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Research Report Prepared for
Auckland Transport

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# 2013 Auckland Region Manual Cycle Monitor

## - Franklin Ward -

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# 1. FRANKLIN WARD SUMMARY OF RESULTS

## 1.1 Introduction

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

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

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

### *Manual Cycle Monitoring*

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

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

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

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

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

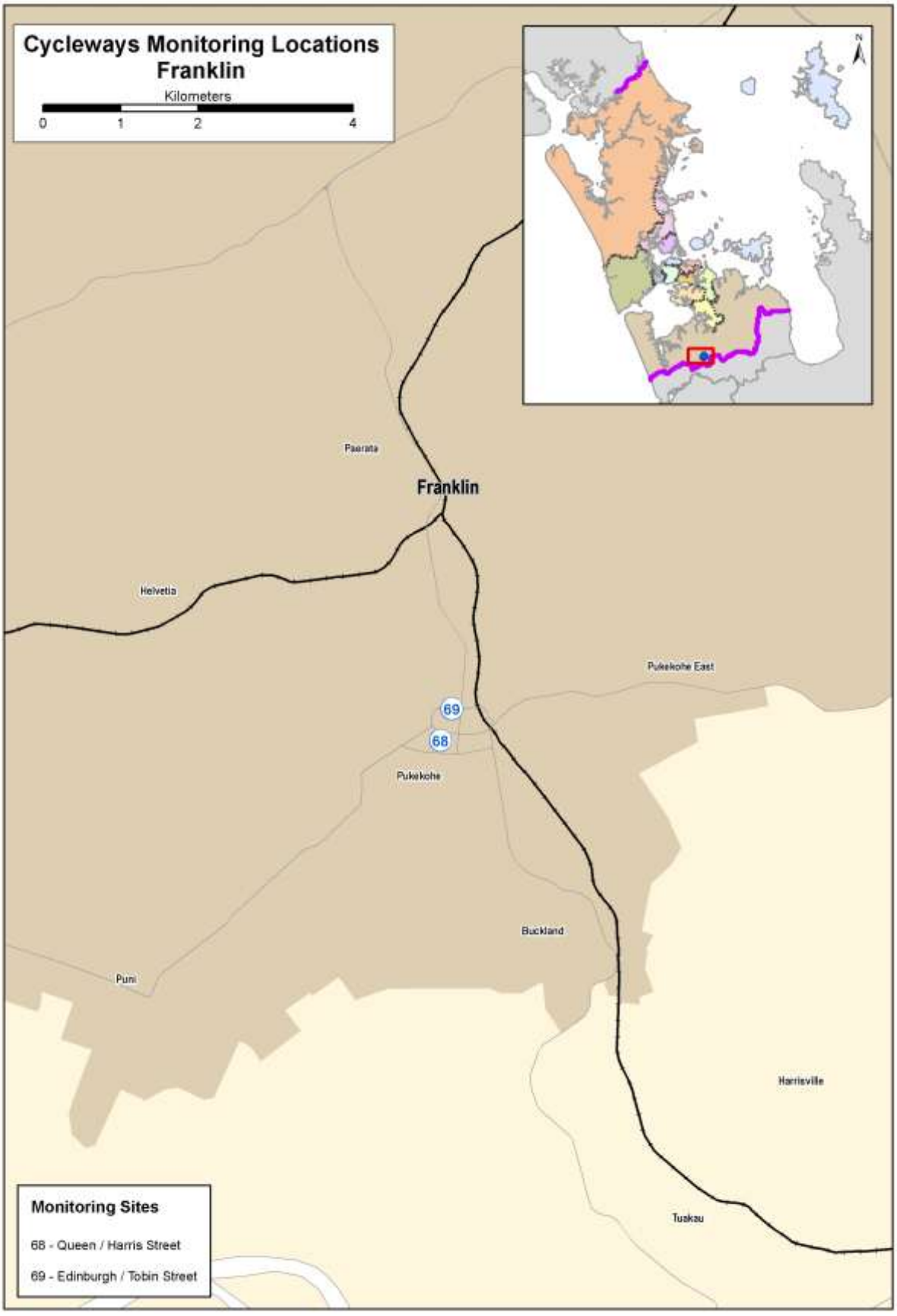
- standard monitoring days are used – that is, school and tertiary holidays, and statutory holidays are excluded and that monitoring preferably takes place at the same time each year to enable reliable year-on-year comparisons to be made. Decisions about whether cycle counts take place on weekdays and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

This report presents results from manual cycle counts conducted at two sites in the Franklin ward following a standardised methodology. Results are presented site-by-site, as well as being aggregated to a ward and region level. For sites also monitored in previous years, comparative results are provided.

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

Figure 1.1 shows the locations of the monitoring sites in the Franklin ward.

**Figure 1.1: 2013 Cycle Monitoring Locations in Franklin Ward**



## 1.2 Methodology

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

### *Choice of Sites*

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

Manual counts were undertaken at 85 different sites throughout the region. Sites were distributed by ward as follows:

- Albany 15 sites
- Albert-Eden–Roskill 11 sites
- Franklin 2 sites
- Howick 5 sites
- Manukau 10 sites
- Manurewa-Papakura 4 sites
- Maungakiekie-Tamaki 7 sites
- North Shore 8 sites
- Orakei 3 sites
- Waitakere 13 sites
- Waitemata and Gulf 10 sites
- Whau 4 sites

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

### *Monitoring Times*

#### *Time Of Day*

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

#### *Day Of Week*

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

### *Time Of Year*

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

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

It was agreed that manual counts would commence on Tuesday the 5th of March and be conducted on the first three fine days of the 5th, 6th, 7th, 12th, 13th, or 14th of March.

Counts were conducted on the following days:

| | |
|---|---|
| • Tuesday 5th March | Albany, North Shore, Waitakere |
| • Wednesday 6th March | Howick, Franklin, Manukau, Waitemata & Gulf |
| • Thursday 7th March | Whau, Albert-Eden-Roskill, Orakei, Manurewa-Papakura, Maungakiekie-Tamaki |

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

### *Weather and Daylight Conditions*

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

The weather on the four count days in 2013 was as follows:

**Tuesday 5th March**

- Sunrise: 7:10am; Sunset: 7:55pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with a few sites experiencing light drizzle in the morning and cloud in the evening.

**Wednesday 6th March**

- Sunrise: 7:11am; Sunset: 7:53pm.
- Highest temperature: 24.0 degrees Celsius.
- Mostly fine weather with clear sky in the morning and evening shifts.

**Thursday 7th March**

- Sunrise: 7:12am; Sunset: 7:52pm.
- Highest temperature: 26.0 degrees Celsius.
- Mostly fine weather with some clouds for some sites in the morning and evening shifts.

## *Conducting The Manual Counts*

### *Scoping Visit*

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

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

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

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

### *Briefing Session*

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

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

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

### *Conducting The Manual Counts*

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

During their shift the surveyor collected data on:

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

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

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

[5] Note: For the purpose of this project, an off-road cycleway is defined as designated off-road path for cycles. This includes exclusive cycle paths, separated paths (such as the footpath on Tamaki Drive) and shared-use paths (available to cyclists and pedestrians). It excludes on-road cycle lanes (that is, designated lanes marked on the road).

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

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

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

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

### *Data Analysis*

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

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

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

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

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

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

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

### *School Bike Shed Counts*

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

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

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

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

### *Methodology*

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

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

2. This email was then sent to all eligible schools in Auckland region (n=306) to notify them of the bike shed count and to let them know what they would be required to do. Included in this email was a link to an online count form.

3. To enhance the comparability of the school bike shed data with that of the regional cycle monitor, Tuesday 5th March was designated as the bike shed count day. (Most schools reported that they undertook the count on this day).

4. Once the school bike shed count had been completed, schools completed the online count form and submitted it electronically to Gravitas. Gravitas contacted all participating schools who had not returned their sheets after five working days, first by email (two rounds) and then by telephone. All count forms were checked for completeness before being data-entered into Excel. In 2013, 283 responses were received, a response rate of 92 per cent. (This compares with 74 per cent in 2012).

## ***Reporting***

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

### *Manual Counts - Site Level Reporting*

The following results have been reported for each site:

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

### *Manual Counts - Aggregated Reporting*

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

### *Bike Shed Counts*

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

## 1.3 Summary of Results

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

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

Note: Surveying in the Franklin ward was undertaken on Wednesday 6th of March, 2013. Sunrise was at 7:11am and sunset was at 7:53pm. The highest temperature was 24 degrees Celsius.

