MONITORING REPORT

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

MANUAL CYCLE MONITORING IN THE AUCKLAND REGION

March 2009

North Shore City

Prepared by Gravitas Research and Strategy Limited

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1.1 Introduction

The Need For Reliable Cycle Trip Data

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

Cycle traffic data will help inform a major programme of improvements for cycling in the Auckland region – over $100 million is planned to be invested in building over 50% of the Regional Cycle Network over the next eight years. Comprehensive cycle data assists with the development of the region's cycle network and prioritization of projects.

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

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

Manual Cycle Monitoring

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

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

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

This report presents results from manual cycle counts conducted at 13 sites across the North Shore city following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a TA and region level. For sites also monitored in 2007 and 2008, comparative results are provided.

Important Note: This report provides the results of manual cycle monitoring conducted at 13 pre-determined sites in North Shore city only. Site-by-site results and city/district summaries for all other Auckland region Territorial Authorities have been provided in separate documents. It is strongly recommended that this report be read in conjunction with the Regional Summary document, which provides aggregated data for the region, as well as a regional comparison of results.

[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 city's differs for both peaks.

1.2 Methodology

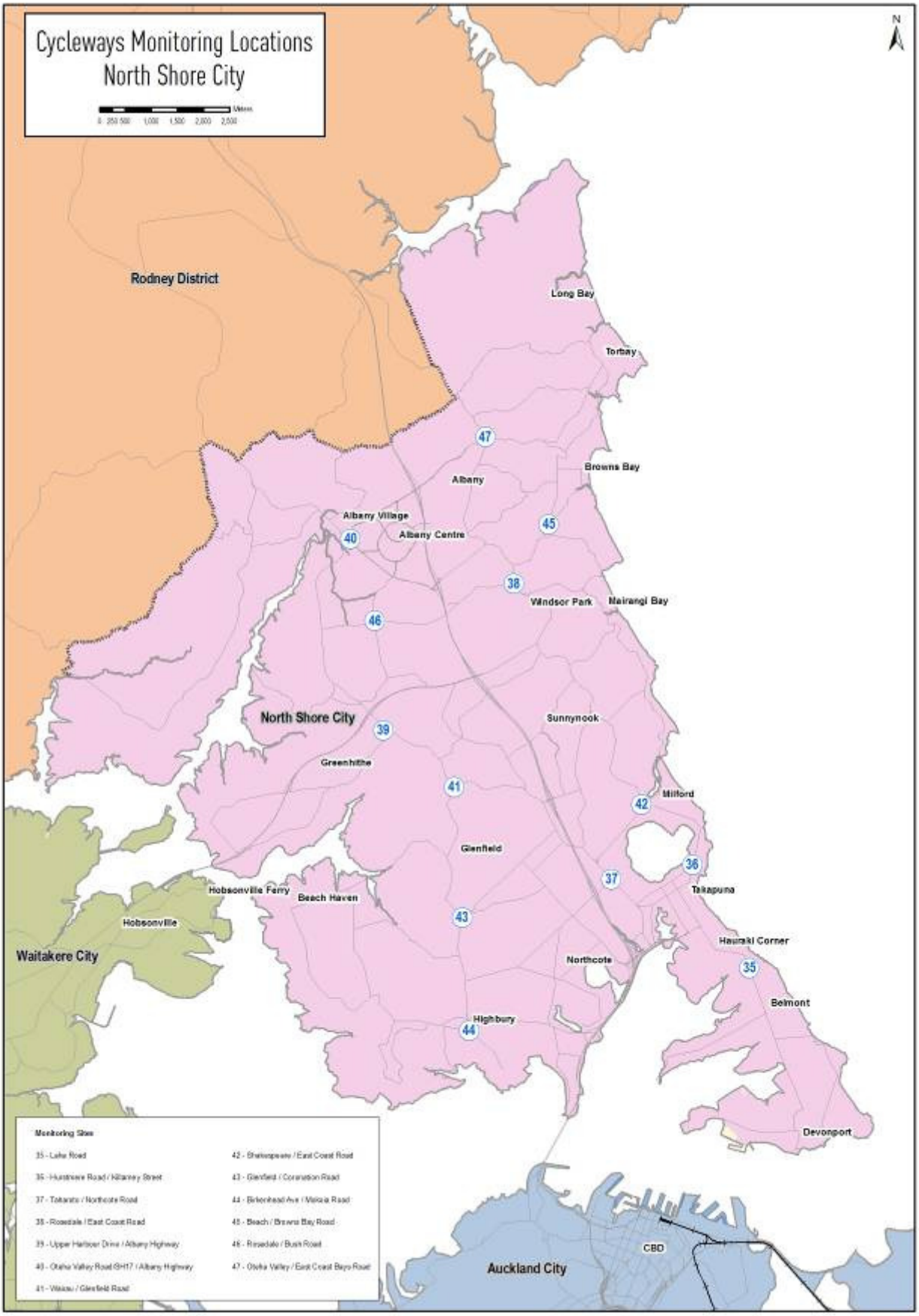
Manual cycle counts have been conducted using a standardised methodology across all sites. This methodology is outlined below. *Note: To ensure the longitudinal comparability of its cycle data, Gravitas have conducted the regional monitoring using a similar approach to that used to collect manual count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

Choice Of Sites

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

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

- Auckland City — n=27 sites (12 sites monitored since 2001; 10 sites added in 2007; 5 sites added in 2008; 3 sites relocated, one site dropped and one site added in 2009)
- Manukau City — n=14 sites (12 sites monitored since 2007; 1 site added in 2008; one site relocated, 2 sites dropped and 3 sites added in 2009)
- Waitakere City — n=14 sites (11 sites monitored since 2007; 2 sites added in 2008; 1 site added in 2009)
- North Shore City — n=13
- Rodney District — n=8 (5 sites monitored since 2007; 3 sites added in 2009)
- Franklin District — n=4 (3 sites monitored since 2007; 1 site added in 2009)
- Papakura District — n=3


Cycleways Monitoring Locations
North Shore City
N
Rodney District
Long Bay
Torbay
47
Browns Bay
Albany
Albany Village
Albany Centre
40
45
38
Windsor Park
Mairangi Bay
46
North Shore City
39
Sunnynook
Greenhithe
41
Milford
42
Glenfield
36
37
Takapuna
Hobsonville Ferry
Beach Haven
Hobsonville
43
Waitakere City
Hauraki Corner
Northcote
35
Belmont
Highbury
44
Devonport
CBD
Auckland City
Monitoring Sites
35 - Lake Road
36 - Hurstmere Road / Killarney Street
37 - Takarata / Northcote Road
38 - Rosedale / East Coast Road
39 - Upper Harbour Drive / Albany Highway
40 - Oteha Valley Road (SH17 / Albany Highway
41 - Wasau / Glenfield Road
42 - Shakespeare / East Coast Road
43 - Glenfield / Coronation Road
44 - Birkenhead Ave / Makora Road
45 - Beach / Browns Bay Road
46 - Rosedale / Bush Road
47 - Oteha Valley / East Coast Bays Road

Monitoring Times

Time Of Day

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

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

Day Of Week

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

Time Of Year

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

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

It was agreed that manual counts would commence on Tuesday the 10th of March and be conducted on the first three fine days of the 10th, 11th, 12th, 17th, 18th or 19th of March.

Counting at sites in **North Shore and Waitakere** cities was completed on **Tuesday the 10th of March**. Counting at sites in **Auckland city** was completed on **Wednesday the 11th of March**. Counts in **Manukau, Rodney, Papakura and Franklin** were completed on **Thursday the 12th of March**. Note: Counts in the morning and evening peaks took place on the same day for each site.

Weather and Daylight Conditions

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

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

The weather on the three count days in 2009 was as follows:

Tuesday 10th March

(Waitakere and North Shore city sites monitored)

- Sunrise: 7:15am; Sunset: 7:48pm.
- Average temperature: 18 degrees Celsius.
- Fine weather for all but one site in the morning period.
- Weather fine with some cloud throughout the evening shift. Most Waitakere sites and one North Shore site experienced very light drizzle intermittently between 6:30pm and 7:00pm.

Wednesday 11th March

(Auckland city sites monitored)

- Sunrise: 7:15am; Sunset: 7:46pm.
- Average temperature: 17 degrees Celsius.
- Fine weather at most sites in the morning period. Light drizzle and/or showers reported at six of the 27 sites.
- All but three sites experienced intermittent light drizzle and/or showers throughout the evening period.

Thursday 12th March

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

- Sunrise: 7:16am; Sunset: 7:45pm.
- Average temperature: 16 degrees Celsius.
- Almost all sites had fine weather in the morning period apart from light drizzle at the Rodney sites which cleared by 7am; four sites experienced intermittent light showers throughout the morning period (these sites predominantly in Manukau).
- Weather in the evening period was overcast, with intermittent drizzle throughout the period. Brief, but often heavy, showers were reported at some sites in Manukau and Papakura.

Conducting The Manual Counts

Scoping Visit

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

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

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

Briefing Session

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

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

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

Conducting The Manual Counts

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

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

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

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

In addition, 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.

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[3] This letter also contained contact details for the client organisation and Gravitas Research and Strategy for any member of the public or local business owners who had queries about the work being undertaken.

[4] To ensure consistency across all surveyors, a "cycle" was defined as being non-motorised, with two wheels and requiring pedalling to make it move. Note that this definition did not include scooters.

[5] Note: For the purpose of this project, an off-road cycleway is defined as disgnated 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 marketd on the road).

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

Data Analysis

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

Annual Average Daily Traffic (AADT) Analysis

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

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

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

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

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

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

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

School Bike Shed Counts

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

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

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

Methodology

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

1. Gravitas designed a fax information sheet that was distributed to most intermediate, secondary and composite (Years 1 to 13) schools in the Auckland region (note a small number of schools were omitted due to the special nature of the students eg special needs schools). This sheet was designed in consultation with the Regional Cycle Monitoring Working Group to ensure all necessary information was collected. A copy of the information sheet is provided in Appendix Two.

2. Gravitas contacted all intermediate, secondary and composite schools in Auckland region (n=156) to notify them of the bike shed count and to let them know what they would be required to do. Gravitas then sent out the information sheet to all schools that agreed to take part in the bike shed count, along with a cover letter explaining the purpose of the research and providing detail on how to complete and submit the form. A copy of this letter is provided in Appendix Two.

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 10th 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 were requested to fax or (free) post the information sheets back to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days. All information sheets were checked for completeness before being data-entered into Excel. One hundred and twenty-four response were received, a response rate of 79 per cent.

Reporting

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

Manual Counts - Site Level Reporting

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

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

Manual Counts - Aggregated Reporting

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

Bike Shed Counts

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

1.3 Summary Of Results

This summary contains the aggregated results of the thirteen sites surveyed in North Shore city the Ferry Terminal[9] site surveyed in Auckland city and bike stand counts at the Devonport ferry terminal. It is split into four sections – a summary of results for the morning peak period (6:30am to 9:00am), a summary for the evening peak period (4:00pm to 7:00pm), a summary of aggregated results (morning and evening combined) and a summary of the results from the school bike shed counts.

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

Note: Surveying in North Shore city was undertaken on Tuesday 10th March, 2009. Sunrise was at 7:15am and sunset was at 7:48pm. The average temperature was 18 degrees Celsius.

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

- "high/heavy" when 98 or more cycle movements are reported;
- "moderate" when between 36 and 97 cycle movements are reported;
- "low/light" when between 0 and 35 cycle movements are reported;
- having "notably" increased/decreased if the change is more than 15% of the data being compared with;
- having "slightly" increased/decreased if the change is less than 5% of the data being compared with;
- being "stable" since last year if the change is less or equal to 3 cycle movements/percentages.

[9] Note that the Ferry Terminal site is included in Section Fourteen of this report for completeness, as this Auckland city site contains cyclist counts on ferries depart from and arrive to North Shore. However, it is not included in the summary section as not all ferries at this terminal depart from and arrive to North Shore.

1.4 Morning Peak

Environmental Conditions

- All sites had good weather during the morning monitoring period.
- As in 2008, the Hurstmere Road/Killarney Street intersection is the only site with road works that may affect cycle counts.

Key Points

- A total of 1,049 cyclist movements were recorded across the 13 sites in the morning peak period (between 6:30am and 9:00am) in 2009 – including 13 per cent (n=137) observed cycling as groups. This figure is up from 944 movements recorded in 2008 (an increase of 11 per cent). However, this increase is not statistically significant – that is, the increase falls within the margin of error at the 95% confidence interval.
- The busiest site in the morning peak is at Hurstmere Road/Killarney Street (186, up from 134 cycle movements in 2008), whereas Oteha Valley/State Highway 17/Albany Highway has the lowest level of morning cyclist traffic (25 cycle movements).
- Nine of the 13 sites recorded increases this year compared to 2008. The most notable increases are at:
  - Rosedale/East Coast Road – up from 52 to 105 movements (102 per cent); and
  - Oteha Valley/East Coast Road – up from 40 to 69 movements (73 per cent).
- Only three sites recorded declines, the most notable being Taharoto/Northcote Road – down from 160 to 98 movements (39 per cent).
- The average volume of morning cyclists across the 13 sites monitored in North Shore city is 81 cycle movements. This compares with 73 cycle movements in 2008.

Table 1.1: Summary Of Morning Cyclist Movements

2007-2009 (n)

Site Number	*Locations*	*2007*	*2008*	*2009*	Change 08-09	Change 07-09
36	Hurstmere Road/Killarney Street	76	134	**186**	**39%**	145%
42	Shakespeare/East Coast Road	82	127	**177**	**39%**	116%
35	Lake Road, by Takapuna Grammar	127	200	**166**	**-17%**	31%
38	Rosedale/East Coast Road	54	52	**105**	**102%**	94%
37	Taharoto/Northcote Road	111	160	**98**	**-39%**	-12%
47	Oteha Valley/East Coast Road	42	40	**69**	**73%**	64%
39	Upper Harbour Drive/Albany Highway	14	54	**63**	**17%**	350%
41	Wairau/Glenfield Road	34	39	**42**	**8%**	24%
43	Glenfield/Coronation Road	16	36	**36**	**0%**	125%
45	Beach/Browns Bay Road	11	26	**29**	**12%**	164%
44	Birkenhead Ave/Mokoia Road	20	20	**27**	**35%**	35%
46	Rosedale/Bush Road	15	36	**26**	**-28%**	73%
40	Oteha Valley/SH17/Albany Highway	4	20	**25**	**25%**	525%
	Average per site	**47**	**73**	**81**	**11%**	**72%**
	Total	**606**	**944**	**1049**	**11%**	**73%**

- Morning cyclist characteristics are shown in Table 1.2 below. Overall, 82 per cent of cyclists are adults (compared with 78 per cent in 2008). Of the 13 sites monitored in North Shore city, the Oteha Valley/East Coast Road intersection has the greatest share of cyclists who are school children (41 per cent).
- Almost all morning cyclists (96 per cent) are wearing a helmet across all North Shore city sites (stable from 98 per cent last year). Helmet wearing is least prevalent at the intersection of Oteha Valley/SH17/Albany Highway (88 per cent wearing a helmet).
- On average, 77 per cent of cyclists are riding on the road (down slightly from 80 per cent in 2008). Footpath riding is most evident at the Oteha Valley/East Coast Road intersection (41 per cent).

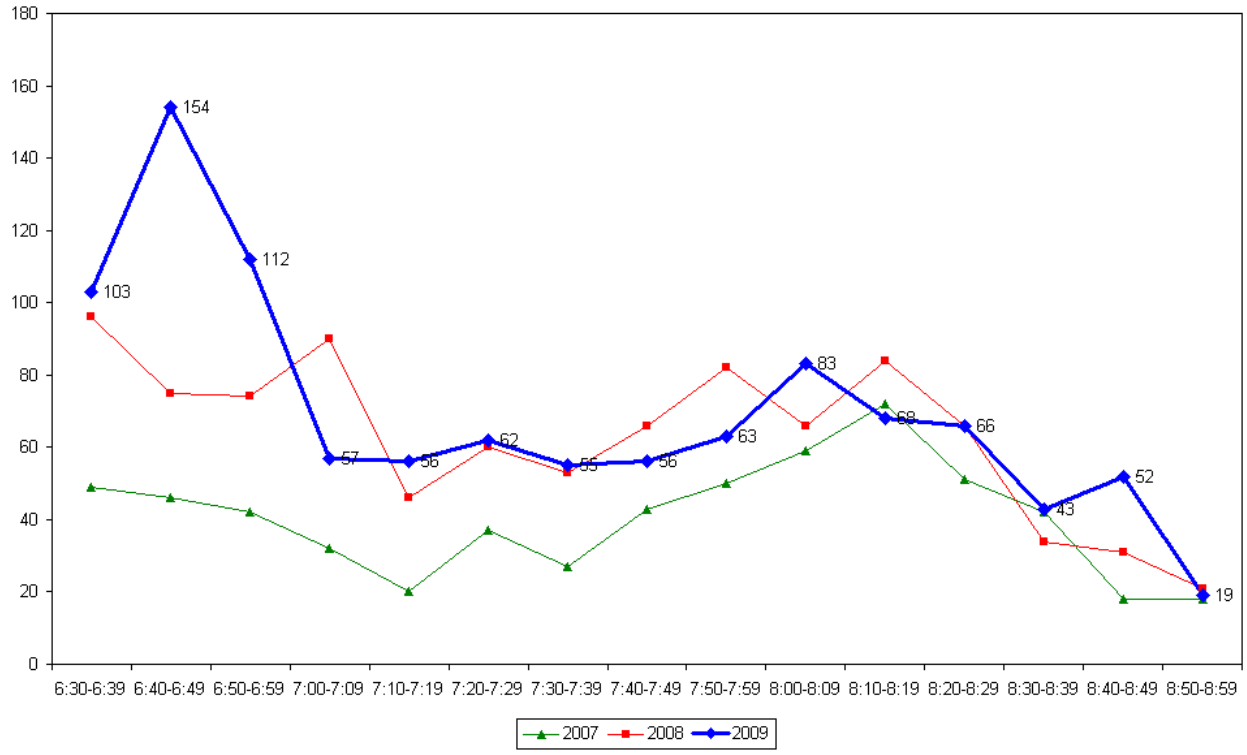
Table 1.2: Summary of Morning Cyclist Characteristics 2007-2009 (%)

	2007	*2008*	*2009*	**Change 08-09**
Cyclist Type				
Adult	69%	78%	82%	4%
School child	31%	22%	18%	-4%
Helmet Wearing				
Helmet on head	93%	98%	96%	-2%
No helmet	7%	2%	4%	2%
Where Riding				
Road	67%	80%	77%	-3%
Footpath	33%	20%	22%	2%
Off-road cycleway[10]	-	-	1%	-
Base:	***606***	***944***	***1049***	

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

- Figure 1.1 illustrates the total number of cyclists in the morning peak by time of trip. The volume of morning cycle movements starts off with a notable peak (103 movements, 154 movements and 112 movements recorded over each ten minute interval respectively from 6:30am to 6:59am). Cycle volumes then level off with another slight peak recorded between 8:00am and 8:09 am (83 movements) before tailing off to the end of the monitoring period.
- The general pattern is consistent with the previous years. However, the peak in the first 30 minutes of monitoring is higher this year than previously due predominantly to an increase in the number of cyclist training groups observed.

Figure 1.1: Total Cyclist Frequency – Morning Peak



1.5 Evening Peak

Environmental Conditions

- Consistent with the morning shift, almost all North Shore city sites had good weather in the evening monitoring period. The intersection of Shakespeare and East Coast Road is the only site experiencing light drizzle at the beginning and end of the evening peak.
- There were road works at the Hurstmere Road/Killarney Street intersection which may affect cycle counts.

Key Points

- A total of 929 cyclist movements were recorded across the 13 sites in the evening peak period (between 4:00pm and 7:00pm) in 2009 – including two per cent (n=14) observed cycling as groups.. This figure has increased notably from 798 movements recorded in 2008 (an increase of 16 per cent). This increase is statistically significant – that is, the increase falls outside the margin of error at the 95% confidence interval.
- Of the 13 sites monitored in North Shore city, the intersections at Shakespeare/East Coast Road site is the busiest in terms of the evening cyclists' activity, with 133 cycle movements recorded (up from 123 movements last year). Hurstmere Road/Killarney Street (132 movements) and Lake Road (129 movements) are also busy sites in North Shore city.
- The lowest level of evening cyclist traffic is at the Beach/Brown Bay Road and Birkenhead Ave/Mokoia Road intersections (30 movements each).
- Almost all sites recorded increases this year compared to 2008. The most notable increases are at:
  - Upper Harbour Drive/Albany Highway – up from 44 to 75 movements (70 per cent);
  - Oteha Valley/SH17/Albany Highway – up from 28 to 47 movements (68 per cent);
  - Beach/Browns Bay Road – up from 19 to 30 movements (58 per cent).
- Decreases in cycle volumes were recorded at the intersections of:
  - Oteha Valley/East Coast Road – down from 74 to 69 movements (7 per cent); and
  - Tarahoto/Northcote Road (down from 110 to 104 movements (5 per cent).
- The average volume of evening cyclists across the 13 sites monitored in North Shore city is 71 cycle movements. This compares with 61 movements in 2008.

Table 1.3: Summary Of Evening Cyclist Movements 2008-2009 (n)

Site Number	*Locations*	*2007*	*2008*	*2009*	Change 08-09	Change 07-09
42	Shakespeare/East Coast Road	55	123	**133**	**8%**	142%
36	Hurstmere Road/Killarney Street	45	118	**132**	**12%**	193%
35	Lake Road, by Takapuna Grammar	65	97	**129**	**33%**	98%
37	Taharoto/Northcote Road	51	110	**104**	**-5%**	104%
39	Upper Harbour Drive/Albany Highway	11	44	**75**	**70%**	582%
47	Oteha Valley/East Coast Road	17	74	**69**	**-7%**	306%
38	Rosedale/East Coast Road	22	46	**54**	**17%**	145%
40	Oteha Valley/SH17/Albany Highway	15	28	**47**	**68%**	213%
46	Rosedale/Bush Road	16	37	**46**	**24%**	188%
43	Glenfield/Coronation Road	12	39	**42**	**8%**	250%
41	Wairau/Glenfield Road	30	34	**38**	**12%**	27%
44	Birkenhead Ave/Mokoia Road	20	29	**30**	**3%**	50%
45	Beach/Browns Bay Road	8	19	**30**	**58%**	275%
	Average per site	**28**	**61**	**71**	**16%**	**154%**
	Total	**367**	**798**	**929**	**16%**	**153%**

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

Note that there are three hours for the evening monitoring period compared with 2.5 hours in the morning. To enable the morning and evening cyclist volumes to be fairly compared, a scale factor has been applied so that the count numbers for both periods are based on the same length of time (2.5 hours). However, the limitation of this approach is that it does not take into account the variation in cycle movement numbers that exist over the course of a shift (as illustrated in Figure 1.1 and 1.2); rather, the number of cycle movements is assumed to be consistent throughout the monitoring period. Consequently, the results presented in Table 1.4 should be considered indicative only.

- Overall, the number of evening cycle movements across the 13 sites decrease by 36 per cent from the number recorded in the morning shift.
- Eleven out of the 13 sites have the evening cycle volume lower than the morning cycle volume. The most notable declines between the morning and evening peak are reported at:
  - Rosedale/East Coast Road – down 133 per cent;
  - Hurstmere Road/Killarney Street – down 69 per cent;
  - Shakespeare/East Coast Road – down 60 per cent; and
  - Lake Road, by Takapuna Grammar – down 54 per cent.
- In contrast, the number of evening cyclists recorded at two intersections are higher than the morning cycle volume:
  - Oteha Valley/SH17/Albany Highway – up 36 per cent; and
  - Rosedale/Bush Road – up 32 per cent.

Note: The notably higher number of morning shift cyclists can be attributed, at least in part, to the presence of cyclist training groups

Table 1.4: Summary Of Change in Cyclist Movements from Morning to Evening 2009 (%)

Site Number	*Locations*	*AM*	*PM*[11]	Change
40	Oteha Valley/SH17/Albany Highway	25	39	36%
46	Rosedale/Bush Road	26	38	32%
39	Upper Harbour Drive/Albany Highway	63	63	-1%
43	Glenfield/Coronation Road	36	35	-3%
44	Birkenhead Ave/Mokoia Road	27	25	-8%
37	Taharoto/Northcote Road	98	87	-13%
45	Beach/Browns Bay Road	29	25	-16%
47	Oteha Valley/East Coast Road	69	58	-20%
41	Wairau/Glenfield Road	42	32	-33%
35	Lake Road, by Takapuna Grammar	166	108	-54%
42	Shakespeare/East Coast Road	177	111	-60%
36	Hurstmere Road/Killarney Street	186	110	-69%
38	Rosedale/East Coast Road	105	45	-133%
	Total	**1049**	**774**	**-36%**

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

- Compared with the previous year, the majority of evening cyclists continue to be adults (86 per cent, up slightly from 83 per cent in 2008). Of the 13 sites, the Beach/Browns Road intersection has the smallest share of adult cyclists in the evening (60 per cent).
- A greater share of evening cyclists are wearing a helmet (95 per cent, stable from 94 per cent last year). A higher proportion of evening cyclists at the Glenfield/Coronation Road intersection are not wearing a helmet compared with other sites (19 per cent).
- Just over three-quarters of cyclists are riding on the road in the evening (77 per cent, unchanged from 2008). The incidence of riding on the footpath at the Beach/Browns Bay Road intersection continues to be higher than other sites monitored in North Shore city (43 per cent).

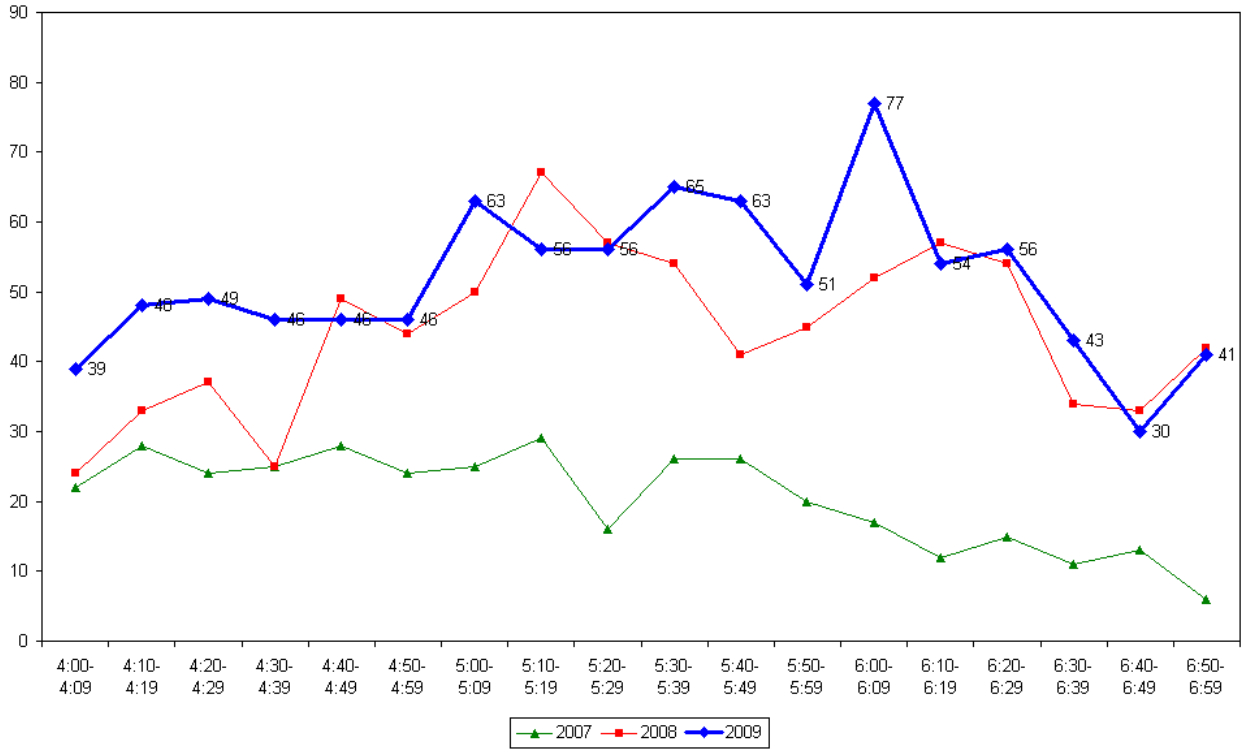
Table 1.5: Summary of Evening Cyclist Characteristics 2008-2009 (%)

	2007	*2008*	*2009*	**Change 08-09**
Cyclist Type				
Adult	89%	83%	86%	3%
School child	11%	17%	14%	-3%
Helmet Wearing				
Helmet on head	89%	94%	95%	1%
No helmet	11%	6%	5%	-1%
Where Riding				
Road	80%	77%	77%	0%
Footpath	20%	23%	22%	-1%
Off-road cycleway[12]	-	-	1%	-
Base:	***367***	***798***	***929***	

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

- The overall pattern of cyclist volumes by time of trip in the evening is illustrated in Figure 1.2. Evening cyclist volumes increase steadily to peak between 6:00pm and 6:09pm (77 movements) before tailing off towards the end of the monitoring period. This compares to a peak almost one hour earlier in 2008, with 67 movements recorded between 5:10pm and 5:19pm.

