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Research Report Prepared for
Auckland Transport

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2012 Auckland Region Manual Cycle Monitor

- Manurewa-Papakura Ward -

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1. MANUREWA-PAPAKURA WARD SUMMARY OF RESULTS

1.1 Introduction

The Need For Reliable Cycle Trip Data

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

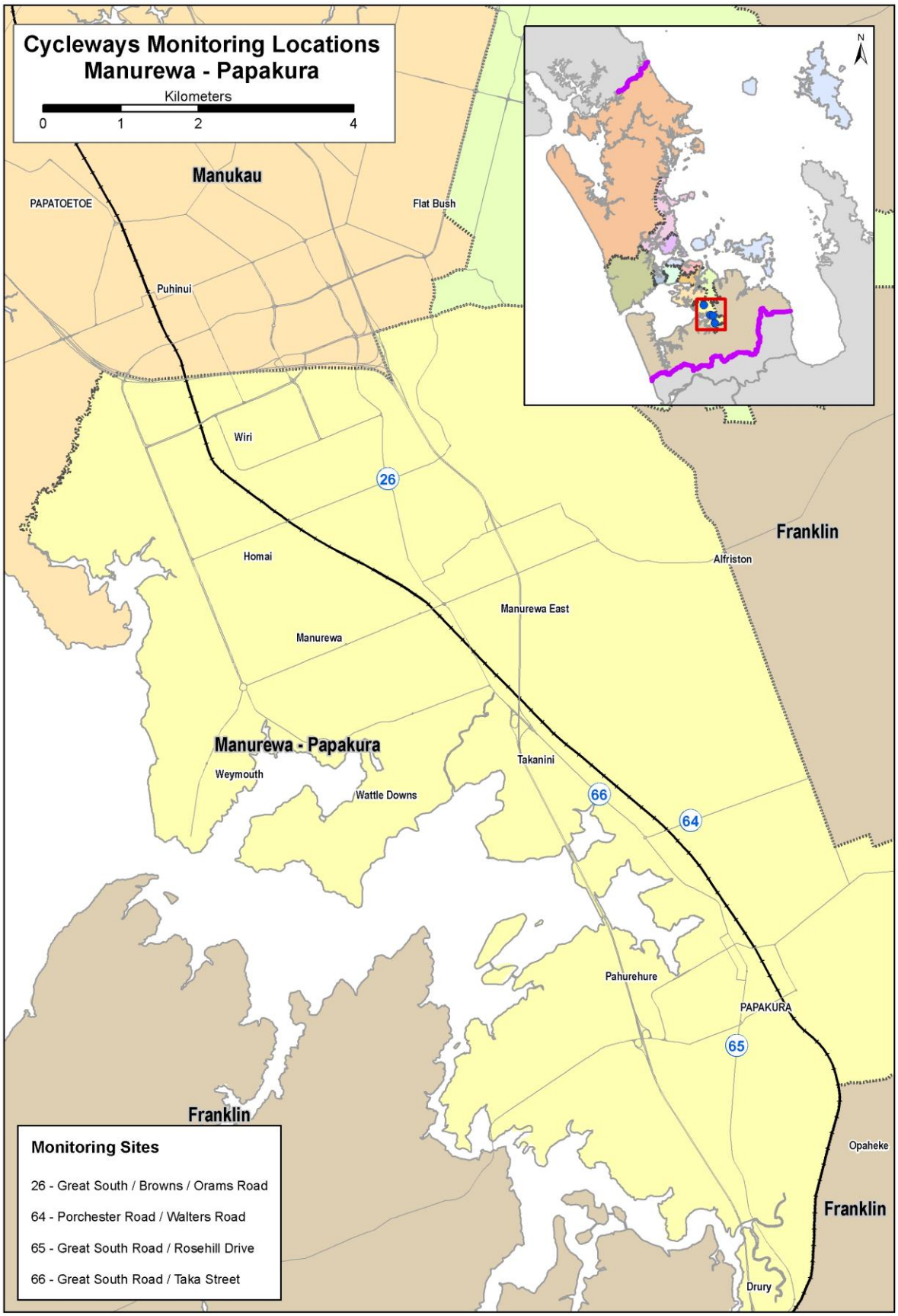
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 four sites in the Manurewa-Papakura 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 four pre-determined sites in the Manurewa-Papakura 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 Manurewa-Papakura ward.

Figure 1.1: 2011 Cycle Monitoring Locations in Manurewa-Papakura 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 Manurewa-Papakura 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 Manurewa-Papakura ward, they hide much of the specific details of cycling behaviour at individual sites. The site-specific data varies significantly from site to site, and can be found in Sections Two to Five of this report.

Note: Surveying in the Manurewa-Papakura ward was undertaken on Wednesday 7th of March, 2012. Sunrise was at 7:12am and sunset was at 7:51pm. The highest temperature was 24 degrees Celsius.

1.4 Morning Peak

Environmental Conditions

- The weather was fine at all sites throughout the morning shift.
- There were no road works or accidents observed at any sites in the Manurewa-Papakura ward.

Key Points

- A total of 90 cyclist movements were recorded across the four sites in the morning peak period (between 6:30am and 9:00am) in 2012. This represents a 22 per cent decrease from last year.
- The average morning cyclist volume across the four sites monitored in the Manurewa-Papakura ward is 23 movements, down from 29 in 2011.
- The busiest site in the morning peak is the intersection of Great South Road/Rosehill Drive, Rosehill (30 cycle movements), whereas the Great South Road/Taka Street and Porchester Road/Walters Road intersection have the lowest cycle volumes (18 cycle movements per site).

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
65	Great South Road/Rosehill Drive, Rosehill	29	42	22	29	**30**	**30**	**0%**	**3%**
26	Great South Road/Browns Road/Orams Road	25	32	21	21	**29**	**24**	**-17%**	**-4%**
66	Great South Road/Taka Street, Conifer Grove	18	19	12	15	**23**	**18**	**-22%**	**0%**
	Average per site (3 sites since 2007)	**24**	**31**	**18**	**22**	**27**	**24**	**-11%**	**0%**
	Total (for 3 sites since 2007)	**72**	**93**	**55**	**65**	**82**	**72**	**-12%**	**0%**
64	Porchester Road/Walters Road, Takanini	22	19	19	-	**33**	**18**	**-45%**	**-18%**
	Average per site (4 sites in 2007-2009 and 2011)	**24**	**28**	**19**	**-**	**29**	**23**	**-21%**	**-4%**
	Total (4 sites in 2007-2009 and 2011)	**94**	**112**	**74**	**-**	**115**	**90**	**-22%**	**-4%**

- Morning cyclist characteristics are shown in Table 1.2 below. Overall, three-quarters of cyclists are adults (76 per cent, stable from 75 per cent last year).
- The majority of cyclists across the Manurewa-Papakura ward sites are wearing a helmet (91 per cent, up from 81 per cent in 2011).
- The greatest share of morning cyclists were male (83 per cent).
- Over half of cyclists are riding on the road (62 per cent, compared with 58 per cent in 2011).

Table 1.2: Summary of Morning Cyclist Characteristics

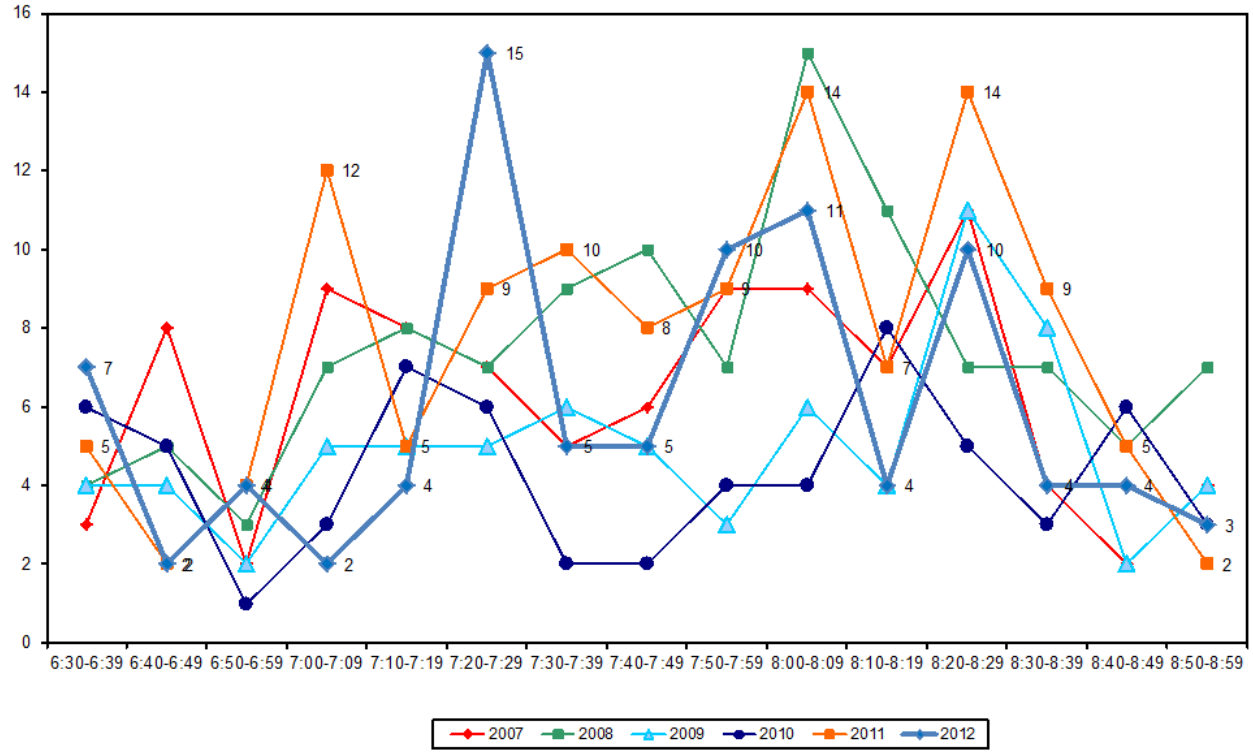
2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	78	70	68	71	75	**76**	**1**
School child	22	30	32	29	25	**24**	**-1**
Helmet Wearing							
Helmet on head	79	86	88	88	81	**91**	**10**
No helmet	21	14	12	12	19	**9**	**-10**
Gender							
Male	-	-	-	-	85	**83**	**-2**
Female	-	-	-	-	15	**9**	**-6**
Can't tell	-	-	-	-	0	**8**	**8**
Where Riding							
Road	51	63	52	62	58	**62**	**4**
Footpath	49	37	48	38	42	**37**	**-5**
Off-road cycleway	-	-	-	-	-	**1**	**1**
Base:	***94***	***112***	***74***	***65***	***115***	***90***	

- Figure 1.2 illustrates the total number of cyclists in the morning peak by time of movement. The volume of morning cycle movements peaks between 7:20am and 7:29am (15 movements), between 8:00am and 8:10am (11 movements) and again between 8:20am and 8:29am (10 movements). This is consistent with 2011.

