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Research Report Prepared for
Auckland Transport

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# 2012 Auckland Region Manual Cycle Monitor

## - North Shore Ward -

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# TABLE OF CONTENTS

**APPENDICES**

Appendix One: Annual Average Daily Traffic (AADT) Calculation

# 1. NORTH SHORE WARD SUMMARY OF RESULTS

## 1.1 Introduction

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

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

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

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

### *Manual Cycle Monitoring*

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

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

[1] Auckland Regional Transport Authority (2006) *Regional Cycle Monitoring Plan (Provisional Guidelines)*
[2] For example, Manukau and North Shore cities' monitors took place at the same morning and evening peak times, while Auckland city's differs by one hour for the evening peak, and Waitakere's differs for both peaks.

As outlined in the Regional Cycle Monitoring Plan, a consistent methodology would ensure that:

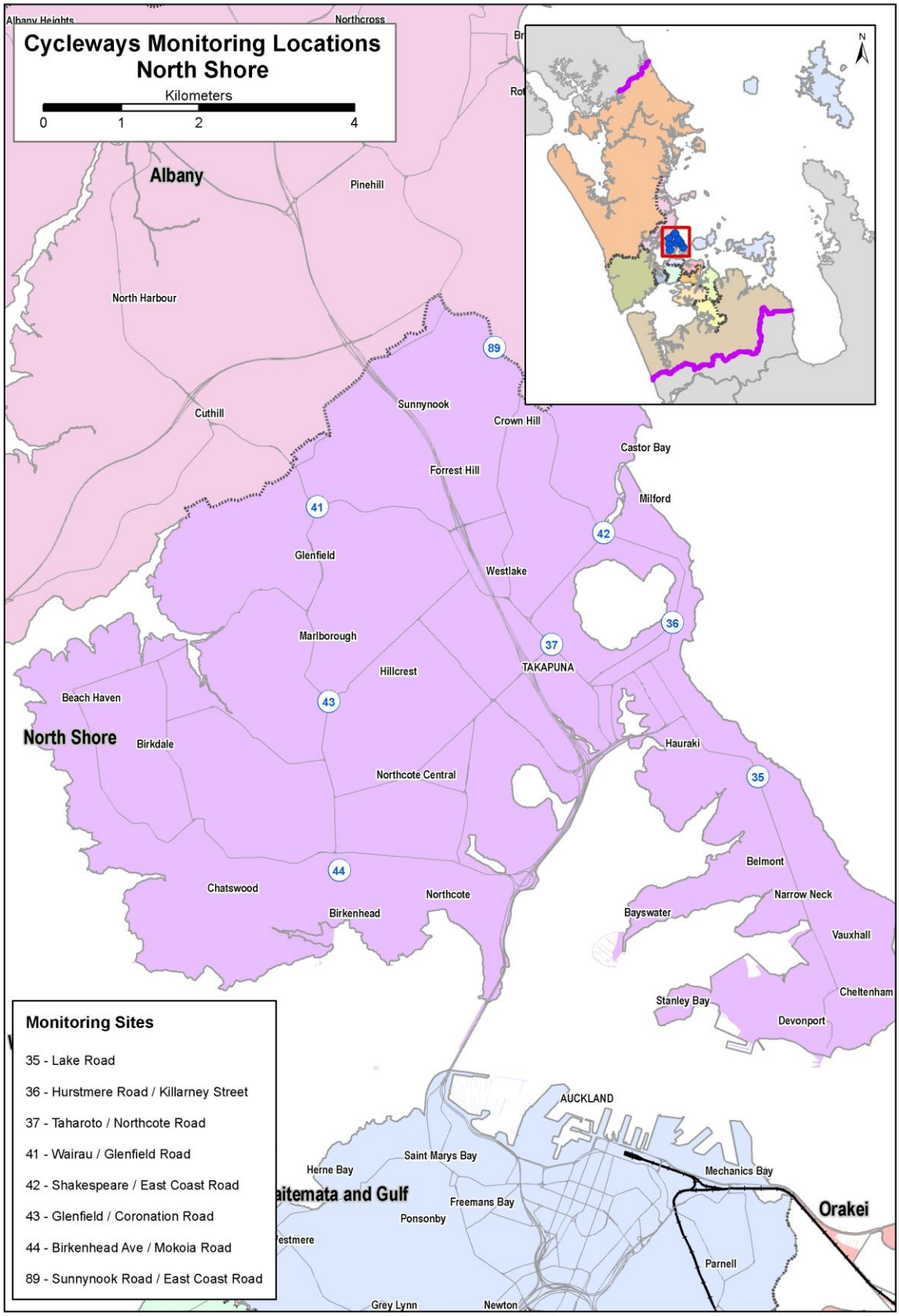
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and weekends would be made at the outset;
- a consistent set of times are used for monitoring, for the morning, evening and inter-peak periods; and
- a consistent method is used for monitoring direction and location of cyclists, including monitoring how many are on the footpath.

This report presents results from manual cycle counts conducted at 8 sites in the North Shore ward following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a ward and region level. For sites also monitored in 2007, 2008, 2009, 2010 and/or 2011, comparative results are provided.

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

Figure 1.1 shows the locations of the monitoring sites in the North Shore ward. Note that one site (Sunnynook/East Coast Road in Sunnynook – Site 89) lies on the border with the Albany ward. Consequently results for this site have been included in both ward reports.

**Figure 1.1: 2011 Cycle Monitoring Locations in North Shore Ward**



## 1.2 Methodology

Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below.

### *Choice of Sites*

Decisions as to which sites were chosen for cycle counts were guided by the planned developments for the Regional Cycle Network.

Manual counts were undertaken at 83 different sites throughout the region. Sites were distributed by ward as follows:

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

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

### *Monitoring Times*

#### *Time Of Day*

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

#### *Day Of Week*

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

### *Time Of Year*

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

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

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

Counts were conducted on the following days:

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

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

### *Weather and Daylight Conditions*

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

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

**Tuesday 6th March**

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

**Wednesday 7th March**

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

**Tuesday 13th March**

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

## *Conducting The Manual Counts*

### *Scoping Visit*

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

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

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

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

### *Briefing Session*

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

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

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

### *Conducting The Manual Counts*

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

During their shift the surveyor collected data on:

- The total number of cyclists[4] passing through the intersection;
- The direction in which cyclists are travelling (using the numbers on the map provided);
- The time at which cyclists pass through the intersection (to the nearest minute);
- Whether cyclists are school children or adults (determined by whether they are wearing a school uniform or clearly of school age);
- Whether cyclists are wearing a helmet;
- Gender of the cyclist *(collected for the first time in 2011)*; and
- Whether cyclists are riding on the road, footpath or designated off- road cycleway[5].

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

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

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

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

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

### *Data Analysis*

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

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

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

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

[6] http://www.ltsa.govt.nz/road-user-safety/walking-and-cycling/cycle-network/appendix2.html
[7] ViaStrada is a traffic engineering and transport planning consultancy based in Christchurch, New Zealand.

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

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

### *School Bike Shed Counts*

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

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

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

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

### *Methodology*

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

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

2. This email was then sent to all eligible schools in Auckland region (n=317) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 6th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).

4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2012, 233 responses were received, a response rate of 74 per cent. (This compares with 68 per cent in 2011).

## ***Reporting***

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

### *Manual Counts - Site Level Reporting*

The following results have been reported for each site:

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

### *Manual Counts - Aggregated Reporting*

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

### *Bike Shed Counts*

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

## 1.3 Summary of Results

This summary contains the aggregated results of the eight sites surveyed in the North Shore ward. It is split into four sections – a summary of results for the morning peak period (6:30am to 9:00am), a summary for the evening peak period (4:00pm to 7:00pm), a summary of aggregated results (morning and evening combined) and a summary of the results from the school bike shed counts.

While the summaries in this section are useful in giving an overall picture of cycling behaviour in the North Shore ward, they hide much of the specific details of cycling behaviour at individual sites. The site-specific data varies significantly from site to site, and can be found in Sections Two and Nine of this report.

Note: Surveying in the North Shore ward was undertaken on Tuesday 6th of March, 2012. Sunrise was at 7:11am and sunset at 7:52pm. The highest temperature was 21.3 degrees Celsius.

## 1.4 Morning Peak

### *Environmental Conditions*

- Some sites recorded intermittent showers during the morning monitoring period.
- At the Wairau Road/Glenfield Rd site, roadworks were recorded approximately 50m down Glenfield Road. There were no other road works or accidents that may affect cycle counts.

### *Key Points*

- A total of 798 cyclist movements were recorded across the eight sites in the morning peak period (between 6:30am and 9:00am) in 2012 – including 10 per cent (n=82) observed cycling as groups (this share down from 15 per cent of cycle movements last year).
- Of the sites monitored in both 2011 and 2012, the number of morning cycle movements observed has decreased – down from 965 to 798. This represents a 17 per cent decrease in cycle movements over the last 12 months.
- The average volume of morning cyclists across the eight sites monitored in the North Shore ward is 100 cycle movements, down from 121.
- The busiest site in the morning peak is at Lake Road by Takapuna Grammar (175, down from 220 cycle movements in 2011), whereas Birkenhead Avenue/Mokoia Road has the lowest level of morning cyclist traffic (17 cycle movements).
- Six of the eight sites monitored recorded decreases this year compared to 2011. The most notable decrease is at Taharoto/Northcote Road, down 30 per cent from last year.
- The remaining two sites recorded increases:
  - Glenfield/Coronation Road – up 30 per cent; and
  - Sunnynook Road/East Coast Road – up 17 per cent.

**Table 1.1: Summary of Morning Cyclist Movements**

**2007 – 2012 (n)**

| *Site No.* | *Locations* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 | Change 07-12 |
|---|---|---|---|---|---|---|---|---|---|
| 35 | Lake Road, by Takapuna Grammar | 127 | 200 | 166 | 186 | 220 | **175** | **-20%** | **38%** |
| 36 | Hurstmere Road/Killarney Street | 76 | 134 | 186 | 180 | 191 | **154** | **-19%** | **103%** |
| 42 | Shakespeare/East Coast Road | 82 | 127 | 177 | 146 | 181 | **145** | **-20%** | **77%** |
| 37 | Taharoto/Northcote Road | 111 | 160 | 98 | 117 | 202 | **141** | **-30%** | **27%** |
| 41 | Wairau/Glenfield Road | 34 | 39 | 42 | 38 | 41 | **36** | **-12%** | **6%** |
| 43 | Glenfield/Coronation Road | 16 | 36 | 36 | 37 | 27 | **35** | **30%** | **119%** |
| 44 | Birkenhead Ave/Mokoia Road | 20 | 20 | 27 | 29 | 22 | **17** | **-23%** | **-15%** |
| | **Average per site (7 sites since 2007)** | **67** | **102** | **105** | **105** | **126** | **100** | **-21%** | **49%** |
| | **Total (7 sites since 2007)** | **466** | **716** | **732** | **733** | **884** | **703** | **-20%** | **51%** |
| 89 | Sunnynook Road/East Coast Road | - | - | - | - | **81** | **95** | **17%** | **-** |
| | **Average per site (8 sites in 2011)** | **-** | - | **-** | **-** | **121** | **100** | **-17%** | **-** |
| | **Total (8 sites in 2011)** | **-** | **-** | **-** | **-** | **965** | **798** | **-17%** | **-** |

- Morning cyclist characteristics are shown in Table 1.2 below. Overall, 83 per cent of cyclists are adults, compared with 85 per cent in 2011.
- Almost all morning cyclists (98 per cent) are wearing a helmet across all North Shore ward sites (stable from 99 per cent last year).
- The greatest share of morning cyclists in the North Shore ward are male (78 per cent)
- On average, 79 per cent of cyclists are riding on the road (stable from 80 per cent in 2011). Footpath riding is most evident at the Taharoto/Northcote Road intersection (44 per cent).

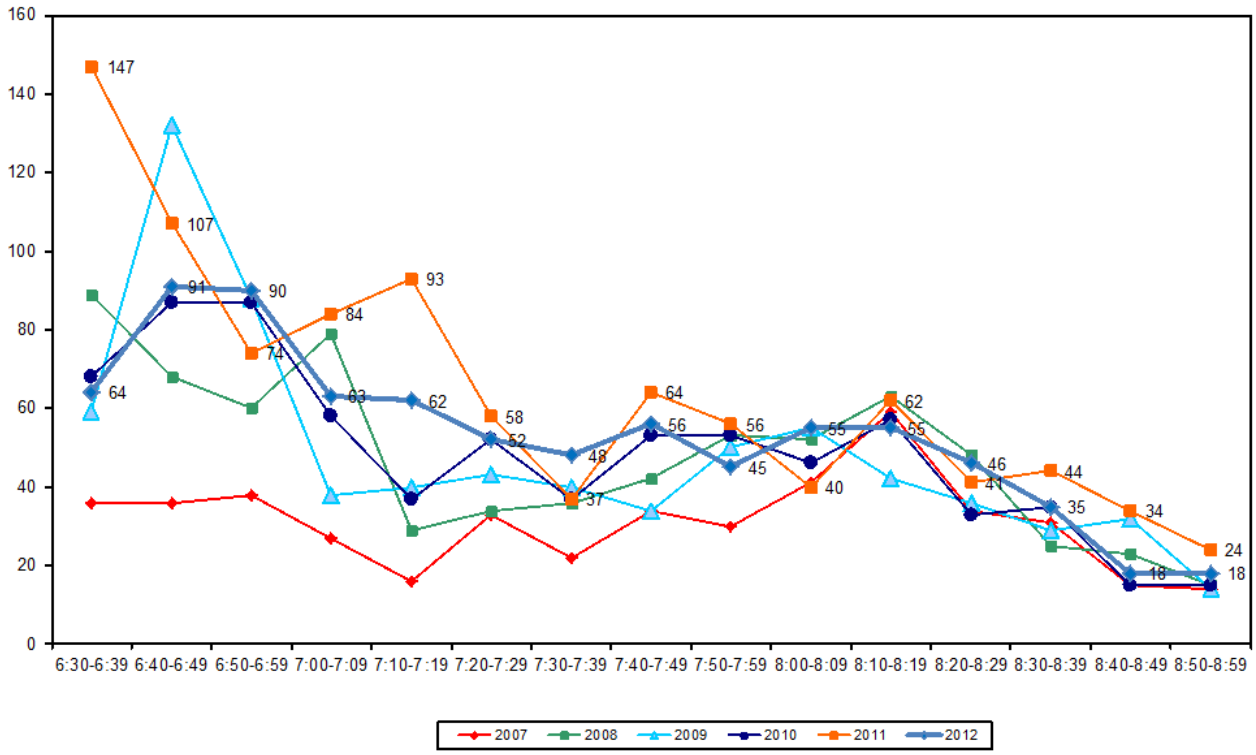
**Table 1.2: Summary of Morning Cyclist Characteristics**
**2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 73 | 79 | 85 | 83 | 85 | **83** | **-2** |
| School child | 27 | 21 | 15 | 17 | 15 | **17** | **2** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 94 | 98 | 97 | 98 | 99 | **98** | **-1** |
| No helmet | 6 | 2 | 3 | 2 | 1 | **2** | **1** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 65 | **78** | **13** |
| Female | - | - | - | - | 16 | **16** | **0** |
| Can't tell | - | - | - | - | 19 | **6** | **-13** |
| **Where Riding** | | | | | | | |
| Road | 71 | 80 | 81 | 81 | 80 | **79** | **-1** |
| Footpath | 29 | 20 | 19 | 19 | 17 | **18** | **1** |
| Off-road cycleway | 0 | 0 | 0 | 0 | 3 | **3** | **0** |
| ***Base:*** | ***466*** | ***716*** | ***732*** | ***733*** | ***965*** | ***798*** | |

- Figure 1.2 illustrates the total number of cyclists in the morning peak by time of movement. The volume of morning cycle movements starts off with a notable peak between 6:40am and 6:49am (91 movements) and between 6:50am to 6:59am (90 movements). Cycle volumes then decrease throughout the monitoring period. This result is similar to that recorded last year, with the exception that cycle volumes were much higher at the beginning of the morning peak period in 2011 (147 movements between 6:30am and 6:39am compared with 64 this year).

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

**2007 – 2011 (n)**



## 1.5 Evening Peak

### *Environmental Conditions*

- All North Shore sites experienced fine weather in the evening monitoring period.
- There were no road works or accidents that may affect cycle counts

### *Key Points*

- A total of 626 cyclist movements were recorded across the eight sites in the evening peak period (between 4:00pm and 7:00pm) in 2012 – including four per cent (n=25) observed cycling as groups (this compares with 3 per cent last year).
- Across the sites monitoring in both 2011 and 2012, the number of cycle movements has increased – up from 612 in 2011 to 626 this year, a 2 per cent increase over the last 12 months.
- The average volume of evening cyclists across the eight sites monitored in the North Shore ward is 78 cycle movements.
- Of the eight sites monitored in the North Shore ward, the intersection at the Lake Road, by Takapuna Grammar site is the busiest in terms of the evening cyclists' activity, with 146 cycle movements recorded (up from 96 movements last year).
- The lowest level of evening cyclist traffic is at the Birkenhead Avenue/Mokoia Road intersection (35 movements).
- Four sites recorded increases this year compared to 2011. The most notable increases are at Glenfield/Coronation Road, Birkenhead Avenue/Mokoia Road and Lake Road, by Takapuna Grammar – all up 52 per cent.
- Four sites recorded decreases this year compared to 2011. The most notable decreases are at:
  - Sunnynook Road/East Coast Road – down 35 per cent; and
  - Taharoto/Northcote Road – down 27 per cent.

**Table 1.3: Summary of Evening Cyclist Movements**

**2007 – 2012 (n)**

| *Site No.* | *Locations* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 | Change 07-12 |
|---|---|---|---|---|---|---|---|---|---|
| 35 | Lake Road, by Takapuna Grammar | 65 | 97 | 129 | 141 | 96 | **146** | **52%** | **125%** |
| 36 | Hurstmere Road/Killarney Street | 45 | 118 | 132 | 122 | 113 | **108** | **-4%** | **140%** |
| 42 | Shakespeare/East Coast Road | 55 | 123 | 133 | 159 | 105 | **93** | **-11%** | **69%** |
| 37 | Taharoto/Northcote Road | 51 | 110 | 104 | 112 | 105 | **77** | **-27%** | **51%** |
| 41 | Wairau/Glenfield Road | 30 | 34 | 38 | 53 | 52 | **69** | **33%** | **130%** |
| 43 | Glenfield/Coronation Road | 12 | 39 | 42 | 56 | 25 | **38** | **52%** | **217%** |
| 44 | Birkenhead Ave/Mokoia Road | 20 | 29 | 30 | 46 | 23 | **35** | **52%** | **75%** |
| | **Average per site (7 sites since 2007)** | **40** | **79** | **87** | **98** | **74** | **81** | **9%** | **103%** |
| | **Total (7 sites since 2007)** | **278** | **550** | **608** | **689** | **519** | **566** | **9%** | **104%** |
| 89 | Sunnynook Road/East Coast Road | - | - | - | - | 93 | **60** | **-35%** | **-** |
| | **Average per site (8 sites in 2011)** | **-** | - | **-** | **-** | **77** | **78** | **1%** | **-** |
| | **Total (8 sites in 2011)** | **-** | **-** | **-** | **-** | **612** | **626** | **2%** | **-** |

- The majority of evening cyclists are adults (91 per cent, up from 85 per cent in 2011).
- Ninety-five per cent of evening cyclists are wearing a helmet (up from 92 per cent last year).
- The greatest share of evening cyclists are male (81 per cent).
- Eighty-two per cent of cyclists are riding on the road in the evening (up from 76 per cent in 2011).

