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Research Report Prepared for
Auckland Transport

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2014 Auckland Region Manual Cycle Monitor

- Manukau Ward -

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1.1 Introduction

The Need For Reliable Cycle Trip Data

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

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:

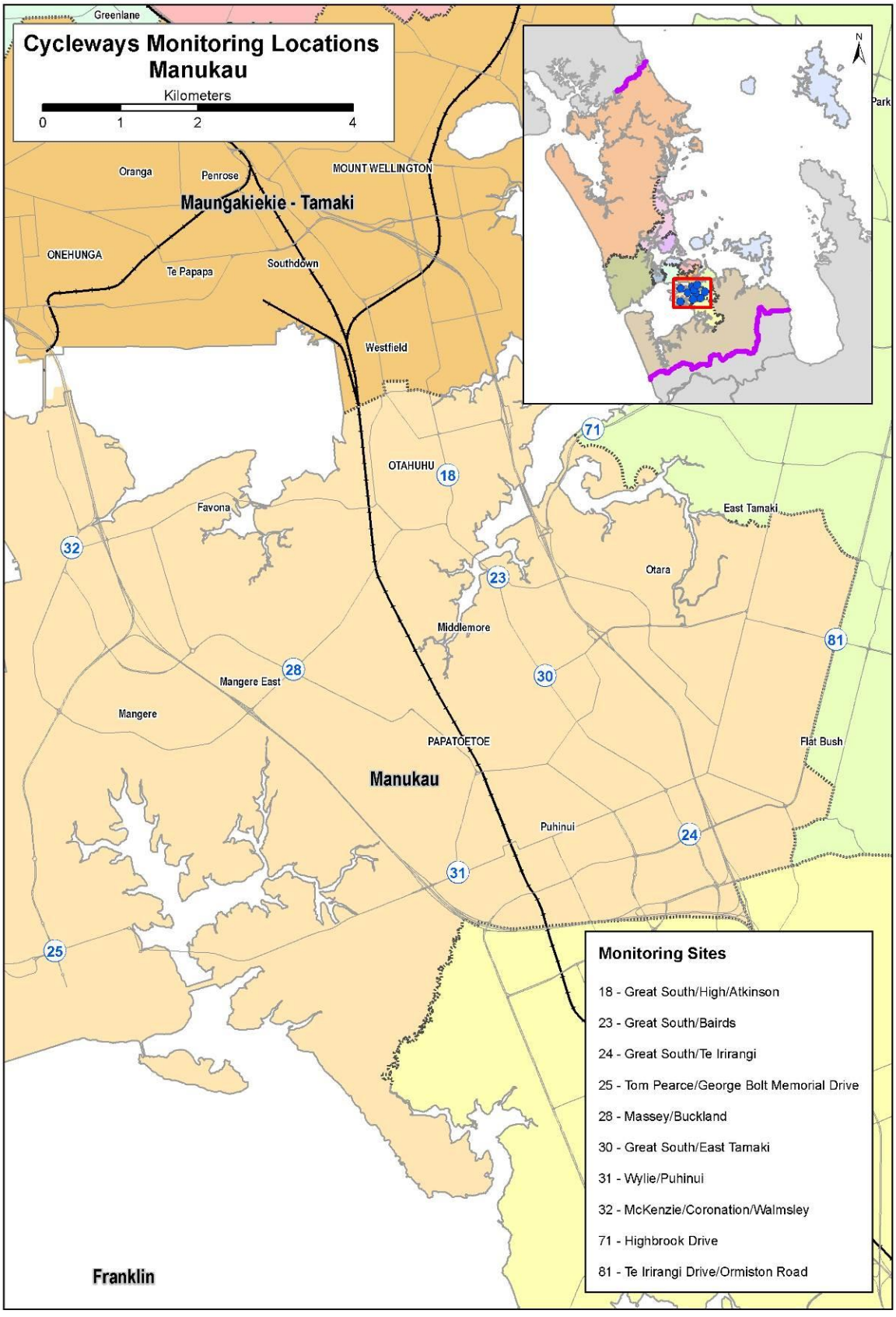
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 10 sites in the Manukau 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 10 pre-determined sites in the Manukau 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 Manukau ward. Note that one site (Te Irirangi Drive/Ormiston Road in Flat Bush - Site 81) lies on the border with the Howick ward. Consequently results for this site have been included in both ward reports.

Figure 1.1: 2014 Cycle Monitoring Locations in Manukau 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 4th of March and be conducted on the first three fine days of the 4th, 5th, 6th, 11th, 12th, or 13th of March.

Counts were conducted on the following days:

• Tuesday 4th March	Albany, North Shore, Waitakere
• Wednesday 5th March	Howick, Franklin, Manukau, Waitemata & Gulf
• Thursday 6th March	Whau, Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki

Note: Counts in the morning and evening peaks took place on the same day for each site.

Weather and Daylight Conditions

To reduce the impact of weather conditions on cycle numbers, manual counts were conducted on predominantly fine days. In addition, if it rained during the morning peak, monitoring in the evening peak on that same day was also postponed, irrespective of the weather (as it can be assumed that cyclists' travel behaviour in the evening peak will have been influenced by decisions they made earlier in the day – for example, the decision to leave their bike at home and use public transport instead). Care was taken to ensure that all manual counts were conducted prior to the conclusion of daylight saving.

The weather on the three count days in 2014 was as follows:

Tuesday 4th March

- Sunrise: 7:09am; Sunset: 7:56pm.
- Highest temperature: 20.0 degrees Celsius.
- Mostly fine weather with the majority of sites experiencing drizzle in the morning and cloud in the evening.

Wednesday 5th March

- Sunrise: 7:10am; Sunset: 7:55pm.
- Highest temperature: 20.0 degrees Celsius.
- Cloudy and windy with occasional light drizzle for some sites during the morning shift. Mostly fine weather with clear sky in the evening with light winds for some sites.

Thursday 6th March

- Sunrise: 7:11am; Sunset: 7:54pm.
- Highest temperature: 22.0 degrees Celsius.
- Mostly fine weather in the morning and evening shifts.

Conducting The Manual Counts

Scoping Visit

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

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

Each site was assigned to a surveyor, who was issued with a map that showed the range of movements a cyclist could make through that site. In addition to the map, surveyors were issued with a clipboard, a safety vest and a letter identifying them as a member of a Gravitas research team[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, in 2014 a count of the number of students who use (non-motorised) scooters to get to and from school was also included in the school bike shed count.

Methodology

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

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

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

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=306) 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 4th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).

4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2014, 264 responses were received, a response rate of 88 per cent. (This compares with 92 per cent in 2013).

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

This summary contains the aggregated results of the ten sites surveyed in the Manukau 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 Manukau 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 eleven of this report.

Note: Surveying in the Manukau ward was undertaken on Wednesday 5th of March, 2013. Sunrise was at 7:10am and sunset was at 7:55pm. The highest temperature was 20.0 degrees Celsius.

1.4 Morning Peak

Environmental Conditions

- All monitored sites had experienced good weather throughout the morning shift, although Great South Road/High Street/Atkinson/Park Avenue (Site 18) recorded high winds over the duration of the monitoring period.
- There were no roadwork or accidents observed during the morning monitoring period.

Key Points

- Across the seven sites monitored since 2007, the number of cyclist movements has decreased (200 this year, compared with 264 in 2013). This represents a 24 per cent decrease.
- A total of 248 cyclist movements were recorded across the ten sites in the morning peak period (between 6:30am and 9:00am) in 2014, a 23 per cent decrease compared to last year.
- Ten per cent (n=26) of the morning cycle movements were made by pelotons. This compares with three per cent (n=11) travelling as pelotons in 2013.
- The average volume of morning cyclists across the seven sites monitored since 2007 is 29 cycle movements (down from 38 cycle movements in 2013). The average volume of morning cyclists across all ten sites is 25, down from 32 last year.
- The busiest site in the morning peak was the intersection of McKenzie/Coronation/Walmsey Road (50 movements, up from 48 movements last year), whereas the site at Tom Pearce/George Bolt Memorial Drive had the lowest level of morning cyclist traffic (13 cycle movements).
- Six sites have recorded increases this year compared to 2013. The most noticeable increases occurred at:
  - Tom Pearce/George Bolt memorial Drive – up 225 per cent;
  - Te Irirangi Drive/Ormiston Road – up 52 per cent; and
  - Highbrook Drive – up 17 per cent.
- Four sites have recorded decreases this year compared to 2013. These decreases have occurred at:
  - Great South Road/Bairds Road – down 50 per cent;
  - Great South Road/East Tamakai Road – down 39 per cent;
  - Great South Road/Te Irirangi Drive/Cavendish Drive – down 38 per cent; and
  - Great South Road/High Street/Atkinson Avenue – down 26 per cent.

Table 1.1: Summary Of Morning Cyclist Movements

2007 – 2014 (n)

Site	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14	Change 07-14
32	McKenzie/Coronation/Walmsley Road	28	21	22	38	32	19	48	**50**	**4%**	**79%**
30	Great South/East Tamaki Road	36	24	33	25	44	40	49	**30**	**-39%**	**-17%**
24	Great South Road/Te Irirangi Dr/ Cavendish Dr	34	25	19	28	41	28	42	**26**	**-38%**	**-24%**
28	Massey/Buckland Road	12	11	19	16	18	14	24	**26**	**8%**	**117%**
23	Great South/Bairds Road	32	27	29	34	40	39	50	**25**	**-50%**	**-22%**
18	Great South Road/High Street/ Atkinson Avenue	38	30	21	25	20	34	34	**25**	**-26%**	**-34%**
31	Wyllie Avenue/Puhinui Road	18	8	12	23	13	8	17	**18**	**6%**	**0%**
	Average per site (for 7 sites since 2007)	**28**	**21**	**22**	**27**	**30**	**26**	**38**	**29**	**-24%**	**4%**
	Total (for 7 sites since 2007)	**194**	**146**	**155**	**189**	**208**	**182**	**264**	**200**	**-24%**	**3%**
71	Highbrook Drive	-	13	20	27	23	21	24	**20**	**17%**	**-**
81	Te Irirangi Drive/Ormiston Road	-	-	13	25	24	18	31	**15**	**52%**	**-**
25	Tom Pearce/George Bolt Memorial Drive	-	-	6	5	15	3	4	**13**	**225%**	**-**
	Average per site (all sites)	**-**	**20**	**19**	**25**	**27**	**22**	**32**	**25**	**-22%**	**-**
	Total (all sites)	**-**	**159**	**194**	**246**	**270**	**224**	**323**	**248**	**-23%**	**-**

- As shown in Table 1.2 below, morning cyclist characteristics this year were similar to those reported in 2013. Overall, four in five cyclists were adults (92 per cent, up from 89 per cent last year).
- The majority of cyclists were wearing a helmet (79 per cent, stable from 78 per cent in 2013).
- Most of the morning cyclists were male (94 per cent).
- Fifty-seven per cent of cyclists were riding on the road, up from 52 per cent in 2013.

Table 1.2: Summary of Morning Cyclist Characteristics

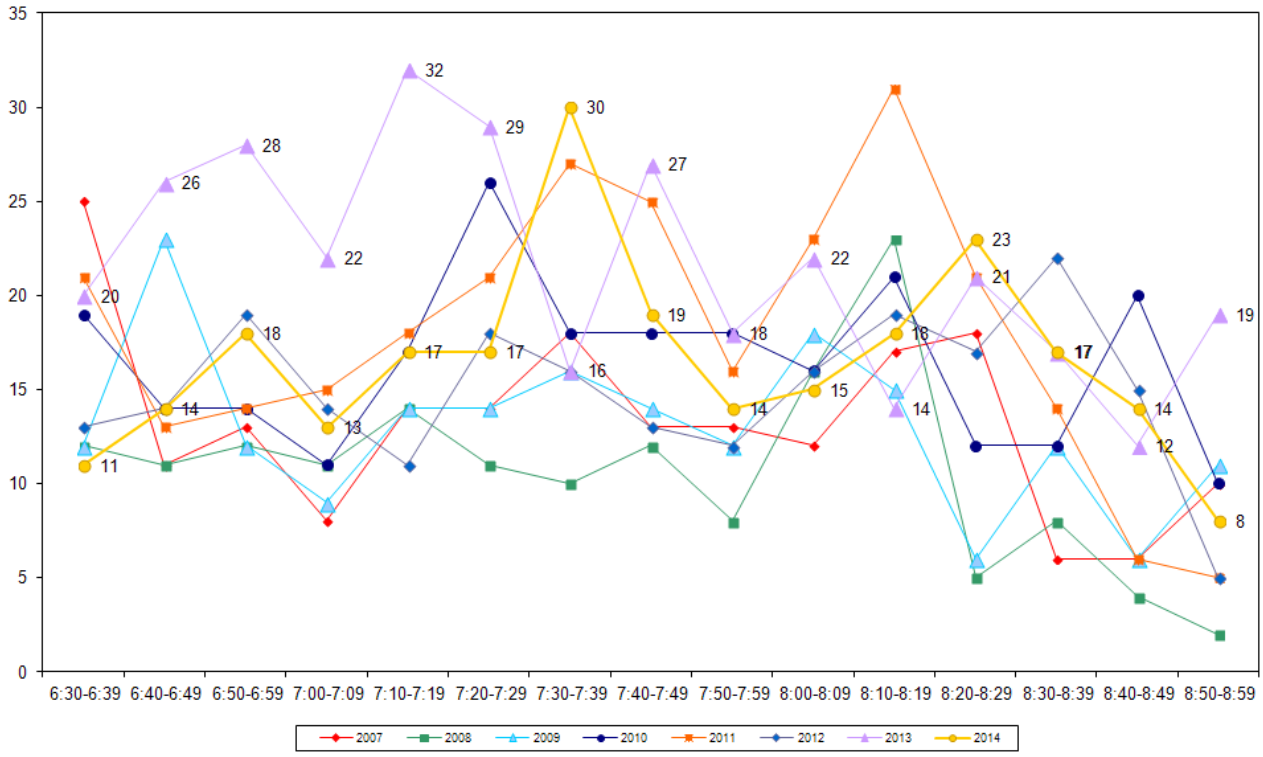
2007 – 2014 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type									
Adult	86	86	88	90	87	83	89	**92**	**3**
School child	14	14	12	10	13	17	11	**8**	**-3**
Helmet Wearing									
Helmet on head	85	79	82	85	87	78	78	**79**	**1**
No helmet	15	21	18	15	13	22	22	**21**	**-1**
Gender									
Male	-	-	-	-	85	89	86	**94**	**8**
Female	-	-	-	-	12	8	11	**4**	**-7**
Can't tell	-	-	-	-	3	3	3	**2**	**-1**
Where Riding									
Road	73	56	72	64	66	59	52	**57**	**5**
Footpath	27	44	20	29	29	30	40	**35**	**-5**
Off-road cycleway	0	0	8	7	5	11	8	**8**	**0**
Base:	***194***	***159***	***194***	***246***	***270***	***224***	***323***	***248***	

- Figure 1.2 illustrates the total number of cyclists in the morning by time of movement. This year, there has been fluctuations in volumes throughout the monitoring period, several peaks and troughs in the traffic flow clearly evident. Cycle traffic peaked between 7:30am and 7:39am (30 movements), then decreased for 50 minutes before a second peak occurred between 8:20am to 8:29am (23 movements). Cycle volumes at the beginning of the morning peak were noticeably lower than last year while volumes in the latter part of the period were more consistent with previous years.

Figure 1.2: Total Cyclist Frequency – Morning Peak

2007 – 2014 (n)



1.5 Evening Peak

Environmental Conditions

- The weather was fine for most sites throughout the evening shift. Some sites recorded strong wind at the beginning of the monitoring period, which gradually reduced during the evening.
- There were no road works or accidents at any sites during the evening monitoring period.

Key Points

- Across the seven sites monitored since 2007, the number of cycle movements has decreased by 30 per cent – from 376 last year to 265 this year.
- A total of 360 cyclist movements were recorded across the ten sites in the evening peak period (between 4:00pm and 7:00pm) in 2014, down from 482 last year.
- Eleven per cent (n=40) of the total cycle movements during the evening peak were observed cycling as groups. This compares with 15 per cent (n=73) in 2013.
- The average volume of evening cyclists across the seven sites monitored since 2007 is 38 cycle movements. This compares with an average of 54 movements in 2013. The average volume of evening cyclists across all 10 sites is 36, down from 48 movements last year.
- Great South Road/Te Irirangi Drive/Cavendish Drive has been the busiest in terms of the evening cyclists' activity (46 cycle movements). In contrast, Tom Pearce/George Bolt Memorial Drive had the lowest level of evening cyclist traffic (20 cycle movements).
- Out of the ten sites, all except one site recorded a decrease this year compared to 2013. The most notable of these decreases were:

- Wyllie Avenue/Puhinui Road – down 46 per cent.
- Great South Road/Te Irirangi Drive/Cavendish Drive – down 40 per cent;
- Great South Road/Bairds Road – down 34 per cent; and
- Tom Pearce/George Bolt Memorial Drive – down 31 per cent.

- The only site which recorded an increase was the Highbrook Drive site, up by 26 per cent (6 movements) compared to last year.

Table 1.3: Summary of Evening Cyclist Movements

2007 – 2014 (n)

Site	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14	Change 07-14
24	Great South Road/Te Irirangi Dr/ Cavendish Dr	39	26	22	44	53	50	77	**46**	**-40%**	**18%**
30	Great South/East Tamaki Road	37	27	30	40	45	46	47	**42**	**-11%**	**14%**
31	Wyllie Avenue/Puhinui Road	20	25	23	34	62	39	78	**42**	**-46%**	**110%**
18	Great South Road/High Street/ Atkinson Avenue	46	30	28	36	51	41	45	**36**	**-20%**	**-22%**
23	Great South/Bairds Road	36	29	28	37	49	42	53	**35**	**-34%**	**-3%**
28	Massey/Buckland Road	31	20	20	29	35	34	34	**32**	**-6%**	**-3%**
32	McKenzie/Coronation/Walmsley Road	42	36	30	49	61	29	42	**32**	**-24%**	**-24%**
	Average per site (for 7 sites since 2007)	**36**	**28**	**26**	**38**	**51**	**40**	**54**	**38**	**-30%**	**6%**
	Total (for 7 sites since 2007)	**251**	**193**	**181**	**269**	**356**	**281**	**376**	**265**	**-30%**	**6%**
81	Te Irirangi Drive/Ormiston Road	-	-	20	41	32	32	54	**46**	**-15%**	**-**
71	Highbrook Drive	-	16	18	13	30	29	23	**29**	**26%**	**-**
25	Tom Pearce/George Bolt Memorial Drive	-	-	21	7	39	12	29	**20**	**-31%**	**-**
	Average per site (all sites)	**-**	**26**	**24**	**33**	**46**	**35**	**48**	**36**	**-25%**	**-**
	Total (all sites)	**-**	**209**	**240**	**330**	**457**	**354**	**482**	**360**	**-25%**	**-**

- Evening cyclist characteristics this year were mostly consistent with 2013. In particular, the majority of evening cyclists were adults (93 per cent, up from 90 per cent last year).
- Helmet-wearing was common this year in the evening peak (81 per cent, stable from 80 per cent in 2013).
- Most cyclists were male (89 per cent, stable from 2013).
- On average, three-in-five evening cyclists were riding on the road (59 per cent, down from 65 per cent last year).

Table 1.4: Summary of Evening Cyclist Characteristics

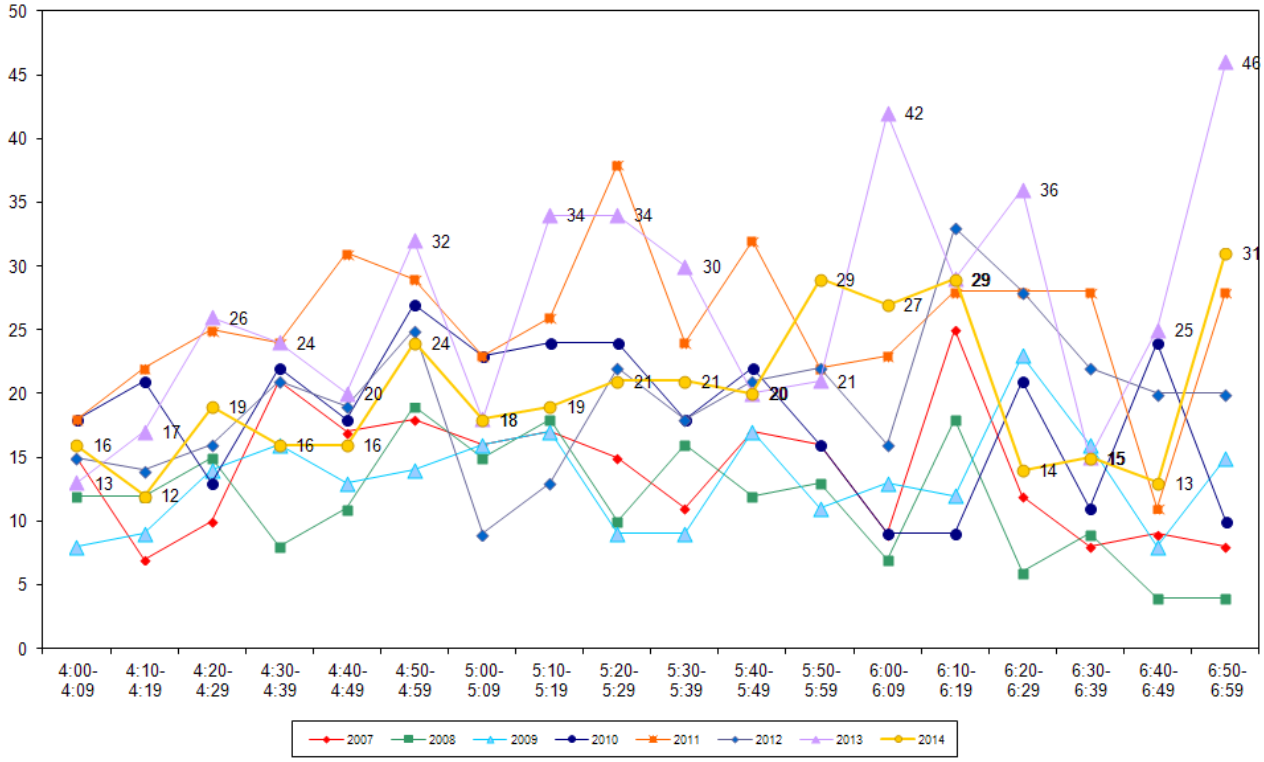
2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	83	87	88	91	90	85	90	**93**	**3**
School child	17	13	12	9	10	15	10	**7**	**-3**
Helmet Wearing									
Helmet on head	78	74	78	77	79	70	80	**81**	**1**
No helmet	22	26	22	23	21	30	20	**18**	**-2**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Gender									
Male	-	-	-	-	83	92	90	**89**	**-1**
Female	-	-	-	-	13	8	9	**10**	**1**
Can't tell	-	-	-	-	4	0	1	**1**	**0**
Where Riding									
Road	64	64	68	66	64	63	65	**59**	**-6**
Footpath	36	36	27	32	33	28	30	**34**	**4**
Off-road cycleway	0	0	5	2	3	9	5	**6**	**1**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Base:	***251***	***209***	***240***	***330***	***457***	***354***	***483***	***360***	

- Cyclist volumes by time of movement in the evening are illustrated in Figure 1.3. Similar to the observations in the morning, evening cyclist volumes fluctuated throughout the monitoring period. Overall, the cycle traffic followed an increasing trend to reach a peak at the end of the monitoring period with 31 movements. High cycle volumes were also recorded within a half an hour window between 5:50pm and 6:19pm with 85 cyclists observed over the 30 minute interval.

