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Research Report Prepared for
Auckland Transport

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2015 Auckland Region Manual Cycle Monitor

- Manurewa-Papakura Ward -

Gravitas Research and Strategy Limited
Level 12, Wellesley Centre,
44-52 Wellesley St, Auckland
PO Box 3802, Shortland St, Auckland
tel. 09 356 8842, fax. 09 356 5767
e-mail. info@gravitas.co.nz

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1.1 Introduction

The Need For Reliable Cycle Trip Data

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

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:

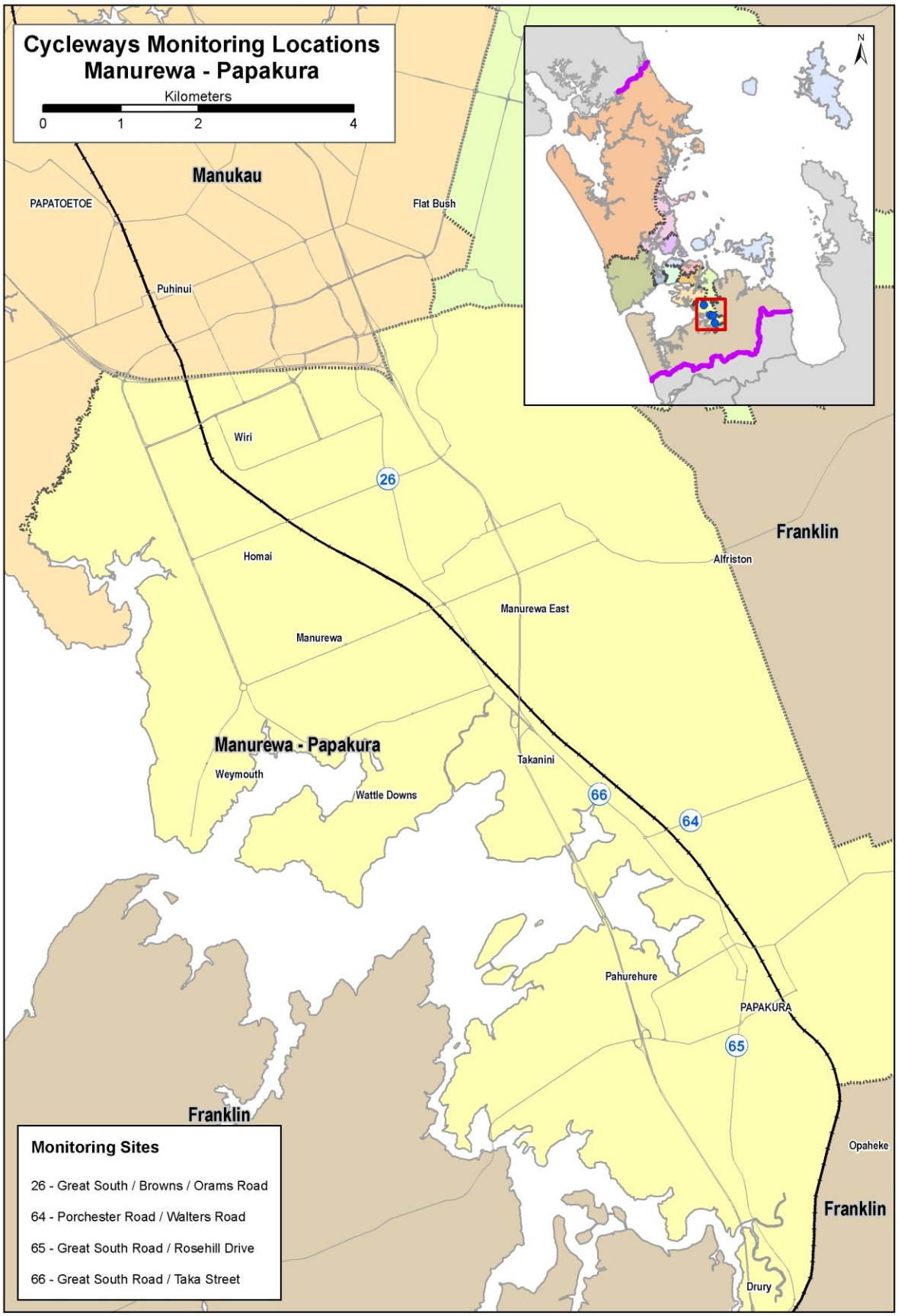
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 previous years, 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: 2015 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 85 different sites throughout the region. Sites were distributed by ward as follows:

- Albany 15 sites
- Albert-Eden–Roskill 11 sites
- Franklin 2 sites
- Howick 5 sites
- Manukau 10 sites
- Manurewa-Papakura 4 sites
- Maungakiekie-Tamaki 7 sites
- North Shore 8 sites
- Orakei 3 sites
- Waitakere 13 sites
- Waitemata and Gulf 10 sites
- Whau 4 sites

(Note: Seven sites lie on the border of two wards. These sites have been included in both ward reports).

Monitoring Times

Time Of Day

Manual counts in the morning peak were conducted between 6:30 and 9:00 am, with manual counts in the evening peak conducted between 4:00pm and 7:00pm.

Day Of Week

Previous experience conducting cycle and other traffic manual counts has found that these counts are best undertaken on either a Tuesday, Wednesday or Thursday as travel patterns on Mondays and Fridays tend to be more variable.

Time Of Year

To ensure consistency throughout the region, standard monitoring days were selected and agreed upon by Auckland Transport. In selecting the days, consideration was given to:

- the timing of school and tertiary holidays/the commencement of term time for tertiary institutions;
- the timing of statutory holidays (particularly Easter);
- the timing of Bikewise Month; and
- daylight saving times.

It was agreed that manual counts would commence on Tuesday the 3rd of March and be conducted on the first three fine days of the 3rd, 4th, 5th, 10th, 11thor 12thof March.

Counts were conducted on the following days:

- Tuesday 3rd March — Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki, Whau
- Wednesday 4th March — Howick, Franklin, Manukau, Waitemata & Gulf
- Thursday 5th March — Albany, North Shore, Waitakere

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 2015 was as follows:

Tuesday 3rd March

- Sunrise: 7:08am; Sunset: 7:58pm.
- Highest temperature: 25 degrees Celsius. Lowest temperature: 17 degree Celsius.
- Mostly fine weather with scattered cloud throughout the day.

Wednesday 4th March

- Sunrise: 7:09am; Sunset: 7:57pm.
- Highest temperature: 26 degrees Celsius. Lowest temperature: 19 degree Celsius.
- Fine with cloud throughout the morning shift. Cloudy in the evening with light rain recorded at some sites from 6:00pm.

Thursday 5th March

- Sunrise: 7:09am; Sunset: 7:55pm.
- Highest temperature: 27 degrees Celsius. Lowest temperature: 17 degree Celsius.
- Fine weather in the morning and evening shifts.

Conducting The Manual Counts

Scoping Visit

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

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

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

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

[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=300) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 3rd 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 2015, 201 responses were received, a response rate of 64 per cent. (This compares with 88 per cent in 2014).

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

This summary contains the aggregated results of the 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 Tuesday 3rd of March, 2015. Sunrise was at 7:08 am and sunset was at 7:58 pm. The highest temperature was 25 degrees Celsius.

1.4 Morning Peak

Environmental Conditions

- The weather was fine and cloudy 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 94 cyclist movements were recorded across the four sites in the morning peak period (between 6:30am and 9:00am) in 2015. This total stable from last year (93 movements), but represents an overall 18 percentage point decrease since 2011.
- The average morning cyclist volume across the four sites monitored in the Manurewa-Papakura ward was 24 movements, stable from 2014 (23 movements).
- The busiest site in the morning peak was the intersection of Great South Road/Rosehill Drive, Rosehill (29 movements). The lowest cycle volumes were recorded at Great South Road/Taka Street, Conifer Grove (18 movements).

Table 1.1: Summary of Morning Cyclist Movements

2007 – 2015 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15	Change 11-15
65	Great South Road/ Rosehill Drive, Rosehill	29	42	22	29	30	30	33	29	**29**	**0%**	**0%**
26	Great South Road/ Browns Road/Orams Road	25	32	21	21	29	24	26	30	**27**	**-10%**	**8%**
66	Great South Road/ Taka Street, Conifer Grove	18	19	12	15	23	18	21	17	**18**	**6%**	**0%**
	Average per site (3 sites since 2007)	**24**	**31**	**18**	**22**	**27**	**24**	**27**	**25**	**25**	**0%**	**4%**
	Total (for 3 sites since 2007)	**72**	**93**	**55**	**65**	**82**	**72**	**80**	**76**	**74**	**-3%**	**3%**
64	Porchester Road/ Walters Road, Takanini	22	19	19	-	33	18	27	17	**20**	**18%**	**-9%**
	Average per site (4 sites in 2007-2009 and 2011-2014)	**24**	**28**	**19**	**-**	**29**	**23**	**27**	**23**	**24**	**4%**	**-17%**
	Total (4 sites in 2007-2009 and 2011-2014)	**94**	**112**	**74**	**-**	**115**	**90**	**107**	**93**	**94**	**1%**	**-18%**

- Morning cyclist characteristics are shown in Table 1.2 below.
- There was an increase in the number of adult cyclists (81 per cent, up from 70 per cent in 2014).
- As a result, the percentage of cyclists that were school aged children decreased (19 per cent in 2015, down from 30 per cent in 2014).
- There was a notable decrease in the share of cyclists across the Manurewa-Papakura ward sites wearing a helmet (77 per cent, down from 87 per cent in 2014).
- The majority of morning cyclists were male (90 per cent, a 10 percentage point increase from last year).
- The proportion of cyclists riding on the footpath has increased (46 per cent, compared with 40 per cent in 2014).

Table 1.2: Summary of Morning Cyclist Characteristics

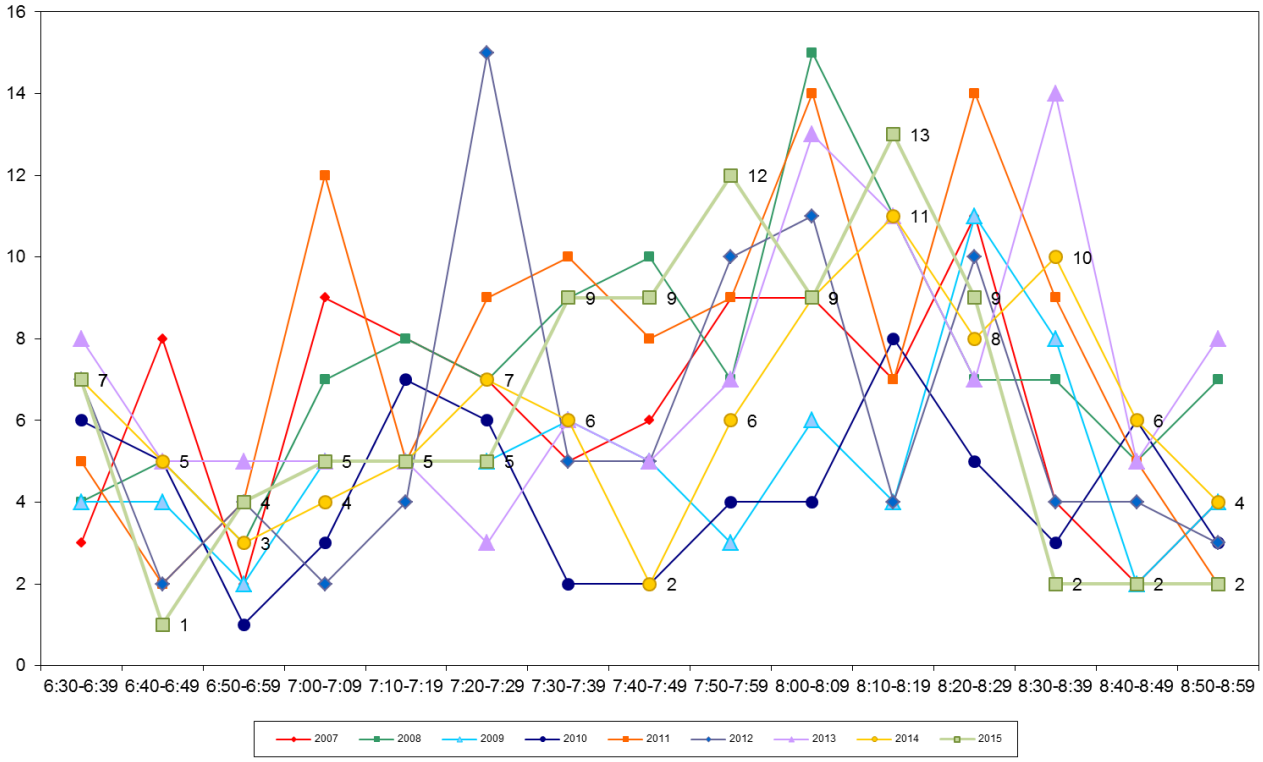
2007 – 2015 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	***2015***	**Change 14-15**
Cyclist Type										
Adult	78	70	68	71	75	76	77	70	**81**	**11**
School child	22	30	32	29	25	24	23	30	**19**	**-11**
Helmet Wearing										
Helmet on head	79	86	88	88	81	91	84	87	**77**	**-10**
No helmet	21	14	12	12	19	9	16	13	**23**	**10**
Gender										
Male	-	-	-	-	85	83	81	80	**90**	**10**
Female	-	-	-	-	15	9	19	19	**10**	**-9**
Can't tell	-	-	-	-	0	8	0	1	**0**	**-1**
Where Riding										
Road	51	63	52	62	58	62	55	58	**53**	**-5**
Footpath	49	37	48	38	42	37	44	40	**46**	**6**
Off-road cycleway	-	-	-	-	-	1	1	2	**1**	**-1**
Base:	***94***	***112***	***74***	***65***	***115***	***90***	***107***	***93***	***94***	