**Table 1.4: Summary of Evening Cyclist Characteristics**

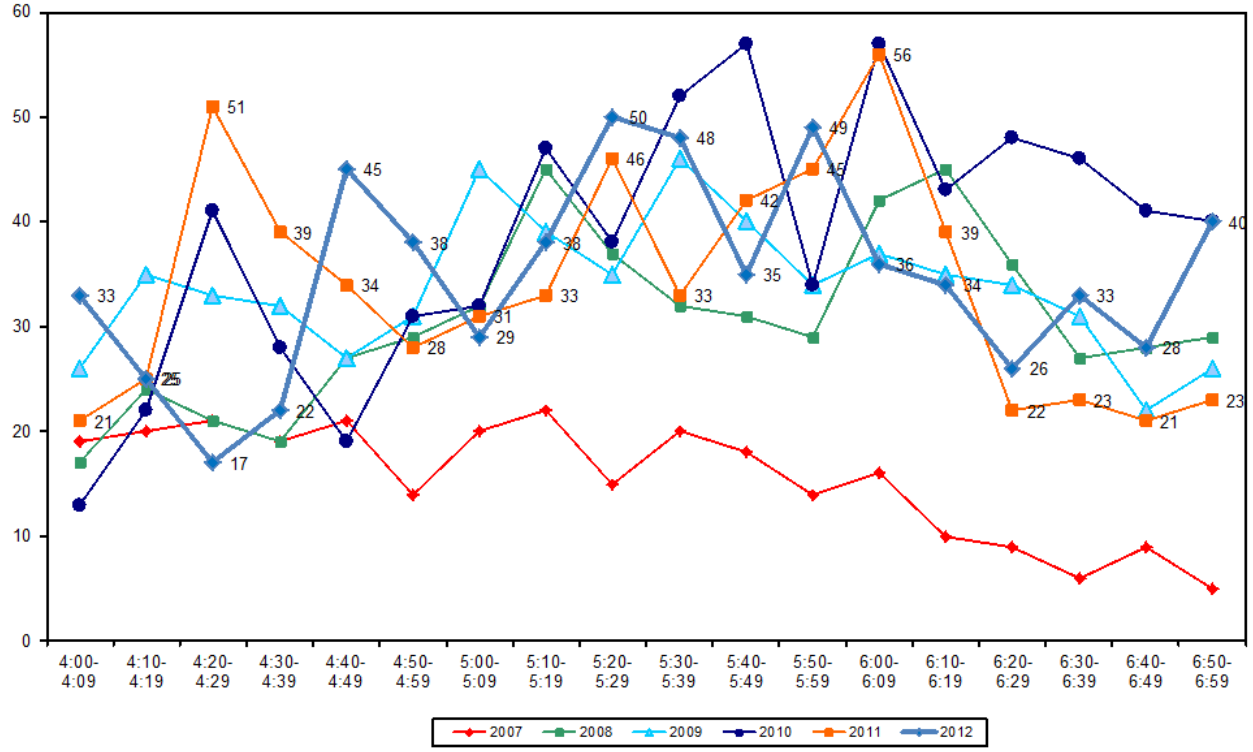
**2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 90 | 85 | 87 | 82 | 85 | **91** | **6** |
| School child | 10 | 15 | 13 | 18 | 15 | **9** | **-6** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 87 | 94 | 94 | 93 | 92 | **95** | **3** |
| No helmet | 13 | 6 | 6 | 7 | 8 | **5** | **-3** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 85 | **81** | **-4** |
| Female | - | - | - | - | 11 | **17** | **6** |
| Can't tell | - | - | - | - | 4 | **2** | **-2** |
| **Where Riding** | | | | | | | |
| Road | 81 | 77 | 78 | 72 | 76 | **82** | **6** |
| Footpath | 19 | 23 | 22 | 28 | 18 | **15** | **-3** |
| Off-road cycleway | 0 | 0 | 0 | 0 | 6 | **3** | **-3** |
| ***Base:*** | ***278*** | ***550*** | ***608*** | ***689*** | ***612*** | ***626*** | |

- The overall pattern of cyclist volumes by time of movement in the evening is illustrated in Figure 1.3. Evening cyclist volumes peaked twice – first between 5:20pm and 5:29pm (50 movements) and later between 5:50pm and 5:59pm (49 movements). This compares with two peaks in 2011: between 4:20pm and 4:29pm (51 movements) and between 6:00pm and 6:09pm (56 movements).

**Figure 1.3: Total Cyclist Frequency – Evening Peak**

**2007 – 2011 (n)**



## 1.6 Aggregated Total

- A total of 1,424 cyclist movements were recorded across the eight sites in 2012. Seven per cent (n=101) of the total cycle movements were observed cycling as groups (compared with 13 per cent in 2011).
- The total number of cycle movements has declined since last year – from 1,577 to 1,424. This represents a 10 per cent decrease over the last 12 months.
- Consistent with 2010 and 2011, the busiest site is at Lake Road, by Takapuna Grammar, with a total of 321 movements recorded, while the Birkenhead Ave/Mokoia Road intersection continues to have the fewest cyclists (52 movements).
- Cyclist volumes have increased for four sites since last year, with the most notable increase at the intersection of Glenfield/Coronation Road (up 40 per cent from 52 movements in 2011 to 73 movements this year).
- The most notable decrease is at Taharoto/Northcote Road down from 307 in 2011 to 218 this year).

**Table 1.5: Summary of Total Cyclist Movements**

**2007 – 2012 (n)**

| *Site No.* | *Locations* | *2007* | *2008* | *2009* | *2010* | *2011* | 2012 | Change 11-12 | Change 07-12 |
|---|---|---|---|---|---|---|---|---|---|
| 35 | Lake Road, by Takapuna Grammar | 192 | 297 | 295 | 327 | 316 | **321** | **2%** | **67%** |
| 36 | Hurstmere Road/Killarney Street | 121 | 252 | 318 | 302 | 304 | **262** | **-14%** | **117%** |
| 42 | Shakespeare/East Coast Road | 137 | 250 | 310 | 305 | 286 | **238** | **-17%** | **74%** |
| 37 | Taharoto/Northcote Road | 162 | 270 | 202 | 229 | 307 | **218** | **-29%** | **35%** |
| 41 | Wairau/Glenfield Road | 64 | 73 | 80 | 91 | 93 | **105** | **13%** | **64%** |
| 43 | Glenfield/Coronation Road | 28 | 75 | 78 | 93 | 52 | **73** | **40%** | **161%** |
| 44 | Birkenhead Ave/Mokoia Road | 40 | 49 | 57 | 75 | 45 | **52** | **16%** | **30%** |
| | **Average per site (7 sites since 2007)** | **106** | **181** | **191** | **203** | **200** | **181** | **-10%** | **71%** |
| | **Total (7 sites since 2007)** | **744** | **1266** | **1340** | **1422** | **1403** | **1269** | **-10%** | **71%** |
| 89 | Sunnynook Road/East Coast Road | - | - | - | - | 174 | **155** | **-11%** | **-** |
| | **Average per site (8 sites in 2011)** | **-** | - | **-** | **-** | **197** | **178** | **-10%** | **-** |
| | **Total (8 sites in 2011)** | **-** | **-** | **-** | **-** | **1577** | **1424** | **-10%** | **-** |

- Overall cyclist characteristics are illustrated in Table 1.6. In total, 86 per cent of cyclists are adults, stable from 85 per cent in 2011.
- Almost all cyclists are wearing a helmet (97 per cent, stable from last year).
- The greatest share of North Shore cyclists are male (80 per cent, up from 73 per cent in 2011).
- Four in five cyclists are riding on the road (80 per cent, stable from 79 per cent in 2011).

**Table 1.6: Summary of Total Cyclist Characteristics**

**2007 – 2012 (%)**

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** | **Change 11-12** |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 79 | 82 | 86 | 82 | 85 | **86** | **1** |
| School child | 21 | 18 | 14 | 18 | 15 | **14** | **-1** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 91 | 97 | 96 | 96 | 96 | **97** | **1** |
| No helmet | 9 | 3 | 4 | 4 | 4 | **3** | **-1** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 73 | **80** | **7** |
| Female | - | - | - | - | 14 | **16** | **2** |
| Can't tell | - | - | - | - | 13 | **4** | **-9** |
| **Where Riding** | | | | | | | |
| Road | 75 | 79 | 80 | 76 | 79 | **80** | **1** |
| Footpath | 25 | 21 | 20 | 24 | 17 | **17** | **0** |
| Off-road cycleway | 0 | 0 | 0 | 0 | 4 | **3** | **-1** |
| ***Base:*** | ***744*** | ***1266*** | ***1340*** | ***1422*** | ***1577*** | ***1424*** | |

## 1.7 Average Annual Daily Traffic (AADT) Estimate

### *AADT Estimate*

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at the Lake Road site (469 daily movements, unchanged from last year) and the lowest is at Birkenhead Ave/Mokoia Road (74 daily movements, up from 65 movements last year).
- Three sites have recorded increases in total AADT estimates this year compared with 2011, with the most notable increase at the Glenfield/Coronation Road intersection (up 39 per cent).
- In contrast, the number of total cyclists recorded at four sites is lower than last year. The most notable decreases are at:
  - Taharoto/Northcote Road – down 29 per cent; and
  - Shakespeare/East Coast Road – down 17 per cent.

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

| *Site No.* | *Locations* | *2007*[9] | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 | Change 07-12 |
|---|---|---|---|---|---|---|---|---|---|
| 35 | Lake Road, by Takapuna Grammar | 444 | 440 | 432 | 479 | 469 | **469** | **0%** | **6%** |
| 36 | Hurstmere Road/Killarney Street | 279 | 368 | 466 | 443 | 448 | **384** | **-14%** | **38%** |
| 42 | Shakespeare/East Coast Road | 314 | 364 | 454 | 442 | 422 | **350** | **-17%** | **11%** |
| 37 | Taharoto/Northcote Road | 375 | 396 | 293 | 333 | 454 | **322** | **-29%** | **-14%** |
| 89 | Sunnynook Road/East Coast Road | - | - | - | - | 252 | **228** | **-10%** | **-** |
| 41 | Wairau/Glenfield Road | 93 | 107 | 117 | 131 | 134 | **150** | **12%** | **61%** |
| 43 | Glenfield/Coronation Road | 64 | 109 | 113 | 134 | 76 | **106** | **39%** | **66%** |
| 44 | Birkenhead Ave/Mokoia Road | 58 | 71 | 83 | 108 | 65 | **74** | **14%** | **28%** |

[9] As in 2008 and 2009, the AADT estimates for North Shore city this year are calculated under "dry" weather factor, whereas a "wet" factor was applied to AADT calculations in 2007.

## 1.8 North Shore Ferry Wharves

### *Key Points*

- In the morning, 3 cycles were observed at the Devonport Ferry Terminal at 6.10am, with 26 recorded at 9.10am. In the afternoon, 32 cycles were recorded at the Devonport Ferry Terminal at 3.30pm and 5 were observed at 7.10pm. These numbers are lower than for the same time last year.
- After the morning peak, 11 cycles were observed parked at the Bayswater ferry wharf (up from 5 in 2011), 2 cycles were observed at the Northcote ferry wharf (up from no cycles last year) and no cycles observed at Birkenhead the wharf (unchanged from last year).

## 1.9 School Bike Shed Count Summary

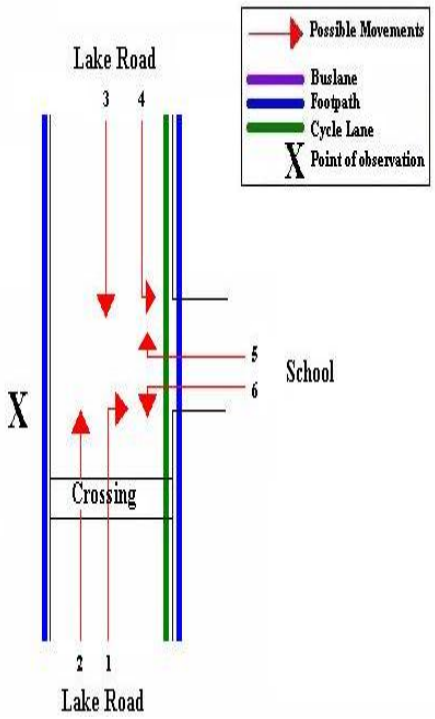
### *Key Points*

- Among the surveyed schools, of those eligible to cycle, on average, four per cent of students are cycling to their schools (unchanged from last year).
- Among the 17 participating schools, n=475 students were reported as cycling to school.
- As in previous years, Belmont Intermediate School reported the highest share of cyclists – 31 per cent of all eligible students currently cycling (stable from 30 per cent last year).
- Of the 17 schools that responded, five (29 per cent) had no students cycling to school.
- Rates of cycling to school are highest among intermediate schools (10 per cent, unchanged from 2011) and lowest for full primary and composite schools (no cyclists in either category).

# 2. LAKE ROAD, TAKAPUNA (SITE 35)

Figure 2.1 shows the possible cyclist movements at this site.

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


## 2.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 127 | 65 | 192 | 444 |
| 2008 | 200 | 97 | 297 | 440 |
| 2009 | 166 | 129 | 295 | 432 |
| 2010 | 186 | 141 | 327 | 479 |
| 2011 | 220 | 96 | 316 | 469 |
| **2012** | **175** | **146** | **321** | **469** |

## 2.2 Morning Peak

### *Environmental Conditions*

- The weather during the morning shift was fine until 8:00am, when light drizzle developed which continued until the end of the shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Morning cyclist movements have decreased notably at the Lake Road site to 175 movements (down from 220 movements in 2011).
- Key morning movements are straight along Lake Road in both directions (Movement 3 = 121 movements; Movement 2 = 51 movements).
- Movement 2 (down 38 movements) saw the greatest change in cyclist movements.

**Table 2.1: Morning Cyclist Movements**

**Lake Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 3 | 1 | 2 | 0 | **-2** |
| 2 | 40 | 68 | 50 | 51 | 89 | 51 | **-38** |
| 3 | 85 | 132 | 110 | 131 | 122 | 121 | **-1** |
| 4 | 1 | 0 | 3 | 3 | 6 | 3 | **-3** |
| 5 | 0 | 0 | 0 | 0 | 1 | 0 | **-1** |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **Total** | **127** | **200** | **166** | **186** | **220** | **175** | **-45** |

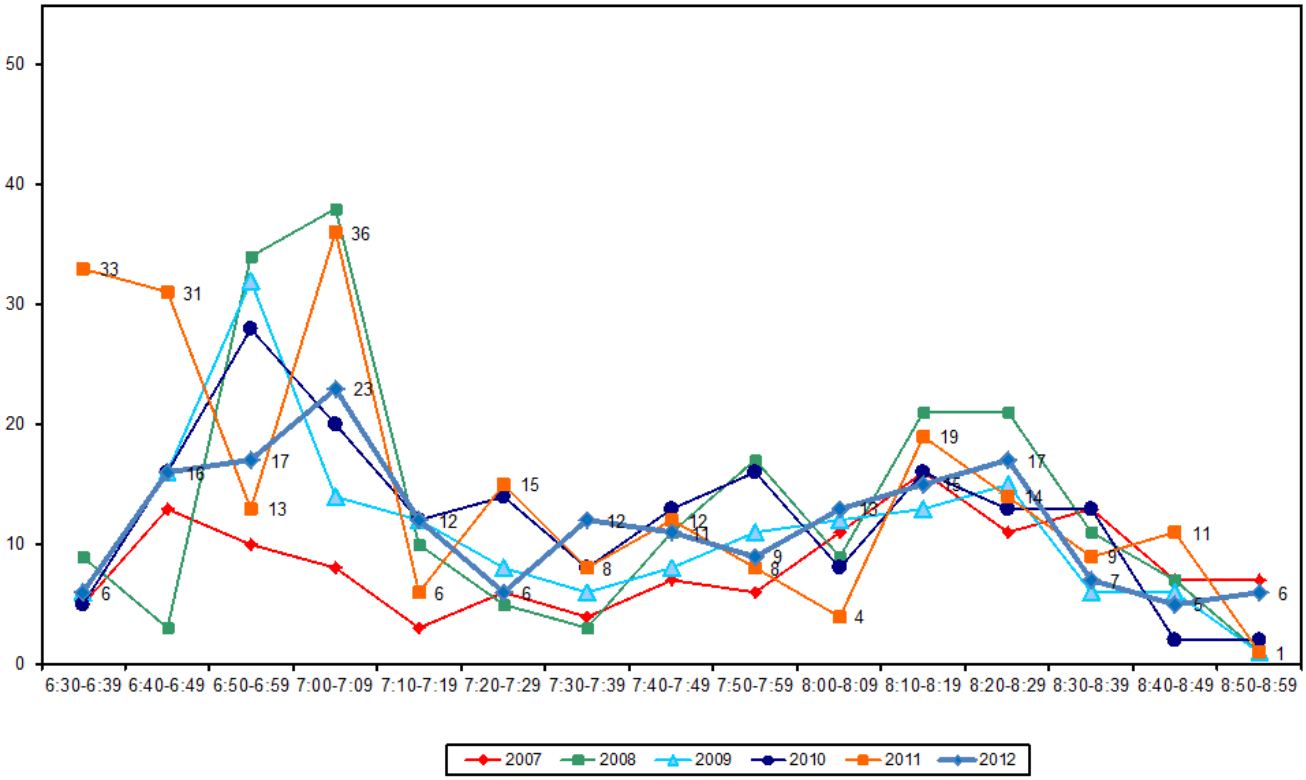
- Over the morning peak in 2012, adults comprise the greatest share of cycle movements (82 per cent, stable from 80 per cent in 2011).
- The majority of cyclists are wearing a helmet (98 per cent, unchanged from 2011).
- The majority of morning cyclists continue to be male (84 per cent).
- Most cyclists were riding on the rode (82 per cent, stable from 83 per cent in 2011). Fourteen per cent of cyclists were riding on the new cycleway.

**Table 2.2: Morning Cyclist Characteristics**
**Lake Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 65 | 77 | 83 | 81 | 80 | **82** | **2** |
| School child | 36 | 23 | 17 | 19 | 20 | **18** | **-2** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 98 | 98 | 98 | 97 | 98 | **98** | **0** |
| No helmet | 2 | 2 | 2 | 3 | 2 | **2** | **0** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 58 | **84** | **26** |
| Female | - | - | - | - | 16 | **14** | **-2** |
| Can't tell | - | - | - | - | 26 | **2** | **-24** |
| **Where Riding** | | | | | | | |
| Road | 77 | 78 | 77 | 84 | 83 | **82** | **-1** |
| Footpath | 23 | 22 | 23 | 16 | 17 | **4** | **-13** |
| Cycleway | - | - | - | - | - | **14** | **14** |
| ***Base:*** | ***127*** | ***200*** | ***166*** | ***186*** | ***220*** | ***175*** | |

- The volume of morning cycle movements varies throughout the monitoring period, with a peak in cyclist volumes between 7:00am and 7:09am (23 movements). This peak occurs at the same time as the peak observed in 2011 (36 movements).

**Figure 2.2: Morning Peak Cyclist Frequency**
**Lake Road 2007 – 2012 (n)**




*Note: In 2012, 10 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Nine cyclists at 6:42am*
- *Eight cyclists at 6:59am*

## 2.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- In 2012, the volume of evening cyclist movements increased notably, from 96 movements in 2011 up to 146 movements.
- Consistent with last year, the most common movements in the evening are straight along Lake Road in both directions (Movement 2 = 83 cyclists; Movement 3 = 57 cyclists).
- The most notable differences in evening cyclist volumes between this year and last occurred at Movement 2 (up 29 movements) and Movement 3 (up 25 movements).

**Table 2.3: Evening Cyclist Movements**

**Lake Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 2 | 0 | 0 | 1 | **1** |
| 2 | 27 | 38 | 64 | 92 | 54 | 83 | **29** |
| 3 | 34 | 56 | 53 | 44 | 32 | 57 | **25** |
| 4 | 1 | 3 | 2 | 3 | 3 | 1 | **-2** |
| 5 | 2 | 0 | 5 | 1 | 4 | 4 | **0** |
| 6 | 1 | 0 | 3 | 1 | 3 | 0 | **-3** |
| **Total** | **65** | **97** | **129** | **141** | **96** | **146** | **50** |

- The majority of cyclists using this site in the evening are adults (97 per cent, up from 82 per cent in 2011).
- Almost all cyclists are wearing a helmet (97 per cent, up from 84 per cent last year).
- The majority of cyclists continue to be male (84 per cent).
- Nearly nine in ten cyclists (87 per cent) were riding on the road (up from 71 per cent last year). Eight per cent were recorded riding on the new cycleway.

