

**MONITORING REPORT**

**Prepared by Gravitas Research and Strategy Limited**

**MANUAL CYCLE MONITORING IN THE  
AUCKLAND REGION**

**March 2007**

*North Shore City*

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

*30 May 2007*

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# 1. NORTH SHORE CITY SUMMARY OF RESULTS

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## 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<sup>1</sup>.

Developing a reliable baseline for cycle traffic is the priority for 2006/07. This is an important year to build regionally-consistent baseline data for cycling, since 2006/07 marks the beginning of a major programme of improvements for cycling in the Auckland region – over \$100 million is planned to be invested in building over 50% of the Regional Cycle Network over the next 10 years. Cycle traffic data will help inform this programme, and ensure investment is directed to the most significant projects first.

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.

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<sup>1</sup> Auckland Regional Transport Authority (2006) *Regional Cycle Monitoring Plan (Provisional Guidelines)*

## Manual Cycle Monitoring

Historically, manual cycle monitoring has been carried out in four of the seven Auckland region Territorial Authorities (TAs). However, each monitor has been undertaken using a different methodology<sup>2</sup>. This variability prevents the possibility of comparing the relative popularity of different sites across TA boundaries. In addition, each monitor programme takes 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 take place from year to year prevent robust comparability from year to year.

Through the Regional Cycle Monitoring Plan, it is 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 69 sites across the Auckland region following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a TA and region level.

**Important Note:** This report provides the results of manual cycle monitoring conducted at 13 pre-determined sites in North Shore City 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.

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<sup>2</sup> 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 City's differs for both peaks.

## 1.2 Methodology

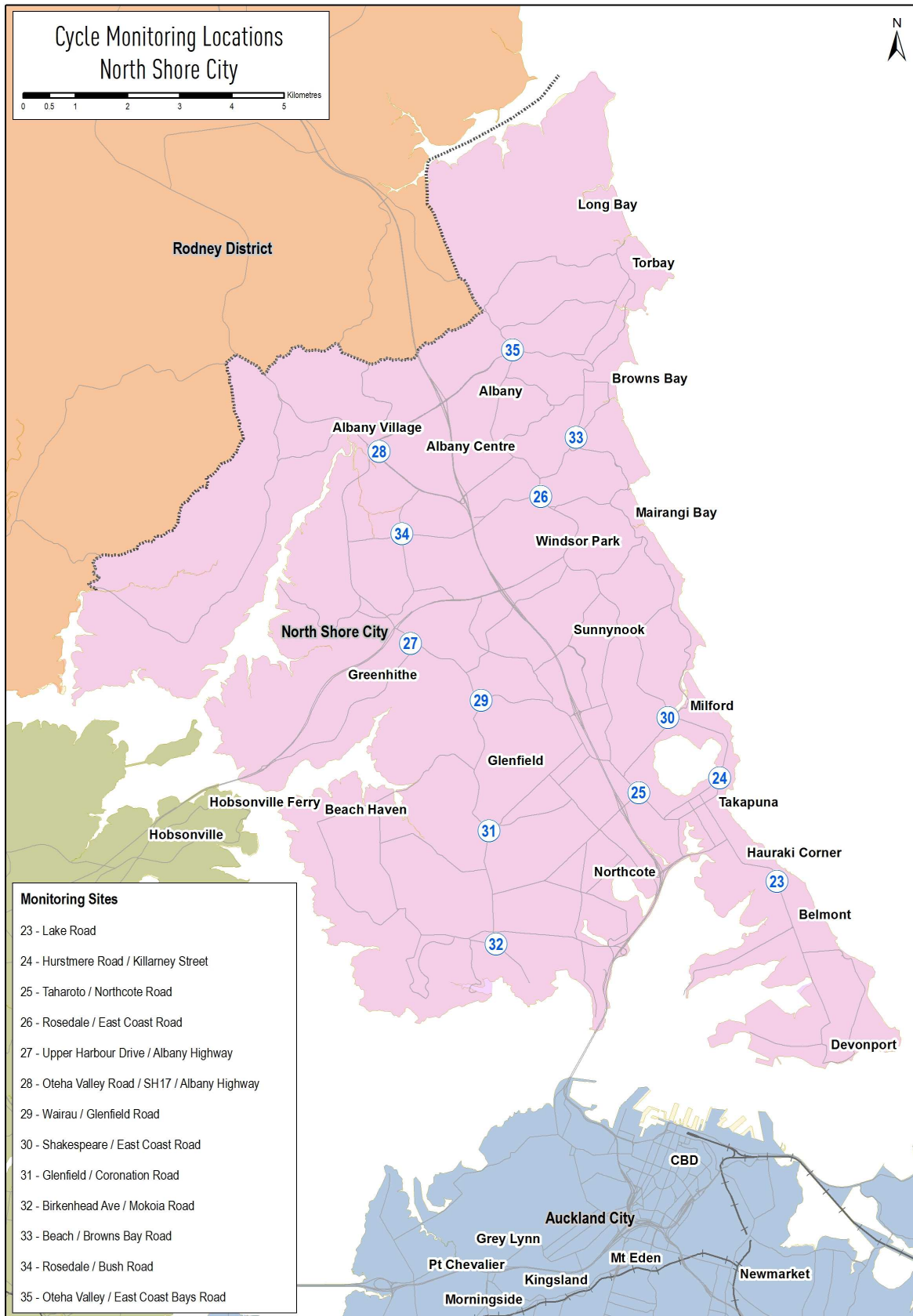
Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below. *Note: To ensure the longitudinal comparability of its cycle data, Gravitas have conducted the regional monitoring using a similar approach to that used to collect manual count data for Auckland City 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 69 different sites throughout the region (for a full list of sites and the rationale for choosing each, see Appendix 1). Sites were distributed throughout the region as follows:

- Auckland City n=22 sites (12 sites monitored since 2001; 10 sites added in 2007)
- North Shore City n=13
- Manukau City n=12
- Waitakere City n=11
- Rodney District n=5
- Papakura District n=3
- Franklin District n=3



## 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, over the last two years, data collected at some sites has 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 University of Auckland first semester commenced on 26<sup>th</sup> February, 2007. School holidays commenced on the 6<sup>th</sup> of April, 2007.*
- the timing of statutory holidays (particularly Easter);
  - *Good Friday fell on the 6<sup>th</sup> of April, 2007.*
- the timing of Bike Week;
  - *Bike Week ran from the 26<sup>th</sup> of February to 4<sup>th</sup> March 2007.*
- daylight saving times.
  - *Daylight saving finished on 18<sup>th</sup> March 2007.*

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

Counting at sites in **Auckland City, Rodney, Papakura** and **Franklin Districts** were scheduled and completed on **Tuesday the 6<sup>th</sup> of March**. Counting at sites in North Shore, Manukau and Waitakere Cities was scheduled for Wednesday the 7<sup>th</sup> of March. However, due to wet weather on the morning of the 7<sup>th</sup>, manual counting was postponed for the day. Counts in **Manukau** and **Waitakere Cities** were successfully completed on Thursday 8<sup>th</sup> of March. Counts in North Shore City were further postponed due to wet weather and were finally conducted on **Tuesday 13<sup>th</sup> 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). As discussed above, manual counts scheduled for Wednesday the 7<sup>th</sup> of March were postponed due to wet weather during the morning peak. Care was taken to ensure that all manual counts were conducted prior to the conclusion of daylight saving.

## *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 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:

- Onehunga Harbour Road, Onehunga (Site 17; Auckland City);
- Great South Road/Campbell Road/Main Highway, Greenlane (Site 21; Auckland City);
- Ferry terminal (Site 22; Auckland City); and
- Beach Road/Browns Bay Road, Mairangi Bay (Site 45; North Shore City).

### *Briefing Session*

Prior to their monitoring shift, all surveyors participated in a briefing session. This session was facilitated by the Gravitas project director and the Sustainable Transport Leader - Walking and Cycling, from ARTA. 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<sup>3</sup>.

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

- The total number of cyclists<sup>4</sup> 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 footpath or road/designated cycleway<sup>5</sup>.

In addition, 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.

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<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> Note: For consistency with data collected for Auckland City since 2001, cyclists riding on the cycleway, and cyclists approaching an intersection on the road but jumping onto the footpath to cross the intersection. were classified as “road” riders.

## 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 multiple 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<sup>6</sup>, 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<sup>7</sup>.

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 Two.*

*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<sup>8</sup>.*

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

<sup>7</sup> ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.

<sup>8</sup> 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 many 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 a fax information sheet that was distributed to most intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region (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 to ensure all necessary information was collected. A copy of the information sheet is provided in Appendix Three.
2. Manukau, Waitakere, and North Shore Cities, Rodney and Papakura Districts' council staff took responsibility for contacting each of the intermediate, secondary and composite schools in their city/district (n=178) to notify them of the bike shed count and to let them know what they would be required to do. Gravitas contacted the schools in Auckland City and Franklin Districts (by telephone). TAs/Gravitas then sent out the information sheet to all schools that agreed to take part in the bike shed count (n=108), along with a cover letter explaining the purpose of the research and providing detail on how to complete and submit the form. A copy of this letter is provided in Appendix Three.

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 6<sup>th</sup> March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day. The weather was fine all day on the 6<sup>th</sup> of March, with an average temperature of 19 degrees Celsius).
4. Once the school bike shed count had been completed, schools were requested to fax or (free) post the information sheets back to the TA (Waitakere and North Shore Cities, Rodney and Papakura Districts) or Gravitas (Auckland and Manukau Cities and Franklin District). Gravitas contacted all Auckland City and Franklin District's participating schools who had not returned their sheets after five working days. All information sheets were ultimately forwarded on to Gravitas, and were checked for completeness before being data-entered into Excel. All participating schools were sent a small gift from ARTA to thank them for their time and contribution.

### **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.

#### **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 thirteen sites surveyed in North Shore 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 the North Shore City, 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 Fourteen of this report.

Note: With the exception of the Wairau/Glenfield Road site, surveying in North Shore City was undertaken on Tuesday 13<sup>th</sup> March, 2007. Sunrise was at 7:18am and sunset was at 7:42pm. The average temperature was 20 degrees Celsius. Surveying at the Wairau/Glenfield Road site was conducted on Tuesday 24<sup>th</sup> April (see Section Eight for more detail).

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

- “high/heavy” when 50 or more cycle movements are reported;
- “moderate” when between 20 and 49 cycle movements are reported;
- “low/light” when between 0 and 19 cycle movements are reported;
- having “notably” increased/decreased if the change is more than 50% of the data being compared with;
- having “slightly” increased/decreased if the change is less than 25% of the data being compared with.

## 1.4 Morning Peak

### *Environmental Conditions*

- Most sites had drizzle or light showers intermittently in the morning during the monitoring period. Only two sites were monitored in good weather conditions throughout the morning peak (Birkenhead/Mokoia and Wairau/Glenfield). *Note that the Wairau/Glenfield intersection was monitored on Tuesday 24<sup>th</sup> April.*
- There were road works at the Taharoto/Northcote Road intersection during the morning monitoring period.

### *Key Points*

- A total of 606 cyclist movements were recorded across the thirteen sites in the morning peak period (between 6:30am and 9:00am) in 2007.
- The busiest site in the morning peak is at Lake Road near the Takapuna Grammar School (127 cycle movements), whereas the Oteha Valley/State Highway 17/Albany Highway intersection has the lowest level of morning cyclist traffic (4 cycle movements).
- The average volume of morning cyclists across the 13 sites monitored in North Shore City is 47 cycle movements.

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

<b>Locations</b>	<b>2007</b>
Lake Road, by Takapuna Grammar	127
Taharoto/Northcote Road	111
Shakespeare/East Coast Road	82
Hurstmere/Killarney Road	76
Rosedale/East Coast Road	54
Oteha Valley/East Coast Road	42
Wairau/Glenfield Road	34
Birkenhead Ave/Mokoia Road	20
Glenfield/Coronation Road	16
Rosedale/Bush Road	15
Upper Harbour Drive/Albany Highway	14
Beach/Browns Road	11
Oteha Valley/SH17/Albany Highway	4
<b>Average per site</b>	<b>47</b>
<b>Total</b>	<b>606</b>

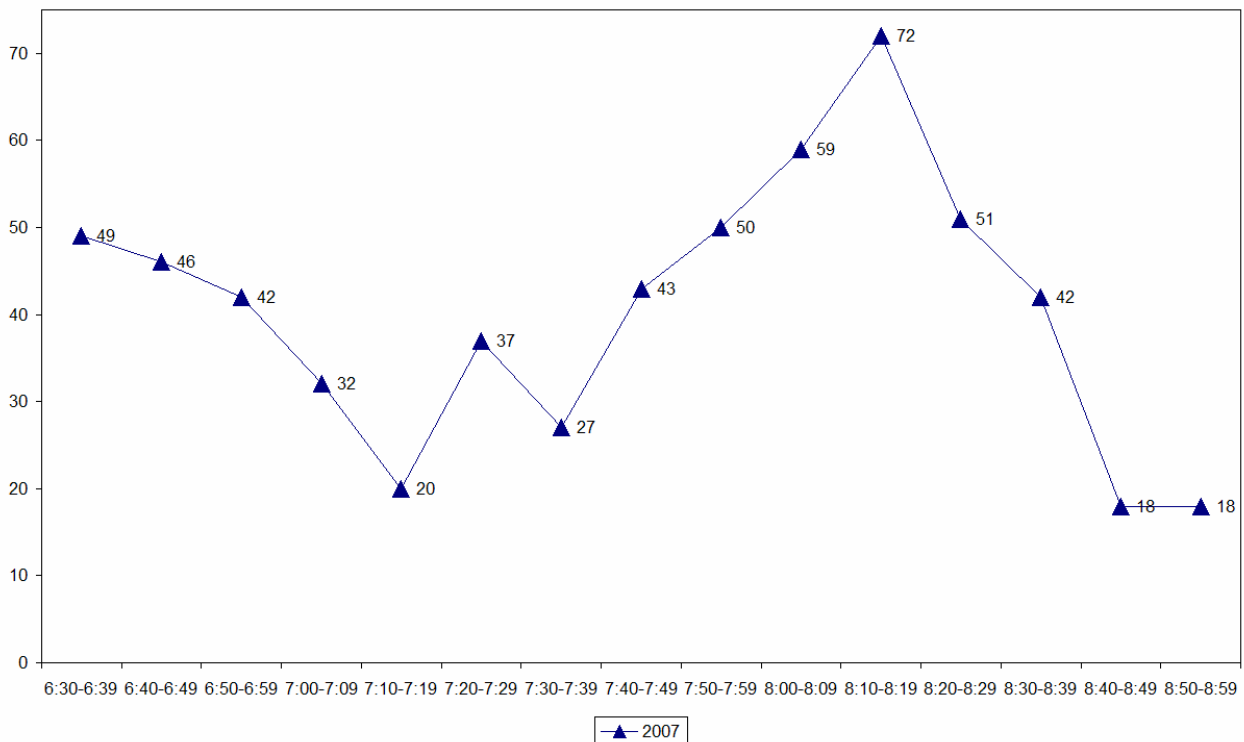
- Morning cyclist characteristics are shown in Table 1.2 below. Overall, 69 per cent of cyclists are adults. Of the thirteen sites monitored in North Shore City, the Beach/Browns Bay Road intersection has the greatest share of cyclists who are school children (64 per cent).
- Almost all morning cyclists (93 per cent) are wearing a helmet across all North Shore City sites. However, helmet wearing is least prevalent at the intersection of Birkenhead Avenue and Mokoia Road (80 per cent).
- On average, two in three morning cyclists are riding on the road (67 per cent). However, footpath riding is widespread at the Rosedale/Bush Road intersection (67 per cent).

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

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	69%
School child	31%
<b>Helmet Wearing</b>	
Helmet on head	93%
No helmet	7%
<b>Where Riding</b>	
Road	67%
Footpath	33%
<i>Base:</i>	<b>606</b>

- Figure 1.1 illustrates the total number of cyclists in the morning peak by time of trip. The volume of morning cycle movements declines in the first part of the shift to start with, and then increases after 7:39am, reaching a peak between 8:10am and 8:19am (72 movements), after which the number of movements drops through to the end of the monitoring period.

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



## 1.5 Evening Peak

### *Environmental Conditions*

- Consistent with the morning shift, most North Shore City sites had intermittent showers in the evening during the monitoring period. The intersections of Birkenhead/Mokoia and Wairau/Glenfield are the only two sites monitored in fine weather condition throughout the evening peak.
- Road works at the Taharoto/Northcote Road intersection continued during the evening monitoring period.

### *Key Points*

- A total of 367 cyclist movements were recorded across the thirteen sites in the evening peak period (between 4:00pm and 7:00pm) in 2007.
- Consistent with the morning peak, the Lake Road site near the Takapuna Grammar School continues to be the busiest in terms of the evening cyclists' activity, with 65 cycle movements recorded. The lowest level of evening cyclist traffic is at the Beach/Brown Bay Road intersection (8 cycle movements).
- The average volume of evening cyclists across the 13 sites monitored in North Shore City is 28 cycle movements.

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

<b>Locations</b>	<b>2007</b>
Lake Road, by Takapuna Grammar	65
Shakespeare/East Coast Road	55
Taharoto/Northcote Road	51
Hurstmere/Killarney Road	45
Wairau/Glenfield Road	30
Rosedale/East Coast Road	22
Birkenhead Ave/Mokoia Road	20
Oteha Valley/East Coast Road	17
Rosedale/Bush Road	16
Oteha Valley/SH17/Albany Highway	15
Glenfield/Coronation Road	12
Upper Harbour Drive/Albany Highway	11
Beach/Browns Bay Road	8
<b>Average per site</b>	<b>28</b>
<b>Total</b>	<b>367</b>

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

*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 Figure 1.1 and 1.2); 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 thirteen sites decrease by 98 per cent from the number recorded in the morning shift.
- Twelve out of the thirteen sites have the evening cycle volume lower than the morning cycle volume. The declines are most notable at:
  - Oteha Valley/East Coast Road – down 66 per cent;
  - Rosedale/East Coast Road – down 66 per cent;
  - Taharoto/Northcote Road – down 62 per cent; and
  - Lake Road – down 57 per cent.
- In contrast, the number of evening cyclists recorded at the Oteha Valley/State Highway 17/Albany Highway intersection is higher than in the morning peak (up from 4 to 13 movements in the evening).

**Table 1.4: Summary Of Change in Cyclist Movements from Morning to Evening 2007 (%)**

<b>Locations</b>	<b>AM</b>	<b>PM<sup>9</sup></b>	<b>Change</b>
Oteha Valley/SH17/Albany Highway	4	13	213%
Rosedale/Bush Road	15	13	-11%
Birkenhead Ave/Mokoia Road	20	17	-17%
Wairau/Glenfield Road	34	25	-26%
Upper Harbour Drive/Albany Highway	14	9	-35%
Glenfield/Coronation Road	16	10	-38%
Beach/Browns Bay Road	11	7	-39%
Shakespeare/East Coast Road	82	46	-44%
Hurstmere/Killarney Road	76	38	-51%

<sup>9</sup> 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.

<b>Locations</b>	<b>AM</b>	<b>PM<sup>9</sup></b>	<b>Change</b>
Lake Road, by Takapuna Grammar	127	54	-57%
Taharoto/Northcote Road	111	43	-62%
Oteha/East Coast Road	42	14	-66%
Rosedale/East Coast Road	54	18	-66%
<b>Total</b>	<b>606</b>	<b>306</b>	<b>-98%</b>

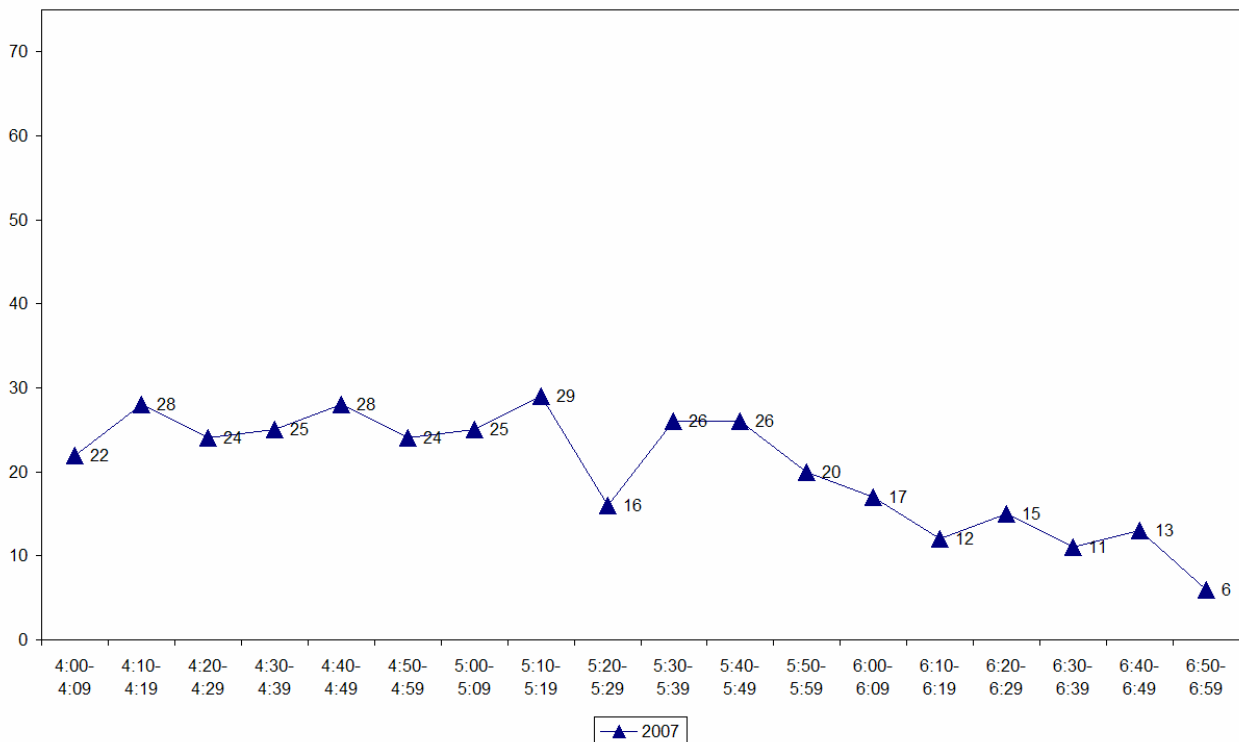
- By comparison, more evening cyclists are adults (89 per cent compared with 69 per cent in the morning). Of the thirteen sites, the Rosedale/East Coast Road intersection has the least amount of adult cyclists in the evening (73 per cent).
- A lower proportion of evening cyclists are wearing a helmet (89 per cent compared with 93 per cent in the morning). A higher proportion of evening cyclists at the Glenfield/Coronation Road intersection are not wearing a helmet compared with other sites (25 per cent).
- More cyclists are riding on the road in the evening (80 per cent compared with 67 per cent in the morning). The incidence of riding on the footpath at the Rosedale/Bush Road intersection continues to be higher than other sites monitored in North Shore City (38 per cent).

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

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	89%
School child	11%
<b>Helmet Wearing</b>	
Helmet on head	89%
No helmet	11%
<b>Where Riding</b>	
Road	80%
Footpath	20%
<i>Base:</i>	<b>367</b>

- The overall pattern of cyclist volumes by time of trip in the evening is illustrated in Figure 1.2. Evening cyclist volumes remain relatively constant between 4:00pm and 5:10pm, with no less than 22 cyclists recorded every ten minute interval. Three peaks occur at around 4:10pm and 4:40pm (28 cyclists each), and again at 5:10pm (29 cyclists), after which the number of cyclists declines over the rest of the monitoring period.

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



## 1.6 Aggregated Total

- A total of 973 cyclist movements were recorded across the thirteen sites in 2007. The number of morning cyclists comprises a larger share (62 per cent) of the total number of cycle movements than the evening cyclists (38 per cent).
- The busiest site is at Lake Road near the Takapuna Grammar School with a total of 192 movements recorded.

