

2012 Auckland Region Manual Cycle Monitor

- Manukau Ward -



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1. MANUKAU WARD SUMMARY OF RESULTS

1.1 Introduction

The Need For Reliable Cycle Trip Data

Monitoring cycle movements and cycle traffic is important to Auckland Transport, to identify where investment may be needed to improve infrastructure for cycling. Cycle traffic data will also help Auckland Transport prioritise future funding through the Auckland Land Transport Programme¹.

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

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

Manual Cycle Monitoring

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

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

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:

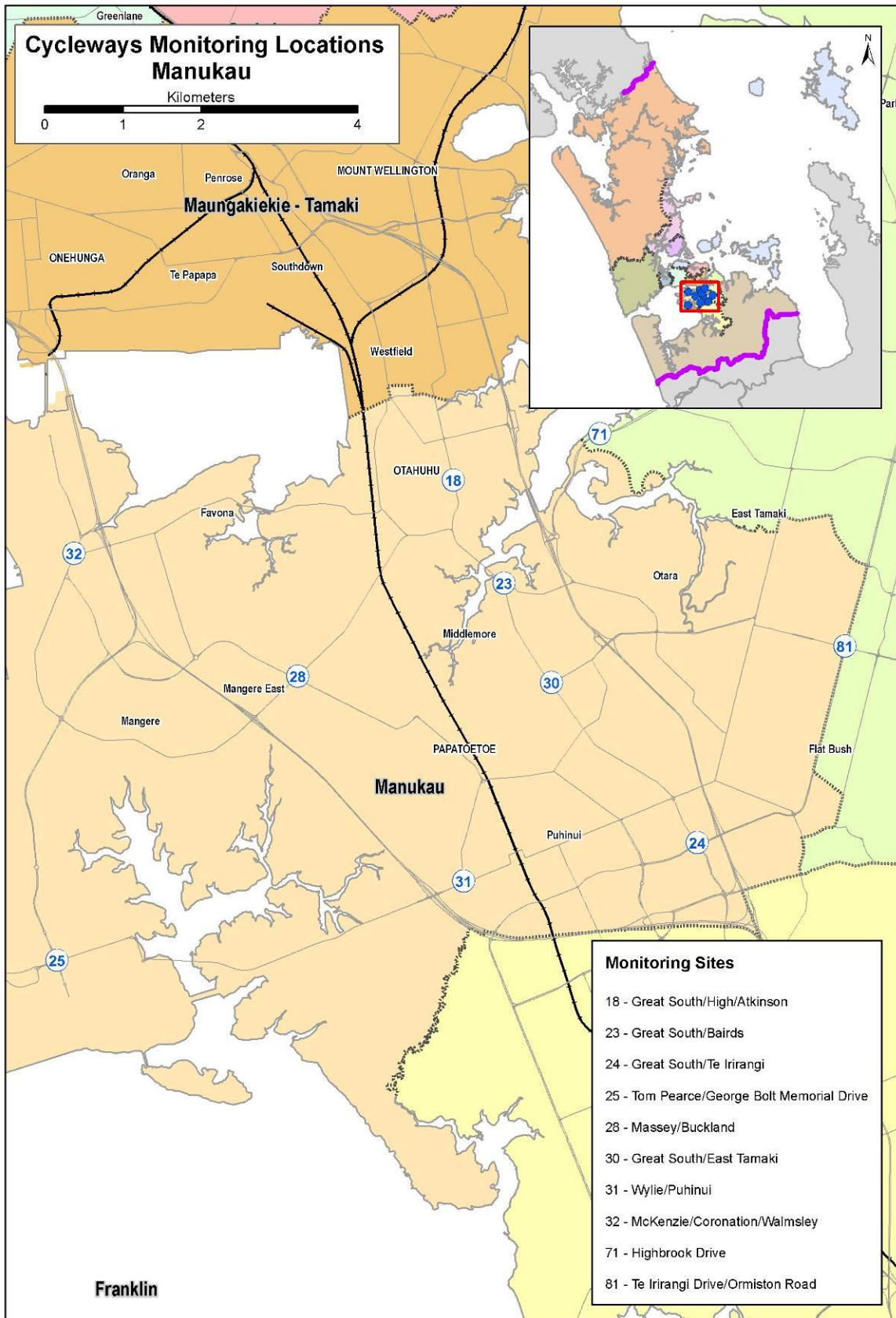
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and 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 2007, 2008, 2009, 2010 and/or 2011, 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: 2012 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 83 different sites throughout the region. Sites were distributed by ward as follows:

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

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

Monitoring Times

Time Of Day

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

Day Of Week

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

Time Of Year

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

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

It was agreed that manual counts would commence on Tuesday the 6th of March and be conducted on the first three fine days of the 6th, 7th, 8th, 13th, 14th, or 15th of March.

Counts were conducted on the following days:

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

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

Weather and Daylight Conditions

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

The weather on the three count days in 2012 was as follows:

Tuesday 6th March

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

Wednesday 7th March

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

Tuesday 13th March

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

Conducting The Manual Counts

Scoping Visit

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

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

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

During their shift the surveyor collected data on:

- The total number of cyclists⁴ passing through the intersection;
- The direction in which cyclists are travelling (using the numbers on the map provided);
- The time at which cyclists pass through the intersection (to the nearest minute);
- Whether cyclists are school children or adults (determined by whether they are wearing a school uniform or clearly of school age);
- Whether cyclists are wearing a helmet;
- Gender of the cyclist (*collected for the first time in 2011*); and
- Whether cyclists are riding on the road, footpath or designated off- road cycleway⁵.

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 have 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 Zealand⁶, Annual Average Daily Traffic (AADT) analysis can be used to estimate the average annual daily flow of cyclists from manual and automated cycle counts conducted at one point in time. The procedure involves deriving scale factors, which account for the time of day, day of the week, and week of the year (which varies with school holidays and season) as well as weather conditions on the count day. These scale factors are then applied to the count data collected to give an AADT estimate.

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

⁶ <http://www.itsa.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 study⁸.

School Bike Shed Counts

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

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

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

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

Methodology

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

1. Gravitas designed an information sheet that was distributed to most full primary, intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region via email (note a small number of schools were omitted due to the special nature of the students e.g. boarding schools, special needs schools). This sheet was designed in consultation with Auckland Transport to ensure all necessary information was collected.
2. This email was then sent to all eligible schools in Auckland region (n=317) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.
3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 6th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).
4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2012, 233 responses were received, a response rate of 74 per cent. (This compares with 68 per cent in 2011).

Reporting

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

Manual Counts - Site Level Reporting

The following results have been reported for each site:

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary of Results

This summary contains the aggregated results of the 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 Tuesday 13th of March, 2012⁹. Sunrise was at 7:17am and sunset was at 7:43pm. The highest temperature was 21.3 degrees Celsius.

⁹ The only exception was Great South Road/High St/Atkinson/Park Ave site which was monitored on Wednesday 7th March 2012.

1.4 Morning Peak

Environmental Conditions

- All sites had good weather throughout the morning shift.
- 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 (182 in 2012, compared with 208 in 2011). This represents a 13 per cent decrease
- A total of 224 cyclist movements were recorded across the 10 sites in the morning peak period (between 6:30am and 9:00am) in 2012, down from 270 in 2011 – a 17 per cent decrease.
- The average volume of morning cyclists across the seven sites monitored since 2007 is 26 cycle movements (down from 30 cycle movements in 2011). The average volume of morning cyclists across all 10 sites is 22, down from 27 last year.
- The busiest site in the morning peak is the intersection of Great South Road and East Tamaki Road (40 movements, down from 44 movements last year), whereas the site at Tom Pearce/George Bolt Memorial Drive has the lowest level of morning cyclist traffic (3 cycle movements).
- One site recorded increases this year compared to 2011:
 - Great South Road/High Street/Atkinson Avenue – up 70 per cent.
- In contrast, the remaining nine sites recorded declines. The most notable decreases are at:
 - Tom Pearce/George Bolt Memorial Drive – down 80 per cent; and
 - McKenzie/Coronation/Walmsley Road – down 41 per cent.

**Table 1.1: Summary Of Morning Cyclist Movements
2007 – 2012 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	Change 11-12	Change 07-12
30	Great South/East Tamaki Road	36	24	33	25	44	40	-9%	11%
23	Great South/Bairds Road	32	27	29	34	40	39	-3%	22%
18	Great South Road/High Street/Atkinson Avenue	38	30	21	25	20	34	70%	-11%
24	Great South Road/Te Irirangi Dr/ Cavendish Dr	34	25	19	28	41	28	-32%	-18%
32	McKenzie/Coronation/Walmsley Road	28	21	22	38	32	19	-41%	-32%
28	Massey/Buckland Road	12	11	19	16	18	14	-22%	17%
31	Wyllie Avenue/Puhinui Road	18	8	12	23	13	8	-38%	-56%
	Average per site (for 7 sites since 2007)	28	21	22	27	30	26	-13%	-7%
	Total (for 7 sites since 2007)	194	146	155	189	208	182	-13%	-6%
71	Highbrook Drive	-	13	20	27	23	21	-9%	-
81	Te Irirangi Drive/Ormiston Road	-	-	13	25	24	18	-25%	-
25	Tom Pearce/George Bolt Memorial Drive	-	-	6	5	15	3	-80%	-
	Average per site (all sites)	-	20	19	25	27	22	-19%	-
	Total (all sites)	-	159	194	246	270	224	-17%	-

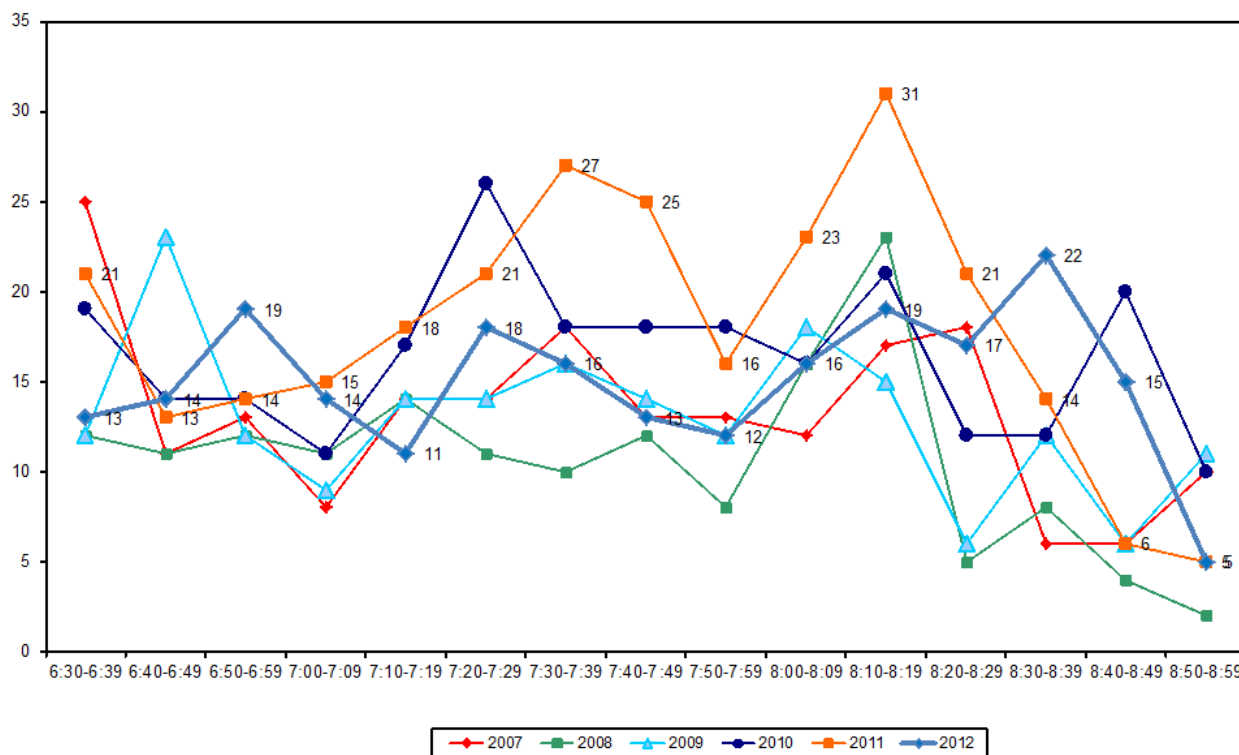
- As shown in Table 1.2 below, morning cyclist characteristics this year are similar to those reported in 2011. Overall, four in five cyclists are adults (83 per cent, down from 87 per cent last year).
- The majority of cyclists are wearing a helmet (78 per cent, down from 87 per cent recorded in 2011).
- Almost all morning cyclists are male (89 per cent).
- Fifty-nine per cent of cyclists are riding on the road (59 per cent, down from 66 per cent in 2011).

**Table 1.2: Summary of Morning Cyclist Characteristics
2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	86	86	88	90	87	83	-4
School child	14	14	12	10	13	17	4
Helmet Wearing							
Helmet on head	85	79	82	85	87	78	-9
No helmet	15	21	18	15	13	22	9
Gender							
Male	-	-	-	-	85	89	4
Female	-	-	-	-	12	8	-4
Can't tell	-	-	-	-	3	3	0
Where Riding							
Road	73	56	72	64	66	59	-7
Footpath	27	44	20	29	29	30	1
Off-road cycleway	0	0	8	7	5	11	6
Base:	194	159	194	246	270	224	

- Figure 1.2 illustrates the total number of cyclists in the morning peak by time of movement. This year, cycle movements peaked in the morning peak period between 8:30am and 8:39am (22 movements).

**Figure 1.2: Total Cyclist Frequency – Morning Peak
2007 – 2012 (n)**



1.5 Evening Peak

Environmental Conditions

- The weather was fine for most sites throughout the evening shift. However, the Great South Road, High Street and Atkinson Avenue site recorded intermittent showers between 4:39pm to 6:37pm.
- 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 22 per cent – from 356 last year to 281 in 2012.
- A total of 354 cyclist movements were recorded across the 10 sites in the evening peak period (between 4:00pm and 7:00pm) in 2012 (down from 457 in 2011).
- Two per cent (n=7) of the total cycle movements during the evening peak were observed cycling as groups. This compares with 5 per cent in 2011.
- The average volume of evening cyclists across the seven sites monitored since 2007 is 40 cycle movements. This compares with an average of 51 movements in 2011. The average volume of evening cyclists across all 10 sites is 35, down from 46 movements last year.
- Great South Road/Te Irirangi Drive/Cavendish Drive is the busiest in terms of the evening cyclists' activity (50 cycle movements, down from 53 movements last year). In contrast, the Tom Pearce/George Bolt Memorial Drive site has the lowest level of evening cyclist traffic (12 cycle movements, down notably from 39 movements last year).
- Eight sites recorded decreases this year compared to 2011. The most notable decreases are at:
 - Tom Pearce/George Bolt Memorial Drive – down 69 per cent;
 - McKenzie/Coronation/Walmsley Road – down 52 per cent; and
 - Wyllie Avenue/Puhinui Road – down 37per cent.
- In contrast, only one site recorded an increase - Great South/East Tamaki Road – up 2 per cent.

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

Site No.	Locations	2007	2008	2009	2010	2011	2012	Change 11-12	Change 07-12
24	Great South Road/Te Irirangi Dr/ Cavendish Dr	39	26	22	44	53	50	-6%	28%
30	Great South/East Tamaki Road	37	27	30	40	45	46	2%	24%
23	Great South/Bairds Road	36	29	28	37	49	42	-14%	17%
18	Great South Road/High Street/Atkinson Avenue	46	30	28	36	51	41	-20%	-11%
31	Wyllie Avenue/Puhinui Road	20	25	23	34	62	39	-37%	95%
28	Massey/Buckland Road	31	20	20	29	35	34	-3%	10%
32	McKenzie/Coronation/Walmsley Road	42	36	30	49	61	29	-52%	-31%
	Average per site (for 7 sites since 2007)	36	28	26	38	51	40	-22%	11%
	Total (for 7 sites since 2007)	251	193	181	269	356	281	-21%	12%
81	Te Irirangi Drive/Ormiston Road	-	-	20	41	32	32	0%	-
71	Highbrook Drive	-	16	18	13	30	29	-3%	-
25	Tom Pearce/George Bolt Memorial Drive	-	-	21	7	39	12	-69%	-
	Average per site (all sites)	-	26	24	33	46	35	-24%	-
	Total (all sites)	-	209	240	330	457	354	-23%	-

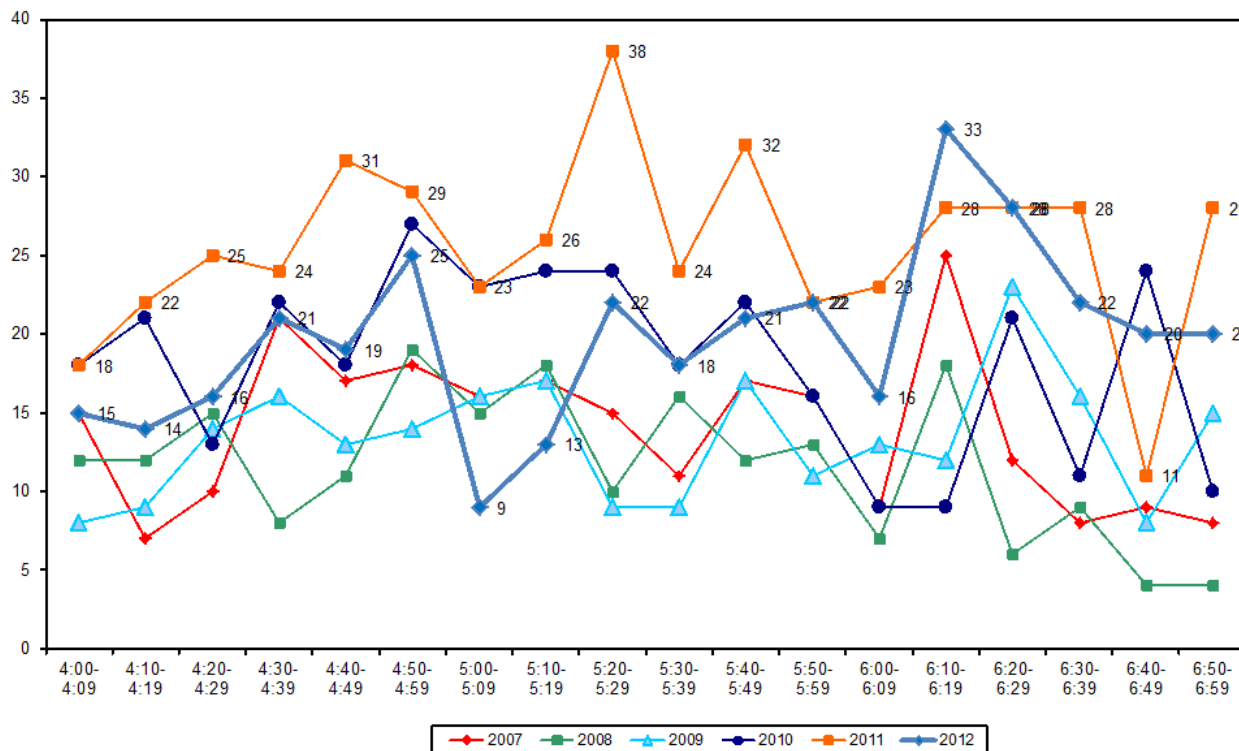
- Evening cyclist characteristics this year are consistent with 2011. In particular, the majority of evening cyclists are adults (85 per cent, down from 90 per cent last year).
- Just more than two-thirds of cyclists are wearing a helmet (70 per cent, down from 79 per cent in 2011).
- Most cyclists are male (92 per cent, up from 83 per cent in 2011).
- On average, two in three evening cyclists are riding on the road (63 per cent, stable from 64 per cent last year).

**Table 1.4: Summary of Evening Cyclist Characteristics
2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	83	87	88	91	90	85	-5
School child	17	13	12	9	10	15	5
Helmet Wearing							
Helmet on head	78	74	78	77	79	70	-9
No helmet	22	26	22	23	21	30	9
Gender							
Male	-	-	-	-	83	92	9
Female	-	-	-	-	13	8	-5
Can't tell	-	-	-	-	4	0	-4
Where Riding							
Road	64	64	68	66	64	63	-1
Footpath	36	36	27	32	33	28	-5
Off-road cycleway	0	0	5	2	3	9	6
Base:	251	209	240	330	457	354	

- The overall pattern of cyclist volumes by time of movement in the evening is illustrated in Figure 1.3. Evening cyclist volumes fluctuate throughout the monitoring period, with the peak occurring between 6:10pm and 6:19pm (33 movements at each site).

**Figure 1.3: Total Cyclist Frequency – Evening Peak
2007 – 2012 (n)**



1.6 Aggregate Total

- Across the seven sites monitored since 2007, the number of cycle movements has decreased by 18 per cent – down from 564 to 463.
- A total of 578 cyclist movements were recorded across the 10 sites in 2012 (down from 727 movements in 2011).
- One per cent (n=7) of the total cycle movements were observed cycling as groups (this share has decreased from 4 per cent last year).
- The busiest site is the intersection of Great South/East Tamaki Road with a total of 86 movements (down from 89 movements in 2011), while the Tom Pearce/George Bolt Memorial Drive intersection had the lowest number of cyclist volumes (15 movements, down from 54 movements in 2011).
- All but one site recorded decreases in total cyclist numbers this year compared with 2011. The site with the biggest decrease is Tom Pearce/George Bolt Memorial Drive (down 72 per cent).
- In contrast, cycle volumes at the Great South Road/High Street/Atkinson Avenue intersection have increased over the last 12 months – up 6 per cent to 75 movements.