## 1.4 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift with the exception of a 10 minute light shower at the Edinburgh/Tobin Street site.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- A total of 29 cyclist movements were recorded across the two sites in the morning peak period (between 6:30am and 9:00am) in 2013. This represents a 61 per cent increase on the result for 2012 (18 movements).
- However, despite this increase from last year, the share of cycle movements recorded at the two sites has declined 52 per cent since monitoring began six years ago (61 movements recorded in 2007).
- The average volume of morning cyclist movements per site in the Franklin ward was 15 across the two sites monitored this year. This compares with an average of 9 movements in 2012.
- As in previous years, the busiest site in the morning peak is the intersection of Queen Street and Harris Street (20 cycle movements, up by 82 per cent from last year).

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

**2007 – 2013 (n)**

| *Site Number* | *Locations* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 | Change 07-13 |
|---|---|---|---|---|---|---|---|---|---|---|
| 68 | Queen/Harris Street | 44 | 31 | 27 | 18 | 14 | 11 | **20** | **82%** | **-55%** |
| 69 | Edinburgh/Tobin Street | 17 | 16 | 15 | 17 | 11 | 7 | **9** | **29%** | **-47%** |
| | ***Average per site*** | ***31*** | ***24*** | ***21*** | ***18*** | ***13*** | **9** | **15** | **67%** | **-52%** |
| | ***Total*** | ***61*** | ***47*** | ***42*** | ***35*** | ***25*** | **18** | **29** | **61%** | **-52%** |

- Morning cyclist characteristics are shown in Table 1.2 below. Overall, approximately two thirds of the cyclists (69 per cent) were school children (a 52 percentage point increase since 2012).
- Almost all of the cyclists across the Franklin ward sites were wearing a helmet (90 per cent, up from 50 per cent last year).
- Eight-three per cent of morning cyclists were males.
- This year, 79 per cent of the cyclists were riding on the footpath (up from 53 per cent in 2012).

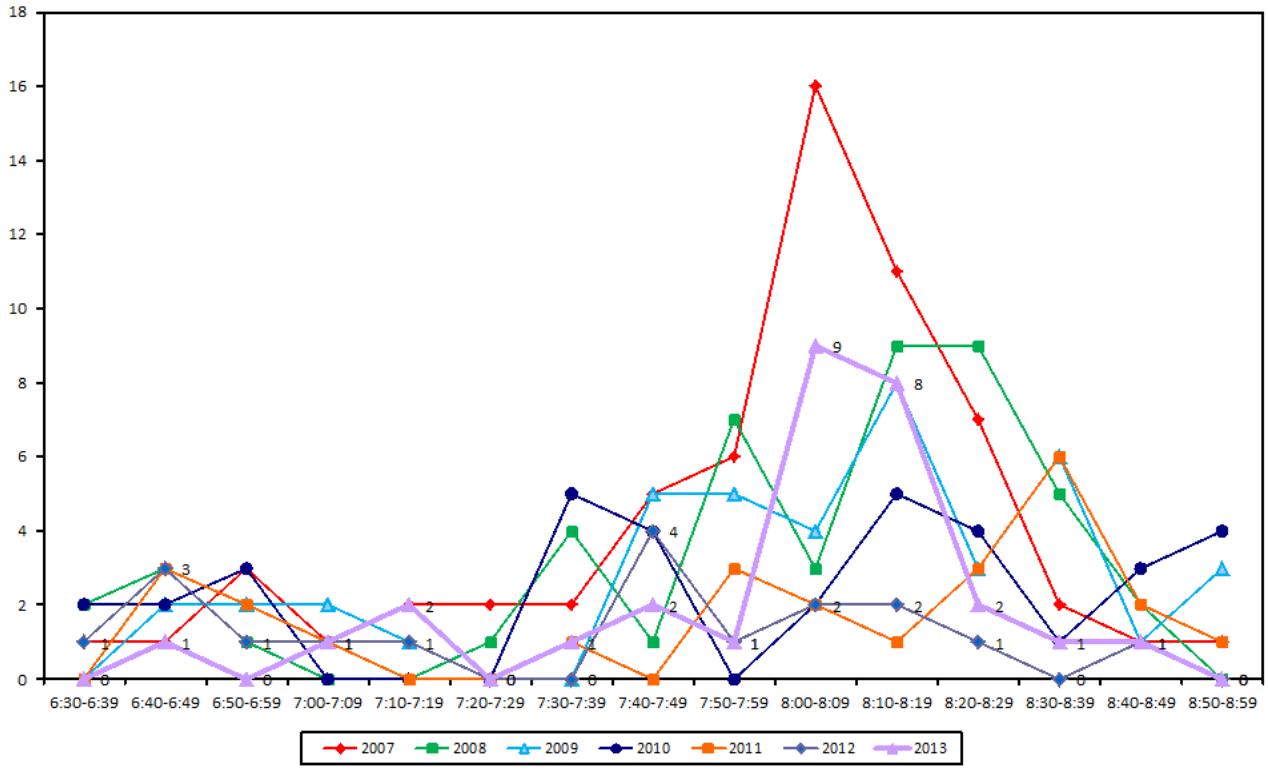
**Table 1.2: Summary of Morning Cyclist Characteristics**

**2007 – 2013 (%)**

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** | ***2013*** | **Change 12-13** |
|---|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | | |
| Adult | 33 | 57 | 40 | 69 | 60 | 83 | **31** | **-52** |
| School child | 67 | 43 | 60 | 31 | 40 | 17 | **69** | **52** |
| **Helmet Wearing** | | | | | | | | |
| Helmet on head | 93 | 91 | 79 | 80 | 92 | 50 | **90** | **40** |
| No helmet | 7 | 9 | 21 | 20 | 8 | 50 | **10** | **-40** |
| **Gender** | | | | | | | | |
| Male | - | - | - | - | 80 | 89 | **83** | **-6** |
| Female | - | - | - | - | 20 | 6 | **17** | **11** |
| Can't tell | - | - | - | - | 0 | 5 | **0** | **-5** |
| **Where Riding** | | | | | | | | |
| Road | 31 | 64 | 45 | 63 | 40 | 47 | **21** | **-26** |
| Footpath | 69 | 36 | 55 | 37 | 60 | 53 | **79** | **26** |
| ***Base:*** | ***61*** | ***47*** | ***42*** | ***35*** | ***25*** | ***18*** | ***29*** | |

- Figure 1.2 has illustrated the total number of cyclists in the morning peak by time of movement. The volume of morning cycle movements remained low throughout the morning period, peaking between 8:00am and 8:19am (a total of 17 movements across the two 10 minute intervals), after which the number of movements declines over the rest of the monitoring period. This year's graph resembles the graph of 2007, but with a smaller volume. Last year, cycle volumes peaked between 7:40am and 7:49am (4 movements).

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



## 1.5 Evening Peak

### *Environmental Conditions*

- The weather was partly overcast during the evening shift, with occasional drizzle at times.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- A total of 39 cyclist movements were recorded across the two sites monitored in the evening peak period (between 4:00pm and 7:00pm) in 2013. This represents a 28 per cent decrease on the 2012 result.
- The number of cycle movements recorded was down 48 per cent from seven years ago (75 movements recorded in 2007).
- The average volume of evening cyclist movements per site in the Franklin ward was 20 over the two monitored sites. This compares with 27 movements in 2012.
- Consistent with the previous year, the intersection of Queen Street and Harris Street continued to be the busiest in terms of the evening cyclists' activity, with 27 cycle movements recorded (down from 33 movements in 2012).

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

***2007 – 2013 (n)***

| *Site Number* | *Locations* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 | Change 07-13 |
|---|---|---|---|---|---|---|---|---|---|---|
| 68 | Queen/Harris Street | 57 | 52 | 68 | 39 | 53 | 33 | **27** | **-22%** | **-53%** |
| 69 | Edinburgh/Tobin Street | 18 | 24 | 19 | 11 | 17 | 21 | **12** | **-43%** | **-33%** |
| | **Average per site** | **38** | **38** | **44** | **25** | **35** | **27** | **20** | **-26%** | **-47%** |
| | **Total** | **75** | **76** | **87** | **50** | **70** | **54** | **39** | **-28%** | **-48%** |

- Just less than two-thirds of the evening cyclists were adults (62 per cent, down from 80 per cent in 2012).
- The majority (74 per cent) of cyclists were wearing a helmet (up from 67 per cent last year).
- Ninety-seven per cent of evening cyclists were male.
- About half the cyclists were riding on the road (54 per cent, up slightly from 50 per cent in the previous year).