Figure 1.3: Total Cyclist Frequency – Evening Peak

2007 – 2014 (n)



1.6 Aggregate Total

- Across all ten sites, a total of 608 cyclist movements were recorded (down from 806 movements in 2013; this equates to a 25 per cent decrease). Ten per cent (n=66) of the total cycle movements were observed cycling as pelotons. This compares with one per cent in 2013.
- The busiest site was the intersection of McKenzie/Coronation/Walmsley Road with a total of 82 movements (down from 90 movements in 2013), while the Tom Pearce/George Bolt Memorial Drive intersection had the lowest volumes (33 movements, unchanged from 2013).
- Only one site recorded an increase in total cyclist numbers this year compared with 2013. Cycle volumes at Highbrook Drive have increased by four per cent over the last 12 months.
- All other sites (excluding Tom Pearce Drive/George Bolt Memorial Drive which recorded no change this year) recorded decreases. The most notable decreases in traffic volume occurred at:
  - Great South Road/Bairds Road – down 42 per cent;
  - Great South Road/Te Irirangi Drive/Cavendish Drive – down 39 per cent; and
  - Wyllie Avenue/Puhinui Road – down 37 per cent.

Table 1.5: Summary of Total Cyclist Movements

2007 – 2014 (n)

Site	*Locations*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14	Change 07-14
32	McKenzie/Coronation/Walmsley Road	70	57	52	87	93	48	90	**82**	**-9%**	**17%**
30	Great South/East Tamaki Road	73	51	63	65	89	86	97	**72**	**-26%**	**-1%**
24	Great South Road/Te Irirangi Dr/ Cavendish Dr	73	51	41	72	94	78	119	**72**	**-39%**	**-1%**
18	Great South Road/High Street/ Atkinson Avenue	84	60	49	61	71	75	79	**61**	**-23%**	**-27%**
23	Great South/Bairds Road	68	56	57	71	89	81	103	**60**	**-42%**	**-12%**
31	Wyllie Avenue/Puhinui Road	38	33	35	57	75	47	95	**60**	**-37%**	**58%**
28	Massey/Buckland Road	43	31	39	45	53	48	58	**58**	**0%**	**35%**
	Average per site (for 7 sites since 2007)	**64**	**48**	**48**	**65**	**81**	**66**	**92**	**66**	**-28%**	**3%**
	Total (for 7 sites since 2007)	**449**	**339**	**336**	**458**	**564**	**463**	**641**	**465**	**-27%**	**4%**
81	Te Irirangi Drive/Ormiston Road	-	-	33	66	56	50	85	**61**	**-28%**	**-**
71	Highbrook Drive	-	29	38	40	53	50	47	**49**	**4%**	**-**
25	Tom Pearce Drive/George Bolt Memorial Drive	-	-	27	12	54	15	33	**33**	**0%**	**-**
	Average per site (all sites)	**-**	**46**	**43**	**58**	**73**	**58**	**81**	**61**	**-25%**	**-**
	Total (all sites)	**-**	**368**	**434**	**576**	**727**	**578**	**806**	**608**	**-25%**	**-**

- The overall cyclist characteristics are illustrated in Table 1.6. In total, 92 per cent of cyclists were adults, up from 90 per cent in 2013.
- Most cyclists were wearing a helmet (80 per cent, stable from 79 per cent last year).
- Ninety-one per cent of the riders were male, up 3 percentage points from last year.
- Fifty-eight per cent of cyclists were riding on the road, stable from last year. The number of cyclists using the off-road cycleway and footpath has also remained stable.

Table 1.6: Summary of Total Cyclist Characteristics

2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	84	86	88	91	89	84	90	**92**	**2**
School child	16	14	12	9	11	16	10	**8**	**-2**
Helmet Wearing									
Helmet on head	81	76	79	81	82	73	79	**80**	**1**
No helmet	19	24	21	19	18	27	21	**19**	**-2**
Don't know	0	0	0	0	0	0	0	**1**	**1**
Gender									
Male	-	-	-	-	83	90	88	**91**	**3**
Female	-	-	-	-	12	8	10	**8**	**-2**
Can't tell	-	-	-	-	5	2	2	**1**	**-1**
Where Riding									
Road	68	60	70	65	65	61	60	**58**	**-2**
Footpath	32	40	23	31	31	29	34	**35**	**1**
Off-road cycleway	0	0	6	4	4	10	6	**7**	**1**
Base:	***449***	***368***	***434***	***576***	***727***	***578***	***806***	***608***	

1.7 Average Annual Daily Traffic (AADT) Estimate

AADT Estimate

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at McKenzie/Cornonation/Walmsley Road (121 daily movements, down by 8 per cent from last year) and the lowest is at the Tom Pearce/George Bolt Memorial Drive intersection (47 daily movements).
- Only one site has recorded an increase in total AADT estimates this year. Highbrook Drive experienced a four per cent increase in cycle movements over the last 12 months.
- The most significant changes relative to last year are at:
  - Great South Road/Bairds Road – down 43 per cent;
  - Great South Road/Te Irirangi Drive/Cavendish Drive – down 39 per cent; and
  - Wyllie Avenue/Puhinui Road – down 36 per cent.

Table 1.7: AADT Estimates Based on Morning and Evening Cyclist Movements

2007 – 2014 (n)

Site	*Locations*	*2007*	*2008*	*2009 AADT*	*2010*	*2011*	*2012*	*2013 AADT*	*2014 AADT*	Change	Change
32	McKenzie/Coronation/Walmsley Road	101	82	75	126	133	69	131	**121**	**-8%**	**20%**
30	Great South/East Tamaki Road	106	74	92	93	129	125	140	**104**	**-26%**	**-2%**
24	Great South Road/Te Irirangi Drive/Cavendish Drive	106	74	59	103	136	112	170	**103**	**-39%**	**-3%**
18	Great South Road/High Street/ Atkinson Avenue	121	87	71	88	101	108	114	**88**	**-23%**	**-27%**
23	Great South/Bairds Road	99	81	83	103	129	118	150	**86**	**-43%**	**-13%**
81	Te Irirangi Drive/Ormiston Road	-	-	47	95	81	72	122	**86**	**-30%**	**-**
31	Wyllie Avenue/Puhinui Road	55	47	50	82	105	66	133	**85**	**-36%**	**55%**
28	Massey/Buckland Road	61	44	57	64	76	68	84	**84**	**0**	**38%**
71	Highbrook Drive	-	42	55	59	77	72	68	**71**	**4%**	**-**
25	Tom Pearce Drive/George Bolt Memorial Drive	-	-	38	17	77	21	46	**47**	**-2%**	**-**

1.8 School Bike Shed Count Summary

Cycle Counts

- Among the surveyed schools, of those eligible to cycle, on average, less than one per cent of students are cycling to their schools (unchanged from 2013).
- Across the 33 schools that responded, 72 students were reported to cycle to school.
- This year, Mission Heights Junior College reported the highest share of cyclists – 4 per cent of all eligible students currently cycling. This is an increase from 0 per cent in 2013.
- Of the 33 schools that responded, 23 (70 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (1 per cent, unchanged from last year) and intermediate/secondary schools (1 per cent, stable from last year).

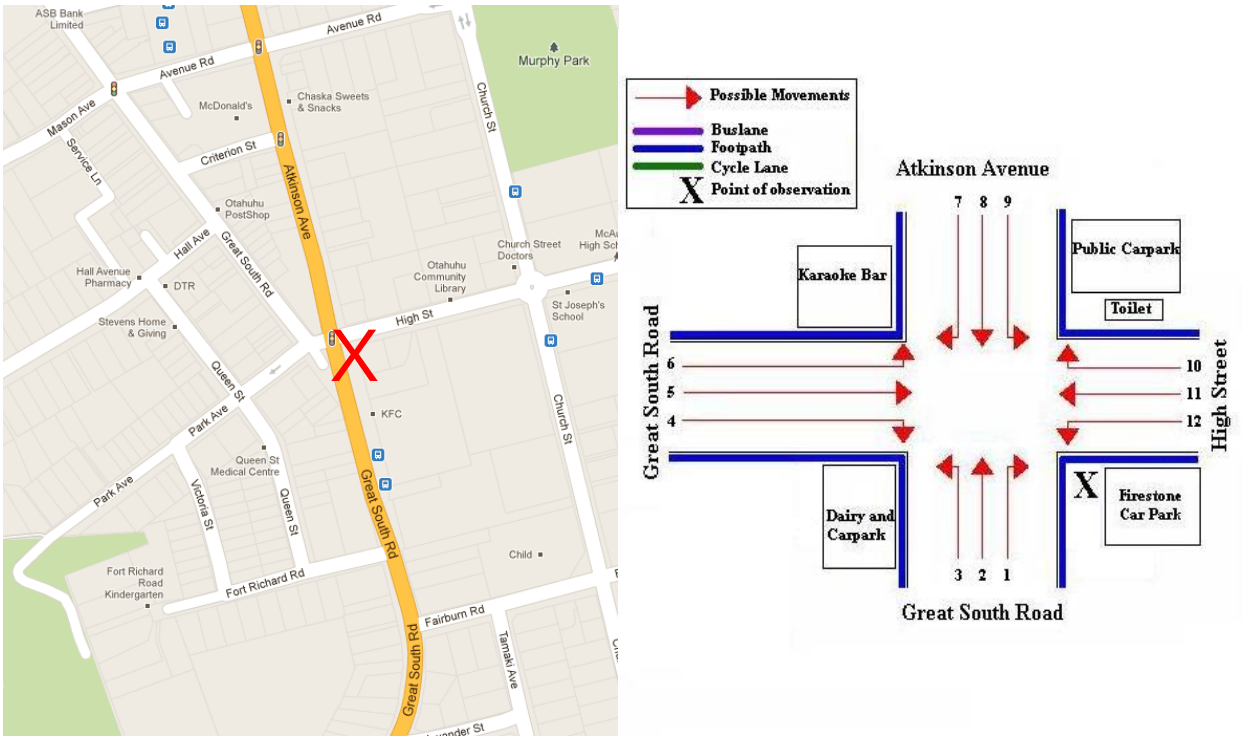
Scooter Counts

- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scootering to their schools.
- Mission Heights Junior College reported the highest share of scooters – 5 per cent of all eligible students currently scootering to school.
- In total, n=55 students from the responding schools were reported to be scootering to school.
- Of the 33 schools that responded, 28 (85 per cent) had no students scootering to school.

2. GREAT SOUTH ROAD/HIGH STREET/ATKINSON AVENUE, OTAHUHU (SITE 18)

Figure 2.1 shows the possible cyclist movements at this intersection.

Figure 2.1: Cycle Movements: Great South Road/High Street



2.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	38	46	84	121
2008	30	30	60	87
2009	21	28	49	71
2010	25	36	61	88
2011	20	51	71	101
2012	34	41	75	108
2013	34	45	79	114
2014	**25**	**36**	**61**	**88**

2.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning cyclist volumes at the Great South Road/High Street intersection have decreased to 25 movements (down 9 from last year).
- The most common movement was travelling along Great South Road in a north-westerly direction (Movement 3 = 9 cyclists).
- Across the 12 movements possible at this intersection, the most notable changes were at Movement 4 (down 7 from last year) and at Movement 3 (down 5 from last year).

Table 2.1: Morning Cyclist Movements

Great South Road/High Street 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	0	2	0	0	1	0	**1**	**1**
2	7	8	6	2	2	6	2	**2**	**0**
3	11	11	4	10	5	16	14	**9**	**-5**
4	7	7	3	6	9	6	10	**3**	**-7**
5	0	1	2	1	1	3	3	**3**	**0**
6	1	0	0	0	0	0	0	**0**	**0**
7	1	0	0	0	1	0	0	**0**	**0**
8	11	2	3	4	2	1	3	**2**	**-1**
9	0	0	1	0	0	0	0	**2**	**2**
10	0	0	0	1	0	0	0	**0**	**0**
11	0	1	0	1	0	1	1	**2**	**1**
12	0	0	0	0	0	0	1	**1**	**0**
Total	**38**	**30**	**21**	**25**	**20**	**34**	**34**	**25**	**-9**

- Over the morning peak in 2014, almost all cyclists were adults (96 per cent, stable from 97 per cent in 2013).
- The majority of the cyclists were wearing a helmet (64 per cent, down from 85 per cent last year).
- All cyclists were recorded as male (up 9 percentage points from 2013).
- Fifty-six per cent of cyclists were riding on the footpath, up from 32 per cent the previous measure.

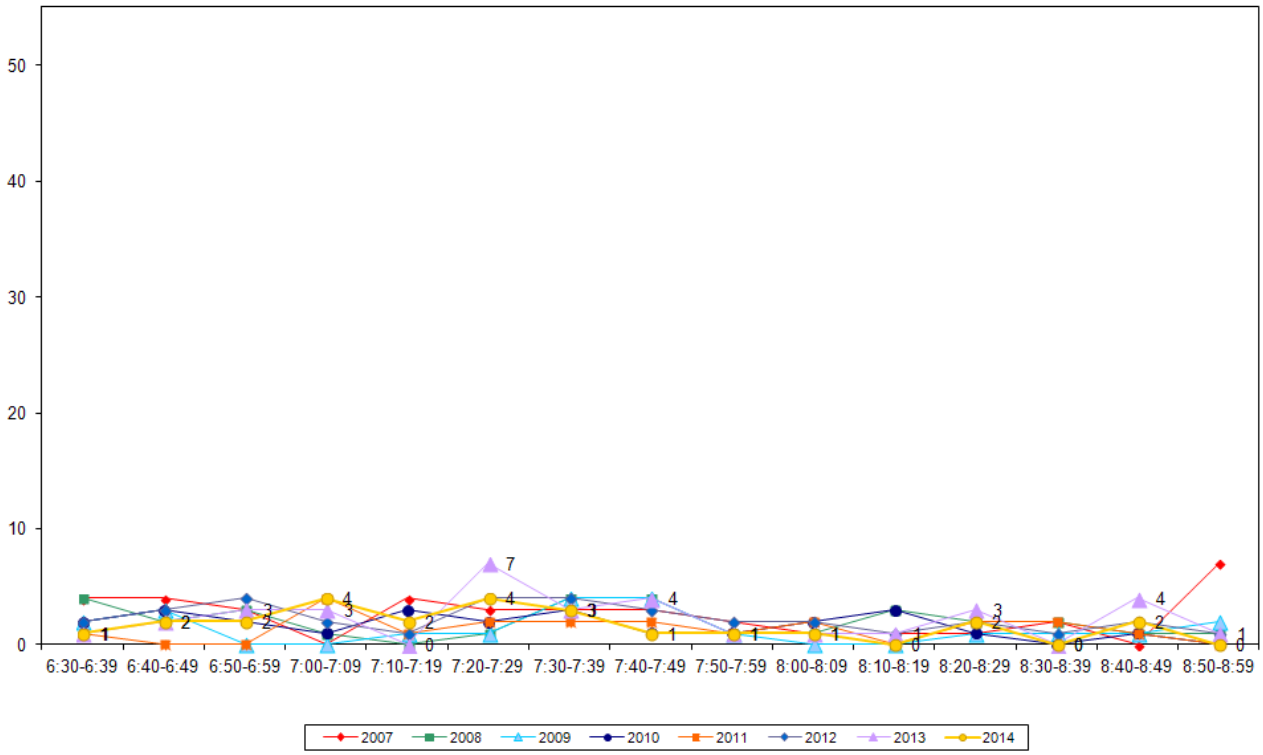
Table 2.2: Morning Cyclist Characteristics

Great South Road/High Street 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	97	100	95	96	85	100	97	**96**	**-1**
School child	3	0	5	4	15	0	3	**4**	**1**
Helmet Wearing									
Helmet on head	89	77	95	92	95	82	85	**64**	**-21**
No helmet	11	23	5	8	5	18	15	**36**	**21**
Gender									
Male	-	-	-	-	100	94	91	**100**	**9**
Female	-	-	-	-	0	3	9	**0**	**-9**
Can't tell	-	-	-	-	0	3	0	**0**	**0**
Where Riding									
Road	89	70	86	76	75	71	68	**44**	**-24**
Footpath	11	30	14	24	25	29	32	**56**	**24**
Base:	***38***	***30***	***21***	***25***	***20***	***34***	***34***	***25***	

- The volume of morning cycle movements was low during the entire morning shift. There was no more than four cyclists recorded over any ten minute interval. The trend was consistent with previous years.

Figure 2.2: Morning Peak Cyclist Frequency
Great South Road/High Street 2007 – 2014 (n)



2.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of evening cycle movements recorded at the Great South Road/High Street intersection in 2014 (36 movements) represented a decrease from last year's result (45 movements).
- The key movement was travelling along Great South Road in a south easterly direction (Movement 4 = 15 cyclists, down 1 from last year).
- Across the 12 possible movements at this intersection, the most notable change was at Movement 3 (down 5 from last year).

Table 2.3: Evening Cyclist Movements

Great South Road/High Street 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	2	1	0	1	2	1	**1**	**0**
2	8	4	3	7	5	3	3	**1**	**-2**
3	6	7	4	7	6	6	9	**4**	**-5**
4	13	3	7	9	11	12	16	**15**	**-1**
5	1	4	2	0	4	7	3	**1**	**-2**
6	0	0	0	0	0	0	0	**1**	**1**
7	1	0	1	0	2	0	0	**0**	**0**
8	13	8	9	9	9	9	5	**4**	**-1**
9	2	1	0	2	1	1	0	**2**	**2**
10	1	0	0	2	2	0	2	**1**	**-1**
11	1	1	1	0	10	1	4	**6**	**2**
12	0	2	0	0	0	0	2	**0**	**-2**
Total	**46**	**30**	**28**	**36**	**51**	**41**	**45**	**36**	**-9**

- Over the evening peak, every cyclist was an adult (an increase from 82 per cent in 2013).
- Approximately two-thirds of cyclists were wearing a helmet (64 per cent, a decrease from 73 per cent the previous year).
- Almost all of the cyclists were male (89 per cent, down from 96 per cent in 2013).
- This year, half of all cyclists are riding on the footpath (up from 41 per cent in 2013).

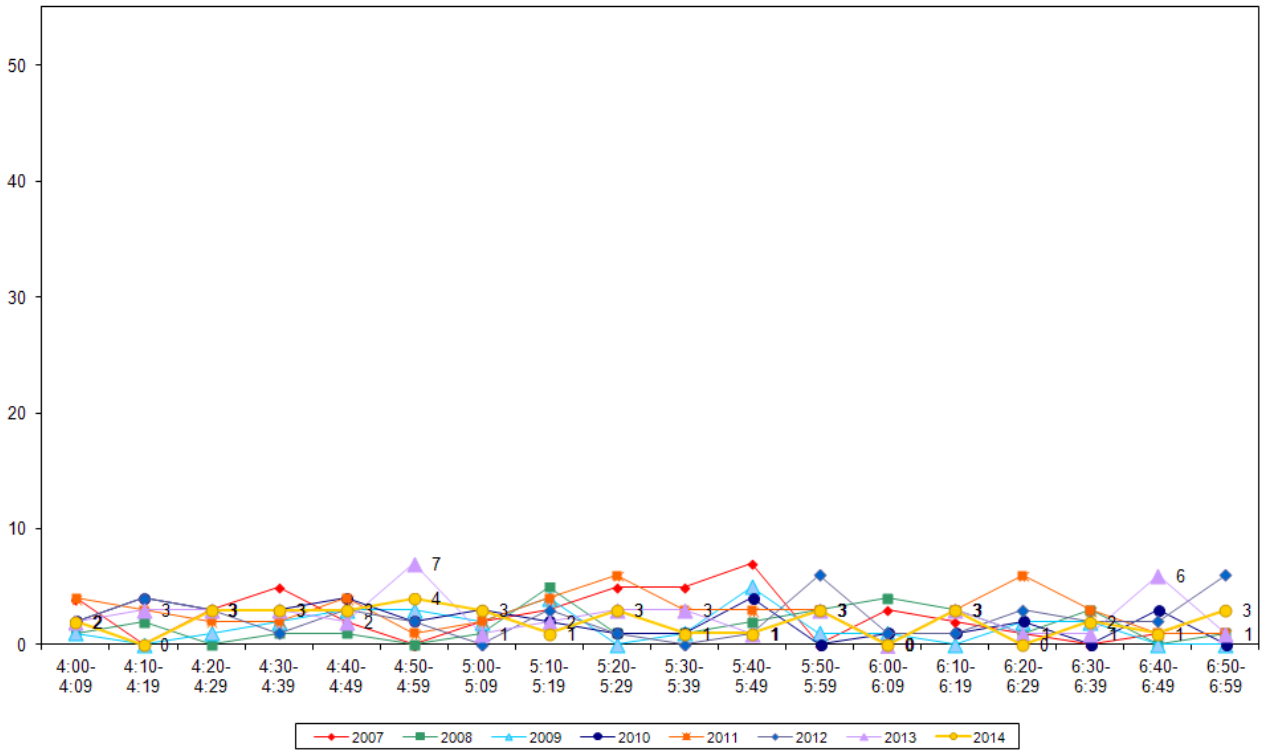
Table 3.4: Evening Cyclist Characteristics

Great South Road/High Street 2007 – 2014 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type									
Adult	83	87	100	92	78	80	82	**100**	**18**
School child	17	13	0	8	22	20	18	**0**	**-18**
Helmet Wearing									
Helmet on head	74	77	75	69	71	71	73	**64**	**-9**
No helmet	26	23	25	31	29	29	27	**36**	**9**
Gender									
Male	-	-	-	-	84	93	96	**89**	**-7**
Female	-	-	-	-	14	7	4	**11**	**7**
Can't tell	-	-	-	-	2	0	0	**0**	**0**
Where Riding									
Road	57	53	75	69	45	56	59	**50**	**-9**
Footpath	43	47	25	31	55	44	41	**50**	**9**
Base:	***46***	***30***	***28***	***36***	***51***	***41***	***45***	***36***	

- The volume of evening cycle movements was low during the entire evening shift. There was no more than four cyclists recorded over any ten minute interval. The trend was consistent with previous years.

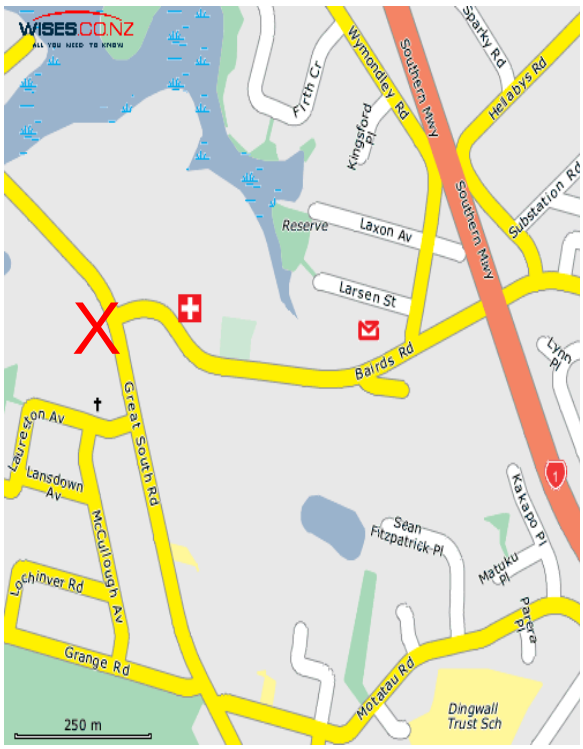
Figure 3.3: Evening Peak Cyclist Frequency
Great South Road/High Street 2007 – 2014 (n)

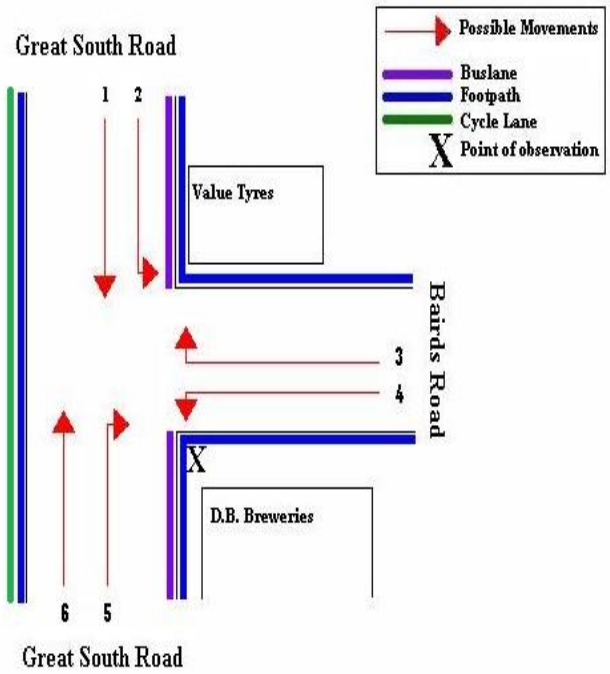


3. GREAT SOUTH ROAD/BAIRDS ROAD, OTARA (SITE 23)

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Great South/Bairds Road





3.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	32	36	68	99
2008	27	29	56	81
2009	29	28	57	83
2010	34	37	71	103
2011	40	49	89	129
2012	39	42	81	118
2013	50	53	103	150
2014	**25**	**35**	**60**	**86**

3.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning monitoring period.
- 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/Bairds Road intersection has halved (50 movements in 2013, compared with 25 movements this year).
- The most common movement in the morning was straight along Great South Road heading south (Movement 1 = 9 cyclists).
- Across the six movements possible at this intersection, the most notable change was at Movement 6 (down 11 from last year).