Figure 1.2: Total Cyclist Frequency – Evening Peak



1.6 Aggregated Total

- A total of 1,978 cyclist movements were recorded across the 13 sites in 2009. This represents a 14 per cent increase from last year's measure (1,742 movements) - not statistically significant at the 95% confidence interval. Eight per cent (n=151) of the total cycle movements were observed cycling as groups.
- The number of morning cyclists comprises a larger share (53 per cent) of the total number of cycle movements than the evening cyclists (47 per cent).
- In contrast to 2008, the busiest site is at the intersection at Hurstmere Road/Killarney Street with a total of 318 movements recorded, while the Birkenhead Ave/Mokoia Road intersection has the fewest cyclists (57 movements).
- Cyclist volumes have increased for 10 of the 13 sites monitored, with the most notable increase at the intersection of Rosedale/East Coat Road (up 62 per cent from 98 movements in 2008 to 159 movements this year).

Table 1.6: Summary Of Total Cyclist Movements 2008-2009 (n)

Site Number	*Locations*	*2007*	*2008*	*2009*	Change 08-09	Change 07-09
36	Hurstmere Road/Killarney Street	121	252	**318**	**26%**	163%
42	Shakespeare/East Coast Road	137	250	**310**	**24%**	126%
35	Lake Road, by Takapuna Grammar	192	297	**295**	**-1%**	54%
37	Taharoto/Northcote Road	162	270	**202**	**-25%**	25%
38	Rosedale/East Coast Road	76	98	**159**	**62%**	109%
39	Upper Harbour Drive/Albany Highway	25	98	**138**	**41%**	452%
47	Oteha Valley/East Coast Road	59	114	**138**	**21%**	134%
41	Wairau/Glenfield Road	64	73	**80**	**10%**	25%
43	Glenfield/Coronation Road	28	75	**78**	**4%**	179%
40	Oteha Valley/SH17/Albany Highway	19	48	**72**	**50%**	279%
46	Rosedale/Bush Road	31	73	**72**	**-1%**	132%
45	Beach/Browns Bay Road	19	45	**59**	**31%**	211%
44	Birkenhead Ave/Mokoia Road	40	49	**57**	**16%**	43%
	Total	**973**	**1742**	**1978**	**14%**	**103%**

- Overall cyclist characteristics are illustrated in Table 1.7. In total, 84 per cent of cyclists are adults (up slightly from 80 per cent in 2008).
- Almost all cyclists are wearing a helmet (96 per cent, unchanged from last year).
- On average, just less than three-quarters of cyclists are riding on the road (77 per cent, stable from 78 per cent in 2008).

Table 1.7: Summary of Total Cyclist Characteristics 2008-2009 (%)

	2007	***2008***	***2009***	**Change 08-09**
Cyclist Type				
Adult	77%	80%	84%	4%
School child	23%	20%	16%	-4%
Helmet Wearing				
Helmet on head	92%	96%	96%	0%
No helmet	8%	4%	4%	0%
Where Riding				
Road	72%	78%	77%	-1%
Footpath	28%	22%	22%	0%
Off-road cycleway[13]	-	-	1%	-
Base:	***973***	***1742***	***1978***	

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

1.7 Average Annual Daily Traffic (AADT) Estimate

AADT Estimate

- Table 1.8 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at the intersection of Hurstmere Road and Killarney Street (466 daily trips, compared with 368 trips in 2008) and the lowest is at Birkenhead Ave/Mokoia Road (83 daily trips, up from 71 trips last year).
- Most sites (10 out of 13) have recorded increases in total AADT estimates this year compared with 2008. The intersections with the biggest increases are:
  - Rosedale/East Coast Road (up 64 per cent);
  - Oteha Valley/SH17/Albany Highway (up 49 per cent); and
  - Upper Harbour Drive/Albany Highway (up 40 per cent).
- In contrast, the number of total cyclists recorded at three sites is lower than last year. The most notable decrease is at Tarahoto/Northcote Road (293 daily trips, down 26 per cent from 2008).

Table 1.8: AADT Estimates Based on Morning and Evening Cyclist Movements 2008-2009 (n)

Site Number	*Locations*	*2007*[14]	*2008*	*2009*	Change 08-09	Change 07-09
36	Hurstmere Road/Killarney Street	279	368	**466**	27%	67%
42	Shakespeare/East Coast Road	314	364	**454**	25%	45%
35	Lake Road, by Takapuna Grammar	444	440	**432**	-2%	-3%
37	Taharoto/Northcote Road	375	396	**293**	-26%	-22%
38	Rosedale/East Coast Road	176	143	**235**	64%	34%
47	Oteha Valley/East Coast Road	137	163	**201**	23%	47%
39	Upper Harbour Drive/Albany Highway	57	143	**200**	40%	251%
41	Wairau/Glenfield Road	93	107	**117**	9%	26%
43	Glenfield/Coronation Road	64	109	**113**	4%	77%
40	Oteha Valley/SH17/Albany Highway	42	69	**103**	49%	145%
46	Rosedale/Bush Road	70	106	**103**	-3%	47%
45	Beach/Browns Bay Road	44	66	**86**	30%	95%
44	Birkenhead Ave/Mokoia Road	58	71	**83**	17%	43%

[14] As in 2008, 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 Ferry Terminal Bike Count Summary

Key Points

- In the morning, a total of 5 bikes were recorded at the Devonport Ferry Terminal at 6.07am and 16 bikes were counted at 9.16am. This indicates at least 11 cyclists parked their bike at the ferry terminal and rode the ferry during the morning shift.
- In the afternoon, a total of 21 bikes were recorded at the Devonport Ferry Terminal at 3.33pm and two bikes were counted at 7.18pm. This indicates that at least 19 cyclists departed the ferry at Devonport and left by cycle.

1.9 School Bike Shed Count Summary

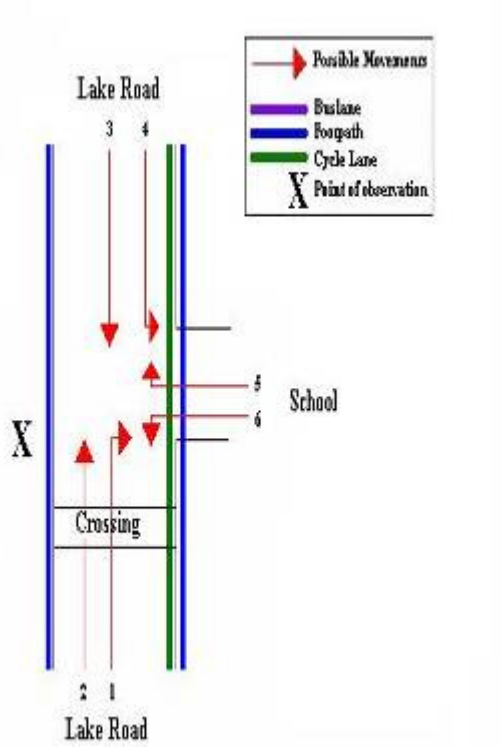
Key Points

- Among the surveyed schools, of those eligible to cycle at school, on average, two per cent of students are cycling to their schools (down from 3 per cent from last year).
- Among the 21 participating schools, n=547 students were reported as cycling to school.
- As in 2007 and 2008, Belmont Intermediate School reported the highest share of cyclists – 22 per cent of all eligible students currently cycling (down from 26 per cent last year).
- Of the 21 schools that responded, three (14 per cent) had no students cycling to school. This compares with two schools (11 per cent) in 2008.
- Rates of cycling to school are highest among intermediate schools (5 per cent, unchanged from 2008) and lowest for composite schools (<1 per cent, down from 1 per cent last year).

2. LAKE ROAD, TAKAPUNA (SITE 35)

Figure 2.1 shows the possible cyclist movements at this site.

Figure 2.1: Cycle Movements: Lake Road



AADT Estimate

- The AADT for this site is 432 cycle movements per day. This compares with:
  - 440 cycle movements in 2008
  - 444 cycle movements in 2007.

2.1 Morning Peak

Environmental Conditions

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

Key Points

- Of the 13 intersections monitored in North Shore city this year, the site at Lake Road is the third busiest in terms of morning cyclist activity, with 166 cycle movements recorded. This represents a decrease from 200 movements in 2008. *Note that last year large cycle training groups were observed between 6:51am and 7:02am which may have affected cycle counts.*
- Key morning movements are straight along Lake Road in both directions (Movement 3 = 110 cyclists; Movement 2 = 50 cyclists).
- Movement 3 (down 22 cyclists) and Movement 2 (down 18 cyclists) in particular have contributed to the decrease in terms of morning cyclist traffic.

Table 2.1: Morning Cyclist Movements

Lake Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	0	3	3
2	40	68	50	-18
3	85	132	110	-22
4	1	0	3	3
5	0	0	0	0
6	0	0	0	0
Total	**127**	**200**	**166**	**-34**

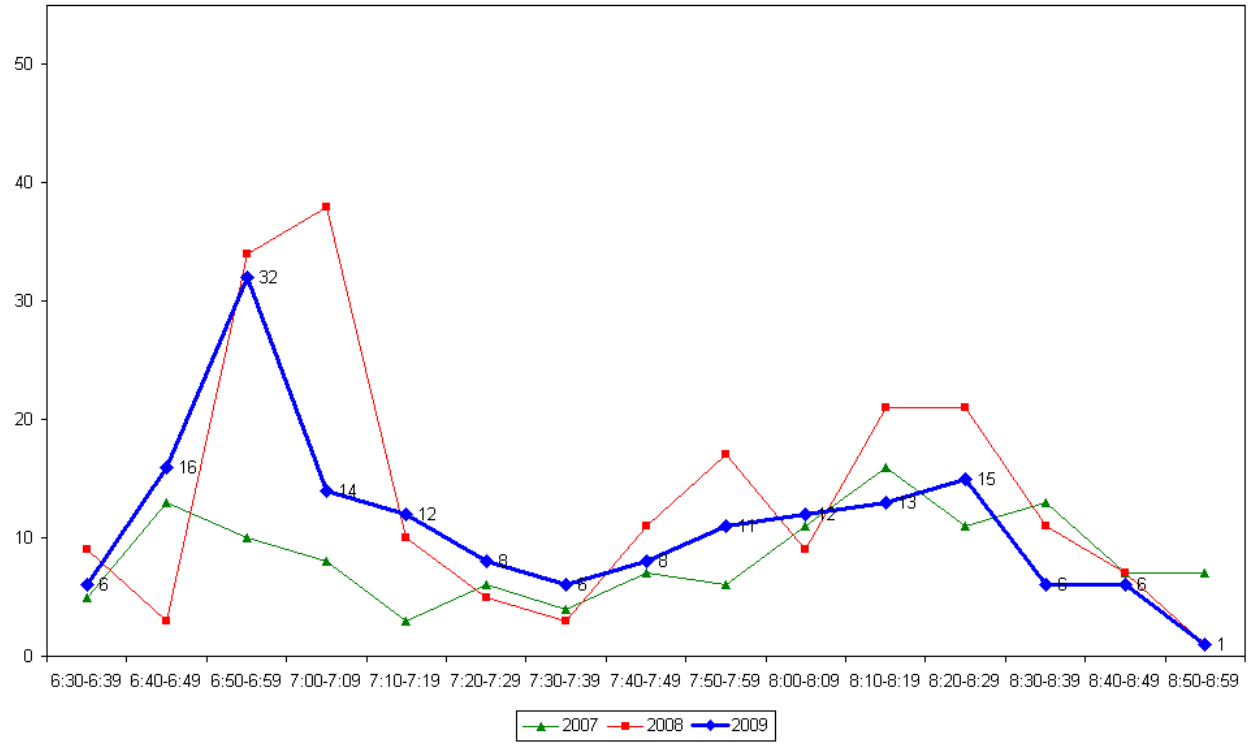
- Over the morning peak in 2009, adults comprise the greatest share (83 per cent) of cycle movements, this share up 6 percentage points from last year.
- The majority of cyclists are wearing a helmet (98 per cent, unchanged from 2008).
- Three-quarters of cyclists (77 per cent) are riding on the road (stable from 78 per cent last year).

Table 2.2: Morning Cyclist Characteristics
Lake Road 2007-2009 (%)

	2007	*2008*	*2009*	**Change 08-09**
Cyclist Type				
Adult	64	77	83	6
School child	36	23	17	-6
Helmet Wearing				
Helmet on head	98	98	98	0
No helmet	2	2	2	0
Where Riding				
Road	77	78	77	-1
Footpath	23	22	23	1
Base:	***127***	***200***	***166***	

- The volume of morning cycle movements increases early to peak at 32 movements early in the monitoring period between 6:50am and 6:59am (including 13 riding together as a group) before levelling out again to between 6 and 15 cyclists recorded during most ten minute intervals. This compares with a similar peak last year between 6:50am and 7:09am.

Figure 2.2: Lake Road Cyclist Frequency
– Morning Peak



Note: Ten per cent of total morning cycle movements were identified as cycling as groups. Groups of three or more cyclists were observed riding together at:

- *6.40am (3 cyclists)*
- *6.52am (13 cyclists)*
- *6.58am (3 cyclists).*

2.2 Evening Peak

Environmental Conditions

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

Key Points

- In 2009, the volume of evening cyclists has increased notably, from 97 in 2008 to 129 movements recorded this year.
- Consistent with last year, the most common movements in the evening are straight along Lake Road in both directions (Movement 2 = 64 cyclists; Movement 3 = 53 cyclists).
- Evening cyclist volumes at 4 out of 6 of the movements have increased from last year. The most notable increase is at Movement 2 (up 26 cyclists).

Table 2.3: Evening Cyclist Movements
Lake Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	0	0	2	2
2	27	38	64	26
3	34	56	53	-3
4	1	3	2	-1
5	2	0	5	5
6	1	0	3	3
Total	**65**	**97**	**129**	**32**

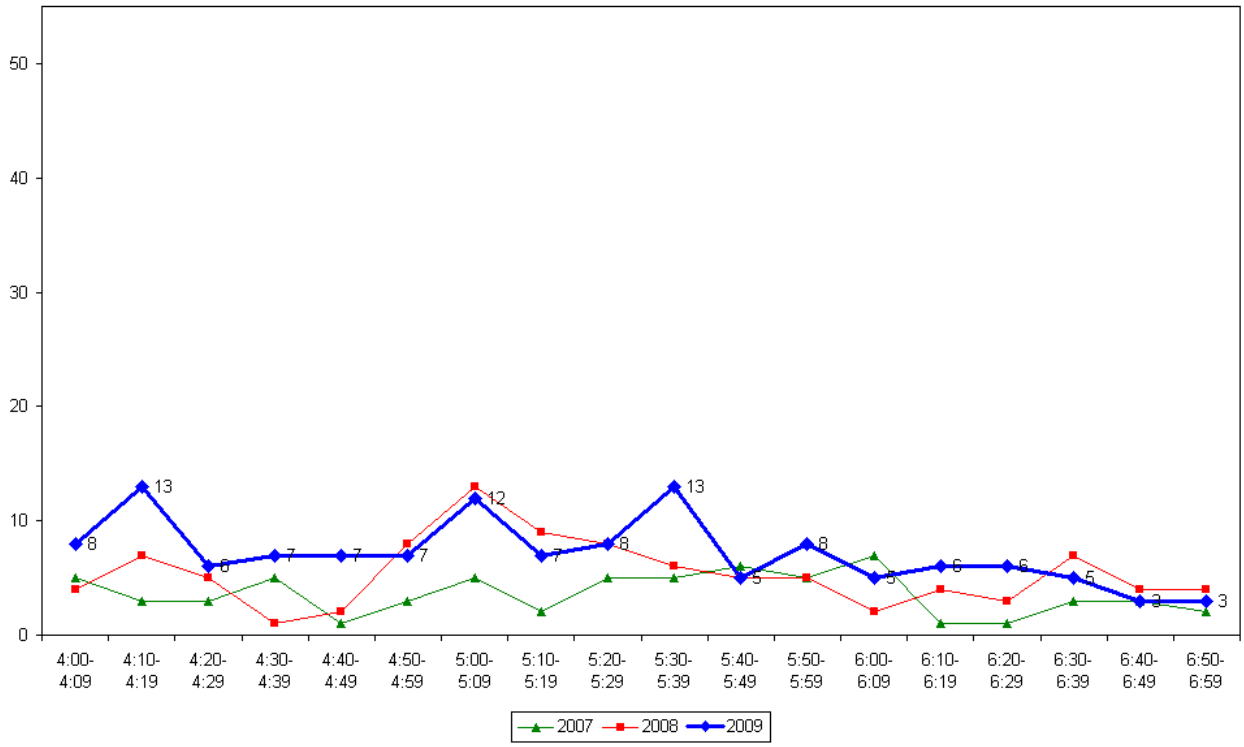
- The majority of cyclists using this site in the evening are adults (85 per cent, unchanged from 2008).
- As in 2008, helmet wearing continues to be widespread (94 per cent, compared with 92 per cent last year).
- Three quarters of cyclists (74 per cent) are riding on the road (stable from 76 per cent last year).

Table 2.4: Evening Cyclist Characteristics
Lake Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	97	85	85	0
School child	3	15	15	0
Helmet Wearing				
Helmet on head	94	92	94	2
No helmet	6	8	6	-2
Where Riding				
Road	95	76	74	-2
Footpath	5	24	26	2
Base:	***65***	***97***	***129***	

- This year, the volume of cycle movements is more variable during the evening shift, with a three peaks evident - between 4:10pm and 4:19pm (13 movements), 5:00pm and 5:09pm (12 movements) and 5:30pm and 5:39pm (13 movements). This compares with a peak of 13 movements between 5:00pm and 5:09pm in 2008.

Figure 2.3: Lake Road Cyclist Frequency – Evening Peak

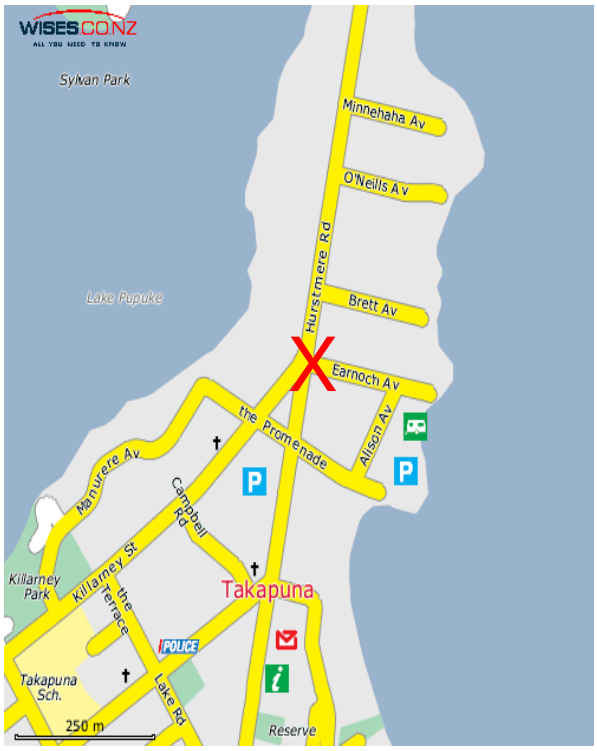


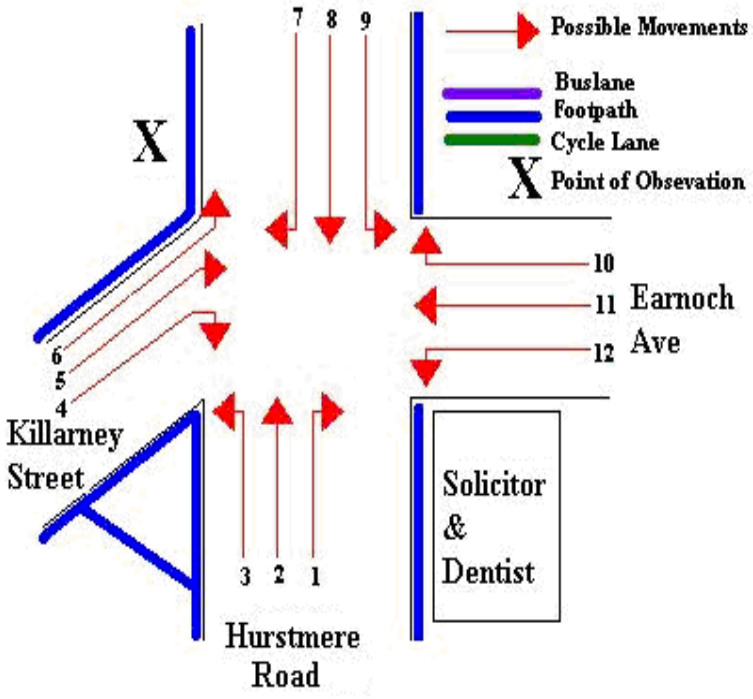
Note: A group of three cyclists were observed riding together at 4.16pm. This comprises two per cent of the total cycle movements recorded in the evening peak.

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

Figure 3.1 shows the possible cyclist movements at this intersection.

Figure 3.1: Cycle Movements: Hurstmere Road/Killarney Street





AADT Estimate

- The AADT for this site is 466 cycle movements per day. This compares with:
  - 368 cycle movements in 2008
  - 279 cycle movements in 2007.

3.1 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- Some road works began at 8:00am on the day of monitoring, which may affect cycle counts.

Key Points

- The volume of morning cyclists at the Hurstmere Road/Killarney Street intersection is the busiest of the 13 sites monitored in North Shore city, and is up notably from 134 in 2008 to 186 cycle movements in 2009.
- The key movement in the morning is straight along Hurstmere Road heading south (Movement 8 = 117 cyclists).
- Cyclist volumes at Movement 8 are up notably from 33 movements in 2008 to 117 movements in 2009. The most notable decrease is at Movement 6 (down from 46 to 15).

Table 3.1: Morning Cyclist Movements
Hurstmere Road/Killarney Street 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	0	0	2	2
2	15	43	44	1
3	0	1	1	0
4	0	3	0	-3
5	0	0	0	0
6	9	46	15	-31
7	6	6	6	0
8	44	33	117	84
9	2	1	0	-1
10	0	1	0	-1
11	0	0	0	0
12	0	0	1	1
Total	**76**	**134**	**186**	**52**

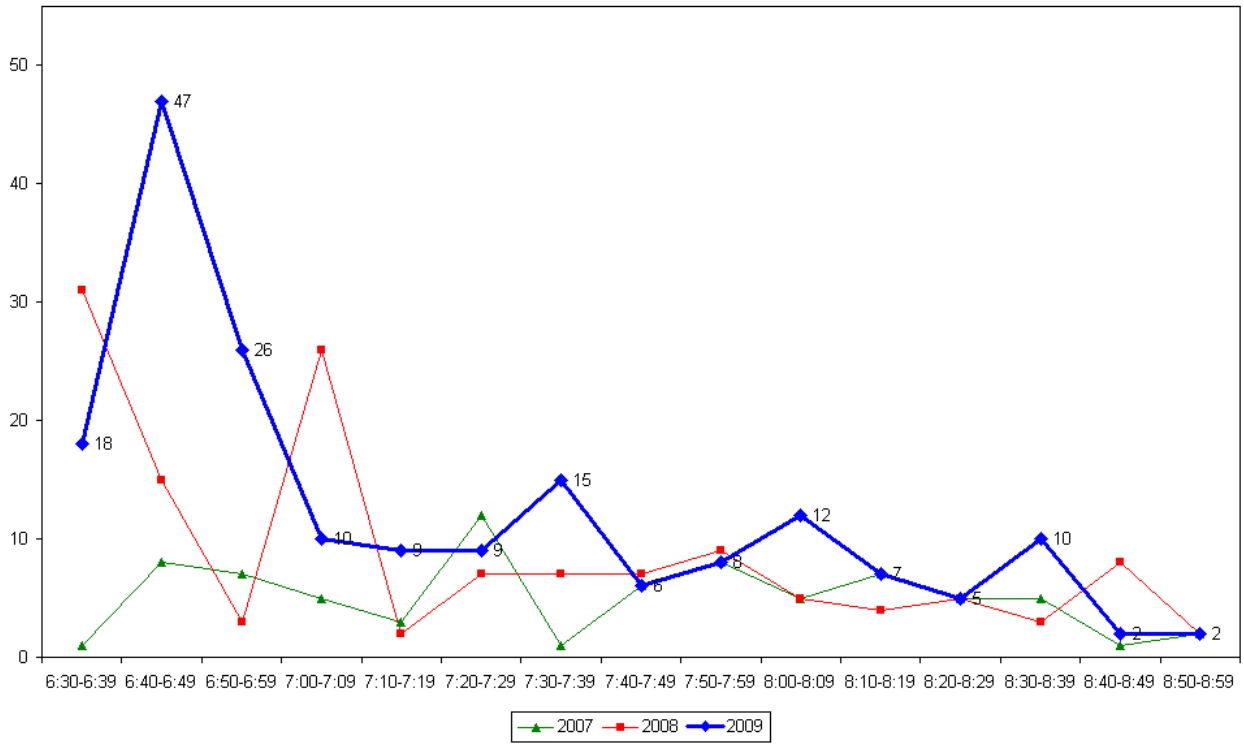
- Over the morning peak, most cyclists using this intersection are adults (94 per cent, up notably from 75 per cent in 2008).
- Almost all cyclists are wearing a helmet (98 per cent, stable from 99 per cent last year).
- Most cyclists are riding on the road (90 per cent, down slightly from 93 per cent in 2008).

Table 3.2: Morning Cyclist Characteristics
Hurstmere Road/Killarney Street 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	87	75	94	19
School child	13	25	6	-19
Helmet Wearing				
Helmet on head	93	99	98	-1
No helmet	7	1	2	1
Where Riding				
Road	83	93	90	-3
Footpath	17	7	10	3
Base:	***76***	***134***	***186***	

- The volume of morning cycle movements peaks notably at the beginning of the monitoring period, with 47 movements recorded between 6:40am and 6:49am. Cycle volumes then drop off to be relatively consistent through to the end of the monitoring period. Last year cycle volumes peaked between 6:30am and 6:39am, and again between 7:00am and 7:09am. *Note that cyclist training groups at this site are likely to have contributed to the sharp increase at the start of the morning monitoring period in both 2008 and 2009.*

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



Note: Twenty-one per cent of total morning cycle movements were identified as cycling as groups. Groups of three or more cyclists were observed riding together at:

- *6.43 am (11 cyclists)*
- *6.46am (17 cyclists)*
- *6.47am (4 cyclists)*
- *6.52am (7 cyclists).*

3.2 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift.
- Road works were underway at this site (on the northern side of Hurstmere Road) during the monitoring period which may affect cycle counts.

Key Points

- Of the 13 sites monitored in North Shore city, the Hurstmere Road/Killarney Street intersection is the second busiest in terms of evening cyclists' activity, with 132 cycle movements recorded (up notably from 118 movements in 2008).
- The key movement in the evening is straight along Hurstmere Road heading north (Movement 2 = 81 cyclists). Other notable movements are the left turn off Killarney Street onto Hurstmere Road (Movement 6 = 27 cyclists), and straight along Hurstmere Road heading south (Movement 8 = 19 cyclists).
- Of the 12 movements possible at this site, the most notable increase is at Movement 2 (up 39 cyclists), while the most notable decrease is at Movement 6 (down 21 cyclists).

Table 3.3: Evening Cyclist Movements
Hurstmere Road/Killarney Street 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	0	0	0	0
2	24	42	81	39
3	0	0	2	2
4	0	0	0	0
5	0	1	0	-1
6	7	48	27	-21
7	2	5	3	-2
8	10	20	19	-1
9	2	0	0	0
10	0	2	0	-2
11	0	0	0	0
12	0	0	0	0
Total	**45**	**118**	**132**	**14**

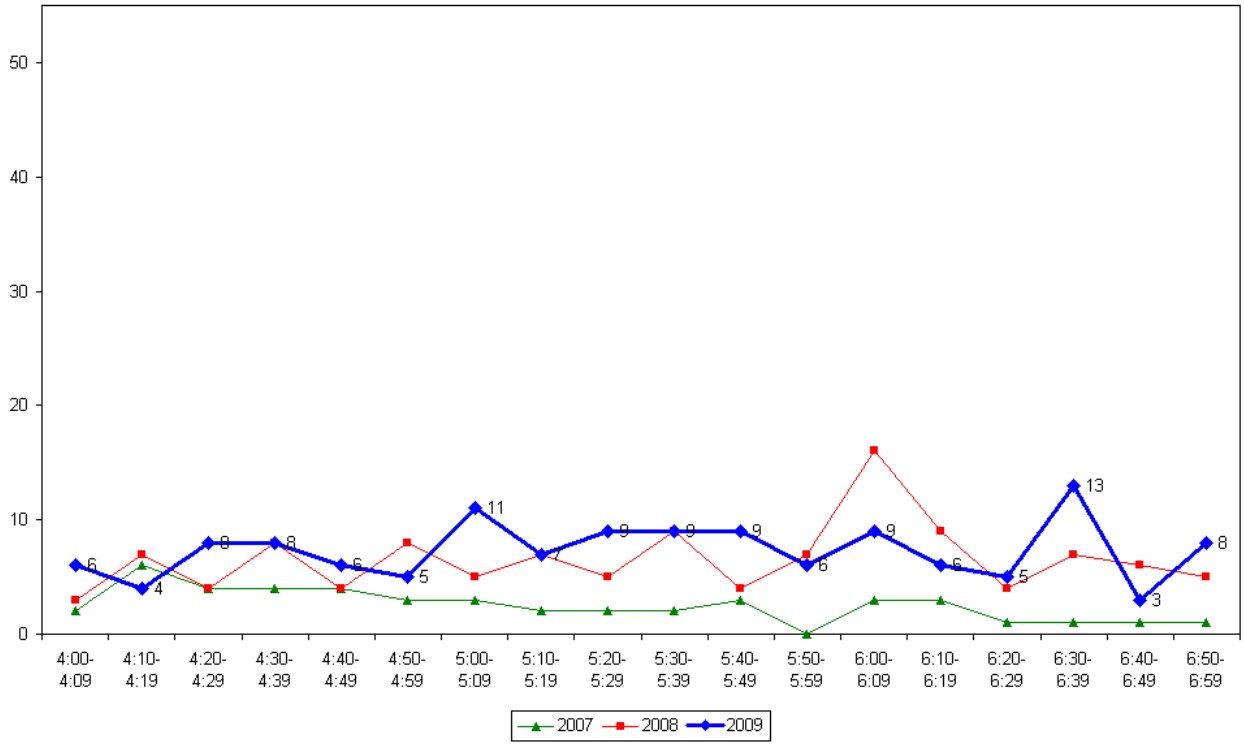
- Over the evening peak, the greatest share of cyclists using the Hurstmere Road/Killarney Street intersection are adults (92 per cent, up from 81 per cent in 2008).
- Most cyclists are wearing a helmet (96 per cent, compared with 92 per cent last year).
- Eighty-nine per cent of cyclists are riding on the road, this share having increased by ten percentage points from 2008.