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

<b>Locations</b>	<b>2007</b>
Lake Road, by Takapuna Grammar	192
Taharoto/Northcote Road	162
Shakespeare/East Coast Road	137
Hurstmere/Killarney Road	121
Rosedale/East Coast Road	76
Wairau/Glenfield Road	64
Oteha Valley/East Coast Road	59
Birkenhead Ave/Mokoia Road	40
Rosedale/Bush Road	31
Glenfield/Coronation Road	28
Upper Harbour Drive/Albany Highway	25
Oteha Valley/SH17/Albany Highway	19
Beach/Browns Bay Road	19
<b>Average per site</b>	<b>75</b>
<b>Total</b>	<b>973</b>

- Overall cyclist characteristics are illustrated in Table 1.7. In total, 77 per cent of cyclists are adults.
- Almost all cyclists are wearing a helmet (92 per cent).
- On average, three in four cyclists are riding on the road (72 per cent).

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

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	77%
School child	23%
<b>Helmet Wearing</b>	
Helmet on head	92%
No helmet	8%
<b>Where Riding</b>	
Road	72%
Footpath	28%
<i>Base:</i>	<b>973</b>

### **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 Lake Road near the Takapuna Grammar School (444 daily trips) and the lowest is at Oteha Valley/State Highway 17/Albany Highway (42 daily trips).

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

<b>Locations</b>	<b>Average AADT</b>
Lake Road, by Takapuna Grammar	444
Taharoto/Northcote Road	375
Shakespeare/East Coast Road	314
Hurstmere/Killarney Road	279
Rosedale/East Coast Road	176
Oteha/East Coast Road	137
Wairau/Glenfield Road	93
Rosedale/Bush Road	70
Glenfield/Coronation Road	64
Birkenhead Ave/Mokoia Road	58
Upper Harbour Drive/Albany Highway	57
Beach/Browns Bay Road	44
Oteha Valley/SH17/Albany Highway	42

## 1.7 School Bike Shed Count Summary

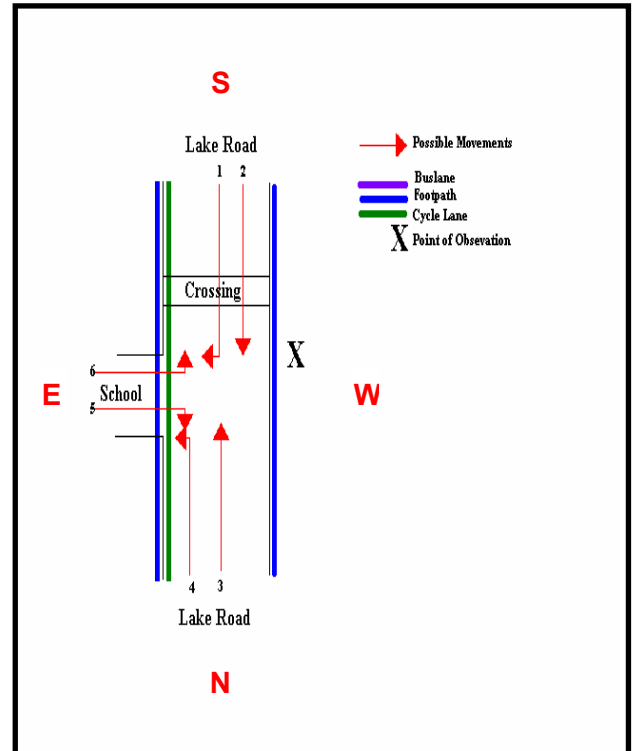
### *Key Points*

- Of those eligible to cycle at school, on average, three per cent of students are cycling to their schools.
- Of the 17 schools that responded, one had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (7 per cent) and lowest for composite schools (1 per cent).

## 2. LAKE ROAD, TAKAPUNA (SITE 35)

Figure 2.1 shows the possible cyclist movements at this site.

**Figure 2.1: Cycle Movements: Lake Road**



### AADT Estimate

- The AADT for this site is 444 cycle movements per day.

## 2.1 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift, apart from intermittent showers at around 6:30am and again 8:00am.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Of the thirteen intersections monitored in North Shore City, the site at Lake Road is the busiest in terms of morning cyclists' activity, with 127 cycle movements recorded.
- Key morning movements are straight along Lake Road in both directions (Movement 3 = 85 cyclists; Movement 2 = 40 cyclists).

**Table 2.1: Morning Cyclist Movements  
Lake Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	1
2	40
3	85
4	1
5	0
6	0
<b>Total</b>	<b>127</b>

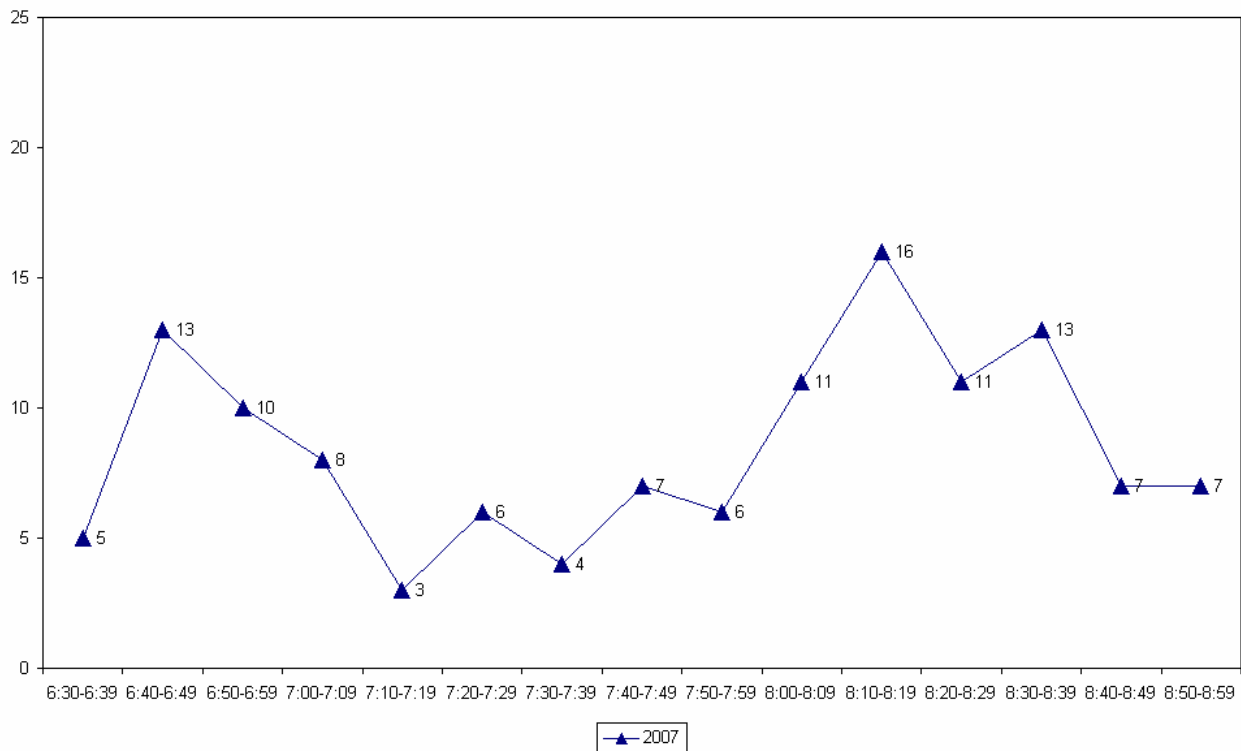
- Over the morning peak, adults comprise the greatest share (64 per cent) of cycle movements.
- The majority of cyclists are wearing a helmet (98 per cent).
- On average, around three in four cyclists are riding on the road (77 per cent).

**Table 2.2: Morning Cyclist Characteristics  
Lake Road 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	64%
School child	36%
<b>Helmet Wearing</b>	
Helmet on head	98%
No helmet	2%
<b>Where Riding</b>	
Road	77%
Footpath	23%
<i>Base:</i>	<b>127</b>

- The volume of morning cycle movements starts off with a spike (13 cyclists) at around 6:40am, and peaks between 8:10am and 8:19am (16 cyclists) before tailing off towards the end of the monitoring period.

**Figure 2.2: Lake Road Cyclist Frequency  
– Morning Peak**



## 2.2 Evening Peak

### *Environmental Conditions*

- The weather was fine for most of the evening shift, with the exception of light showers passing over periodically during the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Although the volume of cyclists is notably lower in the evening with 65 movements recorded (compared with 127 movements in the morning peak), Lake Road continues to have the highest level of evening cyclist traffic across the North Shore City sites.
- Consistent with the morning shift, the most common movements in the evening are straight along Lake Road in both directions (Movement 3 = 34 cyclists; Movement 2 = 27 cyclists).

**Table 2.3: Evening Cyclist Movements  
Lake Road 2007 (n)**

<i>Movement</i>	<i>2007</i>
1	0
2	27
3	34
4	1
5	2
6	1
<b>Total</b>	<b>65</b>

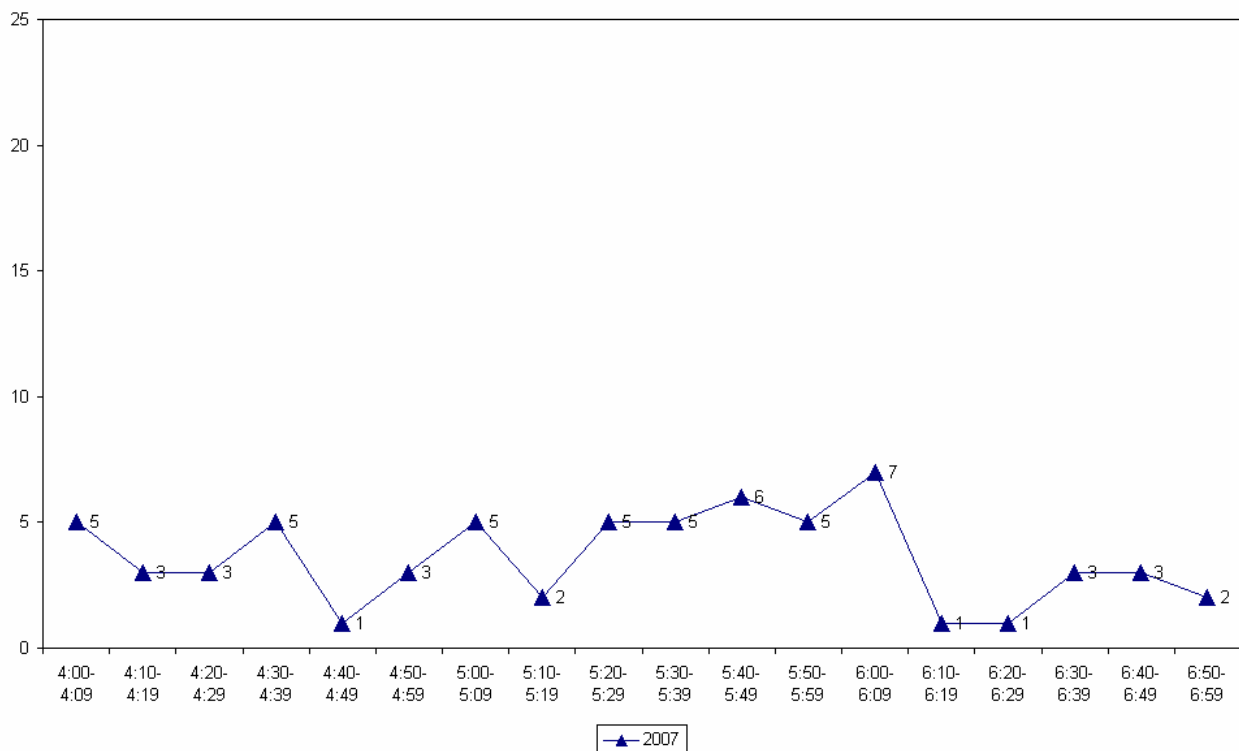
- Only three per cent of cyclists using this site in the evening are school children (compared with 36 per cent in the morning).
- Helmet wearing continues to be widespread (94 per cent).
- Over the evening period, the share of cyclists riding on the road increases to 95 per cent (up from 77 per cent recorded in the morning).

**Table 2.4: Evening Cyclist Characteristics  
Lake Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	97%
School child	3%
<b>Helmet Wearing</b>	
Helmet on head	94%
No helmet	6%
<b>Where Riding</b>	
Road	95%
Footpath	5%
<i>Base:</i>	<b>65</b>

- The volume of cycle movements remains relatively constant during the evening period, with a slight peak (7 movements) at around 6:00pm before tailing off towards the end of the monitoring period.

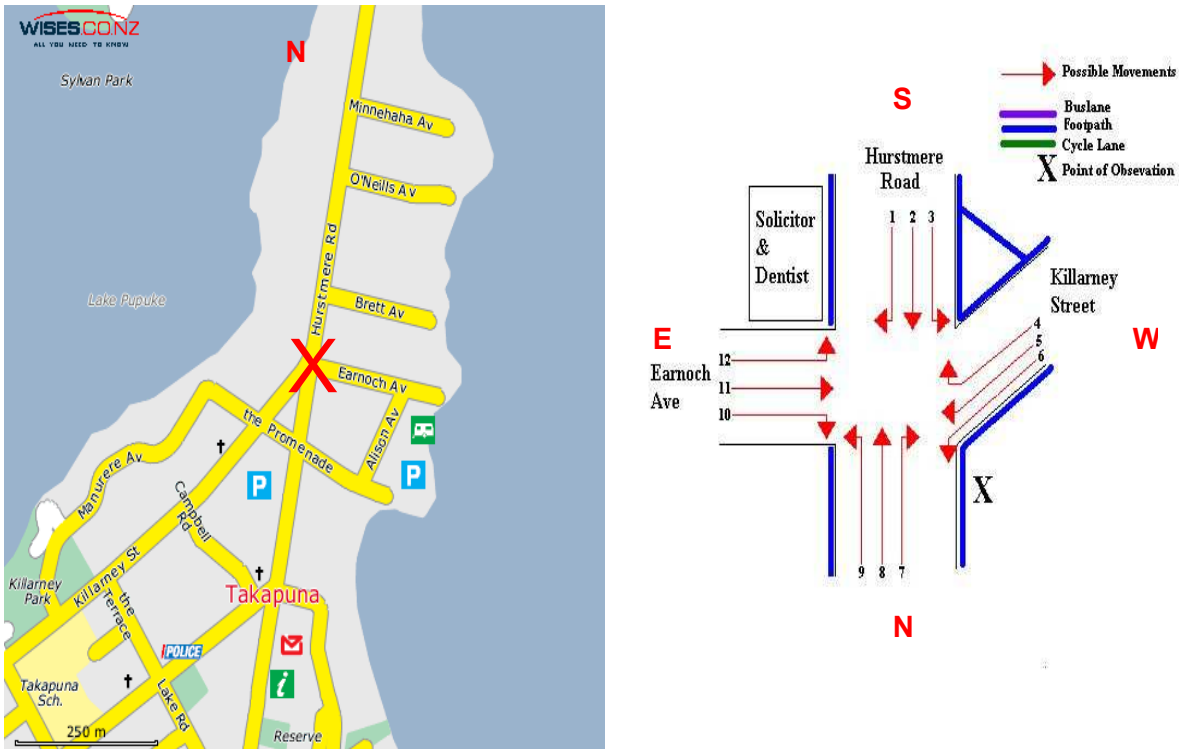
**Figure 2.3: Lake Road Cyclist Frequency  
– Evening Peak**



### 3. HURSTMERE ROAD/KILLARNEY STREET, TAKAPUNA (SITE 36)

Figure 3.1 shows the possible cyclist movements at this intersection.

**Figure 3.1: Cycle Movements: Hurstmere Road/Killarney Street**



#### AADT Estimate

- The AADT for this site is 279 cycle movements per day.

### 3.1 Morning Peak

#### *Environmental Conditions*

- The weather was fine throughout the morning shift, apart from isolated patches of light showers.
- There were no road works or accidents that may affect cycle counts.

#### *Key Points*

- The volume of cyclists at the Hurstmere Road/Killarney Street intersection is relatively high in terms of morning cyclists' activity, with 76 cycle movements recorded.
- The two key movements in the morning are straight along Hurstmere Road in both directions (Movement 8 = 44 cyclists; Movement 2 = 15 cyclists).

**Table 3.1: Morning Cyclist Movements  
Hurstmere Road/Killarney Street 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	0
2	15
3	0
4	0
5	0
6	9
7	6
8	44
9	2
10	0
11	0
12	0
13	0
14	0
<b>Total</b>	<b>76</b>

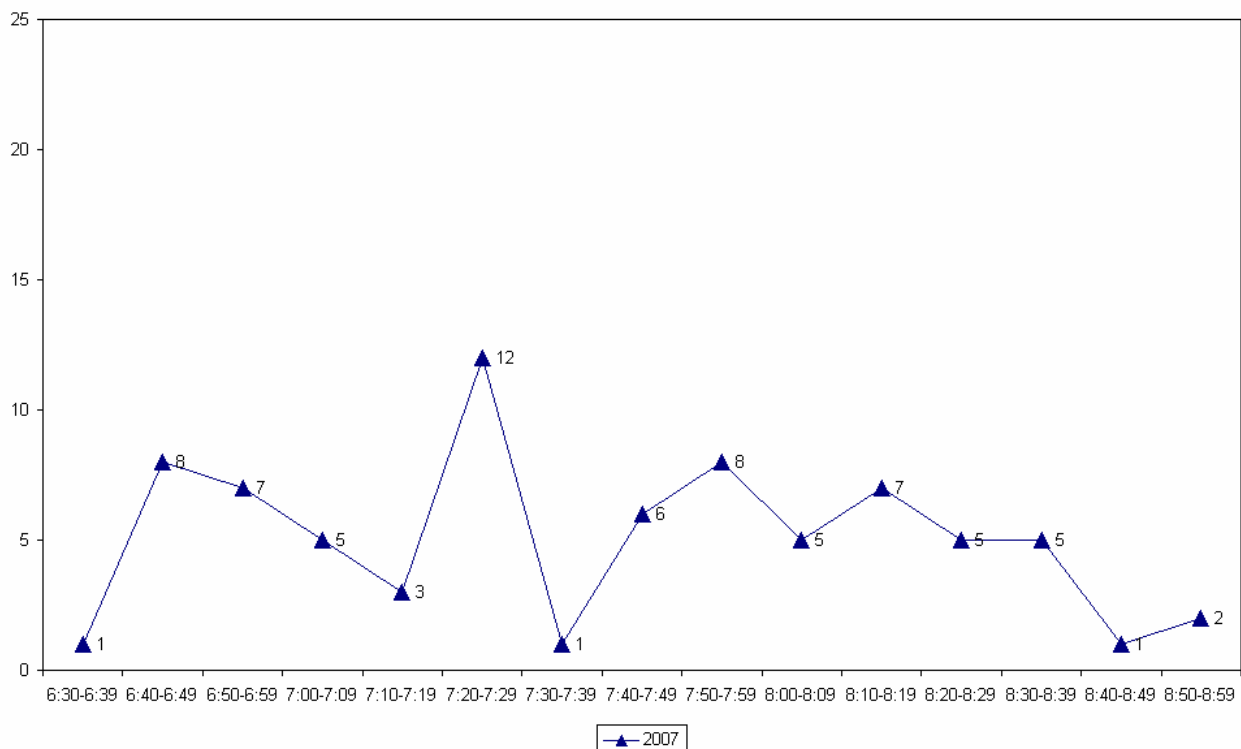
- Over the morning peak, the majority of cyclists using this intersection are adults (87 per cent).
- Almost all cyclists are wearing a helmet (93 per cent).
- Most cyclists are riding on the road (83 per cent).

**Table 3.2: Morning Cyclist Characteristics  
Hurstmere Road/Killarney Street 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	87%
School child	13%
<b>Helmet Wearing</b>	
Helmet on head	93%
No helmet	7%
<b>Where Riding</b>	
Road	83%
Footpath	17%
<i>Base:</i>	<b>76</b>

- The volume of cycle movements peaks between 7:20am and 7:29am (12 cyclists), and then drops off after 8:19am through to the end of the monitoring period.

**Figure 3.2: Hurstmere Road/Killarney Street Cyclist Frequency  
– Morning Peak**



### 3.2 Evening Peak

#### *Environmental Conditions*

- The weather was fine for most of the evening shift, with the exception of intermittent showers.
- There were no road works or accidents that may affect cycle counts.

#### *Key Points*

- Of the thirteen sites monitored in North Shore City, Hurstmere Road/Killarney Street intersection is the fourth busiest in terms of evening cyclists' activity, with 45 cycle movements recorded.
- Consistent with the morning peak, the two key movements in the evening are straight along Hurstmere Road in both directions (Movement 2 = 24 cyclists; Movement 8 = 10 cyclists).

***Table 3.3: Evening Cyclist Movements  
Hurstmere Road/Killarney Street 2007 (n)***

<i>Movement</i>	<i>2007</i>
1	0
2	24
3	0
4	0
5	0
6	7
7	2
8	10
9	2
10	0
11	0
12	0
<b>Total</b>	<b>45</b>

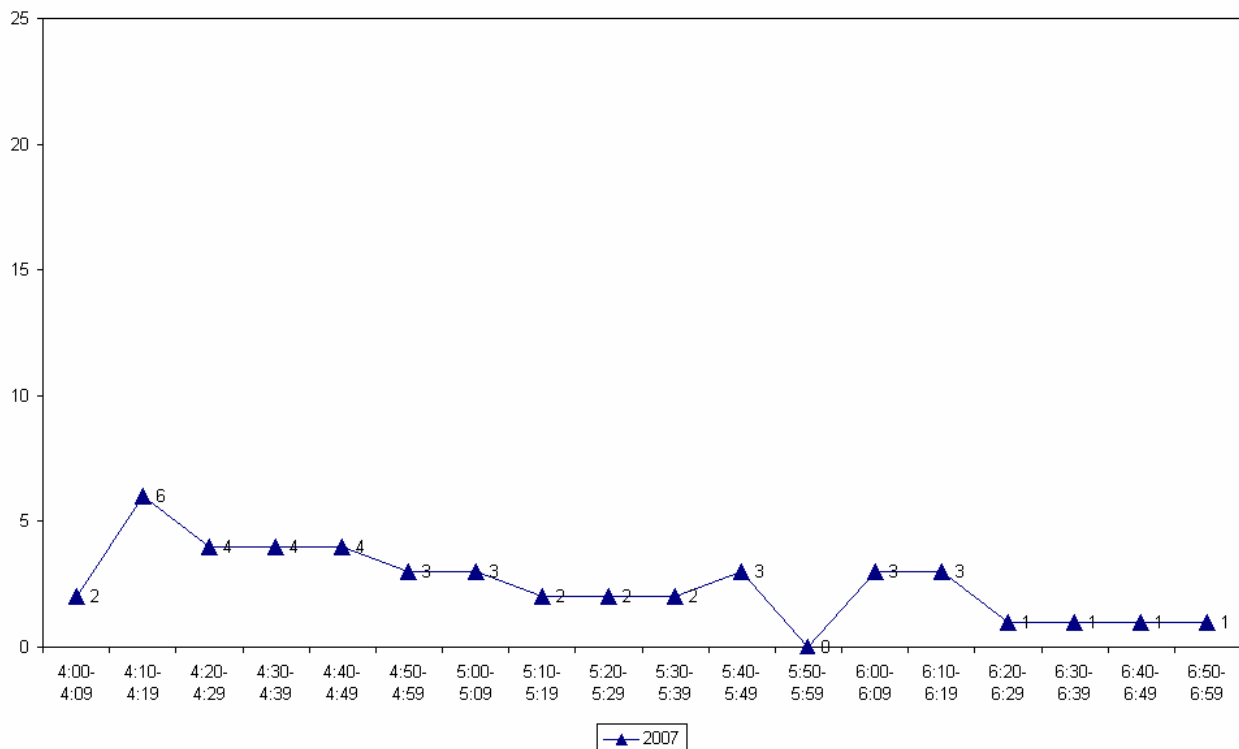
- Over the evening peak, the greatest share of cyclists using the Hurstmere Road/Killarney Street intersection are adults (89 per cent).
- Most cyclists are wearing a helmet (89 per cent).
- On average, around four in five cyclists are riding on the road (82 per cent).

