**MONITORING REPORT**

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

# MANUAL CYCLE MONITORING IN THE AUCKLAND REGION

## March 2010

## *Waitakere*

**Prepared by Gravitas Research and Strategy Limited**

*Final Version 28th May 2010*

# TABLE OF CONTENTS

**APPENDICES**

# 1. WAITAKERE SUMMARY OF RESULTS

## 1.1 Introduction

### *The Need For Reliable Cycle Trip Data*

Monitoring cycle trips and cycle traffic is important to the Auckland Regional Transport Authority (ARTA) and the local councils in the Auckland region, to identify where investment may be needed to improve infrastructure for cycling. Cycle traffic data will also help ARTA prioritise future funding through the Auckland Land Transport Programme[1].

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

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

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

## *Manual Cycle Monitoring*

Historically, manual cycle monitoring had been carried out in four of the seven Auckland region Territorial Authorities (TAs). However, each monitor had been undertaken using a different methodology[2]. This variability prevented the possibility of comparing the relative popularity of different sites across TA boundaries. In addition, each monitor programme took place at different times of the year, preventing comparability from location to location since factors such as weather, school/tertiary education holidays, seasonal variations and daylight savings each have an impact on the numbers of cyclists. Even within TAs, inconsistencies as to when counts took place from year to year prevented robust comparability over time.

Through the Regional Cycle Monitoring Plan, it was proposed that these manual counts be regionally aligned to ensure better regional consistency. Ideally, cycle count monitoring would be carried out at the same time each year across the region, applying a standard methodology. 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 15 sites across Waitakere following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a TA and region level. For sites also monitored in 2007, 2008 and/or 2009, comparative results are provided.

**Important Note:** This report provides the results of manual cycle monitoring conducted at 15 pre-determined sites in Waitakere only. Site-by-site results and city/district summaries for all other Auckland region Territorial Authorities have been provided in separate documents. It is strongly recommended that this report be read in conjunction with the Regional Summary document, which provides aggregated data for the region, as well as a regional comparison of results.

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

## 1.2 Methodology

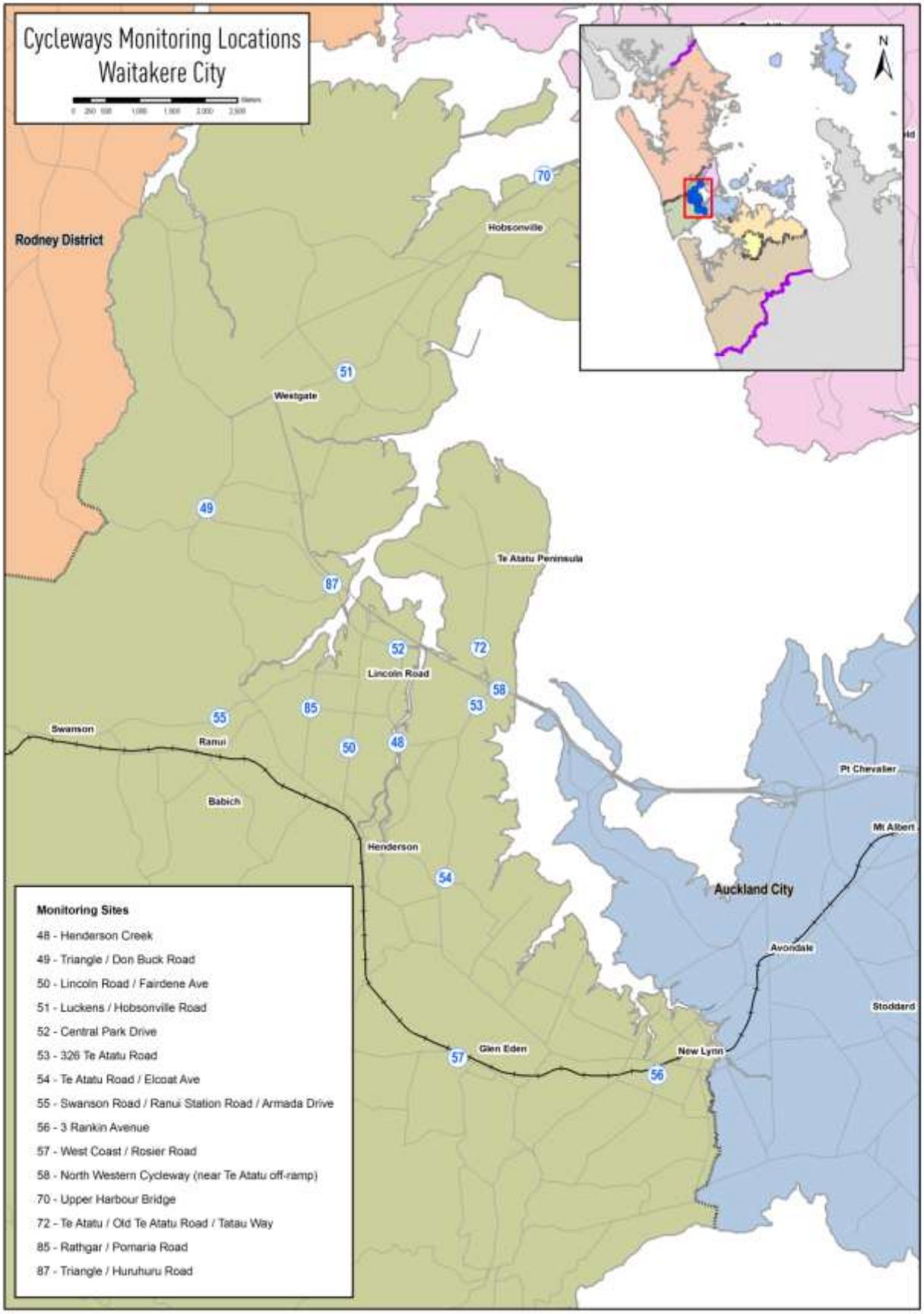
Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below. *Note: To ensure the longitudinal comparability of its cycle data, Gravitas have conducted the regional monitoring using a similar approach to that used to collect manual count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

### *Choice Of Sites*

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

Manual counts were undertaken at 84 different sites throughout the region. Sites were distributed throughout the region as follows:

- Auckland City — n=28 sites (12 sites monitored since 2001; 10 sites added in 2007; 5 sites added in 2008; 3 sites relocated, one site dropped and one site added in 2009, one site added in 2010)
- Waitakere City — n=15 sites (11 sites monitored since 2007; 2 sites added in 2008; 1 site added in 2009; one site relocated and one site added in 2010)
- Manukau City — n=14 sites (12 sites monitored since 2007; 1 site added in 2008; one site relocated, 2 sites dropped and 3 sites added in 2009)
- North Shore City — n=13 sites
- Rodney District — n=8 (5 sites monitored since 2007; 3 sites added in 2009)
- Franklin District — n=4 (3 sites monitored since 2007; 1 site added in 2009)
- Papakura District — n=2 sites (3 sites monitored since 2007; 1 site dropped in 2010)


Cycleways Monitoring Locations
Waitakere City
N
Rodney District
Hobsonville
Westgate
Te Atatu Peninsula
Lincoln Road
Swanson
Ranui
Babich
Henderson
Pt Chevalier
Mt Albert
Auckland City
Avondale
Stoddard
Glen Eden
New Lynn
70
51
49
87
52
72
58
53
85
55
50
48
54
57
56
Monitoring Sites
48 - Henderson Creek
49 - Triangle / Don Buck Road
50 - Lincoln Road / Fairdene Ave
51 - Luckens / Hobsonville Road
52 - Central Park Drive
53 - 326 Te Atatu Road
54 - Te Atatu Road / Elcoat Ave
55 - Swanson Road / Ranui Station Road / Armada Drive
56 - 3 Rankin Avenue
57 - West Coast / Rosier Road
58 - North Western Cycleway (near Te Atatu off-ramp)
70 - Upper Harbour Bridge
72 - Te Atatu / Old Te Atatu Road / Tatau Way
85 - Rathgar / Pomaria Road
87 - Triangle / Huruhuru Road

## *Monitoring Times*

### *Time Of Day*

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

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

### *Day Of Week*

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

### *Time Of Year*

To ensure consistency throughout the region, standard monitoring days were selected and agreed upon by the Regional Cycle Monitoring Working Group. In selecting the days, consideration was given to:

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

It was agreed that manual counts would commence on Tuesday the 9th of March and be conducted on the first three fine days of the 9th, 10th, 11th, 16th, 17th, or 18th of March.

Counting at sites in **North Shore and Waitakere** cities was completed on **Tuesday the 9th of March**. Counting at sites in **Auckland City** was completed on **Wednesday the 10th of March**. Counts in **Manukau, Rodney, Papakura and Franklin** were completed on **Thursday the 11th of March**. Note: Counts in the morning and evening peaks took place on the same day for each site.

## *Weather and Daylight Conditions*

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

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

The weather on the three count days in 2010 was as follows:

**Tuesday 9th March**

***(Waitakere and North Shore City sites monitored)***

- Sunrise: 7:13am; Sunset: 7:49pm.
- Average temperature: 19 degrees Celsius.
- Fine weather for all sites in the morning period.
- Weather fine throughout the evening shift.

**Wednesday 10th March**

***(Auckland City sites monitored)***

- Sunrise: 7:14am; Sunset: 7:48pm.
- Average temperature: 19 degrees Celsius.
- Fine weather at most sites in the morning period.

**Thursday 11th March**

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

- Sunrise: 7:15am; Sunset: 7:46pm.
- Average temperature: 20 degrees Celsius.
- Rodney district has fine weather throughout the morning shift. Most other sites had overcast weather in the morning period apart from light drizzle at two Manukau city sites, one Franklin and one Papakura site.
- Weather in the evening period was overcast, with intermittent drizzle throughout the period.

## *Conducting The Manual Counts*

### *Scoping Visit*

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

As part of the scoping visit, a small number of sites were identified as requiring two 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; Auckland City); and
- Beach Road/Browns Bay Road, Mairangi Bay (Site 45; North Shore City).

Three surveyors were used at the ferry terminal site (Site 22; Auckland City).

### *Briefing Session*

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

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

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

### *Conducting The Manual Counts*

Each site was assigned to a surveyor, who was issued with a map that showed the range of movements a cyclist could make through that site. In addition to the map, surveyors were issued with a clipboard, a safety vest and a letter identifying them as a member of a Gravitas research team[3].

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

- The total number of cyclists[4] passing through the intersection;
- The direction in which cyclists are travelling (using the numbers on the map provided);
- The time at which cyclists pass through the intersection (to the nearest minute);
- Whether cyclists are school children or adults (determined by whether they are wearing a school uniform or clearly of school age);
- Whether cyclists are wearing a helmet; and
- Whether cyclists are riding on the road, footpath or designated off- road cycleway[5].

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

In addition, where cyclists were recognisable, surveyors were instructed to record each cyclist no more than three times during a single shift, irrespective of how many trips they actually made through the site. Surveyors noted where and when this occurred.

[3] This letter also contained contact details for the client organisation and Gravitas Research and Strategy for any member of the public or local business owners who had queries about the work being undertaken.
[4] To ensure consistency across all surveyors, a "cycle" was defined as being non-motorised, with two wheels and requiring pedalling to make it move. Note that this definition did not include scooters.
[5] Note: For the purpose of this project, an off-road cycleway is defined as designated off-road path for cycles. This includes exclusive cycle paths, separated paths (such as the footpath on Tamaki Drive) and shared-use paths (available to cyclists and pedestrians). It excludes on-road cycle lanes (that is, designated lanes marked on the road).

Data was collected on the weather and daylight conditions at the site. Surveyors were also encouraged to record any information that may have affected cycle numbers or cycle movements at the site – for example, construction or maintenance works being conducted on the cycle way or road works at the intersection.

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

### *Data Analysis*

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

### *Annual Average Daily Traffic (AADT) Analysis*

It is acknowledged that the number of cyclists using a site varies by time of day, day of the week and week of the year, and therefore it is not valid to simply multiply manual count data collected over a certain (relatively brief) period out to represent a full day, week or year. However, according to Land Transport New Zealand[6], Annual Average Daily Traffic (AADT) analysis can be used to estimate the average annual daily flow of cyclists from manual and automated cycle counts conducted at one point in time. The procedure involves deriving scale factors, which account for the time of day, day of the week, and week of the year (which varies with school holidays and season) as well as weather conditions on the count day. These scale factors are then applied to the count data collected to give an AADT estimate.

Using the manual count figures for each site, it has been possible to provide the average annual daily traffic flow of cyclists (cycling AADT) estimate for each site. AADT scale factors (morning and afternoon) were provided by ViaStrada[7].

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

*Note: ViaStrada acknowledge that, as cycling volumes fluctuate from day to day depending on the weather, this method should be used with caution. They note that ideally an estimate should be achieved based on the average of the results of several counts, rather than counts from a single day, as in this study[8].*

[6] http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html

[7] ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.

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

## *School Bike Shed Counts*

As stated above, manual cycle counts were undertaken during the morning (6.30 am to 9 am) and evening (4 pm to 7 pm) peaks. However, it was noted in the design phase of the project that the timing of the evening peak monitoring would mean that the greatest share of students cycling home from school will be excluded from the counts. This was identified as a potential weakness of the monitoring proposed.

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

It was decided that school bike shed monitoring would focus only on intermediate and secondary schools (and composite schools which included children of intermediate and secondary school age), since children travelling to primary schools are considered by many parents (and schools) as too young to cycle to school.

### *Methodology*

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

1. Gravitas designed an information sheet that was distributed to most 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 eg special needs schools). This sheet was designed in consultation with the Regional Cycle Monitoring Working Group.

2. This email was then sent to all intermediate, secondary and composite schools in Auckland region (n=160) 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 9th 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. One hundred and twenty-five response were received, a response rate of 78 per cent.

## *Reporting*

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

### *Manual Counts - Site Level Reporting*

For consistency with Auckland City's cycle monitor, the following results have been reported for each site:

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

### *Manual Counts - Aggregated Reporting*

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

### *Bike Shed Counts*

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

## 1.3 Summary Of Results

This summary contains the aggregated results of the 15 sites surveyed in Waitakere City. 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 Waitakere, 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 Sixteen of this report.

Note: Surveying in Waitakere was undertaken on Tuesday 9th March, 2010. Sunrise was at 7:13am and sunset was at 7:49pm. The average temperature was 19 degrees Celsius.

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

- "high/heavy" when 79 or more cycle movements are reported;
- "moderate" when between 32 and 78 cycle movements are reported;
- "low/light" when between 0 and 31 cycle movements are reported;
- having "notably" increased/decreased if the change is more than 15% of the data being compared with;
- having "slightly" increased/decreased if the change is less than 5% of the data being compared with.
- being "stable" since last year if the change is less or equal to 3 cycle movements/percentages.

## 1.4 Morning Peak

### *Environmental Conditions*

- All sites had fine weather in the morning.
- There were no road works or accidents that may affect cycle counts in the morning.

### *Key Points*

- A total of 572 cyclist movements were recorded across the 11 sites monitored since 2007 in the morning peak period (between 6:30am and 9:00am) in 2010. This represents a 5 per cent increase from the 2009 results (545 movements). This increase is not statistically significant – that is, the increase falls within the margin of error at the 95% confidence interval.
- In total, 826 cycle movements were recorded across the 15 Waitakere sites. Ten per cent (n=80) of these movements were made by cyclists riding as groups.
- As in previous years, the busiest site in the morning peak is North Western cycleway (179 movements, up from 157 movements last year), whereas the site at 3 Rankin Avenue has the lowest level of morning cyclist traffic (12 cycle movements).
- Eight sites recorded increases this year compared to 2009. The most notable increases are at:
  - Rathgar/Pomaria Road – up 66 per cent;
  - Te Atatu/Old Te Atatu Road/Tatau Way – up 59 per cent; and
  - Luckens/Hobsonville Road – up 58 per cent.
- In contrast, four sites recorded declines this year compared to 2009. The most notable decrease is at 3 Rankin Avenue (down 43 per cent from last year).
- The average volume of morning cyclists across the 11 sites monitored in Waitakere since 2007 is 52 cycle movements. This compares with an average of 50 movements in 2009.

***Table 1.1: Summary Of Morning Cyclist Movements 2007-2010 (n)***

| *Site No.* | *Locations* | *2007* | *2008* | *2009* | *2010* | **Change 09-10 (%)** | **Change 07-10 (%)** |
|---|---|---|---|---|---|---|---|
| 58 | North Western Cycleway/near Te Atatu Road off-ramp | 102 | 121 | 157 | **179** | **14%** | 75% |
| 52 | Central Park Drive, Henderson | 61 | 68 | 91 | **94** | **3%** | 54% |
| 53 | 326 Te Atatu Road (Near Covil Ave) | 44 | 52 | 79 | **65** | **-18%** | 48% |
| 51 | Luckens/Hobsonville Road | 20 | 25 | 26 | **41** | **58%** | 105% |
| 48 | Henderson Creek | 14 | 11 | 27 | **38** | **41%** | 171% |
| 55 | Swanson/Ranui Station Road/Armada Drive | 15 | 21 | 37 | **34** | **-8%** | 127% |
| 57 | West Coast/Rosier Road, Glen Eden | 19 | 18 | 28 | **31** | **11%** | 63% |
| 54 | Te Atatu Road/Elcoat Avenue | 26 | 27 | 37 | **30** | **-19%** | 15% |
| 49 | Triangle Road/Don Buck Road, Massey | 24 | 29 | 21 | **27** | **29%** | 13% |
| 50 | Lincoln Road/Fairdene Avenue | 13 | 19 | 21 | **21** | **0%** | 62% |
| 56 | 3 Rankin Avenue, New Lynn | 16 | 17 | 21 | **12** | **-43%** | -25% |
| | **Average per site (11 sites since 2007)** | **32** | **37** | **50** | **52** | **4%** | **63%** |
| | **Total (11 sites since 2007)** | **354** | **408** | **545** | **572** | **5%** | **62%** |
| 72 | Te Atatu/Old Te Atatu Road/Tatau Way | - | 56 | 66 | **105** | **59%** | - |
| 70 | Upper Harbour Drive/Buckley Avenue[9] | - | 17 | 23 | **37** | - | - |
| 85 | Rathgar/Pomaria Road | - | - | 32 | **53** | **66%** | - |
| | **Average per site (12 sites in 2008, 14 sites in 2009)** | **-** | **39** | **49** | **56** | **14%** | **-** |
| | **Total (12 sites in 2008, 14 sites in 2009)** | **-** | **464** | **643** | **730** | **14%** | **-** |
| 87 | Triangle/Huruhuru Road | - | - | - | **59** | - | - |
| | **Average per site (15 sites in 2010)** | **-** | **-** | **-** | **55** | **-** | **-** |
| | **Total (15 sites in 2010)** | **-** | **-** | **-** | **826** | **-** | **-** |

[9] *2008 and 2009 results do not include movements into or out of Buckley Avenue, southwest on Upper Harbour Drive.*

- Morning cyclist characteristics this year are very similar to those reported in 2009. Overall, 80 per cent of cyclists are adults (up from 77 per cent last year). Of the 15 locations monitored in Waitakere city, the Te Atatu Road/Elcoat Ave site has the highest proportion of cyclists that are school children (80 per cent).
- Almost all morning cyclists are wearing a helmet across the Waitakere sites (93 per cent, stable from 90 per cent in the previous year). However, helmet wearing is least likely to occur at the Lincoln Road/Fairdene Ave intersection (33 per cent not wearing a helmet).
- One in three (32 per cent) morning cyclists are riding on the off-road cycleway (down from 35 per cent last year), 46 per cent are riding on the road (up from 34 per cent in 2009), and the remaining 22 per cent are riding on the footpath. Compared with other sites in Waitakere city, the incidence of cyclists riding on the footpath is the highest at the 326 Te Atatu Road site (89 per cent).

***Table 1.2: Summary of Morning Cyclist Characteristics 2007-2010 (%)***

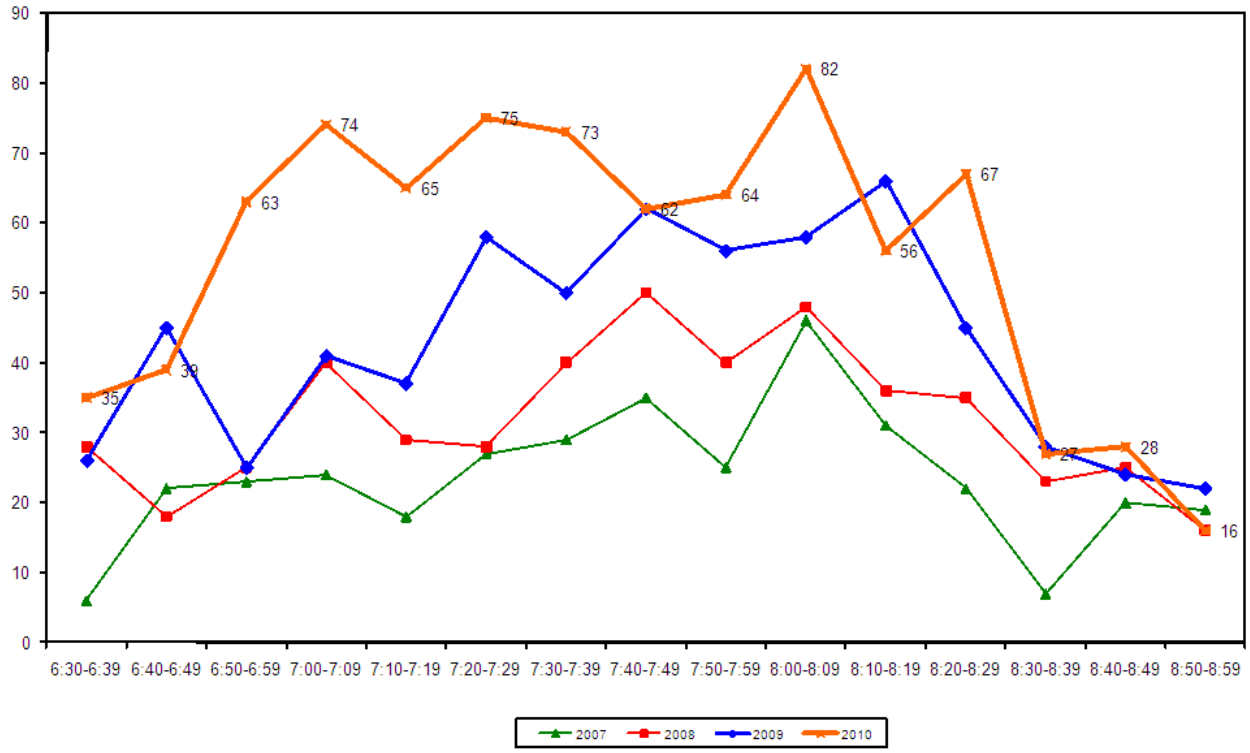
| | *2007* | *2008* | *2009* | *2010* | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 81% | 77% | 77% | 80% | 3% |
| School child | 19%% | 23% | 23% | 20% | -3% |
| **Helmet Wearing** | | | | | |
| Helmet on head | 91%% | 91% | 90% | 93% | 3% |
| No helmet | 9% | 9% | 10% | 7% | -3% |
| **Where Riding*** | | | | | |
| Road | 68% | 70% | 34% | 46% | 12% |
| Footpath | 32% | 30% | 31% | 22% | -9% |
| Off-road cycleway[10] | - | - | 35% | 32% | -3% |
| ***Base:*** | ***354*** | ***464*** | ***643*** | ***826*** | |

*Note: Prior to 2009, cyclists riding on the North-Western, Henderson Creek and Upper Harbour Drive cycleways were categorised as road riders.*

[10] *From 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

- Figure 1.1 illustrates the total number of cyclists in the morning peak by time of trip since 2007. In 2010 the volume of morning cycle movements peaks between 7:00am and 7:09am (74 movements), between 7:20am and 7:39am (75 and 73 movements at each ten minute interval) and again between 8:00am and 8:09am (82 movements), before tailing off towards the end of the monitoring period. This is fairly consistent with the overall pattern reported last year. *Note that this year there is one new site, and one previous site was relocated.*

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



## 1.5 Evening Peak

### *Environmental Conditions*

- The weather was fine throughout the evening shift.
- There were no road works or traffic accidents that may affect cycle counts in the evening, with the exception of a traffic accident at the Luckens Road/Hobsonville Road site.

### *Key Points*

- A total of 714 cyclist movements were recorded across the 11 previously monitored sites in the evening peak period (between 4:00pm and 7:00pm) in 2010. This represents a 5 per cent increase on the 2009 result (681 movements). This increase is not statistically significant – that is, the increase falls within the margin of error at the 95% confidence interval.
- In total, 997 cycle movements were recorded across the 15 Waitakere sites during the evening peak – including three per cent (n=34) observed cycling as groups.
- Consistent with the morning peak, the North Western cycleway continues to be the busiest in terms of the evening cyclists' activity, with 209 cycle movements recorded. By contrast, the lowest level of evening cyclist traffic is at 3 Rankin Ave (20 cycle movements).
- Eight sites recorded increases this year compared to 2009. The most notable increases are at:
  - Triangle Road/Don Buck Road – up 80 per cent;
  - Lincoln Road/Fairdene Avenue – up 59 per cent; and
  - Te Atatu/Old Te Atatu Road/Tatau Way – up 50 per cent.
- In contrast, four sites recorded declines, with the most notable decrease at Te Atatu Road/Elcoat Avenue (down 31 per cent from last year).
- The average volume of evening cyclists across the 11 sites monitored in Waitakere since 2007 is 65 cycle movements. This compares with an average of 62 movements in 2009.

***Table 1.3: Summary Of Evening Cyclist Movements 2007-2010 (n)***

| *Site No.* | *Locations* | *2007* | *2008* | *2009* | *2010* | **Change 09-10 (%)** | **Change 07-10 (%)** |
|---|---|---|---|---|---|---|---|
| 58 | North Western cycleway/near Te Atatu Road off-ramp | 130 | 151 | 198 | **209** | **6%** | 61% |
| 52 | Central Park Drive, Henderson | 66 | 89 | 121 | **106** | **-12%** | 61% |
| 55 | Swanson/Ranui Station Road/Armada Drive | 47 | 65 | 66 | **68** | **3%** | 45% |
| 49 | Triangle Road/Don Buck Road, Massey | 43 | 32 | 35 | **63** | **80%** | 47% |
| 53 | 326 Te Atatu Road (Near Covil Ave) | 43 | 55 | 59 | **62** | **5%** | 44% |
| 51 | Luckens/Hobsonville Road | 12 | 16 | 51 | **54** | **6%** | 350% |
| 48 | Henderson Creek | 32 | 19 | 46 | **46** | **0%** | 44% |
| 50 | Lincoln Road/Fairdene Avenue | 27 | 36 | 22 | **35** | **59%** | 30% |
| 57 | West Coast/Rosier Road, Glen Eden | 29 | 19 | 34 | **29** | **-15%** | 0% |
| 54 | Te Atatu Road/Elcoat Avenue | 24 | 18 | 32 | **22** | **-31%** | -8% |
| 56 | 3 Rankin Avenue, New Lynn | 15 | 21 | 17 | **20** | **18%** | 33% |
| | **Average per site (11 sites since 2007)** | **43** | **47** | **62** | **65** | **5%** | **51%** |
| | **Total (11 sites since 2007)** | **468** | **521** | **681** | **714** | **5%** | **53%** |
| 72 | Te Atatu/Old Te Atatu Road/Tatau Way | - | 55 | 68 | **102** | **50%** | - |
| 70 | Upper Harbour Drive/Buckley Avenue[11] | - | 18 | 45 | **57** | - | - |
| 85 | Rathgar/Pomaria Road | - | - | 53 | **46** | **-13%** | - |
| | **Average per site (12 sites in 2008, 14 sites in 2009)** | **-** | **48** | **62** | **66** | **6%** | **-** |
| | **Total (12 sites in 2008, 14 sites in 2009)** | **-** | **576** | **802** | **862** | **7%** | **-** |
| 87 | Triangle/Huruhuru Road | - | - | - | **78** | - | - |
| | **Average per site (15 sites in 2010)** | **-** | **-** | **-** | **66** | **-** | **-** |
| | **Total (15 sites in 2010)** | **-** | **-** | **-** | **997** | **-** | **-** |

[11] *2008 and 2009 results do not include movements into or out of Buckley Avenue, southwest on Upper Harbour Drive.*

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

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

- Overall, the number of evening cycle movements across the 15 sites is slightly greater than the number recorded in the morning shift.
- Seven out of the 15 sites have an evening cycle volume higher than the morning cycle volume. The most notable increases between the morning and evening peak are reported at:
  - Triangle Road/Don Buck Road, Massey – up from 27 to 53 movements; and
  - Swanson/Ranui Station Road/Armada Drive – up from 34 to 57 movements.
- In contrast, the number of evening cyclists recorded at seven sites is lower than in the morning peak. The greatest decreases are at Te Atatu Road/Elcoat Avenue - down from 30 to 18 movements.

***Table 1.4: Summary Of Change in Cyclist Movements from Morning to Evening 2010 (%)***

| *Site Number* | *Locations* | *AM* | *PM*[12] | Change |
|---|---|---|---|---|
| 49 | Triangle Road/Don Buck Road, Massey | 27 | 53 | 96% |
| 55 | Swanson/Ranui Station Road/Armada Drive | 34 | 57 | 68% |
| 56 | 3 Rankin Avenue, New Lynn | 12 | 17 | 42% |
| 50 | Lincoln Road/Fairdene Avenue | 21 | 29 | 38% |
| 70 | Upper Harbour Drive/Buckley Avenue | 37 | 48 | 30% |
| 51 | Luckens/Hobsonville Road | 41 | 45 | 10% |
| 87 | Triangle/Huruhuru Road | 59 | 65 | 10% |
| 48 | Henderson Creek | 38 | 38 | 0% |
| 58 | North Western Cycleway/near Te Atatu Road off-ramp | 179 | 174 | -3% |
| 52 | Central Park Drive, Henderson | 94 | 88 | -6% |
| 72 | Te Atatu/Old Te Atatu Road/Tatau Way | 105 | 85 | -19% |
| 53 | 326 Te Atatu Road (Near Covil Ave) | 65 | 52 | -20% |
| 57 | West Coast/Rosier Road, Glen Eden | 31 | 24 | -23% |
| 85 | Rathgar/Pomaria Road | 53 | 38 | -28% |
| 54 | Te Atatu Road/Elcoat Avenue | 30 | 18 | -40% |
| | **Total** | **826** | **831** | **1%** |

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

- Evening cyclist characteristics this year are stable from 2009. In particular, 84 per cent of cyclists are adults (stable from previous years). Of the 15 Waitakere sites monitored this year, the intersection of Rathgar/Pomaria Road has the highest proportion of cyclists who are school children (57 per cent).
- The majority of evening cyclists are wearing a helmet (82 per cent, compared with 81 per cent from the previous measure). The Swanson/Ranui Station Road/Armada Drive intersection has the highest proportion not wearing a helmet (56 per cent).
- Two in five evening cyclists (41%) are riding on the road, while 32 per cent are riding on an off-road cycleway. The share riding on the footpath (27 per cent) is down slightly from last year. Riding on the footpath is most common at 326 Te Atatu Road (81 per cent).