Table 3.4: Evening Cyclist Characteristics
Hurstmere Road/Killarney Street 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	89	81	92	11
School child	11	19	8	-11
Helmet Wearing				
Helmet on head	89	92	96	4
No helmet	11	8	4	-4
Where Riding				
Road	82	79	89	10
Footpath	18	21	11	-10
Base:	***45***	***118***	***132***	

- The volume of evening cyclists stays relatively stable until a slight peak between 5:00pm and 5:09pm (11 cyclists) and another peak between 6:30pm and 6:39pm (13 cyclists). This compares with a peak between 6:00pm and 6:09pm in 2008.

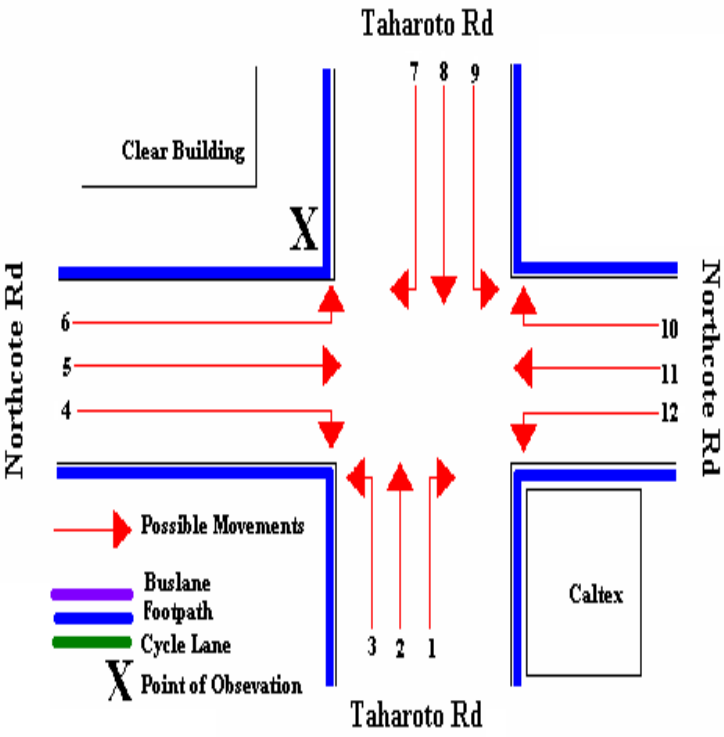
Figure 3.3: Hurstmere Road/Killarney Street Cyclist Frequency – Evening Peak



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

Figure 4.1 shows the possible cyclist movements at this intersection.

Figure 4.1: Cycle Movements: Taharoto/Northcote Road



AADT Estimate

- The AADT for this site is 293 cycle movements per day. This compares with:
  - 396 cycle movements in 2008
  - 375 cycle movements in 2007.

4.1 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- Traffic congestion at this intersection during the morning shift periodically blocked pedestrian crossings and Movements 2, 3 and 7 which may affect cycle counts.

Key Points

- Cycle volumes have decreased notably this year, from 160 in 2008 to 98 this year.
- The key morning movement is straight along Taharoto Road heading southeast (Movement 8 = 44 cyclists).
- Morning cyclist volumes at most movements have remained stable from last year. Two movements are notable exceptions: Movement 8 (down 34 cyclists) and Movement 12 (down 24 cyclists).

Table 4.1: Morning Cyclist Movements
Taharoto/Northcote Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	4	4	0
2	9	21	21	0
3	12	3	2	-1
4	19	14	14	0
5	3	2	2	0
6	3	7	2	-5
7	1	3	4	1
8	42	78	44	-34
9	0	0	1	1
10	0	0	0	0
11	2	1	1	0
12	16	27	3	-24
Total	**109**	**160**	**98**	**-62**

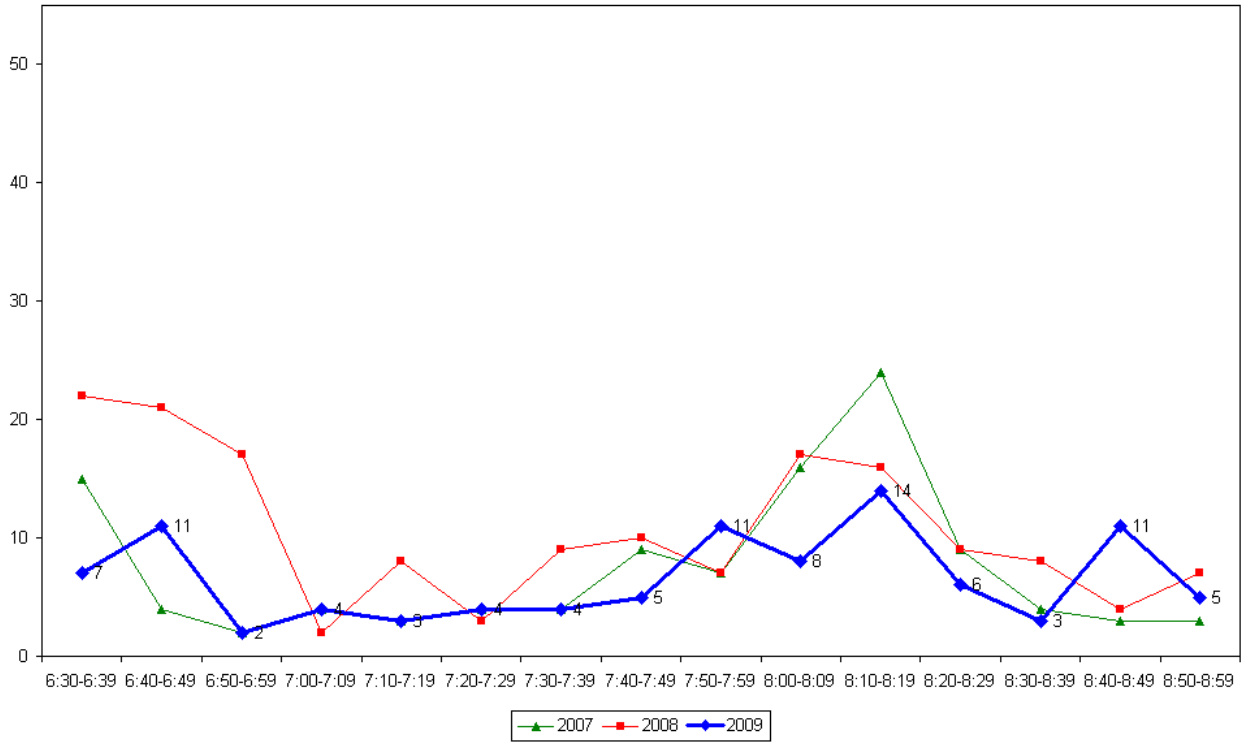
- Over the morning peak, adults comprise just less than three-quarters of cycle movements (72 per cent, down from 78 per cent last year).
- Helmet wearing is widespread (93 per cent, down slightly from 99 per cent in 2008).
- On average, seven in ten cyclists are riding on the road (68 per cent, stable from 70 per cent last year).

Table 4.2: Morning Cyclist Characteristics
Taharoto/Northcote Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	54	78	72	-6
School child	46	22	28	6
Helmet Wearing				
Helmet on head	94	99	93	-6
No helmet	6	1	7	6
Where Riding				
Road	47	70	68	-2
Footpath	53	30	32	2
Base:	***109***	***160***	***98***	

- Morning cyclist numbers start off moderately, then decline slightly and remain relatively stable before increasing to a slight peak between 8:10am and 8:19am (14 movements), the same time as last year and in 2007.

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



4.2 Evening Peak

Environmental Conditions

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

Key Points

- Compared with last year, the total number of cycle movements observed at the Taharoto/Northcote Road intersection has decreased slightly (to 104 movements) from 110 movements in 2008.
- The key evening movement at this site is straight along Taharoto Road in a south-easterly direction (Movement 8 = 45 cyclists).
- Of the 12 movements possible at this site, the most notable decrease is at Movement 8 (down 7 cyclists).

Table 4.3: Evening Cyclist Movements
Taharoto/Northcote Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	4	2	-2
2	8	23	20	-3
3	12	13	11	-2
4	10	3	6	3
5	0	2	1	-1
6	0	3	6	3
7	3	3	2	-1
8	11	52	45	-7
9	0	0	0	0
10	0	0	0	0
11	3	2	5	3
12	2	5	6	1
Total	**50**	**110**	**104**	**-6**

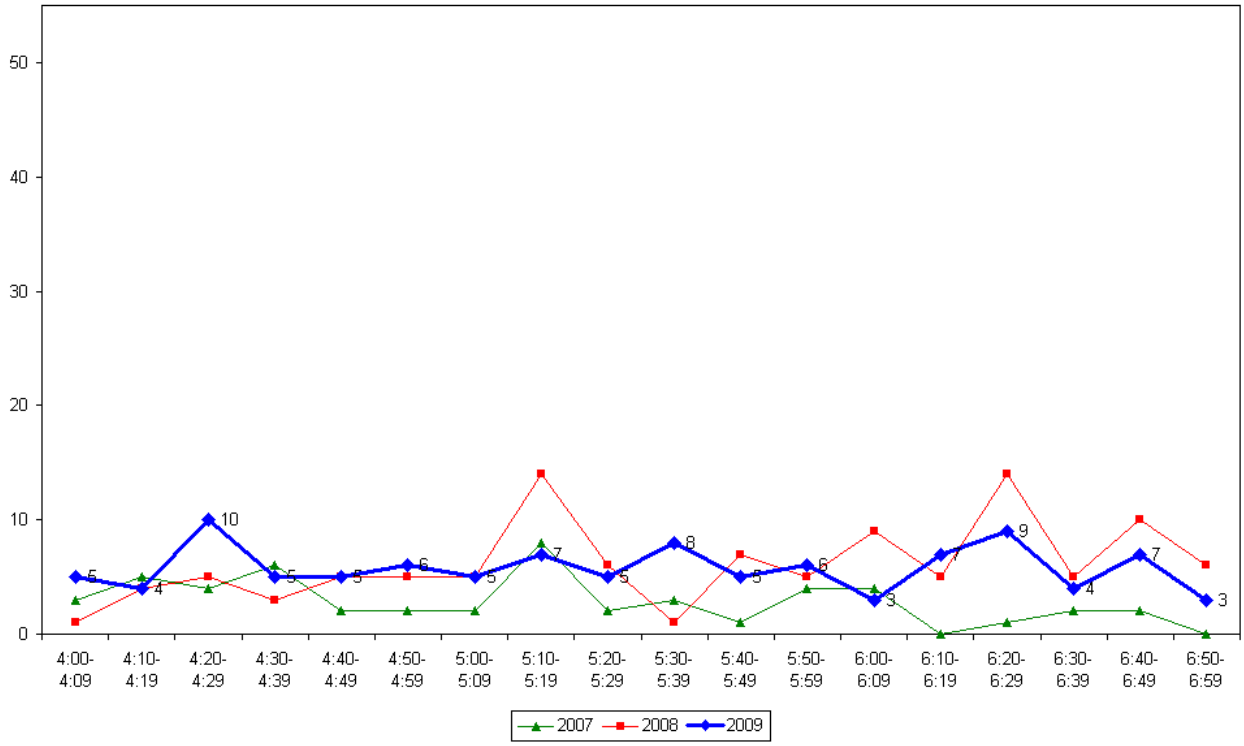
- Over the evening peak, the greatest share of cyclists using this intersection are adults (92 per cent, stable from 90 per cent last year).
- Almost all cyclists at this site are wearing a helmet (94 per cent, down slightly from 97 per cent in 2008).
- Approximately four in five cyclists are riding on the road (81 per cent, up from 75 per cent last year).

Table 4.4: Evening Cyclist Characteristics
Taharoto/Northcote Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	84	90	92	2
School child	16	10	8	-2
Helmet Wearing				
Helmet on head	82	97	94	-3
No helmet	18	3	6	3
Where Riding				
Road	69	75	81	6
Footpath	31	25	19	-6
Base:	***50***	***110***	***104***	

- The volume of evening cyclists remains stable throughout the monitoring period with a slight peak between 4:20pm and 4:29pm (10 cyclists). This compares to a clear peak between 5:10pm and 5:19pm (14 movements), and again between 6:20pm and 6:29pm (also 14 movements), in 2008.

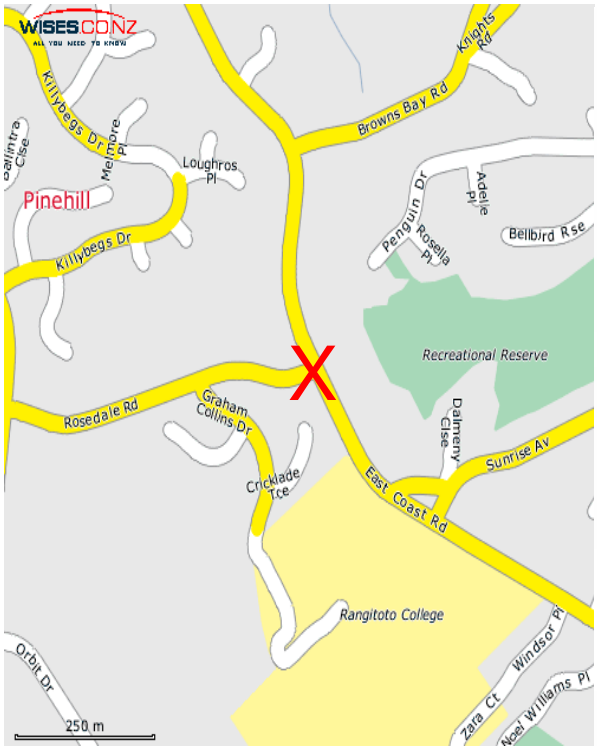
Figure 4.3: Taharoto/Northcote Road Cyclist Frequency – Evening Peak

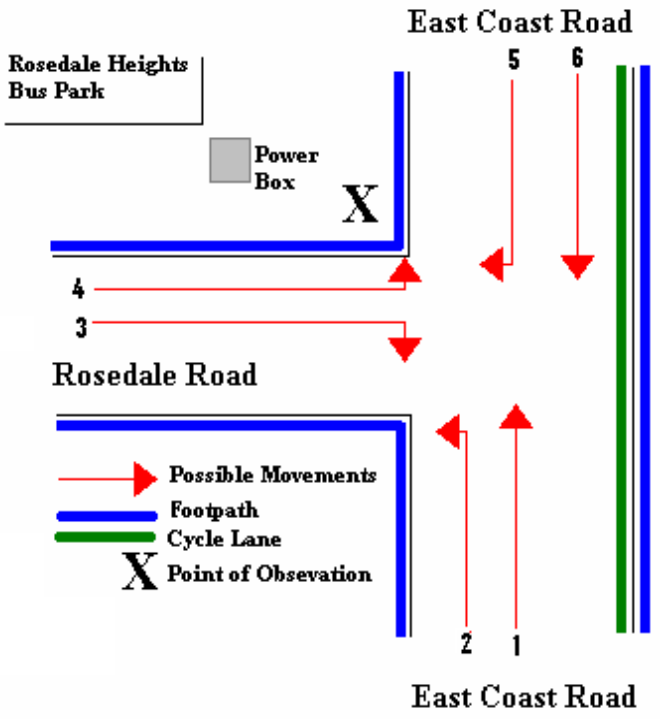


5. ROSEDALE ROAD/EAST COAST ROAD, MAIRANGI BAY (SITE 38)

Figure 5.1 shows the possible cyclist movements at this intersection.

Figure 5.1: Cycle Movements: Rosedale/East Coast Road





AADT Estimate

- The AADT for this site is 235 cycle movements per day. This compares with:
  - 143 cycle movements in 2008
  - 176 cycle movements in 2007.

5.1 Morning Peak

Environmental Conditions

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

Key Points

- Compared with last year, cyclist traffic at the intersection of Rosedale and East Coast Road has increased notably, from 52 movements last year to 105 movements this year.
- The key movement in the morning is straight along East Coast Road in a southerly direction (Movement 6 = 78 cyclists, including 19 cyclists riding together as a group).
- The most notable increase since 2008 is at Movement 6 (up 39 cyclists).

Table 5.1: Morning Cyclist Movements
Rosedale/East Coast Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	7	5	12	7
2	1	2	5	3
3	3	4	3	-1
4	0	0	1	1
5	2	2	6	4
6	41	39	78	39
Total	**54**	**52**	**105**	**53**

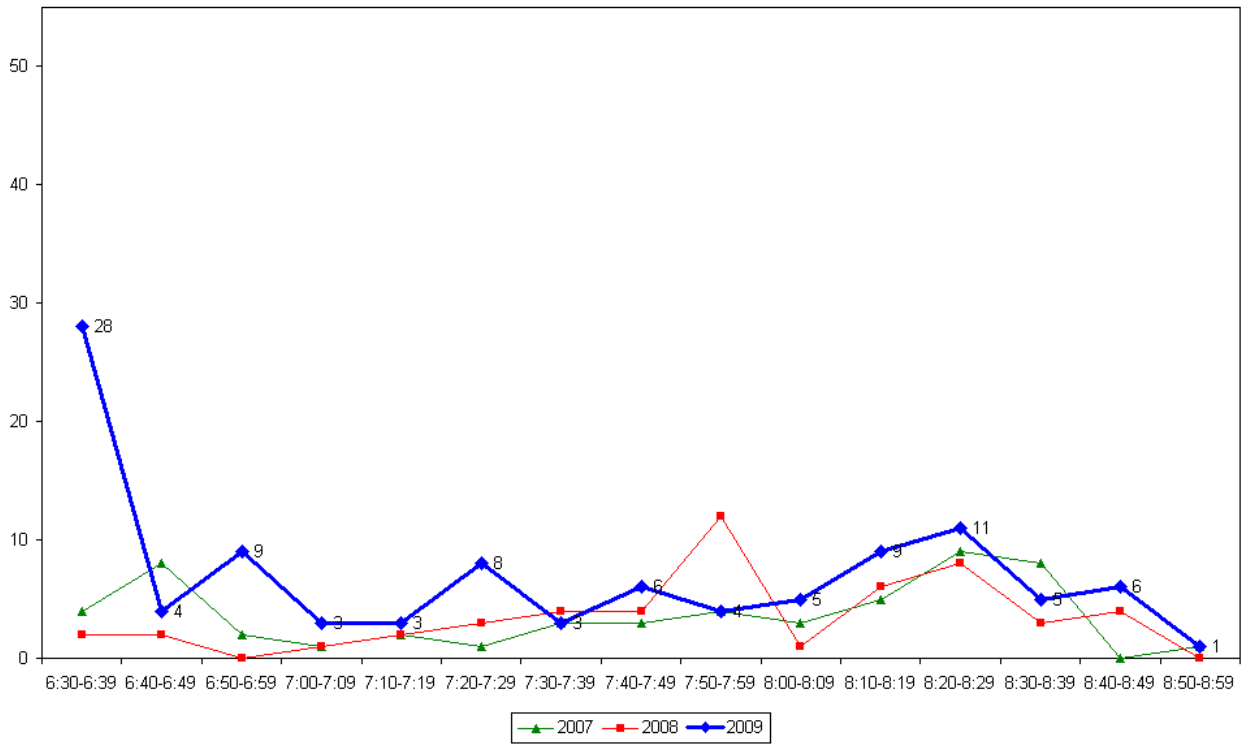
- This year, a higher proportion of morning cyclists using this intersection are adults (71 per cent, compared with 63 per cent in 2008).
- Most cyclists are wearing a helmet (93 per cent, stable from 94 per cent last year).
- Just over two-thirds of cyclists are riding on the road (68 per cent, stable from 69 per cent in 2008).

Table 5.2: Morning Cyclist Characteristics
Rosedale/East Coast Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	57	63	71	8
School child	43	37	29	-8
Helmet Wearing				
Helmet on head	85	94	93	-1
No helmet	15	6	7	1
Where Riding				
Road	46	69	68	-1
Footpath	54	31	32	1
Base:	***54***	***52***	***105***	

- Morning cycle volumes peak notably between 6:30am and 6:39am (28 cyclists), compared with a peak of 11 cyclists between 7:50am and 7:59am last year. No more than 11 cyclists are recorded during any other ten minute interval throughout the monitoring period. *Note that cyclist training groups at this site in 2009 are likely to have contributed to the sharp increase in the morning monitoring period.*

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



Note: Twenty-eight per cent of total morning cycle movements were identified as cycling as groups. Three or more cyclists were observed riding together at:

- *6.35am (19 cyclists)*
- *6.37am (3 cyclists)*
- *6.38am (4 cyclists)*
- *6.59am (3 cyclists).*

5.2 Evening Peak

Environmental Conditions

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

Key Points

- Compared with 46 movements recorded in 2008 in 2009, the volume of evening cyclists increases to 54 movements.
- The most common movement in the evening is straight along East Coast Road heading north (Movement 1 = 33 cyclists).
- Evening cyclist volumes at most movements have remained stable since last year. The only exception is at Movement 1 (up 8 cyclists).

Table 5.3: Evening Cyclist Movements
Rosedale/East Coast Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	6	25	33	8
2	1	1	1	0
3	0	3	6	3
4	2	4	4	0
5	0	2	1	-1
6	13	11	9	-2
Total	**22**	**46**	**54**	**8**

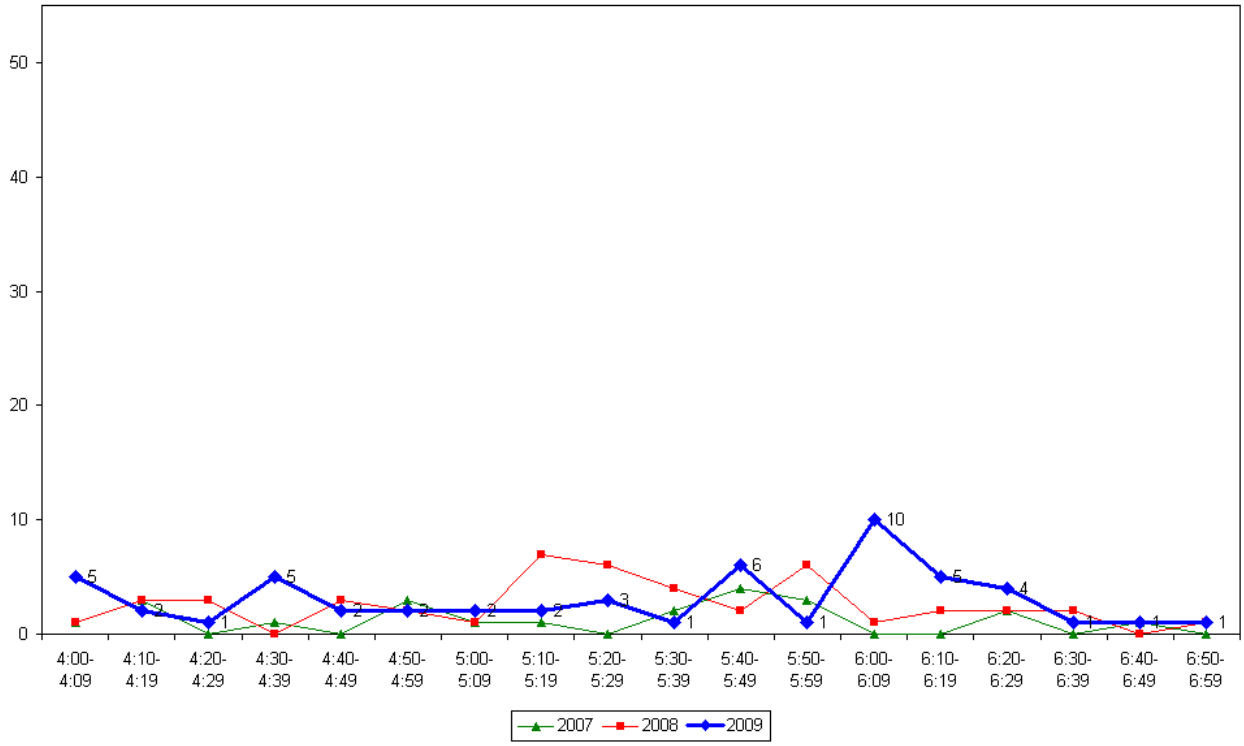
- Over the evening shift, most cyclists using this intersection are adults (91 per cent, up notably from 74 per cent last year).
- Helmet wearing is still common in the evening (96 per cent, up from 89 per cent in 2008).
- Most evening cyclists are riding on the road (85 per cent, up from 72 per cent last year).

Table 5.4: Evening Cyclist Characteristics
Rosedale/East Coast Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	73	74	91	17
School child	27	26	9	-17
Helmet Wearing				
Helmet on head	95	89	96	7
No helmet	5	11	4	-7
Where Riding				
Road	64	72	85	13
Footpath	36	28	15	-13
Base:	***22***	***46***	***54***	

- Evening cycle volumes are relatively low over the entire monitoring period, with no more than four cyclists recorded passing during most ten minute intervals. A slight peak (10 movements) occurs between 6:00pm and 6:09pm – 50 minutes later than the peak reported last year.

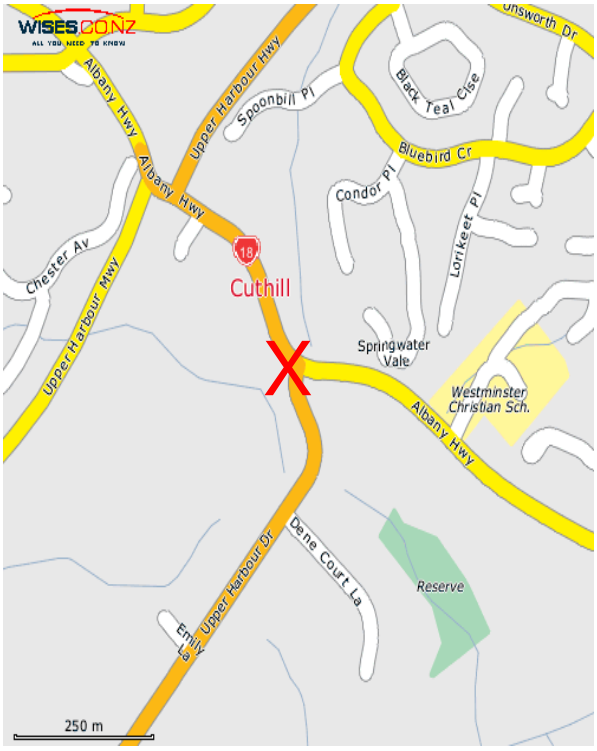
Figure 5.3: Rosedale/East Coast Road Cyclist Frequency – Evening Peak

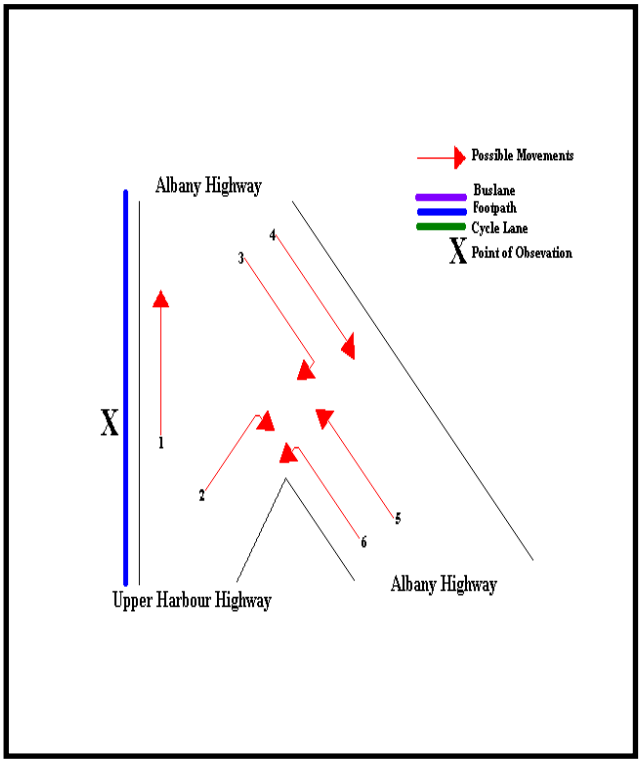


6. UPPER HARBOUR DRIVE/ALBANY HIGHWAY, GREENHITE (SITE 39)

Figure 6.1 shows the possible cyclist movements at this intersection.

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





AADT Estimate

- The AADT for this site is 200 cycle movements per day. This compares with:
  - 143 cycle movements in 2008
  - 57 cycle movements in 2007.

6.1 Morning Peak

Environmental Conditions

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

Key Points

- Compared with last year, the volume of morning cyclists at the Upper Harbour Drive/Albany Highway intersection has increased slightly, from 54 to 63 cycle movements this year.
- The most common movement in the morning is straight along Albany Highway heading northwest (Movement 5 = 22 cyclists).
- Morning cyclist volumes at most movements differ from last year. The most notable increases are at Movement 5 (up 12 cyclists) and Movement 2 (up 11 cyclists). The most notable decrease is at Movement 3 (down 20 cyclists).

