

# **Understanding the transport-mediated impacts of new highways on community connectedness and severance – a New Zealand case study.**

## **Stage 1: Understand the issues, select a case study and develop the methods**

R. Quigley. Director, Quigley and Watts Ltd, Wellington.

M. Ward. Ward Wilson Ltd.

K. Marsh. Researcher, Quigley and Watts Ltd, Wellington

C. Watts. Director, Quigley and Watts Ltd, Wellington

J. Ball. Researcher, Quigley and Watts Ltd, Wellington

Version 1.0 28 January 2013, Draft.

This report describes the first stage of a multi-stage study. It presents the work undertaken to develop new and innovative methods to understand the effect of a new highway on social connectedness and community severance. This topic has not previously been studied anywhere in the world to any substantial degree, hence this report is a major step forward in the potential understanding of this topic.

ISBN 978-0-478-XXXXX-X (electronic)

ISSN 1173-XXXX (electronic)

NZ Transport Agency Private Bag 6995, Wellington 6141, New Zealand

Telephone 64 4 894 5400; facsimile 64 4 894 6100

xxx@nzta.govt.nz

www.nzta.govt.nz

Suggested citation: Quigley, R; Ward, M; Marsh, K; Watts, C; and Ball, J. (2013). Understanding the transport-mediated impacts of new highways on community connectedness and severance – a New Zealand case study. Stage 1: Understand the issues, select a case study and develop the methods. Wellington: NZ Transport Agency (2013).

This publication is copyright © NZ Transport Agency 2013. Material in it may be reproduced for personal or in-house use without formal permission or charge, provided suitable acknowledgement is made to this publication and the NZ Transport Agency as the source. Requests and enquiries about the reproduction of material in this publication for any other purpose should be made to the Environment and Urban Design Manager, Highways and Network Operations, National Office, NZ Transport Agency, Private Bag 6995, Wellington 6141.

**Keywords:** community severance, social connectedness, New Zealand, NZ Transport Agency, method, effect, social, highway.

# Acknowledgements

The study team was made up of Quigley and Watts Ltd staff and Martin Ward (Ward Wilson Ltd). Chris Webber (Kapiti Area Research Unit) developed the Maori methods for stage one. The study team was greatly assisted by partner agencies and their staff. In particular:

1. NZ Transport Agency – Carl Reller (Stage One study sponsor), Georgina Cranswick (NZTA contract manager)
2. Kapiti Coast District Council – Cath Edmondson (key contact on the Kapiti Coast).

Two individuals provided ongoing advice throughout stage one:

1. Vivienne Ivory on methods development (University of Otago)
2. Marc Bailey on methods development (Boffa Miskell).

The authors acknowledge the project’s Technical Advisory Group members whose comments and suggestions helped to set the scope and direction for this work: Georgina Cranswick (Environmental Specialist, National Office, NZTA), Marc Bailey (Boffa Miskell), Vivienne Ivory (University of Otago), Carl Reller, Environment Manager, National Office, NZTA; Lucie Desrosiers (Senior Urban Design Advisor, HNO, NZTA); Cath Edmondson (Kapiti Coast District Council); Ulrike Neumann (Advisor Integrated Planning, Planning and Investment, NZTA); Fergus Tate (National Manager Traffic and Safety HNO, NZTA).

A number of other experts also provided input into various parts of the standard during the consultation undertaken, and the authors particularly wish to thank all those participants for their constructive comments and feedback.

## Abbreviations and acronyms

NZTA New Zealand Transport Agency

# Table of contents

Acknowledgements.....	iii
Abbreviations and acronyms.....	iii
Table of contents.....	4
<b>1 Executive summary .....</b>	<b>6</b>
<b>2 Introduction.....</b>	<b>10</b>
2.1 Background .....	10
2.2 Aims and objectives of the study.....	10
2.2.1 Aims.....	10
2.2.2 Objectives.....	10
2.3 General approach to the study and structure of the report .....	11
<b>3 Overall summary of stage one findings.....</b>	<b>13</b>
<b>4 Approach and findings.....</b>	<b>14</b>
4.1 Set up Technical Advisory Group.....	14
4.2 Developing the study design.....	14
4.2.1 Methodological challenges .....	14
4.2.2 Study design.....	15
4.2.3 Developing hypotheses.....	15
4.2.4 Analysis and reporting.....	15
4.3 Confirm ‘case study’ as MacKay’s to Peka Peka, and work to its timeline .....	16
4.3.1 Selecting a case study.....	16
4.3.2 MacKays to Peka Peka in the Roads of National Significance work programme....	16
4.3.3 Selecting the study community.....	22
4.3.4 The study timeline .....	23
4.4 Literature review findings.....	25
4.4.1 Literature review on community cohesion and community severance: Definitions and indicators for transport planning and monitoring.....	25
4.4.2 Literature review on community severance and social connectedness: Definitions, pathways and measurement .....	28
4.5 Causal pathway (development ongoing throughout stage one).....	31
4.6 Household Travel Survey and Census investigated.....	33
4.7 Study area profile.....	35
4.7.1 Census Area Units within the broader study area.....	35
4.7.2 Kapiti Coast District.....	40
4.7.3 Analysis of the study area as two area-based groupings.....	46
4.8 Develop memoranda of understanding.....	47
4.8.1 Introduction.....	47
4.8.2 MOU with Kapiti Coast District Council .....	47
4.8.3 MOU with Greater Wellington Regional Council .....	47
4.8.4 MOU with facility case study organisations .....	47
4.9 Site visits conducted.....	49

4.10	Develop methods and pre-test questionnaires .....	50
4.10.1	Neighbourhood case studies.....	51
4.10.2	Facility case studies.....	83
4.10.3	School case studies.....	94
4.10.4	Network monitoring, noise and crash statistics.....	106
4.10.5	Use of existing surveys and data sets. ....	113
4.10.6	Pretesting .....	115
4.11	Pilot stage one .....	117
<b>5</b>	<b>Next steps .....</b>	<b>119</b>
	<b>Appendix 1 - Demographic comparison of potential study areas .....</b>	<b>120</b>
	<b>Appendix 2 – Individual census area units within the study area.....</b>	<b>123</b>
	Group One Census Area Units:.....	124
	Group Two Census Area Units: .....	128
	<b>Appendix 3 – Neighbourhood case study household questionnaire.....</b>	<b>133</b>
	Usage and perception of transport modes.....	143
	Global neighbourhood questions .....	147
	Social contact.....	148
	Use of street as a social space.....	151
	Impact of traffic noise .....	151
	Retrospective question (post only, and only those resident since baseline).....	152
	Demographic information.....	152
	<b>Appendix 4 – Facility case study questionnaires.....</b>	<b>154</b>
	Facility case study managers questionnaire.....	154
	Facility Users Questionnaire – Facility Case Study .....	156

# 1 Executive summary

Stage one of the study presents the methods that will be used to evaluate the MacKays to Peka Peka Expressway. The following stages of the study will measure the impact of the Expressway on the physical environment. The study will identify changes<sup>1</sup> to travel and the liveability of neighbourhoods (intermediate outcomes) and measure changes in transport mediated social connectedness and severance (final outcomes).

The study is the first of its kind in the world. As such the study has developed a causal pathway from the literature that will be tested using the methods developed for the study. The data therefore has to be robust and each of the methods has been designed to draw on substantially different data sources to collect:

1. Contextual data (for example, has the environment changed). Essentially explanatory data to support whether a change in intermediate outcome or final outcome is plausible.
2. Intermediate outcome data (For example, have accident rates for cyclists changed). Also explanatory data to support whether a change in final outcome is plausible.
3. Final outcome data (For example, has severance to a facility changed).

The timing and stages of the study are below:

Year	Stages in the Social Connectedness and Community Severance Study	Steps in the MacKays to Peka Peka Expressway project
2012	Stage 1 of the study began (January 2012)	Expressway application lodged with Environmental Protection Agency (June 2012)
2013	Stage 1 methods report (January 2013) Census 5th March 2013.  Piloting of stage one in May 2013  Stage 2: Winter baseline data collection (pre-). 1st - 12th July 2013 (final weeks of school term II)	Expressway Board of Inquiry hearings closed January 2013  The resource consent decision for the Expressway is expected to be announced in April 2013
2014	Stage 2: Summer baseline data collection (pre-). 17th-28th February 2014 (second and third weeks of school term I)	Construction in the Southern zone for the Expressway begins August 2014 (baseline be collected prior to Expressway construction)
2015	Stage 3: Summer construction data collection (construction-). 16th-27th February 2015 (this is timed for maximum construction within the study area, and for the second and third weeks of the school term I) <sup>2</sup>  Stage 3: Winter construction data	

<sup>1</sup> looking for positive or negative effects, or no effect

<sup>2</sup> Potential to move this data collection to Summer 2016

	collection (construction-). 27th July- 7th August 2015 (this is timed for maximum construction within the study area and for the second and third weeks of the school term III)	
2016	Stage 4: Analysis of construction- vs. baseline with internal NZTA report	
2017		Completion of Expressway September 2017
2018	Stage 5: Summer operational data collection (post-). February 2018 (school term dates not yet publicly available)  NZ Census 2018 (date not released yet, but typically Census's are undertaken in March)  Stage 5: Winter operational data collection (post-). July 2018 (school term dates not yet publicly available)	
2019	Stage 6: Study findings analysed and NZTA report released July 2019  Stage 7: Development of tools able to be used in land transport planning	

Five methods will be used to collect data at stage two of the study (pre-), stage three of the study (construction-) and stage five of the study (post-):

1. Neighbourhood case studies with a sample design that consists of six areas with a total of 100 residential households, collecting data on:
  - a. the neighbourhood environment (perceived comfort and attractiveness; use of street as a social space; behavioural change due to traffic annoyance) that individuals are living in;
  - b. the places that people go to (locally and beyond), their mode of travel and the frequency of their travel to those places;
  - c. the social value of the destinations people go to, and whether they are local-, wider Kapiti- or Greater Wellington-based;
  - d. the social value from the journey itself, if any;
  - e. the journey experience (stress, ease, safety of modes, and perception of hassle of modes), mode choice, pedestrian delay, overall ease of travel;
  - f. actual severance, either increases of, or alleviation of. This includes not going to a desired destination at all (trip suppression), feeling cut-off, using a non-preferred route, using a non-preferred mode to travel to a destination, or going to a different destination (all due to difficulty travelling); and frequency of these;
  - g. direct effects of the Expressway on neighbourhood liveability (e.g. traffic noise) and getting around;
  - h. social contact in the neighbourhood, beyond the neighbourhood and social contact overall; perceived availability of people to help; isolation; belonging to formal social groups (and their location);
  - i. household travel resources, e.g. number of vehicles at the household, access to the vehicle at the household, number of bicycles, etc.;

- j. impact of heavy traffic on travel behavior;
  - k. Urban form analysis. This includes population and residential density, urban form, walkability of the environment, and built form;
  - l. demographic data.
2. Facility case studies with a sample design of four facilities (Paraparaumu Medical Centre; Whitireia Polytechnic; Paraparaumu Public Library; Coastlands Netball Kapiti/Summer Cricket at Te Atiawa Park), collecting data on the:
    - a. mode preference, proportion of people using their preferred modes and barriers to using preferred mode;
    - b. travel experience of users accessing the facility e. g. ease of travel, social meaning of travel;
    - c. proportion of people using SH1 to access the facility;
    - d. users travel time and distance by mode to the facility (via GIS mapping);
    - e. contextual information about the facility and its users e.g. usage/enrolment data, demographic data, frequency of travel to the facility.
  3. School case studies with a sample design of three case schools and seven reference schools. The case schools will have data collected on the:
    - a. mode of travel to school;
    - b. children's travel distance by mode to school;
    - c. travel experience of children travelling to school;
    - d. factors that determine mode of transport to school;
    - e. contextual information about the school e.g. school roll, location of school, school travel policies;
    - f. impact of the Expressway on the school;
    - g. impact of the Expressway on families.
  4. Network monitoring, noise and crash statistics. The network monitoring sample design is 15 bespoke and existing traffic count sites, logging (and for pedestrians observing) data on:
    - a. traffic flows, motor vehicle numbers, class, and speed profiles;
    - b. pedestrian and cycle counts;

Noise measures at four residential houses (Makarini Street, Amohia Street, Milne Drive, Kapiti Road) using multi-day continuous loggers will collect data on:

- c. noise arising from Expressway construction and use of the Expressway;
- d. vehicle movements on the broader traffic network;

Crash data will be sourced from Ministry of Transport and St Johns Ambulance:

- e. Number, severity and vehicle class crash data;
- f. Number and severity of accident data involving cyclists.

5. Existing surveys and data sets will be analysed. These include the New Zealand Census, the Household Travel Survey and Quotable Value. These data sets will collect data on:
  - a. travel patterns over time for Kapiti Coast residents;
  - b. tenure, frequency of house sale and sales data for residential properties in the neighbourhood case study areas.

Within the above five methods, a range of different tools have been developed to collect the data. For example the tools include interviewer-administered questionnaires, audits, counts, observation, self-completion questionnaires, data loggers, focus groups, in-depth one:one interviews, data mining, GIS mapping, etc.

Because of the richness of data and the 'first time' nature of the study, the study presents a unique opportunity for the NZTA to fully understand the social connectedness and community severance



outcomes of the agencies work. The final stage of the study is for the study team to apply the knowledge gained by developing practical methods to assist future planning and investment decisions of New Zealand highways.

## 2 Introduction

### 2.1 Background

Quigley and Watts Ltd was commissioned by the New Zealand Transport Agency (NZTA) to undertake an independent multi-year multi-stage study to determine how changes in road infrastructure and road use impact on social connectedness and community severance in a host community.

Internationally (and in New Zealand) there is some discussion of community severance and social connectedness within the transport sector (particularly within social impact assessments). However social impact assessors have no independent empirical literature that can be used to support or refute any expert, stakeholder or community projections. This study will provide empirical data on the actual effects of a new highway on social connectedness and community severance.

Substantial mitigations are applied to address potential social connectedness and community severance effects in new highway developments (e.g. overbridges, highway on/off ramps, etc.). Therefore having empirical data to inform the use of such mitigations will be highly valuable to planners and investors.

Having a full understanding of both positive and negative effects is part of quality transport planning in New Zealand and other jurisdictions. Such understanding is becoming increasingly important for the NZTA as state highways are increasingly being established in semi-urban and urban settings (where larger numbers of people live, work, learn and play).

### 2.2 Aims and objectives of the study

#### 2.2.1 Aims

The primary research aim is:

- To understand the overall impact of development and use of a new highway on social connectedness and/or community severance within a host community.

A secondary aim is:

- To inform transport planning guidance and practice with regard to identifying and mitigating/enhancing potential impacts of highway projects on social connectedness and severance.

#### 2.2.2 Objectives

To meet these aims, the following research objectives were developed:

- To define relevant terms within a transport setting, i.e. social connectedness and community severance
- To identify and summarise literature that provides context for, underpins or informs the development of research tools and methods.
- To develop tools and methods to understand and measure social connectedness and community severance in the transport context. The tools must be suitable to measure a

baseline prior to highway construction (pre-), during highway construction (construction-), and during operation of the highway (post-).

- To undertake the research to determine whether and how a new highway (and its associated infrastructure i.e. cycleways, footpaths, roads, bridges, underpasses, overbridges) change social connectedness and/or community severance outcomes. This includes positive and negative outcomes, intended and unintended outcomes, and the distribution of outcomes amongst different groups of people in the community.
- To further develop the methods and present the results in an appropriate manner, for future land transport planning of new highways.

## 2.3 General approach to the study and structure of the report

This is a multi-year multi-stage evaluation. This report covers stage one of seven. The stages of the study are:

Stage 1. Understand the issues, select a case study and develop the methods.

Stage 2. Collect data at baseline (pre-) on social connectedness, community severance and context.

Stage 3. Collect data during construction (construction-) on social connectedness, community severance and context.

Stage 4. Analysis of construction- data (vs. pre-). Internal report to NZTA.

Stage 5. Collect data during operation (post-) on social connectedness, community severance and context.

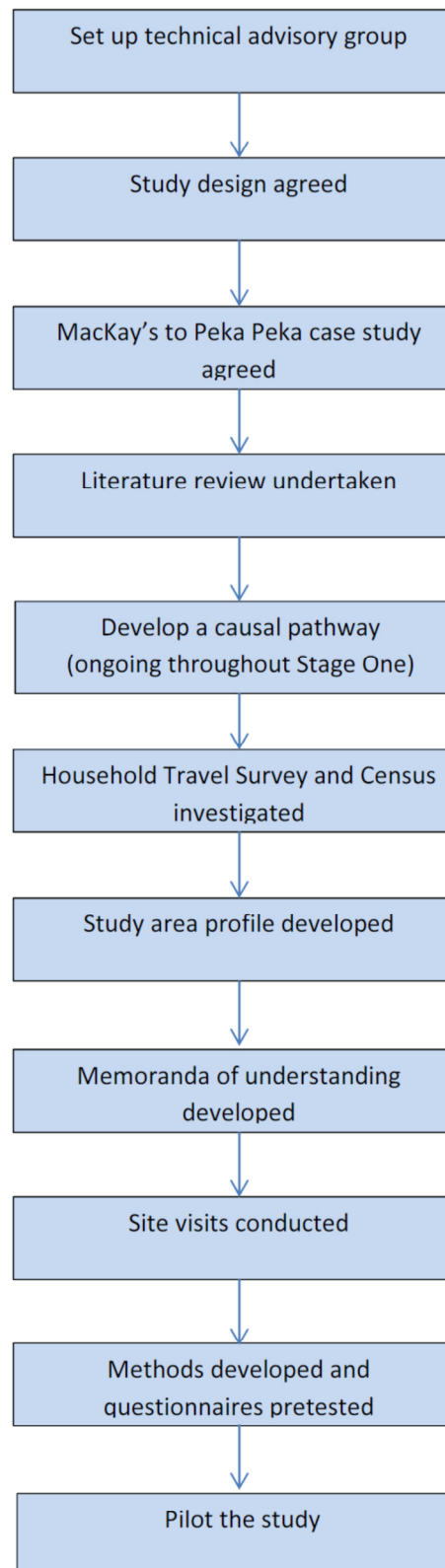
Stage 6. Analysis of post- data (vs. pre-). Report to NZTA.

Stage 7. Further develop methods and data for future land transport planning applications.

Stage 1 of the study was undertaken between March 2012 and March 2013, and the chronology of tasks is presented in Figure 1 below.

The report structure follows this chronology with an introduction section preceding, and a conclusion following. To assist the reader an overall summary of the stage one findings is presented in section three.

**Figure 1. Chronology of tasks undertaken in stage one of the study**



### 3 Overall summary of stage one findings

Stage one of the study has developed the methods to evaluate the MacKays to Peka Peka Expressway. The subsequent stages of the study will measure the impact of the Expressway on the physical environment. The study will identify changes<sup>3</sup> to travel and the liveability of neighbourhoods (intermediate outcomes) and measure changes in transport mediated social connectedness and severance (final outcomes).

The study is the first of its kind in the world. As such the study has developed a causal pathway from the literature that will be tested using the methods developed for the study. The data therefore has to be robust and each of the methods has been designed to draw on substantially different data sources to collect:

1. Contextual data (for example, has the environment changed). Essentially explanatory data to support whether a change in intermediate outcome or final outcome is plausible.
2. Intermediate outcome data (For example, have accident rates for cyclists changed). Also explanatory data to support whether a change in final outcome is plausible.
3. Final outcome data (For example, has severance to a facility changed).

The methods to achieve this include:

1. Neighbourhood case studies
2. School case studies
3. Facility case studies
4. Network Monitoring, noise and crash statistics
5. Ongoing national data sets

Within the above five methods, a range of different tools have been developed to collect the data. For example the tools include interviewer-administered questionnaires, audits, counts, observation, self-completion questionnaires, data loggers, focus groups, in-depth one:one interviews, data mining, GIS mapping, etc.

Because of the richness of data and the 'first time' nature of the study, the study presents a unique opportunity for the NZTA to fully understand the social connectedness and community severance outcomes of the agencies work. The final stage of the study is for the study team to apply the knowledge gained by developing practical methods to assist future planning and investment decisions of New Zealand highways.

The following sections describe the chronological process of development of each of these tools within each method.

---

<sup>3</sup> looking for positive or negative effects, or no effect

## 4 Approach and findings

### 4.1 Set up Technical Advisory Group

The Technical Advisory group (TAG) was established in March 2012 to assist the study team to investigate methods and the transport environment. Stage one was a complex and demanding piece of work undertaken in a politically sensitive environment. Whichever case study highway project was chosen, it was likely to be politically sensitive. The first proposal to NZTA for this research had suggested that the MacKays to Peka Peka Expressway (M2PP Expressway) might be a suitable case study, and therefore the TAG members relevant to this project, e.g. Kapiti Coast District Council and Boffa Miskell (representing the MacKays to Peka Peka Alliance<sup>4</sup>) were invited as members. Ensuring public concerns about the proposed Expressway were not amplified was an important issue for the TAG.

**The role of the Technical Advisory Group was to:**

- Review and comment on the research approach and methodology
- Monitor timelines and performance milestones
- Review and comment on interim reports
- Generally facilitate the work through professional and organisational channels

**Specific Activities were:**

- To assist with identifying appropriate information and links into the study communities.
- To assist with identifying existing relevant MacKays to Peka Peka Expressway information, how that information could be used and where the study could assist the Alliance<sup>5</sup> where appropriate.
- To assist with identifying methods/tools for collecting, recording and presenting data on major roading projects that resulted in community severance, enhanced connections and impacted on social connectedness.
- To advocate on behalf of the study team if and where appropriate.

The TAG met three times during stage one (March, June and September 2012). Additionally, individual members (Vivienne Ivory and Marc Bailey) met with the study team on several separate occasions to address specific points of interest and help with method development.

### 4.2 Developing the study design

#### 4.2.1 Methodological challenges

Early in stage one the study team and the TAG discussed the proposed study design. The study team needed to identify a study design that was strong enough to give a degree of confidence of causation, yet broad enough to allow the study team to investigate a range of potential factors associated with community severance and social connectedness. The impacts of new highways on community

---

<sup>4</sup> The MacKays to Peka Peka project is being delivered by an alliance comprising NZTA, Beca Planning and Infrastructure, Fletcher Construction and Higgins Group supported by Goodman's Contractors, Incite and Boffa Miskell.

<sup>5</sup> The MacKay's to Peka Peka Alliance

severance and social connectedness have not been studied before, so replicating or adapting previous research was not an option.

There were many methodological challenges to consider, for example:

- Both community severance and social connectedness are complex phenomena which cannot be directly measured. Nor are there established measurable indicators for each;
- The Expressway construction is expected to take approximately 5 years in an area that has experienced substantial population and infrastructure growth. Linking 'cause' and 'effect' is problematic under these conditions;
- The study is interested in community severance and social connectedness at the *community* level, however longitudinal studies typically follow *individuals* (who may not necessarily be resident in the host community in 5 years);
- Impacts of the Expressway are likely to be concentrated in particular groups or neighbourhoods, therefore finding the 'average' impact across the whole study area may lead to false conclusions.

#### 4.2.2 Study design

Stage one involved continuous investigation and critical appraisal of methods and approaches from a range of disciplines, with a view to meeting the methodological challenges above. The study team concluded that no single method would meet the needs of the study.

Instead a mixed methods evaluative approach is proposed, based on the principle of critical multiplism: using methods with different strengths to complement each other<sup>6</sup>. The study will use a carefully chosen mix of methods for collecting data at baseline (pre-), construction and operation (post-) phases that *together* will give enough evidence to be certain that there is a causal link between the Expressway and any observed changes in community severance and social connectedness. Because travel patterns and mode choice vary by season, the study will have winter and summer data collection points for each phase (pre-, construction, and post-). Study components and data collection methods are detailed in section 4.10.

#### 4.2.3 Developing hypotheses

Very early in the research we began to develop a causal pathway (see section 4.5 for detail) to begin to explain the relationships between highway projects and social connectedness and community severance. The causal pathway was based on research evidence, and showed the changes that might be expected as a result of a highway project. The pathways were, in effect, hypotheses to be tested.

#### 4.2.4 Analysis and reporting

Data will be collated and analysed using a 'rubric' approach<sup>7</sup>. Rubrics are commonly used in transport and other sectors to enable a range of disparate information to be collated and meaningful conclusions to be drawn. Importantly, conclusions will be based on practical significance i.e. changes that have a real impact on people's lives and affect their functioning or performance in some way. The best time to develop the rubrics is after the methods have been piloted as the study team will have confirmed the study questions, and will have real data to assist the process.

---

<sup>6</sup> Davidson, J (2005) Evaluation Basics. Sage Publishing.

<sup>7</sup> *ibid*

## 4.3 Confirm 'case study' as MacKay's to Peka Peka, and work to its timeline

### 4.3.1 Selecting a case study

An important early step in researching the impact of a new highway on transport mediated social connectedness was identifying a suitable highway project and 'host' community. For research using a 'before and after' design and measuring actual changes in community connectedness, the research team needed to use a real project. Therefore criteria were established for selecting a suitable highway project.

1. The highway needed to:

- a) be advanced in its planning and have a reasonable likelihood of construction
- b) be at a pre-construction stage - as even preliminary works underway would undermine the reliability of the baseline data measurement
- c) be of significant scale to provide a wide range of changes to community connectedness
- d) traverse an area of reasonable population density

2. The host community needed to:

- a) have a Council that was interested in the study and its outputs - to be an active partner;
- b) be as typical as possible - meaning results and methods are more likely to be transferable to other communities

3. Two other considerations that were desirable but not essential were:

- I. close proximity to the study team's base in Wellington to optimise resources
- II. a host community with a good level of knowledge of the proposed highway and active engagement in the highway planning process and thus more likely to participate in the study

### 4.3.2 MacKays to Peka Peka in the Roads of National Significance work programme

The Government's programme of work on Roads of National Significance (RoNS) provided a set of projects that met the first criteria. The location proximity to the study team ruled out several of the projects, Christchurch, Tauranga and Victoria Park and the Western Ring Route in Auckland. Several of the remaining RoNS meet the significant scale criteria, but only one of them, the Wellington Northern Corridor was close to the research base.

The Wellington Northern Corridor is being designed and built in several sections, Wellington inner-city improvements, Aotea to Ngauranga, Transmission Gully, MacKays to Peka Peka, Peka Peka to Otaki and Otaki to Levin. Each of these six sections is being developed as a separate project. One of them, the MacKays to Peka Peka section also had a council interested in a study.

#### 4.3.2.1 MacKays to Peka Peka Alliance

The MacKay's to Peka Peka section of the Wellington Northern Corridor RoNS was being designed, consented and (if consent is granted) built by the MacKays to Peka Peka Alliance (M2PPA) comprising, NZ Transport Agency, Kapiti Coast District Council, Fletcher Construction, Beca and Higgs Ltd. The



formation of the MacKays to Peka Peka Alliance is a unique approach to road design and building in New Zealand. It provides continuity of service provision between design and construction – meaning the study team only needs to deal with one provider for the entire duration of the road design and construction. The Alliance also has an interest in other outcomes from its work, such as community severance and social connectedness. This was identified as an advantageous to the study.

#### **4.3.2.2 Timeline of the Expressway construction; and stage one**

The timing of the Expressway and the proposed study were well matched. The timing allowed the study team to develop methods while the Alliance attempted to gain resource consent for the Expressway project. Stage one of this study was approved in January 2012. An application to construct the Expressway was lodged with the Environmental Protection Agency in June 2012 and hearings were completed in January 2013. The resource consent decision for the Expressway is expected to be announced in April 2013.

The resource consent process presented special issues for the study team, NZTA and the Alliance. To ensure the consent process was not compromised the study team did not undertake any substantial work on the Kapiti Coast prior to the consent hearings finishing (January 2013). This included any involvement of facilities in the development of the methods or pilot testing of any methods.

The study team did speak with facility managers to discuss their potential involvement in the study if the Expressway went ahead. Consequently additional work will be required on the methods in the months between the consent hearings closing and the resource consent decision being announced.

#### **4.3.2.3 The Expressway Route**

Since the 1950s, there have been plans and legal protections in place for a future major transport route for much of the planned MacKays to Peka Peka route (see Figures 2 and 3). Originally identified as future motorway, the legal protections have been modified several times to reflect evolving thinking on safe and efficient highway design and management. A designation in this corridor is currently held by the Kapiti Coast District Council for a local arterial road known as the Western Link Road. The planned Expressway will supersede this. In March 2009, this section of State Highway 1 (SH1) was classified by the Government as part of the Wellington Northern Corridor road of national significance, one of seven major state highways identified as priorities for upgrading. In mid-2009, a NZTA review of long-term route options concluded that the approximate corridor for the Expressway best met national, regional and district needs for a State Highway.

The planned Expressway is sufficiently different in terms of design standards and alignment from the Western Link Road that a new designation is being sought. Once constructed, the planned Expressway will shift SH1 from its present alignment to a new route. This will deviate from the current State Highway near Poplar Avenue and re-join current SH1 at Peka Peka. The proposed designation deviates from the Western Link Road designation in several locations in response to a range of Resource Management Act (RMA) considerations around ecological, environmental, social, cultural and economic matters.

The planned Expressway passes through a mixture of semi-urban, urban, semi-rural and rural environments along its 16km route:

- at the southern end, the route traverses a small part of the north-eastern corner of Queen Elizabeth Regional Park;
- between Poplar Avenue and the Wharemauku Stream, the route is located within the residential neighbourhoods of Raumati South and Raumati including part of the undeveloped corridor that separates these communities;

- north of the Wharemauku Stream to Otaihanga Road, the route runs adjacent to the Paraparaumu town centre and Kapiti Airport, as well as number of residential neighbourhoods on either side of the undeveloped corridor;
- north of Otaihanga Road to the Waikanae River, the route passes through semi-rural and rural settings in the Otaihanga neighbourhood;
- north of the Waikanae River to Te Moana Road, the route traverses a mix of semi-rural and urban land, part of which is of recreational and cultural importance;
- north of Te Moana Road, the route passes through semi-rural land zoned for future urban development;
- at the northern end, the route passes through a predominantly rural area containing rural and residential enclaves.

The planned Expressway has been designed to an NZTA Expressway standard which comprises a minimum of four lanes (two in each direction) with continuous median separation. Local access to and from the alignment is primarily via two new interchanges - one at Kapiti Road, and one at Te Moana Road. In addition, the interchanges at the northern and southern tie-ins to the existing SH1 provide partial access - south-facing ramps only at the southern tie-in at Poplar Avenue, and north-facing ramps only at the northern tie-in at Peka Peka.

At the Poplar Avenue, Kapiti Road and Te Moana Road interchanges, the planned Expressway passes over existing local roads. At the Peka Peka interchange, the planned Expressway passes under the local road which connects back to the existing SH1. NZTA describes the key features of the project as<sup>8</sup>:

- A sealed 26m-wide carriageway within a 100m-wide designated corridor.
- Provision of buffer areas on either side of the formed carriageway to enable landscape treatment, ecological enhancements, noise attenuation measures and other facilities. The width of the corridor also allows for the retention of existing features and vegetation wherever practicable.
- Provision of comprehensive landscape treatment and for finished slopes of all cuts and fills.
- Quality design of all bridges and structures located in highly visible public locations such as at Kapiti Road and the Waikanae River Crossing.
- Provision of a new shared walking and cycle track running adjacent to the planned Expressway. This pathway would also act as a bridleway north of Te Moana Road.
- Noise-reducing road surfaces in urban areas with preference for use of planted bunding (earth mounds) where practicable and noise barriers as necessary in other locations.
- No lighting along the planned Expressway except at interchanges, with lighting designed to respond to different urban and rural environments.
- No bridge piers are proposed within the streams or river channels. All bridge and culvert structures include design or associated erosion protection works to prevent scouring during storm events.
- A net increase in the extent of significant vegetation, wetlands or stream related habitat.
- Mass planting along stream edges and in other areas affected by the planned Expressway.
- Stormwater runoff is to be collected and treated using swales, filtration-type devices and constructed treatment wetlands.
- Enabling works would include the formation of construction lay-down areas and site compounds. The main construction compound is to be located at the former Otaihanga Landfill next to the planned Expressway route.

---

<sup>8</sup> NZTA. MacKay's to Peka Peka Assessment of Environmental Effects: Non-technical summary.

- Construction works include earth embankments, areas of cut and fill, reinforced soil embankments, piling and mechanically stabilised earth walls with concrete facing panels (predominantly around bridges).
- Approximately 2.3 million cubic metres of excavated (cut) material will be used as fill within the designation. In addition, there will be approximately 350,000 cubic metres of imported fill, approximately 240,000 cubic metres of sand exported off-site (to quarries), and approximately 200,000 cubic metres of peat exported off-site (to various locations). The total volumes of exported material are anticipated to reduce through further refinements during the construction phase.
- Comprehensive erosion and sediment control measures are to be provided for all earthworks and for works in and around water bodies.
- Construction will be undertaken by a number of work crews working on different parts of the Project either at the same time or at different stages. Construction is expected to take approximately four years.

The study team believes the Expressway is a good study option as the Expressway runs between several urban and peri-urban areas (between Raumati and Raumati Beach, between Paraparaumu and Paraparaumu Beach, between Waikanae and Waikanae Beach). The Alliance invested heavily in mitigations to prevent severance (maintaining all east-west road connections), yet some members of the community maintain concern regarding potential severance effects. The Expressway therefore presented an excellent real life case study.

Figure 2. Wellington Northern Corridor Road of National Significance



Figure 3. MacKays to Peka Peka Expressway Route



### 4.3.3 Selecting the study community

To provide guidance for planners in the future, the host community for the study needed to be as near as possible to the New Zealand norm. To achieve the best alignment with New Zealand demographics the research team has chosen the Paraparaumu/Raumati Area Unit area as the study area (see Map 1). The study team used the most recently available Statistics New Zealand Census data (2006) to compare a range of demographic indicators for different parts of the Kapiti Coast and the national average. These are shown in Appendix 1 grouped as Waikanae Area Units (Group 1) and Paraparaumu/Raumati Area Units (Group 2) and showing totals for each, combined totals and the New Zealand totals for comparison (further detail in sections 2.7.2 and 2.7.3).

The 2006 Census data shows the Waikanae population is significantly different from the New Zealand population. These differences are narrowed when the statistics are combined for a Waikanae - Paraparaumu/Raumati total. However there are still significant differences from the New Zealand average with greatest divergence around median age, people over 65 years of age, the 20 -59 years age bracket, and couples with and without children. When comparing the Waikanae Area Unit totals with the Paraparaumu/Raumati Area Unit totals, Waikanae shows significant differences being on average older, with less ethnic diversity and fewer families with children.

The Paraparaumu/Raumati area showed a better match with overall New Zealand data. Nonetheless it fell short of being fully representative of the New Zealand norm in some demographic elements:

- the percentage of Maori and Pacifica is lower
- on average a slightly older population
- on average having more couples with and without children.

**Map 1. Paraparaumu Beach and Raumati South with the broader study area marked**



### 4.3.4 The study timeline

Once the MacKays to Peka Peka study community was confirmed as the focus for the study, the study team was able to develop a timeline. It moved slightly as project timings moved and has been updated throughout stage one. All data collection dates are timed to match primary school term times. This ensures we also collect the travel movements of children (whose most common day-to-day travel purpose is education). Seasonal July and February data collection time points are also described below.

The Greater Wellington Regional Council (GWRC) school travel plan timetable is set and cannot be altered. This will provide continuity to their data set, with all data collection occurring in the warmer seasons (school terms IV or I).

Traffic measurement timing is similarly fixed by Kapiti District Council to ensure continuity to their data set. As described in the Network Monitoring section, the study will commission additional sites and time-points of data collection as required.

The 2013 and 2018 New Zealand Census serendipitously coincides with pre- and post- data collection time points. The Household Travel Survey is continuous with about 4,600 households invited to take part in the survey each year (nationally). Data are available from the NZTA (for research) annually.

The study will attempt to gather the neighbourhood case study, noise and facility case study data as close as possible to the dates below. Any additional time-points commissioned for Network Monitoring will be tied to the dates below.