***Table 1.5: Summary of Evening Cyclist Characteristics 2007-2010 (%)***

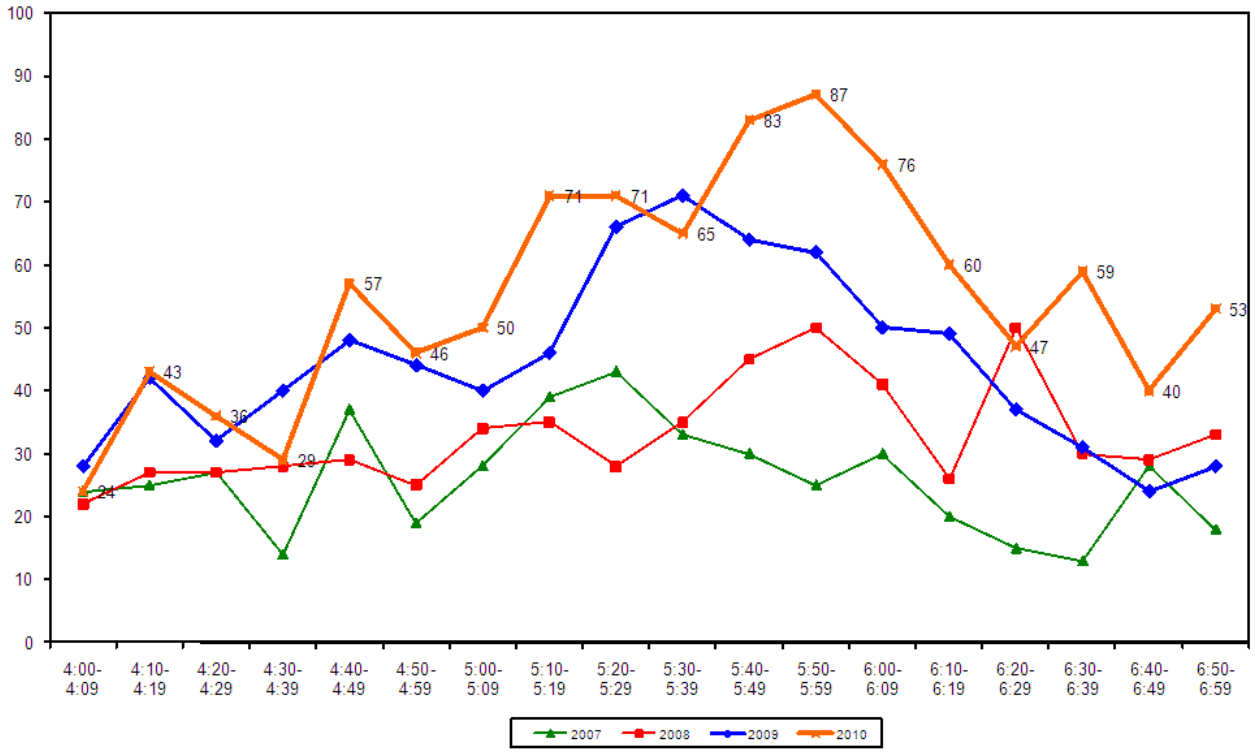
| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 84% | 84% | 83% | 84% | 1% |
| School child | 16% | 17% | 17% | 16% | -1% |
| **Helmet Wearing** | | | | | |
| Helmet on head | 81% | 79% | 81% | 82% | 1% |
| No helmet | 19% | 21% | 19% | 18% | -1% |
| **Where Riding*** | | | | | |
| Road | 65% | 69% | 32% | 41% | 9% |
| Footpath | 35% | 31% | 30% | 27% | -3% |
| Off-road cycleway[13] | - | - | 38% | 32% | -6% |
| ***Base:*** | ***468*** | ***576*** | ***802*** | ***997*** | |

*Note: Prior to 2009, cyclists riding on the North-Western, Henderson Creek and Upper Harbour Drive cycleways were categorised as road riders.*

[13] *From 2009, surveyors were asked to distinguish between cyclist riding on the road and cyclists riding on off-road cycleway. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

- The overall pattern of cyclist volumes by time of trip in the evening is illustrated in Figure 1.2. This year, evening cyclist volumes peak in the middle of the monitoring period, with 87 movements recorded between 5:50pm and 5:59pm. Cycle volumes then decline gradually through to the end of the monitoring period. Last year, peaks occurred between 5:30pm and 5:39pm (73 movements). *Note that this year there is one new site and one previous site being re-located.*

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



## 1.6 Aggregated Total

- A total of 1286 cyclist movements were recorded across the 11 previously monitored sites in 2010. This represents a 5 per cent increase when compared with 2009 (1226 movements). This increase is not statistically significant – that is, the increase falls within the margin of error at the 95% confidence interval.
- Overall, a total of 1,823 cycle movements were recorded across the 15 sites monitored in 2010 – including seven per cent (n=136) observed cycling as groups. The number of evening cyclists comprises a slightly larger share (55 per cent) of the total number of cycle movements than the morning cyclists (45 per cent).
- The busiest site is the North Western cycleway with a total of 388 movements (up from 355 movements in 2009), while the 3 Rankin Ave site contributes the lowest number of cyclist movements (32 movements).
- Most sites (7 out of 13) have recorded increases in total cyclist numbers this year compared with 2009. The intersections with the biggest increases are Triangle Road/Don Buck Road (up 61 per cent) and Te Atatu/Old Te Atatu Road/Tatau (up 54 per cent).
- In contrast, six sites have recorded decreases in movements this year. The most notable decline is Te Atatu Road/Elcoat Avenue (down 25 per cent from last year).

***Table 1.6: Summary Of Total Cyclist Movements 2007-2010 (n)***

| *Site No.* | *Locations* | *2007* | *2008* | *2009* | *2010* | **Change 09-10 (%)** | **Change 07-10 (%)** |
|---|---|---|---|---|---|---|---|
| 58 | North Western Cycleway/near Te Atatu Road off-ramp | 232 | 272 | 355 | **388** | **9%** | 67% |
| 52 | Central Park Drive, Henderson | 127 | 157 | 212 | **200** | **-6%** | 57% |
| 53 | 326 Te Atatu Road (Near Covil Ave) | 87 | 107 | 138 | **127** | **-8%** | 46% |
| 55 | Swanson/Ranui Station Road/Armada Drive | 62 | 86 | 103 | **102** | **-1%** | 65% |
| 51 | Luckens/Hobsonville Road | 32 | 41 | 77 | **95** | **23%** | 197% |
| 49 | Triangle Road/Don Buck Road, Massey | 67 | 61 | 56 | **90** | **61%** | 34% |
| 48 | Henderson Creek | 46 | 30 | 73 | **84** | **15%** | 83% |
| 57 | West Coast/Rosier Road, Glen Eden | 48 | 37 | 62 | **60** | **-3%** | 25% |
| 50 | Lincoln Road/Fairdene Avenue | 40 | 55 | 43 | **56** | **30%** | 40% |
| 54 | Te Atatu Road/Elcoat Avenue | 50 | 45 | 69 | **52** | **-25%** | 4% |
| 56 | 3 Rankin Avenue, New Lynn | 31 | 38 | 38 | **32** | **-16%** | 3% |
| | **Total (11 sites since 2007)** | **822** | **929** | **1226** | **1286** | **5%** | **56%** |
| 72 | Te Atatu/Old Te Atatu Road/Tatau Way | - | 111 | 134 | **207** | **54%** | - |
| 85 | Rathgar/Pomaria Road | - | - | 85 | **99** | **16%** | - |
| 70 | Upper Harbour Drive/Buckley Avenue[14] | - | 35 | 68 | **94** | - | - |
| | **Total (12 sites in 2008, 14 sites in 2009)** | **-** | **1040** | **1445** | **1592** | **10%** | **-** |
| 87 | Triangle/Huruhuru Road | - | - | - | **137** | - | - |
| | **Total (15 sites in 2010)** | **-** | **-** | **-** | **1823** | **-** | **-** |

[14] *2008 and 2009 results do not include movements into or out of Buckley Avenue, southwest on Upper Harbour Drive.*

- Overall cyclist characteristics are illustrated in Table 1.7. In total, 82 per cent of cyclists are adults (stable from last year).
- The majority of cyclists are wearing a helmet (87 per cent, stable from last year).
- Two in five cyclists are riding on the road (43 per cent), while one-third are riding on an off-road cycleway (32 per cent) and 25 per cent are riding on the footpath (this share stable from 2009).

***Table 1.7: Summary of Total Cyclist Characteristics 2007-2010 (%)***

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 83% | 80% | 80% | 82% | 2% |
| School child | 17% | 20% | 20% | 18% | -2% |
| **Helmet Wearing** | | | | | |
| Helmet on head | 85% | 85% | 85% | 87% | 2% |
| No helmet | 15% | 15% | 15% | 13% | -2% |
| **Where Riding*** | | | | | |
| Road | 66% | 70% | 34% | 43% | 9% |
| Footpath | 34% | 30% | 30% | 25% | -5% |
| Off-road cycleway[15] | - | - | 36% | 32% | -4% |
| ***Base:*** | ***822*** | ***1040*** | ***1445*** | ***1823*** | |

*Note: Prior to 2009, cyclists riding on the North-Western, Henderson Creek and Upper Harbour Drive cycleways were categorised as road riders.*

[15] *In 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

## 1.7 Annual Average Daily Traffic (AADT) Estimates

### *AADT Estimate*

- Table 1.8 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at the North Western Cycleway (562 daily trips, up from 513 daily trips last year) and the lowest is at 3 Rankin Avenue (46 daily trips, down from 56 trips in 2009).
- Most sites (7 out of 13) have recorded increases in total AADT estimates this year compared with 2009. The intersections with the biggest increases are:
  - Triangle Road/Don Buck Road – up 60 per cent; and
  - Te Atatu/Old Te Atatu Road/Tatau Way – up 54 per cent.
- In contrast, the number of cyclist movements at six sites is lower than last year, with the most notable decrease at Te Atatu Road/Elcoat Avenue (down 25 per cent from last year)

***Table 1.8: AADT Estimates Based on Morning and Evening Cyclist Movements 2007-2010 (n)***

| *Site No.* | *Locations* | *2007 AADT* | *2008 AADT* | *2009 AADT* | *2010 AADT* | Change 09-10 (%) | Change 07-10 (%) |
|---|---|---|---|---|---|---|---|
| 58 | North Western Cycleway/near Te Atatu Road off-ramp | 335 | 393 | 513 | **562** | 10% | 68% |
| 72 | Te Atatu/Old Te Atatu Road/Tatau Way | - | 161 | 195 | **301** | 54% | - |
| 52 | Central Park Drive, Henderson | 184 | 227 | 306 | **290** | -5% | 58% |
| 87 | Triangle/Huruhuru Road | **-** | **-** | - | **198** | - | - |
| 53 | 326 Te Atatu Road (Near Covil Ave) | 127 | 155 | 202 | **185** | -8% | 46% |
| 55 | Swanson/Ranui Station Road/Armada Drive | 88 | 122 | 148 | **146** | -1% | 66% |
| 85 | Rathgar/Pomaria Road | **-** | **-** | 122 | **144** | 18% | - |
| 51 | Luckens/Hobsonville Road | 47 | 60 | 110 | **137** | 25% | 191% |
| 70 | Upper Harbour Drive/Buckley Avenue[16] | - | 51 | 97 | **135** | - | - |
| 49 | Triangle Road/Don Buck Road, Massey | 96 | 88 | 80 | **128** | 60% | 33% |
| 48 | Henderson Creek | 65 | 43 | 105 | **121** | 15% | 86% |
| 57 | West Coast/Rosier Road, Glen Eden | 69 | 54 | 90 | **87** | -3% | 26% |
| 50 | Lincoln Road/Fairdene Avenue | 57 | 79 | 62 | **80** | 29% | 40% |
| 54 | Te Atatu Road/Elcoat Avenue | 73 | 66 | 101 | **76** | -25% | 4% |
| 56 | 3 Rankin Avenue, New Lynn | 45 | 55 | 56 | **46** | -18% | 2% |

[16] *2008 and 2009 results do not include movements into or out of Buckley Avenue, southwest on Upper Harbour Drive.*

## 1.8 School Bike Shed Count Summary

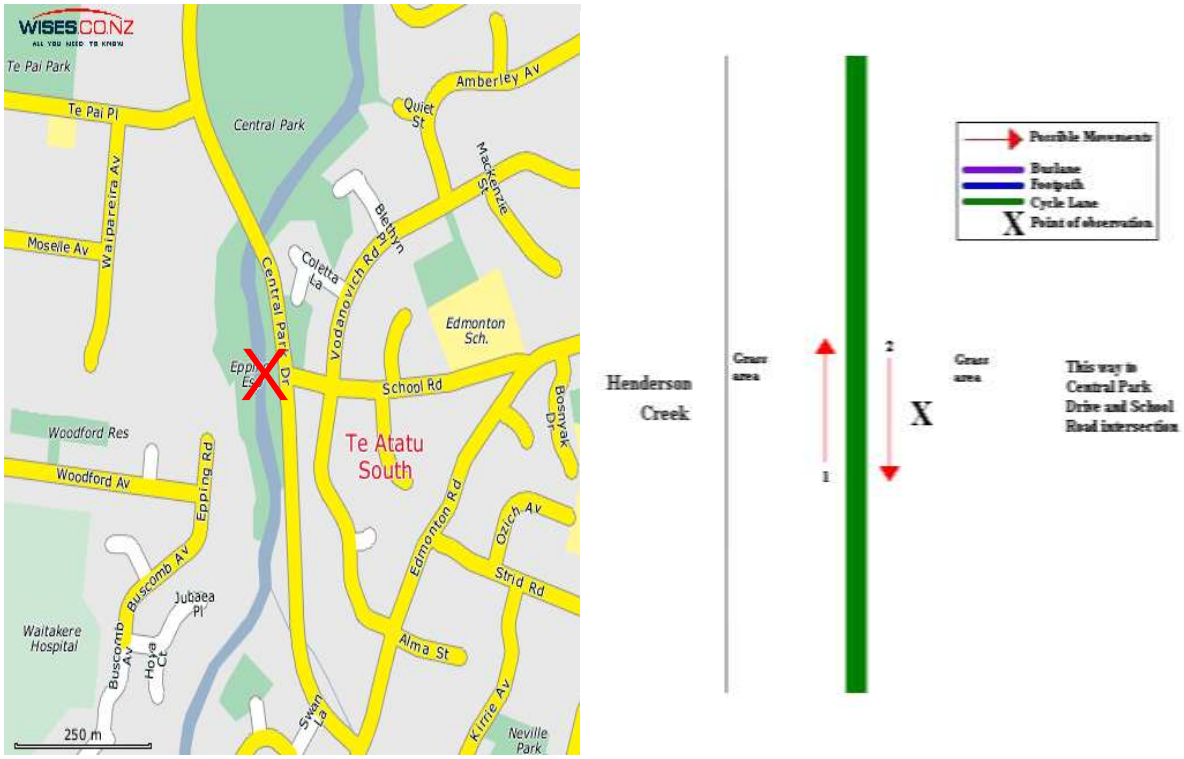
### *Key Points*

- Among those Waitakere schools that responded to the survey, of those eligible to cycle to school, on average, two per cent of students are cycling to their schools. This is unchanged from 2009.
- Among the schools that responded, n=269 students were reported to be cycling to school.
- This year, Te Atatu Intermediate reported the highest share of cyclists – 8 per cent of all eligible students currently cycling to school. This is consistent with 2009 result, where Te Atatu Intermediate reported the highest share of 9 per cent.
- Rates of cycling to school are highest among intermediate schools (3 per cent, unchanged from last year) and lowest for combined intermediate/secondary schools and secondary schools (1 per cent, unchanged from last year).
- Of the 17 schools that responded, three (18 per cent) had no students cycling to school. This compares with three schools (18 per cent) in 2009.

# 2. HENDERSON CREEK, HENDERSON (SITE 48)

Figure 2.1 shows the possible cyclist movements at this site.

***Figure 2.1: Cycle Movements: Henderson Creek***




## *AADT Estimate*

- The AADT for this site is 121. This compares with:
  - 105 in 2009
  - 43 in 2008
  - 65 in 2007.

| | AM | PM | TOTAL |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **38** | **46** | **48** |

## 2.1 Morning Peak

### *Environmental Conditions*

- The weather was fine, with light cloud around the middle of the morning shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The volume of morning cyclists at the Henderson Creek shared path has increased this year, with 38 cycle movements recorded (compared with 27 movements last year).
- Both movements along the Henderson Creek path had an equal volume of cyclist traffic (19 cyclists each).
- Morning cyclist volumes have increased most notably at Movement 1 (up 9 cyclists).

***Table 2.1: Morning Cyclist Movements***

***Henderson Creek 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 6 | 5 | 10 | 19 | 9 |
| 2 | 8 | 6 | 17 | 19 | 2 |
| **Total** | **14** | **11** | **27** | **38** | **11** |

- Over the morning peak, adults comprise almost all of the cycle movements (97 per cent, up from 85 per cent in 2009).
- Most cyclists are wearing a helmet (92 per cent, stable from 93 per cent last year).

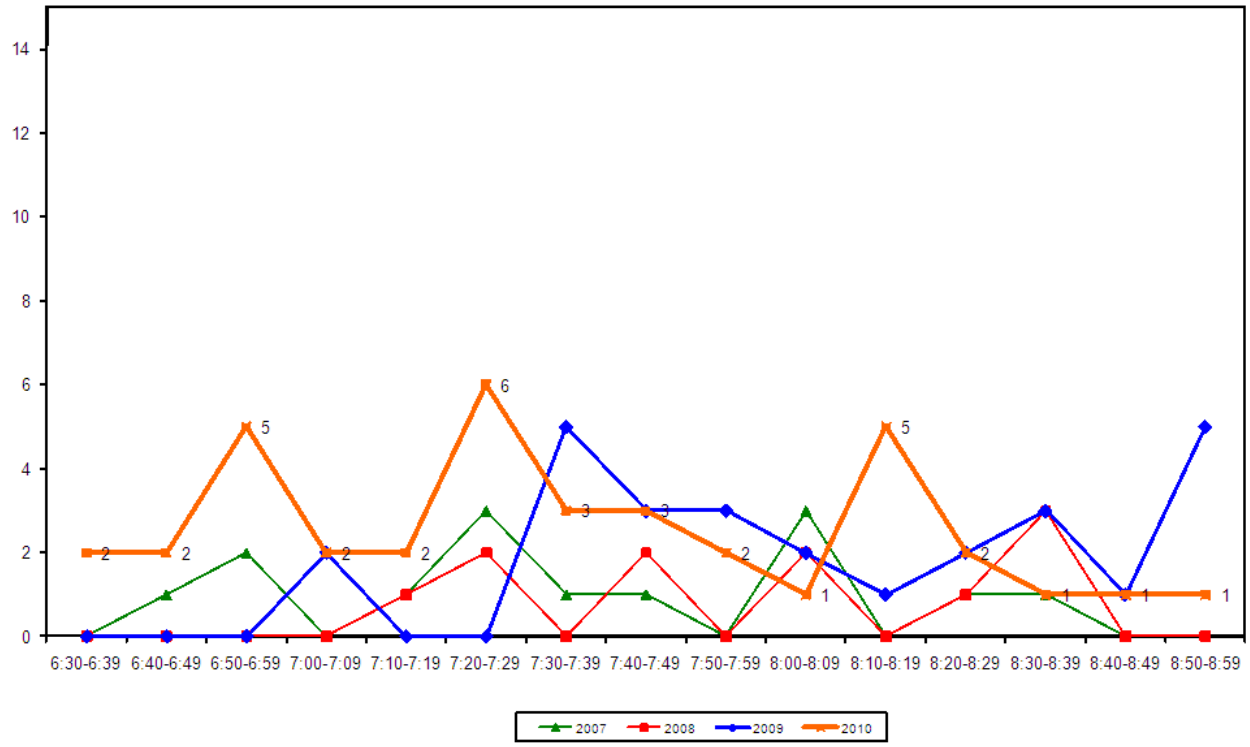
***Table 2.2: Morning Cyclist Characteristics***

***Henderson Creek 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 93 | 82 | 85 | 97 | 12 |
| School child | 7 | 18 | 15 | 3 | -12 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 79 | 100 | 93 | 92 | -1 |
| No helmet | 21 | 0 | 7 | 8 | 1 |
| **Where Riding** | | | | | |
| Off-road cycleway | 100 | 100 | 100 | 100 | 0 |
| ***Base:*** | ***14*** | ***11*** | ***27*** | ***38*** | |

- Morning cyclist volumes peak slightly three times. The first of these is between 6:50am and 6:59am (5 cyclists). The second slight peak is between 7:20am and 7:29am (6 cyclists). The last slight peak is between 8:10am and 8:19am (5 cyclists). This compares to slight peaks between 7:30am and 7:39am (5 cyclists) and between 8:50am and 8:59am (5 cyclists) in 2009.

***Figure 2.2: Henderson Creek Cyclist Frequency – Morning Peak***



## 2.2 Evening Peak

### *Environmental Conditions*

- Heavy cloud and a light breeze were present at the start of the monitoring period which cleared to fine weather by the end of the shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The total number of cycle movements recorded at the Henderson Creek site in the evening has remained unchanged from 2009 (46 cycle movements).
- Three more cycle movements were recorded heading north along the cycle path (Movement 1 = 22 cyclists) than in 2009 and three less cycle movements were recorded heading south along the cycle path (Movement 2 = 24 cyclists) than last year.

***Table 2.3: Evening Cyclist Movements***

***Henderson Creek 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 15 | 7 | 19 | 22 | 3 |
| 2 | 17 | 12 | 27 | 24 | -3 |
| **Total** | **32** | **19** | **46** | **46** | **0** |

- Over the evening peak, all cyclists using Henderson Creek are adults, up from 87 per cent in 2009.
- Most cyclists at this site are wearing a helmet (93 per cent, stable from 91 per cent last year).

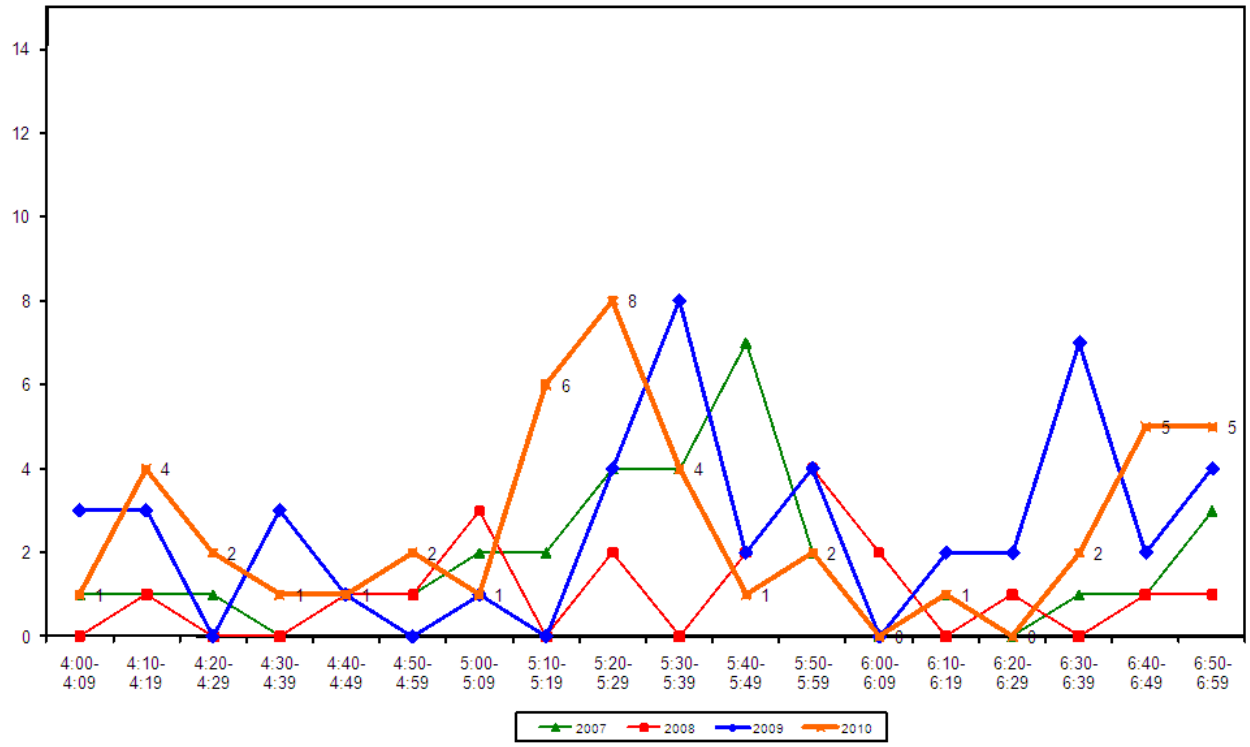
***Table 2.4: Evening Cyclist Characteristics***

***Henderson Creek 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 100 | 100 | 87 | 100 | 13 |
| School child | 0 | 0 | 13 | 0 | -13 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 78 | 89 | 91 | 93 | 2 |
| No helmet | 22 | 11 | 9 | 7 | -2 |
| **Where Riding** | | | | | |
| Off-road cycleway | 100 | 100 | 100 | 100 | 0 |
| ***Base:*** | ***32*** | ***19*** | ***46*** | ***46*** | |

- The volume of evening cycle movements peaks notably between 5:20pm and 5:29pm (8 cyclists, 10 minutes earlier than last year's peak), with another peak occurring between 6:40pm and 6:59pm (5 movements each ten minute interval).

***Figure 2.3: Henderson Creek Cyclist Frequency – Evening Peak***

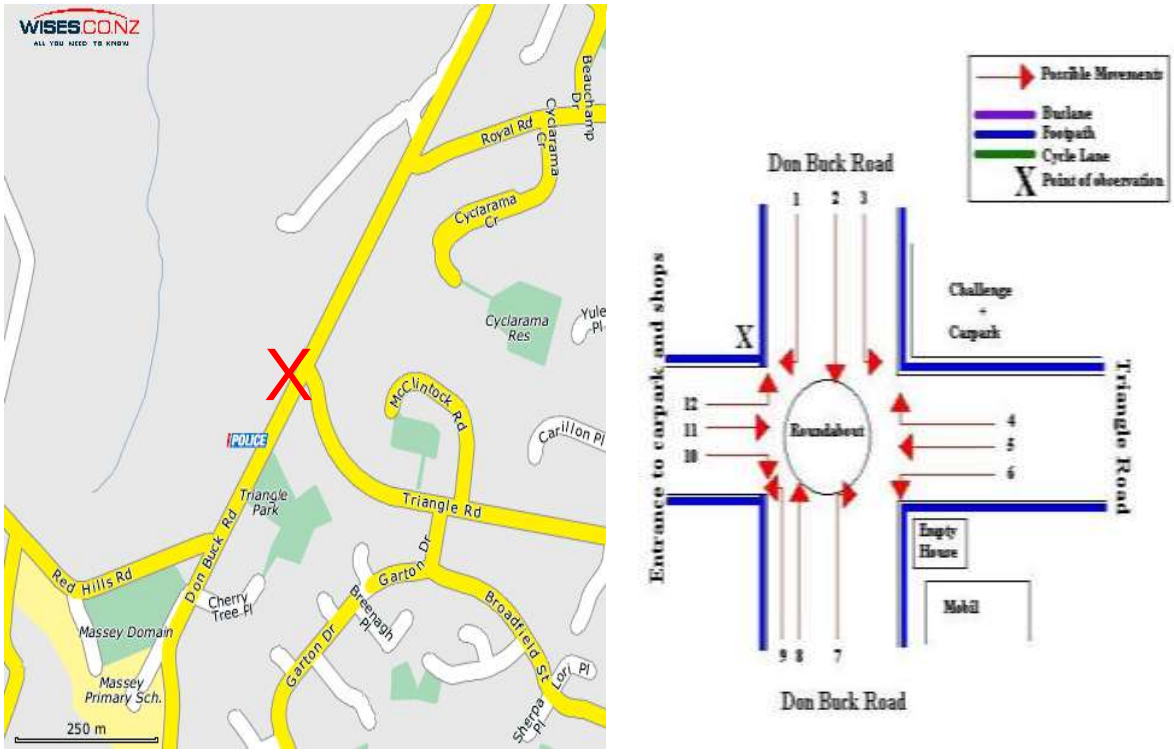



*Note: In 2010, three cyclists were observed riding as a group at 6.42pm. This comprises seven per cent of the total cycle movements in the evening peak in 2010.*

# 3. TRIANGLE ROAD/DON BUCK ROAD, HENDERSON (SITE 49)

Figure 3.1 shows the possible cyclist movements at this intersection.

***Figure 3.1: Cycle Movements: Triangle Road/Don Buck Road***




## *AADT Estimate*

- The AADT for this site is 128. This compares with:
  - 80 in 2009
  - 88 in 2008
  - 96 in 2007.

| | AM | PM | TOTAL |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **27** | **63** | **90** |

## 3.1 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 2010, the volume of morning cyclists recorded at the Triangle Road/Don Buck Road site has increased (27 cycle movements, compared with 21 cycle movements recorded last year).
- The key morning movements are straight along Don Buck Road heading south (Movement 2 = 8 cyclists) and turning left from Don Buck Road into Triangle Road (Movement 3 = 8 cyclists).
- Morning cyclist volumes for all twelve movements possible at this site remain stable since 2009, with the most notable change at Movement 7 (up 4 movements).

***Table 3.1: Morning Cyclist Movements***
***Triangle Road/Don Buck Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 2 | 4 | 0 | 0 | 0 |
| 2 | 10 | 9 | 9 | 8 | -1 |
| 3 | 3 | 4 | 7 | 8 | 1 |
| 4 | 3 | 3 | 0 | 1 | 1 |
| 5 | 0 | 1 | 0 | 0 | 0 |
| 6 | 3 | 4 | 2 | 1 | -1 |
| 7 | 2 | 1 | 1 | 5 | 4 |
| 8 | 0 | 3 | 2 | 2 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 |
| 10 | 1 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 2 | 2 |
| **Total** | **24** | **29** | **21** | **27** | **6** |

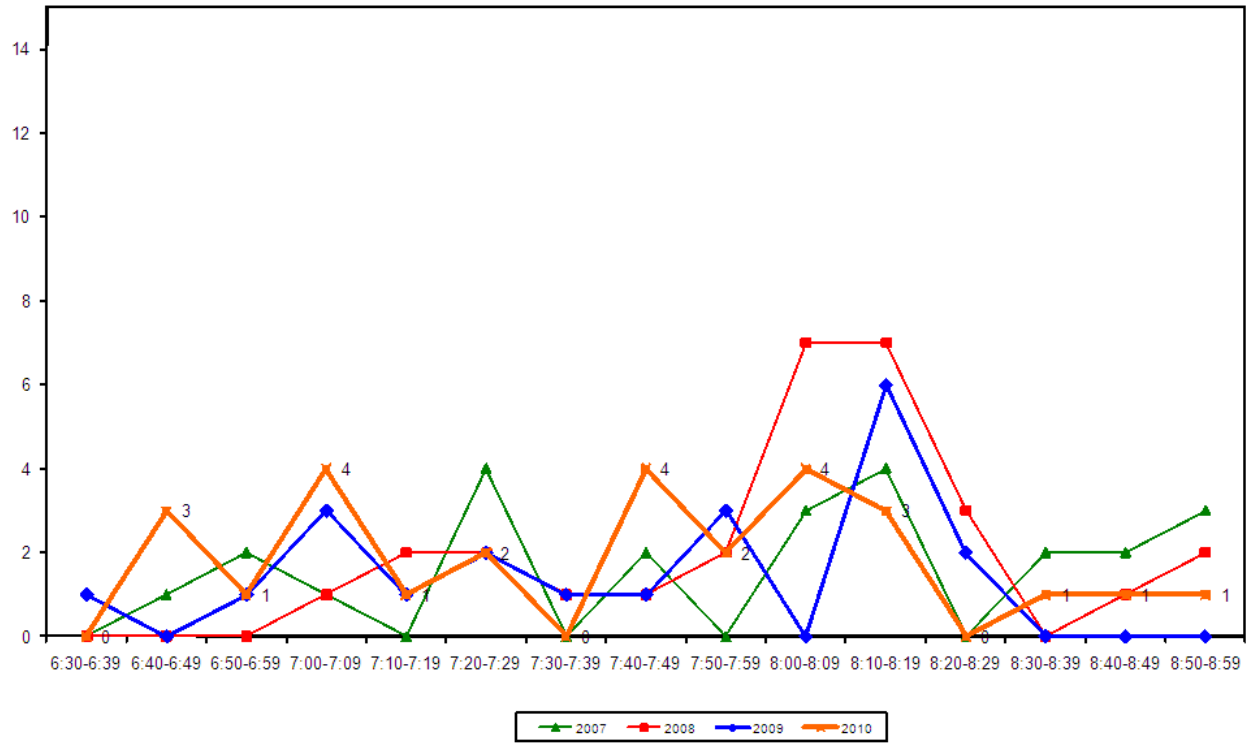
- Over the morning peak, the share of cyclists classified as adults has increased, from 67 per cent last year to 74 per cent in 2010.
- Most cyclists are wearing a helmet (93 per cent, up from 86 per cent last year).
- Approximately four in five cyclists are riding on the road (78 per cent, up from 71 per cent at the previous measure).