**Table 1.5: Summary of Total Cyclist Movements
2007 – 2012 (n)**

Site No.	Locations	2007	2008	2009	2010	2011	2012	Change 11-12	Change 07-12
30	Great South/East Tamaki Road	73	51	63	65	89	86	-3%	18%
23	Great South/Bairds Road	68	56	57	71	89	81	-9%	19%
24	Great South Road/Te Irirangi Dr/ Cavendish Dr	73	51	41	72	94	78	-17%	7%
18	Great South Road/High Street/Atkinson Avenue	84	60	49	61	71	75	6%	-11%
32	McKenzie/Coronation/Walmsley Road	70	57	52	87	93	48	-48%	-31%
28	Massey/Buckland Road	43	31	39	45	53	48	-9%	12%
31	Wyllie Avenue/Puhinui Road	38	33	35	57	75	47	-37%	24%
	Average per site (for 7 sites since 2007)	64	48	48	65	81	66	-19%	3%
	Total (for 7 sites since 2007)	449	339	336	458	564	463	-18%	3%
81	Te Irirangi Drive/Ormiston Road	-	-	33	66	56	50	-11%	-
71	Highbrook Drive	-	29	38	40	53	50	-6%	-
25	Tom Pearce/George Bolt Memorial Drive	-	-	27	12	54	15	-72%	-
	Average per site (all sites)	-	46	43	58	73	58	-21%	-
	Total (all sites)	-	368	434	576	727	578	-20%	-

- Overall cyclist characteristics are illustrated in Table 1.6. In total, 84 per cent of cyclists are adults, down from 89 per cent in 2011.
- Most cyclists are wearing a helmet (73 per cent, down from 82 per cent last year).
- Nine out of every 10 cyclists are male.
- Sixty-one per cent of cyclists are riding on the road (down from 65 per cent in 2011).

**Table 1.6: Summary of Total Cyclist Characteristics
2007 – 2012 (%)**

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

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 Great South/East Tamaki Road (125 daily movements) and the lowest is at the Tom Pearce/George Bolt Memorial Drive intersection (21 daily movements).
- All but one site has recorded decreases in total AADT estimates this year, the most notable decrease being at Tom Pearce/George Bolt Memorial Drive (down 73 per cent).
- The only site that recorded an increase this year is Great South Road/High Street/Atkinson Avenue (up 7 per cent from 2011).

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

Site No.	Locations	2007 AADT	2008 AADT	2009 AADT	2010 AADT	2011 AADT	2012 AADT	Change 11-12	Change 07-12
30	Great South/East Tamaki Road	106	74	92	93	129	125	-3%	18%
23	Great South/Bairds Road	99	81	83	103	129	118	-9%	19%
24	Great South Road/Te Irirangi Drive/Cavendish Drive	106	74	59	103	136	112	-18%	6%
18	Great South Road/High Street/Atkinson Avenue	121	87	71	88	101	108	7%	-11%
81	Te Irirangi Drive/Ormiston Road	-	-	47	95	81	72	-11%	-
71	Highbrook Drive	-	42	55	59	77	72	-6%	-
32	McKenzie/Coronation/Walmsley Road	101	82	75	126	133	69	-48%	-32%
28	Massey/Buckland Road	61	44	57	64	76	68	-11%	11%
31	Wyllie Avenue/Puhinui Road	55	47	50	82	105	66	-37%	20%
25	Tom Pearce/George Bolt Memorial Drive	-	-	38	17	77	21	-73%	-

1.8 School Bike Shed Count Summary

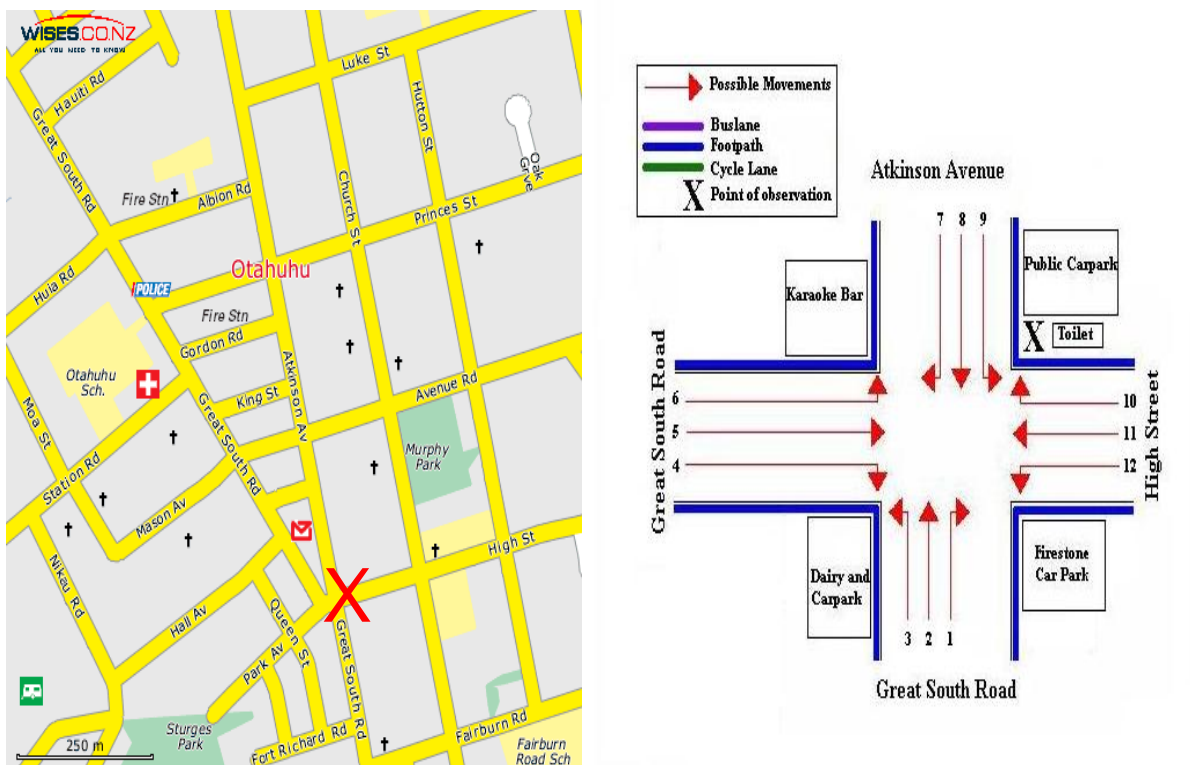
Key Points

- 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 2011).
- Across the 24 schools that responded, 53 students were reported to cycle to school.
- This year, four schools shared the highest proportion of cyclists; Mission Heights Junior College, Otahuhu Intermediate School, Papatoetoe Intermediate School and Te Kura Maori o Nga Tapuwae – all with 2 per cent of all eligible students currently cycling.
- Of the 24 schools that responded, 16 (70 per cent) had no students cycling to school.
- Rates of cycling to school are highest among composite and intermediate schools (1 per cent, unchanged from last year) and intermediate/secondary schools (1 per cent, up from no cyclists in 2011).

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



Note: Contrary to other Manukau ward sites, the intersection of Great South Road/High Street/Atkinson Avenue was monitored on Wednesday 7th March 2012.

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

2.2 Morning Peak

Environmental Conditions

- The weather was fine with cloudy periods 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 increased notably, from 20 cycle movements last year to 34 movements in 2012.
- The most common movement is travelling along Great South Road in a north-westerly direction (Movement 3 = 16 cyclists).
- Compared with last year, the volume of morning cyclists increases most notably at Movement 3 (up 11 cyclists).

Table 2.1: Morning Cyclist Movements
Great South Road/High Street 2007 – 2012 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	0	0	2	0	0	1	1
2	7	8	6	2	2	6	4
3	11	11	4	10	5	16	11
4	7	7	3	6	9	6	-3
5	0	1	2	1	1	3	2
6	1	0	0	0	0	0	0
7	1	0	0	0	1	0	-1
8	11	2	3	4	2	1	-1
9	0	0	1	0	0	0	0
10	0	0	0	1	0	0	0
11	0	1	0	1	0	1	1
12	0	0	0	0	0	0	0
Total	38	30	21	25	20	34	14

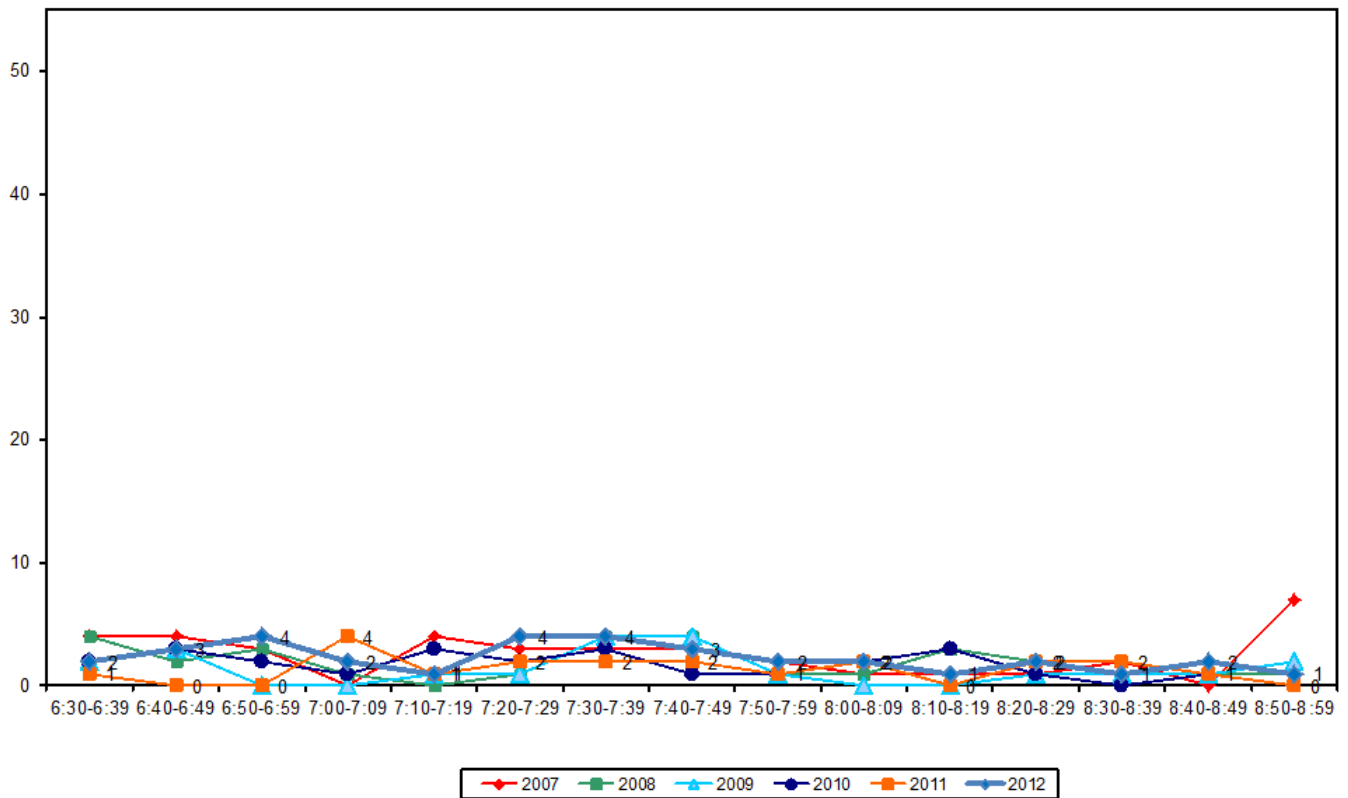
- Over the morning peak in 2012, all cyclists are adults (100 per cent, an increase from 85 per cent in 2011).
- Four out of every five cyclists are wearing a helmet (82 per cent, down from 95 per cent recorded last year).
- Almost all cyclists are recorded as male (94 per cent).
- Seventy-one per cent of cyclists are riding on the road, down from 75 per cent the previous measure.

**Table 2.2: Morning Cyclist Characteristics
Great South Road/High Street 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	97	100	95	96	85	100	15
School child	3	0	5	4	15	0	-15
Helmet Wearing							
Helmet on head	89	77	95	92	95	82	-13
No helmet	11	23	5	8	5	18	13
Gender							
Male	-	-	-	-	100	94	-6
Female	-	-	-	-	0	3	3
Can't tell	-	-	-	-	0	3	3
Where Riding							
Road	89	70	86	76	75	71	-4
Footpath	11	30	14	24	25	29	4
Base:	38	30	21	25	20	34	

- The volume of morning cycle movements is low during the entire morning shift, with a fairly consistent flow over the monitoring period. There is a slight peak between 6:50am and 6:59am and again between 7:20am and 7:39am (4 cyclist movements per 10 minute interval). This pattern is consistent with last year where there are no more than four cyclists recorded over any ten minute interval.

**Figure 2.2: Morning Peak Cyclist Frequency
Great South Road/High Street 2007 – 2012 (n)**



2.3 Evening Peak

Environmental Conditions

- The weather was mostly fine for the first part of the evening monitoring period, with intermittent showers from 4:39pm to 6:37pm.
- 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 2012 (41 movements) represents a decrease from last year's result (51 movements).
- The key movements are travelling along Great South Road in a south easterly direction (Movement 4 = 12 cyclists), and straight through Atkinson Avenue into Great South Road heading south (Movement 8 = 9 cyclists).
- The most notable change since 2011 is at Movement 11 (down 9 cyclists).

Table 2.3: Evening Cyclist Movements
Great South Road/High Street 2007 – 2012 (n)

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

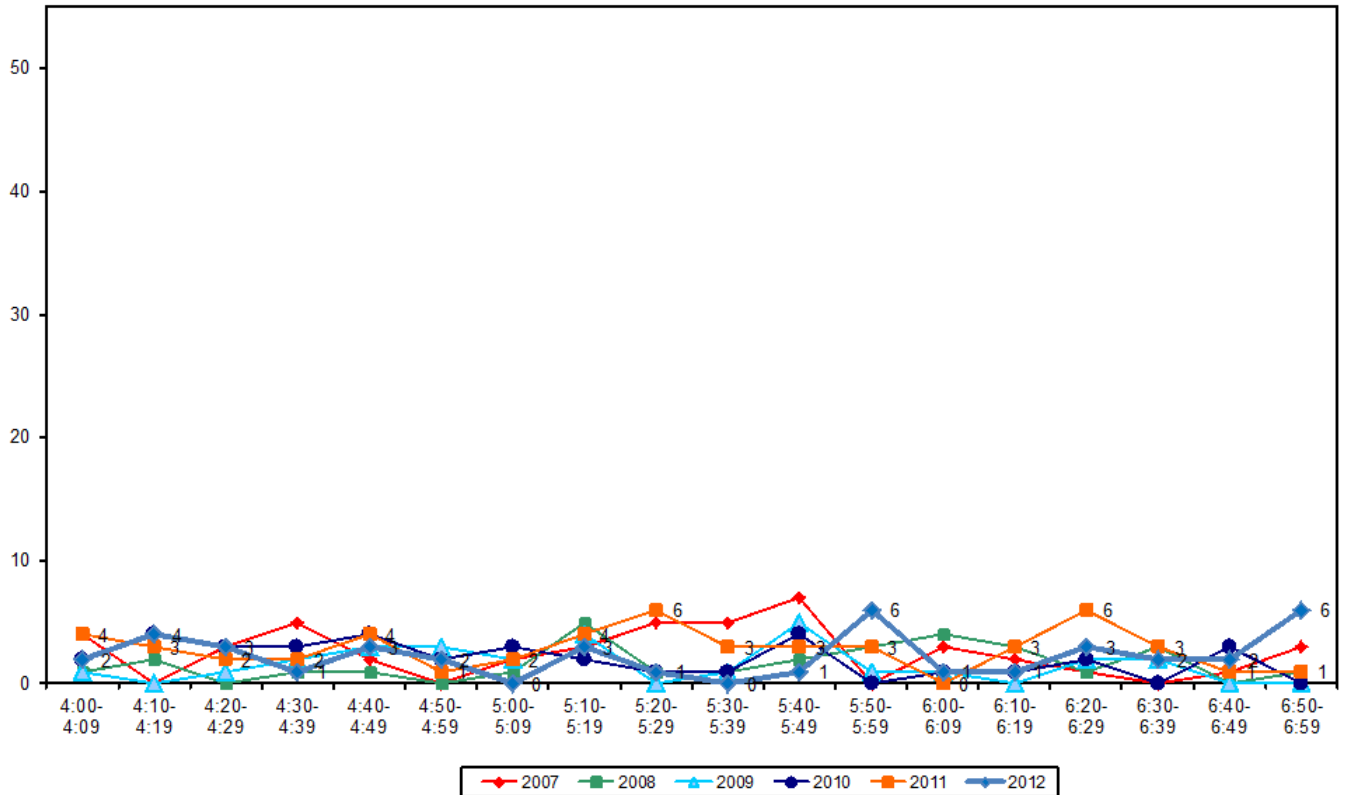
- Over the evening peak, four out of every five cyclists were adults (80 per cent, stable from 78 per cent in 2011).
- Approximately two-thirds of cyclists are wearing a helmet (71 per cent, unchanged from last year).
- Almost all of the cyclists are male (93 per cent).
- This year, 56 per cent of cyclists are riding on the road (up from 45 per cent in 2011).

**Table 3.4: Evening Cyclist Characteristics
Great South Road/High Street 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	83	87	100	92	78	80	2
School child	17	13	0	8	22	20	-2
Helmet Wearing							
Helmet on head	74	77	75	69	71	71	0
No helmet	26	23	25	31	29	29	0
Gender							
Male	-	-	-	-	84	93	9
Female	-	-	-	-	14	7	-7
Can't tell	-	-	-	-	2	0	-2
Where Riding							
Road	57	53	75	69	45	56	11
Footpath	43	47	25	31	55	44	-11
Base:	46	30	28	36	51	41	

- The volume of cycle movements in 2012 peaks twice, the first between 5:50pm and 5:59pm, and then again between 6:50pm and 6:59pm (6 movements for each 10 minute interval).

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

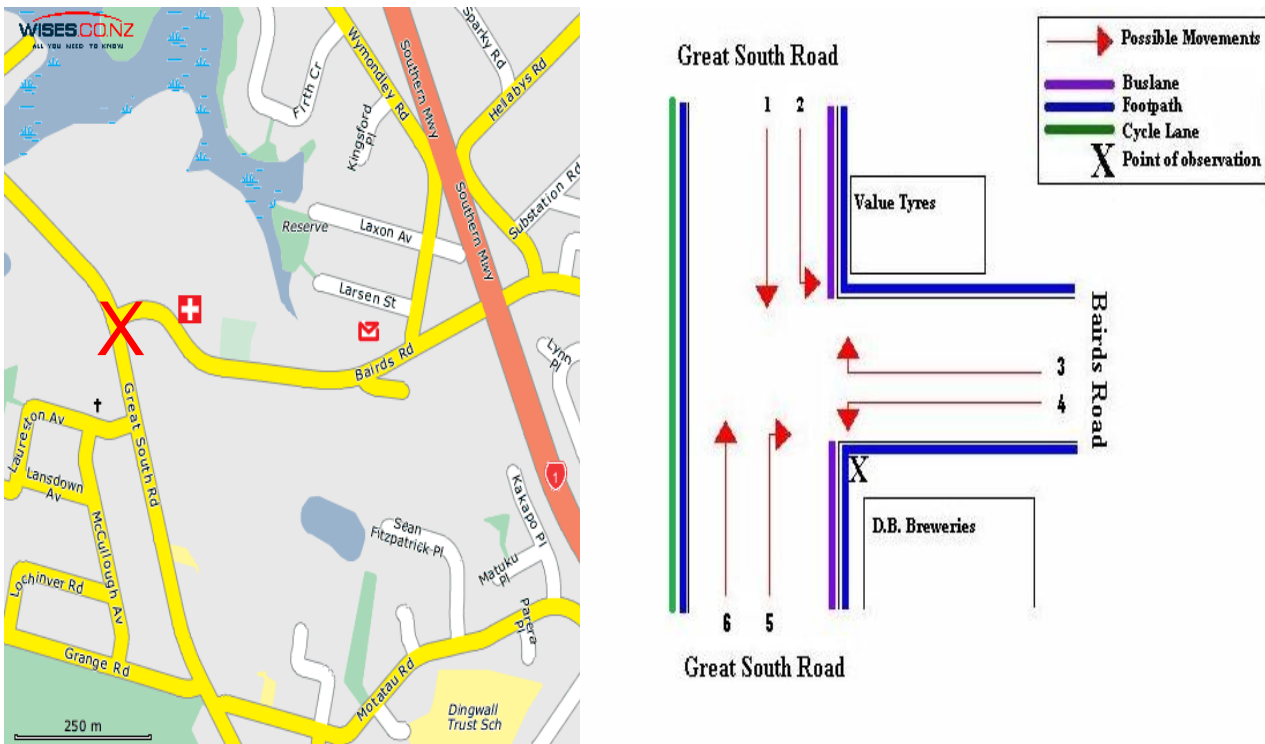


Note: In 2012, 4 cyclists were observed riding together at 5:55pm. This equates to 10 per cent of all evening peak cycle movements at this site.