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007-2011 (n)



1.5 Evening Peak

Environmental Conditions

- The weather was fine at all sites during the first part of the evening shift. From 4:25pm until the end of the shift most sites recorded intermittent showers.
- There were no road works or accidents observed at any sites in the Manurewa-Papakura ward.

Key Points

- A total of 104 cyclist movements were recorded across the four sites in the evening peak period (between 4:00pm and 7:00pm) in 2012. This represents a 35 per cent decrease on the result for 2011.
- Of the four sites monitored in 2011 and 2012, cycle movements have decreased 35 per cent over the last 12 months, with the average number of cyclists per site down from 40 to 26.
- The intersection of Great South Road and Taka Street is the busiest in terms of the evening cyclists' activity, with 31 cycle movements recorded (down from 37 movements in 2011).
- The volume of cyclist traffic at the Great South Road/Browns Road/Orams Road intersection is the lowest of the four sites in the evening shift (20 cycle movements, down from 41 movements last year).

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
66	Great South Road/Taka Street, Conifer Grove	40	39	24	28	37	**31**	**-16%**	**-23%**
65	Great South Road/Rosehill Drive, Rosehill	24	30	37	33	43	**27**	**-37%**	**13%**
26	Great South Road/Browns Road/Orams Road	35	23	18	37	41	**20**	**-51%**	**-43%**
	Average per site (for 3 sites since 2007)	**33**	**31**	**26**	**33**	**40**	**26**	**-35%**	**-21%**
	Total (for 3 sites since 2007)	**99**	**92**	**79**	**98**	**121**	**78**	**-36%**	**-21%**
64	Porchester Road/Walters Road, Takanini	28	27	30	-	39	**26**	**-33%**	**-7%**
	Average per site (4 sites in 2007-2009 and 2011)	**32**	**30**	**27**	**--**	**40**	**26**	**-35%**	**-19%**
	Total (4 sites in 2007-2009 and 2011)	**127**	**119**	**109**	**-**	**160**	**104**	**-35%**	**-18%**

- Approximately four in five evening cyclists are adults (83 per cent, stable from 82 per cent last year).
- Three-quarters of evening cyclists are wearing a helmet (74 per cent, stable from 72 in 2011).
- Four in five evening cyclists are male (80 per cent).
- More than half of all cyclists are riding on the road in the evening (62 per cent, up from 49 per cent last year).

Table 1.4: Summary of Evening Cyclist Characteristics

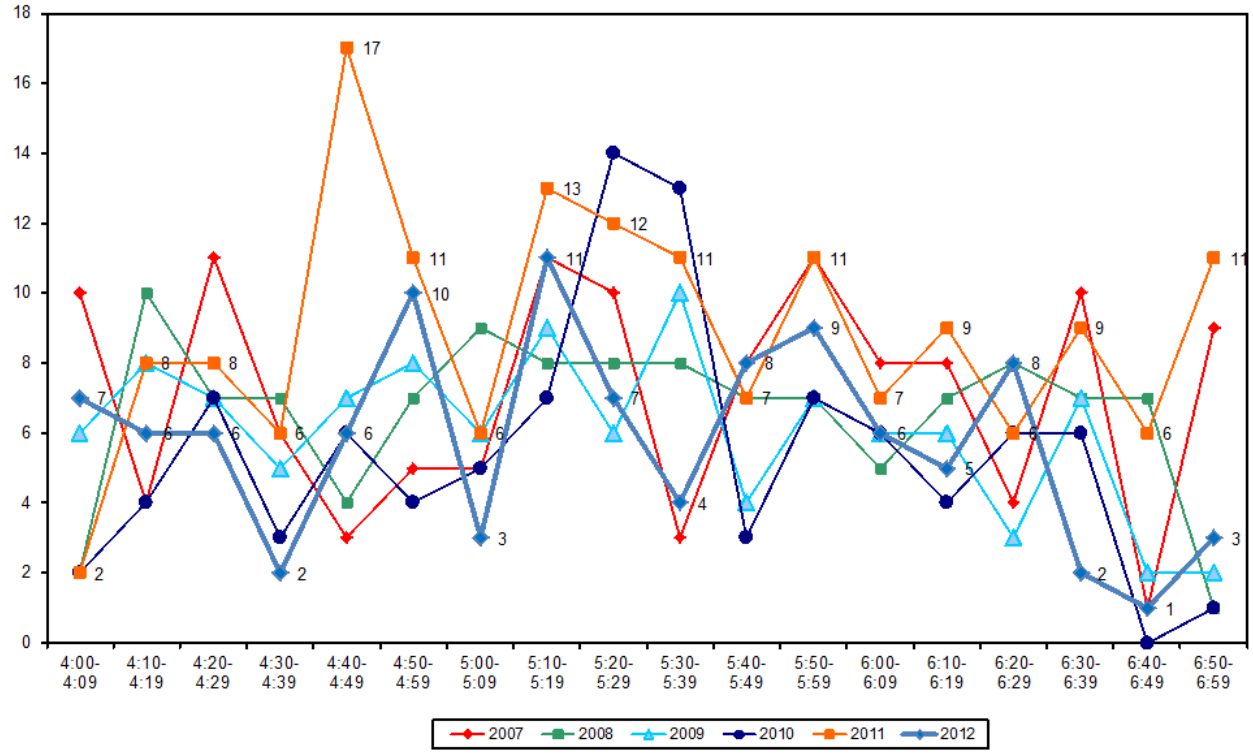
2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2010*	*2012*	Change 11-12
Cyclist Type							
Adult	77	71	72	79	82	**83**	**1**
School child	23	29	28	21	18	**17**	**-1**
Helmet Wearing							
Helmet on head	70	80	69	74	72	**74**	**2**
No helmet	30	20	31	26	28	**26**	**-2**
Gender							
Male	-	-	-	-	88	**80**	**-8**
Female	-	-	-	-	11	**19**	**8**
Can't tell	-	-	-	-	1	**1**	**0**
Where Riding							
Road	54	58	64	64	49	**62**	**13**
Footpath	46	42	36	36	51	**38**	**-13**
Base:	***127***	***119***	***109***	***98***	***160***	***104***	

- The overall pattern of cyclist volumes by time of movement in the evening is illustrated in Figure 1.3. Evening cyclist volumes fluctuate over the monitoring period, with two peaks evident – between 4:50pm and 4:59pm (10 movements) and between 5:10pm and 5:19pm (11 movements).

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007-2011 (n)



1.6 Aggregated Total

- A total of 194 cyclist movements were recorded across the four sites in 2012.
- Of the four sites monitored in 2011 and 2012, cycle movements have decreased 29 per cent over the last 12 months, with the average number of cyclists per site down from 69 to 49.
- The intersection of Great South Road and Rosehill Drive has the greatest number of cyclists (57 movements, down from 73 movements last year), while the Great South Road/Browns Road/Orams Road and the Porchester Road/Walters Road, intersections have the lowest level of cyclist traffic (44 movements per site).

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
65	Great South Road/Rosehill Drive, Rosehill	53	72	59	62	73	**57**	**-22%**	**8%**
66	Great South Road/Taka Street, Conifer Grove	58	58	36	43	60	**49**	**-18%**	**-16%**
26	Great South Road/Browns Road/Orams Road	60	55	39	58	70	**44**	**-37%**	**-27%**
	Average per site (for 3 sites since 2007)	**57**	**62**	**45**	**54**	**68**	**50**	**-26%**	**-12%**
	Total (for 3 sites since 2007)	**171**	**185**	**134**	**163**	**203**	**150**	**-26%**	**-12%**
64	Porchester Road/Walters Road, Takanini	50	46	49	-	72	**44**	**-39%**	**-12%**
	Average per site (4 sites in 2007-2009 and 2011)	**55**	**58**	**46**	**-**	**69**	**49**	**-29%**	**-11%**
	Total (4 sites in 2007-2009 and 2011)	**221**	**231**	**183**	**-**	**275**	**194**	**-29%**	**-12%**

- Overall cyclist characteristics are illustrated in Table 1.6. In total, 79 per cent of cyclists are adults (unchanged from 2011).
- On average, 82 per cent of cyclists are wearing a helmet (up from 76 per cent last year).
- Almost all cyclists are male (81 per cent).
- Over half of cyclists are riding on the road (62 per cent, up from 53 per cent last year).

Table 1.6: Summary of Total Cyclist Characteristics

2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	77	70	70	75	79	**79**	**0**
School child	23	30	30	25	21	**21**	**0**
Helmet Wearing							
Helmet on head	74	83	77	80	76	**82**	**6**
No helmet	26	17	23	20	24	**18**	**-6**
Gender							
Male	-	-	-	-	86	**81**	**-5**
Female	-	-	-	-	13	**14**	**1**
Can't tell	-	-	-	-	1	**5**	**4**
Where Riding							
Road	52	61	60	63	53	**62**	**9**
Footpath	48	39	40	37	47	**37**	**-10**
Off-road cycleway	-	-	-	-	-	**1**	**1**
Base:	***221***	***231***	***183***	***163***	***275***	*194*	

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 1.7 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 (83 daily movements, down from 105 movements in 2011) and lowest is at Porchester Road/Walters Road (63 daily movements, down from 104 movements last year).

Table 1.7: Dry Weather Factor 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*	Change 11-12	Change 07-12
65	Great South Road/ Rosehill Drive, Rosehill	77	106	85	90	105	**83**	**-21%**	**8%**
66	Great South Road/Taka Street, Conifer Grove	83	83	51	62	86	**70**	**-19%**	**-16%**
26	Great South Road/Browns Road/Orams Road	86	81	57	83	101	**64**	**-37%**	**-26%**
64	Porchester Road/Walters Road, Takanini	72	66	70	-	104	**63**	**-39%**	**-13%**