***Table 3.2: Morning Cyclist Characteristics***
***Triangle Road/Don Buck Road 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 79 | 41 | 67 | 74 | 7 |
| School child | 21 | 59 | 33 | 26 | -7 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 87 | 97 | 86 | 93 | 7 |
| No helmet | 13 | 3 | 14 | 7 | -7 |
| **Where Riding** | | | | | |
| Road | 62 | 48 | 71 | 78 | 7 |
| Footpath | 38 | 52 | 29 | 22 | -7 |
| ***Base:*** | ***24*** | ***29*** | ***21*** | ***27*** | |

- The volume of morning cycle movements peak between 7:00am and 7:09am, 7:40am and 7:49am and 8:00am and 8:09am (4 cyclists per ten minute interval). This compares to a peak between 8:10am and 8:19am (6 cyclists) in 2009.

***Figure 3.2: Triangle Road/Don Buck Road Cyclist Frequency – Morning Peak***



## 3.2 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 total number of evening peak cycle movements recorded at the Triangle Road/Don Buck Road intersection has increased notably, with 63 movements recorded (compared with 35 movements last year).
- The key movement at this site in the evening is straight along Don Buck Road heading north (Movement 8 = 13 cyclists).
- The most notable change since 2009 is at Movement 7 (up 8 cyclists).

***Table 3.3: Evening Cyclist Movements***
***Triangle Road/Don Buck Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | 1 | 1 |
| 2 | 8 | 7 | 4 | 10 | 6 |
| 3 | 7 | 4 | 4 | 3 | -1 |
| 4 | 4 | 4 | 6 | 8 | 2 |
| 5 | 1 | 0 | 0 | 2 | 2 |
| 6 | 10 | 9 | 5 | 11 | 6 |
| 7 | 4 | 3 | 3 | 11 | 8 |
| 8 | 4 | 4 | 13 | 13 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 1 | 0 | 1 | 1 |
| 12 | 4 | 0 | 0 | 3 | 3 |
| **Total** | **43** | **32** | **35** | **63** | **28** |

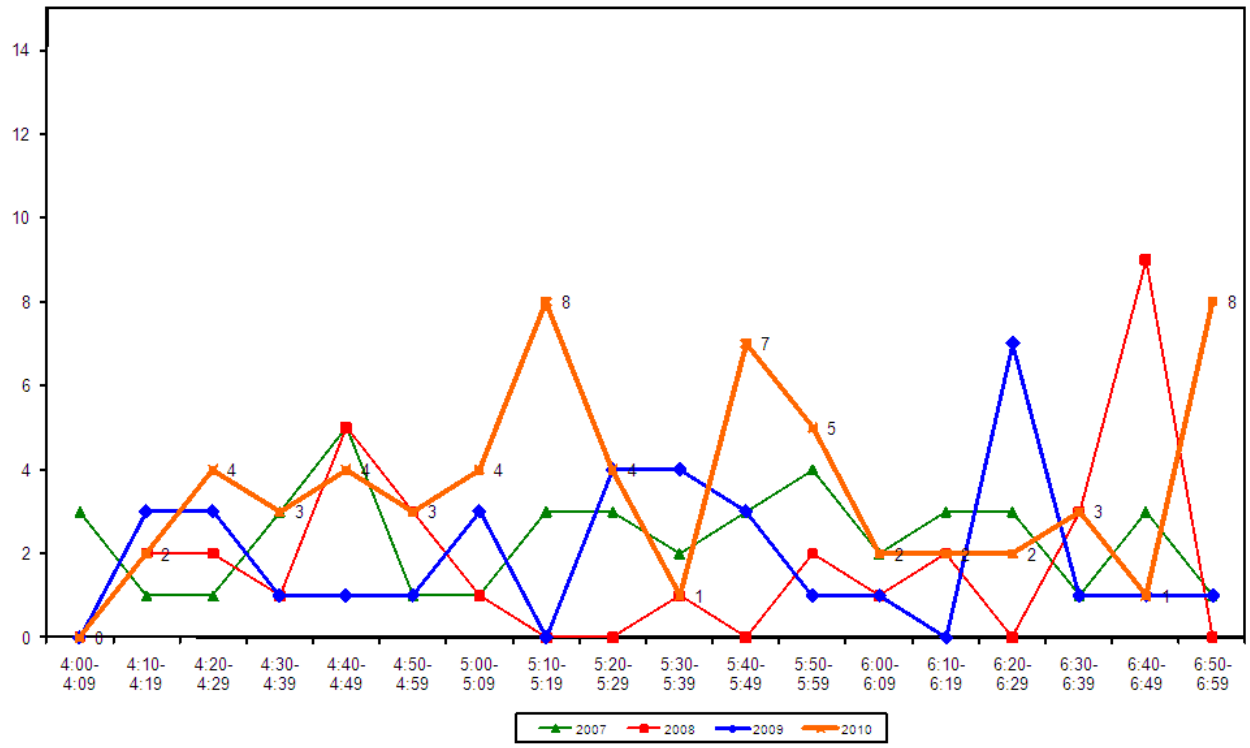
- Consistent with the previous year, the greatest share of cyclists using the Triangle Road/Don Buck Road intersection are adults (67 per cent, down from 80 per cent in 2009).
- Over three-quarters of cyclists at this site are wearing a helmet (76 per cent, stable from 77 per cent last year).
- On average, three in five cyclists are riding on the road (63 per cent, down from 71 per cent in 2009).

***Table 3.4: Evening Cyclist Characteristics***
***Triangle Road/Don Buck Road 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 74 | 78 | 80 | 67 | -13 |
| School child | 26 | 22 | 20 | 33 | 13 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 63 | 78 | 77 | 76 | -1 |
| No helmet | 37 | 22 | 23 | 24 | 1 |
| **Where Riding** | | | | | |
| Road | 58 | 72 | 71 | 63 | -8 |
| Footpath | 42 | 28 | 29 | 37 | 8 |
| ***Base:*** | ***43*** | ***32*** | ***35*** | ***63*** | |

- Cyclist volumes at this site are very variable across the monitoring period. Volumes peak slightly between 5:10pm and 5:19pm (8 cyclists), between 5:40pm and 5:49pm (7 cyclists) and between 6:50pm and 6:59pm (8 cyclists). This compares to a single peak between 6:20pm and 6:29pm in 2009.

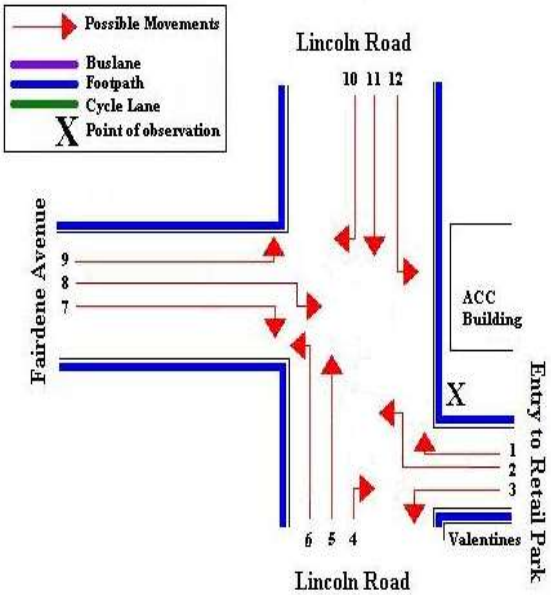
***Figure 3.3: Triangle Road/Don Buck Road Cyclist Frequency – Evening Peak***



# 4. LINCOLN ROAD/FAIRDENE AVENUE, HENDERSON (SITE 50)

Figure 4.1 shows the possible cyclist movements at this intersection.

***Figure 4.1: Cycle Movements: Lincoln Road/Fairdene Avenue***


## *AADT Estimate*

- The AADT for this site is 80. This compares with:
  - 62 in 2009
  - 79 in 2008
  - 57 in 2007.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **21** | **35** | **56** |

## 4.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- Similar to last year, the intersection of Lincoln Road and Fairdene Avenue continues to have a low level of morning cyclist traffic (21 cycle movements, stable from last year).
- The most common movement in the morning is straight along Lincoln Road heading north (Movement 5 = 7 cyclists).
- The most notable change in cyclist volume is at Movement 5 (down 4 cyclists).

***Table 4.1: Morning Cyclist Movements***

***Lincoln Road/Fairdene Avenue 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 1 | 1 |
| 2 | 3 | 0 | 0 | 0 | 0 |
| 3 | 1 | 0 | 1 | 3 | 2 |
| 4 | 2 | 2 | 2 | 0 | -2 |
| 5 | 1 | 3 | 11 | 7 | -4 |
| 6 | 3 | 0 | 1 | 0 | -1 |
| 7 | 1 | 4 | 0 | 1 | 1 |
| 8 | 0 | 0 | 0 | 0 | 0 |
| 9 | 2 | 0 | 0 | 1 | 1 |
| 10 | 0 | 1 | 0 | 2 | 2 |
| 11 | 0 | 8 | 6 | 6 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **13** | **19** | **21** | **21** | **0** |

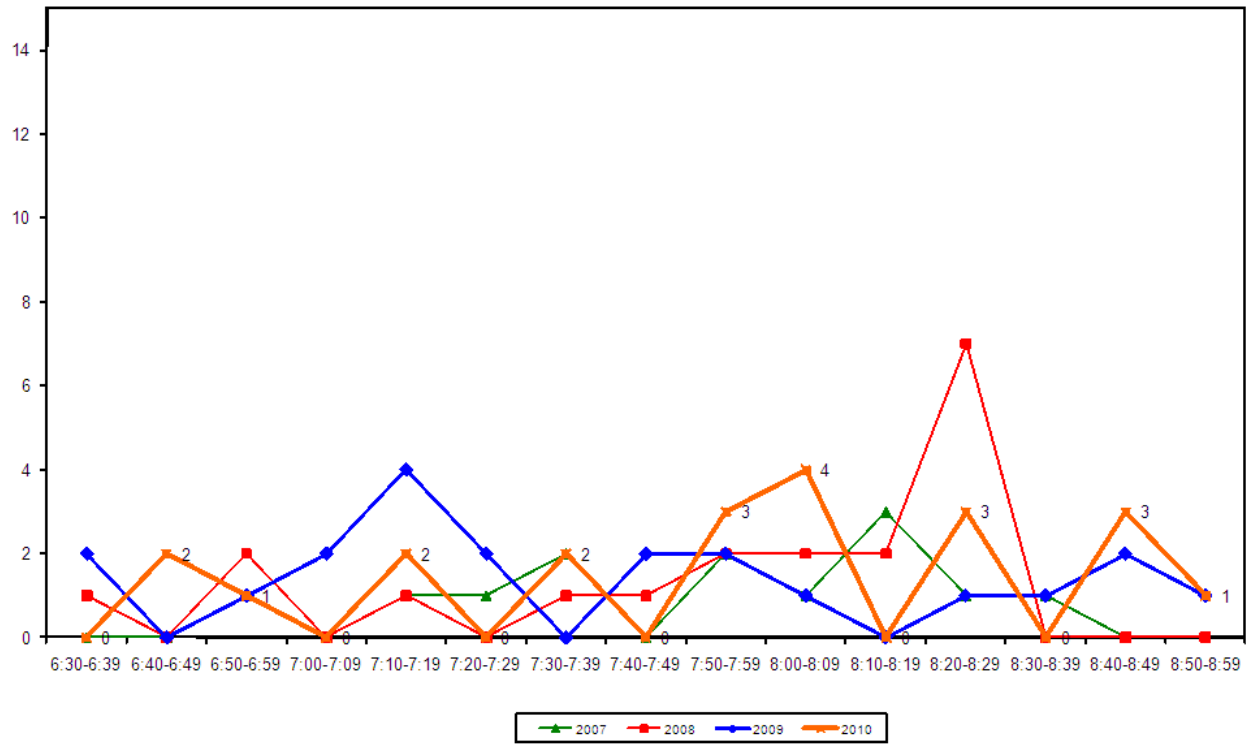
- Over the morning peak, adults comprise 71 per cent of the cycle movements (down from 76 per cent last year).
- Two-thirds of cyclists are wearing a helmet (up slightly from 62 per cent in 2009).
- Riding on the footpath (81 per cent, up notably from 62 per cent last year) continues to be much more common than riding on the road (19 per cent).

***Table 4.2: Morning Cyclist Characteristics***
***Lincoln Road/Fairdene Avenue 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 62 | 58 | 76 | 71 | -5 |
| School child | 38 | 42 | 24 | 29 | 5 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 92 | 89 | 62 | 67 | 5 |
| No helmet | 8 | 11 | 38 | 33 | -5 |
| **Where Riding** | | | | | |
| Road | 31 | 37 | 38 | 19 | -19 |
| Footpath | 69 | 63 | 62 | 81 | 19 |
| ***Base:*** | ***13*** | ***19*** | ***21*** | ***21*** | |

- The volume of morning cycle movements peaks slightly between 8:00am and 8:09am (4 cyclists) but is low across the entire morning monitoring period, with no more than 3 cyclists recorded over all other ten minute intervals. This compares with a slight peak of 4 movements recorded between 7:10am and 7:19am last year.

***Figure 4.2: Lincoln Road/Fairdene Avenue Cyclist Frequency – Morning Peak***



## 4.2 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 recorded in the evening at the Lincoln Road/Fairdene Avenue intersection increased notably from 22 in 2009 to 35 movements this year.
- The key movements in the evening are straight along Lincoln Road heading north (Movement 5 = 13 cyclists) and straight along Lincoln Road heading south (Movement 11 = 11 cyclists).
- Of the 12 movements possible at this site, the most notable change compared with last year is at Movement 5 (up 8 cyclists).

***Table 4.3: Evening Cyclist Movements***
***Lincoln Road/Fairdene Avenue 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 1 | 0 | 1 | 2 | 1 |
| 2 | 2 | 2 | 0 | 0 | 0 |
| 3 | 3 | 1 | 3 | 1 | -2 |
| 4 | 5 | 2 | 2 | 0 | -2 |
| 5 | 1 | 13 | 5 | 13 | 8 |
| 6 | 1 | 1 | 1 | 3 | 2 |
| 7 | 3 | 2 | 0 | 2 | 2 |
| 8 | 3 | 3 | 0 | 0 | 0 |
| 9 | 5 | 0 | 0 | 2 | 2 |
| 10 | 0 | 2 | 1 | 1 | 0 |
| 11 | 1 | 10 | 9 | 11 | 2 |
| 12 | 2 | 0 | 0 | 0 | 0 |
| **Total** | **27** | **36** | **22** | **35** | **13** |

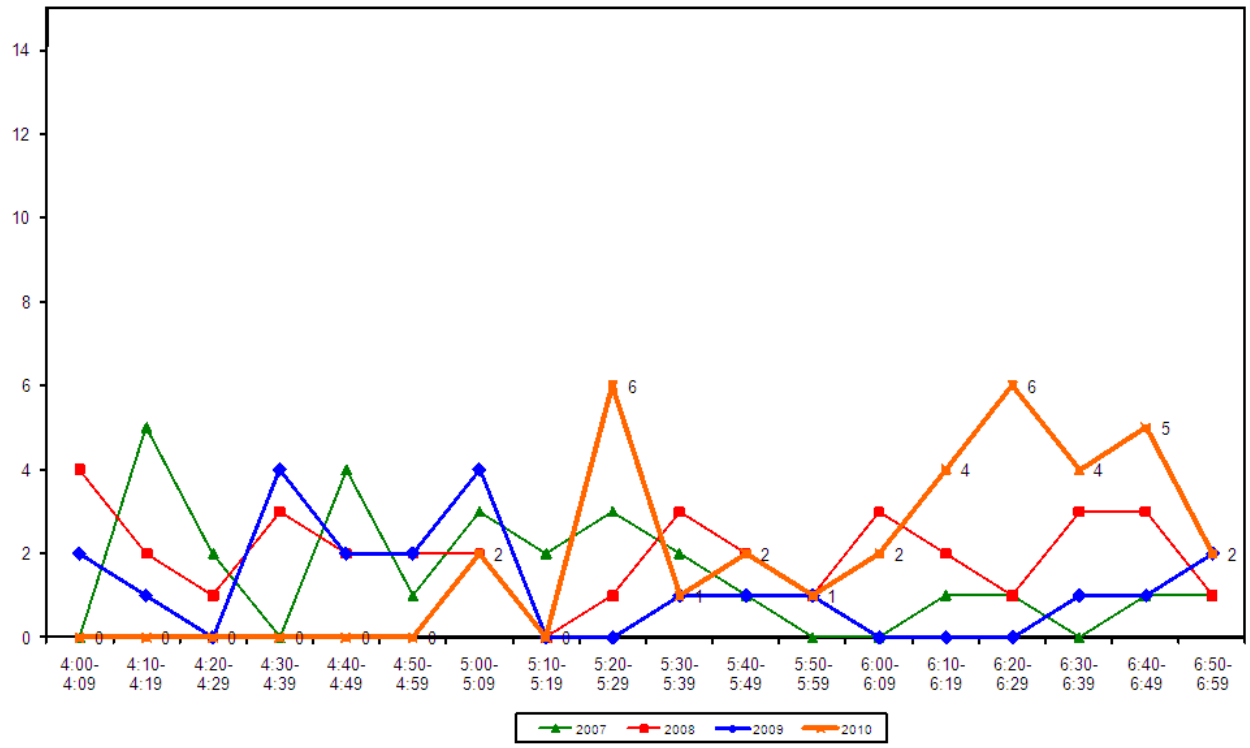
- Similar to last year, a greater share of cyclists using this intersection are adults (71 per cent, up from 59 per cent in 2009).
- Seventy-one per cent of cyclists are wearing helmets (up notably from 50 per cent last year).
- The incidence of cyclists riding on the footpath is the second highest at this site compared with all other sites monitored in Waitakere (71 per cent, down notably from 91 per cent at the previous measure).

***Table 4.4: Evening Cyclist Characteristics***
***Lincoln Road/Fairdene Avenue 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 89 | 44 | 59 | 71 | 12 |
| School child | 11 | 56 | 41 | 29 | -12 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 52 | 67 | 50 | 71 | 21 |
| No helmet | 48 | 33 | 50 | 29 | -21 |
| **Where Riding** | | | | | |
| Road | 19 | 11 | 9 | 29 | 20 |
| Footpath | 81 | 89 | 91 | 71 | -20 |
| ***Base:*** | ***27*** | ***36*** | ***22*** | ***35*** | |

- In contrast to the morning shift, the volume of cycle movements peaks twice in the monitoring period – between 5:20pm and 5:29pm (6 cyclists) and between 6:20pm and 6:29pm (6 cyclists). No cyclists were recorded in the first hour of the monitoring period. This compares with earlier peaks between 4:30pm and 4:39pm (4 movements) and between 5:00pm and 5:09pm in 2009, after which cycle volumes remained low through the remainder of the monitoring period.

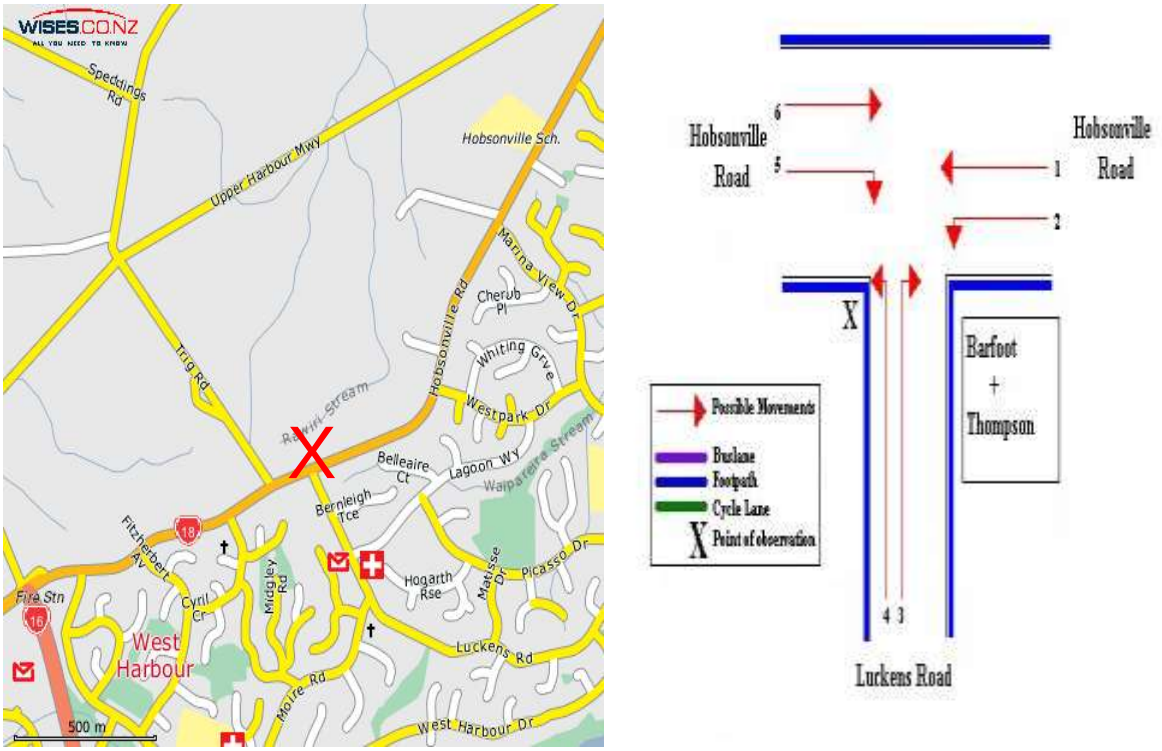
***Figure 4.3: Lincoln Road/Fairdene Avenue Cyclist Frequency – Evening Peak***



# 5. LUCKENS ROAD/HOBSONVILLE ROAD, WEST HARBOUR (SITE 51)

Figure 5.1 shows the possible cyclist movements at this intersection.

***Figure 5.1: Cycle Movement: Luckens Road/Hobsonville Road***




## *AADT Estimate*

- The AADT for this site is 137. This compares with:
  - 110 in 2009
  - 60 in 2008
  - 47 in 2007.

| | AM | PM | TOTAL |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **41** | **54** | **95** |

## 5.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- The volume of morning cyclists at the Luckens/Hobsonville Road intersection has increased notably from previous counts (41 cycle movements, compared with 26 movements in 2009).
- Key morning movements are travelling straight along Hobsonville Road heading northeast (Movement 6 = 11 cyclists) and turning left into Luckens Road from Hobsonville Road (Movement 2 = 9 cyclists).
- Of the six movements possible at this intersection, the most notable change is at Movement 6 (up 10 cyclists).

***Table 5.1: Morning Cyclist Movements***
***Luckens/Hobsonville Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 5 | 3 | 7 | 7 | 0 |
| 2 | 3 | 8 | 9 | 9 | 0 |
| 3 | 2 | 7 | 1 | 6 | 5 |
| 4 | 2 | 3 | 6 | 7 | 1 |
| 5 | 0 | 2 | 2 | 1 | -1 |
| 6 | 8 | 2 | 1 | 11 | 10 |
| **Total** | **20** | **25** | **26** | **41** | **15** |

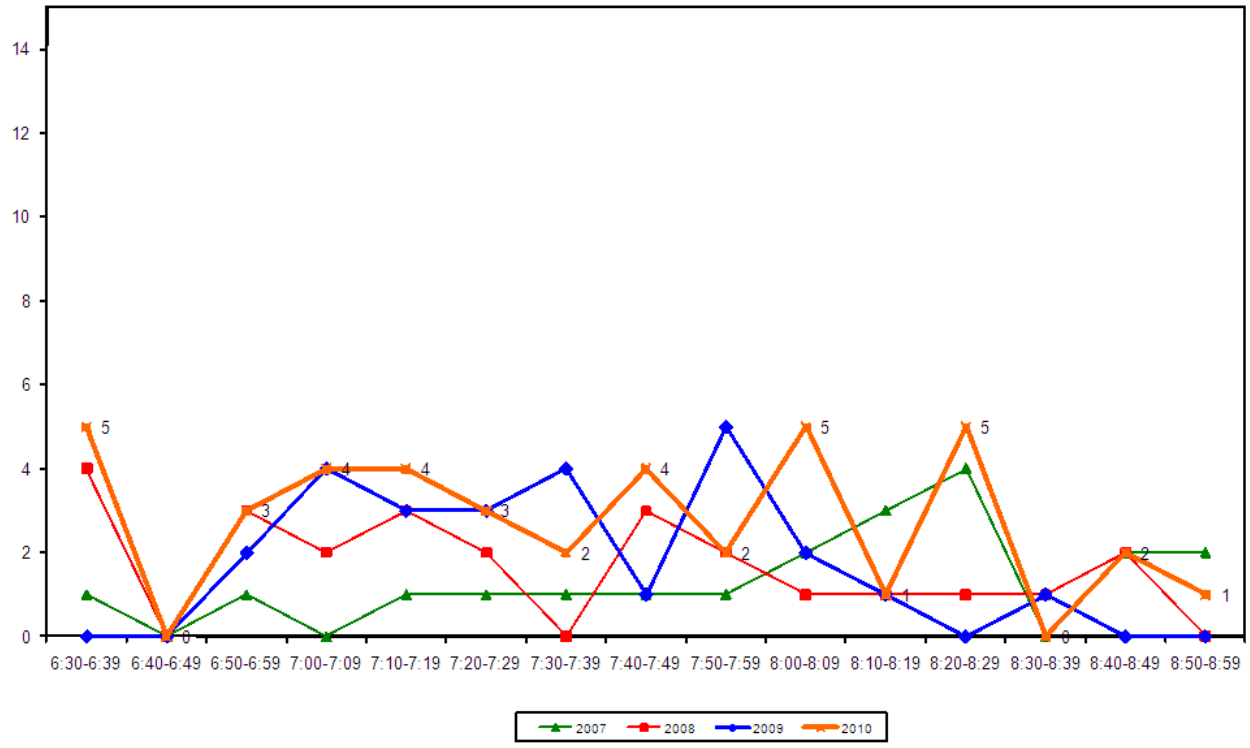
- Over the morning peak, adults comprise the greatest share (83 per cent) of the cycle movements (down from 88 per cent in 2009).
- Almost all cyclists are wearing a helmet (98 per cent, stable from 96 per cent of cyclists in 2009).
- On average, four in five cyclists are riding on the road (80 per cent, stable from 81 per cent in 2009).

***Table 5.2: Morning Cyclist Characteristics***
***Luckens/Hobsonville Road 2007-2010 (%)***

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 75 | 88 | 88 | 83 | -5 |
| School child | 25 | 12 | 12 | 17 | 5 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 100 | 100 | 96 | 98 | 2 |
| No helmet | 0 | 0 | 4 | 2 | -2 |
| **Where Riding** | | | | | |
| Road | 70 | 80 | 81 | 80 | -1 |
| Footpath | 30 | 20 | 19 | 20 | 1 |
| ***Base:*** | ***20*** | ***25*** | ***26*** | ***41*** | |

- The volume of morning cycle movements peaks slightly three times over the morning monitoring period. The peaks occurred between 6:30am and 6:39am, 8:00am and 8:09am, and 8:20am and 8:29am (5 cyclists in each peak period). This compares with a slight peak occurring between 7:50am and 7:59am (5 cyclists) in 2009.

***Figure 5.2 Luckens/Hobsonville Road Cyclist Frequency – Morning Peak***



## 5.2 Evening Peak

### *Environmental Conditions*

- The weather was fine throughout the evening shift.
- A car accident occurred at 4:43pm. The cars involved were moved off the road so cyclist traffic was not impeded. No road works occurred which may affect cycle counts.

### *Key Points*

- In the evening, the total number of cycle movements recorded at the Luckens/Hobsonville Road intersection has increased slightly from last year, with 54 movements recorded (compared with 51 movements in 2009).
- The most common movements in the evening are straight along Hobsonville Road heading northeast (Movement 6 = 17 cyclists) and straight along Hobsonville Road heading southwest (Movement 1 = 12 cyclists).
- Of the six possible movements, the most notable changes this year have been at Movement 1 (up 4 cyclists) and Movement 6 (down 4 cyclists).