Table 6.1: Morning Cyclist Movements
Upper Harbour Drive/Albany Highway 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	7	1	10	9
2	1	0	11	11
3	0	26	6	-20
4	0	6	5	-1
5	6	10	22	12
6	0	11	9	-2
Total	**14**	**54**	**63**	**9**

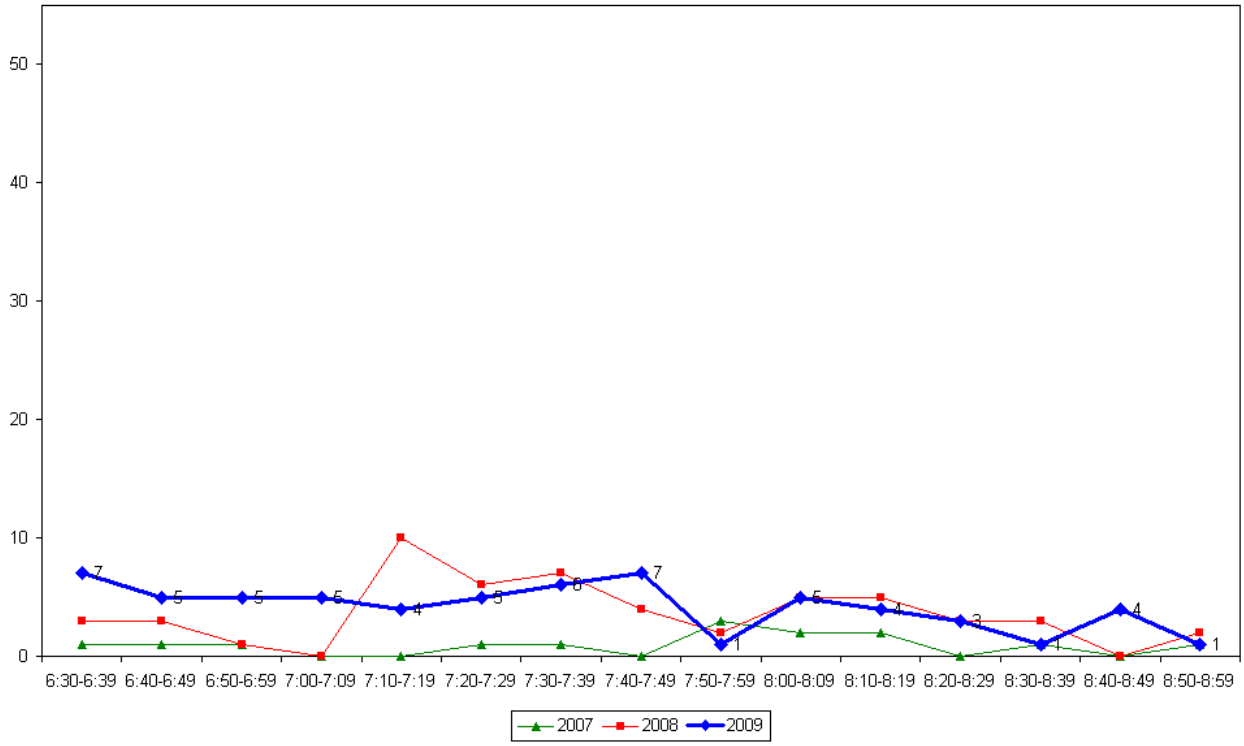
- Over the morning peak, most cyclists at this intersection are identified as adults (94 per cent, up slightly from 89 per cent last year).
- Almost all cyclists are wearing a helmet (92 per cent, compared with 98 per cent in 2008).
- The majority of cyclists are riding on the road (92 per cent, stable from 94 per cent last year).

Table 6.2: Morning Cyclist Characteristics
Upper Harbour Drive/Albany Highway 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	100	89	94	5
School child	0	11	6	-5
Helmet Wearing				
Helmet on head	100	98	92	-6
No helmet	0	2	8	6
Where Riding				
Road	86	94	92	-2
Footpath	14	6	8	2
Base:	***14***	***54***	***63***	

- The volume of morning cycle movements is stable throughout the morning shift, with slightly fewer cyclists recorded during the second half of the monitoring period. This compares to a slight peak between 7:10am and 7:19am in 2008.

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



6.2 Evening Peak

Environmental Conditions

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

Key Points

- Evening cyclist volumes at the Upper Harbour Drive/Albany Highway intersection have increased notably, from 44 in 2008 to 75 movements this year.
- The most common movement in the evening is straight through from Upper Harbour Drive onto Albany Highway (Movement 1 = 19 cyclists).
- Of the six movements possible at this site, the most notable increase is at Movement 6 (up 11 cyclists).

Table 6.3: Evening Cyclist Movements

Upper Harbour Drive/Albany Highway 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	20	19	-1
2	2	9	5	-4
3	3	4	13	9
4	4	6	15	9
5	1	2	9	7
6	0	3	14	11
Total	**11**	**44**	**75**	**31**

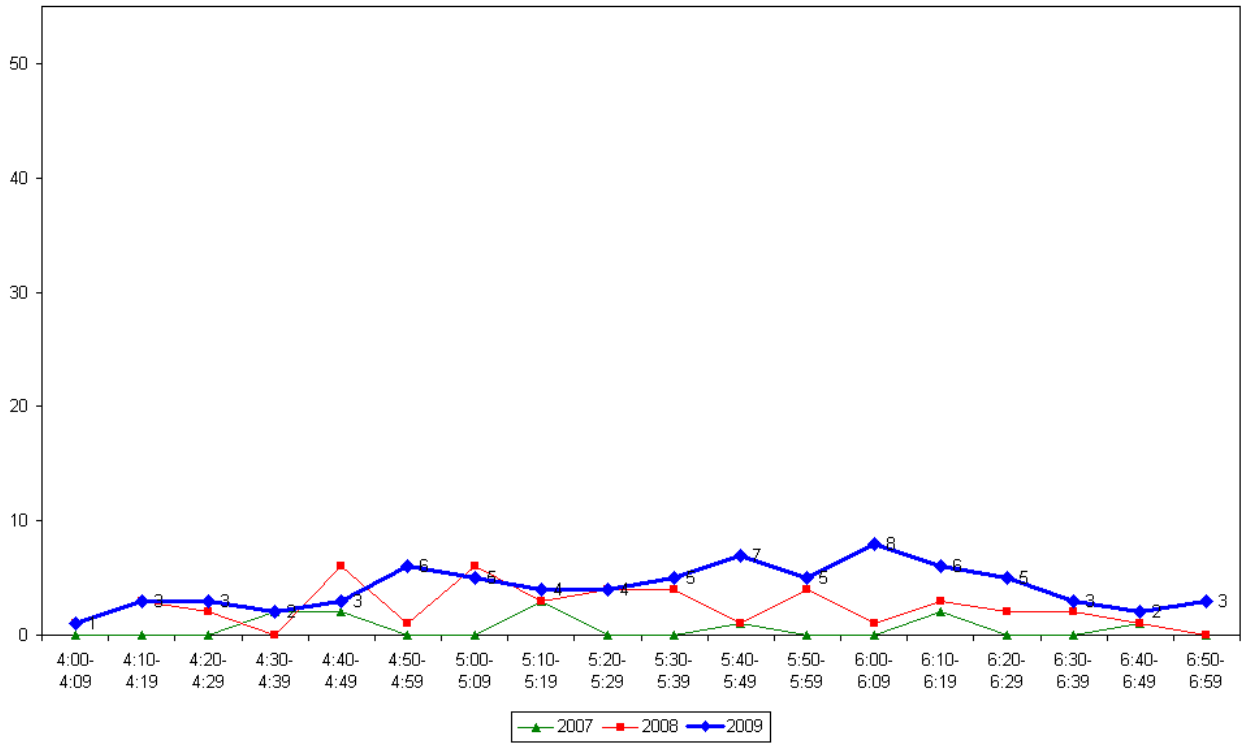
- Over the evening peak, most cyclists using this intersection are adults (92 per cent, compared with 89 per cent in 2008).
- Almost all cyclists are wearing a helmet (99 per cent, stable from last year).
- Most cyclists are riding on the road (92 per cent, up from 84 per cent in 2008).

Table 6.4: Evening Cyclist Characteristics
Upper Harbour Drive/Albany Highway 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	100	89	92	3
School child	0	11	8	-3
Helmet Wearing				
Helmet on head	100	100	99	-1
No helmet	0	0	1	1
Where Riding				
Road	91	84	92	8
Footpath	9	16	8	-8
Base:	***11***	***44***	***75***	

- Evening cycle volumes remain relatively low over the entire monitoring period, and increase gradually to peak slightly between 6:00pm and 6:10pm (8 movements) before tailing off to the end of the monitoring period. This compares to two slight peaks between 4:40pm and 4:49pm and again between 5:00pm and 5:09pm in 2008.

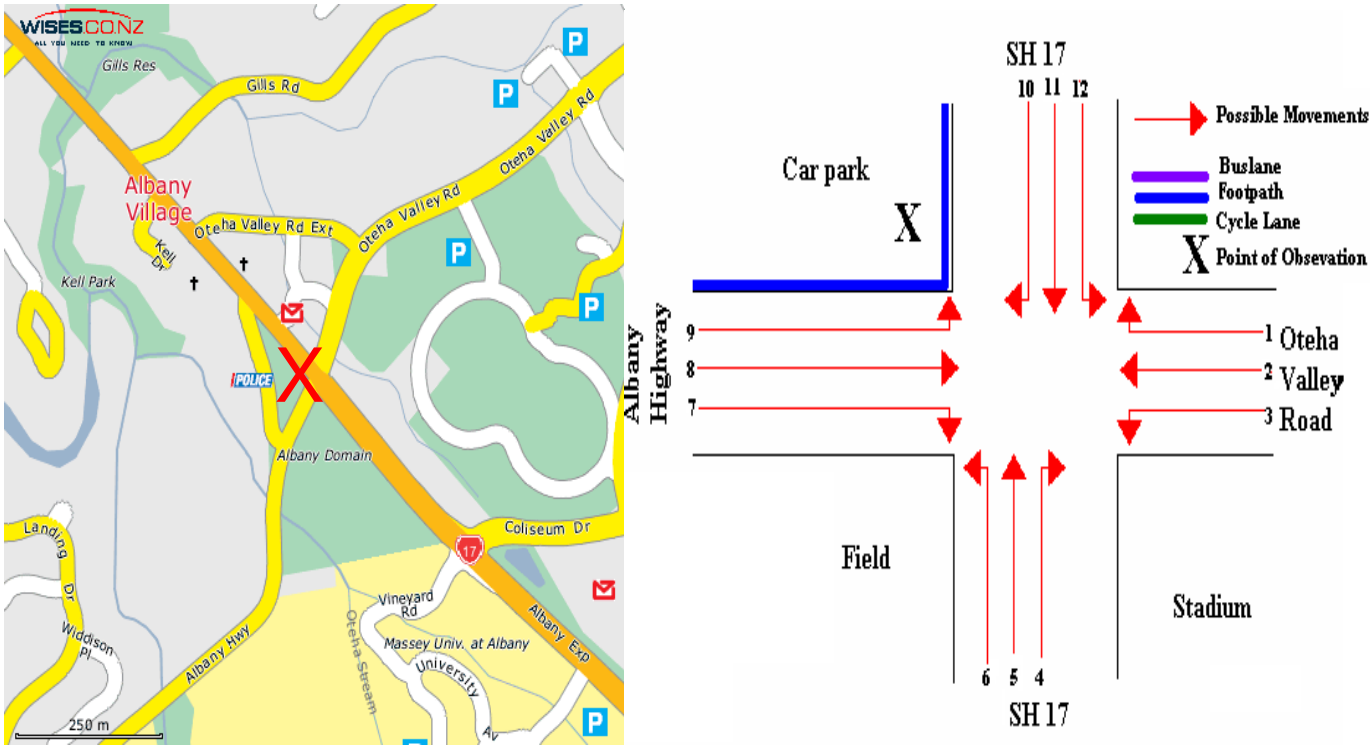
Figure 6.3: Upper Harbour Drive/Albany Highway Cyclist Frequency – Evening Peak



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

Figure 7.1 shows the possible cyclist movements at this intersection.

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



AADT Estimate

- The AADT for this site is 103 cycle movements per day. This compares with:
  - 69 cycle movements in 2008
  - 42 cycle movements in 2007.

7.1 Morning Peak

Environmental Conditions

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

Key Points

- Of the 13 sites monitored in North Shore city, the volume of cycle movements at the Oteha Valley Road/SH17/Albany Highway intersection continues to be the lightest, with 25 cycle movements recorded (up from 20 movements in 2008).
- The key movements in the morning are riding straight along Oteha Valley Road onto Albany Highway (Movement 2 = 7 cyclists) and the opposite direction (Movement 8 = 7 cyclists).
- The most notable increase this measure is at Movement 2 (up 5 cyclists) while the most notable decrease is at Movement 6 (down 6 cyclists).

Table 7.1: Morning Cyclist Movements
Oteha Valley Road/SH17/Albany Highway 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	**Change 08-09**
1	0	1	0	-1
2	1	2	7	5
3	1	0	0	0
4	0	1	0	-1
5	0	0	0	0
6	0	6	0	-6
7	0	0	1	1
8	0	4	7	3
9	0	1	0	-1
10	0	1	4	3
11	2	3	6	3
12	0	1	0	-1
Total	**4**	**20**	**25**	**5**

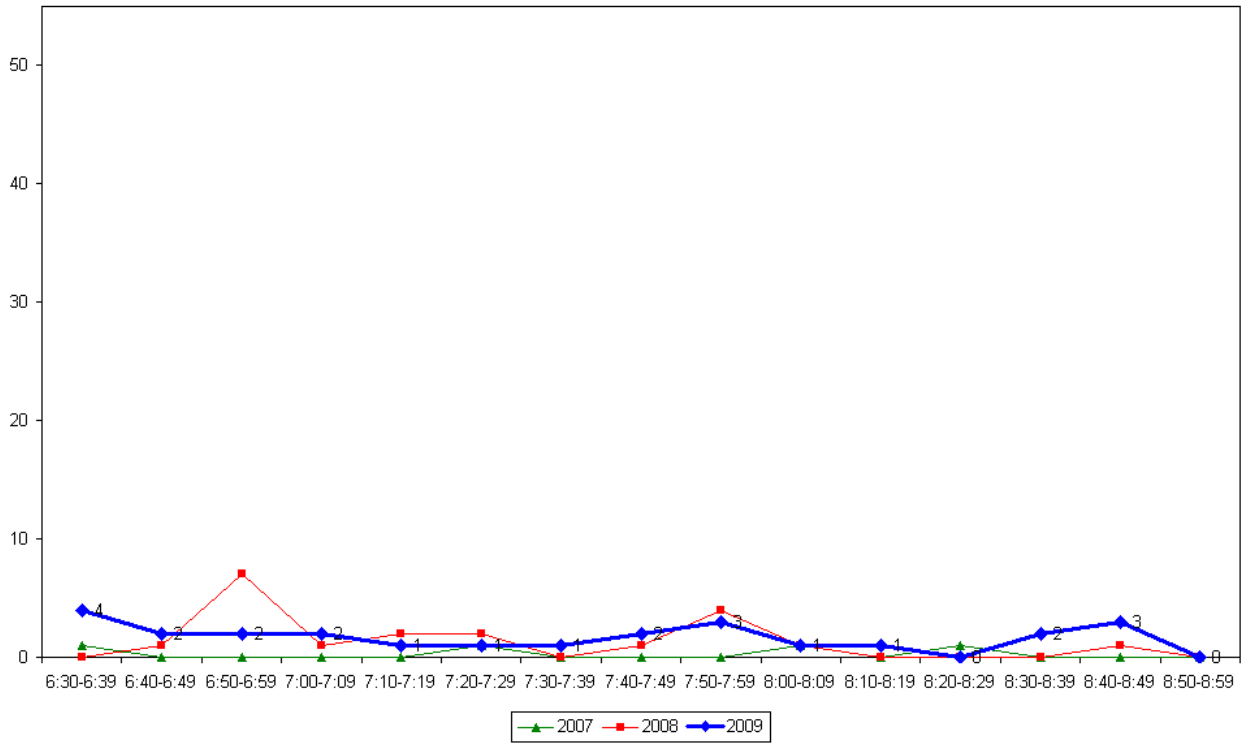
- Over the morning peak, most cyclists riding through this intersection are adults (92 per cent, up from 80 per cent last year).
- Helmet wearing is widespread (88 per cent, down from 100 per cent over the previous two measures).
- Most cyclists are riding on the road (92 per cent, down from 100 per cent in 2008).

Table 7.2: Morning Cyclist Characteristics
Oteha Valley Road/SH17/Albany Highway 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	100	80	92	12
School child	0	20	8	-12
Helmet Wearing				
Helmet on head	100	100	88	-12
No helmet	0	0	12	12
Where Riding				
Road	50	100	92	-8
Footpath	50	0	8	8
Base:	***4***	***20***	***25***	

- Morning cycle volumes are low over the entire monitoring period, with no more than two cyclists recorded within most ten minute intervals. In comparison, last year a notable peak occurred between 6:50am and 6:59am (7 cyclists).

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



Note: A group of three cyclists was observed riding together at 6.30am. This comprises 12 per cent of the total cycle movements recorded in the morning peak.

7.2 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

- Compared with last year, evening cyclist numbers recorded at the Oteha Valley Road/SH17/Albany Highway intersection increase notably, from 28 to 47 cycle movements this year.
- The most common movements in the evening are riding straight along Albany Highway into Oteha Valley Road (Movement 8 = 12 cyclists) and turning right from Albany Highway into SH17 (Movement 7 = 10 cyclists).
- Evening cyclist volumes at all movements remain relatively stable since last year, with the change most notable at Movements 8 (up 8 cyclists) and 7 (up 7 cyclists).

Table 7.3: Evening Cyclist Movements

Oteha Valley Road/SH17/Albany Highway 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	0	2	2	0
2	1	5	3	-2
3	0	0	1	1
4	1	1	1	0
5	4	5	5	0
6	1	1	3	2
7	1	3	10	7
8	1	4	12	8
9	0	1	1	0
10	3	3	4	1
11	3	3	5	2
12	0	0	0	0
Total	**15**	**28**	**47**	**19**

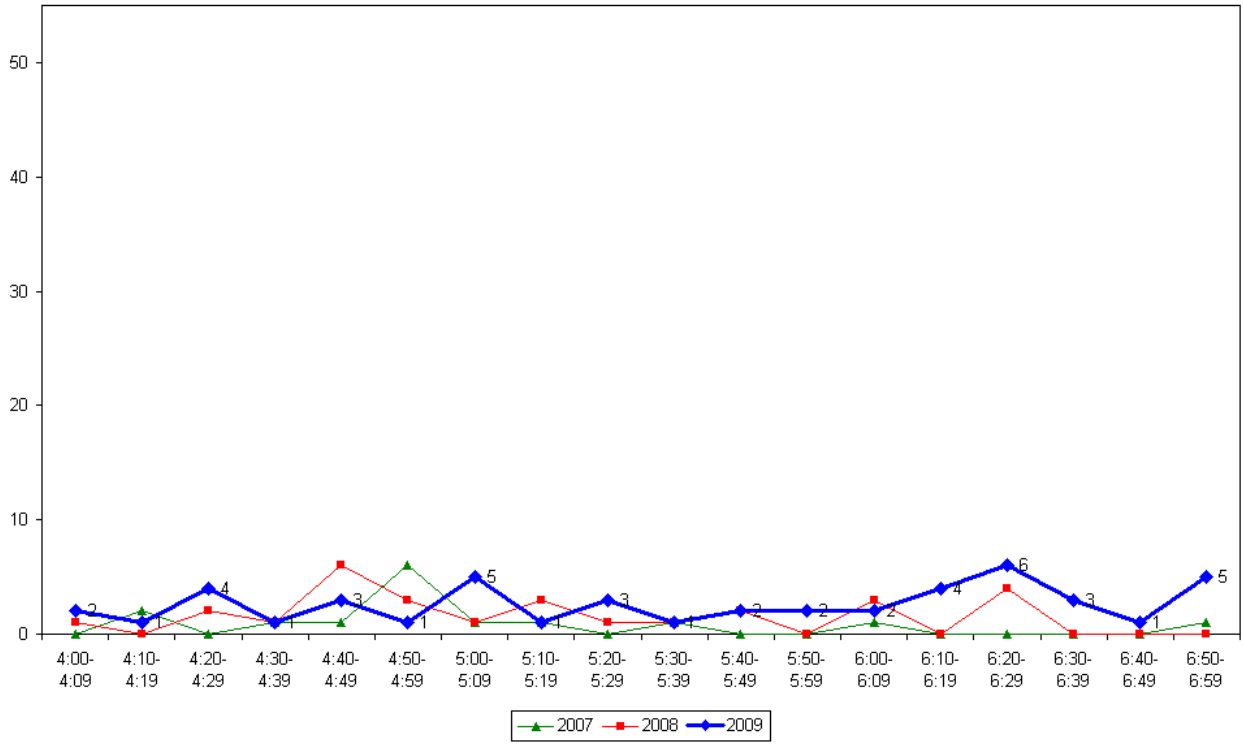
- Over the evening peak, the majority of cyclists using this site are adults (94 per cent, up from 82 per cent last year).
- Most cyclists are wearing a helmet (94 per cent, up slightly from 89 per cent in 2008).
- Approximately four in five cyclists are riding on the road (81 per cent, compared with all cyclists last year).

Table 7.4: Evening Cyclist Characteristics
Oteha Valley Road/SH17/Albany Highway 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	100	82	94	12
School child	0	18	6	-12
Helmet Wearing				
Helmet on head	93	89	94	5
No helmet	7	11	6	-5
Where Riding				
Road	87	100	81	-19
Footpath	13	0	19	19
Base:	***15***	***28***	***47***	

- The volume of evening cycle movements increased slightly between 6:20pm and 6:29pm, compared with 2008 when cycle volumes peaked between 4:40pm and 4:49pm.

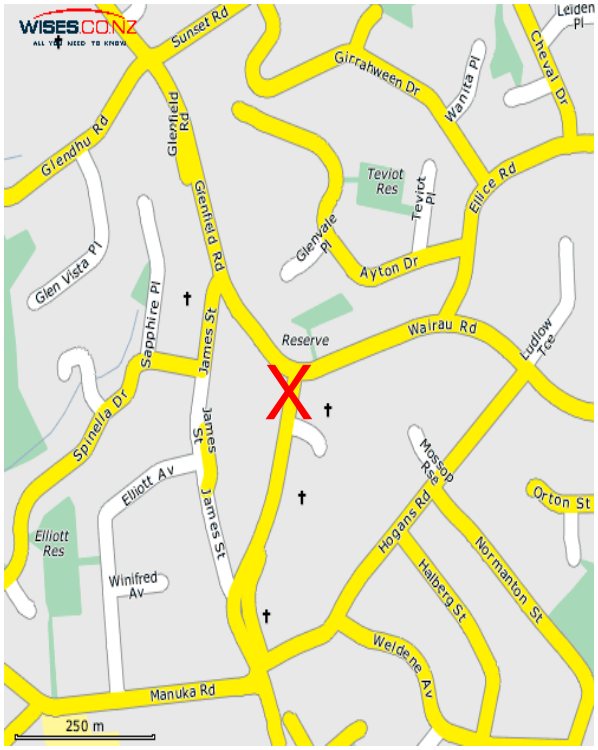
Figure 7.3: Oteha Valley Road/SH17/Albany Highway Cyclist Frequency – Evening Peak

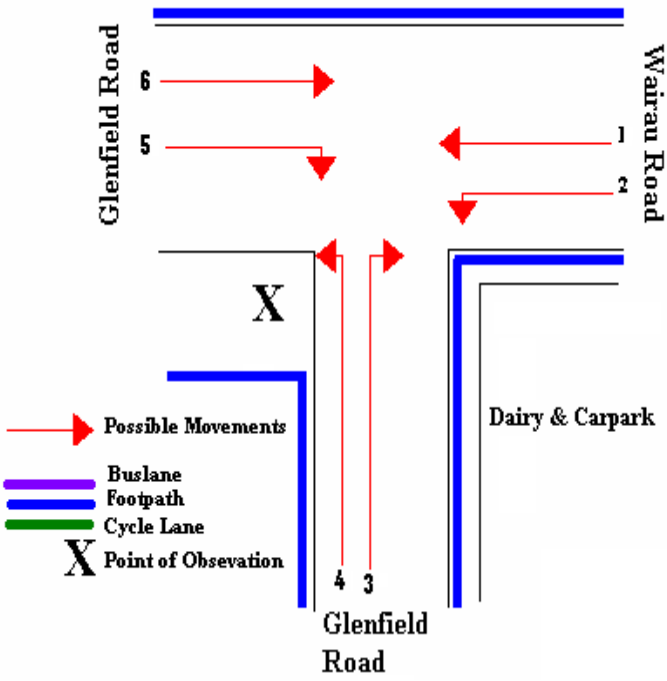


8. WAIRAU ROAD/GLENFIELD ROAD, GLENFIELD (SITE 41)

Figure 8.1 shows the possible cyclist movements at this intersection.

Figure 8.1: Cycle Movements: Wairau/Glenfield Road





AADT Estimate

- The AADT for this site is 117 cycle movements per day. This compares with:
  - 107 cycle movements in 2008
  - 93 cycle movements in 2007.

8.1 Morning Peak

Environmental Conditions

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

Key Points

- Compared with other sites in North Shore city, the volume of morning cyclists at the Wairau/Glenfield Road intersection is moderate, with 42 cycle movements recorded (up slightly from 39 movements in 2008).
- The most common movement in the morning is northwest along Glenfield Road (Movement 4 = 17 cyclists).
- Morning cyclist volumes at all movements remain relatively consistent with the previous measure, with the change most notable at Movement 4 (up 6 cyclists).

Table 8.1: Morning Cyclist Movements

Wairau/Glenfield Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	2	6	8	2
2	2	4	1	-3
3	4	2	3	1
4	11	11	17	6
5	9	8	4	-4
6	6	8	9	1
Total	**34**	**39**	**42**	**3**

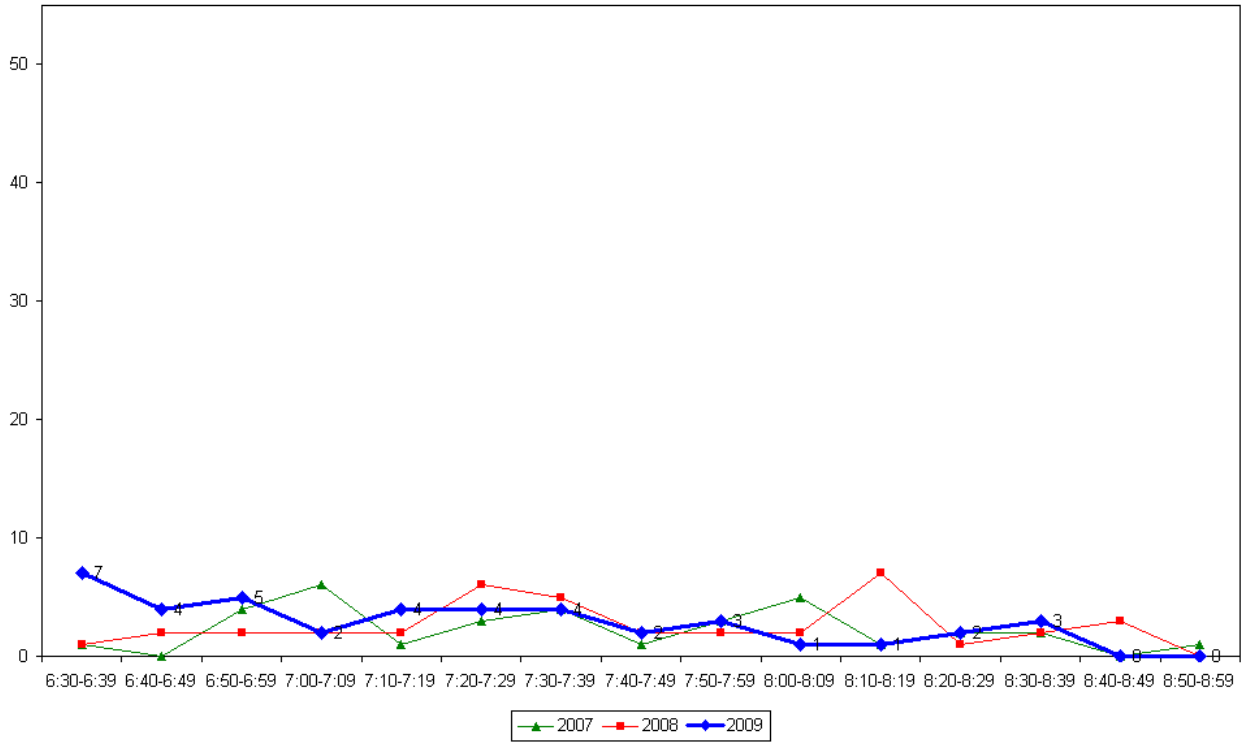
- Over the morning peak, adults comprise the greatest share of cycle movements (93 per cent, up slightly from 87 per cent in 2008).
- All cyclists are wearing a helmet at this site (compared with 97 per cent last year).
- Almost all cyclists are riding on the road (95 per cent, up from 82 per cent in 2008).