**Table 3.4: Evening Cyclist Characteristics  
Hurstmere Road/Killarney Street 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	89%
School child	11%
<b>Helmet Wearing</b>	
Helmet on head	89%
No helmet	11%
<b>Where Riding</b>	
Road	82%
Footpath	18%
<i>Base:</i>	<b>45</b>

- The volume of evening cyclists starts off with a slight peak (6 cyclists at around 4:10pm), stays relatively stable until 5:40pm, and then only one cyclist is recorded each ten minute interval after 6:20pm through to the end of the monitoring period.

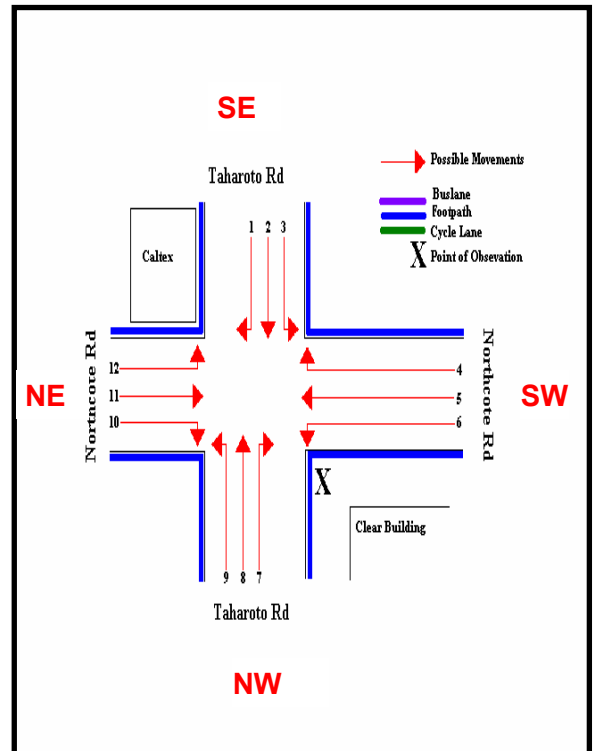
**Figure 3.3: Hurstmere Road/Killarney Street Cyclist Frequency  
– Evening Peak**



## 4. TAHAROTO ROAD/NORTHCOTE ROAD, TAKAPUNA (SITE 37)

Figure 4.1 shows the possible cyclist movements at this intersection.

**Figure 4.1: Cycle Movements: Taharoto/Northcote Road**



### AADT Estimate

- The AADT for this site is 375 cycle movements per day.

## 4.1 Morning Peak

### *Environmental Conditions*

- There were intermittent drizzles throughout the morning shift.
- There were road works on the Taharoto/Northcote Road intersection.

### *Key Points*

- Despite the bad weather and road works that may affect the cycle counts, the intersection of Taharoto and Northcote Road is the second busiest in terms of morning cyclists' activity, with 111 cycle movements recorded.
- The key morning movement is straight along Taharoto Road heading southeast (Movement 8 = 42 cyclists).

**Table 4.1: Morning Cyclist Movements  
Taharoto/Northcote Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	1
2	9
3	12
4	19
5	3
6	3
7	1
8	42
9	0
10	0
11	2
12	16
13	1
14	2
<b>Total</b>	<b>111</b>

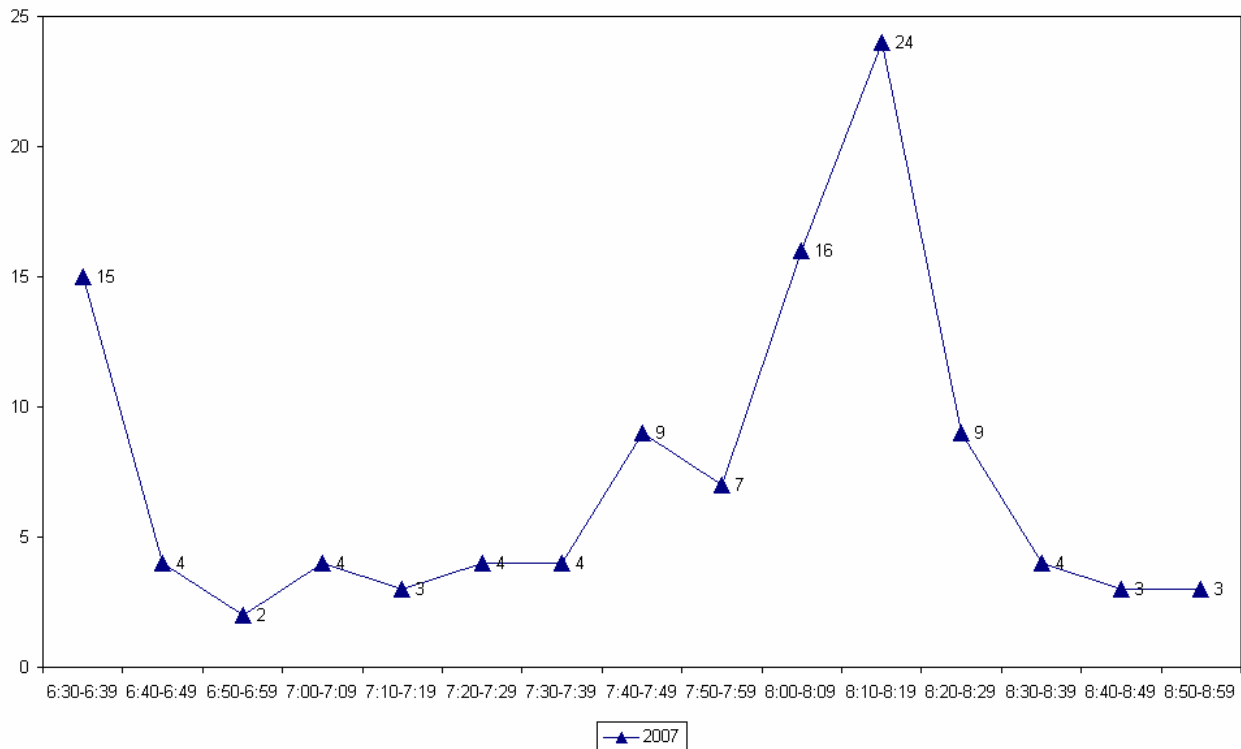
- Over the morning peak, adults comprise a slightly larger share of cycle movements (54 per cent).
- Helmet wearing is widespread (94 per cent).
- Just over half of cyclists are riding on the footpath (53 per cent).

**Table 4.2: Morning Cyclist Characteristics  
Taharoto /Northcote Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	54%
School child	46%
<b>Helmet Wearing</b>	
Helmet on head	94%
No helmet	6%
<b>Where Riding</b>	
Road	47%
Footpath	53%
<i>Base:</i>	<b>111</b>

- Morning cyclist numbers start off at a slight peak (15 movements), grow steadily in the middle of the monitoring period to a peak between 8:10am and 8:19am (24 movements) after which numbers drop off towards the end of the morning peak.

**Figure 4.2: Taharoto /Northcote Road Cyclist Frequency  
– Morning Peak**



## 4.2 Evening Peak

### *Environmental Conditions*

- The weather was similar to the morning shift – isolated patches of light showers throughout the evening shift.
- Road works on the Taharoto/Northcote Road intersection continued in the evening.

### *Key Points*

- The total number of cycle movements observed at the Taharoto/Northcote Road intersection falls notably to 51 movements in the evening (compared with 111 movements in the morning shift).
- The key evening movements at this site are turning left into Northcote Road heading southwest from Taharoto Road (Movement 3 = 12 cyclists), straight along Taharoto Road (Movement 8 = 11 movements) in a south-easterly direction, and the right turn out of Northcote Road on to Taharoto Road heading southeast (Movement 4 = 10 cyclists).

**Table 4.3: Evening Cyclist Movements  
Taharoto /Northcote Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	1
2	8
3	12
4	10
5	0
6	0
7	3
8	11
9	0
10	0
11	3
12	2
13	1
14	0
<b>Total</b>	<b>51</b>

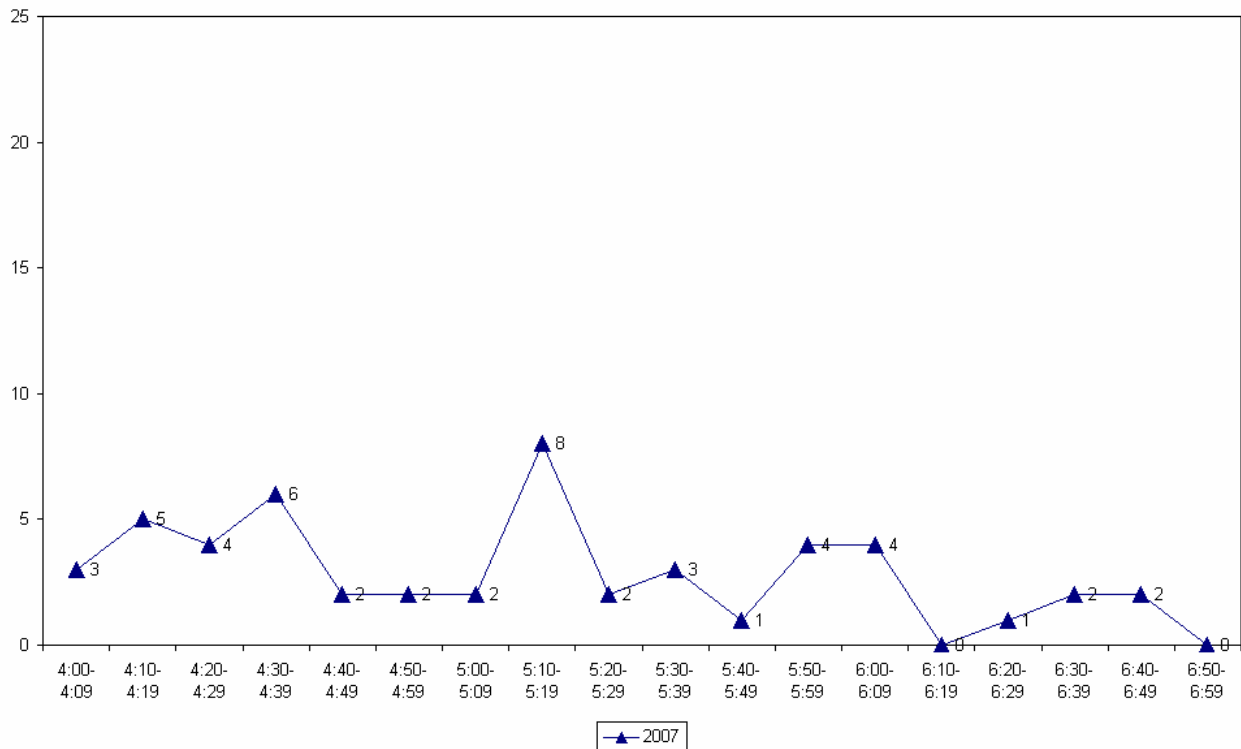
- Over the evening peak, the greatest share of cyclists using this intersection are adults (84 per cent).
- On average, four in five cyclists at this site are wearing a helmet (82 per cent).
- Two-thirds of cyclists are riding on the road (69 per cent).

**Table 4.4: Evening Cyclist Characteristics  
Taharoto /Northcote Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	84%
School child	16%
<b>Helmet Wearing</b>	
Helmet on head	82%
No helmet	18%
<b>Where Riding</b>	
Road	69%
Footpath	31%
<i>Base:</i>	<b>51</b>

- The volume of evening cyclists clearly peaks between 5:10pm and 5:19 (8 cyclists).

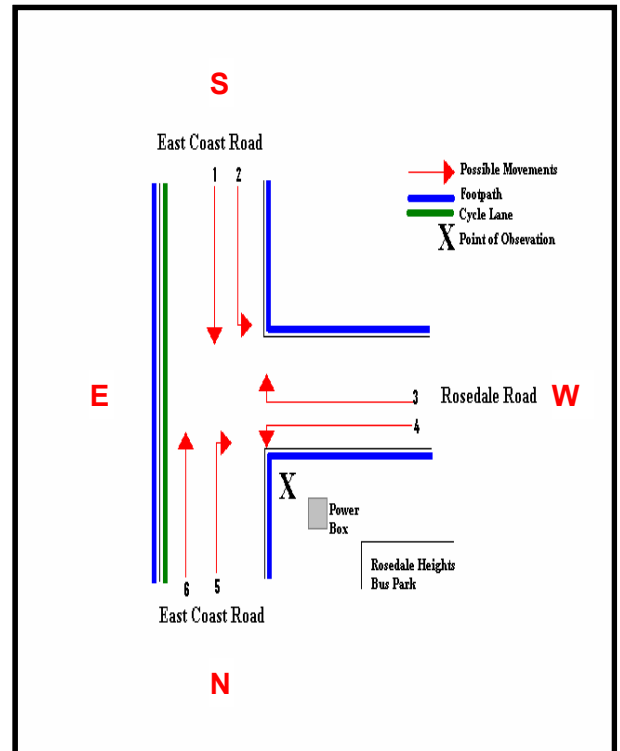
**Figure 4.3: Taharoto /Northcote Road Cyclist Frequency  
– Evening Peak**



# 5. ROSEDALE ROAD/EAST COAST ROAD, MAIRANGI BAY (SITE 38)

Figure 5.1 shows the possible cyclist movements at this intersection.

**Figure 5.1: Cycle Movements: Rosedale/East Coast Road**



### AADT Estimate

- The AADT for this site is 176 cycle movements per day.

## 5.1 Morning Peak

### *Environmental Conditions*

- It was raining throughout the morning peak.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The intersection of Rosedale and East Coast Road has a moderate level of morning cyclist traffic, with 54 cycle movements recorded.
- The key movement in the morning is straight along East Coast Road in a southerly direction (Movement 6 = 41 cyclists).

**Table 5.1: Morning Cyclist Movements  
Rosedale/East Coast Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	7
2	1
3	3
4	0
5	2
6	41
<b>Total</b>	<b>54</b>

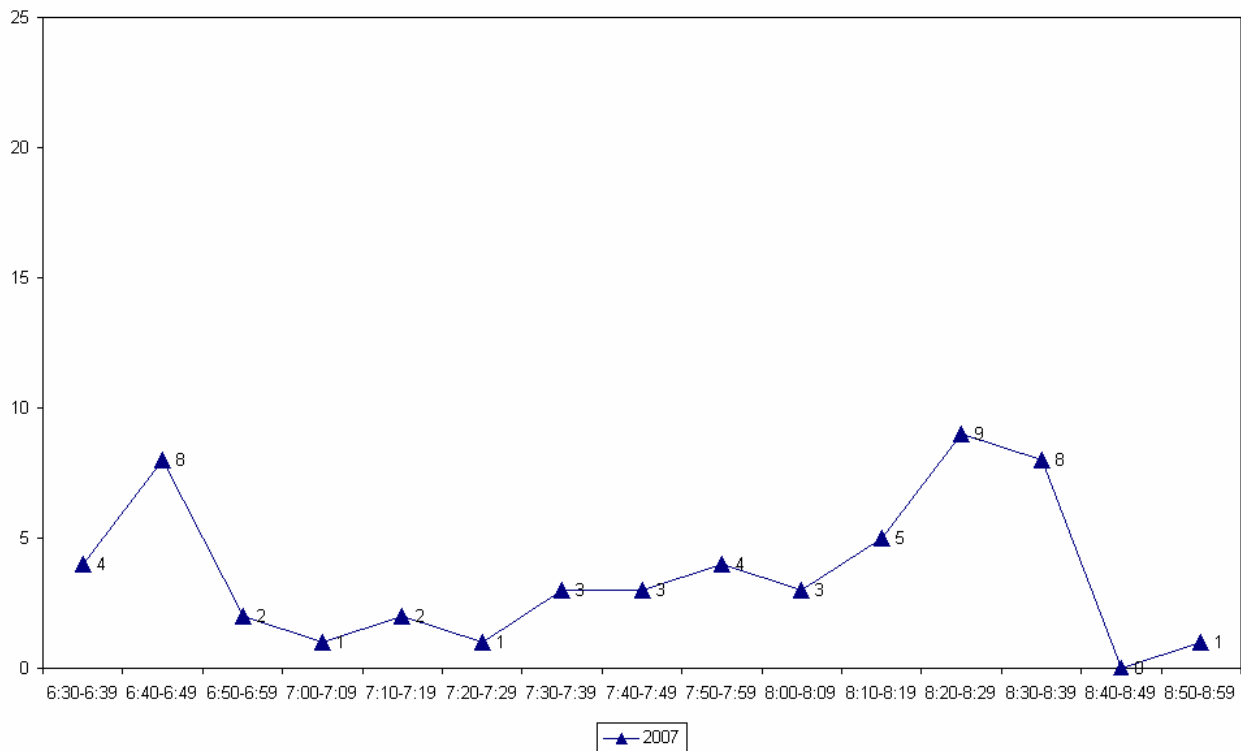
- A higher proportion of morning cyclists using this intersection are adults (57 per cent).
- Most cyclists (85 per cent) are wearing a helmet.
- Just over half of cyclists are riding on the footpath (54 per cent).

**Table 5.2: Morning Cyclist Characteristics  
Rosedale/East Coast Road 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	57%
School child	43%
<b>Helmet Wearing</b>	
Helmet on head	85%
No helmet	15%
<b>Where Riding</b>	
Road	46%
Footpath	54%
<i>Base:</i>	<b>54</b>

- Morning cycle volumes start off with a slight peak (8 cyclists) at around 6:40am after which volumes fall, and then increases gradually to a peak (9 cyclists at around 8:20am), before falling again towards the end of the monitoring period.

**Figure 5.2: Rosedale/East Coast Road Cyclist Frequency  
– Morning Peak**



## 5.2 Evening Peak

### *Environmental Conditions*

- Consistent with the weather in the morning, intermittent showers continue passing over the evening peak.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Compared with 54 movements recorded in the morning peak, the volume of evening cyclists falls notably to 22 movements.
- Consistent with the morning shift, the most common movement in the evening is straight along East Coast Road heading south (Movement 6 = 13 cyclists).

**Table 5.3: Evening Cyclist Movements  
Rosedale/East Coast Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	6
2	1
3	0
4	2
5	0
6	13
<b>Total</b>	<b>22</b>

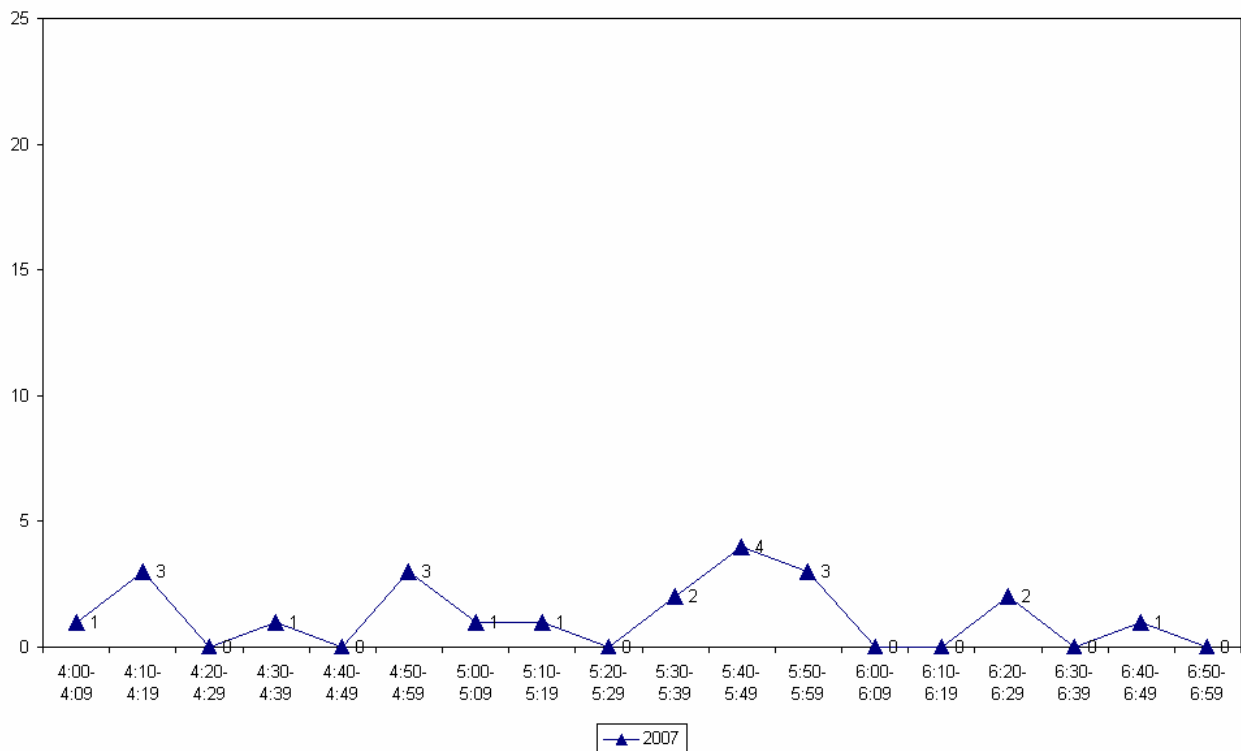
- Over the evening shift, nearly three-quarter (73 per cent) of the cyclists using this intersection are adults (up from 57 per cent in the morning).
- Helmet wearing is still common in the evening (95 per cent).
- On average, two in three cyclists are riding on the road (64 per cent).

**Table 5.4: Evening Cyclist Characteristics  
Rosedale/East Coast Road 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	73%
School child	27%
<b>Helmet Wearing</b>	
Helmet on head	95%
No helmet	5%
<b>Where Riding</b>	
Road	64%
Footpath	36%
<i>Base:</i>	<b>22</b>

- Evening cycle volumes are relatively low over the entire monitoring period, with no more than two cyclists recorded passing during most ten minute intervals. A slight peak (4 movements) occurs between 5:40pm and 5:49pm.

