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Transport, participation and wellbeing: Evidence and recommendations

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Transport, Participation and Wellbeing

Evidence and Recommendations

Report

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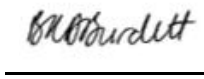

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1. Executive Summary

Government invests in transport and services for many economic and social reasons, but the links between access, mobility and wellbeing remain largely unexplored. Waikato Regional Council has an interest in transport and wellbeing because it governs regional land transport planning, and public transport planning and operations. The current work was commissioned to:

(i) Demonstrate links between policy, investment, participation and wellbeing, for investment in transport and other sectors; and

(ii) Define the people and communities of greatest need for improvements to their access and mobility, for whom investment would have the largest impact on improving wellbeing.

The methods combined review of literature; empirical data collection with a paper and web survey in the case study District of South Waikato; and focus groups, to uncover some of the complexities associated with access, mobility and wellbeing. Literature and local community data were combined to derive benefit/cost analyses for investment in community transport and walking.

The main findings of this work were that there are some very clear links between investment, participation, health and wellbeing. Overall, the literature, empirical evidence and focus group insights demonstrated that walking (and cycling) have net benefits to physical and mental health, because of their links with exercise: walking is the most widespread and accessible form of exercise for all people and the most common physical activity across all ages and ethnic groups in New Zealand. People who use public and community transport are also likely to accrue mental and physical health benefits through participation in healthy activities.

The most direct way to improve community wellbeing is to target investment for those who have most to gain. People of greatest need for support to improve their participation and wellbeing are characterised by living in a rural area; having no access to public or community transport; and/or identify with a disability. People who have barriers to access take fewer trips, or take longer or less convenient trips, with both immediate and long-term effects on their mental and physical health, and wellbeing.

Benefit/cost ratios of 13.5 for investment in walking and 4.5 for community transport demonstrate strong potential return on investment. The benefit/cost ratios are robust despite taking account of all of the costs, and very few of the likely benefits arising from investment. That is, the benefit/cost ratios are very conservative.

In conclusion, there is good potential to demonstrate the contribution of policy and investment in transport to wellbeing. Relatively small changes to funding and resourcing, to target support to people of greatest need, are likely to accrue benefits for individual and community wellbeing. The benefits of investment in walking and community transport are flexible and likely to be resilient to demographic and economic changes over time, because they are intrinsically flexible; responsive to local needs; and are direct determinants of good health that underpins community sustainability. The outcomes of this work should be shared across the government and transport sectors so that links to wellbeing can be more directly targeted, within and beyond Waikato Region.

2. Introduction

2.1 Report Purpose

Waikato Regional Council recognises that transport affects peoples' lives in ways that are not routinely measured. Goals in the Regional Land Transport Plan (RLTP) and Regional Public Transport Plan (RPTP) have focused on providing transport choices that support wellbeing, through a focus on people with 'transport disadvantage' in policy and transport provision. New approaches in the 2018 Government Policy Statement on Land Transport (GPS) provide more emphasis for access to social opportunities and transport choices than were evident in the previous GPS.

Therefore, based on regional political support, stakeholders from government, health, education, social, disability and community sectors have been working for the last few years on building a case for change in the way that regional government invests in transport. The current work seeks to build evidence to a point where investment can be targeted.

This work is governed by two separate policy streams. First, through general land transport policy, part of the evidence has come from a business case process under the RPTP objective of 'access and mobility'. The Strategic Case focused largely on rural transport choices and people of 'greatest need' of improved access.

The second policy driver of this investigation into transport and wellbeing is the current review of the RPTP. The Waikato Region is diverse, with rapid urban development in the main city of Hamilton and some satellite towns; static or declining rural centres with disparity in the number and nature of services such as health clinics and tertiary education options; and a widespread remote rural population with limited transport choices.

The overall purpose of this work is to provide evidence to target policy and investment in land transport (including public transport) that supports individual and community wellbeing. Policy and investment includes investment in people as well as infrastructure. One of the problems identified in the Access and Mobility Strategic Case was that "*A fragmented approach across organisations providing accessibility options increases the risk of inefficient spend and poorer outcomes."* Clearly, fragmentation exists between government sectors as well as between transport providers and local community groups who respond to the most urgent of local needs for participation. This work therefore aims to define mechanisms to strengthen connections across all levels of government, where improvements will lead to greater wellbeing for individuals and communities.

Evidence includes international literature and case studies that demonstrate generic, transferable links between policy, investment, participation (in all manner of activities), and health and wellbeing outcomes. Evidence also includes local, specific insights into who the people of greatest need are in our region; and what form of transport choices and service provision might improve their wellbeing.

As well as informing regional land and public transport policy, this work is intended to guide local decision-making so that ongoing investment (in transport and other infrastructure and services) can also be targeted to benefit people of greatest need. The rationale for local support is that ultimately, all communities have an intrinsic aim to be sustainable, healthy,

liveable places. Providing regional evidence for changes to investment at a local level can support local participation and wellbeing directly, for example through new tools to prioritise safe road crossings; and new forums for local professionals to discuss local issues so that local, flexible responses can be most effective.

2.2 Background: The Strategic Business Case

The project arose through regional mandate to investigate access and mobility in Waikato Region, as well as ongoing refining of public transport policy and investment. The RLTP, RPTP and GPS are currently in draft format, but support investment that improves access to social opportunities and to transport choices. This work is intended to inform policy at a regional level, and feed back to national decision-makers as rules and funding mechanisms are debated.