1.8 School Bike Shed Count Summary

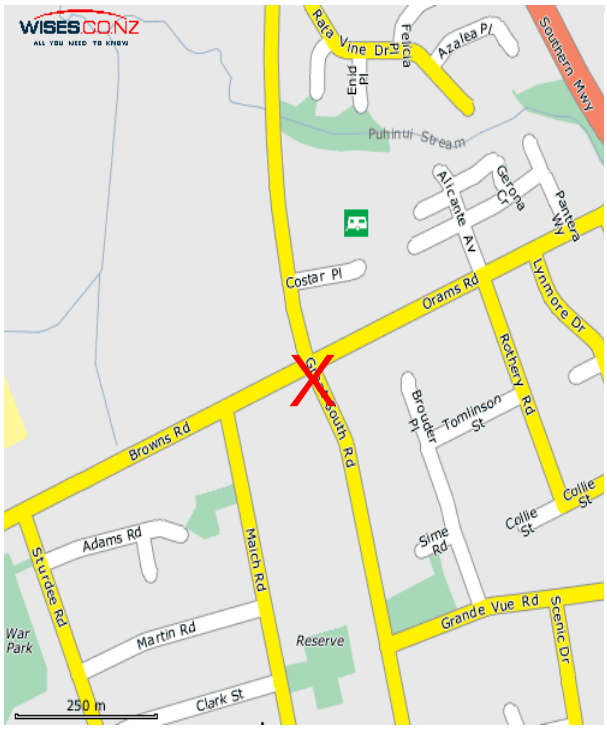
Key Points

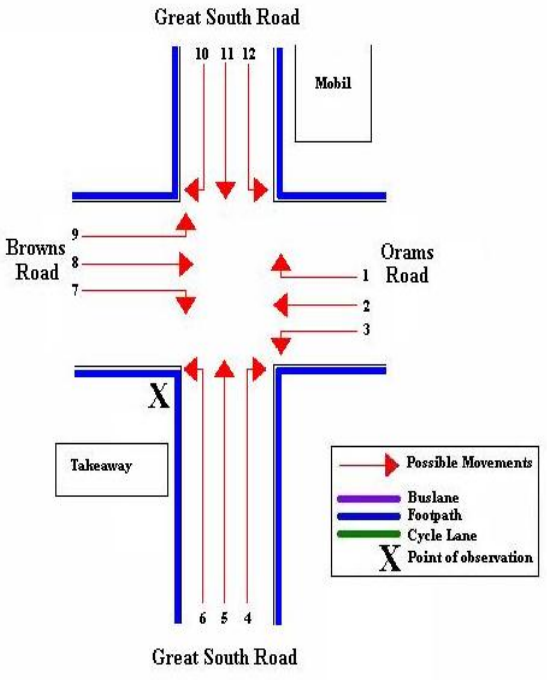
- Of those students eligible to cycle, on average, one per cent of students are currently cycling to their schools (unchanged from 2011).
- Hingaia Peninsula School reported the highest share of cyclists – 29 per cent of all eligible students currently cycling to school.
- Of the 30 schools that responded, 12 (40 per cent) had no students cycling to school.
- Rates of cycling to school are highest among composite (3 per cent, up from 0 per cent last year) and intermediate schools (3 per cent, down from 4 per cent in 2011)

2. GREAT SOUTH ROAD/BROWNS ROAD/ORAMS ROAD, MANUREWA (SITE 26)

Figure 2.1 shows the possible cyclist movements at this intersection.

Figure 2.1: Cycle Movements: Great South/Browns/Orams Road





2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	25	35	60	86
2008	32	23	55	81
2009	21	18	39	57
2010	21	37	58	83
2011	29	41	70	101
2012	**24**	**20**	**44**	**64**

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

- Compared with last year, the volume of morning cyclists at the Great South/Browns/Orams Road intersection has decreased – down from 29 cycle movements recorded in 2011 to 24 movements.
- The key morning movement continues to be straight along Great South Road in a northerly direction (Movement 5 = 11 cyclists).
- Compared with 2011, the most notable decreases in cyclist volumes are at Movement 1 (down 3 cyclists) and Movement 5 (down 3 cyclists).

Table 2.1: Morning Cyclist Movements

Great South/Browns/Orams Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	4	1	6	2	6	**3**	**-3**
2	4	4	6	3	3	**1**	**-2**
3	0	2	0	0	2	**1**	**-1**
4	0	1	0	2	1	**1**	**0**
5	8	12	6	12	14	**11**	**-3**
6	3	0	0	1	0	**0**	**0**
7	0	2	0	0	0	**0**	**0**
8	0	0	0	0	0	**0**	**0**
9	2	2	1	1	0	**1**	**1**
10	0	2	2	0	0	**2**	**2**
11	3	6	0	0	3	**4**	**1**
12	1	0	0	0	0	**0**	**0**
Total	**25**	**32**	**21**	**21**	**29**	**24**	**-5**

- Over the morning peak, all cyclists are adults (100 per cent, unchanged from last year).
- Helmet wearing has increased since last year, 92 per cent of cyclists observed wearing a helmet in 2012 compared with 79 per cent last year.
- The greatest share of morning cyclists (88 per cent) are male.
- The majority of cyclists are riding on the road (88 per cent, up from 79 per cent in 2011).

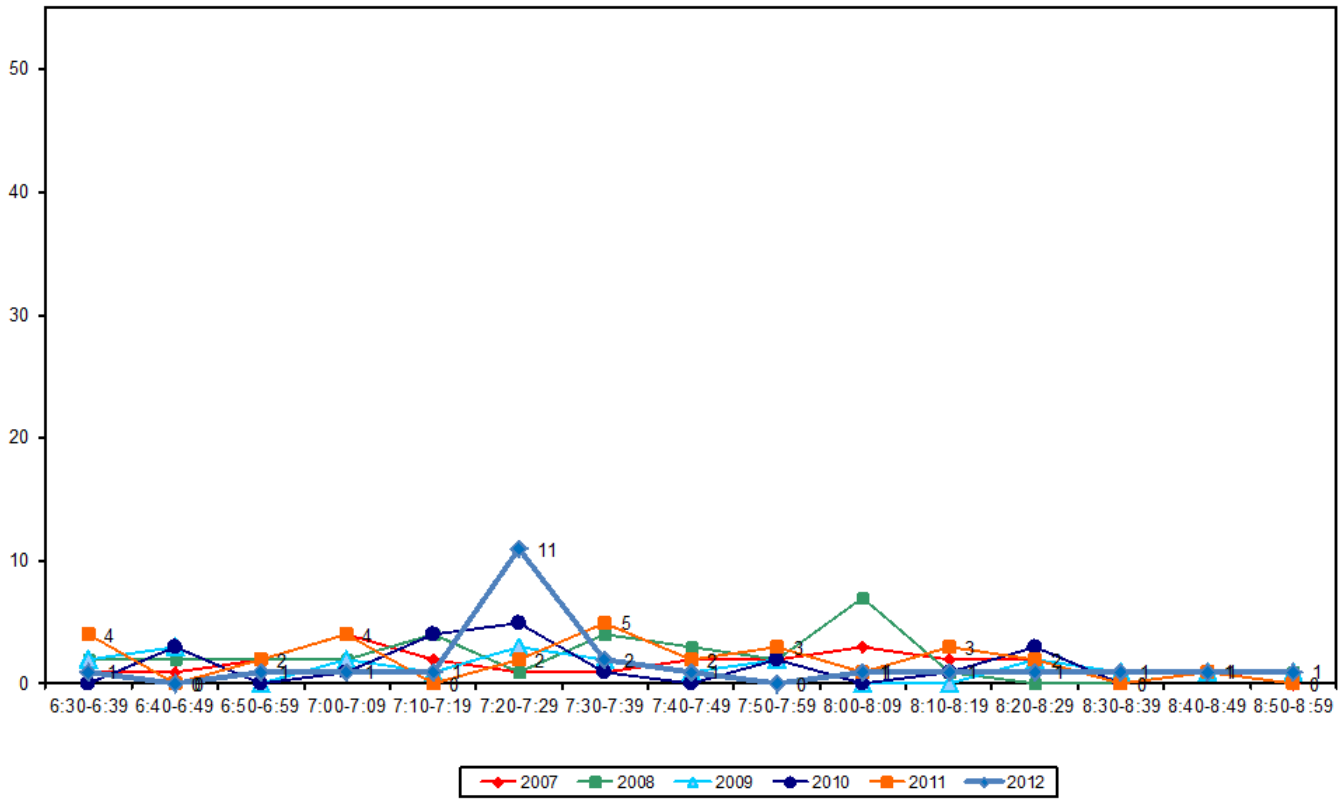
Table 2.2: Morning Cyclist Characteristics

Great South/Browns/Orams Road 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	92	94	86	90	100	**100**	**0**
School child	8	6	14	10	0	**0**	**0**
Helmet Wearing							
Helmet on head	84	84	90	95	79	**92**	**13**
No helmet	16	16	10	5	21	**8**	**-13**
Gender							
Male	-	-	-	-	83	**88**	**5**
Female	-	-	-	-	17	**8**	**-9**
Can't tell	-	-	-	-	0	**4**	**4**
Where Riding							
Road	52	91	71	76	79	**88**	**9**
Footpath	48	9	29	24	21	**12**	**-9**
Base:	***25***	***32***	***21***	***21***	***29***	***24***	

- The volume of morning cycle movements is low throughout the morning shift, with a clear peak between 7:20am and 7:29am (11 cyclists).

Figure 2.2: – Morning Peak Cyclist Frequency
Great South/Browns/Orams Road 2007 – 2012 (n)



2.3 Evening Peak

Environmental Conditions

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

Key Points

- The volume of evening cyclist traffic at the Great South/Browns/Orams Road intersection in 2012 (20 movements) has decreased when compared with the previous year (41 movements).
- The most common movement in the evening continues to be straight along Great South Road heading south (Movement 11 = 11 cyclists).
- Over the last twelve months, cyclist volumes have declined most notably at Movement 8 (down 5 cyclists from 2011).

Table 2.3: Evening Cyclist Movements

Great South/Browns/Orams Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	0	0	0	0	1	**0**	**-1**
2	0	3	0	0	0	**0**	**0**
3	0	3	0	2	3	**0**	**-3**
4	1	1	1	2	5	**1**	**-4**
5	4	2	4	3	5	**4**	**-1**
6	0	0	0	0	1	**0**	**-1**
7	2	2	0	0	0	**1**	**1**
8	2	2	2	1	6	**1**	**-5**
9	0	0	0	0	2	**0**	**-2**
10	2	1	0	3	1	**0**	**-1**
11	18	5	8	23	13	**11**	**-2**
12	6	4	3	3	4	**2**	**-2**
Total	**35**	**23**	**18**	**37**	**41**	**20**	**-21**

- Over the evening peak, the majority of the cyclists using this intersection continue to be adults (95 per cent, stable from 93 per cent recorded in 2011).
- Four in five cyclists are observed wearing a helmet (80 per cent in 2012, stable from 78 per cent last year).
- The greatest share of evening cyclists (90 per cent) are male.
- The majority of cyclists are riding on the road (84 per cent, up from 59 per cent in 2011).