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

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 is stable, (40 movements in 2011, compared with 39 movements this year).
- The most common movement in the morning is straight along Great South Road heading north (Movement 6 = 16 cyclists).
- Across the six movements possible at this intersection, the most notable changes are at Movement 6 (down 4 from last year) and Movement 1 (up four from last year).

**Table 3.1: Morning Cyclist Movements
Great South/Bairds Road 2007 – 2012 (n)**

Movement	2007	2008	2009	2010	2011	2012	Change 11-12
1	5	7	5	5	7	11	4
2	7	3	4	7	6	3	-3
3	4	4	3	6	2	2	0
4	0	1	3	0	1	1	0
5	0	1	3	6	4	6	2
6	16	11	11	10	20	16	-4
Total	32	27	29	34	40	39	-1

- Over the morning peak, all cyclists using the Great South/Bairds Road intersection are adults (unchanged from last year).
- Most cyclists are wearing a helmet (77 per cent, down from 80 per cent in 2011).
- Almost all cyclists are recorded as male (97 per cent).
- Fifty-nine per cent of cyclists are riding on the road (down 16 percentage points from last year).

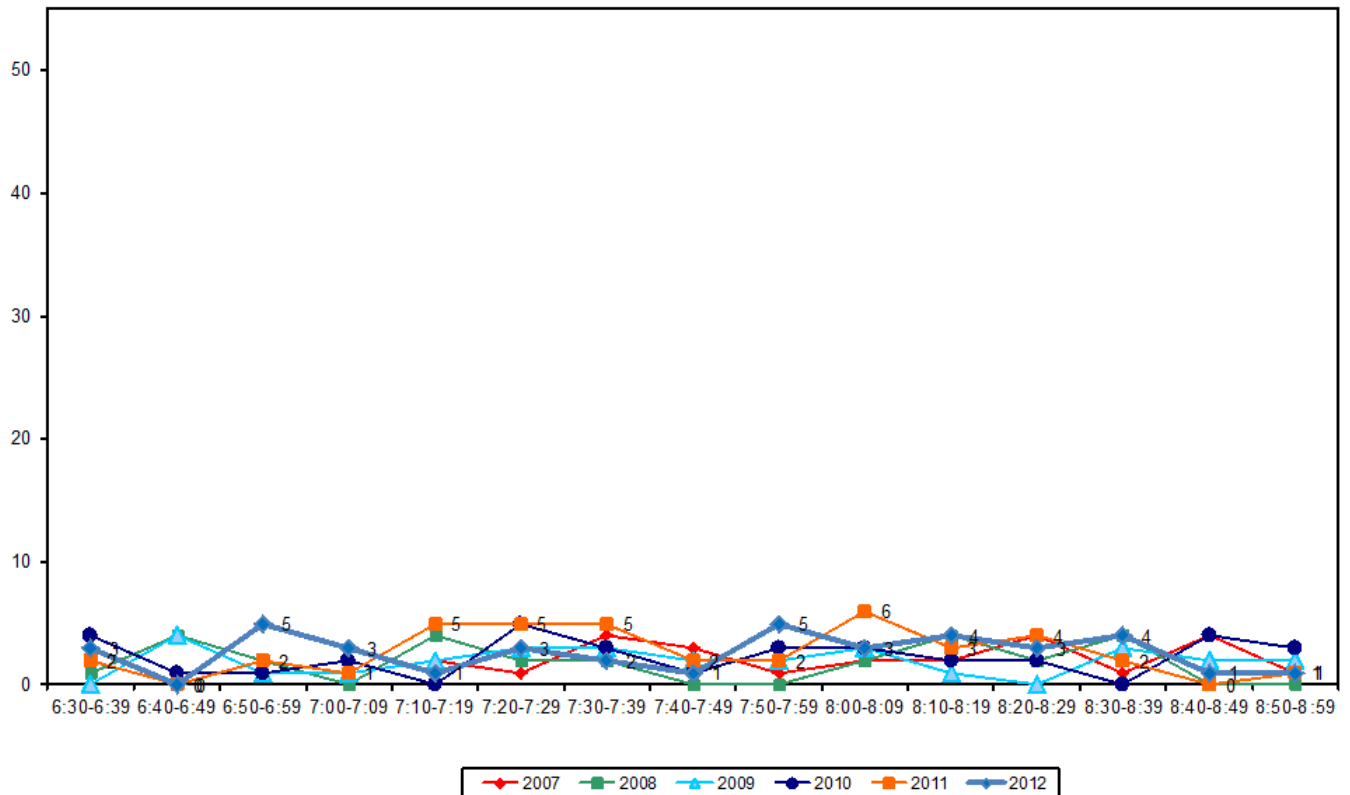
**Table 3.2: Morning Cyclist Characteristics
Great South/Bairds Road 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	100	89	90	97	100	100	0
School child	0	11	10	3	0	0	0
Helmet Wearing							
Helmet on head	91	67	83	94	80	77	-3
No helmet	9	33	17	6	20	23	3
Gender							
Male	-	-	-	-	88	97	9
Female	-	-	-	-	10	3	-6
Can't tell	-	-	-	-	3	0	-3
Where Riding							
Road	72	63	69	76	75	59	-16
Footpath	28	37	31	24	25	23	-2
Off-road cycleway	-	-	-	-	-	18	18
Base:	32	27	29	34	40	39	

- 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 is stable throughout the morning period. There are slight peaks that occur between 6:50am and 6:59am and again between 7:50am and 7:59am (5 cyclists in each ten minute interval).

**Figure 2.2: Morning Peak Cyclist Frequency
Great South/Bairds Road 2007 – 2012 (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 42 movements this year compared with 49 in 2011.
- As in the previous years, the key evening movement is straight along Great South Road heading south (Movement 1 = 15 cyclists).
- Across the six movements possible at this intersection, the most notable change is the number of cyclists recorded at Movement 2 (up 4 from last year).

**Table 3.3: Evening Cyclist Movements
Great South/Bairds Road 2007 – 2012 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	17	14	10	16	17	15	-2
2	5	5	3	6	3	7	4
3	5	1	6	4	6	4	-2
4	1	2	3	6	7	6	-1
5	1	0	2	1	3	0	-3
6	7	7	4	4	13	10	-3
Total	36	29	28	37	49	42	-7

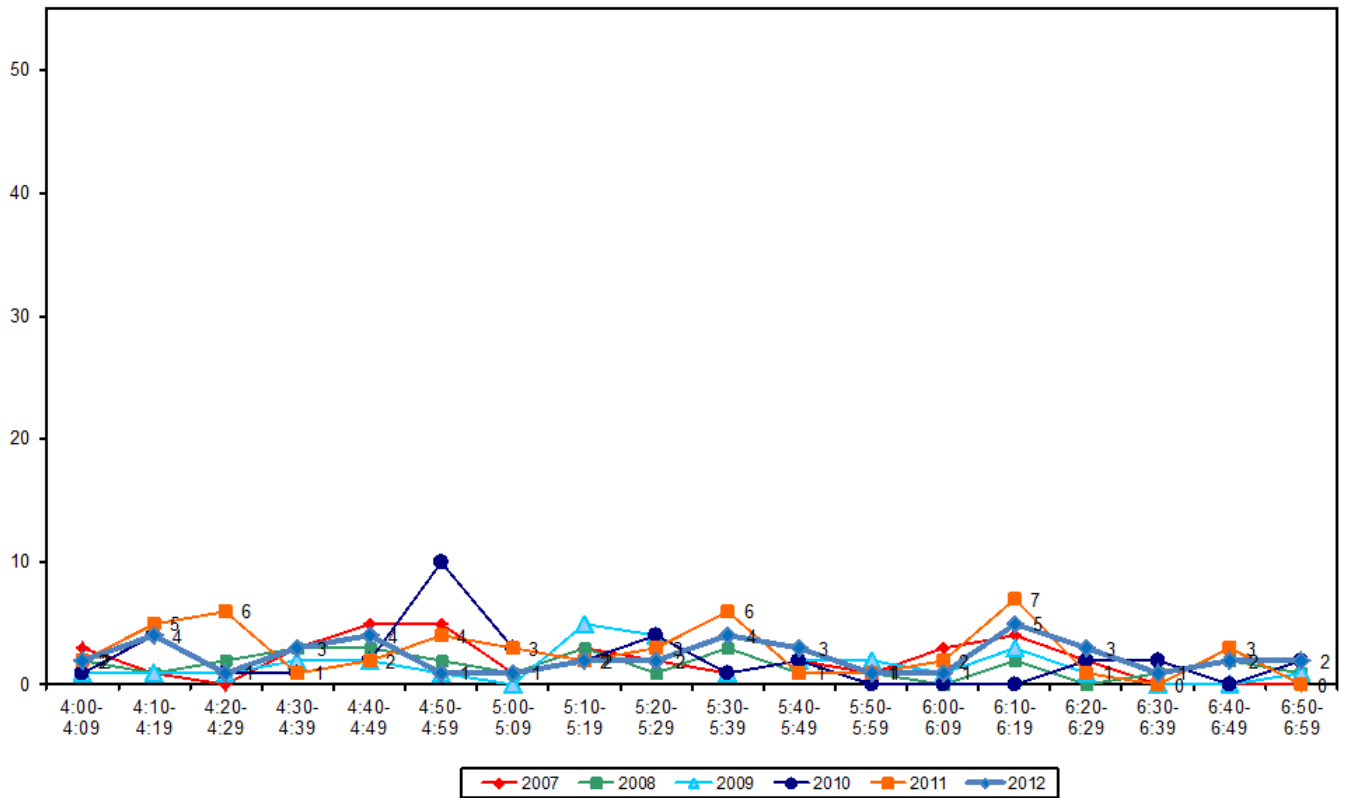
- Almost all cyclists using this intersection during the evening period are adults (98 per cent, stable from 2011).
- Sixty-four per cent of cyclists at this site are wearing a helmet (down from 84 per cent in 2011).
- The majority of cyclists are male (95 per cent).
- Fifty-five per cent of all cyclists are riding on the road, down from 71 per cent last year.

**Table 3.4: Evening Cyclist Characteristics
Great South/Bairds Road 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	100	93	93	100	100	98	-2
School child	0	7	7	0	0	2	2
Helmet Wearing							
Helmet on head	86	66	79	92	84	64	-20
No helmet	14	34	21	8	16	36	20
Gender							
Male	-	-	-	-	88	95	7
Female	-	-	-	-	12	5	-7
Can't tell	-	-	-	-	0	0	0
Where Riding							
Road	67	72	54	86	71	55	-16
Footpath	33	28	46	14	29	38	9
Off-road cycleway	-	-	-	-	-	7	7
Base:	36	29	28	37	49	42	

- Compared with last year, the volume of cycle movements in the evening peak is relatively stable. There are four slight peaks that occur between 4:10pm and 4:19pm, 4:40pm and 4:49pm, 5:30pm and 5:39pm (4 cyclists in each ten minute interval), and 6:10pm and 6:19pm (5 cyclists).

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

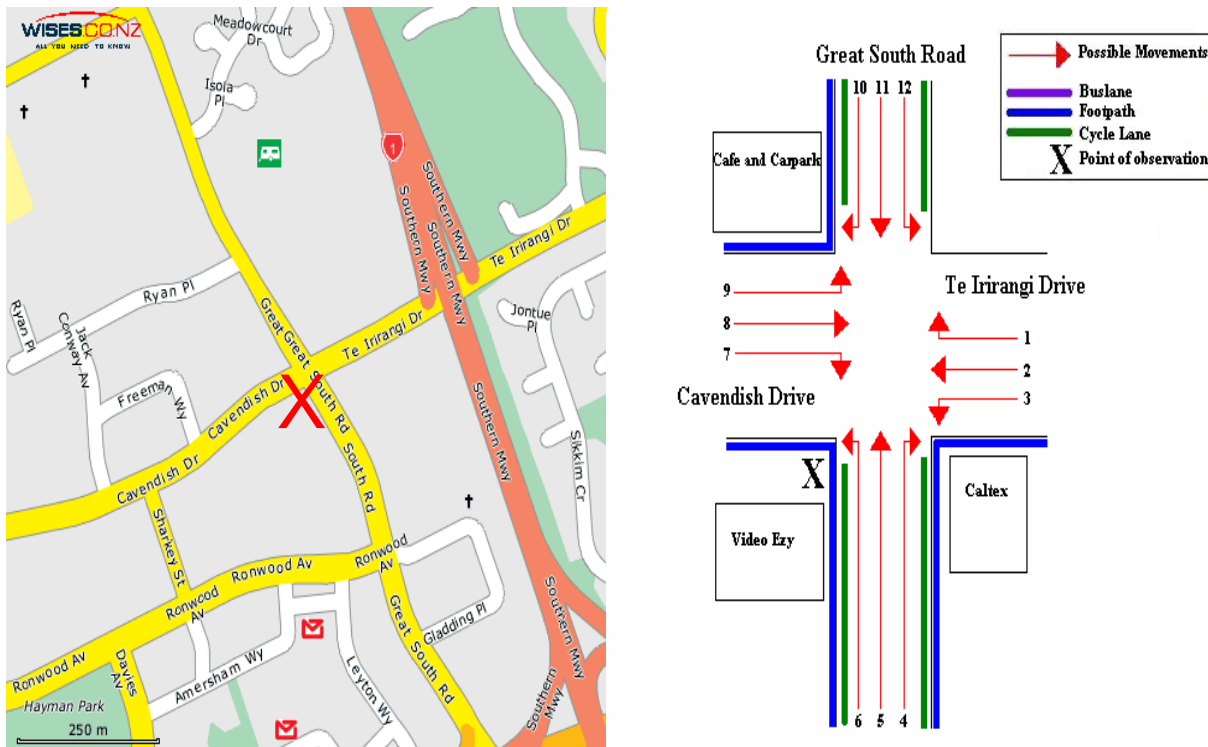


Note: In 2012, 3 cyclists were observed riding together at 6:11pm. This equates to 7 per cent of all evening peak cycle movements at this site.

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

	<i>Raw Counts</i>			<i>AADT</i>
	<i>Morning Peak</i>	<i>Evening Peak</i>	<i>Total</i>	<i>Total</i>
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

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 is down from 41 in 2011 to 28 movements this year.
- The key morning movements are heading northbound along Great South Road (Movement 5 = 12 cyclists) and straight through Irirangi Drive into Cavendish Drive (Movement 2 = 7 cyclists).
- Across the twelve movements possible at this intersection, the most notable change is the number of cyclists recorded at Movement 2 (down 6 from last year).

Table 4.1: Morning Cyclist Movements
Great South Road/Te Irirangi Drive 2007 – 2012 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	1	1	0	2	5	2	-3
2	6	2	5	10	13	7	-6
3	1	3	0	1	1	0	-1
4	1	2	2	1	0	0	0
5	13	8	7	7	12	12	0
6	0	0	1	1	0	1	1
7	1	0	0	0	0	1	1
8	1	1	0	2	1	0	-1
9	2	0	0	0	1	0	-1
10	1	0	1	2	2	2	0
11	7	8	2	1	6	3	-3
12	1	0	1	1	0	0	0
Total	34	25	19	28	41	28	-13

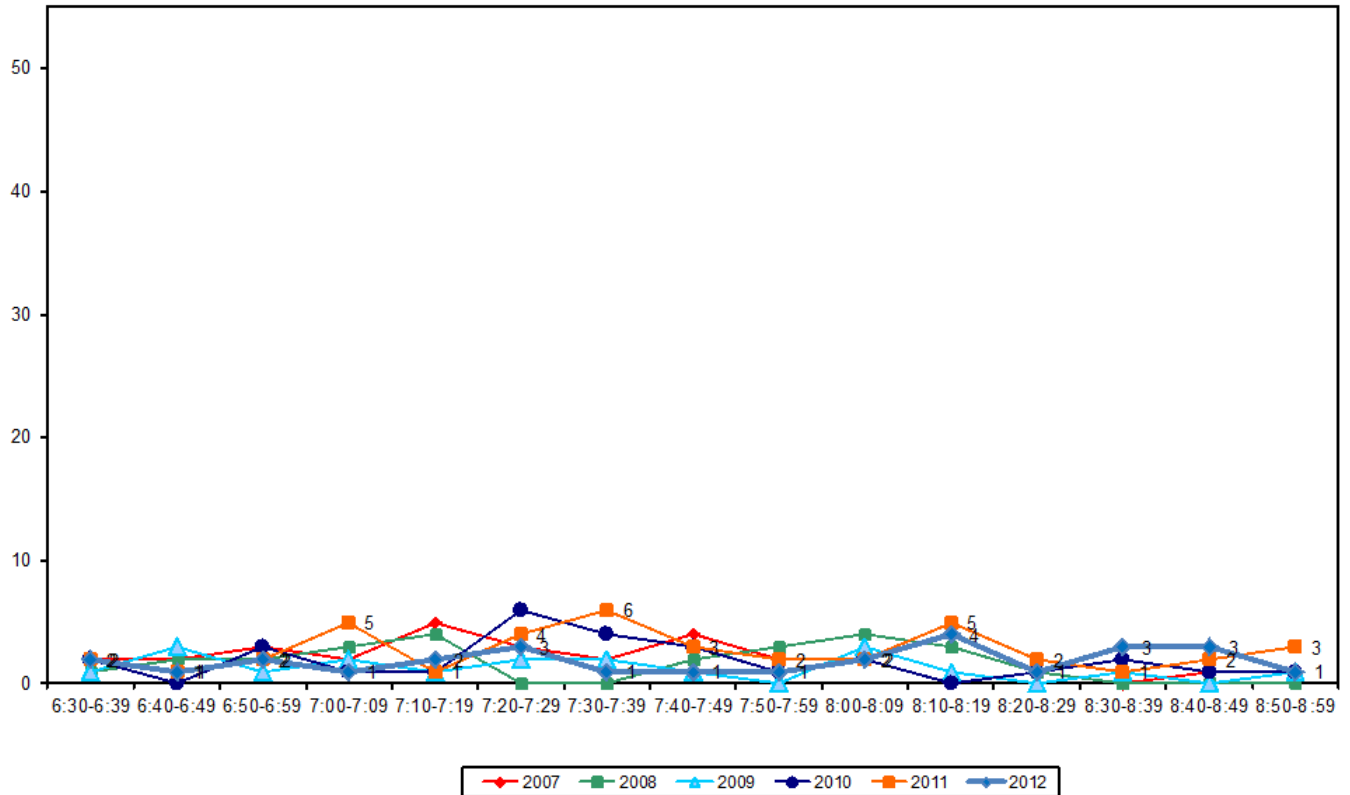
- Over the morning peak, almost all cyclists using this intersection are adults (39 per cent, down notably from 90 per cent in 2011).
- Most cyclists are wearing helmets (81 per cent, down from 88 per cent last year).
- Eighty-two per cent of cyclists are male.
- Most of the morning peak cyclists (93 per cent) continue to cycle on the road (stable from 95 per cent last year).

Table 4.2: Morning Cyclist Characteristics
Great South Road/Te Irirangi Drive 2007 – 2012 (%)

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	100	76	100	96	90	39	-51
School child	0	24	0	4	10	61	51
Helmet Wearing							
Helmet on head	85	96	100	93	88	81	-7
No helmet	15	4	0	7	12	19	7
Gender							
Male	-	-	-	-	76	82	6
Female	-	-	-	-	20	14	-6
Can't tell	-	-	-	-	5	4	-1
Where Riding							
Road	85	76	79	75	95	93	-2
Footpath	15	24	21	25	5	7	2
Base:	34	25	19	28	41	28	

- The volume of morning cycle movements peaks twice - between 7:20am and 7:29am, and 8:10am and 8:19am (4 cyclists in each ten minute interval).

Figure 4.2: Morning Peak Cyclist Frequency
Great South Road/Te Irirangi Drive 2007 – 2012 (n)



4.3 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 observed at the Great South Road/Te Irirangi Drive intersection has decreased, from 53 in 2011 to 50 movements this year.
- The key evening movement at this site is straight along Great South Road heading south (Movement 11 = 19 cyclists).
- The most notable change is reported at Movement 8 (down 8 cyclists).