Table 3.1: Morning Cyclist Movements

Great South/Bairds Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	5	7	5	5	7	11	12	**9**	**-3**
2	7	3	4	7	6	3	8	**2**	**-6**
3	4	4	3	6	2	2	9	**1**	**-8**
4	0	1	3	0	1	1	2	**2**	**0**
5	0	1	3	6	4	6	2	**5**	**3**
6	16	11	11	10	20	16	17	**6**	**-11**
Don't know	0	0	0	0	0	0	0	**0**	**0**
Total	**32**	**27**	**29**	**34**	**40**	**39**	**50**	**25**	**-25**

- Over the morning peak, 84 per cent of the cyclists using the Great South/Bairds Road intersection were adults. The remaining 16 per cent were school children, the highest percentage recorded at this site since 2007.
- Approximately two-thirds of the cyclists were wearing a helmet (68 per cent, down from 87 per cent in 2013).
- All cyclists were recorded as male.
- Fifty-two per cent of the cyclists were riding on the road, stable from last year.

Table 3.2: Morning Cyclist Characteristics
Great South/Bairds Road 2007 – 2014 (%)

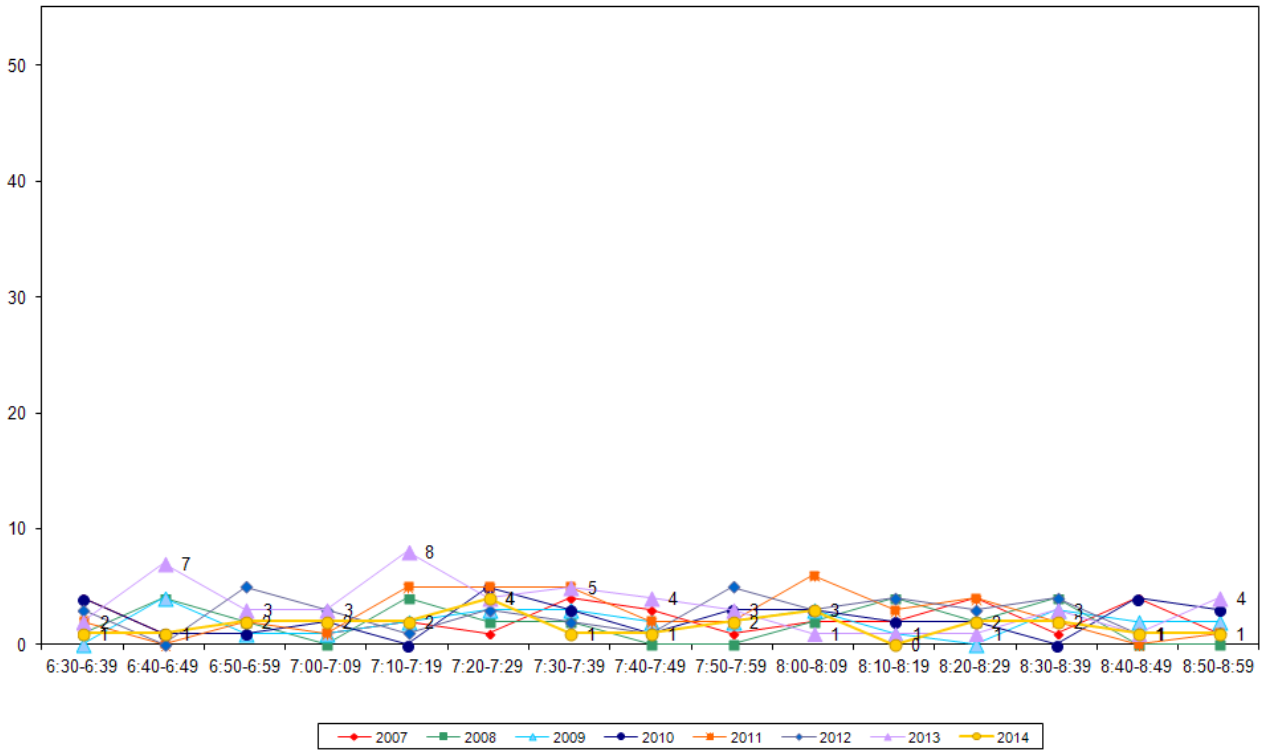
	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	89	90	97	100	100	90	**84**	**-6**
School child	0	11	10	3	0	0	10	**16**	**6**
Helmet Wearing									
Helmet on head	91	67	83	94	80	77	87	**68**	**-19**
No helmet	9	33	17	6	20	23	13	**32**	**19**
Gender									
Male	-	-	-	-	88	97	98	**100**	**2**
Female	-	-	-	-	10	3	0	**0**	
Can't tell	-	-	-	-	3	0	2	**0**	**-2**
Where Riding									
Road	72	63	69	76	75	59	50	**52**	**2**
Footpath	28	37	31	24	25	23	50	**48**	**-2**
Off-road cycleway	-	-	-	-	-	18	0	**0**	**0**
Base:	***32***	***27***	***29***	***34***	***40***	***39***	***50***	***25***	

Note: In 2012 a new off-road cycle way was established at the Great South Road and Bairds Road intersection; this has been noted on the site map.

- The volume of morning cycle movements was low throughout the morning period. There were no obvious peaks during the monitoring period, with no more than four cyclists during any ten minute interval.

Figure 2.2: Morning Peak Cyclist Frequency

Great South/Bairds Road 2007 – 2014 (n)



3.3 Evening Peak

Environmental Conditions

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

Key Points

- In the evening, the total number of cycle movements recorded at the Great South/Bairds Road intersection has decreased, with 35 movements observed this year compared with 53 in 2013.
- As in the previous years, the key evening movement was straight along Great South Road heading south (Movement 1 = 16 cyclists).
- Across the six movements possible at this intersection, the most notable change is the number of cyclists recorded for Movement 3 – turning right from Bairds Road onto Great South Road (down 9 from last year).

Table 3.3: Evening Cyclist Movements

Great South/Bairds Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	17	14	10	16	17	15	21	**16**	**-5**
2	5	5	3	6	3	7	14	**7**	**-7**
3	5	1	6	4	6	4	10	**1**	**-9**
4	1	2	3	6	7	6	0	**6**	**6**
5	1	0	2	1	3	0	0	**1**	**1**
6	7	7	4	4	13	10	8	**4**	**-4**
Total	**36**	**29**	**28**	**37**	**49**	**42**	**53**	**35**	**-18**

- The greatest share of cyclists at this site continue to be adults (86 per cent).
- Eighty per cent of cyclists at this site were wearing a helmet (up from 70 per cent in 2013).
- Every cyclist recorded was male.
- Forty-six per cent of all cyclists were riding on the road, down 9 per cent from last year. No cyclists made use of the off-road cycleway.

Table 3.4: Evening Cyclist Characteristics

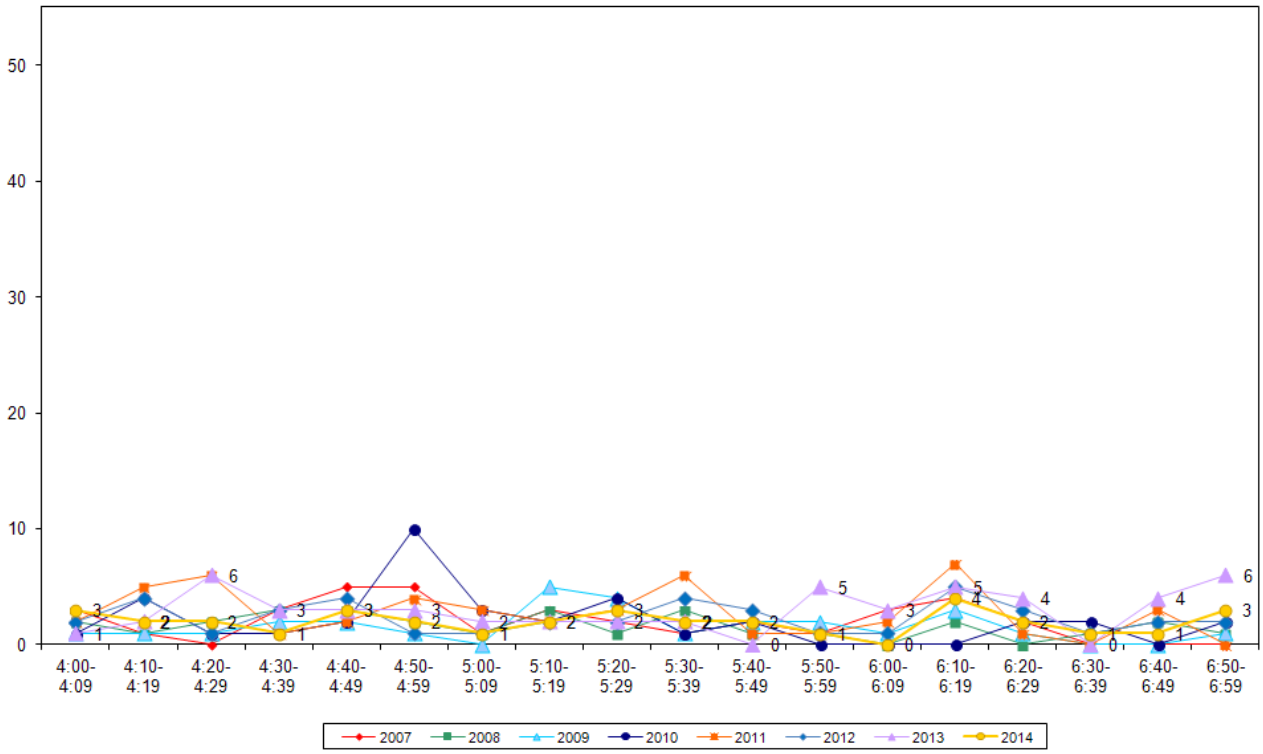
Great South/Bairds Road 2007 – 2014 (%)

	2007	***2008***	***2009***	***2010***	***2011***	***2012***	***2013***	***2014***	**Change 13-14**
Cyclist Type									
Adult	100	93	93	100	100	98	87	**86**	**-1**
School child	0	7	7	0	0	2	13	**14**	**1**
Helmet Wearing									
Helmet on head	86	66	79	92	84	64	70	**80**	**10**
No helmet	14	34	21	8	16	36	30	**20**	**-10**
Gender									
Male	-	-	-	-	88	95	98	**100**	**2**
Female	-	-	-	-	12	5	2	**0**	**-2**
Can't tell	-	-	-	-	0	0	0	**0**	**0**
Where Riding									
Road	67	72	54	86	71	55	55	**46**	**-9**
Footpath	33	28	46	14	29	38	45	**54**	**9**
Off-road cycleway	-	-	-	-	-	7	0	**0**	**0**
Base:	***36***	***29***	***28***	***37***	***49***	***42***	***53***	***35***	

- The volume of cycle movements in the evening peak was relatively low throughout the evening monitoring period. The largest number of cyclists present at any 10 minute interval was four (between 6:10pm to 6:19pm). There are no notable peaks present.

Figure 3.3: Evening Peak Cyclist Frequency

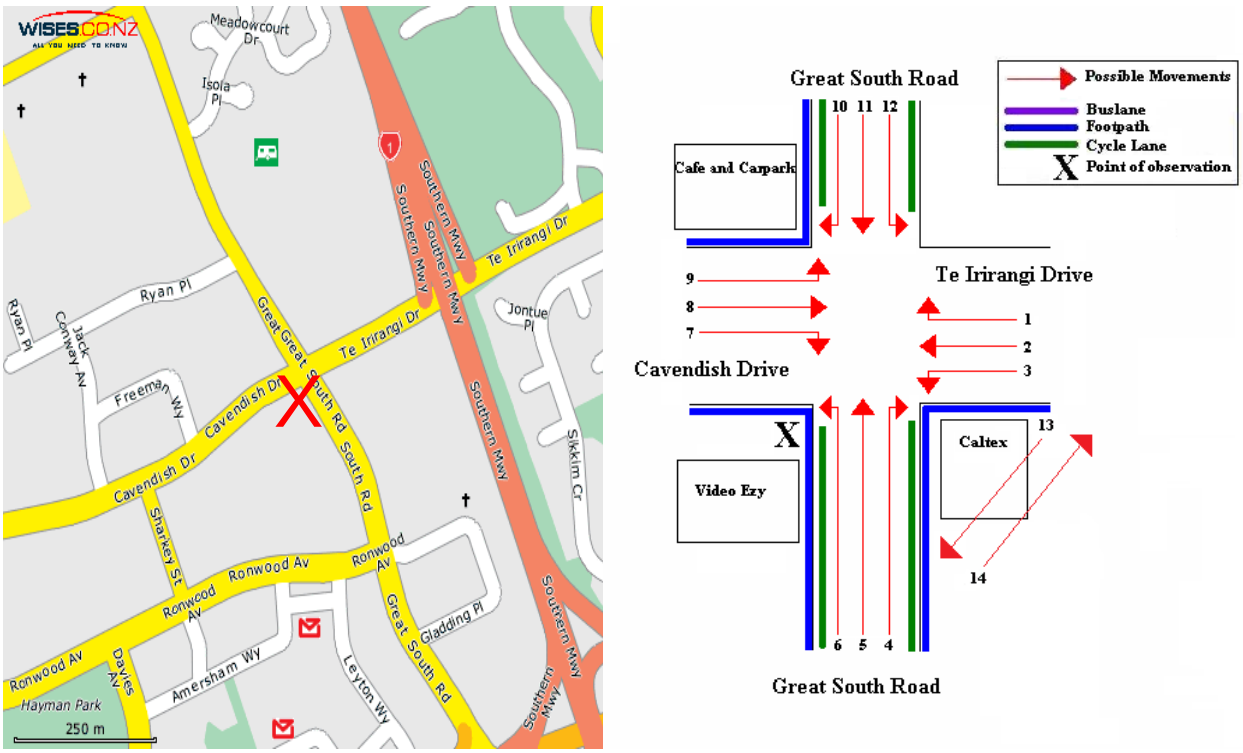
Great South/Bairds Road 2007 – 2014 (n)



4. GREAT SOUTH ROAD/TE IRIRANGI DRIVE/ CAVENDISH DRIVE, MANUKAU (SITE 24)

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Great South Road/Te Irirangi Drive



4.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	34	39	73	106
2008	25	26	51	74
2009	19	22	41	59
2010	28	44	72	103
2011	41	53	94	136
2012	28	50	78	112
2013	42	77	119	170
2014	**26**	**46**	**72**	**103**

4.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the intersection of Great South Road and Te Irirangi Drive was down from 42 in 2013 to 26 movements this year.
- The key morning movements were straight through Te Irirangi Drive into Cavendish Drive (Movement 2 = 6 cyclists) and heading north along Great South Road (Movement 5 = 10 cyclists).
- Across the 14 movements possible at this intersection, the most notable increase in the number of cyclists recorded was at Movement 5 – going north along Great South Road (up 5 from last year).

Table 4.1: Morning Cyclist Movements

Great South Road/Te Irirangi Drive 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	1	0	2	5	2	5	**2**	**-3**
2	6	2	5	10	13	7	8	**6**	**-2**
3	1	3	0	1	1	0	1	**1**	**0**
4	1	2	2	1	0	0	1	**1**	**0**
5	13	8	7	7	12	12	5	**10**	**5**
6	0	0	1	1	0	1	4	**0**	**-4**
7	1	0	0	0	0	1	0	**0**	**0**
8	1	1	0	2	1	0	0	**1**	**1**
9	2	0	0	0	1	0	3	**0**	**-3**
10	1	0	1	2	2	2	6	**1**	**-5**
11	7	8	2	1	6	3	8	**3**	**-5**
12	1	0	1	1	0	0	1	**0**	**-1**
13	-	-	-	-	-	-	-	**1**	**1**
14	-	-	-	-	-	-	-	**0**	**0**
Total	**34**	**25**	**19**	**28**	**41**	**28**	**42**	**26**	**-16**

- Over the morning peak, all cyclists using this intersection were adults (unchanged from the previous year).
- Almost all cyclists were wearing helmets (88 per cent, up from 71 per cent last year).
- Eighty-eight per cent of cyclists were male.
- Approximately four-fifths of the morning peak cyclists were riding on the road (81 per cent, a 29 percentage point increase from last year).

Table 4.2: Morning Cyclist Characteristics

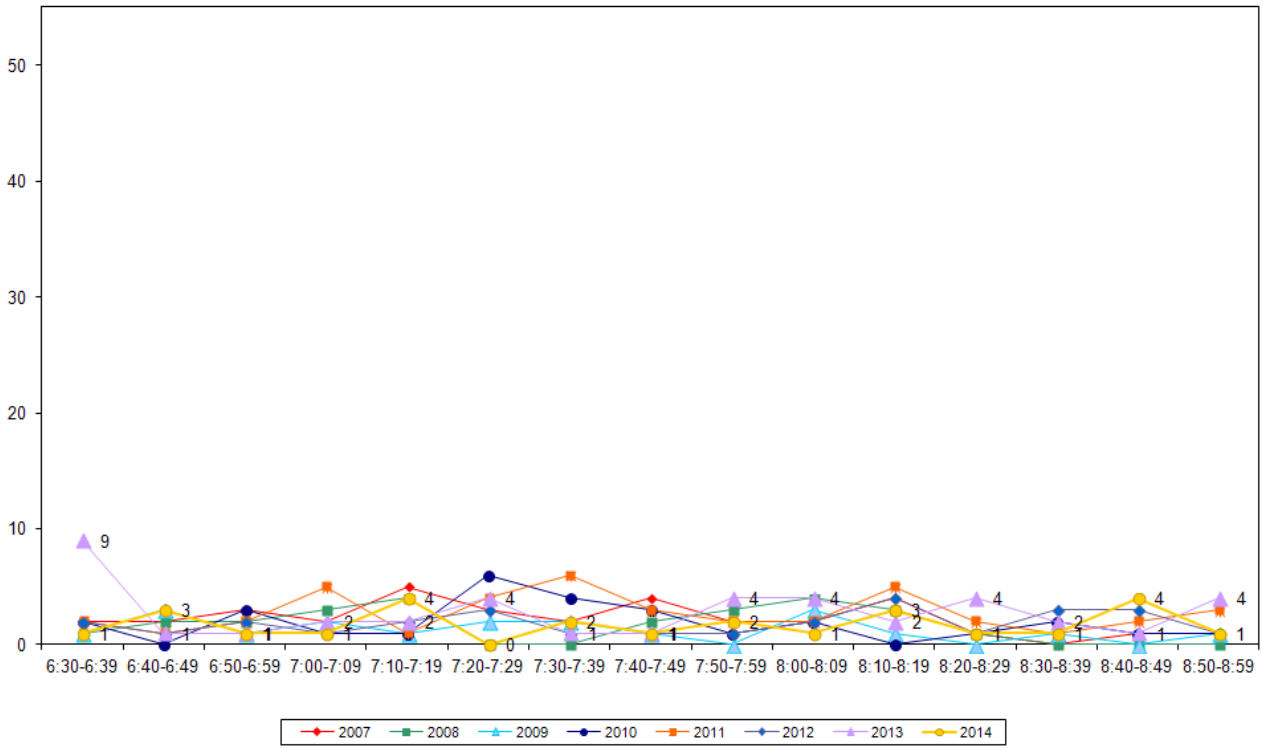
Great South Road/Te Irirangi Drive 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	76	100	96	90	39	100	**100**	**0**
School child	0	24	0	4	10	61	0	**0**	**0**
Helmet Wearing									
Helmet on head	85	96	100	93	88	81	71	**88**	**17**
No helmet	15	4	0	7	12	19	29	**12**	**-17**
Gender									
Male	-	-	-	-	76	82	86	**88**	**2**
Female	-	-	-	-	20	14	14	**8**	**-6**
Can't tell	-	-	-	-	5	4	0	**4**	**4**
Where Riding									
Road	85	76	79	75	95	93	52	**81**	**29**
Footpath	15	24	21	25	5	7	48	**19**	**-29**
Base:	***34***	***25***	***19***	***28***	***41***	***28***	***42***	***26***	

- The volume of morning cycle movements remained low throughout the evening peak. No more than four cyclists were recorded at any ten minute interval. The low traffic volume was consistent with the results from previous years.

Figure 4.2: Morning Peak Cyclist Frequency

Great South Road/Te Irirangi Drive 2007 – 2014 (n)



4.3 Evening Peak

Environmental Conditions

- The weather was fine with some wind throughout the evening monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of evening cycle movements observed at the Great South Road/Te Irirangi Drive intersection was 46, a decrease from the 77 recorded the previous year.
- The key evening movements at this site were riding from Te Irirangi Drive to Cavendish Drive (Movement 2 = 14 cyclists) and straight along Great South Road heading south (Movement 11 = 12 cyclists).
- The most noticeable changes were reported at Movements 2, 9 and 10, each down 6 cyclists from last year.

Table 4.3: Evening Cyclist Movements

Great South Road/Te Irirangi Drive 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	5	0	1	1	1	1	**0**	**-1**
2	3	1	3	4	2	6	20	**14**	**-6**
3	1	0	2	0	0	2	2	**0**	**-2**
4	2	2	2	2	3	2	1	**2**	**1**
5	5	6	2	4	8	10	11	**6**	**-5**
6	5	0	2	2	1	1	1	**1**	**0**
7	1	1	0	0	1	0	0	**1**	**1**
8	3	0	1	5	14	6	10	**6**	**-4**
9	1	0	1	5	2	1	6	**0**	**-6**
10	2	0	2	2	5	1	6	**0**	**-6**
11	15	9	7	18	13	19	15	**12**	**-3**
12	1	2	0	1	3	1	4	**3**	**-1**
13	0	0	0	0	0	0	0	**0**	**0**
14	0	0	0	0	0	0	0	**1**	**1**
Total	**39**	**26**	**22**	**44**	**53**	**50**	**77**	**46**	**-31**

- Over the evening peak, all cyclists using the Great South Road/Te Irirangi Drive intersection were adults (up from 96 per cent last year).
- The majority of cyclists at this site were wearing a helmet (87 per cent, stable from 86 per cent last year).
- Eighty-nine per cent of cyclists were male (up from 82 per cent last year).
- Three quarters of the evening peak cyclists were riding on the road (74 per cent, up from 68 per cent in 2013). As in the morning peak, the share cycling on the footpath has decreased (down 6 percentage points over the last 12 months).