- Figure 1.2 illustrates the total number of cyclists in the morning peak by time of movement. The volume of morning cycle movements was relatively low and steady for the first 60 minutes of the shift, a different pattern from previous years. The busiest period was from 7:30am – 8:30am, where a total of 61 cyclists were recorded, over half of the total amount (94 cyclists).
- The traffic peaked between 7:50am and 7:59am (12 movements) and again between 8:10am and 8:19am (13 movements). This increase in volume was consistent with the past years.

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007 - 2015 (n)



1.5 Evening Peak

Environmental Conditions

- The weather was mostly cloudy throughout the evening shift. However, clear skies were reported at some sites between of 4:00pm and 4:59pm.
- There were no road works or accidents observed at any sites in the Manurewa-Papakura ward.

Key Points

- A total of 145 cyclist movements were recorded across the four sites in the evening peak period (between 4:00pm and 7:00pm) in 2015. This represents a 17 per cent increase from 2014.
- The average number of cyclists per site has increased from 31 to 36 over the last twelve months.
- The intersection of Porchester Road/Walters Road, Takanini was the busiest in terms of the evening cyclists' activity, with 44 cycle movements recorded (up by 57 per cent relative to the 2014 result).
- Great South Road/Browns Road/Orams Road intersection was the next busiest, with 40 cycle movements recorded, unchanged from 2014.
- Consistent with 2014, the volume of cyclist traffic at the Great South Road/Rosehill Drive intersection was the lowest of the four sites in the evening shift (25 cycle movements, up from 22 movements last year).

Table 1.3: Summary of Evening Cyclist Movements

2007 – 2015 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15	Change 07-15
26	Great South Road/ Browns Road/Orams Road	35	23	18	37	41	20	23	40	**40**	**0%**	**14%**
66	Great South Road/ Taka Street, Conifer Grove	40	39	24	28	37	31	34	34	**36**	**6%**	**-10%**
65	Great South Road/ Rosehill Drive, Rosehill	24	30	37	33	43	27	38	22	**25**	**14%**	**4%**
	Average per site (for 3 sites since 2007)	**33**	**31**	**26**	**33**	**40**	**26**	**32**	**32**	**34**	**6%**	**3%**
	Total (for 3 sites since 2007)	**99**	**92**	**79**	**98**	**121**	**78**	**95**	**96**	**101**	**5%**	**2%**
64	Porchester Road/ Walters Road, Takanini	28	27	30	-	39	26	16	28	**44**	**57%**	**13%**
	Average per site (4 sites in 2007-2009 and 2011-2014)	**32**	**30**	**27**	-	**40**	**26**	**28**	**31**	**36**	**16%**	**-10%**
	Total (4 sites in 2007-2009 and 2011-2014)	**127**	**119**	**109**	-	**160**	**104**	**111**	**124**	**145**	**17%**	**-9%**

- The number of school children cycling in the evening peak has decreased from last year (19 per cent, down from 29 per cent in 2014).
- Eighty-one per cent of evening cyclists were wearing a helmet (a notable increase from last year's 57 per cent).
- The majority of evening cyclists were male (84 per cent, an increase from 79 per cent last year).
- Just over half of all cyclists were riding on the footpath in the evening (54 per cent, up 4 percentage points from 2014).

Table 1.4: Summary of Evening Cyclist Characteristics

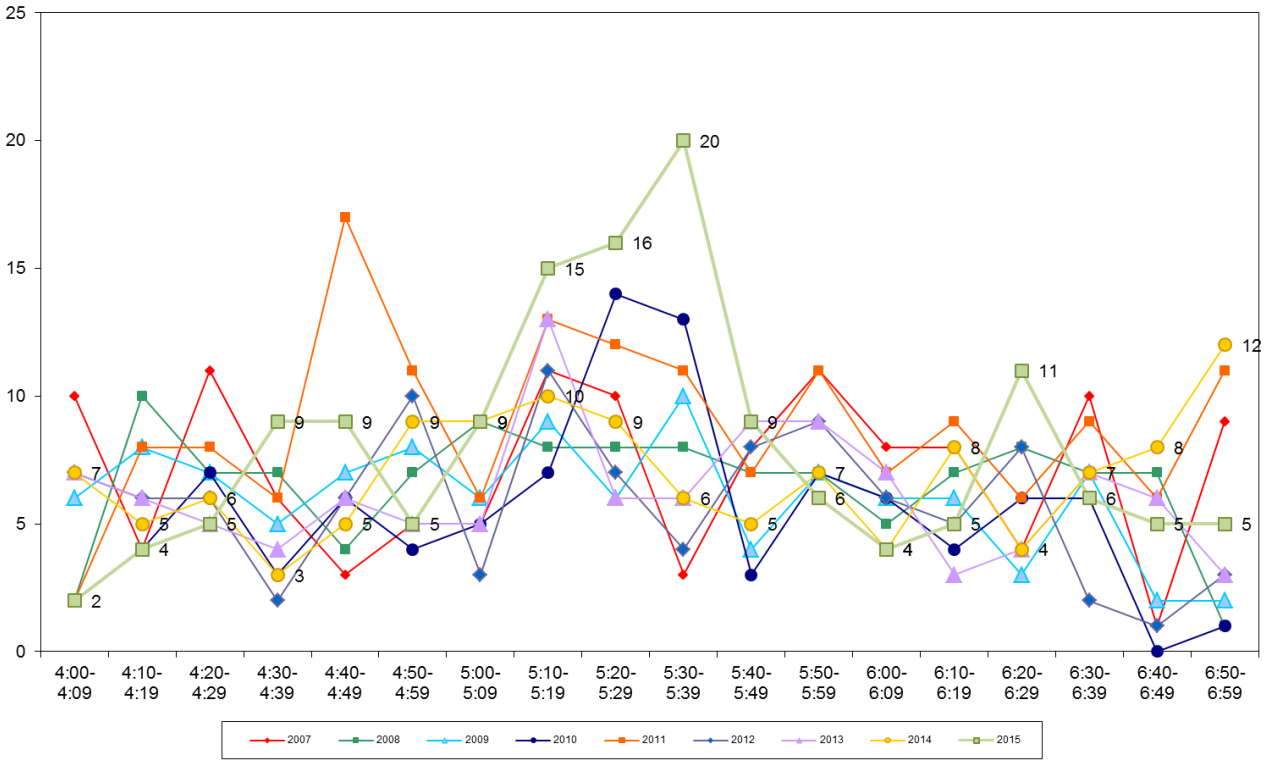
2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2010*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	77	71	72	79	82	83	81	71	**81**	**10**
School child	23	29	28	21	18	17	19	29	**19**	**-10**
Helmet Wearing										
Helmet on head	70	80	69	74	72	74	77	57	**81**	**24**
No helmet	30	20	31	26	28	26	23	43	**19**	**-24**
Gender										
Male	-	-	-	-	88	80	83	79	**84**	**5**
Female	-	-	-	-	11	19	16	19	**15**	**-4**
Can't tell	-	-	-	-	1	1	1	2	**1**	**-1**
Where Riding										
Road	54	58	64	64	49	62	52	48	**46**	**-2**
Footpath	46	42	36	36	51	38	47	50	**54**	**4**
Off-road cycleway	-	-	-	-	-	0	1	2	**0**	**-2**
Base:	***127***	***119***	***109***	***98***	***160***	***104***	***111***	***124***	***145***	

- The overall pattern of cyclist volumes by time of movement in the evening has been illustrated in Figure 1.3. The largest peak of the evening occurred between 5:30pm and 5:39pm with 20 cyclists recorded. Evening cyclist volumes fluctuated over the monitoring period. There was a consistent increase in cyclists from 4:50pm until 5:39pm; during this time a total of 65 cyclists were recorded. A small peak occurred between 6:20pm – 6:29pm with 11 cyclists recorded.

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007 – 2015 (n)



1.6 Aggregated Total

- A total of 239 cyclist movements were recorded across the four sites in 2015. This compares with 217 in 2014.
- Total cycle movements have increased over the last 12 months, with the average number of cyclists per site changing from 54 to 60.
- Consistent with 2014, the intersection of Great South Road/Browns Road/Orams Road had the greatest number of cyclists (67 movements, down from 70 movements last year).
- The Porchester Road/Walters Road intersection had the second greatest number (64 movements) which is in contrast to 2014 where it had the lowest level of cyclist traffic (45 movements).

Table 1.5: Summary of Total Cyclist Movements

2007 – 2015 (n)

Site No.	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15	Change 11-15
26	Great South Road/ Browns Road/Orams Road	60	55	39	58	70	44	49	70	**67**	**-4%**	**12%**
65	Great South Road/ Rosehill Drive, Rosehill	53	72	59	62	73	57	71	51	**54**	**6%**	**2%**
66	Great South Road/T aka Street, Conifer Grove	58	58	36	43	60	49	55	51	**54**	**6%**	**-7%**
	Average per site (for 3 sites since 2007)	**57**	**62**	**45**	**54**	**68**	**50**	**58**	**57**	**58**	**2%**	**2%**
	Total (for 3 sites since 2007)	**171**	**185**	**134**	**163**	**203**	**150**	**175**	**172**	**175**	**2%**	**2%**
64	Porchester Road/ Walters Road, Takanini	50	46	49	-	72	44	43	45	**64**	**42%**	**-11%**
	Average per site (4 sites in 2007-2009 and 2011-2014)	**55**	**58**	**46**	**-**	**69**	**49**	**55**	**54**	**60**	**11%**	**-13%**
	Total (4 sites in 2007-2009 and 2011-2014)	**221**	**231**	**183**	**-**	**275**	**194**	**218**	**217**	**239**	**10%**	**-13%**

- Overall cyclist characteristics have been illustrated in Table 1.6. In total, 81 per cent of cyclists were adults (up from 71 per cent last year).
- Seventy-nine per cent of cyclists were wearing a helmet (up from 70 per cent in 2014).
- After a four year increasing trend in the proportion of female cyclists, the percentage recorded this year was 13, a 6 percentage point decrease from last year.
- Just over half of cyclists were riding on the footpath (51 per cent, up from 46 per cent last year). – This share has been increasing gradually over the last three years.