Table 4.3: Evening Cyclist Movements
Great South Road/Te Irirangi Drive 2007 – 2012 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	0	5	0	1	1	1	0
2	3	1	3	4	2	6	4
3	1	0	2	0	0	2	-2
4	2	2	2	2	3	2	-1
5	5	6	2	4	8	10	2
6	5	0	2	2	1	1	0
7	1	1	0	0	1	0	-1
8	3	0	1	5	14	6	-8
9	1	0	1	5	2	1	-1
10	2	0	2	2	5	1	-4
11	15	9	7	18	13	19	6
12	1	2	0	1	3	1	-2
Total	39	26	22	44	53	50	-3

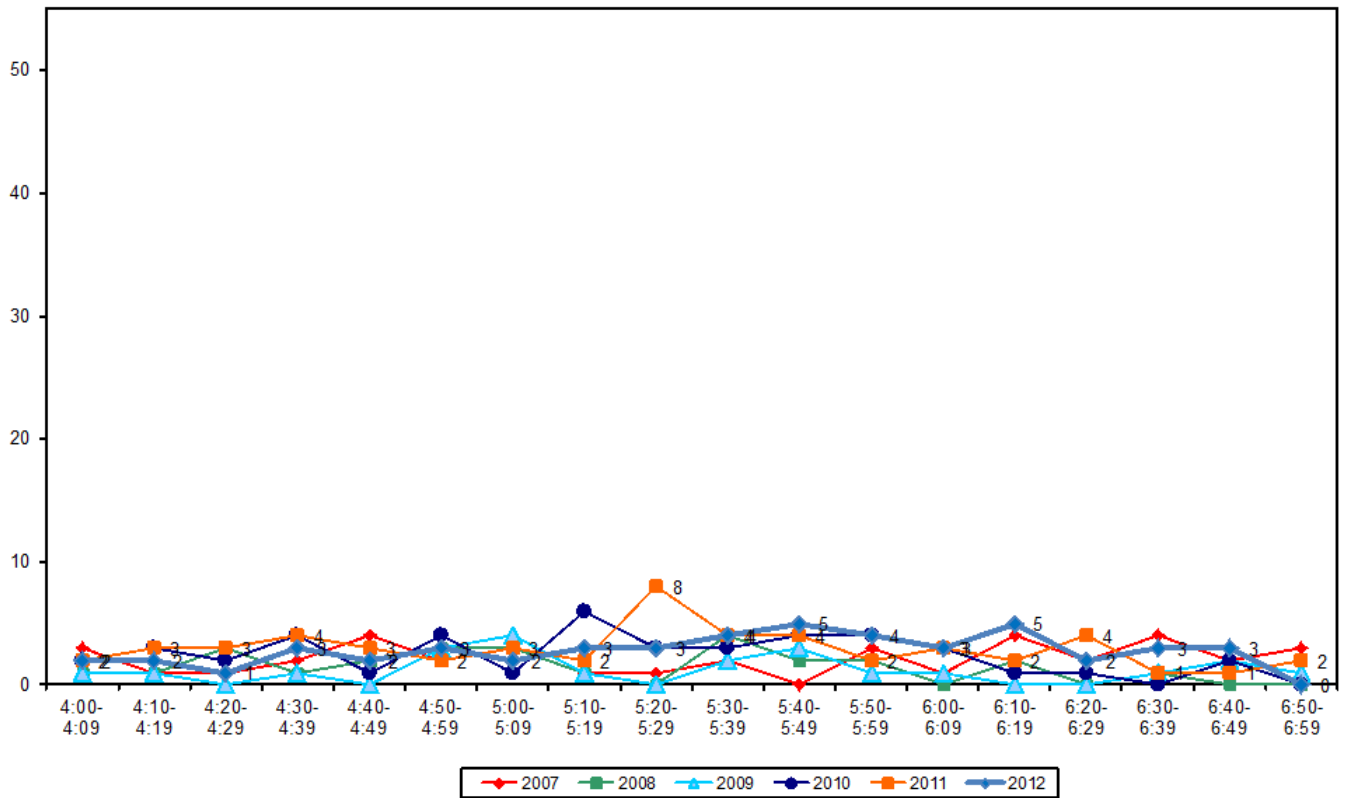
- Over the evening peak, three-quarters of all cyclists using the Great South Road/Te Irirangi Drive intersection are adults (76 per cent, down notably from 96 per cent last year).
- The majority of cyclists at this site are wearing a helmet (82 per cent, down from 89 per cent last year).
- Ninety-four per cent of cyclists are male, up from 87 per cent in 2011.
- The share of evening peak cyclists riding on the road has increased from the last monitoring period (92 per cent, up from 87 per cent in 2011).

**Table 4.4: Evening Cyclist Characteristics
Great South Road/Te Irirangi Drive 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	95	88	73	95	96	76	-20
School child	5	12	27	5	4	24	20
Helmet Wearing							
Helmet on head	97	88	68	77	89	82	-4
No helmet	3	12	32	23	11	18	7
Gender							
Male	-	-	-	-	87	94	7
Female	-	-	-	-	11	6	-5
Can't tell	-	-	-	-	2	0	-2
Where Riding							
Road	79	92	73	73	87	92	5
Footpath	21	8	27	27	13	8	-5
Base:	39	26	22	44	53	50	

- The volume of evening cycle movements is stable throughout the morning period. There are slight peaks that occur between 5:40pm and 5:49pm and again between 6:10pm and 6:19pm (5 cyclists in each ten minute interval).

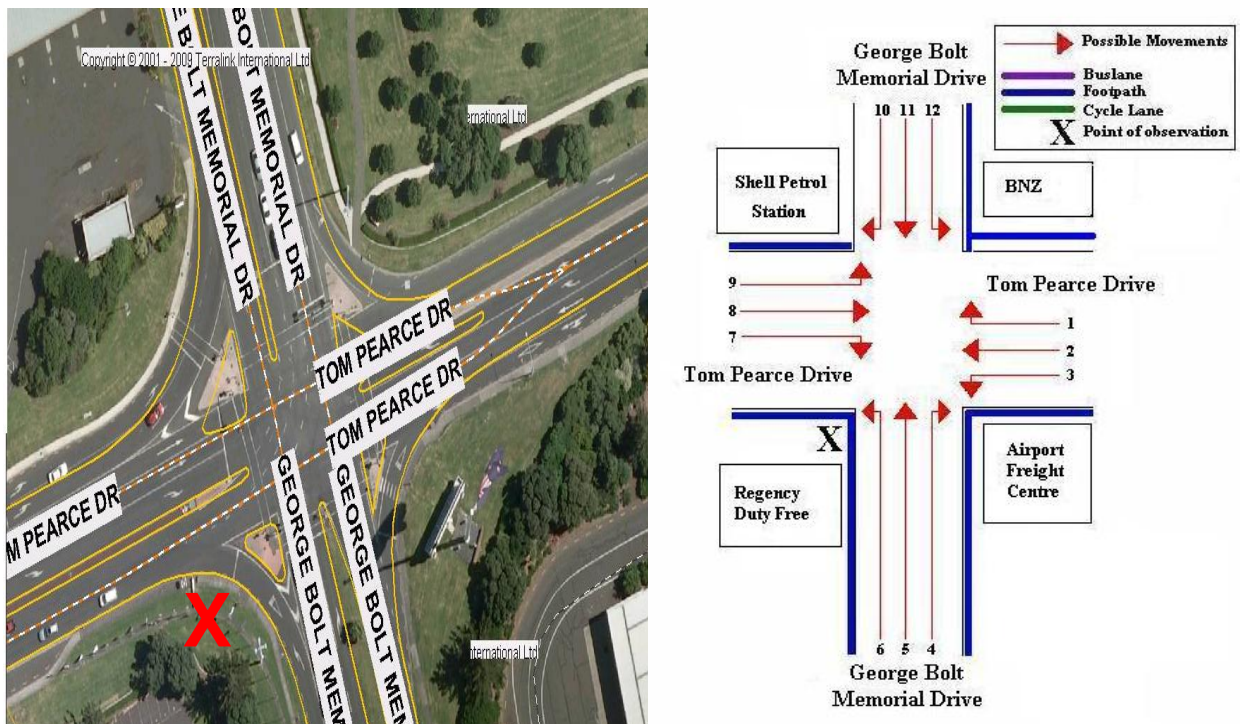
Figure 4.3: Evening Peak Cyclist Frequency
Great South Road/Te Irirangi Drive 2007 – 2012 (n)



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

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 3 cycle movements recorded over the monitoring period, down from 15 movements recorded 12 months ago.
- The key movement in the morning is coming south along George Bolt Memorial Drive and turning left into Tom Pearce Drive (Movement 12 = 2 cyclists).
- Of all the cyclist movements recorded in 2012, the most notable decrease is at Movement 12 (down 5 from 2011).

Table 5.1: Morning Cyclist Movements
Tom Pearce/George Bolt Memorial Drive 2009 – 2012 (n)

<i>Movement</i>	2009	2010	2011	2012	Change 11-12
1	3	3	2	1	-1
2	0	0	0	0	0
3	0	1	0	0	0
4	0	0	0	0	0
5	1	0	2	0	-2
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0
10	0	0	1	0	-1
11	0	0	3	0	-3
12	2	1	7	2	-5
Total	6	5	15	3	-12

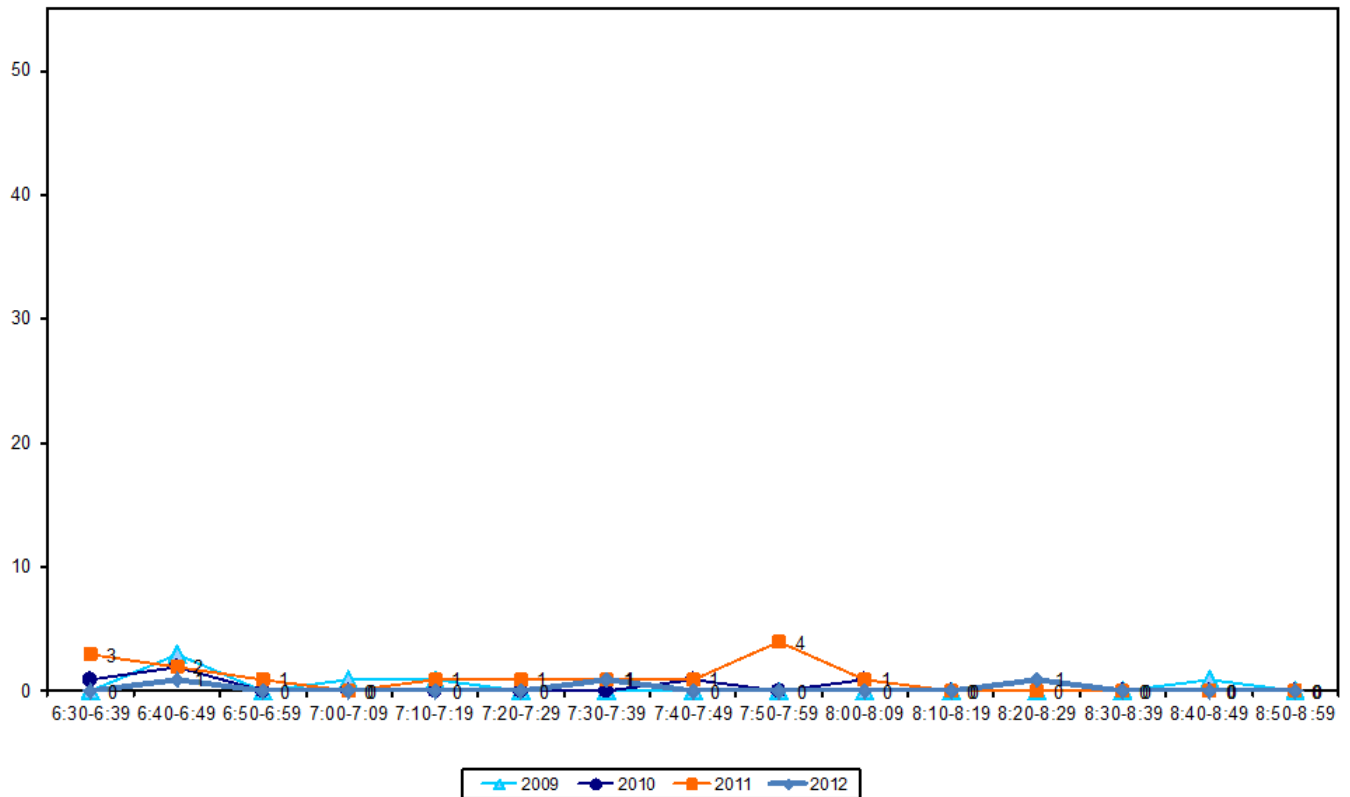
- Consistent with previous monitoring results over the morning peak, no school children are riding through the Tom Pearce/George Bolt Memorial Drive intersection.
- All cyclists are wearing a helmet, as was found in the 2011 monitoring.
- Thirty-three per cent of cyclists are recorded as male.
- All cyclists are riding on the road (100 per cent, up from 80 per cent in 2011).

**Table 5.2: Morning Cyclist Characteristics
Tom Pearce/George Bolt Memorial Drive 2009 – 2012 (%)**

	2009	2010	2011	2012	Change 11-12
Cyclist Type					
Adult	100	100	100	100	0
School child	0	0	0	0	0
Helmet Wearing					
Helmet on head	100	100	100	100	0
No helmet	0	0	0	0	0
Gender					
Male	-	-	73	33	-40
Female	-	-	0	0	0
Can't tell	-	-	27	67	40
Where Riding					
Road	100	100	80	100	20
Footpath	0	0	20	0	-20
Base:	6	5	15	3	

- The volume of morning cycle movements is low over the entire monitoring period, with no more than one cyclist recorded passing during any ten minute interval.

Figure 5.2: Morning Peak Cyclist Frequency
Tom Pearce/George Bolt Memorial Drive 2009 – 2012 (n)



5.3 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

- Evening cyclist volumes at Tom Pearce/George Bolt Memorial Drive intersection have decreased since 2011, with 12 cyclists recorded over the monitoring period (down from 39 last year).
- The most common movements in the evening are heading west along Tom Pearce Drive then turning right onto George Bolt Memorial Drive (Movement 1 = 4 cyclists).
- The most notable decreases in cyclist volume this year are Movement 12 (down 12) and Movement 1 (down 10).

Table 5.3: Evening Cyclist Movements
Tom Pearce/George Bolt Memorial Drive 2009 – 2012 (n)

<i>Movement</i>	2009	2010	2011	2012	Change 11-12
1	4	1	14	4	-10
2	0	0	0	0	0
3	1	1	2	3	1
4	0	0	0	0	0
5	13	3	2	1	-1
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	2	2	0
9	0	0	0	0	0
10	0	0	0	0	0
11	0	0	5	0	-5
12	3	2	14	2	-12
Total	21	7	39	12	-27

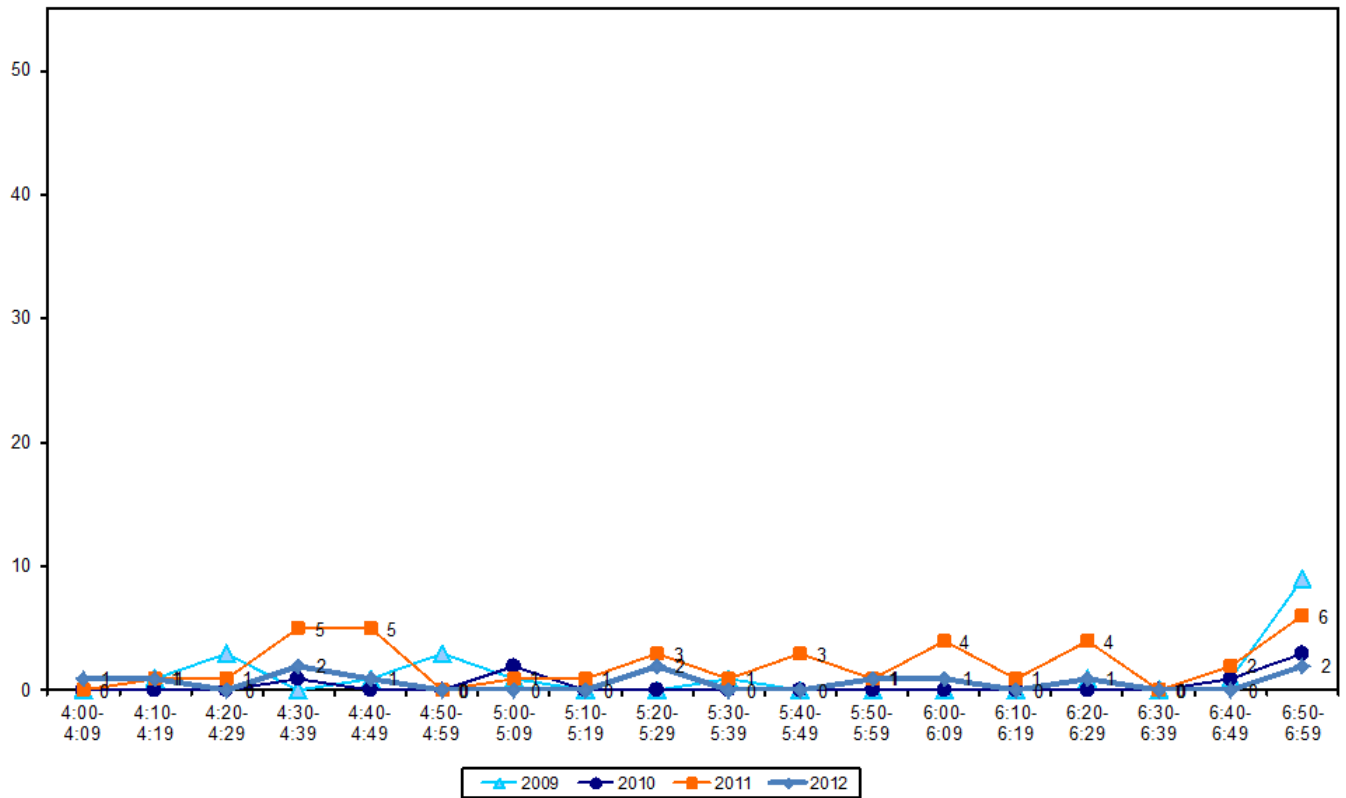
- All cyclists using this site are adults (100 per cent), consistent with the results of the 2011 monitoring.
- Helmet-wearing has increased – up from 62 per cent in 2011 to 83 per cent in 2012.
- All cyclists are male.
- All cyclists are riding on the road (100 per cent, up from 95 per cent in 2011).

Table 5.4: Evening Cyclist Characteristics
Tom Pearce/George Bolt Memorial Drive 2009 – 2012 (%)

	2009	2010	2011	2012	Change 11-12
Cyclist Type					
Adult	100	100	100	100	0
School child	0	0	0	0	0
Helmet Wearing					
Helmet on head	100	100	62	83	21
No helmet	0	0	38	17	-21
Gender					
Male	-	-	67	100	33
Female	-	-	5	0	-5
Can't tell	-	-	28	0	-28
Where Riding					
Road	100	100	95	100	5
Footpath	0	0	5	0	-5
Base:	21	7	39	12	

- Cyclist numbers remain low during the evening shift with no 10 minute interval recording more than two movements.

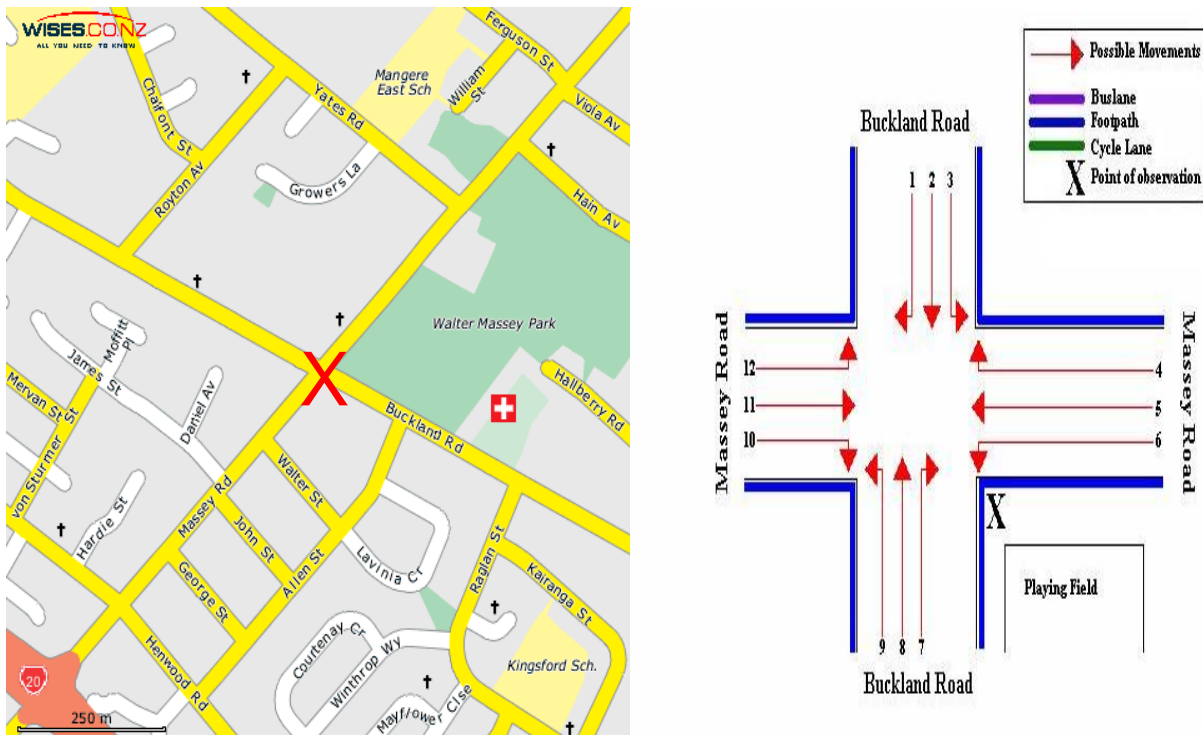
Figure 5.3: Evening Cyclist Frequency
Tom Pearce/George Bolt Memorial Drive 2009 – 2012 (n)



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

6.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclist traffic at this intersection has decreased, from 18 cycle movements in 2011 to 14 movements this year.
- The key cycle movement is straight along Buckland Road heading northwest (Movement 8 = 3 cyclists).
- The most notable change has been at Movement 9, up 2 cyclists from 2011.