Table 4.4: Evening Cyclist Characteristics

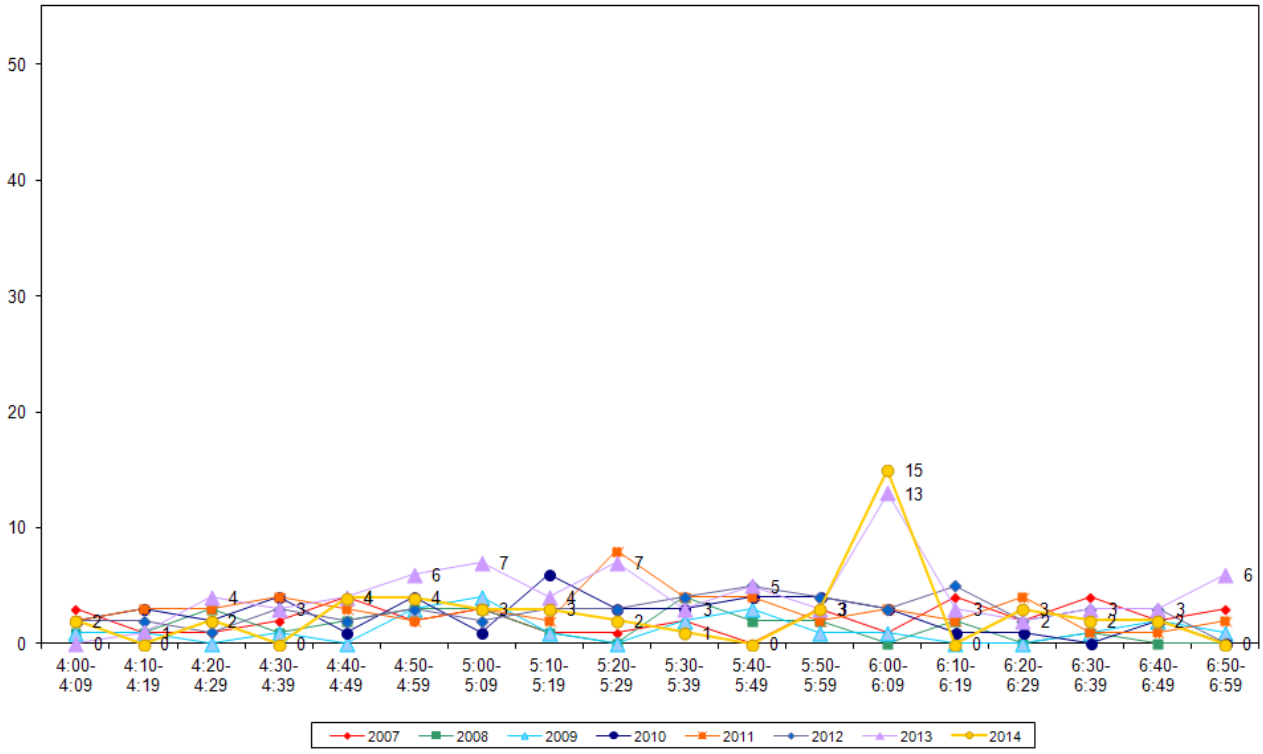
Great South Road/Te Irirangi Drive 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	95	88	73	95	96	76	96	**100**	**4**
School child	5	12	27	5	4	24	4	**0**	**-4**
Helmet Wearing									
Helmet on head	97	88	68	77	89	82	86	**87**	**1**
No helmet	3	12	32	23	11	18	14	**13**	**-1**
Gender									
Male	-	-	-	-	87	94	82	**89**	**7**
Female	-	-	-	-	11	6	18	**7**	**-11**
Can't tell	-	-	-	-	2	0	0	**4**	**4**
Where Riding									
Road	79	92	73	73	87	92	68	**74**	**6**
Footpath	21	8	27	27	13	8	32	**26**	**-6**
Base:	***39***	***26***	***22***	***44***	***53***	***50***	***77***	***46***	

- The volume of cycle traffic remained low throughout the majority of the evening monitoring period, with no more than four cyclists recorded at any ten minute interval. The exception to this occurred between 6:00pm and 6:19pm where 15 movements were recorded, due to a peloton of 12 cyclists (26 per cent of the total evening movements) that travelled through this site. A similar peak during the same time period was also recorded last year.

Figure 4.3: Evening Peak Cyclist Frequency

Great South Road/Te Irirangi Drive 2007 – 2014 (n)

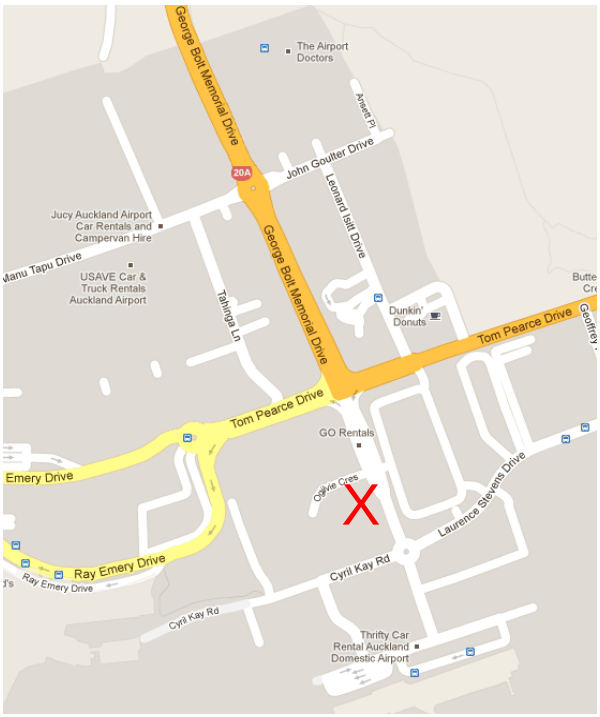


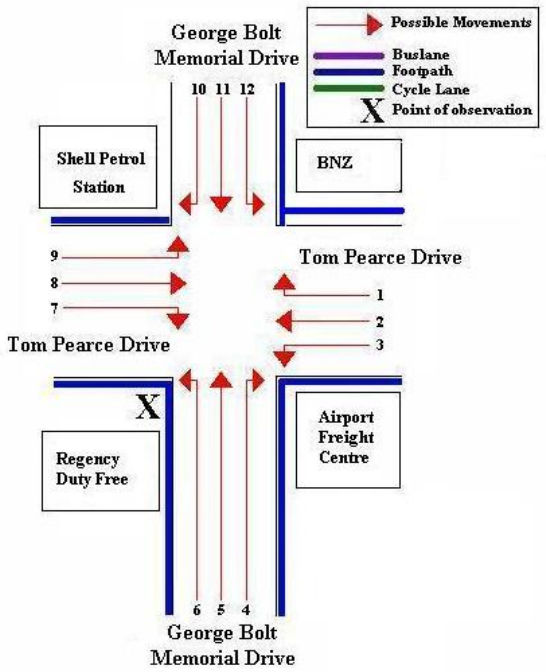
Note: In 2014, a group of 12 cyclists (26 per cent of the evening cycle movements at this site) rode past at 6:09pm. This compares with 13 per cent of cyclists (n=10) riding as a group in 2013.

5. TOM PEARCE/GEORGE BOLT MEMORIAL DRIVE, MANGERE (SITE 25)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: Tom Pearce/George Bolt Memorial Drive





5.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2009	6	21	27	38
2010	5	7	12	17
2011	15	39	54	77
2012	3	12	15	21
2013	4	29	33	46
2014	**13**	**20**	**33**	**47**

5.2 Morning Peak

Environmental Conditions

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

Key Points

- The intersection of George Bolt Memorial Drive and Tom Pearce Drive had 13 cycle movements recorded over the monitoring period. This result is an increase compared with the 4 movements recorded last year.
- The most noticeable changes were reported at Movements 1 (up 5 cyclists) and Movement 12 (up 4 cyclists).

Table 5.1: Morning Cyclist Movements

Tom Pearce/George Bolt Memorial Drive 2009 – 2014 (n)

Movement	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	3	3	2	1	0	**5**	**5**
2	0	0	0	0	0	**1**	**1**
3	0	1	0	0	0	**0**	**0**
4	0	0	0	0	0	**0**	**0**
5	1	0	2	0	1	**1**	**0**
6	0	0	0	0	0	**0**	**0**
7	0	0	0	0	0	**0**	**0**
8	0	0	0	0	1	**0**	**-1**
9	0	0	0	0	0	**0**	**0**
10	0	0	1	0	1	**1**	**0**
11	0	0	3	0	1	**1**	**0**
12	2	1	7	2	0	**4**	**4**
Total	**6**	**5**	**15**	**3**	**4**	**13**	**9**

- Consistent with previous monitoring results over the morning peak, no school children are riding through the Tom Pearce/George Bolt Memorial Drive intersection.
- Consistent with previous periods, all cyclists were wearing a helmet, as was found in previous monitoring.
- Four-fifths of the cyclists were recorded as male (92 per cent, up from 75 per cent the previous year).
- The majority of cyclists were riding on the road (85 per cent, a decrease of 15 percentage points from 2013).

Table 5.2: Morning Cyclist Characteristics

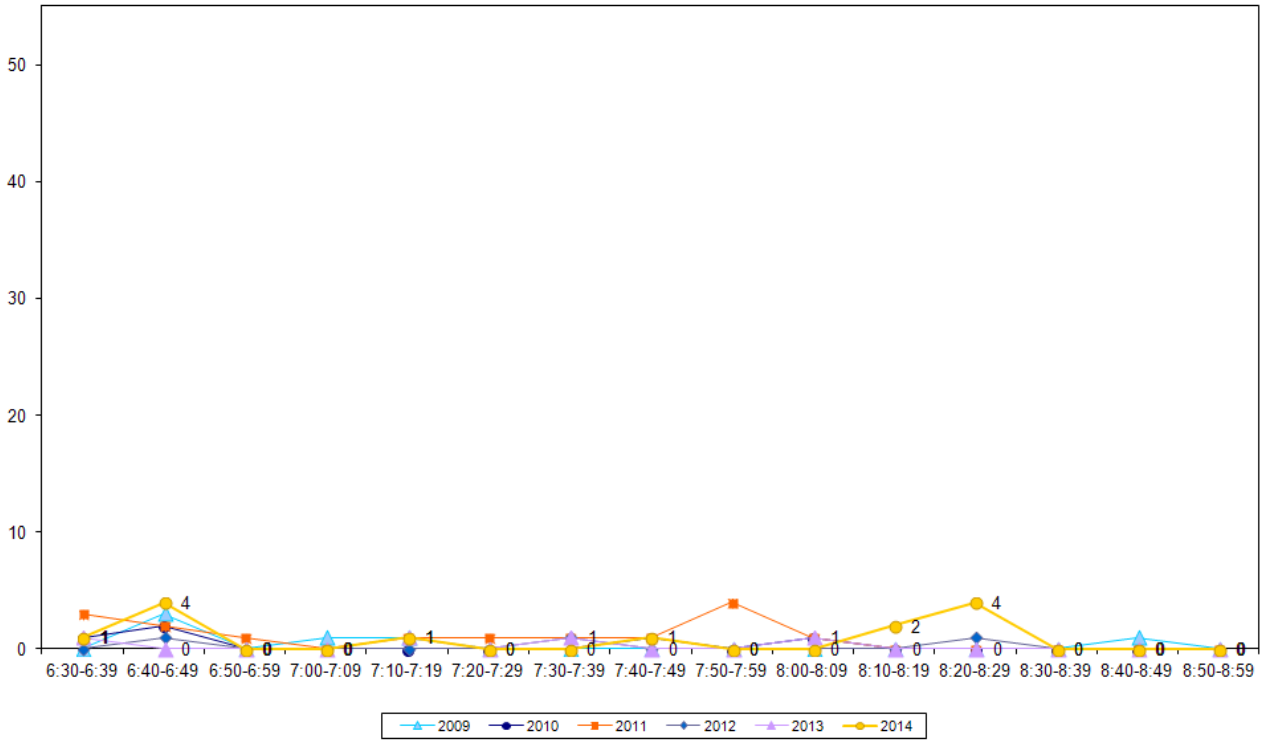
Tom Pearce/George Bolt Memorial Drive 2009 – 2014 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type							
Adult	100	100	100	100	100	**100**	**0**
School child	0	0	0	0	0	**0**	**0**
Helmet Wearing							
Helmet on head	100	100	100	100	100	**100**	**0**
No helmet	0	0	0	0	0	**0**	**0**
Gender							
Male	-	-	73	33	75	**92**	**17**
Female	-	-	0	0	25	**8**	**-17**
Can't tell	-	-	27	67	0	**0**	
Where Riding							
Road	100	100	80	100	100	**85**	**-15**
Footpath	0	0	20	0	0	**15**	**15**
Base:	***6***	***5***	***15***	***3***	***4***	***13***	

- Consistent with previous years, the volume of morning cycle movements was low over the entire monitoring period, with no more than four cyclists recorded passing during any ten minute interval. Two small peaks were evident at 6:40am to 6:49am and at 8:20am to 8:29am (4 cycle movements in each period).

Figure 5.2: Morning Peak Cyclist Frequency

Tom Pearce/George Bolt Memorial Drive 2009 – 2014 (n)



Note: A group of 4 cyclists were observed riding together at 6:40am and again at 8:22am (same group returned, riding past in the opposite direction). Their double movements accounted for 61 per cent of all morning cycle movements at this site. This compares with no cyclists observed riding in groups in 2013.

5.3 Evening Peak

Environmental Conditions

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

Key Points

- Evening cyclist volumes at Tom Pearce/George Bolt Memorial Drive intersection have decreased since 2013, with 20 cycle movements recorded over the monitoring period. Sixty-five per cent of these cycle movements (n=13) were made by pelotons.
- The most common movement in the evening was travelling straight along George Bolt Memorial Drive heading north (Movement 5 = 11 cyclists).
- The most notable increase in cyclist volume this year is Movement 5 (up 10 cycle movements).

Table 5.3: Evening Cyclist Movements

Tom Pearce/George Bolt Memorial Drive 2009 – 2014 (n)

Movement	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	4	1	14	4	16	**4**	**-12**
2	0	0	0	0	0	**0**	**0**
3	1	1	2	3	0	**0**	**0**
4	0	0	0	0	0	**0**	**0**
5	13	3	2	1	1	**11**	**10**
6	0	0	0	0	0	**0**	**0**
7	0	0	0	0	0	**0**	**0**
8	0	0	2	2	0	**0**	**0**
9	0	0	0	0	0	**0**	**0**
10	0	0	0	0	0	**0**	**0**
11	0	0	5	0	0	**4**	**4**
12	3	2	14	2	12	**1**	**-11**
Total	**21**	**7**	**39**	**12**	**29**	**20**	**-9**

- All cyclists using this site were adults (100 per cent), consistent with the results since 2009.
- Helmet-wearing has remained unchanged at 100 per cent this year.
- All cyclists were male, unchanged from last year.
- All cyclists were riding on the road (an increase from 97 per cent in 2013).

Table 5.4: Evening Cyclist Characteristics

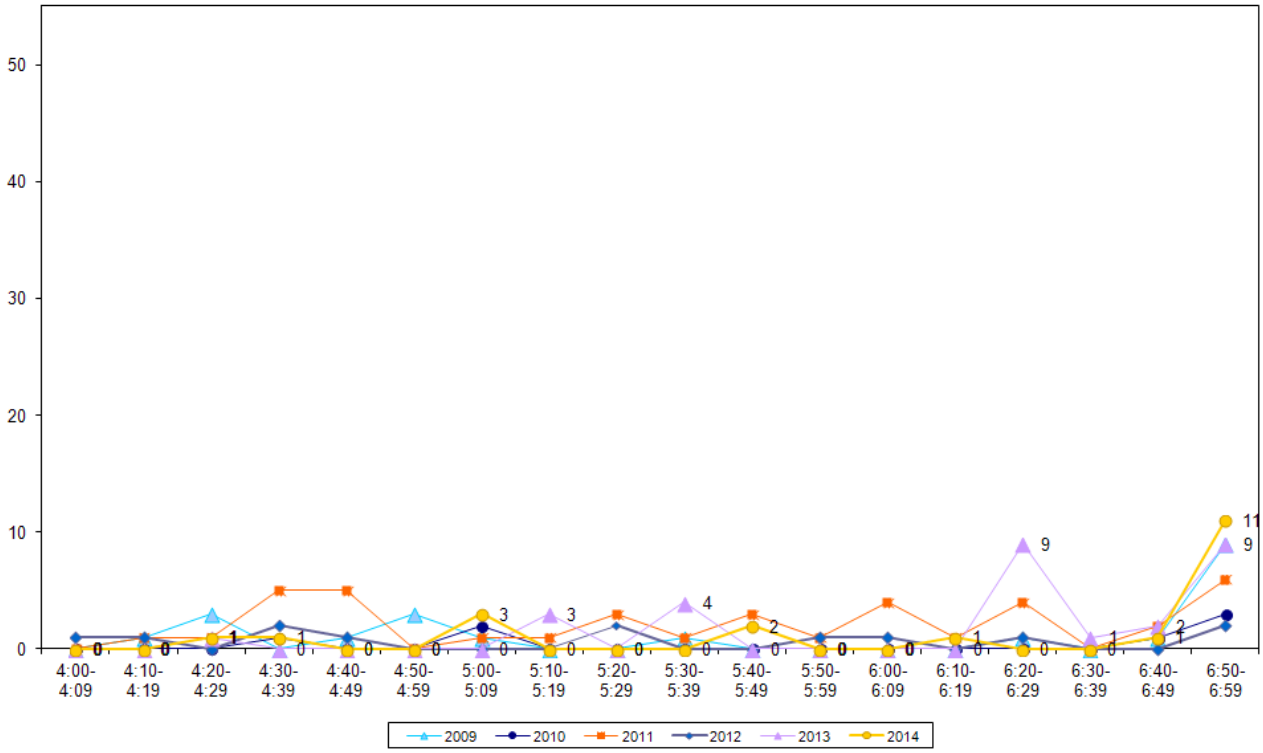
Tom Pearce/George Bolt Memorial Drive 2009 – 2014 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type							
Adult	100	100	100	100	100	**100**	**0**
School child	0	0	0	0	0	**0**	**0**
Helmet Wearing							
Helmet on head	100	100	62	83	100	**100**	**0**
No helmet	0	0	38	17	0	**0**	**0**
Gender							
Male	-	-	67	100	100	**100**	**0**
Female	-	-	5	0	0	**0**	**0**
Can't tell	-	-	28	0	0	**0**	**0**
Where Riding							
Road	100	100	95	100	97	**100**	**3**
Footpath	0	0	5	0	3	**0**	**-3**
Base:	***21***	***7***	***39***	***12***	***29***	***20***	

- Cycle volumes remained low throughout the majority of the evening monitoring period. No more than three cycle movements were recorded at any ten minute interval with the exception of the 6:50pm to 6:59pm peak with 11 cyclists recorded. This peak is consistent with previous years.

Figure 5.3: Evening Cyclist Frequency

Tom Pearce/George Bolt Memorial Drive 2009 – 2014 (n)



Note: In 2014, 65 per cent of the total cycle movements (n=20) in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

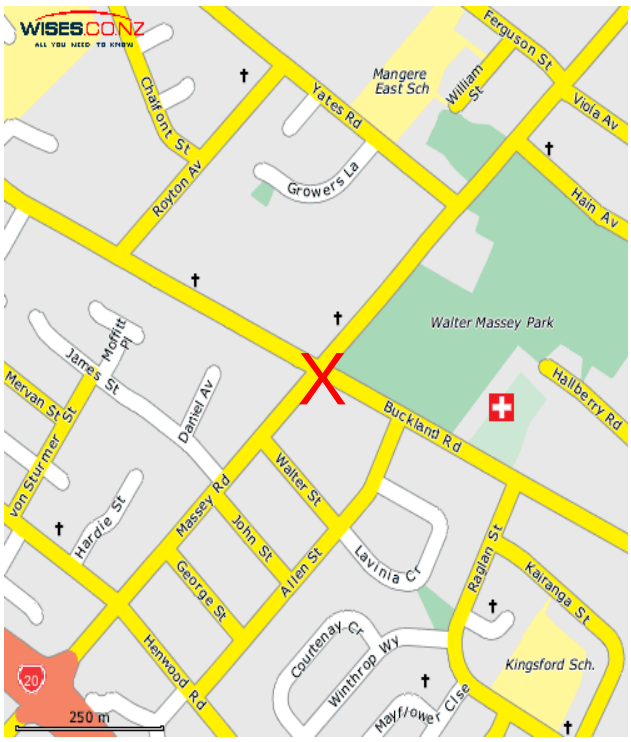
- *3 cyclists at 5:08pm*
- *10 cyclists at 6:55pm.*

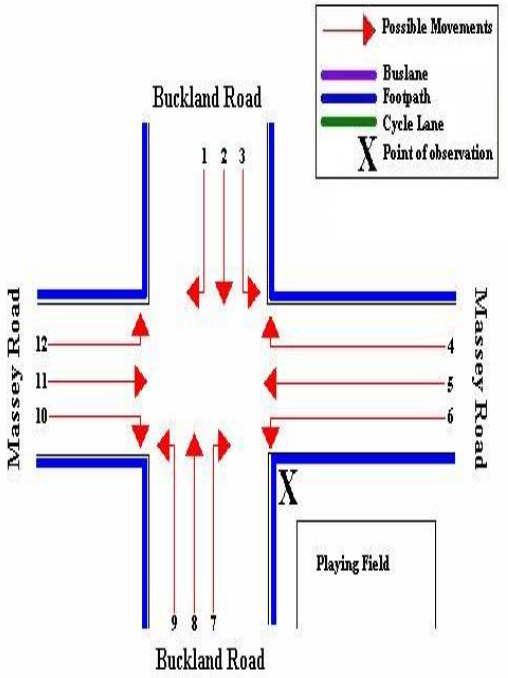
This compares with 83 per cent of cyclists (n=24) riding as a group in 2013.

6. MASSEY ROAD/BUCKLAND ROAD, MANGERE (SITE 28)

Figure 6.1 shows the possible cyclist movements at this intersection.

Figure 6.1: Cycle Movements: Massey/Buckland Road





6.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	12	31	43	61
2008	11	20	31	44
2009	19	20	39	57
2010	16	29	45	64
2011	18	35	53	76
2012	14	34	48	68
2013	24	34	58	84
2014	**26**	**32**	**58**	**84**

6.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclist traffic at this intersection has increased, from 24 cycle movements in 2013 to 26 movements this year.
- The key cycle movement was straight along Massey Road heading southwest (Movement 5 = 10 cyclists).
- The most notable changes have been at Movement 10 (down three cyclists from 2013) and Movement 11 (up three cyclists from 2013). Cycle volumes for other movements have remained stable.

Table 6.1: Morning Cyclist Movements

Massey/Buckland Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	0	0	0	0	0	0	**0**	**0**
2	3	1	2	1	3	2	1	**2**	**1**
3	2	5	2	3	0	0	2	**4**	**2**
4	0	0	0	2	3	2	2	**2**	**0**
5	1	0	6	3	3	2	11	**10**	**-1**
6	1	2	0	2	0	1	0	**0**	**0**
7	0	0	1	1	1	0	1	**0**	**-1**
8	1	1	3	3	4	3	2	**2**	**0**
9	1	0	2	0	0	2	1	**2**	**1**
10	2	1	0	1	2	1	3	**0**	**-3**
11	1	1	3	0	2	1	1	**4**	**3**
12	0	0	0	0	0	0	0	**0**	**0**
Total	**12**	**11**	**19**	**16**	**18**	**14**	**24**	**26**	**2**

- Over the morning peak, adults comprised most of the cycle movements (92 per cent, down from 96 per cent last year).
- Helmet-wearing has improved over the last 12 months (65 per cent, up from 54 per cent in 2013).
- Most of the cyclists were male (96 per cent).
- Sixty-two per cent of cyclists were riding on the footpath at this site (up from 58 per cent in 2013).