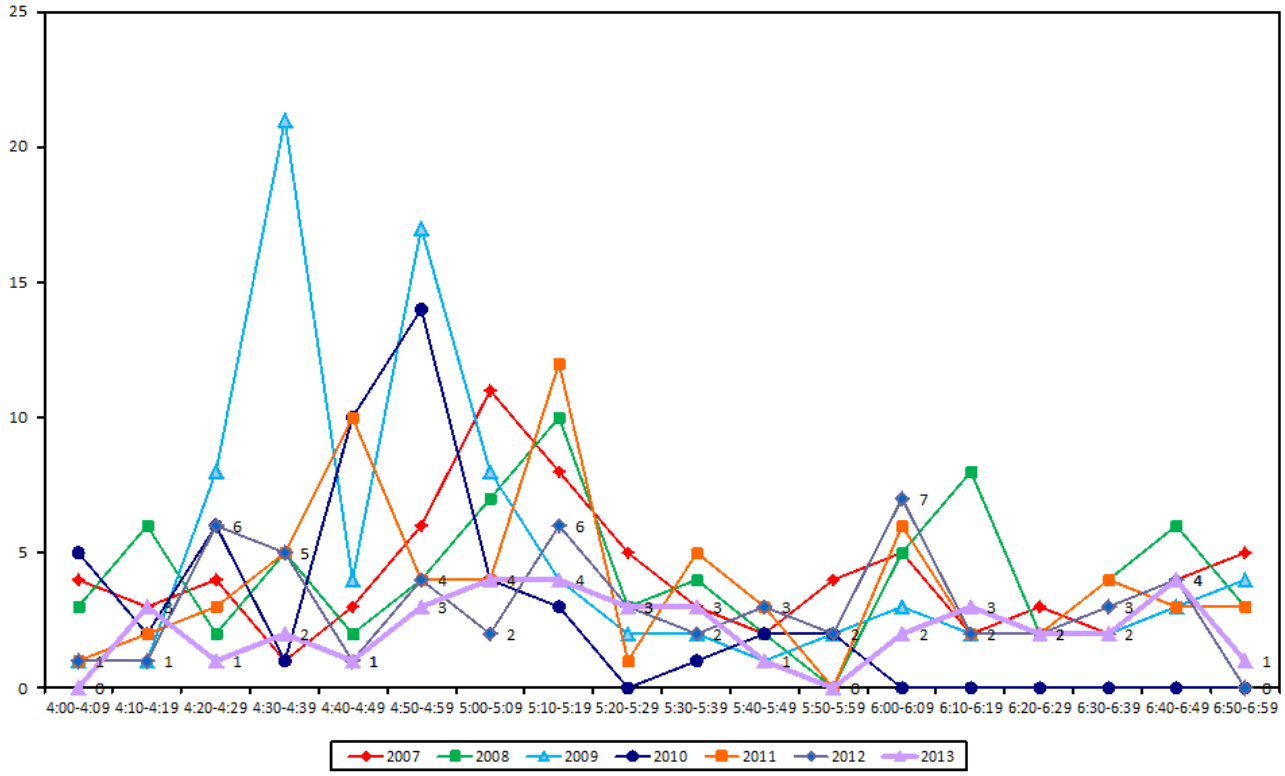
**Table 1.4: Summary of Evening Cyclist Characteristics**

**2007 – 2013 (%)**

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** | ***2013*** | **Change 12-13** |
|---|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | | |
| Adult | 55 | 51 | 33 | 50 | 48 | 80 | **62** | **-18** |
| School child | 45 | 49 | 67 | 50 | 52 | 20 | **38** | **18** |
| **Helmet Wearing** | | | | | | | | |
| Helmet on head | 64 | 63 | 85 | 78 | 77 | 67 | **74** | **7** |
| No helmet | 36 | 37 | 15 | 22 | 23 | 33 | **26** | **-7** |
| **Gender** | | | | | | | | |
| Male | - | - | - | - | 90 | 81 | **97** | **26** |
| Female | - | - | - | - | 10 | 15 | **3** | **-12** |
| Can't tell | - | - | - | - | 0 | 4 | **0** | **-4** |
| **Where Riding** | | | | | | | | |
| Road | 40 | 43 | 24 | 38 | 31 | 50 | **54** | **4** |
| Footpath | 60 | 57 | 76 | 62 | 69 | 50 | **46** | **-4** |
| ***Base:*** | ***75*** | ***76*** | ***87*** | ***50*** | ***70*** | ***54*** | ***39*** | |

- The overall pattern of cyclist volumes by time of movement in the evening has been illustrated in Figure 1.3. Evening cyclist volume was relatively stable, with the maximum of four cyclists recorded during any ten minute interval.

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



## 1.6 Aggregated Total

- A total of 68 cyclist movements were recorded across the two monitored sites in 2013. This represents a 6 per cent decrease when compared with the 2012 result. Cyclist volume has halved when compared with 2007.
- Consistent with last year, the busiest site was the intersection of Queen Street and Harris Street with a total of 47 movements recorded (the number of movements up 7 per cent from 2012).

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

**2007 – 2013 (n)**

| *Site No.* | *Locations* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 | Change 07-13 |
|---|---|---|---|---|---|---|---|---|---|---|
| 68 | Queen/Harris/Wesley Street | 101 | 83 | 95 | 57 | 67 | 44 | **47** | **7%** | **-53%** |
| 69 | Edinburgh/Tobin Street | 35 | 40 | 34 | 28 | 28 | 28 | **21** | **-25%** | **-40%** |
| | **Average per site** | **68** | **62** | **65** | **43** | **48** | **36** | **34** | **-6%** | **-50%** |
| | **Total** | **136** | **123** | **129** | **85** | **95** | **72** | **68** | **-6%** | **-50%** |

- Overall cyclist characteristics have been illustrated in Table 1.6. In total, 51 per cent of cyclists were children (a notable32 percentage point increase since 2012).
- Eighty-one per cent of cyclists were wearing a helmet (up from 62 per cent in 2012).
- Almost all cyclists observed in the Franklin ward were male (91 per cent, up 8 percentage points from 2012).
- Sixty per cent of the cyclists were riding on the footpath (up 9 percentage points from last year).

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

**2007 – 2013 (%)**

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** | ***2013*** | **Change 12-13** |
|---|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | | |
| Adult | 45 | 54 | 36 | 58 | 51 | 81 | **49** | **-32** |
| School child | 55 | 46 | 64 | 42 | 49 | 19 | **51** | **32** |
| **Helmet Wearing** | | | | | | | | |
| Helmet on head | 77 | 74 | 83 | 79 | 81 | 62 | **81** | **19** |
| No helmet | 23 | 26 | 17 | 21 | 19 | 38 | **19** | **-19** |
| **Gender** | | | | | | | | |
| Male | - | - | - | - | 87 | 83 | **91** | **8** |
| Female | - | - | - | - | 13 | 13 | **9** | **-4** |
| Can't tell | - | - | - | - | 0 | 4 | **0** | **-4** |
| **Where Riding** | | | | | | | | |
| Road | 36 | 51 | 31 | 48 | 33 | 49 | **40** | **-9** |
| Footpath | 64 | 49 | 69 | 52 | 67 | 51 | **60** | **9** |
| ***Base:*** | ***136*** | ***123*** | ***129*** | ***85*** | ***95*** | ***72*** | ***68*** | |

## 1.7 Average Annual Daily Traffic (AADT) Estimate

*Note: A discussion of Average Annual Daily Traffic Estimates is provided in Section 1.2. A full description of the tool, the calculation used, and the limitations of the estimates are provided in Appendix One. Readers are encouraged to review these sections in conjunction with the data presented here.*

- Table 1.7 provides the comparative AADT estimates for each site, based on the average of morning and evening peak AADT calculations.
- The highest AADT is at Queen/Harris/Wesley Street (68 daily movements, a slight increase from 62 movements in 2012, but down significantly - by 53 per cent - since monitoring began in 2007).