Table 8.2: Morning Cyclist Characteristics
Wairau/Glenfield Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	91	87	93	6
School child	9	13	7	-6
Helmet Wearing				
Helmet on head	82	97	100	3
No helmet	18	3	0	-3
Where Riding				
Road	62	82	95	13
Footpath	38	18	5	-13
Base:	***34***	***39***	***42***	

- The volume of morning cycle movements peaks at the beginning of the monitoring period between 6:30am and 6:39am (7 movements) before declining, with no more than four cyclists recorded during most ten minute intervals. This compares with slight peaks at around 7:20pm (6 cyclists), and again between 8:10am and 8:19am (7 cyclists), in 2008.

Figure 8.2: Wairau/Glenfield Road Cyclist Frequency – Morning Peak



8.2 Evening Peak

Environmental Conditions

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

Key Points

- Compared with last year, the total number of evening cycle movements at the Wairau/Glenfield Road intersection is slightly higher this year (38 movements, compared with 34 movements in 2008).
- The key movement in the evening is south along Glenfield Road (Movement 5 = 18 cyclists).
- The most notable change from last year is at Movement 1 (up 4 cyclists).

Table 8.3: Evening Cyclist Movements
Wairau/Glenfield Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	6	4	8	4
2	2	3	1	-2
3	3	1	1	0
4	7	5	8	3
5	8	16	18	2
6	4	5	2	-3
Total	**30**	**34**	**38**	**4**

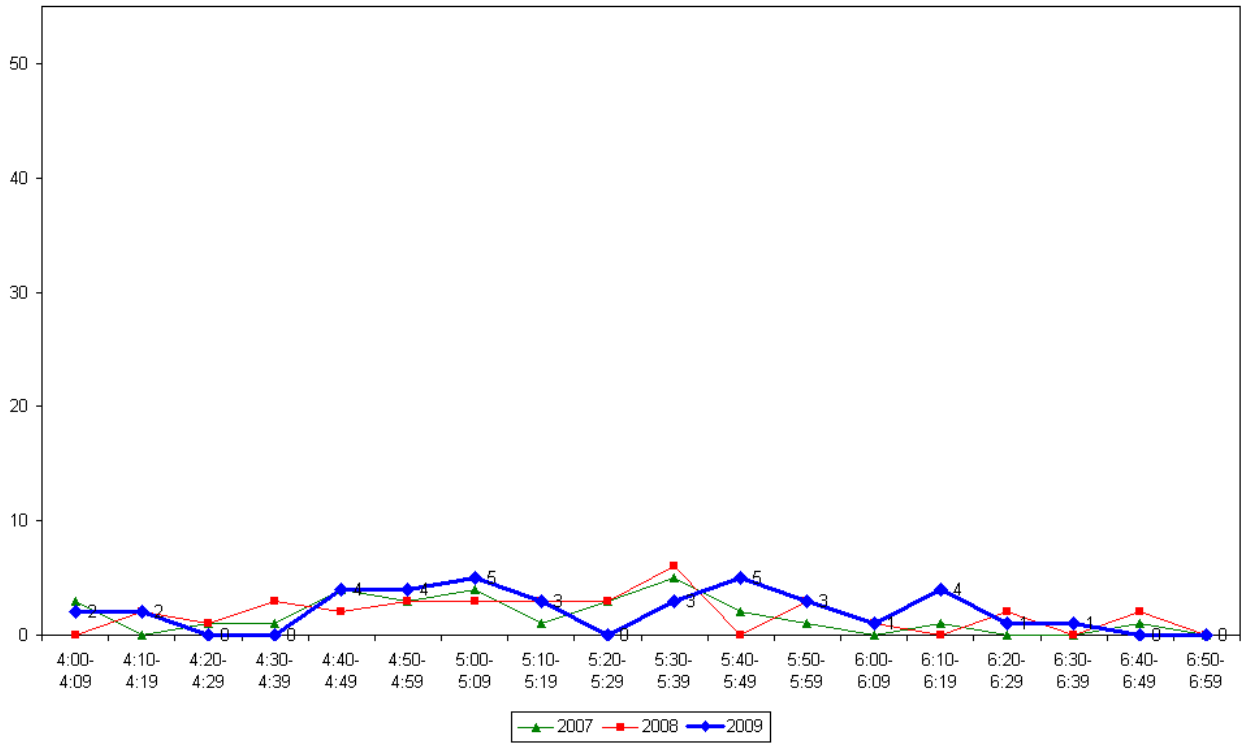
- Over the evening period, most cyclists using this site are adults (95 per cent, up slightly from 91 per cent last year).
- Helmet wearing continues to be widespread in the evening (92 per cent, down from 97 per cent in 2008).
- Almost all cyclists are riding on the road (95 per cent, up from 85 per cent at the previous measure).

Table 8.4: Evening Cyclist Characteristics
Wairau/Glenfield Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	100	91	95	4
School child	0	9	5	-4
Helmet Wearing				
Helmet on head	87	97	92	-5
No helmet	13	3	8	5
Where Riding				
Road	73	85	95	10
Footpath	27	15	5	-10
Base:	***30***	***34***	***38***	

- Evening cyclist numbers remain low throughout the monitoring period, with no more than 3 cyclists recording during most ten minute intervals. A slight peak occurs at around 5:05pm (5 cyclists) and again approximately 40 minutes later at 5:45pm (5 movements). This compares with a slight peak of six cyclists between 5:30pm and 5:39pm in 2008.

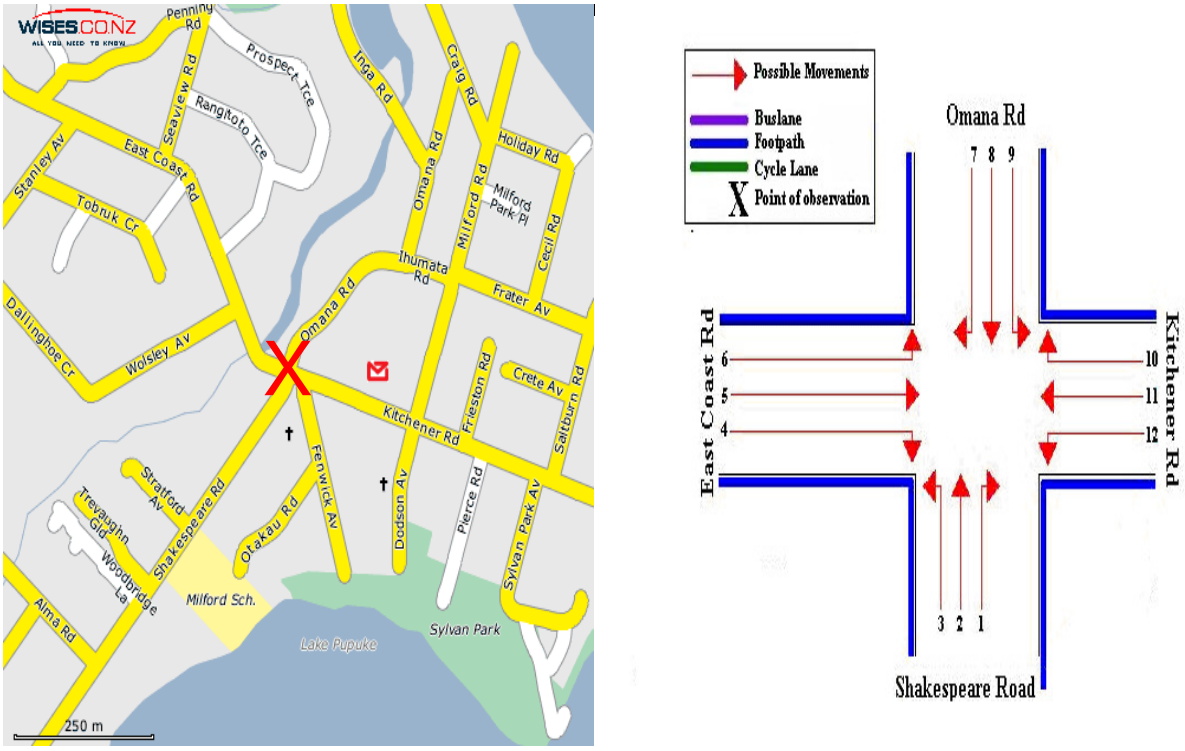
Figure 8.3: Wairau/Glenfield Road Cyclist Frequency – Evening Peak



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

Figure 9.1 shows the possible cyclist movements at this intersection.

Figure 9.1: Cycle Movements: Shakespeare/East Coast Road



AADT Estimate

- The AADT for this site is 454 cycle movements per day. This compares with:
  - 364 cycle movements in 2008
  - 314 cycle movements in 2007.

9.1 Morning Peak

Environmental Conditions

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

Key Points

- The level of morning cyclist traffic at the Shakespeare/East Coast Road intersection is notably higher than last year and is the second busiest of the sites monitored on the North Shore - up from 127, to 177 movements in 2009. This increase is due, at least in part, to 7 cycle groups riding through this site.
- The most common movement is heading straight along East Coast Road into Kitchener Road (Movement 5 = 96 cyclists, up notably by 70 cyclists from 2008).
- The most common decrease occurred at Movement 12 (down 39 cyclists).

Table 9.1: Morning Cyclist Movements
Shakespeare/East Coast Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	13	7	9	2
2	3	0	3	3
3	1	1	0	-1
4	5	8	9	1
5	28	26	96	70
6	1	0	2	2
7	0	0	0	0
8	3	6	15	9
9	2	0	0	0
10	0	0	0	0
11	5	13	16	3
12	21	66	27	-39
Total	**82**	**127**	**177**	**50**

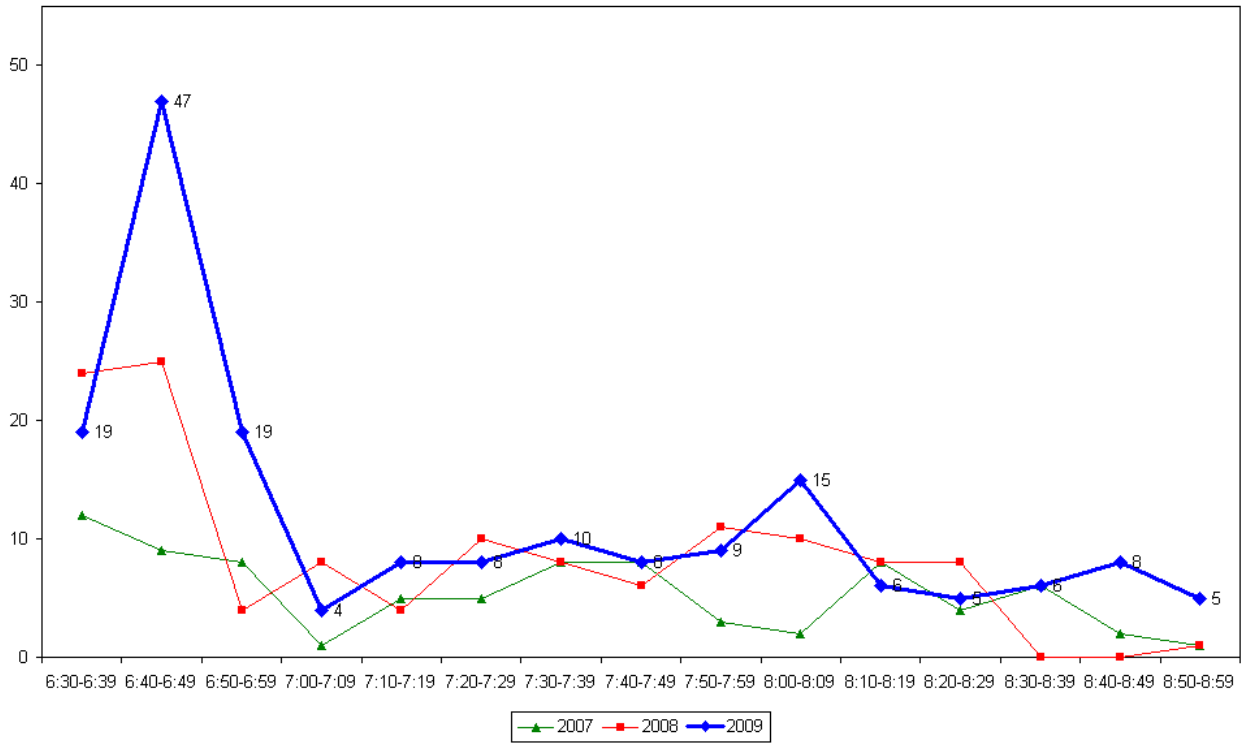
- Over the morning peak, adults comprise the greatest share of cycle movements (83 per cent, stable since last year).
- Almost all cyclists are wearing a helmet (98 per cent, unchanged from 2008).
- On average, around four in five cyclists are riding on the road (79 per cent, compared with 81 per cent in the previous year).

Table 9.2: Morning Cyclist Characteristics
Shakespeare/East Coast Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	83	82	83	1
School child	17	18	17	-1
Helmet Wearing				
Helmet on head	96	98	98	0
No helmet	4	2	2	0
Where Riding				
Road	77	81	79	-2
Footpath	23	19	21	2
Base:	***82***	***127***	***177***	

- Morning cyclist numbers start off with a notable peak between 6:30am and 6:59am (19, 47 and 19 movements respectively within each ten minute interval). *Note that the cyclist training groups will have contributed to the sharp increase between 6:30am and 6:59am.* The timing of these peaks is consistent with those reported last year.

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



Note: Twenty-seven per cent of total morning cycle movements were identified as cycling as groups. Groups of three or more cyclists were observed riding together at:

- *6.39 am (3 cyclists)*
- *6.40am (10 cyclists)*
- *6.41am (15 cyclists)*
- *6.43am (3 cyclists)*
- *6.47am (3 cyclists)*
- *6.49am (6 cyclists)*
- *6.53am (7 cyclists).*

9.2 Evening Peak

Environmental Conditions

- The weather was fine throughout the evening shift, apart from light drizzle between 4:45pm and 4:55pm, and between 6:56pm and 7:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- Of the 13 sites monitored in North Shore city, the intersection of Shakespeare/East Coast Road is the busiest in terms of the evening cyclists' activity, with 133 cycle movements (up from 123 movements in 2008).
- The most common movements in the evening are straight along Kitchener Road into East Coast Road (Movement 11 = 47 cyclists) and the left turn out of Kitchener Road into Shakespeare Road (Movement 12 = 42 cyclists).
- The most notable changes since 2008 have been at Movement 11 (up 20 cyclists), Movement 12 (down 15 cyclists) and Movement 1 (down 10 cyclists).

Table 9.3: Evening Cyclist Movements

Shakespeare/East Coast Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	5	15	5	-10
2	3	2	8	6
3	6	1	5	4
4	2	4	6	2
5	6	11	12	1
6	4	3	3	0
7	0	0	0	0
8	1	3	2	-1
9	0	0	1	1
10	0	0	2	2
11	13	27	47	20
12	15	57	42	-15
Total	**55**	**123**	**133**	**10**

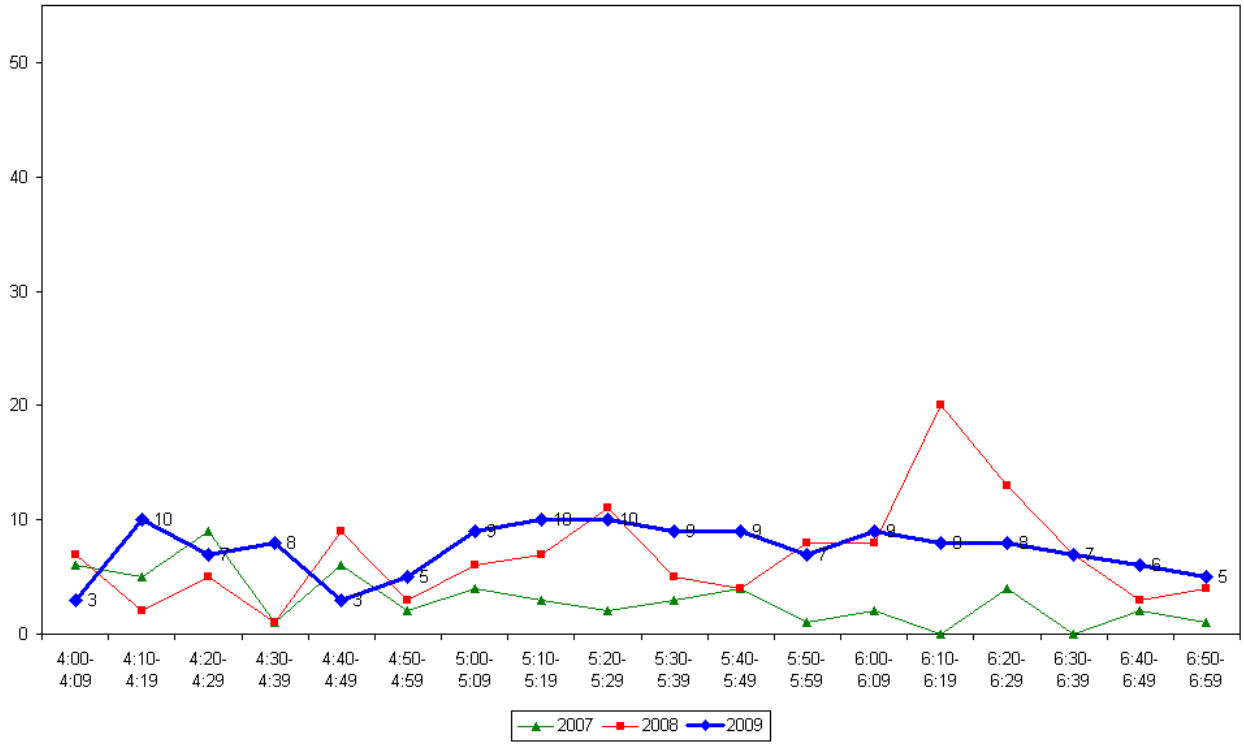
- Over the evening peak, the majority of cyclists using this intersection are adults (81 per cent, up slightly from 76 per cent last year).
- A high proportion of cyclists are wearing a helmet (97 per cent, up slightly from 94 per cent in 2008).
- Approximately seven in ten cyclists are riding on the road (69 per cent, down slightly from 72 per cent at the previous measure).

Table 9.4: Evening Cyclist Characteristics
Shakespeare/East Coast Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	82	76	81	5
School child	18	24	19	-5
Helmet Wearing				
Helmet on head	82	94	97	3
No helmet	18	6	3	-3
Where Riding				
Road	73	72	69	-3
Footpath	27	28	31	3
Base:	***55***	***123***	***133***	

- The volume of cycle movements is relatively stable throughout the monitoring period, with a slight dip in cycle movements between 4:40pm and 4:49pm (3 cyclists). This compares with a peak between 6:10pm and 6:19pm (20 movements) in 2008.

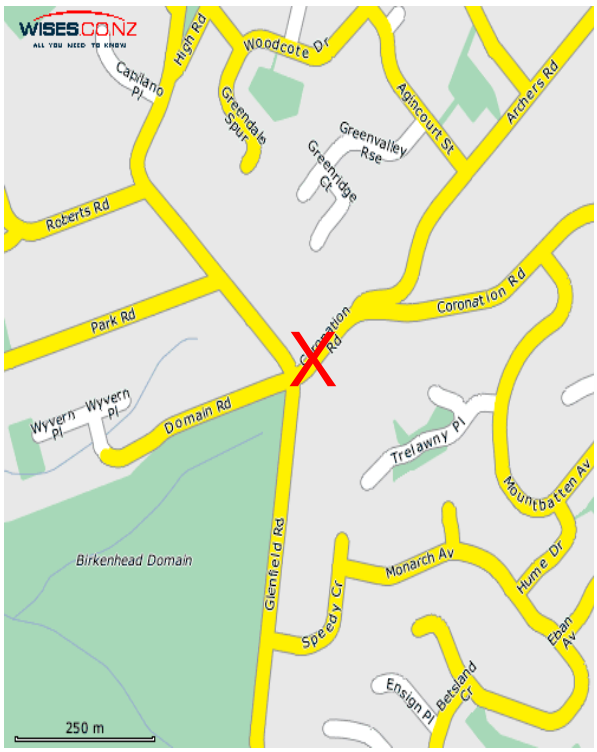
Figure 9.3: Shakespeare/East Coast Road Cyclist Frequency – Evening Peak

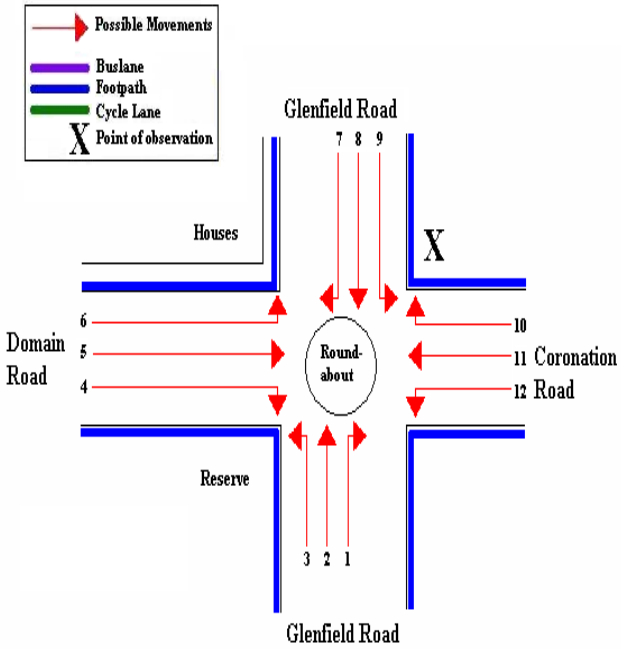


10. GLENFIELD ROAD/CORONATION ROAD, HILLCREST (SITE 43)

Figure 10.1 shows the possible cyclist movements at this intersection.

Figure 10.1: Cycle Movements: Glenfield/Coronation Road





AADT Estimate

- The AADT for this site is 113 cycle movements per day. This compares with:
  - 109 cycle movements in 2008
  - 64 cycle movements in 2007.

10.1 Morning Peak

Environmental Conditions

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

Key Points

- Compared with last year, the volume of morning cyclists at the Glenfield/Coronation Road intersection is unchanged, with 36 cycle movements recorded in both 2008 and 2009.
- The key movements in the morning is turning right out of Glenfield Road into Coronation Road (Movement 1 = 13 cyclists).
- Morning cyclist numbers at most movements at this site remain stable since last year, with the changes most notable at Movement 1 (up 6 cyclists).

Table 10.1: Morning Cyclist Movements
Glenfield/Coronation Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	2	7	13	6
2	1	5	5	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	7	9	6	-3
9	6	8	9	1
10	0	5	3	-2
11	0	0	0	0
12	0	2	0	-2
Total	**16**	**36**	**36**	**0**

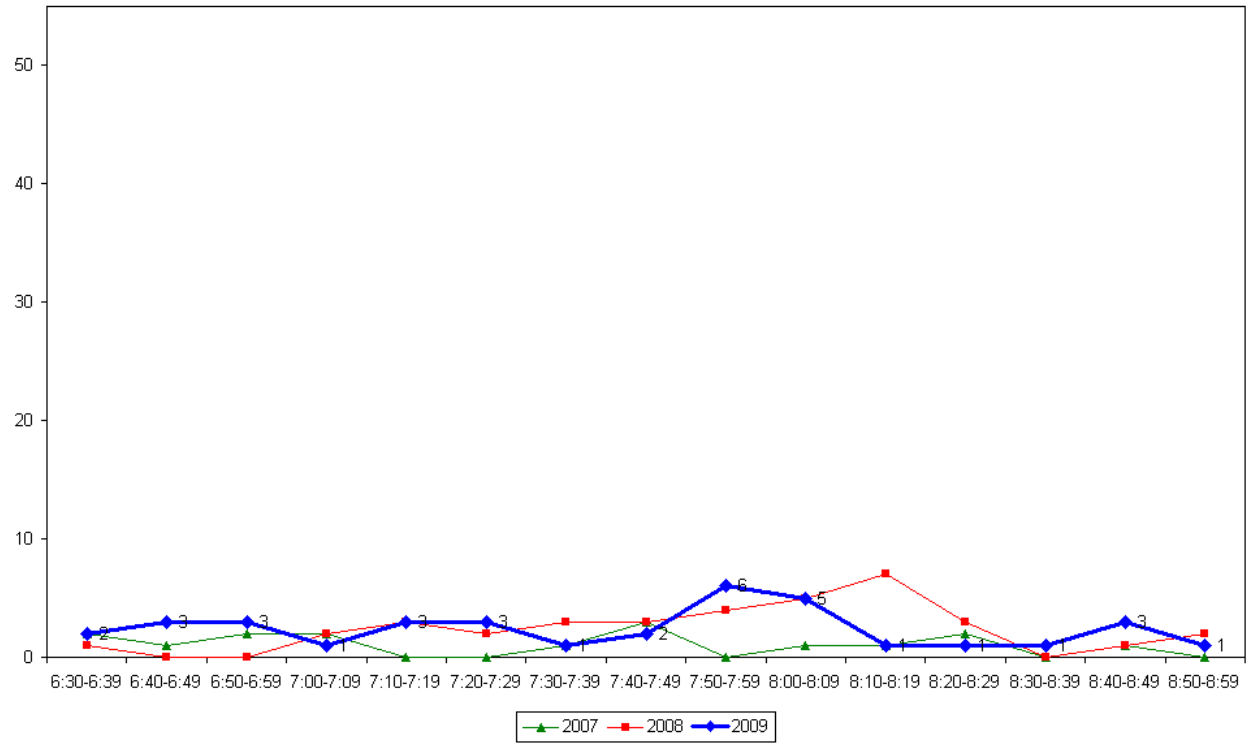
- Over the morning peak, adults comprise the greatest share of cycle movements (75 per cent, down from 83 per cent in the previous year).
- Almost all cyclists are wearing a helmet (97 per cent, down slightly from all cyclists last year).
- Two-thirds of cyclists are riding on the road (69 per cent, compared with 83 per cent in 2008).

Table 10.2: Morning Cyclist Characteristics
Glenfield/Coronation Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	94	83	75	-8
School child	6	17	25	8
Helmet Wearing				
Helmet on head	87	100	97	-3
No helmet	13	0	3	3
Where Riding				
Road	87	83	69	-14
Footpath	13	17	31	14
Base:	***16***	***36***	***36***	

- Morning cycle volumes are low over the entire monitoring period, with no more than three cyclists recorded during most ten minute intervals. A slight peak occurs between 7:50am and 8:09am (with 6 and 5 movements over each ten minute period respectively), slightly earlier than the peak recorded last year between 8:10am and 8:19am (7 movements).

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



Note: A group of three cyclists was observed riding together at 8.02am. This comprises eight per cent of the total cycle movements recorded in the morning peak.

10.2 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 cycle movements recorded at the Glenfield/Coronation Road intersection remains low in the evening (42 cycle movements, up from 39 movements in 2008).
- The key movement in the evening is turning left off Coronation Road into Glenfield Road heading north (Movement 12 = 12 cyclists).
- The most notable increase is at Movement 1 (up 3 cyclists) while the most notable decrease is at Movement 3 (down 3 cyclists).

Table 10.3: Evening Cyclist Movements
Glenfield/Coronation Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	0	3	6	3
2	4	6	7	1
3	0	3	0	-3
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	5	6	8	2
9	0	4	3	-1
10	1	4	6	2
11	0	0	0	0
12	2	13	12	-1
Total	**12**	**39**	**42**	**3**

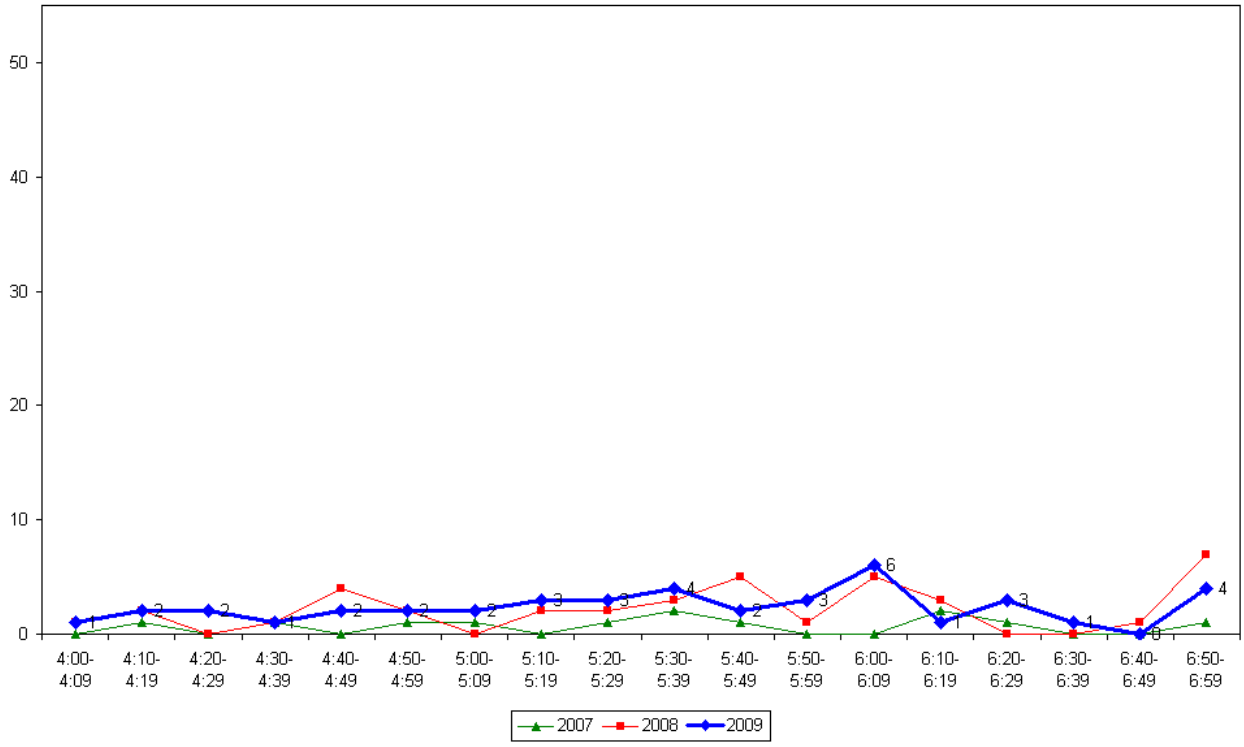
- Adults comprise the greatest share of evening cyclists (76 per cent, down notably from 95 per cent in 2008).
- Approximately four in five cyclists are wearing a helmet (81 per cent, down notably from 95 per cent last year).
- Sixty-nine per cent of cyclists are riding on the road (down from 77 per cent in 2008).