Table 6.2: Morning Cyclist Characteristics

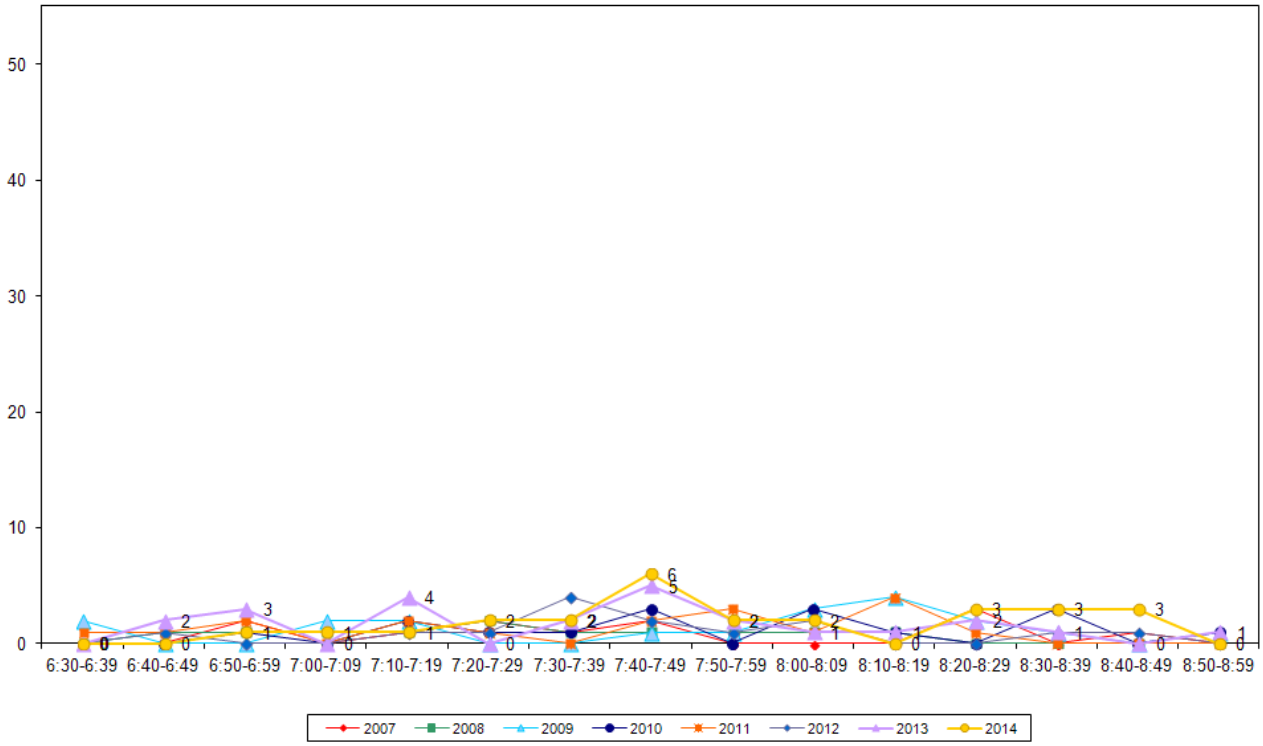
Massey/Buckland Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	42	73	95	94	67	86	96	**92**	**-4**
School child	58	27	5	6	33	14	4	**8**	**4**
Helmet Wearing									
Helmet on head	58	55	47	69	83	79	54	**65**	**11**
No helmet	42	45	53	31	17	21	46	**35**	**-11**
Gender									
Male	-	-	-	-	89	79	87	**96**	**9**
Female	-	-	-	-	6	21	13	**4**	**-9**
Can't tell	-	-	-	-	6	0	0	**0**	**0**
Where Riding									
Road	33	30	63	56	50	64	42	**38**	**-4**
Footpath	67	70	37	44	50	36	58	**62**	**4**
Base:	***12***	***11***	***19***	***16***	***18***	***14***	***24***	***26***	

- Morning cyclist volumes were low over the entire monitoring period. The traffic increased slowly to a peak of 6 movements between 7:40am and 7:49am, then continued to decrease until the end of the shift. This resembled the trend from last year, with a peak of 5 movements at 7:40am to 7:49am recorded last year.

Figure 6.2: Morning Peak Cyclist Frequency

Massey/Buckland Road 2007 – 2014 (n)



6.3 Evening Peak

Environmental Conditions

- The weather was fine with some wind throughout the evening monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of cycle movements recorded in the evening at the Massey/Buckland Road intersection has decreased slightly since last year, with 32 movements recorded this year.
- The most common movement in the evening was straight along Massey Road heading northeast (Movement 11 = 12 cyclists).
- Movement 4 experienced the biggest change in cycle volume (down 3 movements on the previous year).

Table 6.3: Evening Cyclist Movements

Massey/Buckland Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	2	0	0	0	2	0	0	**1**	**1**
2	3	4	3	4	8	4	2	**0**	**-2**
3	4	2	1	1	3	3	2	**3**	**1**
4	5	5	2	4	2	2	6	**3**	**-3**
5	1	1	2	4	3	2	3	**3**	**0**
6	3	1	5	3	2	2	1	**3**	**2**
7	1	1	2	0	0	7	1	**1**	**0**
8	5	3	0	2	3	7	5	**4**	**-1**
9	0	2	0	1	4	2	0	**1**	**1**
10	0	0	3	4	3	0	2	**1**	**-1**
11	5	1	2	6	4	2	12	**12**	**0**
12	2	0	0	0	1	3	0	**0**	**0**
Total	**31**	**20**	**20**	**29**	**35**	**34**	**34**	**32**	**-2**

- Adults continued to comprise the largest share of evening cyclists (91 per cent, up from 85 per cent in 2013).
- Forty-one per cent of cyclists were wearing a helmet (down from 59 per cent last year).
- Almost all cyclists were male (91 per cent, a decrease of 6 percentage points on the previous year).
- The proportion of cyclists riding on the footpath has increased this year (72 per cent, compared with 59 per cent in 2013).

Table 6.4: Evening Cyclist Characteristics

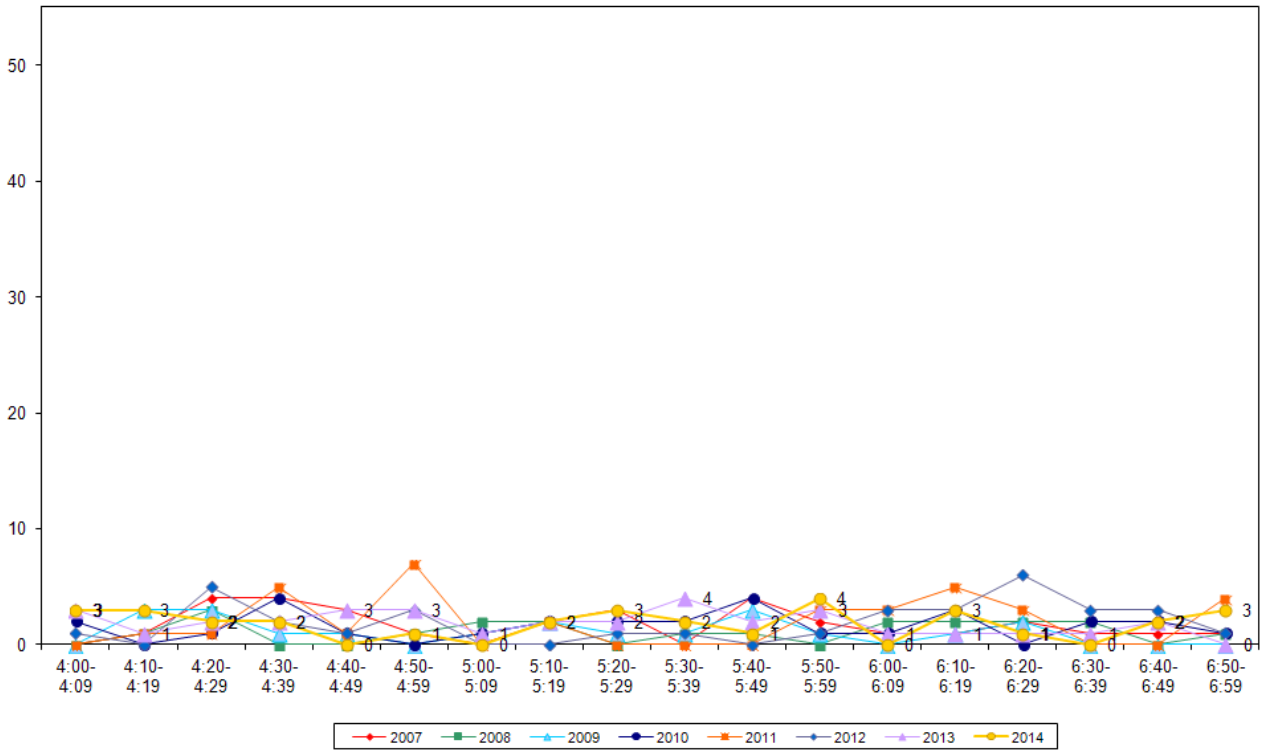
Massey/Buckland Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	61	80	65	90	77	76	85	**91**	**6**
School child	39	20	35	10	23	24	15	**9**	**-6**
Helmet Wearing									
Helmet on head	55	65	35	62	51	38	59	**41**	**-18**
No helmet	45	35	65	38	49	62	41	**59**	**18**
Gender									
Male	-	-	-	-	83	91	97	**91**	**-6**
Female	-	-	-	-	17	9	3	**6**	**3**
Can't tell	-	-	-	-	0	0	0	**3**	**3**
Where Riding									
Road	39	60	30	38	29	42	41	**28**	**-13**
Footpath	61	40	70	62	71	58	59	**72**	**13**
Base:	***31***	***20***	***20***	***29***	***35***	***34***	***34***	***32***	

- Consistent with previous years, the volume of cycle movements was low during the evening monitoring period. There were no obvious peaks observed as no more than four cyclists were observed during any ten minute interval.

Figure 6.3: Evening Peak Cyclist Frequency

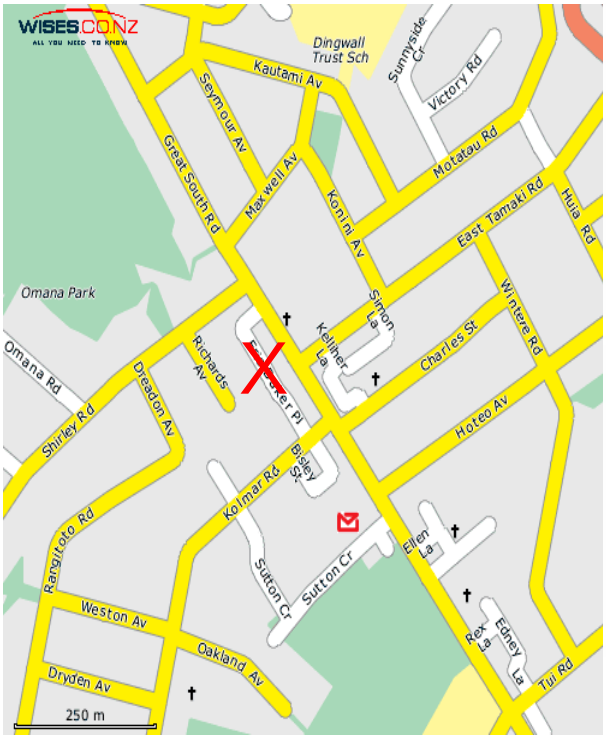
Massey/Buckland Road 2007 – 2014 (n)

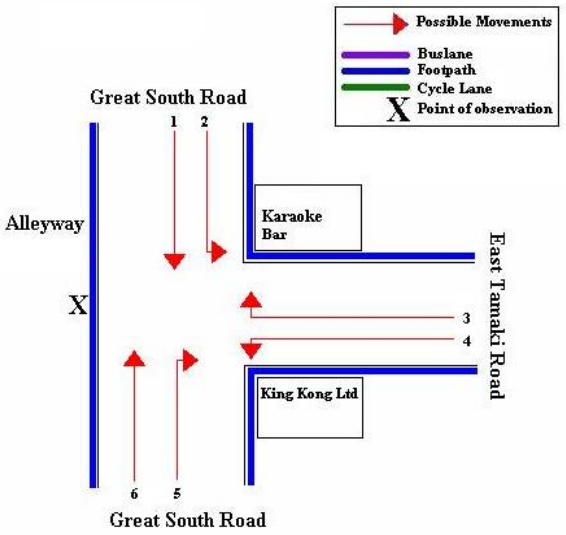


7. GREAT SOUTH ROAD/EAST TAMAKI ROAD, PAPATOETOE (SITE 30)

Figure 7.1 shows the possible cyclist movements at this intersection.

Figure 7.1: Cycle Movements: Great South/East Tamaki Road





7.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	36	37	73	106
2008	24	27	51	74
2009	33	30	63	92
2010	25	40	65	93
2011	44	45	89	129
2012	40	46	86	125
2013	49	47	96	140
2014	**30**	**42**	**72**	**104**

7.2 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning peak, cloudy at the start of the shift and sunny at the end.
- 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/East Tamaki Road intersection has decreased, from 49 movements in 2013 to 30 movements in 2014.
- The most common movement was straight along Great South Road heading northwest (Movement 6 = 12 cyclists).
- The most notable change since 2013 has been at Movement 6 (down 14 cycle movements).

Table 7.1: Morning Cyclist Movements

Great South/East Tamaki Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	4	4	3	4	8	8	8	**5**	**-3**
2	2	3	3	1	5	5	5	**5**	**0**
3	2	1	6	2	3	2	4	**5**	**1**
4	0	1	3	3	0	1	0	**0**	**0**
5	2	2	3	0	4	3	2	**2**	**0**
6	26	12	15	15	21	19	26	**12**	**-14**
7	-	1	0	0	3	2	-	**-**	**-**
1A	-	-	-	-	-	-	1	**0**	**-1**
2A	-	-	-	-	-	-	1	**1**	**0**
3A	-	-	-	-	-	-	2	**0**	**-2**
Total	**36**	**24**	**33**	**25**	**44**	**40**	**49**	**30**	**-19**

Note: From 2013, cyclists were recorded cycling into/out of the alleyway on the western side of Great South Road. These movements have the suffix 'A' in the table above, so for example, Movement 1A is heading south down Great South Road then turning into the alleyway. Consequently, Movement 7 (which represented any movements through the alleyway in previous years), is no longer applicable at this site.

- The majority of the evening cyclists were adults (83 per cent, the highest percentage recorded since 2007).
- Two-thirds of the cyclists were wearing a helmet (67 per cent, down from 76 per cent last year).
- Ninety per cent of the cyclists were male (a 10 percentage point increase from 2013).
- The proportion of cyclists riding on the footpath has remained stable over the last 12 months (63 per cent).

Table 7.2: Morning Cyclist Characteristics

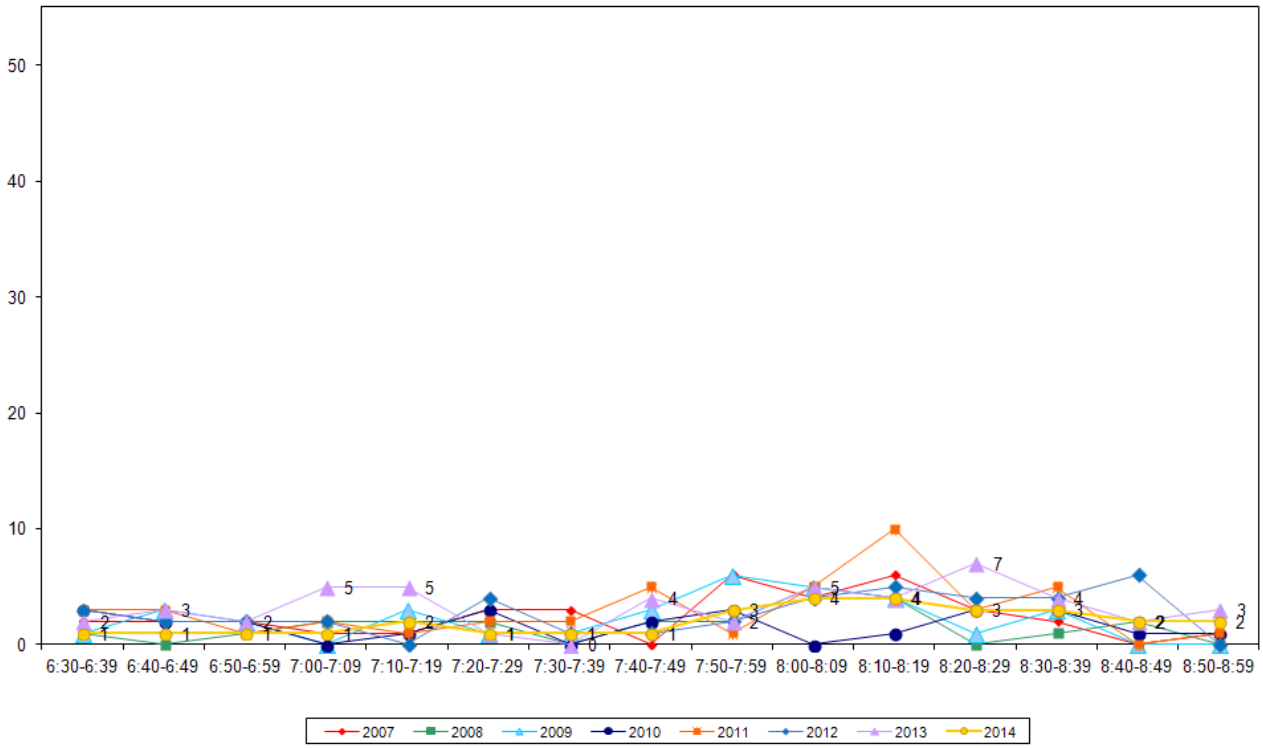
Great South/East Tamaki Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	67	67	64	72	80	63	67	**83**	**16**
School child	33	33	36	28	20	37	33	**17**	**-16**
Helmet Wearing									
Helmet on head	89	88	73	84	86	70	76	**67**	**-9**
No helmet	11	12	27	16	14	30	24	**33**	**9**
Gender									
Male	-	-	-	-	89	88	80	**90**	**10**
Female	-	-	-	-	11	12	18	**7**	**-11**
Can't tell	-	-	-	-	0	0	2	**3**	**1**
Where Riding									
Road	50	25	82	60	52	38	38	**37**	**-1**
Footpath	50	75	18	40	48	62	62	**63**	**1**
Base:	***36***	***24***	***33***	***25***	***44***	***40***	***49***	***30***	

- The volume of morning cycle movements started off low in the beginning of the shift, then increased to a peak between the 8:00am to 8:19am intervals. The traffic volume then gradually dropped for the remainder of the monitoring period.

Figure 7.2: Morning Peak Cyclist Frequency

Great South/East Tamaki Road 2007 – 2014 (n)



7.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of evening cycle movements recorded at the Great South/East Tamaki Road intersection has decreased by 5 movements over the last twelve months.
- The key movement in the evening continued to be straight along Great South Road heading south (Movement 1 = 20 cyclists).
- Compared with last year, the most notable decreases were Movement 6 (down 5 cycle movements) and Movement 1 (down 4 movements).

Table 7.3: Evening Cyclist Movements

Great South/East Tamaki Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	13	10	13	14	17	19	24	**20**	**-4**
2	2	2	3	1	5	2	4	**4**	**0**
3	8	1	3	5	3	9	4	**4**	**0**
4	3	1	6	5	2	3	3	**5**	**2**
5	2	0	1	3	1	2	2	**3**	**1**
6	9	10	4	9	15	10	9	**4**	**-5**
7	-	3	0	3	2	1	-	**-**	**-**
3A	-	-	-	-	-	-	0	**1**	**1**
6A	-	-	-	-	-	-	1	**0**	**-1**
Don't know	-	-	-	-	-	-	0	**1**	**1**
Total	**37**	**27**	**30**	**40**	**45**	**46**	**47**	**42**	**-5**

Note: From 2013, cyclists were recorded cycling into/out of the alleyway on the western side of Great South Road. These movements have the suffix 'A' in the table above, so for example, Movement 1A is heading south down Great South Road then turning into the alleyway. Consequently, Movement 7 (which represented any movements through the alleyway in previous years), is no longer applicable at this site.

- Over the evening peak, most of the cyclists using the Great South/East Tamaki Road intersection were adults (93 per cent, up 16 percentage points last year).
- Ninety per cent of cyclists at this site were wearing a helmet, the highest percentage recorded at this site since monitoring began in 2007.
- The greatest share of evening cyclists were male (79 per cent, stable from last year).
- Compared with previous years, more cyclists were riding on the footpath than on the road this year (62 per cent, up from 48 per cent in 2013).

Table 7.4: Evening Cyclist Characteristics

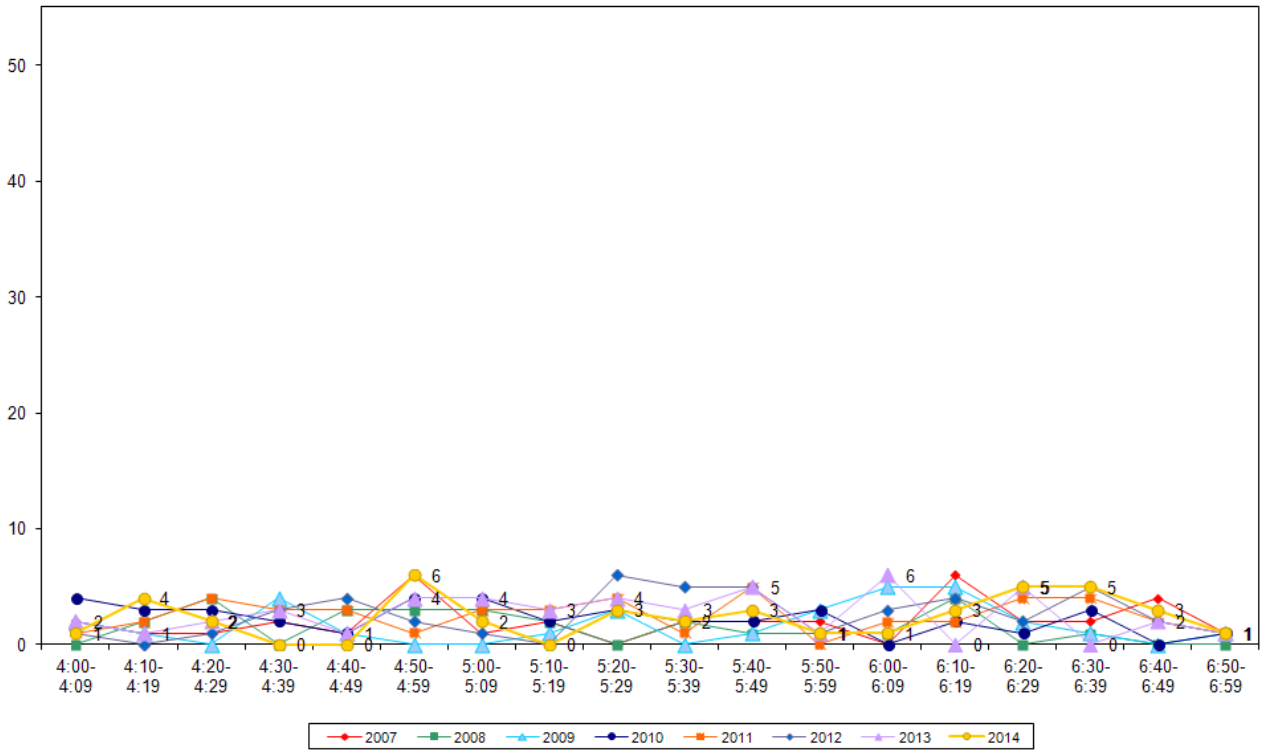
Great South/East Tamaki Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	84	74	77	80	93	89	77	**93**	**16**
School child	16	26	23	20	7	11	23	**7**	**-16**
Helmet Wearing									
Helmet on head	84	56	73	68	71	59	60	**90**	**30**
No helmet	16	44	27	33	29	41	40	**10**	**-30**
Gender									
Male	-	-	-	-	84	93	77	**79**	**2**
Female	-	-	-	-	16	7	17	**21**	**4**
Can't tell	-	-	-	-	0	0	6	**0**	**-6**
Where Riding									
Road	54	44	70	43	56	65	52	**38**	**-14**
Footpath	46	56	30	57	44	35	48	**62**	**14**
Base:	***37***	***27***	***30***	***40***	***45***	***46***	***47***	***42***	

- The volume of cycle movements was low throughout the evening peak. Volumes fluctuated between a maximum of six movements to a minimum of no movements over each ten minute interval.