Table 1.6: Summary of Total Cyclist Characteristics

2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	77	70	70	75	79	79	79	71	**81**	**10**
School child	23	30	30	25	21	21	21	29	**19**	**-10**
Helmet Wearing										
Helmet on head	74	83	77	80	76	82	81	70	**79**	**9**
No helmet	26	17	23	20	24	18	19	30	**21**	**-9**
Gender										
Male	-	-	-	-	86	81	82	79	**87**	**8**
Female	-	-	-	-	13	14	18	19	**13**	**-6**
Can't tell	-	-	-	-	1	5	0	2	**0**	**-2**
Where Riding										
Road	52	61	60	63	53	62	54	52	**49**	**-3**
Footpath	48	39	40	37	47	37	45	46	**51**	**5**
Off-road cycleway	-	-	-	-	-	1	1	2	**0**	**-2**
Base:	***221***	***231***	***183***	***163***	***275***	***194***	***218***	***217***	***239***	

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/Browns Road/Orams Road (96 daily movements, down 5 percentage points from 101 movements in 2014) and the lowest were at Great South Road/Rosehill Drive, Rosehill and Great South Road/ Taka Street, Conifer Grove (79 daily movements).

Table 1.7: Dry Weather Factor AADT Estimates Based on Morning and Evening Cyclist Movements 2007 – 2015 (n)

Site No.	*Locations*	*2007 AADT*	*2008 AADT*	*2009 AADT*	*2010 AADT*	*2011 AADT*	*2012 AADT*	*2013 AADT*	*2014 AADT*	*2015 AADT*	Change 14-15	Change 07-15
26	Great South Road/ Browns Road/Orams Road	86	81	57	83	101	64	71	101	**96**	**-5%**	**12%**
64	Porchester Road/ Walters Road, Takanini	72	66	70	-	104	63	63	65	**91**	**40%**	**-5%***
65	Great South Road/ Rosehill Drive, Rosehill	77	106	85	90	105	83	103	75	**79**	**5%**	**3%**
66	Great South Road/ Taka Street, Conifer Grove	83	83	51	62	86	70	79	73	**79**	**8%**	**-5%**

**Note: For Site 64, this percentage change uses 2011 as the baseline.*

1.8 School Bike Shed Count Summary

Cycle Counts

- Among the surveyed schools, of those eligible to cycle to school, on average, two per cent of students are cycling to their schools, up from one per cent in 2014.
- Hingaia School reported the highest share of cyclists – 10 per cent of all eligible students currently cycling to school.
- In total, n=168 students from the responding schools were reported to be cycling to school.
- Of the 21 schools that participated in the count in both 2014 and 2015, 6 (29 per cent) reported an increase in the share of students cycling.

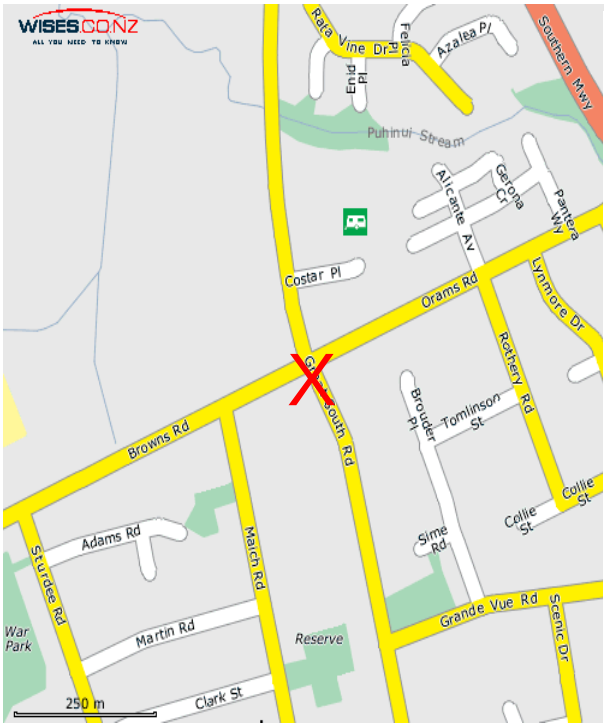
Scooter Counts

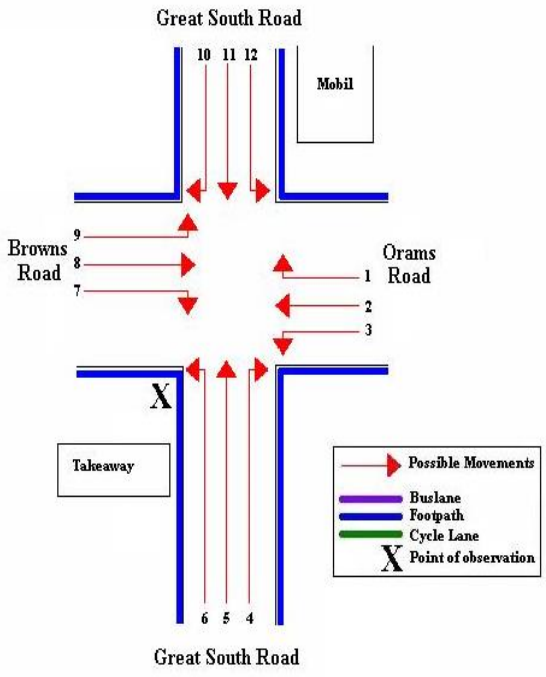
- Among the surveyed schools, of those eligible to scooter, on average, one per cent of students are scooting to their schools, unchanged from 2014.
- Hingaia Peninsula School reported the highest share of scooters – 18 per cent of all eligible students currently scooting to school.
- In total, n=87 students from the responding schools were reported to be scooting to school.
- Of the 18 schools that participated in the count in both 2014 and 2015, five (28 per cent) reported an increase in the share of students scooting.

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
2013	26	23	49	71
2014	30	40	70	101
2015	**27**	**40**	**67**	**96**

2.2 Morning Peak

Environmental Conditions

- The weather was overcast 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 slightly from 30 cycle movements recorded in 2014 to 27 movements in 2015.
- The key morning movement continued to be straight along Great South Road in a northerly direction (Movement 5 = 15 cyclists).
- Movements recorded are consistent with previous years.

Table 2.1: Morning Cyclist Movements

Great South/Browns/Orams Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	4	1	6	2	6	3	0	2	**3**	**1**
2	4	4	6	3	3	1	2	3	**0**	**-3**
3	0	2	0	0	2	1	3	0	**1**	**1**
4	0	1	0	2	1	1	0	1	**0**	**-1**
5	8	12	6	12	14	11	12	16	**15**	**-1**
6	3	0	0	1	0	0	1	1	**3**	**2**
7	0	2	0	0	0	0	1	1	**1**	**0**
8	0	0	0	0	0	0	0	0	**0**	**0**
9	2	2	1	1	0	1	1	3	**2**	**-1**
10	0	2	2	0	0	2	1	0	**2**	**2**
11	3	6	0	0	3	4	5	3	**0**	**-3**
12	1	0	0	0	0	0	0	0	**0**	**0**
Total	**25**	**32**	**21**	**21**	**29**	**24**	**26**	**30**	**27**	**-3**

- Over the morning peak, all cyclists were adults (100 per cent, up from 90 per cent last year).
- Helmet wearing has remained stable since last year, 89 per cent of cyclists observed wearing a helmet this year, compared with 87 per cent in 2014.
- The greatest share of morning cyclists were males (85 per cent), stable from last year (83 per cent).
- Around three-quarters of cyclists (78 per cent) continue to ride on the road.

Table 2.2: Morning Cyclist Characteristics

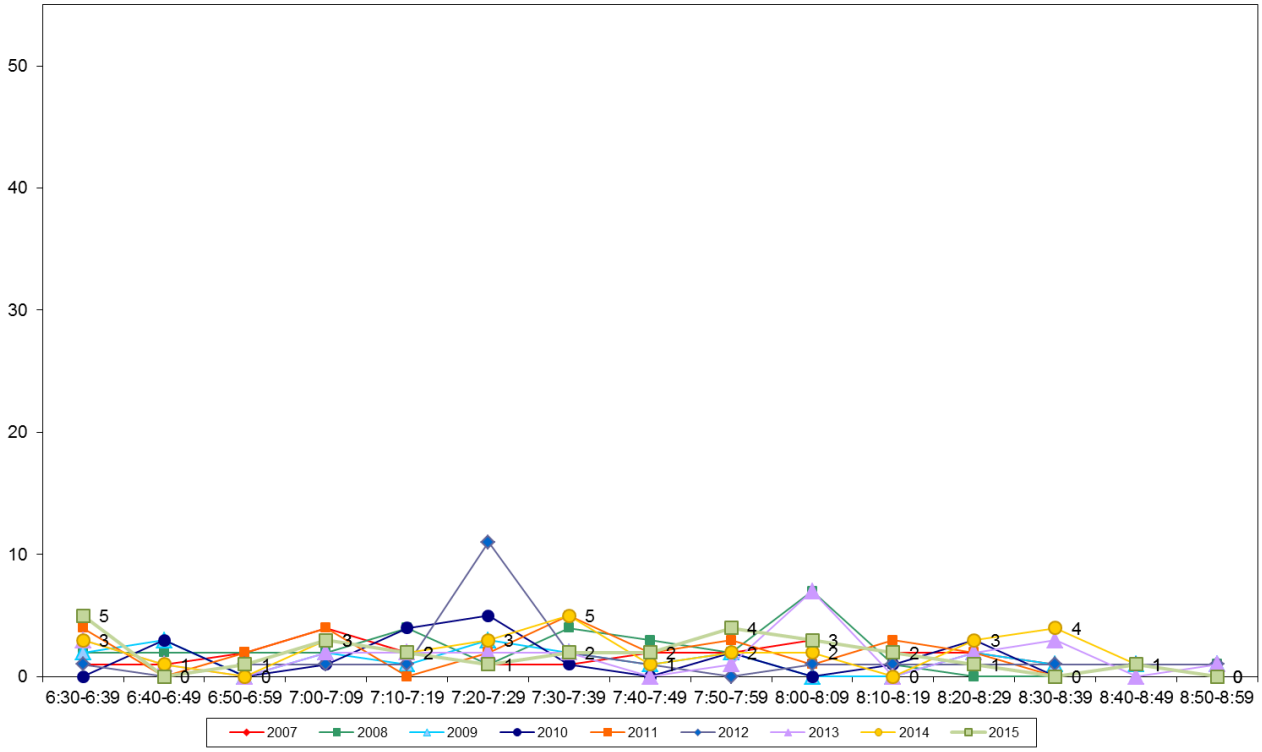
Great South/Browns/Orams Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	92	94	86	90	100	100	85	90	**100**	**10**
School child	8	6	14	10	0	0	15	10	**0**	**-10**
Helmet Wearing										
Helmet on head	84	84	90	95	79	92	88	87	**89**	**2**
No helmet	16	16	10	5	21	8	12	13	**11**	**-2**
Gender										
Male	-	-	-	-	83	88	88	83	**85**	**2**
Female	-	-	-	-	17	8	12	17	**15**	**-2**
Can't tell	-	-	-	-	0	4	0	0	**0**	**0**
Where Riding										
Road	52	91	71	76	79	88	69	77	**78**	**1**
Footpath	48	9	29	24	21	12	31	23	**22**	**-1**
Base:	***25***	***32***	***21***	***21***	***29***	***24***	***26***	***30***	***27***	

- The volume of morning cycle movements was low throughout the morning shift, with no clear peak evident. No more than five cyclists were recorded travelling though this site at any ten minute interval.

Figure 2.2: – Morning Peak Cyclist Frequency

Great South Road/Browns Road /Orams Road 2007 – 2015 (n)



2.3 Evening Peak

Environmental Conditions

- The weather was mostly cloudy throughout the evening shift, with the sky being clearing for a while around 5:00pm.
- 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 this year (40 movements) has remained unchanged from 2014.
- The most common movement in the evening continues to be straight along Great South Road heading south (Movement 11 = 12 cyclists).
- The most notable change since 2014 was the decrease in number of cyclists making Movement 11 – down 4 movements this year.