Year	Steps in the Social Connectedness and Community Severance Study	Steps in the MacKays to Peka Peka Expressway project
2012	Stage 1 of the study began (January 2012)	Expressway application lodged with Environmental Protection Agency (June 2012).
2013	Stage 1 draft methods report due (January 2013). Census 5th March 2013 Piloting of study in May 2013. Stage 2: Winter baseline data collection (pre-). 1st - 12th July 2013 (final weeks of school term II).	Expressway Board of Inquiry hearings closed January 2013.  The resource consent decision for the Expressway is expected to be announced in April 2013.
2014	Stage 2: Summer baseline data collection (pre-). 17th-28th February 2014 (second and third weeks of school term I)	Construction in the Southern zone for the Expressway begins August 2014 (i.e. baseline must have been collected by now)
2015	Stage 3: Summer construction data collection (construction-). 16th-27th February 2015 (this is timed for maximum construction within the study area, and for the second and third weeks of the school term I) <sup>9</sup>	

<sup>9</sup> Potential to move this data collection to Summer 2016

	Stage 3: Winter construction data collection (construction-). 27th July- 7th August 2015 (this is timed for maximum construction within the study area and for the second and third weeks of the school term III)	
<b>2016</b>	Stage 4: Analysis of construction- vs. baseline with internal NZTA report	
<b>2017</b>		Completion of Expressway September 2017.
<b>2018</b>	Stage 5: Summer operational data collection (post-). February 2018 (school term dates not yet publicly available)  NZ Census 2018 (date not released yet, but typically Census's are undertaken in March)  Stage 5: Winter operational data collection (post-). July 2018 (school term dates not yet publicly available)	
<b>2019</b>	Stage 6: Study findings analysed and NZTA report released July 2019  Stage 7: development of tools able to be used in land transport planning.	



## 4.4 Literature review findings

Quigley and Watts Ltd conducted two literature reviews that informed stage one. The findings, as they relate to this report, are briefly summarised below for each of the two reviews.

### 4.4.1 Literature review on community cohesion and community severance: Definitions and indicators for transport planning and monitoring

An initial rapid review (Quigley and Thornley, 2011) was commissioned by the NZTA to improve understanding of 'community cohesion' and 'community severance' in the transport context. The review preceded stage one and informed its rationale and development.

This review aimed to identify and summarise international and New Zealand literature on community cohesion and community severance, particularly in the transport context. The research questions were:

1. What are the definitions used for the terms 'community cohesion' and 'community severance' in New Zealand and internationally? (New Zealand transport sector usage was the primary focus, but definitions from other sectors were also sought as well as international concepts)
2. What tools, methods and indicators are used to monitor or measure factors that contribute to community cohesion and community severance?

Fifty one papers were selected for inclusion, published from 1980 to 2011. Eight of these were New Zealand papers. The review followed a rapid review methodology and used an explicit search strategy, and inclusion/exclusion criteria.

#### **Definitions**

The authors found that the definitions for the terms 'community severance' and 'community cohesion' varied widely between agencies and countries and in some cases these terms were used without any definition of their meaning or scope.

#### Community severance

The review presented 12 contemporary definitions of 'community severance' identified in the literature, e.g. 'The positive or negative effects of a [transport] scheme on the ability to move around on foot, bicycle or horseback' (Scottish Executive, 2001); 'Separation of people from facilities and services they wish to use within their community due to obstacles to access such as busy roads' (NZTA, 2009); 'the dislocation and alienation a community feels as a result of roads which sever communities or hinder access' (Transfund, 1995); and 'The impacts of new or wider highways' (Litman et al, 2010).

Common elements identified in the majority of definitions were a) the concept of roading-related barriers, which cause b) severance outcomes for c) a population of interest. These elements are discussed further below.

a) According to Quigley and Thornley (2011), the roading-related barriers identified in the literature fell into three categories:

- **Physical barriers** due to new or improved roads such as fencing, kerbing, centre-line barriers, bunds, plantings etc.
- **Traffic flow barriers** due to high or increase traffic volume
- **Psychological barriers** to travelling across, along or near a road because of perceived unpleasantness or danger

The review authors noted that these categories were not mutually exclusive. A single roading project may result in all three types of barrier being experienced by the host community. Barriers may be caused by *actual* or *perceived* changes, including changes to traffic flows on existing roads.

b) A wide range of intermediate severance outcomes resulting from the barriers above were identified in the literature. Quigley and Thornley (2011) divided these into three categories:

- **Amenity outcomes related to the local area:** perceived danger (accidents, crime), traffic noise, traffic pollution, visual intrusion, overall unpleasantness; feeling of unease; discomfort;
- **Trip changes/moving about outcomes:** trip delay, trip lengthening/diversion; mode change; trip suppression/trip no longer made; alternative destinations visited; positive or negative effects of a scheme on ability to move around on foot, bicycle or horseback; impeding movement of pedestrians crossing the road;
- **Separation from facilities, services and social network outcomes:** separation from facilities and services; separation from friends and relations; separation from work; feeling of being cut off; lack of access; reduced social interaction due to modal shift (towards private car use); reduced use of the street as social space; inability to take part in a particular activity.

Measurement of severance could potentially involve subjective and/or objective measures of any or all of these severance outcomes.

c) The population of interest affected by these severance outcomes is variously defined in the literature. Some definitions focus on 'residents' while other use broader terms such as 'those in a locality', 'communities' or 'human beings, flora and fauna'. Some reports (particularly from the UK) define severance in terms of impacts on pedestrians specifically.

Quigley and Thornley (2011) conclude that community severance is a complex concept with no universally agreed upon definition. They argue that 'the definition typically sets what is studied' and therefore has critical implications for measurement and monitoring. They propose a definition for the New Zealand transport context that is explicit, simple, and yet captures the complexity of 'community severance' as discussed above:

*'Separation of people from facilities, services and social networks they wish to use within their community; changes in comfort and attractiveness of areas; and/or people changing travel patterns due to the physical, traffic flow and/or psychological barriers created by transport corridors and their use.'*

This working definition has guided stage one design, and the selection of proposed severance indicators.

#### Community cohesion and social connectedness

Quigley and Thornley (2011) report that the terms 'community cohesion'/'social cohesion' and 'social connectedness' have little mention in transport sector literature. In other sectors and disciplines the terms have widely varying definitions and are sometimes used interchangeably.

The review found that 'social cohesion' is generally used as a broad term to describe a state of harmony or tolerance between diverse people in a community or society. Definitions of social cohesion tend to emphasise unity across diverse peoples, shared values and equality of opportunity. Findings from the literature suggest that although transport projects can affect community cohesion (by affecting property values and the quality of the public realm for example (Litman, 2012), there is a wide and complex range of other factors at play.

According to the literature, 'social connectedness' generally refers to the quality and quantity of social interactions between people. Face to face social contact generally requires travel of some sort, and

therefore changes in the transport environment may impact on the quality and quantity of social interactions.

Quigley and Thornley (2011) conclude that social connectedness is a more specific concept and can be seen as a dimension of and marker for the broader concept of social cohesion. For example Statistics New Zealand defines social connectedness ('reciprocal relationships that sustain social participation') as one of four aspects of social cohesion.

'Social connectivity' was another term explored in the review. This term is used, but not defined, in New Zealand's Transport Monitoring Indicator framework. The related indicators are 'access to essential services'; 'percentage of the population who can get to key locations door to door by public transport, walking and cycling'; and 'percentage of the population living within 500 metres of a bus route'. Quigley and Thornley (2011) argued that these indicators 'do not measure social connectivity or community cohesion'.

After reviewing the literature Quigley and Thornley concluded that 'the transport sector has the potential to impact on social connectedness far more than on community cohesion' (p38). They therefore recommended that the NZTA focuses initially on the term social connectedness rather than social cohesion or social connectivity. While social connectedness is not a widely used term in the transport sector, Quigley and Thornley note that there is applicable learning from other sectors, especially the local government sector.

#### ***Methods for measuring severance***

The reviewers found no studies that measured the impact of major roading projects on community severance in a host community using a pre-post test design. However the review identified a number of guidance documents and methodological research papers about prospective appraisal of community severance impacts of proposed roading projects. Broadly, two approaches can be seen in the literature:

a) Qualitative assessment, based on expert judgement. For example the UK Department of Transport (1993) sets out a descriptive classification of severance effects: slight, moderate or severe. New Zealand guidance requires that, as part of planning, 'the Consultant shall identify the potential social and environmental effects of each option...[and] the degree of potential effect (before mitigation) in the most affected area(s) of each option' (NZTA Minimum Standard, 2011). In practice, Quigley and Thornley found that severance issues are touched on briefly (if at all) in New Zealand road assessment reports, and are generally based on the professional opinion of the author, occasionally with reference to traffic volume data or traffic speed data for example.

b) Objective quantification, based on a complex set of measures and assumptions. For example the review included two New Zealand reports that set out proposed methods for quantifying and/or monetising severance impacts (Tate, 1997; Read & Cramhorn, 2001). Tate's framework was broadly based on UK work, further developing this for the New Zealand context and focusing particularly on impacts on children. Read and Cramhorn's approach was based on monetisation using willingness to pay and willingness to accept values. In both cases the authors noted the complexity and expense of quantifying community severance impacts. This may explain why neither of the proposed approaches has yet been applied in practice.

After reviewing the literature Quigley and Thornley (2011) proposed a mixed methods approach to assessing community severance in New Zealand. This proposed methodology was further refined and developed through the current study.

### ***Methods for measuring social connectedness***

The literature review did not identify any studies that measured the impact of roading projects on social connectedness in a host community, using a pre-post test design.

The Appleyard study, replicated in Bristol UK by Hart (2008) was the only transport sector study identified that measured the impact of traffic volume on social connectedness. It used a cross-sectional method, comparing social connectedness on comparable streets with varying traffic volumes (light, medium and heavy). The results clearly showed that social connectedness was greater on streets with lighter traffic, based on the number of friends and acquaintances respondents identified on their street and the extent the street was used as a social space. Mediating factors identified were: traffic noise annoyance; transport mode use; concerns about traffic safety, noise, air pollution and litter; and behavioural adaptations to air pollution and/or noise (e.g. go out on the street less often, live more in the back of the house).

The literature review identified several methods and indicators for measuring elements of social cohesion, e.g. social connectedness. Surveys are the primary method for data collection about social connectedness, for example the 'Quality of Life in New Zealand Cities' survey, and the 'New Zealand General Social Survey'. Quigley and Thornley concluded that 'indicators of social connectedness already being used in New Zealand are a useful starting point for considering appropriate and useable indicators for social connectedness in the transport sector.' Possible indicators include:

- Number of friends and acquaintances amongst neighbours (Hart, 2008)
- Reported contact with neighbours (Quality of Life in NZ Cities)
- Levels of trust in others (Quality of Life in NZ Cities)
- Levels of social support (Quality of Life in NZ Cities)
- Levels of isolation or loneliness (Quality of Life in NZ Cities)
- Types and location of social networks (Quality of Life in NZ Cities)
- Reported street-based activity (e.g. children playing) (Hart, 2008)

Quigley & Thornley concluded that neither community severance nor community cohesion is currently well addressed by the transport sector. They note that community cohesion and community severance are independent concepts; the reverse of one does not necessarily produce or indicate the other.

#### **4.4.2 Literature review on community severance and social connectedness: Definitions, pathways and measurement**

The second literature review (Marsh & Watts, 2012) was undertaken as a component of stage one. The aims of the second review were:

- to understanding the causal pathways linking transport with social connectedness and community severance respectively; and
- to identify and detail methods that have been used to understand how transport projects impact on community severance and/or on social connectedness

The review was rigorous, following systematic review principles, and was guided by an expert advisor familiar with the key authors and studies in this field. It involved extensive searching of academic databases, selected government and non-government websites, and internet searching using agreed search terms. In addition, 12 New Zealand experts were contacted to seek suggestions of relevant published or unpublished New Zealand material. Papers were screened and assessed for inclusion using transparent inclusion and exclusion criteria. Of the original 239 abstracts identified as potentially relevant, 122 were selected for detailed appraisal. Of these, 69 were excluded because they did not meet inclusion criteria, leaving 53 papers selected for final inclusion in the review. Ten of these papers had previously been included in the Quigley and Thornley review (2011); the remaining 43 provided new material.

## **Severance**

Marsh and Watts concluded that transport projects can have a profound impact on people's lives, influencing their ability to access the services, facilities and relationships needed for a quality life. According to the literature, severance is disproportionately experienced by some groups: children, older people, people with disabilities, people without easy access to a car, and people on low incomes. Therefore it is important that any study of severance includes these vulnerable groups.

### *Pedestrian severance*

Marsh and Watts found that major roads result in fewer journeys being made by residents on foot. This may be as a result of physical barriers and/or or psychological barriers created by major roads. Research shows that a range of factors affect the walkability of neighbourhoods, including speed and volume of traffic, connectivity, presence of footpaths and crossings, and aesthetics. Major road projects can affect all of these factors. A UK study found that mitigation measures (i.e. over bridges and subways) were often inadequate, particularly for wheelchair users and parents pushing buggies. Problems identified were flooding of subways, safety concerns, and physical access (e.g. steps) for example (Bradbury et al, 2007).

Perceived safety (both from crime and accidents) has a significant impact on walking behaviour and independent movement, particularly for older people and children. One study (cited in Guers et al, 2009) notes that one of the biggest social changes in the past 50 years in the UK has been parents' unwillingness to let children be alone outside for fear of accidents or assaults. This trend has also been observed in New Zealand and the US, where children are increasingly transported to school in cars (Guers et al, 2009).

Marsh and Watts noted that the New Zealand Transport Agency has a number of guidance documents that may be useful for assessing the impact of roading projects on walkability of neighbourhoods: Ways to assess connectivity, monitoring techniques for pedestrians, and suggested walking indicators (all provided as appendices to Quigley and Thornley, 2011).

### *Cycling severance*

There was little research identified about severance impacts on cyclists, specifically. A New Zealand study found that traffic volume, speed and the need to cross major roads were the main barriers to cycling for intermediate school pupils (Mackie, 2009).

### *Mode shift*

There is evidence that community severance caused by major road projects is a driver of modal shift towards private car use and away from active transport. For example a UK study on the impact of a ring road found that although residents still travelled to destinations on the other side of the new road, they were much more likely to drive than go on foot (Bradbury et al, 2007). Mode shift towards car use can therefore potentially be used as an indicator of severance.

### *Measurement*

Marsh and Watts found very little literature on the measurement of community severance, despite the fact that it is a well recognised potential social impact of transport projects. Mindell and Karlsten's (2012) systematic review concludes that, at present, community severance cannot be quantified effectively. Mindell and Karlsten suggest a three pronged approach to measurement, focussing on i) pedestrian delay, ii) a complex severance index for vulnerable populations, and iii) environmental determinants of walking and cycling. However Quigley & Thornley (2011) reached a different conclusion in their review, arguing that all modes should be considered.

Marsh and Watts identified a recent UK methodological development in severance assessment outlined in the Department for Transport's *Transport analysis guidance* (WebTAG, 2011). The method involves estimating the likely change in severance, comparing the 'do minimum' case and the 'do something' case, and then estimating the number of people likely to be affected overall, and the number of people in vulnerable groups (no-car households, young people, older people, people with disabilities) likely to be affected. The assessment of likely change in severance is qualitative (based on primary research with the affected community, desk top analysis and site audit) and estimates hindrance to pedestrian movement. The primary research explores specific severance concerns in the affected population and the extent to which people will change their journeys in response to concerns.

Marsh and Watts conclude that 'developing a method or set of indicators to measure severance requires further work'. They argue that the balance between rigor and detail, and pragmatism and simplicity must be carefully considered. Use of routinely collected data (e.g. school travel plans, monitoring of traffic speed, volume, noise etc.) is recommended for consideration.

They also note that the public do not relate to the term 'severance'; survey research shows that the public consider severance as comprising:

- pedestrian delay
- effects on trip diversion or suppression
- noise and pollution
- perceived danger
- overall unpleasantness

### **Social connectedness**

Marsh and Watts state 'Social connectedness is about the interactions, networks and relationships between people'. They conclude that transport facilitates social connections by enabling contact, both casual and incidental contacts and stronger ties.

#### *Face to face contact with friends and family*

The transport environment influences where people can go, who they can see, when they can see them, how long it takes to get there, and how much time is left to do other things. Koffman et al (2004) state 'the ability to travel within a community is essential to maintaining independence, health, and social connections'. Major new roads can potentially facilitate or hinder contact with friends and family. Increasingly however 'communities' are formed around shared interests or activities, rather than geographical neighbourhoods (James et al, 2004)

#### *Walkability*

Research shows that walkability facilitates social connectedness; the more walkable a neighbourhood, the more likely people know their neighbours and engage with each other socially (Leydon, 2003). Walkable neighbourhoods lead to higher levels of social interaction than car-orientated neighbourhoods (Khandokar et al, 2009; Leydon, 2003; Litman 2012).

According to Litman (2012), international research indicates that transport and land use planning decisions influence walkability and land use mix, and therefore opportunities for neighbourly interactions, and frequency of social interactions when running errands or participating in local activities. Lower traffic volume and speed are also associated with greater walkability and greater social connectedness (Hart, 2008).

#### *Use of street as social space*

A Swiss study found that a reduction in speed limit from 50km/h to 30km/h resulted in an increase in the proportion of residents who said they 'linger' in their street. Similarly Hart (2008) showed that in

streets with lower traffic volume, people tended to engage in a range of social and recreational activities on the street (e.g. chatting with neighbours, children playing, gardening etc.).

#### *Liveability and stability of neighbourhoods*

Research shows that local relationships have a big impact on wellbeing. For example, a Canadian study found that those who reported a sense of belonging to their community enjoyed 11% higher wellbeing than those who did not (Kelly, 2012). A growing number of researchers agree that social networks, social support and community involvement are important for wellbeing. Increased cohesion can help people feel safer and more secure.

Transport planning and infrastructure can potentially enhance or disrupt local social networks and relationships. Where a roading project greatly increases noise in a neighbourhood, for example, anecdotal evidence suggests that people move away, property values fall, and houses become increasingly occupied by renters rather than homeowners. This is likely to disrupt neighbourhood networks and reduce cohesion, trust and perceived safety.

#### *Measurement*

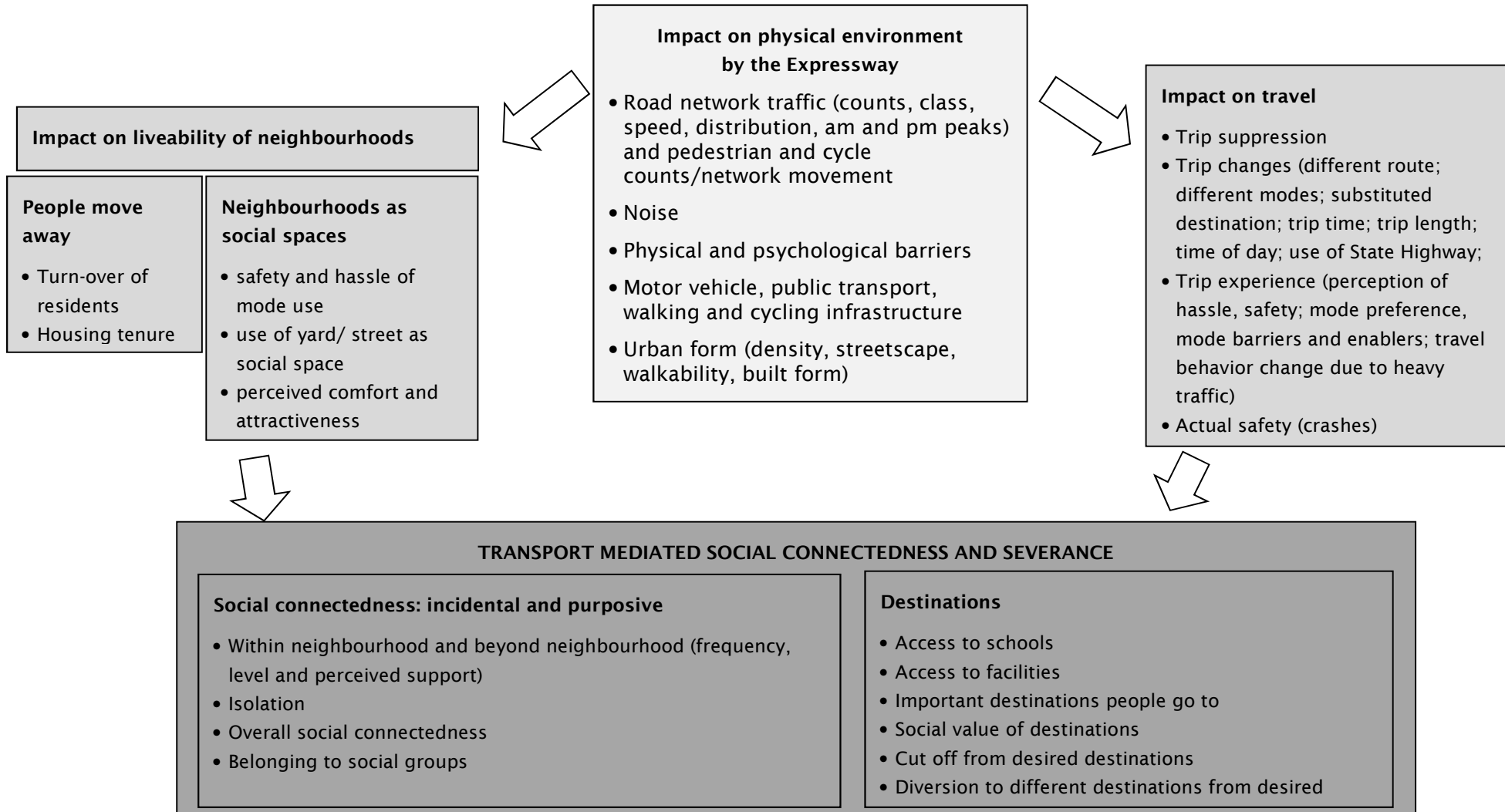
'While it is widely recognised that concepts like social capital and social cohesion are important in the transport context...there were few studies that actually measured them' (Marsh & Watts, 2012). Like Quigley and Thornley (2011), Marsh and Watts conclude that use of existing indicators of social connectedness in social research is the best starting point. A range of examples are summarised and discussed.

## 4.5 Causal pathway (development ongoing throughout stage one)

The beginnings of the causal pathway were set out in the literature review, and were continuously refined as new information was gathered – particularly from incremental increases in our understanding of actual and potential pathways. The causal pathway sets out on paper what it is we think will happen once the Expressway is built (our hypothesis). The causal pathway can be thought of as a visual representation of our hypotheses, and stage one is attempting to determine if those pathways do in fact occur.

The causal pathway for the study is presented below in Figure 4.

Figure 4. Simplified causal pathway: Impact of new highway on social connectedness and community severance





## 4.6 Household Travel Survey and Census investigated

The study team sought real-life travel information to assist the development of 'social connectedness indicators'. Angus Hulme-Moir was commissioned to extract and analyse data from the New Zealand Household Travel Survey (2003-2011) and the New Zealand Census (2006); and to collate previous analyses from existing reports on those data sets. The full report is available from the study authors.

The following two questions guided this phase of the work:

1. What are common and persistent travel patterns nationally, to inform the choice of potential transport-mediated social connectedness indicator/measures (suitable for use in Kapiti and nationally)?
2. What data exists for Kapiti to assist with a before and after analysis of potential change to travel patterns?

For the purpose of stage one the study team identified relevant information to inform the study.

Nationally, for adult trips:

- There is a trend toward increasing numbers of trips as people age, up to late middle age;
- From late middle age the trend reverses and mean number of trips taken declines;
- 75+ has a distinctive spread, showing the large number of people taking no trips (18%) and a small number making 6 or more trips per day;
- The median work distance nationally was 5.5km in 2006, which shows that most people live relatively close to their work;
- While median distances travelled to work didn't change much in the main urban areas, the upper quartile increased. For example Wellington upper quartile distances travelled to work increased from 10.2km to 11.3km, and Christchurch from 8.1km to 9.0km.

Nationally, for adult travel patterns (number of trip legs, by purpose):

- There have been no significant changes over the decade 1997 to 2007
- Going to work, shopping and social/recreation (combined) are the three most common trip purposes for adults.

Nationally, for travel of older people:

- People (65+) make fewer trips per day than the 25-64 age group;
- Their greatest share of trips is between 9-3pm where they account for 25% of total adult trips. Hence, they tend to be off strategic roads during school and work travel peaks;
- They make few of their trips in the evening: 13% make evening trips compared to 86% making evening trips within the adult population (25-59);
- People 65+ make the greatest proportion of their trips as shopping trips, 20% compared to 12% for the adult population (25-59);
- The proportion of older people travelling to work has increased;
- People 60+ made fewer social/recreational trips and all older age groups made more shopping trips than the adult population overall.

Nationally, for school age children's trips:

- Education is the most frequent trip purpose at 19%;
- Accompanying someone else is very important early on but declines with age;
- The median (and mean) length that children walk to school is 1.1km;
- Bus rides to school (mean 8.3km) are more than twice the length of an average vehicle trip (mean 3.7 km).

Nationally, for ethnic group comparisons:

- European take proportionally more shopping, work and recreation trips than other groups;
- Maori and Pasifika are more likely to accompany someone else;
- Asian and Pasifika take a higher proportion of their trips to education.

The Kapiti Coast sample for the Household Travel Survey provided 150 trips with an education purpose. While the sample is small it indicates:

- Most trips were under 3 km in length (89 of 150);
- Travelling as a vehicle passenger is the most common way of getting to an education centre (65 of 150) followed by walking (39 of 150);
- There are some very long trips that skew the average well above the national mean.

For Kapiti adult trip legs:

- There is a lower percentage of trips taken to work in Kapiti;
- There is a higher percent of shopping, recreation and to accompany someone else trip legs taken by the Kapiti sample for than for the national sample;
- Due to small sample sizes none of the Kapiti data analyses were statistically significant at the 95% confidence interval;
- The top three modes for trip legs are vehicle driver (52%), vehicle passenger (25%) and walking (18%) (very similar mode splits to nationally);
- Kapiti mean work distances are higher than for 'major urban areas' or 'other major urban areas' and this may be skewed by the small sample size, but is likely to be skewed by the long work commutes that some residents take to Wellington;
- Work has the longest mean distance followed by social visits and shopping (which are closer to home activities).

Kapiti modal split based on where people commute to work shows significant differences depending on which area they are commuting to:

- The use of private or company cars is very high for Kapiti residents commuting to Lower Hutt;
- Kapiti residents commuting to Wellington have a high train share;
- Kapiti residents commuting to work within Kapiti are much more likely to walk;
- Kapiti residents are much more likely to work from home.

Therefore

- Location has an impact on modal split;
- Any major change in the road network may impact on modal split.

## 4.7 Study area profile

The purpose of this section was to familiarise the study team with the general social, demographic and natural environment information of the region. It is useful for national and international readers for the same reason. Demographic data has guided the study where the profile has differed from the national norm, and the most significant difference is the higher proportion of older people and lower than average incomes in the study area. Because of the focus on schools, the study team also investigated early childhood education centres and schools within the broader study area.

Data from the broader study area (combined 13 Census Area Units) and the Kapiti Coast District are described below.

### 4.7.1 Census Area Units within the broader study area

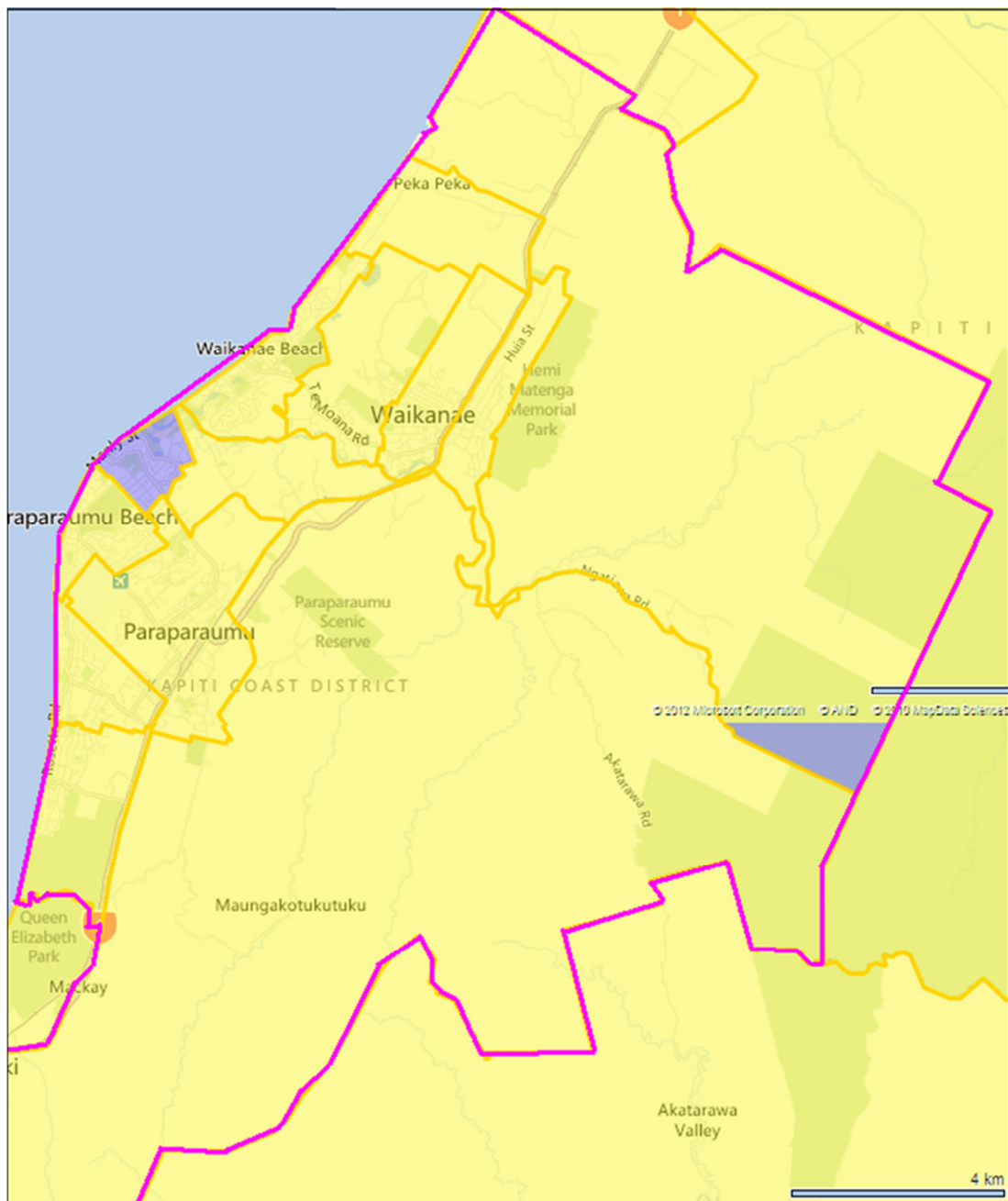
Thirteen Kapiti Coast Census Area Units are within or adjacent to the study area and make up a 'broader study community'. Data to describe the 'broader study community' comes from the Census Area Units, from Maungakotukutuku to Waikanae Beach.

The total population of these 13 Census Area Units was 37,038 (80 percent of the Kapiti Coast District population and 8.1 percent of Wellington region population). The 2006 Census estimates that the 13 Census Area Units will have grown to a population of 39,870 by 2010 (an increase of 7.7 percent), and by 2031 it is estimated that there will have been a 33 percent to a population of 49,190 residents.

The number of occupied dwellings within the 13 Census Area Units is 15,486. Of these households 28 percent are classified as single person households. The median income of the households in these 13 Census Area Units is \$50,950 (Hulme-Moir, 2012). This is compared to the median income of individuals within these 13 Census Area Units, which is \$24,100.

Figure 5 below presents the broader study area containing 13 census area units.

Figure 5. The Maungakotukutuku – Waikanae Beach community profile area (pink boundary)



#### 4.7.1.1 Early Childhood Education Centres

Of particular interest to the study team was the location of early childhood education centers<sup>10</sup> situated within the 13 Census Area Units. Table 1 below identifies the 20 early childhood education centers, where they are within the community, the institution type, the number of students on roll and provides a number indicating the location of that particular early childhood center geographically, depicted in Figure 6. Table 1 also indicates whether the centers opening hours coincide with peak traffic hour (8am - 9am in the morning and between 4.30pm - 5.30pm in the evening).

**Table 1. Early Childhood centers within the thirteen census area units (decile, roll and location)**

Name	Area	Opening hours in Peak (y/n)	Institution Type	Roll (# Students)	# on Map (Figure 6)
Ngahina Kindergarten	Paraparaumu	Y	Free Kindergarten	67	13
Little Earth Montessori Kapiti	Paraparaumu	Y	Education & Care Service	27	14
ABC Paraparaumu	Paraparaumu	Y	Education & Care Service	33	15
Paraparaumu Playcentre	Paraparaumu	N	Playcentre	26	16
Barnardos KidStart Kapiti	Paraparaumu	Y	Homebased Network	39	17
Grafton Private Kindergarten	Paraparaumu	N	Education & Care Service	57	18
ABC Bluegum Road	Paraparaumu	Y	Education & Care Service	23	19
ABC Arawhata Road	Paraparaumu	Y	Education & Care Service	40	20
Paraparaumu Kindergarten	Paraparaumu Beach	Y	Free Kindergarten	71	21
Raumati Beach Kindergarten	Raumati Beach	Y	Free Kindergarten	70	22
Kapiti Children's Centre - Kindergarten	Raumati Beach	Y	Education & Care Service	60	23
Raumati South Kindergarten	Raumati South	Y	Free Kindergarten	71	24
Wise Owl Early Childhood Centre	Raumati South	Y	Education & Care Service	62	25
Tararua Ki Paraparaumu	Raumati South	Y	Te Kohanga Reo		26
Chelsea House	Raumati-Wellington	N	Education & Care Service	101	27
ABC Raumati	Raumati-Wellington	Y	Education & Care Service	64	28
Waikanae Kindergarten	Waikanae	Y	Free Kindergarten	72	29
Castle Kids-Ruru	Waikanae	Y	Education & Care Service	43	30
Castle Kids Early Learning Centre	Waikanae	Y	Education & Care Service	59	31
Waikanae Playcentre	Waikanae	N	Playcentre	30	32
Castle Kids Nursery	Waikanae	Y	Education & Care Service	37	33
Waikanae Montessori Preschool	Waikanae	N	Education & Care Service	55	34
ABC Waikanae	Waikanae	Y	Education & Care Service	30	35
Waikanae Beach Kids	Waikanae Beach	Y	Education & Care Service	30	36

<sup>10</sup> Accessed on; 14<sup>th</sup> August, 2012. Retrieved from; <http://www.educationcounts.govt.nz/directories/early-childhood-services>

#### 4.7.1.2 Schools

Table 2 gives details of the 12 schools within the broader study area<sup>11</sup>. Of these, 10 are considered full primary and two secondary (year 9-15)

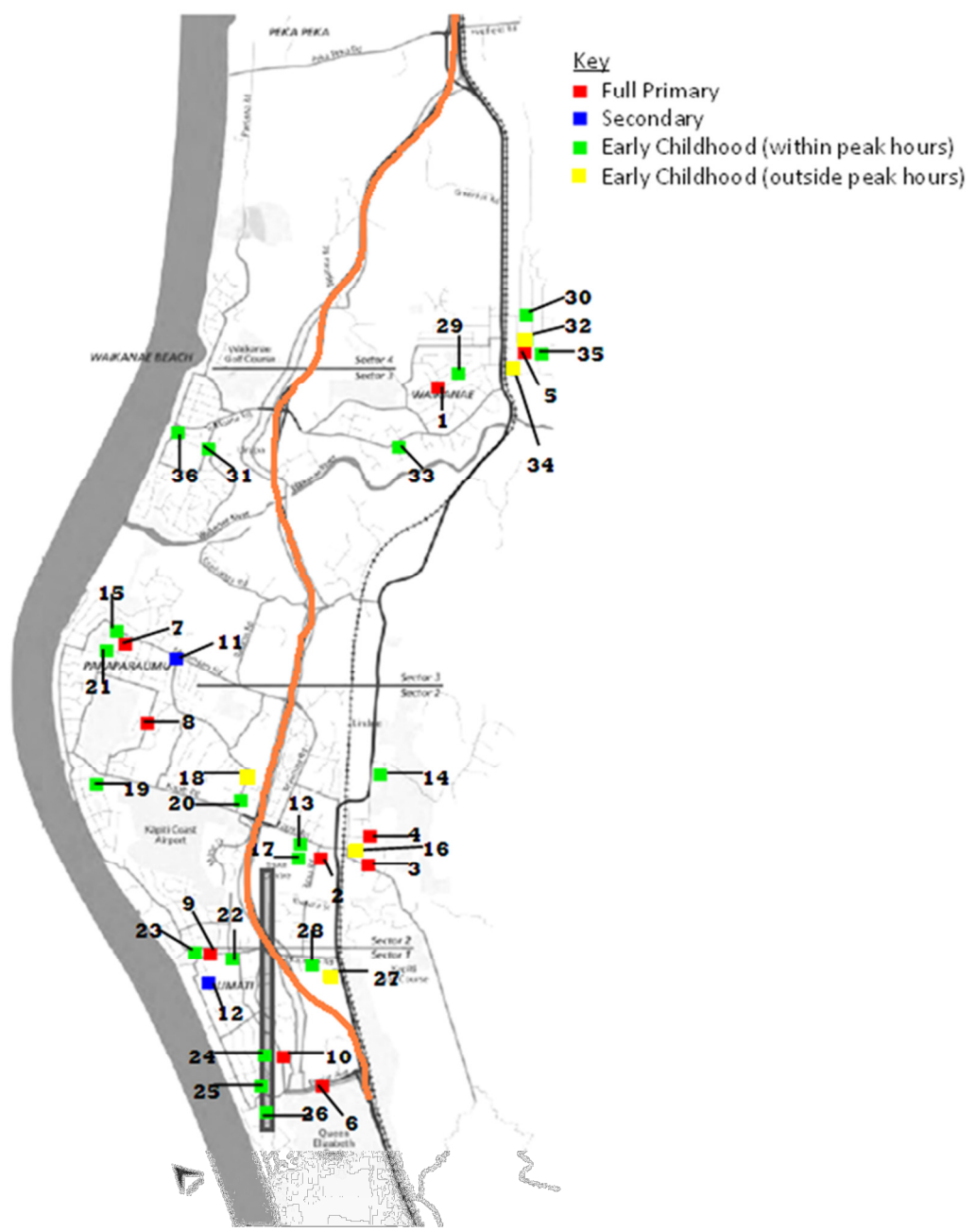
**Table 2. Schools within the thirteen census area units including their decile, roll and location (number).**

Type	School	Decile	Roll (# students)	# on Map (Figure 6)
Full Primary	Kapanui School	8	503	1
	Kapiti School	5	268	2
	Paraparaumu School	6	171	3
	St Patrick's School	8	127	4
	Waikanae School	8	492	5
	Te Ra School	9	186	6
	Kenakena School	8	509	7
	Paraparaumu Beach School	9	607	8
	Raumati Beach School	9	631	9
	Raumati South School	8	410	10
Secondary (year 9-15)	Paraparaumu College	8	1358	11
	Kapiti College	8	1086	12

---

<sup>11</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from; [http://www.tki.org.nz/Schools?schoolSearch=true&location=Kapiti percent20Coast percent20District](http://www.tki.org.nz/Schools?schoolSearch=true&location=Kapiti%20Coast%20District)

Figure 6. The location of all the schools and early childhood centers in the 13 Census Area Units with the MacKays to Peka Peka Expressway highlighted in orange<sup>12</sup>



<sup>12</sup> New Zealand Transport Association (NZTA) (2012). MacKays to Peka Peka: Assessment of Environmental effects; Non-Technical Summary. *Roads of National Significance*. P. 1-16.