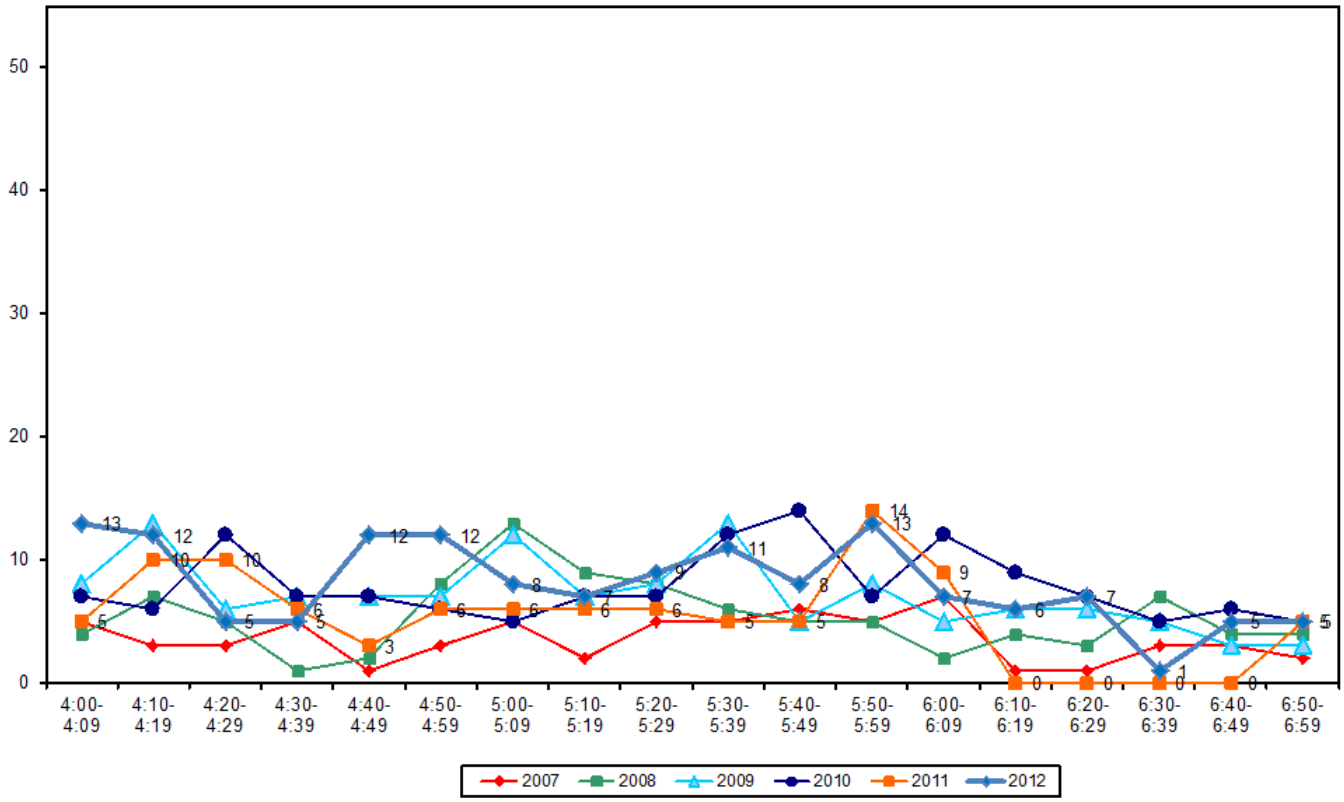
**Table 2.4: Evening Cyclist Characteristics**

**Lake Road 2007 – 2012 (%)**

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** | **Change 11-12** |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 97 | 85 | 85 | 85 | 82 | 97 | **15** |
| School child | 3 | 15 | 15 | 15 | 18 | 3 | **-15** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 94 | 92 | 94 | 91 | 84 | 97 | **13** |
| No helmet | 6 | 8 | 6 | 9 | 16 | 3 | **-13** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 90 | 84 | **-6** |
| Female | - | - | - | - | 9 | 16 | **7** |
| Can't tell | - | - | - | - | 1 | 0 | **-1** |
| **Where Riding** | | | | | | | |
| Road | 95 | 76 | 74 | 76 | 71 | 87 | **16** |
| Footpath | 5 | 24 | 26 | 24 | 29 | 5 | **-24** |
| Cycleway | - | - | - | - | - | 8 | **8** |
| ***Base:*** | ***65*** | ***97*** | ***129*** | ***141*** | ***96*** | ***146*** | |

- The volume of cycle movements varies during the evening shift, with two slight peaks – between 4:00pm and 4:09pm, and 5:50pm and 5:59pm (13 movements per each ten minute interval); the latter peak occurring at the same time as the peak observed in 2011.

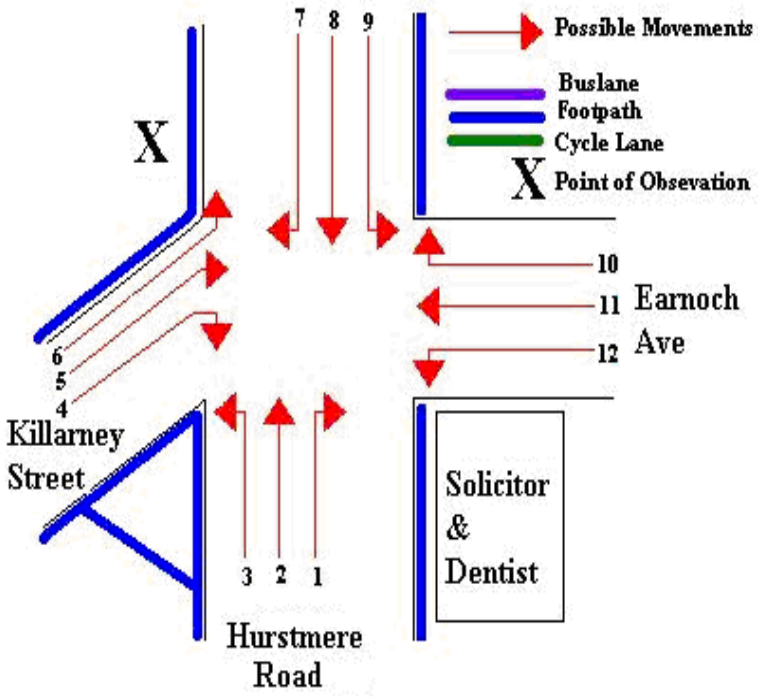
**Figure 2.3: Evening Peak Cyclist Frequency**
**Lake Road 2007 – 2012 (n)**



# 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**


## 3.1 Site Summary

| | *Raw Counts* | | | *AADT* |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 76 | 45 | 121 | 279 |
| 2008 | 134 | 118 | 252 | 368 |
| 2009 | 186 | 132 | 318 | 466 |
| 2010 | 180 | 122 | 302 | 443 |
| 2011 | 191 | 113 | 304 | 448 |
| **2012** | **154** | **108** | **262** | **384** |

## 3.2 Morning Peak

### *Environmental Conditions*

- The weather was mostly fine throughout the morning shift, with a period of light drizzle between 6:20am and 6:35am and a period of moderate rain beginning at 8:25 am until the end of the shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The volume of morning cyclist movements at the Hurstmere Road/Killarney Street intersection is down from 191 movements in 2011 to 154 movements in 2012.
- The key movements in the morning are straight along Hurstmere Road heading in either direction (Movement 2 = 37 movements and Movement 8 = 88 movements).
- The most notable change in cycle movements occurred at Movement 6 (down 47 movements).

**Table 3.1: Morning Cyclist Movements**

**Hurstmere Road/Killarney Street 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 2 | 0 | 0 | **0** | **0** |
| 2 | 15 | 43 | 44 | 33 | 43 | **37** | **-6** |
| 3 | 0 | 1 | 1 | 5 | 1 | **1** | **0** |
| 4 | 0 | 3 | 0 | 1 | 0 | **2** | **2** |
| 5 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 6 | 9 | 46 | 15 | 42 | 62 | **15** | **-47** |
| 7 | 6 | 6 | 6 | 7 | 6 | **11** | **5** |
| 8 | 44 | 33 | 117 | 91 | 76 | **88** | **12** |
| 9 | 2 | 1 | 0 | 1 | 0 | **0** | **0** |
| 10 | 0 | 1 | 0 | 0 | 3 | **0** | **-3** |
| 11 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 12 | 0 | 0 | 1 | 0 | 0 | **0** | **0** |
| **Total** | **76** | **134** | **186** | **180** | **191** | **154** | **-37** |

- Over the morning peak, most cyclists using this intersection were adults (91 per cent, down slightly from 95 per cent in 2011).
- All cyclists were wearing a helmet (100 per cent, stable from the previous measure).
- Approximately nine out of ten cyclists are male (88 per cent, up from 80 per cent in 2011).
- Most cyclists are riding on the road (90 per cent, down slightly from 94 per cent last year).

**Table 3.2: Morning Cyclist Characteristics**

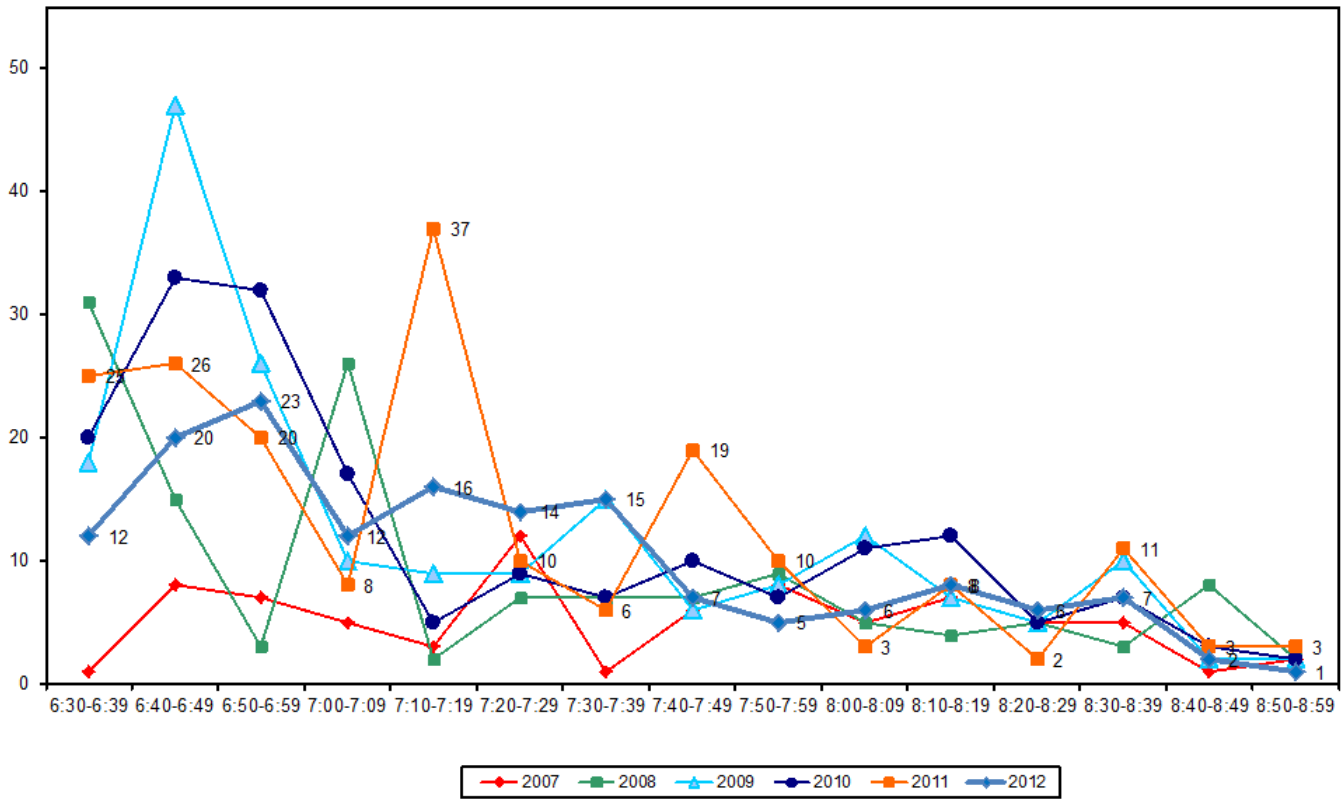
**Hurstmere Road/Killarney Street 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 87 | 75 | 94 | 92 | 95 | **91** | **-4** |
| School child | 13 | 25 | 6 | 8 | 5 | **9** | **4** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 93 | 99 | 98 | 99 | 100 | **100** | **0** |
| No helmet | 7 | 1 | 2 | 1 | 0 | **0** | **0** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 80 | **88** | **8** |
| Female | - | - | - | - | 20 | **10** | **-10** |
| Can't tell | - | - | - | - | 0 | **2** | **2** |
| **Where Riding** | | | | | | | |
| Road | 83 | 93 | 90 | 90 | 94 | **90** | **-4** |
| Footpath | 17 | 7 | 10 | 10 | 6 | **10** | **4** |
| ***Base:*** | ***76*** | ***134*** | ***186*** | ***180*** | ***191*** | ***154*** | |

- The volume of morning cycle movements increases to peak between 6:50am and 6:59am (23 movements). The volume of cyclists then steadily declines for the remainder of the monitoring period. This compares to variable cyclist volumes throughout the monitoring period in 2011, with peaks observed between 7:10am an 7:19am and between 7:40am and 7:49am.

**Figure 3.2: Morning Peak Cyclist Frequency**

**Hurstmere Road/Killarney Street 2007 – 2012 (n)**




*Note: In 2012, 14 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Five cyclists at 6:43am*
- *Eight cyclists at 6:53am*
- *Three cyclists at 7:03am*
- *Six cyclists at 7:31am*

## 3.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- The volume of evening cyclist movements at the Hurstmere Road/Killarney Street intersection is down slightly, from 113 movements in 2011 to 108 movements in 2012.
- The key movements in the morning are straight along Hurstmere Road heading in either direction (Movement 2 = 56 movements and Movement 8 = 22 movements) and turning left from Killarney Street onto Hurstmere Road heading north (Movement 6 = 23 movements).
- Movement 2 saw the greatest change in volume from 2011 (down 6 movements).

**Table 3.3: Evening Cyclist Movements**

**Hurstmere Road/Killarney Street 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 2 | 24 | 42 | 81 | 53 | 62 | **56** | **-6** |
| 3 | 0 | 0 | 2 | 1 | 0 | **0** | **0** |
| 4 | 0 | 0 | 0 | 1 | 3 | **1** | **-2** |
| 5 | 0 | 1 | 0 | 0 | 0 | **0** | **0** |
| 6 | 7 | 48 | 27 | 31 | 24 | **23** | **-1** |
| 7 | 2 | 5 | 3 | 6 | 6 | **4** | **-2** |
| 8 | 10 | 20 | 19 | 25 | 18 | **22** | **4** |
| 9 | 2 | 0 | 0 | 0 | 0 | **0** | **0** |
| 10 | 0 | 2 | 0 | 5 | 0 | **1** | **1** |
| 11 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 12 | 0 | 0 | 0 | 0 | 0 | **1** | **1** |
| **Total** | **45** | **118** | **132** | **122** | **113** | **108** | **-5** |

- Over the evening peak, the greatest share of cyclists using the Hurstmere Road/Killarney Street intersection were adults (89 per cent, stable from 88 per cent in 2011).
- Most cyclists are wearing a helmet (95 per cent, consistent with 93 per cent in 2011).
- The majority of the cyclists were male (89 per cent, down slightly from 92 per cent in the previous measure).
- Nine out of ten cyclists are riding on the road, stable from 88 per cent in 2011.

**Table 3.4: Evening Cyclist Characteristics**

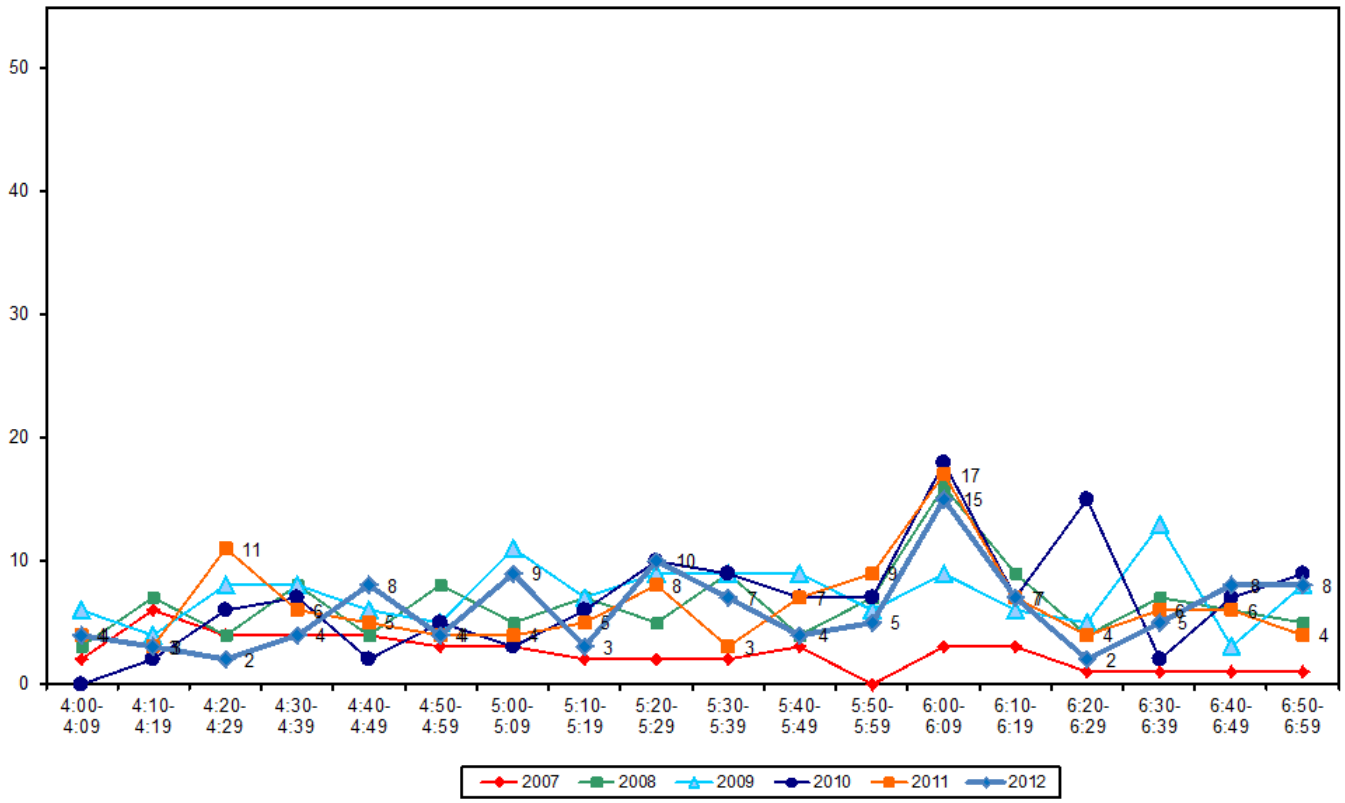
**Hurstmere Road/Killarney Street 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 89 | 81 | 92 | 78 | 88 | **89** | **1** |
| School child | 11 | 19 | 8 | 22 | 12 | **11** | **-1** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 89 | 92 | 96 | 93 | 93 | **95** | **2** |
| No helmet | 11 | 8 | 4 | 7 | 7 | **5** | **-2** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 92 | **89** | **-3** |
| Female | - | - | - | - | 8 | **11** | **3** |
| Can't tell | - | - | - | - | 0 | **0** | **0** |
| **Where Riding** | | | | | | | |
| Road | 82 | 79 | 89 | 72 | 88 | **90** | **2** |
| Footpath | 18 | 21 | 11 | 28 | 12 | **10** | **-2** |
| ***Base:*** | ***45*** | ***118*** | ***132*** | ***122*** | ***113*** | ***108*** | |

- The volume of evening cyclist movements stays relatively stable throughout the evening peak period, except for a slight peak between 6:00pm and 6:09pm (15 movements), the same time as the largest peak in 2008, 2010 and 2011.

**Figure 3.3: Evening Peak Cyclist Frequency**

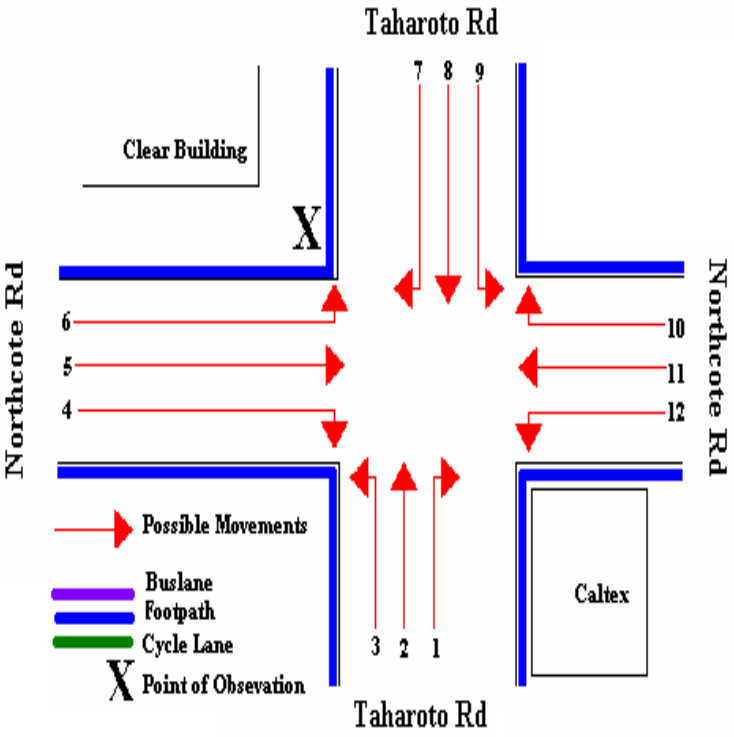
**Hurstmere Road/Killarney Street 2007 – 2012 (n)**



# 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**


## 4.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 109 | 50 | 159 | 375 |
| 2008 | 160 | 110 | 270 | 396 |
| 2009 | 98 | 104 | 202 | 293 |
| 2010 | 117 | 112 | 229 | 333 |
| 2011 | 202 | 105 | 307 | 454 |
| **2012** | **141** | **77** | **218** | **322** |

## 4.2 Morning Peak

### *Environmental Conditions*

- The weather was fine through the majority of the morning shift, with a period of drizzle between 6:30am and 6:50am and moderate rain between 8:40am and 9:00am.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- Cyclist volumes have decreased notably this year, from 202 in 2011 to 141 movements.
- The key morning movement is straight along Taharoto Road heading southeast (Movement 8 = 85 cyclists).
- Morning cyclist volumes at most movements decreased from 2011, with Movement 8 (down 37 movements) and Movement 12 (down 10 movements) seeing the greatest change.