Table 2.3: Evening Cyclist Movements

Great South/Browns/Orams Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	0	0	0	0	1	0	0	0	**1**	**1**
2	0	3	0	0	0	0	2	1	**1**	**0**
3	0	3	0	2	3	0	0	2	**3**	**1**
4	1	1	1	2	5	1	3	4	**1**	**-3**
5	4	2	4	3	5	4	5	5	**5**	**0**
6	0	0	0	0	1	0	0	0	**0**	**0**
7	2	2	0	0	0	1	0	0	**3**	**3**
8	2	2	2	1	6	1	0	4	**5**	**1**
9	0	0	0	0	2	0	1	2	**1**	**-1**
10	2	1	0	3	1	0	3	2	**5**	**3**
11	18	5	8	23	13	11	9	16	**12**	**-4**
12	6	4	3	3	4	2	0	4	**3**	**-1**
Total	**35**	**23**	**18**	**37**	**41**	**20**	**23**	**40**	**40**	**0**

- Over the evening peak, the majority of the cyclists using this intersection continued to be adults (97 per cent, up notably from 75 per cent recorded in 2014).
- The majority of the cyclists observed were wearing a helmet (90 per cent in 2015, up from 70 per cent last year).
- The greatest share of evening cyclists (84 per cent) were male. However, this year, there was an increase in the share of female cyclists (13 per cent, up from 5 per cent in 2014)
- Half of all cyclists were riding on the footpath (up from 47 per cent in 2014).

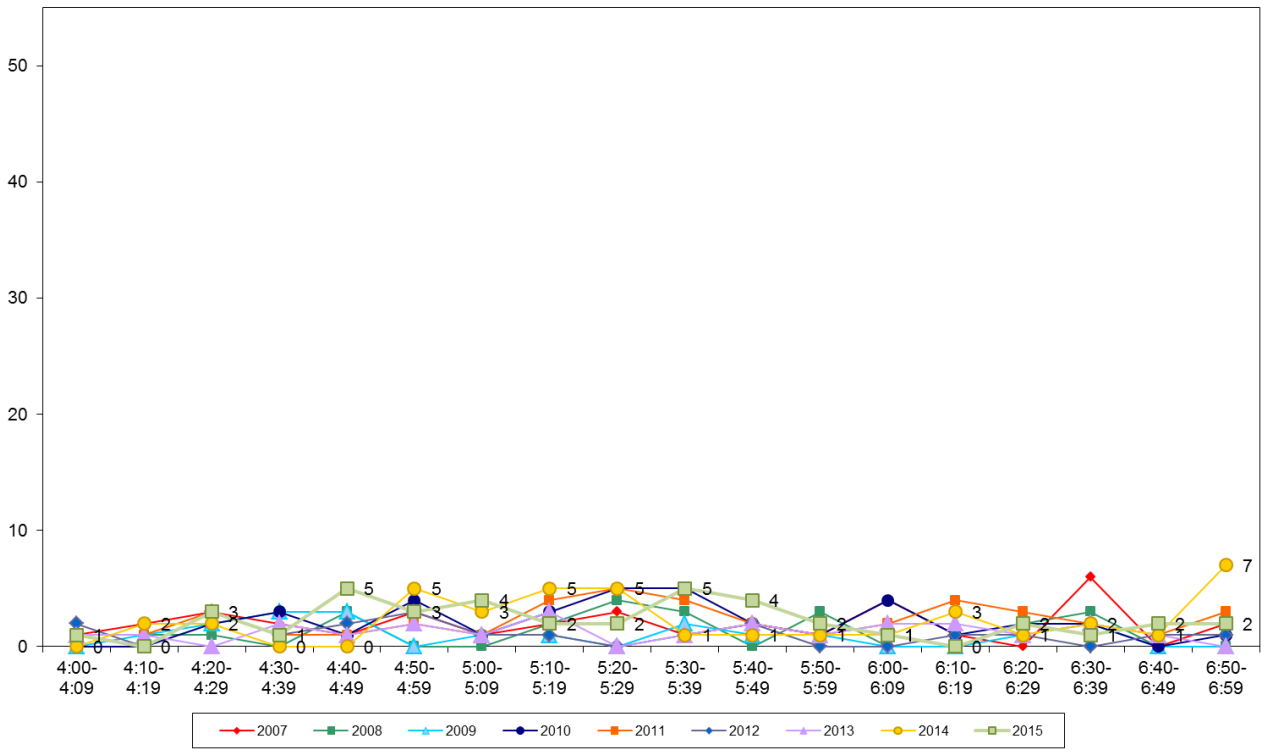
Table 2.4: Evening Cyclist Characteristics

Great South/Browns/Orams Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	86	87	89	81	93	95	87	75	**97**	**22**
School child	14	13	11	19	7	5	13	25	**3**	**-22**
Helmet Wearing										
Helmet on head	86	91	78	76	78	80	87	70	**90**	**20**
No helmet	14	9	22	24	22	20	13	30	**10**	**-20**
Gender										
Male	-	-	-	-	88	90	83	95	**84**	**-11**
Female	-	-	-	-	12	10	13	5	**13**	**8**
Can't tell	-	-	-	-	0	0	4	0	**3**	**3**
Where Riding										
Road	54	87	67	70	59	84	65	53	**50**	**-3**
Footpath	46	13	33	30	41	16	35	47	**50**	**3**
Base:	***35***	***23***	***18***	***37***	***41***	***20***	***23***	***40***	***40***	

- Consistent with previous years, the volume of cycle movements was relatively low in the evening with no ten minute interval recording more than five movements. Over half of the cyclists (n=25) travelled through the site between 4:40pm and 5:49pm.

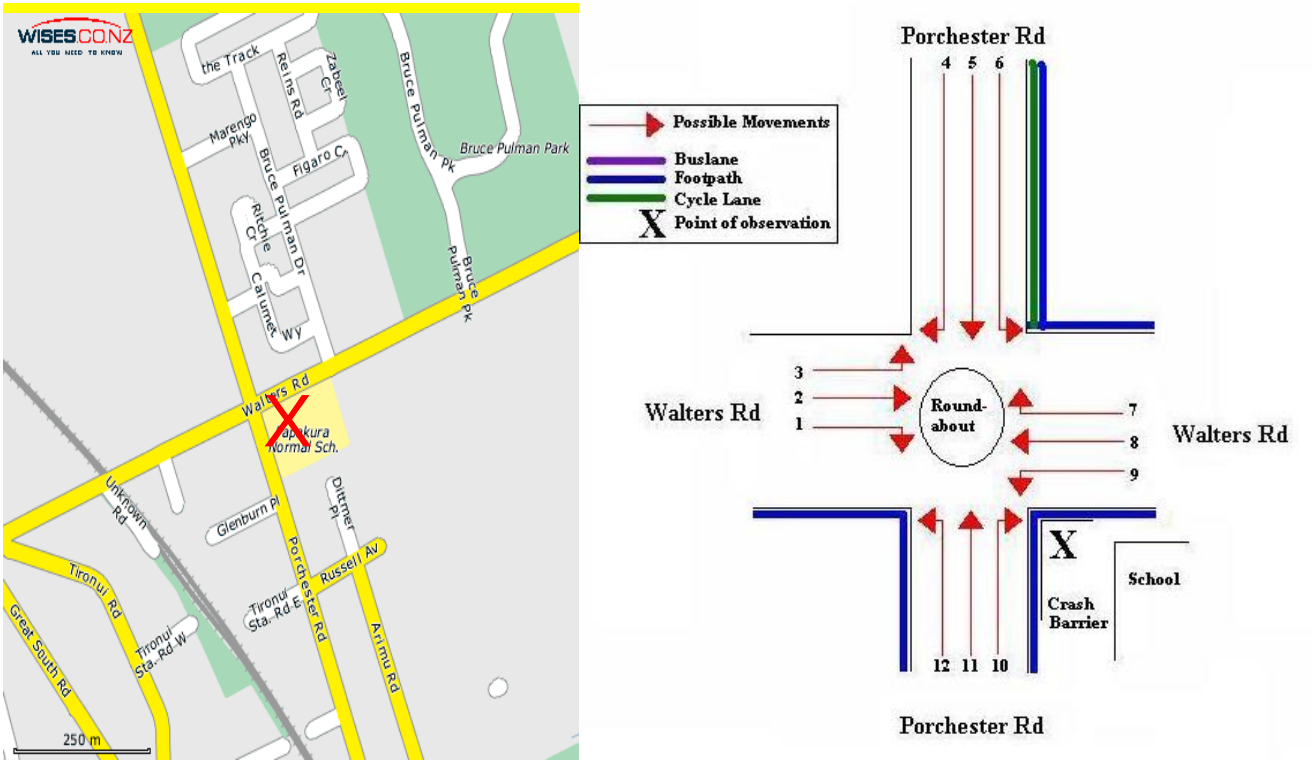
Figure 2.3: Evening Peak Cyclist Frequency
Great South Road/Browns Road /Orams Road 2007 – 2015 (n)



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
2013	27	16	43	63
2014	17	28	45	65
2015	**20**	**44**	**64**	**91**

**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 increased – up from 17 in 2014 to 20 this year.
- The most notable change is the decrease of cyclists traveling straight along Porchester Road heading south (Movement 5 = 1 cyclist), down four movements from 2014.

Table 3.1: Morning Cyclist Movements

Porchester/Walters Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	3	6	3	-	8	2	5	2	**2**	**0**
2	1	2	1	-	1	0	1	1	**1**	**0**
3	0	0	1	-	1	0	3	2	**1**	**-1**
4	2	0	2	-	0	1	2	0	**3**	**3**
5	5	4	1	-	2	6	4	5	**1**	**-4**
6	0	2	2	-	3	0	0	0	**1**	**1**
7	1	1	0	-	2	1	1	1	**2**	**1**
8	0	0	0	-	3	0	0	0	**0**	**0**
9	3	2	0	-	4	0	2	1	**0**	**-1**
10	1	0	4	-	2	2	0	1	**3**	**2**
11	4	2	5	-	4	4	4	2	**3**	**1**
12	2	0	0	-	3	2	5	2	**3**	**1**
Total	**22**	**19**	**19**	**-**	**33**	**18**	**27**	**17**	**20**	**3**

- Adults comprised almost all of the cyclists at this site (95 per cent), a notable increase from less than two-thirds of the cyclists at this site in 2014 (59 per cent).
- There has been a 6 percentage point decrease in helmet wearing (70 per cent, down from 76 per cent in 2014).
- All cyclists at this site were male, up from 71 per cent in 2014.
- Just over half the cyclists at this site were riding on the footpath (55 per cent, stable from 53 per cent in 2014). Five per cent of the cyclists were riding on the off-road cycleway, a decrease from 2014 where 12 per cent were recorded.

Table 3.2: Morning Cyclist Characteristics

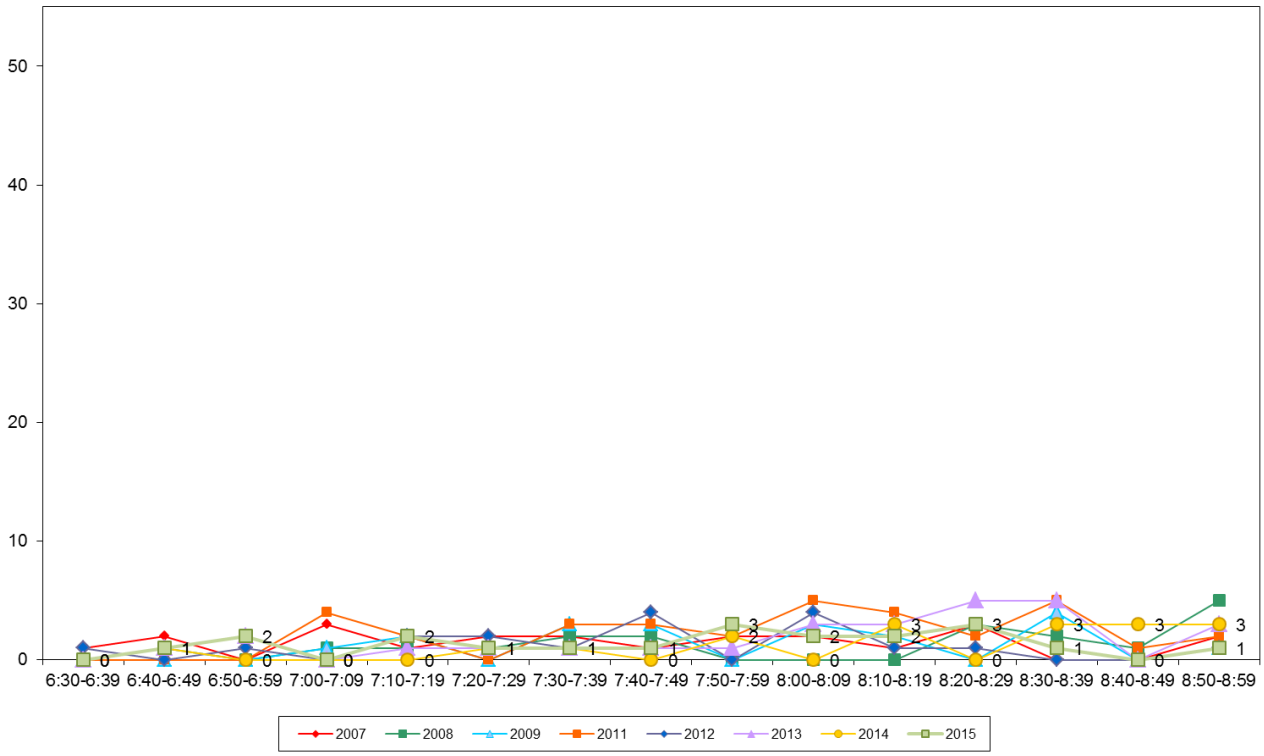
Porchester/Walters Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	82	68	68	-	61	72	85	59	**95**	**36**
School child	18	32	32	-	39	28	15	41	**5**	**-36**
Helmet Wearing										
Helmet on head	73	79	95	-	91	89	67	76	**70**	**-6**
No helmet	27	21	5	-	9	11	33	24	**30**	**6**
Gender										
Male	-	-	-	-	85	78	74	71	**100**	**29**
Female	-	-	-	-	15	22	26	29	**0**	**-29**
Can't tell	-	-	-	-	0	0	0	0	**0**	**0**
Where Riding										
Road	50	47	42	-	39	50	41	35	**40**	**5**
Footpath	50	53	58	-	61	44	55	53	**55**	**2**
Off-road cycleway	-	-	-	-	-	6	4	12	**5**	**-7**
Base:	***22***	***19***	***19***	***-***	***33***	***18***	***27***	***17***	***20***	