**Table 6.1: Morning Cyclist Movements
Massey/Buckland Road 2007 – 2012 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	0	0	0	0	0	0	0
2	3	1	2	1	3	2	-1
3	2	5	2	3	0	0	0
4	0	0	0	2	3	2	-1
5	1	0	6	3	3	2	-1
6	1	2	0	2	0	1	1
7	0	0	1	1	1	0	-1
8	1	1	3	3	4	3	-1
9	1	0	2	0	0	2	2
10	2	1	0	1	2	1	-1
11	1	1	3	0	2	1	-1
12	0	0	0	0	0	0	0
Total	12	11	19	16	18	14	-4

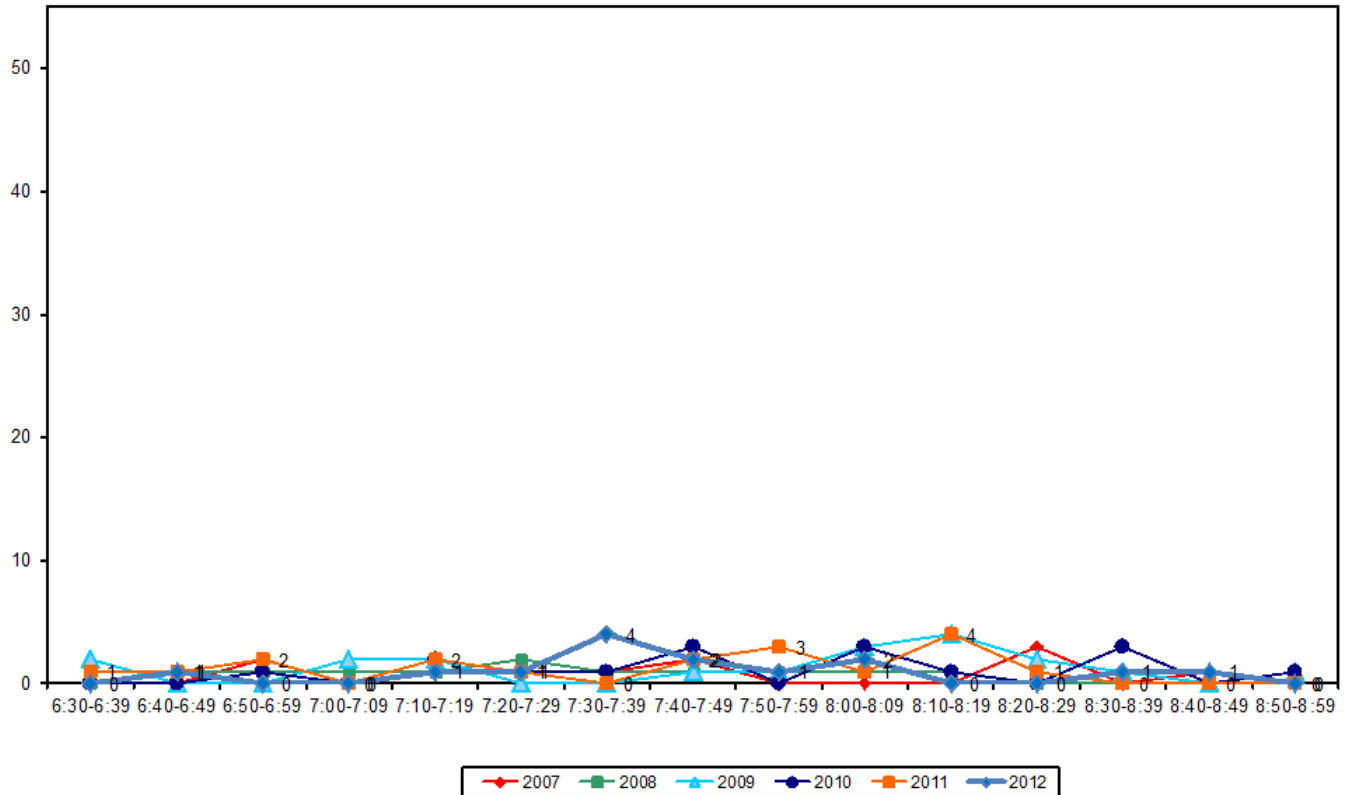
- Over the morning peak, adults comprise most of the cycle movements (86 per cent, up from 67 per cent last year).
- Seventy-nine per cent of cyclists are wearing a helmet (down from 83 per cent in 2011).
- Four out of every five cyclists are male (79 per cent).
- Sixty-four per cent of cyclists are riding on the road at this site (up from 50 per cent in 2011).

**Table 6.2: Morning Cyclist Characteristics
Massey/Buckland Road 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	42	73	95	94	67	86	19
School child	58	27	5	6	33	14	-19
Helmet Wearing							
Helmet on head	58	55	47	69	83	79	-4
No helmet	42	45	53	31	17	21	4
Gender							
Male	-	-	-	-	89	79	-10
Female	-	-	-	-	6	21	15
Can't tell	-	-	-	-	6	0	-6
Where Riding							
Road	33	30	63	56	50	64	14
Footpath	67	70	37	44	50	36	-14
Base:	12	11	19	16	18	14	

- Morning cyclist volumes are low over the entire monitoring period. A slight peak occurred this year, between 7:30am and 7:39am (4 cyclists).

Figure 6.2: Morning Peak Cyclist Frequency
Massey/Buckland Road 2007 – 2012 (n)



6.3 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 in the evening at the Massey/Buckland Road intersection is stable when compared with last year, with 34 movements recorded.
- The most common movement in the evening is straight along Buckland Road heading northwest (Movement 8 = 7 cyclists) and turning right from Buckland Road into Massey Road heading northeast (Movement 7 = 7 cyclists).
- All movements at this site are relatively stable since last year, with change most notable at Movement 7 (up 7 cyclists).

**Table 6.3: Evening Cyclist Movements
Massey/Buckland Road 2007 – 2012 (n)**

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	2	0	0	0	2	0	-2
2	3	4	3	4	8	4	-4
3	4	2	1	1	3	3	0
4	5	5	2	4	2	2	0
5	1	1	2	4	3	2	-1
6	3	1	5	3	2	2	0
7	1	1	2	0	0	7	7
8	5	3	0	2	3	7	4
9	0	2	0	1	4	2	-2
10	0	0	3	4	3	0	-3
11	5	1	2	6	4	2	-2
12	2	0	0	0	1	3	2
Total	31	20	20	29	35	34	-1

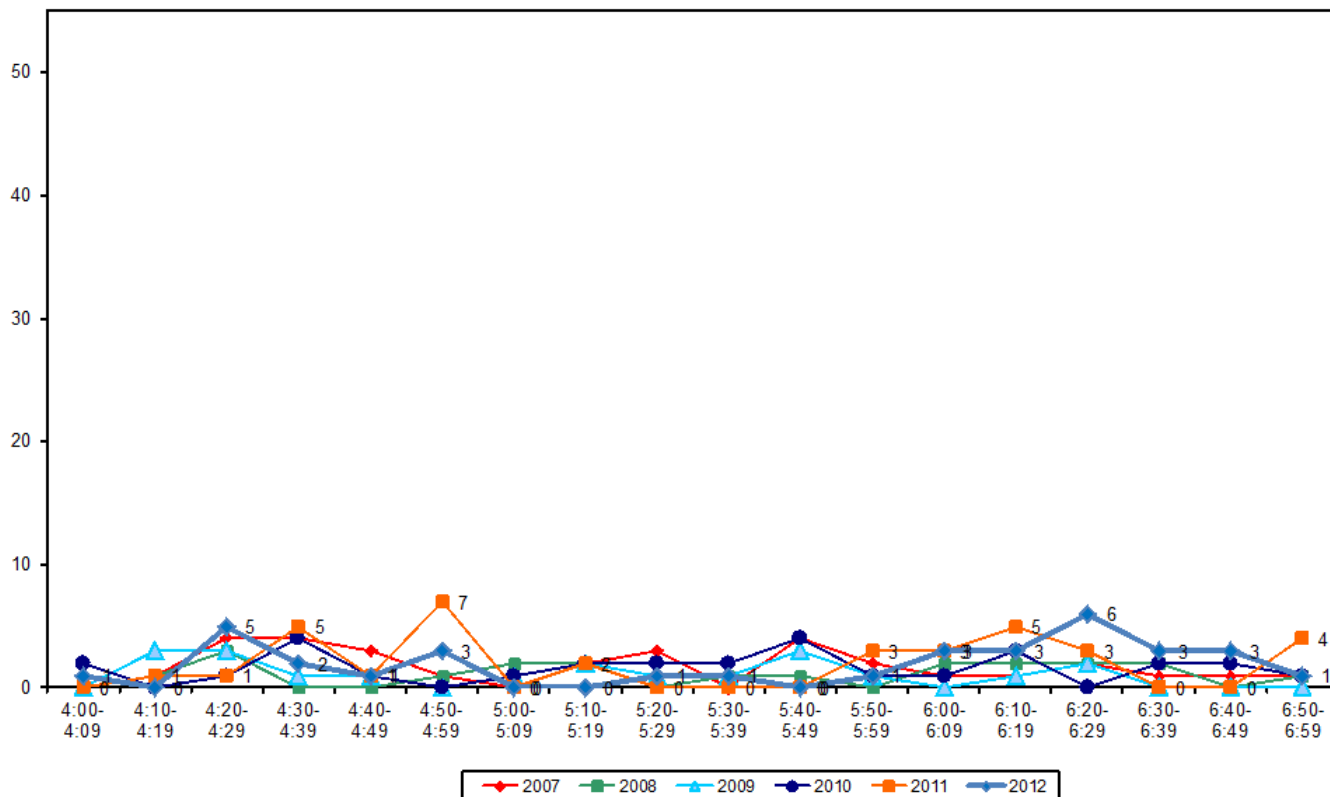
- Adults comprise a larger share of evening cyclists than school children (76 per cent, stable from 77 per cent in 2011).
- Thirty-eight per cent of cyclists are wearing a helmet (down from 51 per cent last year).
- Nine out of ten cyclists are male (91 per cent).
- The proportion of cyclists riding on the footpath has decreased this year (58 per cent, compared with 71 per cent in 2011).

**Table 6.4: Evening Cyclist Characteristics
Massey/Buckland Road 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	61	80	65	90	77	76	-1
School child	39	20	35	10	23	24	1
Helmet Wearing							
Helmet on head	55	65	35	62	51	38	-13
No helmet	45	35	65	38	49	62	13
Gender							
Male	-	-	-	-	83	91	4
Female	-	-	-	-	17	9	-4
Can't tell	-	-	-	-	0	0	0
Where Riding							
Road	39	60	30	38	29	42	13
Footpath	61	40	70	62	71	58	-13
Base:	31	20	20	29	35	34	

- The volume of cycle movements varies during the evening monitoring period. A peak occurs between 4:20pm and 4:29pm (5 cyclists) and another between 6:20pm and 6:29pm (7 cyclists).

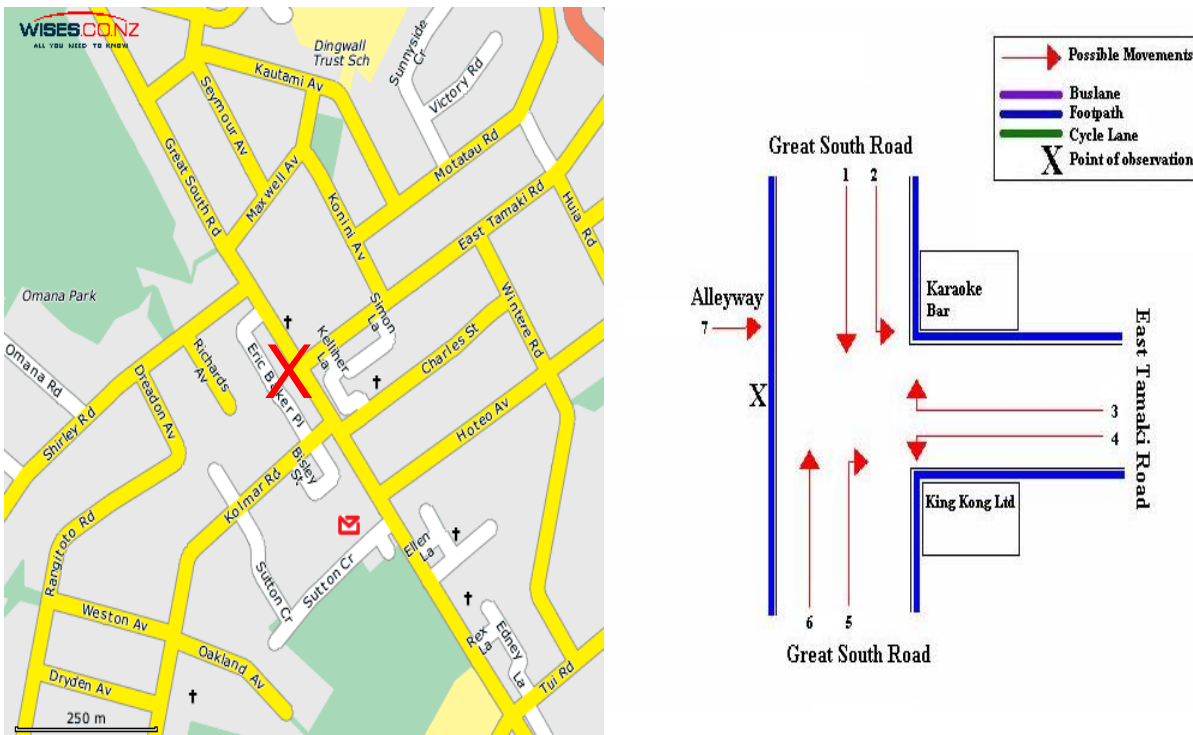
Figure 6.3: Evening Peak Cyclist Frequency
Massey/Buckland Road 2007 – 2012 (n)



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

7.2 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

- Compared with last year, the volume of morning cyclists at the Great South/East Tamaki Road intersection has decreased, from 44 movements in 2011 to 40 movements in 2012.
- The most common movement is straight along Great South Road heading northwest (Movement 6 = 19 cyclists).
- The most notable change since 2011 has been at Movement 6 (down 2 cyclists).

Table 7.1: Morning Cyclist Movements
Great South/East Tamaki Road 2007 – 2012 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	4	4	3	4	8	8	0
2	2	3	3	1	5	5	0
3	2	1	6	2	3	2	-1
4	0	1	3	3	0	1	1
5	2	2	3	0	4	3	-1
6	26	12	15	15	21	19	-2
7	-	1	0	0	3	2	-1
Total	36	24	33	25	44	40	-4

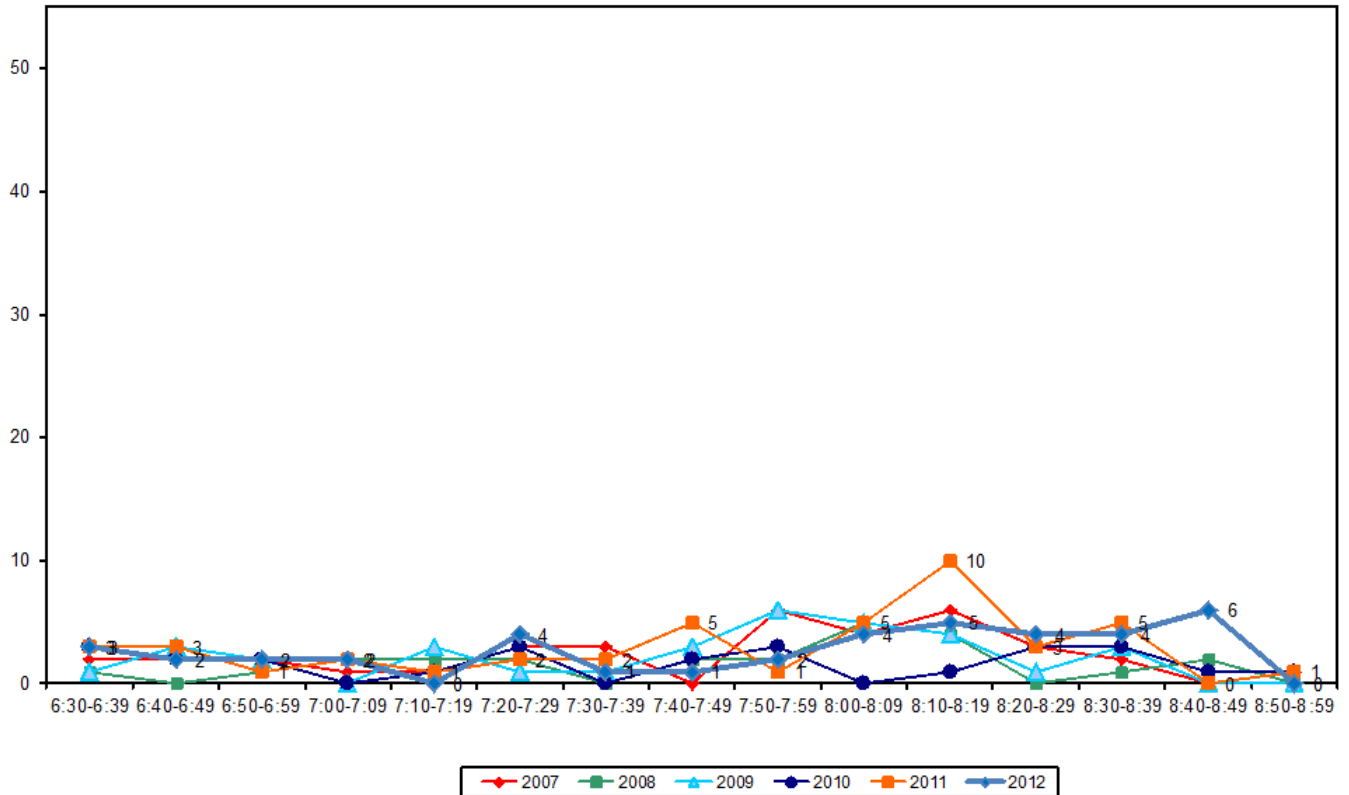
- Over the morning peak, the greater portion of cyclists are adults (63 per cent, down from 80 per cent last year).
- Most cyclists are wearing a helmet (70 per cent, down from 86 per cent in 2011).
- Eighty-eight per cent of cyclists are male.
- The share of cyclists riding on the footpath at this site has increased since last year – up from 48 per cent in 2011 to 62 per cent this year.

**Table 7.2: Morning Cyclist Characteristics
Great South/East Tamaki Road 2007 – 2012 (%)**

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

- The volume of morning cycle movements is low throughout the first part of the shift then increases towards the end to a peak occurring between 8:40am and 8:49am (6 cyclists).

Figure 7.2: Morning Peak Cyclist Frequency
Great South/East Tamaki Road 2007 – 2012 (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 is stable (46 movements in 2012, up from 45 movements in 2011).
- The key movement in the evening is straight along Great South Road heading south (Movement 1 = 19 cyclists).
- Compared with last year, the most notable increase is at Movement 6 (down 5 cyclists).

**Table 7.3: Evening Cyclist Movements
Great South/East Tamaki Road 2007 – 2012 (n)**

Movement	2007	2008	2009	2010	2011	2012	Change 11-12
1	13	10	13	14	17	19	2
2	2	2	3	1	5	2	-3
3	8	1	3	5	3	9	6
4	3	1	6	5	2	3	1
5	2	0	1	3	1	2	1
6	9	10	4	9	15	10	-5
7	-	3	0	3	2	1	-1
Total	37	27	30	40	45	46	1

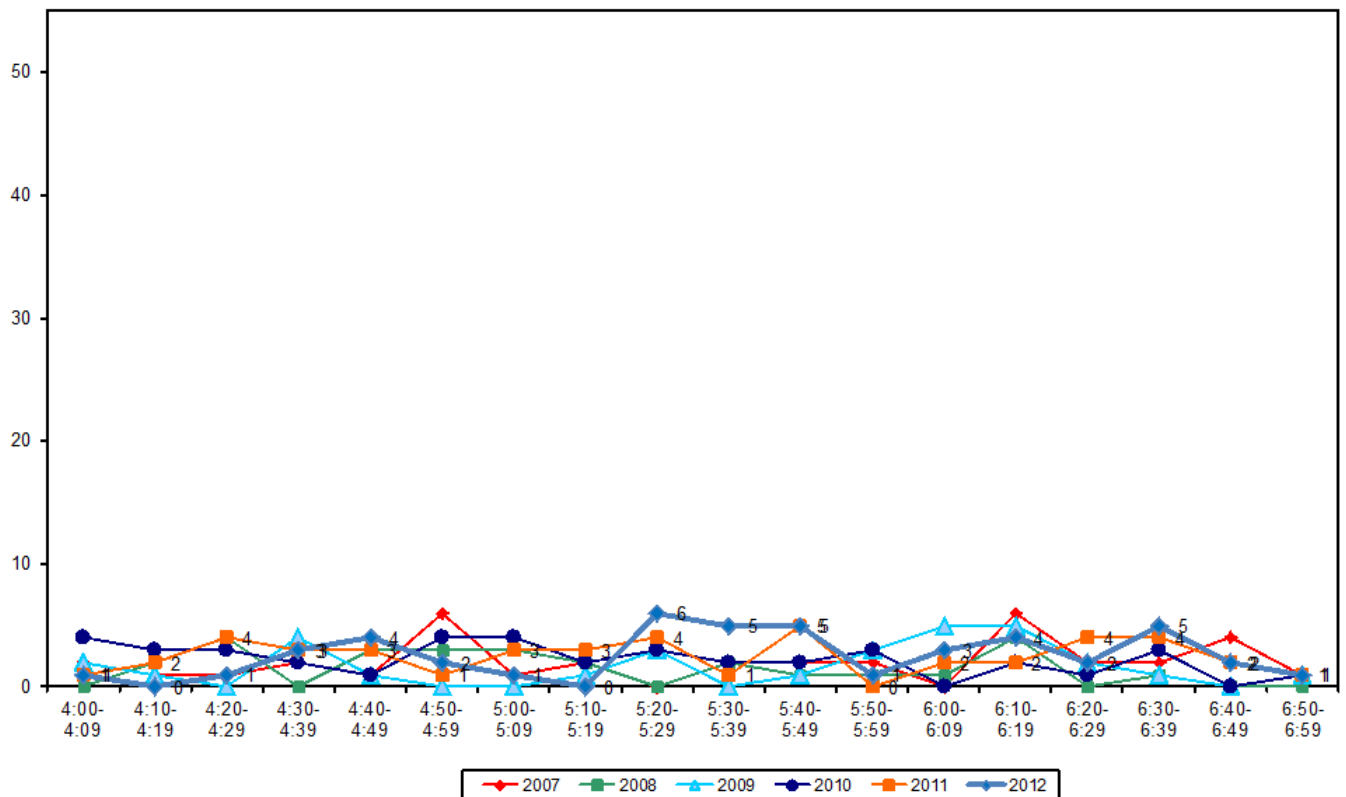
- Over the evening peak, most of the cyclists using the Great South/East Tamaki Road intersection are adults (89 per cent, down from 93 per cent last year).
- Fifty-nine per cent of cyclists at this site are wearing a helmet (down from 71 per cent in 2011).
- The greatest share of evening cyclists are male (93 per cent).
- Two-thirds of cyclists at this site are riding on the road (65 per cent, up from 56 per cent last year).