Table 10.4: Evening Cyclist Characteristics
Glenfield/Coronation Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	83	95	76	-19
School child	17	5	24	19
Helmet Wearing				
Helmet on head	75	95	81	-14
No helmet	25	5	19	14
Where Riding				
Road	83	77	69	-8
Footpath	17	23	31	8
Base:	***12***	***39***	***42***	

- Evening volumes are relatively low over the entire monitoring period, with no more than three cyclists recorded passing over most ten minute intervals. A slight peak occurs between 6:00pm and 6:09pm (6 movements).

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

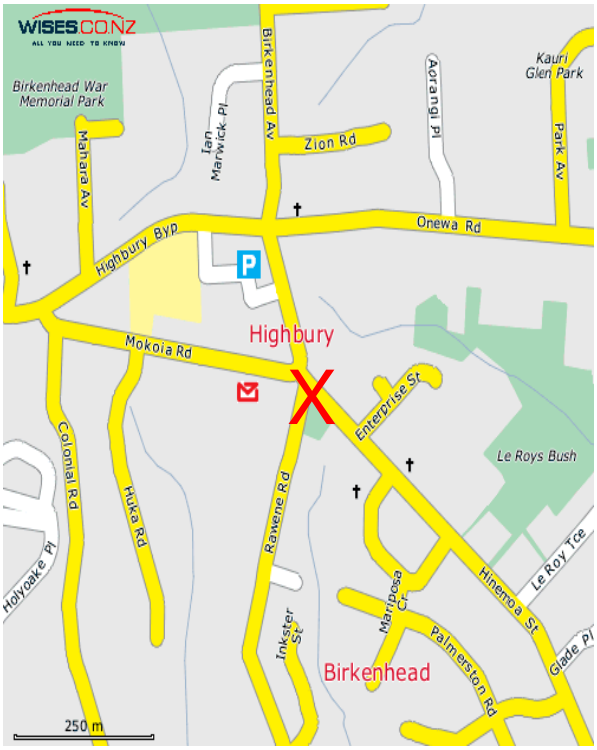


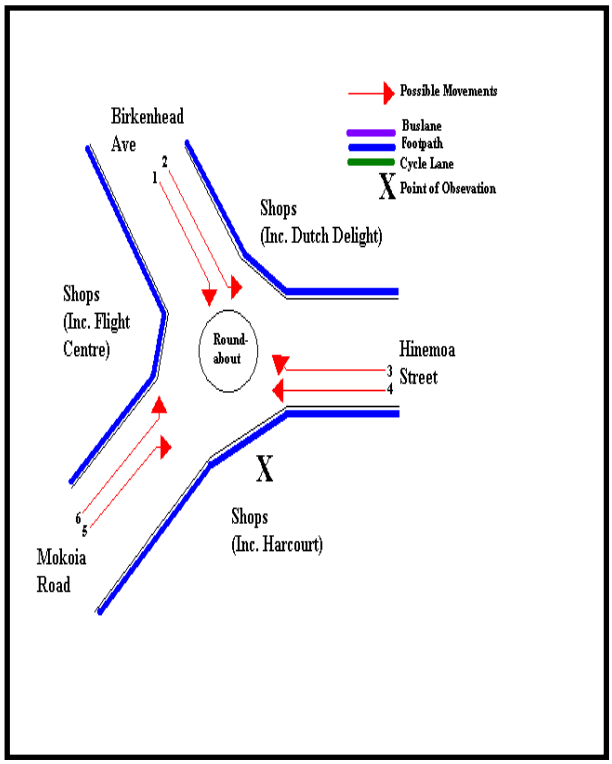
Note: A group of three cyclists was observed riding together at 6.03pm. This comprises seven per cent of the total cycle movements recorded in the evening peak

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

Figure 11.1 shows the possible cyclist movements at this intersection.

Figure 11.1: Cycle Movements: Birkenhead/Mokoia Road





AADT Estimate

- The AADT for this site is 83 cycle movements per day. This compares with:
  - 71 cycle movements in 2008
  - 58 cycle movements in 2007.

11.1 Morning Peak

Environmental Conditions

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

Key Points

- The volume of morning cyclists at the Birkenhead Avenue/Mokoia Road intersection has increased from last year (up from 20 cycle movements to 27).
- The key movement in the morning is turning from Birkenhead Avenue into Hinemoa Road, (Movement 2 = 12 cyclists).
- The most notable change since 2008 has been at Movement 2 (up 6 cyclists).

Table 11.1: Morning Cyclist Movements
Birkenhead Avenue/Mokoia Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	1	0	-1
2	7	6	12	6
3	1	4	4	0
4	2	0	0	0
5	8	7	9	2
6	1	2	2	0
Total	**20**	**20**	**27**	**7**

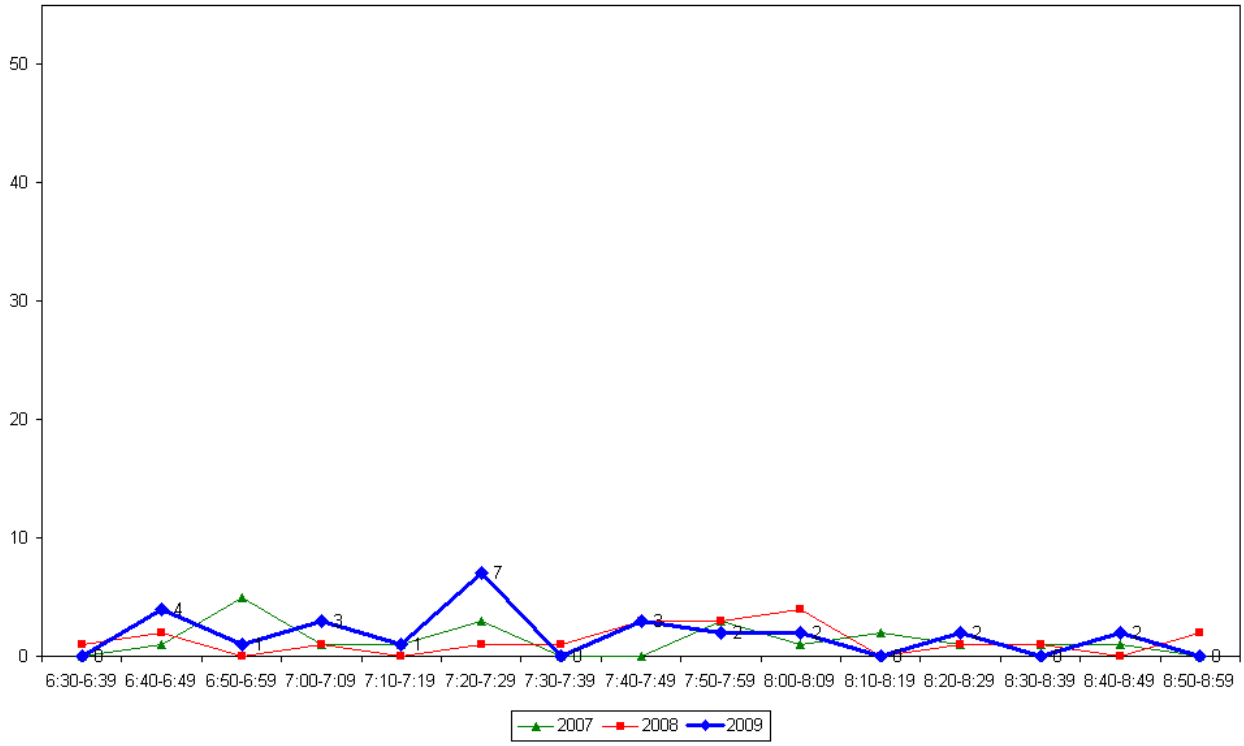
- Over the morning peak, all cyclists using the Birkenhead Avenue/Mokoia Road intersection are adults (100 per cent, compared with 95 per cent last year).
- Almost all cyclists are wearing a helmet (96 per cent, down slightly from all cyclists in 2008).
- Ninety-six per cent of cyclists are riding on the road (up slightly from 90 per cent last year).

Table 11.2: Morning Cyclist Characteristics
Birkenhead Avenue/Mokoia Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	100	95	100	5
School child	0	5	0	-5
Helmet Wearing				
Helmet on head	80	100	96	-4
No helmet	20	0	4	4
Where Riding				
Road	90	90	96	6
Footpath	10	10	4	-6
Base:	***20***	***20***	***27***	

- The volume of morning cycle movements is relatively low over the entire monitoring period with no more than two cyclists recorded passing during most ten minute intervals. A peak occurs between 7:20am and 7:29am (7 cyclists).

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



11.2 Evening Peak

Environmental Conditions

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

Key Points

- Compared with the previous year, the total number of cycle movements recorded at the Birkenhead Avenue/Mokoia Road intersection has remained stable, with 29 movements recorded in 2008 and 30 movements recorded in 2009. This site has the equal lowest number of cycle movements recorded over the evening peak of the 13 North Shore city sites monitored.
- The most common movements in the evening are turning out of Hinemoa Road into Mokoia Road and Birkenhead Avenue, respectively (Movement 4 = 12 cyclists; Movement 3 = 11 cyclists).
- The most notable increase is at Movement 1 (down 4 cyclists).

Table 11.3: Evening Cyclist Movements

Birkenhead Avenue/Mokoia Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	6	2	-4
2	1	2	3	1
3	8	8	11	3
4	8	10	12	2
5	2	2	1	-1
6	0	1	1	0
Total	**20**	**29**	**30**	**1**

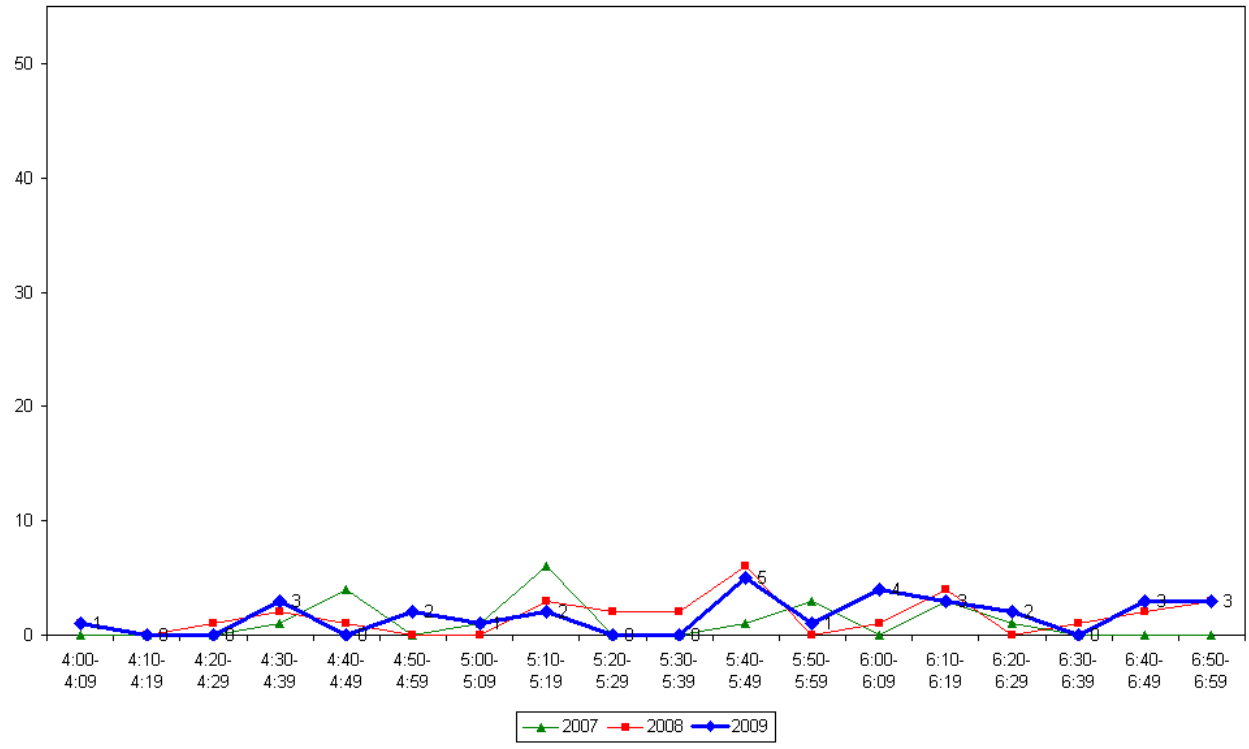
- Over the evening peak, almost all cyclists using this intersection are adults (93 per cent, unchanged from last year).
- Consistent with the previous year, helmet wearing is still very common (93 per cent, also unchanged from 2008).
- Most cyclists are riding on the road (80 per cent, down notably from 93 per cent at the previous measure).

Table 11.4: Evening Cyclist Characteristics
Birkenhead Avenue/Mokoia Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	95	93	93	0
School child	5	7	7	0
Helmet Wearing				
Helmet on head	95	93	93	0
No helmet	5	7	7	0
Where Riding				
Road	100	93	80	-13
Footpath	0	7	20	13
Base:	***20***	***29***	***30***	

- The volume of cyclists peaks slightly in the middle of evening shift (5 cyclists between 5:40pm and 5:49pm) – the same time as last year.

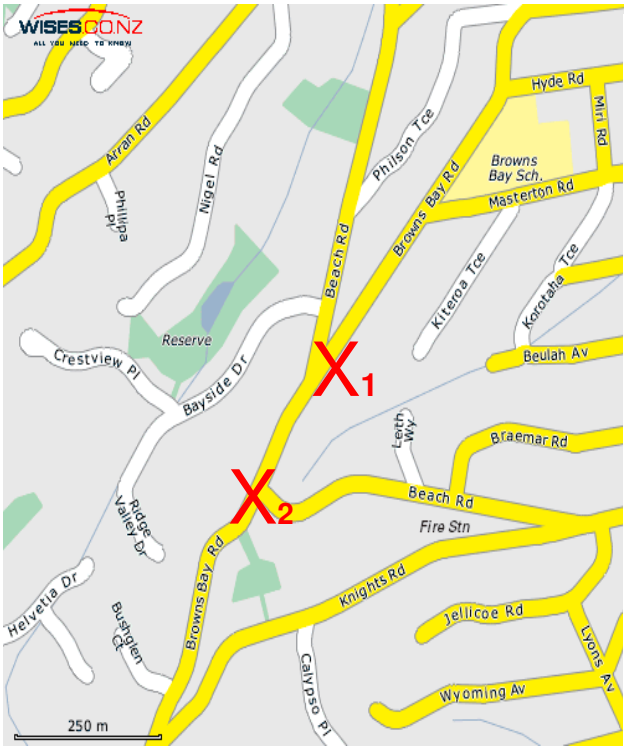
Figure 11.3: Birkenhead Avenue/Mokoia Road Cyclist Frequency – Evening Peak

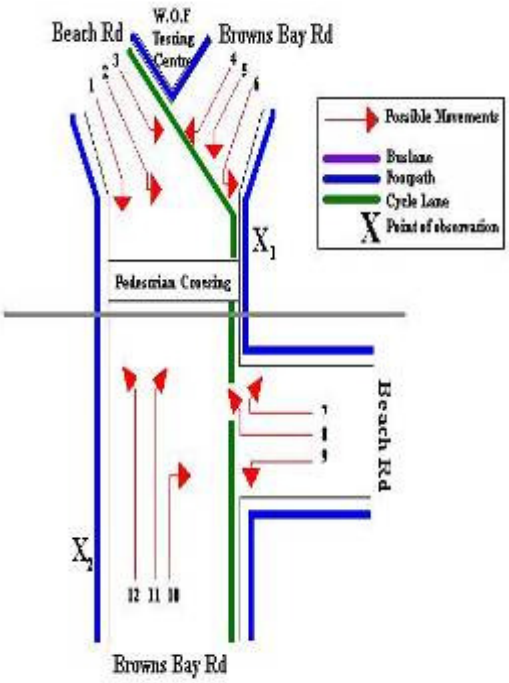


12. BEACH ROAD/BROWNS BAY ROAD, ROTHESAY BAY (SITE 45)

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

Figure 12.1: Cycle Movements: Beach/Browns Bay Road





AADT Estimate

- The AADT for this site is 86 cycle movements per day. This compares with:
  - 66 cycle movements in 2008
  - 44 cycle movements in 2007.

12.1 Morning Peak

Environmental Conditions

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

Key Points

- In 2009, the morning cyclist traffic at the intersection of Beach/Browns Bay Road has increased slightly, from 26 in 2008 to 29 cycle movements.
- The key movements in the morning are south along Beach Road continuing south down Browns Bay Road (Movement 1 = 7 cyclists) and riding south along Browns Bay Road continuing through the intersection (Movement 5 = 7 cyclists).
- Morning cyclist volumes at this site have generally remained stable from last year. The most notable increase is at Movement 7 (up 5 cyclists).

Table 12.1: Morning Cyclist Movements
Beach/Browns Bay Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	4	7	3
2	2	4	0	-4
3	3	0	0	0
4	3	0	0	0
5	0	4	7	3
6	2	3	0	-3
7	0	0	5	5
8	0	9	6	-3
9	0	0	0	0
10	0	0	0	0
11	0	0	3	3
12	0	2	1	-1
Total	**11**	**26**	**29**	**3**

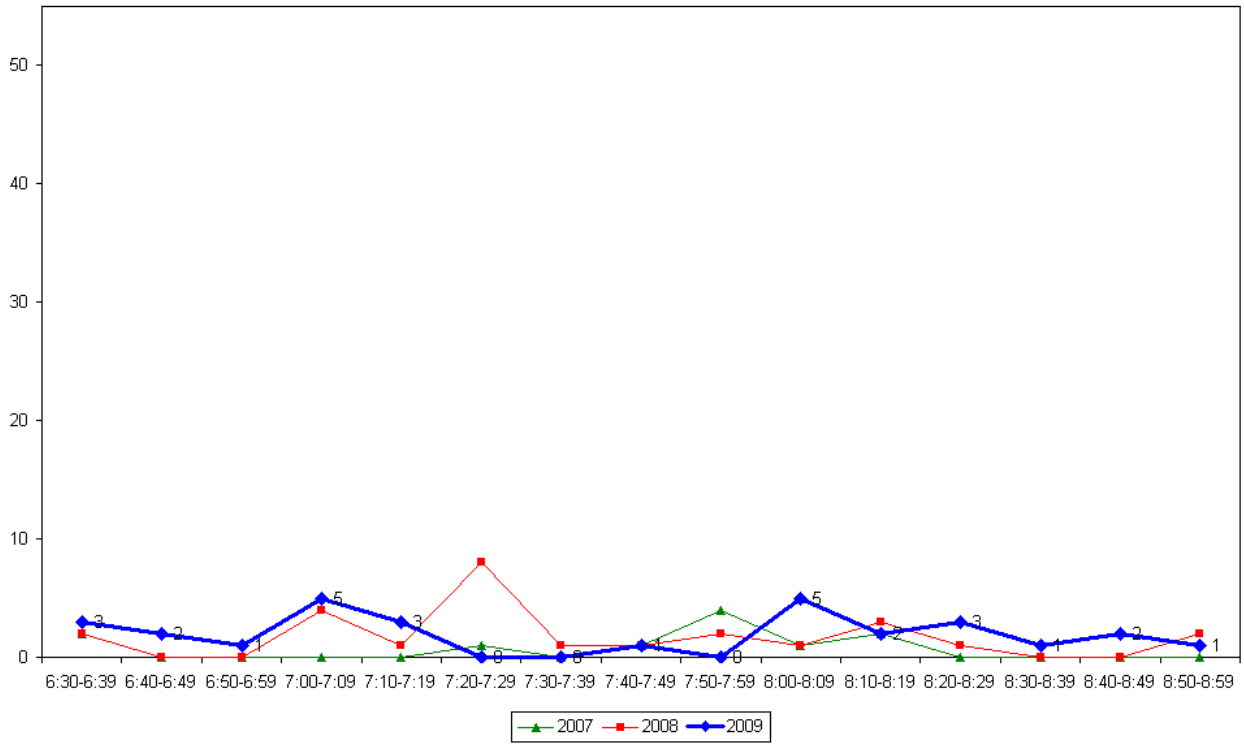
- Over the morning peak in 2009, adults comprise two-thirds (69 per cent) of total cycle movements – this share having decreased from 88 per cent recorded last year.
- Helmet wearing continues to be widespread this year (93 per cent, down slightly from 96 per cent in 2008).
- This year, cycling on the road has been split into cycling on the road and cycling on the off-road cycleway. Approximately one in four cyclists are riding on the off-road cycleway (24 per cent), while 34 per cent are riding on the footpath (up notably from 12 per cent last year).

Table 12.2: Morning Cyclist Characteristics
Beach/Browns Bay Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	36	88	69	-19
School child	64	12	31	19
Helmet Wearing				
Helmet on head	91	96	93	-3
No helmet	9	4	7	3
Where Riding				
Road	45	88	41	-47
Footpath	55	12	34	-
Off-road cycleway	-	-	24	-
Base:	***11***	***26***	***29***	

- The volume of morning cycle movements in 2009 is relatively low over the entire monitoring period, with slight peaks occurring between 7:00am and 7:09am (5 cyclists) and between 8:00am and 8:09am (5 cyclists). This compares with a peak of 8 movements occurring between 7:20am and 7:29am last year.

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



12.2 Evening Peak

Environmental Conditions

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

Key Points

- The volume of cycle movements at the Beach/Browns Bay Road intersection (30 cycle movements) has increased from last year (19 movements), but is the equal lowest among all sites monitored in North Shore city.
- The key movement in the evening is riding south along Browns Bay Road continuing through the intersection (Movement 5 = 13 cyclists).
- Compared with last year, the volume of evening cyclists is most notably higher at Movement 5 (up 11 cyclists from 2008).

Table 12.3: Evening Cyclist Movements
Beach/Browns Bay Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	3	4	1
2	0	2	0	-2
3	3	1	0	-1
4	0	0	0	0
5	0	2	13	11
6	0	1	0	-1
7	1	1	4	3
8	0	1	4	3
9	0	0	0	0
10	0	0	0	0
11	3	4	3	-1
12	0	4	2	-2
Total	**8**	**19**	**30**	**11**

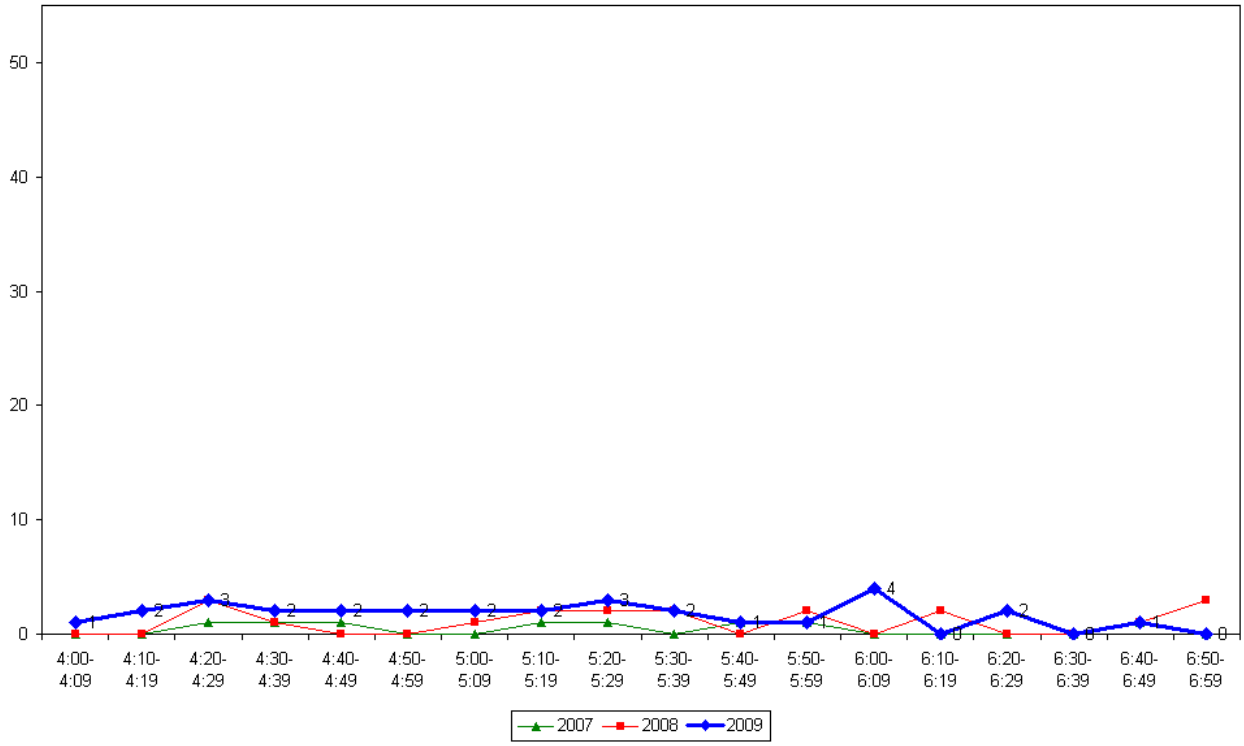
- Over the evening peak, the share of children cycling is the highest of the North Shore city sites (40 per cent, stable from 42 per cent last year).
- All cyclists are wearing a helmet (100 per cent, up from 95 per cent in 2008).
- This year riding on the road has been split into riding on the road and riding on the off-road cycleway. Twenty-three per cent of cyclists were riding on the off-road cycleway, while the proportion of cyclists riding on the footpath has increased from 37 per cent to 44 per cent this year.

Table 12.4: Evening Cyclist Characteristics
Beach/Browns Bay Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	100	58	60	2
School child	0	42	40	-2
Helmet Wearing				
Helmet on head	100	95	100	5
No helmet	0	5	0	-5
Where Riding				
Road	87	63	33	-
Footpath	13	37	44	7
Off-road cycleway	-	-	23	-
Base:	***8***	***19***	***30***	

- Evening volumes are very low over the entire monitoring period, with no more than two cyclists recorded passing over most ten minute intervals. A slight peak occurs between 6:00pm and 6:09pm (4 cyclists).

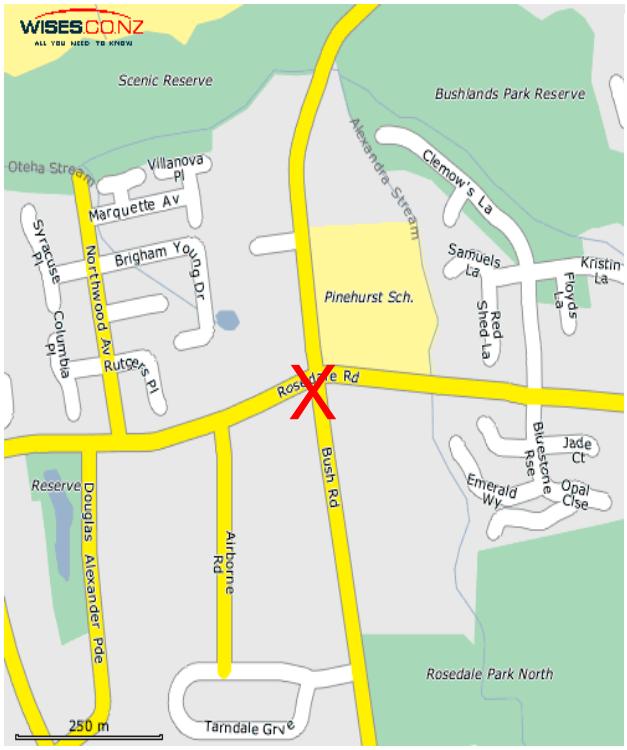
Figure 12.3: Beach/Browns Bay Road Cyclist Frequency – Evening Peak

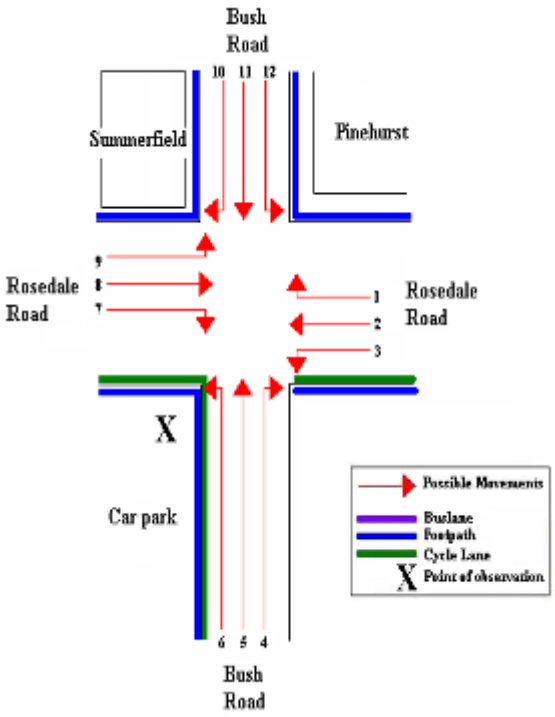


13. ROSEDALE ROAD/BUSH ROAD, ALBANY (SITE 46)

Figure 13.1 shows the possible cyclist movements at this intersection.