- Morning cyclist volume was low throughout the shift, with no more than three cyclists recorded at any ten minute interval.

Figure 3.2: Morning Peak Cyclist Frequency

Porchester/Walters Road 2007 – 2015 (n)



3.3 Evening Peak

Environmental Conditions

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

Key Points

- The volumes of evening cyclist traffic at the Porchester/Walters Road intersection have increased from 2014, up from 28 movements to 44 this year.
- The most common movement in the evening peak is the right hand turn from Walters Road into Porchester Road heading south (Movement 1 - 11 cyclists).
- The most notable changes in cycle movements were evident at Movement 12 – 2 cyclists (down 7 cyclists from 2014) and at Movement 10 – 8 cyclists (up 7 cyclists from 2014).

Table 3.3: Evening Cyclist Movements

Porchester/Walters Road 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	3	3	2	-	13	6	4	8	**11**	**3**
2	0	1	0	-	2	0	0	0	**2**	**2**
3	4	1	2	-	0	0	1	0	**0**	**0**
4	1	1	0	-	0	0	2	2	**4**	**2**
5	3	4	7	-	3	4	1	3	**4**	**1**
6	1	2	0	-	1	0	1	0	**3**	**3**
7	1	2	0	-	3	0	0	1	**1**	**0**
8	1	1	2	-	2	0	1	1	**2**	**1**
9	4	3	9	-	6	4	2	2	**6**	**4**
10	4	1	5	-	4	4	2	1	**8**	**7**
11	4	4	3	-	3	5	1	1	**1**	**0**
12	2	4	0	-	2	3	1	9	**2**	**-7**
Total	**28**	**27**	**30**	**-**	**39**	**26**	**16**	**28**	**44**	**16**

- Half of the cyclists using the Porchester/Walters Road intersection in the evening peak were school children (down from 68 per cent in 2014).
- Eighty per cent of cyclists at this site were wearing a helmet (up 44 percentage points from 2014).
- Eighty per cent of cyclists at this site in the evening peak were male, an increase from 61 per cent in 2014.
- The greatest share of cyclists were riding on the footpath (86 per cent). This share was up from 2014 (79 per cent).

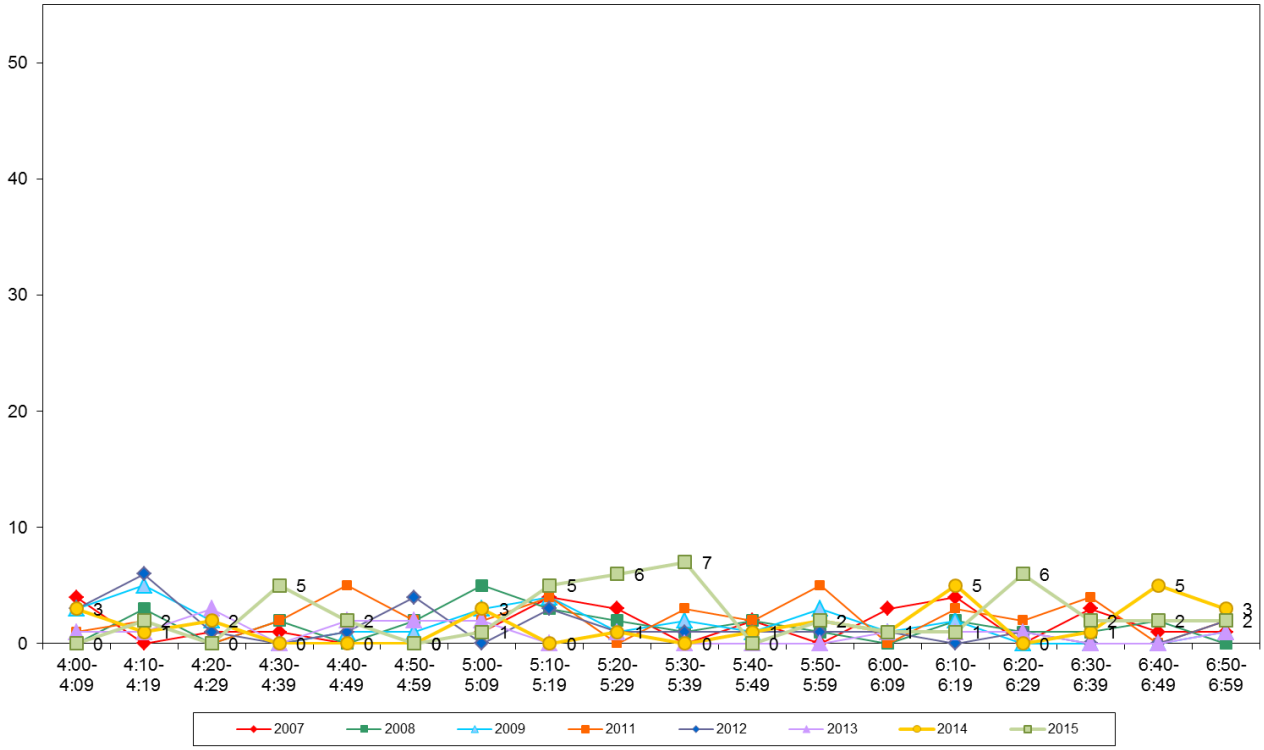
Table 3.4: Evening Cyclist Characteristics

Porchester/Walters Road 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	82	89	57	-	82	50	62	32	**50**	**18**
School child	18	11	43	-	18	50	38	68	**50**	**-18**
Helmet Wearing										
Helmet on head	61	81	57	-	67	38	62	36	**80**	**44**
No helmet	39	19	43	-	33	62	38	64	**20**	**-44**
Gender										
Male	-	-	-	-	92	81	94	61	**80**	**19**
Female	-	-	-	-	8	19	6	39	**20**	**-19**
Can't tell	-	-	-	-	0	0	0	0	**0**	**0**
Where Riding										
Road	54	67	80	-	31	31	31	14	**14**	**0**
Footpath	46	33	20	-	69	69	63	79	**86**	**7**
Off-road cycleway	-	-	-	-	-	0	6	7	**0**	**-7**
Base:	***28***	***27***	***30***	***-***	***39***	***26***	***16***	***28***	***44***	

- Evening cyclist volumes in 2015 were relatively stable throughout the monitoring period.
- The maximum number of cyclists during a ten minute interval was seven (between 5:30 pm and 5:39 pm).

Figure 3.3: Evening Peak Cyclist Frequency
Porchester/Walters Road 2007 – 2015 (n)

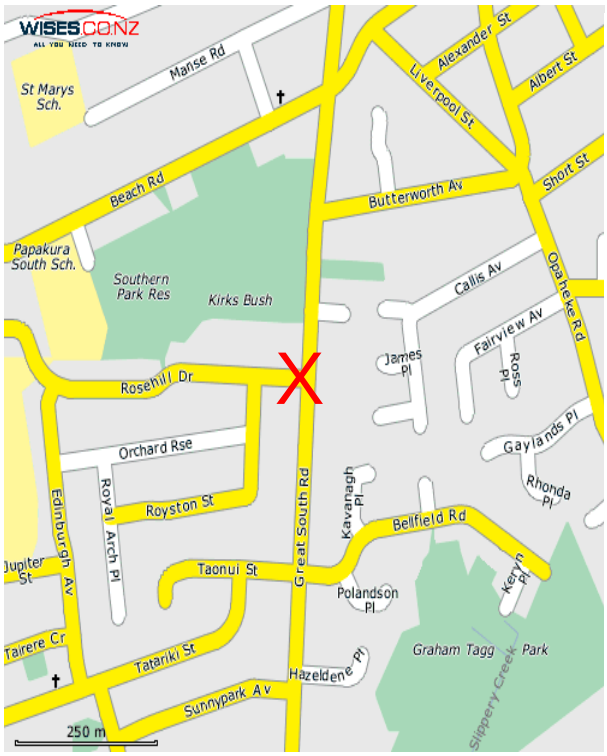


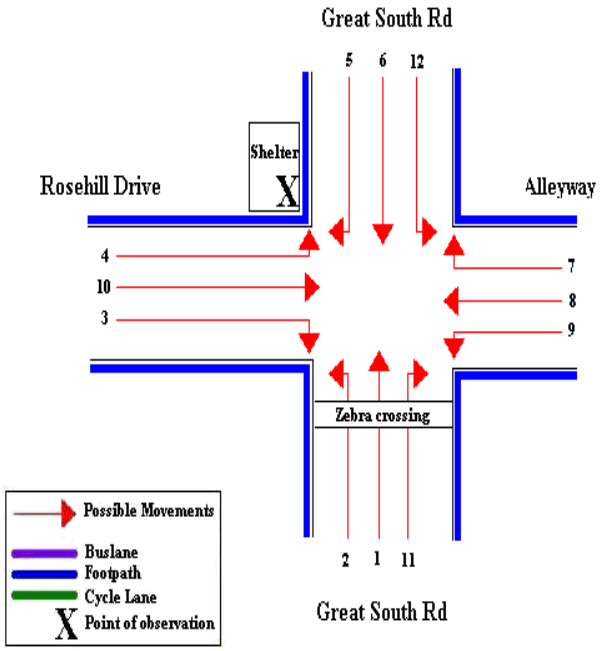
Note: In 2015, a group of three cyclists rode past together at 5:35pm and again 5:37pm (in the opposite direction). These six movements accounted for 14 per cent of this site's evening cycle count.

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
2013	33	38	71	103
2014	29	22	51	75
2015	**29**	**25**	**54**	**79**

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 had 29 movements recorded, unchanged from 2014.
- The key morning movement was travelling north straight along Great South Road (Movement 1 = 12 cyclists).

Table 4.1: Morning Cyclist Movements

Great South Road/Rosehill Drive 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	8	13	5	9	14	7	11	10	**12**	**2**
2	2	6	2	2	1	5	1	1	**1**	**0**
3	1	1	0	2	0	0	0	0	**0**	**0**
4	5	4	1	1	1	1	3	1	**3**	**2**
5	7	10	14	11	7	14	6	9	**9**	**0**
6	6	5	0	4	4	3	8	4	**2**	**-2**
7	0	3	0	0	1	0	0	0	**0**	**0**
8	-	-	-	-	0	0	3	2	**2**	**0**
9	-	-	-	-	2	0	1	0	**0**	**0**
10	-	-	-	-	0	0	0	0	**0**	**0**
11	-	-	-	-	0	0	0	2	**0**	**-2**
12	-	-	-	-	0	0	0	0	**0**	**0**
Total	**29**	**42**	**22**	**29**	**30**	**30**	**33**	**29**	**29**	**0**

- Around half of the cyclists over the morning peak were adults (48 per cent, unchanged from the last measure).
- The majority of cyclists were wearing a helmet (76 per cent), a notable decline from 2014, where 93 per cent were wearing helmets.
- Over three-quarters of cyclists were male (83 per cent, up 7 percentage points from 2014).
- More than two-thirds of the cyclists (69 per cent) were riding on the footpath (up from 52 per cent last year).