## 4.7.2 Kapiti Coast District

This section of the community profile presents data from the Kapiti Coast District as a whole, which includes additional Census Area Units not included in the directly affected by stage one. The additional area units that are included in the Kapiti Coast District data (above and beyond the additional 13 Census Area Units) are:

- Paekakariki  
Kapiti Island
- Te Horo
- Otaki Forks
- Otaki.

The Kapiti coast<sup>13</sup> is 40km north of Wellington and home to a wide range of natural environments; beaches, wetlands, rivers, forests, foothills and mountains. The Kapiti Coastline is about 40km long. Kapiti Island is 1965 hectares nature reserve, is one of New Zealand's top sites for bird recovery and is sited just 5km from the mainland. The Kapiti coast is also home to the Tararua Forest Park (116,535 hectares) which connects the districts of Wellington, Wairarapa, Horowhenua, Kapiti and the Manawatu: making it the largest conservation park in the North Island. Queen Elizabeth Park can be found at the Southern end of the Kapiti Coast District and is a popular Department of Conservation space. The main townships on the Kapiti Coast are:

- Paekakariki
- Raumati South and Raumati Beach
- Paraparaumu and Paraparaumu Beach
- Otaihanga
- Waikanae and Waikanae Beach
- Peka Peka
- Te Horo
- Otaki

### 4.7.2.1 Population and dwellings

According to the most recent census, 2006<sup>14</sup>, the Kapiti Coast has a total population of 46,200 which is an increase of 8.8 percent since the 2001 census. The total Maori population of the Kapiti Coast is 5,478, which is an increase of 12.9 percent since the 2001 census. The Kapiti Coast Maori make up about 1 percent of the total New Zealand Maori population, and the Kapiti Coast total population makes up about 1 percent of the total New Zealand population.

The population density<sup>15</sup> of the Kapiti Coast District as of the 2006 census was 63.2 people per/km<sup>2</sup>. That is a nine percent increase in population density since the 2001 census, and a 20 percent increase since the 1996 census. The population density of the Wellington region in 2006 was 55.2 people

---

<sup>13</sup> Accessed on; 20<sup>th</sup> August 2012. Retrieved from; <http://www.kapiticoast.govt.nz/Our-District/Enjoying-our-Natural-Environment/>

<sup>14</sup> Accessed on; 17<sup>th</sup> July, 2012. Retrieved from; <http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=ta&ParentID=1000009&tab=PopulationDwellings&id=2000043>

<sup>15</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from; [http://www.stats.govt.nz/browse\\_for\\_stats/people\\_and\\_communities/housing/housing-indicators/2-living-density.aspx](http://www.stats.govt.nz/browse_for_stats/people_and_communities/housing/housing-indicators/2-living-density.aspx)



per/km<sup>2</sup>. In comparison, the population density of New Zealand as a whole in 2006 was 14.9 people per/km<sup>2</sup>.

At the 2006 census there were a total of 22,584 dwellings in the Kapiti Coast District; 19,368 occupied, 3,048 unoccupied and 168 under construction. The total dwellings in Kapiti quantify to roughly 1.4 percent of the total dwellings in New Zealand. The increase in dwellings since the 2001 census was about ten percent.

The density<sup>16</sup> of these occupied dwellings in the Kapiti Coast was 23.8 per/km<sup>2</sup> in 2001, and 26.4 per/km<sup>2</sup> in 2006, which is an 11 percent increase. In 2006 in the density of occupied dwellings in the Wellington region and New Zealand was 20.7 per/km<sup>2</sup> and 5.4 per/km<sup>2</sup> respectively.

Table 3 shows that out of the total Kapiti Coast population<sup>17</sup> in 2006, 8,943 people (19.36 percent) were younger than 15 years old. 26,505 people (57.37) were between the ages of 15 and 64 years, and that 10,746 people (23.26 percent) were 65 years and over. This compares with the 2006 New Zealand national data<sup>18</sup> where 21.5 percent of people were less than 15 years, 66.2 percent were between the ages of 15 and 64 years, and only 12.3 percent of people were over 65 years.

Additionally, out of the 5,481 Maori in the Kapiti Coast District in 2006, 1,995 (36.4 percent) were under 15 years old, 3,180 (58.02 percent) were between 15 and 64 years, and 306 (5.58 percent) were 65 years and older. The population (all ethnicities) of the Kapiti Coast District elderly (>65 years) was 6.72 percent higher than the Maori elderly population. National New Zealand data for Maori showed that in 2006, 35.4 percent were less than 15 years, 60.5 percent Maori were between 15 and 64 years, and 4.1 percent were over 65 years.

In regards to sex distribution in the Kapiti Coast District the 2006 census showed that 21,486 people (46.5 percent) were male, and 24,714 people (53.5 percent) were female. Compared to nationally where 48.8 percent were male and 51.2 percent were female.

The median income<sup>19</sup> in the Kapiti Coast District in the 2006 census was \$23,000, compared with \$28,000 in the Wellington region and \$24,000 in New Zealand as a whole. Forty-five percent of Kapiti residents earn less than \$20,000 and about 18 percent earn over \$50,000 annually.

Out of a total of 13,134 families<sup>20</sup> in the Kapiti Coast District; 6,570 couples had no children (50 percent), 4,374 couples had children (33 percent), and 2,187 families consisted of a single parent with

---

<sup>16</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from;

[http://www.stats.govt.nz/browse\\_for\\_stats/people\\_and\\_communities/housing/housing-indicators/2-living-density.aspx](http://www.stats.govt.nz/browse_for_stats/people_and_communities/housing/housing-indicators/2-living-density.aspx)

<sup>17</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from;

<http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=ta&ParentID=1000009&tab=AgeSex&id=2000043>

<sup>18</sup> Accessed on; 14<sup>th</sup> August, 2012. Retrieved from;

<http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=region&tab=AgeSex&id=9999999>

<sup>19</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from;

<http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=ta&ParentID=1000009&tab=Income&id=2000043>

<sup>20</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from;

<http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=ta&ParentID=1000009&tab=Families&id=2000043>

children (16 percent). Compared to New Zealand, where out of 1,067,505 families; 40 percent of couples had no children, 24 percent of couples had children and 18 percent of families consisted of a single parent with children (2006 census data).

**Table 3: Age distribution of the Kapiti Coast Population shown as male, female and total numbers, taken from the 2006 census**

Age group (years)	Male	Female	Total
-4	1,269	1,353	2,622
5-9	1,497	1,539	3,033
10-14	1,647	1,644	3,291
15-19	1,413	1,362	2,772
20-24	807	807	1,611
25-29	678	786	1,467
30-34	999	1,242	2,241
35-39	1,380	1,782	3,162
40-44	1,569	1,821	3,387
45-49	1,545	1,614	3,162
50-54	1,347	1,533	2,877
55-59	1,443	1,617	3,060
60-64	1,233	1,530	2,763
65-69	1,272	1,542	2,814
70-74	1,173	1,368	2,538
75-79	1,062	1,248	2,310
80-84	723	1,035	1,758
85 and over	435	897	1,332
Total	21,486	24,714	46,197

#### 4.7.2.2 Cultural Diversity:

Between the 2001 census and the 2006 census there was a decline<sup>21</sup> of about six percent in the proportion of European residents within the Kapiti Coast District. However, an increase in proportions of Maori (12.8 percent), Pacific (21.1 percent) and Asian (26.2 percent) residents was seen.

The majority of Kapiti residents were born in New Zealand (35,346 people), followed by the UK and Ireland (5,619). Born elsewhere included Europe (939), Australia (729), Asia (699), Other (456), North America (348) and the Pacific Islands (234).

As of the 2006 census the Maori language was spoken by about 26 percent of Maori in the Kapiti Coast district. The overall percentage of Kapiti residents speaking Maori was about four percent. Maori speaking Maori made up about 3.2 percent of this overall total. The English language was spoken by 98 percent of all Kapiti residents. In total 38,934 residents spoke one language and 4,077 residents spoke two languages. Only 567 residents were able to speak three languages.

<sup>21</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from;

<http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=ta&ParentID=1000009&tab=Culturaldiversity&id=2000043>

#### 4.7.2.3 Education, occupation and movement:

The 2006 census showed<sup>22</sup> that 22percent of Kapiti residents had no formal qualification. This was the same as the overall New Zealand population (22 percent). In the 2001 census those with no formal qualification made up 23 percent of Kapiti Coast residents, down from 31 percent in the 1996 census. In 1996 4.7 percent of Kapiti residents held a Bachelor degree or a level 7 qualification as their highest qualification. This increased to 6.3 percent in 2001, and to 8.7 percent in 2006 (compared to 10 percent of the New Zealand population).

According to the Quarterly Labour Market Report (November 2012)<sup>23</sup>, national unemployment was at 7.3 percent, up 0.5 percent on the previous quarter. The national employment rate fell 0.4 percent to 63.4 percent. The unadjusted unemployment rate for 15-24 year olds stood at 17.3 percent in the quarter, up from 16.3 percent the last quarter. Among 15-24 year olds, in the year to September 2012, Māori youth (22.7 percent) had the highest 'not in employment, education or training' rate, ahead of Pacific (18.7 percent) and European youth (11.7 percent).

Regionally, the Kapiti Coast District falls within the broader Wellington Region, with an unemployment rate of 7.1 percent. Finer grain data are not available, except from the Census. While the 2006 Census is many years old now it still gives the reader an indication of the distribution of employment roles within the Kapiti coast District and New Zealand.

**Table 4. Comparison of the distribution of the population of the Kapiti Coast District and New Zealand based on occupation, taken from the 2006 census**

Occupation	Kapiti Coast District		New Zealand	
	#	percent	#	percent
Managers	3,711	18.15 percent	340,530	17.15 percent
Professionals	4,218	20.63 percent	374,328	18.85 percent
Technicians and trades workers	2,676	13.09 percent	241,857	12.18 percent
Community and personal service workers	1,806	8.83 percent	156,468	7.88 percent
Clerical and administrative workers	2,586	12.65 percent	240,813	12.13 percent
Sales workers	2,142	10.48 percent	186,060	9.37 percent
Machinery operators and drivers	687	3.36 percent	114,324	5.76 percent
Labourers	1,659	8.11 percent	218,991	11.03 percent
Not elsewhere included <sup>(3)</sup>	963	4.71 percent	112,404	5.66 percent
<b>Total</b>	<b>20,448</b>	<b>100.01 percent</b>	<b>1,985,778</b>	<b>100.01 percent</b>

<sup>22</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from;

<http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=ta&ParentID=1000009&tab=Education&id=2000043>

<sup>23</sup> Accessed on; 16 January 2013. Retrieved from; <http://www.dol.govt.nz/publications/lmr/labour-market-report/labour-market-report-nov-2012.pdf>

**Table 5. Comparison of the main means of travel to work for the population in the Kapiti Coast District and New Zealand, taken from the 2006 census**

Means of Travel to Work	District		New Zealand	
	#	percent	#	percent
Worked at home	1833	8.97 percent	163977	8.26 percent
Did not go to work today	2469	12.08 percent	203880	10.27 percent
Drove private car, truck or van	8664	42.38 percent	951477	47.91 percent
Drove company car, truck or van	2547	12.46 percent	212211	10.69 percent
Car, truck, van or company bus passenger	921	4.50 percent	91071	4.59 percent
Public bus	258	1.26 percent	59484	3.00 percent
Train	1584	7.75 percent	19704	0.99 percent
Motor cycle or power cycle	126	0.62 percent	19695	0.99 percent
Bicycle	273	1.34 percent	38091	1.92 percent
Walked or jogged	690	3.37 percent	105462	5.31 percent
Other	129	0.63 percent	14535	0.73 percent
Not elsewhere included <sup>(2)</sup>	954	4.67 percent	106194	5.35 percent
<b>Total</b>	<b>20445</b>	<b>100.01 percent</b>	<b>1985778</b>	<b>100.00 percent</b>

At the 2006 census and in reference to households in private occupied dwellings (19,110 in total) in the Kapiti Coast; 1,617 households had no access to a motor vehicle (8.5 percent), 8,523 had access to one motor vehicle (45 percent), 6,345 had access to two motor vehicles (33 percent), and 2,025 had access to three or more motor vehicles (10 percent). Table five<sup>24</sup> shows the main means of travel to work in the Kapiti Coast District and New Zealand, and additionally demonstrating that within the district only 9 percent commuted by public transport compared with 55 percent who commuted by either private or company motor vehicle (excludes those as passengers).

Figure 7 below demonstrates the workplace destination<sup>25</sup> (within the Wellington region) for the population of the Kapiti Coast. Figure 8 demonstrates the patterns of those who live outside of the Kapiti Coast (but within the Wellington region) that commute to Kapiti for work.

<sup>24</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from; <http://www.stats.govt.nz/Census/2006CensusHomePage/Tables/AboutAPlace/SnapShot.aspx?type=ta&ParentID=1000009&tab=Transport&id=2000043>

<sup>25</sup> Accessed on; 25<sup>th</sup> July, 2012. Retrieved from; [http://www.stats.govt.nz/browse\\_for\\_stats/people\\_and\\_communities/Geographic-areas/commuting-patterns-in-nz-1996-2006/commuting-patterns-in-wellington.aspx](http://www.stats.govt.nz/browse_for_stats/people_and_communities/Geographic-areas/commuting-patterns-in-nz-1996-2006/commuting-patterns-in-wellington.aspx)

Figure 7. Commuting from the Kapiti Coast

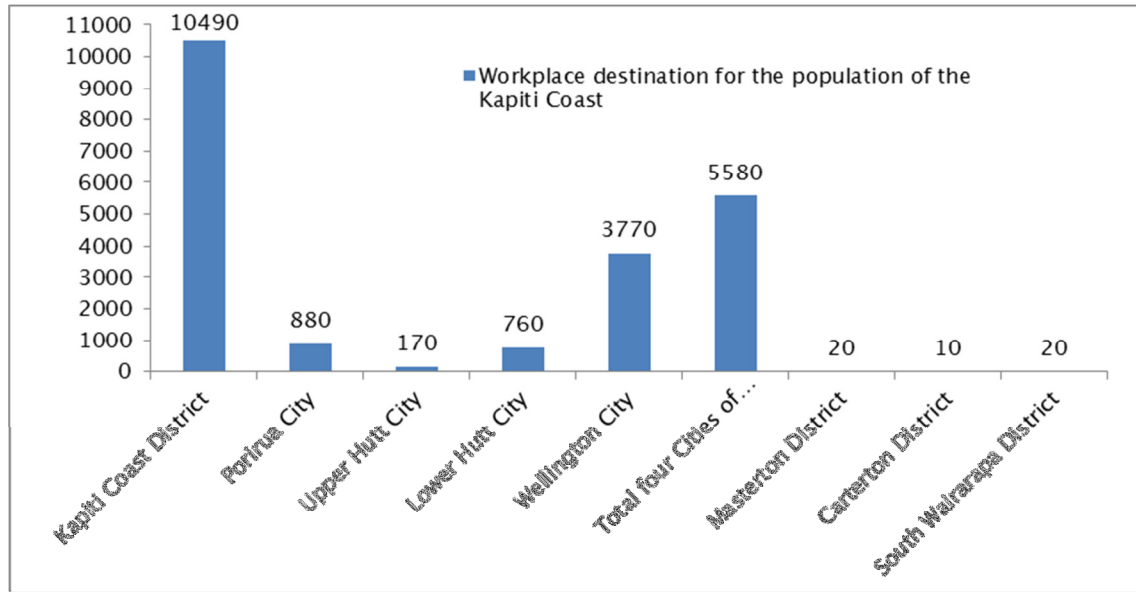
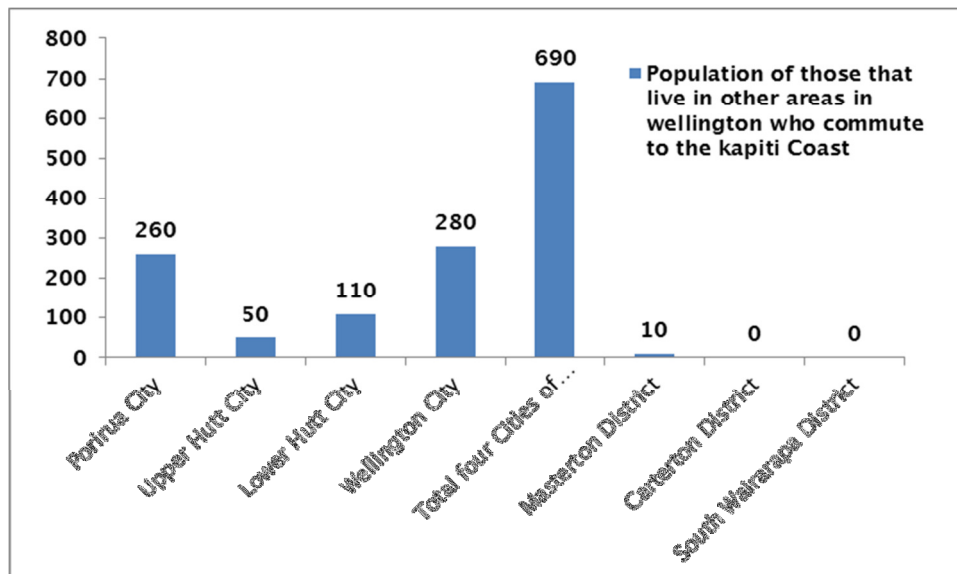


Figure 8. Commuting to the Kapiti Coast



The Kapiti Coast has a number of smaller shopping centres that service local populations. The two largest shopping areas are Coastlands shopping centre<sup>26</sup>, which hosts over 80 shops, located in Paraparaumu; and Otaki which is well known for its many outlet shops including major fashion brands and outdoor clothing. Many successful small businesses dot the coast. For example Te Horo boasts Ruth Pretty's kitchen, function centre and shop; and also Lavender Creek which produces and sells lavender products.

#### 4.7.3 Analysis of the study area as two area-based groupings

The study area was chosen from the 13 Census Area Units. As described previously the Paraparaumu and Raumati communities were identified as the best demographic fit for the study (see Section 2.3.3 for detail). Further detail on each of the individual census area units is in Appendix 2.

---

<sup>26</sup> Accessed on 22<sup>nd</sup> August, 2012. Retrieved from; <http://www.coastlands.co.nz/>

## 4.8 Develop memoranda of understanding

### 4.8.1 Introduction

Memoranda of understanding (MOU) have been drafted between the study team and:

- Kapiti Coast District Council
- Greater Wellington Regional Council
- Each facility for the facility case studies i.e. Paraparaumu Medical Centre, Netball Kapiti, Paraparaumu Library, Whitireia Polytech, and Horowhenua Kapiti Cricket Association

The purpose of each MOU is to outline the scope and nature of a working relationship between Quigley and Watts Ltd and each organisation listed above. The MOU describes the expectations and responsibilities of the organisations involved and helps to ensure continuity given the longitudinal nature of the study.

The expectation of each MOU is that the organisations will work in a respectful and open manner to achieve mutually beneficial outcomes. Each MOU will be effective on signing (once the resource consent hearing closes) and will remain in place for the duration of the study (up to 6 years) and will be reviewed on an annual basis.

Details about the inclusions in each MOU are listed below.

### 4.8.2 MOU with Kapiti Coast District Council

This MOU sets out the overarching aims of stage one (see Section 1.2 of this report).

Quigley and Watts Ltd would expect:

- To have access to KCDC staff to assist with information needs regarding the study;
- To have access to KCDC network monitoring data for the purposes of the study;
- To support the collection of KCDC network monitoring data where additional sites/ collection dates are required for the study.

Kapiti Coast District Council would expect:

- To have full access to study data (where consent has been given by participants, if participant data);
- To support the study researchers in their use and understanding of the data.

### 4.8.3 MOU with Greater Wellington Regional Council

Quigley and Watts Ltd would expect:

- To have access, where ethical, to school travel plan survey data for the purposes of the study;
- To support the collection of school travel plan survey data in the study area;
- To contribute expertise to the further development and analysis of the school travel plan survey.

Greater Wellington Regional Council would expect:

- To provide access to the school travel plan data, where consent has been given by participants;
- To support the study researchers in their use and understanding of the data;
- To consider the inclusion of additional questions within the school travel plan survey (where this is feasible).

### 4.8.4 MOU with facility case study organisations

Quigley and Watts Ltd would expect:

- To work with the each facility to develop the most appropriate method of collecting the data from the facility users;
- To assist each facility to develop one or two additional questions to add to the user survey and consider any pre-testing that may need to be done.

Each facility would expect:

- To consider the inclusion of additional questions within the user survey;
- To support stage one researchers in their collection of the data;
- To keep discussions about this research confidential until informed otherwise.



## 4.9 Site visits conducted

The study team visited the potential study area (the MacKays to Peka Peka Expressway) and then following confirmation that the Expressway project would be the focus of stage one, team members re-visited on several other occasions. The purposes were to:

- Gain an overall appreciation for the localities;
- Meet with representatives of Council and the community (e.g. Kapiti Coast District Council; Kapiti Area Research Unit, Te Hiringa Hauora Mataurangi Iwi Social Services, and Kapiti Disability Reference Group);
- Discuss memorandums of understanding between agencies;
- Share study details with representatives and answer their questions;
- Achieve a general agreement to participate in stage one. For example, the library, Whitireia Polytechnic; Kapiti Netball; Kapiti Coast Medical Centre;
- Understand the route of the proposed Expressway and the scale of the project;
- View the proposed changes to the road network with the aim of understanding how such network changes might influence the location or nature of upcoming field work;
- Select neighbourhood case study households, based on the existing residential areas overlaid with the proposed route;
- Clarify and select traffic, pedestrian and cycling monitoring locations.

## 4.10 Develop methods and pre-test questionnaires

This section of the report is split into six sub-sections each describing the development and pre-testing for the five proposed methods for the study.

The most substantial component of stage one was developing the methods, pre-testing the questions and identifying how the analysed data would be brought together to answer the research questions (via rubrics). All this was done taking into account the practical issues presented by real-world research.

Each of the methods is designed to draw on substantially different data sources while answering particular research questions. The methods collect:

1. Contextual data (for example, has the environment changed). Essentially explanatory data to support whether a change in intermediate outcome or final outcome is plausible.
2. Intermediate outcome data (For example, have accident rates for cyclists changed). Also explanatory data to support whether a change in final outcome is plausible.
3. Final outcome data (For example, has severance to a facility changed).

A substantial component of our development work has been to understand data which has previously been collected (and data yet to be collected) that may be of use to answering the research questions. The study team has been fortunate to identify four methods where data has been collected in the past (providing a historical record) and is planned to be collected into the future (negating the need for stage one to re-collect such data). The four methods are:

1. School case studies
2. Network Monitoring
3. Crash statistics
4. Ongoing national data sets

Such an approach has saved:

- development time and budget (as the methods are already developed and in use)
- data collection time and budget (as they are planned to be collected by partner agencies in the future from their own budgets)
- data analysis time and budgets (as they are planned to be analysed by partner agencies in the future from their own budgets)

It has also allowed the study team to investigate with partner agencies what value stage one may be able to bring to their data collection processes or analysis, if any.

The two remaining methods however are substantial, and provide the bulk of the final outcome data for stage one:

5. Neighbourhood case studies
6. Facility case studies

The volume of data potentially collected by the neighbourhood case studies, the facility case studies and the school case studies could be very large, creating a substantial analysis issue. To address this, the study team has wherever possible, developed questions where the participants choose answers from pre-selected answer options. The options have been rigorously developed from literature and focus group findings, and then thoroughly pre-tested via individuals.

Two of the methods have been designed to collect data from socially mobile people (schools and facility case studies) whereas the neighbourhood case studies are designed to also collect data from people who may be less socially mobile. The neighbourhood case studies will be particularly useful for collecting data about changes to neighbourhood social networks; whereas the facility and school

case studies will be particularly good at collecting data regarding potential changes to severance. Network monitoring, crash statistics and ongoing national data sets have been chosen as they will be particularly good at identifying changes to the environment.

The neighbourhood case study questionnaires and the facility questionnaires were developed by the research team using a collaborative approach. Several researchers worked on each section and questionnaires were internally reviewed by Quigley and Watts staff and Martin Ward, along with expert advisor Dr Vivienne Ivory. The questions were informed by:

- the literature review undertaken earlier (Marsh and Watts 2012)
- validated questions in other surveys
- the team's experience in designing questionnaires

## 4.10.1 Neighbourhood case studies

### 4.10.1.1 Introduction

This component of the study investigates social connectedness and community severance as experienced by residents in selected neighbourhoods. It is one of the major methods developed in stage one.

A case study approach is proposed because it is a sensitive method for picking up changes that are unevenly distributed across the study area population. It is hypothesised that the Expressway may have a positive impact on some neighbourhoods and a negative impact on others. Many neighbourhoods may be virtually unaffected. Therefore random sampling of the overall population may lead to an 'averaging out' that masks significant impacts on particular neighbourhoods. To avoid this, we will investigate the experience of residents in 'outlier' and 'reference' neighbourhoods.

The sample frame consists of six carefully selected residential areas. The areas differ in socioeconomic status and in potential impact of the Expressway project. The sample frame has been designed to ensure we capture a wide variety of residents, including vulnerable groups and those who are less socially mobile. A census of households in each of the neighbourhood case areas is proposed, using an interviewer administered survey at pre-, construction- and post-data collection time points. A census of adults from each household will be surveyed, meaning multiple data points are available for the case study.

Three of the other study methods complement the neighbourhood case studies and will provide critical information about any environmental change experienced by each neighbourhood when analysed by pre-, construction- and post- data collection time points. They have been described elsewhere in this report and are:

- Streetscape audits will be undertaken to assess any changes in each neighbourhood environment (see section 4.10.1.6);
- Network monitoring will be undertaken via 15 traffic count sites throughout stage one area (see section 2.3.3). Several of these data collection points are within or adjacent to the neighbourhood case study areas. This monitoring will provide information about pedestrian/ cycle/ vehicle counts, vehicle speed, vehicle class, am and pm peak flow, etc. for each of the neighbourhood case studies (see section 3.4.1 for details).
- Noise monitoring will be undertaken in each of the neighbourhood case study areas (see section 3.4.1 for details).

### 4.10.1.2 Purpose and objectives

The purpose of the neighbourhood case studies is to ascertain whether the Expressway has had an impact on:

- Social connectedness of residents

- Liveability of neighbourhoods
- Community severance

The objectives of the neighbourhood case studies are to understand changes in:

1. the neighbourhood environment (perceived comfort and attractiveness; use of street as a social space; behavioural change due to traffic annoyance) that individuals are living in;
2. the places that people go to (locally and beyond), mode of travel;
3. the social value of the destinations people go to, and whether they are local-, wider Kapiti- or Greater Wellington-based;
4. the social value from the journey itself, if any;
5. the journey experience (stress, ease, safety of modes, and perception of hassle of modes), mode choice, pedestrian delay, overall ease of travel;
6. actual severance, either increases of, or alleviation of. This includes not going to a desired destination at all (trip suppression), feeling cut-off, using a non-preferred route, using a non-preferred mode to travel to a destination, or going to a different destination (all due to difficulty travelling); and frequency of these;
7. direct effects of the Expressway on neighbourhood liveability (e.g. traffic noise) and getting around;
8. social contact in the neighbourhood, beyond the neighbourhood and social contact overall; perceived availability of people to help; isolation; belonging to formal social groups (and their location);
9. demographic data;
10. travel resources, e.g. number of vehicles at the household, access to the vehicle at the household, number of bicycles, etc.;
11. impact of heavy traffic on travel behavior.

#### 4.10.1.3 Sample design for the neighbourhood case studies

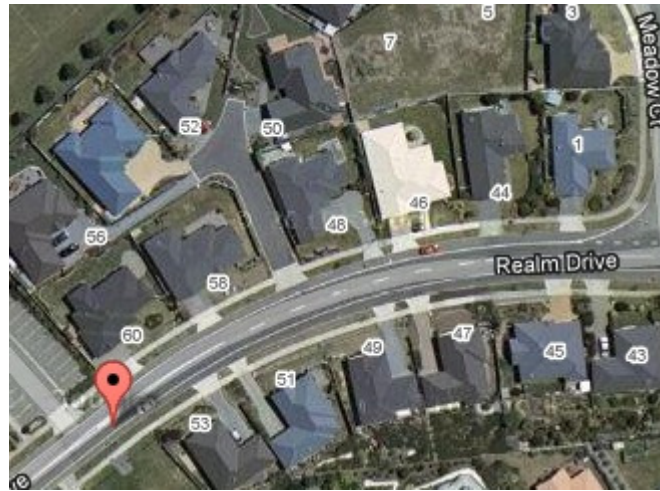
The sample design consists of six areas (see maps below) with a total of 100 residential households. These areas have been selected because it is likely there will be:

1. Potential negative effects from the Expressway project (increased traffic flow and associated noise; noise independent of local street traffic flow):
  - a. Tutaneikai Street (between Heihei Place to Wairere Grove) Numbers 51a, 51b, 49a, 49b, 47a, 47b, 45, (1 Parakai St), 39, 37, 68, 60, 58, 48, 46, 44, 36, 34, 30, 28 (20 houses). These houses are likely to experience an increase in traffic flow and associated noise. The area covers three Census meshblocks with NZDepScore of 6, 8, 9<sup>27</sup>. The meshblocks are <http://mashblock.co.nz/meshblock/mb1998901> (NZDep 6); <http://mashblock.co.nz/meshblock/mb1999900> (NZDep 9); and <http://mashblock.co.nz/meshblock/mb2000000> (NZDep 8).
  - b. Observation Place (8, 12, 16, 20, 24, 28, 27, 23, 21, 3, 7, 11, 15) and Milne Drive (59, 55, 51) (16 houses). These houses are likely to experience a substantial increase in noise from Expressway traffic flows (but not on their local streets). The choice of Observation Place and Milne Drive is also supported by the Assessment of Traffic Noise Effects, which estimated that 60% of the 35 houses in these and nearby streets (Quadrant Heights, Datum Place) were (with mitigation) likely to experience at least a doubling of noise (an increase of 9-11 decibels or 11+ decibels) (Assessment of Traffic Noise Effects. 27 March 2012. Technical Report 15, p 48). The area covers one Census meshblock with a NZDep score of 1. Demographic data at <http://mashblock.co.nz/meshblock/mb2003700>.

---

<sup>27</sup> 1 = least deprived, 10 = most deprived.





#### 4.10.1.4 Overview of the survey modules to be used in the neighbourhood case studies

A brief description of the purpose of each questionnaire module is provided prior to the detail on each question.

## **Travel experience**

The purpose of this module is to gather information about resident's travel. In particular, to determine whether the Expressway has caused severance to key destinations. Along with severance we are also interested in change in usual mode of transport; and whether trips are more or less stressful for destinations visited recently (in the last month).

Severance from key destinations is important in its own right and it also potentially has an impact on social connectedness. For example not being able to get to the doctors or the supermarket has direct impacts on health and wellbeing and could also contribute to social isolation or limit social connectedness. We are interested in which places are important to people for interacting socially. Social interaction covers everything from spending quality time with friends to chatting with a shopkeeper or waving to someone you know in the supermarket.

Travel has both an inherent and a destination-specific social component. We are interested in the impact of the Expressway on the social value of peoples' journeys. Social value is derived from social interaction which covers everything from sharing a car trip to chatting with a stranger on the bus or waving to someone you know while walking. Travel can be an important contributor to social connectedness.

We will also collect data on whether travel is within the study area or in the wider Kapiti area or greater Wellington area as the Expressway is likely to have a differential impact on destinations related to proximity.

## **Usage and perception of modes**

This module measures how frequently residents use each mode (walking, cycling, private motor car, public transport and other), and their perceptions about the safety and 'hassles' of each of these four main modes. The purpose is to identify mode use changes between pre-, construction- and post- data collection points, and changes in key factors that influence mode choice (e.g. perceived safety). Respondents are required to list the perceived hassles associated with each mode, helping to clarify whether any changes identified are attributable to the Expressway.

Mode use is relevant to a study of social connectedness because research suggests that some modes (i.e. walking, cycling and public transport) provide more opportunities for casual social contact between community members. Research shows that walkable neighbourhoods tend to be more socially connected compared to neighbourhoods where people mainly get around by car. Research also suggests that pedestrians and cyclists are particularly sensitive to severance impacts, and therefore a modal shift away from active transport towards private car use may indicate that people are driving more in order to overcome severance impacts. Conversely, and a modal shift away from car use may indicate relief from severance.

## **Severance indicators**

The purpose of this section is to measure indicators of community severance experienced by residents at pre-, construction-, and post-data collection time points. Based on the research literature, 'severance' is defined as:

Separation of people from facilities, services and social networks they wish to use within their community because of changes in comfort and attractiveness of areas; and/or changes in travel patterns due to physical, traffic flow and/or psychological barriers created by transport projects.