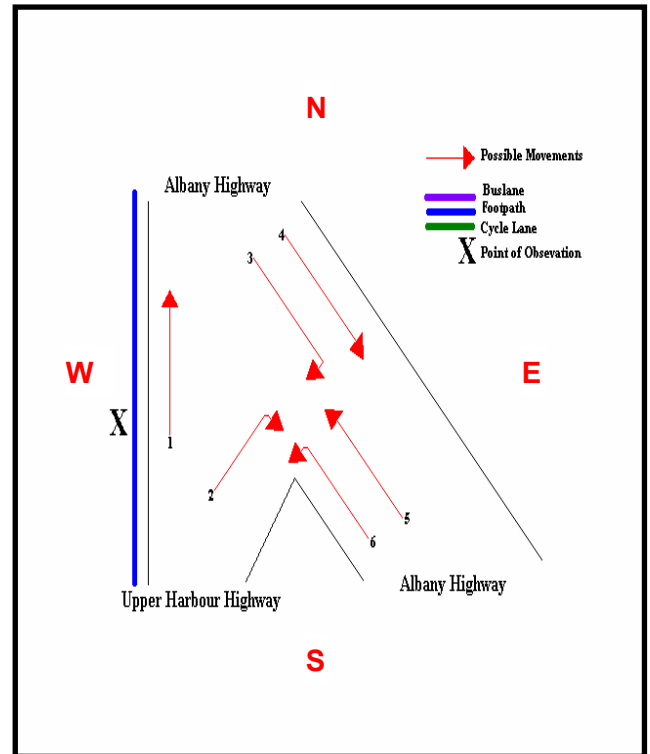
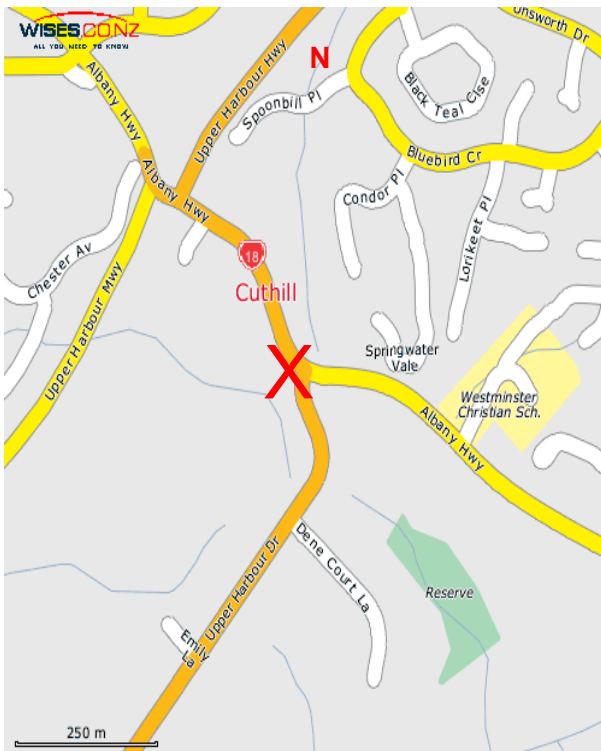
**Figure 5.3: Rosedale/East Coast Road Cyclist Frequency  
– Evening Peak**



## 6. UPPER HARBOUR DRIVE/ALBANY HIGHWAY, GREENHITE (SITE 39)

Figure 6.1 shows the possible cyclist movements at this intersection.

**Figure 6.1: Cycle Movements: Upper Harbour Drive/Albany Highway**



### AADT Estimate

- The AADT for this site is 57 cycle movements per day.

## 6.1 Morning Peak

### *Environmental Conditions*

- The weather was fine at the start of the morning shift, but rain fell from the middle of the shift until the end.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Compared with other sites in North Shore City, the volume of morning cyclists at the Upper Harbour Drive/Albany Highway intersection is the third lightest, with 14 cycle movements recorded.
- The two key morning movements are straight through from Upper Harbour Drive into Albany Highway (Movement 1 = 7 cyclists) and straight along Albany Highway heading north (Movement 5 = 6 cyclists).

**Table 6.1: Morning Cyclist Movements  
Upper Harbour Drive/Albany Highway 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	7
2	1
3	0
4	0
5	6
6	0
<b>Total</b>	<b>14</b>

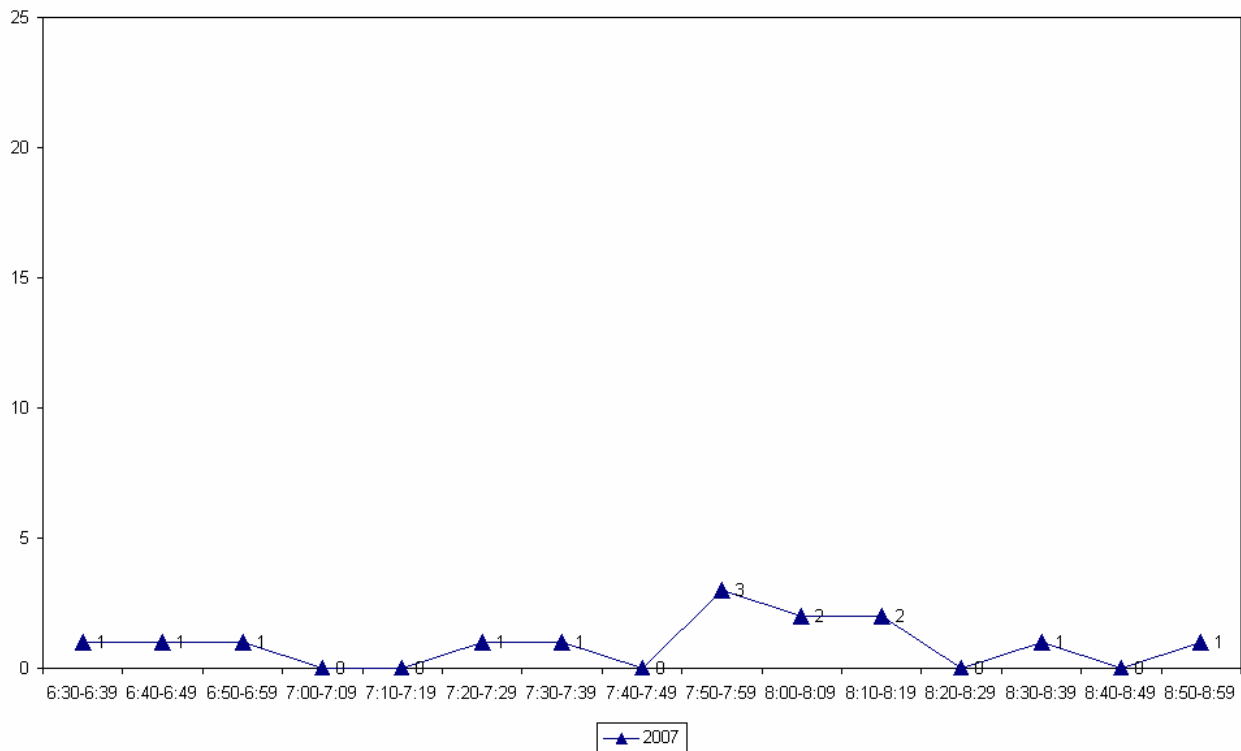
- Over the morning peak, no school children are using this intersection.
- All cyclists (100 per cent) are wearing a helmet.
- The majority of cyclists are riding on the road (86 per cent).

**Table 6.2: Morning Cyclist Characteristics  
Upper Harbour Drive/Albany Highway 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	100%
School child	0%
<b>Helmet Wearing</b>	
Helmet on head	100%
No helmet	0%
<b>Where Riding</b>	
Road	86%
Footpath	14%
<i>Base:</i>	<b>14</b>

- The volume of morning cycle movements is very low over the entire monitoring period, with no more than one cyclist recorded during most ten minute intervals. A slight peak occurs between 7:50am and 7:59am (3 cyclists).

**Figure 6.2: Upper Harbour Drive/Albany Highway Cyclist Frequency – Morning Peak**



## 6.2 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*

- Consistent with the morning shift, Upper Harbour Drive/Albany Highway intersection has the second lowest level of evening cyclist traffic (11 movements).
- The most common movement in the evening is straight along Albany Highway heading southeast (Movement 4 = 4 cyclists).

**Table 6.3: Evening Cyclist Movements  
Upper Harbour Drive/Albany Highway 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	1
2	2
3	3
4	4
5	1
6	0
<b>Total</b>	<b>11</b>

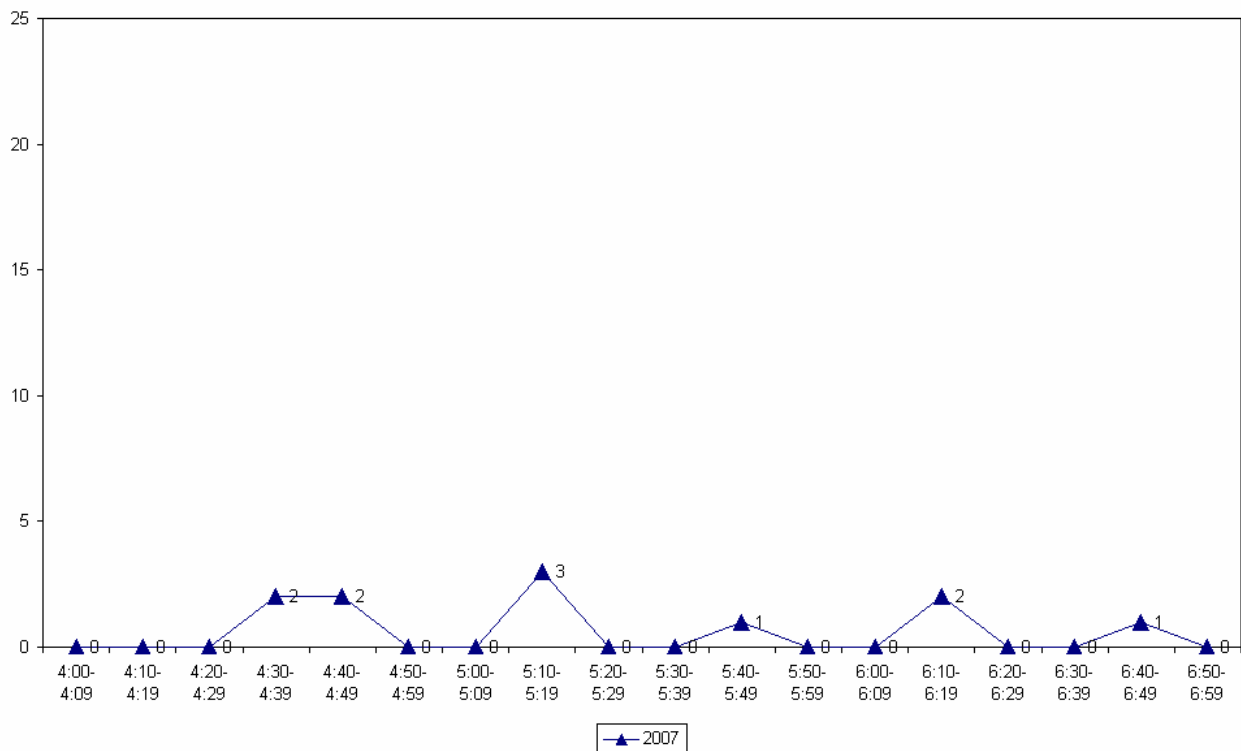
- Over the evening peak, none of the cyclists using this intersection are school children.
- All cyclists (100 per cent) are wearing a helmet.
- Most cyclists are riding on the footpath (91 per cent).

**Table 6.4: Evening Cyclist Characteristics  
Upper Harbour Drive/Albany Highway 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	100%
School child	0%
<b>Helmet Wearing</b>	
Helmet on head	100%
No helmet	0%
<b>Where Riding</b>	
Road	91%
Footpath	9%
<b>Base:</b>	<b>11</b>

- Evening cycle volumes remain very low over the entire monitoring period, with no cyclists recorded each ten minute interval over two-thirds of the monitoring period. A slight peak occurs between 5:10pm and 5:19pm (3 movements).

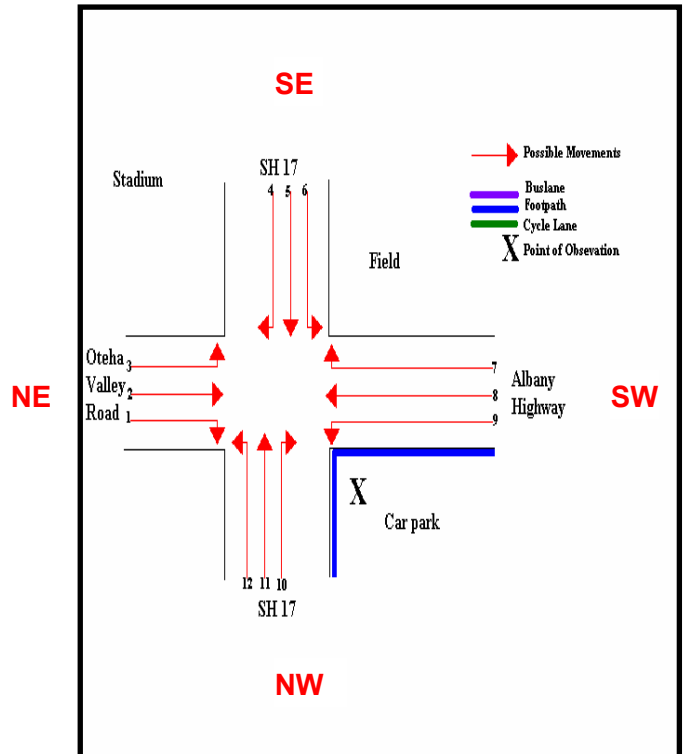
**Figure 6.3: Upper Harbour Drive/Albany Highway Cyclist Frequency – Evening Peak**



# 7. OTEHA VALLEY ROAD/SH17/ALBANY HIGHWAY, ALBANY (SITE 40)

Figure 7.1 shows the possible cyclist movements at this intersection.

**Figure 7.1: Cycle Movements: Oteha Valley Road/SH17/Albany Highway**



### AADT Estimate

- The AADT for this site is 42 cycle movements per day.

## 7.1 Morning Peak

### *Environmental Conditions*

- The weather was fine for most of the morning shift, apart from a light shower at start.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Of the thirteen sites monitored in North Shore City, the volume of cycle movements at the Oteha Valley Road/SH17/Albany Highway intersection is the lightest, with 4 cycle movements recorded.
- The key movement in the morning is straight along SH17 in a south-easterly direction (Movement 11 = 2 cyclists).

**Table 7.1: Morning Cyclist Movements  
Oteha Valley Road/SH17/Albany Highway 2007 (n)**

<i>Movement</i>	<i>2007</i>
1	0
2	1
3	1
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	2
12	0
<b>Total</b>	<b>4</b>

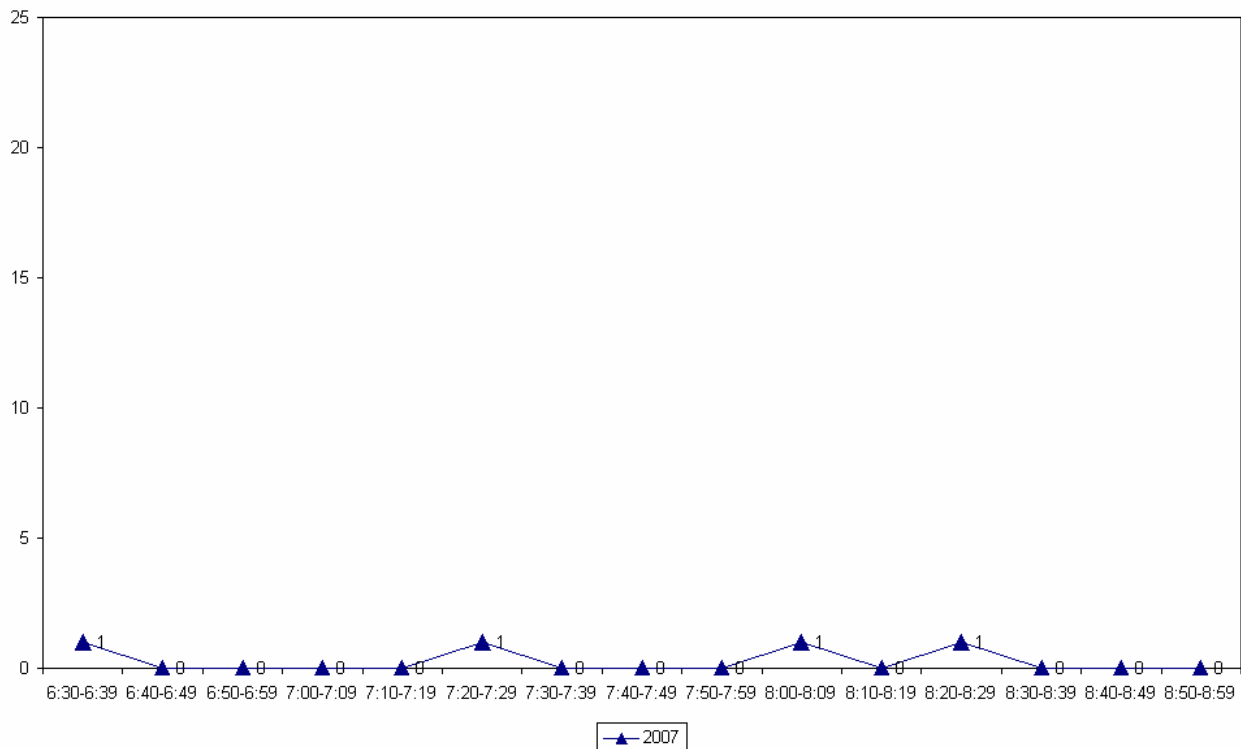
- Over the morning peak, no school children are riding through this intersection.
- All cyclists (100 per cent) are wearing a helmet.
- Exactly half of cyclists are riding on the footpath (50 per cent).

**Table 7.2: Morning Cyclist Characteristics  
Oteha Valley Road/SH17/Albany Highway 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	100%
School child	0%
<b>Helmet Wearing</b>	
Helmet on head	100%
No helmet	0%
<b>Where Riding</b>	
Road	50%
Footpath	50%
<b>Base:</b>	<b>4</b>

- Due to the low numbers of cyclists, morning cycle volumes are extremely low over the entire monitoring period, with no cyclists recorded within most ten minute intervals.

**Figure 7.2: Oteha Valley Road/SH17/Albany Highway Cyclist Frequency  
– Morning Peak**



## 7.2 Evening Peak

### *Environmental Conditions*

- The weather was fine at the start of the shift, with rain falling during the latter part of the evening shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Compared with the morning peak, evening cyclist numbers recorded at the Oteha Valley Road/SH17/Albany Highway intersection increased notably, to 15 cycle movements.
- The most common movement in the evening is straight along SH17 heading northwest (Movement 5 = 4 cyclists).

**Table 7.3: Evening Cyclist Movements  
Oteha Valley Road/SH17/Albany Highway 2007 (n)**

<i>Movement</i>	<i>2007</i>
1	0
2	1
3	0
4	1
5	4
6	1
7	1
8	1
9	0
10	3
11	3
12	0
<b>Total</b>	<b>15</b>

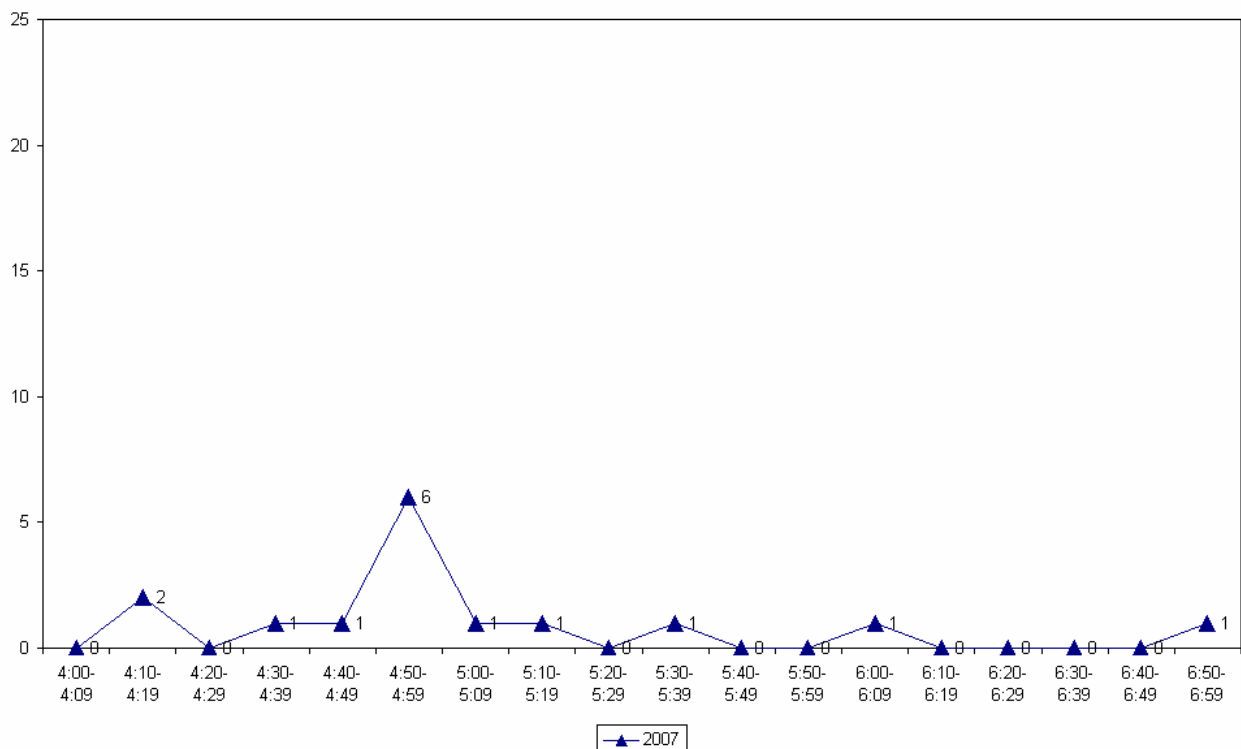
- Consistent with the morning shift, none of the cyclists using this site are school children.
- Almost all cyclists are wearing a helmet (93 per cent).
- A high proportion of cyclists are riding on the road (87 per cent).

**Table 7.4: Evening Cyclist Characteristics  
Oteha Valley Road/SH17/Albany Highway 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	100%
School child	0%
<b>Helmet Wearing</b>	
Helmet on head	93%
No helmet	7%
<b>Where Riding</b>	
Road	87%
Footpath	13%
<i>Base:</i>	<b>15</b>

- The volume of evening cycle movements peaks between 4:50am and 4:59am (6 cyclists), after which no more than one cyclist was recorded within any ten minute interval.

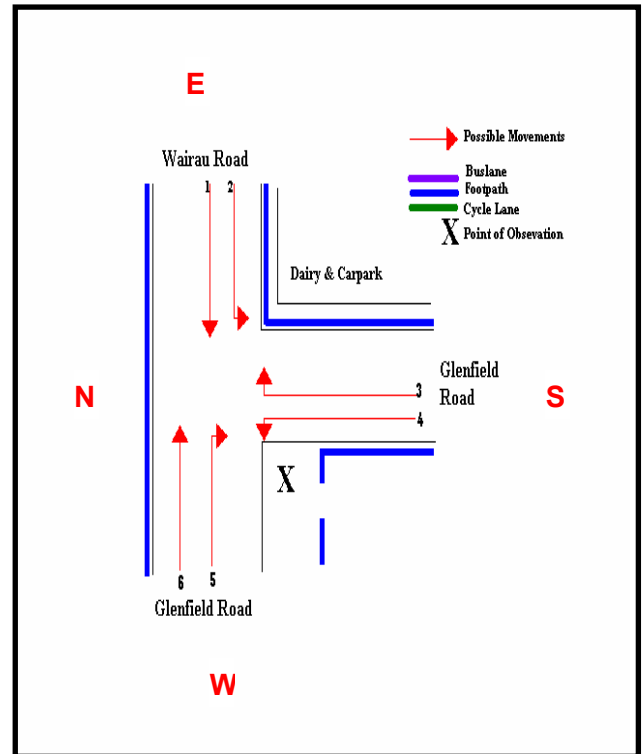
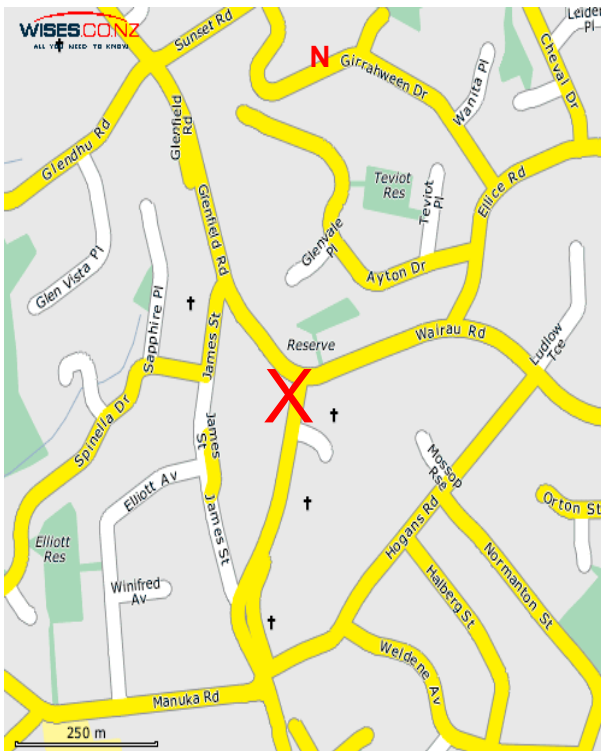
**Figure 7.3: Oteha Valley Road/SH17/Albany Highway Cyclist Frequency  
– Evening Peak**



## 8. WAIRAU ROAD/GLENFIELD ROAD, GLENFIELD (SITE 41)

Figure 8.1 shows the possible cyclist movements at this intersection.