**Table 1.7: Dry Weather AADT Estimates Based on Morning and Evening Cyclist Movements 2007 – 2013 (n)**

| *Site No.* | *Locations* | *2007 AADT* | *2008 AADT* | *2009 AADT* | *2010 AADT* | *2011 AADT* | *2012 AADT* | *2013 AADT* | Change 12-13 | Change 07-13 |
|---|---|---|---|---|---|---|---|---|---|---|
| 68 | Queen/Harris Street | 146 | 119 | 135 | 81 | 94 | 62 | **68** | **10%** | **-53%** |
| 69 | Edinburgh/Tobin Street | 51 | 58 | 49 | 41 | 40 | 40 | **30** | **-25%** | **-41%** |

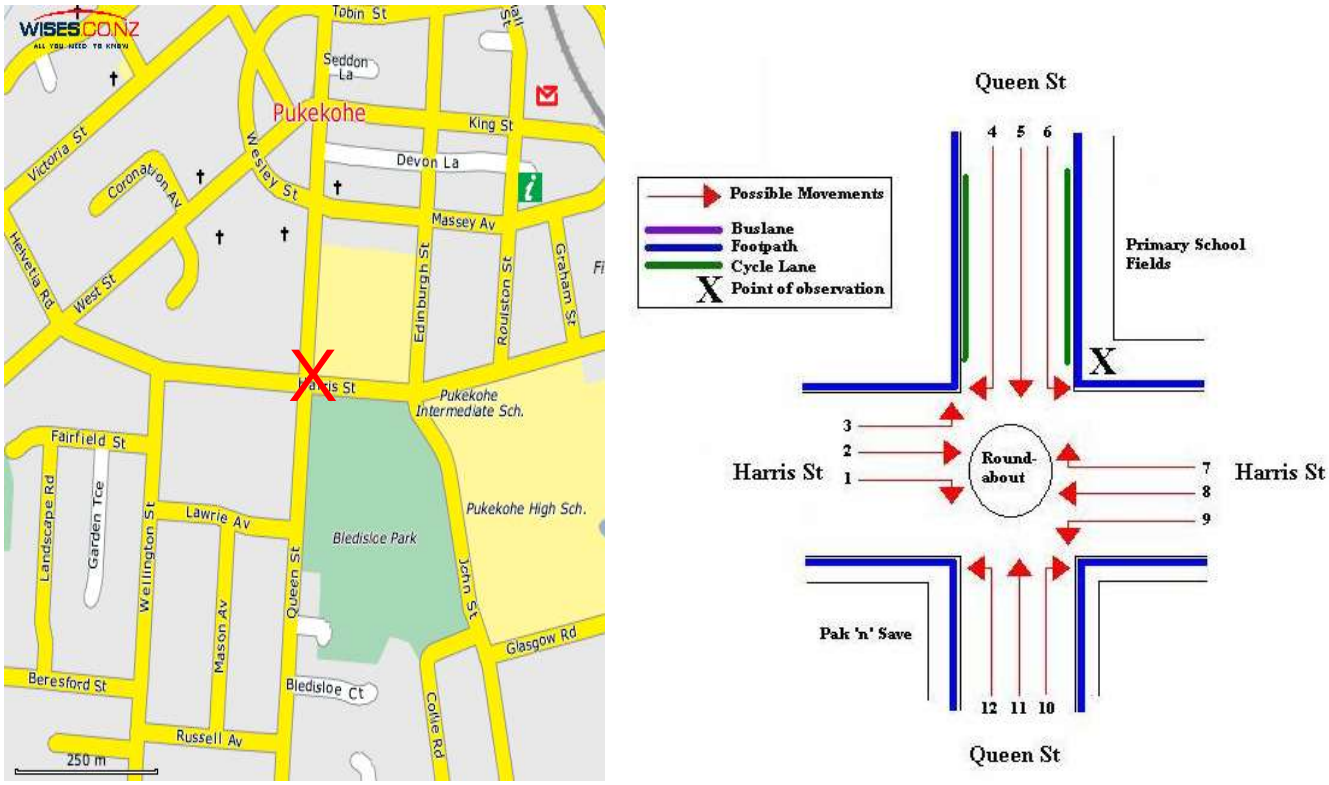
## 1.8 School Bike Shed Count Summary

- Among the surveyed schools, of those eligible to cycle, on average three per cent of students are cycling to their schools. This compares with 2 per cent in 2012.
- Beachlands School reported the highest share of cyclists – 24 per cent of all eligible students currently cycling to school, up from 6 per cent last year.
- In total, n=136 students from the responding schools were reported to be cycling to school.
- Of the 23 schools that responded, 12 (52 per cent) had no students cycling to school.
- Rates of cycling to school are highest for the full primary schools (3 per cent), unchanged from 2012.

# 2. QUEEN STREET/HARRIS STREET, PUKEKOHE (SITE 68)

Figure 2.1 shows the possible cyclist movements at this intersection.

**Figure 2.1: Cycle Movements: Queen/Harris Street**




## 2.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 44 | 57 | 101 | 146 |
| 2008 | 31 | 52 | 83 | 119 |
| 2009 | 27 | 68 | 95 | 135 |
| 2010 | 18 | 39 | 57 | 81 |
| 2011 | 14 | 53 | 67 | 94 |
| 2012 | 11 | 33 | 44 | 62 |
| **2013** | **20** | **27** | **47** | **68** |

## 2.2 Morning Peak

### *Environmental Conditions*

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

### *Key Points*

- Twenty cycle movements were recorded in the morning peak, up from 11 movements last year.
- The most common movement in the morning was turning right from Queen Street into Harris Street (Movement 10 = 5 cyclists).
- The most noticeable increase in cycle movements since 2012 is at Movement 10 (up 4 cyclists).

**Table 2.1: Morning Cyclist Movements**

**Queen/Harris Street 2007 – 2013 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 |
|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | **-1** |
| 2 | 16 | 7 | 13 | 7 | 2 | 2 | 2 | **0** |
| 3 | 12 | 7 | 2 | 2 | 3 | 2 | 3 | **1** |
| 4 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | **3** |
| 5 | 1 | 0 | 1 | 1 | 1 | 3 | 3 | **0** |
| 6 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | **0** |
| 7 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | **-1** |
| 8 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | **0** |
| 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **0** |
| 10 | 3 | 5 | 5 | 6 | 3 | 1 | 5 | **4** |
| 11 | 4 | 7 | 5 | 1 | 3 | 0 | 3 | **3** |
| 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| **Total** | **44** | **31** | **27** | **18** | **14** | **11** | **20** | **9** |

- Over the morning peak, the greatest share of cyclists (80 per cent) was school children, this share up from 18 per cent last year.
- Ninety per cent of the cyclists were wearing a helmet (a noticeable increase from 36 per cent in 2012).
- More than four in five cyclists at this site (90 per cent) were male.
- In contrast to last year, almost all cyclists (85 per cent) were riding on the footpath (up 35 percentage points since 2012).