As such, we are interested in the following indicators:

- perceived ease of getting to desired destinations
- perception of being 'cut off' from desired destinations

- travel behaviour caused by ‘heavy traffic’ and associated problems such as noise and fumes (e.g. trip suppression, destination substitution, trip lengthening)
- perceived comfort and attractiveness of residential streets
- use of street as a social space
- behavioural indicators of traffic noise annoyance (e.g. raising voice to be heard above the traffic, difficulty getting to sleep due to traffic noise)

Clear trends between baseline and follow up on these measures will provide strong evidence of increased community severance or relief from community severance.

### **Social contact**

The purpose of this module is to gather data on people’s social connectedness, both within their neighbourhood and beyond. Within the neighborhood the questions will provide data on people’s level of connectedness, frequency of contact, and perceived availability of support. Note it excludes contact such as phone and internet as the study is interested in transport mediated social connectedness. Outside of the neighbourhood the questions focus on people’s level of connectedness, frequency of contact and perceived availability of support.

The social contact questions also ask about the overall level of social contact that people have, perception of isolation, and people’s social networks/groups that they belong too.

### **Impact of the Expressway (post- only)**

In the follow up survey, respondents who have been resident since baseline will be asked directly about the perceived impact of the Expressway on their household, in terms of neighbourhood liveability and ease of getting around. This provides direct (albeit subjective) measures of the impact of the Expressway.

### **Demographic questions**

The survey includes demographic questions to determine whether the pre-, construction- and post-samples have a similar or markedly different demographic profile. Although the same *houses* will be surveyed at each time period, it is expected that some residents will have moved between baseline and follow up (particularly in areas that are predicted to become less attractive due to the Expressway). If there are marked changes (e.g. away from middle-income home owners towards low income renters) then it is possible that other findings may be attributable to this demographic shift.

A demographic shift can be seen not only as a confounder, however, but also as a relevant finding in itself about community connectedness and social cohesion. Research shows that stable neighbourhoods tend to be more socially connected, and that traffic flow changes or new roads can disrupt social networks. Therefore a high turnover of residents and, in particular, a shift from home ownership to tenancies, may indicate low social connectedness in a neighbourhood.

We will ask for the name of the person completing the questionnaire. Once securely stored in our electronic archive, we will be able to look through each of the pre-, construction- and post- samples to determine if there is a sub-sample of participants that can be analysed as a cohort study. We will anonymise data before publication.

### **Density and urban form analysis**

The purpose of this audit is to identify the basic characteristics of each neighbourhood. Area-based characteristics may help to explain existing social connectedness or community severance, and changes may help explain any observed changes in social connectedness or community severance outcomes. The characteristics are:



- population and residential density (total number of dwellings; range of dwelling size; total number of vacant lots; range of lot sizes);
- urban form (block length; block depth; community focal point; high visibility and active frontages; low visibility and inactive frontages, walkable streets; car dominant streets);
- walkability (distance to nearest primary school, park/playground, childcare, bus stop, recreational walkway);
- built form (residential site coverage; percentage of one and two story buildings; percentage of detached, semi-detached and attached buildings; total number of dwellings that have a front-setback of 2-5m, or greater than 5m; percentage of dwellings with a car dominant built form).

#### 4.10.1.5 Questionnaire

Each of the six modules developed for the neighbourhood questionnaires follows:

##### Module 1: Travel experience

The questionnaire is interviewer administered and show cards are used to prompt respondents.

##### Travel frequency

Survey question(s)	<p><b>Part One</b></p> <p>I am going to read out a list of places that people go. Can you tell me if you have been to each place in the last month, either for you or to take someone else?</p> <p><i>Read out the places and tick in the first column if answer is yes.</i></p> <p><b>Part Two</b></p> <p>Now I have some questions about how often you go to each place. Show card 1 – on average would you have gone to xxxx (insert each place ticked).</p>
Response categories	<p><b>Part One</b></p> <ol style="list-style-type: none"> <li>Work</li> <li>School, polytech, university of other place you are studying</li> <li>Relative or friend's house</li> <li>Doctors, pharmacy, hospital or other health professional (e.g. physio, dentist)</li> <li>Post office/bank/Work and Income or other government department</li> <li>Place you have travelled to hang out, relax or socialise e.g. café, movie theatre, bar, restaurant, community event</li> <li>A place for sport, exercise or active play (for example bowls, cricket, gym, the pool, park, playground)</li> <li>Library</li> <li>Other recreational and cultural facilities e.g. zoo, museum, aquarium</li> <li>Supermarket (where you do your main grocery shopping)</li> <li>Market (e.g., fruit and veges), butchers, bakery (where you do other food shopping)</li> <li>The shops (all other shopping except for groceries/food and drink)</li> <li>School, pre-school, play group or other early childhood centre (with your child/grandchild)</li> <li>Church</li> <li>Other (please tell us where)</li> </ol> <p><b>Part Two</b></p>

	<ul style="list-style-type: none"> <li>• every day,</li> <li>• 3-5 times a week,</li> <li>• 1-2 times a week,</li> <li>• about once a fortnight,</li> <li>• about once a month,</li> <li>• less than once a month?</li> </ul>
Source of the question	Developed for this study
Compelling information collected and why we are asking it	This question will tell us frequency of travel to key destinations
Objective question relates to	Objective 2
Question development notes	<p>The development of this question included extensive investigation on how best to measure travel. We considered diary, recall and frequency measurements. While more accurate indicators of travel, diary and recall were both judged to have too high a respondent burden for this study. We decided on frequency as it provided an indication of importance of destination but was lower in respondent burden. At this point it is not completely clear how useful this question will be in the final analysis of the study.</p> <p>Pre-testing indicated that we needed a category for travel that was less frequent than once a month, for example doctors visits and prescriptions were often done on a 3 monthly frequency. Pre-testing indicated that interviewer notes were needed to explain what was included under health professional. Health professional will include chiropractor, osteopath, dental nurse, counsellor, psycho-therapist, hospital outpatient but exclude beauty therapist.</p> <p>Places to hang out include non-active group activities e.g. chess club, bingo, the Races</p> <p>The original questionnaire tried to differentiate between facility-based and non-facility-based sport and recreation. People commented in the pre-testing that this was confusing so these two concepts were combined in the following category '<i>A place for sport, exercise or active play (for example bowls, cricket, gym, the pool, park, playground)</i>'. In the original questionnaire we did not include activities like eating out after pre-testing these were included in '<i>Place you have travelled to hang out, relax or socialise e.g. café, movie theatre, bar, restaurant, community event</i>'.</p> <p>The original questionnaire did not include 'other government departments' as destinations. This was highlighted as missing in the pretesting and added to the following category '<i>Post office/bank/Work and Income or other government department</i>'.</p> <p>Pretesting also suggested the addition of 'grandchild' to following destination category '<i>School, pre-school, play group or other early childhood centre (with your child/grandchild)</i>'.</p>

### Travel Mode

Survey question(s)	<i>For the places respondents have been to in the last month ....</i> We would also like to know how you usually get to each place. <i>Show card 2 - How do you usually get to xxxx? (insert each place ticked)</i>
Response categories	<ul style="list-style-type: none"> <li>• Car (driver)</li> <li>• Car (passenger)</li> <li>• Motorbike/motorscooter</li> <li>• Public Transport (bus, train, ferry)</li> <li>• Bicycle</li> <li>• Scooter/skateboard</li> <li>• Walk</li> <li>• Walk (with a baby buggy/pushchair)</li> <li>• Mobility scooter/wheelchair</li> <li>• Other</li> </ul>
Source of the question	Developed for this study
Compelling information collected and why we are asking it	This question will tell us how people usually travel to key destinations and whether there are mode changes over the study period.
Objective question relates to	Objective 2

### Journey experience

Survey question(s)	Lastly can you tell me how stressful the journey to xxx is? <i>(insert each place ticked)</i>
Response categories	Completely stress free; Mostly stress free; Slightly stressful; Stressful; very stressful
Source of the question	Developed for this study
Compelling information collected and why we are asking it	Sometimes people are not severed from destinations but the stress related to getting there increases. We are interested in the changes in stress related to particular destinations and mode types.
Objective question relates to	Objective 5
Question development notes	In the original questionnaire there was no description of what each smiley face meant. This was a suggestion from the pretesting and the words were added under the smiley faces to describe each category.

### Social value of journey

Survey question(s)	I would like you to think about your journey to xxxx (insert each place ticked). You said you usually travelled by yyyy (insert mode).
--------------------	--

	How social is this journey?
Response categories	<p><b>Very social</b> – <i>I travel with people I know (and/or meet new people) and have a high level of social interaction</i></p> <p><b>Social</b> – <i>I travel with people I know (and/or meet new people) and have a some social interaction with them</i></p> <p><b>A bit social</b> – <i>While I am travelling I see people I recognise or know and I might wave to them or acknowledge them but we usually don't chat</i></p> <p><b>Not social</b> - <i>While I am travelling I don't see people I know or recognise or meet new people</i></p>
Source of the question	Developed for this study
Compelling information collected and why we are asking it	We know from the literature that travel can have a high social value and contribute to feeling socially connected. To some extent this is determined by mode. We are interested in any changes in the social value of journeys. This question will enable us to analyse the social value of journeys by destination and by mode.
Objective question relates to	Objective 4

### Social value of destination

Survey question(s)	<p><b>Part One</b></p> <p><i>For each place the respondent has been please ask the following question:</i></p> <p>How social is the time you spend at xxx (insert each place ticked)?</p> <p>And</p> <p><b>Part Two</b></p> <p><i>For each place the respondent has been please ask the following question:</i></p> <p>Thinking about xxxxx and the journey to get there, overall how socially important is that place to you?</p>
Response categories	<p><b>Part One</b></p> <p><b>Very social</b> – <i>I see people I know (and/or meet new people) and have a high level of social interaction</i></p> <p><b>Social</b> – <i>I see people I know (and/or meet new people) and have some social interaction with them</i></p> <p><b>A bit social</b> – <i>I see people I recognise or know and I might wave to them or acknowledge them but we usually don't chat</i></p> <p><b>Not social</b> – <i>I don't see people I know or recognise or meet new</i></p>

	<p><i>people</i></p> <p><b>Part Two</b></p> <p>Very important; Important; Not very important; Not important at all</p>
Source of the question	Developed for this study
Compelling information collected and why we are asking it	We are interested in the social value people place on different destinations and also how socially important these key destinations are to people. Analysis of this question along with change in frequency of travel to key destinations and stressfulness of the journey will provide useful background to the study purpose to investigate impacts on severance and social connectedness.
Objective question relates to	Objective 3
Question development notes	<p>In the original questionnaire we asked people to rank destinations in order of the social importance of each destination. This was tricky and time consuming so it was changed to ask the social importance of each destination visited.</p> <p>In the pretesting there were queries about whether the ranking of social importance was related to the destination or the journey to the destination. This question was changed to make it clear that we were interested in both '<i>Thinking about xxxxx and the journey to get there, overall how socially important is that place to you?</i>'</p>

### Destination location

Survey question(s)	Is xxx (insert each place ticked) in Area 1, 2 or 3
Response categories	<p>Area 1 = local study area</p> <p>Area 2 = wider Kapiti area</p> <p>Area 3 = greater Wellington Region</p>
Source of the question	Developed for this study
Compelling information collected and why we are asking it	We are interested in the overall impact of the Expressway on severance and social connectedness. The location of the destination will influence whether the Expressway has a positive or negative impact on severance and social connectedness. It is possible that there will be different impacts depending on whether destinations are local or within the wider Wellington region. For example travel to and from Wellington may well be less stressful for car drivers however there could potentially be a mode change away from public transport to car use which may increase stress and reduce the social value of the journey for some people.
Objective question relates to	Objectives 2,3 , 4 ,5 ,6

Question development notes	In the pre-testing people asked that a map be included to indicate the area for each category – this will be added to the finalised questionnaire.
----------------------------	--

## Module 2: Usage and perception of transport modes

In the module questions are grouped by mode (all the walking questions first, followed by all the cycling questions etc.). However, since the questions for each mode are very similar, they are dealt with together below to avoid repetition.

### Mode use

Survey question(s)	How often do you walk in your local area, (either for transport or leisure)? How often do you cycle in your local area, (either for transport or leisure)? How often do you get around by car (either as a driver or passenger)? How often do you use public transport (e.g. bus or train)?
Response categories	a) every day b) 3-5 times a week c) once or twice a week d) about once a fortnight e) about once a month f) less than once a month g) never h)don't know/refused
Source of the question	Developed for this study.
Compelling information collected and why we are asking it	In addition to knowing the usual mode of the particular journeys explored in the travel frequency section (above), we are interested in overall mode usage, and how this changes from baseline to follow-up. In particular, do residents use active transport modes more or less frequently following the introduction of the Expressway?
Objective question relates to	Objective 2
Question development notes	The Greater Wellington Regional Council perception survey (2004) asked respondents: 'Over the last six months, have you made any of your trips in the region by...(mode)?' The study team considered that this question was not sensitive enough to detect mode changes between baseline and follow up in the current study. Instead we have used the same response categories in this question as for the travel frequency questions (section 1 above).  'Car' includes private ute, SUV, van etc. Taxi is excluded. Van or shuttle transport provided by a business or organisation is excluded.  'Public transport' excludes taxi and van or shuttle transport provided by a business or organisation.  'Your local area' is defined with reference to a map, which will be shown to respondents. This phrase is omitted from the questions about PT and car use, since we do not want to exclude journeys that

	originate in the local area and extend beyond the study area.
--	---

### Perceived ease of use of modes

Survey question(s)	How 'hassle free' is getting around your local area by walking/cycling/car/public transport?
Response categories	a)good b)bad c)somewhere in between d)don't know/refused
Source of the question	The question and response categories are based on the Greater Wellington Regional Council perception survey (2004)
Compelling information collected and why we are asking it	This question will tell us whether residents' perceptions of the 'ease of use' of the four main modes change between baseline and follow up. Positive or negative changes in mode perception may be attributable to changes caused by the Expressway project, however there may be other factors also at play.
Objective the question relates to	Objective 5
Question development notes (where appropriate)	'Hassle free' was an acceptable term for pre-test participants - the meaning was similar to but different from 'convenient'. The exact definition is still unknown but perceived 'hassles' are likely to be broader than the factors of interest to us (i.e. noise, visual amenity, pollution, crossing delay, perceived safety). To gain clarity about what respondents consider to be 'hassles' (and whether these are attributable to the Expressway) an additional question is asked (see below).  Although the response categories do not directly match the question asked, pre-test participants had no problems with this.

### Perceived safety of modes

Survey question(s)	Thinking about safety from accidents, how safe are walkers/cyclists in your local area?  Thinking about safety from crime, how safe are walkers/cyclists in your local area?  How safe do you feel when using a car?  How safe are people when using public transport (e.g. buses, trains)?
Response categories	a) Safe b) unsafe c) somewhere in between d)don't know/refused
Source of the question	Based on Greater Wellington Regional Council perception survey (2004). 'How safe do you think people are when walking?' ; 'How safe do you feel when using a car?'

Compelling information collected and why we are asking it	Perceived safety is a major factor that influences travel patterns and mode choice. This question will tell us whether the perceived safety of each mode has changed between baseline and follow up. Positive or negative changes in perception of safety may be attributable to changes caused by the Expressway project, however there may be other factors also at play.
Objective the question relates to	Objective 5
Question development notes (where appropriate)	<p>Following Greater Wellington Regional Council (2004), questions about walking, cycling and PT are in the third person (how safe are people?), whereas the question about car use asks about the respondent's own safety (how safe do you feel?). This is because the great majority of people use cars (either as a driver or passenger), but not all have recent personal experience of walking, cycling or using PT.</p> <p>Third person ('people' rather than 'you') means these questions can be answered by ALL participants regardless of whether they are regular walkers/cyclists/PT users or not. In particular it captures perceived safety in people who DON'T walk/cycle/use PT because of safety concerns.</p> <p>During pre-testing we found that when asked about 'safety' people tended to consider safety from crime when asked about walking, and safety from accidents when asked about cycling. To ensure both aspects of safety were considered, two separate questions have been asked in relation to walking and cycling.</p>

#### Perceived 'hassles' associated with modes

Survey question(s)	<p>Which of the following (if any) are significant hassles for walkers/cyclists/motorists in your area?</p> <p>Which of the following are significant hassles with using public transport?</p> <p>(Tick all that apply)</p>
Response categories	<p><b>Walkers:</b> N/A (never walk, so have no impression); Lack of footpaths; Cars parked on footpaths; Lack of pedestrian crossings; Speeding traffic; Busy roads – too many vehicles; Drivers who are inconsiderate, careless, or do not follow road rules; People riding bikes or skateboards on the footpath; Unattractive surroundings; Traffic noise/pollution</p> <p><b>Cyclists:</b> N/A – never cycle so have no impression; Lack of cycle paths or cycle lanes; Cars in cycle lanes; Speeding traffic; Busy roads – too many vehicles; Drivers who are inconsiderate, careless, or do not follow road rules; Narrow roads, traffic islands and 'pinch</p>



	<p>points'; Unattractive surroundings; Traffic noise/pollution</p> <p><b>Motorists:</b> N/A – never drive so have no impression; Traffic congestion; Speeding traffic; Drivers who are inconsiderate, careless, or do not follow road rules; Narrow roads, 'pinch points', and other road design issues; Lack of parking, cost of parking; Busy uncontrolled intersections; Too many controlled intersections; Cost of fuel</p> <p><b>PT users:</b> N/A – never use public transport so no impression; Infrequent service; Limited routes – does not reach places people want to go; Buses/trains not running on time; Distance to bus stop/station; Cost; Unsheltered bus stops; Slow because of congestion</p>
Source of the question	Developed for this survey.
Compelling information collected and why we are asking it	This question provides more detailed understanding about the perceived 'hassles' associated with each mode, and how these change (if at all) between baseline and follow up. It enables us to distinguish between changes that are unrelated to the Expressway (e.g. increased concern about the price of fuel or PT), and changes that may be attributable to the Expressway (increased or decreased concern about busy roads or traffic congestion).
Objective the question relates to	Objective 5
Question development notes (where appropriate)	During the pre-testing phase, respondents answered freely. The response categories developed are based primarily on the most common responses during pretesting, and are also informed by the research literature.

### Pedestrian delay or problems crossing roads

Survey question(s)	<p>a) When walking in your local area, do you ever experience delays or problems safely crossing roads?</p> <p>b) If yes, which of these problems have you experienced?</p>
Response categories	<p>a) Yes, often ; occasionally ; rarely ; never; don't know/refused</p> <p>b) (<i>tick all that apply</i>) (show card 9)</p> <ul style="list-style-type: none"> <li>○ I have to go out of my way to cross at a safe place</li> <li>○ I have to wait a long time until there is a safe gap in the traffic at my desired crossing point</li> <li>○ At signalised crossings, I have to wait too long for the 'green man'</li> <li>○ At signalised crossings, the signals don't give me enough time to cross before turning red</li> <li>○ Drivers don't always give way to pedestrians when they're supposed to (e.g. at pedestrian crossings)</li> <li>○ High kerbs make it hard to cross where I want to.</li> </ul>

Source of the question	Developed for this study.
Compelling information collected and why we are asking it	<p>Pedestrian delay and other problems with crossing roads are important aspects of severance. An increase or decrease directly implies a change in severance (though not necessarily due to Expressway – could be due to other changes, e.g. signaling changes, changed traffic volume, driver behaviour).</p> <p>The purpose of the second question is to gain more detail about problems crossing the road. In combination with streetscape audit, traffic counts etc., the answer to this question will help us identify whether problems crossing roads have been exacerbated or reduced by the Expressway specifically.</p>
Objective the question relates to	Strictly, this question belongs in the 'severance impacts' section, but since it is a mode-specific question relating only to walking it has been grouped with the other questions about walking.
Question development notes (where appropriate)	The problems listed in the response categories are based on the research literature on pedestrians' experience of community severance, and on answers given by respondents at the pretesting phase. Objective 6.

#### Other mode use

Survey question(s)	<p>Thinking about the last few months, how often do you use the following modes of transport?</p> <ul style="list-style-type: none"> <li>• Motorbike, motor-scooter</li> <li>• Mobility scooter, wheelchair</li> <li>• Skateboard, scooter</li> <li>• Taxi, shuttle van</li> <li>• Truck or other heavy vehicle</li> </ul>
Response categories	a) every day b) 3-5 times a week c) once or twice a week d) about once a fortnight e) about once a month f) less than once a month g) never h) don't know/refused
Source of the question	Designed for this study
Compelling information collected and why we are asking it	We are interested to know how often other forms of transport are used by residents in the study area, and any changes between pre and post periods. A reduction in mobility scooter or wheelchair use, for example, may indicate reduced independent mobility for users.
Objective the question relates to	Objective 2
Question development notes (where appropriate)	Following the Greater Wellington Regional Council (2004) and other transport research, the main questions above about mode use and perceptions in the current study are focused on walking, cycling,

	private car and PT.
--	---------------------

### Module 3: Severance impacts

#### Ease of getting around

Survey question(s)	Thinking about your local area [Show card 7: Area 1] and considering all modes of transport, overall, how easy is it for people to get to the places they want to go?  Thinking about the Greater Wellington region [Show card 7: Area 3] and considering all modes of transport, overall, how easy is it for people to get to the places they want to go?
Response categories	a) very easy b) generally easy c) somewhat difficult d) difficult e) don't know
Source of the question	Developed for this study
Compelling information collected and why we are asking it	This question will determine whether, overall, the perceived ease of getting to desired destinations has improved or declined between baseline and follow up. A distinction has been made between destinations WITHIN the study area (i.e. local travel) and travel in the wider Wellington region. This is because the Expressway may create 'hassles' for local travel, but at the same time improve the travel experience for those commuting to Wellington for example (or vice versa).
Objective the question relates to	Objective 5
Question development notes (where appropriate)	The question asks about 'people' rather than 'you' so that respondents don't include consideration of personal factors such as health, responsibility for children etc.  Maps are used to define the areas, to ensure consistency of interpretation between respondents.

#### Feeling cut off

Survey question(s)	a) Again thinking about transport and travel in the Greater Wellington region [Show card 7: Area 3], do you ever feel cut off from the people that are important to you (e.g. friends, relatives)?  b) Again, thinking about transport and travel, do you ever feel cut off from places or facilities that are important to you (e.g. dairy, recreational facilities, supermarket, GP etc.)?
Response categories	a) yes, often; yes, sometimes; rarely ; no; don't know

Source of the question	Developed for this study.
Compelling information collected and why we are asking it	According to the literature, the subjective feeling of being 'cut off' is a key outcome of community severance. These two questions will determine whether residents feel more or less 'cut off' from people, places or facilities after the opening of the Expressway.
Objective the question relates to	Objective 6
Question development notes (where appropriate)	<p>People may feel cut off from friends or relatives for a wide range of reasons - because they live overseas or in a distant town, or because of a family feud for example. Personal health problems or childcare responsibilities may make people feel cut off from people, places or facilities. To focus in on severance impacts, the questions direct respondents to think about (local/regional) transport and travel.</p> <p>Both questions limit to people places or facilities 'that are important to you' to exclude trivial or unimportant destinations.</p>

#### Impact of heavy traffic on travel behaviour

Survey question(s)	<p>We are interested to find out how you are affected by heavy traffic, including noise, fumes, congestion, problems crossing the road, safety concerns and unpleasant surroundings caused by heavy traffic.</p> <p>a) Do you avoid travelling (or walking and cycling for leisure) at certain times of day because of heavy traffic?</p> <p>b) Do you go to a destination that is easier to get to, instead of your preferred one (e.g. go to a different shop, playgroup, school, GP etc.) because of heavy traffic?</p> <p>c) Do you take a longer route to avoid intersections that are unsafe or congested because of heavy traffic?</p> <p>d) Because of heavy traffic, do you go by car when you would prefer to walk or cycle?</p> <p>e) Because of heavy traffic, do you use public transport/walk/cycle when you would prefer to drive?</p> <p>f) Do you put off a trip, or ask someone else to go on your behalf because of heavy traffic?</p> <p>g) Do you go with someone else, or ask someone else to take you because of heavy traffic?</p>
Response categories	a)often b)sometimes c)never d)don't know/refused
Source of the question	Designed for this study

Compelling information collected and why we are asking it	The behaviours in this series of questions are indicators of severance. Consistent changes in these indicators will provide strong evidence that community severance (or relief from community severance) has occurred.
Objective the question relates to	Objective 11
Question development notes (where appropriate)	People adapt to changing roading and traffic conditions by changing their travel behaviours in predictable ways. This question was developed based on research literature and anecdotal evidence about the behaviours people employ to overcome severance.

### Trip suppression

Survey question(s)	<p>a) Are there trips you are prevented from making or choose not to make, due to heavy traffic? [show card 14] That is, places/events/facilities/people that you would like to visit, but don't.</p> <p>b) Are there places you would go more often if it was easier to get there?</p> <p>c) If yes, which places?</p>
Response categories	<p>a) Yes, often; Yes, but only occasionally; no; N/A, don't know</p> <p>b) yes, definitely; yes, possibly; no; don't know.</p> <p>c) (open ended)</p>
Source of the question	Developed for this survey
Compelling information collected and why we are asking it	Both questions aim to measure trip suppression i.e. trips not made. Trip suppression is an aspect of severance, so any changes identified between pre- and post- periods will provide strong evidence of an increase or decrease in community severance.
Objective the question relates to	Objective 6
Question development notes (where appropriate)	<p>In the first question, 'heavy traffic' includes associated issues listed in show card 14: Noise, Fumes, Congestion, Problems crossing the road, Safety concerns, Unpleasant surroundings. The aim is to focus on severance-related issues and exclude other factors (e.g. parking) that might cause trip suppression.</p> <p>The two questions approach trip suppression from different angles. The first question requires that the respondent has actively thought about making a trip and then decided against it. This question may be useful for picking up trip suppression in the immediate post-phase, if people have recently had to change their travel habits.</p> <p>At baseline and in the long term, however, severance is likely to have a more subtle effect, limiting the destinations that respondents even</p>

	<p>consciously CONSIDER going to. In order to pick up this more subtle type of trip suppression, the second question is also asked. This question invites the respondent to imagine a world where getting places is easy, and then think about the places they might go more often.</p> <p>Respondents are asked to give the places they would go more often if it was easier to get there. The study team considered that these responses will be specific to the study area and cannot easily be captured in a check list. Therefore an open ended response will be captured.</p>
--	---

### Perceived comfort and attractiveness of neighbourhood

Survey question(s)	a-d) Is your street... e) Is the air on your street...
Response categories	a) quiet; noisy; or somewhere in between? b) safe; dangerous; or somewhere in between? c) friendly; unfriendly; or somewhere in between? d) attractive; unattractive; or somewhere in between? e) clean; polluted; or somewhere in between?
Source of the question	Developed for this study
Compelling information collected and why we are asking it	The purpose is to determine whether the perceived neighbourhood environment changes between pre and post. Perceived changes may be attributable to the Expressway.
Objective the question relates to	<b>Objective 1</b>
Question development notes (where appropriate)	The dimensions measured are those that are potentially impacted by the new Expressway (according to the research literature and anecdotal evidence) and that are likely to affect use of the street as social space, and thereby impact on social connectedness. However it is important to note that changes could be caused by a wide range of factors, and are not necessarily attributable to the Expressway. The following questions are specific to traffic/noise impacts, and will help us to interpret the current question.

### Use of street as a social space

Survey question(s)	<p>a) Where you live, are you ever bothered by traffic noise, fumes or traffic safety concerns?</p> <p>b) We are interested in how traffic affects people's lives. Do you do any of the following because of traffic noise, fumes or traffic safety concerns?</p> <ul style="list-style-type: none"> <li>• Go out on the street less often</li> </ul>
--------------------	---

	<ul style="list-style-type: none"> <li>• Avoid spending time in my front yard</li> <li>• Avoid walking my dog in the neighbourhood</li> <li>• Forbid children (aged 12 or under) to play in the street</li> <li>• Drive children (aged 12 or under) to school</li> <li>• Accompany children (aged 12 or under) to school on foot or by bike</li> </ul>
Response categories	<p>a) often; sometimes; never; don't know/refused</p> <p>b) yes; no; NA/don't know/refused</p>
Source of the question	Based on Appleyard replication (Hart, 2007)
Compelling information collected and why we are asking it	<p>The first question will tell us whether residents on selected streets are more or less bothered by traffic noise/fumes/safety concerns at follow up compared with baseline.</p> <p>The second question will tell us how perceived traffic concerns affect day to day use of the street as a social space, and whether this behaviour changes between baseline and follow up.</p>
Objective the question relates to	Objective 1
Question development notes (where appropriate)	The literature (e.g. Appleyard) indicates that traffic noise etc. can reduce the time people spend outside their house and/or on the street, and this in turn reduces opportunities for casual social contact with neighbours. Social connectedness is likely to be enhanced when people use the street as a social space, and reduced when people engage in the behaviours listed to overcome or avoid traffic concerns.

### Impact of traffic noise

Survey question(s)	<p>Which, if any, of the following things have occurred recently (say the last two weeks), while inside your house:</p> <p>a) Have you had difficulty talking on the telephone due to traffic noise?</p> <p>b) Have you delayed doing something (e.g. gardening or entertaining) because of noise from the traffic?</p> <p>c) Have you had difficulty getting to sleep due to traffic noise?</p> <p>d) Have you raised your voice to be heard above the traffic noise?</p>
Response categories	Often; sometimes; never; don't know/refused
Source of the question	NZ research on community annoyance caused by road traffic noise (Dravitzki et al, 2006)
Compelling information collected and why we are asking it	This question will show whether noise nuisance from traffic increased or decreased between baseline and follow-up in selected residential streets.
Objective the question relates to	Objective 1, 6

Question development notes (where appropriate)	Previous research found 'Behavioural disturbance is a more sensitive measure than mean annoyance, as it has a higher correlation to noise volume changes' (Dravitzki, 2006). The wording of these questions is closely based on a previous New Zealand study. Items chosen from a more comprehensive survey are those that relate to social behaviour (e.g. talking on the telephone, entertaining). The current study focused on impacts relevant to social connectedness in particular, rather than annoyance in general.
--	---

#### Module 4: Social contact

All of these questions will tell us about people's social connectedness. Pre and post measurement will detect changes in connectedness and severance.

#### Social contact in the neighbourhood

Survey question(s)	<p>a. <b>Which of the following statements best describes how many people you know in your neighbourhood (excluding people in your own household)?</b></p> <p>b. <b>How often do you have face-to-face contact with people in your neighbourhood?</b></p> <p>c. <b>Is there anyone in your neighbourhood (that doesn't live with you) who you could ask to do small favours?</b></p>
Response categories	<p>I. I know a lot of people in my neighbourhood; I know some people in my neighbourhood; I know a couple of people in my neighbourhood; I don't really know anyone in my neighbourhood; Don't know; Refused.</p> <p>II. Daily; Weekly (1-3 times a week); Monthly (1-3 times a month); Hardly ever (2-3 times a year); Don't know; Refused.</p> <p>III. Yes; No; Don't know; Refused.</p>
Source of the question	<p>a and b: developed for this survey.</p> <p>c: the New Zealand General Social Survey.</p>
Compelling information collected and why we are asking it	<p>All of this data will give an indication of the level of social contact and connectedness people have with others in their neighbourhood. This is important when looking at connectedness to those in close proximity.</p> <p>Pre and post will detect changes in how many neighbours people know, how often neighbours see one another, and the perceived availability of support neighbours receive from one another. All of these facets of social connectedness were identified in the literature (Marsh and Watts 2012).</p>
Objective the question relates to	Objective 8
Question development notes (where appropriate)	<p>We focus on face-to-face contact (rather than all contact including phone and internet) as it is transport mediated i.e. people need to be moving around to see one another face-to-face.</p> <p>Support for doing small favours will tell us about day-to-day social</p>



	<p>support that people need assistance with (rather than infrequent major crises) e.g. feeding the cat while on holiday. It will indicate ongoing support rather than support during a one-off big event/crisis. A question on whether there is anyone to help in time of crisis was not included because big crises are usually a rarity and would not show much change over time. Day-to-day support was thought to show more change pre and post.</p>
--	--

### Social contact outside the neighbourhood

Survey question(s)	<p>a. <b>Which of the following statements best describes how many people you know outside your neighbourhood?</b></p> <p>b. <b>In the last four weeks, how often have you had face-to-face contact with people outside your neighbourhood?</b></p> <p>c. <b>Is there anyone outside your neighbourhood you could ask to do small favours?</b></p>
Response categories	<p>IV. Every day; 3-5 times a week; 1-2 times a week; About once a fortnight; About once a month; Less than once a month; Don't know; Refused.</p> <p>V. Yes; No; Don't know; Refused.</p>
Source of the question	<p>d: Adapted from the New Zealand General Social Survey.</p> <p>E: The New Zealand General Social Survey.</p>
Compelling information collected and why we are asking it	<p>This data will give an indication about how connected people are to those living outside their neighbourhood. Pre and post will show any changes in connectedness outside the neighbourhood. This will be interesting to compare with changes to connectedness inside the neighbourhood e.g. people may look outside their neighbourhoods for social support once the Expressway is built.</p>
Objective the question relates to	<p>Objective 8</p>
Question development notes (where appropriate)	<p>Reciprocity (e.g. help given and help received) is a component of social connectedness as identified in the literature (Marsh and Watts 2012). Several other New Zealand surveys had questions about help received but few had a question on whether people helped others. When both questions were pre-tested, most people said they were very willing to help others but reported receiving less help from others. This was a mix of actual and potential support. When asked about the support they got from others people were more thoughtful about their response and their responses varied more. Because it was harder for people to think of help they could get from others, it may be a better indicator of social connectedness. Asking about help received is also aligned with how other major surveys ask about social support.</p>

## General social contact

Survey question(s)	<p>d. <b>Think about all of the face-to-face contact you have with people (inside and outside your neighbourhood), excluding people in your own household. Would you say you have...:</b></p> <p>e. <b>In the last four weeks, how often have you felt isolated from others?</b></p> <p>f. <b>What social groups/networks do you belong to and where are they located?</b></p>
Response categories	<p>VI. Too much contact; About the right amount of contact; Not enough contact; Don't know; Refused.</p> <p>VII. All of the time; Most of the time; Some of the time; A little of the time; None of the time; Don't know; Refused.</p> <p>VIII. Pre-school children's groups/networks e.g. Playcentre, Kindergarten, play groups; School age children's group; Church/spiritual group/network; Hobby or interest group/network; Community or voluntary group/network; Sports or exercise group/network; Ethnic or cultural group/network; Other; No group/network at all.</p> <p>Neighbourhood; Study area; Kapiti Coast Region; Greater Wellington Region.</p>
Source of the question	<p>f. Adapted from New Zealand General Social Survey.</p> <p>g. New Zealand General Social Survey.</p> <p>h. Developed for this survey.</p>
Compelling information collected and why we are asking it	<p>General social contact was about social contact overall i.e. with people inside and outside the neighbourhood. Pre and post will show any changes in people's satisfaction with the level of social contact they have with others, how often they feel isolated from others, and their involvement in and nature of social networks/groups.</p> <p>Isolation and social networks were identified in the literature as being a key part of whether people feel socially connected (Marsh and Watts 2012). Isolation is the opposite of connectedness; if people are feeling isolated then they are not feeling connected. Pre and post will show any changes in feelings of isolation indicating changes in connectedness.</p> <p>Social networks are linked to social contacts and relationships, all of which make up social connectedness (Marsh and Watts 2012). Pre and post will tell us what groups (if any) people are being separated from, if severance is occurring.</p>
Objective the question relates to	Objective 8
Question development notes (where appropriate)	<p>The New Zealand General Social Survey asked a question about trust. It has not been included in this survey because it is not explicitly about connectedness.</p> <p>The New Zealand General Social Survey asks about participation in</p>

	voluntary work and frequency of participation. We have not asked specifically about voluntary work because some of the groups/networks people belong to (set out above) could be voluntary.
--	---

## Module 5: Retrospective questions

### Impact of Expressway

Survey question(s)	<p>a) Were you living at this address on ____[date of either baseline survey]? (if no, skip this section)</p> <p>b) Thinking about your local area (Show card 7, area 1): since the Expressway opened, has getting about WITHIN your local area become...</p> <p>c) Since the Expressway opened, has getting to and from places OUTSIDE your local area become...</p> <p>d) Has the Expressway made your street...</p> <p>e) Overall, thinking about travel and lifestyle, how has the new Expressway affected your household? Has the impact been:</p>
Response categories	<p>a) Yes; No; don't know/refused</p> <p>b &amp; c) easier; more difficult; no change?</p> <p>d) a more pleasant place to live; a less pleasant place to live; or no change?</p> <p>e) very positive; slightly positive; neutral; slightly negative; very negative; don't know/refused</p>
Source of the question	Developed for this study
Compelling information collected and why we are asking it	These questions tell us directly about the perceived impact of the new Expressway on residents of selected streets. Consistent trends between baseline and follow up will give strong evidence of whether severance has occurred, and whether the Expressway has changed the liveability of the neighbourhoods.
Objective the question relates to	Objectives 6, 7, and 8
Question development notes (where appropriate)	The methodological strength of these questions is that there is no doubt about causality or confounding. However the weakness is that they rely on the subjective impression of residents. Residents may not necessarily be impartial.