Figure 13.1: Cycle Movements: Rosedale/Bush Road





AADT Estimate

- The AADT for this site is 103 cycle movements per day. This compares with:
  - 106 cycle movements in 2008
  - 70 cycle movements in 2007.

13.1 Morning Peak

Environmental Conditions

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

Key Points

- Since last year, the volume of morning cyclists at the Rosedale/Bush Road intersection has decreased, from 36 in 2008 to 26 movements this year.
- The most common movement in the morning is straight along Rosedale Road heading west (Movement 2 = 13 cyclists).
- The most notable decrease since last year is at Movement 6 (down 10 cyclists), while the most notable increase is at Movement 2 (up 7 cyclists).

Table 13.1: Morning Cyclist Movements
Rosedale/Bush Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	0	1	0	-1
2	8	6	13	7
3	0	1	1	0
4	0	1	0	-1
5	4	3	1	-2
6	0	12	2	-10
7	0	0	0	0
8	0	3	3	0
9	0	2	0	-2
10	3	3	3	0
11	0	2	2	0
12	0	2	1	-1
Total	**15**	**36**	**26**	**-10**

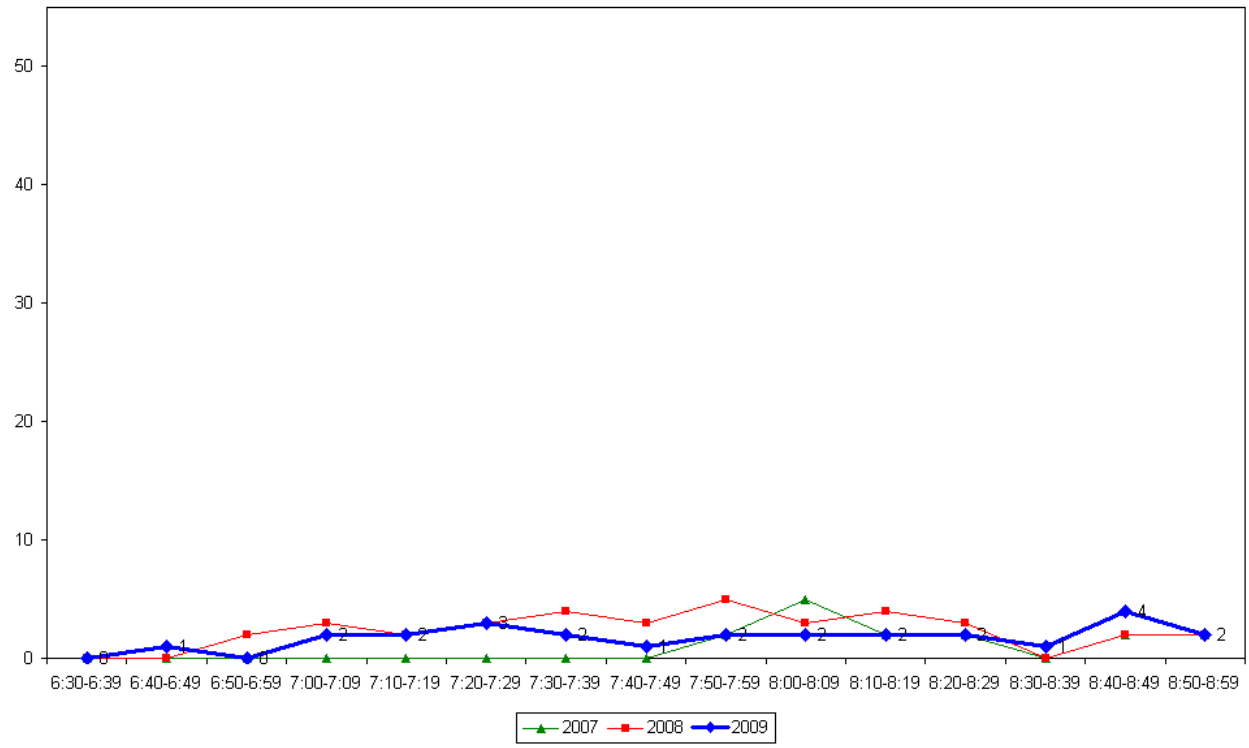
- Over the morning peak, four in five cyclists at this site are adults (81 per cent, unchanged from last year).
- Most cyclists are wearing a helmet (92 per cent, also unchanged from 2008).
- The majority of cyclists are riding on the road (69 per cent, up from 61 per cent last year).

Table 13.2: Morning Cyclist Characteristics
Rosedale/Bush Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	40	81	81	0
School child	60	19	19	0
Helmet Wearing				
Helmet on head	100	92	92	0
No helmet	0	8	8	0
Where Riding				
Road	33	61	69	8
Footpath	67	39	31	-8
Base:	***15***	***36***	***26***	

- No more than two cycle movements were recorded over most ten minute intervals. A slight peak occurs between 8:40am and 8:49am (4 cyclists).

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



13.2 Evening Peak

Environmental Conditions

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

Key Points

- The total number of cycle movements recorded at the Rosedale/Bush Road intersection over the evening shift has increased this measure, from 37 cyclists last year to 46 cyclists this year.
- The key evening movement is riding south along Bush Road and turning right into Rosedale Road (Movement 10 = 14 movements. This includes 8 cyclists riding together as a group).
- The most notable increase since 2008 is at Movement 10 (up 11 cyclists).

Table 13.3: Evening Cyclist Movements
Rosedale/Bush Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	1	1	2	1
2	1	10	8	-2
3	0	5	2	-3
4	0	1	1	0
5	2	4	2	-2
6	3	5	0	-5
7	0	0	3	3
8	4	3	6	3
9	0	1	2	1
10	1	3	14	11
11	3	3	3	0
12	1	1	3	2
Total	**16**	**37**	**46**	**9**

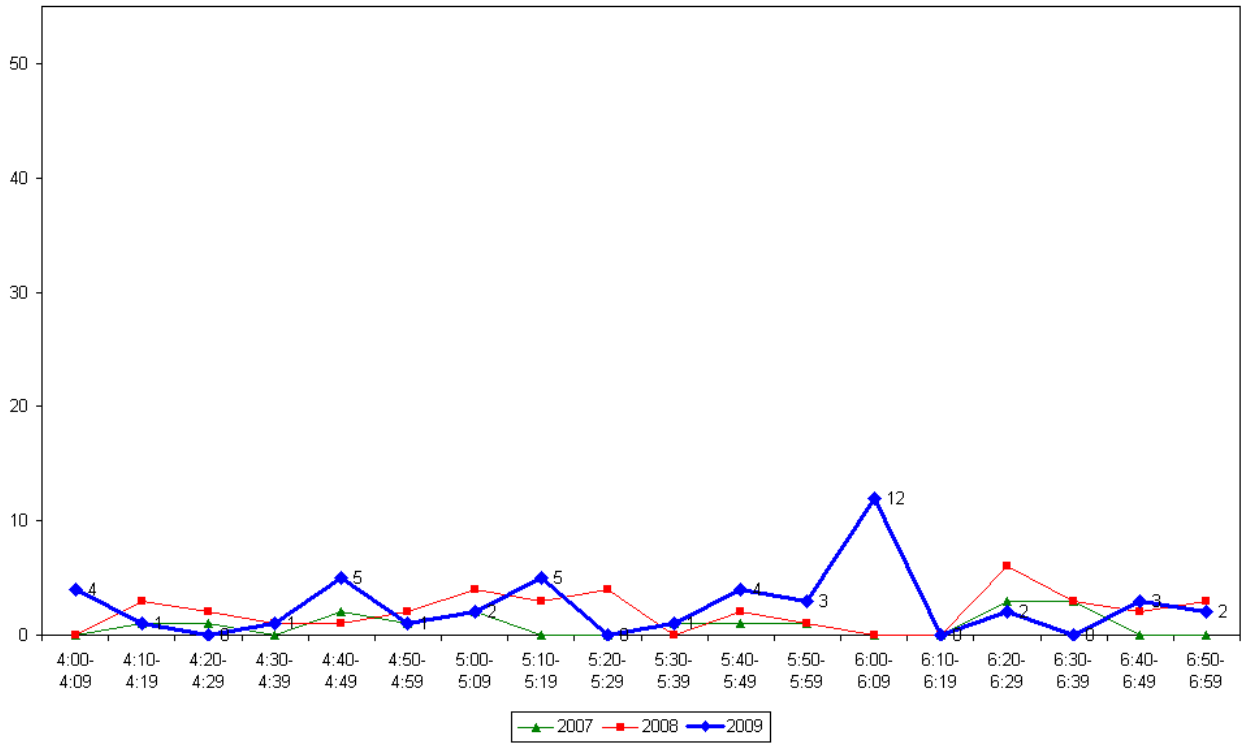
- Consistent with the previous measure, the majority of evening cyclists using this intersection are adults (76 per cent, stable from 78 per cent in 2008).
- Helmet wearing is still common over the evening peak (93 per cent, stable from 92 per cent last year).
- On average, three in five cyclists are riding on the road (61 per cent, down from 76 per cent at the previous measure).

Table 13.4: Evening Cyclist Characteristics
Rosedale/Bush Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	81	78	76	-2
School child	19	22	24	2
Helmet Wearing				
Helmet on head	94	92	93	1
No helmet	6	8	7	-1
Where Riding				
Road	62	76	61	-15
Footpath	38	24	39	15
Base:	***16***	***37***	***46***	

- There is a notable peak in cyclist volumes between 6:00pm and 6:09pm with 12 cycle movements recorded during this interval. *Note that this year a cycle training group was observed at this site at 6:03pm.* This compares with a slight peak which occurred 20 minutes later in 2008 (6 movements).

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

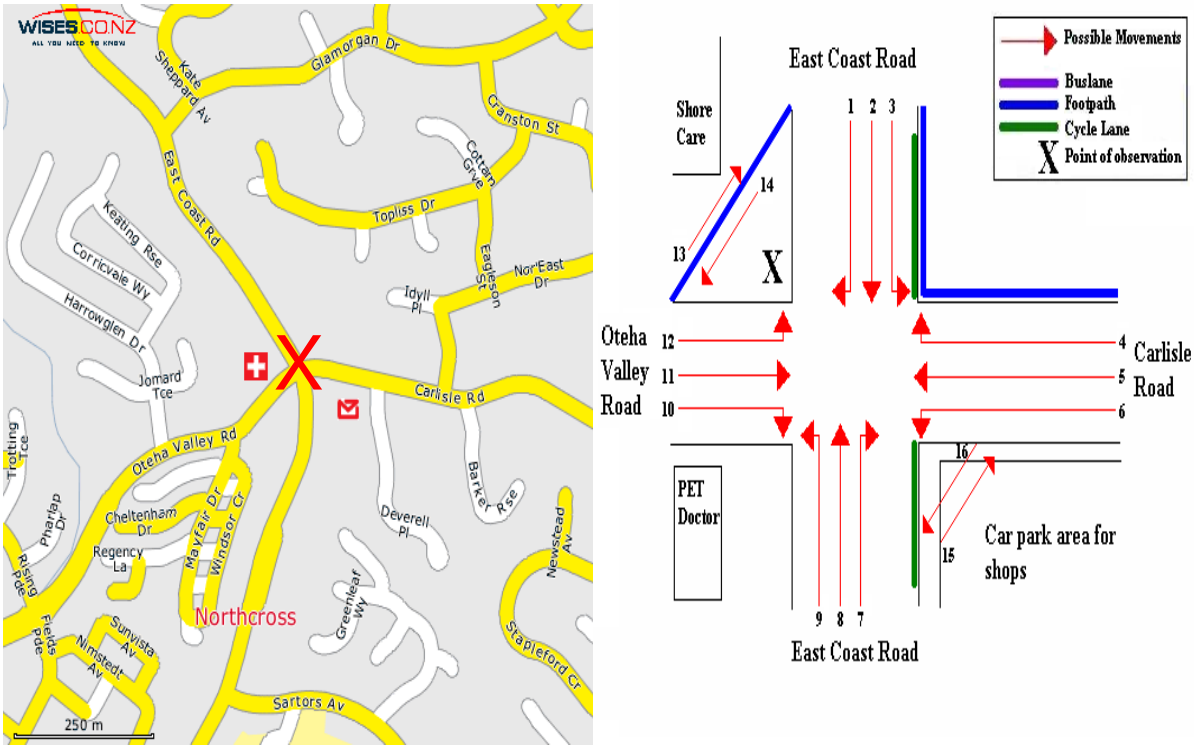


Note: A group of eight cyclists were observed riding together at 6.03pm. This comprises 17 per cent of the total cycle movements recorded in the evening peak

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

Figure 14.1 shows the possible cyclist movements at this intersection.

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



AADT Estimate

- The AADT for this site is 201 cycle movements per day. This compares with:
  - 163 cycle movements in 2008
  - 137 cycle movements in 2007.

14.1 Morning Peak

Environmental Conditions

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

Key Points

- Compared with the previous year, the volume of morning cyclists at the Oteha Valley/East Coast Bays Road intersection has increased notably, from 40 movements in 2008 to 69 movements this year.
- The most common movements in the morning are straight along East Coast Road in a southerly direction (Movement 2 = 18 cyclists) and the left turn from Carlisle Road into East Coast Road (Movement 6 = 15 cyclists).
- The most notable increase is at Movement 6 (up 12 cyclists).

Table 14.1: Morning Cyclist Movements

Oteha Valley/East Coast Bays Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	2	0	1	1
2	16	14	18	4
3	2	0	0	0
4	3	0	3	3
5	3	3	4	1
6	8	3	15	12
7	0	0	1	1
8	1	3	4	1
9	1	2	2	0
10	0	6	5	-1
11	0	1	1	0
12	0	1	2	1
13	0	0	0	0
14	0	0	0	0
15	1	1	2	1
16	5	6	11	5
Total	**42**	**40**	**69**	**29**

- Over the morning peak, the greatest share of cyclists are adults (59 per cent, down from 68 per cent in 2008).
- Almost all cyclists are wearing a helmet (97 per cent, up from 90 per cent last year).
- On average, three in five cyclists are riding on the road (59 per cent, stable from 60 per cent in 2008).

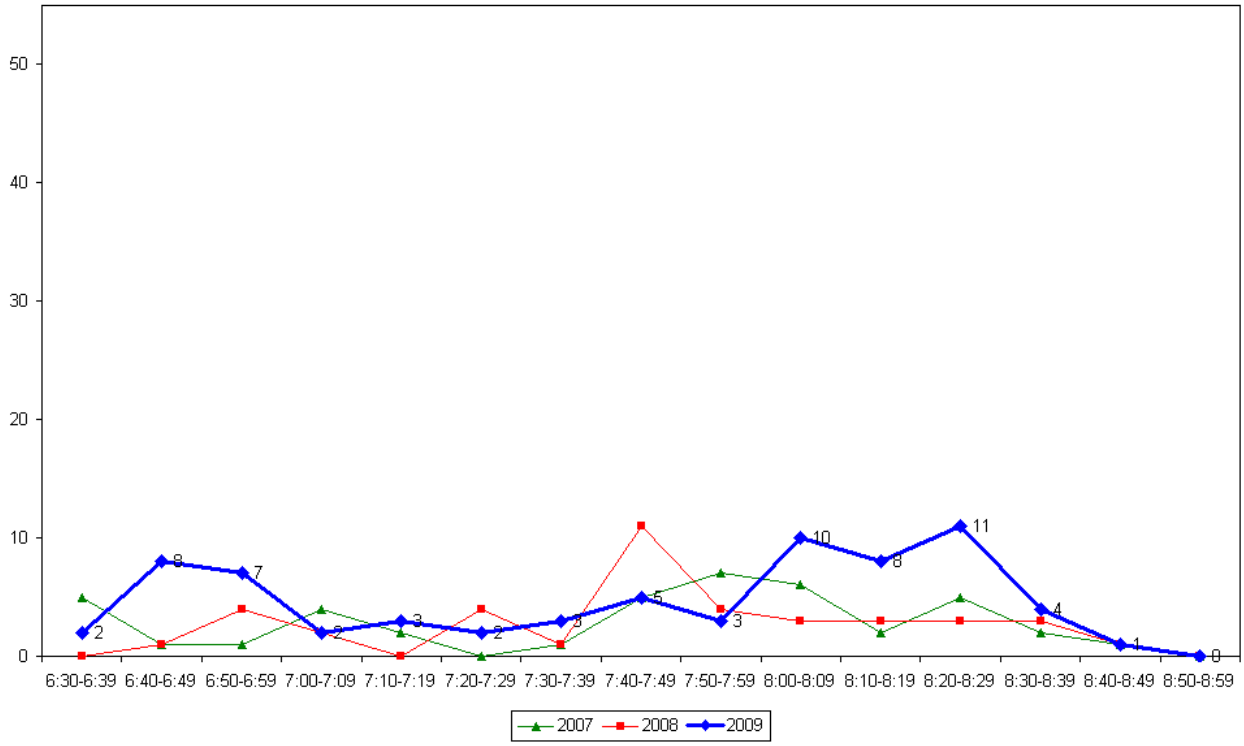
Table 14.2: Morning Cyclist Characteristics

Oteha Valley/East Coast Bays Road 2007-2009 (%)

	2007	***2008***	***2009***	**Change 08-09**
Cyclist Type				
Adult	48	68	59	-9
School child	52	32	41	9
Helmet Wearing				
Helmet on head	95	90	97	7
No helmet	5	10	3	-7
Where Riding				
Road	62	60	59	-1
Footpath	38	40	41	1
Base:	***42***	***40***	***69***	

- The volume of morning cycle movements peaks between 8:00am and 8:09am (10 cyclists) and again between 8:20am and 8:29am (11 cyclists). This compares with a peak between 7:40am and 7:49am in 2008.

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



14.2 Evening Peak

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

Key Points

- The total number of evening cycle movements recorded at the Oteha Valley/East Coast Bays Road intersection has decreased slightly, from 74 movements last year to 69 movements in 2009.
- The key evening movements are straight along East Coast Road heading north (Movement 8 = 12 cyclists) and the right turn from East Coast Road into Carlisle Road (Movement 7 = 10 cyclists).
- The most notable decrease this year is at Movement 2 (down 10 cyclists).

Table 14.3: Evening Cyclist Movements
Oteha Valley/East Coast Bays Road 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
1	0	6	0	-6
2	3	13	3	-10
3	1	3	4	1
4	0	2	1	-1
5	0	3	4	1
6	1	3	6	3
7	2	6	10	4
8	5	15	12	-3
9	1	3	6	3
10	0	3	2	-1
11	1	6	7	1
12	2	8	4	-4
13	0	0	0	0
14	0	0	0	0
15	1	1	7	6
16	0	2	3	1
Total	**17**	**74**	**69**	**-5**

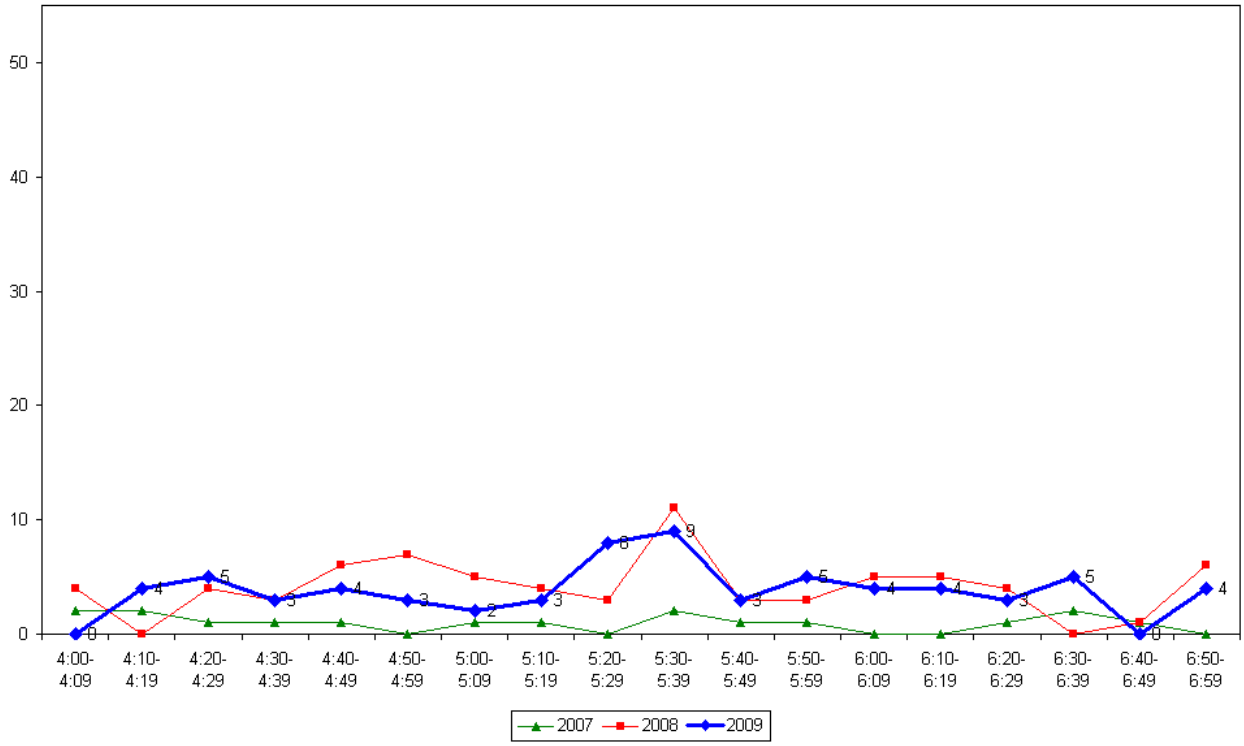
- Over the evening peak, the majority of cyclists using this site are adults (75 per cent, compared with 81 per cent in 2008).
- Almost all cyclists are wearing a helmet (94 per cent, stable from 96 per cent last year).
- Nearly three-quarters of cyclists are riding on the road (74 per cent, stable from 72 per cent at the previous measure).

Table 14.4: Evening Cyclist Characteristics
Oteha Valley/East Coast Bays Road 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	76	81	75	-6
School child	24	19	25	6
Helmet Wearing				
Helmet on head	88	96	94	-2
No helmet	12	4	6	2
Where Riding				
Road	71	72	74	2
Footpath	29	28	26	-2
Base:	***17***	***74***	***69***	

- The volume of evening cycle movements peaks between 5:30pm and 5:39pm (9 cyclists), the same time as last year.

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



15. FERRY TERMINAL, AUCKLAND CITY (SITE 22)

This is an Auckland City site which has been included in this report for completeness. Results for this site are not included in the calculation of total cycle movements and Average Annual Daily Traffic (AADT) estimates for North Shore City.

Figure 15.1 shows the possible cyclist movements at this site. *Note: Due to the size of this site, two surveyors were used to conduct the cycle counts. One surveyor counted cycle traffic entering and leaving via the actual ferry terminal (Pier 1). The second surveyor counted cycle traffic using the ferries at Piers 2, 3, and 4.*

Figure 15.1: Cycle Movements: Ferry Terminal

AADT Estimate

- The AADT for this site is 363 cycle movements per day. This compares with:
  - 459 movements in 2008
  - 553 movements in 2007.

15.1 Morning Peak

Environmental Conditions

- The weather was fine throughout the morning shift.
- Construction was being undertaken at Pier 2, with barriers erected to re-direct ferry passengers.

Key Points

- Compared with last year, the volume of cycle movements at the Ferry Terminal site has declined notably, from 158 in 2008 to 137 this year.
- The key movement in the morning is disembarking the terminal at Pier One, which provides access to ferry services to and from Birkenhead, Northcote Point, Bayswater and Devonport (100 cyclists). Almost half of these (44 cyclists) were disembarking from ferry trips originating in Devonport.
- The most notably decrease is disembarking at Pier One (down 27 cyclists).

Table 15.1: Morning Cyclist Movements
Ferry Terminal 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
Pier One				
Boarding	18	11	10	-1
Disembarking	136	127	100	-27
Pier Two				
Boarding	8	5	1	-4
Disembarking	18	10	16	6
Pier Three				
Boarding	0	0	1	1
Disembarking	4	3	3	0
Pier Four				
Boarding	0	0	4	4
Disembarking	11	2	2	0
Total	**195**	**158**	**137**	**-21**

Pier 1 – departs for Birkenhead, Northcote Point, Bayswater and Devonport
Pier 2 – departs for Waiheke Island and Half Moon Bay
Pier 3 – departs for West Harbour and Pine Harbour
Pier 4 – departs for Gulf Harbour and Stanley Bay

Table 15.1a: Morning Cyclist Movements – Which Ferry Boarded (n)

Ferry	2009
Pier Two	
Half Moon Bay	0
Waiheke	1
Pier Three	
Pine Harbour	0
West Harbour	1
Pier Four	
Gulf Harbour	0
Stanley Bay	4
Total	**6**

Note: At Pier 1, it is not possible to identify which ferry cyclists are boarding.

Table 15.1b: Morning Cyclist Movements – Which Ferry Disembarked (n)

Ferry	2009
Pier One	
Bayswater	22
Birkenhead	34
Devonport	44
Pier Two	
Half Moon Bay	4
Waiheke	12
Pier Three	
Pine Harbour	2
West Harbour	1
Pier Four	
Gulf Harbour	1
Stanley Bay	1
Total	**121**

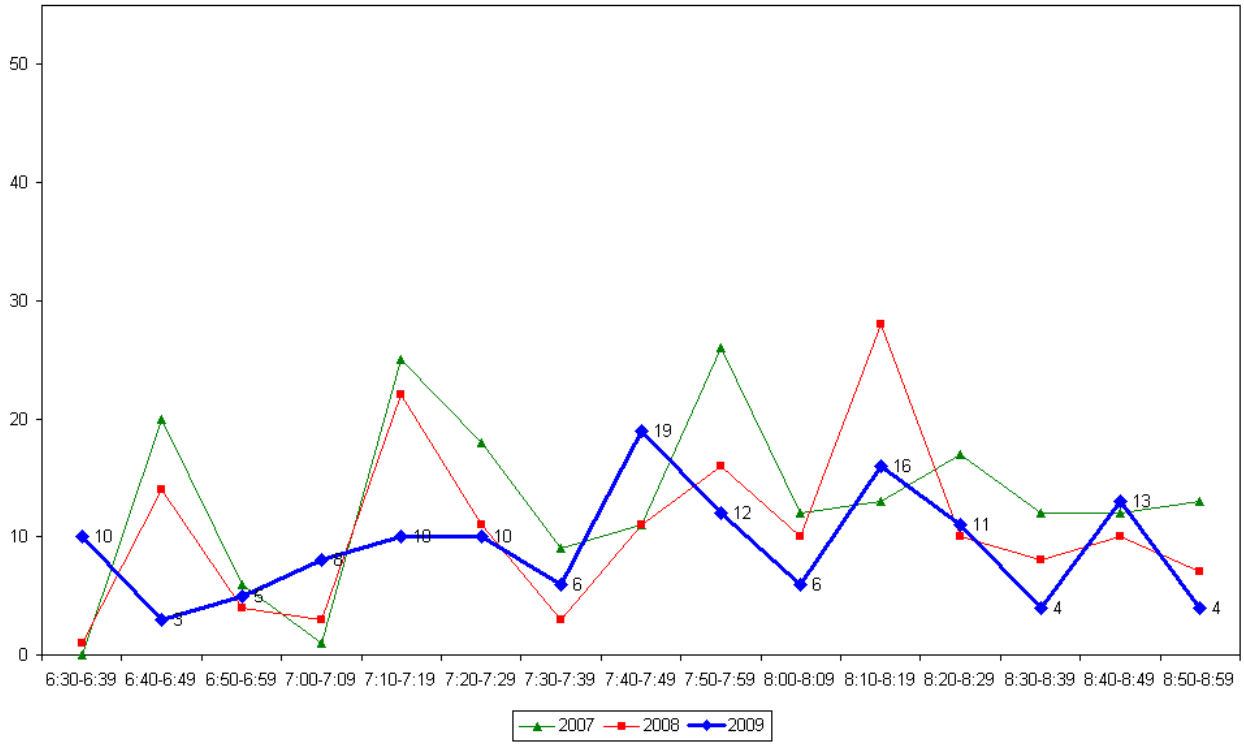
- All cyclists using this site in the morning are adults (a slightly increase from 96 per cent last year).
- On average, four in five cyclists are wearing a helmet (80 per cent, up from 70 per cent in 2008).

Table 15.2: Morning Cyclist Characteristics
Ferry Terminal 2007-2009 (%)

	2007	*2008*	*2009*	**Change 08-09**
Cyclist Type				
Adult	98	96	100	4
School child	2	4	0	-4
Helmet Wearing				
Helmet on head	87	70	80	10
No helmet	13	30	20	-10
Base:	***195***	***158***	***137***	

- Morning cyclist volumes peak twice – 19 cyclists at around 7:45pm (half an hour later than the first peak last year) and 16 cyclists at around 8:15pm (the same time as the second peak in 2008).

Figure 15.2: Ferry Terminal Cyclist Frequency – Morning Peak



15.2 Evening Peak

Environmental Conditions

- The weather was variable throughout the evening shift with light showers between 4.28pm and 4.40pm and again at 5.31pm. Heavy rain was reported between 6.30 and 6.45pm.
- Construction was being undertaken at Pier 2 with barriers erected to re-direct passengers.

Key Points

- The volume of evening cycle movements at the Ferry Terminal site has declined from last year – down by 47 to 11 movements in 2009.
- In contrast to the morning shift, the key movement in the evening is boarding the ferries at Pier One (88 cyclists).
- Compared with last year, the most notable decrease is boarding the terminal at Pier One (down 34 cyclists).