**Table 4.1: Morning Cyclist Movements**

**Taharoto/Northcote Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 4 | 4 | 4 | 5 | **3** | **-2** |
| 2 | 9 | 21 | 21 | 17 | 28 | **31** | **3** |
| 3 | 12 | 3 | 2 | 1 | 5 | **5** | **0** |
| 4 | 19 | 14 | 14 | 12 | 8 | **4** | **-4** |
| 5 | 3 | 2 | 2 | 5 | 1 | **3** | **2** |
| 6 | 3 | 7 | 2 | 0 | 6 | **2** | **-4** |
| 7 | 1 | 3 | 4 | 2 | 5 | **3** | **-2** |
| 8 | 42 | 78 | 44 | 69 | 122 | **85** | **-37** |
| 9 | 0 | 0 | 1 | 0 | 7 | **0** | **-7** |
| 10 | 0 | 0 | 0 | 0 | 1 | **0** | **-1** |
| 11 | 2 | 1 | 1 | 3 | 1 | **2** | **1** |
| 12 | 16 | 27 | 3 | 4 | 13 | **3** | **-10** |
| **Total** | **109** | **160** | **98** | **117** | **202** | **141** | **-61** |

- Over the morning peak, adults comprise two-thirds of cyclist movements (66 per cent, down from 77 per cent last year).
- Helmet wearing is widespread (95 per cent, down slightly from 98 per cent in 2011).
- Approximately three in four cyclists were identified as male (74 per cent).
- Fifty-six per cent of cyclists are riding on the road (down from 67 per cent last year).

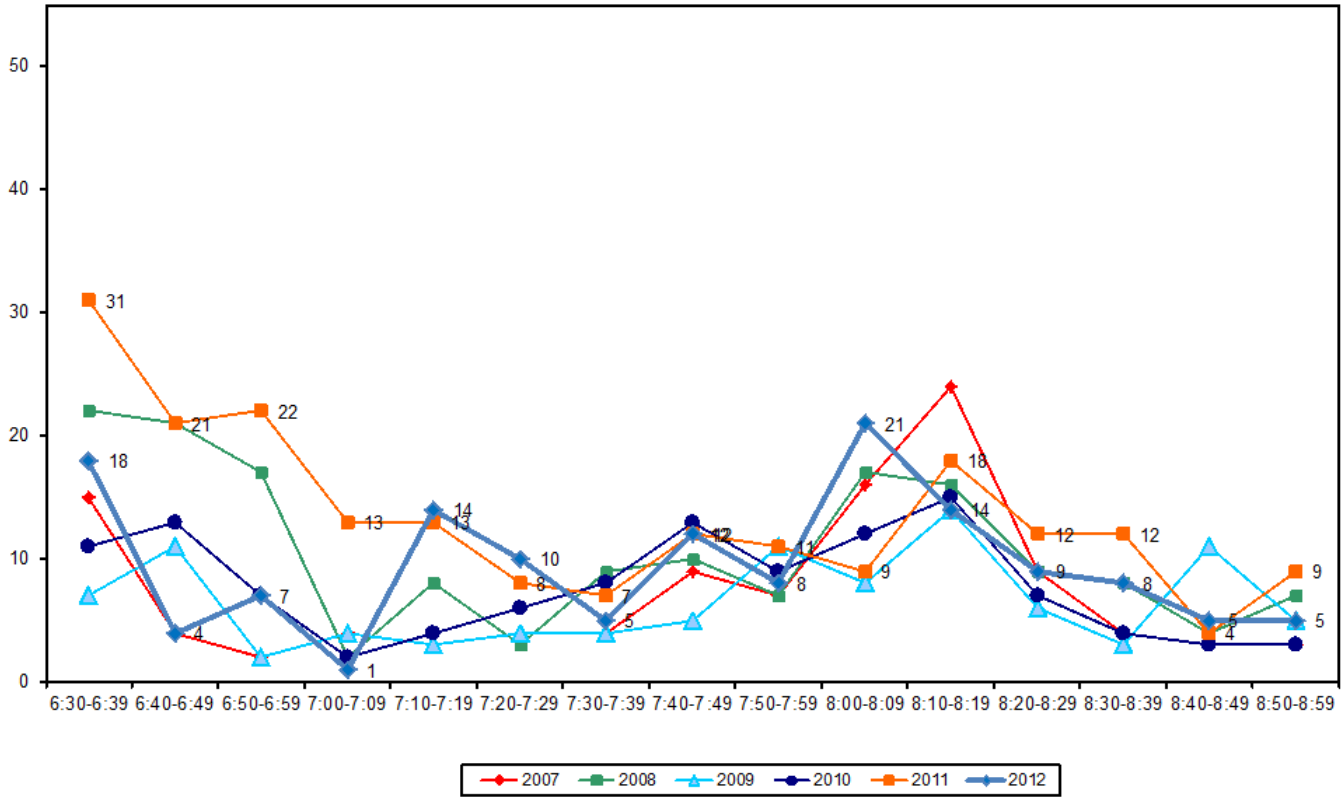
**Table 4.2: Morning Cyclist Characteristics**
**Taharoto/Northcote Road 2007 – 2012 (%)**

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** | **Change 11-12** |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 54 | 78 | 72 | 72 | 77 | **66** | **-11** |
| School child | 46 | 22 | 28 | 28 | 23 | **34** | **11** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 94 | 99 | 93 | 98 | 98 | **95** | **-3** |
| No helmet | 6 | 1 | 7 | 2 | 2 | **5** | **3** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 39 | **74** | **35** |
| Female | - | - | - | - | 7 | **24** | **17** |
| Can't tell | - | - | - | - | 54 | **2** | **-52** |
| **Where Riding** | | | | | | | |
| Road | 47 | 70 | 68 | 65 | 67 | **56** | **-11** |
| Footpath | 53 | 30 | 32 | 35 | 33 | **44** | **11** |
| ***Base:*** | ***109*** | ***160*** | ***98*** | ***117*** | ***202*** | ***140*** | |

- Morning cyclist numbers varied throughout the monitoring period, peaking between 8:00am and 8:09am (21 movements). This compares to a peak at the beginning of the monitoring period in 2011 (31 movements).

**Figure 4.2: Morning Peak Cyclist Frequency**

**Taharoto /Northcote Road 2007 – 2012 (n)**



## 4.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- The total number of cyclist movements observed at the Taharoto/Northcote Road intersection has decreased from 2011 counts (77 movements down from 105).
- The key evening movements at this site are straight along Taharoto Road in a south-easterly direction (Movement 8 = 35 cyclists) and straight along Taharoto Road in a north-westerly direction (Movement 2 = 20).
- More movements saw a decline in volume than an increase, with Movement 8 down by 10 movements and Movements 3 and 12 down by 7 movements. Movement 11 saw the greatest increase, up by 3 movements.

**Table 4.3: Evening Cyclist Movements**

**Taharoto/Northcote Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 4 | 2 | 1 | 1 | 0 | **-1** |
| 2 | 8 | 23 | 20 | 28 | 21 | 20 | **-1** |
| 3 | 12 | 13 | 11 | 7 | 11 | 4 | **-7** |
| 4 | 10 | 3 | 6 | 8 | 7 | 2 | **-5** |
| 5 | 0 | 2 | 1 | 1 | 0 | 1 | **1** |
| 6 | 0 | 3 | 6 | 6 | 7 | 5 | **-2** |
| 7 | 3 | 3 | 2 | 2 | 0 | 2 | **2** |
| 8 | 11 | 52 | 45 | 53 | 45 | 35 | **-10** |
| 9 | 0 | 0 | 0 | 0 | 3 | 2 | **-1** |
| 10 | 0 | 0 | 0 | 1 | 0 | 0 | **0** |
| 11 | 3 | 2 | 5 | 2 | 0 | 3 | **3** |
| 12 | 2 | 5 | 6 | 3 | 10 | 3 | **-7** |
| **Total** | **50** | **110** | **104** | **112** | **105** | **77** | **-28** |

- Over the evening peak, the greatest share of cyclists using this intersection are adults (94 per cent, up from 84 per cent in 2011).
- Almost all cyclists at this site are wearing a helmet (95 per cent, up slightly from 92 per cent in 2011).
- The majority of cyclists continue to be male (79 per cent).
- Eighty-three per cent of the cyclists were riding on the road (up from 73 per cent in 2011).

**Table 4.4: Evening Cyclist Characteristics**

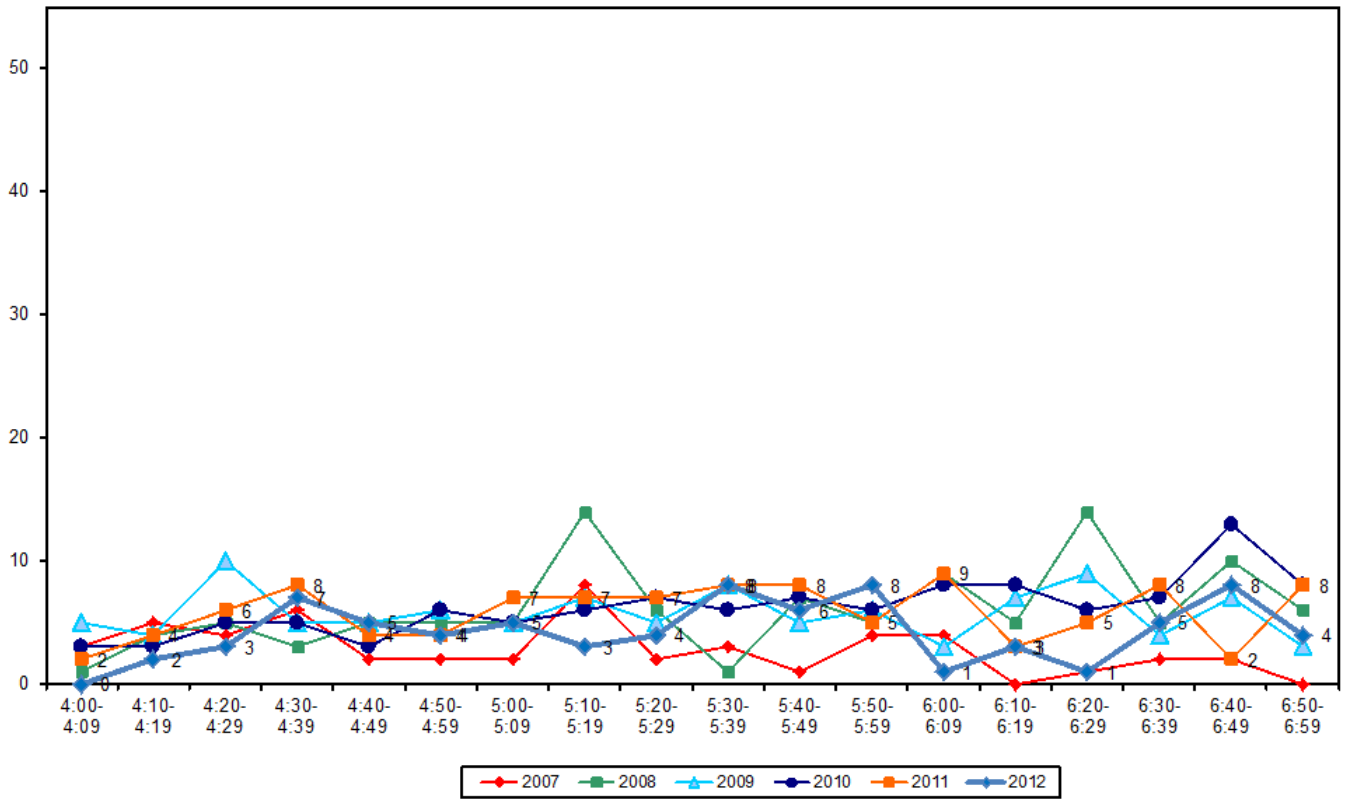
**Taharoto/Northcote Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 84 | 90 | 92 | 81 | 84 | **94** | **10** |
| School child | 16 | 10 | 8 | 19 | 16 | **6** | **-10** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 82 | 97 | 94 | 96 | 92 | **95** | **3** |
| No helmet | 18 | 3 | 6 | 4 | 8 | **5** | **-3** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 67 | **79** | **12** |
| Female | - | - | - | - | 10 | **21** | **11** |
| Can't tell | - | - | - | - | 23 | **0** | **-23** |
| **Where Riding** | | | | | | | |
| Road | 69 | 75 | 81 | 70 | 73 | **83** | **10** |
| Footpath | 31 | 25 | 19 | 30 | 27 | **17** | **-10** |
| ***Base:*** | ***50*** | ***110*** | ***104*** | ***112*** | ***105*** | ***77*** | |

- Cyclist movement volumes during the evening remained relatively steady, with no evident peak in cyclist movements. This pattern of cyclist movements is consistent with previous years.

**Figure 4.3: Evening Peak Cyclist Frequency**

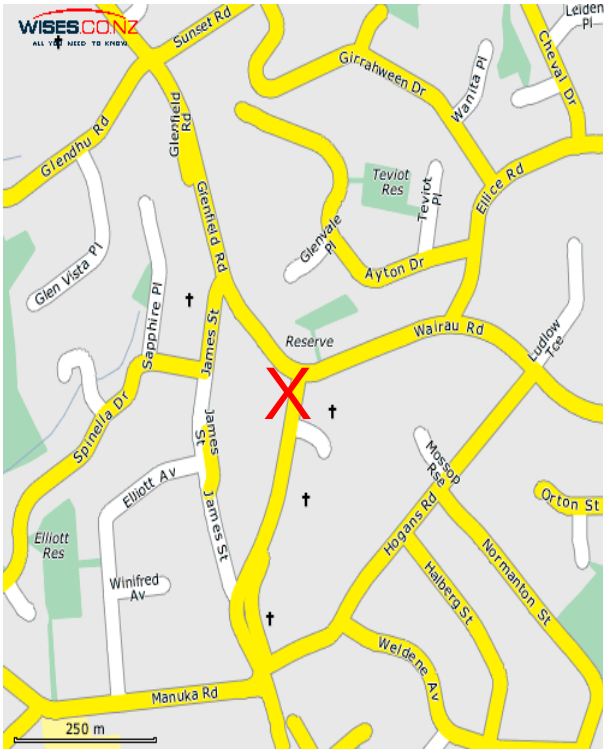
**Taharoto/Northcote Road 2007 – 2012 (n)**

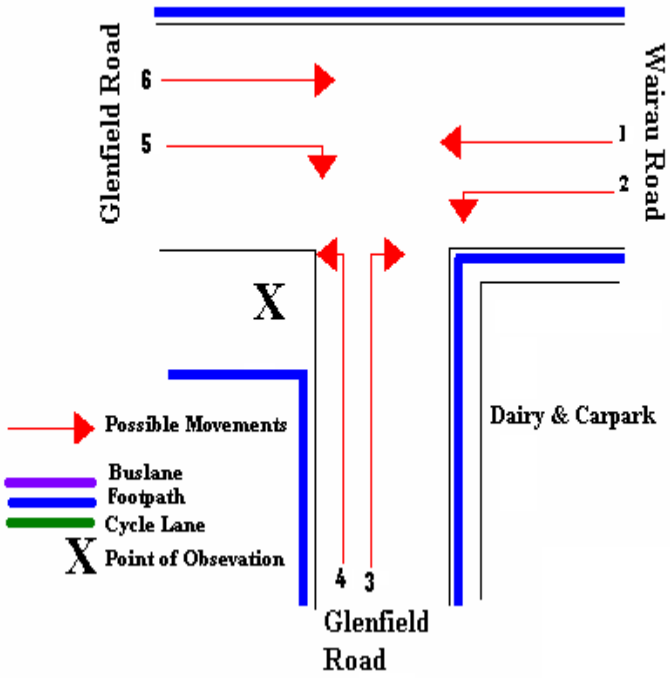


# 5. WAIRAU ROAD/GLENFIELD ROAD, GLENFIELD (SITE 41)

Figure 5.1 shows the possible cyclist movements at this intersection.

**Figure 5.1: Cycle Movements: Wairau/Glenfield Road**




## 5.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 34 | 30 | 64 | 93 |
| 2008 | 39 | 34 | 73 | 107 |
| 2009 | 42 | 38 | 80 | 117 |
| 2010 | 38 | 53 | 91 | 131 |
| 2011 | 41 | 52 | 93 | 134 |
| **2012** | **36** | **69** | **105** | **150** |

## 5.2 Morning Peak

### *Environmental Conditions*

- The weather was variable throughout the morning shift. A shower was recorded between 6:40am and 6:50am, followed by a fine period lasting until 8:10am when intermittent showers occurred until the end of the monitoring period.
- Roadworks were recorded approximately 50m down Glenfield Road which may have affected cycle counts at this site.

### *Key Points*

- Cyclist movements decreased in 2012 (36 movements compared to 41 movements in 2011).
- The most common movements in the morning are travelling from Wairau Road northwest into Glenfield Road (Movement 1) and from northwest Glenfield Road into Wairau Road (Movement 6).
- Morning cyclist volumes at half of the movements decreased, the largest loss occurring at Movements 4 and 5 (down 6 movements each). The largest gain occurring at Movement 1 (down 5 movements).

**Table 5.1: Morning Cyclist Movements**

**Wairau/Glenfield Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 6 | 8 | 9 | 6 | **11** | **5** |
| 2 | 2 | 4 | 1 | 1 | 0 | **1** | **1** |
| 3 | 4 | 2 | 3 | 1 | 6 | **4** | **-2** |
| 4 | 11 | 11 | 17 | 17 | 13 | **7** | **-6** |
| 5 | 9 | 8 | 4 | 4 | 8 | **2** | **-6** |
| 6 | 6 | 8 | 9 | 6 | 8 | **11** | **3** |
| **Total** | **34** | **39** | **42** | **38** | **41** | **36** | **-5** |

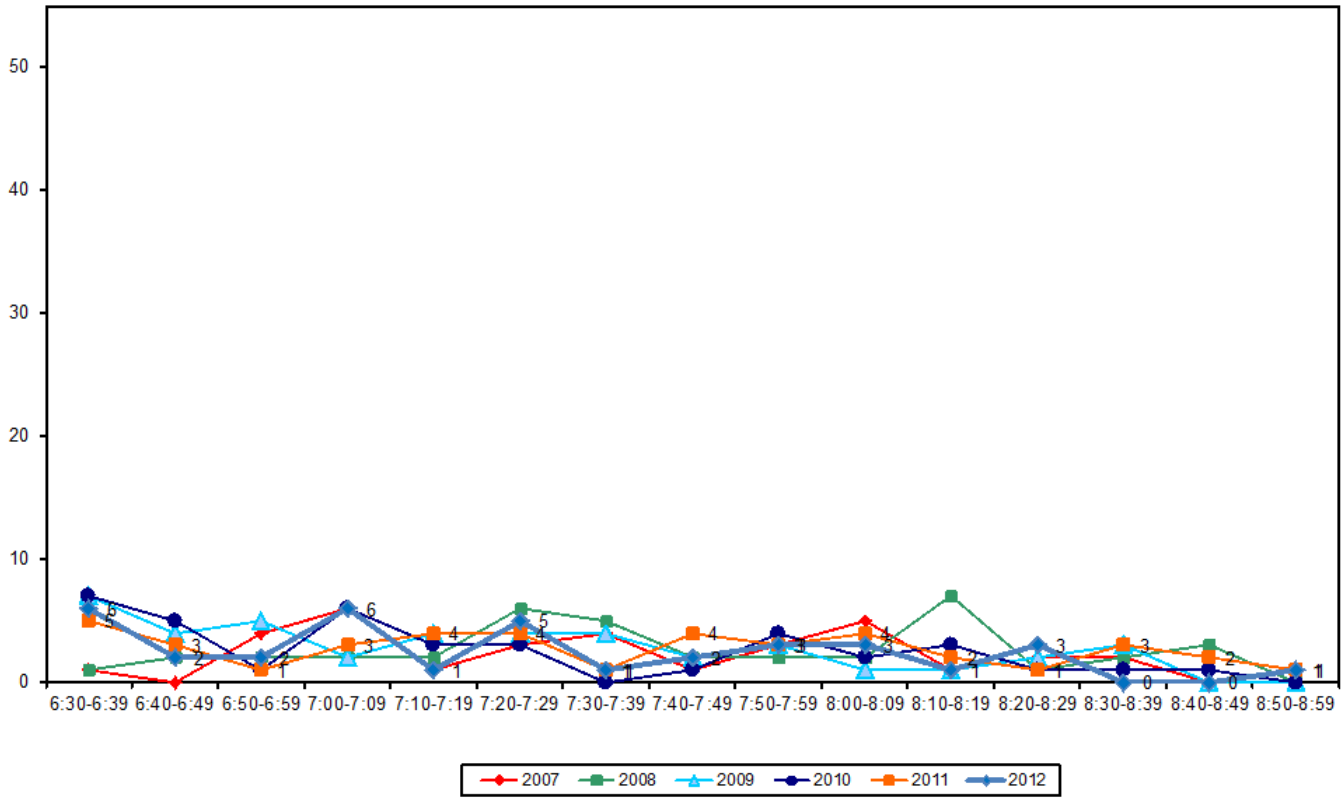
- Over the morning peak, adults comprise the greatest share of cycle movements (97 per cent, stable from 98 per cent in 2011).
- All cyclists were wearing a helmet at this site (100 per cent, stable from 98 per cent in 2011).
- The majority of cyclists were male (86 per cent, down from 93 per cent in 2011).
- Approximately nine in ten cyclists were riding on the road (92 per cent, up from 83 per cent last year).