## Module 6: Demographic information

Survey question(s)	<p>a) (Sex) Are you...</p> <p>b) (Age) Which age group are you in?</p> <p>c) (Ethnicity) Which ethnic group do you belong to?</p> <p>d) What is your employment status?</p> <p>e) Do you have any disability or handicap that is long term (lasting 6 months or more)?</p> <p>f) How long have you lived at this address?</p> <p>g) If less than 5 years, what was your previous address?</p> <p>h. Do you, or anyone else who lives here, own this home (with or without a mortgage)?</p> <p>i) Which of the following best describes your household?</p> <p>j) How many adults (aged 18 or over) live in this household?</p> <p>k) How many children or young people (aged under 18) live in this household?..... What are their ages?.....</p> <p>l) Thinking about your total annual household income (before tax) which band does your household come under?</p> <p>m) What is your full name please?</p>
Response categories	<p>a) male; female; don't know/refused</p> <p>b) 18-24; 25-40; 41-64; 65-74; 75+; don't know/refused</p> <p>c) New Zealand European; Maori; Samoan; Cook Island Maori; Tongan; Niuean; Chinese; Indian; Other____; don't know/refused</p> <p>d) employed full time (30+hrs/wk) ; employed part time; unemployed, not in the labour force</p> <p>e) yes; no; don't know/refused</p> <p>f) less than one year; (open ended - number of years)</p> <p>g) (open ended – previous address)</p> <p>h) yes; no; don't know/refused</p> <p>i) Person living alone; Married/de facto couple only; Other adults only (e.g. flatmates); Single adult living with children; Family (including extended) with children; Family with adults only; Family with child(ren) plus flatmates/boarders.</p> <p>j) (open ended – number of adults)</p> <p>k) (number of children and the age of each)</p> <p>l) \$30,000 or less; \$30,001–50,000; 50,001-70,000; \$70,001–\$100,000; \$100,001 or more; don't know/decline to answer</p> <p>m) open-ended</p>
Source of the question(s)	<p>a) NZ Census</p> <p>b) Adapted for this study</p>

	<p>c) NZ census</p> <p>d) Adapted for this study, based on Stats NZ definition of full-time</p> <p>e)NZ census</p> <p>f) Based on NZ Census</p> <p>g) Developed for this study</p> <p>h) Based on NZ census</p> <p>i) NZHHTS</p> <p>j) Adapted for this study</p> <p>k) Adapted for this study</p> <p>l) Based on census</p> <p>m) for this study</p>
Compelling information collected and why we are asking it	<p>The survey includes demographic questions to determine whether the pre-, construction- and post- samples have a similar or markedly different demographic profile. It also enables us to assess the extent to which the residents surveyed are representative of the study area population as a whole.</p> <p>Home ownership and length of residence at current address are indicators of social connectedness. Changes on these measures may be due to the impact of the Expressway on neighbourhood liveability. High turnover of residents suggests a reduction in liveability and decreased social connectedness at the neighbourhood level.</p> <p>We will ask for the name of the person completing the questionnaire. Once securely stored in our electronic archive, we will be able to look through each of the pre-, construction- and post- samples to determine if there is a sub-sample of participants that can be analysed as a cohort study. We will anonymise data before publication.</p>
Objective the question relates to	Objectives 7, 8 and 9
Question development notes (where appropriate)	The age response categories are designed to correspond with transport-relevant life stages. 18 is the age a person can achieve their full licence for example, 65 is the retirement age, and 75 is the age at which a medical check is required for licence renewal.

### Household travel resources

Survey question(s)	<p>a) How many bicycles in working order are kept at this household? (include children's bicycles, but not tricycles)?</p> <p>b) How many mobility scooters in working order are kept at this household?</p> <p>c) How many vehicles (cars, trucks, vans, motor scooters and motorbikes) in working order, are parked here overnight (whether private or company owned)?</p> <p>d) How often is lack of access to a car a problem for you?</p>
--------------------	--

Response categories	a) (number of bikes) b) (number of mobility scooters) c) (number of vehicles) d) Never; only on rare occasions ; once a week or more; every day
Source of the question	a) NZHHTS b) Developed for this study c) Based on NZHHTS D) Developed for this study
Compelling information collected and why we are asking it	This question will tell us the number of ‘vulnerable’ residents in each neighbourhood. (From a transport perspective, vulnerability means lacking access to a car, or relying on a mobility scooter for example). It will also tell us whether access to travel resources was similar at baseline and follow up. Difference in household travel resources between baseline and follow up is a potential confounder. It is a factor that is unrelated to the Expressway that could influence mode choice, ease of getting around, social connectedness etc.
Objective the question relates to	<b>Objective 10</b>
Question development notes (where appropriate)	d) Pretesting found that the proposed question about access to a car was confusing and difficult to answer. The current question has been completely re-worded and has not been pretested in its current form.

#### 4.10.1.6 Urban form

Selected indicators from Boffa Miskell’s Density and Urban Form Analysis make up the three major aspects of study.

##### Population and residential density

###### *Total number of dwellings*

Audit question	What is the total number of dwelling (includes detached, semi-detached, and attached dwellings, but not vacant lots)?
Response categories	Number
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1

###### *Range of dwelling size;*

Audit question	What is the total number of lots in each range?
Response categories	Total number of lots in ranges <300m <sup>2</sup> ; 301-450m <sup>2</sup> ; 451-800m <sup>2</sup> ; 801-2000m <sup>2</sup> ; 2000-5000m <sup>2</sup> ; > 5000m <sup>2</sup> .
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1

*Total number of vacant lots;*

Audit question	What is the total number of vacant lots?
Response categories	Number
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1

**Urban form**

*Block length and depth*

Audit question	What is the average length of a block separated by roads? Block depth is the width of the block separated by roads.
Response categories	Number
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes and analysis notes	<p>Cul-de-sacs with no through-block-connectivity (e.g. no walkway or cycleway) are not considered separations. Block lengths of up to 200 metres promote a good distribution of traffic flow by improving the number of possible routes taken by a pedestrian, cyclist or vehicle. Good (less than 200 metres); Adequate (between 201 metres and 250 metres); poor (greater than 250 metres).</p> <p>Block depth of 100 metres is considered ideal as it allows each lot to have street frontage. Good (less than 100 metres), adequate (101 to 120 metres); poor (greater than 120 metres).</p>

*Community focal point;*

Audit question	How many community focal points are within a 400m walk of the neighbourhood case study?
Response categories	Number
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes	Community focal points include pocket parks, neighbourhood parks and neighbourhood shops (solely take-way restaurants or liquor outlets are excluded). A community focal point is a place where residents can get together. It is measured from the centre point of the neighbourhood case study. Good (less than 400 metres walking distance); adequate (between 401 and 600 metres); poor (greater than 601 metres).

*High visibility and active frontages or low visibility and inactive frontages*

Audit question	What is the proportion of houses with good public space interface vs. poor public space interface?
Response categories	Proportion of good: poor
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes	The higher the proportion the better. High visibility active frontages are achieved when fences are not fortifications (high or solid), windows front onto the public space, and there is an ability to maintain a visual relationship between people in the buildings and the street (not high and dense shrubs). Active frontages are important for creating safer environments and the greater the number of houses with active environments the better. Good (85 to 100 percent with active frontages and high visibility); adequate (75-84 percent); poor (less than 75 percent).

*Walkable or car dominant streets*

Audit question	Is the area-based sample street(s) considered walkable or car dominant?
----------------	---



Response categories	Yes, no, proportion
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes	Streets with easy connectivity for vehicles but also to offer a pleasant and safe experience for pedestrians and cyclists. A walkable street has footpaths, street trees and a narrow carriageway (varying depending on its hierarchy). Car dominant streets are designed predominantly for cars. There are no footpaths, no street trees and wide surfaces of asphalt. Good (carriageway less than 7.5 metres, street trees in 7.5 metre spacings, and footpath on both sides); adequate (carriageway less than 7.5 metres, street trees in 15 metre spacings, and footpath on one side); poor (any street without street trees or planted with spacings greater than 20 metres).

### Walkability

*Distance to nearest primary school, park/playground, childcare, bus stop, recreational walkway*

Audit question	What is the distance in kilometres to the nearest primary school; neighbourhood park, neighbourhood shop, childcare, bus stop, recreational walkway?
Response categories	Kilometres (reported separately for each destination; along footpaths and direct route)
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes and analysis notes	Neighbourhood shops exclude take-aways and liquor outlets. Recreational walkway excludes on-street footpaths, and instead means formal paths along streams, bushwalks, trails, etc. Walkability is measured from a centre point within each neighbourhood case study and is the distance travelled by a pedestrian along footpaths, and direct route 'as the crow flies'. Analysis is also by proportion of along: direct, giving another indication of connectivity to the surrounding neighbourhood.  Distance along the footpath: Good (less than 500 metres); Adequate (between 500 metres – 1 kilometre); Poor (greater than 1 kilometre).  Ration between along: direct. Good (less than 1.3); adequate (between 1.3 and 1.6); poor (greater than 1.6).

## Built form

### *Residential lot coverage*

Audit question	What is the average proportion of the total lot areas occupied by buildings?
Response categories	Number
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes	Includes the primary building and any ancillary buildings/structures. Site coverage is reported as a percentage ranging from less than 10 percent to 65 percent (the maximum site coverage within the study area)

### *Percentage of one and two story buildings*

Audit question	What is the percentage of one storey buildings and two storey buildings compared to the total number of dwellings in the neighbour case study area?
Response categories	Percentage for each
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1

### *Percentage of detached, semi-detached and attached buildings*

Audit question	What is the percentage of detached, semi-detached and attached dwellings in the neighbourhood case study area?
Response categories	Percentage for each
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes	A detached dwelling is a stand-alone building that has a setback between adjoining dwellings. It does not share a common wall with another dwelling. A semi-detached dwelling is attached on one-side

	to an adjoining dwelling. It shares one common wall with the adjoining dwelling. An attached dwelling is attached on both sides to adjoining dwellings. It shares two or more common walls with the adjoining dwellings
--	---

*Percentage of dwellings that have a front-setback of 2-5m, or greater than 5m*

Audit question	What is the percentage of dwellings that have a front-setback (from the road) of 2-5 metres; or greater than 5 metres?
Response categories	Percentage of each
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes	

*Percentage of dwellings with a car dominant built form)*

Audit question	What is the percentage of dwellings that have a car-dominant built form?
Response categories	Percentage of each
Source of question	Boffa Miskell Density and Urban Form Analysis
Compelling information collected and why	Area-based characteristics affect behaviour
Objective question relates to	Objective 1
Question notes	A car dominant built form has the garage doors which dominate the built form, when lock up garage doors front the street and project in front of the main building line, the garage is not integrated in to the design of the building, garages compromise the visual connection to the public space.

## 4.10.2 Facility case studies

### 4.10.2.1 Introduction

Facilities such as libraries, medical centres, and sports centres are often ‘community hubs’ that are accessed by a range of people. For stage one the study team has focused on several different types of facilities to collect a diversity of information on those people who are socially mobile. The study team will be looking for changes in access to the facilities between pre- and, construction- and post-, to see what impact, if any, the Expressway has had. The facility questionnaires are presented in Appendix 4.

#### 4.10.2.2 Purpose and objectives

The purpose of the facility case studies is to ascertain whether peoples' access to the facilities is affected by the Expressway, ultimately indicating whether severance has changed, if at all. It is important to note that changes in severance could be positive, negative or no change.

The objectives of the facilities case studies are to:

- Identify changes in mode preference, proportion of people using their preferred modes and barriers to using preferred mode.
- Capture changes in the travel experience of users accessing the facility e. g. ease of travel, social meaning of travel.
- Assess changes in proportion of people using SH1 to access the facility.
- Calculate users travel time and distance by mode to the facility, and identify any changes between pre-, construction- and post-.
- Collate contextual information about the facility and its users e.g. usage/enrolment data, demographic data, frequency of travel to the facility.

#### 4.10.2.3 Facilities chosen and rationale for selection

The following four facilities were selected for inclusion in stage one.

1. Paraparaumu Medical Centre (92 Kapiti Road)
2. Whitireia Polytechnic (Kapiti Road)
3. Paraparaumu Public Library (Iver Trask Place)
4. Coastlands Netball Kapiti (Te Atiawa Park)

The following selection criteria were used to select the facilities:

- recognised among the community as being a 'community hub';
- well accessed by the community with a large number of people using them;
- some of the facilities had to be in close proximity to the proposed Expressway;
- data about users was collected by the facility;
- facilities that charged money for access, and others that were at no cost to users;
- across all facilities the users have diverse demographic profiles.

Two of the four facilities are on Kapiti Road, near the proposed interchange with the Expressway. Traffic modeling carried out by the study team (details for this are in the Network Monitoring section) suggest there will be increased traffic on Kapiti Road as vehicles enter and exit the Expressway. The study team is interested in how these traffic flow changes affect access to those two facilities (either positively or negatively).

Specific reasons for selecting each facility are listed below.

- *Paraparaumu Medical Centre:*
  - a critical local destination accessed by over 5000 users
  - high use by vulnerable groups (e.g. the elderly, people with chronic conditions, families with young children)
  - located on Kapiti Rd, near the proposed interchange.
- *Whitireia Polytechnic:*
  - a locally and regionally important venue with approximately 185 users
  - a large proportion of users are youth, a potentially vulnerable group (e.g. low income and limited access to private car)
  - located on Kapiti Rd, near the proposed interchange.
- *Paraparaumu Public Library:*
  - a centrally located, locally important venue with a range of functions and services
  - no cost to access most of the library's services so is accessible to a wide range of people
  - range of diverse users with 900 users per day
- *Coastlands Netball Kapiti:*

- large potential sample (administers netball in Kapiti organising the winter season competition for clubs, colleges and primary schools)
- regional facility that draws many players and spectators of varying ages and ethnicities.
- *Cricket:*
  - regional facility that draws many players and spectators of varying ages
  - like Coastlands Netball Kapiti, cricket is played at Te Atiawa Park so the two clubs provide a summer and winter data collection point.

It was not possible to include all the facilities in the study catchment so invariably some have been excluded. Reasons for three of the larger facilities not included in the study are set out below:

- *Coastlands Aquatic Centre*  
The Aquatic Centre planned for Kapiti Road will be a new facility which is set to be operational by March 2013. The timeframe is the major reason for omitting the Aquatic Centre. There is a risk the Aquatic Centre will not be completed by the time baseline data are collected for the study. The Manager will be under substantial pressure to get the centre up and running and may not have the required resources to support this project. Also, because it is a new facility it is likely to have higher (or lower) usage in the first few months it is open which may skew our data when the study team compares usage before and after the Expressway is built.
- *The Paraparaumu Train Station*  
The Train Station is a hub for people commuting to Wellington for work and, while it is an important facility for many people, the project is interested in measuring the impact of the Expressway on severance and social connectedness. The research team understood that several other major changes were planned for the public transport services independent of the Expressway, and for this reason any changes would be particularly difficult to attribute to the Expressway. There were also likely to be challenges in getting a good response rate if trying to intercept people at the station, since many people would be under time pressure. It also does not have a database of users.
- *Coastlands Shopping Centre*  
Coastlands Shopping Centre is the major shopping hub in Kapiti and is frequented by a range of people across the region. It was excluded from the study because it was thought Mall Management would be unlikely to grant us permission to approach shoppers. It was also less likely to have a database to allow us to collate contextual information about the facility and its users.

#### 4.10.2.4 Data collection

The facility data will be collected via two surveys:

1. Facility context survey: regarding background information about the facility, enrolment and access data, and demographic data on users;
2. Facility users survey: collecting travel mode, preference and travel barriers, ease of travel, social meaning of travel, origin and route of travel, use of the state highway network, frequency of travel and demographic information.

#### 4.10.2.5 Facility context survey: Approach for data collection

The contextual information required may need to be gathered from several different sources making an interviewer administered survey difficult. Therefore, the contextual data will be collected via a self-report survey that will be emailed to the facility manager prior to collecting data from the facility's users. A researcher will follow up with the facility manager to ensure all relevant questions have been answered.

#### 4.10.2.6 Facility context survey: Sample frame

The manager (or designated employee) at each facility, who has access to the data required, will complete the survey.

#### 4.10.2.7 Facility context survey: Survey questions

The facility context survey questions have been grouped together into themes (below) for ease of reporting:

- Background facility information
- Enrolment and access data
- Demographic information on facility users.

The following tables set out the:

- actual questions to be used;
- response categories (the possible answers of the user);
- source of the question (developed bespoke for this survey or 'used' previously in another survey);
- rationale for why the question is being asked; and the research objective the question relates to;
- important notes for the reader about question development.

#### Background facility information

<b>Survey question(s)</b>	<ol style="list-style-type: none"> <li>1. What is the name of this facility?</li> <li>2. What service(s) does this facility offer?</li> <li>3. What are its opening hours?</li> <li>4. How long has this facility been operating (pre-questionnaire only)?</li> </ol>
<b>Response categories</b>	Open-ended.
<b>Source of the question</b>	Developed for this survey.
<b>Compelling information collected and why the study team is asking it</b>	Background facility information. To identify if there are any substantial changes in the facility pre- and post- that may contribute to explaining any observed changes.
<b>Topic question relates to</b>	Objective5: Collate contextual information about the facility and its users.

#### Enrolment and access data

<b>Survey question(s)</b>	<ol style="list-style-type: none"> <li>5. How many people are on your roll / membership? (overall roll)</li> <li>6. How many people have accessed your facility in the last month?</li> </ol>
<b>Response categories</b>	Open-ended.
<b>Source of the question</b>	Developed for this survey.
<b>Compelling information collected and why the study</b>	Enrolment and access data. Pre and post will show changes (increases or decreases) in number of people on the roll/membership

<b>team is asking it</b>	and number of people accessing the facility over one month.
<b>Topic question relates to</b>	Objective5: Collate contextual information about the facility and its users.
<b>Question development notes (where appropriate)</b>	<p>Appropriate words will be used for each facility e.g. 'students' at the Polytechnic, 'clients' at the doctors.</p> <p>These questions are dependent on the facility collecting this data. Once the team is allowed full access to the study area (post-closure of the Resource Consent hearings) the study team will be able to ascertain details about enrolment and usage data.</p>

### Demographic information on facility users

<b>Survey question(s)</b>	7. What is the demographic breakdown of this facility's users?
<b>Response categories</b>	<ul style="list-style-type: none"> <li>- Sex - male/female</li> <li>- Age - 16-24yrs; 25-40yrs; 41-64yrs; 65-74yrs; 75+ yrs</li> <li>- Ethnicity - New Zealand European/Maori/Samoan/Cook Island Maori/Tongan/Niuean/Chinese/Indian/Other</li> </ul>
<b>Source of the question</b>	<ul style="list-style-type: none"> <li>- Sex - NZ Census</li> <li>- Ethnicity - NZ Census</li> <li>- Age - developed for this survey</li> </ul>
<b>Compelling information collected and why the study team is asking it</b>	Demographic information on facility users. This information will allow the study team to check whether survey respondents are representative of facility users as a whole. This information will also show whether, overall, stage one has captured a diversity of people that is broadly representative of the study area population. In gathering this data pre-, construction- and post- the study team hopes to understand whether any changes are due to fundamental changes of the facility itself, rather than the Expressway operation.
<b>Topic question relates to</b>	Objective1: Collate contextual information about the facility and its users.
<b>Question development notes (where appropriate)</b>	<p>The context data able to be collected is limited to what data the facilities already collect e.g. age brackets may differ to the ones specified above. However, the study team envisages the facilities will collect most of the 'basic' data listed above.</p> <p>Age brackets were developed to recognise 65 years as being retirement age and 75 years + when people have to renew their driving license and provide medical details. The Household Travel Survey and Census (Section 2.6) also identified that trip behavior changed markedly in the very old.</p> <p>Income bands have been left off the list of questions at this point but will be confirmed at a later date.</p>

Note that these questions have not been pre-tested due to restrictions on being in the field. Wording will need to be adjusted slightly to be appropriate for each facility.

#### 4.10.2.8 Facility users survey

##### Facility users survey: Approach for data collection

The data will be collected via self-completion paper-based surveys given to users at each facility. An advance letter will be posted on facility notice boards and/or in a newsletter advising users they may be approached to participate.

Initial conversations with facility managers have identified initial indications about how data may be collected at each facility. This has allowed the study team to develop questionnaires to match that approach. The study team has had limited access to the facility managers because of the restrictions on talking to people in the study area prior to resource consent being granted. Bearing that in mind, some future work is required by the study team to work with facility managers to fine-tune the questions, and confirm the best way to achieve a large number of survey participants with a good response rate. Training facility staff to distribute surveys will occur in the piloting phase of stage one. The following process is proposed (but may be adjusted if necessary):

- *Paraparaumu Medical Centre*: An existing member of staff (e.g. nurse, receptionist) who is already trusted by, and has rapport with patients is proposed to distribute the surveys to patients while they wait to see the doctor/nurse. The member of staff will also assist people in filling out the survey where necessary and collect the responses. Surveys will be distributed over a one week period to ensure a large number of patients are approached. Patients will be surveyed at both the summer and winter data collection points.
- *Whitireia Polytechnic*: Tutors will distribute the surveys to students at the end of every class over the three busiest days (Tuesday, Wednesday, Thursday) and possibly two other days to include as many students as possible (ideally all students). Researchers will discuss with the facility manager how to do this without double counting/duplicates. Students will go into the draw to win an Ipod which may appeal to the predominantly younger audience. A \$500 koha will be gifted to the Polytechnic for their willingness to administer the surveys. Students and staff will be surveyed at both the summer and winter data collection points.
- *Paraparaumu Public Library*: Library staff will distribute the surveys to every person over 16 years that enters the library, where possible, over a one week period. The days and times are yet to be decided but a late night is likely to be included as this is a busy time. A \$500 koha will be gifted to the library for their willingness to administer the surveys. Library users and staff will be surveyed at both the summer and winter data collection points.
- *Coastlands Netball Kapiti*: surveys will be distributed over two (and up to four) Saturdays during the netball season. The study team is yet to ascertain who will distribute and collect the surveys due to constraints regarding our work in the study area, but the study team has confirmed the Netball Kapiti Board are keen to participate and they have indicated several possible options in our early discussions e.g. a team could distribute the surveys and be paid for every completed survey as a fundraising initiative. A \$500 koha will be gifted to the club for their willingness to help administer the surveys. Given that netball is a winter sport (11 May – 31 August), players and supporters will be surveyed at the autumn/winter data collection point only.

*Horowhenua Kapiti Cricket Association*: the decision to include two data collection points (summer and winter) occurred after the above four facilities had been contacted about the study. Given the limitations on the extent of contact with people in the study area prior to consent being given, the



study team has not contacted Horowhenua Kapiti Cricket Association to see if they would like to be involved in the study, the most appropriate way of distributing the surveys or how to get the best response rate. As with the netball, there are several possibilities such as the association using it as a fundraising initiative. With the Friday night cricket for kids, Saturday morning cricket and rep cricket, there are a range of ages to include in the study. A \$500 koha will be gifted to the club for their willingness to administer the surveys. Given that cricket is a summer sport, players and supporters will be surveyed at the spring/summer data collection point only.

### Facility users survey: Sample design

Given the differences between the facilities, there is a slightly different sample design for each one. Similar across all the facilities is the intent to randomly survey as many facility users, 16 years and over, as possible. The following is a guide and will be determined upon further discussions with the facility managers:

- *Paraparaumu Medical Centre*: There are approximately 5000 enrolled patients. The study team hopes to survey up to 500 patients over one week.
- *Whitireia Polytechnic*: There are approximately 180 enrolled students and the study team is aiming for at least 150 survey responses over the 3-5 days.
- *Paraparaumu Public Library*: The library has approximately 950 users per day. The study team is hoping for at least 750 survey responses over the week.
- *Coastlands Netball Kapiti and Horowhenua Kapiti Cricket Association*: A decision on survey numbers can be made once the resource consent hearing has been closed and the research team can talk to those in the study area.

### Facility users survey: Questions

The facility users survey questions are grouped together, where appropriate.

#### Mode access, preference and barriers

Survey question(s)	<ol style="list-style-type: none"> <li>1. Please tick the single main way you travelled here today.</li> <li>2. Thinking about all the ways you could have travelled here today, what is your preferred way (mode)?</li> <li>3. What, if anything, stopped you using your preferred way (mode) today?</li> </ol>
Response categories	<ol style="list-style-type: none"> <li>1. Car driver; Car passenger; Bike; Bus/train; Scooter/skateboard; Mobility scooter/wheelchair; Motorbike; Walked; Walked with buggy; Taxi/shuttle.</li> <li>2. Car driver; Car passenger; Bike; Bus/train; Scooter/skateboard; Mobility scooter/wheelchair; Motorbike; Walked; Walked with buggy; Taxi/shuttle.</li> <li>3. Safety concerns; Noise and pollution; Traffic congestion/heavy traffic; Difficulty crossing main roads; Lack of appropriate walkway or cycleway; Difficulty finding a car park; Nothing stopped me, I used my preferred way(mode); Other.</li> </ol>
Source of the question	Developed for this survey.
Compelling information collected and why the study team is asking it	<p>Mode access i.e. proportion of users accessing each facility by mode. Pre and post will highlight any mode shifts.</p> <p>Pre and post will show any changes in mode preference, and changes in the proportion of people using their preferred travel mode. This is important because users may still be accessing facilities but may not</p>

	<p>be using their preferred mode, and this is a form of severance. Similarly, the change could be more people using their preferred mode. A change in mode preference towards or away from private car use or active modes is of particular interest regarding changes in severance.</p> <p>Pre and post will also allow the study team to identify what stopped facility users from using their preferred mode and any changes to those barriers.</p>
Objective this question relates to	Objective 1: Identify changes in mode preference, proportion of people using their preferred modes and barriers to using preferred mode
Question development notes (where appropriate)	<p>Differentiated between car driver and car passenger because they may have quite different travel experiences. The New Zealand Household Travel Survey also differentiates between them.</p> <p>Pre-testing indicated people walking with a buggy have specific needs, e.g. wide footpaths, thus the decision was made to separate 'walkers' from 'buggy walkers'. The list of barriers was developed from findings in the literature (Marsh and Watts 2012) and highlighted in the causal pathway model as being markers of severance (i.e. acceptability/comfort; convenience/ease of use; safety and security - all of these were identified in the causal pathway as being markers of severance).</p>

#### Ease of travel and social meaning of travel

Survey question(s)	<p>4. How easy/hassle-free was it for you to travel here today?</p> <p>5. Generally, how easy/hassle-free do you think it is for:</p> <ul style="list-style-type: none"> <li>- Cyclists to travel here?</li> <li>- Car drivers to travel here?</li> <li>- People using public transport to travel here?</li> <li>- People walking to travel here?</li> </ul>
Response categories	<p>4. Very difficult; Difficult; Neither difficult or easy; Easy; Very easy.</p> <p>5. Very difficult; Difficult; Neither difficult or easy; Easy; Very easy.</p>
Source of the question	Developed for this survey.
Compelling information collected and why the study team is asking it	This will tell us about ease of access to the facility by mode. This information will indicate whether some modes experience severance more or less than other modes.
Objective the question relates to	Objective 2: Capture changes in the travel experience of users accessing the facility.
Question development notes (where appropriate)	At pre-testing, people were asked what 'hassle-free' meant to them to see if it was an appropriate word to use. It was deemed to be fine

	<p>by participants.</p> <p>Pre-testing found responses to Question 5 were dependent on mode (e.g. could be difficult for a cyclist but easy for someone driving) so Question 5 was re-worded from asking about other peoples' access in general to asking about other peoples' access by mode.</p>
--	--

Survey question(s)	6. How social is your journey to this facility?
Response categories	Very social - I travel with people I know (and/or meet new people) and have a high level of social interaction; Social - I travel with people I know (and/or meet new people) and have some social interaction with them; A bit social - While I am travelling I see people I recognise or know and I might wave to them or acknowledge them but we don't usually chat; Not social - While I am travelling I don't see people I know or recognise or meet new people.
Source of the question	Developed for this survey.
Compelling information collected and why the study team is asking it	The data collected from facility users is predominantly severance data but the data gathered from this question will indicate how social the journey is for people e.g. do people access the facilities for the services alone or does the journey have some social benefits for them. Pre and post will look for changes to those social benefits.
Objective the question relates to	Objective 2: Capture the travel experience of users accessing the facility.
Question development notes (where appropriate)	This is the same scale developed for the neighbourhood case study.

### Travel origin and route

Survey question(s)	7. Please write down the street address you started your journey from today
Response categories	Open-ended.
Source of the question	Developed for this survey.
Compelling information collected and why the study team is asking it	Enables us to calculate (using GIS) the average distance and travel time for each mode via shortest route, locally and regionally to highlight any changes pre and post Expressway. The study team will also be able to ascertain what percentage of trips start on the other side of the Expressway, seeing who has to cross it to use the facility.
Objective the question relates to	Objective 4: Calculate users travel time and distance by mode to the facility, and identify any changes pre and post.

Question development notes (where appropriate)	Collecting actual route data are complex and time consuming, however since the study team know the destination (the facility) we only need the start point to calculate the shortest route.
Analysis notes and/or any necessary rubrics (where appropriate)	Will enable us to analyse all of the above data particularly mode access by local and regional. GIS is an objective and reliable way of measuring travel time and distance compared to recall. However it does not take account of people taking a longer route to avoid 'trouble spots', nor does it include the impact of congestion on travel time. Therefore it will measure theoretical rather than actual changes in travel distance and time.

Survey question(s)	8. Did you travel on State Highway 1 to get here today?
Response categories	Yes; No.
Source of the question	Developed for this survey.
Compelling information collected and why the study team is asking it	The purpose of this question is to find out what route people used to get to the facility. Data will be analysed by those using the state highway or Expressway and those using other routes. Pre and post will show whether the route people used to access the facility changed over time e.g. whether more or less people use the local roading network after the Expressway goes in. Given the Expressway is the main focus of the study, a simple question that can capture change in state highway use to access facilities is required.
Objective the question relates to	Objective 3: Assess changes in proportion of people using SH1 to access the facility.
Question development notes (where appropriate)	

### Frequency of travel

Survey question(s)	9. How often do you travel here?
Response categories	Every day; 3-5 times a week; 1-2 times a week; About once a fortnight; About once a month; Less than once a month; Don't know; Refused.
Source of the question	Developed for this survey.
Compelling information collected and why the study team is asking it	Pre and post will show any changes in frequency of journeys made.
Objective the question relates to	Objective 5: Collate contextual information about the facility and its

to	users.
Question development notes (where appropriate)	From the pre-testing, '5 times a week' was added to specifically reflect those studying every week day.

### Demographic information

Survey question(s)	<ul style="list-style-type: none"> <li>10. Please tick your sex</li> <li>11. Please tick your age bracket</li> <li>12. Please tick all ethnic groups you identify with</li> </ul>
Response categories	<ul style="list-style-type: none"> <li>10. Male/female</li> <li>11. 12-24yrs; 25-40yrs; 41-64yrs; 65-74yrs; 75+yrs</li> <li>12. New Zealand European/Maori/Samoan/Cook Island Maori/Tongan/Niuean/Chinese/Indian/Other</li> </ul>
Source of the question	<ul style="list-style-type: none"> <li>10. NZ Census</li> <li>11. Developed for this survey</li> <li>12. NZ Census</li> </ul>
Compelling information collected and why the study team is asking it	Using the demographic information the study team collect in this survey and the contextual survey to Managers, stage one can analyse data for severance effects by different user groups.
Objective the question relates to	Objective 5: Collate contextual information about the facility and its users.
Question development notes (where appropriate)	Pre-testing participants noted that people are living longer and are more mobile, the age bracket 75+ years was added (instead of just having 65+years).

## 4.10.3 School case studies

### 4.10.3.1 Introduction

Schools are a key community facility. Travel to and from school is a daily (weekday) activity for children during school term and is the most common purpose of travel in the Household Travel Survey for New Zealand children. Mode of transport to and from school has an impact on children, families and the whole community. Mode choice impacts on traffic volumes, level of social interaction by parents and children, and physical activity. These in turn influence community safety, social connectedness, health and wellbeing, and independence of movement.

Mode of transport to and from school is at least in part determined by local physical and environmental factors, for example, level of traffic, layout of roads and footpaths, number of pedestrian crossings, presence of safe routes for cycling and walking, amount of car parking, public transport provision and location of the school. Individual and community perceptions (including those of children, parents and school teachers) about safety, desirability, convenience and comfort of different modes of transport also influence mode of transport to and from school.

Data on school travel are available for all ten Kapiti primary schools within stage one area from the Greater Wellington Region's School Travel Plan Programme (STPP, hereafter called 'programme'). The programme is a joint partnership between schools, Kapiti Coast District Council and Greater Wellington Regional Council.

The data collection for the programme includes:

- context information about the school
- a survey of parents
- a class discussion
- a school travel survey for each class.

The data are used by each individual school to develop a bespoke school travel plan that aims to encourage and support active and sustainable travel choices for students' trips to and from each school.

Data from the New Zealand Household Travel Survey show that travel to school makes up around six percent of total travel in New Zealand, and that there has been a decrease in the proportion of children walking to school over the last decade, and a corresponding increase in the proportion travelling by car (Ministry of Transport, 2009). In particular, the proportion of primary/intermediate age children travelling to school by car increased from 31% to 56% between 1989/90 and 2004/08.

### 4.10.3.2 Purpose and objectives

The purpose of the school case studies in stage one is to ascertain the impact of the Expressway on travel to school.

The objectives of the school case studies are to:

- identify changes in mode of travel to school;
- calculate changes in children's travel distance by mode to school;
- capture changes in the travel experience of children travelling to school;
- identify changes in factors that determine mode of transport to school;
- collate contextual information about the school e.g. school roll, location of school, school travel policies;
- collect qualitative data from key school personnel relevant to the impact of the Expressway on the school;

- collect qualitative data from parents relevant to the impact of the Expressway on families.

#### 4.10.3.3 Approach for school case study data collection

This section sets out the research tools that will be used for data collection within the school case studies. At a high level, all of the data collected during the school case studies will help us understand how the Expressway affects access to school (community severance). We will also be able to draw some conclusions on the subsequent impact on social connectedness, for example we know that walking and cycling are positive influencers on social connectedness.

The school facility case studies data collection will be:

- All four (already existing) school travel plan programme research tools:
  1. Context survey;
  2. Parent survey;
  3. Class travel survey;
  4. Class discussion.
- Two further research tools specifically developed for stage one:
  5. Key informant interviews with key school personnel and the Council School Travel Planner;
  6. Focus group discussions with parents.

#### 4.10.3.4 Sample design

School travel plan programme data have been collected across the Greater Wellington Region since 2006. Programme data are collected for all 10 Kapiti primary schools on an annual basis. Data are collected in either term one or term four of the school year. Data are collected by the regional school travel planner at Kapiti Coast District Council and analysis is undertaken by the Greater Wellington Regional Council. The study team has negotiated access to data from all 10 primary schools for use in stage one.

The study team will complement the programme data by conducting key informant interviews and focus groups at three 'case schools' likely to be affected by the Expressway (at pre-, construction- and post- data collection time points).