**Table 7.4: Evening Cyclist Characteristics
Great South/East Tamaki Road 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	84	74	77	80	93	89	-4
4School child	16	26	23	20	7	11	4
Helmet Wearing							
Helmet on head	84	56	73	68	71	59	-12
No helmet	16	44	27	33	29	41	12
Gender							
Male	-	-	-	-	84	93	9
Female	-	-	-	-	16	7	-9
Can't tell	-	-	-	-	0	0	0
Where Riding							
Road	54	44	70	43	56	65	9
Footpath	46	56	30	57	44	35	-9
Base:	37	27	30	40	45	46	

- This year, the volume of cycle movements peaks slightly three times between 5:20pm and 5:29pm (6 cyclists), between – 5:30pm and 5:40pm (5 cyclists per 10 minute interval) and finally between 6:30pm and 6:39pm (5 cyclists).

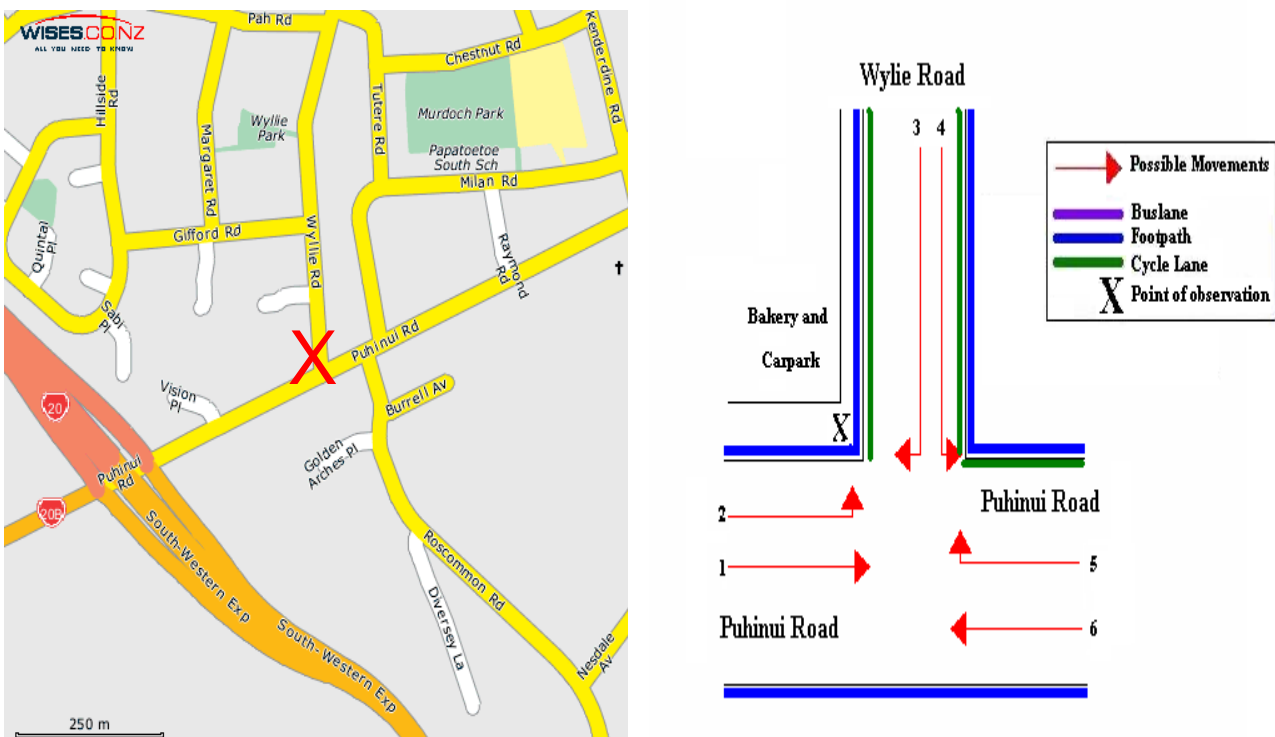
Figure 7.3: Evening Peak Cyclist Frequency
Great South/East Tamaki Road 2007 – 2012 (n)



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

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: Wylie 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

8.2 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at Wyllie Avenue/Puhinui Road has declined notably this year with 8 cycle movements recorded (down from 13 movements in 2011).
- Cyclists in the morning period are distributed throughout the 6 possible movements with no one movement recording more than 2 cyclists.
- The most notable decrease is at Movement 6, down 3 cyclist movements from 2011.

Table 8.1: Morning Cyclist Movements
Wyllie Avenue/Puhinui Road 2007 – 2012 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	0	2	1	11	3	2	-1
2	0	0	1	0	1	1	0
3	0	1	3	2	2	2	0
4	1	1	0	2	1	1	0
5	0	0	0	1	1	0	-1
6	17	4	7	7	5	2	-3
Total	18	8	12	23	13	8	-5

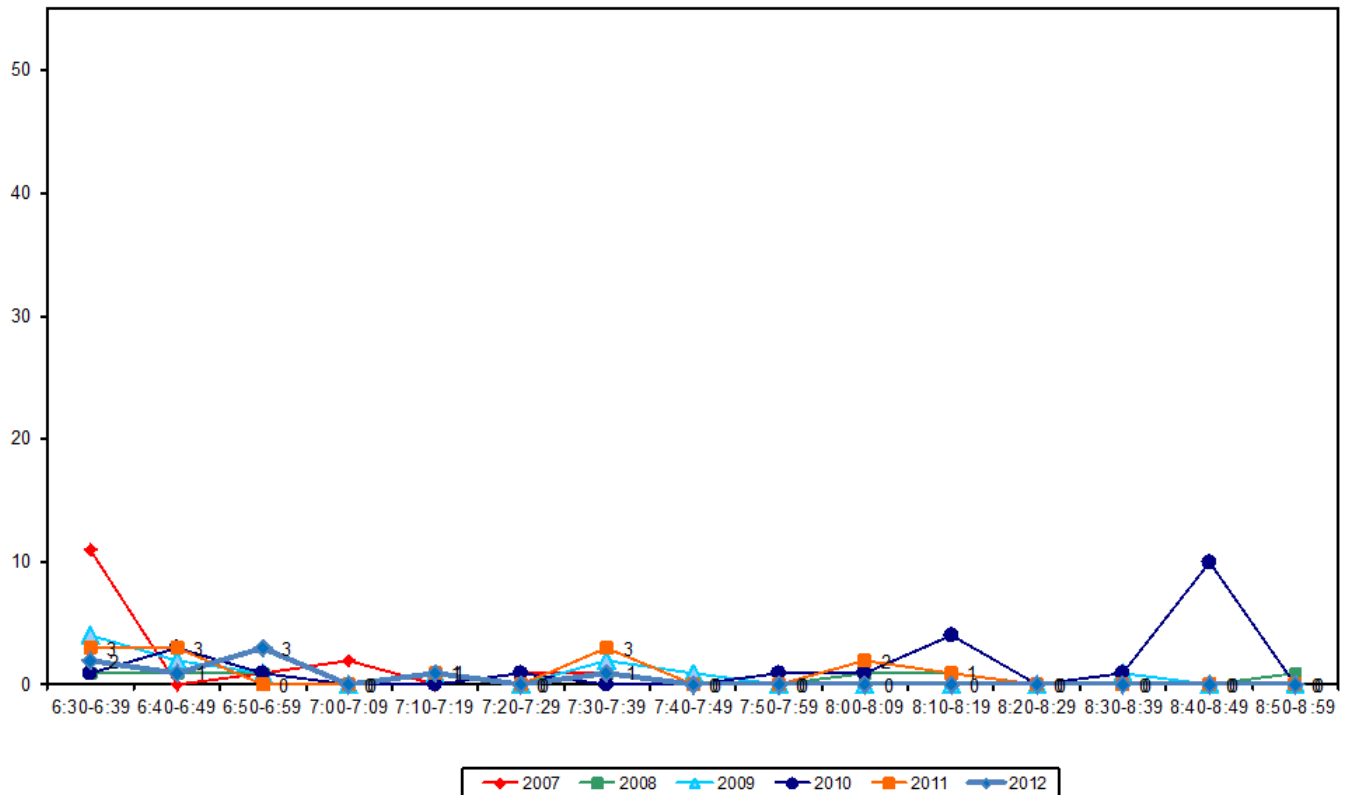
- All cyclists recorded this year were adults (100 per cent, up from 85 per cent last year).
- Most cyclists are wearing a helmet (88 per cent, down from 92 per cent in 2011).
- All cyclists using this site are male.
- Three-quarters of cyclists are riding on the road (75 per cent, stable from 77 per cent in 2011).

**Table 8.2: Morning Cyclist Characteristics
Wyllie Avenue/Puhinui Road 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	100	100	100	91	85	100	15
School child	0	0	0	9	15	0	-15
Helmet Wearing							
Helmet on head	100	88	100	87	92	88	-4
No helmet	0	12	0	13	8	12	4
Gender							
Male	-	-	-	-	100	100	0
Female	-	-	-	-	0	0	0
Can't tell	-	-	-	-	0	0	0
Where Riding							
Road	100	100	100	87	77	75	-2
Footpath	0	0	0	13	23	25	2
Base:	18	8	12	23	13	8	

- In 2012, cyclist volumes remained relatively low throughout the morning period, a slight peak occurs between 6:50am and 6:59am (3 movements). This is 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 – 2012 (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 62 in 2011 to 39 movements this year.
- The key evening movement, unchanged from 2011, is straight along Puhinui Road heading northeast (Movement 1 = 13 cyclists, down by 11 cyclists).

Table 8.3: Evening Cyclist Movements
Wyllie Avenue/Puhinui Road 2007 – 2012 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	7	11	6	7	24	13	-11
2	3	3	1	2	6	6	0
3	2	0	0	0	1	1	0
4	3	2	1	3	5	7	2
5	3	5	2	3	7	3	-4
6	2	4	13	19	19	9	-10
Total	20	25	23	34	62	39	-23

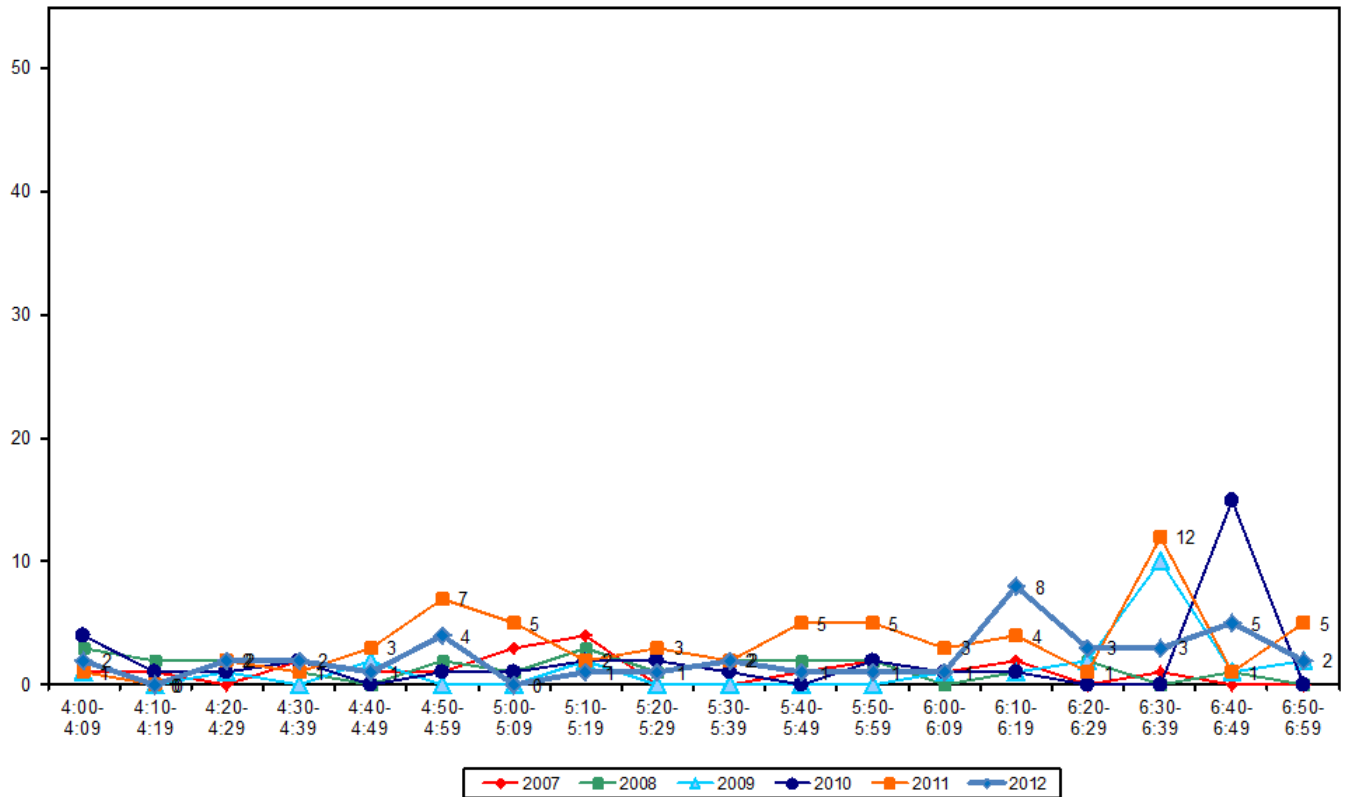
- Three-quarters of cyclists over the evening peak using this site are adults (74 per cent, down from 84 per cent last year).
- The majority of cyclists at this site are wearing a helmet (72 per cent, down from 84 per cent in 2011).
- Eighty-five per cent of cyclists are male.
- Four out of five cyclists using this site are riding on the road this year (82 per cent, up from 76 per cent in 2011).

**Table 8.4: Evening Cyclist Characteristics
Wyllie Avenue/Puhinui Road 2007 – 2012 (%)**

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	75	88	87	100	84	74	-10
School child	25	12	13	0	16	26	10
Helmet Wearing							
Helmet on head	70	79	91	97	84	72	-12
No helmet	30	21	9	3	16	28	12
Gender							
Male	-	-	-	-	76	85	11
Female	-	-	-	-	23	15	-8
Can't tell	-	-	-	-	2	0	2
Where Riding							
Road	70	84	91	88	76	82	6
Footpath	30	16	9	12	24	18	-6
Base:	20	25	23	34	62	39	

- This year the volume of cycle movements peaks between 6:10pm and 6:19pm (8 movements), 20 minutes earlier than the peak in 2011.

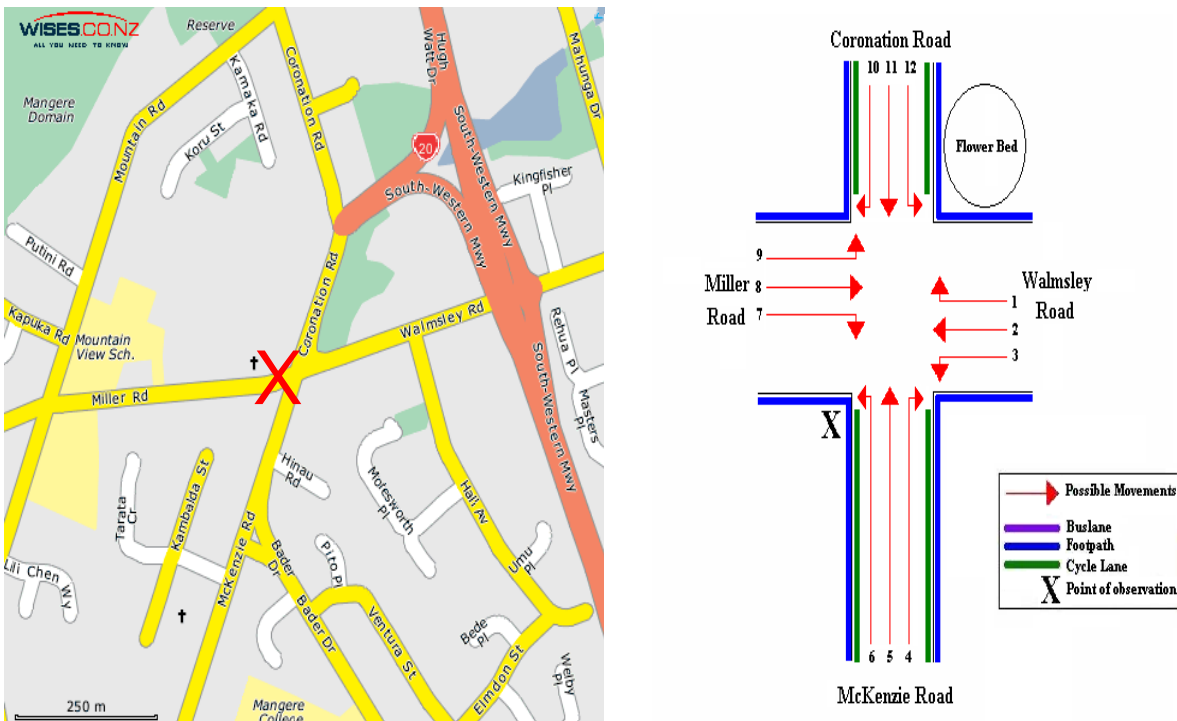
Figure 8.3: Evening Peak Cyclist Frequency
Wyllie Avenue/Puhinui Road 2007 – 2012 (n)



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

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 2012, the volume of morning cyclists recorded at the McKenzie/Coronation/Walmsley Road intersection has decreased (from 32 in 2011 to 19 movements this year).
- The most common movements in the morning are south down Coronation Road (Movement 11 = 7 cyclists) and travelling in the opposite direction (Movement 5 = 7 cyclists).
- Of the 12 movements possible at this intersection, the most notable change is at Movement 11 (down 9 cyclists).