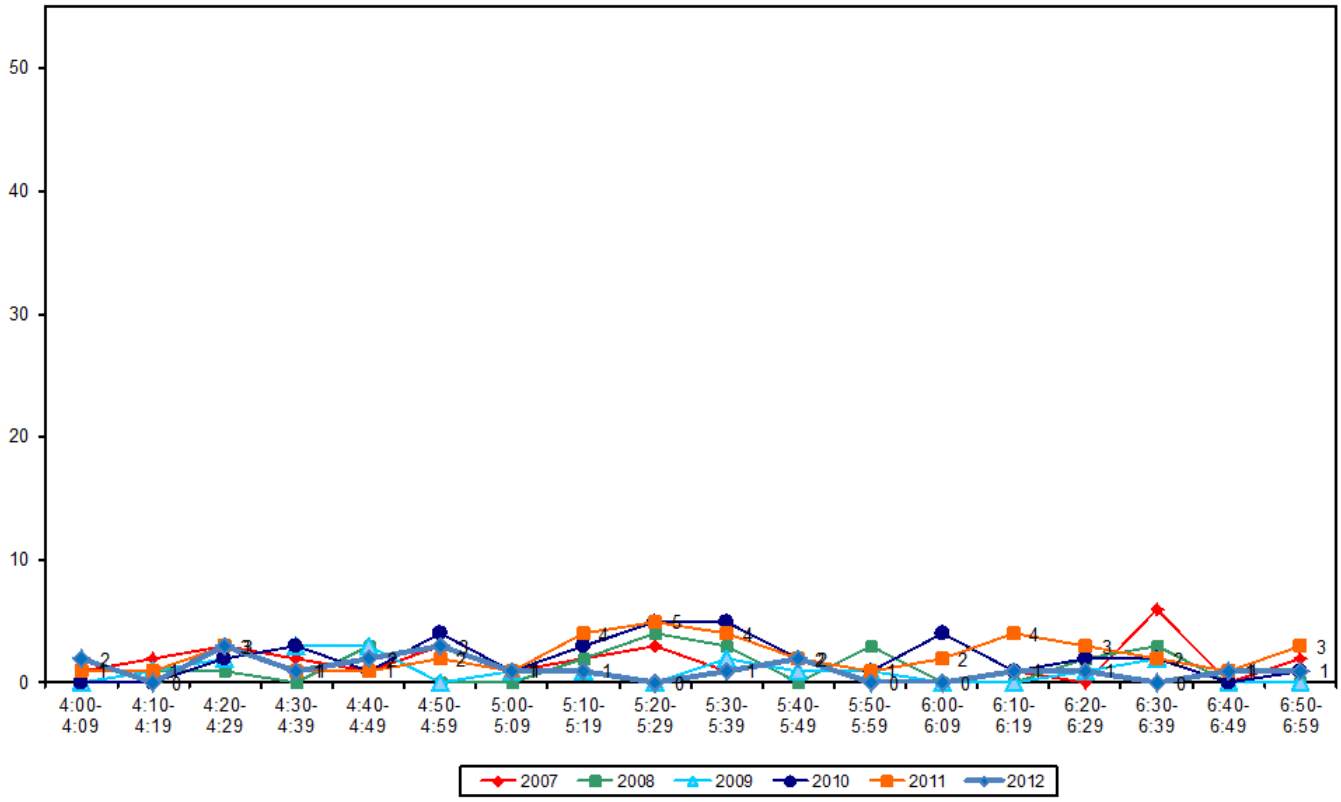
Table 2.4: Evening Cyclist Characteristics

Great South/Browns/Orams Road 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	86	87	89	81	93	**95**	**2**
School child	14	13	11	19	7	**5**	**-2**
Helmet Wearing							
Helmet on head	86	91	78	76	78	**80**	**2**
No helmet	14	9	22	24	22	**20**	**-2**
Gender							
Male	-	-	-	-	88	**90**	**2**
Female	-	-	-	-	12	**10**	**-2**
Can't tell	-	-	-	-	0	**0**	**0**
Where Riding							
Road	54	87	67	70	59	**84**	**25**
Footpath	46	13	33	30	41	**16**	**-25**
Base:	***35***	***23***	***18***	***37***	***41***	***20***	

- Consistent with previous years, the volume of cycle movements are relatively low in the evening with no 10 minute interval recording more than 3 movements.

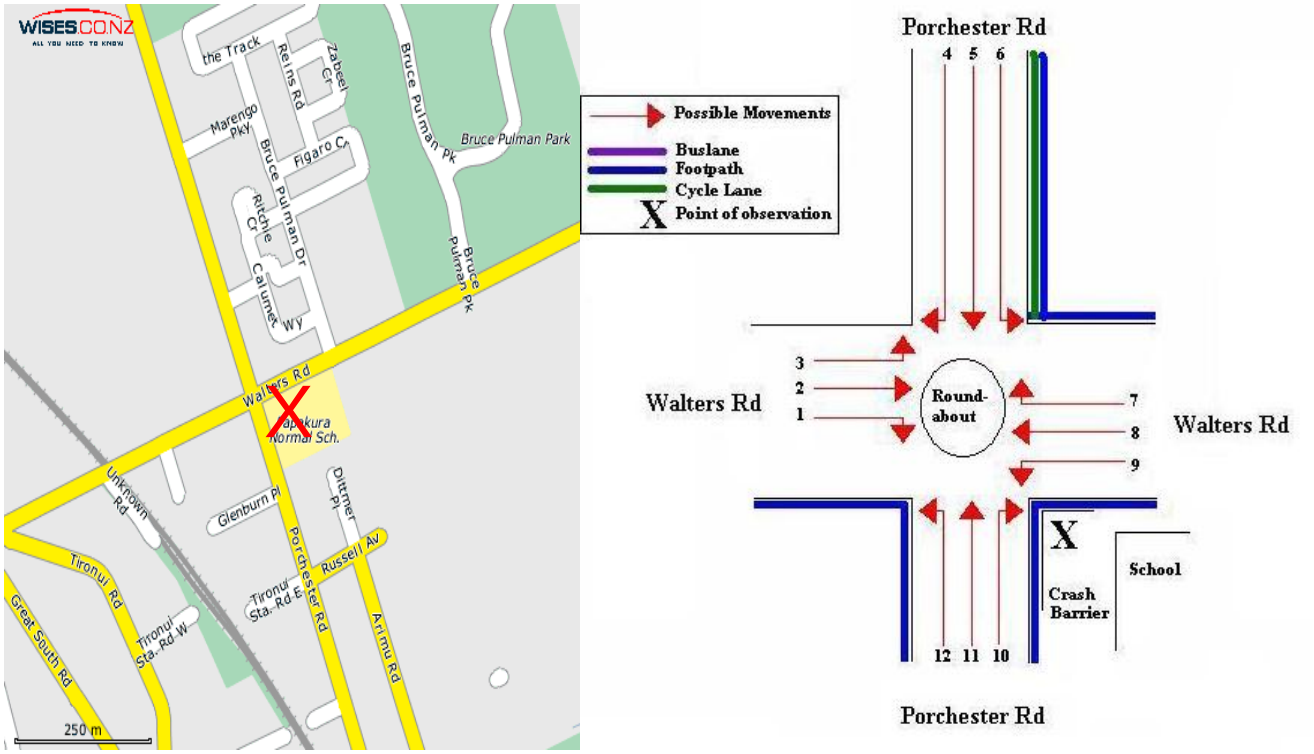
Figure 2.3: Evening Peak Cyclist Frequency
Great South/Browns/Orams Road *2007 – 2012 (n)*



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

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Porchester/Walters Road



3.1 Site Summary

	Raw Counts			*AADT*
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	22	28	50	72
2008	19	27	46	66
2009	19	30	49	70
2010	-	-	-	-
2011	33	39	72	104
2012	**18**	**26**	**44**	**63**

Note: Due to road works, no cycle counts were conducted at this site in 2010.

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 cyclists recorded at the Porchester/Walters Road intersection has decreased – down from 33 in 2011 to 18 this year.
- The most common movement in the morning is along Porchester Road heading south (Movement 5 = 6 movements).
- The most notable change in cycle movements is evident at Movement 1 – down 6 from 2011.

Table 3.1: Morning Cyclist Movements

Porchester/Walters Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	2012	Change 11-12
1	3	6	3	-	8	**2**	**-6**
2	1	2	1	-	1	**0**	**-1**
3	0	0	1	-	1	**0**	**-1**
4	2	0	2	-	0	**1**	**1**
5	5	4	1	-	2	**6**	**4**
6	0	2	2	-	3	**0**	**-3**
7	1	1	0	-	2	**1**	**-1**
8	0	0	0	-	3	**0**	**-3**
9	3	2	0	-	4	**0**	**-4**
10	1	0	4	-	2	**2**	**0**
11	4	2	5	-	4	**4**	**0**
12	2	0	0	-	3	**2**	**-1**
Total	**22**	**19**	**19**	**-**	**33**	**18**	**-15**

- Adults comprise almost three-quarters of the cyclists at this site (72 per cent), this share up from 2011 (61 per cent).
- Almost all cyclists are wearing a helmet (89 per cent, stable from 91 per cent in 2011).
- Most cyclists at this site (78 per cent) are male.
- Half the cyclists at this site are riding on the road (50 per cent, up from 39 per cent in 2011).

Table 3.2: Morning Cyclist Characteristics

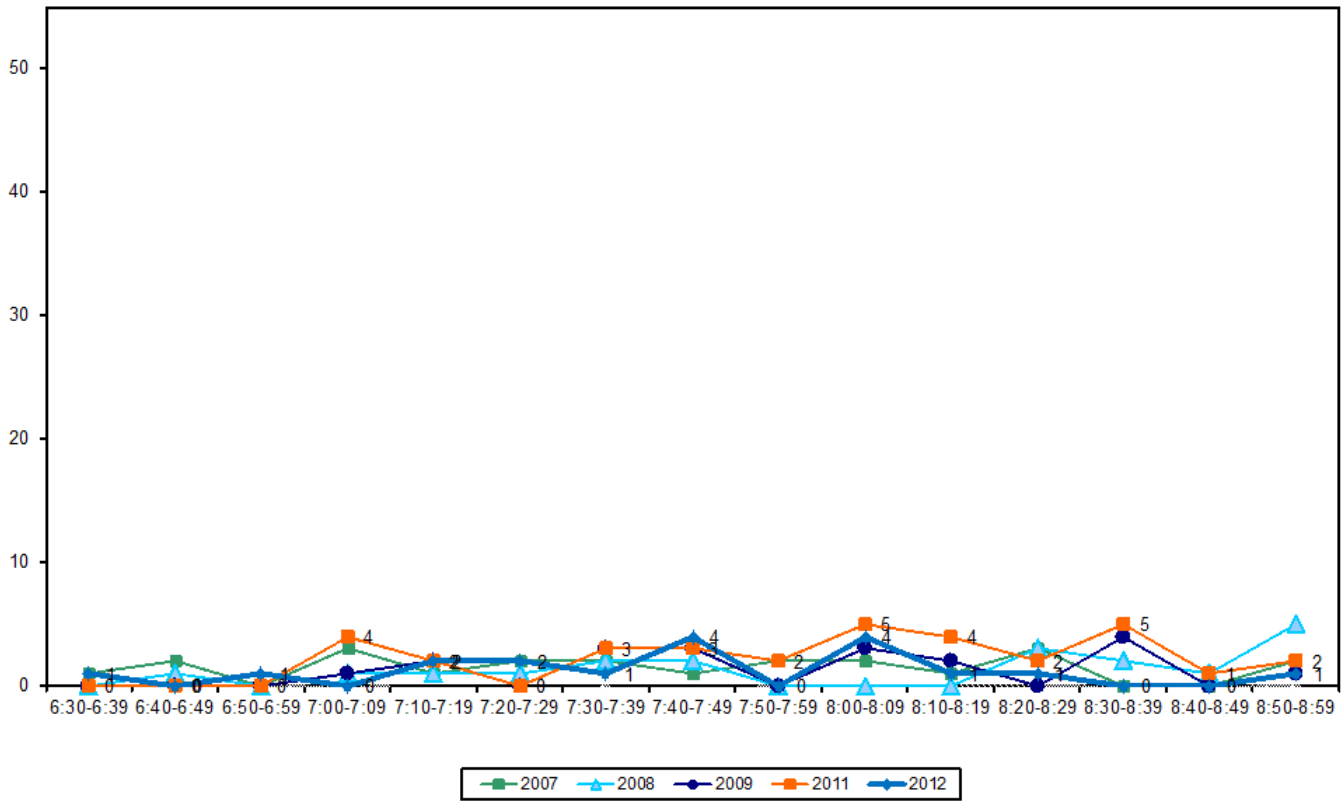
Porchester/Walters Road 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	82	68	68	-	61	**72**	**11**
School child	18	32	32	-	39	**28**	**-11**
Helmet Wearing							
Helmet on head	73	79	95	-	91	**89**	**-2**
No helmet	27	21	5	-	9	**11**	**2**
Gender							
Male	-	-	-	-	85	**78**	**-7**
Female	-	-	-	-	15	**22**	**7**
Can't tell	-	-	-	-	0	**0**	**0**
Where Riding							
Road	50	47	42	-	39	**50**	**11**
Footpath	50	53	58	-	61	**44**	**-17**
Off-road cycleway	-	-	-	-	-	**6**	**6**
Base:	***22***	***19***	***19***	***-***	***33***	***18***	

- Morning cyclist volumes are variable, with slight peaks evident between 7:40am and 7:49am (4 movements) and again between 8:00am and 8:09 am (4 movements).