#### Selection of the three case schools

Three 'case schools' were chosen after discussion with the Technical Advisory Group, Kapiti Coast District Council, NZTA and after reviewing Ministry of Education enrolment maps. The schools are the most likely to see a change in travel behavior, if any. The case schools and the additional rationale for their selection are:

1. Kapiti School is on Kapiti Road, near the proposed interchange with the Expressway. Traffic modeling suggests there will be increased traffic on some stretches of Kapiti Road as vehicles enter and exit the Expressway. The study team is interested in how these changes affect travel to Kapiti School (both positively or negatively);
2. Raumati Beach School is adjacent to Kapiti College. There are a significant number of children who currently attend Raumati Beach School where the alignment crosses between their home and the school. Boffa Miskell's local area movement survey showed that some children currently use the proposed Expressway alignment as an 'off-road' route to school;
3. Paraparaumu School is also near to the Kapiti Road Expressway interchange (on the eastern-side of State Highway 1). Traffic modeling does not suggest an increase of traffic near Paraparaumu school, however with State Highway 1 being returned to local road status, altered travel experiences are possible. We are interested in both positive and negative impacts on travel to this school.

### Schools not included in stage one

The study team would have preferred to have included the two colleges (Kapiti College and Paraparaumu College) in stage one. This is because mode of travel to and from colleges when compared to primary schools is likely to be different. For example, secondary school students at the Colleges are more independent and are more likely to make their own way to college (bicycle, walking, and older students driving) than are younger children attending primary school.

However to date, no school travel plan programme data has been collected in either of the colleges. This would substantially increase the resources required in stage one data collection for schools. It may also be more difficult to collect the data as young people at college have more diverse classes and particularly for older students may not have significant 'home class' time. Parents may also be less interested in participating in the parent survey once their children reach a more independent age.

#### 4.10.3.5 Context Survey Questions

The context survey is completed by the School Travel Planner and the School Principal.

##### Module 1: School profile

Survey question(s)	1. School type and year levels 2. Decile rating 3. Number of students 4. Number of teaching staff 5. School population ethnic composition
Response categories	1. <ul style="list-style-type: none"> <li>• Full Primary School (Year 1-8)</li> <li>• Contributing Primary School (Year 1-6)</li> <li>• Intermediate School (Year 7-8)</li> <li>• Kura Kaupapa Māori (Primary)</li> <li>• State schools - most New Zealand schools are state schools which receive government funding.</li> <li>• State-integrated schools - used to be private and have now become part of the state system.</li> </ul>
	2. <p>1-10</p> <p>A school's decile rating indicates the extent to which it draws its students from low socio-economic communities.</p> <p>Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities, whereas decile 10 schools are the 10% of schools with the lowest proportion of these students.</p>
	3. Open-ended
	4. Open-ended
	5. <p>Gender – boys and/or girls</p> <p>Ethnicity – NZ European/Pakeha, Maori, Pacific, Asian, Other</p>
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected	This data will contribute to the overall picture of each school. It will be collected pre, construction and post Expressway to see if there are any major



and why we are asking it	changes to the school. It is possible that school roles will be affected in some schools and school zones may no longer be appropriate.
Objective question relates to	5

### Module 2: Location

Survey question(s)	6. Number and location of school entrances 7. School gate description 8. Surrounding roads description 9. Surrounding land use 10. Major destinations/roads nearby
Response categories	Open-ended
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected and why we are asking it	This information will identify the physical characteristics of the school location. The physical characteristics may impact on mode of transport to school.
Objective question relates to	5 and 4

### Module 3: School travel policies, programmes and facilities

Survey question(s)	11. School travel policies 12. Road safety programmes and resources 13. Pedestrian crossing facilities
Response categories	Open-ended
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected and why we are asking it	Knowing the school travel policies, safety programmes and resources in place at each school will provide context to any changes in travel across the study period. These are environmental factors that may impact on mode of transport to school.
Objective question relates to	5 and 4

#### 4.10.3.6 Parent Survey Questions

The parent survey is sent home with the family's oldest student.

##### Module 1: Age

Survey question(s)	1. How old are your children?
Response categories	Age (years) 5-13 Tick boxes (respondent can tick multiple boxes)
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected and why we are asking it	This information will tell us how many children and of what age are in each family, which could be useful context for the analysis of other questions.
Objective question relates to	5

##### Module 2: Mode of transport

Survey question(s)	2. Please select all the ways your children have travelled to OR from school in the last term.
Response categories	Walk, scooter/skateboard, cycle, family car, friend's car, school bus, public bus, train, ferry, other Tick boxes (respondent can tick multiple boxes)
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected and why we are asking it	This information will add to the class travel survey (which only collects information about mode of travel to school). It will also be useful for looking at within family travel patterns.
Objective question relates to	1

##### Module 3: Perceived safety

Survey question(s)	3. Please indicate how much you agree or disagree with the following statements: a) Children are safe walking to our school b) People drive safely near our school c) Children are safe cycling to our school d) Adult pedestrians at our school are good role models
Response categories	(4 point scale) Strongly agree, agree, disagree, strongly disagree, don't know
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling	Parental perceived safety of children's travel is a determinant of active travel

information collected and why we are asking it	to school. This information will enable us to understand how safety is perceived by parents. This may be impact on mode of transport to school.
Objective question relates to	4

Survey question(s)	4. Please fill in the table below with any locations and/or behaviours that you have noticed which are unsafe for children walking or cycling to this school. For reference only a map is provided on the back of this page.											
Response categories	<table border="1"> <thead> <tr> <th>Location</th> <th>Why do you think this is unsafe?</th> <th>What do you think would improve the situation?</th> </tr> </thead> <tbody> <tr> <td><b>EXAMPLE: Old MacDonalds Farm near Eieio Rd.</b></td> <td> <ol style="list-style-type: none"> <li>1. Can't see past the sheep congregating on the footpath</li> <li>2. Tractor drivers don't indicate when they turn into the farm</li> </ol> </td> <td> <ul style="list-style-type: none"> <li>• Mend holes in fences</li> <li>• Invite farmer to travel planning meeting</li> </ul> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Location	Why do you think this is unsafe?	What do you think would improve the situation?	<b>EXAMPLE: Old MacDonalds Farm near Eieio Rd.</b>	<ol style="list-style-type: none"> <li>1. Can't see past the sheep congregating on the footpath</li> <li>2. Tractor drivers don't indicate when they turn into the farm</li> </ol>	<ul style="list-style-type: none"> <li>• Mend holes in fences</li> <li>• Invite farmer to travel planning meeting</li> </ul>			
Location	Why do you think this is unsafe?	What do you think would improve the situation?										
<b>EXAMPLE: Old MacDonalds Farm near Eieio Rd.</b>	<ol style="list-style-type: none"> <li>1. Can't see past the sheep congregating on the footpath</li> <li>2. Tractor drivers don't indicate when they turn into the farm</li> </ol>	<ul style="list-style-type: none"> <li>• Mend holes in fences</li> <li>• Invite farmer to travel planning meeting</li> </ul>										
Source of question(s)	Greater Wellington Regional Council school travel plan programme											
Compelling information collected and why we are asking it	This question will give us very specific local area information about areas and behaviours that are perceived as unsafe. These factors may impact on travel to school and potentially become physical/environmental determinants of severance.											
Objective question relates to	4											

#### Module 4: Enablers to walking

Survey question(s)	5. How likely is it that your children would walk to OR from this school <u>or</u> walk more often if... <ol style="list-style-type: none"> <li>a) They had friends to walk with</li> <li>b) They had better road crossing skills</li> <li>c) They had a good walking route to school</li> <li>d) They had an adult to walk with them</li> <li>e) There were safe place to cross the roads</li> <li>f) We lived closer to the school</li> </ol>
Response categories	(4 point scale)  Very likely, quite likely, not very likely, not at all likely
Source of question(s)	Greater Wellington Regional Council school travel plan programme

Compelling information collected and why we are asking it	This question will add to our understanding of the determinants of mode of transport to school. It will give us information about which factors would be most likely to enable children to walk to school.  These factors are potentially determinants of severance (safety) at the individual level.
Objective question relates to	4

### Module 5: Enablers to cycling

Survey question(s)	6. How likely is it that your children would cycle to or from this school <u>or</u> cycle more often if...? a) They had friends to ride with b) They had better road crossing skills c) They had cycle safety lessons at school d) They had an adult to ride with them e) There were safe places to cross the roads f) Storage was available at school for bikes and belongings g) We lived closer to the school
Response categories	(4 point scale)  Very likely, quite likely, not very likely, not at all likely
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected and why we are asking it	This question will add to our understanding of the determinants of mode of transport to school. It will give us information about the factors that would be most likely to enable children to cycle to school.  These factors are potentially determinants of severance (safety) at the individual level and (distance) at the physical level.
Objective question relates to	4

#### 4.10.3.7 Class Travel Survey

The teacher records the school name, room, year level and start and end date for the survey. Each student's name and address is recorded (addresses are entered into a computer GIS system; names are for classroom use only).

The mode of transport, family car, bus, cycle, scooter or skateboard, walk, friend's car, train, is recorded for each day for one week. The weather is also recorded for each day (cloudy, sun, rain or wind).

#### Step 1

School	
Room	
Year level	
Start date	
End date	

## Step 2

Fill in the name and address column for your class

Addresses will be entered into a computer GIS system and must include the number street and suburb.  
Names are for classroom use only.

Name (please print)	Address (please print)
<b>Example: Moana</b>	<b>4 Stray St, Karori</b>

## Step 3

Use the keys below to record the daily weather and travel for each student.

Circle the morning weather under each day – you can circle more than one!

Select ONLY ONE type of travel for each student for day.

Travel key							
<i>Family car</i>	<i>Bus</i>	<i>Cycle</i>	<i>Scooter, skateboard</i>	<i>Walk</i>	<i>Friend's car</i>	<i>Train</i>	<i>Absent</i>
<i>C</i>	<i>B</i>	<i>?</i>	<i>C</i>	<i>W</i>	<i>F</i>	<i>T</i>	<i>A</i>

Weather key			
<i>(Picture)</i>	<i>(Picture)</i>	<i>(Picture)</i>	<i>(Picture)</i>
<i>Cloud</i>	<i>Sun</i>	<i>Rain</i>	<i>Wind</i>

Monday							
<i>Cloud</i>		<i>Sun</i>		<i>Rain</i>		<i>Wind</i>	
<i>C</i>	<i>B</i>	<i>?</i>	<i>C</i>	<i>W</i>	<i>F</i>	<i>T</i>	<i>A</i>

Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected and why we are asking it	<p>This survey will allow us to determine student's mode of transport to school.</p> <p>The Greater Wellington Regional Council uses the home address to calculate kilometres travelled to school by mode of travel. The calculation is based on the quickest route by mode to school.</p> <p>Analysis will determine whether there are any age related factors, distance related factors and weather related factors to mode choice. This information will add to our understanding of potential physical determinants of severance (distance/location).</p>

Objective question relates to	1,2,4
-------------------------------	-------

#### 4.10.3.8 Class Discussion

The class discussion is led by the School Travel Planner.

Discussion question(s)	Students are asked a selection of questions, depending on time and where conversations go these include: <ol style="list-style-type: none"> <li>1. How well is your community set up for you to walk, cycle or scooter to school?</li> <li>2. Why do you like walking, scooting, cycling and catching the bus to school?</li> <li>3. Does the School Bus meet your need?</li> <li>4. Do you have any safety concerns about how you travel to school?</li> <li>5. Do you have any suggestions for improvement?</li> </ol>
Response categories	School Travel Coordinator leads the discussion and takes notes of the main points discussed.
Source of question(s)	Greater Wellington Regional Council school travel plan programme
Compelling information collected and why we are asking it	This qualitative data will help us to understand how children view active transport to school. It will give us information about children's perceptions about the 'active transport-friendliness' of their community. Why they like travelling to school by active or public transport and what factors inhibit this.  Information such as individual determinants of severance (safety, aesthetics, comfort, ease, convenience of travel), environmental determinants of severance (safety) and physical determinants of severance (road layout, public transport layout).
Objective question relates to	3,4

#### 4.10.3.9 Key informant interviews

Key informant interviews with key school personnel and Council School Travel Planner will be undertaken at the three case schools pre, construction and post Expressway.

Discussion questions Pre-Expressway	<ol style="list-style-type: none"> <li>1. School travel plan data indicate that children currently travel to school by (xyx mode). Do you think this is likely to be affected by the Expressway (construction/once it is built)? Can you explain why?</li> <li>2. What barriers/enablers currently exist for travel to school? <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. What impact does travel to school have on the day to day functioning of the school?</li> <li>4. We have talked about the impact the Expressway might have on travel to and from school. Do you think the Expressway (construction/once it is built) will have any other impacts on the school? Can you explain why?</li> </ol>
--	---

Discussion questions Construction phase	<ol style="list-style-type: none"> <li>1. School travel plan data indicate that children currently travel to school by (xyx mode). Do you think this has been affected by the Expressway construction? In what way? Can you give examples?</li> <li>2. What barriers/enablers currently exist for travel to school? <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway construction on travel to and from school. Do you think the Expressway construction has had any other impacts on the school? Can you explain why?</li> <li>4. Do you think the Expressway construction has had an impact on students at the school? What about their families? Can you give examples?</li> </ol>
Discussion questions Post construction	<ol style="list-style-type: none"> <li>1. School travel plan data indicate that children currently travel to school by (xyx mode). Do you think this has been affected by the Expressway? In what way? Can you give examples?</li> <li>2. What barriers/enablers currently exist for travel to school? <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway has on travel to and from school. Do you think the Expressway has had any other impacts on the school? Can you explain why?</li> <li>4. Do you think the Expressway has had an impact on students at the school? What about their families? Can you give examples?</li> </ol>
Response categories	Discussion – key theme analysis
Source of question(s)	Developed for this study
Compelling information collected and why we are asking it	<p>This qualitative data will help us to understand the perceptions of key personnel in the school. Using key informant interviews we will have the opportunity to obtain a deeper understanding from the perspective of key people about the impact (anticipated in pre-, actual in construction- and post-) of the Expressway on travel to and from school. We will also be able to ask questions about the wider impacts that travel to school has on the day to day functioning of the school.</p> <p>Comparison of data from the pre-, construction- and post- phases will be used to explore whether the anticipated impacts took place as expected.</p> <p>Qualitative data will be used to illustrate key findings from the quantitative survey data collected in the school travel plan programme.</p>
Objective question relates to	6

#### 4.10.3.10 Focus groups

Focus group discussions will be undertaken with parents at the three case schools pre-, construction- and post-. Two discussion groups will be held at each school at each phase, one for parents of children who travel to school by car and one for parents of children who actively travel to school (walk, cycle or scooter).

#### Questions for parents of children who travel to school by car:

Discussion questions	<ol style="list-style-type: none"> <li>1. What impact do you think the Expressway will have on your trip to/from school (construction/once it is built)? Can you explain</li> </ol>
----------------------	---

Pre-Expressway	<p>why?</p> <ol style="list-style-type: none"> <li>2. What barriers/enablers currently exist for travel to/from school? <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway might have on travel to and from school. Do you think the Expressway (construction/once it is built) will have any other impacts on your family? Can you explain why?</li> <li>4. Do you think the Expressway (construction/once it is built) will impact on your child/children's social interactions? Can you explain why?</li> </ol>
Discussion questions Construction phase	<ol style="list-style-type: none"> <li>1. What impact has the construction of the Expressway had on your trip to/from school?</li> <li>2. What barriers/enablers currently exist for travel to school? <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway construction has had on travel to and from school. What other impacts has the Expressway construction had on your family?</li> <li>4. Do you think the Expressway construction has had an impact on your child/children's social interactions? Can you give examples?</li> </ol>
Discussion questions Post construction	<ol style="list-style-type: none"> <li>1. What impact has the Expressway had on your trip to/from school?</li> <li>2. What barriers/enablers currently exist for travel to school? <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway has had on travel to and from school. What other impacts has the Expressway had on your family?</li> <li>4. Do you think the Expressway has had an impact on your child/children's social interactions? Can you give examples?</li> </ol>
Response categories	Discussion - key theme analysis
Source of question(s)	Developed for this study
Compelling information collected and why we are asking it	<p>This qualitative data will help us to understand the perceptions of parents' (anticipated and actual) of the Expressway on children's travel to and from school. We will also be able to ask questions about the wider impacts that the Expressway (anticipated and actual) has had on the family and the social interactions of children.</p> <p>Comparison of data from the pre-, construction- and post- phases will be used to explore whether the anticipated impacts took place as expected.</p> <p>Qualitative data will be used to illustrate key findings from the quantitative survey data collected in the school travel plan.</p>
Objective question relates to	5, 1



**Questions for parents of children who actively travel to school (walk, cycle, scooter etc.)**

Discussion questions Pre-Expressway	<ol style="list-style-type: none"> <li>1. What impact do you think the Expressway will have on your child's trip to/from school (construction/once it is built)? Can you explain why?</li> <li>2. What barriers/enablers currently exist for travel to/from school?             <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway might have on your child's travel to and from school. Do you think the Expressway (construction/once it is built) will have any other impacts on your family? Can you explain why?</li> <li>4. Do you think the Expressway (construction/once it is built) will impact on your child/children's social interactions? Can you explain why?</li> </ol>
Discussion questions Construction phase	<ol style="list-style-type: none"> <li>1. What impact has the construction of the Expressway had on your child's trip to/from school?</li> <li>2. What barriers/enablers currently exist for travel to school?             <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway construction has had on your child's travel to and from school. What other impacts has the Expressway construction had on your family?</li> <li>4. Do you think the Expressway construction has had an impact on your child/children's social interactions? Can you give examples?</li> </ol>
Discussion questions Post construction	<ol style="list-style-type: none"> <li>1. What impact has the Expressway had on your child's trip to/from school?</li> <li>2. What barriers/enablers currently exist for travel to school?             <ol style="list-style-type: none"> <li>a. Active travel (e.g. walking, biking, scooter)</li> <li>b. Public transport</li> <li>c. Car travel</li> </ol> </li> <li>3. We have talked about the impact the Expressway has had on your child's travel to and from school. What other impacts has the Expressway had on your family?</li> <li>4. Do you think the Expressway has had an impact on your child/children's social interactions? Can you give examples?</li> </ol>
Response categories	Discussion – key theme analysis
Source of question(s)	Developed for this study
Compelling information collected and why we are asking it	<p>This qualitative data will help us to understand the perceptions of parents' (anticipated in pre-, and actual in construction- and post-) of the Expressway on children's travel to and from school. We will also be able to ask questions about the wider impacts that the Expressway (anticipated and actual) has had on the family and the social interactions of children.</p> <p>Comparison of data from the pre-, construction- and post- phases will be used to explore whether the anticipated impacts took place as expected.</p> <p>Qualitative data will be used to illustrate key findings from the quantitative survey data collected in the school travel plan.</p>
Objective question relates to	5,1

## 4.10.4 Network monitoring, noise and crash statistics

### 4.10.4.1 Introduction

The MacKays to Peka Peka Expressway will alter motor vehicle flows throughout the Kapiti road network. People will take the opportunities presented by the Expressway and individual motorists will determine their most convenient access routes to and from their destinations. Motor vehicle flows will increase on some roads and decrease on others. Average speeds may rise in some parts of the network and decrease in others. Peak flows may change in density, duration and speed. Pedestrian and cycle traffic may change in response to the new road and cycling infrastructure and/or in response to changes in motor vehicle flows and speeds. Accidents involving motor vehicle and cyclists may change in frequency, severity and distribution.

The Expressway will be a source of noise and emissions of air pollutants including fine particulate material, nitrogen dioxide, carbon monoxide, and benzene from motor vehicles. Air quality will be affected locally. Significant changes in motor vehicle flows on the network and the Expressway will result in changes in the noise environment.

Of the three areas of change – traffic flow, noise and air quality, the first two have been selected for monitoring for this study before and after the construction period and during that time. Air quality has been set aside because changes are likely to be smaller and much less easy to detect and measure.

To enable actual changes in the noise and traffic environment to be correlated with changes in connectedness and severance indicators, measurement sites for noise and traffic have been selected with reference to a number of factors. These include the location of the neighbourhood case studies, the location of facilities proposed for stage one, existing positions of traffic count sites, and understanding from traffic modelling of future changes in network traffic flows.

### 4.10.4.2 Objectives

Network monitoring has two objectives:

- 1) Measuring changes in traffic flows, motor vehicle numbers, class, and speed profiles;
- 2) Measuring pedestrian and cycle counts;

### 4.10.4.3 Timing of measurement sites

Existing Kapiti Coast District Council traffic count sites are subject to annual, two-yearly or five-yearly counts. The schedule of the existing sites has informed which sites were chosen for stage one, and informed which sites would have to be purchased on top of existing monitoring (because the existing schedule was not suitable for stage one, or a bespoke site was required). The timing of all stage one measurements is discussed in Section 2.3.4 above.

### 4.10.4.4 Method for motor vehicle and cycle traffic counting

Existing Kapiti Coast District Council and NZTA traffic count sites can provide motor vehicle numbers, class and speed. A few sites have been used to derive cycle counts in the past although all existing sites can be used for these.

Standard methods for measuring New Zealand traffic exist<sup>28</sup>. The most commonly used automatic traffic counting devices in New Zealand are the MetroCount 5600 and 5700 series and these are used

---

<sup>28</sup> NZTA Intelligent Transport Systems Specification: Traffic Counting Systems (ITS – 03 – 02) 2011 for vehicles. *Cycle counting in New Zealand*, LTNZ (2008) for a review of cycle counts. The MetroCount system is recommended for cycle counts subject to guidance in the document on setting up the equipment.

by Kapiti Coast District Council. These are also capable of counting cycle traffic. Traffic counting occurs during a continuous seven day period (week), at approximately the same dates as earlier counts at the same sites (adjusted to ensure weekday/weekend counting).

Analysis for stage one will present traffic flows (morning and afternoon peaks and inter-peaks), class breakdown (heavy vehicle, vehicle, cycle) and speed (average, peak, 85<sup>th</sup> percentile and changes in distribution of the speed profile) for all sites.

Budget dependent, the study team is considering undertaking destination-origin surveys of cyclists leaving/entering the Expressway cycleway at Kapiti Road (once the Expressway is operational (post-)). The site is near to the facility case studies. Such a survey could determine how cyclists had previously travelled prior to the Expressway cycleway being in operation.

#### 4.10.4.5 Pedestrian counting

Pedestrian counting is not subject to any NZTA specification. However NZTA Report 439<sup>29</sup> contains a number of measurement technique for measuring walking, cycling and public transport. The literature review for stage one also located one United Kingdom publication that specifically addressed pedestrian counting<sup>30</sup>. It reported that 'manual counts are the traditional method of counting pedestrians'. Other methods referred to in the report are origin/destination interviews, household surveys and travel diaries, and various automatic count methods including video imaging, infra-red sensors and piezoelectric pressure mats.

Little pedestrian count information has been collected on the Kapiti Coast. A technical report for the Expressway<sup>31</sup> described pedestrian and cycle counts were undertaken on a single winter day (14 June 2011). Two sites were on the existing road network (Kapiti and Te Moana roads, where each road 'crossed' the proposed Expressway) and two off-road locations. Measurements were undertaken from 7.30am - 9.30am and 1.30pm - 4.30pm "to capture school peaks".

The study will undertake manual counts using observers positioned at multiple sites, on multiple days during winter and summer. Counts will run from 7.30am and 6.30pm to capture a full day of school and commuter foot traffic.

The study team will also categorise pedestrians as male/female; older (visually greater than 65 years); school uniform; or person with a pram. The study team hopes to understand whether construction effects (noise, dust, uneven surfaces) affect a particular demographic (if at all) more than another demographic.

#### 4.10.4.6 Sites selected for traffic and pedestrian measurements

The study team commissioned Don Wignall (from Transport Futures) to undertake traffic modeling of the difference in traffic flows between a future network with the proposed Expressway (in 2026) and a future 'do minimum network without the expressway' (in 2026). The traffic model used was the locally developed SATURN Model<sup>32</sup>.

The illustrative SATURN output below Figure 9 indicates the sections of the Paraparaumu road network where decreases in traffic flow (in blue) are forecast post-expressway implementation and where

---

<sup>29</sup> NZTA Report 439: Generation of walking, cycling and public transport trips: pilot study, March 2011

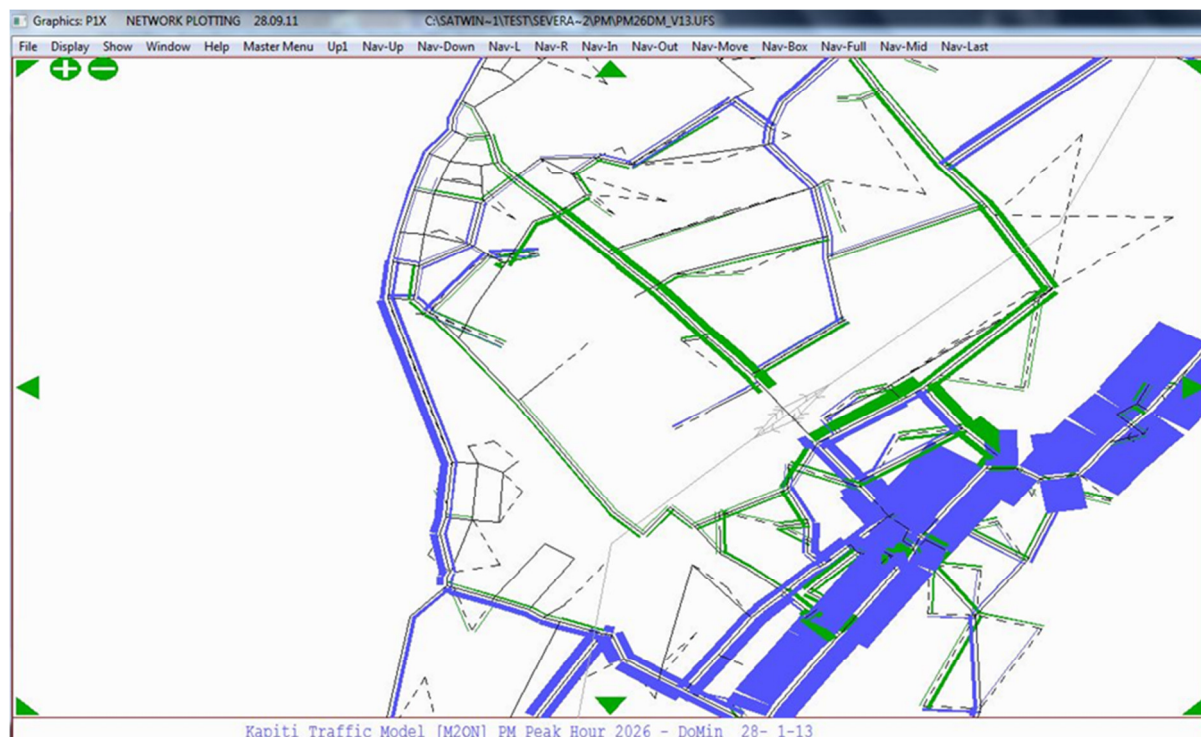
<sup>30</sup> UK Department for Transport – Traffic Advisory Leaflet 6/00, June 2000, *Monitoring Walking*

<sup>31</sup> MacKays to Peka Peka Alliance Technical Report 32, *Assessment of Traffic Effects*

<sup>32</sup> The modeling used the Kapiti SATURN traffic model (v13).

increases in flow (in green) are expected to occur for the evening peak period in 2026. The bandwidths are proportionate to the scale of traffic change anticipated as a result of expressway implementation.

**Figure 9. Example of SATURN traffic model output.**



The data was used to inform the selection of locations at which to measure vehicle flows (and noise). Some sites have been selected where traffic flows are expected to increase, and other sites where a decrease is expected. Sites where modeling suggests little or no change have also been selected. Traffic counts sites were excluded from stage one at locations such as Rimu Road and Ihakara Street because future traffic changes will be unrelated to the Expressway project.

The NZTA is planning new State Highway counts after the Expressway ones. These will complement the existing NZTA count sites and together will provide a reference for changes in other traffic count sites. The existing State Highway traffic count site 'North at Lindale' is also close to the Amohia Street neighbourhood case study area.

Poplar Avenue has been selected as a traffic count site to record if the modeled increase in motor vehicle traffic numbers and possible changes in cycle use actually occurs. Raumati Road is not expected to show significant traffic flow, class or speed changes but has been selected because there may be changes in pedestrian and/or cycle use. These may be due to the loss of the informal pedestrian walkways through the currently vacant Expressway route (often used by school pupils).

Kapiti Road will have significant changes in traffic flow and class type. There will be some increases and some decreases in these (depending on location relative to the on- and off-ramps). There are also likely to be differing speed profiles across peak periods, in different directions. The data from the Kapiti Road traffic count will complement the facility case study sites on Kapiti Road. The study team will not be able to use a permanent Kapiti Road site that will be discontinued because of the Expressway location. The study team will instead use pedestrian counts for this thoroughfare.

Arawhata Road and Mazengarb Street traffic count sites will check for expected increases in traffic flows, speed and class, and for variation in cycle use. Guildford and Realm Drives are potential 'rat runs' for motorists trying to avoid traffic queues, particularly at intersections. Some increase is expected in traffic flow on the former and decrease on the latter. Traffic numbers, class and speed information will assist with interpretation of the Neighbourhood Case Study data on Realm Drive.

Off-road cycle counts will be needed when the new off-road cycle routes alongside the Expressway are operational. We will use counts where the cycle route crosses Kapiti Road, with counts on both sides of the cycle route to pick up entry to and exit from that busy thoroughfare and its nearby public facilities.

Cycle counts are justified before construction on the Wharemakū Stream cycleway to ensure stage one can accurately determine construction period impacts.

As can be seen from the above, the study team took account of existing Kapiti Coast District Council traffic count sites and existing NZTA State Highway 1 traffic count sites. Such existing sites provide stage one with a long term record. This may enable the study team to identify long term trend changes.

The study will purchase additional measurements:

- at the existing sites to gather winter and summer data
- new sites to count cyclists and pedestrians.

The timing of any new sites will coincide with the neighbourhood area case study data collection time points.

Table 6 sets out the Kapiti Coast District Council and NZTA count sites to be used in the study. Table 6 also describes the type of information typically collected historically (despite all sites being able to collect all information). The measurement frequency and date of last count for each site are described.

**Table 6. Traffic count location, month of count, frequency, type of count and responsible agency.**

Location	Month	Frequency	Cycle	Pedestrian	KCDC	LTNZ
State Highway North: Lindale	continuous	continuous				✓
State Highway North: Paekakariki	continuous	continuous				✓
Expressway <sup>33</sup>						✓
Poplar Av. at Te Ra school <sup>34</sup>	April 2011	two yearly	✓		✓	
68a Raumati Road	Feb 2011	two yearly		?	✓	

<sup>33</sup> Proposed

<sup>34</sup> 300 metres west of Leinster Avenue

119 Raumati Road	March 2011	two yearly	✓		✓	
30 Kapiti Road	Jan 2012	annual	✓	✓	✓	
68a Kapiti Road	Jan 2012	annual	✓	✓	✓	
300 Kapiti Road	Jan 2012	annual			✓	
7 Arawhata Road	Nov 2011	annual	✓		✓	
60b Arawhata Road	Nov 2011	annual	✓		✓	
60b Arawhata Road	May 2011		✓			
40 Guildford Drive	Oct 2011	two yearly	✓		✓	
92 Realm Drive	June 2012	five yearly	✓			
240 Mazengarb Road	March 2012	annual			✓	
Expressway cycle path <sup>35</sup>			✓after	✓after		

#### 4.10.4.7 Noise Measurements

##### Objectives

- to record actual changes in traffic noise arising from construction and use of the Expressway
- to record actual changes in traffic noise arising from changes in vehicle numbers on the broader traffic network.

##### Selection of measurement sites

Marshall Day Associates undertook measurements of the existing ambient noise level for the Expressway consenting process. They used New Zealand Standards methodology (NZS6801:2008 'Acoustics - Measurement of Environmental Sound') and their findings are reported elsewhere<sup>36</sup>. Two types of measurement were taken in April and May 2011. Thirty-one short duration sites were selected for day time measurements undertaken for 15 to 20 minutes. Eight so-called 'representative sites'<sup>37</sup> were selected for long term continuous measurements using unattended noise loggers over periods of five to seven days. Five-seven days is required to span enough time to obtain one 24-hour record clear of interference from wind and rain noise.

<sup>35</sup> Proposed

<sup>36</sup> MacKays to Peka Peka Expressway Assessment of Environmental Effects, Volume 3, Technical Report 15

<sup>37</sup> "representative of a group of houses potentially affected by noise from the proposed Expressway"

The study team believes the long term measurement sites are too close to arterial roads to be fairly representative of houses to be affected by the additional noise of the Expressway. Neither the existing short duration nor long term noise data provided the study team with suitable baselines (with the possible exception of LT 1 at Leinster Avenue).

Therefore we propose multi-day<sup>38</sup> continuous measurement of ambient noise by unattended loggers at four sites, three subject to increased noise and one subject to reduced noise at:

1. Makarini Street location (back of section)
2. Amohia Street (front of section)
3. Milne Drive location (back of section)
4. Kapiti Road (front of section)

### Timing

The noise measurements would be undertaken at the same time as the neighbourhood case studies are undertaken to provide objective data to complement the data collected from residents.

### Crash Statistics

#### Objectives

The objective of the crash statistics data are to:

1. Collate number, severity and vehicle class crash data;
2. Collect number and severity of accident data involving cyclists.

#### Selection of measurement sites

Crash statistics are recorded by the Ministry of Transport in a system known as "Road Crash Statistics". This is a record of police-reported accidents and includes only those involving motor vehicles. On-line users can interrogate what is referred to as the Crash Analysis System for accident statistics by area and date and this has been used previously on the Kapiti Coast<sup>39</sup>

NZTA Report 289 (2006), *Predicting Accident Rates for Cyclists and Pedestrians*, compares Crash Analysis System data with Accident Compensation Commission and St John Ambulance records. It identified a significant under reporting of accidents involving cyclists and pedestrians in the Crash Analysis System. For example, in the three year period between 2000 and 2002 for every cycle incident reported in the Crash Analysis System database, there were an additional 0.84 reported in the St John database. When the Accident Compensation Corporation database was included an additional 0.92 were reported.

The Crash Analysis System allows manual definition of individual roads and intersections, as well as sections of roads. We note that in smaller locations or sections of roads there are very few crashes. Therefore the research area selected needs to be large enough to ensure the data set is statistically valid. There is a New Zealand convention to use a minimum of five years' worth of data to derive average annual crash performance statistics. However, earlier monitoring of effects at one and three years is also good practice to pick up any serious problems that may occur earlier.

---

<sup>38</sup> The multi-day record will also include at least one weekend day

<sup>39</sup> *Kapiti Coast: Choosing Futures. Cycleways, walkways and bridleways strategy*. (2009) reports pedestrian and cyclist casualties over 2003 -7 sourced from the Crash Analysis System database.

The study team will work with the Crash Analysis System data to establish a set of measurement areas that relate to the neighbourhood case studies, the facility case studies and the traffic count sites. Within 50 metres or 100 metres of a junction is a typical minimum area for analysis, and this will be confirmed when further crash statistics analysis is completed and historic cycle crash statistics assembled. The inclusion of a 50 -100 metre diameter around junctions is because most crashes occur at junctions.

Now that the resource consent hearings are closed, the study team will begin negotiations with the Wellington Free Ambulance service (which covers the Kapiti Coast) to supply cyclist crash/accident data for stage one.



## 4.10.5 Use of existing surveys and data sets.

### 4.10.5.1 Introduction

For stage one the study team commissioned Angus Hulme-Moir to answer the question: What data exists for Kapiti to assist with a before and after analysis of potential change to travel patterns? His report identified two relevant surveys<sup>40</sup>:

1. The Household Travel Survey
2. The New Zealand Census.

The Household Travel Survey is an ongoing national survey. It uses a two day travel diary to collect very detailed information about individuals travel. The survey is a rolling survey, meaning that at any particular time the survey is 'in the field' somewhere in the country.

Individuals on the Kapiti Coast are surveyed approximately every two years, adding to the data set for the region. Each separate data collection provides an insufficient sample size for the Kapiti Coast, but taken together over the years (as is meant in the survey design), there is adequate numbers to conduct analyses. For example, the total number of trips originating in the Kapiti Coast for which there was mode and purpose information is around 7940. This is a good sized sample for regional analysis.