**Figure 8.1: Cycle Movements: Wairau/Glenfield Road**



*Note: This site was originally monitored on Tuesday 13<sup>th</sup> March, along with all other North Shore City sites. However, a small number of disparities were discovered in the data analysis process, so it was decided to monitor this site again. This counting took place on Tuesday 24<sup>th</sup> April.*

### **AADT Estimate**

- The AADT for this site is 93 cycle movements per day.

## 8.1 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 North Shore City, the volume of morning cyclists at the Wairau/Glenfield Road intersection is moderate, with 34 cycle movements recorded.
- The most common movements in the morning are along Glenfield Road in both directions (Movement 4 = 11 cyclists; Movement 5 = 9 cyclists).

**Table 8.1: Morning Cyclist Movements  
Wairau/Glenfield Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	2
2	2
3	4
4	11
5	9
6	6
<b>Total</b>	<b>34</b>

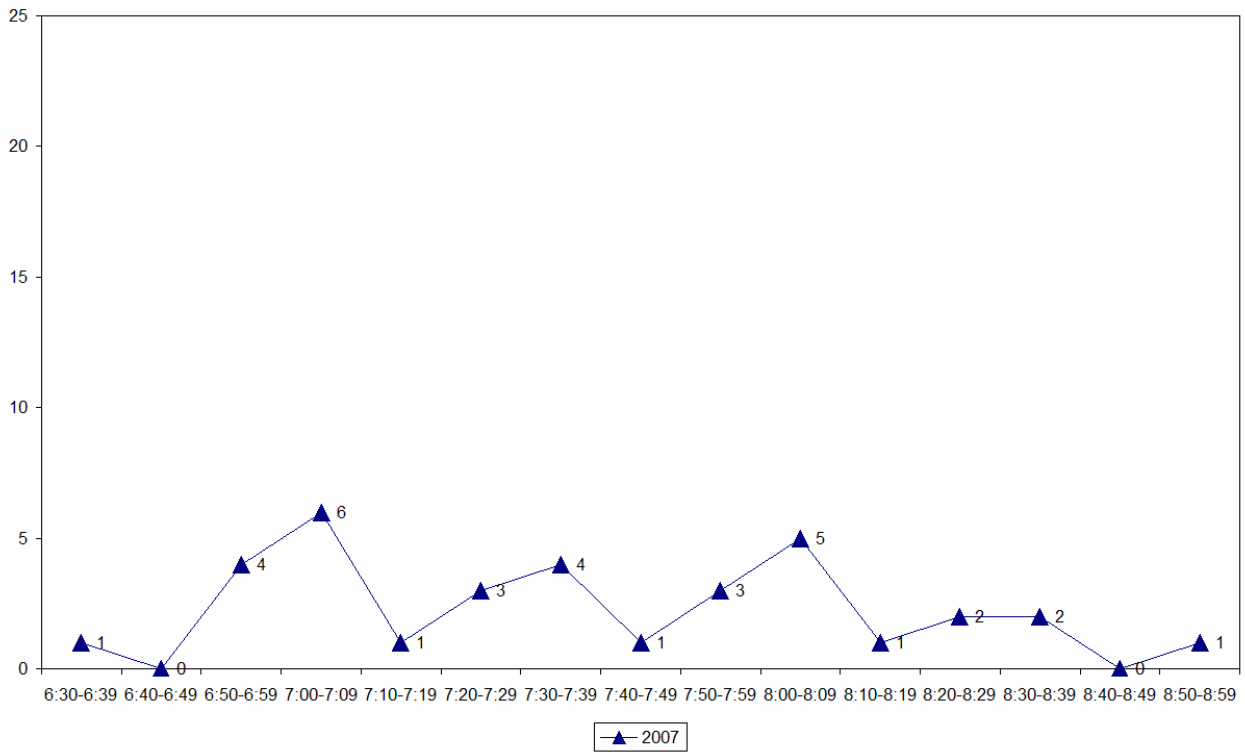
- Over the morning peak, adults comprise the greatest share of cycle movements (91 per cent).
- The majority of cyclists are wearing a helmet at this site (82 per cent).
- On average, three in five cyclists are riding on the road (62 per cent).

**Table 8.2: Morning Cyclist Characteristics  
Wairau/Glenfield Road 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	91%
School child	9%
<b>Helmet Wearing</b>	
Helmet on head	82%
No helmet	18%
<b>Where Riding</b>	
Road	62%
Footpath	38%
<i>Base:</i>	<b>34</b>

- The volume of morning cycle movements peaks at around 7:00pm (6 cyclists), and then another smaller peak occurs between 8:00am and 8:09am (5 cyclists), after which cycle numbers drop off towards the end of the monitoring period.

**Figure 8.2: Wairau/Glenfield Road 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*

- The total number of cycle movements at the Wairau/Glenfield Road intersection is slightly lower in the evening with 30 movements recorded (compared with 34 movements in the morning shift).
- Consistent with the morning peak, the two key movements in the evening are along Glenfield Road in both directions (Movement 5 = 8 cyclists; Movement 4 = 7 cyclists).

**Table 8.3: Evening Cyclist Movements  
Wairau/Glenfield Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	6
2	2
3	3
4	7
5	8
6	4
<b>Total</b>	<b>30</b>

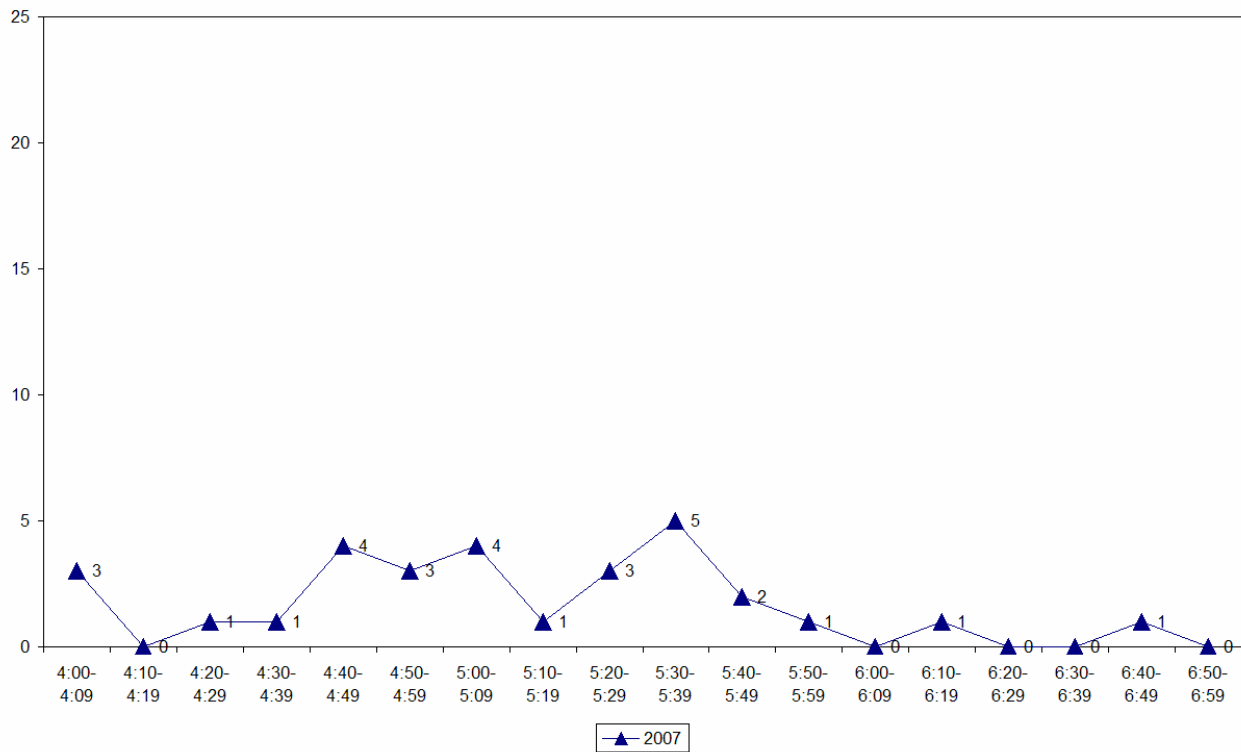
- Over the evening period, all cyclists using this site are adults (100 per cent).
- Helmet wearing continues to be widespread in the evening (87 per cent).
- Nearly three-quarters of cyclists are riding on the road (73 per cent).

**Table 8.4: Evening Cyclist Characteristics  
Wairau/Glenfield Road 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	100%
School child	0%
<b>Helmet Wearing</b>	
Helmet on head	87%
No helmet	13%
<b>Where Riding</b>	
Road	73%
Footpath	27%
<b>Base:</b>	<b>30</b>

- Evening cyclist numbers peak slightly in the middle of the monitoring period (5 cyclists between 5:30pm and 5:39pm), and afterwards no more than two cyclists were recorded within any ten minute intervals through to the end of the shift.

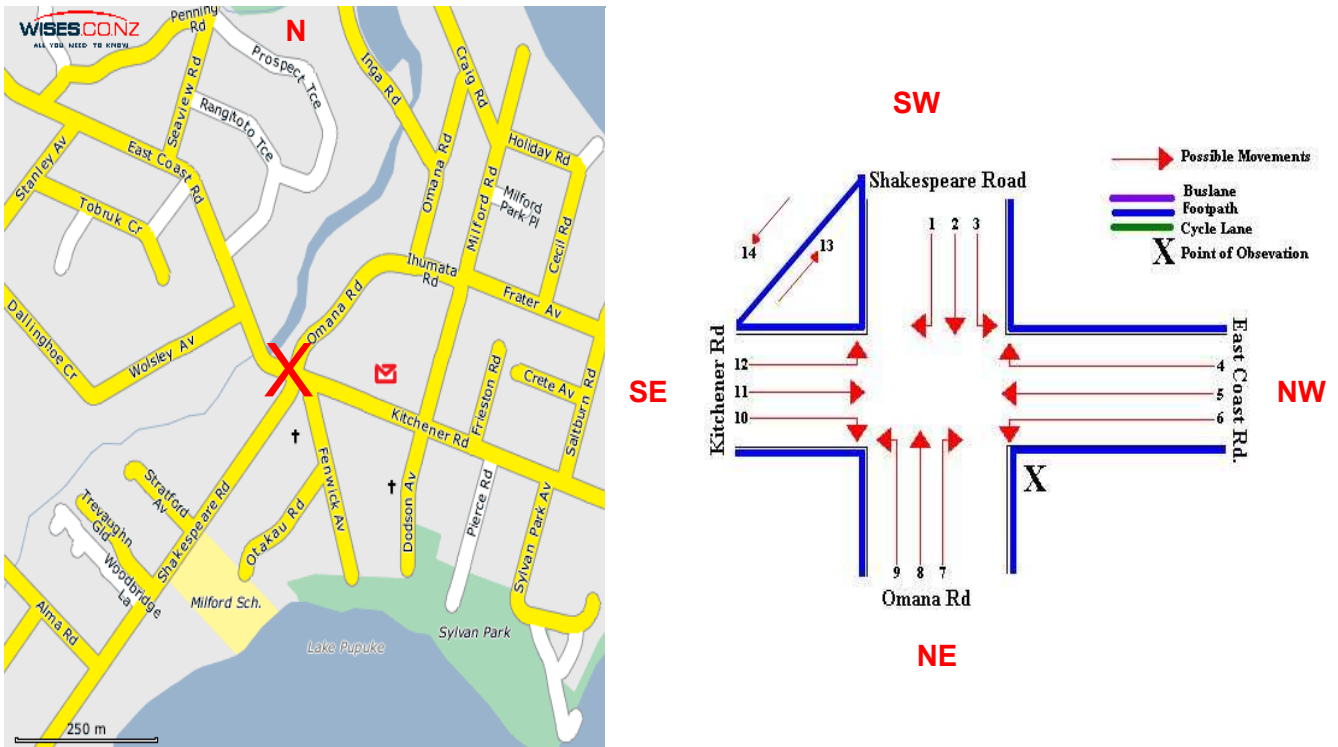
**Figure 8.3: Wairau/Glenfield Road Cyclist Frequency  
– Evening Peak**



# 9. SHAKESPEARE ROAD/EAST COAST ROAD, MILFORD (SITE 42)

Figure 9.1 shows the possible cyclist movements at this intersection.

**Figure 9.1: Cycle Movements: Shakespeare/East Coast Road**



## AADT Estimate

- The AADT for this site is 314 cycle movements per day.

## 9.1 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift, aside from isolated patches of light showers.
- There were road works on Kitchener Road that may affect cycle counts.

### *Key Points*

- Of the thirteen sites monitored in North Shore City, the level of morning cyclist traffic at the Shakespeare/East Coast Road intersection is the third highest, with 82 cycle movements recorded.
- The most common movement is straight through from East Coast Road into Kitchener Road (Movement 5 = 28 cyclists).

**Table 9.1: Morning Cyclist Movements  
Shakespeare/East Coast Road 2007 (n)**

<i>Movement</i>	<i>2007</i>
1	8
2	3
3	1
4	5
5	28
6	1
7	0
8	3
9	2
10	0
11	5
12	17
13	4
14	5
<b>Total</b>	<b>82</b>

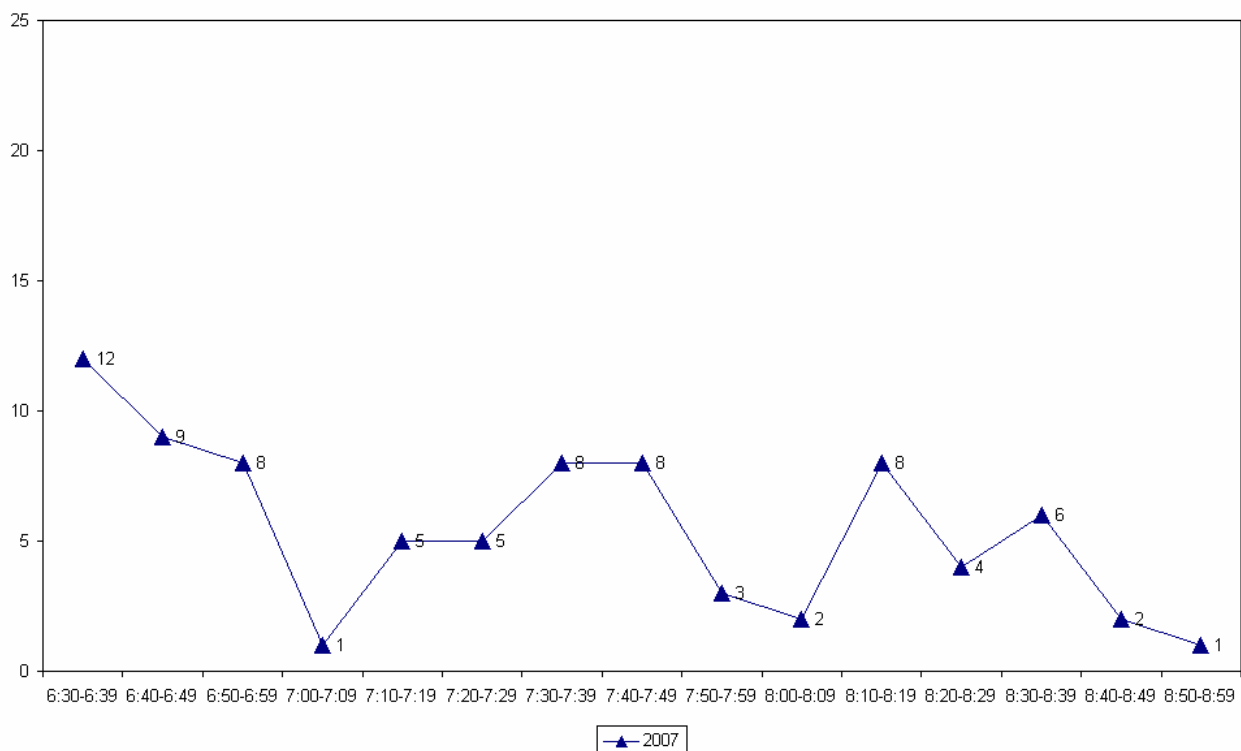
- Over the morning peak, adults comprise the greatest share of cycle movements (83 per cent).
- Almost all cyclists are wearing a helmet (96 per cent).
- On average, around three in four cyclists are riding on the road (77 per cent).

**Table 9.2: Morning Cyclist Characteristics  
Shakespeare/East Coast Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	83%
School child	17%
<b>Helmet Wearing</b>	
Helmet on head	96%
No helmet	4%
<b>Where Riding</b>	
Road	77%
Footpath	23%
<i>Base:</i>	<b>82</b>

- Morning cyclist numbers start off with a peak between 6:30am and 6:39am (12 movements) after which the number of movements drops, with only one movement recorded between 7:00am and 7:09am. Cyclist volumes peak again between 7:30am and 7:49am, and between 8:10am and 8:19am (8 cyclists each)

**Figure 9.2: Shakespeare/East Coast Road Cyclist Frequency  
– Morning Peak**



## 9.2 Evening Peak

### *Environmental Conditions*

- In contrast to the fine weather in the morning, it was raining throughout the evening shift.
- Road works on Kitchener Road continue for the evening.

### *Key Points*

- Consistent with the heavy cyclist traffic in the morning, the intersection of Shakespeare/East Coast Road continues to be the second busiest in terms of the evening cyclists' activity, with 55 cycle movements.
- The most common movement in the evening is straight out off Kitchener Road into East Coast Road (Movement 11 = 13 cyclists).

**Table 9.3: Evening Cyclist Movements  
Shakespeare/East Coast Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	4
2	3
3	6
4	2
5	6
6	4
7	0
8	1
9	0
10	0
11	13
12	9
13	6
14	1
<b>Total</b>	<b>55</b>

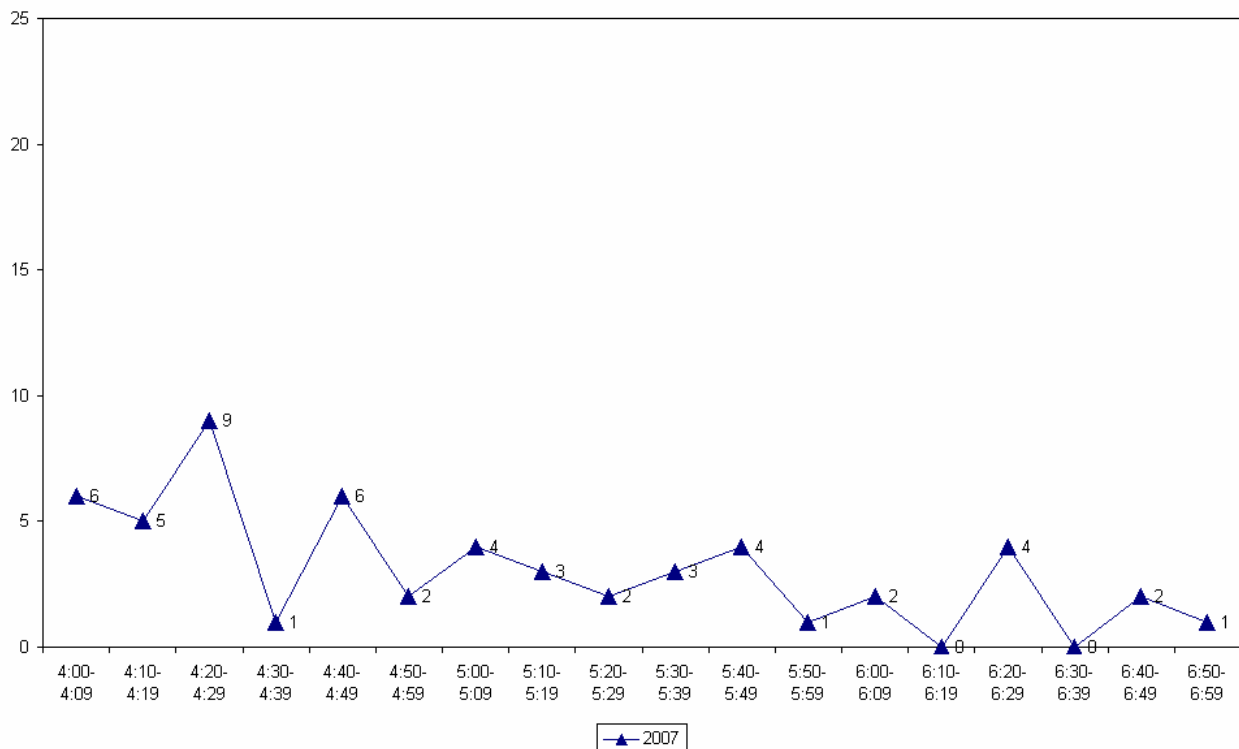
- Over the evening peak, the majority (82 per cent) of cyclists using this intersection are adults.
- A high proportion of cyclists are wearing a helmet (82 per cent).
- Nearly three-quarters of cyclists are riding on the road (73 per cent).

**Table 9.4: Evening Cyclist Characteristics  
Shakespeare/East Coast Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	82%
School child	18%
<b>Helmet Wearing</b>	
Helmet on head	82%
No helmet	18%
<b>Where Riding</b>	
Road	73%
Footpath	27%
<i>Base:</i>	<b>55</b>

- The volume of cycle movements peaks early in the evening (9 movements between 4:20pm and 4:29pm), and remains relatively low over the rest of the monitoring period, with no more than four cyclists recorded during most ten minute intervals.

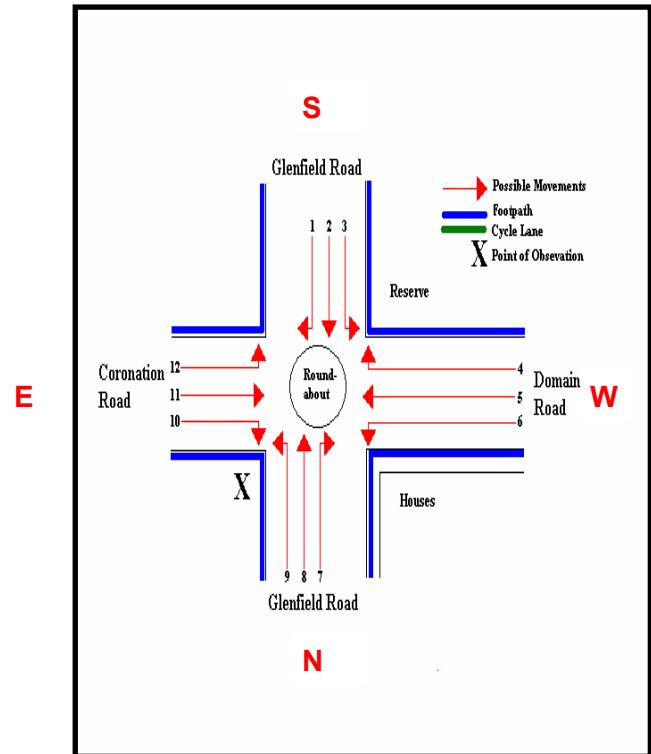
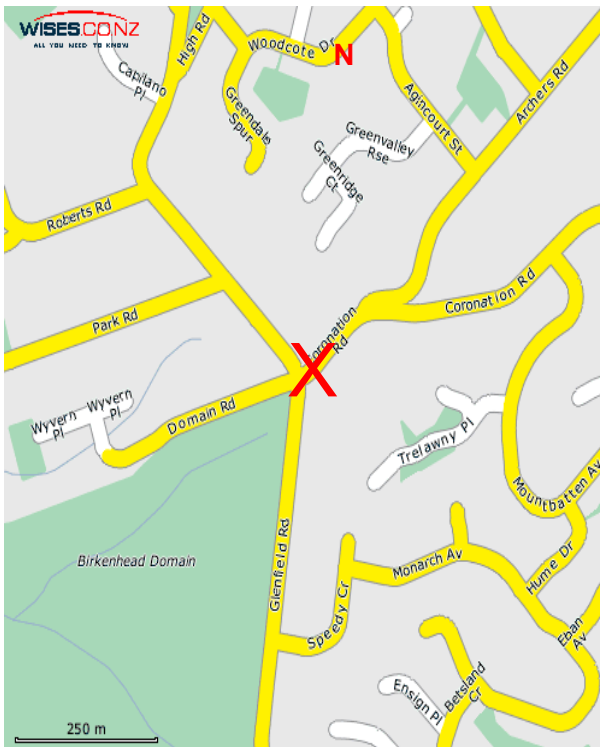
**Figure 9.3: Shakespeare/East Coast Road Cyclist Frequency  
– Evening Peak**



# 10. GLENFIELD ROAD/CORONATION ROAD, HILLCREST (SITE 43)

Figure 10.1 shows the possible cyclist movements at this intersection.