**Table 2.2: Morning Cyclist Characteristics**

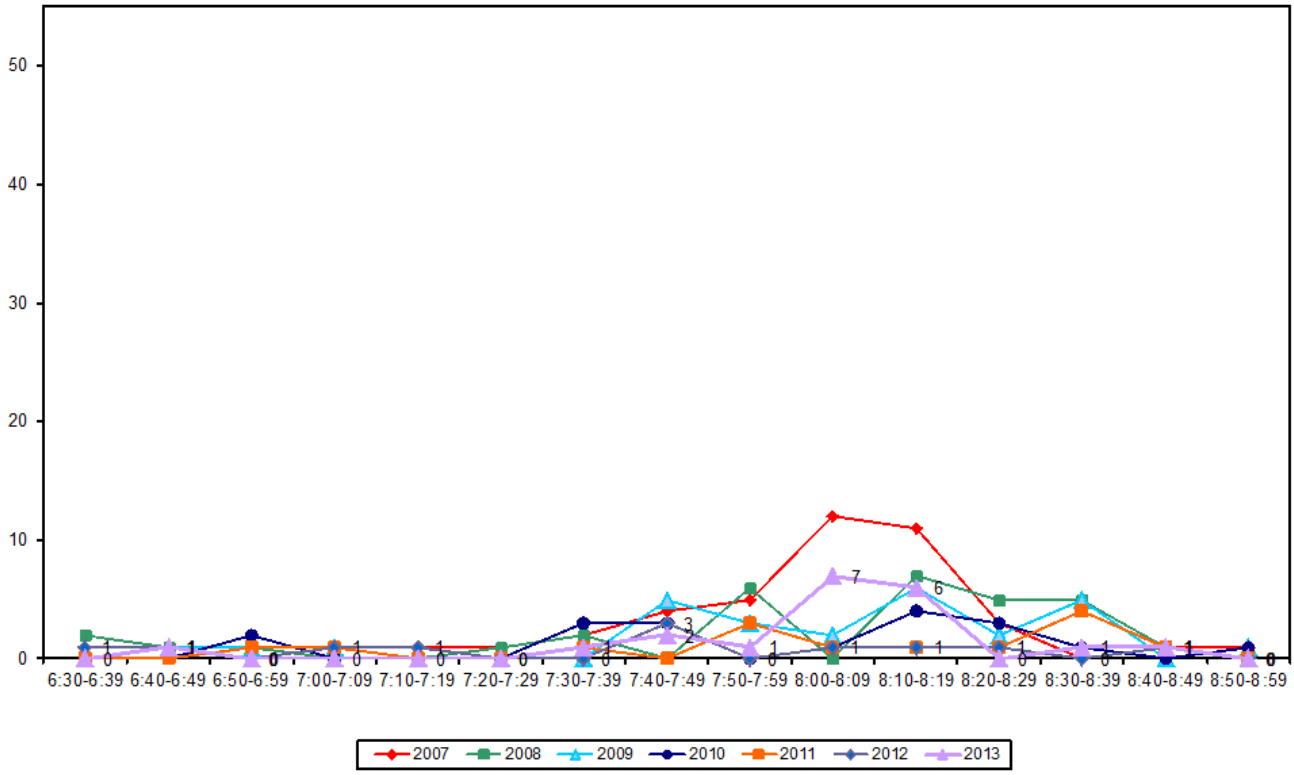
**Queen/Harris Street 2007 – 2013 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 |
|---|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | | |
| Adult | 27 | 58 | 37 | 61 | 43 | 82 | **20** | **-62** |
| School child | 73 | 42 | 63 | 39 | 57 | 18 | **80** | **62** |
| **Helmet Wearing** | | | | | | | | |
| Helmet on head | 93 | 94 | 74 | 72 | 100 | 36 | **90** | **54** |
| No helmet | 7 | 6 | 26 | 28 | 0 | 64 | **10** | **-54** |
| **Gender** | | | | | | | | |
| Male | - | - | - | - | 86 | 91 | **90** | **-1** |
| Female | - | - | - | - | 14 | 9 | **10** | **1** |
| Can't tell | - | - | - | - | 0 | 0 | **0** | **0** |
| **Where Riding** | | | | | | | | |
| Road | 25 | 58 | 48 | 61 | 36 | 50 | **15** | **-35** |
| Footpath | 75 | 42 | 52 | 39 | 64 | 50 | **85** | **35** |
| ***Base:*** | ***44*** | ***31*** | ***27*** | ***18*** | ***14*** | ***11*** | ***20*** | |

- The volume of morning cycle movements remained relatively low throughout the shift, with a slight peak evident between 8:00am and 8:19am (a total of 13 movements). This pattern is similar to that recorded in 2012.

**Figure 2.2: Morning Peak Cyclist Frequency**

**Queen/Harris Street 2007 – 2013 (n)**



## 2.3 Evening Peak

### *Environmental Conditions*

- The weather was partly overcast with occasional drizzle during the shift.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The total number of cycle movements recorded at the Queen/Harris Street intersection in the evening has decreased from 33 movements in 2012 to 27 movements this year.
- The most common movement in the evening was heading west along Harris Road (Movement 8 = 6 cyclists).
- The most noticeable change in terms of evening cyclist movements was reported for Movement 11 – heading north along Queen Street (down 5 cyclists).

**Table 2.3: Evening Cyclist Movements**

**Queen/Harris Street 2007 – 2013 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 |
|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2 | 0 | 0 | 7 | 0 | **4** | **4** |
| 2 | 1 | 3 | 1 | 0 | 4 | 7 | **4** | **-3** |
| 3 | 6 | 4 | 3 | 0 | 0 | 3 | **1** | **-2** |
| 4 | 6 | 4 | 2 | 0 | 3 | 3 | **0** | **-3** |
| 5 | 17 | 8 | 4 | 6 | 8 | 4 | **1** | **-3** |
| 6 | 0 | 2 | 0 | 1 | 0 | 1 | **2** | **1** |
| 7 | 0 | 2 | 0 | 4 | 0 | 0 | **0** | **0** |
| 8 | 16 | 8 | 6 | 7 | 3 | 3 | **6** | **3** |
| 9 | 0 | 5 | 50 | 13 | 5 | 5 | **3** | **-2** |
| 10 | 2 | 1 | 0 | 3 | 0 | 1 | **2** | **1** |
| 11 | 8 | 8 | 2 | 5 | 11 | 6 | **1** | **-5** |
| 12 | 1 | 5 | 0 | 0 | 12 | 0 | **3** | **3** |
| **Total** | **57** | **52** | **68** | **39** | **53** | **33** | **27** | **-6** |

- Nearly half of all cyclists using the Queen/Harris Street intersection were adults (56 per cent, compared with 73 per cent last year).
- Sixty-three per cent of cyclists at this site were wearing a helmet (down slightly from 67 per cent in 2012).
- Nearly all cyclists were male (96 per cent, compared with 79 per cent last year).
- Footpath riding continued to be more common than riding on the road (59 per cent, stable from 61 per cent last year).