**Table 5.2: Morning Cyclist Characteristics**
**Wairau/Glenfield Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 91 | 87 | 93 | 97 | 98 | **97** | **-1** |
| School child | 9 | 13 | 7 | 3 | 2 | **3** | **1** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 82 | 97 | 100 | 95 | 98 | **100** | **2** |
| No helmet | 18 | 3 | 0 | 5 | 2 | **0** | **-2** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 93 | **86** | **-7** |
| Female | - | - | - | - | 7 | **14** | **7** |
| Can't tell | - | - | - | - | 0 | **0** | |
| **Where Riding** | | | | | | | |
| Road | 62 | 82 | 95 | 97 | 83 | **92** | **9** |
| Footpath | 38 | 18 | 5 | 3 | 17 | **8** | **-9** |
| ***Base:*** | ***34*** | ***39*** | ***42*** | ***38*** | ***41*** | ***36*** | |

- The volume of morning cycle movements is low throughout the shift, with the largest volume of cyclist movements observed between 7:00am and 7:09am = 6 movements), 30 minutes later than the peak observed in 2011 (between 6:30am and 6:39am, 5 movements).

**Figure 5.2: Morning Peak Cyclist Frequency**
**Wairau/Glenfield Road 2007 – 2012 (n)**




*Note: In 2012, five cyclists were observed riding together at this site at 6:31am. This equates to 14 per cent of all morning peak cyclists at this site.*

## 5.3 Evening Peak

### *Environmental Conditions*

- The weather was fine throughout the evening monitoring period.
- Roadworks were recorded approximately 50m down Glenfield Road which may have affected cycle counts at this site.

### *Key Points*

- The total number of evening cyclist movements observed at the Wairau/Glenfield Road intersection has increased from 2011 counts (69 movements, up from 52).
- The key movements in the evening are straight through Wairau Road into Glenfield Road (Movement 1 = 28 cyclists) and south along Glenfield Road (Movement 5 = 19 cyclists).
- The most notable changes from last year are at Movement 1 (up 15 cyclists) and Movement 6 (up 11 movements).

**Table 5.3: Evening Cyclist Movements**

**Wairau/Glenfield Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 6 | 4 | 8 | 14 | 13 | **28** | **15** |
| 2 | 2 | 3 | 1 | 6 | 6 | **3** | **-3** |
| 3 | 3 | 1 | 1 | 0 | 1 | **2** | **1** |
| 4 | 7 | 5 | 8 | 11 | 7 | **3** | **-4** |
| 5 | 8 | 16 | 18 | 15 | 22 | **19** | **-3** |
| 6 | 4 | 5 | 2 | 7 | 3 | **14** | **11** |
| **Total** | **30** | **34** | **38** | **53** | **52** | **69** | **17** |

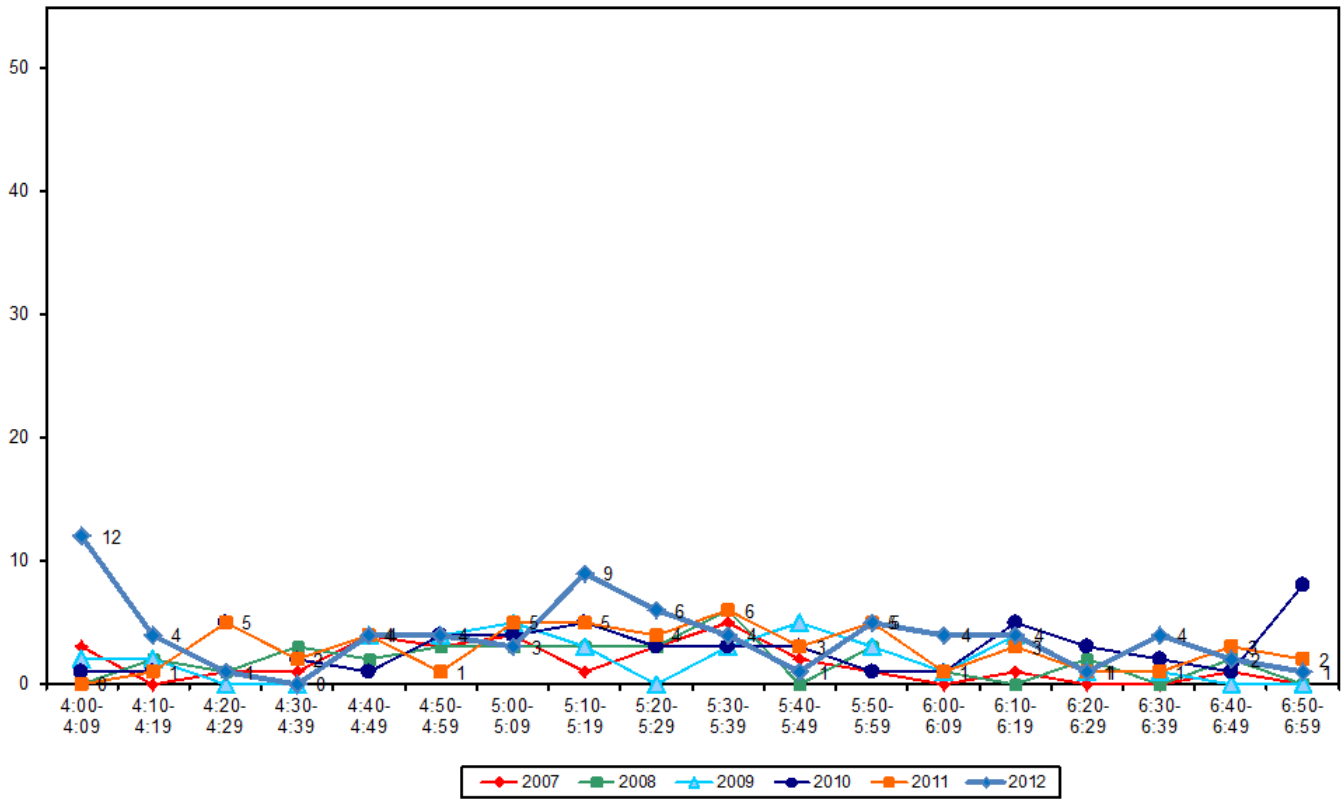
- Over the evening period, almost all cyclists using this site are adults (99 per cent, up from 92 per cent in 2011).
- Helmet wearing continues to be widespread in the evening (99 per cent, stable from 98 per cent in 2011).
- Approximately three quarters of cyclists are male (74 per cent, down from 94 per cent in 2011).
- Almost all cyclists are riding on the road (94 per cent, up from 83 per cent in 2011).

**Table 5.4: Evening Cyclist Characteristics**
**Wairau/Glenfield Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 100 | 91 | 95 | 91 | 92 | **99** | **7** |
| School child | 0 | 9 | 5 | 9 | 8 | **1** | **-7** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 87 | 97 | 92 | 94 | 98 | **99** | **1** |
| No helmet | 13 | 3 | 8 | 6 | 2 | **1** | **-1** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 94 | **74** | **-20** |
| Female | - | - | - | - | 6 | **26** | **20** |
| Can't tell | - | - | - | - | 0 | **0** | **0** |
| **Where Riding** | | | | | | | |
| Road | 73 | 85 | 95 | 89 | 83 | **94** | **11** |
| Footpath | 27 | 15 | 5 | 11 | 17 | **6** | **-11** |
| ***Base:*** | ***30*** | ***34*** | ***38*** | ***53*** | ***52*** | ***69*** | |

- The number of evening cyclist movements remained low throughout the monitoring period, with a peak at the start of the evening shift between 4:00pm and 4:09pm (12 movements) and another slight peak between 5:10pm and 5:19 (9 movements).

**Figure 5.3: Evening Peak Cyclist Frequency**
**Wairau/Glenfield Road 2007 – 2012 (n)**



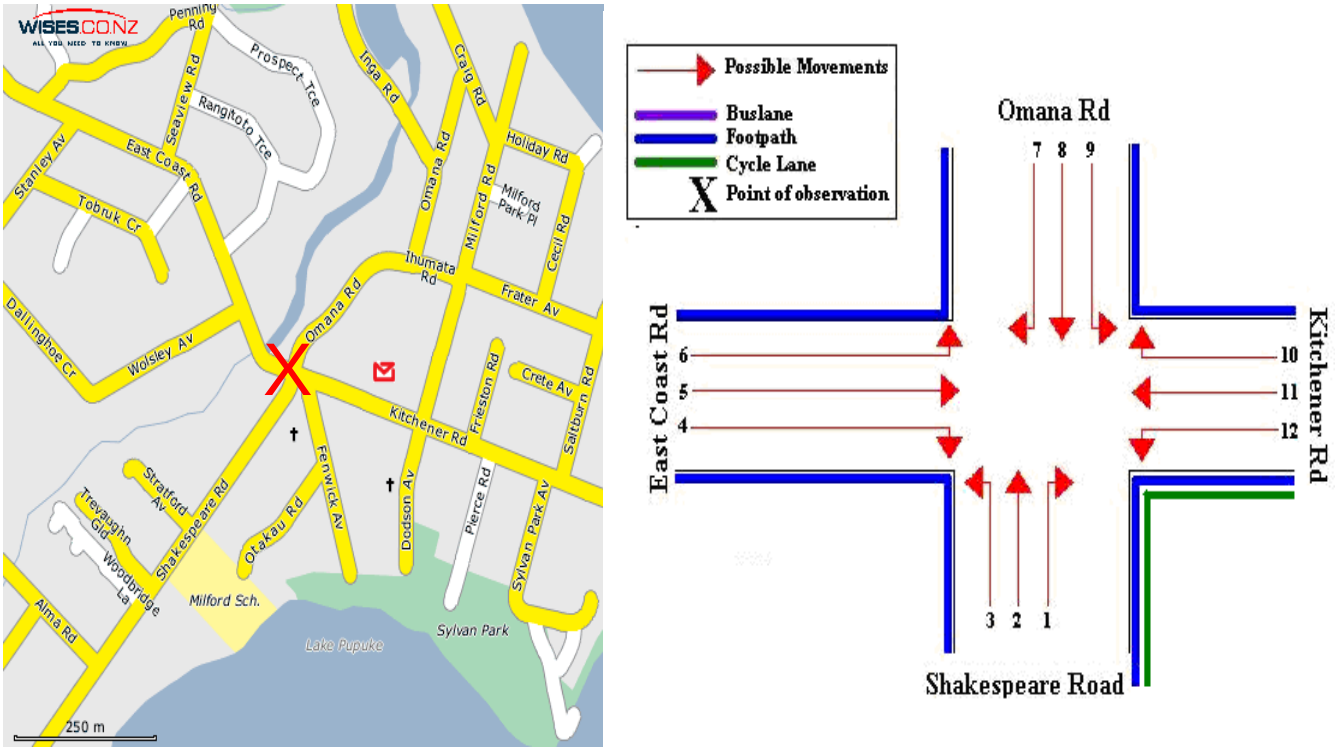

*Note: In 2012, 28 per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Twelve cyclists at 4:08pm*
- *Seven cyclists at 5:19pm*

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

Figure 6.1 shows the possible cyclist movements at this intersection.

**Figure 6.1: Cycle Movements: Shakespeare/East Coast Road**




## 6.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 82 | 55 | 137 | 314 |
| 2008 | 127 | 123 | 250 | 364 |
| 2009 | 177 | 133 | 310 | 454 |
| 2010 | 146 | 159 | 305 | 442 |
| 2011 | 181 | 105 | 286 | 422 |
| **2012** | **145** | **93** | **238** | **350** |

## 6.2 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift, aside from light drizzle between 6:30am and 6:50am and between 8:50am and 8:55am.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The volume of cyclist movements recorded at the Shakespeare/East Coast Road intersection has decreased since last year (145 movements, down from 181 movements in 2011).
- The most common movements are travelling southeast from East Coast Road into Kitchener Road (Movement 5 = 67 movements) and turning left from Kitchener Road onto Shakespeare Road heading south (Movement 12 = 30 movements).
- The most notable changes occurred at Movement 5 (up 45 movements), Movement 12 (down 40 movements) and Movement 1 (down 21 movements).

**Table 6.1: Morning Cyclist Movements**

**Shakespeare/East Coast Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 13 | 7 | 9 | 6 | 26 | **5** | **-21** |
| 2 | 3 | 0 | 3 | 1 | 5 | **2** | **-3** |
| 3 | 1 | 1 | 0 | 4 | 4 | **0** | **-4** |
| 4 | 5 | 8 | 9 | 16 | 24 | **13** | **-11** |
| 5 | 28 | 26 | 96 | 46 | 22 | **67** | **45** |
| 6 | 1 | 0 | 2 | 1 | 1 | **0** | **-1** |
| 7 | 0 | 0 | 0 | 1 | 0 | **0** | **0** |
| 8 | 3 | 6 | 15 | 9 | 6 | **15** | **9** |
| 9 | 2 | 0 | 0 | 2 | 0 | **1** | **1** |
| 10 | 0 | 0 | 0 | 4 | 0 | **0** | **0** |
| 11 | 5 | 13 | 16 | 26 | 23 | **12** | **-11** |
| 12 | 21 | 66 | 27 | 30 | 70 | **30** | **-40** |
| **Total** | **82** | **127** | **177** | **146** | **181** | **145** | **-36** |

- Over the morning peak, adults comprise the greatest share of cycle movements (82 per cent, down slightly from 85 per cent last year).
- Almost all cyclists are wearing a helmet (99 per cent, stable from 98 per cent in 2011).
- The majority of cyclists continue to be males (56 per cent).
- Three-quarters of cyclists were observed riding on the road (75 per cent, stable from 76 per cent in 2011).

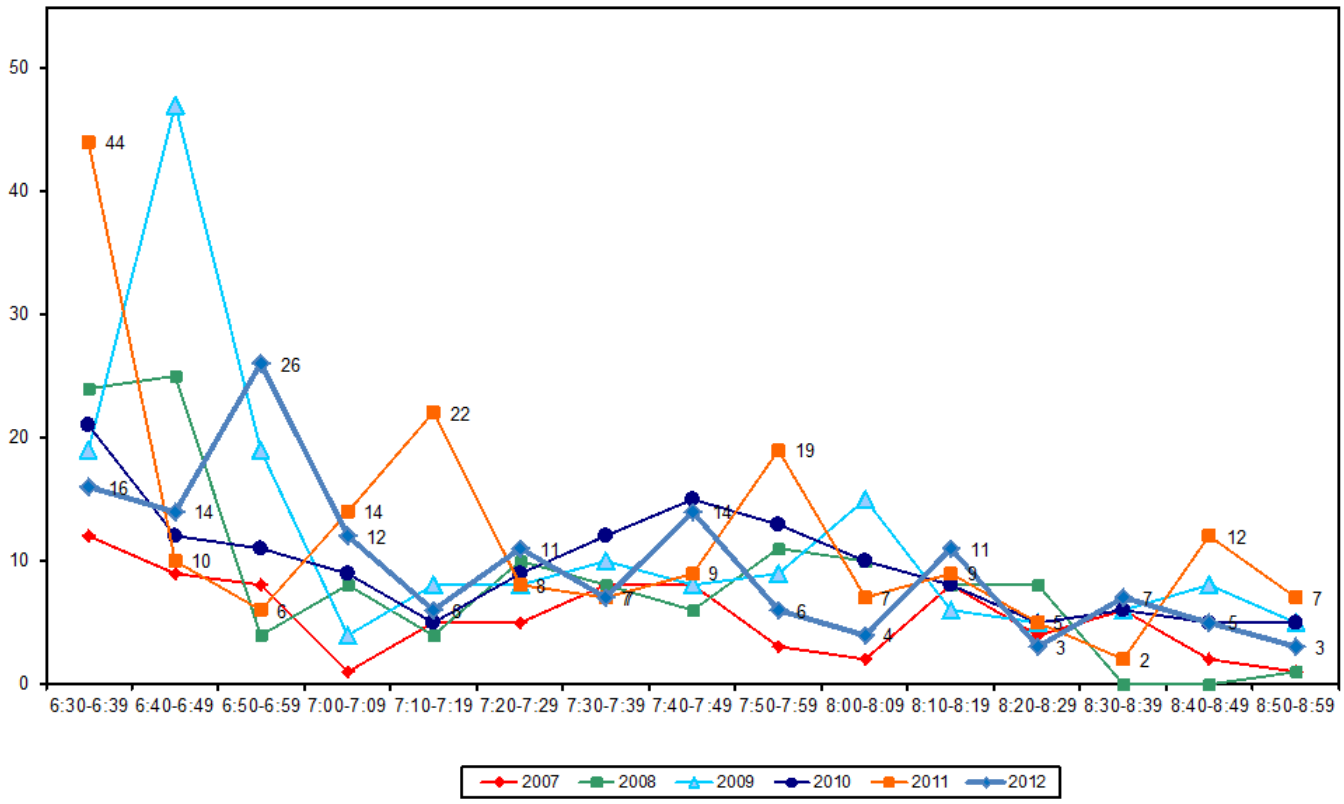
**Table 6.2: Morning Cyclist Characteristics**

**Shakespeare/East Coast Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 83 | 82 | 83 | 77 | 85 | **82** | **-3** |
| School child | 17 | 18 | 17 | 23 | 15 | **18** | **3** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 96 | 98 | 98 | 100 | 98 | **99** | **1** |
| No helmet | 4 | 2 | 2 | 0 | 2 | **1** | **-1** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 73 | **56** | **-17** |
| Female | - | - | - | - | 23 | **19** | **-4** |
| Can't tell | - | - | - | - | 4 | **25** | **21** |
| **Where Riding** | | | | | | | |
| Road | 77 | 81 | 79 | 71 | 76 | **75** | **-1** |
| Footpath | 23 | 19 | 21 | 29 | 18 | **25** | **7** |
| Off-road cycle way | - | - | - | - | 6 | **0** | **-6** |
| ***Base:*** | ***82*** | ***127*** | ***177*** | ***146*** | ***181*** | ***145*** | |

- Morning cyclist movement numbers start off with a peak between 6:50am and 6:59am (26 movements), with another slight peak between 7:40am and 7:49am (14 movements). This compares with a notable peak between 6:30am and 6:39am (44 movements) and three peaks of declining volume following.