Figure 7.3: Evening Peak Cyclist Frequency

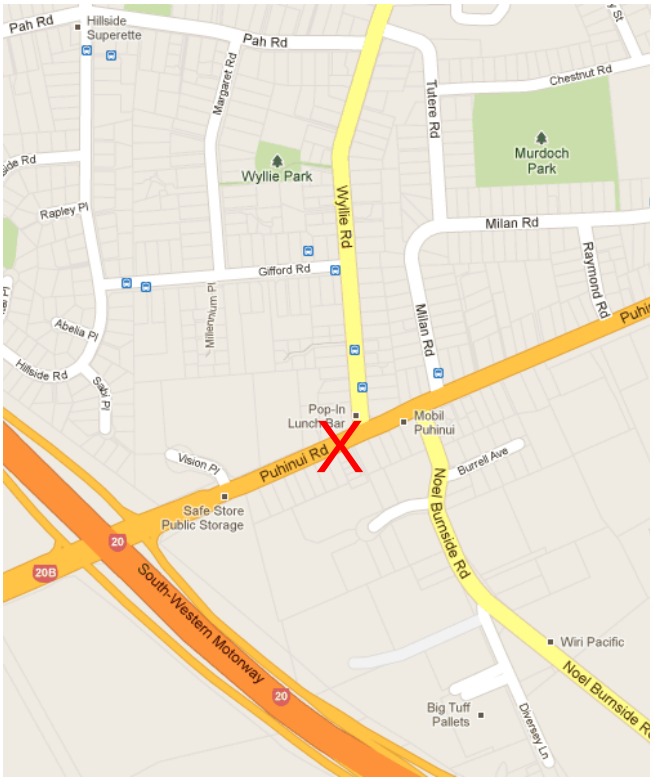
Great South/East Tamaki Road 2007 – 2014 (n)

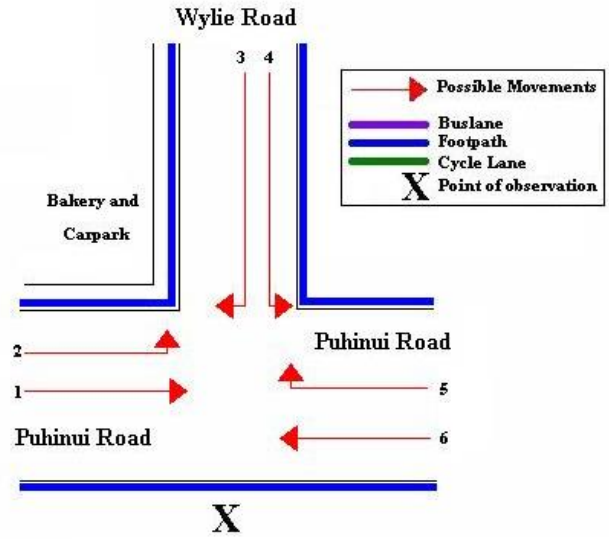


8. WYLLIE AVENUE/PUHINUI ROAD, PAPATOETOE (SITE 31)

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: Wyllie Avenue/Puhinui Road





8.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	18	20	38	55
2008	8	25	33	47
2009	12	23	35	50
2010	23	34	57	82
2011	13	62	75	105
2012	8	39	47	66
2013	17	78	95	133
2014	**18**	**42**	**60**	**85**

8.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at Wyllie Avenue/Puhinui Road has remained stable this year with 18 cycle movements recorded (up from 17 movements in 2013).
- Key movements were Movement 4 with eight cyclists (left hand turn from Wyllie Road into Puhinui Road), and Movement 6 with five cyclists (travelling west along Puhinui Road).
- Movement 4 also had the greatest change in cycle volumes (8 more movements than last year).

Table 8.1: Morning Cyclist Movements

Wyllie Avenue/Puhinui Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	2	1	11	3	2	2	**3**	**1**
2	0	0	1	0	1	1	3	**0**	**-3**
3	0	1	3	2	2	2	6	**1**	**-5**
4	1	1	0	2	1	1	0	**8**	**8**
5	0	0	0	1	1	0	0	**1**	**1**
6	17	4	7	7	5	2	6	**5**	**-1**
Total	**18**	**8**	**12**	**23**	**13**	**8**	**17**	**18**	**1**

- Ninety-four per cent of cyclists riding past this site were adults (an increase from 76 per cent last year).
- Most cyclists were wearing a helmet (78 per cent, stable from 76 per cent in 2013).
- The majority of the cyclists using this site were male (94 per cent, up from 76 per cent in 2013).
- Approximately three-quarters of cyclists were riding on the road (78 per cent, up 19 percentage points from 2013).

Table 8.2: Morning Cyclist Characteristics

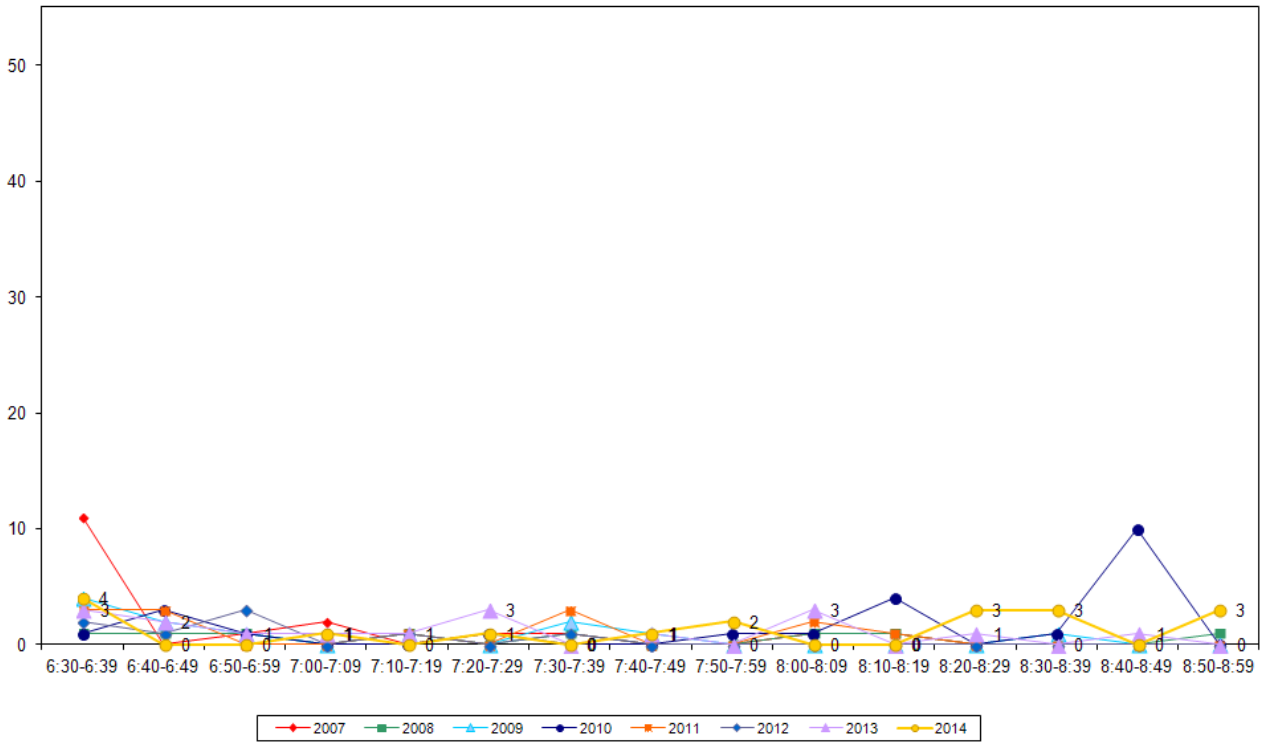
Wyllie Avenue/Puhinui Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	100	100	100	91	85	100	76	**94**	**18**
School child	0	0	0	9	15	0	24	**6**	**-18**
Helmet Wearing									
Helmet on head	100	88	100	87	92	88	76	**78**	**2**
No helmet	0	12	0	13	8	12	24	**22**	**-2**
Gender									
Male	-	-	-	-	100	100	76	**94**	**18**
Female	-	-	-	-	0	0	12	**6**	**-6**
Can't tell	-	-	-	-	0	0	12	**0**	**-12**
Where Riding									
Road	100	100	100	87	77	75	59	**78**	**19**
Footpath	0	0	0	13	23	25	41	**22**	**-19**
Base:	***18***	***8***	***12***	***23***	***13***	***8***	***17***	***18***	

- In 2014, cyclist volumes were very low throughout the morning period. This was similar to last year when no 10 minute interval recorded more than 3 movements.

Figure 8.2: Morning Peak Cyclist Frequency

Wyllie Avenue/Puhinui Road 2007 – 2014 (n)



8.3 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

- This year, the number of evening cycle movements recorded at the Wyllie Avenue/Puhinui Road intersection has decreased from 78 movements in 2013 to 42 this year.
- The key evening movements were straight along Puhinui Road heading northeast (Movement 1 = 10 cyclists) and travelling west along Puhinui Road (Movement 6 = 20 cyclists).
- Movement 1 and Movement 6 experienced the greatest decrease in cyclist volume (down 19 and 9 movements respectively).

Table 8.3: Evening Cyclist Movements

Wyllie Avenue/Puhinui Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	7	11	6	7	24	13	29	**10**	**-19**
2	3	3	1	2	6	6	9	**4**	**-5**
3	2	0	0	0	1	1	6	**2**	**-4**
4	3	2	1	3	5	7	3	**1**	**-2**
5	3	5	2	3	7	3	2	**5**	**3**
6	2	4	13	19	19	9	29	**20**	**-9**
Total	**20**	**25**	**23**	**34**	**62**	**39**	**78**	**42**	**-36**

- Nearly all the cyclists over the evening peak were adults (93 per cent, stable from 94 per cent last year).
- The majority of cyclists at this site were wearing a helmet (93 per cent, up from 86 per cent in 2013).
- Ninety-three per cent of cyclists were male, an increasing trend since 2011.
- Four out of five cyclists using this site were riding on the road this year (79 per cent, down 3 percentage points from 2013).

Table 8.4: Evening Cyclist Characteristics

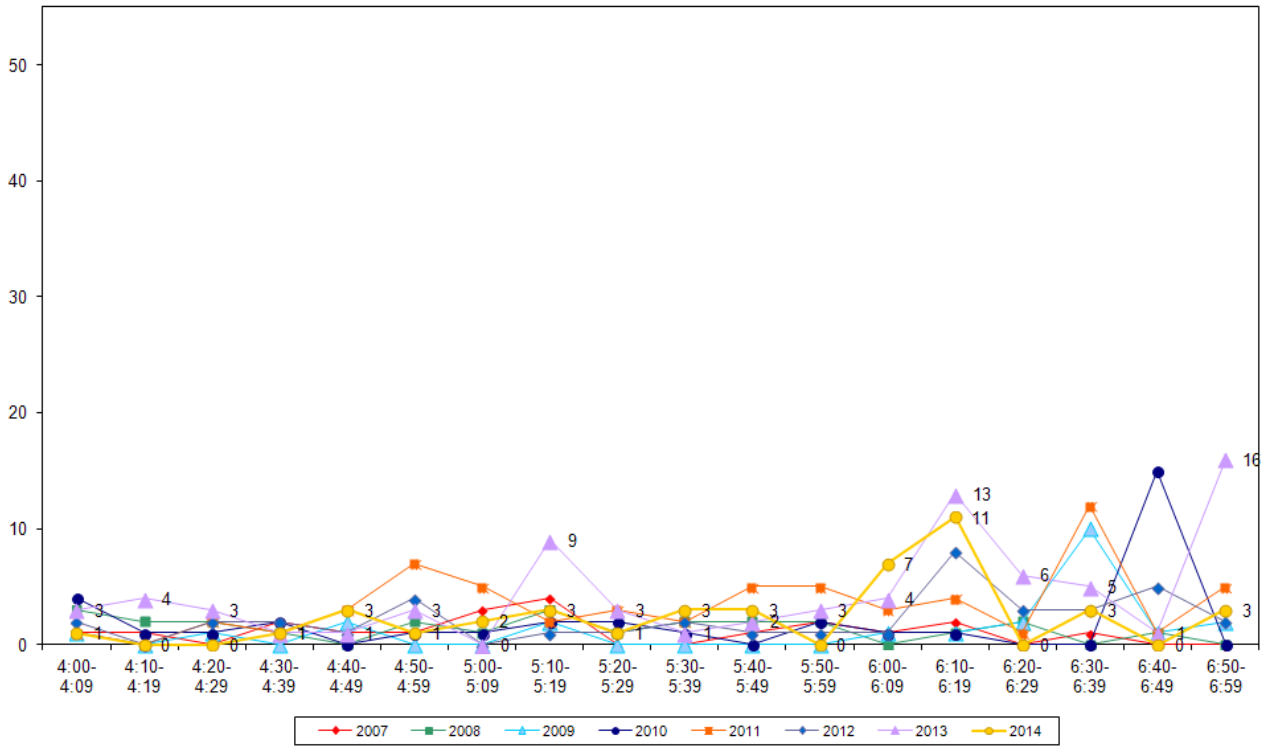
Wyllie Avenue/Puhinui Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	75	88	87	100	84	74	94	**93**	**-1**
School child	25	12	13	0	16	26	6	**7**	**1**
Helmet Wearing									
Helmet on head	70	79	91	97	84	72	86	**93**	**7**
No helmet	30	21	9	3	16	28	14	**7**	**-7**
Gender									
Male	-	-	-	-	76	85	88	**93**	**5**
Female	-	-	-	-	23	15	12	**7**	**-5**
Can't tell	-	-	-	-	2	0	0	**0**	**0**
Where Riding									
Road	70	84	91	88	76	82	82	**79**	**-3**
Footpath	30	16	9	12	24	18	18	**19**	**1**
Can't tell	0	0	0	0	0	0	0	**2**	**2**
Base:	***20***	***25***	***23***	***34***	***62***	***39***	***78***	***42***	

- This year, the volume of cycle movements was low throughout the monitoring period, with the exception of the intervals between 6:00pm to 6:09pm and between 6:10pm to 6:19pm. The maximum number of movements was 11, evident from the peak recorded from 6:10pm to 6:19pm.

Figure 8.3: Evening Peak Cyclist Frequency

Wyllie Avenue/Puhinui Road 2007 – 2014 (n)



Note: In 2014, 36 per cent of the total cycle movements (n=42) in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

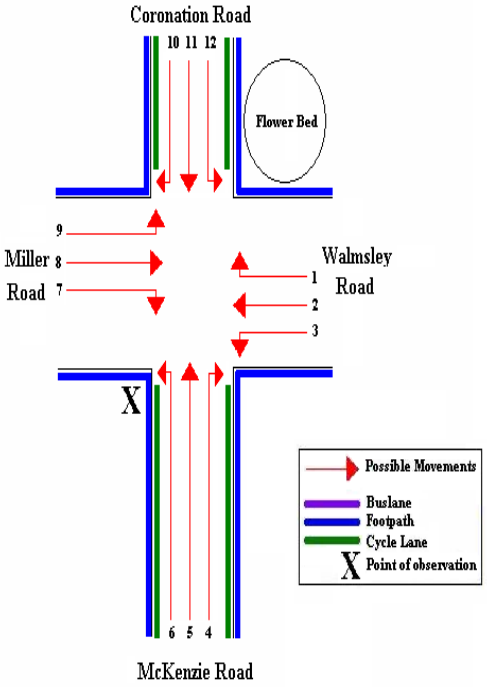
- *4 cyclists at 6:04pm*
- *11 cyclists at 6:16pm.*

This compares with 36 per cent of cyclists (n=28) observed travelling in groups in 2013.

9. MCKENZIE ROAD/CORONATION ROAD/WALMSLEY ROAD, MANGERE (SITE 32)

Figure 9.1 shows the possible cyclist movements at this intersection.

Figure 9.1: Cycle Movements: McKenzie/Coronation/Walmsley Road



9.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Total*
2007	28	42	70	101
2008	21	36	57	82
2009	22	30	52	75
2010	38	49	87	126
2011	32	61	93	133
2012	19	29	48	69
2013	48	42	90	131
2014	**50**	**32**	**82**	**121**

9.2 Morning Peak

Environmental Conditions

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

Key Points

- In 2014, the volume of morning cyclists recorded at the McKenzie/Coronation/Walmsley Road intersection has increased (from 48 in 2013 to 50 movements this year).
- The most common movements in the morning were south down Coronation Road into McKenzie Road (Movement 11 = 26 cyclists) and travelling north from McKenzie to Coronation Road (Movement 5 = 14 cyclists).
- Of the 12 movements possible at this intersection, the most noticeable changes were at Movement 5 (up 10 cyclists) and at Movement 8 (down 12 cyclists).

Table 9.1: Morning Cyclist Movements

McKenzie/Coronation/Walmsley Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	1	0	1	2	1	0	2	**2**	**0**
2	2	3	0	4	2	0	2	**2**	**0**
3	3	0	2	3	1	3	2	**1**	**-1**
4	1	0	0	1	2	0	0	**1**	**1**
5	8	2	3	7	5	7	4	**14**	**10**
6	2	1	0	0	0	0	0	**0**	**0**
7	2	1	1	3	0	0	1	**0**	**-1**
8	0	0	2	3	2	2	13	**1**	**-12**
9	0	0	0	0	0	0	3	**1**	**-2**
10	0	0	0	2	0	0	1	**1**	**0**
11	9	14	11	12	16	7	19	**26**	**7**
12	0	0	2	1	3	0	1	**1**	**0**
Total	**28**	**21**	**22**	**38**	**32**	**19**	**48**	**50**	**2**

- Over the morning peak, adults comprised the greatest share of the cycle movements (88 per cent, stable from 87 per cent last year).
- The majority of cyclists were wearing a helmet (88 per cent, up from 79 per cent in 2013).
- Ninety per cent of cyclists were male, unchanged from last year.
- Three-quarters of cyclists were riding on the road (76 per cent, stable from 74 per cent last year).

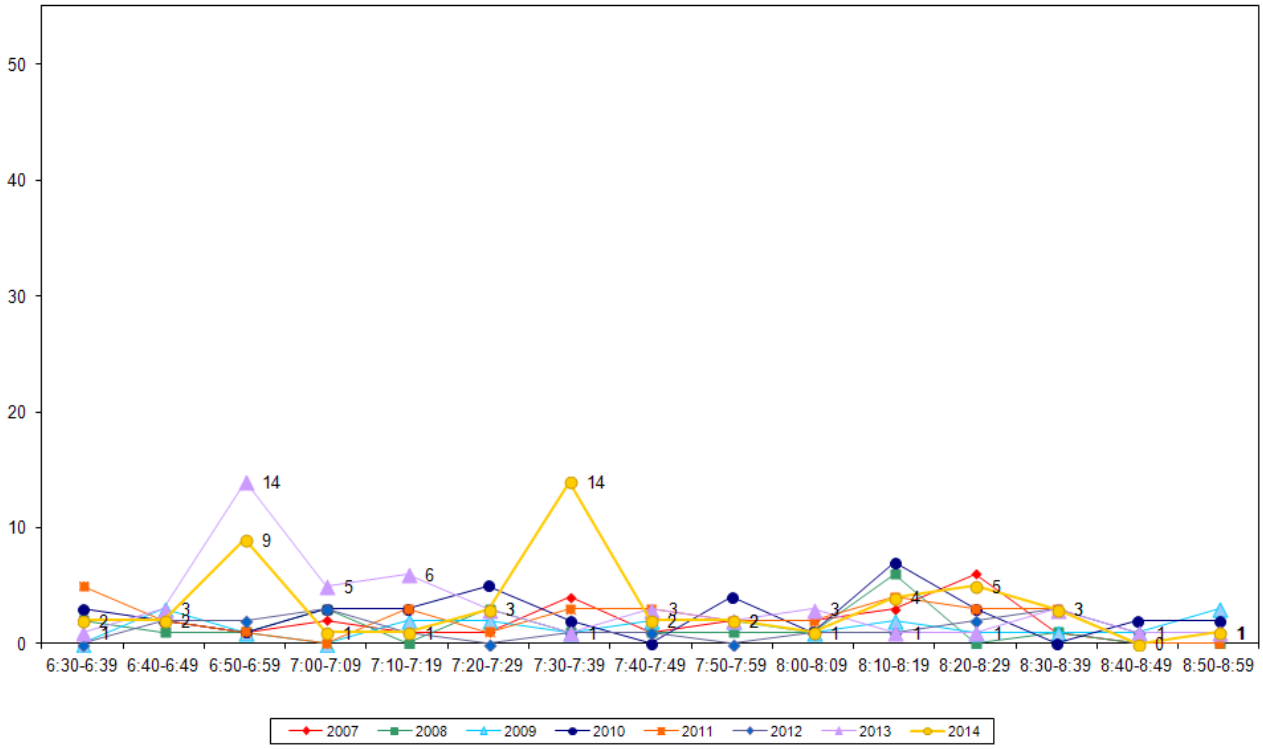
Table 9.2: Morning Cyclist Characteristics

McKenzie/Coronation/Walmsley Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type									
Adult	71	86	91	84	78	84	87	**88**	**1**
School child	29	14	9	16	22	16	13	**12**	**-1**
Helmet Wearing									
Helmet on head	71	71	86	71	78	79	79	**88**	**9**
No helmet	29	29	14	29	22	21	21	**10**	**-11**
Don't know	0	0	0	0	0	0	0	**2**	**2**
Gender									
Male	-	-	-	-	88	84	90	**90**	**0**
Female	-	-	-	-	13	5	10	**8**	**-2**
Can't tell	-	-	-	-	0	11	0	**2**	**2**
Where Riding									
Road	64	67	82	66	66	74	74	**76**	**2**
Footpath	36	33	18	34	34	26	26	**22**	**-4**
Don't know	0	0	0	0	0	0	0	**2**	**2**
Base:	***28***	***21***	***22***	***38***	***32***	***19***	***48***	***50***	

- Two peaks in cycle volumes were evident in the morning shift, the first at 6:50am to 6:59am with 9 cyclists recorded. A second peak was recorded at 7:30am to 7:39am with 14 cycle movements observed. Cycle volumes were low for the remaining part of the monitoring period. With the exception of two peaks, the trend was consistent with previous years.

Figure 9.2: Morning Peak Cyclist Frequency
McKenzie/Coronation/Walmsley Road 2007 – 2014 (n)



Note: In 2014, 36 per cent of the total cycle movements (n=50) in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:

- *9 cyclists at 6:50am*
- *5 cyclists at 7:35am*
- *4 cyclists at 7:36am.*

This compares with 23 per cent of cyclists (n=11) riding in a group in 2013.

9.3 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded at the McKenzie/Coronation/Walmsley Road intersection has decreased to 32 movements from 42 movements last year.
- The most common movement in the evening was northbound from McKenzie Road to Coronation Road (Movement 5 = 14 movements).
- Movement 11 saw the most noticeable change this year, down 6 movements.

Table 9.3: Evening Cyclist Movements

McKenzie/Coronation/Walmsley Road 2007 – 2014 (n)

Movement	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	2	4	0	4	2	2	1	**2**	**1**
2	1	3	1	3	5	2	2	**4**	**2**
3	1	3	2	4	3	1	2	**0**	**-2**
4	0	0	1	2	1	2	2	**1**	**-1**
5	14	14	15	18	21	9	17	**14**	**-3**
6	3	3	1	2	2	0	1	**1**	**0**
7	2	0	1	1	2	3	2	**0**	**-2**
8	0	1	1	1	2	0	1	**1**	**0**
9	3	0	1	0	7	0	1	**1**	**0**
10	0	0	1	2	2	0	0	**0**	**0**
11	11	6	5	9	13	9	10	**4**	**-6**
12	5	2	1	3	1	1	3	**4**	**1**
Total	**42**	**36**	**30**	**49**	**61**	**29**	**42**	**32**	**-10**

- Almost all cyclists using this intersection over the evening peak were adults (84 per cent, a 14 percentage point decrease from last year).
- Eighty-four per cent of cyclists at this site were wearing a helmet (down from 90 per cent in 2013).
- Most of the cyclists using this site were male (91 per cent).
- Riding on the road was favoured over riding on the footpath (78 per cent on the road, 22 per cent on the footpath). The share of footpath riders has increased from 2013 (up 3 percentage points).