**Table 2.4: Evening Cyclist Characteristics**

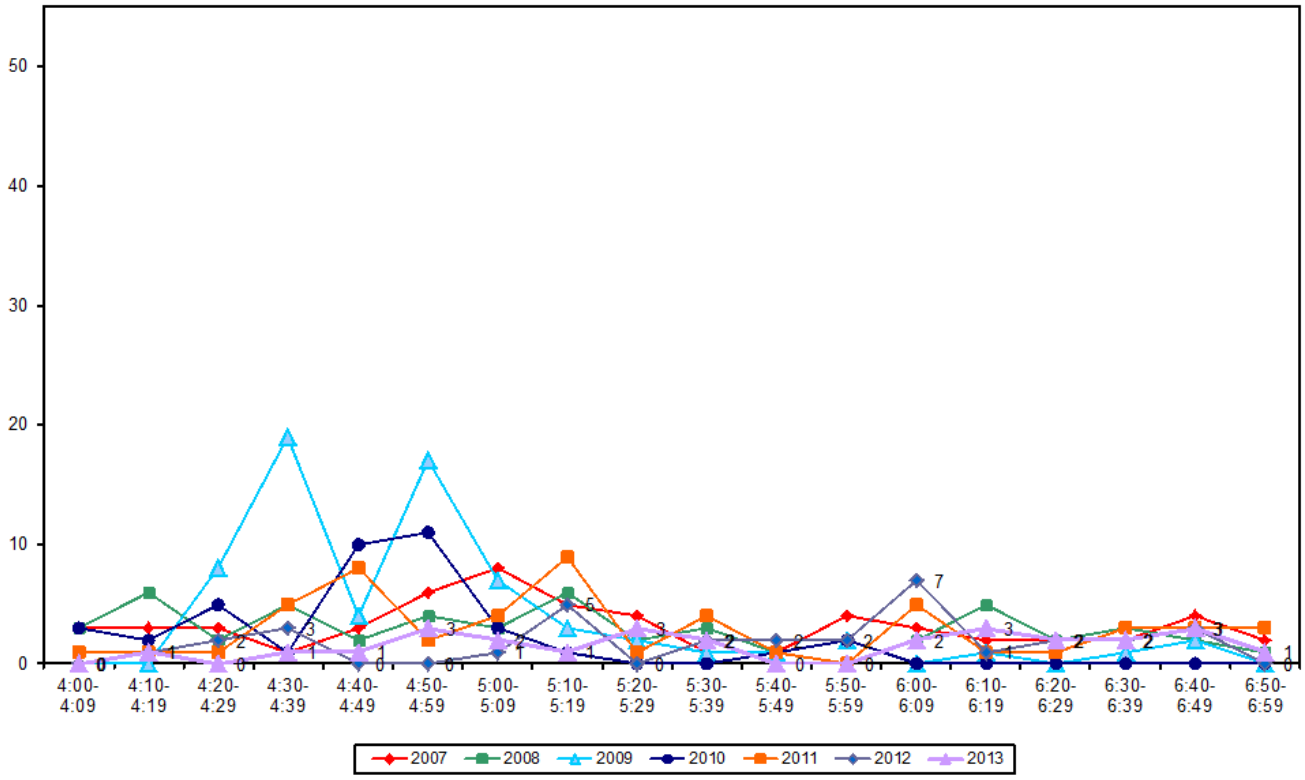
**Queen/Harris Street 2007 – 2013 (%)**

| | ***2007*** | ***2008*** | ***2009*** | ***2010*** | ***2011*** | ***2012*** | ***2013*** | **Change 12-13** |
|---|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | | |
| Adult | 47 | 50 | 26 | 38 | 45 | 73 | **56** | **-17** |
| School child | 53 | 50 | 74 | 62 | 55 | 27 | **44** | **17** |
| **Helmet Wearing** | | | | | | | | |
| Helmet on head | 60 | 67 | 93 | 77 | 72 | 67 | **63** | **-4** |
| No helmet | 40 | 33 | 7 | 23 | 28 | 33 | **37** | **4** |
| **Gender** | | | | | | | | |
| Male | - | - | - | - | 94 | 79 | **96** | **17** |
| Female | - | - | - | - | 6 | 21 | **4** | **-17** |
| Can't tell | - | - | - | - | 0 | 0 | **0** | **0** |
| **Where Riding** | | | | | | | | |
| Road | 35 | 42 | 15 | 26 | 26 | 39 | **41** | **2** |
| Footpath | 65 | 58 | 85 | 74 | 74 | 61 | **59** | **-2** |
| ***Base:*** | ***57*** | ***52*** | ***68*** | ***39*** | ***53*** | ***33*** | ***27*** | |

- The volume of cycle movements in the evening remained relatively low and stable throughout the shift.

**Figure 2.3: Evening Peak Cyclist Frequency**

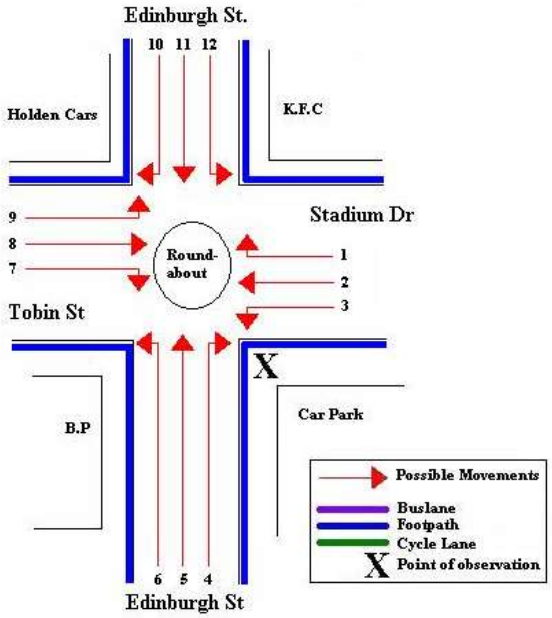
**Queen/Harris Street 2007 – 2013 (n)**



# 3. EDINBURGH STREET/TOBIN STREET, PUKEKOHE (SITE 69)

Figure 3.1 shows the possible cyclist movements at this intersection.

**Figure 3.1: Cycle Movements: Edinburgh/Tobin Street**


## 3.1 Site Summary

| | Raw Counts | | | AADT |
|---|---|---|---|---|
| | *Morning Peak* | *Evening Peak* | *Total* | *Total* |
| 2007 | 17 | 18 | 35 | 51 |
| 2008 | 16 | 24 | 40 | 58 |
| 2009 | 15 | 19 | 34 | 49 |
| 2010 | 17 | 11 | 28 | 41 |
| 2011 | 11 | 17 | 28 | 40 |
| 2012 | 7 | 21 | 28 | 40 |
| **2013** | **9** | **12** | **21** | **30** |

## 3.2 Morning Peak

### *Environmental Conditions*

- The weather was fine throughout the morning shift, with the exception of a 10 minute light shower.
- There were no road works or accidents that may affect cycle counts.

### *Key Points*

- The volume of morning cyclists at the Edinburgh/Tobin Street intersection has remained stable (from 7 movements recorded in 2012 to 9 movements this year).
- The most common movement in the morning was turning left into Stadium Drive from Edinburgh Street (Movement 12 = 3 cyclists).
- Morning cyclist volumes at all movements were stable compared with last year.

**Table 3.1: Morning Cyclist Movements**

**Edinburgh/Tobin Street 2007 – 2013 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 |
|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 1 | 0 | 0 | 1 | 0 | **0** | **0** |
| 2 | 1 | 2 | 2 | 2 | 0 | 1 | **0** | **-1** |
| 3 | 1 | 1 | 0 | 0 | 0 | 0 | **2** | **2** |
| 4 | 0 | 0 | 1 | 1 | 0 | 0 | **0** | **0** |
| 5 | 3 | 1 | 2 | 2 | 2 | 1 | **1** | **0** |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **1** |
| 7 | 0 | 1 | 1 | 0 | 1 | 0 | **0** | **0** |
| 8 | 0 | 4 | 1 | 2 | 0 | 1 | **2** | **1** |
| 9 | 0 | 0 | 0 | 1 | 2 | 1 | **0** | **-1** |
| 10 | 0 | 1 | 2 | 0 | 0 | 1 | **0** | **-1** |
| 11 | 10 | 3 | 6 | 6 | 3 | 0 | **0** | **0** |
| 12 | 2 | 2 | 0 | 3 | 2 | 2 | **3** | **1** |
| **Total** | **17** | **16** | **15** | **17** | **11** | **7** | **9** | **2** |

- Just less than half of the cyclists at this site were school children (44 per cent, up from 14 per cent last year).
- Almost all cyclists were wearing a helmet (89 per cent, up from 71 per cent in 2012).
- Sixty-seven per cent of cyclists at this intersection in the morning peak were male.
- Similar to 2012, the greatest share of cyclists (67%) were riding on the footpath (compared with 57 per cent last year).

**Table 3.2: Morning Cyclist Characteristics**

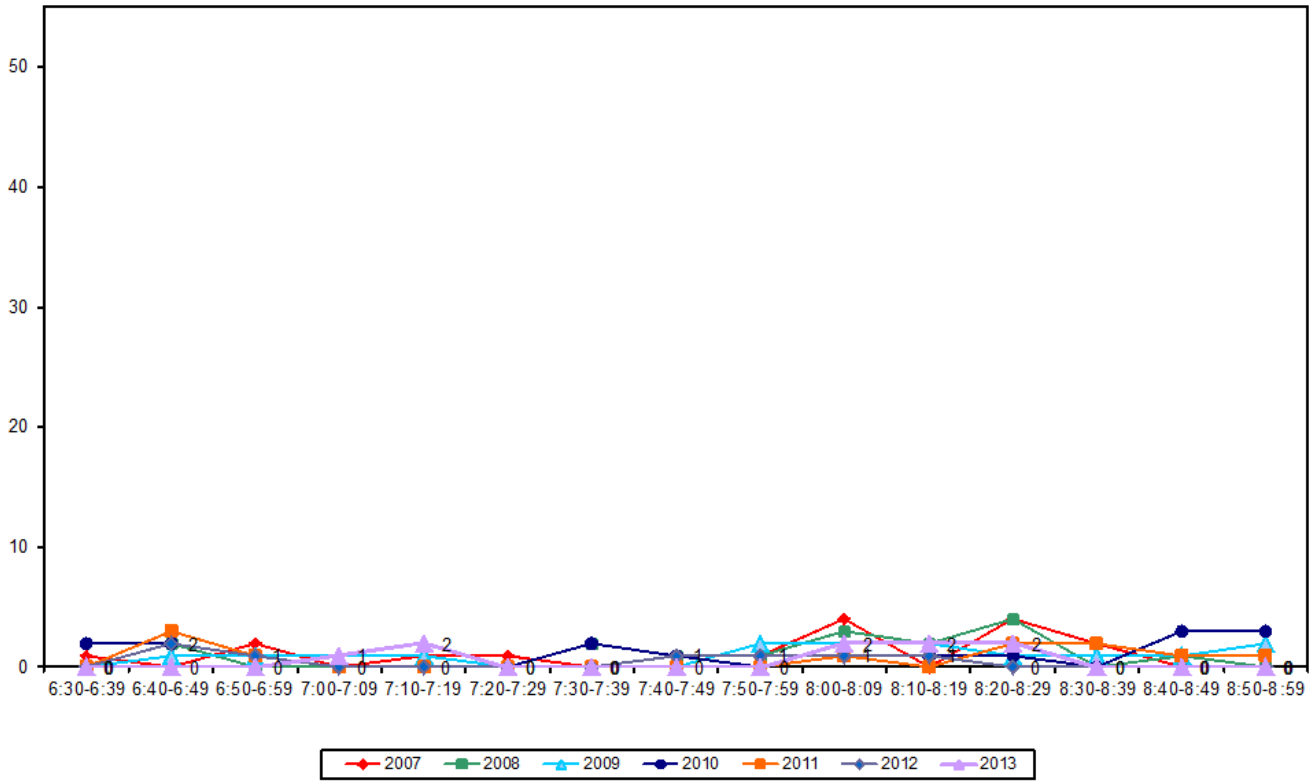
**Edinburgh/Tobin Street 2007 – 2013 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 |
|---|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | | |
| Adult | 47 | 56 | 47 | 76 | 82 | 86 | **56** | **30** |
| School child | 53 | 44 | 53 | 24 | 18 | 14 | **44** | **-30** |
| **Helmet Wearing** | | | | | | | | |
| Helmet on head | 94 | 88 | 87 | 88 | 82 | 71 | **89** | **18** |
| No helmet | 6 | 12 | 13 | 12 | 18 | 29 | **11** | **-18** |
| **Gender** | | | | | | | | |
| Male | - | - | - | - | 73 | 86 | **67** | **-19** |
| Female | - | - | - | - | 27 | 0 | **33** | **33** |
| Can't tell | - | - | - | - | 0 | 14 | **0** | **-14** |
| **Where Riding** | | | | | | | | |
| Road | 47 | 75 | 40 | 65 | 45 | 43 | **33** | **-10** |
| Footpath | 53 | 25 | 60 | 35 | 55 | 57 | **67** | **10** |
| ***Base:*** | ***17*** | ***16*** | ***15*** | ***17*** | ***11*** | ***7*** | ***9*** | |