**Figure 9.2: Morning Peak Cyclist Frequency**
**Shakespeare/East Coast Road 2007 – 2012 (n)**




*Note: In 2012, 12 per cent of the total cycle movements in the evening peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Seven cyclists at 6:48am*
- *Eleven cyclists at 6:53am*

## 6.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- The volume of evening cyclist movements recorded at the Shakespeare/East Coast Road intersection in 2012 has decreased since last year (93 movements, down from 105 movements in 2011).
- The most common movements in the evening are the left turn from Kitchener Road onto Shakespeare Road travelling in a south-westerly direction (Movement 12 = 29 movements) and straight along Kitchener Road into East Coast Road travelling in a north-westerly direction (Movement 11 = 27 movements).
- The most notable changes since 2011 have been at Movements 6 and 8 (both down 6 movements).

**Table 6.3: Evening Cyclist Movements**

**Shakespeare/East Coast Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 5 | 15 | 5 | 28 | 11 | **8** | **-3** |
| 2 | 3 | 2 | 8 | 11 | 6 | **6** | **0** |
| 3 | 6 | 1 | 5 | 5 | 7 | **9** | **2** |
| 4 | 2 | 4 | 6 | 3 | 1 | **3** | **2** |
| 5 | 6 | 11 | 12 | 21 | 7 | **7** | **0** |
| 6 | 4 | 3 | 3 | 2 | 6 | **0** | **-6** |
| 7 | 0 | 0 | 0 | 2 | 0 | **0** | **0** |
| 8 | 1 | 3 | 2 | 8 | 10 | **4** | **-6** |
| 9 | 0 | 0 | 1 | 1 | 0 | **0** | **0** |
| 10 | 0 | 0 | 2 | 0 | 1 | **0** | **-1** |
| 11 | 13 | 27 | 47 | 40 | 27 | **27** | **0** |
| 12 | 15 | 57 | 42 | 38 | 29 | **29** | **0** |
| **Total** | **55** | **123** | **133** | **159** | **105** | **93** | **-12** |

- Over the evening peak, the majority of cyclists using this intersection are adults (88 per cent, up from 80 per cent last year).
- Most cyclists are wearing a helmet (97 per cent, up from 90 per cent in 2011).
- Approximately four in five cyclists continue to be male (79 per cent).
- Nearly two thirds of cyclists were riding on the road (65 per cent, stable from 64 per cent last year). The remaining cyclists are riding on either the footpath (27 per cent, up from 17 per cent in 2011) or the off-road cycle way (8 per cent, down from 19 per cent last year).

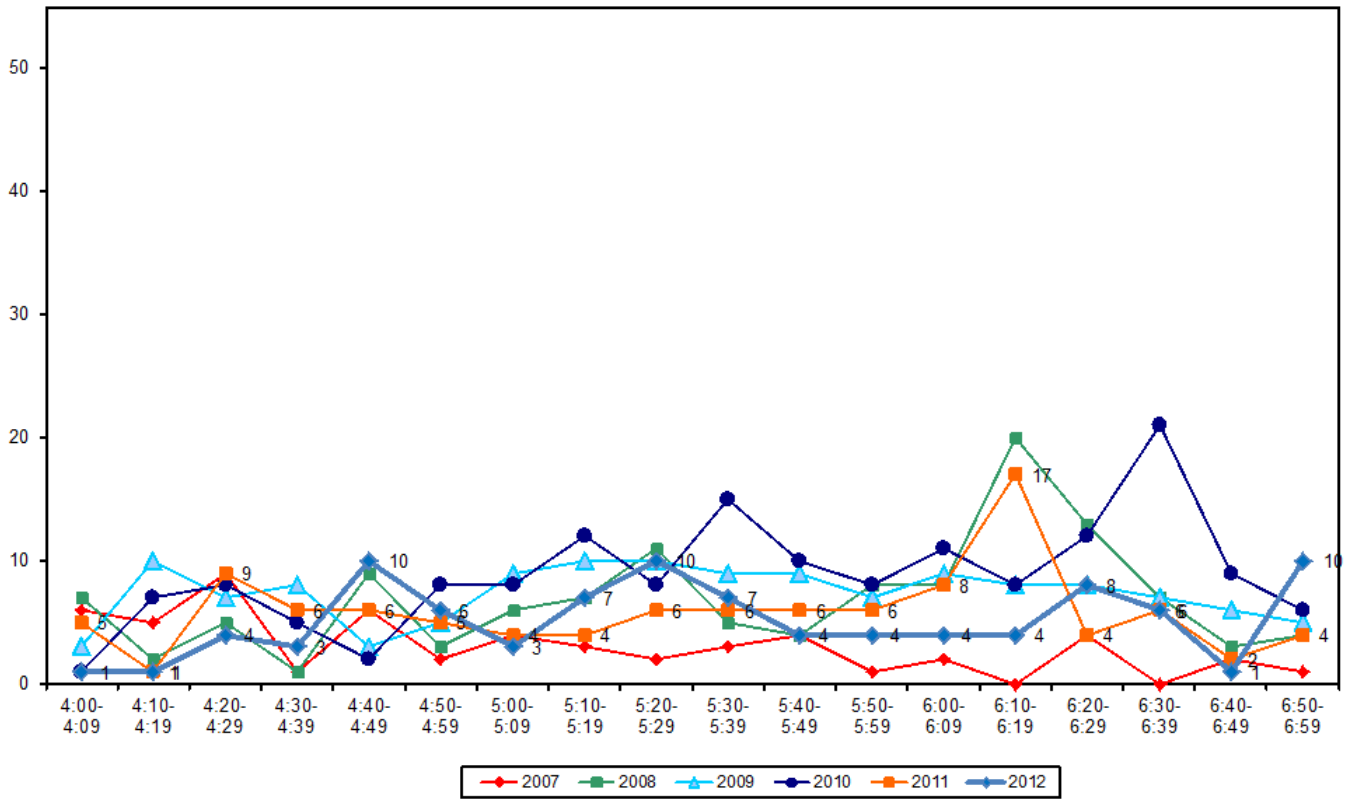
**Table 6.4: Evening Cyclist Characteristics**

**Shakespeare/East Coast Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 82 | 76 | 81 | 74 | 80 | **88** | **8** |
| School child | 18 | 24 | 19 | 26 | 20 | **12** | **-8** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 82 | 94 | 97 | 99 | 90 | **97** | **7** |
| No helmet | 18 | 6 | 3 | 1 | 10 | **3** | **-7** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 81 | **79** | **-2** |
| Female | - | - | - | - | 19 | **21** | **2** |
| Can't tell | - | - | - | - | 0 | **0** | **0** |
| **Where Riding** | | | | | | | |
| Road | 73 | 72 | 69 | 60 | 64 | **65** | **1** |
| Footpath | 27 | 28 | 31 | 40 | 17 | **27** | **10** |
| Off-road cycle way | - | - | - | - | 19 | **8** | **-11** |
| ***Base:*** | ***55*** | ***123*** | ***133*** | ***159*** | ***105*** | ***93*** | |

- The volume of cycle movements remained stable for most of the observation period, with three slight peaks occurring, between 4:40pm and 4:49pm, 5:20pm and 5:29pm and 6:50pm and 6:59pm (10 movements in each ten minute interval). This compares with a notable peak between 6:10pm and 6:19pm (17 movements) in 2011.

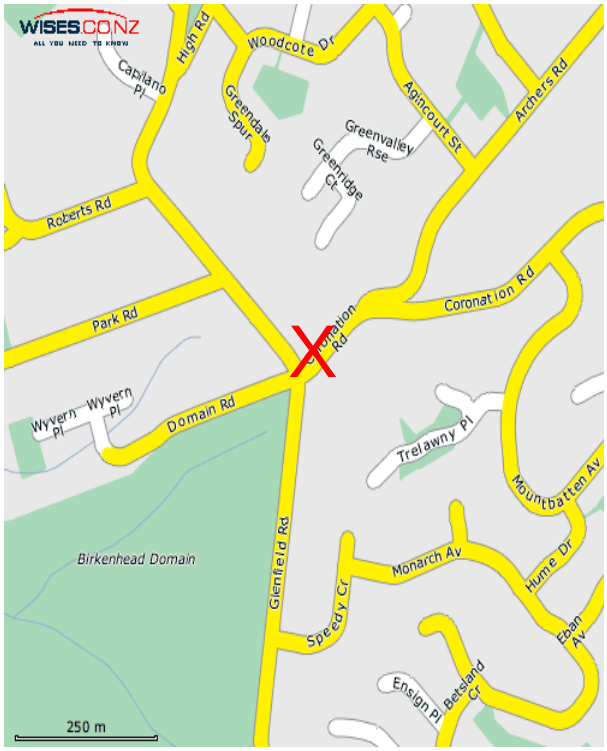
**Figure 6.3: Evening Cyclist Frequency**
**Shakespeare/East Coast Road 2007 – 2012 (n)**

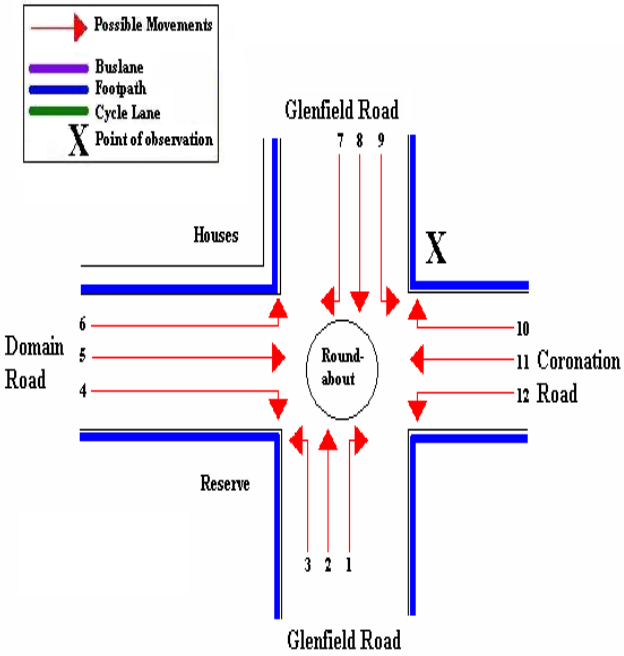


# 7. GLENFIELD ROAD/CORONATION ROAD, HILLCREST (SITE 43)

Figure 7.1 shows the possible cyclist movements at this intersection.

**Figure 7.1: Cycle Movements: Glenfield/Coronation Road**




## 7.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 16 | 12 | 28 | 64 |
| 2008 | 36 | 39 | 75 | 109 |
| 2009 | 36 | 42 | 78 | 113 |
| 2010 | 37 | 56 | 93 | 134 |
| 2011 | 27 | 25 | 52 | 76 |
| **2012** | **35** | **38** | **73** | **106** |

## 7.2 Morning Peak

### *Environmental Conditions*

- The weather was mostly fine throughout the morning monitoring period, aside from periods of light drizzle between 6:32am and 6:46am and from 8:33am through to the end of the monitoring period.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The volume of morning cyclists at the Glenfield/Coronation Road intersection increased from last year (35 movements, up from 27 movements in 2011).
- The key movement in the morning is straight through Glenfield Road heading north (Movement 2 = 17 cyclists).
- Movement 2 saw the greatest change in morning cyclist movement numbers (up 7 movements).

**Table 7.1: Morning Cyclist Movements**

**Glenfield/Coronation Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 7 | 13 | 6 | 4 | **3** | **-1** |
| 2 | 1 | 5 | 5 | 7 | 10 | **17** | **7** |
| 3 | 0 | 0 | 0 | 0 | 0 | **2** | **2** |
| 4 | 0 | 0 | 0 | 0 | 1 | **0** | **-1** |
| 5 | 0 | 0 | 0 | 0 | 0 | **1** | **1** |
| 6 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 7 | 0 | 0 | 0 | 0 | 0 | **1** | **1** |
| 8 | 7 | 9 | 6 | 11 | 4 | **3** | **-1** |
| 9 | 6 | 8 | 9 | 9 | 2 | **3** | **1** |
| 10 | 0 | 5 | 3 | 2 | 2 | **4** | **2** |
| 11 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 12 | 0 | 2 | 0 | 2 | 4 | **1** | **-3** |
| **Total** | **16** | **36** | **36** | **37** | **27** | **35** | **8** |

- Over the morning peak, adults comprise the greatest share of cycle movements (77 per cent, down from 85 per cent in 2011).
- Most cyclists are wearing a helmet (91 per cent, down from 100 per cent in 2011).
- The majority of cyclists were male (91 per cent, up from 70 per cent last year).
- Most cyclists were riding on the road (83 per cent, stable from 81 per cent in 2011).

**Table 7.2: Morning Cyclist Characteristics**

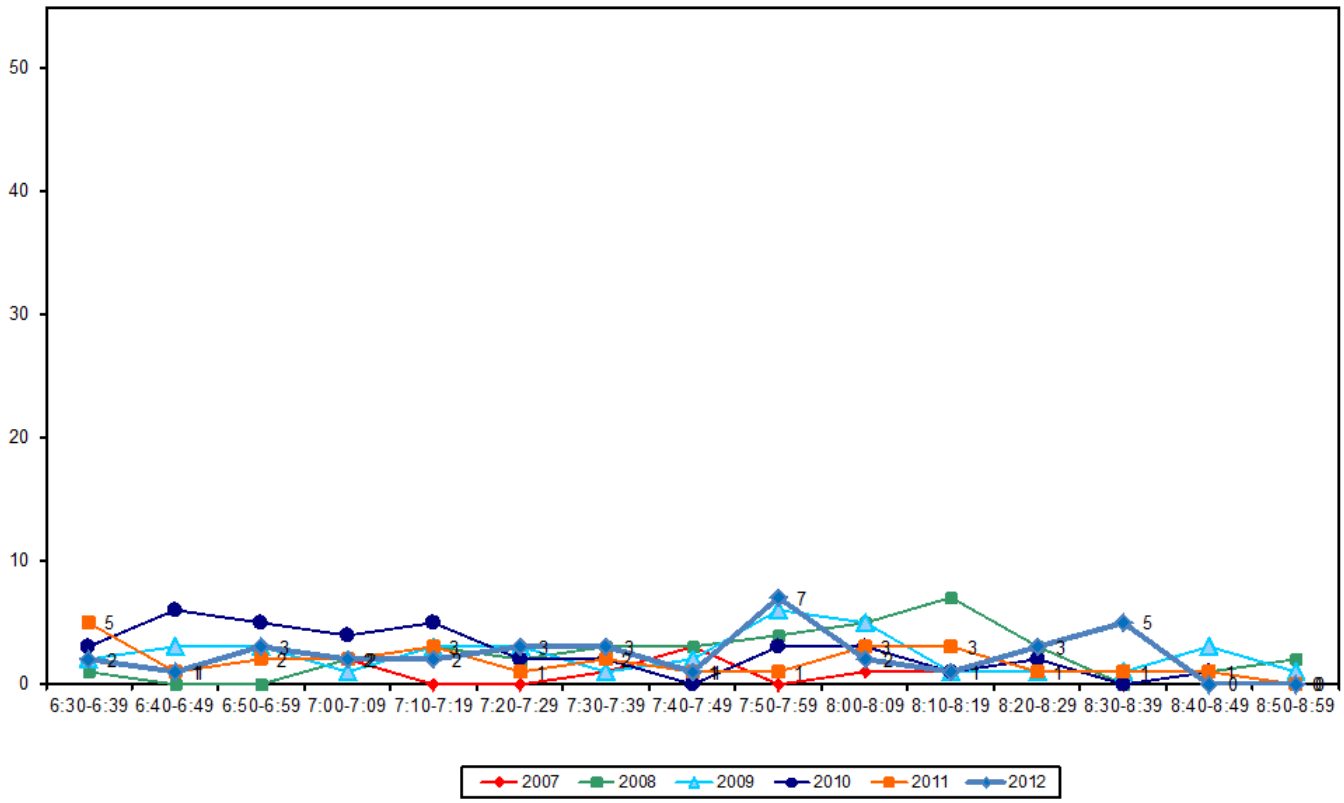
**Glenfield/Coronation Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 94 | 83 | 75 | 84 | 85 | **77** | **-8** |
| School child | 6 | 17 | 25 | 16 | 15 | **23** | **8** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 87 | 100 | 97 | 95 | 100 | **91** | **-9** |
| No helmet | 13 | 0 | 3 | 5 | 0 | **9** | **9** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 70 | **91** | **21** |
| Female | - | - | - | - | 30 | **9** | **-21** |
| Can't tell | - | - | - | - | 0 | **0** | **0** |
| **Where Riding** | | | | | | | |
| Road | 87 | 83 | 69 | 76 | 81 | **83** | **2** |
| Footpath | 13 | 17 | 31 | 24 | 19 | **17** | **-2** |
| ***Base:*** | ***16*** | ***36*** | ***36*** | ***37*** | ***27*** | ***35*** | |

- As in previous years, morning cyclist volumes are low over the entire monitoring period, with a slight peak observed between 7:50am and 7:59am (7 movements).

**Figure 7.2: Morning Peak Cyclist Frequency**

**Glenfield/Coronation Road 2007 – 2012 (n)**



## 7.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- The total number of cyclist movements recorded at the Glenfield/Coronation Road intersection in the evening increased from 2011 (38 movements, up from 25 movements last year).
- The key movements in the evening are travelling straight through Glenfield Road heading south (Movement 8 = 11 movements) and north (Movement 2 = 10 movements).
- All but one movement (Movement 10, down 1 movement) saw an increase or no change in number of movements observed. The most notable changes were at Movement 9 (up 5 movements) and Movement 8 (up 4 movements).

**Table 7.3: Evening Cyclist Movements**

**Glenfield/Coronation Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 3 | 6 | 1 | 2 | **3** | **1** |
| 2 | 4 | 6 | 7 | 16 | 9 | **10** | **1** |
| 3 | 0 | 3 | 0 | 0 | 0 | **0** | **0** |
| 4 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 5 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 6 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 7 | 0 | 0 | 0 | 0 | 0 | **0** | **0** |
| 8 | 5 | 6 | 8 | 9 | 7 | **11** | **4** |
| 9 | 0 | 4 | 3 | 9 | 0 | **5** | **5** |
| 10 | 1 | 4 | 6 | 11 | 3 | **2** | **-1** |
| 11 | 0 | 0 | 0 | 0 | 0 | **1** | **1** |
| 12 | 2 | 13 | 12 | 10 | 4 | **6** | **2** |
| **Total** | **12** | **39** | **42** | **56** | **25** | **38** | **13** |

- Approximately four in five cyclists at this location were adults (79 per cent, down from 100 per cent in 2011).
- Almost all cyclists were wearing a helmet (89 per cent, down from 96 per cent last year).
- The majority of cyclists continue to be male (89 per cent)
- Approximately three quarters of cyclists (76 per cent) were riding on the road (down from 100 per cent in 2011).