Table 9.4: Evening Cyclist Characteristics

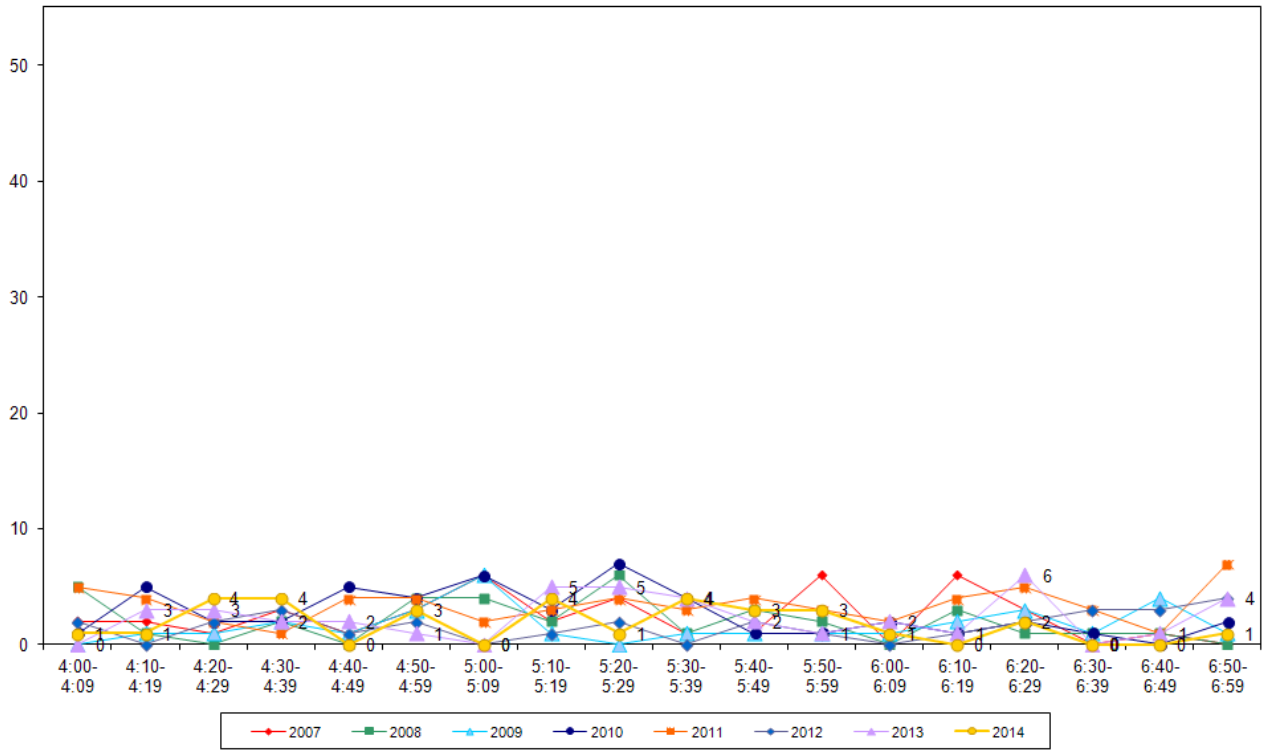
McKenzie/Coronation/Walmsley Road 2007 – 2014 (%)

	2007	*2008*	*2009*	*2010*	*2011*	2012	2013	2014	Change 13-14
Cyclist Type									
Adult	76	89	87	86	84	76	98	**84**	**-14**
School child	24	11	13	14	16	24	2	**16**	**14**
Helmet Wearing									
Helmet on head	74	78	73	76	87	83	90	**84**	**-6**
No helmet	26	22	27	24	13	17	10	**16**	**6**
Gender									
Male	-	-	-	-	90	79	93	**91**	**-2**
Female	-	-	-	-	7	21	7	**9**	**2**
Can't tell	-	-	-	-	3	0	0	**0**	**0**
Where Riding									
Road	81	71	73	65	59	63	81	**78**	**-3**
Footpath	19	29	27	35	41	37	19	**22**	**3**
Base:	***42***	***36***	***30***	***49***	***61***	***29***	***42***	***32***	

- This year, the volume of evening cycle movements was low throughout the evening period. There were no more than four cycle movements recorded during any ten minute interval.

Figure 9.3: Evening Peak Cyclist Frequency

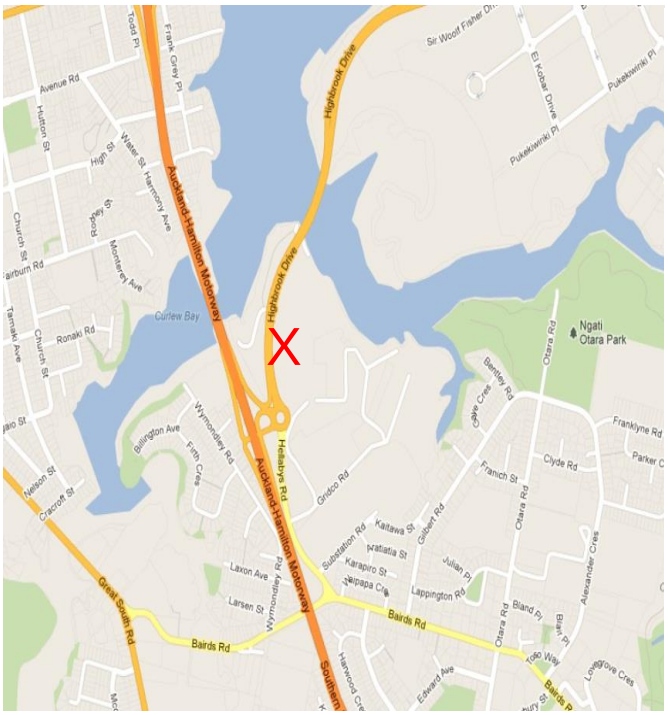
McKenzie/Coronation/Walmsley Road 2007 – 2014 (n)

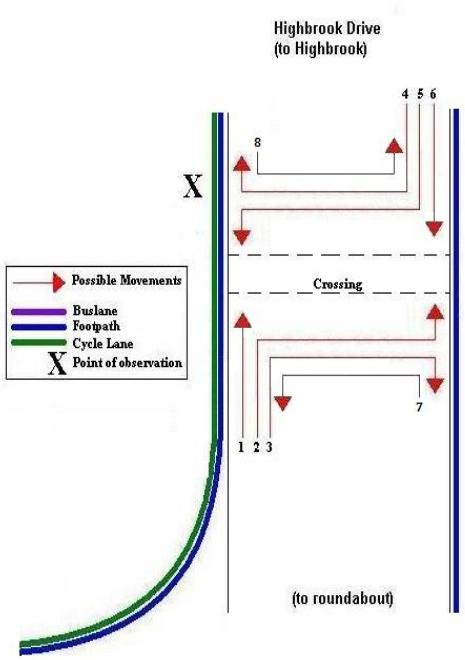


10. HIGHBROOK DRIVE, EAST TAMAKI (SITE 71)

Figure 10.1 shows the possible cyclist movements at this intersection.

Figure 10.1: Cycle Movements: Highbrook Drive





In 2014, Movements 7 and 8 have been added in order to count cyclists who used the crossing, then exited the intersection in the same direction as they entered the intersection. Cyclists are forced to cross at the crossing as the off-road cycle lane is now fenced off from the road, preventing access at other points on Highbrook Drive.

10.1 Site Summary

	Raw Counts			*AADT*
	Morning Peak	***Evening Peak***	***Total***	***Total***
2008	13	16	29	42
2009	20	18	38	55
2010	27	13	40	59
2011	23	30	53	77
2012	21	29	50	72
2013	24	23	47	68
2014	**20**	**29**	**49**	**71**

10.2 Morning Peak

Environmental Conditions

- The weather was fine at the beginning of the shift, although it began to get cloudy towards the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The level of morning cyclist traffic at the Highbrook Drive site has decreased, from 24 movements last year to 20 this year.
- The most common movement in the morning was along the cycle lane heading north (Movement 1 = 12 cyclists).
- Movement 3 experienced the biggest decrease (down by 6 movements) this year, while the cycle volume for Movement 1 has increased by three movements.

Table 10.1: Morning Cyclist Movements

Highbrook Drive 2008 – 2014 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	5	5	8	13	15	9	12	**3**
2	2	2	4	2	0	1	1	**0**
3	2	0	1	2	1	7	1	**-6**
4	0	2	5	0	0	0	0	**0**
5	3	2	4	1	2	1	0	**-1**
6	1	9	5	5	3	6	4	**-2**
7	-	-	-	-	-	-	1	**1**
8	-	-	-	-	-	-	**0**	**0**
Don't know	0	0	0	0	0	0	**1**	**1**
Total	**13**	**20**	**27**	**23**	**21**	**24**	**20**	**-4**

Note: Movements 7 and 8 have been introduced in 2014.

- Over the morning peak, almost all cyclists were adults (90 per cent, down from 96 per cent in 2013).
- Helmet-wearing has been more widespread this year (90 per cent, a 7 percentage point increase from last year).
- All cyclists were male (up from 92 per cent last year).
- All cyclists were riding on the off-road cycleway (stable from 2013).

Table 10.2: Morning Cyclist Characteristics

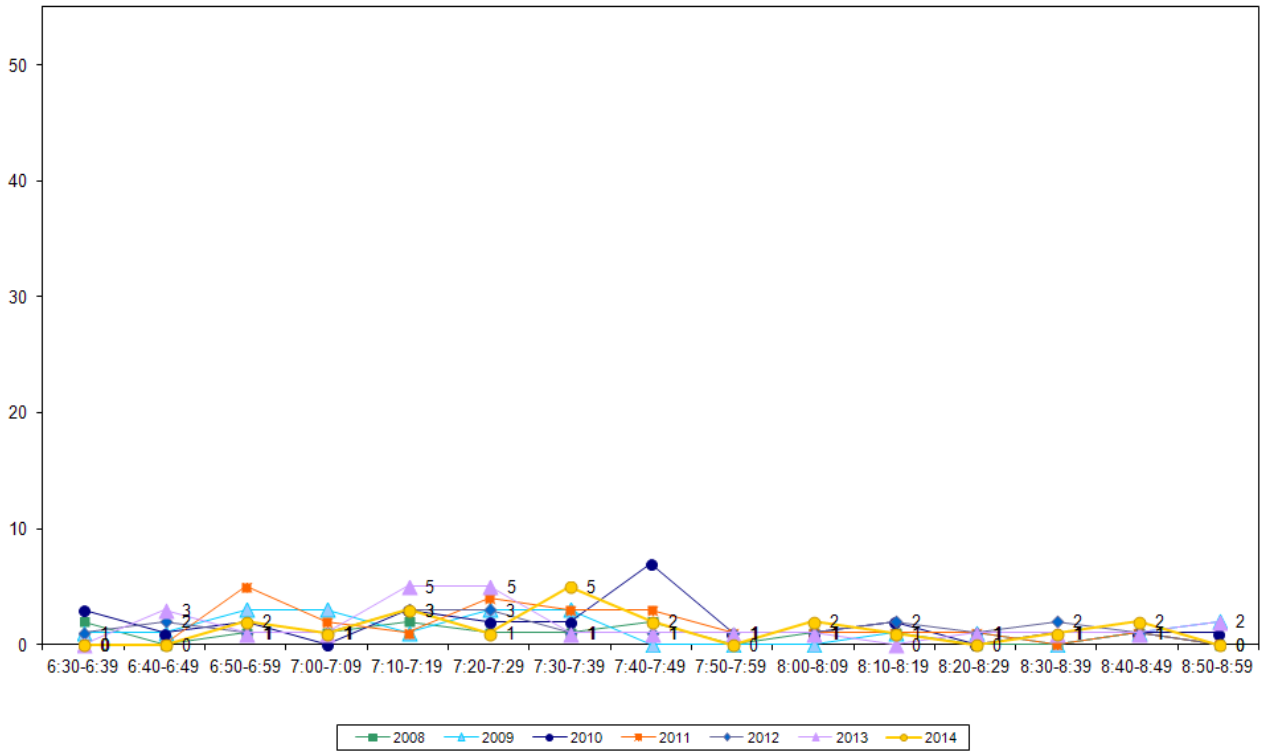
Highbrook Drive 2008 – 2014 (%)

	2008	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type								
Adult	100	100	100	96	100	96	**90**	**-6**
School child	0	0	0	4	0	4	**10**	**6**
Helmet Wearing								
Helmet on head	85	75	78	78	71	83	**90**	**7**
No helmet	15	25	22	22	29	17	**10**	**-7**
Gender								
Male	-	-	-	91	90	92	**100**	**8**
Female	-	-	-	4	10	8	**0**	**-8**
Can't tell	-	-	-	4	0	0	**0**	**0**
Where Riding								
Road	8	15	7	13	14	0	**0**	**0**
Footpath	92	5	33	26	0	0	**0**	**0**
Off-road cycleway	-	80	60	61	86	100	**100**	**0**
Base:	***13***	***20***	***27***	***23***	***21***	***24***	***20***	

- The volume of cycle movements was low over almost the entire morning shift. There was, however, a slight peak that occurred between 7:30pm and 7:39pm (5 cycle movements recorded).

Figure 12.2: Morning Peak Cyclist Frequency

Highbrook Drive 2008 – 2014 (n)



10.3 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 total number of cycle movements observed at the Highbrook Drive intersection was 29, up from 23 movements last year.
- The most common movement in the evening was down Highbrook Drive towards the roundabout (Movement 6 = 16 cyclists).
- The most noticeable change was at Movement 6 (up 7 cyclists from 2013).

Table 10.3: Evening Cyclist Movements

Highbrook Drive 2008 – 2014 (n)

Movement	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	3	5	2	11	8	7	**5**	**-2**
2	2	0	3	0	0	0	**0**	**0**
3	0	6	0	4	5	3	**0**	**-3**
4	0	0	0	0	0	0	**0**	**0**
5	8	0	3	4	4	4	**5**	**1**
6	3	7	5	11	12	9	**16**	**7**
7	-	-	-	-	-	-	**3**	**3**
8	-	-	-	-	-	-	**0**	**0**
Total	**16**	**18**	**13**	**30**	**29**	**23**	**29**	**6**

Note: Movements 7 and 8 have been introduced in 2014.

- Consistent with the morning peak, all of the cyclists using this intersection were adults (100 per cent this year, up from 96 per cent last year).
- A greater share of cyclists at this site were wearing a helmet this year (83 per cent, up from 78 per cent in 2013).
- The majority of cyclists at this site were male (97 per cent).
- The majority of cyclists were using the cycleway (72 per cent, down from 100 per cent last year). Twenty-four per cent of cyclists were recorded on the footpath this year.

Table 10.4: Evening Cyclist Characteristics

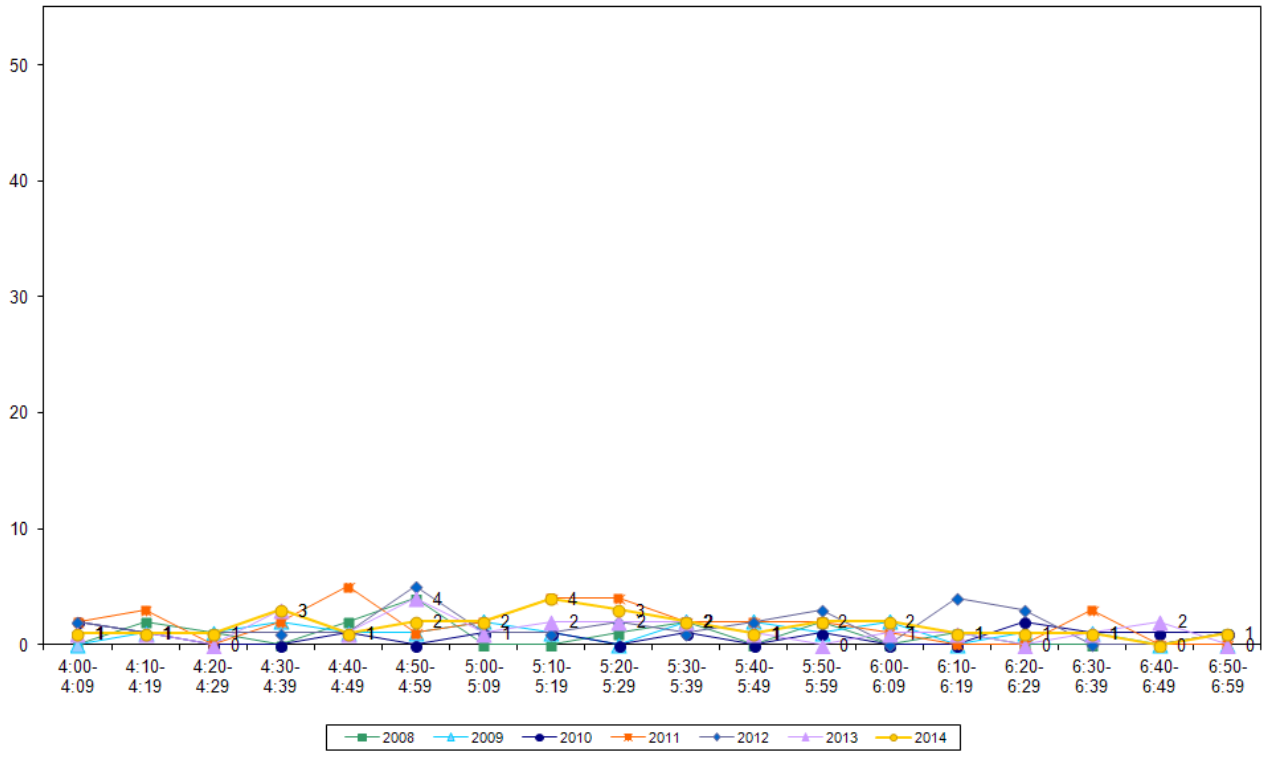
Highbrook Drive 2008 – 2014 (%)

	2008	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type								
Adult	100	100	100	100	100	96	**100**	**4**
School child	0	0	0	0	0	4	**0**	**-4**
Helmet Wearing								
Helmet on head	81	89	62	83	69	78	**83**	**5**
No helmet	19	11	38	17	31	22	**14**	**-8**
Don't know	0	0	0	0	0	0	**3**	**3**
Gender								
Male	-	-	-	87	93	96	**97**	**1**
Female	-	-	-	7	7	4	**3**	**-1**
Can't tell	-	-	-	7	0	0	**0**	**0**
Where Riding								
Road	6	11	0	17	7	0	**4**	**4**
Footpath	94	22	54	37	0	0	**24**	**24**
Off-road cycleway	-	67	46	47	93	100	**72**	**-28**
Base:	***16***	***18***	***13***	***30***	***29***	***23***	***29***	

- Consistent with previous years, the volume of cycle movements was very low over the evening period. There were no more than four cyclists recorded over any ten minute interval.

Figure 10.3: Evening Peak Cyclist Frequency

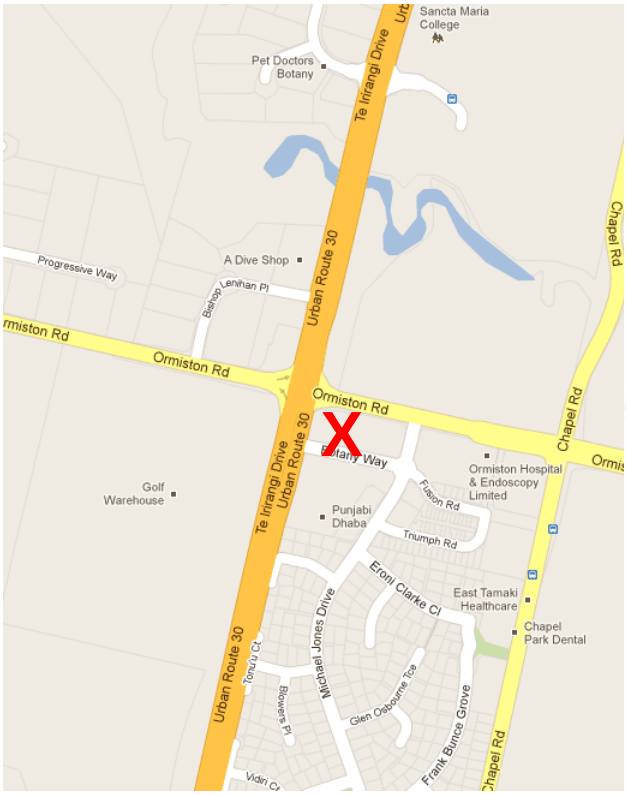
Highbrook Drive 2008 – 2014 (n)

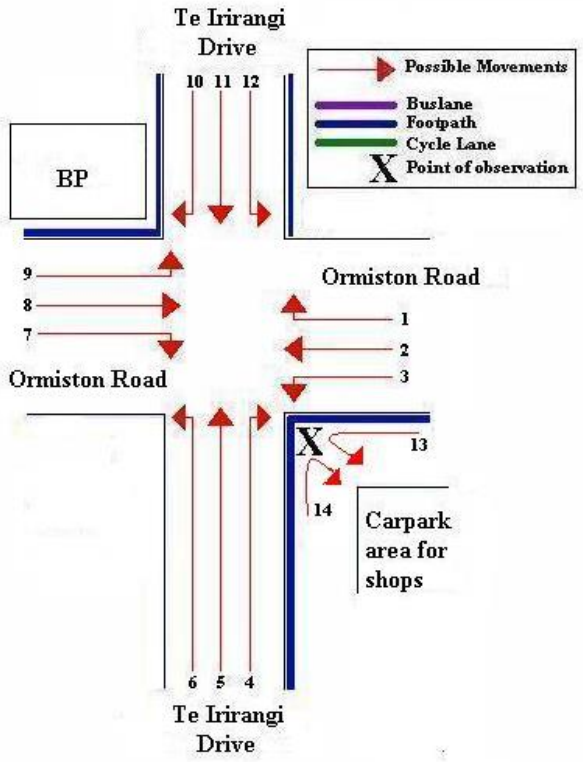


11. TE IRIRANGI DRIVE/ORMISTON ROAD, EAST TAMAKI (SITE 81)

Figure 11.1 shows the possible cyclist movements at this intersection.

Figure 11.1: Cycle Movements: Te Irirangi Drive/Ormiston Road





11.1 Site Summary

	Raw Counts			AADT
	Morning Peak	*Evening Peak*	*Total*	*Morning Peak*
2009	13	20	33	47
2010	25	41	66	95
2011	24	32	56	81
2012	18	32	50	72
2013	31	54	85	122
2014	**15**	**46**	**61**	**86**

11.2 Morning Peak

Environmental Conditions

- The weather was fine at the beginning of the shift but gradually became cloudy and windy towards the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Morning cyclist traffic at the intersection of Te Irirangi Drive and Ormiston Road has halved this year, with 15 cycle movements recorded (down from 31 movements in 2013).
- The key movement in the morning at this site was heading south straight along Te Irirangi Drive (Movement 11 = 5 cyclists).
- Movement 11 also experienced the greatest decrease in cycle volume (down 6 cyclists from last year).

Table 11.1: Morning Cyclist Movements

Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)

Movement	2009	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	4	1	1	4	2	**0**	**-2**
2	1	2	4	4	4	**4**	**0**
3	0	3	1	1	1	**2**	**1**
4	0	0	0	0	0	**0**	**0**
5	4	3	8	6	5	**2**	**-3**
6	0	0	1	0	2	**1**	**-1**
7	0	0	0	0	1	**0**	**-1**
8	0	3	0	0	2	**0**	**-2**
9	0	0	0	0	1	**0**	**-1**
10	0	1	1	0	0	**1**	**1**
11	4	12	8	3	11	**5**	**-6**
12	0	0	0	0	2	**0**	**-2**
13	0	0	0	0	0	**0**	**0**
14	0	0	0	0	0	**0**	**0**
Total	**13**	**25**	**24**	**18**	**31**	**15**	**-16**

- Over the morning peak, all cyclists riding through this intersection were adults (up from 94 per cent last year).
- The majority of cyclists were wearing a helmet (93 per cent, up from 79 per cent in 2013).
- Almost all of the recorded cyclists using this site (93 per cent) were male, up from 68 per cent in 2013.
- The majority of cyclists were riding on the road (80 per cent, up from 65 per cent last year).

