

This is the third year that this count of student cyclists has been undertaken. On behalf of the local Councils and the Auckland Regional Transport Authority, we would like to thank those schools that have participated in 2007 and 2008 for their contribution. We look forward to hearing from you again this year.

Accompanying this letter is an information form. The form is in two parts:

- The first part of the form (“About Your School”) asks for basic information about your school, including whether there is a policy around recommending that only certain Year levels should cycle to and from school. Given the nature of the information being requested, it is probably most appropriate for the first part of the form to be filled out by a staff member. It should only take two or three minutes to complete.
- The second part of the form (“The Cycle Count”) asks for a count of the number of bicycles at your school (in bike sheds, racks etc.) on a pre-determined day. It is envisaged that this information could be collected by a student during one of their breaks (however, if students are permitted to leave the school on cycles during lunchtime, we would ask that the count not be conducted at this time).

To ensure consistency across all schools in the region, **Tuesday the 10th of March** has been selected as the day we would like the cycle count to be conducted. We realise that the weather plays a significant role in the numbers of students cycling to school on any particular day. For this reason, if the weather is particularly bad on the 10th of March, then please postpone the count until **Tuesday the 17th of March**.

Once BOTH PARTS of the form have been completed, it should be placed in the stamped, addressed envelope accompanying this letter and posted no later than Friday the 13th of March (or Friday the 20th of March should the count be postponed due to bad weather).

The data you provide will be analysed to provide an 'actual student cyclists as a share of all potential student cyclists' figure for each school as well as aggregated results by city/district and region. (The final results will be available in May. If you would like a copy, you can contact Brian Horspool at ARTA – Brian.Horspool@arta.co.nz). Please be assured that all information you provide will be treated in the strictest confidence and only used for the purpose of this study.

One of our team will call you in the next couple of days to confirm that you have received the form and to answer any questions you have. However, if you have any questions about what is required, or would like further information about the wider study being undertaken, please don't hesitate to contact me (tania@gravitas.co.nz).

Thank you for your co-operation. Your assistance is greatly appreciated.

Kind regards



Tania Boyer
Project Director
Gravitas Research and Strategy Limited