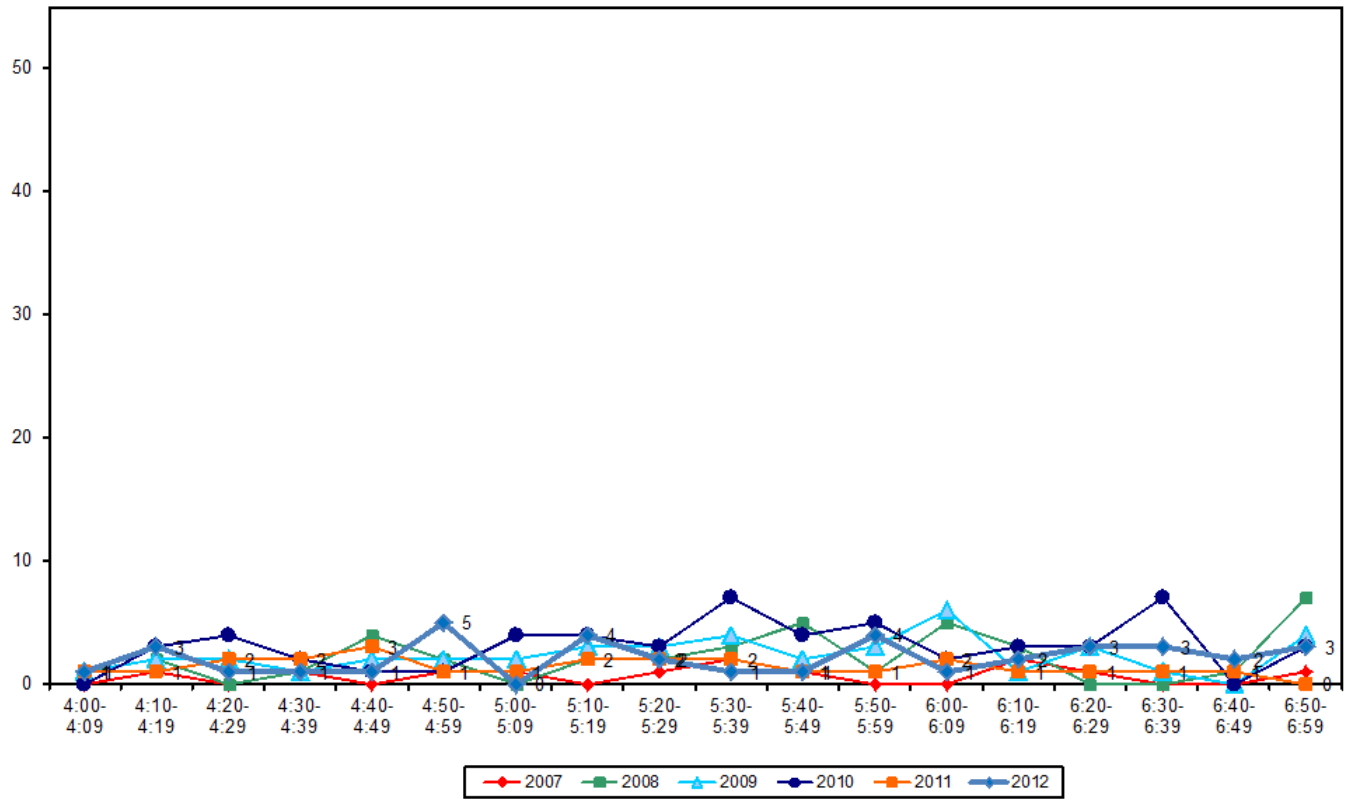
**Table 7.4: Evening Cyclist Characteristics**

**Glenfield/Coronation Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 83 | 95 | 76 | 89 | 100 | **79** | **-21** |
| School child | 17 | 5 | 24 | 11 | 0 | **21** | **21** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 75 | 95 | 81 | 91 | 96 | **89** | **-7** |
| No helmet | 25 | 5 | 19 | 9 | 4 | **11** | **7** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 96 | **89** | **-7** |
| Female | - | - | - | - | 4 | **11** | **7** |
| Can't tell | - | - | - | - | 0 | **0** | |
| **Where Riding** | | | | | | | |
| Road | 83 | 77 | 69 | 77 | 100 | **76** | **-24** |
| Footpath | 17 | 23 | 31 | 23 | 0 | **24** | **24** |
| ***Base:*** | ***12*** | ***39*** | ***42*** | ***56*** | ***25*** | ***38*** | |

- Evening cyclist movement volumes remained low throughout the observation period, only going above four cyclists per 10 minute interval once, between 4:50pm and 4:59pm (5 movements). This pattern is consistent with previous measures.

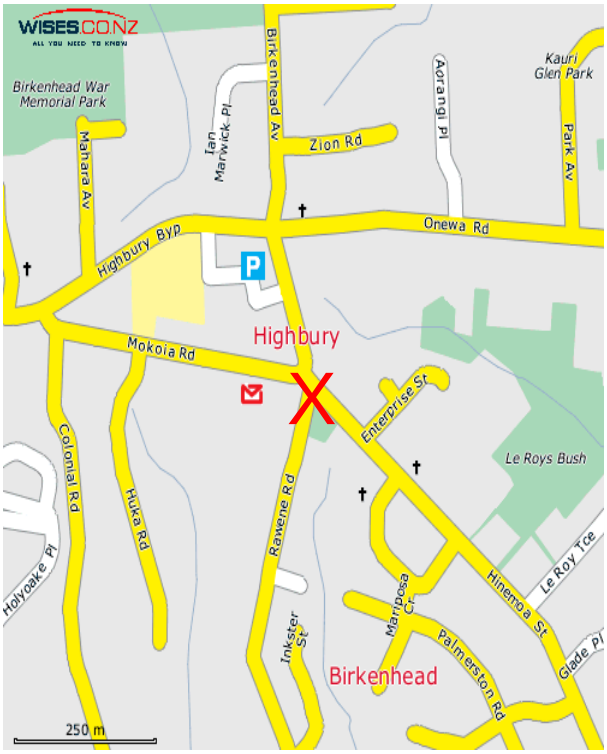
**Figure 7.3: Evening Peak Cyclist Frequency**
**Glenfield/Coronation Road 2007 – 2012 (n)**

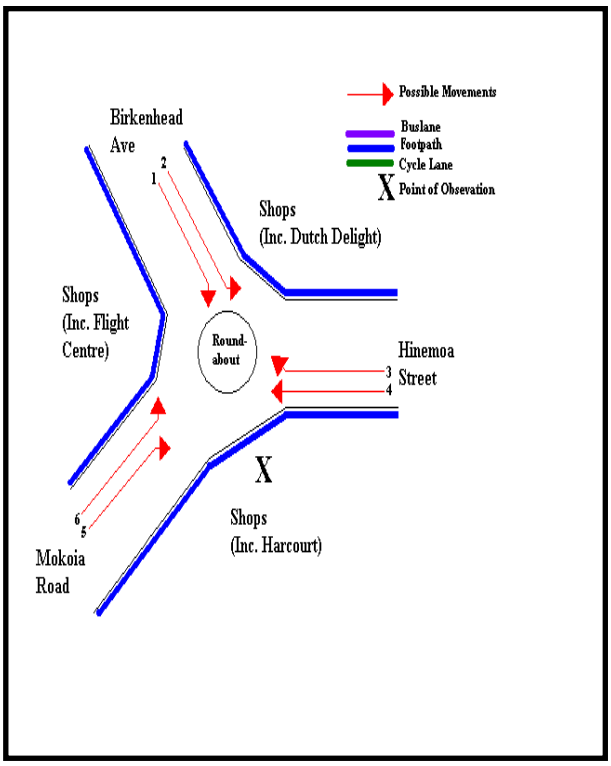


# 8. BIRKENHEAD AVENUE/MOKOIA ROAD, BIRKENHEAD (SITE 44)

Figure 8.1 shows the possible cyclist movements at this intersection.

**Figure 8.1: Cycle Movements: Birkenhead/Mokoia Road**




## 8.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 20 | 20 | 40 | 58 |
| 2008 | 20 | 29 | 49 | 71 |
| 2009 | 27 | 30 | 57 | 83 |
| 2010 | 29 | 46 | 75 | 108 |
| 2011 | 22 | 23 | 45 | 65 |
| **2012** | **17** | **35** | **52** | **74** |

## 8.2 Morning Peak

### *Environmental Conditions*

- The weather during the morning shift was fine until 8:30am, when light drizzle began which persisted through until the end of the morning shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The volume of morning cyclists at the Birkenhead Avenue/Mokoia Road intersection has decreased from last year (down from 22 cycle movements to 17).
- The key movement in the morning is turning right from Mokoia Road into Hinemoa Street travelling in a south-easterly direction (Movement 5 = 7 cyclists).
- The most notable changes since 2011 were at Movement 2 (down 4 movements) and Movement 3 (down 3 movements).

**Table 8.1: Morning Cyclist Movements**

**Birkenhead Avenue/Mokoia Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | 0 | 1 | 1 | **0** | **-1** |
| 2 | 7 | 6 | 12 | 16 | 9 | **5** | **-4** |
| 3 | 1 | 4 | 4 | 1 | 6 | **3** | **-3** |
| 4 | 2 | 0 | 0 | 2 | 0 | **1** | **1** |
| 5 | 8 | 7 | 9 | 9 | 5 | **7** | **2** |
| 6 | 1 | 2 | 2 | 0 | 1 | **1** | **0** |
| **Total** | **20** | **20** | **27** | **29** | **22** | **17** | **-5** |

- Over the morning peak, all cyclists using the Birkenhead Avenue/Mokoia Road intersection were adults (100 per cent, up from 91 per cent in 2011).
- All cyclists continue to wear a helmet (100 per cent, unchanged from 2011).
- The majority of cyclists continue to be male (88 per cent, down from 100 per cent last year).
- Most cyclists were riding on the road (94 per cent, up from 86 per cent in 2011).

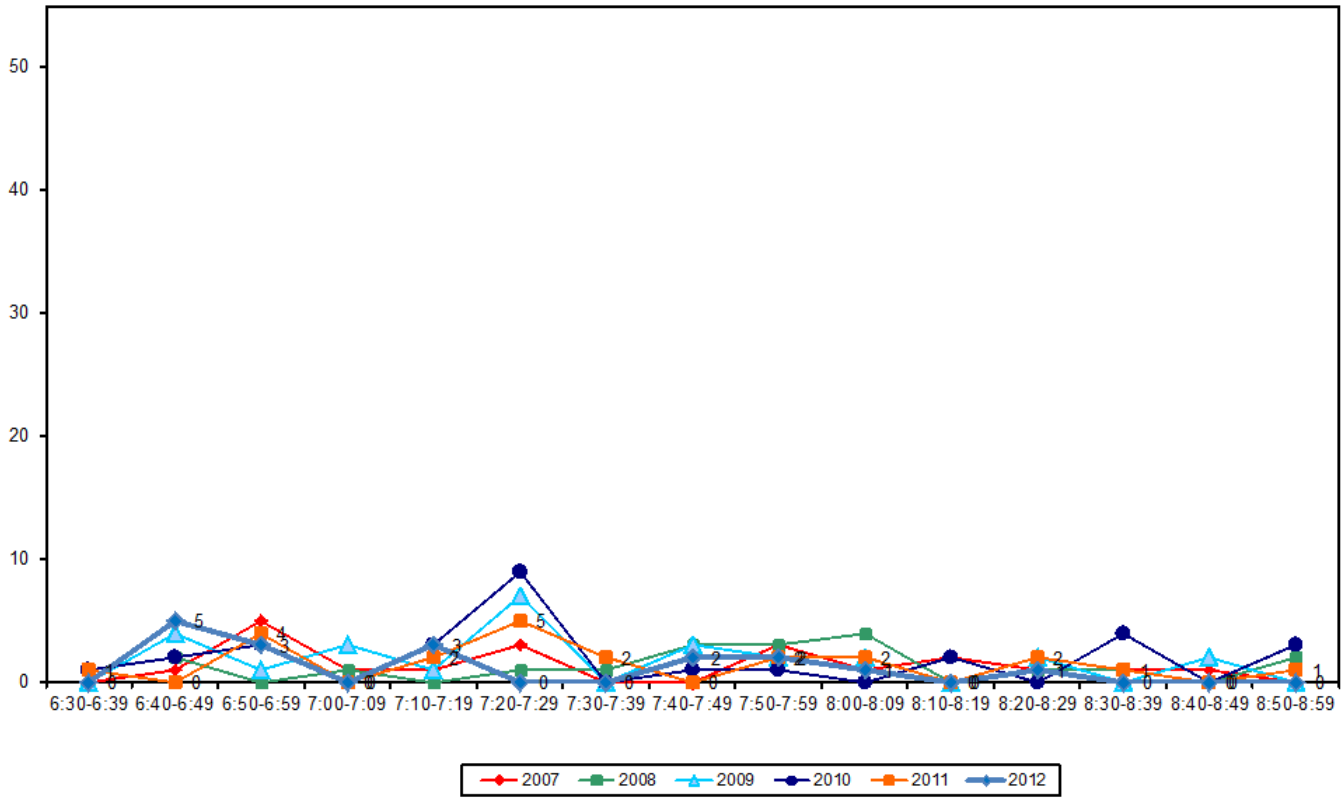
**Table 8.2: Morning Cyclist Characteristics**

**Birkenhead Avenue/Mokoia Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 100 | 95 | 100 | 100 | 91 | **100** | **9** |
| School child | 0 | 5 | 0 | 0 | 9 | **0** | **-9** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 80 | 100 | 96 | 90 | 100 | **100** | **0** |
| No helmet | 20 | 0 | 4 | 10 | 0 | **0** | **0** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 100 | **88** | **-12** |
| Female | - | - | - | - | 0 | **12** | **12** |
| Can't tell | - | - | - | - | 0 | **0** | **0** |
| **Where Riding** | | | | | | | |
| Road | 90 | 90 | 96 | 97 | 86 | **94** | **8** |
| Footpath | 10 | 10 | 4 | 3 | 14 | **6** | **-8** |
| ***Base:*** | ***20*** | ***20*** | ***27*** | ***29*** | ***22*** | ***17*** | |

- The volume of morning cycle movements is low over the entire monitoring period with no more than three movements recorded during all but one ten minute interval. This exception was 5 movements recorded between 6:40am and 6:49am.

**Figure 8.2: Morning Peak Cyclist Frequency**
**Birkenhead Avenue/Mokoia Road 2007 – 2012 (n)**



## 8.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- The volume of morning cyclists at the Birkenhead Avenue/Mokoia Road intersection has increased from last year (up from 23 cycle movements to 35).
- The most common movement in the evening is turning from Hinemoa Road onto Mokoia Road (Movement 4 = 12 movements).
- The most notable increases are at Movement 4 (up 5 movements) and Movement 6 (up 4 movements).

**Table 8.3: Evening Cyclist Movements**

**Birkenhead Avenue/Mokoia Road 2007 – 2012 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 6 | 2 | 8 | 2 | **4** | **2** |
| 2 | 1 | 2 | 3 | 4 | 4 | **7** | **3** |
| 3 | 8 | 8 | 11 | 17 | 9 | **6** | **-3** |
| 4 | 8 | 10 | 12 | 13 | 7 | **12** | **5** |
| 5 | 2 | 2 | 1 | 1 | 0 | **1** | **1** |
| 6 | 0 | 1 | 1 | 3 | 1 | **5** | **4** |
| **Total** | **20** | **29** | **30** | **46** | **23** | **35** | **12** |

- Over the evening peak, most cyclists using this intersection are adults (91 per cent, unchanged from last year).
- Helmet wearing has decreased slightly in 2012 (83 per cent, down from 87 per cent in 2011).
- The greatest share of evening cyclists continue to be male (89 per cent, up from 83 per cent at the previous measure).
- Just less than two-thirds of cyclists were riding on the road (63 per cent, down from 78 per cent last year).

**Table 8.4: Evening Cyclist Characteristics**

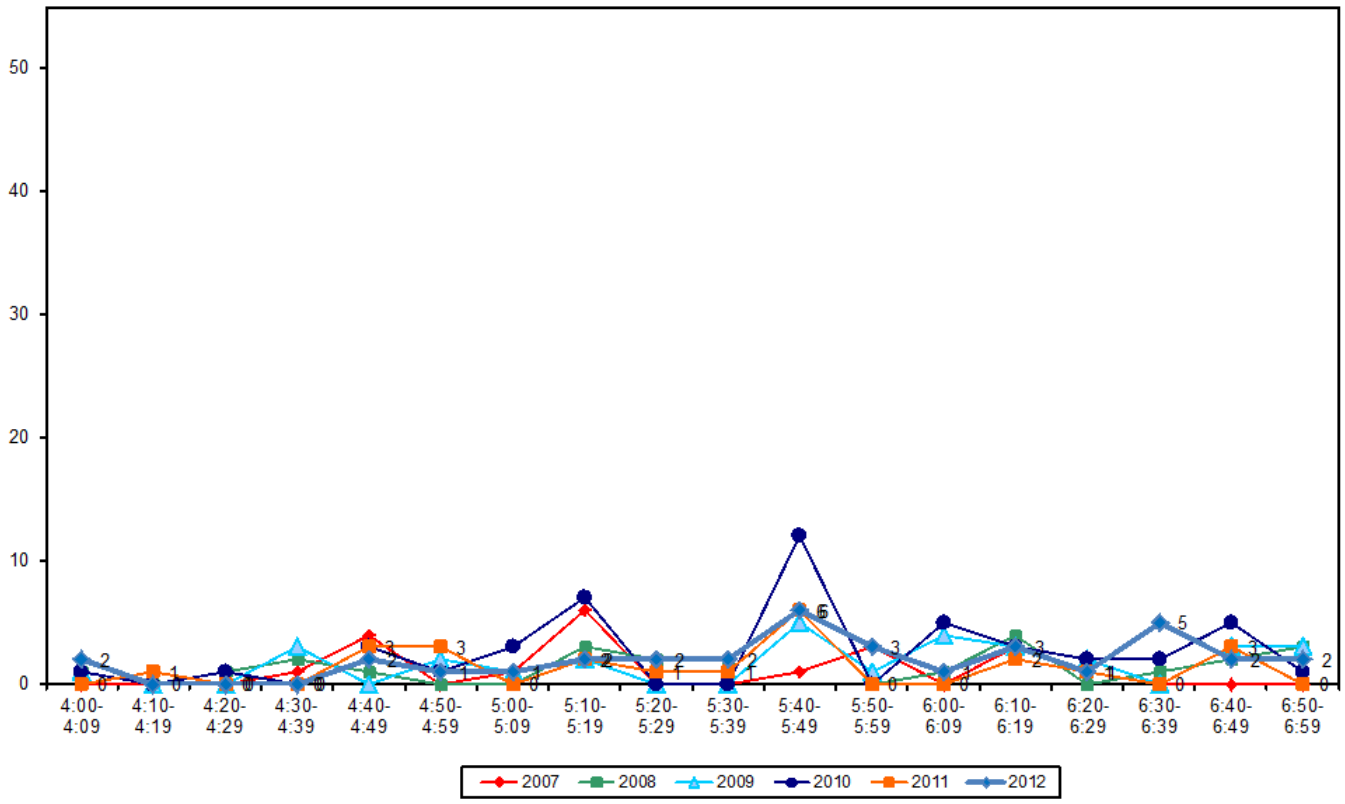
**Birkenhead Avenue/Mokoia Road 2007 – 2012 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | |
| Adult | 95 | 93 | 93 | 87 | 91 | **91** | **0** |
| School child | 5 | 7 | 7 | 13 | 9 | **9** | **0** |
| **Helmet Wearing** | | | | | | | |
| Helmet on head | 95 | 93 | 93 | 80 | 87 | **83** | **-4** |
| No helmet | 5 | 7 | 7 | 20 | 13 | **17** | **4** |
| **Gender** | | | | | | | |
| Male | - | - | - | - | 83 | **89** | **6** |
| Female | - | - | - | - | 17 | **11** | **-6** |
| Can't tell | - | - | - | - | 0 | **0** | **0** |
| **Where Riding** | | | | | | | |
| Road | 100 | 93 | 80 | 76 | 78 | **63** | **-15** |
| Footpath | 0 | 7 | 20 | 24 | 22 | **37** | **15** |
| ***Base:*** | ***20*** | ***29*** | ***30*** | ***46*** | ***23*** | ***35*** | |

- In 2012, the cyclist movement volumes reach no more than three movements per ten minute interval except for two slight peaks between 5:40pm and 5:49pm, and 6:30pm and 6:39pm, when 5 movements were observed in each ten minute interval. The first peak is the same time as the largest peak observed in 2010.

**Figure 8.3: Evening Peak Cyclist Frequency**

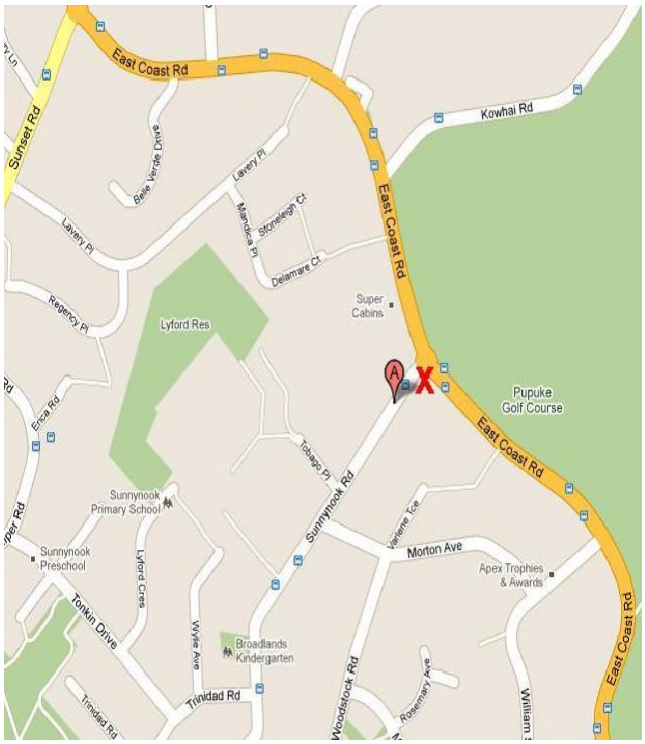
**Birkenhead Avenue/Mokoia Road 2007 – 2012 (n)**

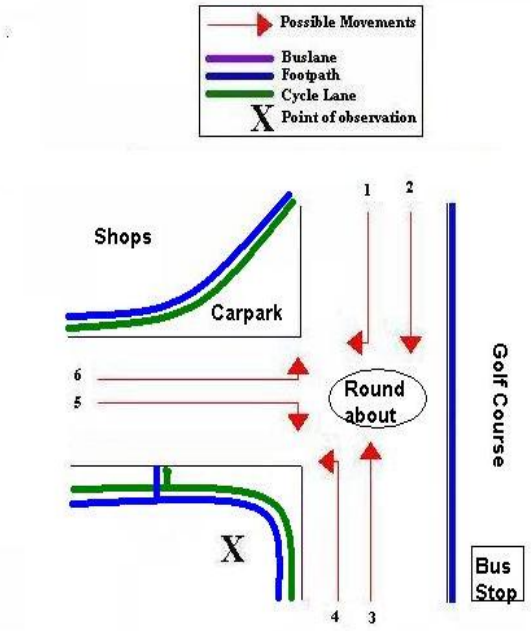


# 9. SUNNYNOOK ROAD/EAST COAST ROAD, SUNNYNOOK (SITE 89)

Figure 9.1 shows the possible cyclist movements at this intersection.