Table 9.1: Morning Cyclist Movements
McKenzie/Coronation/Walmsley Road 2007 – 2012 (n)

<i>Movement</i>	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	1	0	1	2	1	0	-1
2	2	3	0	4	2	0	-2
3	3	0	2	3	1	3	2
4	1	0	0	1	2	0	-2
5	8	2	3	7	5	7	2
6	2	1	0	0	0	0	0
7	2	1	1	3	0	0	0
8	0	0	2	3	2	2	0
9	0	0	0	0	0	0	0
10	0	0	0	2	0	0	0
11	9	14	11	12	16	7	-9
12	0	0	2	1	3	0	-3
Total	28	21	22	38	32	19	-13

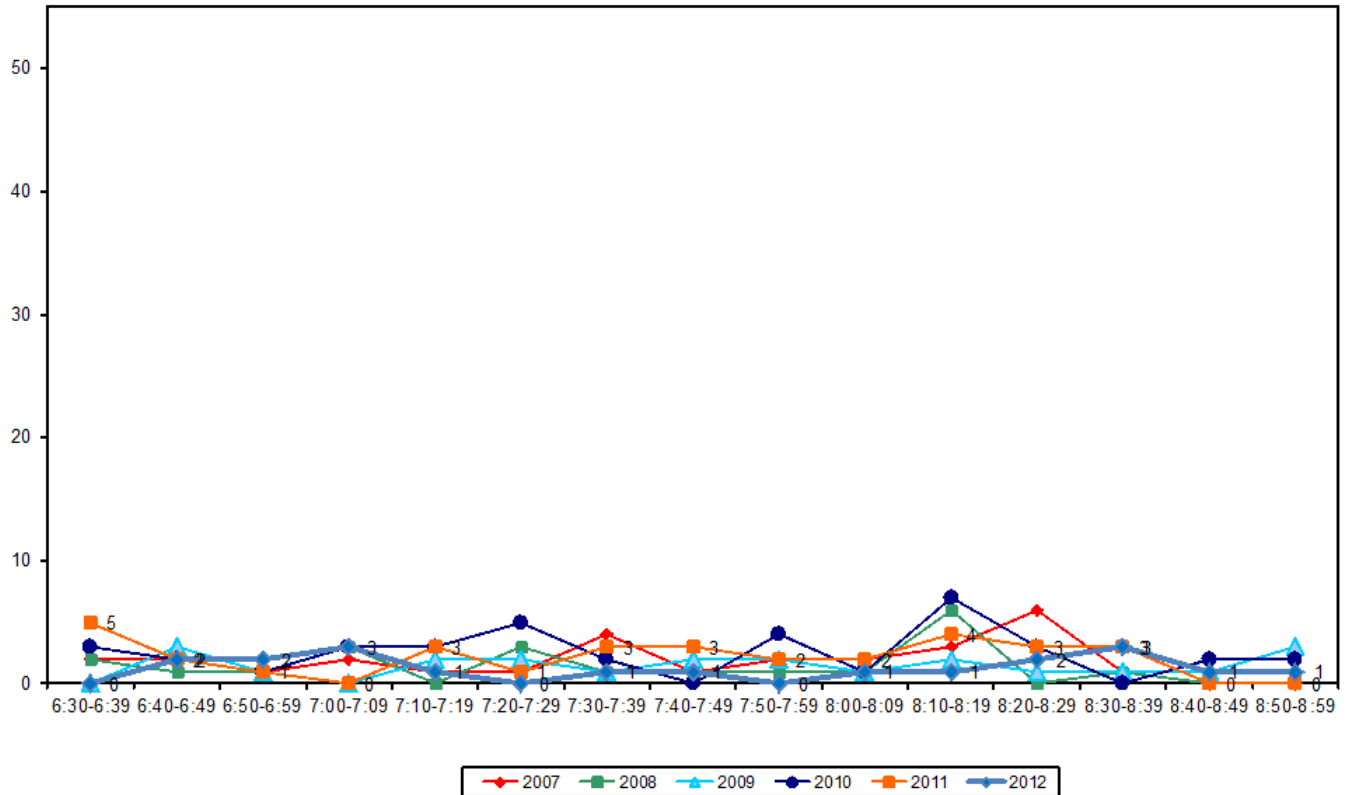
- Over the morning peak, adults comprise the greatest share of the cycle movements (84 per cent, up from 78 per cent last year).
- The majority of cyclists are wearing a helmet (79 per cent, stable from 78 per cent in 2011).
- Eighty-four per cent of cyclists are male.
- Three-quarters of cyclists are riding on the road (74 per cent, up from 66 per cent last year).

Table 9.2: Morning Cyclist Characteristics
McKenzie/Coronation/Walmsley Road 2007 – 2012 (%)

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	71	86	91	84	78	84	6
School child	29	14	9	16	22	16	-6
Helmet Wearing							
Helmet on head	71	71	86	71	78	79	1
No helmet	29	29	14	29	22	21	-1
Gender							
Male	-	-	-	-	88	84	-4
Female	-	-	-	-	13	5	-8
Can't tell	-	-	-	-	0	11	11
Where Riding							
Road	64	67	82	66	66	74	8
Footpath	36	33	18	34	34	26	-8
Base:	28	21	22	38	32	19	

- The volume of morning cyclists remains stable throughout the morning shift, no ten minute interval recording greater than 3 cyclists.

Figure 9.2: Morning Peak Cyclist Frequency
McKenzie/Coronation/Walmsley Road 2007 – 2012 (n)



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 29 movements in the evening (down notably from 61 movements in 2011).
- The most common movements in the evening are northbound from McKenzie Road to Coronation Road (Movement 5) and is heading south down Coronation Road (Movement 11), both with 9 cyclists each.
- Of all the movements possible at this site, the most notable decrease in 2012 is Movement 5 (down 12 cyclists).

Table 9.3: Evening Cyclist Movements

McKenzie/Coronation/Walmsley Road 2007 – 2012 (n)

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

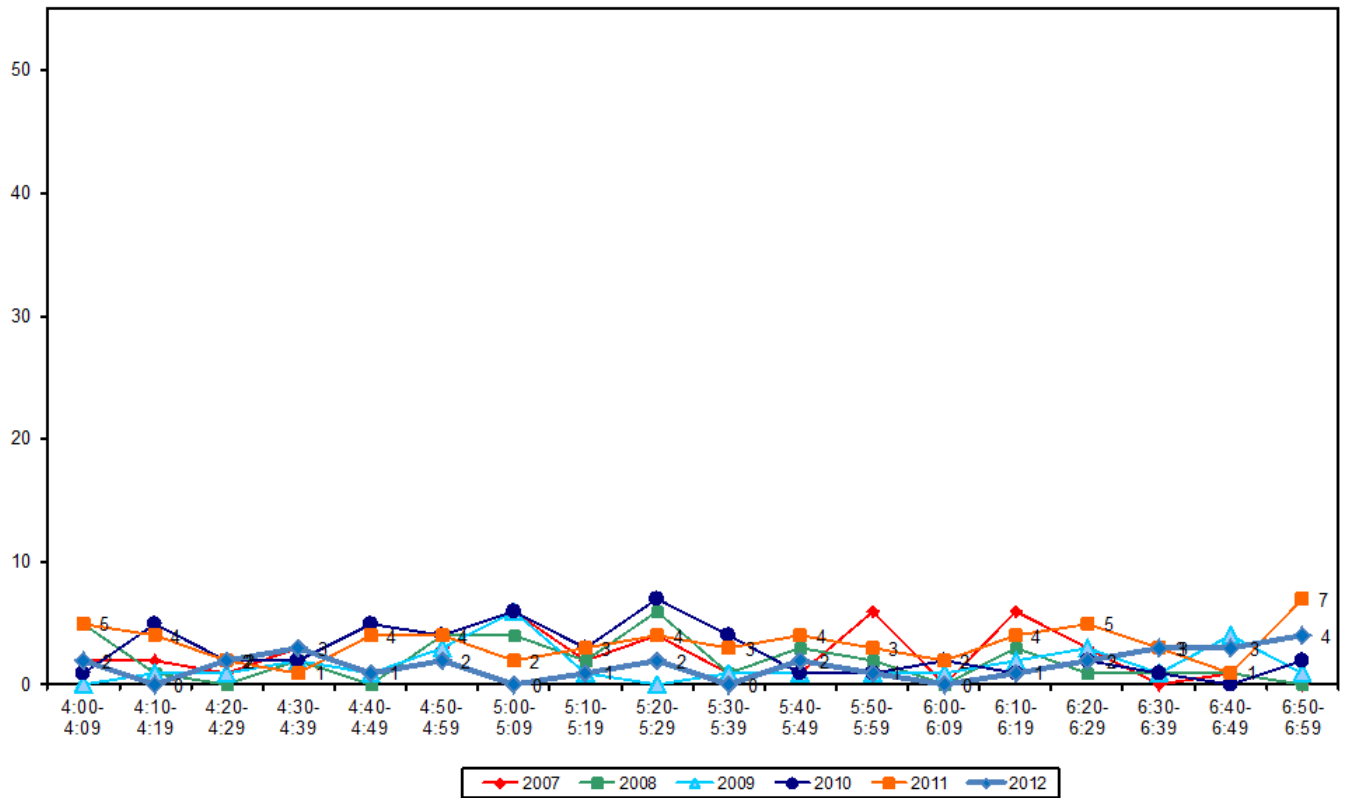
- Three-quarters of cyclists using this intersection over the evening peak are adults (76 per cent, down from 84 per cent last year).
- Eighty-three per cent of cyclists at this site are wearing a helmet (down from 87 per cent in 2011).
- Most of the cyclists using this site are male (79 per cent).
- Sixty-three per cent of cyclists are riding on the road, up from 59 per cent last year.

Table 9.4: Evening Cyclist Characteristics
McKenzie/Coronation/Walmsley Road 2007 – 2012 (%)

	2007	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type							
Adult	76	89	87	86	84	76	-8
School child	24	11	13	14	16	24	8
Helmet Wearing							
Helmet on head	74	78	73	76	87	83	-4
No helmet	26	22	27	24	13	17	4
Gender							
Male	-	-	-	-	90	79	-11
Female	-	-	-	-	7	21	14
Can't tell	-	-	-	-	3	0	-3
Where Riding							
Road	81	71	73	65	59	63	4
Footpath	19	29	27	35	41	37	-4
Base:	42	36	30	49	61	29	

- This year, the volume of evening cycle movements is stable throughout most of the evening period, with a slight peak occurring between 6:50pm and 6:59pm (4 cyclists). This peak occurred the same time as last year (7 movements).

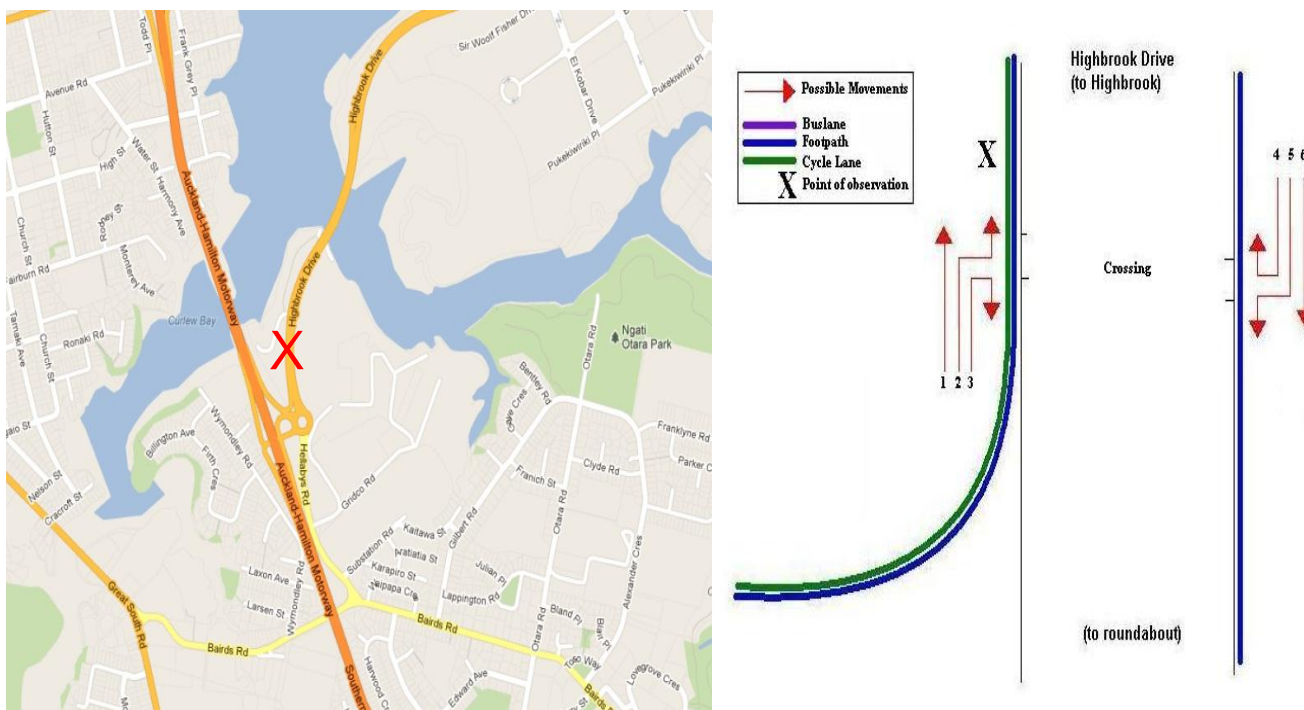
Figure 9.3: Evening Peak Cyclist Frequency
McKenzie/Coronation/Walmsley Road 2007 – 2012 (n)



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



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

10.2 Morning Peak

Environmental Conditions

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

Key Points

- The level of morning cyclist traffic at the Highbrook Drive site is low, with 21 cycle movements recorded (stable from 23 movements in 2011).
- The most common movement in the morning is along the cycle lane heading north (Movement 1 = 15 cyclists).

**Table 10.1: Morning Cyclist Movements
Highbrook Drive 2008 – 2012 (n)**

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	5	5	8	13	15	2
2	2	2	4	2	0	-2
3	2	0	1	2	1	-1
4	0	2	5	0	0	0
5	3	2	4	1	2	1
6	1	9	5	5	3	-2
Total	13	20	27	23	21	-2

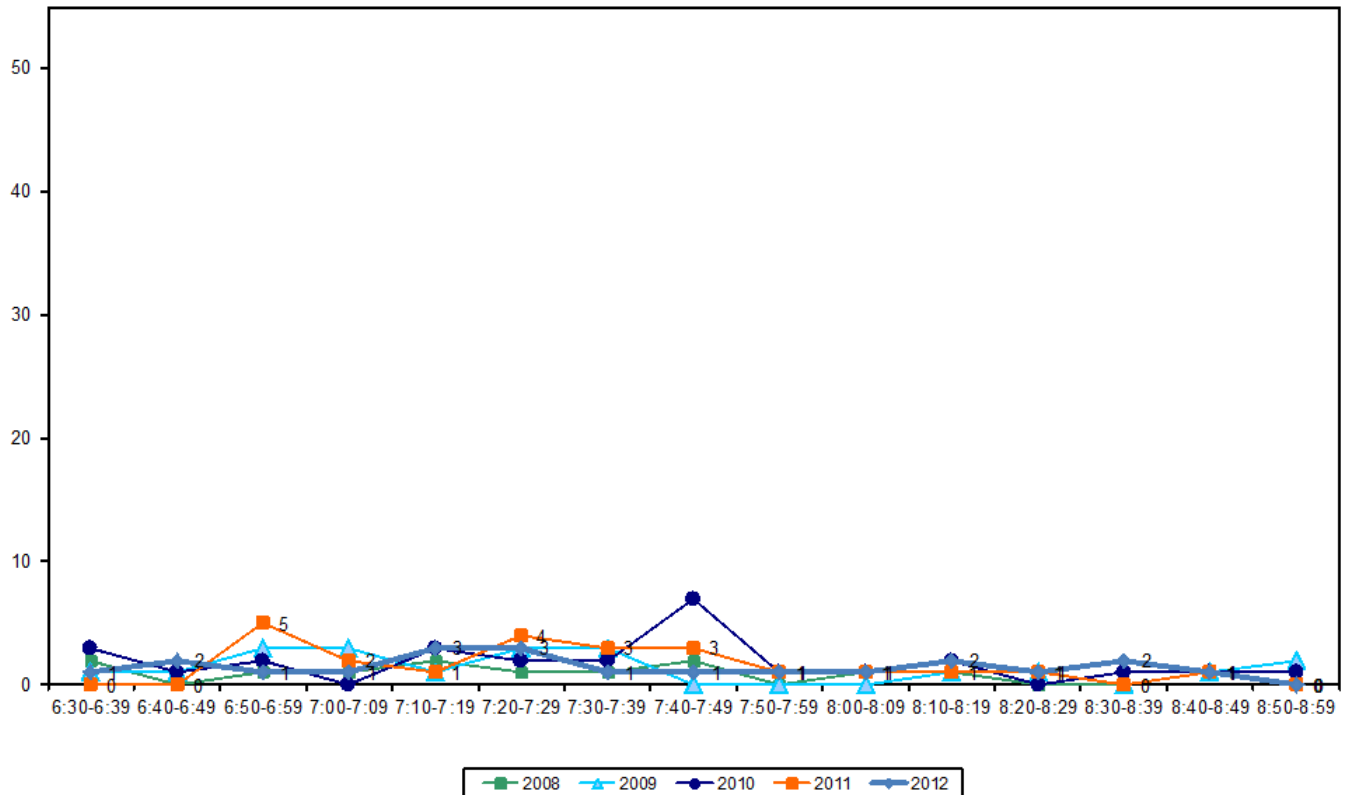
- Over the morning peak, all cyclists are adults (100 per cent, up from 96 per cent in 2011).
- Most cyclists are wearing a helmet (71 per cent).
- The majority of cyclists are male (90 per cent).
- The greatest share of cyclists (86 per cent) are riding on the off-road cycleway (up 25 percentage points from 2011). Fourteen per cent are riding on the road – stable when compared with 13 per cent last year.

Table 10.2: Morning Cyclist Characteristics
Highbrook Drive 2008 – 2012 (%)

	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type						
Adult	100	100	100	96	100	4
School child	0	0	0	4	0	-4
Helmet Wearing						
Helmet on head	85	75	78	78	71	-7
No helmet	15	25	22	22	29	7
Gender						
Male	-	-	-	91	90	-1
Female	-	-	-	4	10	6
Can't tell	-	-	-	4	0	-4
Where Riding						
Road	8	15	7	13	14	1
Footpath	92	5	33	26	0	-26
Off-road cycleway	-	80	60	61	86	25
Base:	13	20	27	23	21	

- The volume of cycle movements is low over almost the entire morning shift. There is, however, a slight peak that occurs between 7:10pm and 7:29pm (3 cyclists in each 10 minute interval).

Figure 12.2: Morning Peak Cyclist Frequency
Highbrook Drive 2008 – 2012 (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 is low in the evening, with 29 movements recorded, stable from 30 movements last year.
- The most common movement in the evening is down Highbrook Drive towards the roundabout (Movement 6 = 12 cyclists).
- The most notable change is at Movement 1 (down 3 cyclists from 2010).

Table 10.3: Evening Cyclist Movements
Highbrook Drive 2008 – 2012 (n)

<i>Movement</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>Change 11-12</i>
1	3	5	2	11	8	-3
2	2	0	3	0	0	0
3	0	6	0	4	5	1
4	0	0	0	0	0	0
5	8	0	3	4	4	0
6	3	7	5	11	12	1
Total	16	18	13	30	29	-1

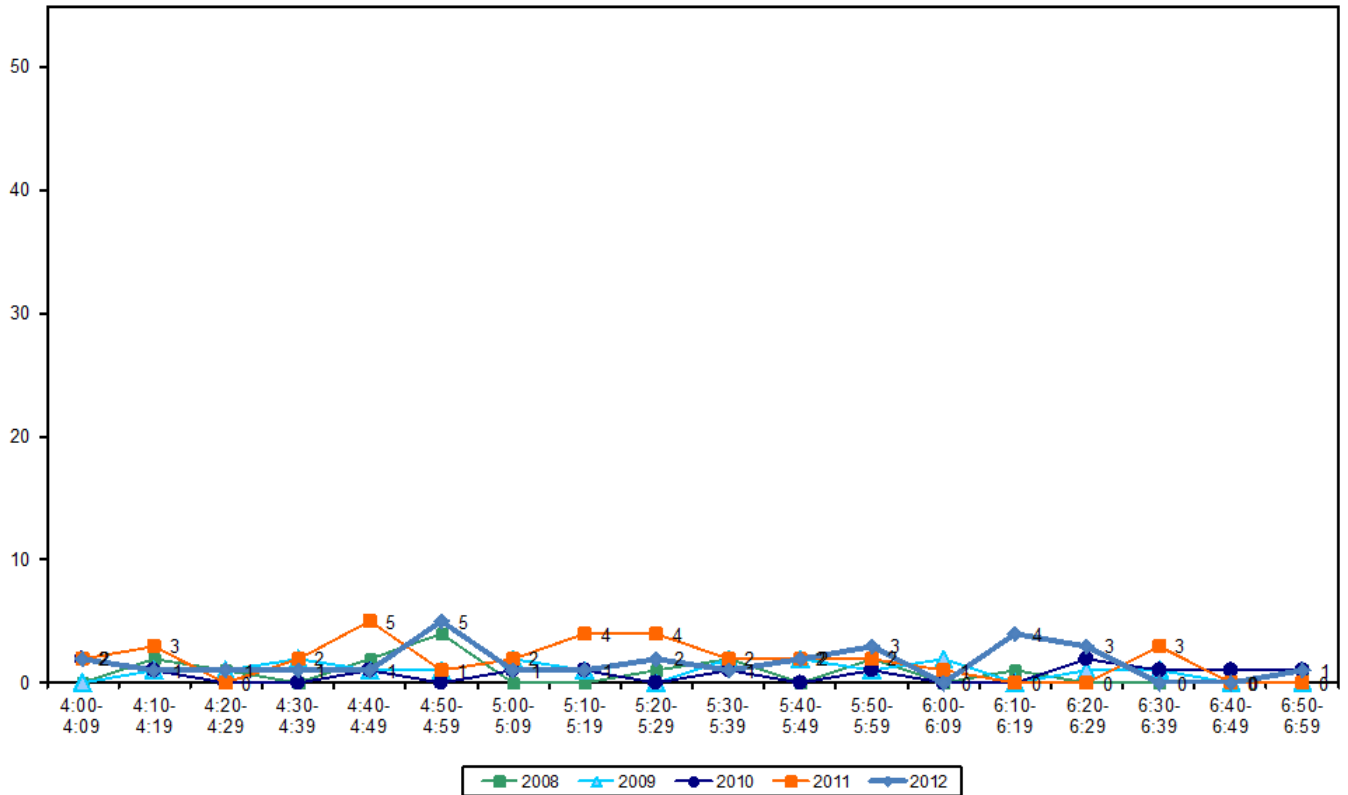
- Consistent with the morning peak, all cyclists using this intersection are adults (100 per cent, unchanged from 2011).
- A greater share of cyclists at this site are wearing a helmet this year (69 per cent, down from 83 per cent in 2011).
- The majority of cyclists at this site are male (93 per cent).
- Almost all the evening peak cyclists were observed using the off-road cycleway (93 per cent, up notably from 47 per cent last year) while 7 per cent used the road (down from 17 per cent last year).