Figure 3.2: Morning Peak Cyclist Frequency

Porchester/Walters Road 2007 – 2012 (n)



3.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the first part of the evening shift. Intermittent showers were present from 4:25pm until the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The volume of evening cyclist traffic at the Porchester/Walters Road intersection has decreased from 2011, down from 39 movements to 26 this year.
- The most common movement in the evening peak is the right hand turn from Walters Road into Prochester Road heading south (Movement 1 = 6 movements).
- The most notable change in cycle movements is evident at Movement 1 – down 7 from 2011.

Table 3.3: Evening Cyclist Movements

Porchester/Walters Road 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	3	3	2	-	13	**6**	**-7**
2	0	1	0	-	2	**0**	**-2**
3	4	1	2	-	0	**0**	**0**
4	1	1	0	-	0	**0**	**0**
5	3	4	7	-	3	**4**	**1**
6	1	2	0	-	1	**0**	**-1**
7	1	2	0	-	3	**0**	**-3**
8	1	1	2	-	2	**0**	**-2**
9	4	3	9	-	6	**4**	**-2**
10	4	1	5	-	4	**4**	**0**
11	4	4	3	-	3	**5**	**2**
12	2	4	0	-	2	**3**	**1**
Total	**28**	**27**	**30**	**-**	**39**	**26**	**-13**

- Half the cyclists using the Porchester/Walters Road intersection in the evening peak are children (50 per cent, up notably from 18 per cent in 2011).
- Thirty-eight per cent of cyclists at this site are wearing a helmet (down from 67 per cent in 2011).
- Most cyclists at this site in the evening peak are male (81 per cent).
- The greatest share of cyclists are riding on the footpath (69 per cent). This share is unchanged from 2011.

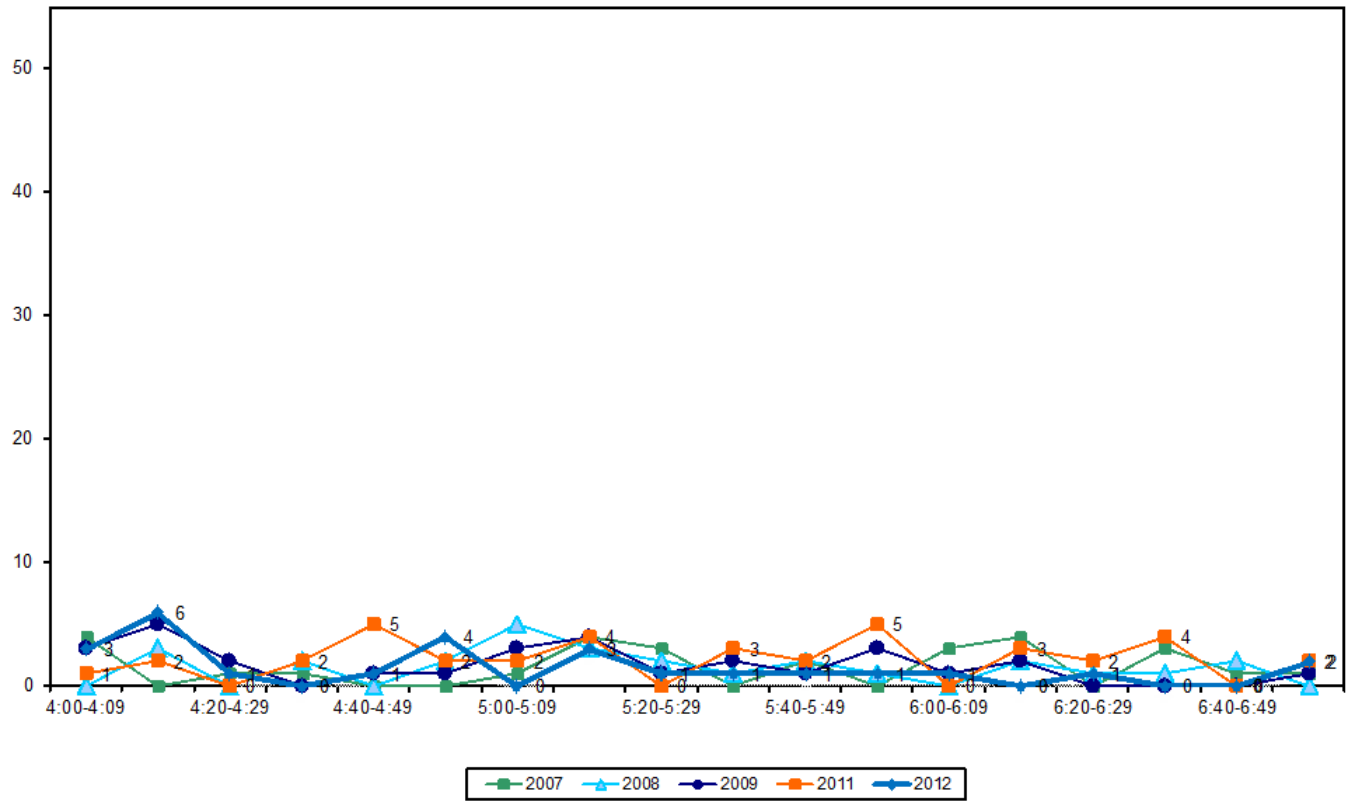
Table 3.4: Evening Cyclist Characteristics

Porchester/Walters Road 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	82	89	57	-	82	**50**	**-28**
School child	18	11	43	-	18	**50**	**28**
Helmet Wearing							
Helmet on head	61	81	57	-	67	**38**	**-29**
No helmet	39	19	43	-	33	**62**	**29**
Gender							
Male	-	-	-	-	92	**81**	**-11**
Female	-	-	-	-	8	**19**	**11**
Can't tell	-	-	-	-	0	**0**	**0**
Where Riding							
Road	54	67	80	-	31	**31**	**0**
Footpath	46	33	20	-	69	**69**	**0**
Off-road cycleway	-	-	-	-	-	**0**	**-**
Base:	***28***	***27***	***30***	***-***	***39***	***26***	

- Consistent with previous years, the volume of cycle movements remains low throughout the evening peak, with no more than six cyclists recorded during any ten minute period.

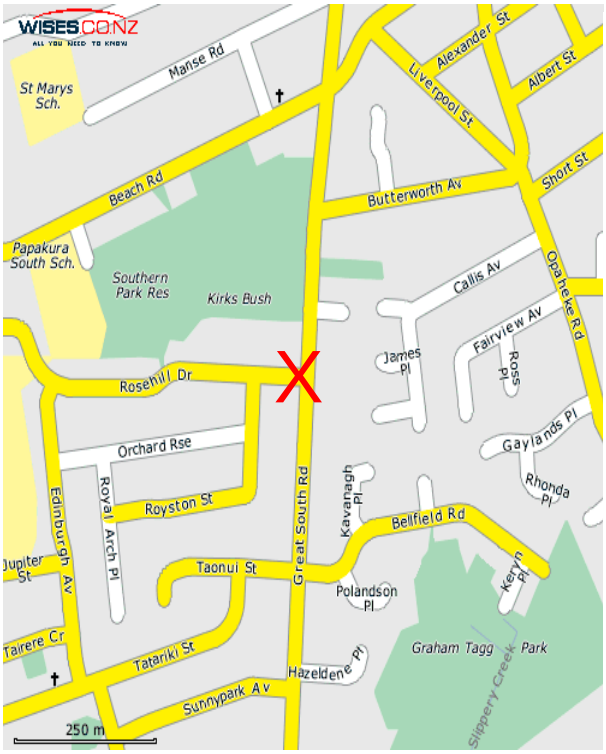
Figure 2.3: Evening Peak Cyclist Frequency
Porchester/Walters Road 2007 – 2012 (n)

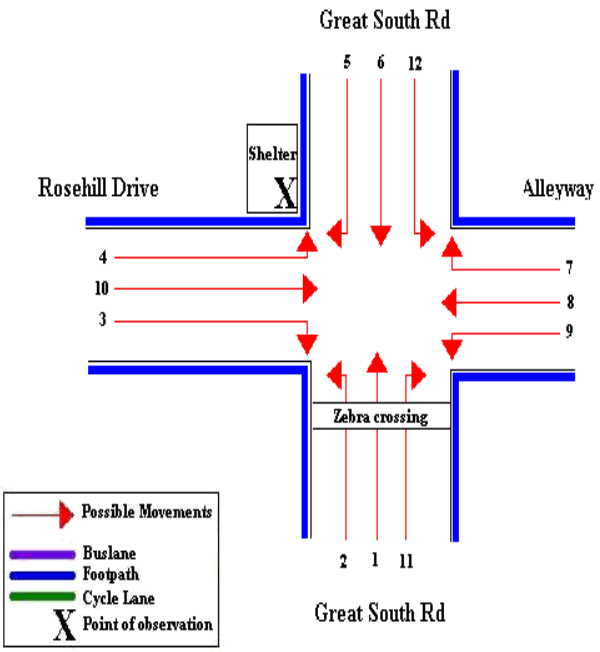


4. GREAT SOUTH ROAD/ROSEHILL DRIVE, ROSEHILL (SITE 65)

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Great South Road/Rosehill Drive





Note: A walkway was constructed at this site (at the point opposite Rosehill Drive) between the 2010 and 2011 monitors. Consequently six additional movements are now possible at this site.

4.1 Site Summary

	Raw Counts			*AADT*
	Morning Peak	***Evening Peak***	***Total***	***Total***
2007	29	24	53	77
2008	42	30	72	106
2009	22	37	59	85
2010	29	33	62	90
2011	30	43	73	105
2012	**30**	**27**	**57**	**83**

4.2 Morning Peak

Environmental Conditions

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

Key Points

- The intersection of Great South Road and Rosehill Drive has 30 movements recorded (unchanged from last year).
- The key morning movement is turning right from Great South Road onto Rosehill Drive (Movement 5 = 14 cyclists).
- The most notable changes since 2011 are at Movement 1 (down 7 cyclists) and Movement 5 (up 7 cyclists).