**Figure 9.1: Sunnynook Road/East Coast Road, Sunnynook**




*Note: This site was monitored for the first time in 2011.*

## 9.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2011 | 81 | 93 | 174 | 252 |
| **2012** | **95** | **60** | **155** | **228** |

## 9.2 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift, with the exception of light rain between 8:19am and 8:26am and 8:43am and 8:52am.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The volume of morning cyclist movements recorded at the Sunnynook/East Coast Road intersection in 2012 has increased since last year (95 movements, up from 81 movements in 2011).
- The key morning movement is continuing straight on East Coast Road travelling in a south-easterly direction (Movement 2 = 74 movements).
- The most notable change in morning cyclist movements was as Movement 2 (up 32 movements from 2011).

**Table 9.1: Morning Cyclist Movements**

**Sunnynook Road/East Coast Road, Sunnynook 2011 – 2012 (n)**

| *Movement* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|
| 1 | 5 | **1** | **-4** |
| 2 | 42 | **74** | **32** |
| 3 | 25 | **17** | **-8** |
| 4 | 6 | **0** | **-6** |
| 5 | 0 | **2** | **2** |
| 6 | 3 | **1** | **-2** |
| **Total** | **81** | **95** | **14** |

- Over the morning peak, the majority of cyclists were adults (93 per cent, up from 88 per cent at the previous measure).
- All cyclists were wearing a helmet this year (100 per cent, stable from 99 per cent last year).
- The majority of cyclists continue to be male (84 per cent, up from 77 per cent in 2011).
- Most cyclists were riding on the road (88 per cent, up from 79 per cent last year).

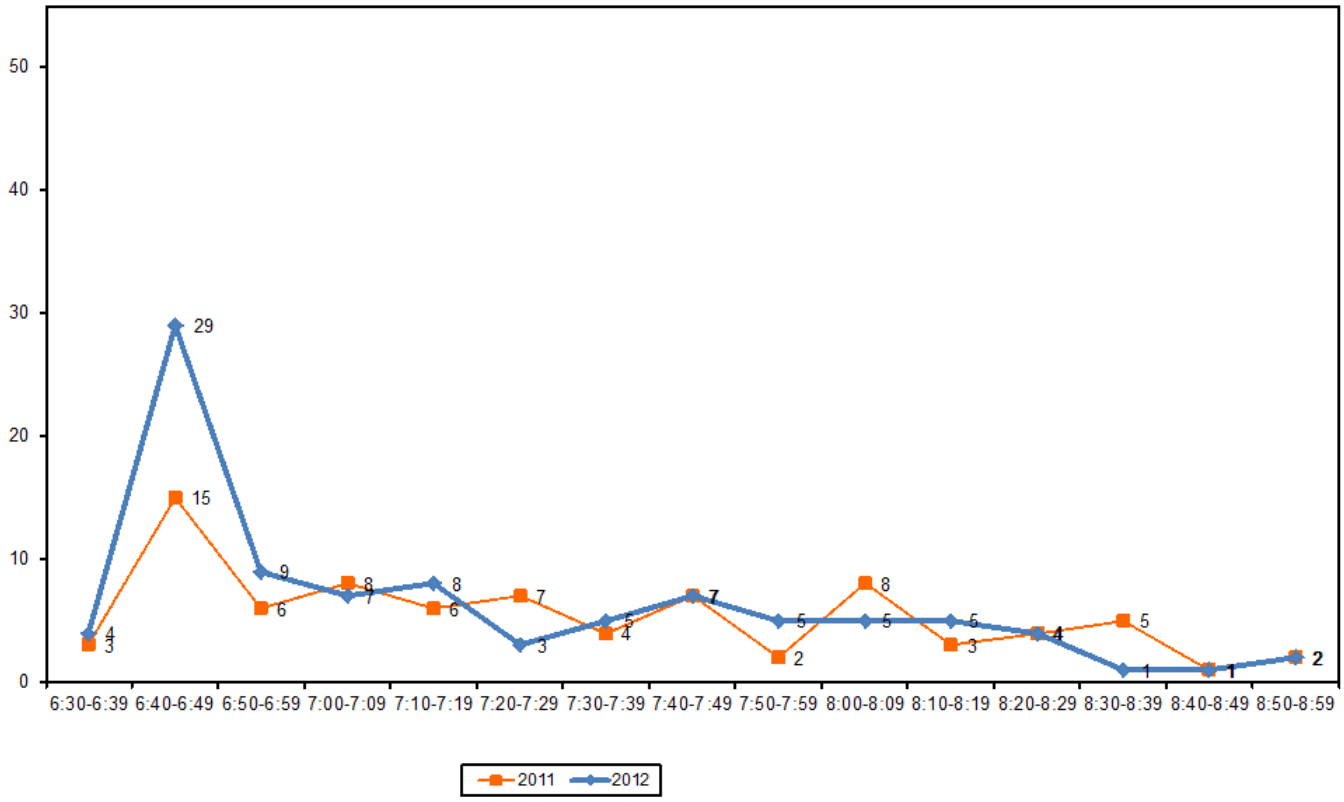
**Table 9.2: Morning Cyclist Characteristics**

**Sunnynook Road/East Coast Road, Sunnynook 2011 – 2012 (%)**

| | *2011* | *2012* | *Change 11-12* |
|---|---|---|---|
| **Cyclist Type** | | | |
| Adult | 88 | **93** | **5** |
| School child | 12 | **7** | **-5** |
| **Helmet Wearing** | | | |
| Helmet on head | 99 | **100** | **1** |
| No helmet | 1 | **0** | **-1** |
| **Gender** | | | |
| Male | 77 | **84** | **7** |
| Female | 23 | **16** | **-7** |
| Can't tell | 0 | **0** | **0** |
| **Where Riding** | | | |
| Road | 79 | **88** | **9** |
| Footpath | 2 | **12** | **10** |
| Off-road cycle way | 19 | **0** | **-19** |
| ***Base:*** | ***81*** | ***95*** | |

- Morning cyclist movement volumes reached the largest peak early in the observation period (6:40am and 6:49am = 29 movements), then remain relatively stable. This is the same time as the peak observed in 2011 (15 movements).

**Figure 9.2: Morning Peak Cyclist Frequency**
**Sunnynook Road/East Coast Road, Sunnynook 2011 – 2012 (n)**




*Note: In 2012, 21 per cent of the total cycle movements in the morning peak were identified as cycling in groups. Three or more cyclists were observed travelling in groups at this site at the following times:*

- *Six cyclists at 6:46am*
- *Nine cyclists at 6:48am*
- *Five cyclists at 6:49am*

## 9.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- Cyclist volumes have decreased notably this year, from 93 in 2011 to 60 movements.
- The key movements include continuing straight along East Coast Road in a north/north westerly direction (Movement 3 = 35 movements) and continuing straight on East Coast Road travelling in a south-easterly direction (Movement 2 = 22 movements).
- Evening cyclist volumes have decreased most notably at Movements 3 (down 14 movements) and 2 (down 11 movements).

**Table 9.3: Evening Cyclist Movements**

**Sunnynook Road/East Coast Road, Sunnynook 2011 – 2012 (n)**

| *Movement* | *2011* | *2012* | Change 11-12 |
|---|---|---|---|
| 1 | 2 | **1** | **-1** |
| 2 | 33 | **22** | **-11** |
| 3 | 49 | **35** | **-14** |
| 4 | 2 | **0** | **-2** |
| 5 | 4 | **0** | **-4** |
| 6 | 3 | **2** | **-1** |
| **Total** | ***93*** | ***60*** | ***-33*** |

- Approximately four in five cyclists at this site were adults (78 per cent, down slightly from 82 per cent at the previous measure).
- Almost all cyclists were wearing a helmet (98 per cent, stable from 97 per cent in 2011).
- The majority of cyclists continue to be male (83 per cent, down from 91 per cent last year).
- More than three quarters of cyclists were riding on the road (79 per cent, stable from 78 per cent in 2011), while the remaining 21 per cent were riding on the footpath (up from 7 per cent in 2011).

**Table 9.4: Evening Cyclist Characteristics**

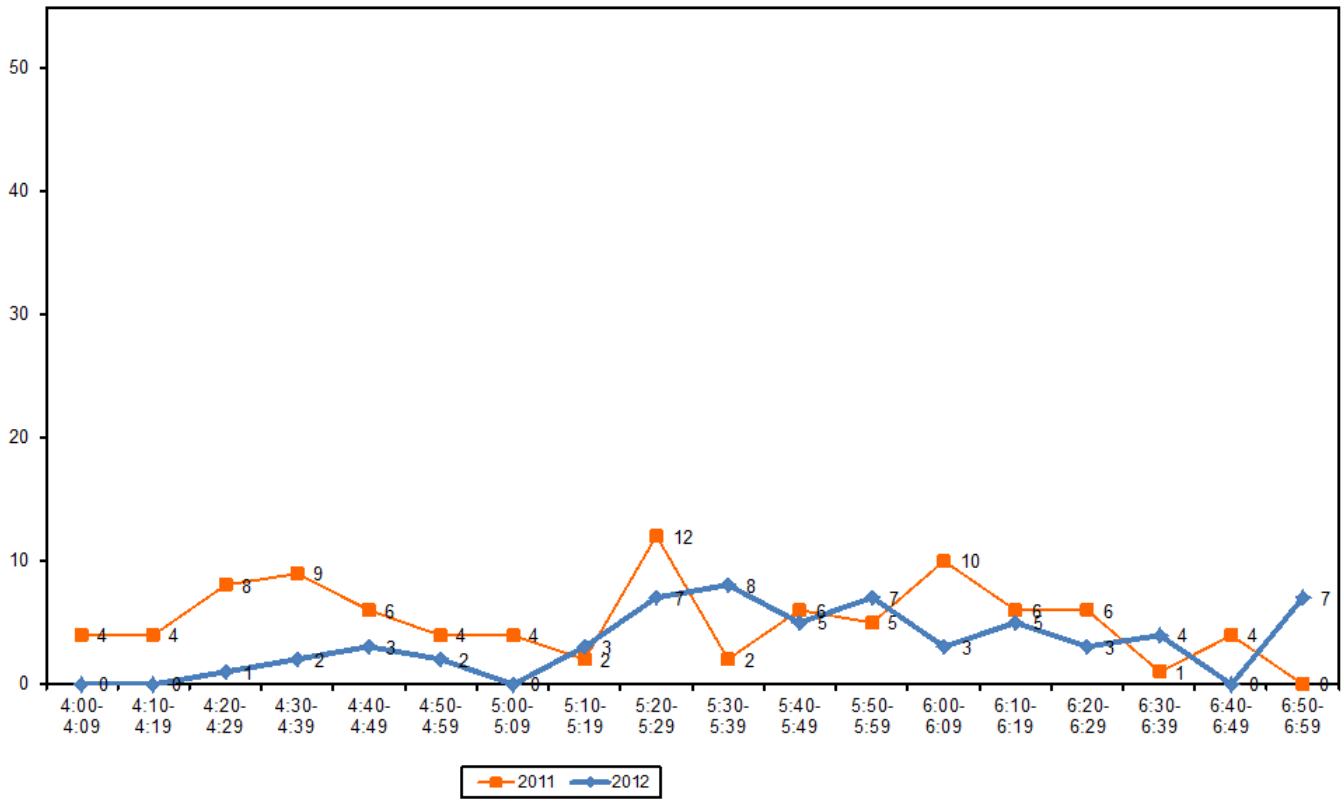
**Sunnynook Road/East Coast Road, Sunnynook 2011 – 2012 (%)**

| | ***2011*** | ***2012*** | **Change 11-12** |
|---|---|---|---|
| **Cyclist Type** | | | |
| Adult | 82 | **78** | **-4** |
| School child | 18 | **22** | **4** |
| **Helmet Wearing** | | | |
| Helmet on head | 97 | **98** | **1** |
| No helmet | 3 | **2** | **-1** |
| **Gender** | | | |
| Male | 91 | **83** | **-8** |
| Female | 9 | **17** | **8** |
| Can't tell | 0 | **0** | **0** |
| **Where Riding** | | | |
| Road | 78 | **79** | **1** |
| Footpath | 7 | **21** | **14** |
| Off-road cycle way | 15 | **0** | **-15** |
| ***Base:*** | ***93*** | ***60*** | |

- Cyclist movement volumes reach a slight peak between 5:30pm and 5:39pm (8 movements), ten minutes later than the peak observed in 2011.

**Figure 9.3: Evening Peak Cyclist Frequency**

**Sunnynook Road/East Coast Road, Sunnynook 2011 – 2012 (n)**




*Note: In 2012, six cyclists were observed riding together at this site at 5:30pm. This equates to 10 per cent of all evening peak cyclists at this site.*

# 10. NORTH SHORE FERRY WHARVES

### *Environmental Conditions*

- Stationary cycle counts at Devonport ferry wharf were conducted on Tuesday 12th June 2012, due to one cycle stand being overlooked during the March 6th counts. All other North Shore ferry wharves were conducted on Wednesday 28th of March 2012.
- Counts at Devonport ferry terminal were conducted at four points in time throughout the day. Counts at all other North Shore ferry wharves were conducted in the morning only (after the morning peak).

### *Key Points*

- In the morning, three cycles were observed at the Devonport Ferry Terminal at 6:10am and 43 were observed at 9:10am. This suggests around 40 passenger's road to the ferry and parked their cycles in the morning peak. This is down from 42 in 2011 (seasonal variance may apply).
- In the afternoon, 26 cycles were recorded at the Devonport Ferry Terminal at 3:30pm and four were observed at 7:10pm. This suggests 22 ferry passengers collected their bikes after disembarking and cycled home in the evening peak. This is down from 68 last year (seasonal variance may apply).

**Table 10.1: Devonport Ferry Terminal Cycle Counts (n)**

| | *2011* | *2012** | Change 11-12 |
|---|---|---|---|
| **Morning Peak** | | | |
| 6:10am | 5 | **3** | **-2** |
| 9:10am | 47 | **43** | **-4** |
| **Evening Peak** | | | |
| 3:30pm | 79 | **26** | **-53** |
| 7:10pm | 11 | **4** | **-7** |

- After the morning peak, 11 cycles were observed parked at the Bayswater ferry wharf, 2 cycles at the Northcote ferry wharf and none at the Birkenhead wharf.

**Table 10.2: Other North Shore Ferry Wharf Cycle Counts 2011 – 2012 (n)**

| | *2011* | *2012* | Change 11-12 |
|---|---|---|---|
| Bayswater | 5 | **11** | **6** |
| Northcote | 0 | **2** | **2** |
| Birkenhead | 0 | **0** | **0** |

# 11. SCHOOL BIKE SHED COUNT – NORTH SHORE CITY

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

### *Background Information*

- A total of 17 North Shore ward schools participated in the school bike shed count. Of the schools that participated, none have policies that restrict students cycling to school.
- Carmel College noted that Year 12 was away on school camp on the count day, although felt it would not have affected the count as it is juniors who cycle to school. No other schools reported any events that may affect cycle counts.
- The designated count day was Tuesday 6th of March 2012[10].

### *Key Points*

- Among the surveyed schools, of those eligible to cycle, on average, four per cent of students are cycling to their schools (unchanged from last year).
- Among the 17 participating schools, n=475 students were reported as cycling to school.
- As in previous years, Belmont Intermediate School reported the highest share of cyclists – 31 per cent of all eligible students currently cycling (stable from 30 per cent last year).
- Of the 14 schools that participated in the count in both 2011 and 2012, only two (Belmont Intermediate and Northcote College) reported an increase in the share of students cycling to school.
- Of the 17 schools that responded, five (29 per cent) had no students cycling to school.

[10] The following schools conducted counts on alternative count days
- Hato Petera College – Thursday 1st March 2012
- Westminster Christian School – Friday 2nd March 2012
- Belmont Intermediate – Tuesday 27th March 2012
- Birkdale Intermediate – Tuesday 3rd April 2012
- Glenfield Intermediate – Wednesday 4th April 2012

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Table 11.1 shows the results of the 17 schools surveyed in the North Shore ward.

**Table 11.1: Summary Table of School Bike Count**

**2007 – 2012 (n)**

| *School Name* | *School Type* | *School Roll Eligible To Cycle* | *No. of Cycles Counted* | *Cyclists as share of those eligible[1]* | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | *2012* | *2011* | *2010* | *2009* | *2008* | *2007* |
| Belmont Intermediate | Intermediate | 558 | 173 | **31%** | 30% | 33% | 22% | 26% | 0.34 |
| Takapuna Grammar School | Secondary | 1606 | 147 | **9%** | 9% | 8% | 9% | 6% | 0.08 |
| Takapuna Normal Intermediate School | Intermediate | 600 | 50 | **8%** | - | - | - | - | - |
| Rosmini College | Intermediate/Secondary | 1010 | 26 | **3%** | 5% | 3% | 3% | 4% | 0.03 |
| Wairau Intermediate School | Intermediate | 259 | 7 | **3%** | 4% | 6% | 5% | 7% | 0.04 |
| Birkdale Intermediate | Intermediate | 465 | 10 | **2%** | 2% | 2% | 1% | <1% | - |
| Northcote Intermediate School | Intermediate | 238 | 4 | **2%** | 3% | 5% | 2% | 3% | 0.02 |
| Westlake Boys High School | Secondary | 2309 | 46 | **2%** | 4% | 3% | 2% | <1% | 0.02 |
| Northcote College | Secondary | 1209 | 8 | **1%** | <1% | <1% | 0% | - | - |
| Birkenhead College | Secondary | 800 | 1 | **<1%** | <1% | 1% | - | - | - |
| Carmel College | Intermediate/Secondary | 1024 | 2 | **<1%** | <1% | 0% | 0% | <1% | 0 |
| Westlake Girls High School | Secondary | 2230 | 1 | **<1%** | <1% | <1% | 0% | <1% | <1% |
| Glenfield Intermediate School | Intermediate | 368 | 0 | **0%** | 1% | 1% | 3% | 2% | 0.04 |
| Hato Petera College | Secondary | 139 | 0 | **0%** | - | - | - | - | - |
| St. Mary's School | Full Primary | 378 | 0 | **0%** | 0% | - | - | - | - |
| Wairau Valley Special School | Composite | 123 | 0 | **0%** | - | - | - | - | - |
| Westminster Christian School | Full Primary | 193 | 0 | **0%** | 0% | - | - | - | - |
| **Total** | | **13509** | **475** | **4%** | 4% | - | - | - | - |

Table 11.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (10 per cent, unchanged from 2011) and lowest for full primary and composite schools (no cyclists in either category).

**Table 11.2: Summary Table of School Bike Count by School Type**

**2007 – 2012 (%)**

| ***Year Levels*** | ***Number of Schools Responded in 2012*** | **Cyclists as share of those eligible** | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | **2012** | **Change 11-12** |
| Intermediate | 6 | 11% | 8% | 7% | 9% | 10% | **10%** | **0** |
| Secondary | 6 | 4% | 2% | 3% | 3% | 3% | **2%** | **-1** |
| Intermediate/Secondary | 2 | 2% | 2% | 2% | 2% | 2% | **1%** | **-1** |
| Composite | 1 | - | - | - | - | 0% | **0%** | **0** |
| Full primary | 2 | - | - | - | - | 0% | **0%** | **0** |

# APPENDICES

Appendix One:  Annual Average Daily Traffic (AADT) Calculation

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

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

## Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[11] in the Auckland region from any Gravitas manual count.

## Method for Estimating AADT

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

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

*where* *Count = result of count period*

*H = scale factor for time of day*

*D = scale factor for day of week*

*W = scale factor for week of year*

*R = scale factor for weather conditions on the count day*

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

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

[11] Annual average daily traffic

[12] LTSA, 2004

For the Gravitas counts, the following factors apply:

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

D = 14

W = 0.9

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

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

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

## Worked Example

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

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

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

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

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

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

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