**Figure 10.1: Cycle Movements: Glenfield/Coronation Road**



## AADT Estimate

- The AADT for this site is 64 cycle movements per day.

## 10.1 Morning Peak

### *Environmental Conditions*

- The weather was fine for most of the shift, except for intermittent light showers.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Compared with other sites in North Shore City, the volume of morning cyclists at the Glenfield/Coronation Road intersection is relatively light, with 16 cycle movements recorded.
- The two key movements in the morning are straight along Glenfield Road in a southerly direction (Movement 8 = 7 cyclists) and turning left out of Glenfield Road into Coronation Road (Movement 9 = 6 cyclists).

**Table 10.1: Morning Cyclist Movements  
Glenfield/Coronation Road 2007 (n)**

<i>Movement</i>	<i>2007</i>
1	2
2	1
3	0
4	0
5	0
6	0
7	0
8	7
9	6
10	0
11	0
12	0
<b>Total</b>	<b>16</b>

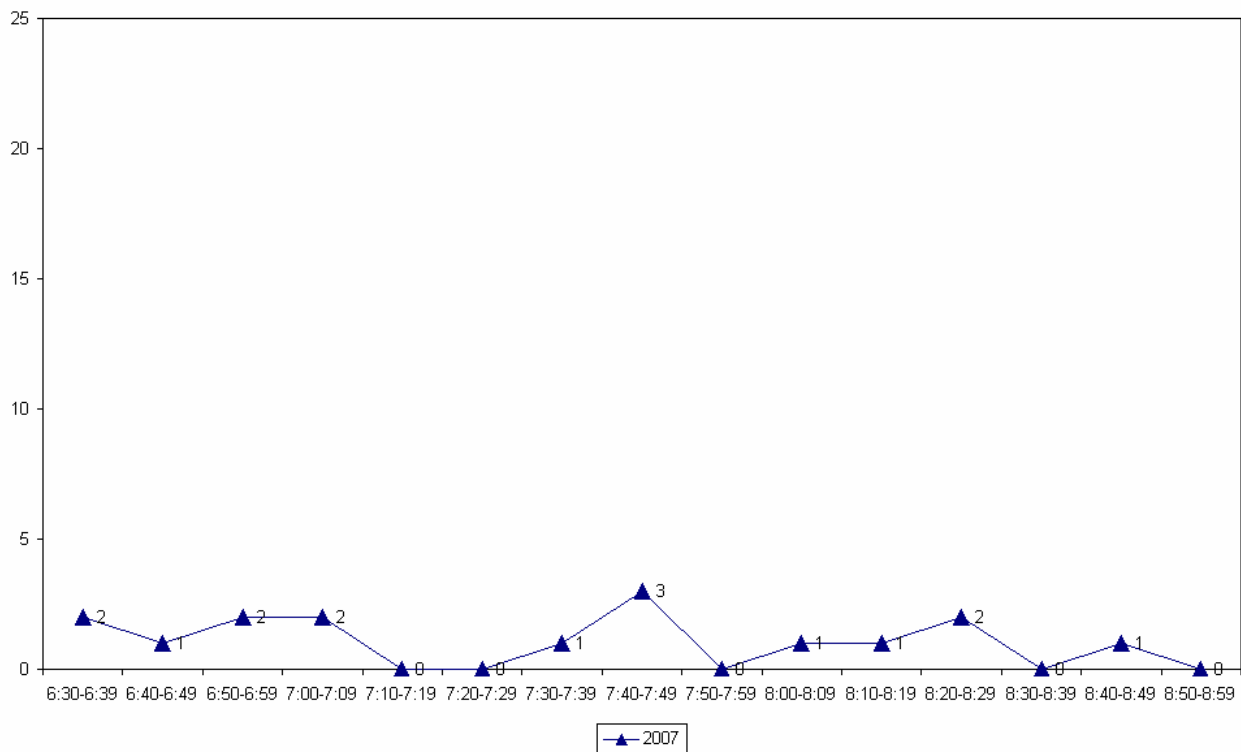
- Over the morning peak, adults comprise the greatest share of cycle movements (94 per cent).
- The majority (87 per cent) of cyclists are wearing a helmet.
- A high proportion of cyclists are riding on the road (87 per cent).

**Table 10.2: Morning Cyclist Characteristics  
Glenfield/Coronation Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	94%
School child	6%
<b>Helmet Wearing</b>	
Helmet on head	87%
No helmet	13%
<b>Where Riding</b>	
Road	87%
Footpath	13%
<i>Base:</i>	<b>16</b>

- Morning cycle volumes are very low over the entire monitoring period, with no more than two cyclists recorded during most ten minute intervals. A slight peak occurs between 7:40am and 7:49am (3 movements).

**Figure 10.2: Glenfield/Coronation Road Cyclist Frequency  
– Morning Peak**



## 10.2 Evening Peak

### *Environmental Conditions*

- There were isolated patches of showers throughout the evening peak.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The total number of cycle movements recorded at the Glenfield/Coronation Road intersection remains low in the evening (12 cycle movements).
- The two key movements in the evening are straight along Glenfield Road in both directions (Movement 8 = 5 cyclists; Movement 2 = 4 cyclists).

**Table 10.3: Evening Cyclist Movements  
Glenfield/Coronation Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	0
2	4
3	0
4	0
5	0
6	0
7	0
8	5
9	0
10	1
11	0
12	2
<b>Total</b>	<b>12</b>

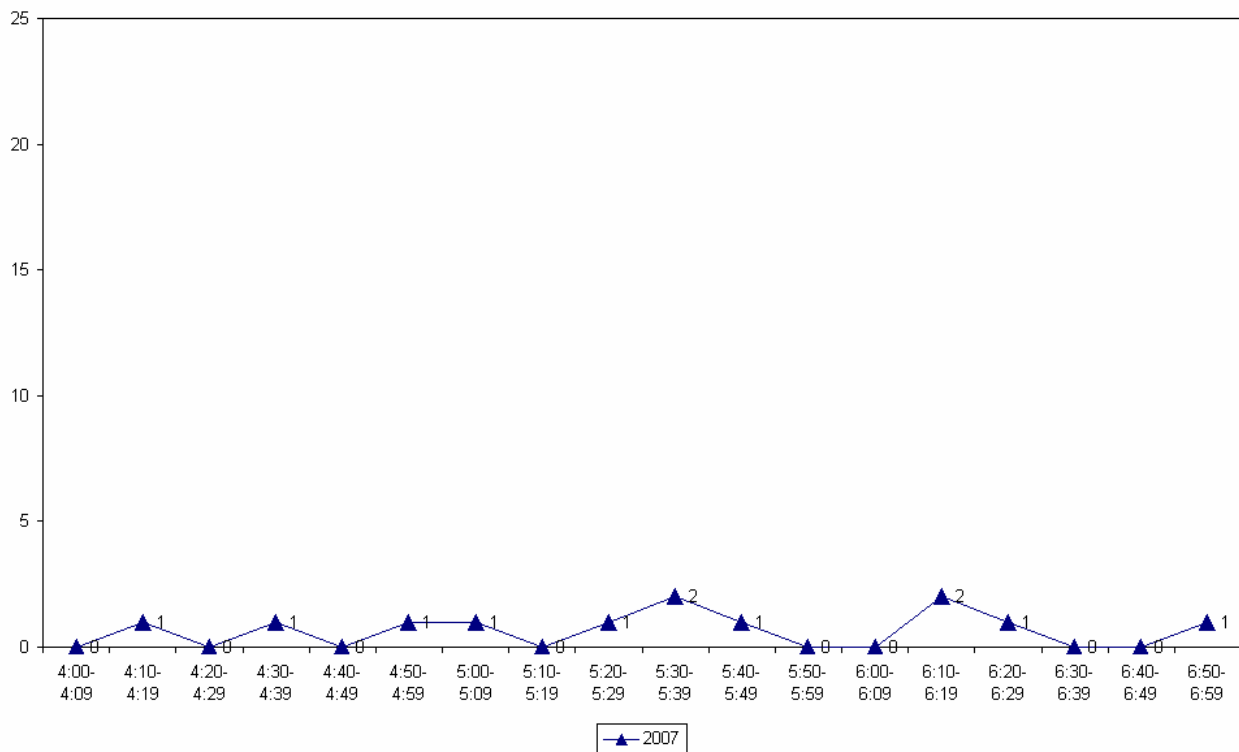
- Adults comprise the greatest share of evening cyclists (83 per cent).
- Exactly three-quarters (75 per cent) of cyclists are wearing a helmet.
- Most cyclists are riding on the road (83 per cent).

**Table 10.4: Evening Cyclist Characteristics  
Glenfield/Coronation Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	83%
School child	17%
<b>Helmet Wearing</b>	
Helmet on head	75%
No helmet	25%
<b>Where Riding</b>	
Road	83%
Footpath	17%
<i>Base:</i>	<b>12</b>

- Evening volumes are very low over the entire monitoring period, with no more than one cyclist recorded passing over most ten minute intervals. A slight peak occurs at around 5:30pm and again at 6:10pm (2 movements each).

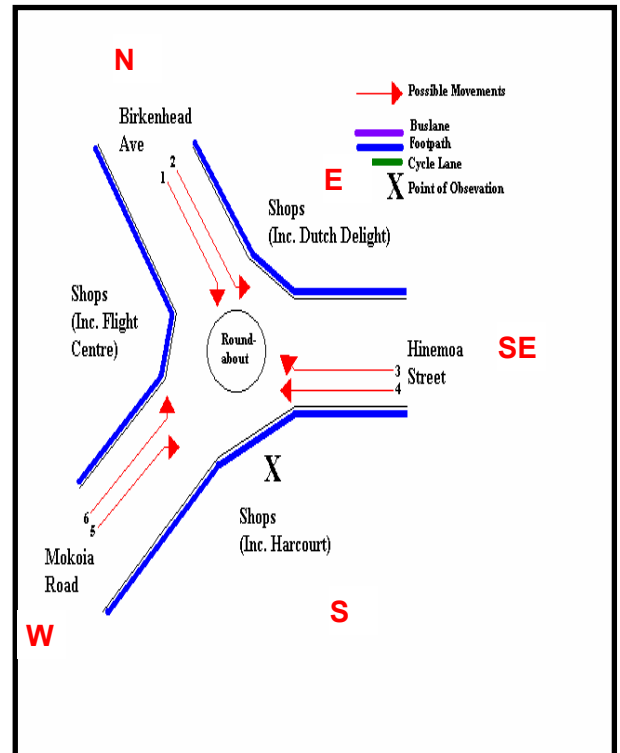
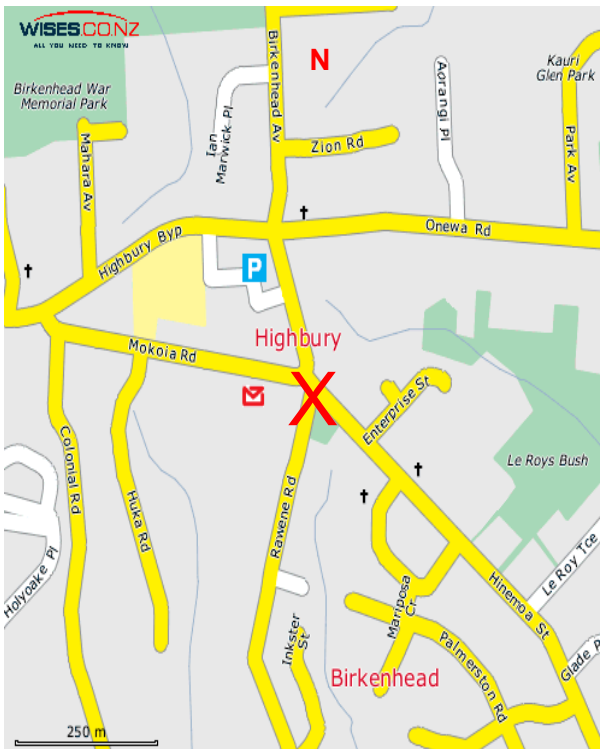
**Figure 10.3: Glenfield/Coronation Road Cyclist Frequency  
– Evening Peak**



# 11. BIRKENHEAD AVENUE/MOKOIA ROAD, BIRKENHEAD (SITE 44)

Figure 11.1 shows the possible cyclist movements at this intersection.

**Figure 11.1: Cycle Movements: Birkenhead/Mokoia Road**



### AADT Estimate

- The AADT for this site is 58 cycle movements per day.

## 11.1 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift.
- There were very minor road works on Birkenhead Avenue near the intersection.

### *Key Points*

- The volume of morning cyclists at the Birkenhead Avenue/Mokoia Road intersection is relatively light (20 cycle movements).
- The two key movements in the morning are turning from Mokoia Road and Birkenhead Avenue into Hinemoa Road, respectively (Movement 5 = 8 cyclists; Movement 2 = 7 cyclists).

**Table 11.1: Morning Cyclist Movements  
Birkenhead Avenue/Mokoia Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	1
2	7
3	1
4	2
5	8
6	1
<b>Total</b>	<b>20</b>

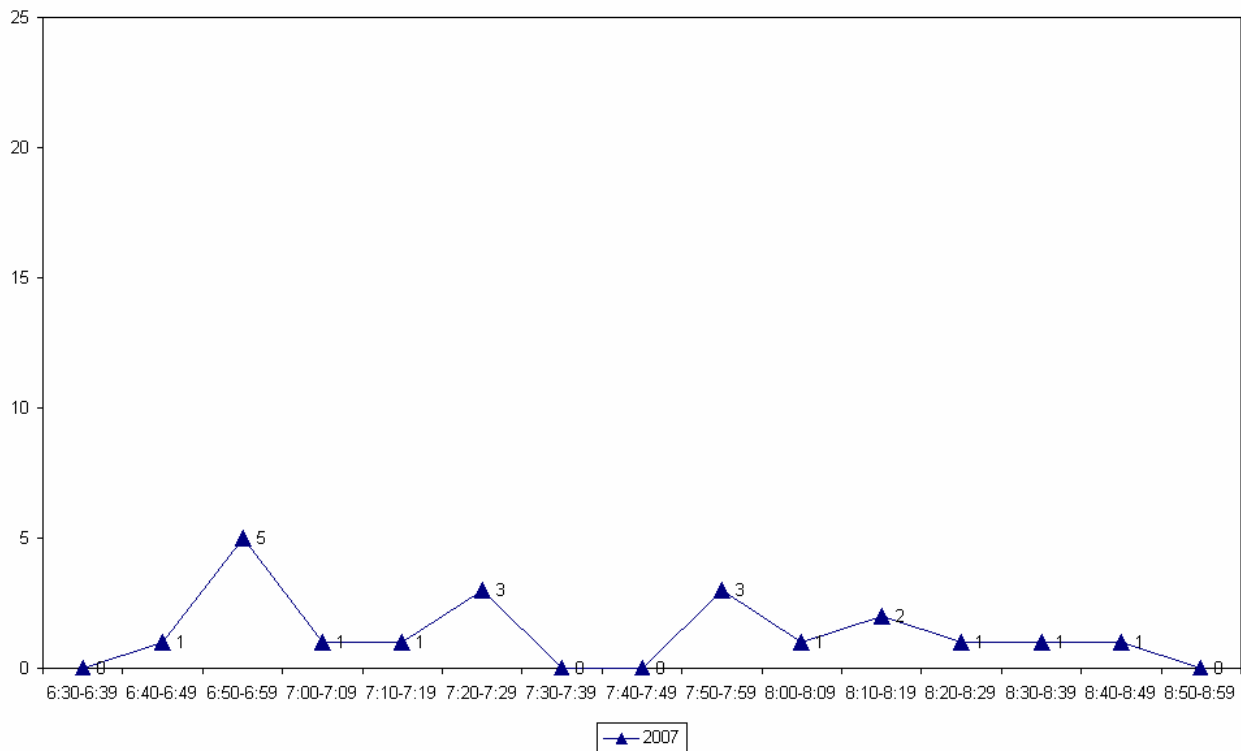
- Over the morning peak, no school children are using Birkenhead Avenue/Mokoia Road intersection.
- On average, four in five cyclists are wearing a helmet (80 per cent).
- Exactly ninety per cent of cyclists are riding on the road.

**Table 11.2: Morning Cyclist Characteristics  
Birkenhead Avenue/Mokoia Road 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	100%
School child	0%
<b>Helmet Wearing</b>	
Helmet on head	80%
No helmet	20%
<b>Where Riding</b>	
Road	90%
Footpath	10%
<i>Base:</i>	<b>20</b>

- The volume of morning cycle movements is relatively low over the entire monitoring period with no more than two cyclists recorded passing during most ten minute intervals. A slight peak occurs early in the morning (5 cyclists between 6:50am and 6:59am).

**Figure 11.2: Birkenhead Avenue/Mokoia Road Cyclist Frequency – Morning Peak**



## 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*

- The total number of cycle movements recorded at Birkenhead Avenue/Mokoia Road intersection is the same as the morning volume (20 movements).
- In contrast to the morning shift, the most common movements in the evening are turning out of Hinemoa Road into Mokoia Road and Birkenhead Avenue, respectively (Movement 4 = 8 cyclists; Movement 3 = 8 cyclists).

**Table 11.3: Evening Cyclist Movements  
Birkenhead Avenue/Mokoia Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	1
2	1
3	8
4	8
5	2
6	0
<b>Total</b>	<b>20</b>

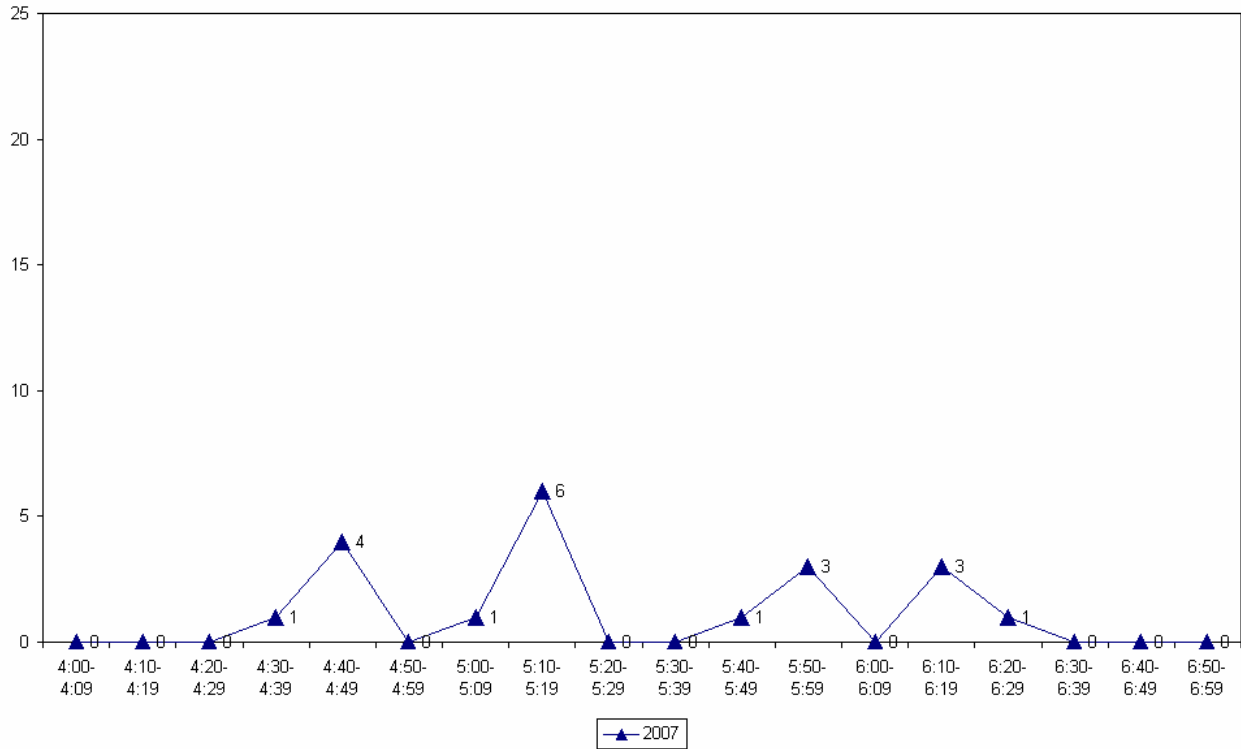
- Over the evening peak, almost all cyclists using this intersection are adults (95 per cent).
- Consistent with the morning peak, helmet wearing is still very common (95 per cent).
- All cyclists are riding on the road (100 per cent).

**Table 11.4: Evening Cyclist Characteristics  
Birkenhead Avenue/Mokoia Road 2007 (%)**

	<b>2007</b>
<b>Cyclist Type</b>	
Adult	95%
School child	5%
<b>Helmet Wearing</b>	
Helmet on head	95%
No helmet	5%
<b>Where Riding</b>	
Road	100%
Footpath	0%
<i>Base:</i>	<b>20</b>

- The volume of cyclists peaks in the middle of evening shift (6 cyclists between 5:10pm and 5:19pm). No cycle movements were recorded before 4:29pm or after 6:30pm.