- Morning cycle volume was low throughout the monitoring period, with no more than two cyclists recorded during any ten minute interval. This pattern is consistent with that observed in previous years.

**Figure 3.2: Morning Peak Cyclist Frequency**

**Edinburgh/Tobin Street 2007 – 2013 (n)**



## 3.3 Evening Peak

### *Environmental Conditions*

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

### *Key Points*

- This year, the total number of cycle movements recorded in the evening at the Edinburgh/Tobin Street intersection has decreased (from 21 in 2012 to 12 movements).
- The key movements in the evening were straight along Edinburgh Street heading south (Movement 11 = 3 cyclists) and turning right from Stadium Drive to Edinburgh Street (Movement 1 = 3 cyclists).

**Table 3.3: Evening Cyclist Movements**

**Edinburgh/Tobin Street 2007 – 2013 (n)**

| *Movement* | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 |
|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 2 | 0 | 0 | 2 | 1 | **3** | **2** |
| 2 | 0 | 4 | 4 | 1 | 0 | 4 | **1** | **-3** |
| 3 | 4 | 0 | 3 | 0 | 0 | 1 | **0** | **-1** |
| 4 | 0 | 0 | 1 | 0 | 0 | 1 | **0** | **-1** |
| 5 | 2 | 2 | 1 | 2 | 5 | 4 | **1** | **-3** |
| 6 | 1 | 4 | 0 | 2 | 0 | 3 | **0** | **-3** |
| 7 | 1 | 0 | 1 | 1 | 1 | 1 | **0** | **-1** |
| 8 | 1 | 5 | 0 | 0 | 3 | 0 | **0** | **0** |
| 9 | 2 | 1 | 2 | 2 | 2 | 2 | **2** | **0** |
| 10 | 1 | 1 | 2 | 0 | 1 | 1 | **0** | **-1** |
| 11 | 3 | 3 | 5 | 3 | 1 | 2 | **3** | **1** |
| 12 | 3 | 2 | 0 | 0 | 2 | 1 | **2** | **1** |
| **Total** | **18** | **24** | **19** | **11** | **17** | **21** | **12** | **-9** |

- The share of cyclists using this intersection in the evening who are children has increased since last year, up 15 percentage points to 25 per cent.
- All cyclists at this site were wearing a helmet (up from 67 per cent last year).
- All cyclists were male. There has been a continuous decrease in the share of female cyclists since the first monitored in 2011.
- The greatest share of cyclists (83 per cent) was riding on the road (compared with 67 per cent last year).

**Table 3.4: Evening Cyclist Characteristics**

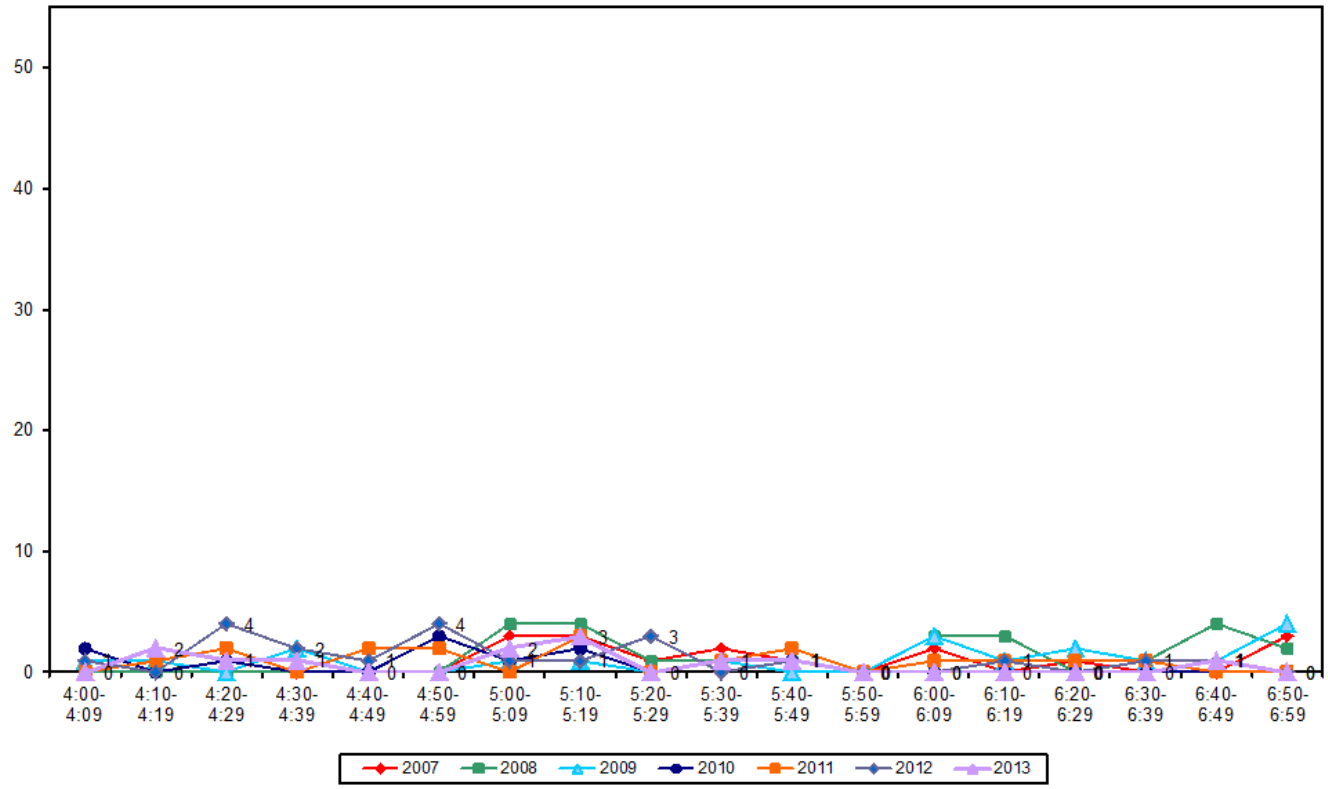
**Edinburgh/Tobin Street 2007 – 2013 (%)**

| | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | Change 12-13 |
|---|---|---|---|---|---|---|---|---|
| **Cyclist Type** | | | | | | | | |
| Adult | 78 | 54 | 58 | 91 | 59 | 90 | **75** | **-15** |
| School child | 22 | 46 | 42 | 9 | 41 | 10 | **25** | **15** |
| **Helmet Wearing** | | | | | | | | |
| Helmet on head | 78 | 54 | 58 | 82 | 94 | 67 | **100** | **33** |
| No helmet | 22 | 46 | 42 | 18 | 6 | 33 | **0** | **-33** |
| **Gender** | | | | | | | | |
| Male | - | - | - | - | 76 | 86 | **100** | **14** |
| Female | - | - | - | - | 24 | 5 | **0** | **-5** |
| Can't tell | - | - | - | - | 0 | 9 | **0** | **-9** |
| **Where Riding** | | | | | | | | |
| Road | 56 | 46 | 58 | 82 | 47 | 67 | **83** | **16** |
| Footpath | 44 | 54 | 42 | 18 | 53 | 33 | **17** | **-16** |
| ***Base:*** | ***18*** | ***24*** | ***19*** | ***11*** | ***17*** | ***21*** | ***12*** | |

- Evening cycle volume was low throughout the monitoring period, with no more than three cyclists recorded during any ten minute interval. This pattern is consistent with that observed in previous years.