The only other regional travel-related survey identified was the New Zealand Census. The most recent Census was 2006, and the next is 2013. The 2013 Census provides a good timing match to stage one baseline (pre-) data collection (also in 2013/14).

Quotable Value has a national dataset of house sales and the study team will use that to track house sale trends in the neighbourhood case study areas.

### 4.10.5.2 Purpose and objectives

The purpose of using existing surveys and their data sets was to identify ongoing, regionally based time-series data that may assist informing stage one objectives. The ongoing nature of the datasets is particularly appealing as time series analysis becomes possible. The sample sizes are also substantial and are well beyond what could be achieved from the resources available to stage one.

The study objectives for the existing surveys and data sets are to:

- Identify changes travel patterns over time for Kapiti Coast residents
- Identify tenure, frequency of house sale and sales data for residential properties in the neighbourhood case study areas

### 4.10.5.3 Data collection

Data collection for the New Zealand Census and the Household Travel Survey are fixed, and not alterable by the study team. The data sets for both surveys become freely available for researchers to use once the data are cleaned and released. The data provides context about changes to the local and regional environment to assist the study team with explanations regarding changes in any observed intermediate outcomes or final outcomes.

From the Household Travel Survey we will obtain analyses for:

---

<sup>40</sup> School travel planning and Network Monitoring also provide substantial regional travel information, but were excluded from Hulme-Moir's work as these were already being investigated by the study team. They are described fully elsewhere in this report.

- Trip legs by purpose. This analysis provides the percentage of trip legs taken in Kapiti for each purpose (to: home; work; education; shopping; personal/ medical/ welfare; social visits/ entertainment; recreation; accompanying someone).
- Modal split for trip legs. This analysis provides the percentage of each trip leg taken in Kapiti for each mode of transport (walking; vehicle driver; vehicle passenger; bicycle; public transport; other). The sample sizes for bicycle and public transport (bus and train) in Kapiti are less than 130 for each, and so are unlikely to be available for future analysis.
- Average distance for trip leg purpose. This analysis provides the mean distance in kilometres for trips in Kapiti for working; shopping; social/ entertainment; and recreation. The sample sizes for the remaining trip purposes are too small for future analysis. Any changes in the Kapiti data can be compared to changes in the Secondary Urban Areas<sup>41</sup> median straight line distances to work from the 2013 Census.

For the New Zealand Census<sup>42</sup> we will obtain analyses for:

- Main means of travel to work collects the method by which the respondent, aged 15 years and over, travelled the longest distance to work on the Census day, for example by bicycle, bus, walking or jogging.
- Number of motor vehicles that are mechanically operational, but not necessarily licensed or having a current warrant of fitness, and are available for private use by the residents of private dwellings. Motor vehicles include:
  - cars, station wagons, vans, trucks, four-wheel-drive vehicles and other vehicles used on public roads
  - business vehicles available for private use by people in the dwelling
  - vehicles hired or leased
  - vehicles temporarily under repair.
  - They do not include:
    - motorbikes or scooters
    - vehicles used only for business
    - farm vehicles not licensed for road use
    - vehicles that belong to visitors
    - vehicles occasionally borrowed from another household.
- Dwelling ownership provides data on 'dwelling not owned by usual resident(s), who make rent payments'; and 'Tenure of household' refers to the nature of the occupancy of a household in a private dwelling.
- Workplace address variable, which consists of the meshblock in which the physical address of the respondent's workplace is situated. The analysis the study team wants is the mean distance to work.
- 'Years at usual residence' is the length of time up to the Census, expressed in completed elapsed years (including short-term absences, but excluding long-term absences), that a respondent has lived at their usual residence. The analysis the study team wants is the mean years at usual residence.

For the Quotable Value data sets, online subscribers can access sales history and price data for each residential house in each neighbourhood case study. The advantage of this dataset is that the time period for collection is continuous, allowing the study team to identify long term trends, if any.

---

<sup>41</sup> Secondary Urban Areas are defined in the Census as those with 10000 – 30000 people.

<sup>42</sup> <http://www.stats.govt.nz/Census/about-2006-census/information-by-variable.aspx>

## 4.10.6 Pretesting

### 4.10.6.1 Introduction

Pre-testing is an important stage in questionnaire development. It is an opportunity to test key concepts and wording of questions with groups and/or individuals before being piloted. Pre-testing for stage one was undertaken in two stages: initial testing and re-testing. They are described below.

### 4.10.6.2 Initial testing of questionnaires

The first phase of pre-testing focused predominantly on testing key concepts as well as wording for some specific questions with focus group participants.

*'Focus groups help identify variations in language, terminology, or interpretation of questions and response options...one of the main advantages of focus groups is the opportunity to observe a great deal of interaction on a topic in a limited period of time'<sup>43</sup>.*

Three focus groups were conducted with the following groups:

- general group of employees (mixed demographics) from a large organisation;
- older people from a bowling club;
- parents from a Playcentre.

There were up to nine participants in each group. Each organisation was approached to ask its members/employees to take part. The focus groups were up to one and a half hours in duration. Participants were gifted a \$50 koha for their time. As agreed with the MacKays to Peka Peka Alliance, focus groups were held in Wellington City to manage any perception issues that might have arisen if such work was undertaken on the Kapiti Coast.

These group 'types' were selected to gather feedback from a range of people. We were particularly interested in parents and older people's views on the questionnaires because travel and mobility issues are particularly pertinent to such groups e.g. where children are allowed to travel to unaccompanied, number of trip legs of older people are substantially lower than number of trip legs of adults, etc.

Each focus group was held on a different day. Questionnaires were modified after feedback was received each day. Therefore, the questions asked of the groups differed slightly as changes were incorporated. Sometimes findings were 'double checked' with another group to make sure they were accurate across different demographics.

A mix of written feedback and group discussions were used at the focus groups. At the beginning of each group participants were asked to fill in a short questionnaire (on over-arching concepts and certain study questions the study team wanted feedback on). Discussion began after everyone had completed the short questionnaire. A focus group schedule was used to guide the group discussion – this had questions on key concepts as well as general questions about people's travel experiences.

Following the completion of the groups, changes were made to the questionnaires where needed.

---

<sup>43</sup> Scheuren, F (2004). What is a survey, p46. Accessible from <http://courses.washington.edu/thesis/what%20is%20a%20survey.pdf>

#### **4.10.6.3 Peer review of questionnaires**

After the initial testing of questionnaires, the draft questionnaires were sent to Dr Vivienne Ivory (social scientist at University of Otago and Technical Advisory Group member) for expert peer review. Further changes were implemented and/or areas were highlighted for further testing.

#### **4.10.6.4 Re-testing of questionnaires**

The re-testing phase was an opportunity to test the actual questions (as opposed to overarching concepts). Re-testing used a more 'complete' iteration of the questionnaires. This re-testing was done one-on-one with 14 individuals.

A mix of demographics was sought including household composition (e.g. single parent with pre-school aged children, couple with no children), transport usage (e.g. no car, cyclist, walkers, no car or limited access to a car), mobility challenges, age, ethnicity and sex. Individuals were aged between 16 and 84, several were Maori and the balance were Pakeha, and several had mobility issues (e.g. could not walk unaided).

A 'snow ball' approach was used to recruit these people. Some were identified from the focus groups in the first stage as appropriate participants. Individuals were gifted a \$50 koha for their time.

The process used to re-test the questionnaires was slightly different for each questionnaire because the method of administering the questionnaires differs i.e. the facility users questionnaire is planned to be self-administered, whereas the neighbourhood case study questionnaire is planned to be interviewer administered.

#### **Re-testing the facility users questionnaire**

Participants were asked to fill out the facility users survey without our help (unless they needed it). They were asked a couple of specific questions as they filled out certain parts of the survey but were largely left to fill out the whole survey themselves. At the end, they were asked questions about the survey and their feedback was recorded by the researcher.

#### **Re-testing the neighbourhood case study questionnaire**

Participants were introduced to the neighbourhood case study questionnaire. The interviewer then began to administer the questionnaire. At the end of each module (of the questionnaire) the interviewer asked about clarity and comprehension. The interviewer had specific queries about specific questions which were asked when the participant reached each relevant question. Participants were also able to raise issues about questions as the questionnaire was administered.

Following the completion of the interviews, the research team met to discuss major findings from the re-testing and agree on changes to be made to the questionnaires. The questionnaires were then finalised for incorporation in this report.

## 4.11 Pilot stage one

As described earlier, the study team was requested to delay piloting stage one until after the resource consent decision had been made for the MacKays to Peka Peka Expressway (in late April 2013). This made sense as there was no point subjecting a sample population to a pilot if the Expressway (and hence stage two of the study) was not going to go ahead (if the resource consent was declined).

### 4.11.1.1 Piloting the neighbourhood case study questionnaire

To meet this April date for piloting, the study team put out a Request for Proposal in January 2013 for three national research firms to undertake the neighbourhood case study piloting.

The rationale for sub-contracting out the neighbourhood case study piloting was:

- Face to face household interviewing requires specialist expertise, not just in the interviewing itself, but the management of the interviewing, the data cleaning and analysis;
- Some companies carry out household interviews as a standard piece of their day-day work, meaning systems, protocols and staff are already in place. For example, sending staff into homes for evening interviews in the winter requires strict protocols and procedures for staff safety (including links to emergency services); locally based and trained staff (interviewers and supervisors) are already ready to work; 'getting in the door' at people's homes is a practiced skill that will contribute to improved response rates for the study;
- Some companies have specialist staff who can calculate the complex statistical weightings required when analysing data from neighbourhood based samples;
- Using a company with the skills above was likely to be cost effective and lead to a higher quality outcome for the neighbourhood case study questionnaire.

The three national companies who were sent the Request for Proposal were asked to provide two costings: one costing for a census of adults in each household; and one costing for a single participant from each household (using an agreed weighting criteria). The study team also gave the companies the option of paper-based or electronic data capture.

Data collation, cleaning and security of the data was also requested to be the responsibility of the research company. Companies were asked to base their responses on the wish to achieve a 70 percent response rate at the household level (i.e. at least one adult from 70 percent of households). The study team also requested the research company provide clean data sets and also to undertake quantitative analysis of the data.

To make the work more appealing to the larger companies, the Request for Proposal also included the data collection, cleaning and analysis for Stages Two, Three and Five.

Regarding the fieldwork, the company was requested to:

- train interviewer(s);
- manage and ensure quality of fieldwork;
- send out study information;
- recruit and obtain informed consent from participants;
- undertake household interviews;
- make every attempt to meet the required response rate;
- collect high quality data using agreed procedures.

Responses from the companies were due back by 11th February. The Request for Proposal was clear that the pilot would only occur if and when the resource consent was given for the Expressway.

#### 4.11.1.2 Piloting the other study methods

Several of the methods will use pre-existing validated tools and therefore piloting will not be required:

- School travel plan programme research tools
- Network monitoring
- Noise
- Crash statistics
- NZ Census and Household Travel Survey data

For the balance of the methods, piloting is planned to occur in April 2014 and discussion on the steps undertaken for that will be included in the final report (rather than this draft):

- School case study bespoke methods (focus groups and interviews)
- Facility case study methods.

## 5 Next steps

This draft report is a contractual milestone in stage one of the study and has been delivered on time and to budget. To complete stage one the study team must also pilot the study in the field. Piloting has been deferred until the resource consent process is complete and we know whether the Expressway will go ahead.

The study team will work with NZTA to set up a draft contract for stage 2 of the study, and if and when the Expressway is consented, the contract will be signed and the study team will complete the pilot phase of stage one.

In the original proposal to NZTA for this study in December 2011, each data collection point was estimated at \$350,000. Stage two has two data collection points, winter and summer, so the study team is working towards an approximate budget of \$700,000.

# Appendix 1 - Demographic comparison of potential study areas

**Table 1 - KAPITI (GROUP 1 & GROUP 2), UPPER HUTT AND NATIONAL DEMOGRAPHIC PATTERNS**

Area unit	Households	Median household income	Single person households	Families	Couple without children	Couple with child(ren)	One parent with child(ren)	0-9 years	10-19 years	20-59 years	60-64 years	65 Years +	Total usually resident pop	Median age	European Ethnic Groups	Māori Ethnic Group	Pacific Peoples' Ethnic Groups	Asian Ethnic Groups	Drove or passenger in vehicle	Used PT	Walked or biked
GROUP 1																					
Waikanae Beach	1194	45800	23%	867	54%	31%	15%	14%	11%	48%	7%	20%	2892	43	83%	8%	2%	2%	62%	8%	4%
Waikanae East	822	46900	25%	594	56%	30%	14%	11%	11%	42%	7%	28%	1986	48	83%	6%	2%	2%	63%	9%	3%
Peka Peka	111	51300	30%	72	63%	38%	4%	10%	14%	55%	10%	14%	252	47	83%	7%	1%	0%	60%	4%	0%
Waikanae Park	840	40900	34%	543	62%	28%	10%	8%	9%	35%	7%	43%	1899	59	84%	4%	1%	1%	56%	10%	3%
Waikanae West	1674	34200	37%	1035	68%	21%	11%	8%	8%	31%	7%	46%	3453	62	83%	6%	1%	1%	57%	9%	6%
Kaitawa	174	74700	16%	138	46%	48%	7%	12%	17%	58%	6%	8%	477	40	75%	2%	0%	2%	58%	7%	1%
<b>GROUP 1 TOTAL</b>	<b>4815</b>	<b>48967</b>	<b>30%</b>	<b>3249</b>	<b>60%</b>	<b>28%</b>	<b>12%</b>	<b>10%</b>	<b>10%</b>	<b>40%</b>	<b>7%</b>	<b>33%</b>	<b>10959</b>	<b>50</b>	<b>83%</b>	<b>6%</b>	<b>1%</b>	<b>1%</b>	<b>59%</b>	<b>9%</b>	<b>4%</b>
GROUP 2																					
Paraparau mu Beach North	1254	47000	25%	903	40%	38%	22%	13%	17%	47%	5%	18%	3255	39	82%	11%	2%	2%	62%	10%	4%
Otaihanga	408	65600	16%	336	44%	42%	13%	14%	16%	52%	5%	12%	1110	40	82%	8%	1%	2%	64%	7%	3%
Paraparau mu Beach South	2028	42500	32%	1314	53%	34%	13%	11%	12%	45%	6%	27%	4677	46	83%	8%	1%	3%	62%	11%	4%
Paraparau mu Central	3297	37700	28%	2283	48%	33%	19%	13%	14%	44%	6%	24%	8202	42	80%	13%	3%	3%	59%	11%	6%
Raumati Beach	1854	42500	31%	1257	46%	36%	18%	13%	15%	43%	6%	23%	4470	43	83%	9%	2%	1%	57%	10%	5%
Raumati South	1362	56600	22%	1011	42%	39%	20%	14%	15%	55%	5%	11%	3546	38	82%	10%	3%	2%	63%	9%	4%
Maungakot ukutuku	294	76700	14%	240	51%	43%	8%	14%	13%	56%	7%	10%	816	42	77%	7%	2%	2%	59%	9%	2%
<b>GROUP 2 TOTAL</b>	<b>10497</b>	<b>52657</b>	<b>27%</b>	<b>7344</b>	<b>47%</b>	<b>36%</b>	<b>17%</b>	<b>13%</b>	<b>14%</b>	<b>47%</b>	<b>6%</b>	<b>21%</b>	<b>26076</b>	<b>41.4</b>	<b>82%</b>	<b>10%</b>	<b>2%</b>	<b>3%</b>	<b>60%</b>	<b>10%</b>	<b>5%</b>
<b>GROUP 1+2 TOTAL</b>	<b>15312</b>	<b>50954</b>	<b>28%</b>	<b>10593</b>	<b>51%</b>	<b>34%</b>	<b>16%</b>	<b>12%</b>	<b>13%</b>	<b>45%</b>	<b>6%</b>	<b>24%</b>	<b>37035</b>	<b>45.3</b>	<b>82%</b>	<b>9%</b>	<b>2%</b>	<b>2%</b>	<b>60%</b>	<b>10%</b>	<b>4%</b>
<b>National</b>	<b>1454175</b>	<b>51400</b>	<b>23%</b>	<b>1,067,505</b>	<b>40%</b>	<b>42%</b>	<b>18%</b>	<b>14%</b>	<b>15%</b>	<b>54%</b>	<b>4%</b>	<b>12%</b>	<b>4,027,947</b>	<b>35.0</b>	<b>68%</b>	<b>15%</b>	<b>7%</b>	<b>9%</b>	<b>64%</b>	<b>4%</b>	<b>7%</b>



**Table 2 - KAPITI (GROUP 1 & GROUP 2),  
UPPER HUTT AND NATIONAL  
DEMOGRAPHIC PATTERNS**

Area unit	Households	Median household income	Single person households	Families	Couple without children	Couple with child(ren)	One parent with child(ren)	0-9 years	10-19 years	20-59 years	60-64 years	65 Years +	Total usually resident pop	Median age	European Ethnic Groups	Māori Ethnic Groups	Pacific Peoples' Ethnic Groups	Asian Ethnic Groups	Drove or passenger in vehicle	Used PT	Walked or biked
GROUP 2																					
Paraparaumu Beach North	1254	47000	25%	903	40%	38%	22%	13%	17%	47%	5%	18%	3255	39	82%	11%	2%	2%	62%	10%	4%
Otaihanga	408	65600	16%	336	44%	42%	13%	14%	16%	52%	5%	12%	1110	40	82%	8%	1%	2%	64%	7%	3%
Paraparaumu Beach South	2028	42500	32%	1314	53%	34%	13%	11%	12%	45%	6%	27%	4677	46	83%	8%	1%	3%	62%	11%	4%
Paraparaumu Central	3297	37700	28%	2283	48%	33%	19%	13%	14%	44%	6%	24%	8202	42	80%	13%	3%	3%	59%	11%	6%
Raumati Beach	1854	42500	31%	1257	46%	36%	18%	13%	15%	43%	6%	23%	4470	43	83%	9%	2%	1%	57%	10%	5%
Raumati South	1362	56600	22%	1011	42%	39%	20%	14%	15%	55%	5%	11%	3546	38	82%	10%	3%	2%	63%	9%	4%
Maungakotukutuku	294	76700	14%	240	51%	43%	8%	14%	13%	56%	7%	10%	816	42	77%	7%	2%	2%	59%	9%	2%
<b>GROUP 2 TOTAL</b>	<b>10497</b>	<b>52657</b>	<b>27%</b>	<b>7344</b>	<b>47%</b>	<b>36%</b>	<b>17%</b>	<b>13%</b>	<b>14%</b>	<b>47%</b>	<b>6%</b>	<b>21%</b>	<b>26076</b>	<b>41.4</b>	<b>82%</b>	<b>10%</b>	<b>2%</b>	<b>3%</b>	<b>60%</b>	<b>10%</b>	<b>5%</b>
UPPER HUTT																					
Elderslea	1188	46700	21%	840	40%	41%	18%	12%	15%	48%	5%	20%	3201	40	73%	16%	16%	5%	62%	9%	8%
Moonshine	816	53000	17%	615	41%	41%	18%	14%	17%	50%	5%	14%	2220	37	75%	12%	12%	5%	62%	11%	5%
Brentwood	741	47800	17%	570	34%	37%	29%	17%	17%	54%	4%	8%	2094	31	64%	21%	21%	7%	59%	14%	5%
Wallaceville	936	42600	30%	552	36%	40%	24%	14%	14%	53%	4%	14%	2157	36	74%	16%	16%	5%	55%	14%	10%
Trentham North	1158	38000	26%	687	38%	36%	26%	13%	13%	53%	4%	16%	2766	36	72%	14%	14%	6%	59%	12%	7%
Heretaunga-Silverstream	1209	64500	23%	888	38%	50%	13%	13%	17%	52%	5%	14%	3198	39	78%	11%	11%	3%	61%	14%	6%
Trentham South	177	27900	8%	87	66%	28%	3%	3%	8%	66%	2%	20%	1020	35	58%	22%	22%	11%	21%	8%	25%
Pinehaven	1122	69900	12%	903	37%	51%	12%	14%	16%	54%	4%	12%	3141	38	82%	7%	7%	2%	63%	13%	4%
Mangarua	453	86400	5%	402	36%	58%	5%	17%	19%	55%	4%	5%	1461	37	85%	8%	8%	2%	67%	7%	1%
Heretaunga Park	429	70200	17%	342	46%	42%	11%	10%	15%	46%	6%	23%	1200	46	81%	6%	6%	3%	65%	11%	4%
Riverstone Terraces	225	100000	'C'	207	38%	57%	6%	15%	14%	66%	3%	2%	660	35	78%	8%	8%	1%	71%	9%	2%
Nabhra	75	97500	4%	60	35%	50%	10%	12%	18%	62%	6%	6%	204	38	84%	3%	3%	1%	69%	2%	0%
Maldstone	48	53800	13%	39	31%	46%	31%	22%	13%	59%	2%	9%	138	30	56%	27%	27%	27%	63%	8%	8%
Upper Hutt Central	129	37100	33%	75	44%	40%	16%	13%	13%	54%	6%	15%	321	34	71%	23%	23%	1%	44%	11%	20%
Ebdentown	912	37700	30%	546	41%	36%	23%	12%	15%	48%	4%	20%	2142	40	78%	15%	15%	5%	60%	10%	9%
Clouston Park	900	51500	19%	657	40%	41%	19%	13%	14%	53%	5%	14%	2328	38	75%	14%	14%	5%	64%	10%	6%
Totara Park	1041	58400	12%	834	33%	45%	21%	16%	16%	57%	4%	7%	2853	34	80%	14%	14%	3%	72%	8%	2%
Cloustonville	129	61900	12%	99	42%	48%	6%	17%	14%	61%	2%	8%	351	37	80%	9%	9%	1%	65%	5%	2%
Emerald Hill	981	59400	13%	780	35%	45%	20%	17%	16%	55%	4%	8%	2721	35	79%	11%	11%	3%	71%	9%	2%
Akatarawa	225	60900	12%	183	36%	43%	20%	17%	13%	59%	5%	7%	618	36	80%	10%	10%	3%	66%	8%	2%
Maoribank	870	53700	11%	705	30%	43%	27%	18%	18%	54%	4%	6%	2553	30	67%	27%	27%	8%	71%	8%	3%
Te Marua	360	63500	13%	306	38%	44%	17%	17%	17%	52%	4%	10%	1068	37	81%	13%	13%	3%	69%	7%	2%
<b>TOTAL</b>	<b>14124</b>	<b>58291</b>	<b>18%</b>	<b>10377</b>	<b>37%</b>	<b>44%</b>	<b>19%</b>	<b>14%</b>	<b>16%</b>	<b>53%</b>	<b>4%</b>	<b>13%</b>	<b>38415</b>	<b>36</b>	<b>76%</b>	<b>14%</b>	<b>14%</b>	<b>4%</b>	<b>63%</b>	<b>10%</b>	<b>5%</b>

Walked or biked																					
Used PT																					
Drove or passenger in vehicle																					
Asian Ethnic Groups																					
Pacific Peoples' Ethnic Groups																					
Māori Ethnic Group																					
European Ethnic Groups																					
Median age																					
Total usually resident pop																					
65 Years +																					
60-64 Years																					
20-59 years																					
10-19 years																					
0-9 years																					
One parent with child(ren)																					
Couple with child(ren)																					
Couple without children																					
Families																					
Single person households																					
Median household income																					
Households																					
Area unit																					
<b>GROUP 2 TOTAL</b>	10497	52657	27%	7344	47%	36%	17%	13%	14%	47%	6%	21%	26076	41.4	82%	10%	2%	3%	60%	10%	5%
<b>UPPER HUTT TOTAL</b>	14124	58291	18%	10377	37%	44%	19%	14%	16%	53%	4%	13%	38415	36	76%	14%	14%	4%	63%	10%	5%
<b>National</b>	1454175	51400	23%	1067505	40%	42%	18%	14%	15%	54%	4%	12%	4,027,947	35.0	68%	15%	7%	9%	64%	4%	7%

## Appendix 2 – Individual census area units within the study area

The Group two Census Area Units are in the southern area and include:

1. Maungakotukutu
2. Raumati South
3. Raumati Beach
4. Paraparaumu Central
5. Paraparaumu Beach South
6. Otaihanga
7. Paraparaumu Beach North.

The balance of the 13 Census Area Units became 'Group one' in the northern area and are made up of:

8. Kaitawa
9. Waikanae East
10. Waikanae West
11. Waikanae Park
12. Waikanae Beach
13. Peka Peka.

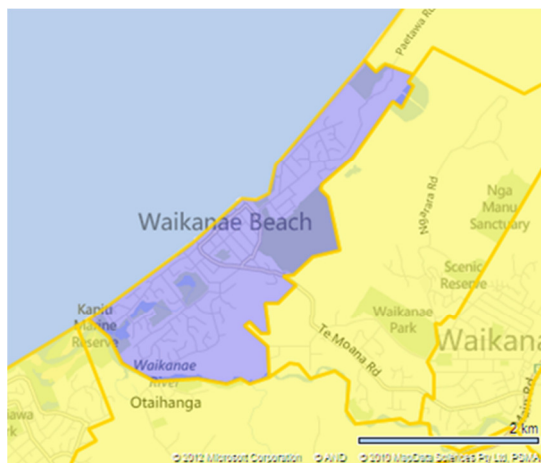
The total population of Group one is 10,959, which is 23.7 percent of the population of the Kapiti Coast District and 2.4 percent of the Greater Wellington Region. The 2006 Census estimates that this first group will have grown by 7.5 percent to a population of 11,780 by 2010, and by 2031 it is estimated that there will have been a 49 percent increase (since the 2006 census) to a population of 16,300 residents. The total number of households in group one is 4,815 (Hulme-Moir, 2012), and the median household income of these households in group one is \$48,967.

The total population of Group two is 26,079, which is 56 percent of the population of the Kapiti Coast District and 5.7 percent of the Greater Wellington Region. The 2006 Census estimates that this first group will have grown by 7.7 percent to a population of 28,090 by 2010, and by 2031 it is estimated that there will have been a 26 percent increase (since the 2006 census) to a population of 32,890 residents. The total number of households in group two is 10,497 (Hulme-Moir, 2012), the median household income of these households in group one is \$52,657.

## Group One Census Area Units:

Waikanae Beach (AU: 563701)

Figure 10. The location of the Waikanae Beach Census Area Unit as displayed in purple



The Southern end of the Waikanae Beach Census Area Unit is mapped by the Waikanae River which becomes Waikanae Estuary Scientific Reserve before dispersing off the Kapiti coast. Waikanae Beach is also home to the Waikanae Golf course, located on Moana road.

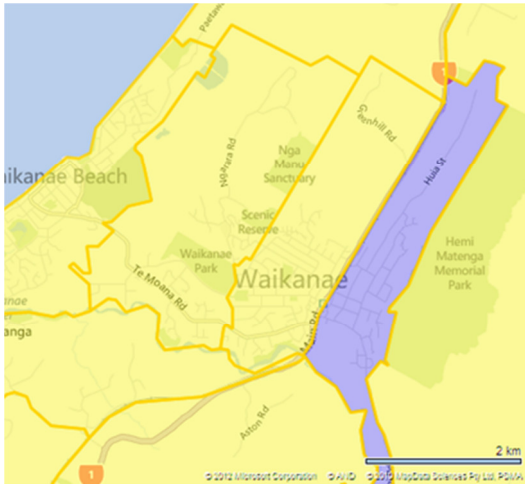
Waikanae Beach includes 6 percent (2,895) of the population of the Kapiti Coast District<sup>44</sup>. Those of European ethnicity make up 83 percent of this area, and those of Maori ethnicity total 8 percent. The median income of Waikanae Beach residents is \$24,500. With 43 percent earning under \$20,000 and 19 percent earning over \$50,000. Unemployment in the Waikanae Beach area is at 5 percent, the same as in the Kapiti Coast District and Wellington Region.

---

<sup>44</sup> Accessed on; 31<sup>st</sup> July, 2012. Retrieved from; <http://apps.nowhere.com.au/statsnz/maps/default.aspx>. Applies to; All Area unit maps, from page 10 to page 17.

### Waikanae East (AU: 563703)

Figure 11. The location of the Waikanae East Census Area Unit as displayed in purple



The eastern border of the Waikanae East domain is tracked by the Hemi Matenga Memorial Park, with the western border line being drawn along the current state highway. Located within the Census Area Unit is Waikanae memorial hall on Pehi Kupa Street.

Waikanae East includes 4 percent (1,986) of the population of the Kapiti Coast Region. Those of European ethnicity make up 83 percent of this area, and those of Maori ethnicity total 6 percent. The median income of Waikanae East residents is \$24,100. With 43 percent earning under \$20,000 and 19 percent earning over \$50,000. Unemployment in the Waikanae East area in 2006 was 4.2 percent.

### Peka Peka (AU: 563704)

Figure 12. The location of the Peka Peka Census Area Unit as displayed in purple

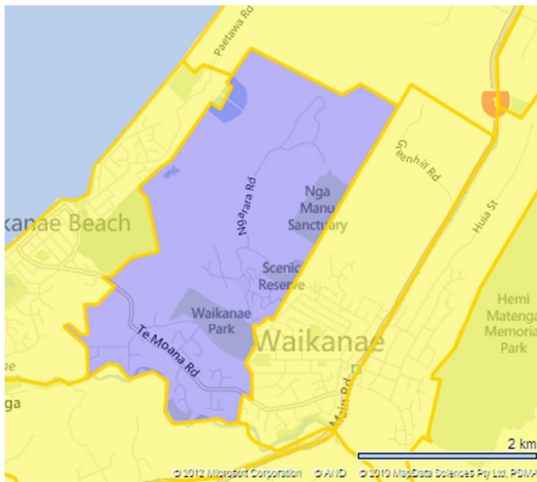


The current state highway runs through the Peka Peka Census Area Unit, which is also home to the **popular** Peka Peka beach.

Peka Peka includes 0.5 percent (252) of the population of the Kapiti Coast Region. Those of European ethnicity make up 83 percent of this area, and those of Maori ethnicity total 6 percent. The median income of Peka Peka residents is \$28,300. With 39 percent earning under \$20,000 and 25 percent earning over \$50,000. Unemployment in the Peka Peka area is at 2 percent.

### Waikanae Park (563705)

Figure 13. The location of the Waikanae Park Census Area Unit as displayed in purple

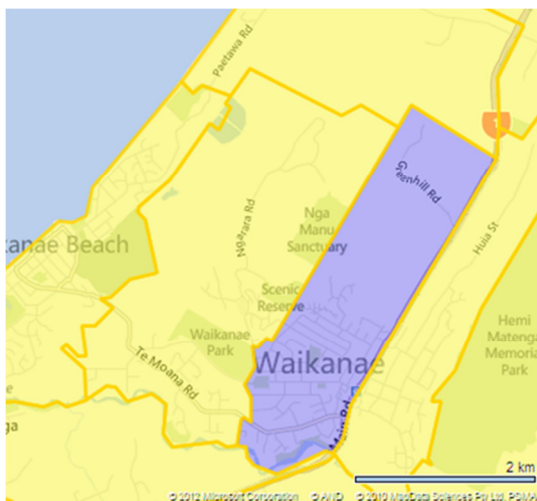


The Waikanae Park Census Area Unit is located between Waikanae Beach and Waikanae West, with the southern end following the Waikanae River. Located within this Census Area Unit is Waikanae cemetery on Ngarara road, and Waikanae Park which runs the length of Park Avenue.

Waikanae Park includes 4 percent (1,899) of the population of the Kapiti Coast Region. Those of European ethnicity make up 84 percent of this area, and those of Maori ethnicity total 4 percent. The median income of Waikanae Park residents is \$24,000. With 41 percent earning under \$20,000 and 18 percent earning over \$50,000. Unemployment in the Waikanae Park area in 2006 was at 2.8 percent.

### Waikanae West (563706)

Figure 14. The location of the Waikanae West Census Area Unit as displayed in purple

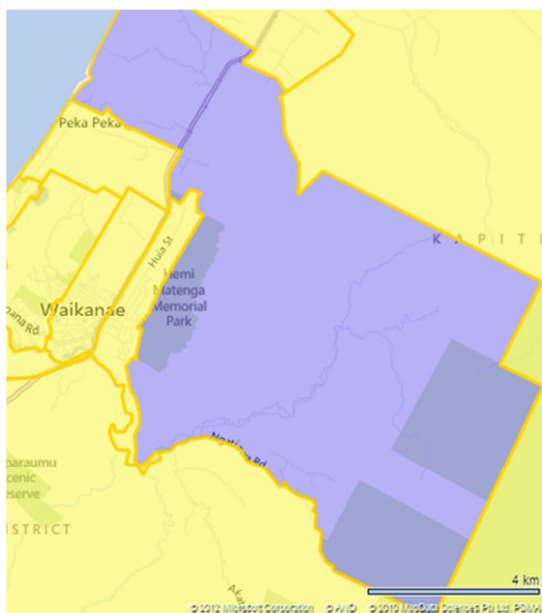


The eastern border of the Waikanae West Census Area Unit is mapped by the current state highway and the southern end, by the Waikanae River. Located within this area is the Waikanae library on Mahara place. Also within this Census Area Unit are a number of large outlet stores and shops, Waikanae New World supermarket and Waikanae Mitre 10 to name a few.

Waikanae West includes 7.5 percent (3,453) of the population of the Kapiti Coast Region. Those of European ethnicity make up 83 percent of this area, and those of Maori ethnicity total 6 percent. The median income of Waikanae West residents is \$20,500. With 49 percent earning under \$20,000 and 14 percent earning over \$50,000. Unemployment in the Waikanae Park area at 2006 was 4.5 percent.

### Kaitawa (563920)

Figure 15. The location of the Kaitawa Census Area Unit as displayed in purple



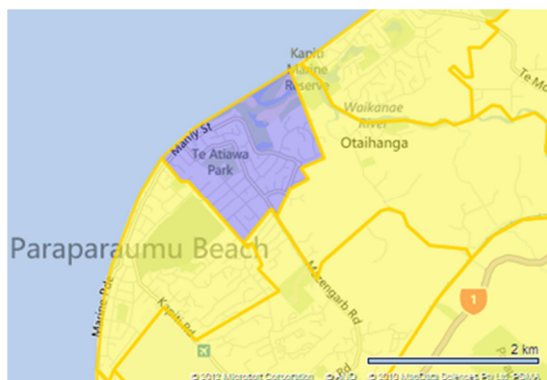
Kaitawa is the northernmost Census Area Unit of the 13 Census Area Units, which includes within it Hemi Matenga memorial park and is known to be a more rural area.

Kaitawa includes 1 percent (474) of the population of the Kapiti Coast Region. Those of European ethnicity make up 75 percent of this area, and those of Maori ethnicity total 2 percent. The median income of Kaitawa residents is \$32,700. With 35 percent earning under \$20,000 and 33 percent earning over \$50,000. Unemployment in the Kaitawa area in 2006 was 1 percent.

## Group Two Census Area Units:

### Paraparaumu Beach North (565901)

Figure 16. The location of the Paraparaumu Beach North Census Area Unit as displayed in purple

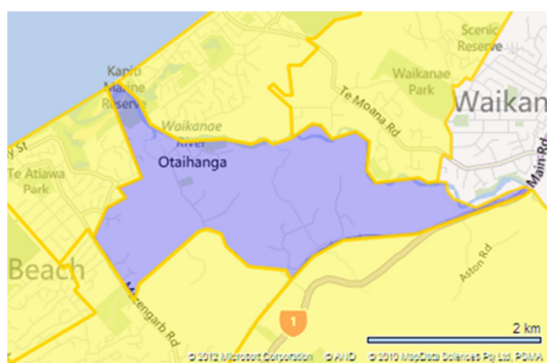


At the northernmost point of the Paraparaumu Beach North Census Area Unit is the Waikanae Estuary Scientific Reserve. Located within this Census Area Unit is Te Atiawa park, which is used by a variety of sporting disciplines (junior rugby, cricket, softball, BMX, netball, tennis and for recreation), and is located on Percival road.

Paraparaumu Beach North includes 7 percent (3,255) of the population of the Kapiti Coast Region. Those of European ethnicity make up 82 percent of this area, and those of Maori ethnicity total 11 percent. The median income of Paraparaumu Beach North residents is \$22,800. With 45 percent earning under \$20,000 and 17 percent earning over \$50,000. Unemployment in the Paraparaumu Beach North area in 2006 was 5.7 percent.