**Table 10.4: Evening Cyclist Characteristics
Highbrook Drive 2008 – 2012 (%)**

	2008	2009	2010	2011	2012	Change 11-12
Cyclist Type						
Adult	100	100	100	100	100	0
School child	0	0	0	0	0	0
Helmet Wearing						
Helmet on head	81	89	62	83	69	-14
No helmet	19	11	38	17	31	14
Gender						
Male	-	-	-	87	93	6
Female	-	-	-	7	7	0
Can't tell	-	-	-	7	0	-7
Where Riding						
Road	6	11	0	17	7	-10
Footpath	94	22	54	37	0	-37
Off-road cycleway	-	67	46	47	93	46
Base:	16	18	13	30	29	

- The volume of cycle movements is relatively low over the evening period. Two slight peaks are observed - between 4:50pm and 4:59pm (5 cyclists) and 6:10pm and 6:19pm (4 cyclists). This is similar to last year where no more than five cyclists were recorded over any ten minute interval.

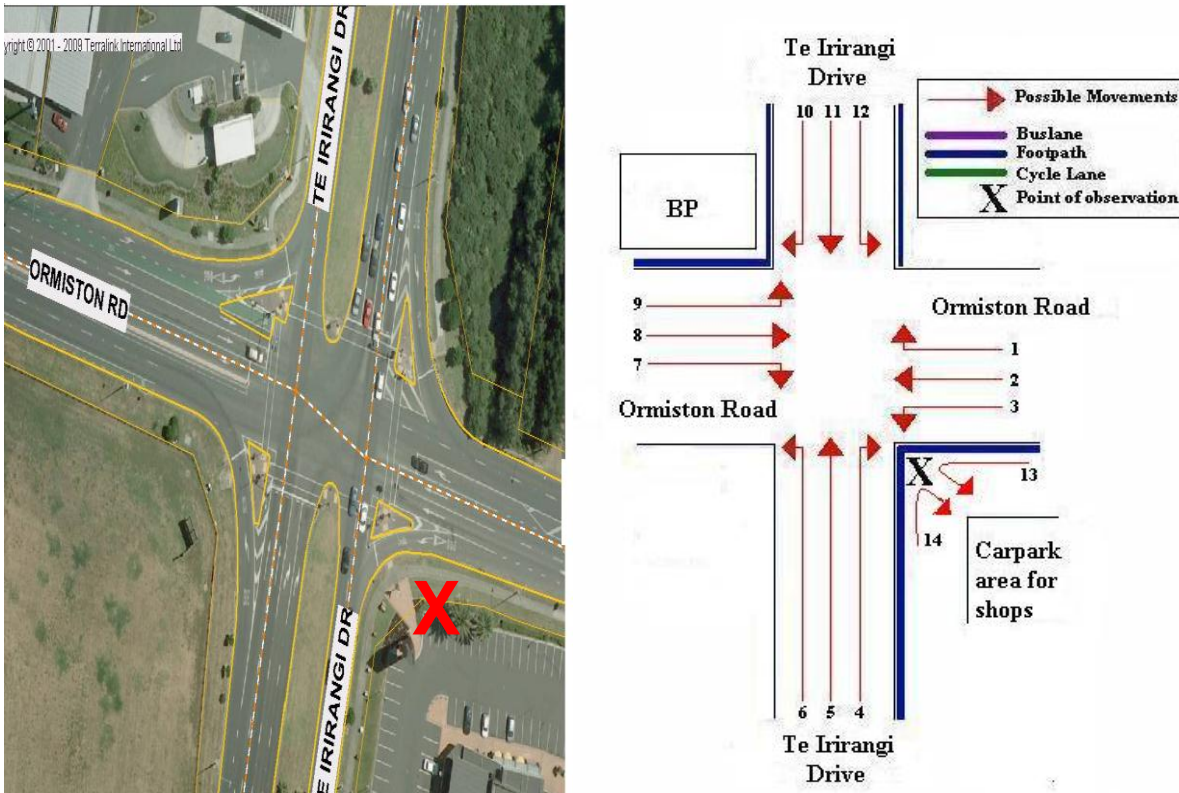
Figure 10.3: Evening Peak Cyclist Frequency
Highbrook Drive 2008 – 2012 (n)



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	Total
2009	13	20	33	47
2010	25	41	66	95
2011	24	32	56	81
2012	18	32	50	72

11.2 Morning Peak

Environmental Conditions

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

Key Points

- Morning cyclist traffic at the intersection of Te Irirangi Drive and Ormiston Road has decreased this year, with 18 cycle movements recorded (down from 24 movements in 2011).
- The key movement in the morning at this site is heading north along Te Irirangi Drive (Movement 5 = 6 cyclists).
- Morning cyclist volumes have decreased most notably at Movement 11 (down 5 cyclists).

Table 11.1: Morning Cyclist Movements
Te Irirangi Drive/Ormiston Road 2009 – 2012 (n)

<i>Movement</i>	2009	2010	2011	2012	Change 11-12
1	4	1	1	4	3
2	1	2	4	4	0
3	0	3	1	1	0
4	0	0	0	0	0
5	4	3	8	6	-2
6	0	0	1	0	-1
7	0	0	0	0	0
8	0	3	0	0	0
9	0	0	0	0	0
10	0	1	1	0	-1
11	4	12	8	3	-5
12	0	0	0	0	0
Total	13	25	24	18	-6

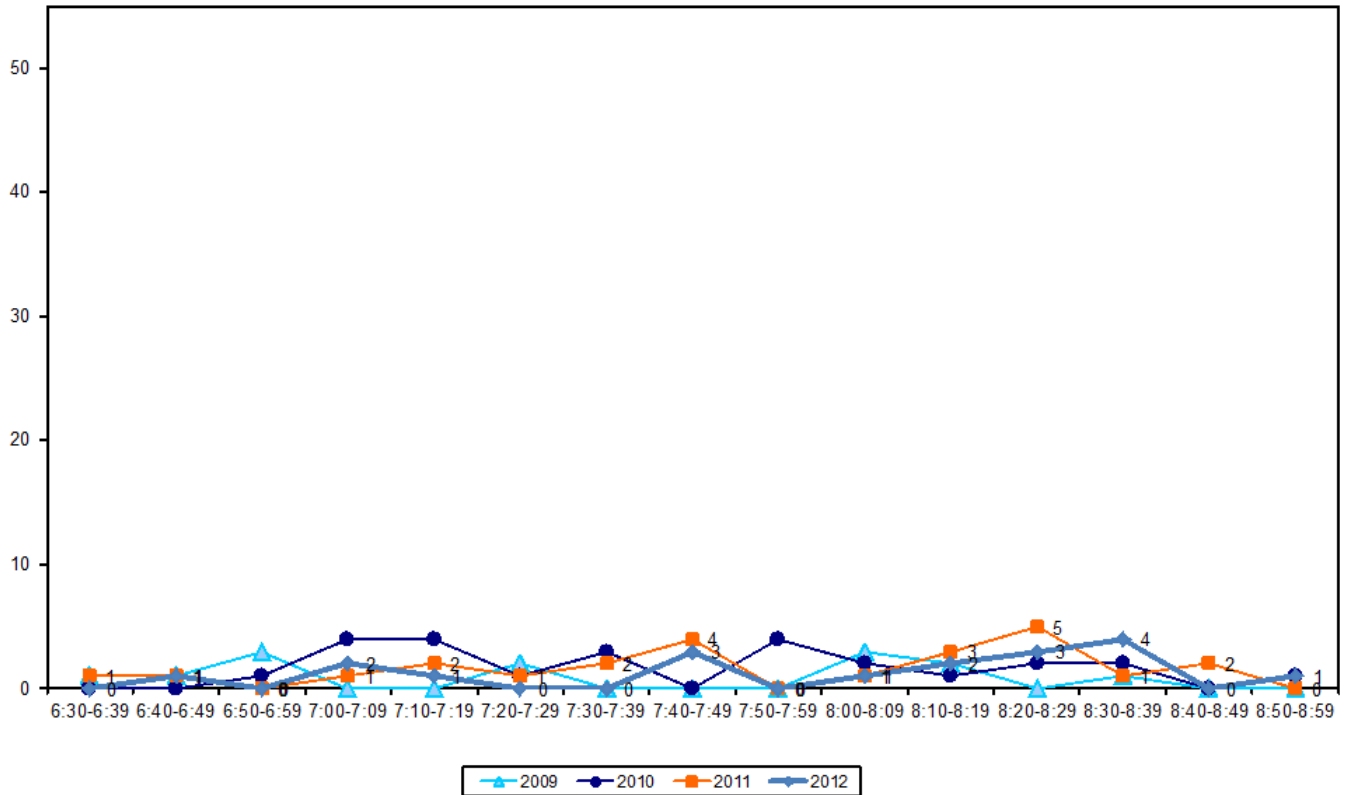
- Over the morning peak, the majority of cyclists riding through this intersection are adults (89 per cent, up from 83 per cent last year).
- The majority of cyclists are wearing a helmet (83 per cent, down from 100 per cent in 2011).
- Nine out of ten cyclists using this site are male (89 per cent, up from 75 per cent last year).
- The majority of cyclists are riding on the road (56 per cent, down from 67 per cent last year).

**Table 11.2: Morning Cyclist Characteristics
Te Irirangi Drive/Ormiston Road 2009 – 2012 (%)**

	2009	2010	2011	2012	Change 11-12
Cyclist Type					
Adult	69	80	83	89	6
School child	31	20	17	11	-6
Helmet Wearing					
Helmet on head	85	92	100	83	-17
No helmet	15	8	0	17	17
Gender					
Male	-	-	75	89	14
Female	-	-	25	11	-14
Can't tell	-	-	0	0	0
Where Riding					
Road	69	64	67	56	-11
Footpath	31	36	33	44	11
Base:	13	25	24	18	

- The volume of morning cycle movements is relatively low over the entire monitoring period, with no more than four cyclists recorded passing during any ten minute interval. A slight peak occurred between 8:30am and 8:39am (4 movements).

Figure 11.2: Morning Peak Cyclist Frequency
Te Irirangi Drive/Ormiston Road 2009 – 2012 (n)



11.3 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

- Evening cyclist volumes at the Te Irirangi Drive/Ormiston Road intersection are unchanged since 2011 (32 movements).
- The most common movement in the evening is riding straight along Te Irirangi Drive heading south (Movement 11 = 10 cyclists).
- Since 2011, evening cyclist volumes have most notably decreased at Movement 6 (down 6 cyclists).

Table 11.3: Evening Cyclist Movements
Te Irirangi Drive/Ormiston Road 2009 – 2012 (n)

<i>Movement</i>	2009	2010	2011	2012	Change 11-12
1	0	1	1	0	-1
2	1	4	2	2	0
3	0	0	3	1	-2
4	0	0	1	1	0
5	2	8	11	5	0
6	0	0	0	0	-6
7	1	0	2	1	-1
8	1	6	1	4	3
9	1	1	1	3	2
10	0	0	0	0	0
11	13	20	9	10	1
12	1	1	1	5	4
Total	20	41	32	32	0

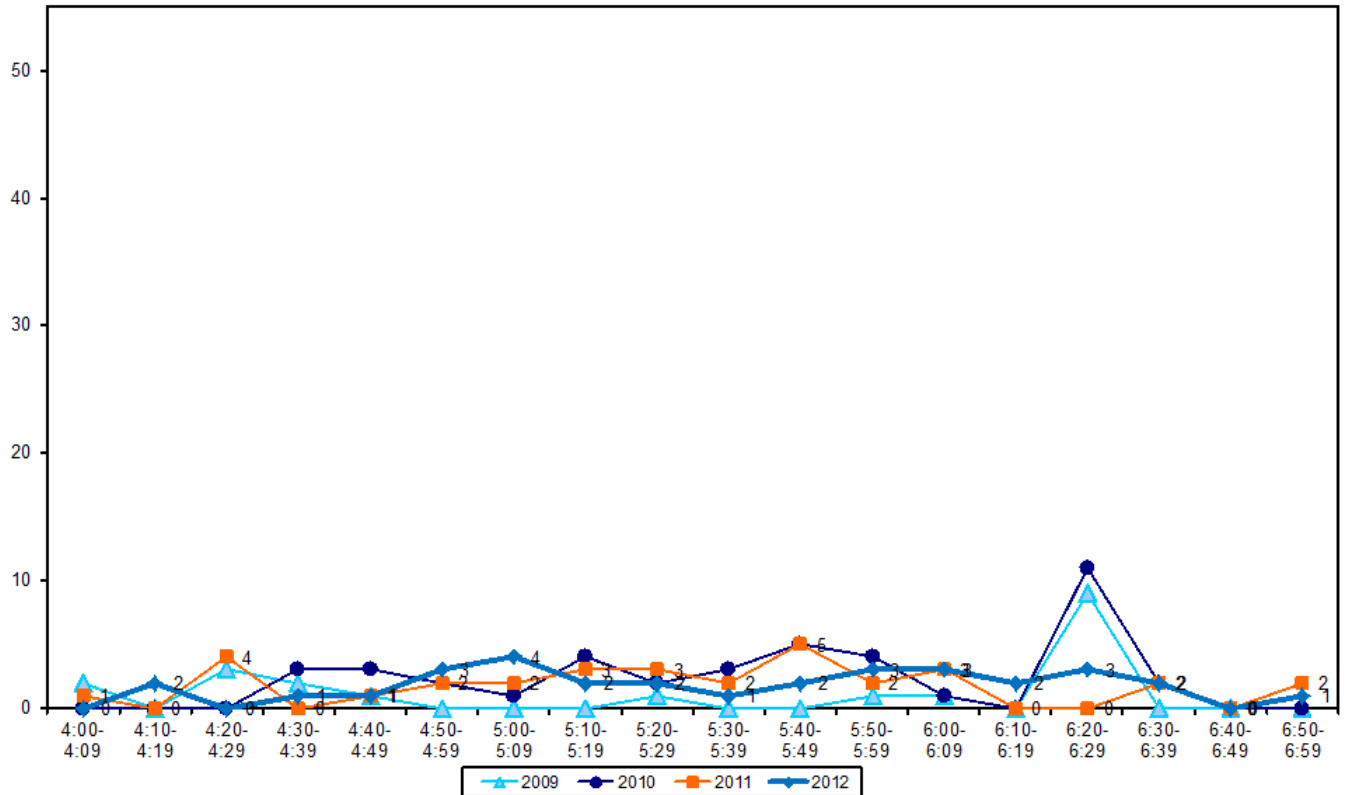
- Most evening cyclists using this site are adults (94 per cent, down from 97 per cent in 2011).
- Most cyclists are wearing a helmet (88 per cent, down from 97 per cent last year).
- Ninety-four per cent of cyclists at this site are male, up from 78 per cent in 2011.
- The majority of cyclists are riding on the road (72 per cent, down from 88 per cent in 2011).

**Table 11.4: Evening Cyclist Characteristics
Te Irirangi Drive/Ormiston Road 2009 – 2012 (%)**

	2009	2010	2011	2012	Change 11-12
Cyclist Type					
Adult	95	83	97	94	-3
School child	5	17	3	6	3
Helmet Wearing					
Helmet on head	95	78	97	88	-9
No helmet	5	22	3	12	9
Gender					
Male	-	-	78	94	16
Female	-	-	16	6	-10
Can't tell	-	-	6	0	-6
Where Riding					
Road	95	76	88	72	-16
Footpath	5	24	12	28	16
Base:	20	41	32	32	

- Evening cyclist volumes are generally stable throughout the monitoring period this year with a slight peak between 5:00pm and 5:10pm (4 movements).

Figure 11.3: Evening Peak Cyclist Frequency
Te Irirangi Drive/Ormiston Road 2009 – 2012 (n)



12. SCHOOL BIKE SHED COUNT

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

Background Information

- A total of 24 schools in the Manukau ward participated in the school bike shed count.
- None of these schools reported policies that restrict students cycling to school.
- Of the 24 schools that responded, only Mission Heights Junior College reported an unspecified event that may affected the cycle counts.
- The designated count day was Tuesday 6th of March 2012¹⁰.

Key Points

- 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 2011).
- Across the 24 schools that responded, 53 students were reported to cycle to school.
- This year, four schools shared the highest proportion of cyclists; Mission Heights Junior College, Otahuhu Intermediate School, Papatoetoe Intermediate School and Te Kura Maori o Nga Tapuwae – all with 2 per cent of all eligible students currently cycling.
- Of the schools that participated in the count in both 2011 and 2012, four schools (Mission Heights Junior College, Otahuhu Intermediate School, Auckland Seventh Day Adventist High School and Kia Aroha College/Clover Park Middle School) reported an increase in the share of students cycling to school.
- Of the 24 schools that responded, 16 (70 per cent) had no students cycling to school.

¹⁰ The following schools conducted their counts on alternative days

- Otahuhu College – Thursday 1st March 2012
- Auckland Seventh Day Adventist High School – Tuesday 13th March 2012
- Sir Edmund Hillary Collegiate Middle School – Tuesday 13th March 2012
- Zayed College for Girls – Monday 19th March 2012
- Holy Cross School (Papatoetoe) – Wednesday 4th April 2012
- King's College – Wednesday 4th April 2012
- Mangere Central School – Wednesday 4th April 2012
- Mary MacKillop School – Wednesday 4th April 2012
- Mission Heights Junior College – Thursday 5th April 2012
- Te Kura Kaupapa Maori o Rohe o Mangere – Thursday 5th April 2012

Table 12.1 shows the results of the 24 schools surveyed in the Manukau ward.

**Table 12.1: Summary Table Of School Bike Count
2007 – 2012 (n)**

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible[1]					
				2012	2011	2010	2009	2008	2007
Mission Heights Junior College	Composite	653	10	2%	1%	5%	3%	-	-
Otahuhu Intermediate School	Intermediate	326	5	2%	0%	0%	-	1%	1%
Papatoetoe Intermediate School	Intermediate	870	18	2%	2%	2%	1%	-	-
Te Kura Maori o Nga Tapuwae	Composite	293	7	2%	-	-	-	-	-
Auckland Seventh Day Adventist High School	Secondary	223	2	1%	<1%	-	-	-	-
Kedgley Intermediate	Intermediate	782	5	1%	1%	2%	2%	-	-
Kia Aroha College/Clover Park Middle School	Intermediate/Secondary	300	4	1%	0%	-	-	0%	-
Mangere College	Secondary	870	2	<1%	1%	1%	1%	-	-
Aorere College	Secondary	1512	0	0%	0%	0%	0%	-	-
Ferguson Intermediate School	Intermediate	480	0	0%	0%	-	-	0%	-
Holy Cross School (Papatoetoe)	Full Primary	580	0	0%	-	-	-	-	-
King's College	Secondary	950	0	0%	-	-	-	-	-
Koru School	Full Primary	570	0	0%	-	-	-	-	-
Mangere Central School	Full Primary	455	0	0%	-	-	-	-	-
Mary MacKillop School	Full Primary	300	0	0%	0%	-	-	-	-
McAuley High School	Secondary	689	0	0%	0%	0%	0%	0%	0%
Otahuhu College	Secondary	1355	0	0%	0%	-	0%	0%	0%
Sir Edmund Hillary Collegiate Middle School	Intermediate	226	0	0%	-	-	-	-	-
Sir Keith Park Special	Composite	135	0	0%	-	-	-	-	-
South Auckland SDA School	Full Primary	280	0	0%	-	-	-	-	-

School Name	School Type	School Roll Eligible To Cycle	No. of Cycles Counted	Cyclists as share of those eligible[1]					
				2012	2011	2010	2009	2008	2007
St John The Evangelist	Full Primary	265	0	0%	-	-	-	-	-
Sutton Park School	Full Primary	495	0	0%	0%	-	-	-	-
Te Kura Kaupapa Maori a Rohe o Mangere	Composite	184	0	0%	1%	-	-	-	-
Zayed College for girls	Intermediate/Secondary	74	0	0%	0%	-	-	-	-
Total		12867	53	<1%	-	-	-	-	-

- Table 12.2 illustrate the rates of cycling to school at different school levels. Rates of cycling to school are highest among composite and intermediate schools (1 per cent, unchanged from last year) and intermediate/secondary schools (1 per cent, up from no cyclists in 2011).

**Table 12.2: Summary Table of School Bike Count by School Type
2007 – 2012 (%)**

Year Levels	Number of Schools Responded in 2012	Cyclists as share of those eligible						2012	Change 11-12
		2007	2008	2009	2010	2011			
Composite	4	-	0%	0%	0%	1%	1%	0	
Intermediate	5	<1%	<1%	1%	1%	1%	1%	1	
Intermediate/Secondary	2	-	0%	-	-	0%	1%	1	
Secondary	6	0%	0%	<1%	<1%	<1%	<1%	0	
Full primary	7	-	-	-	-	0%	0%	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 AADT¹¹ in the Auckland region from any Gravitas manual count.

Method for Estimating AADT

The methodology is based on that published in Appendix 2 of the Cycle Network and Route Planning Guide (CNRPG)¹², adjusted for Auckland conditions based on data collected during March 2007. The aim was to use the published methodology as much as possible, with any necessary departure from it documented below. The following equation yields the best estimate of a cycling AADT:

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

where *Count* = result of count period

H = scale factor for time of day

D = scale factor for day of week

W = scale factor for week of year

R = scale factor for weather conditions on the count day

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

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

¹¹ Annual average daily traffic

¹² LTSA, 2004

For the Gravitas counts, the following factors apply:

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

$$D = 14$$

$$W = 0.9$$

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

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

	Morning	Afternoon
Dry weather	3.06	2.78
Wet weather	4.78	4.35

Worked Example

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

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

Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%