Table 4.2: Morning Cyclist Characteristics

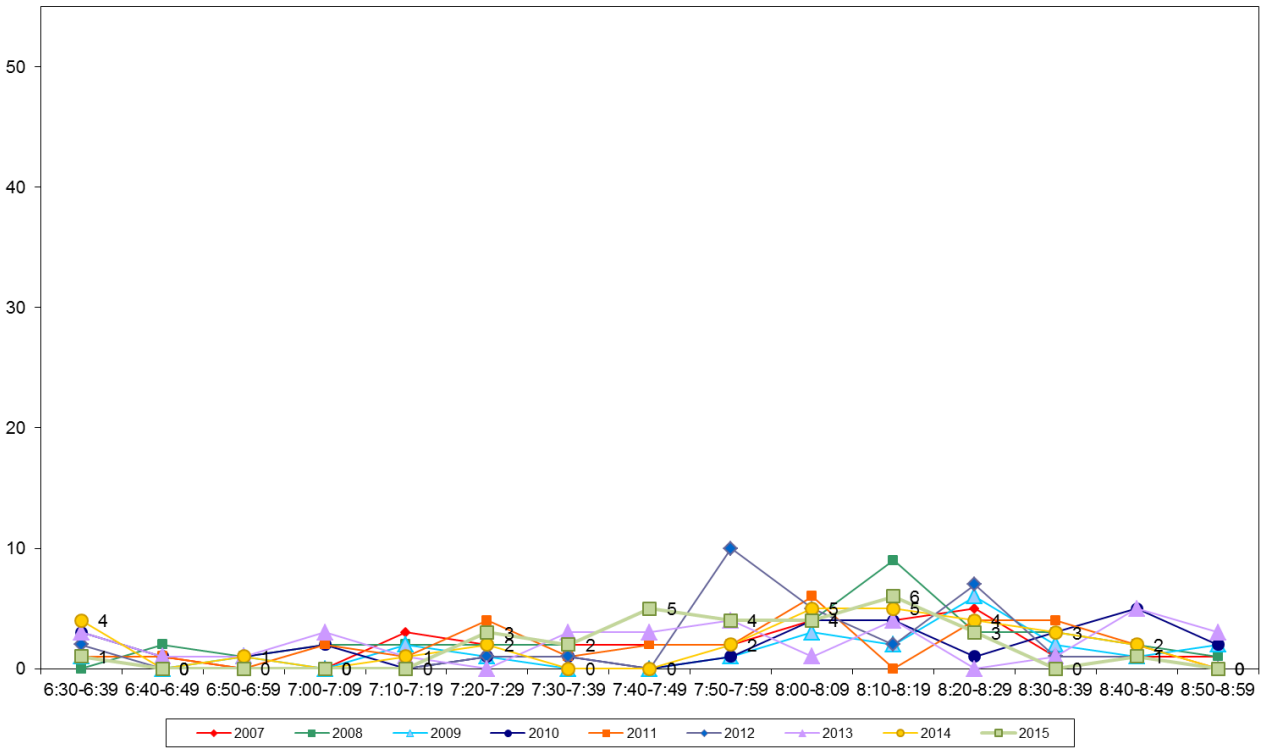
Great South Road/Rosehill Drive 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	55	40	32	45	60	47	67	48	**48**	**0**
School child	45	60	68	55	40	53	33	52	**52**	**0**
Helmet Wearing										
Helmet on head	72	95	91	83	80	97	85	93	**76**	**-17**
No helmet	28	5	9	17	20	3	15	7	**24**	**17**
Gender										
Male	-	-	-	-	90	77	76	76	**83**	**7**
Female	-	-	-	-	10	7	24	21	**17**	**-4**
Can't tell	-	-	-	-	0	16	0	3	**0**	**-3**
Where Riding										
Road	45	43	36	38	53	40	55	48	**31**	**-17**
Footpath	55	57	64	62	47	60	45	52	**69**	**17**
Base:	***29***	***42***	***22***	***29***	***30***	***30***	***33***	***29***	***29***	

- Morning cyclist volumes in 2015 were relatively stable throughout the monitoring period. The maximum number of cyclists during a ten minute interval was six (between 8:10 am - 8:19 am).

Figure 4.2: Morning Peak Cyclist Frequency

Great South Road/Rosehill Drive 2007 – 2015 (n)



4.3 Evening Peak

Environmental Conditions

- The weather was partly cloudy throughout the evening 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 increased slightly, from 22 in 2014 to 25 this year.
- The most common movements in the evening were heading north along Great South Road (Movement 1 = 9 cyclists) and heading south along Great South Road (Movement 6 = 9 movements).
- There were no significant movement changes.

Table 4.3: Evening Cyclist Movements

Great South Road/Rosehill Drive 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	7	10	14	8	11	6	18	7	**9**	**2**
2	2	6	1	6	0	2	0	1	**0**	**-1**
3	2	0	0	2	1	0	0	1	**0**	**-1**
4	2	4	3	1	6	5	4	1	**2**	**1**
5	3	1	1	1	3	0	2	2	**5**	**3**
6	8	6	18	15	20	13	14	7	**9**	**2**
7	0	3	0	0	0	0	0	1	**0**	**-1**
8	-	-	-	-	0	1	0	0	**0**	**0**
9	-	-	-	-	1	0	0	0	**0**	**0**
10	-	-	-	-	1	0	0	1	**0**	**-1**
11	-	-	-	-	0	0	0	0	**0**	**0**
12	-	-	-	-	0	0	0	1	**0**	**-1**
Total	**24**	**30**	**37**	**33**	**43**	**27**	**38**	**22**	**25**	**3**

- Eighty-eight per cent of the cyclists using this intersection were adults (stable from 86 per cent in 2014).
- The share of cyclists at this site wearing a helmet has increased notably over the last 12 months – up from 68 per cent in 2014 to 80 per cent this year.
- Almost all of the cyclists (96 per cent) were male, up from 82 per cent last year.
- Around three-in-four cyclists at this site were riding on the road (76 per cent, up 3 percentage points from the previous measure).

Table 4.4: Evening Cyclist Characteristics

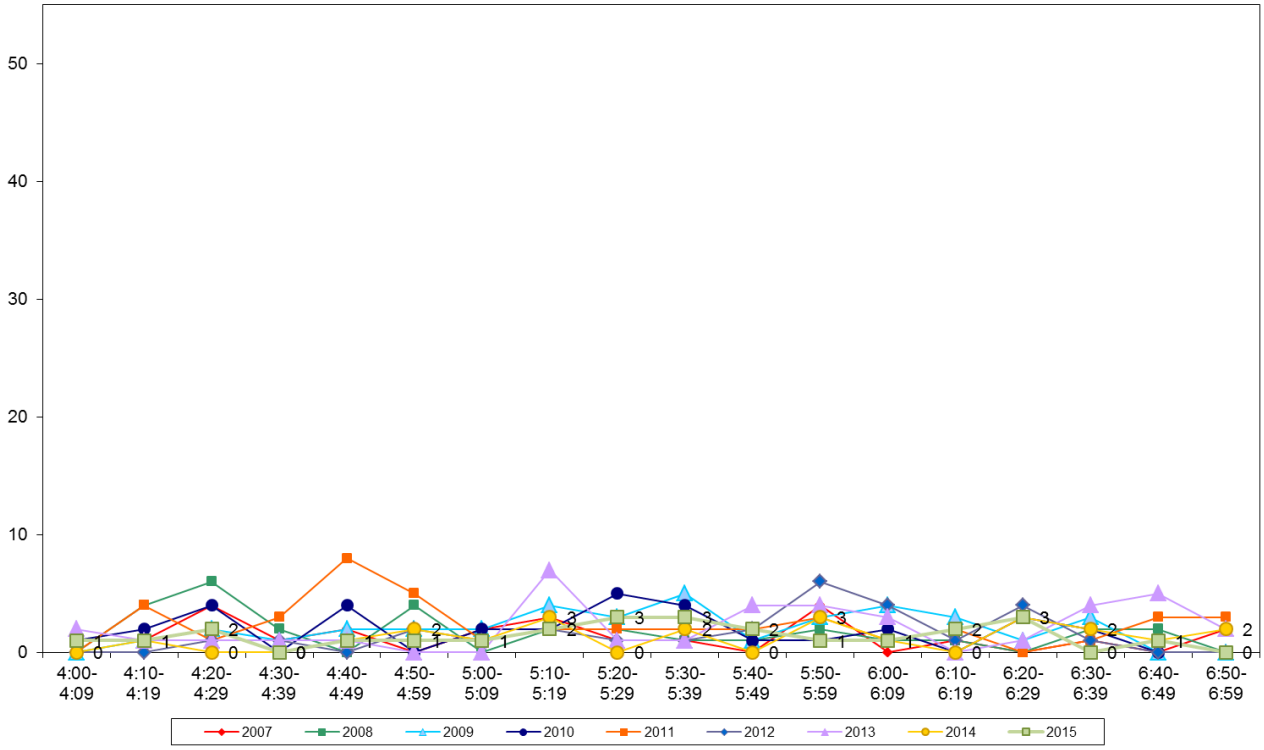
Great South Road/Rosehill Drive 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	58	33	68	70	70	100	84	86	**88**	**2**
School child	42	67	32	30	30	0	16	14	**12**	**-2**
Helmet Wearing										
Helmet on head	67	77	65	73	79	93	84	68	**80**	**12**
No helmet	33	23	35	27	21	7	16	32	**20**	**-12**
Gender										
Male	-	-	-	-	79	63	82	82	**96**	**14**
Female	-	-	-	-	16	37	18	14	**4**	**-10**
Can't tell	-	-	-	-	5	0	0	4	**0**	**-4**
Where Riding										
Road	42	27	43	52	56	78	50	73	**76**	**3**
Footpath	58	73	57	48	44	22	50	27	**24**	**-3**
Base:	***24***	***30***	***37***	***33***	***43***	***27***	***38***	***22***	***25***	

- Cycle volumes were low in the evening, with no more than three cyclists observed at any ten minute interval. Cycle movements remained consistent this year compared to previous years with no peaks evident.

Figure 4.3: Evening Peak Cyclist Frequency

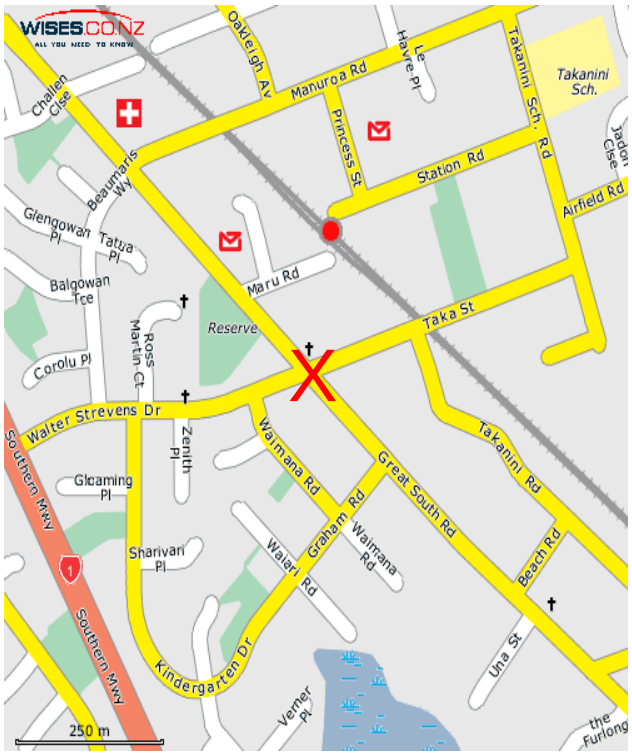
Great South Road/Rosehill Drive 2007 – 2015 (n)

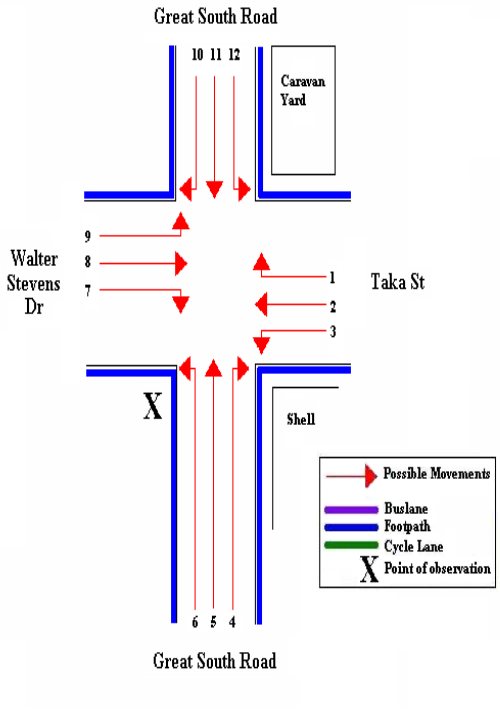


5. GREAT SOUTH ROAD/TAKA STREET, CONIFER GROVE (SITE 66)

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
2013	21	34	55	79
2014	17	34	51	73
2015	**18**	**36**	**54**	**79**

5.2 Morning Peak

Environmental Conditions

- The weather was cloudy 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 was 18.
- Consistent with previous years, the key morning movement was straight along Great South Road heading north (Movement 5 = 7 cyclists).
- Morning cyclist volumes at these movements are mostly unchanged from last year, with the most notable change at Movement 11 (up 3 cyclists).