Table 4.1: Morning Cyclist Movements

Great South Road/Rosehill Drive 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	8	13	5	9	14	**7**	**-7**
2	2	6	2	2	1	**5**	**4**
3	1	1	0	2	0	**0**	**0**
4	5	4	1	1	1	**1**	**0**
5	7	10	14	11	7	**14**	**7**
6	6	5	0	4	4	**3**	**-1**
7	0	3	0	0	1	**0**	**-1**
8	-	-	-	-	0	**0**	**0**
9	-	-	-	-	2	**0**	**-2**
10	-	-	-	-	0	**0**	**0**
11	-	-	-	-	0	**0**	**0**
12	-	-	-	-	0	**0**	**0**
Total	**29**	**42**	**22**	**29**	**30**	**30**	**0**

- Just over half of the cyclists over the morning peak are children (53 per cent, up from 40 per cent at the last measure).
- Almost all cyclists are wearing a helmet (97 per cent, up from 80 per cent in 2011).
- Three-quarters of cyclists are male (77 per cent).
- Sixty per cent of cyclists at this site are riding on the footpath (up from 47 per cent last year).

Table 4.2: Morning Cyclist Characteristics

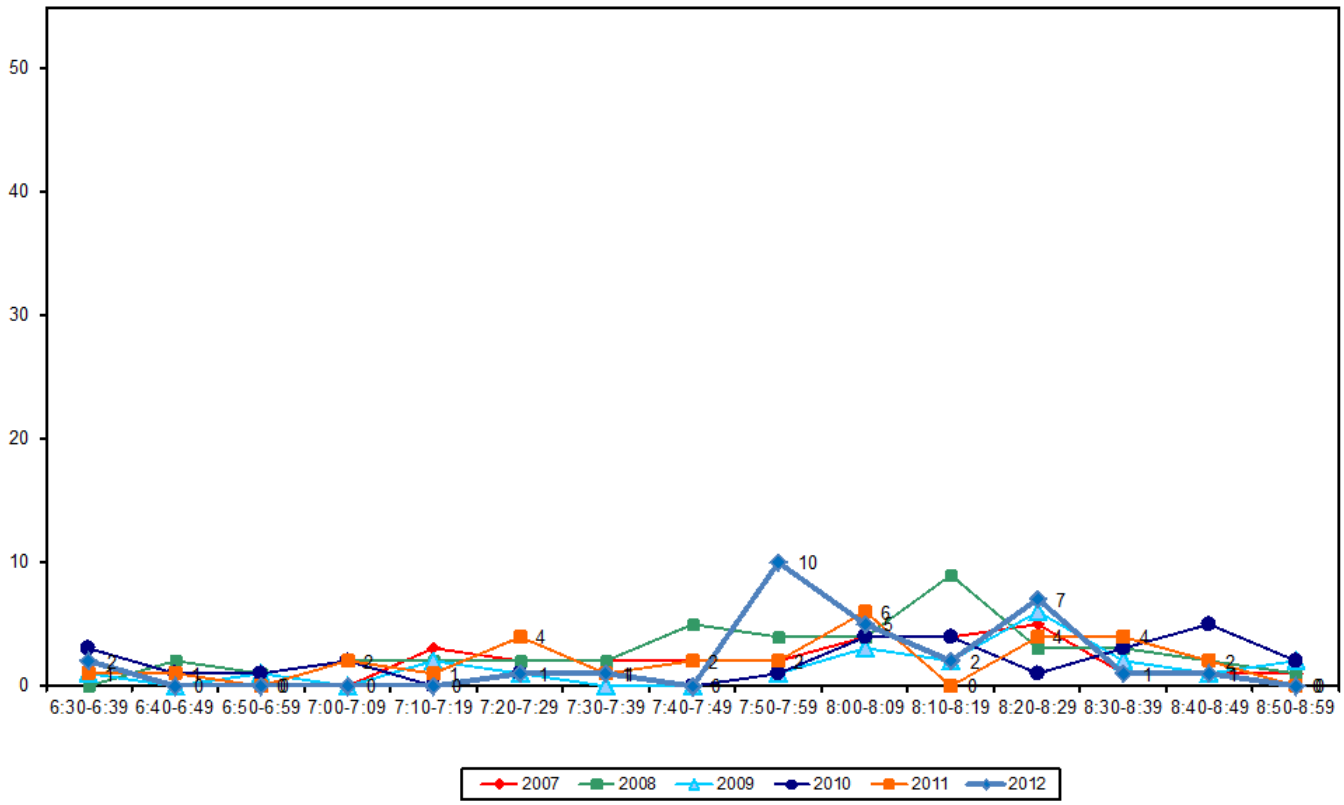
Great South Road/Rosehill Drive 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	55	40	32	45	60	**47**	**-13**
School child	45	60	68	55	40	**53**	**13**
Helmet Wearing							
Helmet on head	72	95	91	83	80	**97**	**17**
No helmet	28	5	9	17	20	**3**	**-17**
Gender							
Male	-	-	-	-	90	**77**	**-13**
Female	-	-	-	-	10	**7**	**-3**
Can't tell	-	-	-	-	0	**16**	**16**
Where Riding							
Road	45	43	36	38	53	**40**	**-13**
Footpath	55	57	64	62	47	**60**	**13**
Base:	***29***	***42***	***22***	***29***	***30***	***30***	

- Morning cyclist volumes in 2011 are variable throughout the monitoring period, with two peaks evident – between 7:50am and 7:59 am (10 movements) and 8:20am and 8:29am (7 movements).

Figure 4.2: Morning Peak Cyclist Frequency

Great South Road/Rosehill Drive 2007 – 2012 (n)



4.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the first part of the evening shift. Intermittent showers were present from 4:25pm until the end of the shift.
- 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 decreased, from 43 in 2011 to 27 this year.
- The most common movement in the evening is heading south along Great South Road (Movement 6 = 13 cyclists).
- Evening cyclist volumes at this intersection have changed most notably at Movement 6 (down 7 cyclists).

Table 4.3: Evening Cyclist Movements

Great South Road/Rosehill Drive 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	7	10	14	8	11	**6**	**-5**
2	2	6	1	6	0	**2**	**2**
3	2	0	0	2	1	**0**	**-1**
4	2	4	3	1	6	**5**	**-1**
5	3	1	1	1	3	**0**	**-3**
6	8	6	18	15	20	**13**	**-7**
7	0	3	0	0	0	**0**	**0**
8	-	-	-	-	0	**1**	**1**
9	-	-	-	-	1	**0**	**-1**
10	-	-	-	-	1	**0**	**-1**
11	-	-	-	-	0	**0**	**0**
12	-	-	-	-	0	**0**	**0**
Total	**24**	**30**	**37**	**33**	**43**	**27**	**-16**

- All cyclists using this intersection are adults (100 per cent, up 70 from 2011).
- Almost all cyclists at this site are wearing a helmet (93 per cent, up from 79 per cent last year).
- Two-thirds of cyclists (63 per cent) are male, down from 79 per cent last year.
- Seventy-eight per cent of the cyclists at this site are riding on the road (up from 56 per cent at the previous measure).

Table 4.4: Evening Cyclist Characteristics

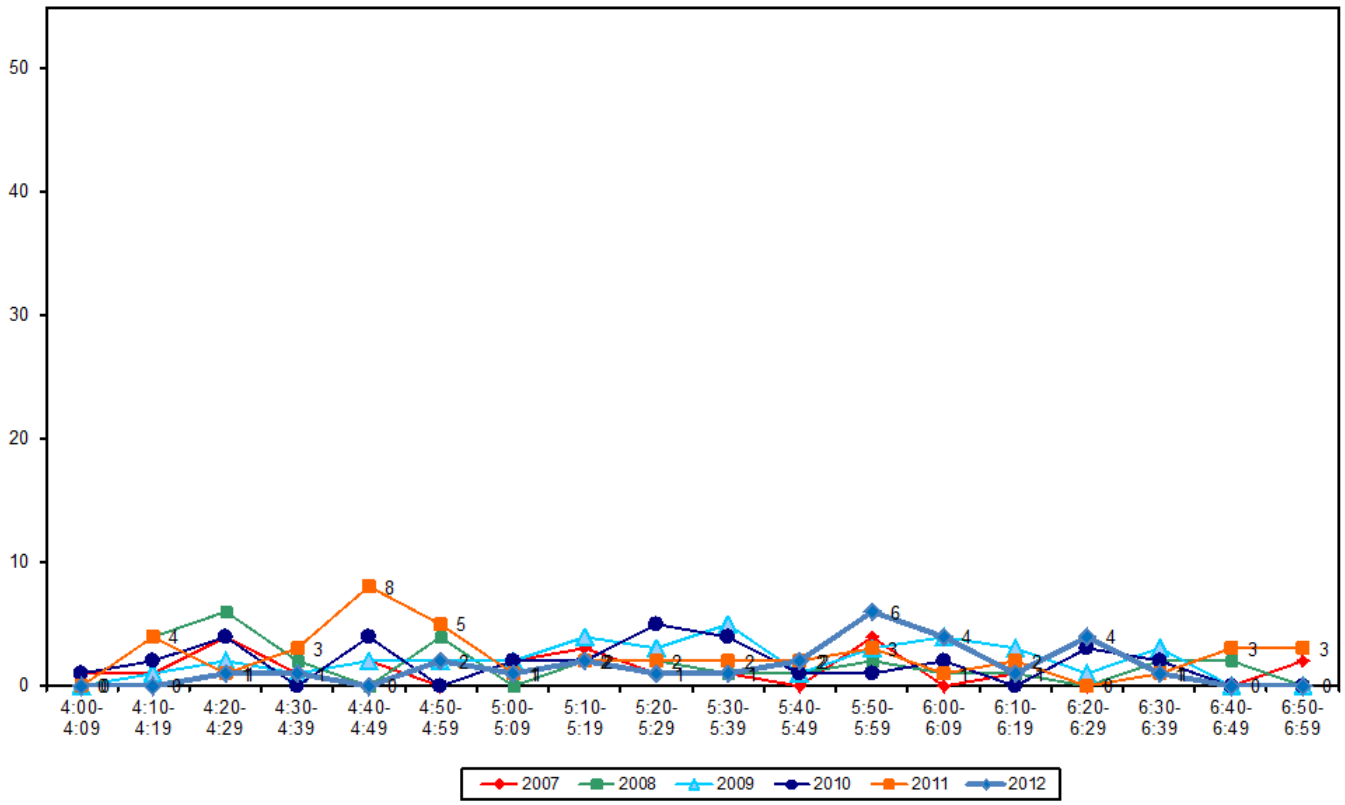
Great South Road/Rosehill Drive 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	58	33	68	70	70	**100**	**30**
School child	42	67	32	30	30	**0**	**-30**
Helmet Wearing							
Helmet on head	67	77	65	73	79	**93**	**14**
No helmet	33	23	35	27	21	**7**	**-14**
Gender							
Male	-	-	-	-	79	**63**	**-16**
Female	-	-	-	-	16	**37**	**23**
Can't tell	-	-	-	-	5	**0**	**-5**
Where Riding							
Road	42	27	43	52	56	**78**	**22**
Footpath	58	73	57	48	44	**22**	**-22**
Base:	***24***	***30***	***37***	***33***	***43***	***27***	

- Evening cyclist numbers peak between 5:50pm and 5:59 pm (6 movements).