Table 11.2: Morning Cyclist Characteristics

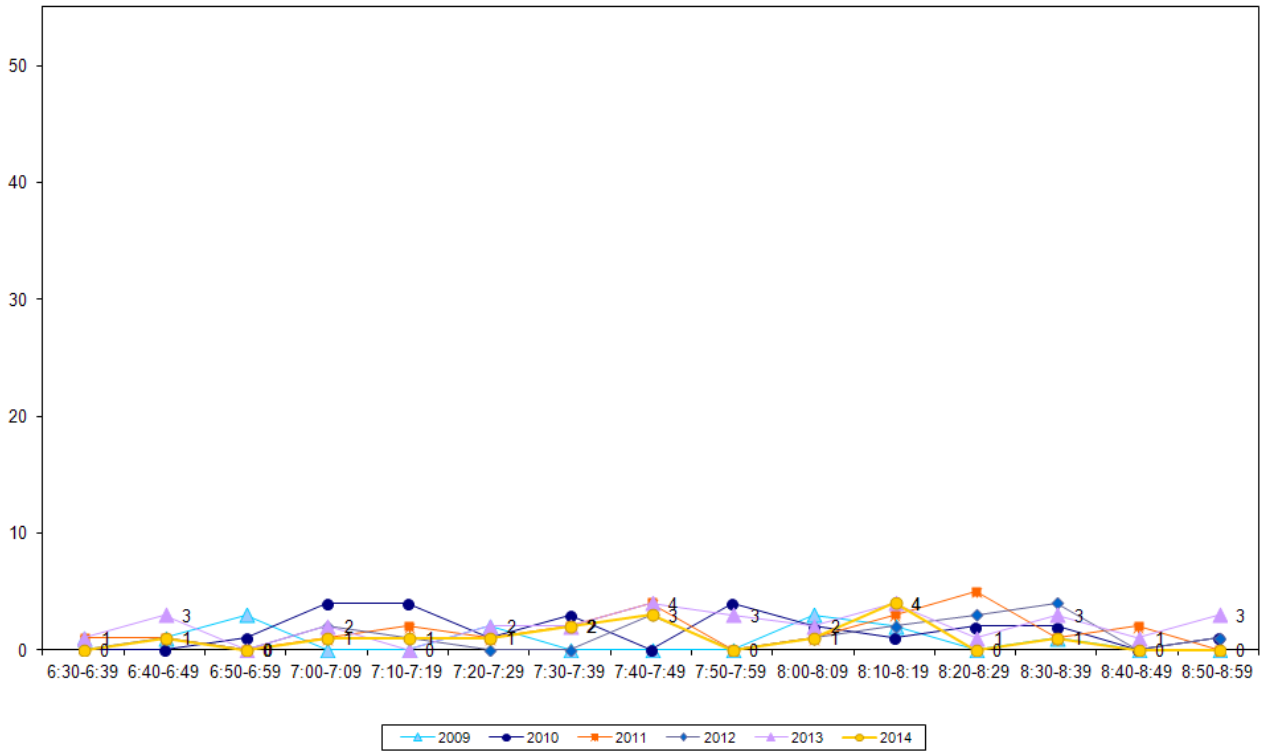
Te Irirangi Drive/Ormiston Road 2009 – 2014 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type							
Adult	69	80	83	89	94	**100**	**6**
School child	31	20	17	11	6	**0**	**-6**
Helmet Wearing							
Helmet on head	85	92	100	83	79	**93**	**14**
No helmet	15	8	0	17	21	**7**	**-14**
Gender							
Male	-	-	75	89	68	**93**	**25**
Female	-	-	25	11	16	**0**	**-16**
Can't tell	-	-	0	0	16	**7**	**-9**
Where Riding							
Road	69	64	67	56	65	**80**	**15**
Footpath	31	36	33	44	35	**20**	**-15**
Base:	***13***	***25***	***24***	***18***	***31***	***15***	

- The volume of morning cycle movements was relatively low over the entire monitoring period, with no more than four cyclists recorded passing during any ten minute interval.

Figure 11.2: Morning Peak Cyclist Frequency

Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)



11.3 Evening Peak

Environmental Conditions

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

Key Points

- Evening cyclist volume at the Te Irirangi Drive/Ormiston Road intersection has decreased over the last 12 months, from 52 movements in 2013 to 46 movements this year.
- The most common movement in the evening was riding straight along Te Irirangi Drive heading south (Movement 11 = 14 cyclists).
- Since 2013, evening cyclist volumes have decreased most noticeably at Movement 11 (down 9 cyclists) and at Movement 5 (down 8 cyclists).

Table 11.3: Evening Cyclist Movements

Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)

Movement	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
1	0	1	1	0	0	**0**	**0**
2	1	4	2	2	3	**3**	**0**
3	0	0	3	1	0	**0**	**0**
4	0	0	1	1	0	**2**	**2**
5	2	8	11	5	13	**5**	**-8**
6	0	0	0	0	0	**1**	**1**
7	1	0	2	1	2	**5**	**3**
8	1	6	1	4	5	**7**	**2**
9	1	1	1	3	4	**5**	**1**
10	0	0	0	0	0	**0**	**0**
11	13	20	9	10	23	**14**	**-9**
12	1	1	1	5	4	**1**	**-3**
13	0	0	0	0	0	**1**	**1**
14	0	0	0	0	0	**2**	**2**
Total	**20**	**41**	**32**	**32**	**54**	**46**	**-8**

- Most evening cyclists using this site were adults (85 per cent, down from 91 per cent in 2013).
- Most cyclists were wearing a helmet (85 per cent, down from 89 per cent last year).
- Eighty-three per cent of cyclists at this site are male (down from 87 per cent in 2013).
- The majority of cyclists were riding on the road (89 per cent, up from 78 per cent in 2013).

Table 11.4: Evening Cyclist Characteristics

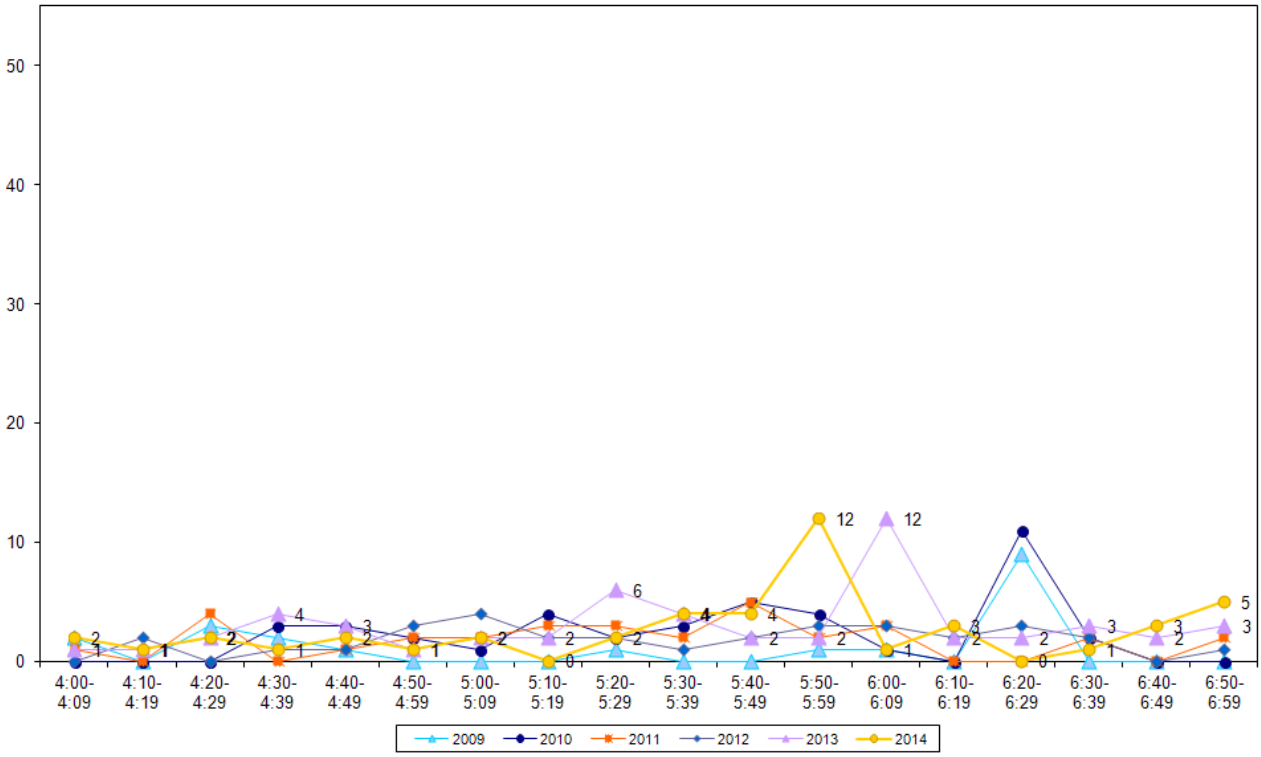
Te Irirangi Drive/Ormiston Road 2009 – 2014 (%)

	2009	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Cyclist Type							
Adult	95	83	97	94	91	**85**	**-6**
School child	5	17	3	6	9	**13**	**4**
Don't know	0	0	0	0	0	**2**	**2**
Helmet Wearing							
Helmet on head	95	78	97	88	89	**85**	**-4**
No helmet	5	22	3	12	11	**9**	**-2**
Don't know	0	0	0	0	0	**6**	**6**
Gender							
Male	-	-	78	94	87	**83**	**-4**
Female	-	-	16	6	9	**17**	**8**
Can't tell	-	-	6	0	4	**0**	**-4**
Where Riding							
Road	95	76	88	72	78	**89**	**11**
Footpath	5	24	12	28	22	**9**	**-13**
Don't know	0	0	0	0	0	**2**	**2**
Base:	***20***	***41***	***32***	***32***	***54***	***46***	

- Evening cyclist volumes were generally stable and low throughout the monitoring period this year, with no more than six cycle movements in any ten minute interval. However, a sharp peak was observed between 5:50pm and 5:59pm (12 movements). This sharp peak in the evening occurred slightly earlier than the peak observed last year.

Figure 11.3: Evening Peak Cyclist Frequency

Te Irirangi Drive/Ormiston Road 2009 – 2014 (n)



12. SCHOOL BIKE SHED COUNT

12.1 Cycle Count Background Information

- A total of 33 schools in the Manukau 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].
- No schools surveyed reported any events or issues that may affect the cycle counts.
- The designated count day was Tuesday 4th of March 2014[10].

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

12.2 Cycle Count Key Points

- Among the surveyed schools, of those eligible to cycle to school, on average, less than one per cent of students are cycling to their schools. This share is stable from 2013.
- Mission Heights Junior College reported the highest share of cyclists – 4 per cent of all eligible students currently cycling to school, up from 0 per cent last year.
- In total, n=72 students from the responding schools were reported to be cycling to school.
- Of the 33 schools that responded, 23 (70 per cent) had no students cycling to school.

[9] The following schools have policies surrounding cycling to school:
- Holy Cross School (Papatoetoe) *"Year 5 and older."*

[10] The following schools conducted their counts on alternative days:
- Al-Madinah School – 12th March 2014
- Aorere College – 18th March 2014
- De La Salle College – 12th March 2014
- Ferguson Intermediate – 12th March 2014
- Holy Cross School (Papatoetoe) – 13th March 2014
- Kedgley Intermediate – 13th March 2014
- Kia Aroha College – 13th March 2014
- King's College – 13th March 2014
- Koru School – 13th March 2014
- Mangere Central School – 13th March 2014
- Otahuhu College – 13th March 2014
- Pacific Christian School – 13th March 2014
- Papatoetoe High School –17th March 2014
- Papatoetoe Intermediate School – 17th March 2014
- Redoubt North School – 17th March 2014
- Robertson Road School – 17th March 2014
- Sir Douglas Bader Intermedaite School – 17th March 2014
- South Auckland SDA School – 17th March 2014
- Southern Cross Campus – 17th March 2014
- St Joseph's (Otahuhu) – 17th March 2014
- St Joseph's School (Onehunga) – 17th March 2014
- St Mary MacKillop Catholic School – 18th March 2014
- Tangaroa College – 17th March 2014
- Te Kura Maori o nga Tapuwae – 18th March 2014
- Viscount School – 17th March 2014
- Wiri Central School – 18th March 2014

- Of the 33 schools that participated in the count in both 2013 and 2014, 2 (6 per cent) reported an increase in the share of students cycling:
  - Mission Heights Junoir College (4 per cent, up from 0 per cent);
  - Auckland Seventh Day Adventist High School (1 per cent, up from 0 per cent).
- Of the 33 schools that participated in the count in both 2013 and 2014, 3 (9 per cent) reported a decrease in the share of students cycling, the most notable decreases being:
  - Papatoetoe Intermediate (2 per cent, down from 3 per cent);
  - Te Kura Kaupapa Māori a Rohe o Mangere (0 per cent, down from 1 per cent);
  - Te Kura Māori o Ngā Tapuwae (0 per cent, down from 1 per cent).

Table 12.1 shows the results of the 33 schools surveyed in the Manukau ward.

Table 12.1: Summary Table Of School Bike Count

2007 – 2014 (n)

School Name	*School Type*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[11]							
				2014	*2013*	*2012*	*2011*	*2010*	*2009*	*2008*	*2007*
Mission Heights Junior College	Composite	757	27	**4%**	0%	2%	1%	5%	3%	-	-
Papatoetoe Intermediate School	Intermediate	727	14	**2%**	3%	2%	2%	2%	1%	-	-
Auckland Seventh Day Adventist High School	Secondary	212	2	**1%**	0%	1%	<1%	-	-	-	-
Holy Cross School (Papatoetoe)	Full Primary	230	2	**1%**	1%	0%	-	-	-	-	-
Kedgley Intermediate	Intermediate	735	5	**1%**	1%	1%	1%	2%	2%	-	-
Papatoetoe High School	Secondary	1600	15	**1%**	-	-	-	-	-	-	-
Sir Douglas Bader Intermediate School	Intermediate	175	2	**1%**	1%	-	<1%	<1%	0%	<1%	0%
Mangere College	Secondary	756	2	**<1%**	<1%	<1%	1%	1%	1%	-	-
Otahuhu Intermediate School	Intermediate	334	1	**<1%**	0%	2%	0%	0%	-	1%	1%
Southern Cross Campus	Composite	740	2	**<1%**	<1%	-	-	0%	0%	0%	-
Al-Madinah School	Composite	517	0	**0%**	0%	0%	0%	0%	0%	0%	-
Aorere College	Secondary	1588	0	**0%**	0%	0%	0%	0%	0%	-	-
De La Salle College	Intermediate/Secondary	1015	0	**0%**	<1%	-	-	-	<1%	<1%	0%
Ferguson Intermediate School	Intermediate	484	0	**0%**	0%	0%	0%	-	-	0%	-
Kia Aroha College	Intermediate/Secondary	267	0	**0%**	<1%	1%	0%	-	-	0%	-
King's College	Secondary	950	0	**0%**	0%	0%	-	-	-	-	-
Koru School	Full Primary	530	0	**0%**	0%	0%	-	-	-	-	-
Mangere Central School	Full Primary	430	0	**0%**	0%	0%	-	-	-	-	-
McAuley High School	Secondary	751	0	**0%**	0%	0%	0%	0%	0%	0%	0%

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

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible[11]							
				2014	2013	2012	2011	2010	2009	2008	2007
Otahuhu College	Secondary	1285	0	**0%**	0%	0%	0%	-	0%	0%	0%
Pacific Christian School	Full Primary	75	0	**0%**	0%	-	0%	-	-	-	-
Redoubt North School	Full Primary	619	0	**0%**	0%	-	0%	-	-	-	-
Robertson Road School	Full Primary	494	0	**0%**	0%	-	-	-	-	-	-
South Auckland SDA School	Full Primary	296	0	**0%**	0%	0%	-	-	-	-	-
St Joseph's Otahuhu	Full Primary	297	0	**0%**	0%	-	0%	-	-	-	-
St Joseph's School (Onehunga)	Full Primary	228	0	**0%**	0%	-	0%	-	-	-	-
St Mary MacKillop Catholic School	Full Primary	305	0	**0%**	0%	0%	0%	-	-	-	-
Tangaroa College	Secondary	930	0	**0%**	<1%	-	0%	0%	-	0%	-
Te Kura Kaupapa Māori a Rohe o Mangere	Composite	180	0	**0%**	1%	0%	1%	-	-	-	-
Te Kura Māori o Ngā Tapuwae	Composite	272	0	**0%**	1%	2%	-	-	-	-	-
Viscount School	Full Primary	670	0	**0%**	0%	-	-	-	-	-	-
Wiri Central School	Full Primary	466	0	**0%**	0%	-	0%	-	-	-	-
Zayed College for Girls	Intermediate/Secondary	103	0	**0%**	0%	0%	0%	-	-	-	-
Total		19018	72	**<1%**	<1%	<1%	**-**	**-**	**-**	**-**	**-**

Table 12.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (1 per cent, unchanged from last year) and intermediate/secondary schools (1 per cent, stable from last year).

Table 12.2: Summary Table of School Bike Count by School Type

2007 – 2014 (%)

Year Levels	*Number of Schools Responded in 2014*	*Cyclists as share of those eligible*								
		2007	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	Change 13-14
Intermediate	5	<1%	<1%	1%	1%	1%	1%	1%	**1%**	**0%**
Intermediate/Secondary	4	-	0%	-	-	0%	1%	<1%	**1%**	**<1%**
Full Primary	12	-	-	-	-	0%	0%	<1%	**<1%**	**0%**
Secondary	9	0%	0%	<1%	<1%	<1%	<1%	<1%	**<1%**	**0%**
Composite	4	-	0%	0%	0%	1%	1%	<1%	**0%**	**<1%**

12.3 Scooter Count Background Information

- A total of 33 schools in the Manukau ward participated in the school bike shed scooter count. Of the schools that responded to the survey, most had no policies that restrict students scootering to school[12].
- No schools surveyed reported any events or issues that may affect the scooter counts.
- The designated count day was Tuesday 4th of March 2014[13].

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

12.4 Scooter Count Key Points

- Among the surveyed schools, of those eligible to scooter, on average, less than one per cent of students are scootering to their schools.
- Mission heights Junior School reported the highest share of scooters – 5 per cent of all eligible students currently scootering to school.
- In total, n=55 students from the responding schools were reported to be scootering to school.
- Of the 33 schools that responded, 28 (85 per cent) had no students scootering to school.

[12] The following schools have policies surrounding scootering to school:
- Holy Cross School (Papatoetoe) *"Year 5 and older."*
- Sir Douglas Bader Intermediate School *"Scooters are not permitted."*

[13] The following schools conducted their counts on alternative days:
- Al-Madinah School – 12th March 2014
- Aorere College – 18th March 2014
- De La Salle College – 12th March 2014
- Ferguson Intermediate – 12th March 2014
- Holy Cross School (Papatoetoe) – 13th March 2014
- Kedgley Intermediate – 13th March 2014
- Kia Aroha College – 13th March 2014
- King's College – 13th March 2014
- Koru School – 13th March 2014
- Mangere Central School – 13th March 2014
- Otahuhu College – 13th March 2014
- Pacific Christian School – 13th March 2014
- Papatoetoe High School –17th March 2014
- Papatoetoe Intermediate School – 17th March 2014
- Redoubt North School – 17th March 2014
- Robertson Road School – 17th March 2014
- Sir Douglas Bader Intermedaite School – 17th March 2014
- South Auckland SDA School – 17th March 2014
- Southern Cross Campus – 17th March 2014
- St Joseph's (Otahuhu) – 17th March 2014
- St Joseph's School (Onehunga) – 17th March 2014
- St Mary MacKillop Catholic School – 18th March 2014
- Tangaroa College – 17th March 2014
- Te Kura Maori o nga Tapuwae – 18th March 2014
- Viscount School – 17th March 2014
- Wiri Central School – 18th March 2014

Table 12.3 shows the results of the 33 schools surveyed in the Manukau ward.

Table 12.3: Summary Table Of School Scooter Count

2007 – 2014 (n)

School Name	*School Type*	*School Roll Eligible To Scooter*	*No. of Scooters Counted*	*Scooters as share of those eligible*[14]
				2014
Mission Heights Junior College	Intermediate/ Secondary	757	40	**5%**
Otahuhu Intermediate School	Intermediate	334	6	**2%**
Kedgley Intermediate	Intermediate	735	5	**1%**
Mangere Central School	Full Primary	430	3	**1%**
Papatoetoe Intermediate School	Intermediate	727	1	**<1%**
Al-Madinah School	Composite	517	0	**0%**
Aorere College	Secondary	1588	0	**0%**
Auckland Seventh Day Adventist High School	Secondary	212	0	**0%**
De La Salle College	Intermediate/ Secondary	1015	0	**0%**
Ferguson Intermediate	Intermediate	484	0	**0%**
Holy Cross School (Papatoetoe)	Full Primary	230	0	**0%**
Kia Aroha College	Intermediate/ Secondary	267	0	**0%**
King's College	Secondary	950	0	**0%**
Koru School	Full Primary	530	0	**0%**
Mangere College	Secondary	756	0	**0%**
McAuley High School	Secondary	751	0	**0%**
Otahuhu College	Secondary	1285	0	**0%**
Pacific Christian School	Full Primary	75	0	**0%**
Papatoetoe High School	Secondary	1600	0	**0%**
Redoubt North School	Full Primary	619	0	**0%**
Robertson Road School	Full Primary	494	0	**0%**
Sir Douglas Bader Intermediate School	Intermediate	0	0	**0%**
South Auckland SDA School	Full Primary	296	0	**0%**
Southern Cross Campus	Secondary	740	0	**0%**
St Joseph's (Otahuhu)	Full Primary	297	0	**0%**

[14] 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.

School Name	*School Type*	*School Roll Eligible To Scooter*	*No. of Scooters Counted*	*Scooters as share of those eligible*[14]
				2014
St Joseph's School (Onehunga)	Full Primary	228	0	**0%**
St Mary MacKillop Catholic School	Full Primary	305	0	**0%**
Tangaroa College	Secondary	930	0	**0%**
Te Kura Kaupapa Maori A Rohe O Mangere	Composite	180	0	**0%**
Te Kura Maori o nga Tapuwae	Composite	272	0	**0%**
Viscount School	Full Primary	670	0	**0%**
Wiri Central School	Full Primary	466	0	**0%**
Zayed College for Girls	Intermediate/ Secondary	103	0	**0%**
Total		19360	**55**	**<1%**

Table 12.4 illustrates the rates of scootering to school at different school levels. Rates of scootering to school are highest for the intermediate/secondary schools (2 per cent).

Table 12.4: Summary Table Of School Scooter Count by School Type

2007 – 2014 (%)

School Type	***Number of Schools Responded in 2014 (n)***	***Scooter riders as share of those eligible***
		2014
Intermediate/Secondary	4	**2%**
Intermediate	5	**1%**
Full Primary	12	**<1%**
Composite	4	**0%**
Secondary	9	**0%**

APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[15] 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)[16], adjusted for Auckland conditions based on data collected during March 2007. The aim was to use the published methodology as much as possible, with any necessary departure from it documented below. The following equation yields the best estimate of a cycling AADT:

$$AADT_{Cyc} = Count \times \frac{1}{\sum H} \times \frac{1}{D} \times \frac{W}{7} \times \frac{1}{R}$$

where *Count = result of count period*

H = scale factor for time of day

D = scale factor for day of week

W = scale factor for week of year

R = scale factor for weather conditions on the count day

If more than one set of count data is available (for example, both a morning count and afternoon count), then **the calculation should be carried out for each set of data, and the estimates derived from each averaged**.

The values for the scale factors (*H, D*, *W* and *R*) have been deduced in the ViaStrada report and are included in this report in Figure 1.

[15] Annual average daily traffic

[16] LTSA, 2004

For the Gravitas counts, the following factors apply:

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

D = 14

W = 0.9

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

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

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

Worked Example

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

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

Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%