### Otaihanga (565902)

Figure 17. The location of the Otaihanga Census Area Unit as displayed in purple



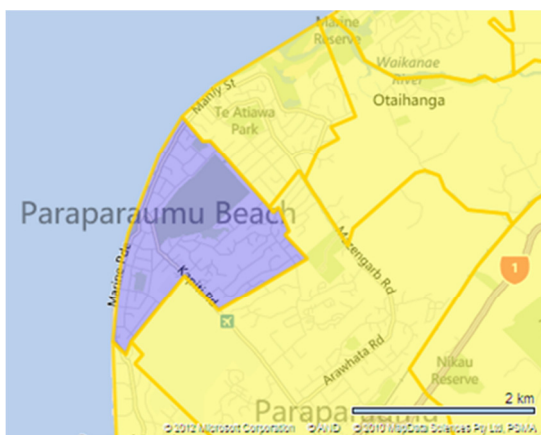
Otaihanga's northern border is mapped by the Waikanae River, and covers an assorted area from the current state highway to the Kapiti coast.

Otaihanga includes 2.5 percent (1,110) of the population of the Kapiti Coast Region. Those of European ethnicity make up 81 percent of this area, and those of Maori ethnicity total 8 percent. The median income of Otaihanga residents is \$30,100. With 35 percent earning under \$20,000 and 26 percent earning over \$50,000. Unemployment in the Otaihanga area in 2006 was 2.9 percent.



### Paraparaumu Beach South (565903)

Figure 18. The location of the Paraparaumu Beach South Census Area Unit as displayed in purple

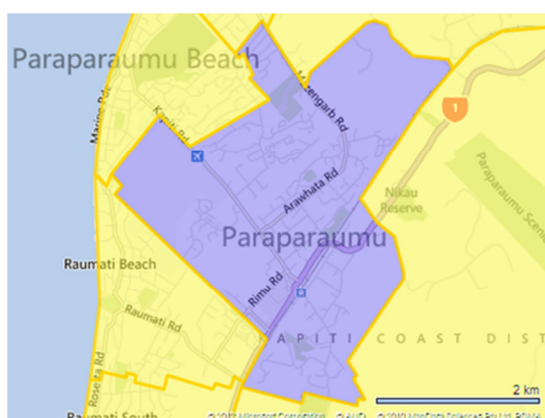


Within the Paraparaumu Beach South Census Area Unit is the Paraparaumu beach cemetery on Kapiti road, the Paraparaumu Golf course located on Golf road. Also located in this Census Area Unit is Maclean Park, which includes a playground, boat ramp, Skate Park and various family amenities. The park is a central area for the Paraparaumu Beach community and is located on Marine parade opposite a small village of shops and eateries.

Paraparaumu Beach South includes 10 percent (4,677) of the population of the Kapiti Coast Region. Those of European ethnicity make up 83 percent of this area, and those of Maori ethnicity total 8 percent. The median income of Paraparaumu Beach South residents is \$23,500. With 44 percent earning under \$20,000 and 19 percent earning over \$50,000. Unemployment in the Paraparaumu Beach South area in 2006 was 4.5 percent.

### Paraparaumu Central (566000)

Figure 19. The location of the Paraparaumu Central Census Area Unit as displayed in purple



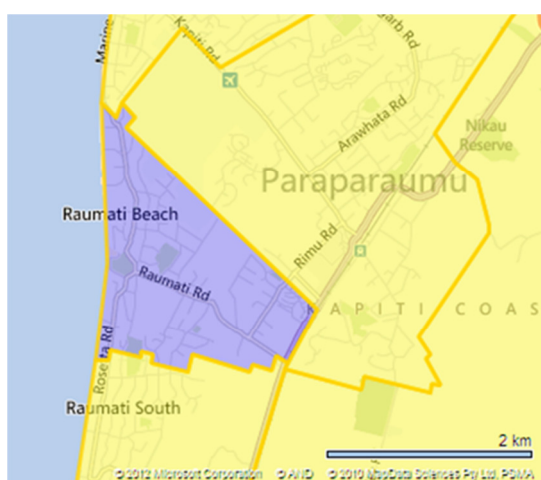
The Paraparaumu Central Census Area Unit is one of the larger busier area units within this community, with the current state highway running through and along the east side of the area unit. The Paraparaumu airport is located within this Census Area Unit on Kapiti road, the Paraparaumu memorial hall is also situated in this area on Aorangi Street, and the Paraparaumu library is located on Iver Trask place. The main shopping center within the 13 Census Area Units is also located in

Paraparaumu Central; Coastlands shopping centre which can be found just off Main road and is host to a number of large shopping outlet stores.

Paraparaumu Central includes 18 percent (8,205) of the population of the Kapiti Coast Region. Those of European ethnicity make up 80 percent of this area, and those of Maori ethnicity total 13 percent. The median income of Paraparaumu Central residents is \$20,600. With 49 percent earning under \$20,000 and 14 percent earning over \$50,000. Unemployment in the Paraparaumu Central area in 2006 was 5.7 percent.

### **Raumati Beach (566101)**

**Figure 20. The location of the Raumati Beach Census Area Unit as displayed in purple**

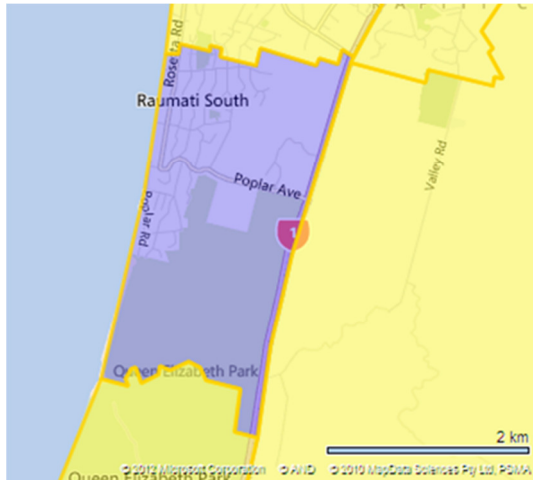


Located within the Raumati Beach Census Area Unit is Raumati pool and the Raumati Marine Gardens, both located on Matatua road. Currently Raumati pool is the only pool in the 13 Census Area Units and therefore a central location in regards to water recreation. Raumati Beach shopping village is also in this Census Area Unit along with Kapiti College, one of two high schools within the relevant community.

Raumati Beach includes 10 percent (4,470) of the population of the Kapiti Coast Region. Those of European ethnicity make up 83 percent of this area, and those of Maori ethnicity total 9 percent. The median income of Raumati Beach residents is \$23,500. With 44 percent earning under \$20,000 and 19 percent earning over \$50,000. Unemployment in the Raumati Beach area in 2006 was 3.8 percent.

### Raumati South (566102)

Figure 21. The location of the Raumati South Census Area Unit as displayed in purple

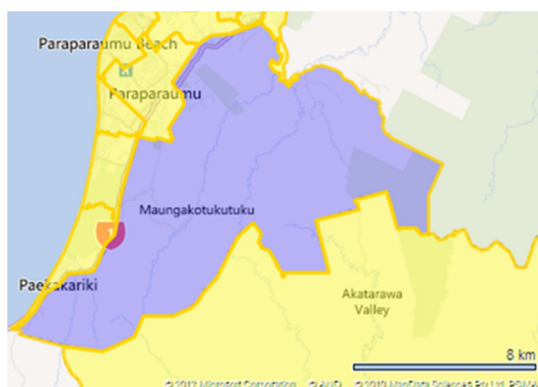


The Raumati South Census Area Unit is the southernmost urban area within this community, with its eastern border running along the current state highway and the western border with the Kapiti coast. Raumati South memorial hall is located within this area unit on Tennis Court road, along with Matthews Park which is located on Menin road.

Raumati South includes 8 percent (3,546) of the population of the Kapiti Coast Region. Those of European ethnicity make up 82 percent of this area, and those of Maori ethnicity total 10 percent. The median income of Raumati South residents is \$28,600. With 37 percent earning under \$20,000 and 24 percent earning over \$50,000. Unemployment in the Raumati South area in 2006 was 5.3 percent.

### Maungakotukutu (566302)

Figure 22. The location of the Maungakotukutu Census Area Unit as displayed in purple



This is the largest land area of the 13 Census Area Units with a predominantly rural landscape. Much of the western border of the Maungakotukutu Census Area Unit runs along the current state highway, with some of the northern border being mapped by Waikanae River. Located within Maungakotukutu is Kapiti Golf course and the Awa Tapu cemetery both on Valley road. Whareroa Farm which is used for hiking, mountain biking, horse riding and recreation is located off the state highway on Emerald Glen road can also be found within this area unit.

Maungakotukutu includes 2 percent (816) of the population of the Kapiti Coast Region. Those of European ethnicity make up 77 percent of this area, and those of Maori ethnicity total 6 percent. The median income of Maungakotukutu residents is \$31,900. With 39 percent earning under \$20,000 and 24 percent earning over \$50,000. Unemployment in the Maungakotukutu area in 2006 was 1.9 percent.

## Appendix 3 – Neighbourhood case study household questionnaire

### *Interviewer instructions:*

- I. I am going to read out a list of places that people go. Can you tell me if you have been to each place in the last month, either for you or to take someone else?


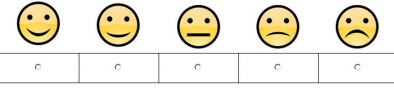
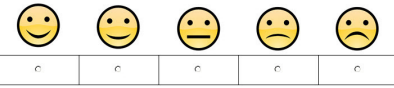
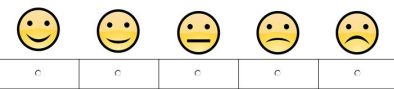
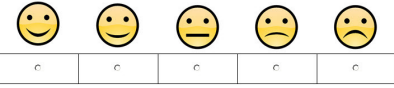
*Read out the places and tick in the first column if answer is yes.*

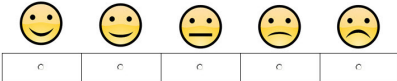



- II. Now I have some questions about how often you go to each place. Show card 1 – on average would you have gone to xxxx (insert each place ticked) every day, 3-5 times a week, 1-2 times a week, about once a fortnight, about once a month, less than once a month?
- III. We would also like to know how you usually get to each place. Show card 2 – How do you usually get to xxxx? (insert each place ticked)

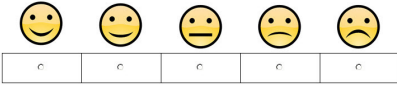
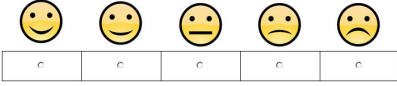
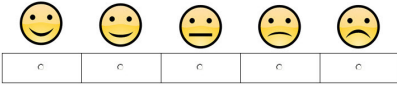
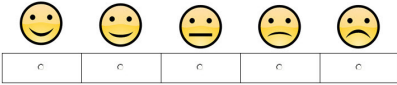
Car (driver)	C
Car (passenger)	CP
Motorbike/motorscooter	M
Public transport (bus, train, ferry)	PT
Bicycle	B
Scooter/skateboard	S
Walk	W
Walk (with a baby buggy/pushchair)	WB
Mobility scooter/wheelchair	MS
Other	O

- IV. Lastly can you tell me how stressful the journey to xxx is? (insert each place ticked)

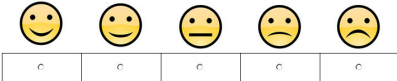


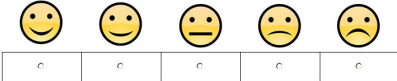
Show card 3.

Place	 Put a tick in this box if the respondent has been to this place in the last month	For those places ticked - how often did the respondent go there (on average over the last month)						Put a circle around the way the respondent usually got there	Indicate how stressful the respondent found the journey by ticking the appropriate face.
		Every day	3-5 times a week (12+ times a month)	1-2 times a week (4-11 times a month)	About once a fortnight (2-3 times a month)	About once a month	Less than once a month		 CSF MSF SS S VS
Work							C, CP, M, PT, B, S, W, WB, MS, O	 CSF MSF SS S VS	
School, polytech, university of other place you are studying							C, CP, M, PT, B, S, W, WB, MS, O	 CSF MSF SS S VS	
Relative or friend's house							C, CP, M, PT, B, S, W, WB, MS, O	 CSF MSF SS S VS	

Doctors, pharmacy, hospital or other health professional(e.g. physio, dentist)								C, CP, M, PT, B, S, W, WB, MS, O	 CSF MSF SS S VS
Post office/bank/Work and Income or other government department								C, CP, M, PT, B, S, W, WB, MS, O	 CSF MSF SS S VS
Place you have travelled to hang out, relax or socialise e.g. café, movie theatre, bar, restaurant, community event								C, CP, M, PT, B, S, W, WB, MS, O	 CSF MSF SS S VS
A place for sport, exercise or active play (for example bowls, cricket, gym, the pool, park, playground)								C, CP, M, PT, B, S, W, WB, MS, O	 CSF MSF SS S VS

Library								C, CP, M, PT, B, S, W, WB, MS, O	
Other recreational and cultural facilities e.g. zoo, museum, aquarium									
Supermarket (where you do your main grocery shopping)								C, CP, M, PT, B, S, W, WB, MS, O	
Market (e.g., fruit and veges), butchers, bakery (where you do other food shopping)								C, CP, M, PT, B, S, W, WB, MS, O	
The shops (all other shopping except for groceries/food and drink)								C, CP, M, PT, B, S, W, WB, MS, O	



School, pre-school, play group or other early childhood centre (with your child/grandchild)								C, CP, M, PT, B, S, W, WB, MS, O	
Church								C, CP, M, PT, B, S, W, WB, MS, O	
Other (please tell us where) _____								C, CP, M, PT, B, S, W, WB, MS, O	
Other (please tell us where) _____								C, CP, M, PT, B, S, W, WB, MS, O	

*Interviewer instructions:*

- V. We are interested in how social peoples' journeys to get places are. Social interaction covers everything from sharing a car trip to chatting with a stranger on the bus or waving to someone you know while walking.

*For each place the respondent has been please ask the following question:*

- VI. I would like you to think about your journey to xxxx (insert each place ticked). You said you usually travelled by yyyy (insert mode). How social is this journey?

*Show card 5*

*(VS) Very social – I travel with people I know (and/or meet new people) and have a high level of social interaction*

*(S) Social – I travel with people I know (and/or meet new people) and have a some social interaction with them*

*(BS) A bit social – While I am travelling I see people I recognise or know and I might wave to them or acknowledge them but we usually don't chat*

*(NS) Not social - While I am travelling I don't see people I know or recognise, or meet new people*

- VII. Now I have a few more questions about the places you've been in the last month. We are interested in which **places** are important to people for interacting socially. Social interaction covers everything from spending quality time with friends to chatting with a shopkeeper or waving to someone you know in the supermarket.

*For each place the respondent has been please ask the following question:*

- VIII. How social is the time you spend at xxx (insert each place ticked)?

*Show card 4*

*(VS) Very social – I see people I know (and/or meet new people) and have a high level of social interaction*

*(S) Social – I see people I know (and/or meet new people) and have some social interaction with them*

*(BS) A bit social – I see people I recognise or know and I might wave to them or acknowledge them but we usually don't chat*

*(NS) Not social – I don't see people I know or recognise or meet new people*

- IX. Now I'm going to ask you about how socially important each place is to you.

*For each place the respondent has been please ask the following question:*

Thinking about xxxxx and the journey to get there, overall how socially important is that place to you? (Show card 6)

*(VI) Very important;*

*(I) Important;*

*(NVI) Not very important; or*

*(NIA) not important at all*

- X. Now one last question about the places you have been in the last month. Can you tell me which area each one was in?

Is xxx (insert each place ticked) in Area 1, 2 or 3

*Show card 7*

Area 1 = study area

Area 2 = wider Kapiti Coast area

Area 3 = Greater Wellington Region

Place	✓ Ask questions only for places ticked															
		a) How social is the time you spend at xxx (insert each place ticked)?				b) I would like you to think about your journey to xxxx (insert each place ticked). You said you usually travelled by yyyy (insert mode). How social is this journey?				c) Thinking about xxxxx and the journey to get there, overall how socially important is that place to you?				d) Is xxx (insert each place ticked) in Area 1, 2 or 3		
Work		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
School, polytech, university of other place you are studying		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
Relative or friend's house		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
Doctors, pharmacy, hospital or other health professional		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
Post office/bank/work and income		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
Park or other place (e.g. a café) you have travelled to hang out, relax or		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3

exercise																
Supermarket/four square (where you do your main grocery shopping)		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
Market (e.g., fruit and veges), butchers, bakery (where you do other food shopping)		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
Library		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
A place to play sport or exercise (for example bowls, cricket, gym, the pool)		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
The shops (all other shopping except for groceries/food and drink)		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
School, pre-school, play group or other early childhood centre (with your child)		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3
Church		VS	S	BS	NS	VS	S	BS	NS	VI	I	NVI	NIA	1	2	3

Other (please tell us where) -----		VS S BS NS	VS S BS NS	VI I NVI NIA	1 2 3
Other (please tell us where) -----		VS S BS NS	VS S BS NS	VI I NVI NIA	1 2 3

# Usage and perception of transport modes

Now I'm going to ask you about getting around in your local area. By 'local area' I mean the area shown in this map (Show card 7: area 1).

## Walking

First, let's talk about walking.

- I. How often do you walk in your local area, (either for transport or leisure)? (Show card 8)  
a) every day b) 3-5 times a week c) once or twice a week d) about once a fortnight e) about once a month f) less than once a month e) never
- II. How "hassle free" is getting around your local area by walking?  
a) good b) bad c) somewhere in between
- III. When walking in your local area, do you ever experience delays or problems safely crossing roads?  
a) Yes, often b) occasionally c) rarely d) never d) N/A, don't know

If yes, which of these problems have you experienced (*tick all that apply*) (show card 9)

- I have to go out of my way to cross at a safe place
  - I have to wait a long time until there is a safe gap in the traffic at my desired crossing point
  - At signalised crossings, I have to wait too long for the 'green man'
  - At signalised crossings, the signals don't give me enough time to cross before turning red
  - Drivers don't always give way to pedestrians when they're supposed to (e.g. at pedestrian crossings)
  - High kerbs make it hard to cross where I want to.
- IV. Thinking about safety from accidents, how safe are walkers in your local area?  
a) Safe b) unsafe c) somewhere in between
  - V. Thinking about safety from crime, how safe are walkers are in your local area?  
a) Safe b) unsafe c) somewhere in between
  - VI. Which of the following (if any) are significant hassles for walkers in your area? *Tick all that are perceived as a significant hassle(show card 10)*
    - N/A (never walk, so have no impression)
    - Lack of footpaths
    - Cars parked on footpaths
    - Lack of pedestrian crossings
    - Speeding traffic
    - Busy roads - too many vehicles
    - Drivers who are inconsiderate or do not follow road rules
    - People riding bikes or skateboards on the footpath
    - Unattractive surroundings
    - Traffic noise/pollution

## Cycling

Now I'm going to ask you about getting around by bicycle

- I. How often do you cycle in your local area, (either for transport or leisure)? (show card 8)  
a) every day b) 3-5 times a week c) once or twice a week d) about once a fortnight e) about once a month f) less than once a month e) never
- II. How "hassle free" is getting around your local area by cycling?  
a) Good b) bad c) somewhere in between d) don't know
- III. Thinking about safety from accidents, how safe are cyclists in your local area?  
a) Safe b) unsafe c) somewhere in between d) don't know
- IV. Thinking about safety from crime, how safe are cyclists in your local area?  
a) Safe b) unsafe c) somewhere in between d) don't know
- V. Which of the following (if any) are significant hassles for cyclists in your local area? *Tick all that are a significant hassle*  
(Show card 11)
  - N/A – never cycle so have no impression
  - Lack of cycle paths or cycle lanes
  - Cars in cycle lanes
  - Speeding traffic
  - Busy roads – too many vehicles
  - Drivers who are inconsiderate, careless, or do not follow road rules
  - Narrow roads, traffic islands, 'pinch points'
  - Unattractive surroundings
  - Traffic noise/pollution

## Driving

Now let's talk about driving.

- I. How often do you get around by car (either as a driver or passenger)?  
a) every day b) 3-5 times a week c) once or twice a week d) about once a fortnight e) about once a month f) less than once a month e) never
- II. How "hassle free" is getting around your local area by car?  
a) Good b) bad c) somewhere in between
- III. How safe do you feel when using a car?  
a) Safe b) unsafe c) somewhere in between
- IV. Which of the following are significant hassles for motorists in your local area (if any). *Tick all those that are significant hassles*  
Showcard 12
  - N/A – never drive so have no impression
  - Traffic congestion
  - Speeding traffic
  - Drivers who are inconsiderate, careless, or do not follow road rules
  - Narrow roads, 'pinch points', and other road design issues



- Lack of parking, cost of parking
- Busy uncontrolled intersections
- Too many controlled intersections
- Cost of fuel

### **Public Transport**

*Now I'm going to ask you about public transport.*

- I. How often do you use public transport (e.g. bus or train)
  - a) every day b) 3-5 times a week c) once or twice a week d) about once a fortnight e) about once a month f) less than once a month e) never
  
- II. How "hassle free" is getting around by public transport?
  - a) Good b) bad c) somewhere in between d) don't know
  
- III. How safe are people when using public transport (e.g. buses, trains)?
  - a) Safe b) unsafe c) somewhere in between d) don't know
  
- IV. Which of the following are significant hassles with using public transport? *Tick all those that are significant hassles*  
 Show card 13

- N/A – never use public transport so no impression
- Infrequent service
- Limited routes – does not reach places people want to go
- Buses/trains not running on time
- Distance to bus stop/station
- Cost
- Unsheltered bus stops
- Slow because of congestion

## Other modes

I. Thinking about the last few months, how often have you used the following modes of transport?

	Every day	3-5 times a week	Once or twice a week	About once a fortnight	About once a month	Less than once a month	Never
Motorbike, motor-scooter							
Mobility scooter, wheelchair							
Skateboard, scooter							
Taxi, shuttle van							
Truck or other heavy vehicle							

## Severance impacts

- I. Thinking about your local area [Show card 7: Area 1] and considering all modes of transport, overall, how easy is it for people to get to the places they want to go?  
a) very easy    b) generally easy    c) somewhat difficult    d) difficult    e) don't know
- II. Thinking about the Greater Wellington region [Show card 7: Area 3] and considering all modes of transport, overall, how easy is it for people to get to the places they want to go?  
a) very easy    b) generally easy    c) somewhat difficult    d) difficult    e) don't know
- III. Again thinking about transport and travel in the Greater Wellington region [Show card 7: Area 3], do you ever feel cut off from the **people** that are important to you (e.g. friends, relatives)?  
a) yes, often    b) yes, sometimes    c) rarely    d) no    e) don't know
- IV. Again, thinking about transport and travel, do you ever feel cut off from **places or facilities** that are important to you (e.g. dairy, recreational facilities, supermarket, GP etc.)?  
a) yes, often    b) yes, sometimes    c) rarely    d) no    e) don't know

## Heavy traffic

I. We are interested to find out how you are affected by heavy traffic, including noise, fumes, congestion, problems crossing the road, safety concerns and unpleasant surroundings caused by heavy traffic. [Show card 14]

	Often	Sometimes	Never	N/A
a) Do you avoid travelling (or walking and cycling for leisure) at certain times of day				

because of heavy traffic?				
b) Do you go to a destination that is easier to get to, instead of your preferred one (e.g. go to a different shop, playgroup, school, GP etc.) because of heavy traffic?				
c) Do you take a longer route to avoid intersections that are unsafe or congested because of heavy traffic?				
d) Because of heavy traffic, do you go by car when you would prefer to walk or cycle?				
e) Because of heavy traffic, do you use public transport/walk/cycle when you would prefer to drive?				
f) Do you put off a trip, or ask someone else to go on your behalf because of heavy traffic?				
g) Do you go with someone else, or ask someone else to take you because of heavy traffic?				

II. Are there trips you are prevented from making or choose not to make, due to heavy traffic? [*show card 14*] That is, places/events/facilities/people that you would like to visit, but don't.

- a) Yes, often    b) Yes, but only occasionally    c)no    d) N/A, don't know

If yes, which places?\_\_\_\_\_

III. Are there places you would go more often if it was easier to get there?

- a) yes, definitely    b) yes, possibly    c) no    d)don't know.

If yes, which places?\_\_\_\_\_

## Global neighbourhood questions

Now I have some questions about your neighbourhood.

I. Please say which best describes the street you live on:

Is your street	Quiet	Noisy	Or somewhere in between?
Is your street	Safe	Dangerous	Or somewhere in between?

Is your street	Friendly	Unfriendly	Or somewhere in between?
Is your street	Attractive	Unattractive	Or somewhere in between?
Is the air in your street	Clean	Polluted	Or somewhere in between?

## Social contact

The following statements ask about your social interactions with people. The first couple of questions are about contact with people in your neighbourhood. By 'neighbourhood' we mean the streets around your home – please see the map (show card ??).

**I. Which of the following statements best describes how many people you know in your neighbourhood? (show card 15)**

*I know a lot of people in my neighbourhood*

*I know some people in my neighbourhood*

*I know a couple of people in my neighbourhood*

*I don't really know anyone in my neighbourhood*

**II. How often do you have face-to-face contact with people in your neighbourhood? (show card 8)**

*Daily*

*Weekly (1-3 times a week)*

*Monthly (2-3 times a month)*

*Hardly ever (2-3 times a year)*

**III. Is there anyone in your neighbourhood you could ask to do small favours?**

*[Showcard ? lists some examples of help that people may give to others. Thinking about people you know who don't live with you, is there anyone you could ask for help with these kinds of things? – look after pets or water your garden while away from home; collect mail or check your house while away from home; mind a child for a brief period; help with moving or lifting objects; help out when you are sick with the flu or injured with a sprained ankle]*

*Yes*

*No*

*Don't know*

*Refused*

The following questions are about face-to-face contact with people outside your neighbourhood. This includes face-to-face contact with people in your suburb, town and further afield.

**IV. Which of the following statements best describes how many people you know outside your neighbourhood? (show card 15)**

*I know a lot of people outside of my neighbourhood*  
*I know some people outside of my neighbourhood*  
*I know a couple of people outside of my neighbourhood*  
*I don't really know anyone outside of my neighbourhood*

**V. In the last four weeks, how often have you had face-to-face contact with people outside your neighbourhood? (show card 8)**

*Every day*  
*3-5 times a week*  
*1-2 times a week*  
*About once a fortnight*  
*About once a month*  
*Less than once a month*  
*Don't know*  
*Refused*

**VI. Is there anyone outside your neighbourhood you could ask to do small favours?**

*[Showcard ? lists some examples of help that people may give to others. Thinking about people you know who don't live with you, is there anyone you could ask for help with these kinds of things? – look after pets or water your garden while away from home; collect mail or check your house while away from home; mind a child for a brief period; help with moving or lifting objects; help out when you are sick with the flu or injured with a sprained ankle].*

*Yes*  
*No*  
*Don't know*  
*Refused*

The last questions in this section focus on face-to-face contact with people overall. This includes face-to-face contact inside and outside your neighbourhood.

**VII. Think about all of the face-to-face contact you have with people (inside and outside your neighbourhood). Would you say you have:(show card 9)**

*Too much contact with them*  
*About the right amount of contact with them*  
*Not enough contact with them*  
*Don't know*  
*Refused*

VIII. Some people say they feel isolated from the people around them while others say they don't. They might feel isolated even though they see family or friends every day.

Looking at showcard ??, in the last four weeks, how often have you felt isolated from others?

*Every day*

*3-5 times a week*

*1-2 times a week*

*About once a fortnight*

*About once a month*

*Less than once a month*

*None of the time*

IX. *What social groups/networks do you belong to within your neighbourhood and where are they located? (show card 11)*

Groups/networks	Tick if part of one of these groups/networks (show card ?)	Is this group/network in your neighbourhood, the study area, the Kapiti Coast Region or Greater Wellington Region? (showcard ?)  N SA KCR GWR
<i>Pre-school children's groups/networks e.g. Playcentre, Kindergarten, play groups</i>		
<i>School age children's group</i>		
<i>Church/spiritual group/network</i>		
<i>Hobby or interest group/network</i>		
<i>Community or voluntary group/network</i>		
<i>Sports or exercise group/network</i>		

<i>Ethnic or cultural group/network</i>		
<i>Other:</i> -----		
<i>No group/network at all</i>		

## Use of street as a social space

- I. Are you ever bothered by traffic noise, fumes or traffic safety concerns on your street? Yes/No
- II. We are interested in how traffic affects people's lives. Do you do any of the following because of traffic noise, fumes or traffic safety concerns?

	Yes	No	N/A
• Go out on the street less often			
• Avoid spending time in my front yard			
• Avoid walking my dog in the neighbourhood			
• Forbid children (aged 12 or under) to play in the street			
• Drive children (aged 12 or under) to school			
• Accompany children (aged 12 or under) to school on foot or by bike			

## Impact of traffic noise

Which, if any, of the following things have occurred recently (say the last two weeks), while inside your house:

	Often	Sometimes	Never	N/A
a) Have you had difficulty talking on the telephone due to traffic noise?				
b) Have you delayed doing something (e.g. gardening or entertaining) because of noise from the traffic?				
c) Have you had difficulty getting to sleep due to traffic noise?				
d) Have you raised your voice to be heard above the traffic noise?				

## Retrospective question (post only, and only those resident since baseline)

- I. Were you living at this address in [June 2013 – date of first survey]? Yes/No
- II. Overall, thinking about travel and lifestyle, how has the new expressway affected your household? Has the impact been:  
  
a)very positive b)slightly positive c)neutral d)slightly negative e)very negative f)don't know
- III. Thinking about your local area (Show card 7, area 1): since the expressway opened, has getting about WITHIN your local area become easier/more difficult/no change?
- IV. Since the expressway opened, has getting to and from places OUTSIDE your local area become easier/more difficult/no change?
- V. Has the expressway made your street a more pleasant place to live?/a less pleasant place to live/ or no change?

## Demographic information

- I. Male/female
- II. Which age group are you in?  
a)18-24      b)25-40      c)41-64      d)65-74      e)75+
- III. Which ethnic group (or groups) do you identify with? (tick all that apply)  
  
New Zealand European  
Maori  
Samoan  
Cook Island Maori  
Tongan  
Niuean  
Chinese  
Indian  
Other: \_\_\_\_\_
- IV. What is your employment status? Are you a) employed full time, b) employed part time c) unemployed, d)not in the labour force?
- V. Do you have any disability or handicap that is long term (lasting six months or more)? Yes/No
- VI. How long have you lived at this address? (in years) \_\_\_\_\_
- VII. If less than 5 years, what was your previous address?\_\_\_\_\_

Do you, or anyone else who lives here, own this home (with or without a mortgage)? Yes/no



- VIII. Which of the following best describes your household?
- Single person household
  - Sole caregiver with child(ren)
  - Couple with child(ren)
  - Couple without children
  - Flatmates
  - Extended family
- IX. a) How many adults (aged 18 or over) live in this household? \_\_\_\_\_
- b) How many children or young people (aged under 18) live in this household?\_\_\_\_\_. What are their ages?\_\_\_\_\_
- X. Thinking about your total annual household income, which band does your household come under?
- a) \$30,000 or less b) \$30,001-50,000 c) 50,001-70,000 d) \$70,001-\$100,000 d) \$100,001 or more e) decline to answer
- XI. What is your full name please? \_\_\_\_\_
- XII. Household travel resources :
- How many bicycles in working order are kept at this household (include children's bicycles, but not tricycles)? \_\_\_\_\_
  - How many mobility scooters in working order are kept at this household? (Number of mobility scooters)\_\_\_\_\_
  - How many vehicles (cars, trucks, vans, motor scooters and motorbikes) in working order, are parked here overnight (whether private or company owned)? \_\_\_\_\_
  - How often is lack of access to a car a problem for you?
- Never only on rare occasions once a week or more every day

# Appendix 4 – Facility case study questionnaires

## Facility case study managers questionnaire

1. What is the name of this facility?

-----

2. What service(s) does this facility offer?

-----

-----

-----

-----

3. What are its opening hours?

-----

4. How long has this facility been operating (pre-questionnaire only)?

-----

5. How many people are on your roll / membership? (overall roll)

-----

6. How many people accessed your facility in the last month?

-----

7. What is the demographic breakdown of this facility's users?

**Sex:**

Number of males: \_\_\_\_\_ Number of females: \_\_\_\_\_

**Age:**

Please provide the number of users in each age group below.

16-24yrs \_\_\_\_\_

25-40yrs \_\_\_\_\_

41-64yrs \_\_\_\_\_

65-74yrs \_\_\_\_\_

75+ yrs \_\_\_\_\_

**Ethnicity:**

Please provide the number of users for each ethnic group below.

New Zealand European -----

Maori -----

Samoan -----

Cook Island Maori -----

Tongan -----

Niuean -----

Chinese -----

Indian -----

Other: -----

# Facility Users Questionnaire – Facility Case Study

1. **Please tick the single main way you travelled here today**
  - Car driver
  - Car passenger
  - Bike
  - Bus/train
  - Scooter/skateboard
  - Mobility scooter/wheelchair
  - Motorbike
  - Walked
  - Walked with buggy
  - Taxi/shuttle
  - Don't know
  - Refused
  
2. **Thinking about all the ways you could have travelled here today, what is your preferred way of travelling here? (please tick one option)**
  - Car driver
  - Car passenger
  - Bike
  - Bus/train
  - Scooter/skateboard
  - Mobility scooter/wheelchair
  - Motorbike
  - Walk
  - Walk with buggy
  - Taxi/shuttle
  - Don't know
  - Refused
  
3. **What, if anything, stopped you using your preferred way (mode) today?**
  - Safety concerns
  - Noise and pollution
  - Traffic congestion/heavy traffic
  - Difficulty crossing main roads
  - Lack of appropriate walkway or cycleway
  - Difficulty finding a car park
  - Nothing stopped me, I will always use my preferred mode
  - Other: \_\_\_\_\_
  - Don't know
  - Refused
  
4. **How easy/hassle-free was it for you to travel here today?**
  - Very difficult
  - Difficult
  - Neither difficult or easy
  - Easy
  - Very easy
  - Don't know
  - Refused

5. **Generally, how easy/hassle-free do you think it is for:**

- **Cyclists to travel here?**

- Very difficult
- Difficult
- Neither difficult or easy
- Easy
- Very easy
- Don't know
- Refused

- **Car drivers to travel here?**

- Very difficult
- Difficult
- Neither difficult or easy
- Easy
- Very easy
- Don't know
- Refused

- **People using public transport to travel here?**

- Very difficult
- Difficult
- Neither difficult or easy
- Easy
- Very easy
- Don't know
- Refused

- **People walking to travel here?**

- Very difficult
- Difficult
- Neither difficult or easy
- Easy
- Very easy
- Don't know
- Refused

6. **How social is your journey to this facility?**

- Very social – I travel with people I know (and/or meet new people) and have a high level of social interaction
- Social – I travel with people I know (and/or meet new people) and have some social interaction with them
- A bit social – While I am travelling I see people I recognise or know and I might wave to them or acknowledge them but we don't usually chat
- Not social – While I am travelling I don't see people I know or recognise or meet new people
- Don't know
- Refused

Using the street address of the start point of your journey here today, we will calculate how long it took you to travel here and the distance you travelled.

7. **Please write down the street address you started your journey from today e.g. 10 Thames Crescent**

- 
- Don't know
  - Refused

8. **Did you travel on State Highway 1 to get here today? (please circle one option)**

- Yes
- No
- Don't know
- Refused

9. **How often do you travel here?**

- Every day
- 3-5 times a week
- 1-2 times a week
- Once a fortnight
- Once a month
- Less than once a month
- Don't know
- Refused

10. **Please tick your sex**

- Male
- Female

11. **Please tick your age bracket**

- 12-24yrs
- 25-40yrs
- 41-64yrs
- 65-74yrs
- 75+ yrs
- Don't know
- Refused

12. **Please tick all ethnic groups you identify with**

- New Zealand European
- Maori
- Samoan
- Cook Island Maori
- Tongan
- Niuean
- Chinese
- Indian
- Other
- Don't know
- Refused