***Table 5.3: Evening Cyclist Movements***
***Luckens/Hobsonville Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 6 | 1 | 8 | 12 | 4 |
| 2 | 3 | 6 | 4 | 6 | 2 |
| 3 | 1 | 2 | 13 | 10 | -3 |
| 4 | 2 | 2 | 2 | 5 | 3 |
| 5 | 0 | 0 | 3 | 4 | 1 |
| 6 | 0 | 5 | 21 | 17 | -4 |
| **Total** | **12** | **16** | **51** | **54** | **3** |

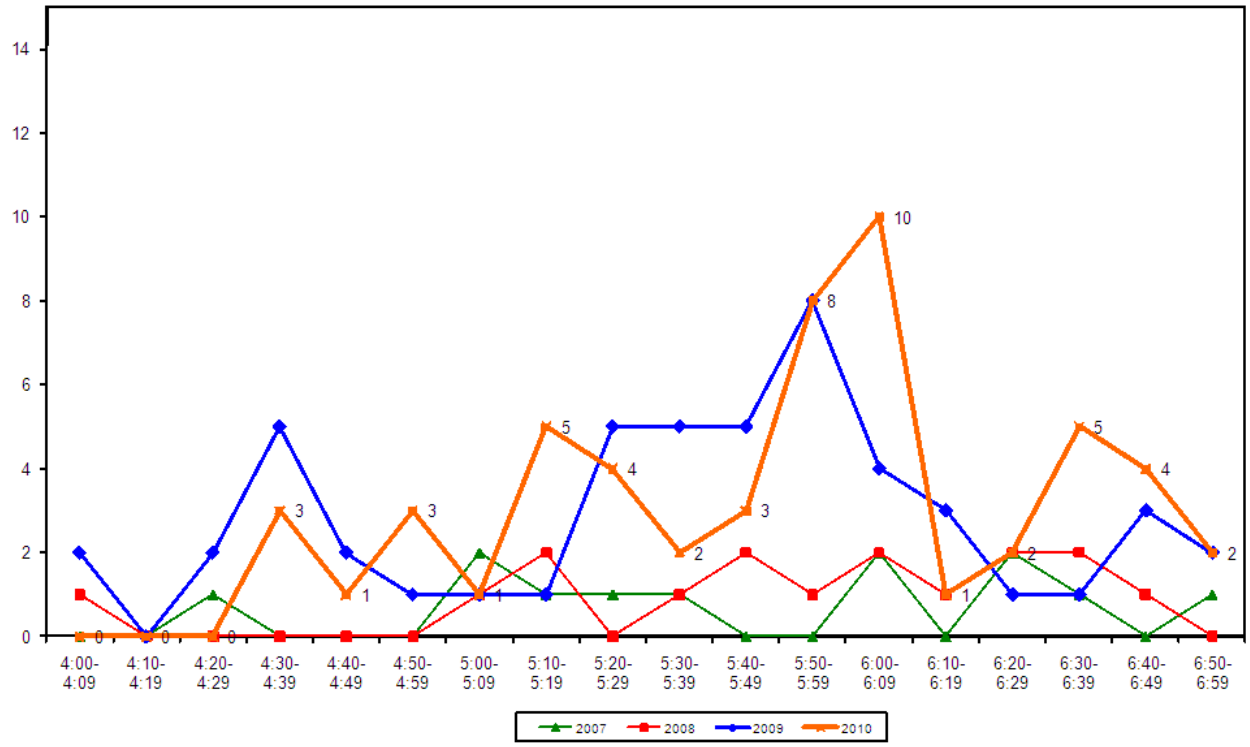
- Most cyclists using this intersection are adults (91 per cent, compared with 100 per cent in the previous year).
- Almost all cyclists at this site are wearing a helmet (94 per cent, down slightly from 98 per cent last year).
- The majority of cyclists are riding on the road (81 per cent, down from 90 per cent in 2009).

***Table 5.4: Evening Cyclist Characteristics***
***Luckens/Hobsonville Road 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 100 | 94 | 100 | 91 | -9 |
| School child | 0 | 6 | 0 | 9 | 9 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 100 | 69 | 98 | 94 | -4 |
| No helmet | 0 | 31 | 2 | 6 | 4 |
| **Where Riding** | | | | | |
| Road | 100 | 81 | 90 | 81 | -9 |
| Footpath | 0 | 19 | 10 | 19 | 9 |
| ***Base:*** | ***12*** | ***16*** | ***51*** | ***54*** | |

- This year, cycle volumes peak between 6:00pm and 6:09pm, with 10 cyclists recorded. This peak occurs ten minutes later than the peak recorded in 2009 (5:50pm to 5:59pm; 8 cyclists).

***Figure 5.3: Luckens/Hobsonville Road Cyclist Frequency – Evening Peak***



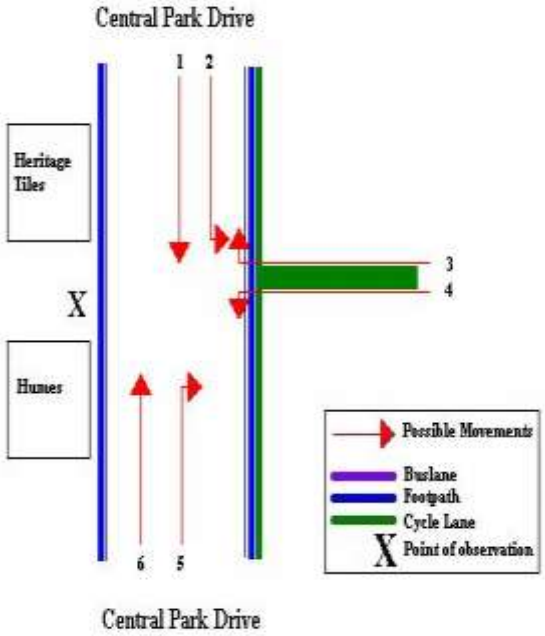

*Note: In 2010, 11 per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Three cyclists at 5.11pm*
- *Three cyclists at 6.37pm*

# 6. CENTRAL PARK DRIVE, HENDERSON (SITE 52)

Figure 6.1 shows the possible cyclist movements at this intersection.

***Figure 6.1: Cycle Movement: Central Park Drive***


## *AADT Estimate*

- The AADT for this site is 290. This compares with:
  - 306 in 2009
  - 227 in 2008
  - 184 in 2007.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **94** | **106** | **200** |

## 6.1 Morning Peak

### *Environmental Conditions*

- The weather was generally fine with some cloud, changing to overcast near the end of the monitoring period. Light drizzle was recorded between 6:35am and 6:55am.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Morning peak cycle volumes at Central Park Drive have increased slightly this year, with 94 cycle movements recorded (compared with 91 movements in 2009).
- The most common movement in the morning is turning off the northern end of Central Park Drive into the cycle way (Movement 2 = 35 cyclists).
- Of the six possible movements at this site, the most notable changes since 2009 have been at Movement 6 (down 11 cyclists) and Movement 1 (up 10 cyclists).

***Table 6.1: Morning Cyclist Movements***
***Central Park Drive 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 8 | 4 | 0 | 10 | 10 |
| 2 | 20 | 34 | 36 | 35 | -1 |
| 3 | 8 | 12 | 12 | 9 | -3 |
| 4 | 8 | 7 | 11 | 14 | 3 |
| 5 | 14 | 10 | 20 | 25 | 5 |
| 6 | 3 | 1 | 12 | 1 | -11 |
| **Total** | **61** | **68** | **91** | **94** | **3** |

- Over the morning peak, almost all cyclists are adults (97 per cent, stable from 96 per cent at the previous measure).
- Most cyclists are wearing a helmet (98 per cent, stable from 97 per cent last year).
- This year the volume of cyclists riding on the road has increased to 71 per cent (up from 59 per cent in 2009). The volume of cyclists riding on the footpath has remained stable at 6 per cent this year (up from 3 per cent in 2009). In contrast, the number of cyclists riding on the off-road cycleway has decreased to 23 per cent (down from 38 per cent last year).

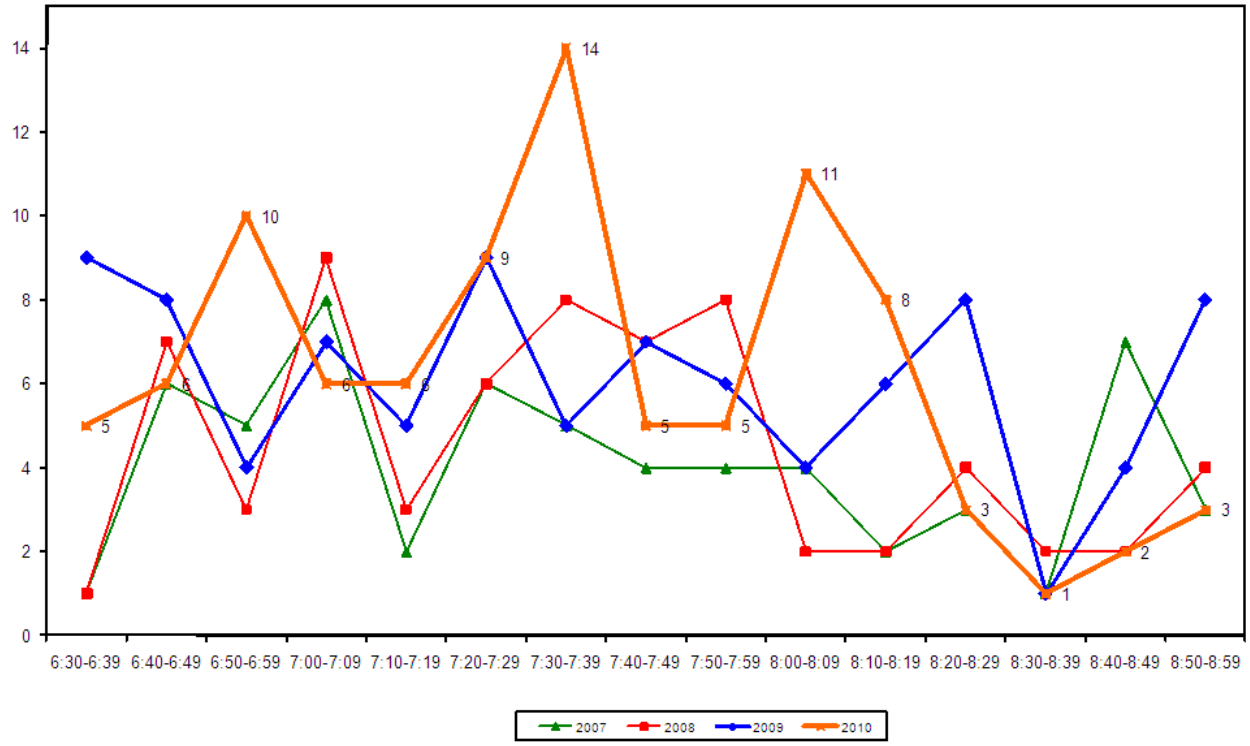
***Table 6.2: Morning Cyclist Characteristics***
***Central Park Drive 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 98 | 99 | 96 | 97 | 1 |
| School child | 2 | 1 | 4 | 3 | -1 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 92 | 94 | 97 | 98 | 1 |
| No helmet | 8 | 6 | 3 | 2 | -1 |
| **Where Riding** | | | | | |
| Road | 74 | 99 | 59 | 71 | 12 |
| Footpath | 26 | 1 | 3 | 6 | 3 |
| Off-road cycleway[17] | - | - | 38 | 23 | -15 |
| ***Base:*** | ***61*** | ***68*** | ***91*** | ***94*** | |

[17] *From 2009, surveyors were asked to distinguish between cyclists riding on the road and cyclists riding on off-road cycleways. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

- The volume of cycle movements peaks between 7:30am and 7:39am (14 cyclists). This compares with last year where cycle volumes peaked between 6:30am and 6:39am (9 cyclists) and again between 7:20am and 7:29am (9 cyclists).

***Figure 6.2: Central Park Drive Cyclist Frequency – Morning Peak***




*Note: In 2010, six cyclists were observed riding as a group at 7.34am. This comprises six per cent of the total cycle movements in the morning peak in 2010.*

## 6.2 Evening Peak

### *Environmental Conditions*

- The weather was cloudy and overcast throughout the evening shift, with light drizzle between 4:59pm and 5:09pm.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- This year, the total number of cycle movements recorded at the Central Park Drive intersection in the evening decreased, from 121 in 2009 to 106 movements.
- In contrast to the morning shift, the most common movement in the evening is turning out of the cycleway onto Central Park Drive heading north (Movement 3 = 34 cyclists).
- The most notable change since last year is at Movement 3 (down 15 cyclists).

***Table 6.3: Evening Cyclist Movements***
***Central Park Drive 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 5 | 5 | 1 | 3 | 2 |
| 2 | 12 | 14 | 17 | 11 | -6 |
| 3 | 22 | 38 | 49 | 34 | -15 |
| 4 | 14 | 10 | 33 | 28 | -5 |
| 5 | 11 | 17 | 11 | 21 | 10 |
| 6 | 2 | 5 | 10 | 9 | -1 |
| **Total** | **66** | **89** | **121** | **106** | **-15** |

- Over the evening peak, most cyclists at this site are adults (95 per cent, stable from the previous year).
- Helmet wearing is still common in the evening (94 per cent, stable from 93 per cent in 2009).
- This year 70 per cent of cyclists in the evening are riding on the road (up from 55 per cent last year). Twenty-four per cent are riding on the off-road cycleway, down 19 percentage points from last year (43 per cent). Six per cent of cyclists are riding on the footpath.

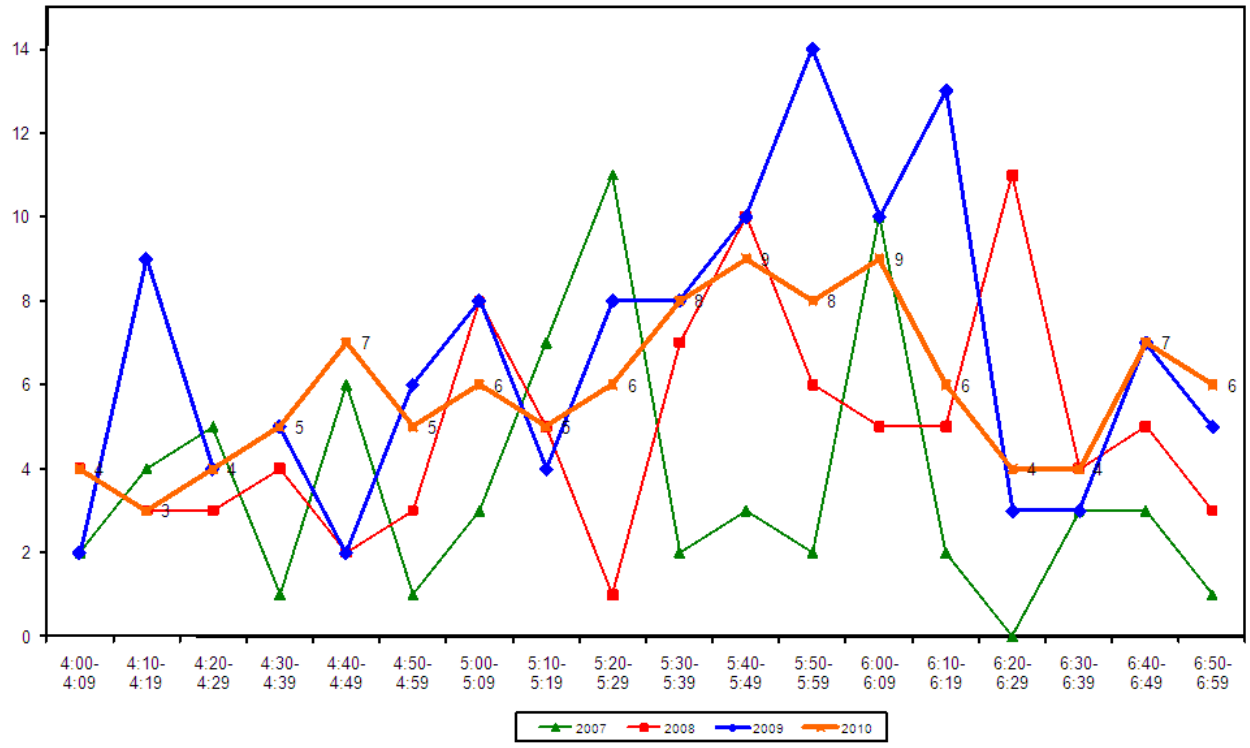
***Table 6.4: Evening Cyclist Characteristics***
***Central Park Drive 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 100 | 97 | 97 | 95 | -2 |
| School child | 0 | 3 | 3 | 5 | 2 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 94 | 91 | 93 | 94 | 1 |
| No helmet | 6 | 9 | 7 | 6 | -1 |
| **Where Riding** | | | | | |
| Road | 83 | 97 | 55 | 70 | 15 |
| Footpath | 17 | 3 | 2 | 6 | 4 |
| Off-road cycleway[18] | - | - | 43 | 24 | -19 |
| ***Base:*** | ***66*** | ***89*** | ***121*** | ***106*** | |

[18] *In 2009, surveyors were asked to distinguish between cyclist riding on the road and cyclists riding on off-road cycleway. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

- The volume of evening cyclist movements increases steadily over the monitoring period to peak between 5:40pm and 6:09pm (9, 8 and 9 cyclists per 10 minute period respectively). This 30 minute peak period occurs 10 minutes later than was observed in 2009. A peak between 4:10pm and 4:19pm was also observed last year.

***Figure 6.3: Central Park Drive Cyclist Frequency – Evening Peak***

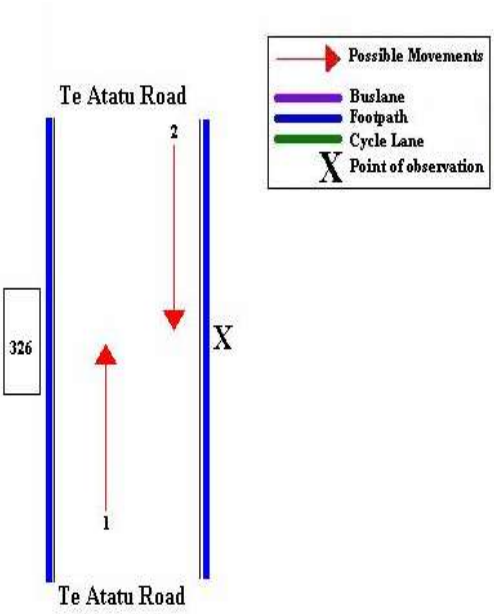



*Note: In 2010, three cyclists were observed riding as a group at 5.44pm. This comprises three per cent of the total cycle movements in the evening peak in 2010.*

# 7. 326 TE ATATU ROAD, TE ATATU (SITE 53)

Figure 7.1 shows the possible cyclist movements at this site.

***Figure 7.1: Cycle Movements: 326 Te Atatu Road***


## *AADT Estimate*

- The AADT for this site is 185. This compares with:
  - 202 in 2009
  - 155 in 2008
  - 127 in 2007.

| | AM | PM | TOTAL |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **65** | **62** | **127** |

## 7.1 Morning Peak

### *Environmental Conditions*

- The weather was fine with some cloud developing toward the end of the morning shift.
- There were no road works or accidents that may affect cycle count.

### *Key Points*

- The volume of morning cyclists at 326 Te Atatu Road in 2010 is 65, down from 79 movements recorded in 2009.
- The most common movement is straight along Te Atatu Road heading north (Movement 1 = 59 cyclists.
- The most notable decrease in cyclist volume is at Movement 2 (down 13 cyclists).

***Table 7.1: Morning Cyclist Movements***

***326 Te Atatu Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 35 | 42 | 60 | 59 | -1 |
| 2 | 9 | 10 | 19 | 6 | -13 |
| **Total** | **44** | **52** | **79** | **65** | **-14** |

- Over the morning peak, school children comprise over half of cycle movements (66 per cent, up from 54 per cent last year).
- Most cyclists are wearing a helmet (88 per cent, down from 94 per cent in 2009).
- Of the 14 Waitakere sites monitored in the morning, this site has the highest proportion of morning cyclists riding on the footpath (89 per cent, up from 82 per cent last year).

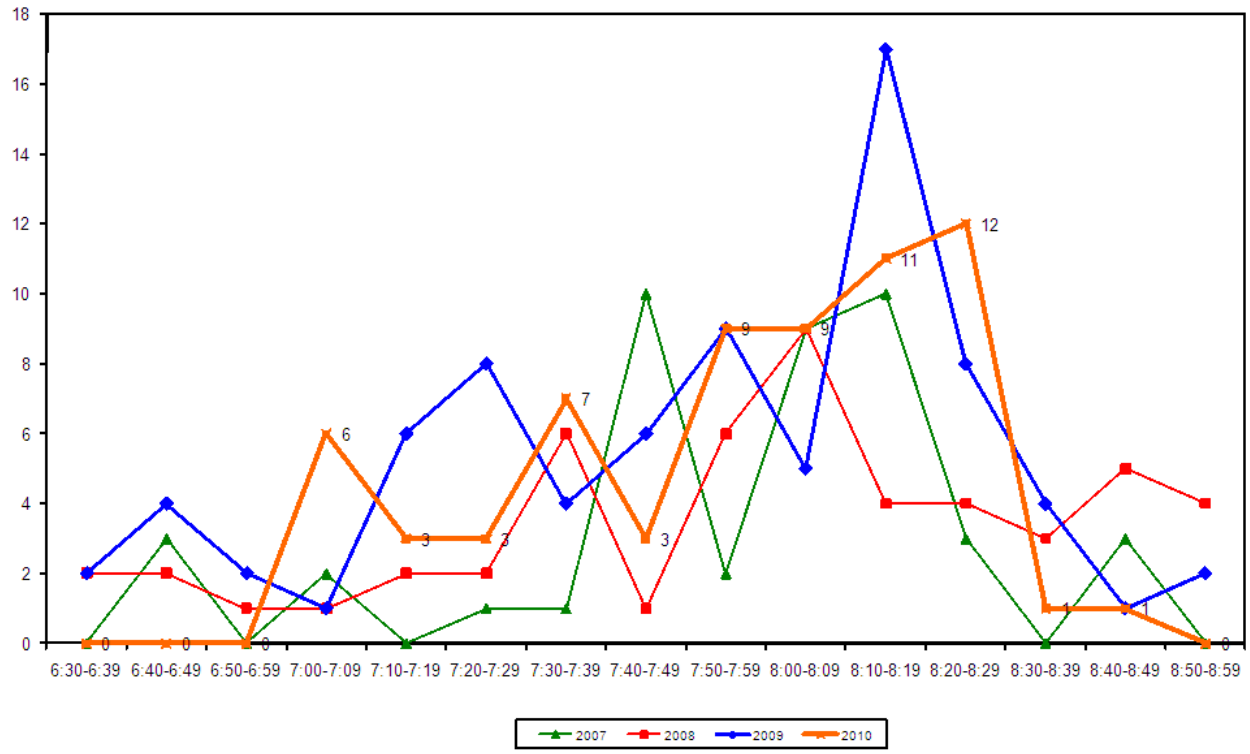
***Table 7.2: Morning Cyclist Characteristics***

***326 Te Atatu Road 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 43 | 52 | 46 | 34 | -12 |
| School child | 57 | 48 | 54 | 66 | 12 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 84 | 87 | 94 | 88 | -6 |
| No helmet | 16 | 13 | 6 | 12 | 6 |
| **Where Riding** | | | | | |
| Road | 11 | 8 | 18 | 11 | -7 |
| Footpath | 89 | 92 | 82 | 89 | 7 |
| ***Base:*** | ***44*** | ***52*** | ***79*** | ***65*** | |

- In 2010, the volume of morning cycle movements starts off low, then increases to peak between 8:20am and 8:29am (12 cyclists, ten minutes later than last year's peak), before tailing off towards the end of the morning period.

***Figure 7.2: 326 Te Atatu Road Cyclist Frequency – Morning Peak***




*Note: In 2010, 15 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Four cyclists at 7.37am*
- *Six cyclists at 8.25am.*

## 7.2 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 recorded in the evening at the 326 Te Atatu Road site has increased slightly, from 59 in 2009 to 62 movements this year.
- The most common movement in the evening is straight along Te Atatu Road in the opposite direction from the morning shift (Movement 2 = 49 cyclists travelling south).
- The most notable change in cyclist volume was at Movement 2 (up 7 cyclists).

***Table 7.3: Evening Cyclist Movements***
***326 Te Atatu Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 16 | 15 | 17 | 13 | -4 |
| 2 | 27 | 40 | 42 | 49 | 7 |
| **Total** | **43** | **55** | **59** | **62** | **3** |

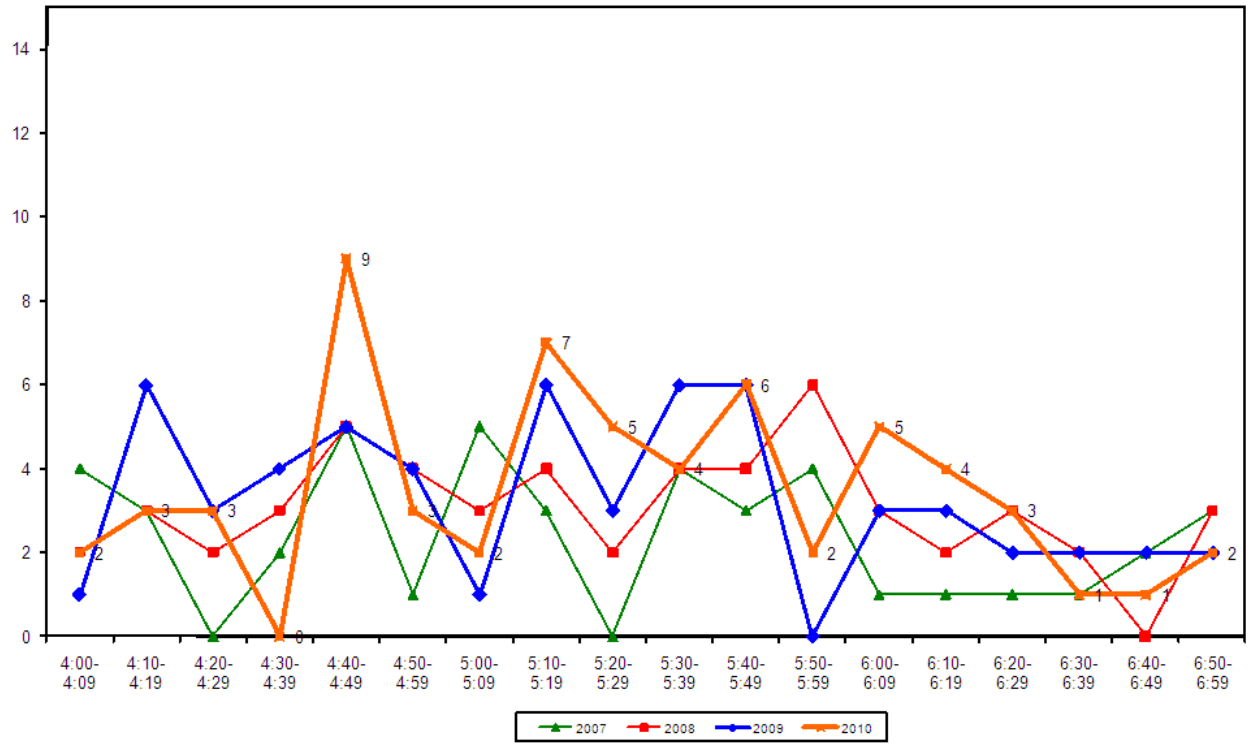
- The greatest share of cyclists using this site in the evening are adults (90 per cent, up from 80 per cent in the previous year).
- A large proportion of cyclists are wearing a helmet (74 per cent, down from 80 per cent in 2009).
- On average, three in four cyclists are riding on the footpath (81 per cent, stable from 78 per cent last year).

***Table 7.4: Evening Cyclist Characteristics***
***326 Te Atatu Road 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 72 | 91 | 80 | 90 | 10 |
| School child | 28 | 9 | 20 | 10 | -10 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 88 | 84 | 80 | 74 | -6 |
| No helmet | 12 | 16 | 20 | 26 | 6 |
| **Where Riding** | | | | | |
| Road | 16 | 24 | 22 | 19 | -3 |
| Footpath | 84 | 76 | 78 | 81 | 3 |
| ***Base:*** | ***43*** | ***55*** | ***59*** | ***62*** | |

- This year, cycle volumes peak between 4:40pm and 4:49pm (9 cyclists) and trail off to the end of the monitoring period. This compares to consistent cyclist volumes throughout most of the evening with low numbers in the last hour of monitoring in 2009.

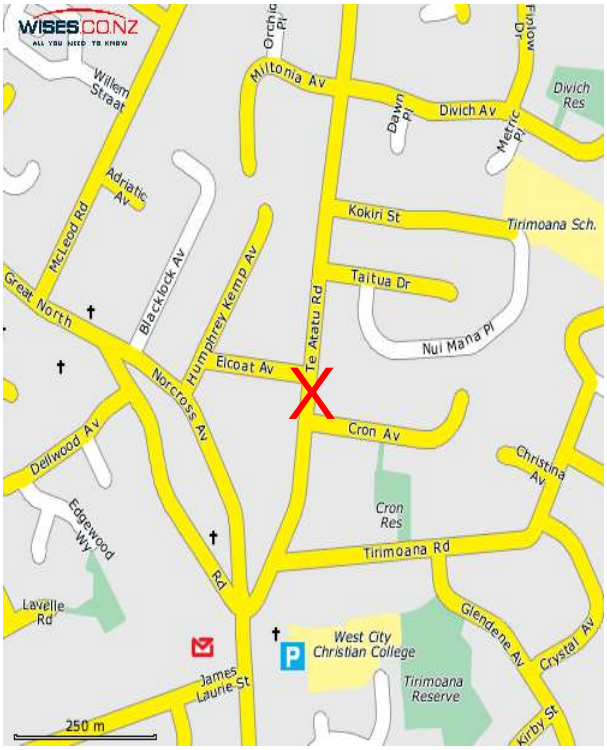
***Figure 7.3: 326 Te Atatu Road Cyclist Frequency – Evening Peak***

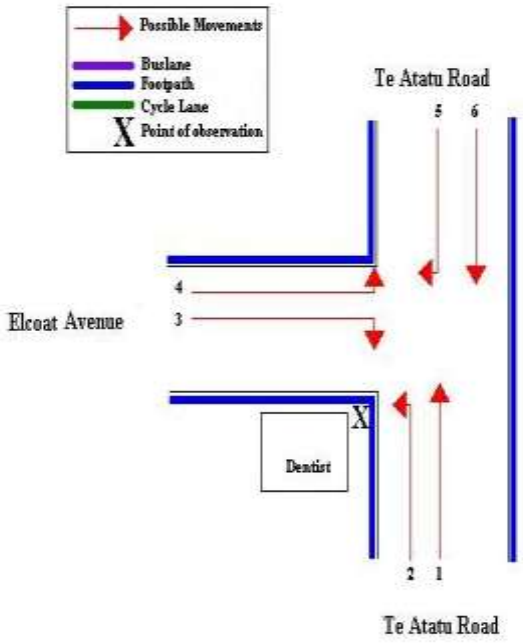


# 8. TE ATATU ROAD/ELCOAT AVENUE, HENDERSON (SITE 54)

Figure 8.1 shows the possible cyclist movements at this intersection.

***Figure 8.1: Cycle Movements: Te Atatu Road/Elcoat Avenue***




## *AADT Estimate*

- The AADT for this site is 76. This compares with:
  - 101 in 2009
  - 66 in 2008
  - 73 in 2007.

| | AM | PM | TOTAL |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **30** | **22** | **52** |

## 8.1 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*

- Since 2009, the volume of morning cyclists at the Te Atatu Road/Elcoat Avenue intersection has decreased (30 cycle movements, compared with 37 movement last year).
- The most common morning movement is north up Te Atatu Road (Movement 1 = 26 cyclists).
- No notable changes in cyclist volumes at any movement occurred in 2010.