**Figure 3.3: Evening Peak Cyclist Frequency**

**Edinburgh/Tobin Street 2007 – 2013 (n)**



# 4. SCHOOL BIKE SHED COUNT

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

## 4.1 Background Information

- A total of 23 schools in the Franklin ward participated in the school bike shed count. Of the schools that responded to the survey, most had no policies that restrict students cycling to school[9].
- Most schools surveyed reported no events or issues that may affect the cycle counts[10].
- The designated count day was Tuesday 5th of March 2013[11].

## 4.2 Key Points

- Among the surveyed schools, of those eligible to cycle to school, on average, three per cent of students are cycling to their schools, up from 2 per cent in 2012.
- Beachlands School reported the highest share of cyclists – 24 per cent of all eligible students currently cycling to school, up from 6 per cent last year.
- In total, n=136 students from the responding schools were reported to be cycling to school.
- Of the 23 schools that responded, 12 (52 per cent) had no students cycling to school.
- Of the 20 schools that participated in the count in both 2012 and 2013, 8 (40 per cent) reported an increase in the share of students cycling, the most notable increases being:
  - Beachlands School (24 per cent, up from 6 per cent)
  - Sandspit Road School (13 per cent, up from 5 per cent).

[9] The following schools have policies surrounding cycling to school:
- Beachlands School *"Students aged 10 years olds upwards may cycle to school"*
- Maraetai Beach School *" Recommended that only students in Years 5-8 cycle to school"*
- Ramarama School *"Recommend that no child under the age of ten should cycle to school unless accompanied by an adult"*
- Sandspit Road School *"Only Year 4 and above allowed to cycle to school"*
- St Joseph's School Pukekohe *"Year 5 and up are encouraged to ride"*
- Te Kura Kaupapa Māori o Waiuku *"Parents must accompany children cycling to school"*
- Waiau Pa School *"Only Years 7 and 8 are allowed to cycle to school"*

[10] The following schools reported events or issues that had an effect on the cycle count:
- Awhitu District School *"Triathlon training today – normally we don't have cyclists"*

[11] The following schools conducted their counts on alternative days:
- Bombay School – 13th March 2013
- Buckland School – 13th March 2013
- Clevedon School – 28th February 2013
- Hunua School – 13th March 2013
- Paerata School – 14th March 2013
- Pukekohe Christian School – 1st March 2013
- Pukekohe North School – 11th March 2013
- Te Kura Kaupapa Māori o Waiuku – 13th March 2013
- Waiau Pa School – 13th March 2013
- Waiuku Primary School – 13th March 2013

- Of the 20 schools that participated in the count in both 2012 and 2013, 4 (20 per cent) reported a decrease in the share of students cycling.

Table 4.1 shows the results of the 23 schools surveyed in the Franklin ward.

**Table 4.1: Summary Table Of School Bike Count**

**2007 – 2013 (n)**

| *School Name* | *School Type* | *School Roll Eligible To Cycle* | *No. of Cycles Counted* | *Cyclists as share of those eligible*[12] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | *2013* | *2012* | *2011* | *2010* | *2009* | *2008* | *2007* |
| Beachlands School | Full Primary | 167 | 40 | **24%** | 6% | 7% | - | - | - | - |
| Sandspit Road School | Full Primary | 239 | 30 | **13%** | 5% | 10% | - | - | - | - |
| Buckland School | Full Primary | 323 | 20 | **6%** | 2% | 6% | - | - | - | - |
| View Road School | Full Primary | 150 | 8 | **5%** | 5% | 3% | - | - | - | - |
| Awhitu District School | Full Primary | 110 | 6 | **5%** | 0% | 2% | - | - | - | - |
| Waiuku Primary School | Full Primary | 325 | 11 | **3%** | 12% | 5% | - | - | - | - |
| Maraetai Beach School | Full Primary | 90 | 3 | **3%** | 1% | 3% | - | - | - | - |
| Pukekohe North School | Full Primary | 220 | 7 | **3%** | - | - | - | - | - | - |
| Pukekohe Christian School | Composite | 167 | 1 | **1%** | <1% | - | - | - | - | - |
| Waiuku College | Secondary | 925 | 9 | **1%** | <1% | - | - | - | - | - |
| St Joseph's School (Pukekohe) | Full Primary | 189 | 1 | **1%** | 0% | 2% | - | - | - | - |
| Waiau Pa School | Full Primary | 72 | 0 | **0%** | 2% | - | - | - | - | - |
| Ardmore School | Full Primary | 334 | 0 | **0%** | 0% | 0% | - | - | - | - |
| Paerata School | Full Primary | 115 | 0 | **0%** | - | - | - | - | - | - |
| Te Kura Kaupapa Māori o Waiuku | Full Primary | 13 | 0 | **0%** | - | - | - | - | - | - |
| Clevedon School | Full Primary | 345 | 0 | **0%** | 1% | - | - | - | - | - |
| Ramarama School | Full Primary | 197 | 0 | **0%** | 1% | 2% | - | - | - | - |
| Ararimu School | Full Primary | 116 | 0 | **0%** | 0% | 0% | - | - | - | - |

[12] 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* | *School Type* | *School Roll Eligible To Cycle* | *No. of Cycles Counted* | *Cyclists as share of those eligible*[12] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | *2013* | *2012* | *2011* | *2010* | *2009* | *2008* | *2007* |
| Bombay School | Full Primary | 332 | 0 | **0%** | 0% | 0% | - | - | - | - |
| Glenbrook School | Full Primary | 243 | 0 | **0%** | 0% | 0% | - | - | - | - |
| Hunua School | Full Primary | 97 | 0 | **0%** | 0% | - | - | - | - | - |
| KingsGate School | Full Primary | 51 | 0 | **0%** | 0% | 0% | - | - | - | - |
| Waipipi School | Full Primary | 115 | 0 | **0%** | 0% | - | - | - | - | - |
| **Total** | | **4935** | **136** | **3%** | 2% | 3% | - | - | - | - |

Table 4.2 illustrates the rates of cycling to school at different school levels. Rates of cycling to school are highest for the full primary schools (3 per cent), unchanged from 2012.

**Table 4.2: Summary Table Of School Bike Count by School Type**

**2007 – 2013 (%)**

| *School Type* | *Number of Schools Responded in 2013 (n)* | *Cyclists as share of those eligible* | | | | | | | Change |
|---|---|---|---|---|---|---|---|---|---|
| | | *2007* | *2008* | *2009* | *2010* | *2011* | *2012* | *2013* | 12-13 |
| Full Primary | 21 | - | - | - | - | 4% | 3% | **3%** | **0%** |
| Composite | 1 | 1% | 1% | 1% | 2% | 1% | <1% | **1%** | **0%** |
| Secondary | 1 | - | - | - | - | - | <1% | **1%** | **0%** |
| Intermediate | - | 5% | 7% | 3% | - | 2% | 1% | **-** | **-** |
| Intermediate/Secondary | - | - | 2% | 1% | 1% | 1% | - | **-** | **-** |

# APPENDIX

Appendix One:  Annual Average Daily Traffic (AADT) Calculation

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

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

## Purpose

The purpose of this appendix is to document the recommended procedure for estimating a cycling AADT[13] 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)[14], 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.

[13] Annual average daily traffic

[14] LTSA, 2004

For the Gravitas counts, the following factors apply:

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

D = 14

W = 0.9

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

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

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

## Worked Example

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

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

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

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

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

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

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