Table 15.3: Evening Cyclist Movements
Ferry Terminal 2007-2009 (n)

Movement	*2007*	*2008*	*2009*	Change 08-09
Pier One				
Boarding	131	122	88	-34
Disembarking	15	13	5	-8
Pier Two				
Boarding	7	15	10	-5
Disembarking	16	6	0	-6
Pier Three				
Boarding	0	2	5	3
Disembarking	0	0	0	0
Pier Four				
Boarding	0	0	3	3
Disembarking	16	0	0	0
Total	**185**	**158**	**111**	**-47**

Pier 1 – departs for Birkenhead, Northcote Point, Bayswater and Devonport
Pier 2 – departs for Waiheke Island and Half Moon Bay
Pier 3 – departs for West Harbour and Pine Harbour
Pier 4 – departs for Gulf Harbour and Stanley Bay

Table 15.3a: Evening Cyclist Movements – Which Ferry to Board (n)

Ferry	2009
Pier Two	
Half Moon Bay	3
Waiheke	7
Pier Three	
Pine Harbour	4
West Harbour	1
Pier Four	
Gulf Harbour	0
Stanley Bay	3
Total	**18**

Note: At Pier 1 it is not possible to identify which ferry cyclists are boarding

Table 15.3b: Evening Cyclist Movements – Which Ferry to Disembark (n)

Ferry	2009
Pier One	
Bayswater	0
Birkenhead	0
Devonport	5
Pier Two	
Half Moon Bay	0
Waiheke	0
Pier Three	
Pine Harbour	0
West Harbour	0
Pier Four	
Gulf Harbour	0
Stanley Bay	0
Total	**5**

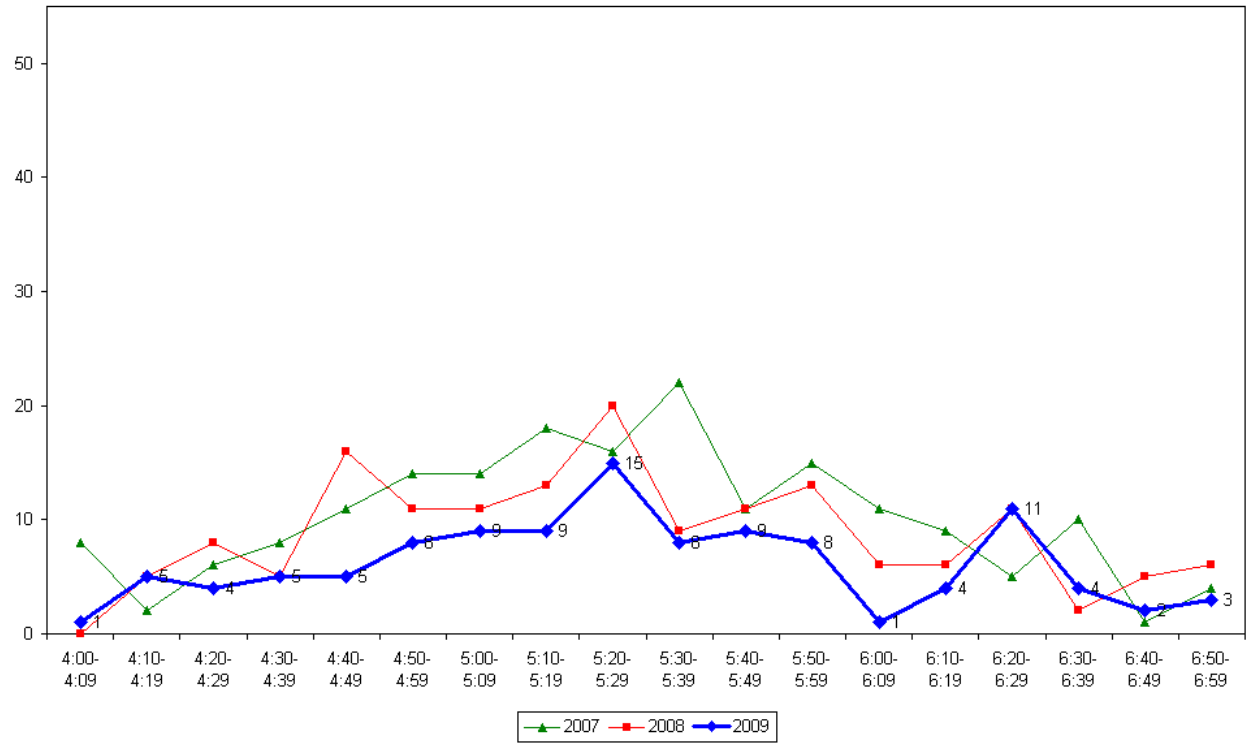
- Over the evening peak, all cyclists using this site are adults (100 per cent, up from 98 per cent at the previous measure).
- Approximately four in five cyclists are wearing a helmet (80 per cent, up from 69 per cent recorded in 2008).

Table 15.4: Evening Cyclist Characteristics
Ferry Terminal 2007-2009 (%)

	2007	*2008*	*2009*	Change 08-09
Cyclist Type				
Adult	99	98	100	2
School child	1	2	0	-2
Helmet Wearing				
Helmet on head	85	69	80	11
No helmet	15	31	20	-11
Base:	***185***	***158***	***111***	

- Evening cyclist numbers start off low, increase gradually to a peak between 5:20pm and 5:29pm (15 cyclists) and again between 6:20pm and 6:29pm (11 cyclists), and then tail off towards the end of the monitoring period. This compares to peaks between 4:40pm and 4:49pm, and again between 5:20pm and 5:29pm, in 2008.

Figure 15.3: Ferry Terminal Cyclist Frequency
– Evening Peak

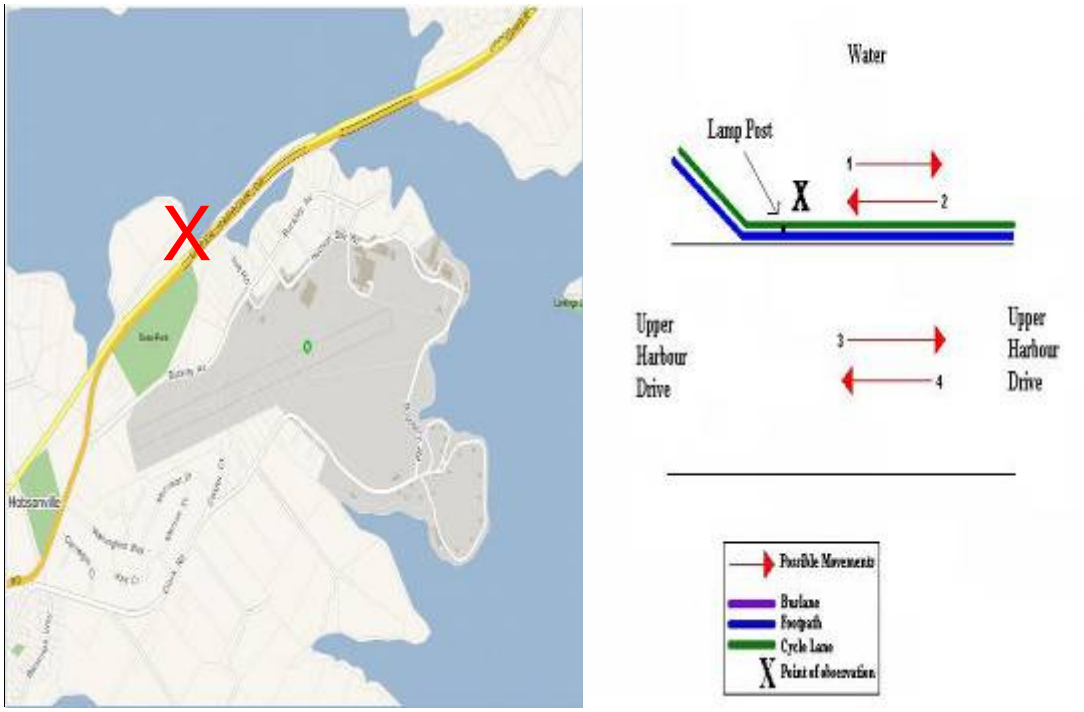


16. UPPER HARBOUR BRIDGE, GREENHITHE (SITE 70)

Note: This is a Waitakere city site which has been included in this report for completeness. Results from this site are not included in the calculation of total cycle movements and Average Annual Daily Traffic (AADT) estimates for North Shore city.

Figure 16.1 shows the possible cyclist movements at this intersection.

Figure 16.1: Cycle Movements: Upper Harbour Bridge



AADT Estimate

- The AADT for this site is 97 cycle movements per day. This compares with 51 cycle movements in 2008.

16.1 Morning Peak

Environmental Conditions

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

Key Points

- Compared with other sites in Waitakere, the cycle volumes at the Upper Harbour Bridge site are low, with 23 cycle movements recorded.
- The key morning movement is heading southwest along the Upper Harbour Drive cycleway (Movement 2 = 14 cyclists, up 11 cyclists from 2008).

Table 16.1: Morning Cyclist Movements
Upper Harbour Bridge 2008-2009 (n)

Movement	*2008*	*2009*	Change 08-09
1	10	9	-1
2	3	14	11
3	0	0	0
4	4	0	-4
Total	**17**	**23**	**6**

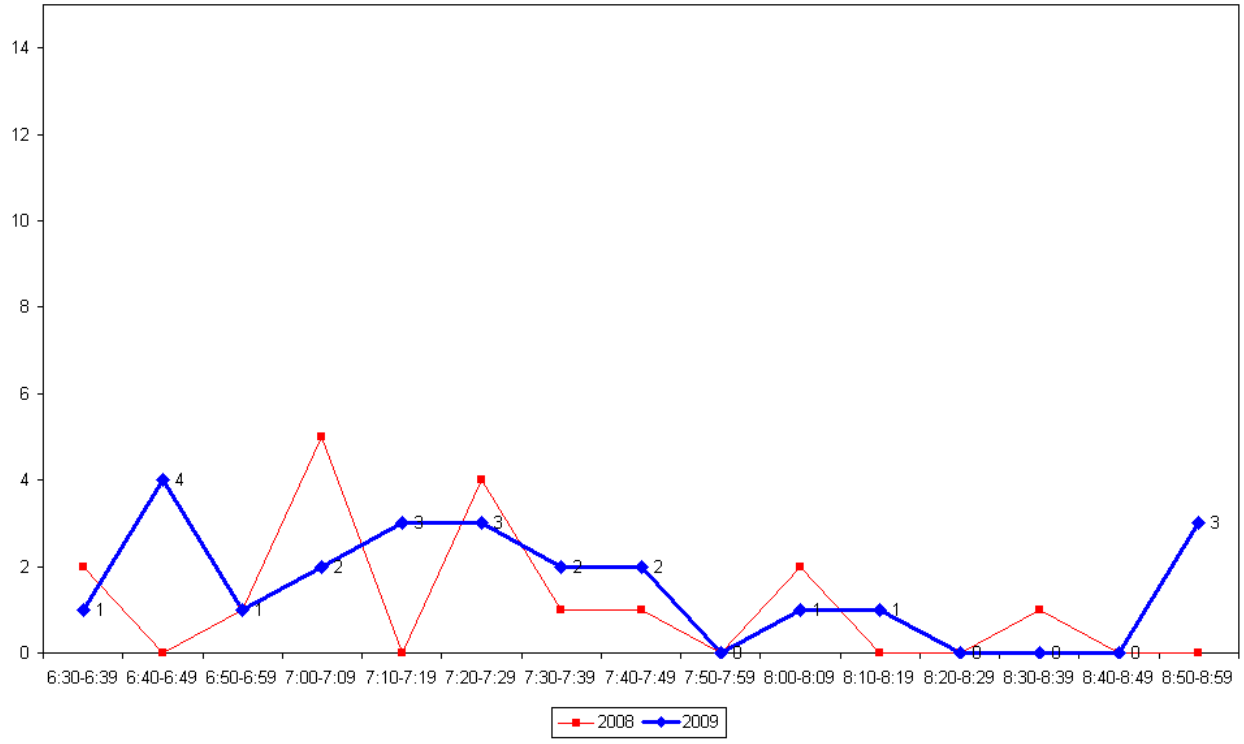
- Over the morning peak, all cyclists are adults (100 per cent).
- All cyclists are wearing a helmet (100 per cent).
- This year riding on the road was split into riding on the road and riding on the off-road cycleway. All cyclists this year are classified as riding on the off-road cycleway.

Table 16.2: Morning Cyclist Characteristics
Upper Harbour Bridge 2008-2009 (%)

	2008	*2009*	Change 08-09
Cyclist Type			
Adult	100	100	0
School child	0	0	0
Helmet Wearing			
Helmet on head	100	100	0
No helmet	0	0	0
Where Riding			
Road	100	0	-
Footpath	0	0	0
Off-road cycleway	-	100	-
Base:	***17***	***23***	

- Morning cycle volumes are low throughout the shift, with no more than two cyclists recorded during most ten minute intervals. A slight peak occurs between 6:40am and 6:49am (4 cyclists), 20 minutes earlier than the slight peak recorded last year (5 cyclists).

Figure 16.2: Upper Harbour Bridge Cyclist Frequency – Morning Peak



Note: A group of three cyclists was observed riding together at 6.49am. This comprises 13 per cent of the total cycle movements recorded in the morning peak

16.2 Evening Peak

Environmental Conditions

- The weather was cloudy throughout the evening shift, with light drizzle between 6:45pm and 7:00pm.
- There were no road works or accidents that may affect cycle counts.

Key Points

- The total number of cycle movements recorded at the Upper Harbour Bridge site has increased notably this year, to 45 movements (up from 18 movements last year).
- The most common movement in the evening is heading northeast along the Upper Harbour Drive cycleway (26 movements, up from 3 movements in 2008).

Table 16.3: Evening Cyclist Movements
Upper Harbour Bridge 2008-2009 (n)

Movement	*2008*	*2009*	Change 08-09
1	3	26	23
2	11	17	6
3	2	2	0
4	2	0	-2
Total	**18**	**45**	**27**

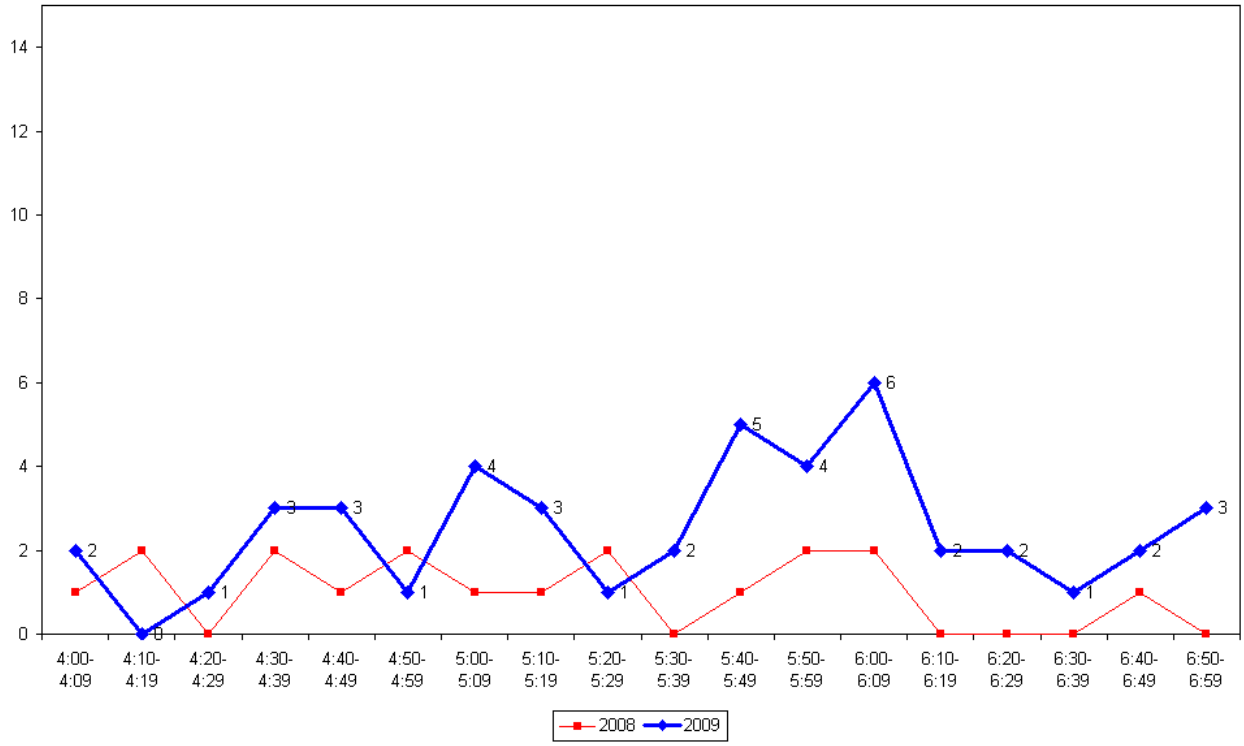
- Over the evening peak, all cyclists using this site are adults (100 per cent).
- All evening cyclists at this site are wearing a helmet (100 per cent, up from 89 per cent last year).
- This year riding on the road was split into riding on the road and riding on the off-road cycleway. Almost all cyclists are riding on the off-road cycleway (98 per cent).

Table 16.4: Evening Cyclist Characteristics
Upper Harbour Bridge 2008-2009 (%)

	2008	*2009*	Change 08-09
Cyclist Type			
Adult	100	100	0
School child	0	0	0
Helmet Wearing			
Helmet on head	89	100	11
No helmet	11	0	-11
Where Riding			
Road	100	2	-
Footpath	0	0	0
Off-road cycleway	-	98	-
Base:	***18***	***45***	

- This year, evening cycle volumes increase gradually to peak between 6:00pm and 6:09pm (6 movements), before dropping off for the last hour of monitoring. In contrast, last year evening cycle volumes were low throughout the shift.

Figure 16.3: Upper Harbour Bridge Cyclist Frequency – Evening Peak



Note: A group of four cyclists was observed riding together at 6.01pm. This comprises nine per cent of the total cycle movements recorded in the evening peak

17. FERRY TERMINAL BIKE COUNT SUMMARY

Key Points

- In the morning, a total of 5 bikes were recorded at the Devonport Ferry Terminal at 6.07am and 16 bikes were counted at 9.16am. This indicates at least 11 cyclists parked their bike at the ferry terminal and rode the ferry during the morning shift.
- In the afternoon, a total of 21 bikes were recorded at the Devonport Ferry Terminal at 3.33pm and two bikes were counted at 7.18pm. This indicates that at least 19 cyclists disembarked the ferry at Devonport and left by cycle.

18. SCHOOL BIKE SHED COUNT – NORTH SHORE CITY

Background Information

- A total of 23 schools were contacted in North Shore city. Of the 21 schools that responded to the survey (83 per cent), most schools surveyed have no policies that restrict students cycling to school.
- The only exception was Pinehurst School which only allows students at Year 4 and higher to cycle to school.
- The designated count day was Tuesday 10th of March[15].

Key Points

- Among the surveyed schools, of those eligible to cycle at school, on average, two per cent of students are cycling to their schools (down from 3 per cent from last year).
- Among the 21 participating schools, n=547 students were reported as cycling to school.
- As in 2007 and 2008, Belmont Intermediate School reported the highest share of cyclists – 22 per cent of all eligible students currently cycling (down from 26 per cent last year).
- Of the 21 schools that responded, three (14 per cent) had no students cycling to school. This compares with two schools (11 per cent) in 2008.

[15] The following schools conducted counts on alternative count days
- Birkenhead College – Wednesday 11th March
- Glenfield College – Wednesday 18th March
- Kristin School – Wednesday 25th March

Table 18.1 shows the results of the 21 schools surveyed in North Shore city.

Table 18.1: Summary Table Of School Bike Count 2007-2009 (n)

School Name	*Year Levels*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible[16] (2009)*	*Cyclists as share of those eligible (2008)*	*Cyclists as share of those eligible (2007)*
Belmont Intermediate School	Intermediate	515	115	22%	26%	34%
Takapuna Grammar School	Secondary	1600	148	9%	6%	8%
Takapuna Normal Intermediate School	Secondary	586	47	8%	16%	-
Wairau Intermediate School	Intermediate	305	16	5%	7%	4%
Northcross Intermediate	Intermediate	1092	43	4%	0%	5%
Glenfield Intermediate	Intermediate	501	13	3%	2%	4%
Rosmini College	Intermediate/Secondary	879	22	3%	4%	3%
Murrays Bay Intermediate	Intermediate	950	22	2%	2%	5%
Northcote Intermediate	Intermediate	184	3	2%	3%	2%
Westlake Boys High School	Secondary	2168	52	2%	<1%	2%
Birkenhead College	Secondary	900	5	1%	<1%	-
Glenfield College	Secondary	858	5	1%	-	-
Kristin School	Composite	1656	11	1%	-	-
Rangitoto College	Secondary	3077	33	1%	<1%	1%
Westlake Girls High School	Secondary	2020	2	<1%	<1%	<1%
Albany Junior High School	Intermediate/Secondary	1145	0	0%	7%	4%

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

School Name	*Year Levels*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible*[16] *(2009)*	*Cyclists as share of those eligible (2008)*	*Cyclists as share of those eligible (2007)*
Birkdale Intermediate	Intermediate	460	0	0%	1%	2%
Northcote College	Secondary	1266	4	<1%	-	-
Carmel College	Intermediate/Secondary	979	1	<1%	<1%	0%
Long Bay College	Secondary	1550	5	<1%	1%	-
Pinehurst School	Composite	716	0[17]	0%	1%	1%
Total		**23496**	**547**	**2%**	**3%**	**3%**

[17] Pinehurst School added a note to their count data stating that most students who live locally walk to school. The school representative stated that most parents won't let their child cycle to school with the cycle lane sharing the road with vehicles as it is perceived as very dangerous. "*Parents are not prepared to endanger their children's lives and risk spending the rest of their lives looking after road damaged children. There is very little help from government & certainly no help from local government for ongoing costs after such an accident. If there was a designated or shared footpath/cycle lane more parents would encourage cycling to and from school.*"

Table 18.1a: Summary Table Of Non-Participating Schools 2007-2009 (n)

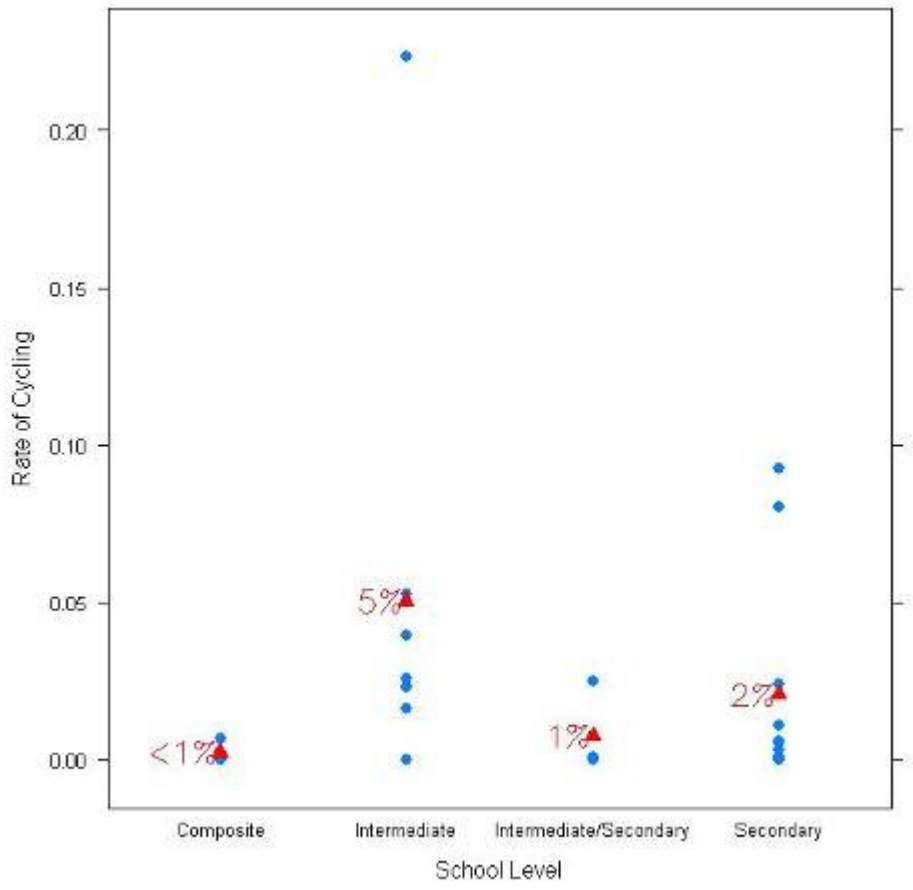
School Name	*Year Levels*	*School Roll Eligible To Cycle*	*No. of Cycles Counted*	*Cyclists as share of those eligible (2009)*	*Cyclists as share of those eligible (2008)*	*Cyclists as share of those eligible (2007)*
Hato Petera College	Secondary	135	-	-	0%	-
The Corelli School	Composite	78	-	-	-	-

- Table 18.2 and Figure 18.1 illustrate the rates of cycling to school at different school levels. Rates of cycling to school are highest among intermediate schools (5 per cent, unchanged from 2008) and lowest for composite schools (<1 per cent, down from 1 per cent last year).

Table 18.2: Summary Table Of School Bike Count by Year Levels 2007-2009(%)

Year Levels	*Number of Schools Responded in 2009*	*Cyclists as share of those eligible - 2007*	*Cyclists as share of those eligible - 2008*	*Cyclists as share of those eligible - 2009*	Change 08-09
Intermediate	7	7	5	5	0
Secondary	9	2	2	2	0
Intermediate/Secondary	3	2	4	1	-3
Composite	2	1	1	<1	-1
Total	**21**	**3**	**3**	**2**	**-1**

Figure 17.1: Cycling Rates by School Level 2009 (%)



APPENDICES

Appendix One: Annual Average Daily Traffic (AADT) Calculation

Appendix Two: School Bike Shed Information Sheet And Cover Letter

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[18] 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)[19], 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.

[18] Annual average daily traffic

[19] LTSA, 2004

Figure 1For the Gravitas counts, the following factors apply:

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

$D = 14$

$W = 0.9$

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

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

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

Worked Example

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

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

Figure 1: Scale Factors for Auckland Region

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

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

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

Weather	R
Fine	100%
Rain	64%

APPENDIX TWO: SCHOOL BIKE SHED INFORMATION SHEET AND COVER LETTER

AUCKLAND REGIONAL CYCLE MONITOR

- 2009 SCHOOL CYCLE COUNT –

ABOUT YOUR SCHOOL (To be completed by staff member)

Name of school: _____

Physical address of school: _____

_____

This school caters for students from Year ☐ to Year ☐

Current school roll (total number of students): ☐

Does the school have a policy which recommends only certain Year levels should cycle to school? *(Please tick one box only)*

☐ No

☐ Yes *Please outline which Year levels the policy recommends should cycle to school:*

_____

_____

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

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

_____

_____

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

Contact staff member's name _____ Contact phone number: _____

AUCKLAND REGIONAL CYCLE MONITOR

- 2009 SCHOOL CYCLE COUNT –

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

Name of school: _____

Date of cycle count: _____

(Note: The preferred day is Tuesday 10th of March)

Total number of cycles counted: ☐

Name of counter: _____

Postal address: _____

_____

(Please note that your personal details will only be used by Gravitas if we need to contact you for clarification of your school or count information. Your personal details will not be passed on to any other organisation or used for any purpose other than this research).

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

Once completed, please place this form (check you have both pages) in the stamped addressed envelope provided and post no later than Friday March 13 2009.

26 February 2009

«Staff_Member_Name»
«Schools_Name»
«Address_1»
«Address_2_suburb»
«Address_3»

Dear «Staff_Member»

Re: Regional Cycle Monitoring Programme – Student Cyclists

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

This is the third year that this count of student cyclists has been undertaken. On behalf of the local Councils and the Auckland Regional Transport Authority, we would like to thank those schools that have participated in 2007 and 2008 for their contribution. We look forward to hearing from you again this year.

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

- The first part of the form ("About Your School") asks for basic information about your school, including whether there is a policy around recommending that only certain Year levels should cycle to and from school. Given the nature of the information being requested, it is probably most appropriate for the first part of the form to be filled out by a staff member. It should only take two or three minutes to complete.

- The second part of the form ("The Cycle Count") asks for a count of the number of bicycles at your school (in bike sheds, racks etc.) on a pre-determined day. It is envisaged that this information could be collected by a student during one of their breaks (however, if students are permitted to leave the school on cycles during lunchtime, we would ask that the count not be conducted at this time).

To ensure consistency across all schools in the region, **Tuesday the 10th of March** has been selected as the day we would like the cycle count to be conducted. We realise that the weather plays a significant role in the numbers of students cycling to school on any particular day. For this reason, if the weather is particularly bad on the 10th of March, then please postpone the count until **Tuesday the 17th of March**.

Once BOTH PARTS of the form have been completed, it should be placed in the stamped, addressed envelope accompanying this letter and posted no later than Friday the 13th of March (or Friday the 20th of March should the count be postponed due to bad weather).

The data you provide will be analysed to provide an 'actual student cyclists as a share of all potential student cyclists' figure for each school as well as aggregated results by city/district and region. (The final results will be available in May. If you would like a copy, you can contact Brian Horspool at ARTA – Brian.Horspool@arta.co.nz). Please be assured that all information you provide will be treated in the strictest confidence and only used for the purpose of this study.

One of our team will call you in the next couple of days to confirm that you have received the form and to answer any questions you have. However, if you have any questions about what is required, or would like further information about the wider study being undertaken, please don't hesitate to contact me (tania@gravitas.co.nz).

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

Kind regards

Tania Boyer
Project Director
Gravitas Research and Strategy Limited