***Table 8.1: Morning Cyclist Movements***
***Te Atatu Road/Elcoat Avenue 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 16 | 19 | 28 | 26 | -2 |
| 2 | 0 | 0 | 1 | 0 | -1 |
| 3 | 0 | 0 | 0 | 0 | 0 |
| 4 | 2 | 1 | 2 | 1 | -1 |
| 5 | 0 | 0 | 1 | 0 | -1 |
| 6 | 8 | 7 | 5 | 3 | -2 |
| **Total** | **26** | **27** | **37** | **30** | **-7** |

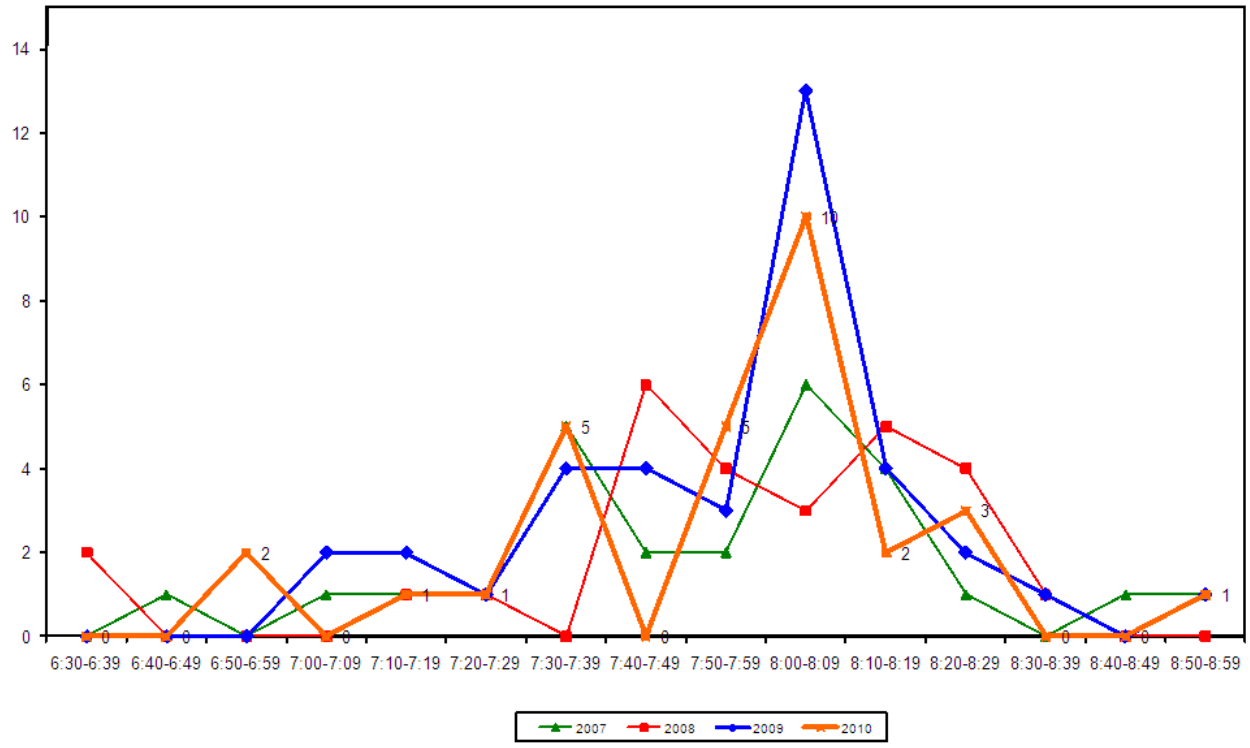
- Over the morning peak, school children comprise four-fifths of the total number of cycle movements (80 per cent, up from 68 per cent in 2009).
- Most cyclists are wearing a helmet (97 per cent, up from 86 per cent at the last measure).
- Approximately four in five cyclists are riding on the footpath in the morning (80 per cent, stable from last year).

***Table 8.2: Morning Cyclist Characteristics***
***Te Atatu Road/Elcoat Avenue 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 46 | 37 | 32 | 20 | -12 |
| School child | 54 | 63 | 68 | 80 | 12 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 88 | 89 | 86 | 97 | 11 |
| No helmet | 12 | 11 | 14 | 3 | -11 |
| **Where Riding** | | | | | |
| Road | 38 | 26 | 19 | 20 | 1 |
| Footpath | 62 | 74 | 81 | 80 | -1 |
| ***Base:*** | ***26*** | ***27*** | ***37*** | ***30*** | |

- This year, the volume of morning cycle movements peaks sharply between 8:00am and 8:09am, with 10 cyclists recorded. This matches the sharp peak between 8:00am and 8:09am recorded last year. No more than five cyclists were recorded over any other ten minute interval across the monitoring period.

***Figure 8.2: Te Atatu Road/Elcoat Avenue Cyclist Frequency – Morning Peak***



## 8.2 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*

- In the evening, the total number of cycle movements recorded at the Te Atatu Road/Elcoat Avenue intersection has decreased, from 32 movements last year to 22 movements in 2010.
- In contrast to the morning shift, the most common movement in the evening is south down Te Atatu Road (Movement 6 = 15 cyclists).
- No notable changes in cyclist volumes at any movement occurred in 2010.

***Table 8.3: Evening Cyclist Movements***
***Te Atatu Road/Elcoat Avenue Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 9 | 2 | 7 | 7 | 0 |
| 2 | 0 | 2 | 1 | 0 | -1 |
| 3 | 0 | 0 | 2 | 0 | -2 |
| 4 | 1 | 0 | 3 | 0 | -3 |
| 5 | 1 | 2 | 1 | 0 | -1 |
| 6 | 13 | 12 | 18 | 15 | -3 |
| **Total** | **24** | **18** | **32** | **22** | **-10** |

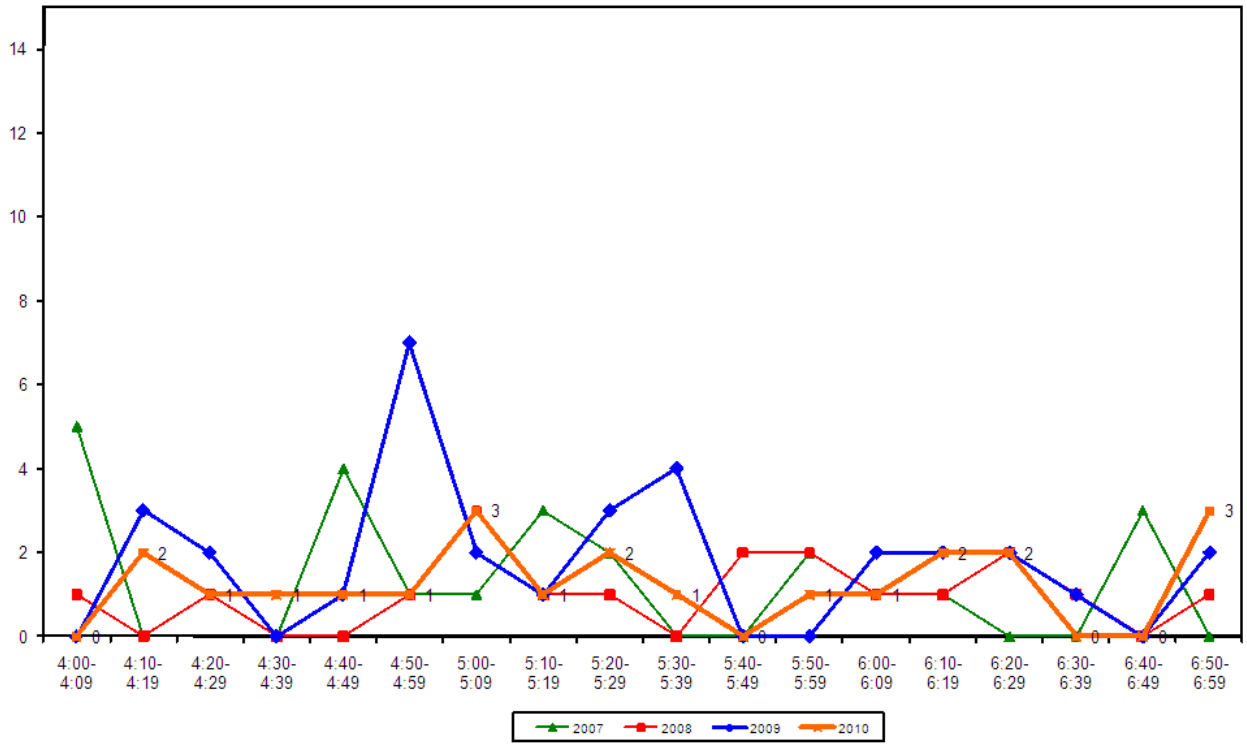
- Approximately four in five of the cyclists using this intersection are adults (82 per cent, up notably from 53 per cent last year).
- Approximately four-fifths of cyclists at this site are wearing a helmet (77 per cent, up from 66 per cent in the previous year).
- Just over half of cyclists (55 per cent) are riding on the road (up notably from 19 per cent in 2009).

***Table 8.4: Evening Cyclist Characteristics***
***Te Atatu Road/Elcoat Avenue 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 58 | 83 | 53 | 82 | 29 |
| School child | 42 | 17 | 47 | 18 | -29 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 87 | 78 | 66 | 77 | 11 |
| No helmet | 13 | 22 | 34 | 23 | -11 |
| **Where Riding** | | | | | |
| Road | 50 | 50 | 19 | 55 | 36 |
| Footpath | 50 | 50 | 81 | 45 | -36 |
| ***Base:*** | ***24*** | ***18*** | ***32*** | ***22*** | |

- This year, evening cycle volumes were consistently low across the entire monitoring period. This compares to a peak between 4:50pm and 4:59pm (7 movements) in 2009.

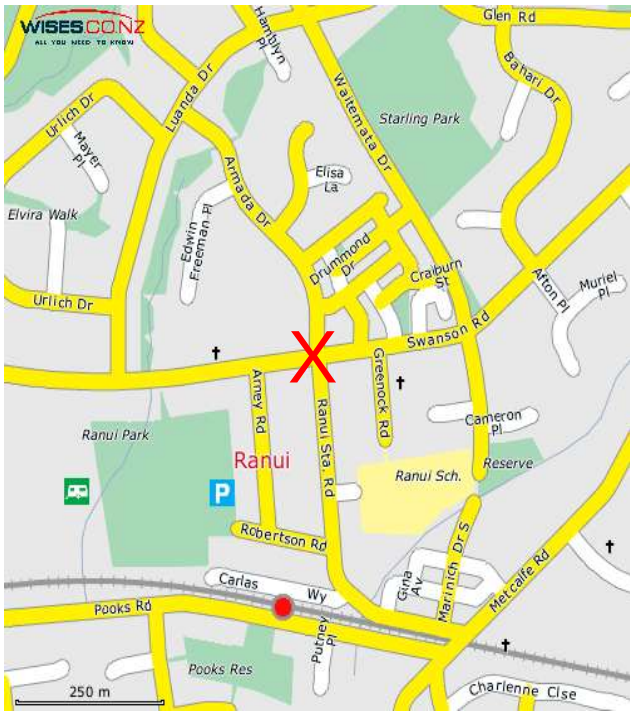
***Figure 8.3: Te Atatu Road/Elcoat Avenue Cyclist Frequency – Evening Peak***

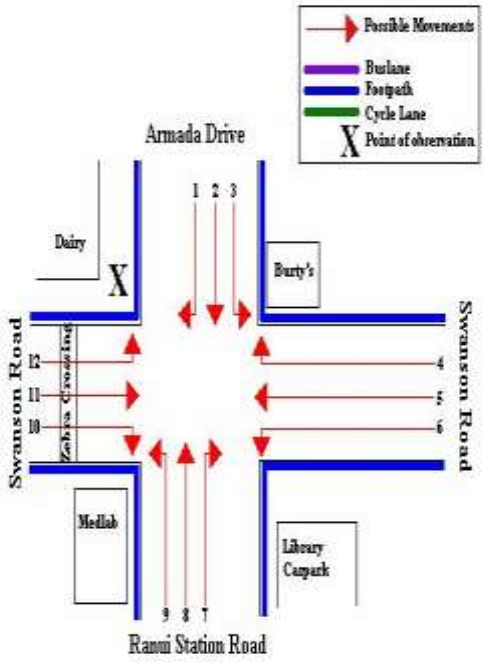


# 9. SWANSON ROAD/RANUI STATION ROAD/ARMADA DRIVE, RANUI (SITE 55)

Figure 9.1 shows the possible cyclist movements at this intersection.

***Figure 9.1: Cycle Movements: Swanson Road/Ranui Station Road/Armada Drive***




## *AADT Estimate*

- The AADT for this site is 146. This compares with:
  - 148 in 2009
  - 122 in 2008
  - 88 in 2007.

| | AM | PM | TOTAL |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **34** | **68** | **102** |

## 9.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- The volume of morning cyclists at the Swanson Road/Armada Drive intersection has decreased slightly, from 37 in 2009 to 34 cycle movements this year.
- The most common movement is straight along Swanson Road heading east (Movement 11 = 17 cyclists).
- Compared to last year, the most notable decrease in cycle volumes is at Movement 11 down 6 cyclists).

***Table 9.1: Morning Cyclist Movements***

***Swanson Road/Ranui Station Road/Armada Drive 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 0 | 2 | 3 | 2 | -1 |
| 2 | 0 | 0 | 2 | 3 | 1 |
| 3 | 1 | 0 | 0 | 1 | 1 |
| 4 | 0 | 2 | 0 | 0 | 0 |
| 5 | 1 | 3 | 2 | 6 | 4 |
| 6 | 1 | 1 | 1 | 3 | 2 |
| 7 | 0 | 0 | 0 | 0 | 0 |
| 8 | 1 | 0 | 1 | 1 | 0 |
| 9 | 1 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 3 | 0 | -3 |
| 11 | 10 | 13 | 23 | 17 | -6 |
| 12 | 0 | 0 | 2 | 1 | -1 |
| **Total** | **15** | **21** | **37** | **34** | **-3** |

- Over the morning peak, adults comprise the greatest share of the total number of cycle movements (79 per cent, stable from last year).
- Approximately three-quarters of cyclists are wearing a helmet (76 per cent, down slightly from 81 per cent last year).
- Just over two-thirds of cyclists are riding on the road (68 per cent, up from 54 per cent in 2009).

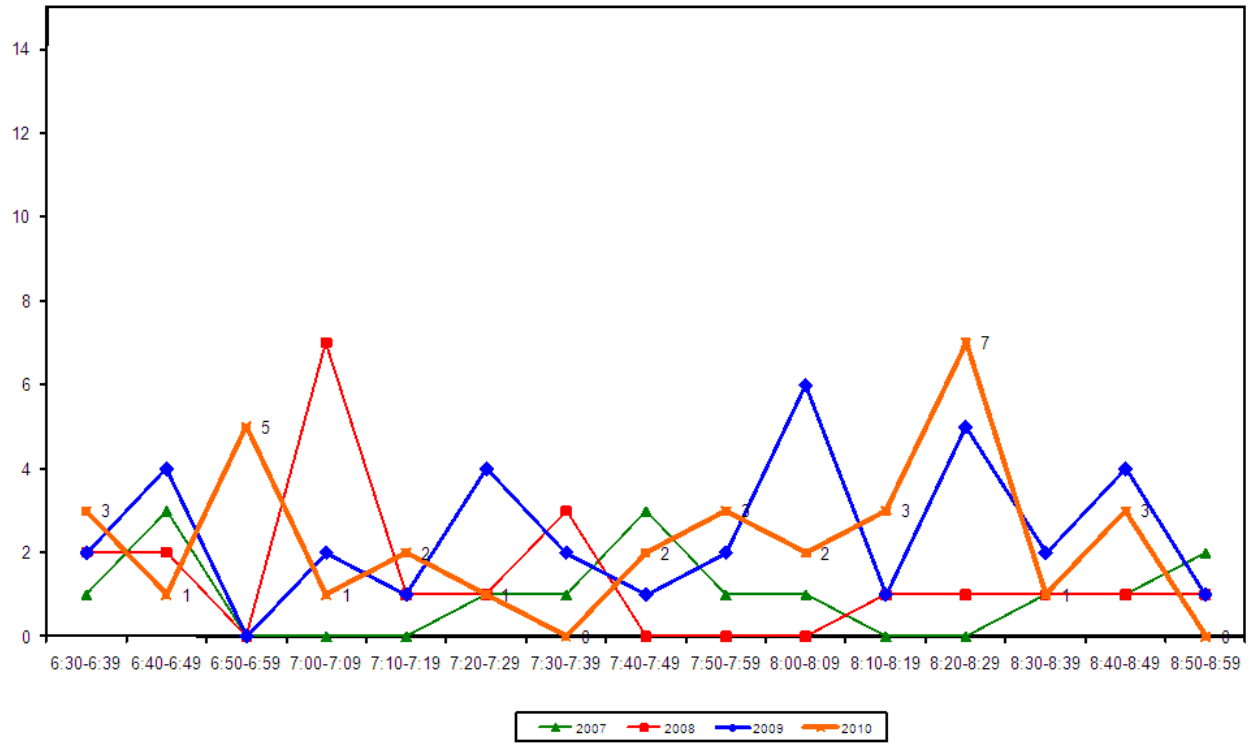
***Table 9.2: Morning Cyclist Characteristics***

***Swanson Road/Ranui Station Road/Armada Drive 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 87 | 81 | 81 | 79 | -2 |
| School child | 13 | 19 | 19 | 21 | 2 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 93 | 67 | 81 | 76 | -5 |
| No helmet | 7 | 33 | 19 | 24 | 5 |
| **Where Riding** | | | | | |
| Road | 73 | 62 | 54 | 68 | 14 |
| Footpath | 27 | 38 | 46 | 32 | -14 |
| ***Base:*** | ***15*** | ***21*** | ***37*** | ***34*** | |

- Morning cycle volumes are generally low but peak between 8:20am and 8:29am (7 movements), 20 minutes later than the peak last year (8:00am and 8:09am - 6 movements).

***Figure 9.2: Swanson Road/Ranui Station Road/Armada Drive Cyclist Frequency – Morning Peak***




*Note: In 2010, four cyclists were observed riding as a group at 8.25am. This comprises 12 per cent of the total cycle movements in the morning peak in 2010.*

## 9.2 Evening Peak

### *Environmental Conditions*

- There was some rain clearing to fine weather during the evening monitoring period.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Compared with the previous year, the total number of evening cycle movements recorded at the Swanson Road/Armada Drive intersection has remained stable (68 movements, compared with 66 movements in 2009).
- The key movement in the evening is riding straight along Swanson Road heading west (Movement 5 = 16 cyclists).
- The most notable increases since last year have been at Movement 6 (up 7 cyclists) and Movement 8 (up 6 cyclists), while the most notable decline has been at Movement 12 (down 7 cyclists).

***Table 9.3: Evening Cyclist Movements***

***Swanson Road/Ranui Station Road/Armada Drive 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 2 | 15 | 8 | 5 | -3 |
| 2 | 4 | 4 | 2 | 1 | -1 |
| 3 | 0 | 0 | 2 | 0 | -2 |
| 4 | 0 | 0 | 1 | 1 | 0 |
| 5 | 11 | 10 | 20 | 16 | -4 |
| 6 | 2 | 0 | 0 | 7 | 7 |
| 7 | 1 | 1 | 3 | 7 | 4 |
| 8 | 7 | 0 | 3 | 9 | 6 |
| 9 | 2 | 7 | 0 | 4 | 4 |
| 10 | 4 | 2 | 5 | 2 | -3 |
| 11 | 11 | 9 | 11 | 12 | 1 |
| 12 | 3 | 17 | 11 | 4 | -7 |
| **Total** | **47** | **65** | **66** | **68** | **2** |

- Of the 15 sites monitored in Waitakere, the share of children using the Swanson Road/Armada Drive intersection is the second highest in the evening (56 per cent, up slightly from 53 per cent last year).
- The proportion of cyclists not wearing a helmet is the highest across all Waitakere city sites (56 per cent, stable from 58 per cent in the previous year).
- Just less than two-thirds of cyclists are riding on the footpath (65 per cent, stable from 64 per cent in 2009).

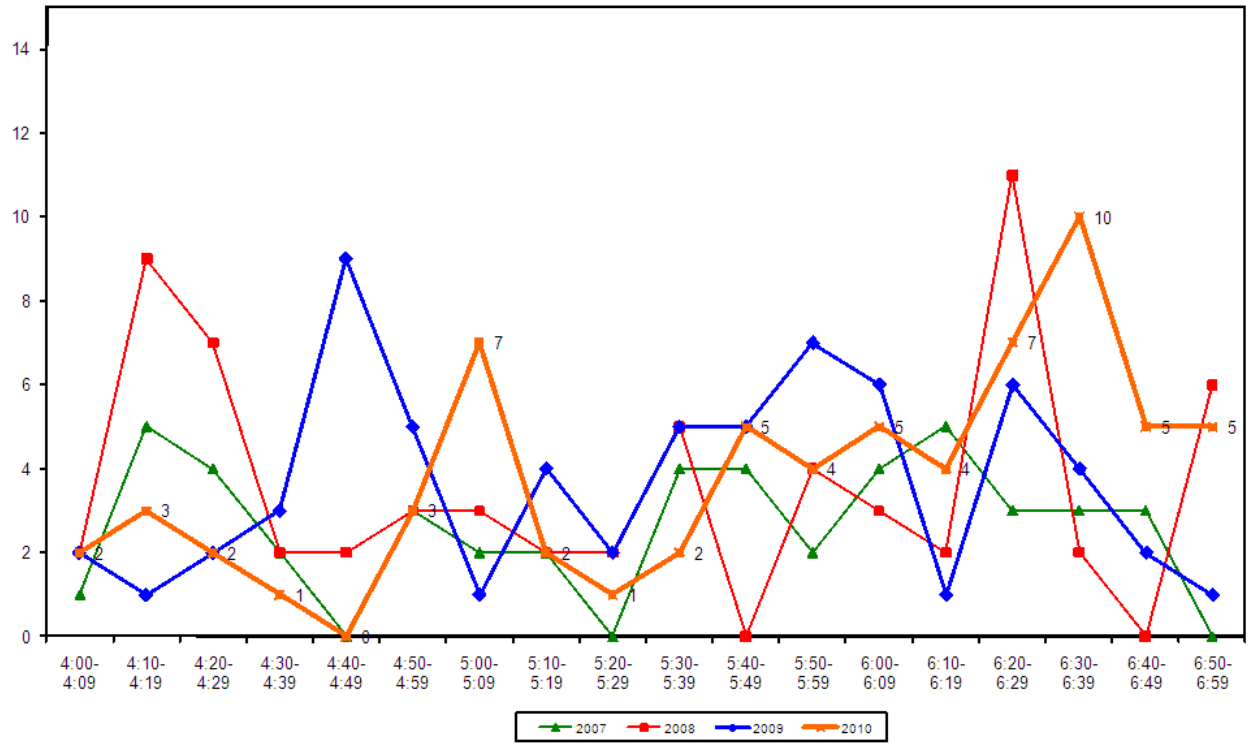
***Table 9.4: Evening Cyclist Characteristics***

***Swanson Road/Ranui Station Road/Armada Drive 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 68 | 32 | 47 | 44 | -3 |
| School child | 32 | 68 | 53 | 56 | 3 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 60 | 31 | 42 | 44 | 2 |
| No helmet | 40 | 69 | 58 | 56 | -2 |
| **Where Riding** | | | | | |
| Road | 43 | 23 | 36 | 35 | -1 |
| Footpath | 57 | 77 | 64 | 65 | 1 |
| ***Base:*** | ***47*** | ***65*** | ***66*** | ***68*** | |

- Evening cyclist volumes start off low, then peak between 5:00pm and 5:09pm (7 cyclists) and again between 6:30pm and 6:39pm (10 cyclists). This compares with an earlier peak of 9 movements between 4:40pm and 4:49pm in 2009.

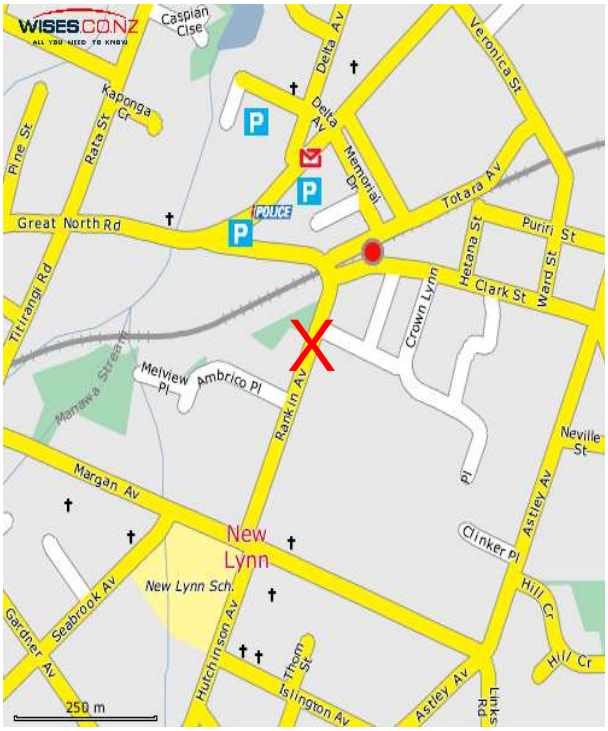
***Figure 9.3: Swanson Road/Ranui Station Road/Armada Drive Cyclist Frequency – Evening Peak***

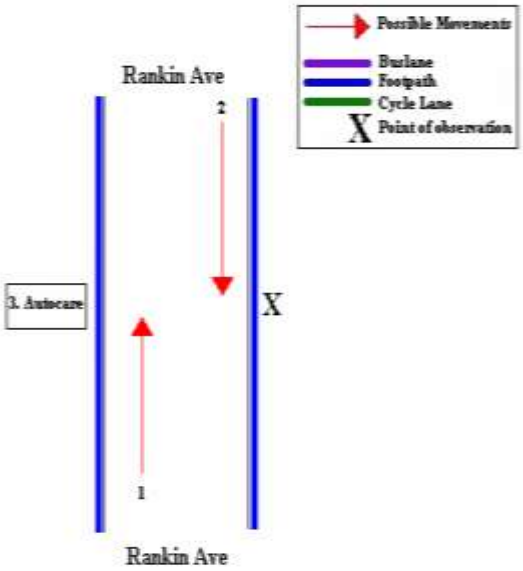


# 10.3 RANKIN AVENUE, NEW LYNN (SITE 56)

Figure 10.1 shows the possible cyclist movements at this site.

***Figure 10.1: Cycle Movements: 3 Rankin Avenue***




## *AADT Estimate*

- The AADT for this site is 46. This compares with:
  - 56 in 2009
  - 55 in 2008
  - 45 in 2007.

| | AM | PM | TOTAL |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **12** | **20** | **32** |

## 10.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- Compared with other sites in Waitakere, the volume of morning cyclists at 3 Rankin Avenue is the lightest, with 12 cycle movements recorded (compared with 21 movements in 2009).
- The most common movement in the morning is straight along Rankin Avenue heading north (Movement 1 = 10 cyclists, down 8 cyclists from last year).

***Table 10.1: Morning Cyclist Movements***

***3 Rankin Avenue 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 12 | 15 | 18 | 10 | -8 |
| 2 | 4 | 2 | 3 | 2 | -1 |
| **Total** | **16** | **17** | **21** | **12** | **-9** |

- Over the morning peak, all of those using this site are adults (up notably from 52 per cent last year).
- Eighty-three per cent of cyclists are wearing a helmet (up notably from 62 per cent last year).
- Two-thirds of cyclists are riding on the road (67 per cent, up notable from 38 per cent last year). The remaining third of cyclists are riding on the footpath (33 per cent, down from 62 per cent in 2009).

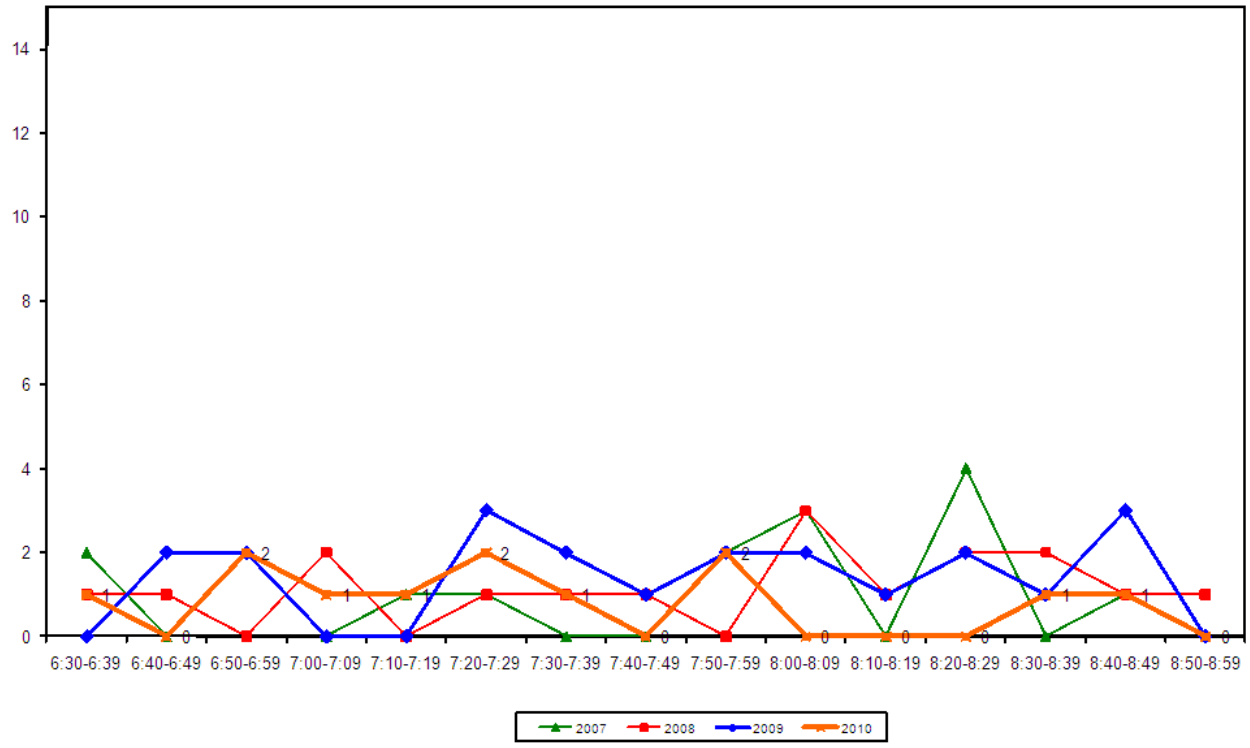
***Table 10.2: Morning Cyclist Characteristics***
***3 Rankin Avenue 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 100 | 88 | 52 | 100 | 48 |
| School child | 0 | 12 | 48 | 0 | -48 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 75 | 76 | 62 | 83 | 21 |
| No helmet | 25 | 24 | 38 | 17 | -21 |
| **Where Riding** | | | | | |
| Road | 69 | 53 | 38 | 67 | 29 |
| Footpath[19] | 31 | 47 | 62 | 33 | -29 |
| ***Base:*** | ***16*** | ***17*** | ***21*** | ***12*** | |

[19] *In 2009, shares of cyclists were erroneously recorded as riding on an off-road cycleway. These cyclists have since been included as footpath riders. .*

- The volume of morning cycle movements is very low over the entire monitoring period, with no more than two cyclist movements occurring in any of the ten minute monitoring intervals. This compares with slight peaks between 7:20am and 7:29am (3 cyclists) and 8:40am and 8:49am (3 cyclists) last year.

***Figure 10.2: 3 Rankin Avenue Cyclist Frequency – Morning Peak***



## 10.2 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 total number of cycle movements recorded in the evening at 3 Rankin Avenue increases slightly, from 17 in 2009 to 20 movements. However, this site continues to have the lowest cyclist volume of the 15 sites monitored in Waitakere city.
- The key evening movement is straight along Rankin Avenue heading south (Movement 2 = 15 cyclists).
- Cycle volumes at both movements are stable from the previous measure.

***Table 10.3: Evening Cyclist Movements***

***3 Rankin Avenue 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 6 | 5 | 3 | 5 | 2 |
| 2 | 9 | 16 | 14 | 15 | 1 |
| **Total** | **15** | **21** | **17** | **20** | **3** |

- The greatest share of cyclists using this site are adults (85 per cent, up notably from 71 per cent last year).
- Sixty per cent of cyclists at this site are wearing a helmet (down notably from 82 per cent in the previous year).
- Three-fifths of all cyclists at this site in the evening are riding on the footpath (60 per cent, up from 47 per cent last year). The remaining 40 per cent are riding on the road (down from 53 per cent last year).