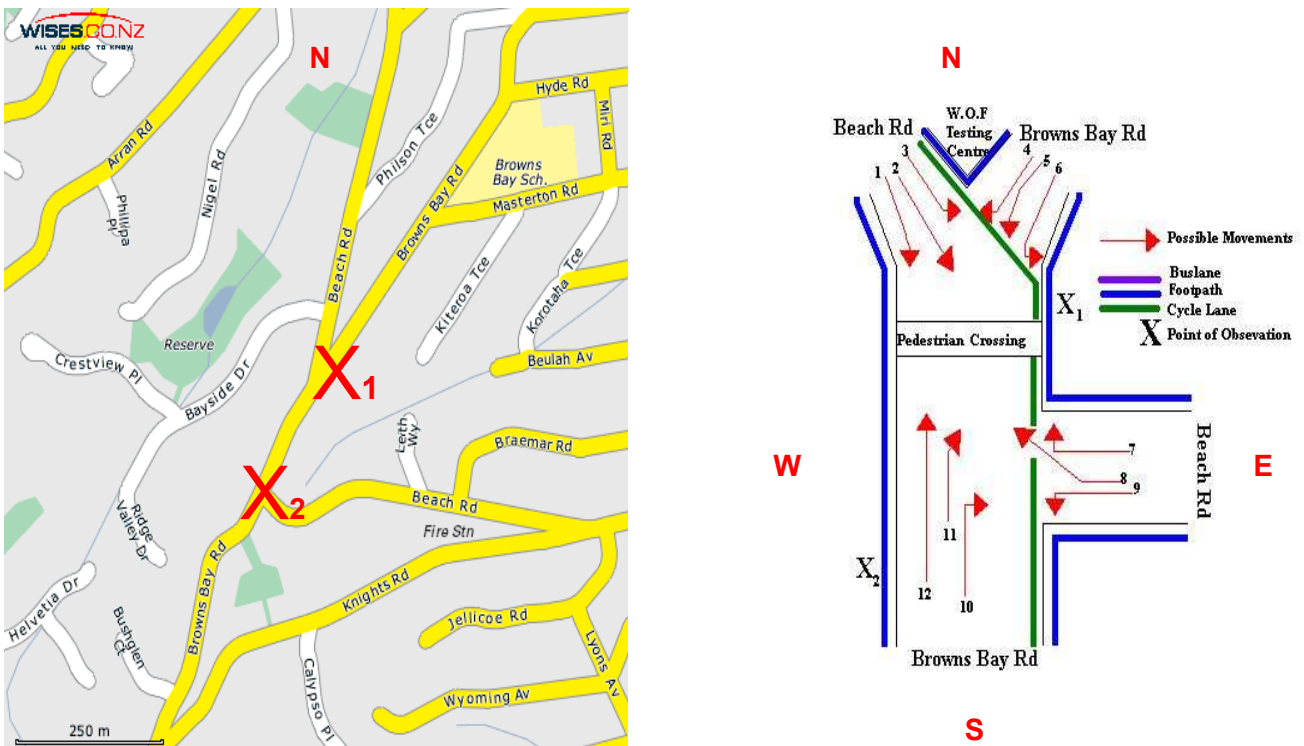
**Figure 11.3: Birkenhead Avenue/Mokoia Road Cyclist Frequency – Evening Peak**



# 12.BEACH ROAD/BROWNS BAY ROAD, ROTHESAY BAY (SITE 45)

Figure 12.1 shows the possible cyclist movements at this intersection. *Note: Due to the size of this intersection, two surveyors were used to conduct the cycle counts.*

**Figure 12.1: Cycle Movements: Beach/Browns Bay Road**



## AADT Estimate

- The AADT for this site is 44 cycle movements per day.

## 12.1 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift, aside from light showers at the start of the monitoring period.
- There were no road works or accidents that may affect cycle counts.
- Of the thirteen sites monitored in North Shore City, the intersection of Beach/Browns Bay Road has the second lowest level of morning cyclist traffic, with 11 cycle movements recorded.
- The two key movements in the morning are turning left from Beach Road into Browns Bay Road (Movement 3 = 3 cyclists) and turning right from Browns Bay Road into Beach Road (Movement 4 = 3 cyclists).

**Table 12.1: Morning Cyclist Movements  
Beach/Browns Bay Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	1
2	2
3	3
4	3
5	0
6	2
7	0
8	0
9	0
10	0
11	0
<b>Total</b>	<b>11</b>

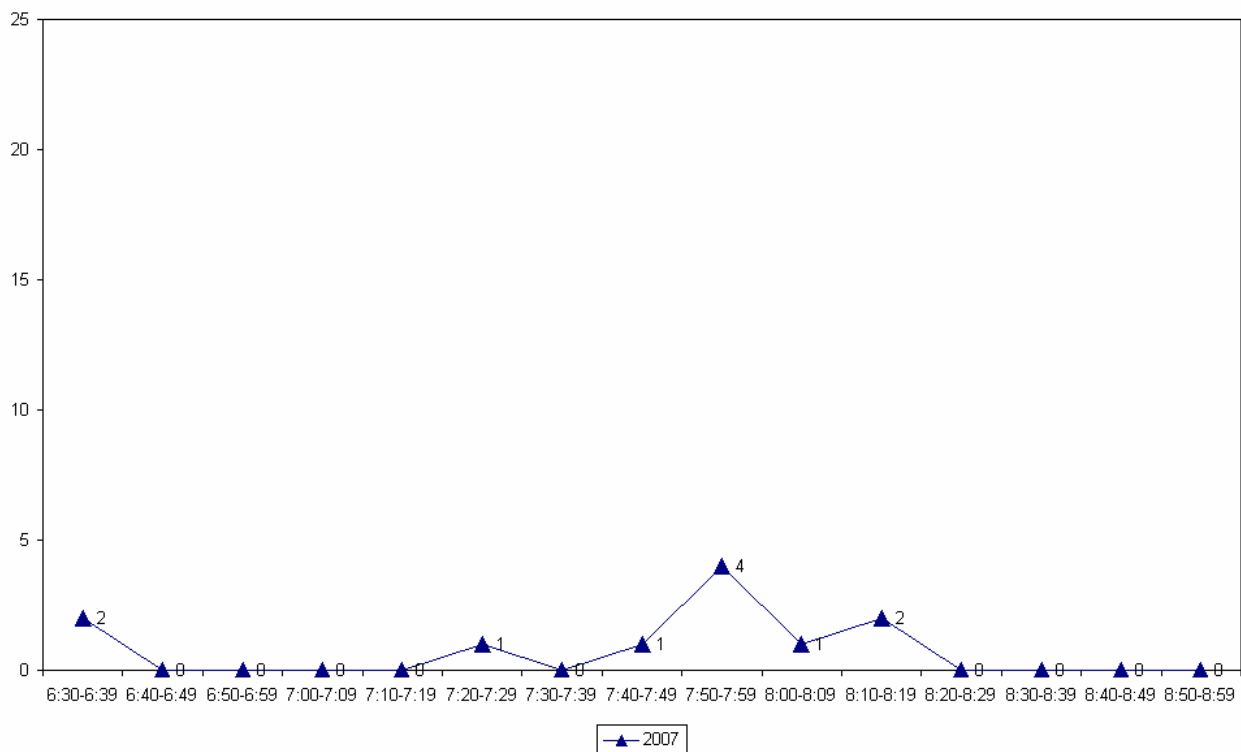
- Over the morning peak, school children comprise a higher proportion (64 per cent) of total cycle movements.
- Helmet wearing is widespread (91 per cent).
- The share of morning cyclists riding on the footpath is the second highest compared with other North Shore City sites (55 per cent).

**Table 12.2: Morning Cyclist Characteristics  
Beach/Browns Bay Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	36%
School child	64%
<b>Helmet Wearing</b>	
Helmet on head	91%
No helmet	9%
<b>Where Riding</b>	
Road	45%
Footpath	55%
<i>Base:</i>	<b>11</b>

- As a result of the low cyclist numbers, the volume of morning cycle movements is very low over the entire monitoring period, with no movements recorded during half of the ten minute intervals. A slight peak occurs between 7:50am and 7:59am (4 cyclists).

**Figure 12.2: Beach/Browns Bay Road Cyclist Frequency  
– Morning Peak**



## 12.2 Evening Peak

### *Environmental Conditions*

- The weather in the evening was wet, with heavy showers passing over during the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Of the thirteen intersections monitored in North Shore City, the volume of cycle movements at the Beach/Browns Bay Road intersection is the lightest (8 cycle movements recorded).
- The key movement in the evening is the left turn out of Beach Road on to Browns Bay heading north (Movement 3 = 3 cyclists) and straight along Browns Bay Road in a northerly direction (Movement 11 = 3 cyclists).

**Table 12.3: Evening Cyclist Movements  
Beach/Browns Bay Road 2007 (n)**

<i>Movement</i>	<i>2007</i>
1	1
2	0
3	3
4	0
5	0
6	0
7	1
8	0
9	0
10	0
11	3
<b>Total</b>	<b>8</b>

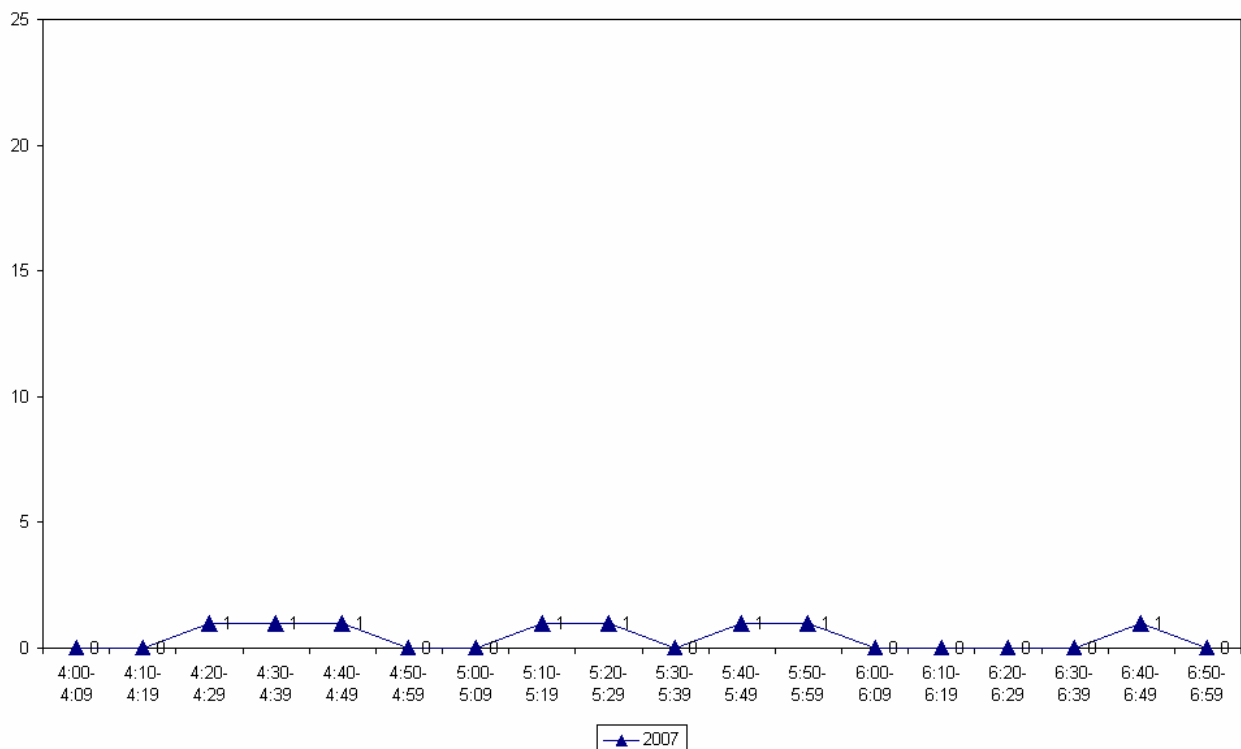
- Over the evening peak, none of the cyclists using this intersection are school children.
- All cyclists are wearing a helmet (100 per cent).
- The majority of cyclists are riding on the road (87 per cent).

**Table 12.4: Evening Cyclist Characteristics  
Beach/Browns Bay Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	100%
School child	0%
<b>Helmet Wearing</b>	
Helmet on head	100%
No helmet	0%
<b>Where Riding</b>	
Road	87%
Footpath	13%
<i>Base:</i>	<b>8</b>

- Evening volumes are very low over the entire monitoring period, with no more than one cyclist recorded passing over any ten minute interval.

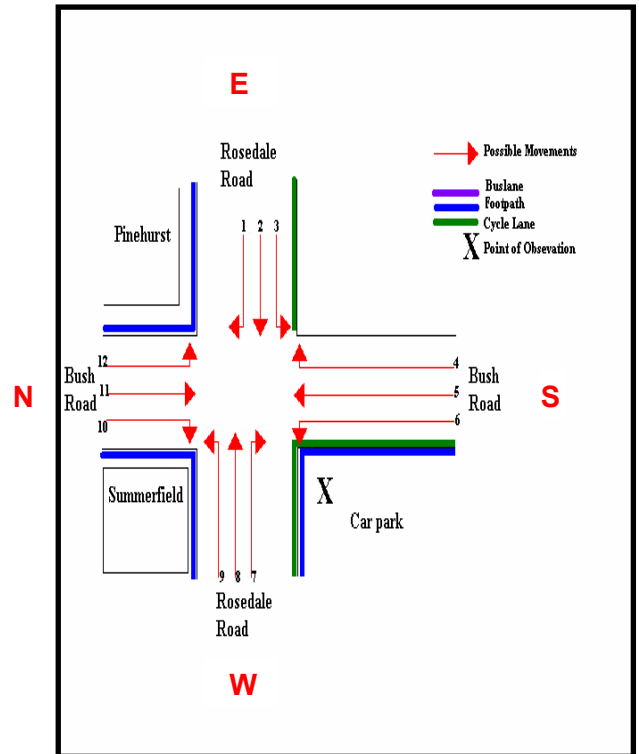
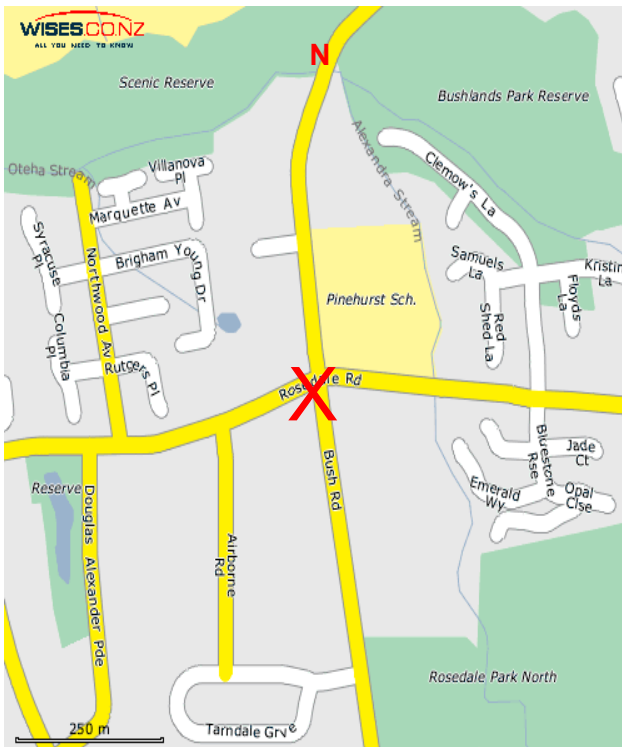
**Figure 12.3 Beach/Browns Bay Road Cyclist Frequency  
– Evening Peak**



# 13.ROSEDALE ROAD/BUSH ROAD, ALBANY (SITE 46)

Figure 13.1 shows the possible cyclist movements at this intersection.

**Figure 13.1: Cycle Movements: Rosedale/Bush Road**



## AADT Estimate

- The AADT for this site is 70 cycle movements per day.

## 13.1 Morning Peak

### *Environmental Conditions*

- There were intermittent light showers throughout the morning peak.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Compared with other sites in North Shore City, the volume of morning cyclists at the Rosedale/Bush Road intersection is relatively light (15 cycle movements).
- The most common movement in the morning is straight along Rosedale Road in a westerly direction (Movement 2 = 8 cyclists).

**Table 13.1: Morning Cyclist Movements  
Rosedale/Bush Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	0
2	8
3	0
4	0
5	4
6	0
7	0
8	0
9	0
10	3
11	0
12	0
<b>Total</b>	<b>15</b>

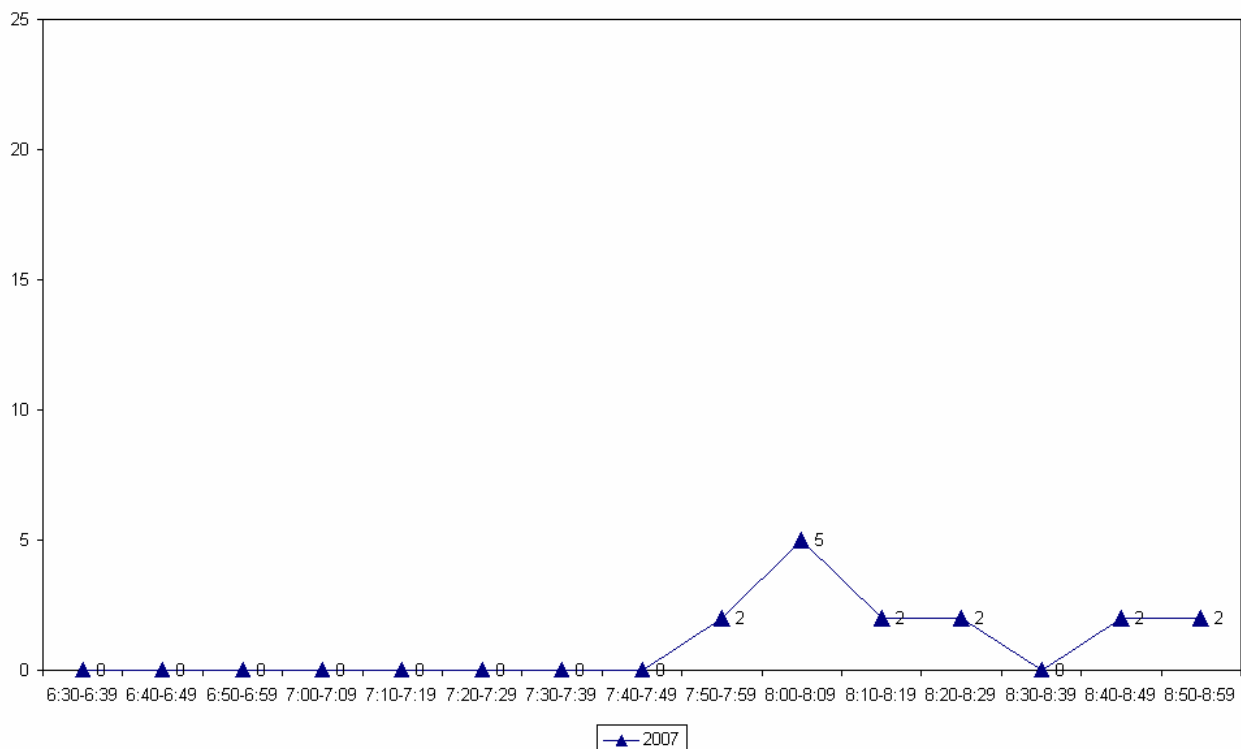
- Over the morning peak, nearly two-thirds of cyclists at this site are school children (60 per cent).
- All cyclists (100 per cent) are wearing a helmet.
- The incidence of riding on the footpath at this intersection is the highest across all sites monitored in North Shore City (67 per cent).

**Table 13.2: Morning Cyclist Characteristics  
Rosedale/Bush Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	40%
School child	60%
<b>Helmet Wearing</b>	
Helmet on head	100%
No helmet	0%
<b>Where Riding</b>	
Road	33%
Footpath	67%
<i>Base:</i>	<b>15</b>

- No cycle movements were recorded over any ten minute interval until 7:49am after which the number of movements climbs to a slight peak at around 8:00am (5 cyclists).

**Figure 13.2: Rosedale/Bush Road Cyclist Frequency  
– Morning Peak**



## 13.2 Evening Peak

### *Environmental Conditions*

- The weather was wet in the evening, with showers throughout the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The total number of cycle movements recorded at the Rosedale/Bush Road intersection remains low in the evening (16 movements).
- The key evening movement is straight along Rosedale Road in an easterly direction (Movement 8 = 4 cyclists).

**Table 13.3: Evening Cyclist Movements  
Rosedale/Bush Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	1
2	1
3	0
4	0
5	2
6	3
7	0
8	4
9	0
10	1
11	3
12	1
<b>Total</b>	<b>16</b>

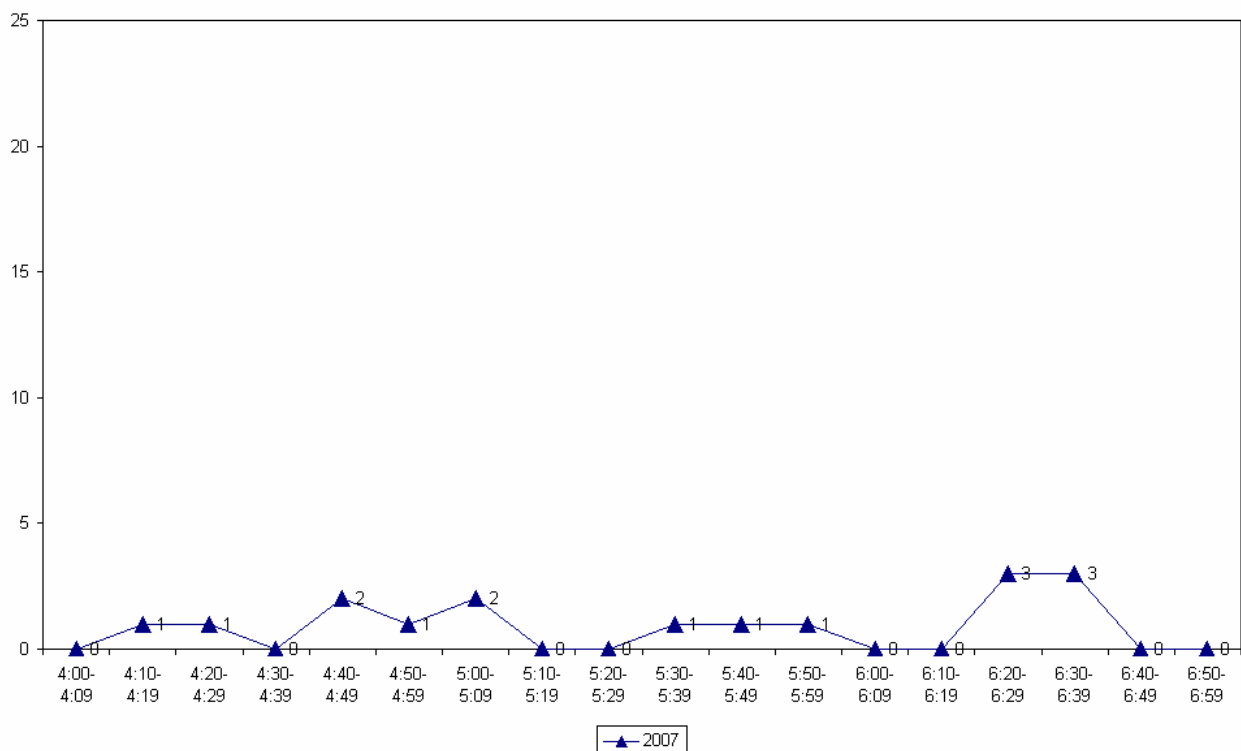
- In contrast to the morning peak, the majority (81 per cent) of evening cyclists using this intersection are adults.
- Helmet wearing is still common over the evening peak (94 per cent).
- On average, three in five cyclists are riding on the road (62 per cent).

**Table 13.4: Evening Cyclist Characteristics  
Rosedale/Bush Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	81%
School child	19%
<b>Helmet Wearing</b>	
Helmet on head	94%
No helmet	6%
<b>Where Riding</b>	
Road	62%
Footpath	38%
<i>Base:</i>	<b>16</b>

- Consistent with the morning peak, the volume of evening cycle movements remains low over the entire monitoring period, with no more than one cyclist recorded during most ten minute intervals. Two slight peaks occur just before the end of the evening peak (3 cyclists at around 6:20pm and again at 6:30pm).