Figure 4.3: Evening Peak Cyclist Frequency

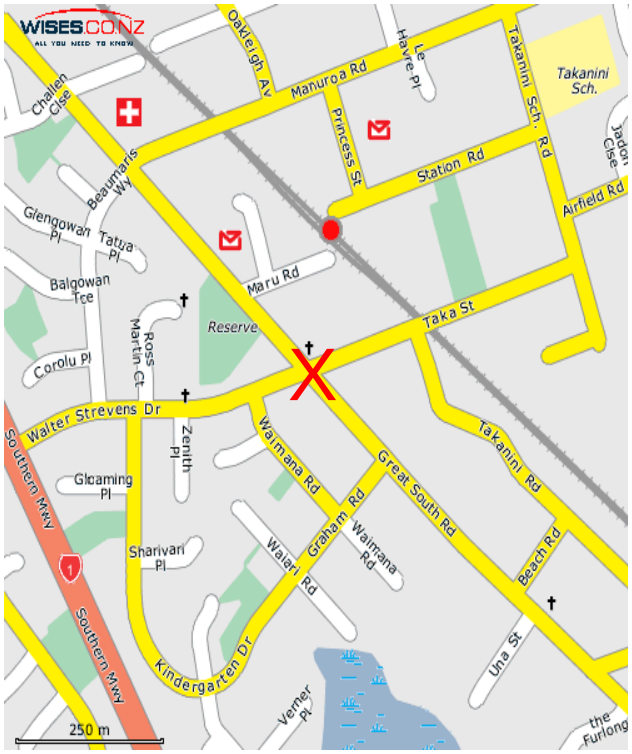
Great South Road/Rosehill Drive 2007 – 2012 (n)

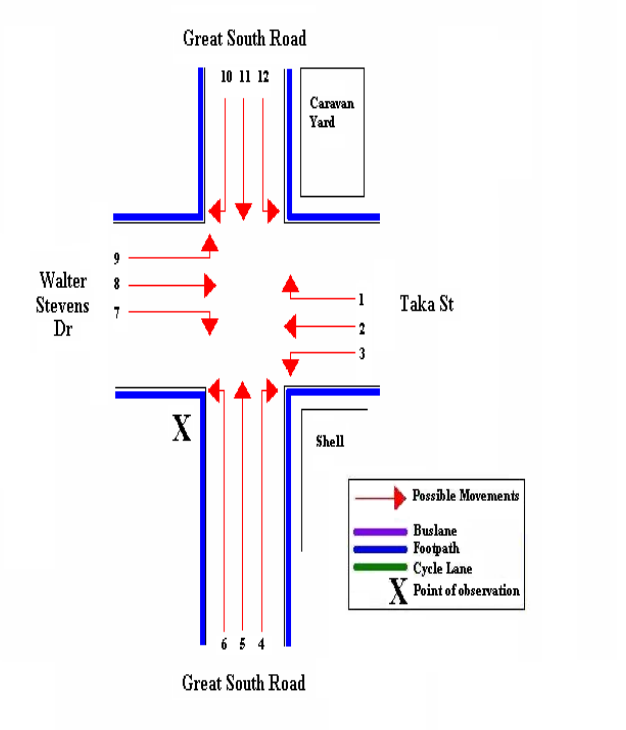


5. GREAT SOUTH ROAD/TAKA STREET, CONIFER GROVE (SITE 66)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: Great South Road/Taka Street





5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	18	40	58	83
2008	19	39	58	83
2009	12	24	36	51
2010	15	28	43	62
2011	23	37	60	86
2012	**18**	**31**	**49**	**70**

5.2 Morning Peak

Environmental Conditions

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

Key Points

- The number of cycle movements recorded at the Great South Road/Taka Street intersection has decreased this year – down from 23 movements in 2011 to 18 movement this year.
- The key morning movement continues to be straight along Great South Road heading northwest (Movement 5 = 8 cyclists, unchanged from last year).
- Morning cyclist volumes at most movements are stable since last year, with change most notable at Movement 5 and Movement 8 (both down 3 cyclists).

Table 5.1: Morning Cyclist Movements

Great South Road/Taka Street 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	0	0	0	1	0	**0**	**0**
2	1	2	1	0	0	**0**	**0**
3	0	0	0	0	0	**0**	**0**
4	0	0	1	1	0	**0**	**0**
5	6	6	5	11	11	**8**	**-3**
6	0	0	0	0	0	**1**	**1**
7	2	0	0	0	0	**1**	**1**
8	1	4	0	1	4	**1**	**-3**
9	0	0	1	0	1	**1**	**0**
10	0	0	0	0	0	**0**	**0**
11	8	7	4	1	7	**5**	**-2**
12	0	0	0	0	0	**1**	**1**
Total	**18**	**19**	**12**	**15**	**23**	**18**	**-5**

- Over the morning peak, most cyclists are adults (94 per cent, up from 83 per cent last year).
- Eighty-three per cent of cyclists are wearing a helmet (up from 70 per cent in 2011).
- Almost all cyclists at this intersection are male (94 per cent).
- Incidence of riding on the road in the morning has increased since last year (78 per cent, up from 65 per cent last year).

Table 5.2: Morning Cyclist Characteristics

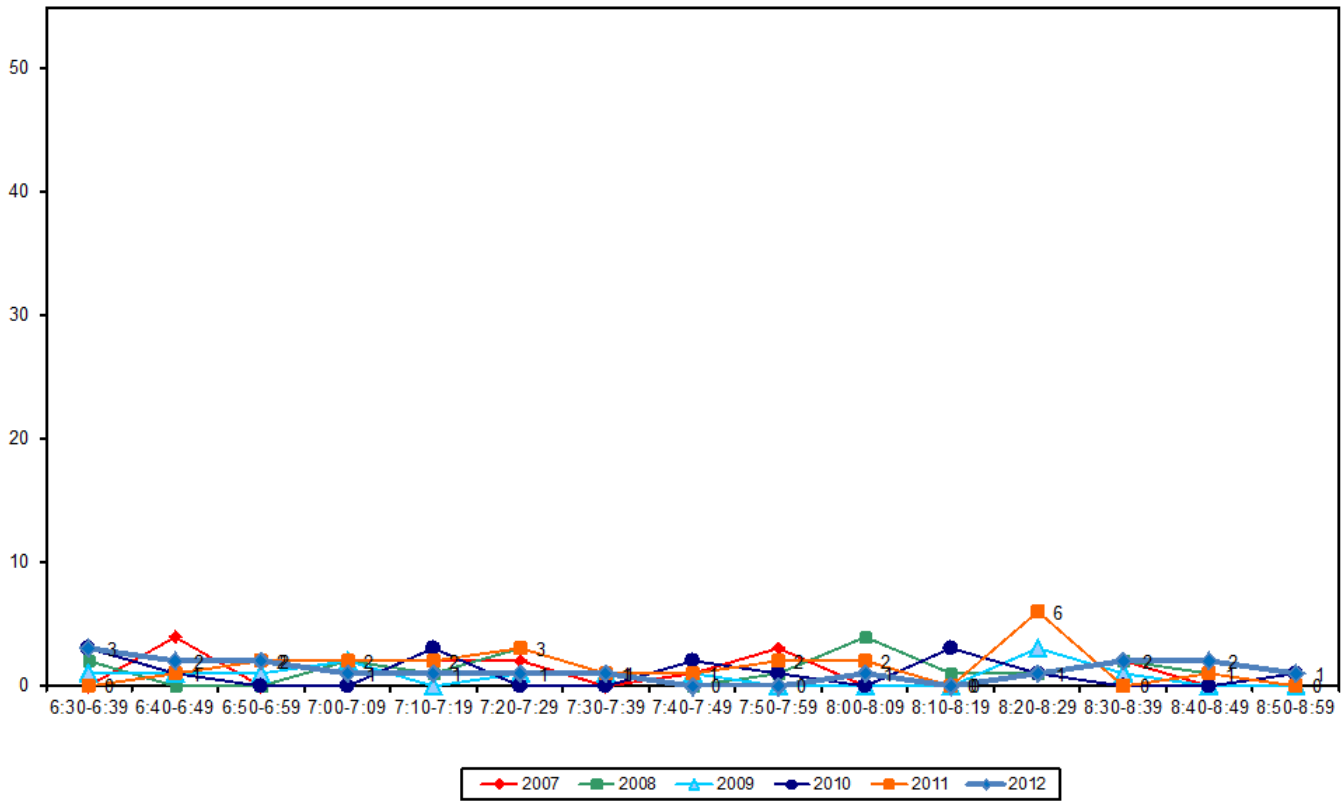
Great South Road/Taka Street 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	89	95	100	93	83	**94**	**11**
School child	11	5	0	7	17	**6**	**-11**
Helmet Wearing							
Helmet on head	89	74	67	87	70	**83**	**13**
No helmet	11	26	33	13	30	**17**	**-13**
Gender							
Male	-	-	-	-	83	**94**	**11**
Female	-	-	-	-	17	**0**	**-17**
Can't tell	-	-	-	-	0	**6**	**6**
Where Riding							
Road	61	79	67	87	65	**78**	**13**
Footpath	39	21	33	13	35	**22**	**-13**
Base:	***18***	***19***	***12***	***15***	***23***	***18***	

- As in previous years, the volume of cycle movements is relatively low over the entire morning shift, with no more than three cyclists recorded passing over during most ten minute intervals.

Figure 5.2: Morning Peak Cyclist Frequency

Great South Road/Taka Street 2007 – 2012 (n)



5.3 Evening Peak

Environmental Conditions

- The weather was fine throughout the first part of the evening shift. Intermittent showers were present from 4:40pm until the end of the shift.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The number of evening cycle movements at the intersection of Great South Road and Taka Street has decreased since last year – down from 37 movements in 2011 to 31 movements this year.
- The most common movement in the evening continues to be straight along Great South Road heading south (Movement 11 = 11 cyclists, down 2 from last year).
- The most notable changes in cyclist volumes since 2011 have been at Movement 1 (an increase of 3 cyclists) and Movement 10 (a decrease of 3 cyclists).