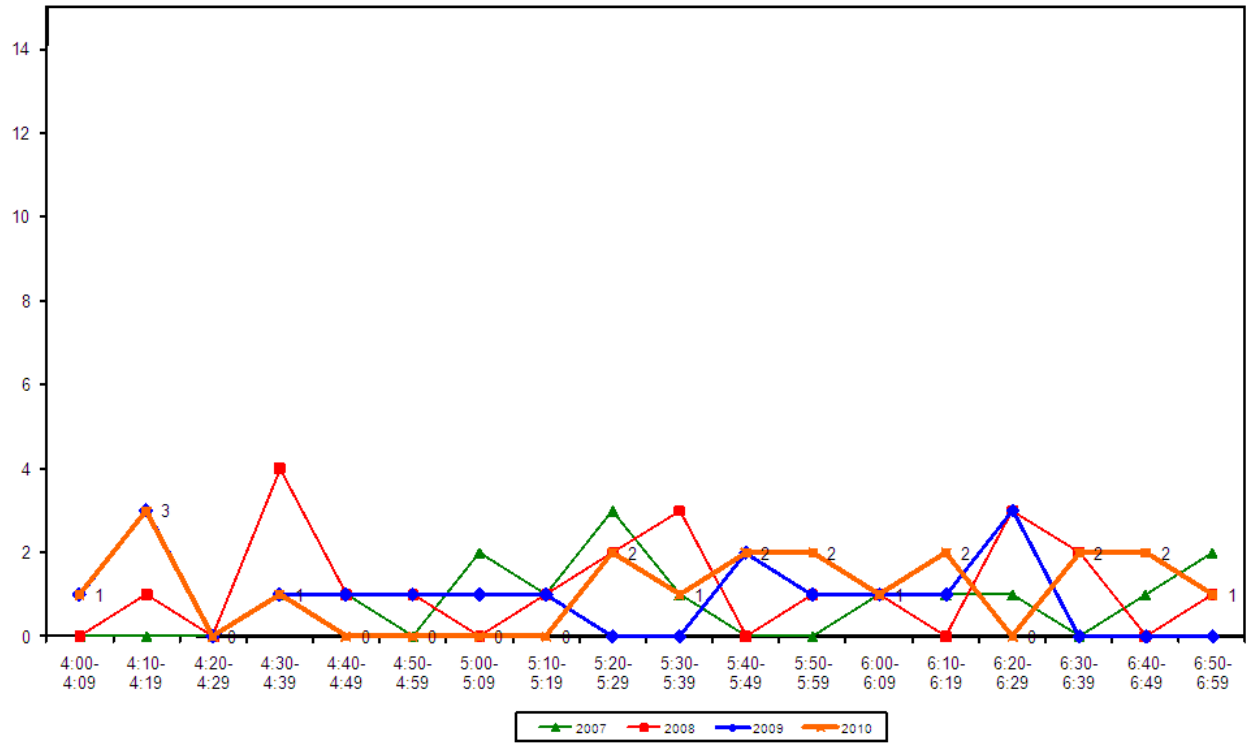
***Table 10.4: Evening Cyclist Characteristics***
***3 Rankin Avenue 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 87 | 81 | 71 | 85 | 14 |
| School child | 13 | 19 | 29 | 15 | -14 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 73 | 62 | 82 | 60 | -22 |
| No helmet | 27 | 38 | 18 | 40 | 22 |
| **Where Riding** | | | | | |
| Road | 33 | 48 | 53 | 40 | -13 |
| Footpath[20] | 67 | 52 | 47 | 60 | 13 |
| ***Base:*** | ***15*** | ***21*** | ***17*** | ***20*** | |

[20] *In 2009, shares of cyclists were erroneously recorded as riding on an off-road cycleway. These cyclists have since been included as footpath riders. .*

- The volume of cycle movements remains low over the entire evening peak, with no more than two cyclists recorded passing over most ten minute intervals. A slight peak occurs between 4:10pm and 4:19pm (3 cyclists). This compares to slight peaks between 4:10pm and 4:19pm (3 movements) and between 6:20pm and 6:29pm (3 movements) last year.

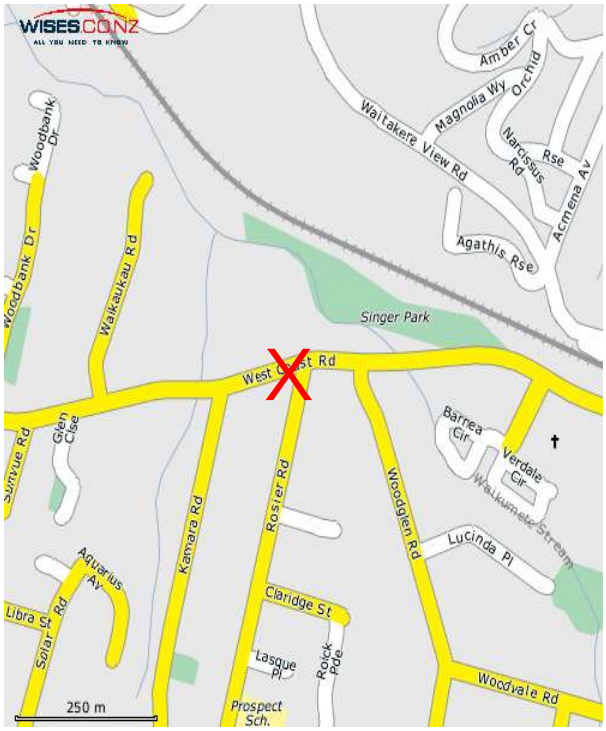
***Figure 10.3: 3 Rankin Avenue Cyclist Frequency – Evening Peak***

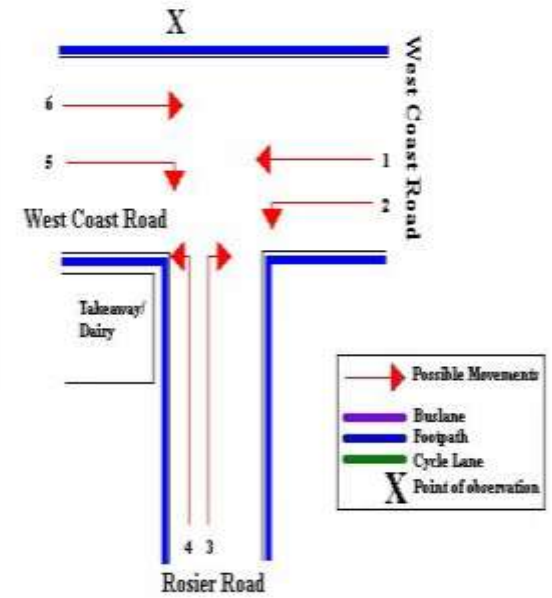


# 11. WEST COAST ROAD/ROSIER ROAD, GLEN EDEN (SITE 57)

Figure 11.1 shows the possible cyclist movements at this intersection.

***Figure 11.1: Cycle Movements: West Coast Road/Rosier Road***




## *AADT Estimate*

- The AADT for this site is 87. This compares with:
  - 90 in 2009
  - 54 in 2008
  - 69 in 2007.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **31** | **29** | **60** |

## 11.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- The volume of morning cyclists at the West Coast Road/Rosier Road intersection has increased slightly this year, up from 28 movements in 2009 to 31 movements in 2010.
- The most common movement in the morning is straight along West Coast heading west (Movement 1 = 19 cyclists).
- Morning cyclist volumes at most movements remain stable since last year, with the most notable increase at Movement 1 (up 6 cyclists).

***Table 11.1: Morning Cyclist Movements***
***West Coast Road/Rosier Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 4 | 7 | 13 | 19 | 6 |
| 2 | 0 | 0 | 0 | 0 | 0 |
| 3 | 4 | 2 | 3 | 1 | -2 |
| 4 | 1 | 1 | 2 | 1 | -1 |
| 5 | 1 | 2 | 1 | 0 | -1 |
| 6 | 9 | 6 | 9 | 10 | 1 |
| **Total** | **19** | **18** | **28** | **31** | **3** |

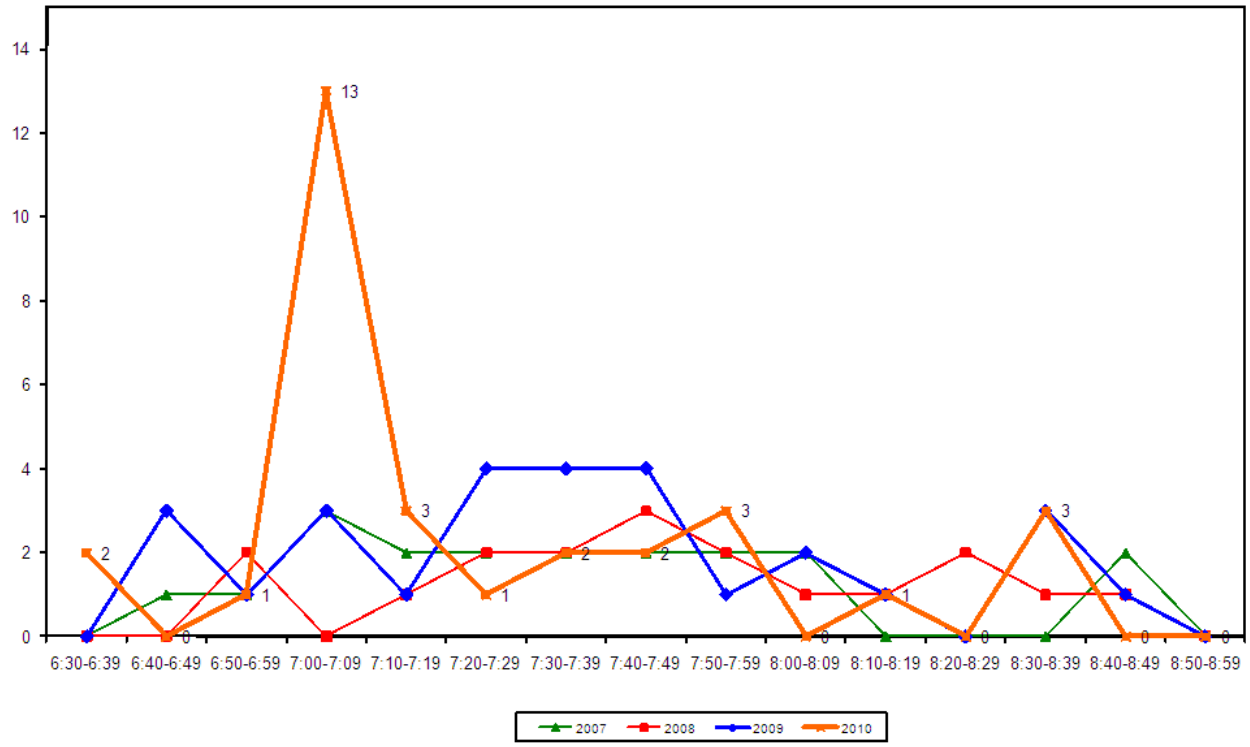
- Over the morning peak, adults comprise most cycle movements (87 per cent, down from 93 per cent in 2009).
- Helmet wearing is widespread (90 per cent, down slightly from 93 per cent last year).
- Approximately seven in ten cyclists are riding on the road (71 per cent, unchanged from last year).

***Table 11.2: Morning Cyclist Characteristics***
***West Coast Road/Rosier Road 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 74 | 72 | 93 | 87 | -6 |
| School child | 26 | 28 | 7 | 13 | 6 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 84 | 78 | 93 | 90 | -3 |
| No helmet | 16 | 22 | 7 | 10 | 3 |
| **Where Riding** | | | | | |
| Road | 74 | 56 | 71 | 71 | 0 |
| Footpath | 26 | 44 | 29 | 29 | 0 |
| ***Base:*** | ***19*** | ***18*** | ***28*** | ***31*** | |

- Morning cycle volumes are very low over the entire monitoring period, with no more than three cyclists recorded passing during most ten minute intervals. However, a notable sharp peak occurs between 7:00am and 7:09am (13 movements). This compares with a later peak between 7:20am and 7:49am (4 movements) recorded over each ten minute interval in 2009.

***Figure 11.2: West Coast Road/Rosier Road Cyclist Frequency – Morning Peak***




*Note: In 2010, 11 cyclists were observed riding as a group at 7.01am. This comprises 35 per cent of the total cycle movements in the morning peak in 2010.*

## 11.2 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*

- Compared with the previous year, the total number of cycle movements recorded at the West Coast Road/Rosier Road intersection in the evening is down, from 34 in 2009 to 29 movements in 2010.
- The key movements in the evening are straight along West Coast Road heading east (Movement 6 = 14 cyclists) and straight along West Coast Road heading west (Movement 1 = 8 cyclists).
- Of the six movements possible at this site, the most notable change in terms of evening cyclist numbers is at Movement 1 (down 5 cyclists).

***Table 11.3: Evening Cyclist Movements***
***West Coast Road/Rosier Road 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 8 | 3 | 13 | 8 | -5 |
| 2 | 3 | 2 | 2 | 3 | 1 |
| 3 | 1 | 3 | 1 | 0 | -1 |
| 4 | 5 | 2 | 1 | 3 | 2 |
| 5 | 4 | 1 | 1 | 1 | 0 |
| 6 | 8 | 8 | 16 | 14 | -2 |
| **Total** | **29** | **19** | **34** | **29** | **-5** |

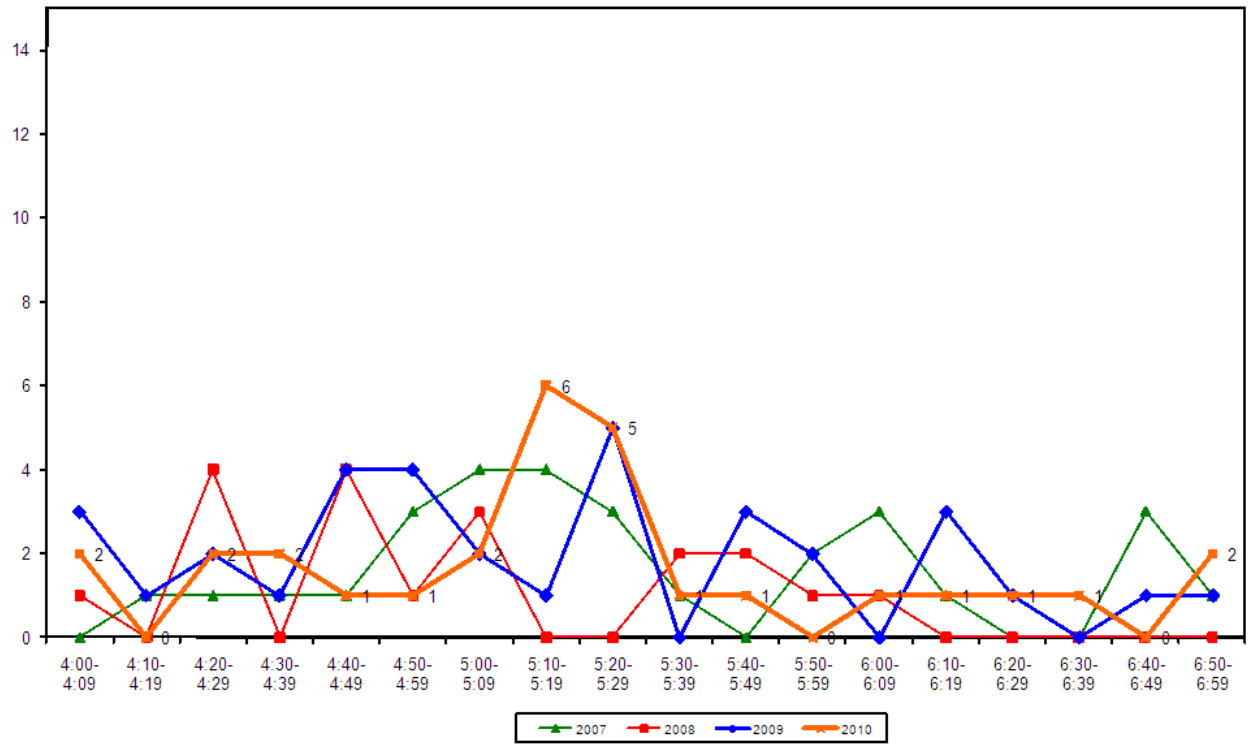
- Most evening cyclists using the West Coast Road/Rosier Road intersection are adults (76 per cent, down from 88 per cent in 2009).
- Seventy-two per cent of cyclists at this site are wearing a helmet (down from 79 per cent last year).
- A higher proportion of cyclists are riding on the road this year (59 per cent, up from 47 per cent in the previous year).

***Table 11.4: Evening Cyclist Characteristics***
***West Coast Road/Rosier Road 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 66 | 74 | 88 | 76 | -12 |
| School child | 34 | 26 | 12 | 24 | 12 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 59 | 74 | 79 | 72 | -7 |
| No helmet | 41 | 26 | 21 | 28 | 7 |
| **Where Riding** | | | | | |
| Road | 34 | 58 | 47 | 59 | 12 |
| Footpath | 66 | 42 | 53 | 41 | -12 |
| ***Base:*** | ***29*** | ***19*** | ***34*** | ***29*** | |

- Evening cyclist volumes are low throughout the monitoring period aside from a peak between 5:10pm and 5:29pm (6 and 5 movements per ten minute interval respectively). This compares with a slight peak between 5:20pm and 5:29pm in 2009.

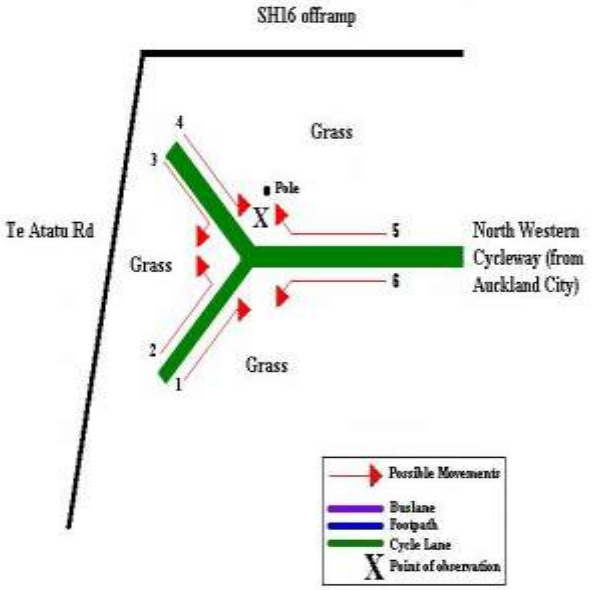
***Figure 11.3: West Coast Road/Rosier Road Cyclist Frequency – Evening Peak***



# 12. NORTH WESTERN CYCLEWAY (NEAR TE ATATU RD OFF-RAMP), TE ATATU (SITE 58)

Figure 12.1 shows the possible cyclist movements at this intersection.

***Figure 12.1: Cycle Movements: North Western Cycleway***


## *AADT Estimate*

- The AADT for this site is 562. This compares with:
  - 513 in 2009
  - 393 in 2008
  - 335 in 2007.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **179** | **209** | **388** |

## 12.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- As in previous years, of the 15 sites monitored in Waitakere, the North Western Cycleway continues to be the busiest in terms of morning cycle movements (179 movements, up from 157 movements last year).
- Key morning movements are Movement 4 (118 cyclists), Movement 5 (31 cyclists) and Movement 1 (22 cyclists).
- The most notable increase is at Movement 4 (up 33 cyclists).

***Table 12.1: Morning Cyclist Movements***
***North Western Cycleway 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 16 | 22 | 30 | 22 | -8 |
| 2 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 |
| 4 | 58 | 74 | 85 | 118 | 33 |
| 5 | 25 | 23 | 27 | 31 | 4 |
| 6 | 3 | 2 | 15 | 8 | -7 |
| **Total** | **102** | **121** | **157** | **179** | **22** |

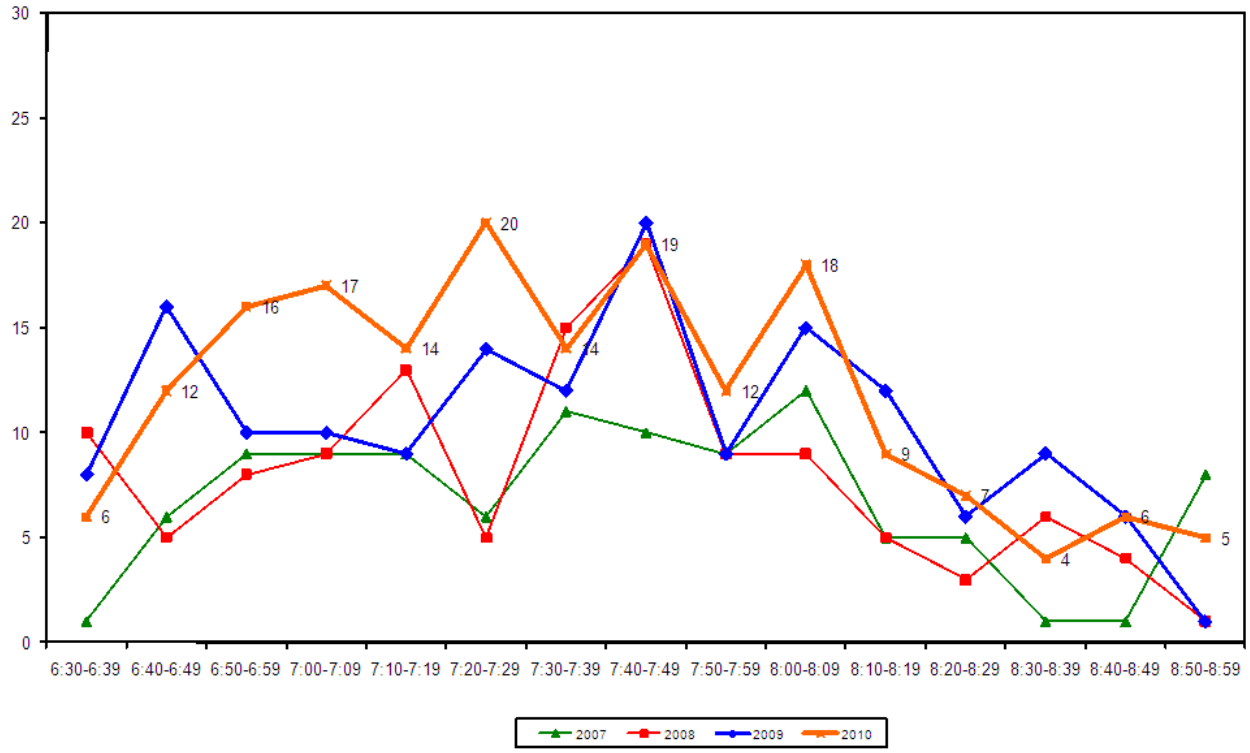
- Over the morning peak, all cyclists are adults (100 per cent, compared to 99 per cent last year).
- Most cyclists are wearing a helmet (97 per cent, stable from 96 per cent in 2009).

***Table 12.2: Morning Cyclist Characteristics***
***North Western Cycleway 2007-2010 (%)***

| | *2007* | *2008* | *2009* | | Change 09-10 |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 95 | 99 | 99 | 100 | 1 |
| School child | 5 | 1 | 1 | 0 | -1 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 97 | 95 | 96 | 97 | 1 |
| No helmet | 3 | 5 | 4 | 3 | -1 |
| **Where Riding** | | | | | |
| Cycleway | 100 | 100 | 100 | 100 | 0 |
| ***Base:*** | ***102*** | ***121*** | ***157*** | ***179*** | |

- Morning cycle volumes peak slightly three times over the monitoring period: between 7:20am and 7:29am (20 movements), 7:40am and 7:49am (19 movements) and 8:00am and 8:09am (18 movements). Cycle volumes then drop off through to the end of the monitoring period. This compares to a single peak between 7:40am and 7:49am (19 movements) in 2009.

***Figure 12.2: North Western Cycleway Cyclist Frequency – Morning Peak***




*Note: In 2010, 11 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Three cyclists at 7.29am*
- *Ten cyclists at 7.40am*
- *Four cyclists at 8.05am*
- *Three cyclists at 8.45am.*

## 12.2 Evening Peak

### *Environmental Conditions*

- Scattered cloud was present at the start of the evening shift which had cleared into fine weather by the end of the shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- This year, the total number of evening cycle movements recorded at the North Western Cycleway continues to be the highest of the 15 sites monitored in Waitakere city, with 209 movements evident in the evening (compared with 198 movements in 2009).
- Consistent with the morning shift, the most common movements in the evening are Movement 5 (118 cyclists), Movement 4 (48 cyclists) and Movement 6 (36 cyclists).
- Of the six movements possible at this intersection, the most notable change is at Movement 4 (up 16 cyclists).

***Table 12.3: Evening Cyclist Movements***
***North Western Cycleway 2007-2010 (n)***

| *Movement* | *2007* | *2008* | *2009* | *2010* | Change 09-10 |
|---|---|---|---|---|---|
| 1 | 15 | 3 | 11 | 7 | -4 |
| 2 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 |
| 4 | 27 | 36 | 32 | 48 | 16 |
| 5 | 58 | 75 | 113 | 118 | 5 |
| 6 | 30 | 37 | 42 | 36 | -6 |
| **Total** | **130** | **151** | **198** | **209** | **11** |

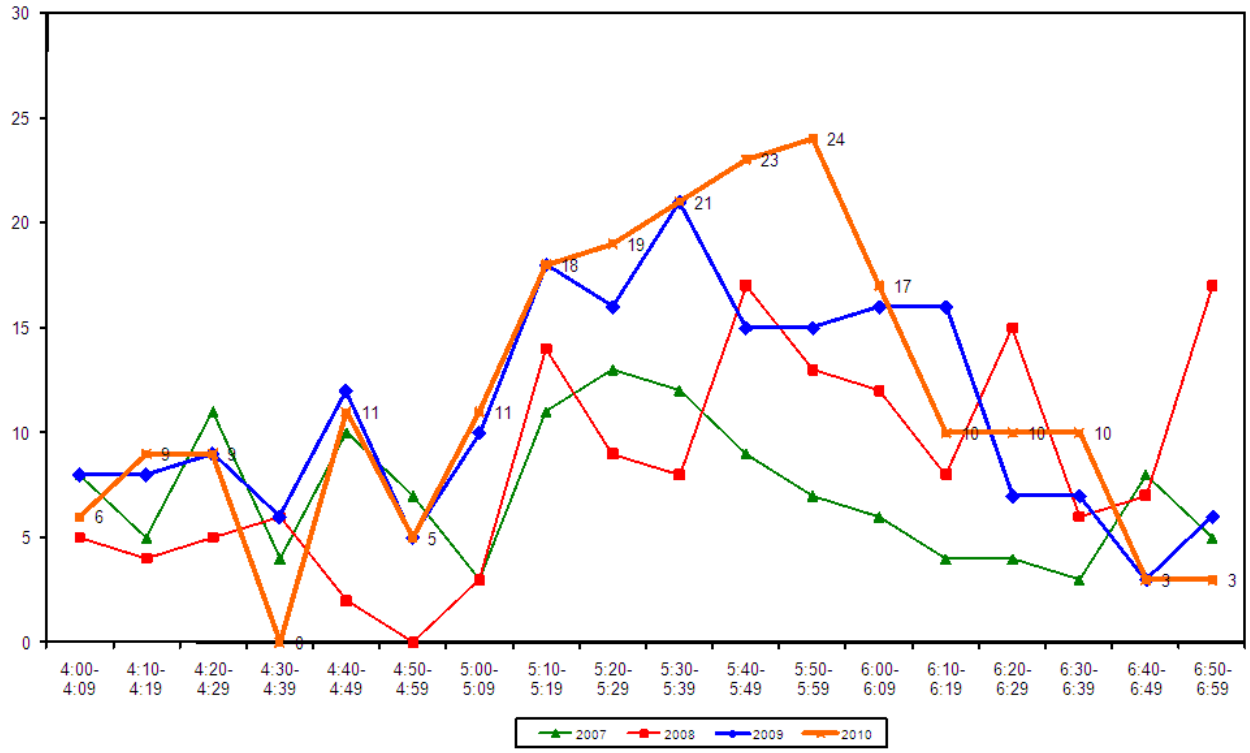
- Over the evening peak, almost all cyclists using this cycleway are adults (99 per cent, stable from last year).
- Most cyclists at this site are wearing a helmet (96 per cent, stable from the previous three measures).

***Table 12.4: Evening Cyclist Characteristics***
***North Western Cycleway 2007-2010 (%)***

| | *2007* | *2008* | *2009* | *2010* | **Change 09-10** |
|---|---|---|---|---|---|
| **Cyclist Type** | | | | | |
| Adult | 91 | 100 | 99 | 99 | 0 |
| School child | 9 | 0 | 1 | 1 | 0 |
| **Helmet Wearing** | | | | | |
| Helmet on head | 95 | 95 | 95 | 96 | 1 |
| No helmet | 5 | 5 | 5 | 4 | -1 |
| **Where Riding** | | | | | |
| Cycleway | 100 | 100 | 100 | 100 | 0 |
| ***Base:*** | ***130*** | ***151*** | **198** | **209** | |

- Evening cycle volumes increase steadily to peak between 5:50pm and 5:59pm (24 movements) and then trail off to the end of the monitoring period. This compares to last year, where peaks occurred at around 5:10pm and 5:30pm.

***Figure 12.3: North Western Cycleway Cyclist Frequency – Evening Peak***

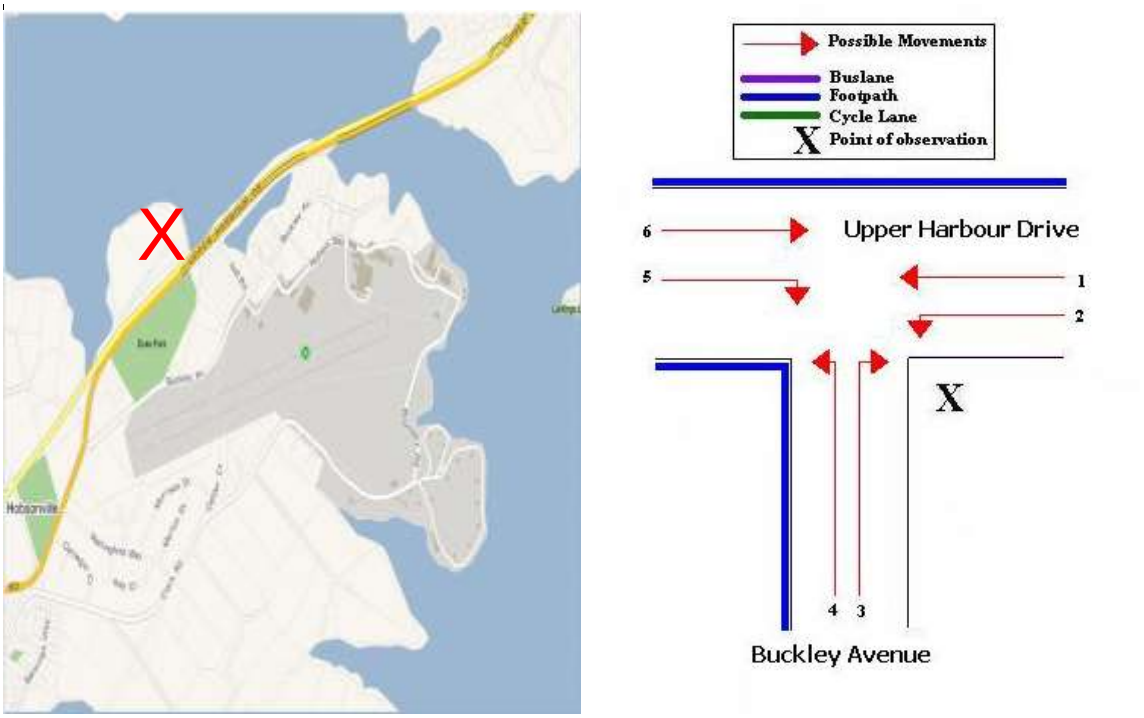



*Note: In 2010, three cyclists were observed riding as a group at 5.37pm. This comprises one per cent of the total cycle movements in the evening peak in 2010.*

# 13. UPPER HARBOUR DRIVE/BUCKLEY AVENUE, GREENHITHE (SITE 70)

Figure 13.1 shows the possible cyclist movements at this intersection.