Table 5.1: Morning Cyclist Movements

Great South Road/Taka Street 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	0	0	0	1	0	0	0	0	**0**	**0**
2	1	2	1	0	0	0	0	1	**1**	**0**
3	0	0	0	0	0	0	1	1	**1**	**0**
4	0	0	1	1	0	0	0	0	**0**	**0**
5	6	6	5	11	11	8	6	8	**7**	**-1**
6	0	0	0	0	0	1	1	1	**0**	**-1**
7	2	0	0	0	0	1	1	1	**0**	**-1**
8	1	4	0	1	4	1	1	1	**1**	**0**
9	0	0	1	0	1	1	2	1	**2**	**1**
10	0	0	0	0	0	0	1	0	**0**	**0**
11	8	7	4	1	7	5	8	3	**6**	**3**
12	0	0	0	0	0	1	0	0	**0**	**0**
Total	**18**	**19**	**12**	**15**	**23**	**18**	**21**	**17**	**18**	**1**

- Over the morning peak, there has been an increase in the share of adult cyclists (89 per cent, up from 82 per cent last year).
- Sixty-seven per cent of cyclists were wearing a helmet (down from 88 per cent in 2014).
- All cyclists at this intersection were male. In 2014, 12 per cent were female.
- The share of cyclists riding on the road in the morning is stable from last year (33 per cent in 2015, 35 per cent in 2014).

Table 5.2: Morning Cyclist Characteristics

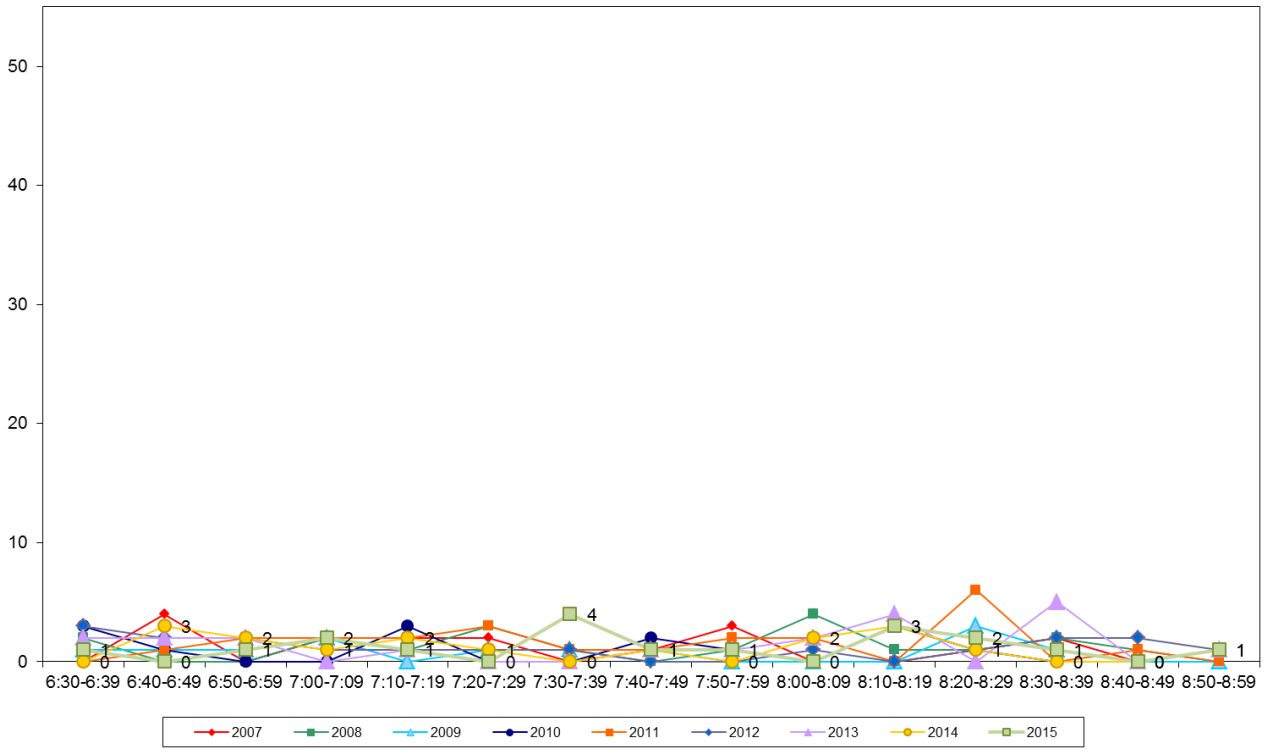
Great South Road/Taka Street 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	89	95	100	93	83	94	76	82	**89**	**-7**
School child	11	5	0	7	17	6	24	18	**11**	**7**
Helmet Wearing										
Helmet on head	89	74	67	87	70	83	100	88	**67**	**-21**
No helmet	11	26	33	13	30	17	0	12	**33**	**21**
Gender										
Male	-	-	-	-	83	94	90	88	**100**	**12**
Female	-	-	-	-	17	0	10	12	**0**	**-12**
Can't tell	-	-	-	-	0	6	0	0	**0**	**0**
Where Riding										
Road	61	79	67	87	65	78	57	65	**67**	**2**
Footpath	39	21	33	13	35	22	43	35	**33**	**-2**
Base:	***18***	***19***	***12***	***15***	***23***	***18***	***21***	***17***	***18***	

- As in previous years, the volume of cycle movements was relatively low over the entire morning shift, with no more than four cyclists counted during any ten minute interval.

Figure 5.2: Morning Peak Cyclist Frequency

Great South Road/Taka Street 2007 – 2015 (n)



5.3 Evening Peak

Environmental Conditions

- The weather was mostly cloudy throughout the evening shift. However, the sky cleared for a while between 4:00pm to 4:30pm.
- 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 (36 movements) has remained the stable from last year.
- Consistent with previous years, the most common movement in the evening was straight along Great South Road heading south (Movement 11 = 11 cyclists).
- The most notable change in cyclist volumes since 2014 has been at Movement 8 (a decrease of 3 cyclists).

Table 5.3: Evening Cyclist Movements

Great South Road/Taka Street 2007 – 2015 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
1	5	0	4	1	1	4	0	2	**3**	**1**
2	3	4	0	1	2	3	4	2	**1**	**-1**
3	3	4	2	1	4	2	0	3	**1**	**-2**
4	4	4	1	0	0	2	3	1	**2**	**1**
5	11	6	2	3	7	6	8	4	**7**	**3**
6	1	2	2	0	1	0	0	2	**3**	**1**
7	0	1	1	0	2	1	0	1	**2**	**1**
8	2	4	0	1	1	1	5	4	**1**	**-3**
9	0	1	0	2	1	0	1	1	**1**	**0**
10	10	0	1	4	3	0	3	2	**2**	**0**
11	1	10	11	13	13	11	6	12	**11**	**-1**
12	0	3	0	2	2	1	4	0	**2**	**2**
Total	**40**	**39**	**24**	**28**	**37**	**31**	**34**	**34**	**36**	**2**

- Consistent with last year, most cyclists using this intersection were adults (94 per cent, up from 88 per cent in 2014).
- The share of cyclists at this site wearing a helmet has increased – up from 53 per cent in 2014 to 72 per cent this year.
- Most of the cyclists at this site (81 per cent) were male.
- Just over half of the riders at this site were using the road (58 per cent, stable from last year).

Table 5.4: Evening Cyclist Characteristics

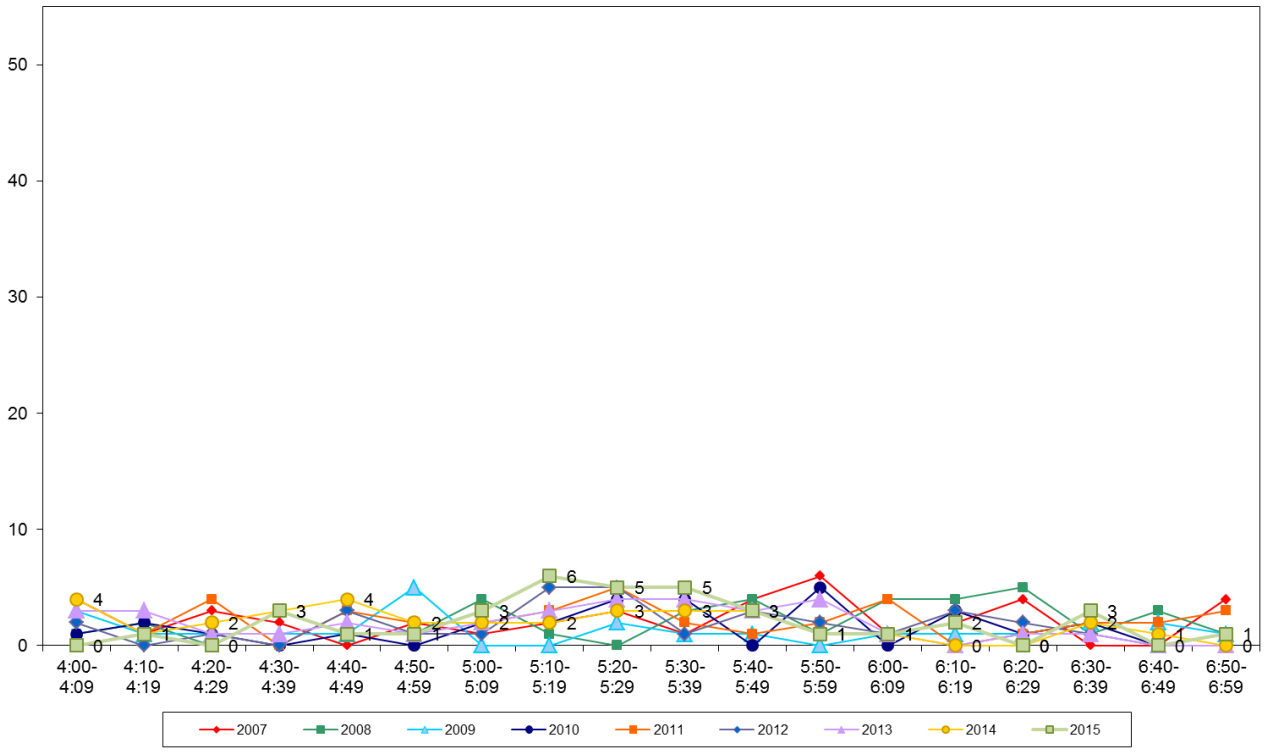
Great South Road/Taka Street 2007 – 2015 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	Change 14-15
Cyclist Type										
Adult	77	77	83	86	84	87	82	88	**94**	**6**
School child	23	23	17	14	16	13	18	12	**6**	**-6**
Helmet Wearing										
Helmet on head	65	74	83	75	62	84	71	53	**72**	**19**
No helmet	35	26	17	25	38	16	29	47	**28**	**-19**
Gender										
Male	-	-	-	-	92	87	79	74	**81**	**7**
Female	-	-	-	-	8	10	21	23	**19**	**-4**
Can't tell	-	-	-	-	0	3	0	3	**0**	**-3**
Where Riding										
Road	60	59	75	71	49	61	56	56	**58**	**2**
Footpath	40	41	25	29	51	39	44	44	**42**	**-2**
Base:	***40***	***39***	***24***	***28***	***37***	***31***	***34***	***34***	***36***	

- The volume of cycle movements was relatively low over the entire evening shift. Less than half of the cyclists recorded (16 out of 36) passed through the site between 5:10pm and 5:39pm.