Table 5.3: Evening Cyclist Movements

Great South Road/Taka Street 2007 – 2012 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
1	5	0	4	1	1	**4**	**3**
2	3	4	0	1	2	**3**	**1**
3	3	4	2	1	4	**2**	**-2**
4	4	4	1	0	0	**2**	**2**
5	11	6	2	3	7	**6**	**-1**
6	1	2	2	0	1	**0**	**-1**
7	0	1	1	0	2	**1**	**-1**
8	2	4	0	1	1	**1**	**0**
9	0	1	0	2	1	**0**	**-1**
10	10	0	1	4	3	**0**	**-3**
11	1	10	11	13	13	**11**	**-2**
12	0	3	0	2	2	**1**	**-1**
Total	**40**	**39**	**24**	**28**	**37**	**31**	**-6**

- Consistent with last year, most cyclists using this intersection are adults (87 per cent, stable from 84 per cent in 2011).
- The share of cyclists at this site wearing a helmet has increased – up from 62 per cent in 2011 to 84 per cent this year.
- Most cyclists at this site (87 per cent) are male.
- The share of road riders at this site has increased over the last 12 months – up from 49 per cent in 2011 to 61 per cent this year.

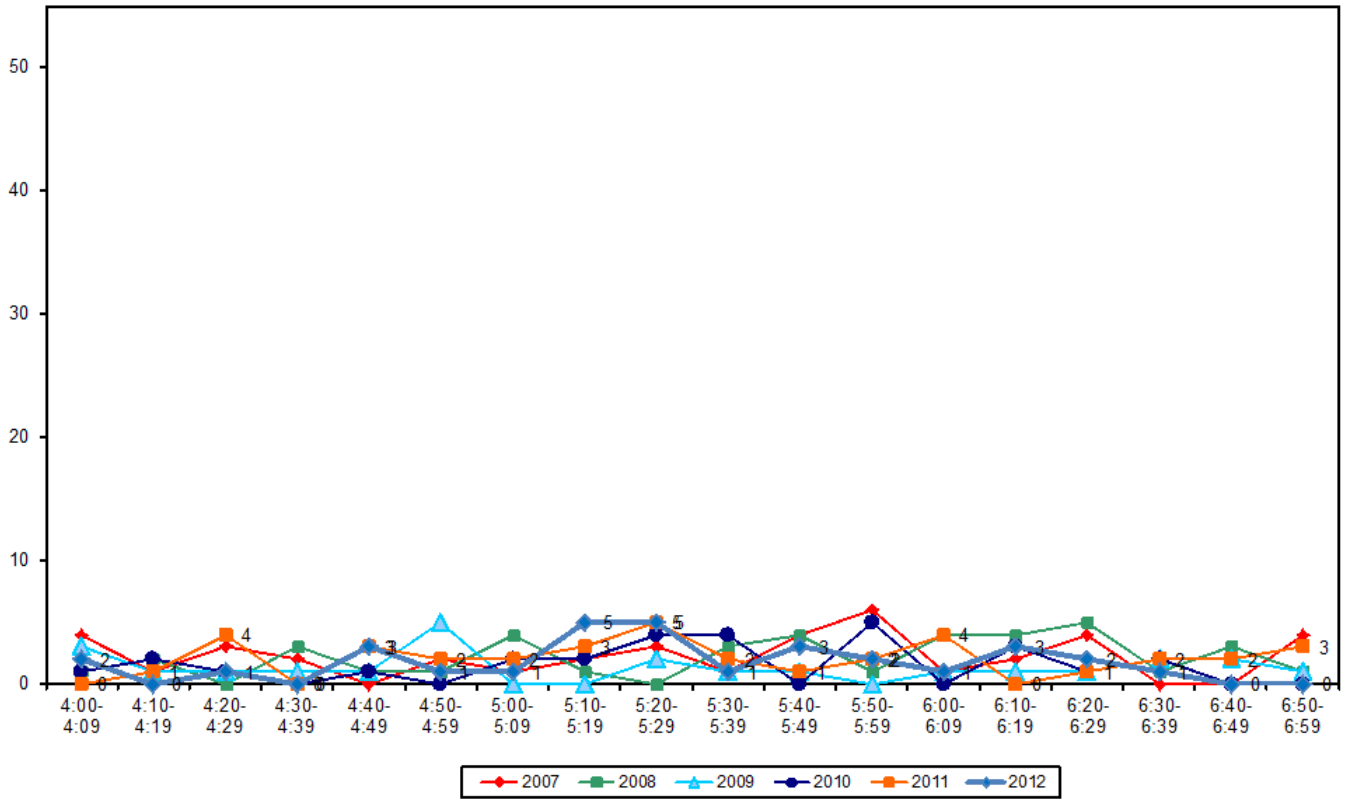
Table 5.4: Evening Cyclist Characteristics

Great South Road/Taka Street 2007 – 2012 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	Change 11-12
Cyclist Type							
Adult	77	77	83	86	84	**87**	**3**
School child	23	23	17	14	16	**13**	**-3**
Helmet Wearing							
Helmet on head	65	74	83	75	62	**84**	**22**
No helmet	35	26	17	25	38	**16**	**-22**
Gender							
Male	-	-	-	-	92	**87**	**-5**
Female	-	-	-	-	8	**10**	**2**
Can't tell	-	-	-	-	0	**3**	**3**
Where Riding							
Road	60	59	75	71	49	**61**	**12**
Footpath	40	41	25	29	51	**39**	**-12**
Base:	***40***	***39***	***24***	***28***	***37***	***31***	

- The volume of cycle movements is relatively low over the entire evening shift, with no more than four cyclists recorded passing over during most ten minute intervals. Evening cyclist volumes peak slightly between 5:10pm and 5:29pm (5 movements per 10 minute interval).

Figure 3.3: Evening Peak Cyclist Frequency
Great South Road/Taka Street 2007 – 2012 (n)



6. SCHOOL BIKE SHED COUNT

Note: Full primaries were included in the School Bike Shed count for the first time in 2011.

Background Information

- A total of 30 schools in the Manurewa-Papakura ward participants in the school bike shed count in 2012. Of these schools, most do not have policies that restrict students cycling to school[9].
- Clayton Park School believed the weather may have affected numbers of student cyclists on count day and indicated 6 was a more typical result. No other schools reported events or issues that may affect the cycle counts.
- The designated count day was Tuesday 6th of March 2012[10].

Key Points

- Of those students eligible to cycle, on average, one per cent of students are currently cycling to their schools. This result is unchanged from last year.
- In total, n=193 students from the 30 responding schools were reported as cycling to school.
- Hingaia Peninsula School reported the highest share of cyclists – 29 per cent of all eligible students currently cycling to school.
- Of the 19 schools that participated in the count in both 2011 and 2012, four reported an increase in share of students cycling to school; Papakura Normal Primary School, Rosehill College, Papakura High School and Mansell Senior School.
- Of the 30 schools that responded, 12 (40 per cent) had no students cycling to school.

[9] The following schools have policies surrounding the riding of bicycles to school:
- Drury School *"only students Year 5 or older may cycle to school"*
- Clayton Park "*Only Year 7 and 8 may bike, and have to have a bike licence"*
- Hingaia Peninsula School "*Aged 10 and over are allowed, or under 10 years with a parent"*
- Manukau Christian School "*Should be 10 years or older"*
- Reremoana School "*10 year olds and up"*
- St Anne's Catholic School *"We recommend students should be 10 years old. This is usually Yr6 up to Yr8"*
- St Mary's Catholic School "*Year 6 to Year 8 may ride unaccompanied, or children can ride with permission from parent"*
- The Gardens School *"We work with the Police who say from 8 years old"*

[10] The following schools conducted their counts on alternative days:
- Conifer Grove, Papakura Normal, Rosehill Intermediate and Weymouth Intermediate – Wednesday 7th March 2012
- Greenmeadows Intermediate, Red Hill Primary, Te Kura Kaupapa o Manurewa, Rosehill College – Tuesday 13th March
- Opaheke Primary School – Wednesday 14th March 2012
- Clayton Park, Alfriston College – Tuesday 3rd April 2012
- Hingaia Peninsula School, Manukau Christian School – Wednesday4th April 2012
- St Mary's Catholic School (Papakura) – Thursday 5th April 2012

Table 6.1 shows the results of the 30 schools surveyed in Manurewa-Papakura ward.

Table 6.1: 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*
Hingaia Peninsula School	Full Primary	51	15	**29%**	-	-	-	-	-
Rosehill Intermediate School	Intermediate	364	21	**6%**	6%	6%	6%	-	-
Reremoana School	Full Primary	329	17	**5%**	9%	-	-	-	-
Papakura Normal Primary School	Full Primary	603	19	**3%**	2%	-	-	-	-
Greemeadows Intermediate School	Intermediate	431	15	**3%**	4%	2%	0%	5%	3%
The Gardens School	Full Primary	531	15	**3%**	-	-	-	-	-
Conifer Grove School	Full Primary	512	13	**3%**	4%	-	-	-	-
Rosehill College	Secondary	1808	28	**2%**	1%	1%	1%	1%	<1%
Drury School	Full Primary	412	7	**2%**	4%	-	-	-	-
Alfriston College	Secondary	1416	12	**1%**	1%	1%	1%	2%	-
ACG Strathallan	Composite	1,000	6	**1%**	-	-	-	-	-
Papakura High School	Secondary	959	6	**1%**	<1%	1%	0%	<1%	<1%
St Mary's Catholic School, Papakura	Full Primary	260	3	**1%**	2%	-	-	-	-
Weymouth Intermediate School	Intermediate	357	3	**1%**	-	-	-	-	-
Mansell Senior School	Intermediate	199	1	**1%**	0%	0%	-	-	-
James Cook High School	Secondary	1431	7	**<1%**	-	-	-	-	-
Red Hill Primary School	Full Primary	2002	4	**<1%**	<1%	-	-	-	-
Clayton Park School	Full Primary	468	1	**<1%**	<1%	-	-	-	-
Alfriston School	Full Primary	311	0	**0%**	-	-	-	-	-

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
Brookby School	Full Primary	106	0	**0%**	-	-	-	-	-
Drury Christian School	Composite	40	0	**0%**	-	-	-	-	-
Edmund Hillary School	Full Primary	152	0	**0%**	0%	-	-	-	-
Karaka School	Full Primary	227	0	**0%**	-	-	-	-	-
Manukau Christian School	Full Primary	100	0	**0%**	0%	0%	2%	0%	4%
Manurewa High School	Secondary	1875	0	**0%**	<1%	1%	0%	1%	2%
Opaheke Primary School	Full Primary	600	0	**0%**	0%	-	-	-	-
Papakura South School	Full Primary	94	0	**0%**	0%	-	-	-	-
Rosehill School	Composite	147	0	**0%**	-	-	-	-	-
St Anne's Catholic School	Full Primary	560	0	**0%**	0%	-	-	-	-
Te Kura Kaupapa Maori o Manurewa	Full Primary	52	0	**0%**	-	-	-	-	-
Total		**16397**	**193**	**1%**	1%	-	-	-	-

- Table 6.2 illustrate the rates of cycling to school at different school levels. Rates of cycling to school are highest among composite schools (3 per cent, up from 0 per cent last year) and intermediate schools (3 per cent down from 4 per cent in 2011).

Table 6.2: 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	3	4%	0%	2%	0%	0%	**3%**	**3**
Intermediate	4	3%	5%	3%	3%	4%	**3%**	**-1**
Full primary	18	-	-	-	-	2%	**1%**	**-1**
Secondary	5	1%	1%	<1%	1%	1%	**1%**	**0**

APPENDIX

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 Appendix 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.

Appendix 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%