***Figure 13.1: Cycle Movements: Upper Harbour Drive/Buckley Avenue***




*Note: The original Upper Harbour Bridge observation site was relocated to Upper Harbour Drive/Buckley Avenue in 2010, due to road construction. Consequently no historical movement results are available to compare with this year's results. However, given the close proximity of the two observation sites, total movement numbers over time can be compared (movements into and out of Buckley Avenue which would not have been captured in previous years have been removed from this comparative analysis).*

## *AADT Estimate*

- The AADT for this site is 135. This compares with
  - 97 in 2009
  - 51 in 2008.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **37** | **57** | **94** |

## 13.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- Compared with other sites in Waitakere, morning peak cycle volumes at the Upper Harbour Drive/Buckley Avenue site are low, with 37 cycle movements recorded. The total number of movements at this site – excluding turning into and out of Buckley Avenue south west of the previous observation point - have increased from 23 in 2009 to 35 this year.
- The key morning movement is heading southwest along the Upper Harbour Drive cycleway (Movement 1 = 25 cyclists).

***Table 13.1: Morning Cyclist Movements***
***Upper Harbour Drive/Buckley Avenue 2010 (n)***

| *Movement* | *2008* | *2009* | *2010* | *Change 09-10* |
|---|---|---|---|---|
| 1 | - | - | 25 | - |
| 2 | - | - | 1 | - |
| 3 | - | - | 0 | - |
| 4 | - | - | 0 | - |
| 5 | - | - | 2 | - |
| 6 | - | - | 9 | - |
| **Total** | - | - | **37** | - |
| **Excluding turning into/out of Buckley Avenue southwest of previous observation point** | **17** | **23** | **35** | **12** |

- Approximately two-thirds of the cyclists recorded at this site were adults (65 per cent).
- Most cyclists are wearing a helmet (97 per cent).
- Most cyclists are riding on the off-road cycleway (81 per cent). The remaining 19 per cent are riding on the road.

***Table 13.2: Morning Cyclist Characteristics***

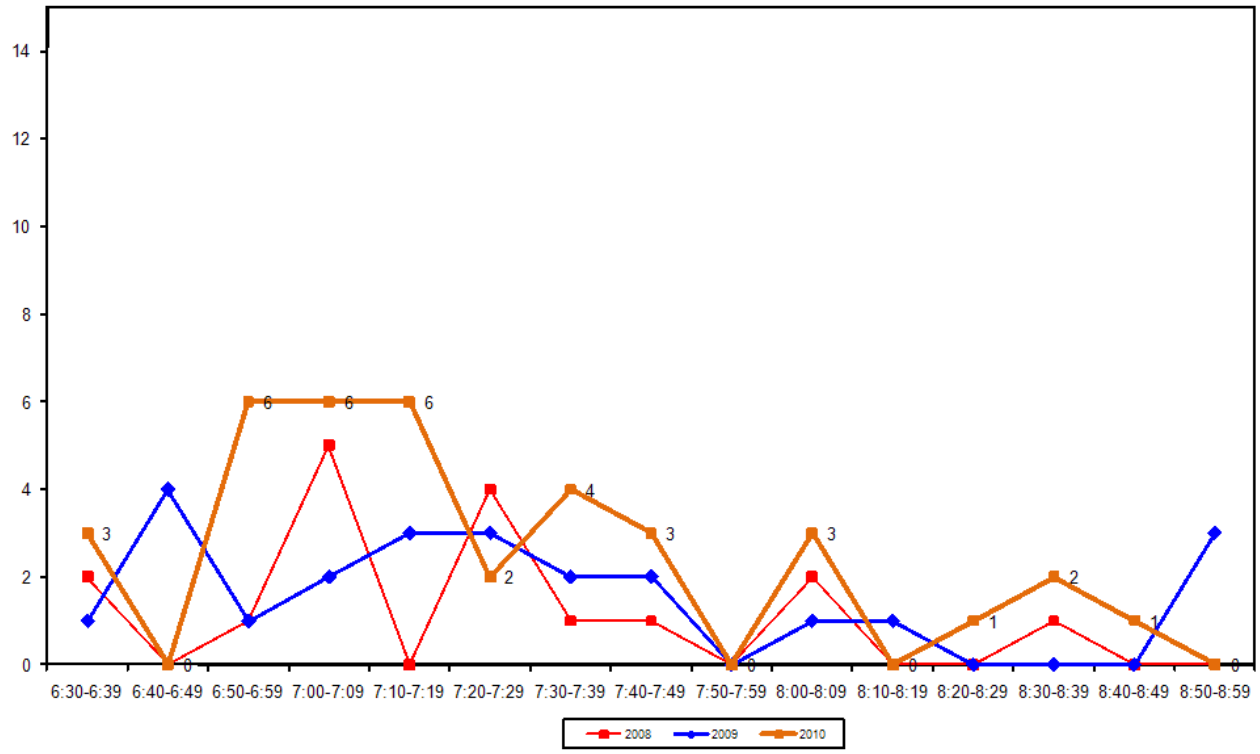
***Upper Harbour Drive/Buckley Avenue 2008-2010 (%)***

| | *2008* | *2009* | *2010* | *Change 09-10* |
|---|---|---|---|---|
| **Cyclist Type** | | | | |
| Adult | 100 | 100 | 65 | -35 |
| School child | 0 | 0 | 35 | 35 |
| **Helmet Wearing** | | | | |
| Helmet on head | 100 | 100 | 97 | -3 |
| No helmet | 0 | 0 | 3 | 3 |
| **Where Riding** | | | | |
| Road | 100 | 0 | 19 | 19 |
| Footpath | 0 | 0 | 0 | 0 |
| Off-road cycleway[21] | - | 100 | 81 | -19 |
| ***Base:*** | ***17*** | ***23*** | ***37*** | |

[21] *In 2009, surveyors were asked to distinguish between cyclist riding on the road and cyclists riding on off-road cycleway. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

- Morning cycle volumes peak fairly early in the monitoring period – between 6:50am and 7:19am (6 cyclists per ten minute interval) before trailing off to the end of the monitoring period.

***Figure 13.2: Upper Harbour Drive/Buckley Avenue Cyclist Frequency – Morning Peak***




*Note: In 2010, three cyclists were observed riding as a group at 6.53am. This comprises eight per cent of the total cycle movements in the morning peak in 2010.*

## 13.2 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 evening cycle movements recorded at the Upper Harbour Drive/Buckley Avenue site was 57. Excluding movements into and out of Buckley Avenue southwest of the previous observation point, the number of cycle movements has increased from 45 in 2009 to 55 in 2010.
- The most common movement in the evening is heading northeast along Upper Harbour Drive (Movement 6 = 33 movements).

***Table 13.3: Evening Cyclist Movements***
***Upper Harbour Drive/Buckley Avenue-2010 (n)***

| *Movement* | *2008* | *2009* | *2010* | *Change 09-10* |
|---|---|---|---|---|
| 1 | - | - | 21 | - |
| 2 | - | - | 0 | - |
| 3 | - | - | 1 | - |
| 4 | - | - | 2 | - |
| 5 | - | - | 0 | - |
| 6 | - | - | 33 | - |
| **Total** | - | - | **57** | - |
| **Excluding turning into/out of Buckley Avenue southwest of previous observation point** | **18** | **45** | **55** | **10** |

- Over the evening peak, all cyclists using this site are adults (100 per cent).
- All evening cyclists at this site are wearing a helmet (100 per cent).
- Just over two-thirds of cyclists are riding on the off-road cycleway (68 per cent), The remaining 32 per cent are riding on the road.

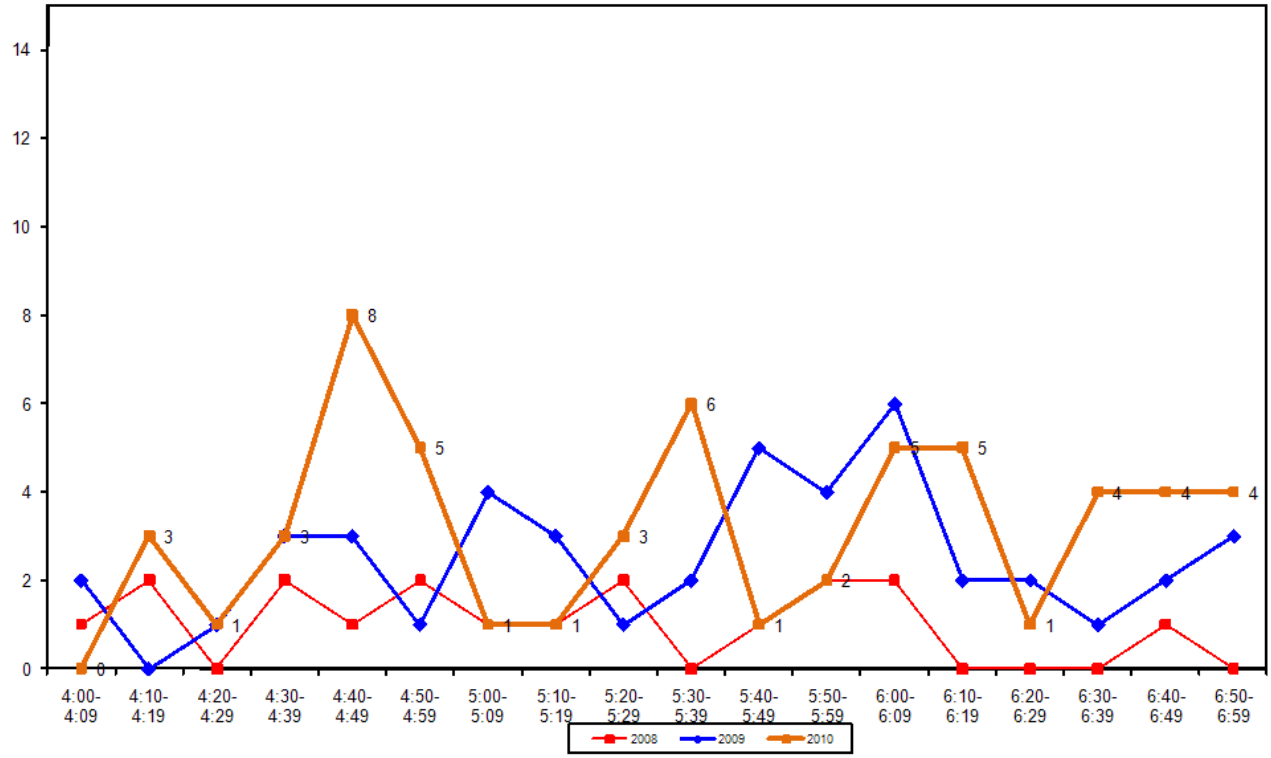
***Table 13.4: Evening Cyclist Characteristics***
***Upper Harbour Drive/Buckley Avenue 2008-2010 (%)***

| | ***2008*** | ***2009*** | ***2010*** | ***Change 09-10*** |
|---|---|---|---|---|
| **Cyclist Type** | | | | |
| Adult | 100 | 100 | 100 | 0 |
| School child | 0 | 0 | 0 | 0 |
| **Helmet Wearing** | | | | |
| Helmet on head | 89 | 100 | 100 | 0 |
| No helmet | 11 | 0 | 0 | 0 |
| **Where Riding** | | | | |
| Road | 100 | 2 | 32 | 30 |
| Footpath | 0 | 0 | 0 | 0 |
| Off-road cycleway[22] | - | 98 | 68 | -30 |
| ***Base:*** | ***18*** | ***45*** | ***57*** | |

[22] *In 2009, surveyors were asked to distinguish between cyclist riding on the road and cyclists riding on off-road cycleway. In previous years, all cyclists riding on both off-road cycleway and road were classified as road riders. Thus, no comparable results are provided with previous years.*

- Evening cycle volumes were very variable throughout the monitoring period, with a slight peak occurring between 4:40pm and 4:49pm (8 cyclists).

***Figure 13.3: Upper Harbour Drive/Buckley Avenue Cyclist Frequency – Evening Peak***



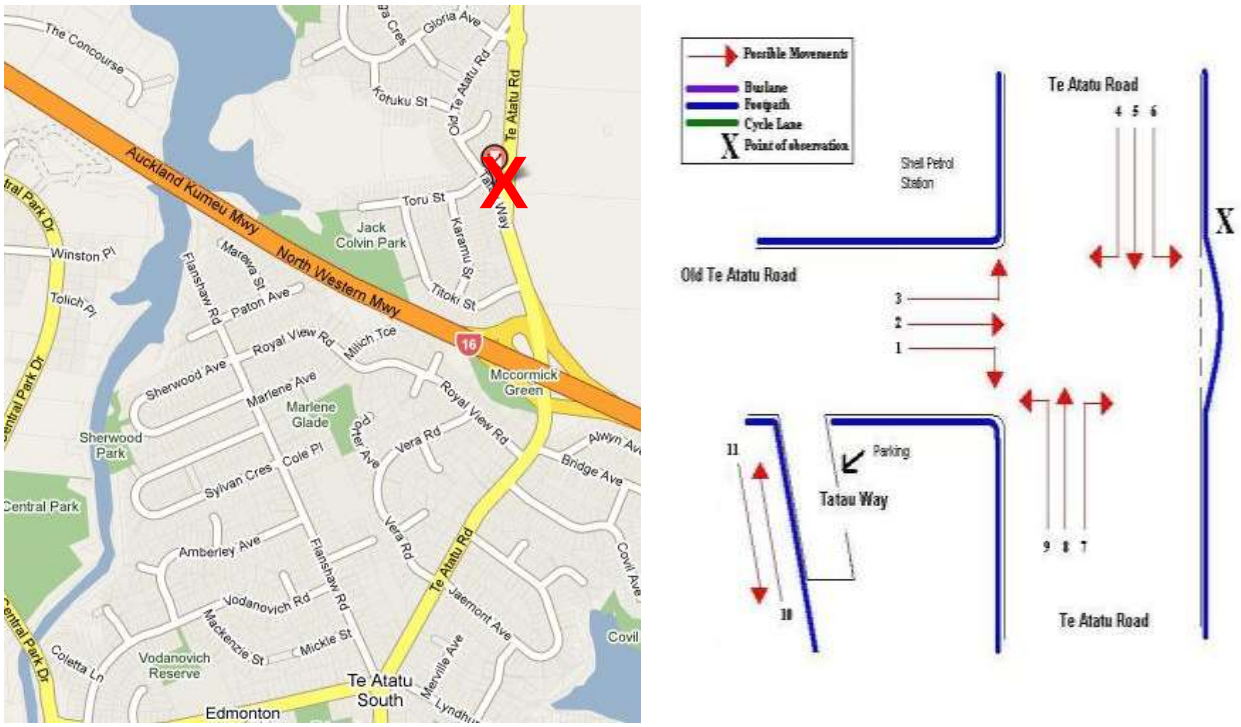

*Note: In 2010, 16 per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Three cyclists at 4.45pm*
- *Three cyclists at 6.01pm*
- *Three cyclists at 6.50pm*

# 14. TE ATATU/OLD TE ATATU ROAD/TATAU WAY, TE ATATU (SITE 72)

Figure 14.1 shows the possible cyclist movements at this intersection.

***Figure 14.1: Cycle Movements: Te Atatu/Old Te Atatu Road/Tatau Way***




*Note: Movements 10 and 11 indicate the footpath on Tatau Way.*

## *AADT Estimate*

- The AADT for this site is 301. This compares with
  - 195 in 2009.
  - 161 in 2008.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **105** | **102** | **207** |

## 14.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- This year, morning cycle volumes at the Te Atatu/Old Te Atatu Road/Tatau Way site have increased, from 66 movements in 2009 to 105 movements in 2010.
- The key morning movements are south down Te Atatu Road (Movement 5 = 48 cyclists), and straight along Tatau Way heading northwest (Movement 10 = 22 cyclists) and heading north on Te Atatu Road (Movement 8 = 22 cyclists).
- Of the 11 possible movements at this site, the most notable increase is at Movement 5 (up 21 cyclists).

***Table 14.1: Morning Cyclist Movements***
***Te Atatu/Old Te Atatu Road/Tatau Way 2008-2010 (n)***

| *Movement* | *2008* | *2009* | *2010* | *Change 09-10* |
|---|---|---|---|---|
| 1 | 5 | 1 | 2 | 1 |
| 2 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 0 | 2 | 2 |
| 5 | 17 | 27 | 48 | 21 |
| 6 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 0 |
| 8 | 6 | 3 | 22 | 19 |
| 9 | 0 | 2 | 5 | 3 |
| 10 | 15 | 18 | 22 | 4 |
| 11 | 13 | 15 | 3 | -12 |
| **Total** | **56** | **66** | **105** | **39** |

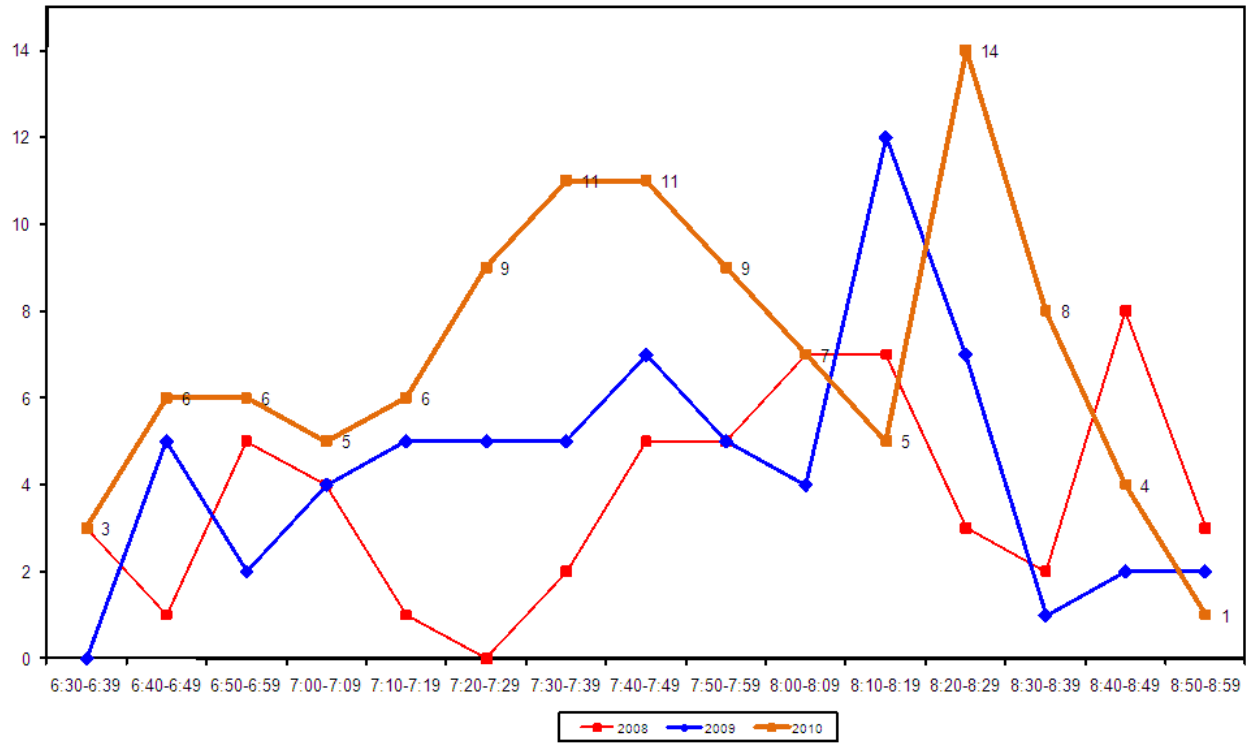
- Over the morning peak, most cyclists at this site are adults (69 per cent, stable from 71 per cent last year).
- Almost all cyclists are wearing a helmet (95 per cent, compared with 91 per cent in 2009).
- Almost all cyclists are riding on the road (90 per cent, up notably from 58 per cent last year).

***Table 14.2: Morning Cyclist Characteristics***
***Te Atatu/Old Te Atatu Road/Tatau Way 2008-2010 (%)***

| | ***2008*** | ***2009*** | ***2010*** | ***Change 09-10*** |
|---|---|---|---|---|
| **Cyclist Type** | | | | |
| Adult | 59 | 71 | 69 | -2 |
| School child | 41 | 29 | 31 | 2 |
| **Helmet Wearing** | | | | |
| Helmet on head | 95 | 91 | 95 | 4 |
| No helmet | 5 | 9 | 5 | -4 |
| **Where Riding** | | | | |
| Road | 75 | 58 | 90 | 32 |
| Footpath | 25 | 42 | 10 | -32 |
| ***Base:*** | ***56*** | ***66*** | ***105*** | |

- Morning cycle volumes increase gradually before peaking sharply between 7:30am and 7:49am (11 cyclists at each ten minute interval) and then peaked again between 8:20am and 8:29am (14 cyclists).

***Figure 14.2: Te Atatu/Old Te Atatu Road/Tatau Way Cyclist Frequency – Morning Peak***




*Note: In 2010, 10 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Four cyclists at 7.46am*
- *Four cyclists at 8.27am*
- *Three cyclists at 8.48am.*

## 14.2 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 evening cycle movements recorded at the Te Atatu/Old Te Atatu Road/Tatau Way site continues to be relatively high with 102 movements evident in the evening (up from 68 movements last year).
- The most common movements in the evening are along Te Atatu Road in both directions (Movement 8 = 55 cyclists; Movement 5 =26 cyclists).
- The most notable change from 2009 is at Movement 8 (up 28 cyclists).

***Table 14.3: Evening Cyclist Movements***
***Te Atatu/Old Te Atatu Road/Tatau Way 2008-2010 (n)***

| *Movement* | *2008* | *2009* | *2010* | *Change 09-10* |
|---|---|---|---|---|
| 1 | 3 | 4 | 3 | -1 |
| 2 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 0 | 1 | 1 |
| 5 | 7 | 7 | 26 | 19 |
| 6 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 0 |
| 8 | 17 | 27 | 55 | 28 |
| 9 | 2 | 5 | 2 | -3 |
| 10 | 20 | 19 | 6 | -13 |
| 11 | 6 | 6 | 8 | 2 |
| **Total** | **55** | **68** | **102** | **34** |

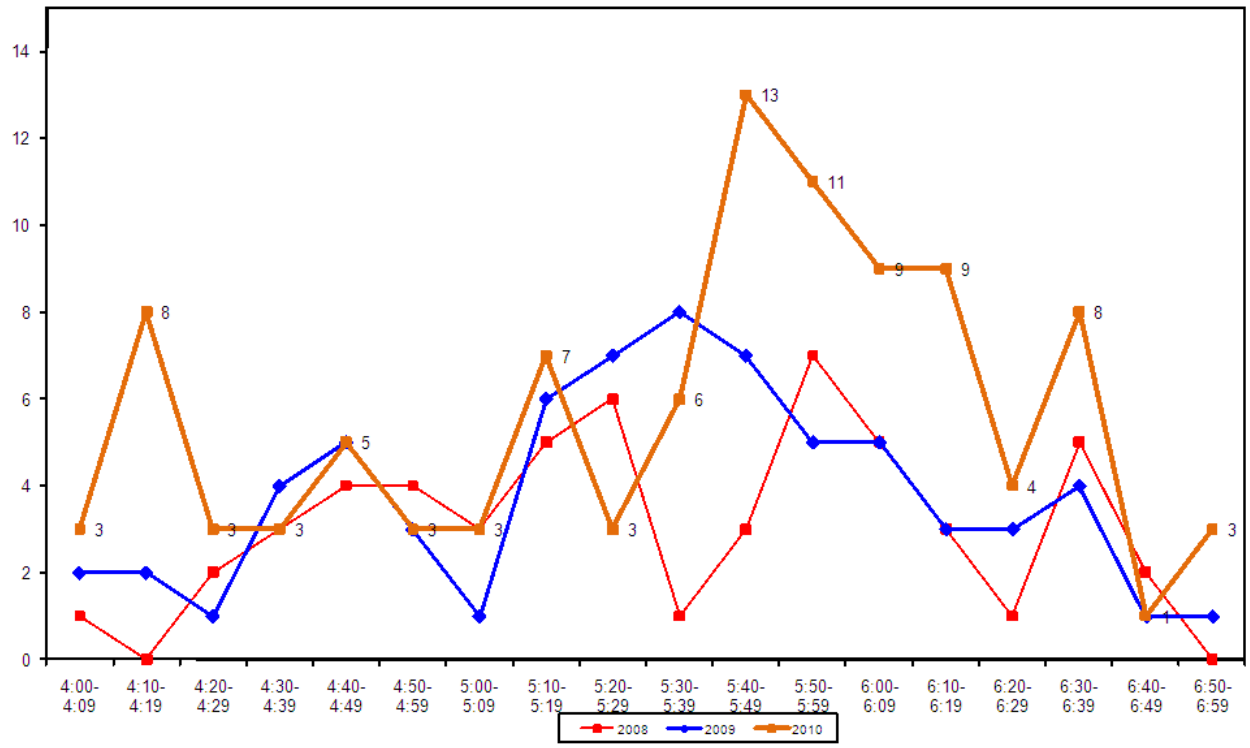
- Over the evening peak, the greatest share of cyclists using this site are adults (85 per cent, down slightly from 90 per cent last year).
- Most cyclists at this site are wearing a helmet (84 per cent, unchanged from last year).
- Three in four cyclists at this site are riding on the road (75 per cent, up notably from 49 per cent last year.

***Table 14.4: Evening Cyclist Characteristics***
***Te Atatu/Old Te Atatu Road/Tatau Way 2008-2010 (%)***

| | ***2008*** | ***2009*** | ***2010*** | ***Change 09-10*** |
|---|---|---|---|---|
| **Cyclist Type** | | | | |
| Adult | 91 | 90 | 85 | -5 |
| School child | 9 | 10 | 15 | 5 |
| **Helmet Wearing** | | | | |
| Helmet on head | 87 | 84 | 84 | 0 |
| No helmet | 13 | 16 | 16 | 0 |
| **Where Riding** | | | | |
| Road | 82 | 49 | 75 | 26 |
| Footpath | 18 | 51 | 25 | -26 |
| ***Base:*** | ***55*** | ***68*** | ***102*** | |

- Evening cycle volumes increase steadily to peak between 5:40pm and 5:49pm (13 cyclists), ten minutes later than the peak reported last year.

***Figure 14.3: Te Atatu/Old Te Atatu Road/Tatau Way Cyclist Frequency – Evening Peak***

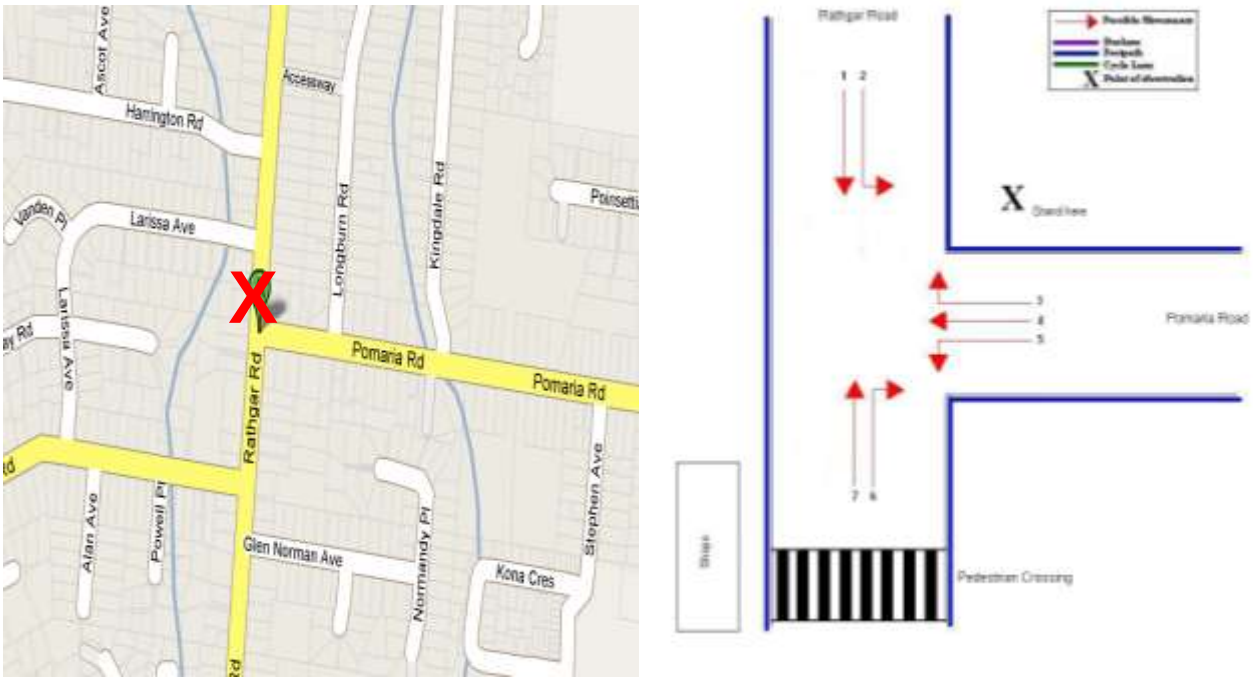



*Note: In 2010, three cyclists were observed riding as a group at 5.59pm. This comprises three per cent of the total cycle movements in the evening peak in 2010.*

# 15. RATHGAR/POMARIA ROAD, HENDERSON (SITE 85)

Figure 15.1 shows the possible cyclist movements at this intersection.

***Figure 15.1: Cycle Movements: Rathgar/Pomaria Road***




*Note: This site was monitored for the first time in 2009. Consequently only 2009 results are available to compare with this year's observations.*

## *AADT Estimate*

- The AADT for this site is 144. This compares with 122 in 2009.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **53** | **46** | **99** |

## 15.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- Morning cycle volumes at the Rathgar/Pomaria Road site have increased notably to 53 cyclists (up from 32 cycle movements in 2009).
- The key morning movements are the right turn from Rathgar Road into Pomaria Road (Movement 6 = 20 cyclists) and the left turn from Pomaria Road into Rathgar Road (Movement 5 = 15 cyclists).