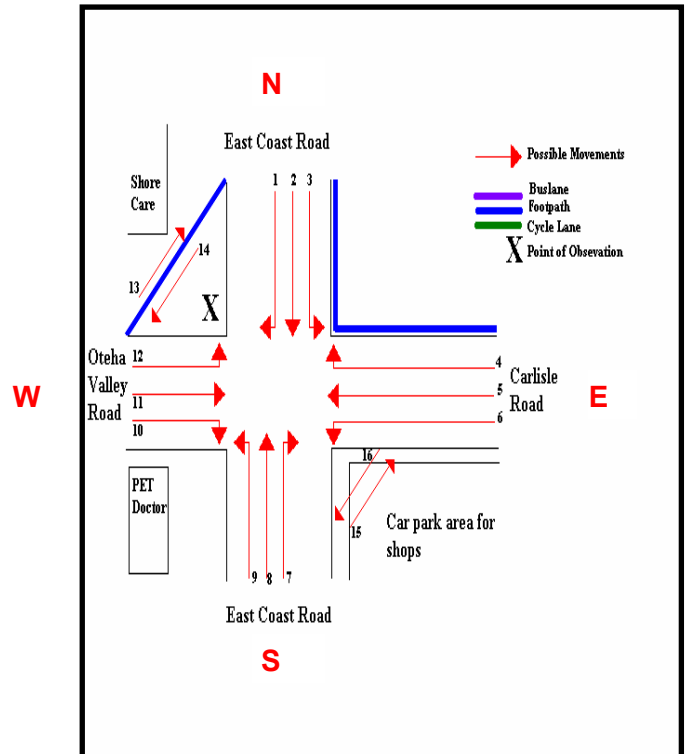
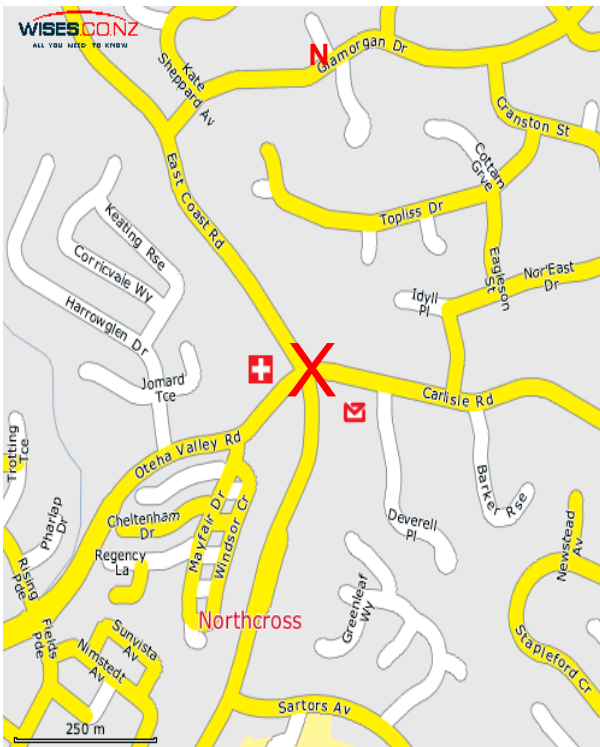
**Figure 13.3: Rosedale/Bush Road Cyclist Frequency  
– Evening Peak**



# 14. OTEHA VALLEY ROAD/EAST COAST BAYS ROAD, ALBANY (SITE 47)

Figure 14.1 shows the possible cyclist movements at this intersection.

**Figure 14.1: Cycle Movements: Oteha Valley/East Coast Bays Road**



## AADT Estimate

- The AADT for this site is 137 cycle movements per day.

## 14.1 Morning Peak

### *Environmental Conditions*

- There were intermittent showers throughout the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Compared with other sites in North Shore City, the volume of morning cyclists at the Oteha Valley/East Coast Bays Road intersection is moderate (42 cycle movements).
- The most common movement in the morning is straight along East Coast Road in a southerly direction (Movement 2 = 16 cyclists).

**Table 14.1: Morning Cyclist Movements  
Oteha Valley/East Coast Bays Road 2007 (n)**

<i>Movement</i>	<b>2007</b>
1	2
2	16
3	2
4	3
5	3
6	8
7	0
8	1
9	1
10	0
11	0
12	0
13	0
14	0
15	1
16	5
<b>Total</b>	<b>42</b>

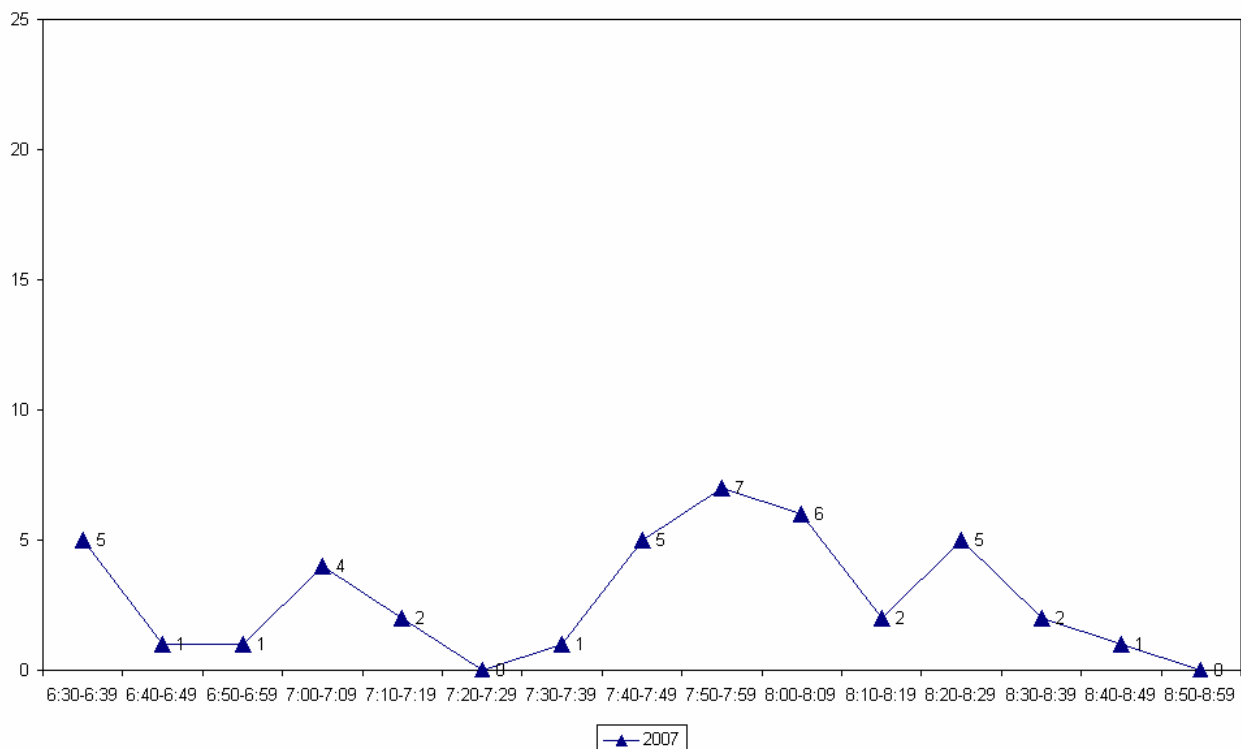
- Over the morning peak, slightly more school children cycle at this intersection than adults (52 per cent).
- Almost all cyclists are wearing a helmet (95 per cent).
- On average, two in three cyclists are riding on the road (62 per cent).

**Table 14.2: Morning Cyclist Characteristics  
Oteha Valley/East Coast Bays Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	48%
School child	52%
<b>Helmet Wearing</b>	
Helmet on head	95%
No helmet	5%
<b>Where Riding</b>	
Road	62%
Footpath	38%
<i>Base:</i>	<b>42</b>

- The volume of morning cycle movements peaks between 7:50am and 7:59am, and then drops off after 8:29am through to the end of the monitoring period.

**Figure 14.2: Oteha Valley/East Coast Bays Road Cyclist Frequency  
– Morning Peak**



## 14.2 Evening Peak

- The weather was fine at start of evening shift, and then isolated patches of showers fell from 5:20pm through to the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### Key Points

- The total number of cycle movements recorded at the Oteha Valley/East Coast Bays Road intersection drops notably to 17 movements (compared with 42 movements in the morning shift).
- The key evening movement is straight along East Coast Road in a northerly direction (Movement 8 = 16 cyclists).

**Table 14.3: Evening Cyclist Movements  
Oteha Valley/East Coast Bays Road 2007 (n)**

<b>Movement</b>	<b>2007</b>
1	0
2	3
3	1
4	0
5	0
6	1
7	2
8	5
9	1
10	0
11	1
12	2
13	0
14	0
15	1
16	0
<b>Total</b>	<b>17</b>

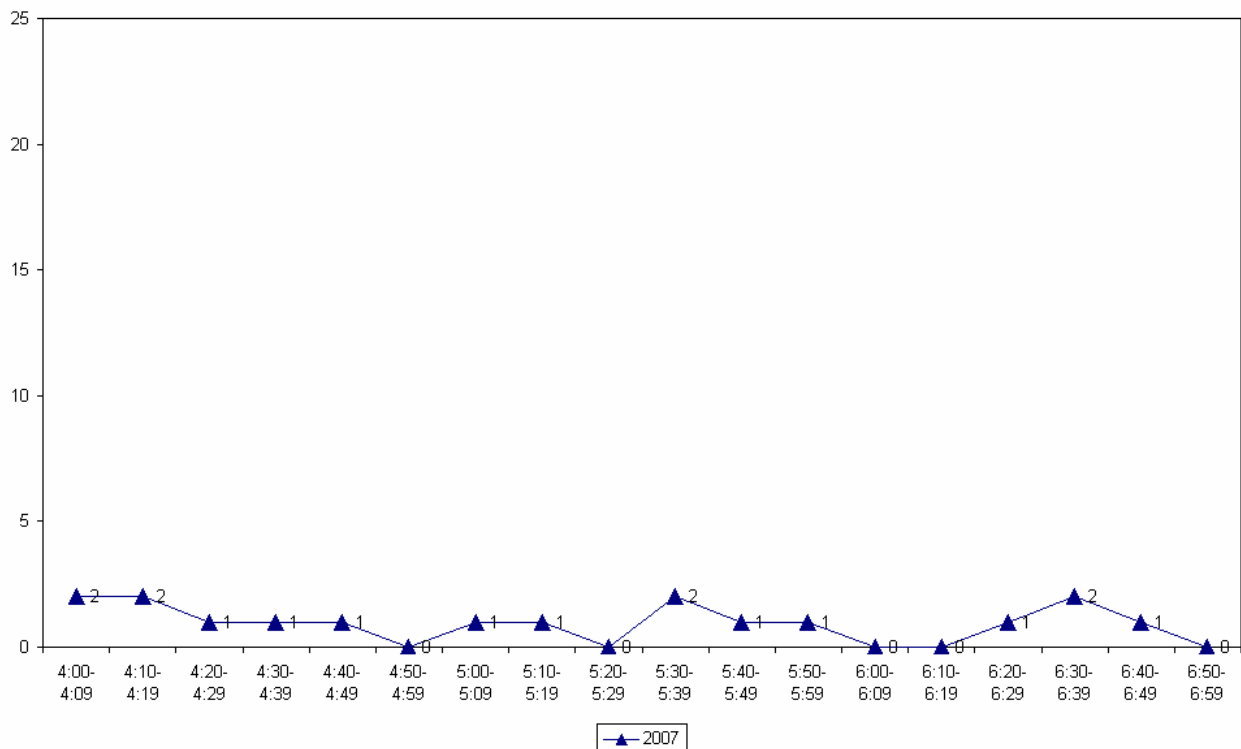
- Over the evening peak, three-quarters of cyclists using this site are adults (76 per cent).
- The majority of cyclists are wearing a helmet (88 per cent).
- On average, three in four cyclists are riding on the road (71 per cent).

**Table 14.4: Evening Cyclist Characteristics  
Oteha Valley/East Coast Bays Road 2007 (%)**

	2007
<b>Cyclist Type</b>	
Adult	76%
School child	24%
<b>Helmet Wearing</b>	
Helmet on head	88%
No helmet	12%
<b>Where Riding</b>	
Road	71%
Footpath	29%
<i>Base:</i>	<b>17</b>

- The volume of evening cycle movements is very low over the entire monitoring period, with no more than one cyclist recorded passing over most ten minute intervals. Four slight peaks occur at around 4:00pm, 4:09pm, 5:30pm and again at 6:30 pm (2 cyclists each).

**Figure 14.3: Oteha Valley/East Coast Bays Road Cyclist Frequency  
– Evening Peak**



# 15. SCHOOL BIKE SHED COUNT – NORTH SHORE CITY

Table 15.1 shows the results of the seventeen schools surveyed in North Shore City.

**Table 15.1: Summary Table Of School Bike Count  
2007 (n)**

<b>School Name</b>	<b>Year Levels</b>	<b>School Roll Eligible To Cycle</b>	<b>Number of Cycles Counted</b>	<b>Cyclists as share of those eligible</b>
Belmont Intermediate School	Intermediate	526	178	34%
Takapuna Grammar School	Secondary	1630	137	8%
Northcross Intermediate	Intermediate	1055	51	5%
Murrays Bay Intermediate	Intermediate	840	39	5%
Albany Junior High School	Intermediate	911	39	4%
Glenfield Intermediate	Intermediate	540	22	4%
Wairau Intermediate School	Intermediate	337	15	4%
Rosmini College	Intermediate/Secondary	887	28	3%
Westlake Boys High	Secondary	2000	46	2%
Birkdale Intermediate	Intermediate	520	10	2%
Northcote Intermediate	Intermediate	210	4	2%
Rangitoto College	Secondary	3105	38	1%
Pinehurst School	Composite	750	7	1%
Northcote College	Secondary	1266	7	1%
Corelli School of the Arts	Composite	73	1	1%
Westlake Girls High School	Secondary	2237	1	<1%
Carmel College	Intermediate/Secondary	950	0	0%
<b>Average per school</b>		<b>1049</b>	<b>37</b>	<b>3%</b>

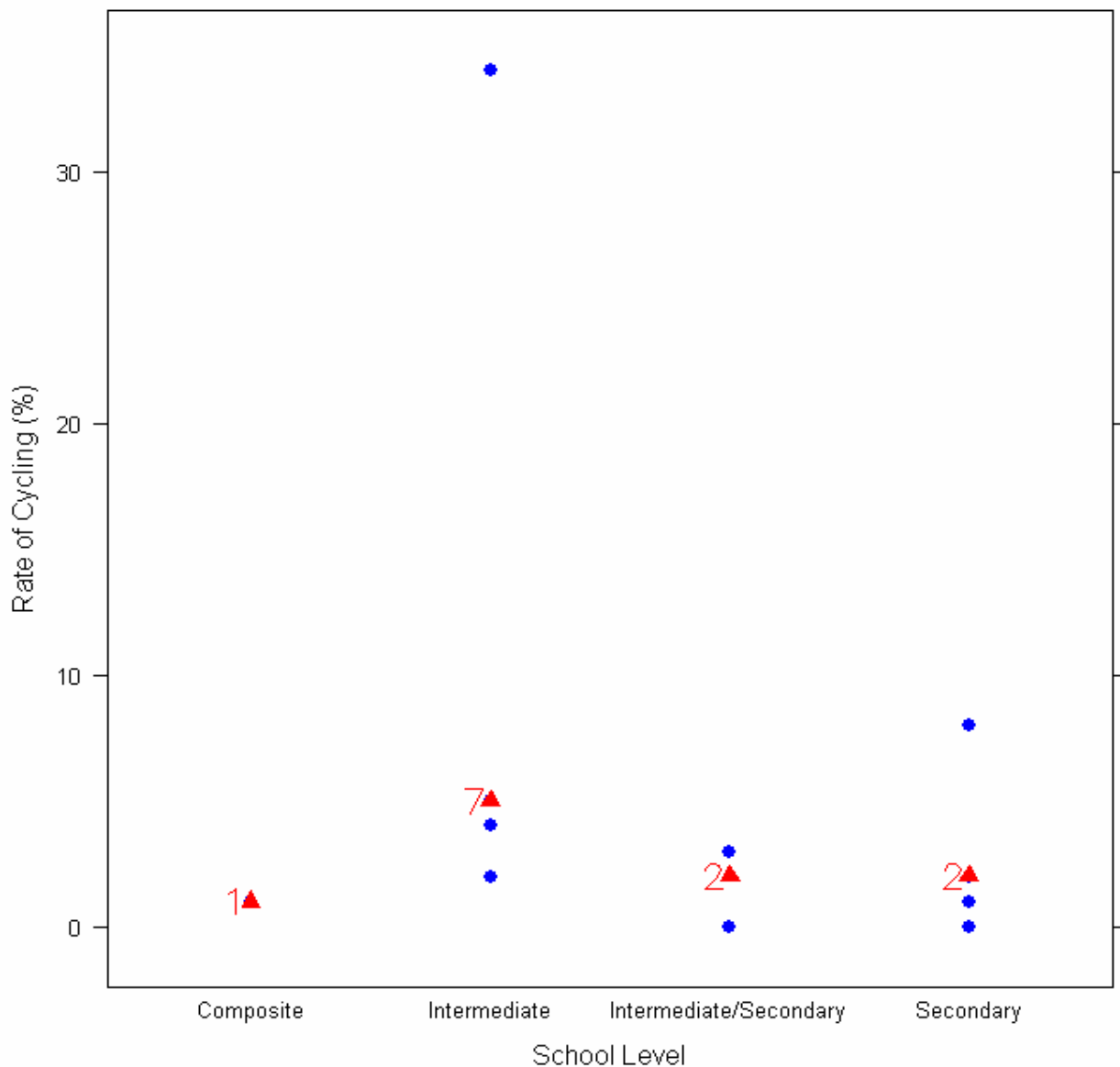
## Background Information

- A total of 25 schools were contacted in North Shore City. Of the 17 schools that responded to the survey, most schools surveyed have no policies that restrict students cycling to school, with the exception of Pinehurst School which only allows students at year 4 onwards cycling to school.
- *Note that Northcross Intermediate and Albany Junior High School had Outdoor Education Week for Year Seven students during the week of the cycle count, while Northcote Intermediate reported two classes were away at camp.*

**Key Points**

- Among the surveyed schools, of those eligible to cycle at school, on average, three per cent of students are cycling to their schools.
- Of the 17 schools that responded, one had no students cycling to school.
- Figure 15.1 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (7 per cent) and lowest for composite schools (1 per cent).

**Figure 15.1: Cycling Rates by School Level  
2007 (%)**



# APPENDICES

Appendix One: Monitoring Sites

Appendix Two: Annual Average Daily Traffic (AADT) Calculation

Appendix Three: School Bike Shed Information Sheet And Cover  
Letter

# APPENDIX ONE: MONITORING SITES

**Appendix Table 1: Monitoring Sites – March 2007**

Site Number	Location	Rationale For Inclusion
<b>North Shore City Council</b>		
35	Lake Rd, by Takapuna Grammar*	<p>Previous counts were done at these points, with cyclists observed in numbers. Also, the cycle routes are in the NSCC cycle strategy. The locations are also places where cyclist numbers would be best captured on that road, and maybe destination.</p> <p>The site we chose for Lake Road captures ALL cyclists as it is the only road (at that point) leading in and out of Devonport.</p>
36	Hurstmere Road/Killarney Street	As above
37	Taharoto Road/Northcote Road	As above
38	Rosedale Road/East Coast Bays Road	As above
39	Upper Harbour Drive/Albany Highway	As above
40	Oteha Valley Road/SH17/Albany Highway	As above
41	Wairau Road/Glenfield Road	As above
42	Shakespeare Road/East Coast Road	As above
43	Glenfield Road/Coronation Road	As above
44	Birkenhead Road/Mokoia Road	As above
45	Beach Road/Browns Bay Road	Cycle lanes might be extended.
46	Rosedale Road/Bush Road	To install cycle lanes to complete Rosedale Road
47	Oteha Valley Road/East Coast Bays Road	To create the 'Albany Circuit'.

\* denotes site of automatic cycle counter

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

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**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<sup>10</sup> 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)<sup>11</sup>, 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.

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<sup>10</sup> Annual average daily traffic

<sup>11</sup> LTSA, 2004

Figure 1 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:

	<b>Morning</b>	<b>Afternoon</b>
<b>Dry weather</b>	<b>3.06</b>	<b>2.78</b>
<b>Wet weather</b>	<b>4.78</b>	<b>4.35</b>

### Worked Example

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

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

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

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

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

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

Weather	R
Fine	100%
Rain	64%

# APPENDIX THREE: SCHOOL BIKE SHED INFORMATION SHEET AND COVER LETTER

## AUCKLAND REGIONAL CYCLE MONITOR - SCHOOL CYCLE COUNT -

### ABOUT YOUR SCHOOL (To be completed by staff member)

Name of school: \_\_\_\_\_

Physical address of school: \_\_\_\_\_

This school caters for students from Year  to Year

Current school roll (total number of students):

Does the school have a policy which recommends only certain Year levels should cycle to school?

*(Please tick one box only)*

No

Yes

*Please outline which Year levels the policy recommends should cycle to*

*school:*

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If school policy recommends only certain Year levels should cycle to and from school, please tell us the current school roll of students in Year levels allowed to cycle to school:

Is there any reason why this cycle count may NOT be representative of the usual number of students who cycle to school? eg students away at school camp, senior study break etc. *Please write in.*

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*In case we need to contact you about the information you have provided:*

Contact staff member's name \_\_\_\_\_ Contact phone number: \_\_\_\_\_

**AUCKLAND REGIONAL CYCLE MONITOR  
- SCHOOL CYCLE COUNT -**

***THE CYCLE COUNT (Can be completed by staff member or student)***

Date of cycle count: \_\_\_\_\_

Total number of cycles counted:

ARTA would like to send you a small gift to thank you for taking the time to help us with this cycle count. Please provide your name and address so that we can send your gift out to you:

Name of counter: \_\_\_\_\_

Postal address: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*(Please note that this information will only be used to send out the gift. Your personal details will not be passed on to any other organisation or used for any purpose other than this research).*

***Thank you for your assistance with the project – your contribution is much appreciated.***

***Once completed, please place this form (check you have both pages) in the stamped addressed envelope provided and post no later than Friday March 9 2007.***

February 23, 2007

«Staff\_Member\_Name»

«Schools\_Name»

«Address\_1»

«Address\_2\_suburb»

«Address\_3»

Dear «Staff\_Member»

**Re: Regional Cycle Monitoring Programme – Student Cyclists**

In conjunction with a larger region-wide cycle monitoring programme being undertaken in early March, intermediate and secondary schools in the Auckland region are being invited to play a part in building a greater understanding of how students get to school. The data provided by schools, along with counts of cyclists at major intersections throughout the Auckland region, will provide local Councils and the Auckland Regional Transport Authority with the information they need to ensure future funding for improvements to cycle infrastructure.

Accompanying this letter is an information form. The form is in two parts:

- The first part of the form (“About Your School”) asks for basic information about your school, including whether there is a policy around recommending that only certain Year levels should cycle to and from school. Given the nature of the information being requested, it is probably most appropriate for the first part of the form to be filled out by a staff member. It should only take two or three minutes to complete.
- The second part of the form (“The Cycle Count”) asks for a count of the number of bicycles at your school (in bike sheds, racks etc.) on a pre-determined day. It is envisaged that this information could be collected by a student during one of their breaks (however, if students are permitted to leave the school on cycles during lunchtime, we would ask that the count not be conducted at this time). To thank them for their time and effort, at the completion of the study, ARTA will send each student who conducts the count a small cycling-related gift.

To ensure consistency across all schools in the region, **Tuesday the 6<sup>th</sup> of March** has been selected as the day we would like the cycle count to be conducted. We realise that the weather plays a significant role in the numbers of students riding to school on any particular day. For this reason, if the weather is particularly bad on the 6<sup>th</sup> of March, then please postpone the count until **Tuesday the 13<sup>th</sup> of March**.

Once BOTH PARTS of the form have been completed, please place it in the stamped, addressed envelope accompanying this letter and post no later than **Friday the 9<sup>th</sup> of March** (or Friday the 16<sup>th</sup> should the count be postponed due to bad weather).

The data you provide will be analysed to provide an “actual student cyclists as a share of all potential student cyclists” figure for each school as well as aggregated results by city/district and region. (The final results will be available in May. If you would like a copy, you can contact Trisha Allen on 379 4422 Extn. 9078 ). Please be assured that all information you provide will be treated in the strictest confidence and only used for the purpose of this study.

If you have any questions about what is required, or would like further information about the wider study being undertaken, please don't hesitate to contact me.

Thank you for your co-operation in advance. Your assistance is greatly appreciated.

Yours sincerely

**Tania Boyer**  
**Project Director**  
**Gravitas Research & Strategy Limited**