Figure 5.3: Evening Peak Cyclist Frequency

Great South Road/Taka Street 2007 – 2015 (n)



6. SCHOOL BIKE SHED COUNT

6.1 Cycle Count Background Information

- A total of 23 schools in the Manurewa-Papakura ward participated in the school bike shed count. Of the schools that responded to the survey, most had no policies that restrict students cycling to school[9].
- The majority of schools surveyed did not report any events or issues that may affect the cycle counts[10].
- The designated count day was Tuesday 3rd of March 2015[11].

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

6.2 Cycle Count Key Points

- Among the surveyed schools, of those eligible to cycle to school, on average, two per cent of students are cycling to their schools. This share is up from one per cent in 2014.
- Hingaia School reported the highest share of cyclists – 10 per cent of all eligible students currently cycling to school.
- In total, n=168 students from the responding schools were reported to be cycling to school.
- Of the 23 schools that responded, 9 (39 per cent) had no students cycling to school.

[9] The following schools have policies surrounding cycling to school:
- Drury School *"Only Years 5-8 may cycle to school"*
- Hingaia Peninsula School *"We have a procedure from Years 0-4 accompanied by an adult, Years 5-8 can ride alone"*
- Papakura Normal School *"We recommend students under 10 years do not ride unless accompanied by a parent"*
- Redhill School *" Students must be Year 6 or over to ride to school"*
- St Anne's School (Manurewa) *"Only students 10 years of age or older can ride to school. Written parental and principal permission is required. A helmet must be worn"*
- St Mary's Catholic School (Papakura) *"Year 5 and older only, unless accompanied by a parent or caregiver"*
- Wiri Central School *"Students are not allowed to cycle to school due to security reasons of bikes being stolen"*

[10] The following school reported events or issues that had an effect on the cycle count:
- Te Kura Akonga O Manuwera *"Can be up to 5 students with bikes. We have 3 absent and the other two were dropped off in a vehicle."*

[11] The following schools conducted their counts on alternative days:
- ACG Strathallan College – 30th March 2015
- Conifer Grove School – 5th March 2015
- Destiny School – 6th March 2015
- Drury Christian School – 6th March 2015
- Edmund Hillary School – 27th February 2015
- Kereru Park Campus – 4th March 2015
- Redhill School – 4th March 2015
- Rosehill College –19th March 2015
- Te Wharekura O Manurewa – 5th March 2015
- Wiri Central School – 19th March 2015

- Of the 21 schools that participated in the count in both 2014 and 2015, 6 (29 per cent) reported an increase in the share of students cycling. The most notable increase was at St Mary's School (Papakura), up from 2 per cent in 2014 to 6 per cent this year.
- Of the 21 schools that participated in the count in both 2014 and 2015, 4 (19 per cent) reported a decrease in the share of students cycling, the most notable being Redhill Primary School (0 per cent, down from 4 per cent in 2014).

Table 6.1 shows the results of the 23 schools surveyed in the Manurewa-Papakura ward.

Table 6.1: Summary Table of School Bike Count

2007 – 2015 (n)

School Name	*School Type*	*School Roll Eligible to Cycle*	*No. of Cycles*	*Cyclists as share of those eligible*[12]								
				2015	*2014*	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Hingaia Peninsula School	Full Primary	157	16	**10%**	-	81%	29%	-	-	-	-	-
Conifer Grove School	Full Primary	550	47	**9%**	7%	6%	3%	4%	-	-	-	-
St Mary's Catholic School (Papakura)	Full Primary	113	7	**6%**	2%	1%	1%	2%	-	-	-	-
Rosehill Intermediate School	Intermediate	421	21	**5%**	6%	7%	6%	6%	6%	6%	-	-
Papakura Normal Primary School	Full Primary	285	11	**4%**	4%	3%	3%	2%	-	-	-	-
ACG Strathallan	Composite	1023	23	**2%**	2%	2%	1%	-	-	-	-	-
Greenmeadows Intermediate School	Intermediate	367	9	**2%**	1%	2%	3%	4%	2%	0%	5%	3%
Rosehill College	Secondary	1800	19	**1%**	1%	1%	2%	1%	1%	1%	1%	<1%
Drury School	Full Primary	195	2	**1%**	2%	1%	2%	4%	-	-	-	-
Papakura High School	Secondary	696	7	**1%**	1%	<1%	1%	<1%	1%	0%	<1%	<1%
Destiny School	Composite	192	1	**1%**	0%	0%	0%	0%	-	-	-	-
Alfriston College	Secondary	1487	7	**<1%**	0%	1%	1%	1%	1%	1%	2%	-
James Cook High School	Secondary	1250	5	**<1%**	<1%	<1%	<1%	-	-	-	-	-
Manurewa High School	Secondary	2019	2	**<1%**	0%	<1%	0%	<1%	1%	0%	1%	2%
Alfriston School	Full Primary	289	0	**0%**	<1%	0%	0%	-	-	-	-	-
Drury Christian School	Composite	30	0	**0%**	0%	0%	0%	-	-	-	-	-
Edmund Hillary School	Full Primary	130	0	**0%**	0%	0%	0%	0%	-	-	-	-
Kereru Park Campus	Full Primary	105	0	**0%**	-	3%	0%	0%	-	-	-	-
Redhill Primary School	Full Primary	77	0	**0%**	4%	5%	<1%	<1%	-	-	-	-

[12] 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.

School Name	School Type	School Roll Eligible to Cycle	No. of Cycles	Cyclists as share of those eligible[12]								
				2015	2014	2013	2012	2011	2010	2009	2008	2007
St Anne's Catholic School	Full Primary	130	0	**0%**	0%	<1%	0%	0%	-	-	-	-
Te Kura Akonga O Manuwera	Full Primary	58	0	**0%**	0%	-	-	-	-	-	-	-
Te Wharekura O Manurewa	Secondary	28	0	**0%**	0%	-	-	-	-	-	-	-
Wiri Central School	Full Primary	0	0	**0%**	0%	0%	-	0%	-	-	-	-
Total		**11035**	**168**	**2%**	**1%**	**2%**	**1%**	**1%**	**-**	**-**	**-**	**-**

Table 6.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate and full primary schools (4 per cent each).

Table 6.2: Summary Table of School Bike Count by School Type

2007 – 2015 (%)

Year Levels	*Number of Schools Responded in 2015*	*Cyclists as share of those eligible*									
		2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	**Change 14-15**
Intermediate	2	3%	5%	3%	3%	4%	3%	3%	3%	**4%**	**1%**
Full Primary	12	-	-	-	-	2%	1%	3%	3%	**4%**	**1%**
Composite	3	4%	0%	2%	0%	0%	3%	2%	1%	**2%**	**1%**
Secondary	6	1%	1%	<1%	1%	1%	1%	1%	1%	**1%**	**0%**
Intermediate/Secondary	-	-	-	-	-	-	-	-	-	**-**	**-**

6.3 Scooter Count Background Information

- A total of 20 schools in the Manurewa-Papakura ward participated in the school bike shed scooter count. Of the schools that responded to the survey, most had no policies that restrict students scooting to school[13].
- No schools reported any events or issues that may affect the cycle counts.
- The designated count day was Tuesday 3rd of March 2015[14].

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

6.4 Scooter Count Key Points

- Among the surveyed schools, of those eligible to scooter, on average, one per cent of students are scooting to their schools, unchanged from 2014.
- Hingaia Peninsula School reported the highest share of scooters – 18 per cent of all eligible students currently scooting to school.
- In total, n=87 students from the responding schools were reported to be scooting to school.
- Of the 20 schools that responded, 13 (65 per cent) had no students scooting to school.
- Of the 18 schools that participated in the count in both 2014 and 2015, five (28 per cent) reported an increase in the share of students scooting. The most notable increase was at St Papakura Normal School, up from 5 per cent in 2014 to 9 per cent.
- None of the schools that participated in the count in 2014 reported a decrease in the share of students scooting to school in 2015.

[13] The following schools have policies surrounding scooting to school:
- Hingaia Peninsula School *"We have a procedure from Years 0-4 accompanied by an adult, years 5-8 can ride alone"*
- Papakura Normal School *"We recommend students under 10 years do not ride unless accompanied by a parent"*
- Rosehill School *" We do not allow students to ride scooters to school – only bikes"*
- Wiri Central School *"Students are not allowed to scooter to school due to security reasons of scooters being stolen"*

[14] The following schools conducted their counts on alternative days:
- ACG Strathallan College – 30th March 2015
- Conifer Grove School – 5th March 2015
- Destiny School – 6th March 2015
- Drury Christian School – 6th March 2015
- Edmund Hillary School – 27th February 2015
- Kereru Park Campus – 4th March 2015
- Redhill School – 4th March 2015
- Rosehill College –19th March 2015
- Te Wharekura O Manurewa – 5th March 2015
- Wiri Central School – 19th March 2015

Table 6.3 shows the results of the 20 schools surveyed in the Manurewa-Papakura ward.

Table 6.3: Summary Table of School Scooter Count

2014 – 2015 (n)

School Name	*School Type*	*School Roll Eligible To Scooter*	*No. of Scooters Counted*	*Scooters as share of those eligible*[15]	
				2015	*2014*
Hingaia Peninsula School	Full Primary	157	29	**18%**	-
Papakura Normal School	Full Primary	285	26	**9%**	5%
Conifer Grove School	Full Primary	550	24	**4%**	4%
Greenmeadows Intermediate	Intermediate	367	3	**1%**	<1%
Rosehill College	Secondary	1800	3	**<1%**	0%
ACG Strathallan	Composite	1023	1	**<1%**	0%
Alfriston College	Secondary	1487	1	**<1%**	0%
Alfriston School	Full Primary	289	0	**0%**	0%
Destiny School	Composite	192	0	**0%**	0%
Drury Christian School	Composite	30	0	**0%**	0%
Edmund Hillary School	Full Primary	130	0	**0%**	0%
James Cook High School	Secondary	1250	0	**0%**	0%
Kereru Park Campus	Full Primary	105	0	**0%**	-
Manurewa High School	Secondary	2019	0	**0%**	0%
Red Hill School	Full Primary	192	0	**0%**	0%
St Anne's Catholic School	Full Primary	560	0	**0%**	0%
St Mary's Catholic School, Papakura	Full Primary	266	0	**0%**	0%
Te Wharekura o Manurewa	Composite	28	0	**0%**	0%
Rosehill Intermediate	Intermediate	0	0	**0%**	0%
Wiri Central School	Full Primary	0	0	**0%**	0%
Total		**10318**	**87**	**1%**	**1%**

[15] This share is calculated by averaging the number of scooters counted over the total number of students eligible to scooter. The figure obtained is rounded to zero decimal places.

Table 6.4 illustrates the rates of scooting to school at different school levels. Rates of scooting to school are highest for the full primary schools (3 per cent, up from 2 per cent in 2014).

Table 6.4: Summary Table of School Scooter Count by School Type

2014 – 2015 (%)

School Type	*Number of Schools Responded in 2015 (n)*	*Scooter riders as share of those eligible*		Change
		2014	*2015*	14-15
Full Primary	10	**2%**	**3%**	**1%**
Intermediate	2	**1%**	**1%**	**0%**
Composite	4	**0%**	**<1%**	**<1%**
Secondary	4	**0%**	**<1%**	**<1%**
Intermediate/Secondary	-	**-**	**-**	**-**

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[16] 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)[17], 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.

[16] Annual average daily traffic
[17] 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%