***Table 15.1: Morning Cyclist Movements***

***Rathgar/Pomaria Road 2009 - 2010 (n)***

| *Movement* | 2009 | 2010 | Change 09-10 |
|---|---|---|---|
| 1 | 4 | 10 | 6 |
| 2 | 3 | 3 | 0 |
| 3 | 2 | 3 | 1 |
| 4 | 0 | 0 | 0 |
| 5 | 10 | 15 | 5 |
| 6 | 12 | 20 | 8 |
| 7 | 1 | 2 | 1 |
| **Total** | **32** | **53** | **21** |

- Over the morning peak, three-quarters of cyclists are adults (75 per cent, up notably from 53 per cent in 2009).
- Most cyclists are wearing a helmet (85 per cent, up from 69 per cent last year).
- Three in five cyclists are riding on the road (60 per cent, up from 50 per cent in 2009).

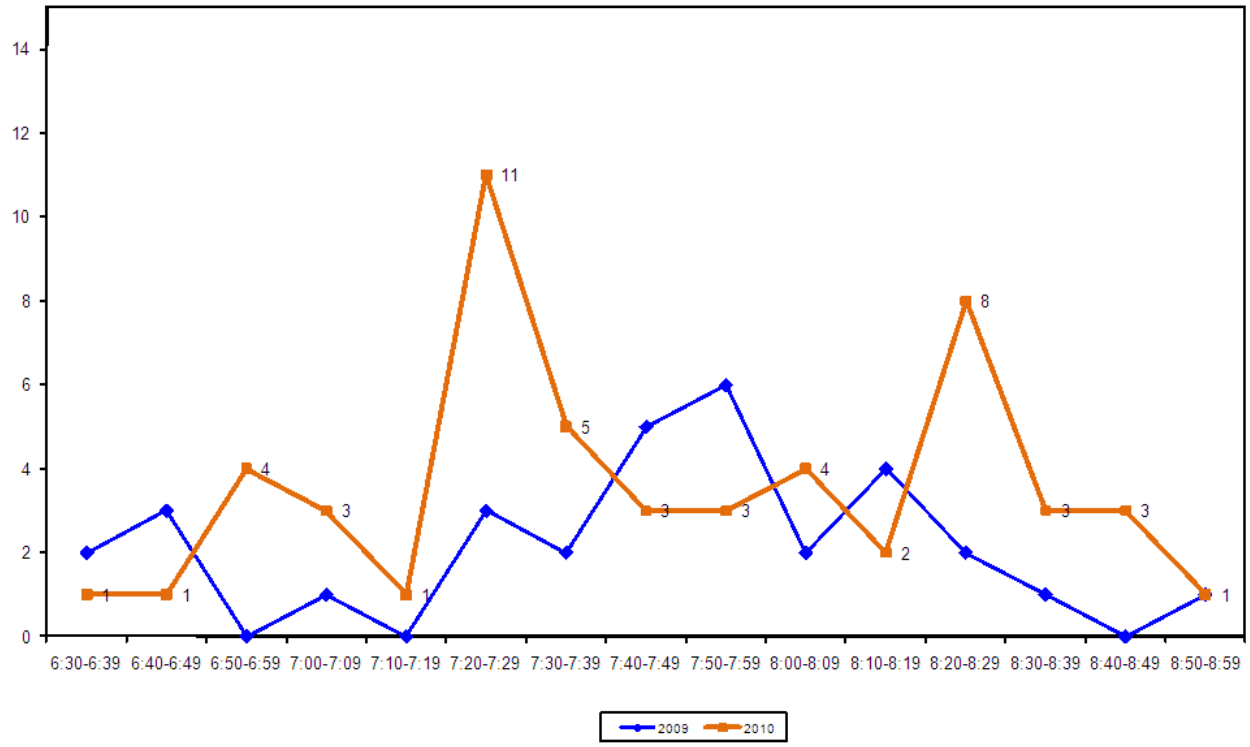
***Table 15.2: Morning Cyclist Characteristics***

***Rathgar/Pomaria Road 2009 – 2010 (%)***

| | 2009 | 2010 | Change 09-10 |
|---|---|---|---|
| **Cyclist Type** | | | |
| Adult | 53 | 75 | 22 |
| School child | 47 | 25 | -22 |
| **Helmet Wearing** | | | |
| Helmet on head | 69 | 85 | 16 |
| No helmet | 31 | 15 | -16 |
| **Where Riding** | | | |
| Road | 50 | 60 | 10 |
| Footpath | 50 | 40 | -10 |
| ***Base:*** | ***32*** | ***53*** | |

- Morning cycle volumes peak between 7:20am and 7:29am (11 movements) and again between 8:20am and 8:29am (8 movements). This compares to a peak between 7:40am and 7:59am in 2009.

***Figure 15.2: Rathgar/Pomaria Road Cyclist Frequency – Morning Peak***




*Note: In 2010, 28 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Eleven cyclists at 7.25am*
- *Four cyclists at 8.20am.*

## 15.2 Evening Peak

### *Environmental Conditions*

- Dark clouds were present at the start of the evening shift, which cleared up to fine weather.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The total number of cycle movements recorded at the Rathgar/Pomaria Road site in the evening is moderate, with 46 movements recorded (down from 53 per cent in 2009).
- The most common movements in the evening are turning right from Rathgar Road into Pomaria Road (Movement 6 = 13 cyclists) and straight along Rathgar Road heading south (Movement 1 = 10 cyclists).
- The most notable change is at Movement 5, down 11 cyclists from 2009.

***Table 15.3: Evening Cyclist Movements***
***Rathgar/Pomaria Road 2009 – 2010 (n)***

| *Movement* | 2009 | 2010 | Change 09-10 |
|---|---|---|---|
| 1 | 14 | 10 | -4 |
| 2 | 1 | 6 | 5 |
| 3 | 3 | 5 | 2 |
| 4 | 0 | 0 | 0 |
| 5 | 16 | 5 | -11 |
| 6 | 9 | 13 | 4 |
| 7 | 10 | 7 | -3 |
| **Total** | **53** | **46** | **-7** |

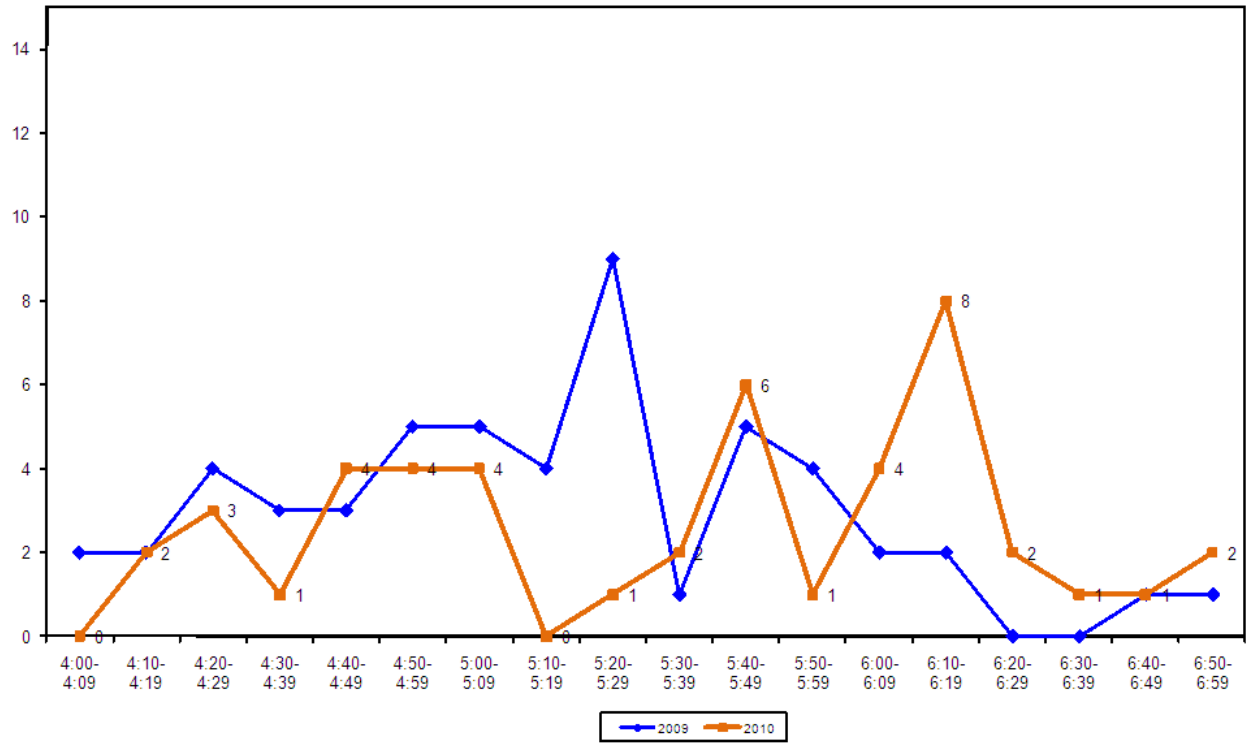
- Over the evening peak, the greatest share of cyclists using this intersection are school children (57 per cent, stable from 2009).
- Approximately half of those cyclists using the site in the evening are not wearing a helmet (54 per cent, up slightly from 51 per cent last year).
- The majority of evening cyclists are riding on the footpath (63 per cent, down slightly from 68 per cent at the last count).

***Table 15.4: Evening Cyclist Characteristics***
***Rathgar/Pomaria Road 2009 – 2010 (%)***

| | 2009 | 2010 | Change 09-10 |
|---|---|---|---|
| **Cyclist Type** | | | |
| Adult | 42 | 43 | 1 |
| School child | 58 | 57 | -1 |
| **Helmet Wearing** | | | |
| Helmet on head | 49 | 46 | -3 |
| No helmet | 51 | 54 | 3 |
| **Where Riding** | | | |
| Road | 32 | 37 | 5 |
| Footpath | 68 | 63 | -5 |
| ***Base:*** | ***53*** | ***46*** | |

- Evening cycle volumes peak between 5:40pm and 5:49pm (6 cyclists) and again between 6:10pm and 6:19pm (8 cyclists). This compares to an earlier peak between 5:20pm and 5:29pm in 2009.

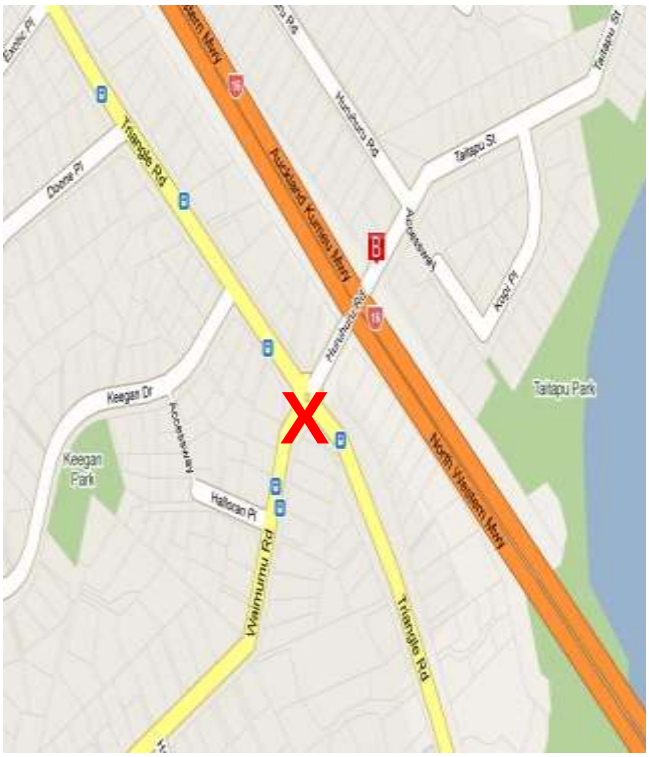
***Figure 15.3: Rathgar/Pomaria Road Cyclist Frequency – Evening Peak***

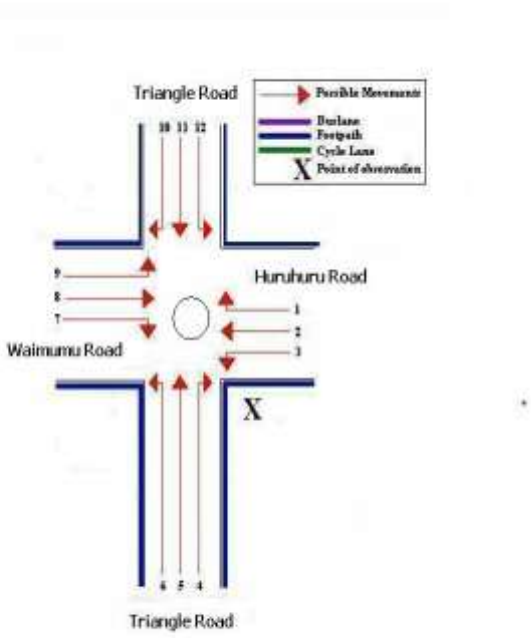


# 16. TRIANGLE/HURUHURU ROAD (SITE 87)

Figure 16.1 shows the possible cyclist movements at this intersection.

***Figure 16.1: Cycle Movements: Triangle/Huruhuru Road***




*Note: This site was monitored for the first time in 2010. Consequently no comparative results are available.*

## *AADT Estimate*

- The AADT for this site is 198.

| | *AM* | *PM* | *TOTAL* |
|---|---|---|---|
| **Raw Cycle Movement Counts 2010** | **59** | **78** | **137** |

## 16.1 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- Morning peak cycle volumes at the Triangle/Huruhuru Road site are moderate, with 59 cycle movements recorded.
- The key morning movement is travelling straight along Triangle Road heading southeast (Movement 11 = 39 cyclists).

***Table 16.1: Morning Cyclist Movements***

***Triangle/Huruhuru Road 2010 (n)***

| *Movement* | 2010 |
|---|---|
| 1 | 0 |
| 2 | 0 |
| 3 | 4 |
| 4 | 0 |
| 5 | 6 |
| 6 | 1 |
| 7 | 8 |
| 8 | 1 |
| 9 | 0 |
| 10 | 0 |
| 11 | 39 |
| 12 | 0 |
| **Total** | **59** |

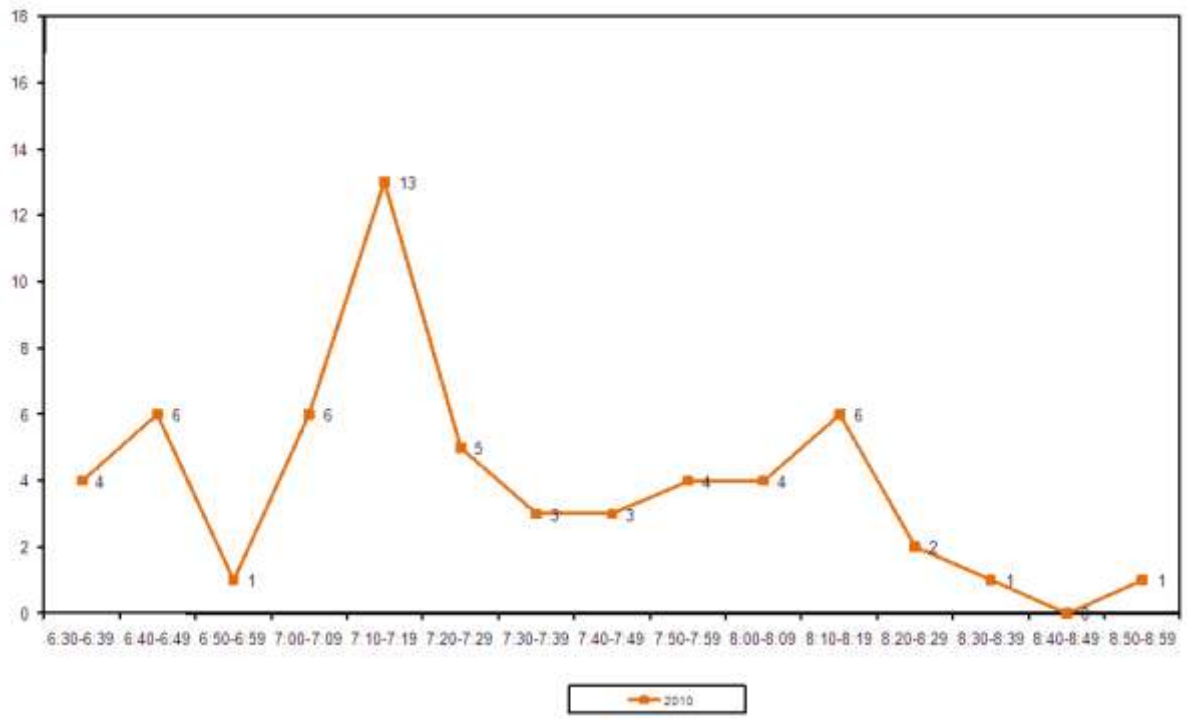
- Over the morning peak, most cyclists are adults (95 per cent).
- Almost all cyclists are wearing a helmet (97 per cent).
- Most cyclists are riding on the road (95 per cent).

***Table 16.2: Morning Cyclist Characteristics Triangle/Huruhuru Road 2010 (%)***

| | 2010 |
|---|---|
| **Cyclist Type** | |
| Adult | 95 |
| School child | 5 |
| **Helmet Wearing** | |
| Helmet on head | 97 |
| No helmet | 3 |
| **Where Riding** | |
| Road | 95 |
| Footpath | 5 |
| ***Base:*** | ***59*** |

- Morning cycle volumes peak between 7:10am and 7:19am (13 movements).

***Figure 16.2: Triangle/Huruhuru Road Cyclist Frequency – Morning Peak***



## 16.2 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 recorded at the Triangle/Huruhuru Road site in the evening is moderate, with 78 movements recorded.
- The most common movements in the evening are straight along Triangle Road heading northeast (Movement 5 = 39 cyclists) and southwest (Movement 11 = 13 cyclists).

***Table 16.3: Evening Cyclist Movements***

- ***Triangle/Huruhuru Road 2010 (n)***

| *Movement* | 2010 |
|---|---|
| 1 | 1 |
| 2 | 1 |
| 3 | 5 |
| 4 | 4 |
| 5 | 39 |
| 6 | 9 |
| 7 | 3 |
| 8 | 1 |
| 9 | 2 |
| 10 | 0 |
| 11 | 13 |
| 12 | 0 |
| **Total** | **78** |

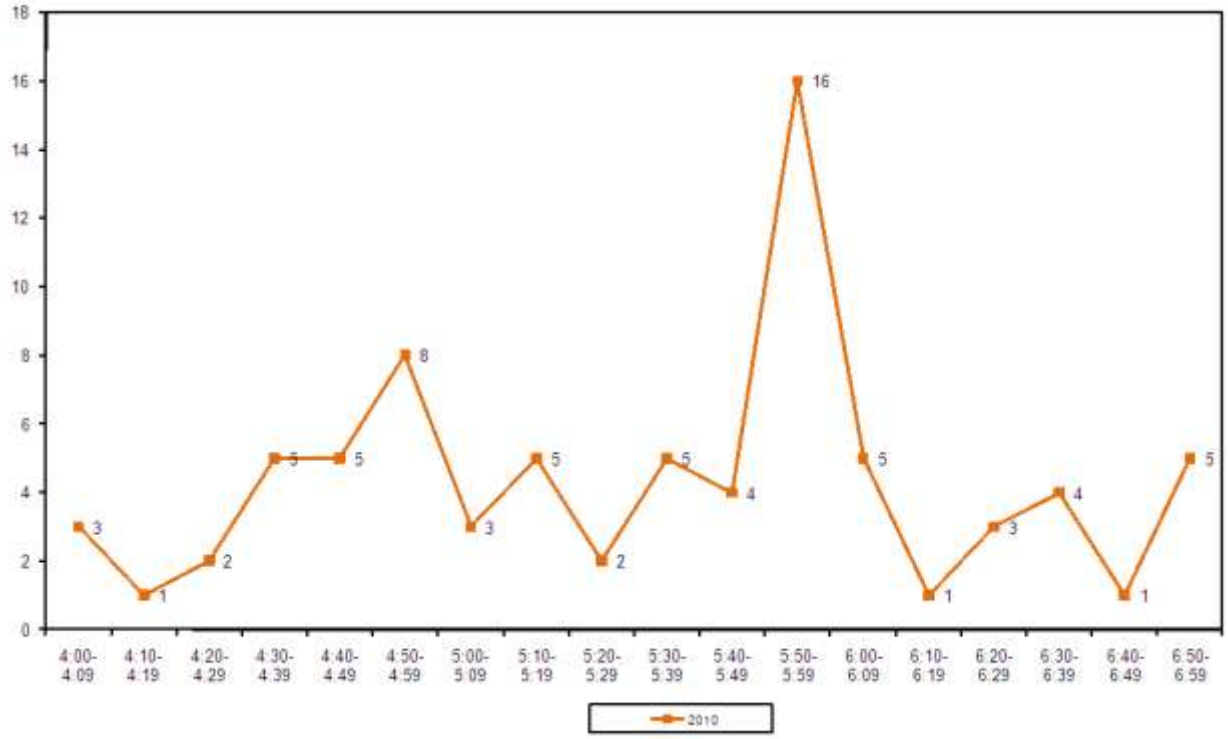
- Over the evening peak, the greatest share of cyclists using this intersection are adults (77 per cent).
- Approximately three-quarters of cyclists using the site in the evening are wearing a helmet (76 per cent).
- The majority of evening cyclists are riding on the road (71 per cent).

***Table 16.4: Evening Cyclist Characteristics Triangle/Huruhuru Road 2010 (%)***

| | **2010** |
|---|---|
| **Cyclist Type** | |
| Adult | 77 |
| School child | 23 |
| **Helmet Wearing** | |
| Helmet on head | 76 |
| No helmet | 24 |
| **Where Riding** | |
| Road | 71 |
| Footpath | 29 |
| ***Base:*** | ***78*** |

- Evening cycle volumes peak sharply between 5:50pm and 5:59pm (16 cyclists).

***Figure 16.3: Triangle/Huruhuru Road Cyclist Frequency – Evening Peak***



# 17. SCHOOL BIKE SHED COUNT - WAITAKERE

### *Background Information*

- A total of 19 schools were contacted in Waitakere. None of the 17 schools that responded to the survey have policies that restrict students cycling to school.
- The designated count day was Tuesday 9th of March[23].

### *Key Points*

- Among those Waitakere schools that responded to the survey, of those eligible to cycle to school, on average, two per cent of students are cycling to their schools. This is unchanged from 2009.
- Among the schools that responded, n=269 students were reported to be cycling to school.
- This year, Te Atatu Intermediate reported the highest share of cyclists – 8 per cent of all eligible students currently cycling to school. This is consistent with 2009 result, where Te Atatu Intermediate reported the highest share of 9 per cent.
- Of the 17 schools that responded, three (18 per cent) had no students cycling to school. This compares with three schools (18 per cent) in 2009.

[23] The following schools conducted counts on alternative count days
- Te Kura Kaupapa Maori O Hoani Waititi Marae – Wednesday 3rd March
- St. Dominic's College – Monday 8th March
- Rutherford College and Liston College – Tuesday 16th March
- Waitakere College – Wednesday 17th March
- Kelston Girls High School, Kelston Intermediate, and Te Kura Kaupapa Maori o Te Raki Paewhenua – Friday 19th March
- Henderson High School – Monday 19th April
- Massey High School – Tuesday 20th April

Table 16.1 shows the results of the 17 schools in Waitakere that responded to the survey.

***Table 16.1: Summary Table Of School Bike Count 2007-2010 (n)***

| *School Name* | *Year Levels* | *School Roll Eligible To Cycle* | *No. of Cycles Counted* | *Cyclists as share of those eligible[24] (2010)* | *Cyclists as share of those eligible[25] (2009)* | *Cyclists as share of those eligible (2008)* | *Cyclists as share of those eligible (2007)* |
|---|---|---|---|---|---|---|---|
| Te Atatu Intermediate | Intermediate | 275 | 22 | 8% | 9% | 7% | 10% |
| Rutherford College | Secondary | 1340 | 75 | 6% | 4% | 3% | 3% |
| Rangeview Intermediate School | Intermediate | 894 | 41 | 5% | 3% | 2% | 3% |
| Henderson Intermediate School | Intermediate | 490 | 19 | 4% | 3% | 3% | 5% |
| Sunderland School and College | Composite | 115 | 5 | 4% | 2% | 1% | - |
| Bruce McLaren Intermediate | Intermediate | 307 | 9 | 3% | 4% | 2% | 2% |
| Liston College[26] | Intermediate/ Secondary | 791 | 23 | 3% | 3% | 2% | 2% |
| Waitakere College | Secondary | 1172 | 24 | 2% | 1% | 1% | 1% |
| Te Kura Kaupapa Maori O Hoani Waititi Marae | Composite | 172 | 3 | 2% | 0% | 0% | - |
| Glen Eden Intermediate | Intermediate | 1008 | 11 | 1% | 3% | - | - |
| Green Bay High School | Secondary | 1138 | 14 | 1% | 1% | 1% | 1% |
| Kelston Intermediate | Intermediate | 340 | 4 | 1% | 0% | 2% | - |
| Henderson High School[27] | Secondary | 975 | 5 | 1% | 0% | 1% | <1% |

[24] This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.
[25] This share is calculated by averaging the number of cycles counted over the total number of students eligible to cycle. The figure obtained is rounded to zero decimal places.
[26] Half of Year 10 students away on school camp.
[27] Weather was overcast on day of counting.

| *School Name* | *Year Levels* | *School Roll Eligible To Cycle* | *No. of Cycles Counted* | *Cyclists as share of those eligible[24] (2010)* | *Cyclists as share of those eligible[25] (2009)* | *Cyclists as share of those eligible (2008)* | *Cyclists as share of those eligible (2007)* |
|---|---|---|---|---|---|---|---|
| Massey High School[28] | Secondary | 2422 | 9 | <1% | 1% | 1% | 1% |
| St. Dominic's College | Intermediate/ Secondary | 930 | 2 | <1% | 0% | <1% | <1% |
| Kelston Boys High School | Secondary | 1100 | 3 | <1% | 0% | 1% | 1% |
| Kelston Girls High School | Secondary | 886 | 0 | 0% | 0% | 0% | 0% |
| **Total** | | **14355** | **269** | **2%** | **2%** | **1%** | **2%** |

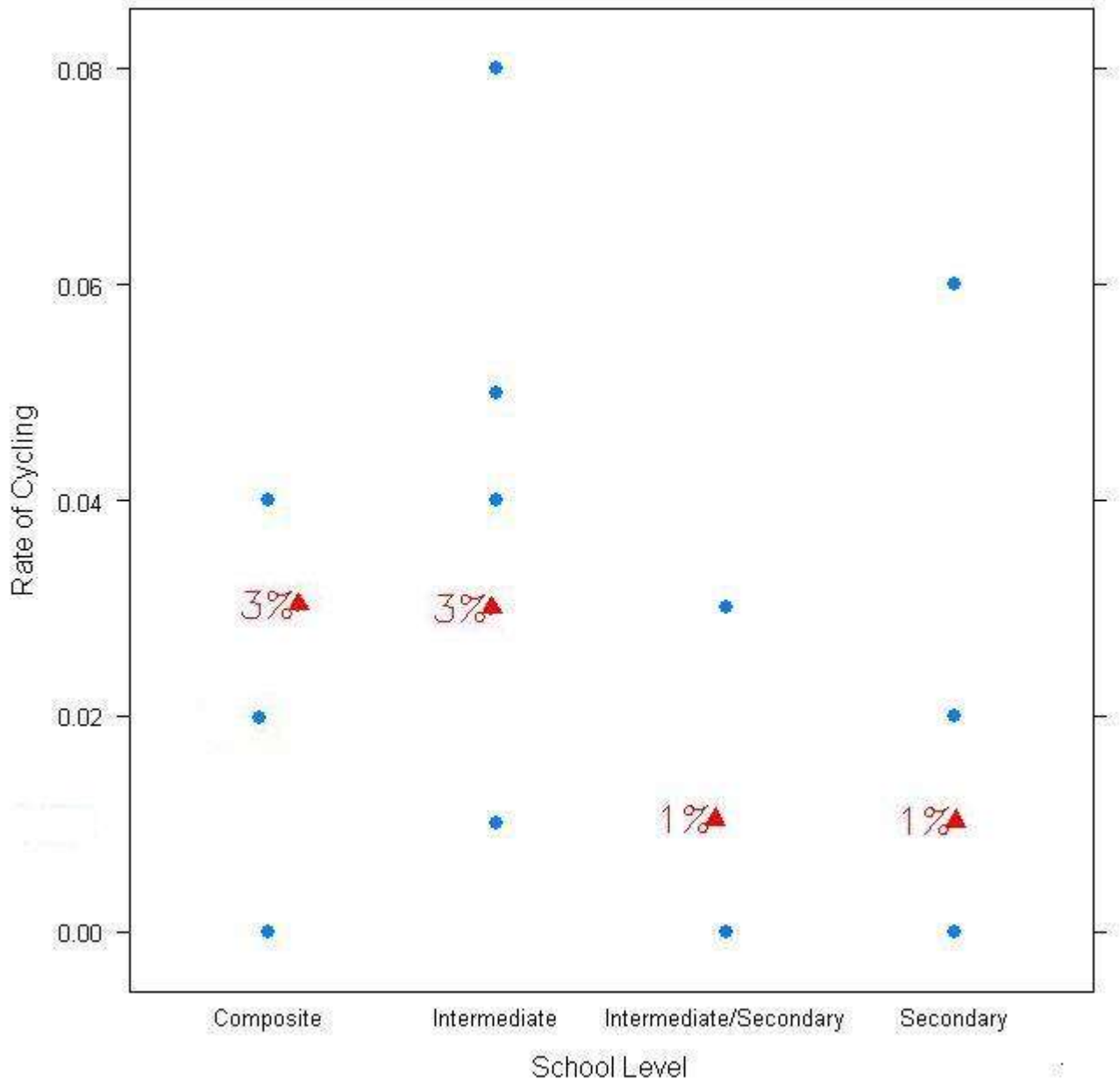
[28] Weather was overcast on day of counting.

- Table 16.2 and Figure 16.1 illustrate the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate and composite schools (3 per cent respectively) and lowest for combined intermediate/secondary schools and secondary schools (1 per cent, unchanged from last year).

***Table 16.2: Summary Table Of School Bike Count by Year Levels 2007-2010 (%)***

| *Year Levels* | *Number of Schools Responded in 2010* | *Cyclists as share of those eligible - 2007* | *Cyclists as share of those eligible - 2008* | *Cyclists as share of those eligible -2009* | *Cyclists as share of those eligible -2010* | **Change 09-10** |
|---|---|---|---|---|---|---|
| Intermediate | 7 | 4 | 3 | 3 | **3** | 0 |
| Composite | 2 | 7 | 1 | 1 | **3** | 2 |
| Secondary | 6 | 1 | 1 | 1 | **1** | 0 |
| Intermediate/Secondary | 2 | <1 | <1 | <1 | **1** | 0 |
| **Total** | **17** | **2** | **1** | **2** | **2** | **0** |

***Figure 16.1: Cycling Rates by School Level***
***2010 (%)***



# APPENDIX

Appendix One:  Annual Average Daily Traffic (AADT) Calculation

# APPENDIX ONE: ANNUAL AVERAGE DAILY TRAFFIC (AADT) CALCULATION

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

## Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[29] 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)[30], 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.

[29] Annual average daily traffic

[30] LTSA, 2004

For the Gravitas counts, the following factors apply:

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

$D = 14$

$W = 0.9$

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

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

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

## Worked Example

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

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

**Figure 1: Scale Factors for Auckland Region**

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

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

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

| Weather | R |
|---|---|
| Fine | 100% |
| Rain | 64% |