As well as public transport policy mandate to investigate gaps between investment and wellbeing, this work has been informed by a regional business case in access and mobility. The Strategic Case began with two Investment Logic Mapping workshops. The workshop attendees represented councils, road controlling authorities, and organisations with an interest in local or regional access and mobility. The stakeholders agreed the following problems were the most compelling in terms of access and mobility across the region:

Problem One: A potential lack of appropriate infrastructure for a changing population demographic in rural centres restricts the ability for people to access local services.

The way that people move around and participate in local services is affected by the extent and nature of infrastructure. This includes the extent of 'hard' infrastructure such as roads, road crossings, cycleways and footpaths. It includes public transport services and how they are connected to become a component of a door to door journey. Infrastructure includes virtual service provision such as high quality, high speed internet connections. It also includes the provision of services themselves in rural centres, such as whether or not there are local shops, schools, health services and opportunities for recreation.

Problem Two: Limited mobility choices for those in rural areas having to access services in the main urban centres means individuals and some service providers incur greater costs.

Provision of centralised services in urban areas for people who live rurally carries financial costs for individuals who partake of these services. When these costs are too high, individuals and communities accrue broader social costs due to missed opportunities for participation in education, employment and social activities. A consequence of these missed opportunities is increased health costs, which only increase as peoples' ability to participate reduces.

Problem Three: A fragmented approach across organisations providing accessibility options increases the risk of inefficient spend and poorer outcomes.

There is no sole organisation responsible for access and mobility within and between communities, at local, regional or national levels. Participation is important for service providers such as education institutes and hospitals, but these organisations do not usually monitor access and mobility in particular. Access is a component of transport service provision at all levels of governance, but it is not monitored in a consistent way across different transport modes or between different service providing authorities.

Problem Four: A mismatch in the way new communities are planned for is exacerbating land use patterns that are barriers to good accessibility and social participation.

Best practice policy and planning principles in New Zealand promote liveable environments that encourage walking and cycling, and good urban spaces that foster participation. However, these principles are sometimes compromised by planning decisions that focus on short-term economic gains. The consequence of new communities that are planned for vehicle trips and not for people is that the environments themselves are not friendly for active modes; urban form is not integrated with sustainable transport choices; and less than best-practice accessibility results in reduced levels of participation.

The following benefits would be accrued if access and mobility problems were to be addressed:

Benefit One: Viable rural communities: Addressing issues of physical and virtual access and mobility within rural communities and between smaller and larger Waikato centres would contribute toward the viability of smaller centres.

Benefit Two: Improved quality of life: Addressing access within towns and across the region means that participation in all manner of life-enhancing opportunities is supported.

Benefit Three: Improved decision making: Improvements in the way that services are allocated and delivered, and connected delivery of accessible transport journeys would be reflected in the number and nature of opportunities that people participate in.

Benefit Four: Liveable communities: A liveable Waikato community means that urban and rural areas are viable individually and as part of the wider region, and individuals within those communities have good quality of life.

The benefits are all associated with, or geared towards improvements in wellbeing. Although the problems are compelling, there was not enough evidence among stakeholders to target investment with confidence that the problems would be addressed. In that context, this project aimed to provide evidence so that useful policy could be developed, to guide investment that would be demonstrably likely to improve wellbeing for individuals and communities in Waikato Region.

The Strategic Case for Access and Mobility concluded that transport, access to opportunities and individual wellbeing are all related. However, the ways that policy and investment impact wellbeing are complex so investment logic is not necessarily clear for government. The purpose of this project is to provide evidence for links between transport and service policy, investment and wellbeing outcomes for individuals in South Waikato, New Zealand.

3. Summary of Evidence

3.1 Literature

There is a vast body of literature demonstrating links between aspects of investment in transport and government services, and wellbeing, via the intermediate steps of participation, and physical and mental health. System components analysed as part of this work are summarised in **Figure 1**. All of the components shown in Figure 1 are connected to varying degrees; the links are often two-way. However, most of the literature is focused on one link, or a component of a link, which is why bringing them together is necessary to describe a potential investment story. Specific evidence is detailed in **Appendix A: Summary of Literature**.

3.1.1 Transport Choices, Participation and Wellbeing

Concerning transport choices, evidence is very strong that people who walk and cycle for transport journeys show better health outcomes than people who do not use those modes, or who use them less frequently. As well as a broad range of benefits to cardiovascular health, exercise as part of transport trips contributes towards short-term and long-term mental health, reducing symptoms and determinants of conditions including anxiety and depression.

People who use public transport are also beneficiaries of health gains because in New Zealand and overseas, it has been repeatedly demonstrated that walking is usually a significant component of a public transport journey. Further, there are demonstrated links between car travel and *poor* health outcomes, so public transport provides a healthier alternative even if passengers are sedentary for most of their journey.

The health benefits associated with public transport also extend to people who use community transport services run by volunteers. People who use community transport are more likely to walk than those who do not, and because this form of transport is often targeted towards older people, the incremental benefit is high: often a trip made by community transport is one of only a few trips they make in a week.

3.1.2 Health Services and Wellbeing

The links between access to health services and overall health are also clear. There is a large body of evidence concerning the value of early intervention. That is, good access to primary care results in reduced need of an individual for outpatient and other tertiary health services. Access to primary care is influenced directly by the number and availability of appointments. There is little evidence to suggest that access to transport choices affects access to primary care directly.

Virtual (i.e., online) participation in health and other services is relatively recent, and there is little evidence concerning its contribution towards an individual's overall mental and physical health. The complex links between access to services and health outcomes may mean that the net value of virtual services is difficult to define.

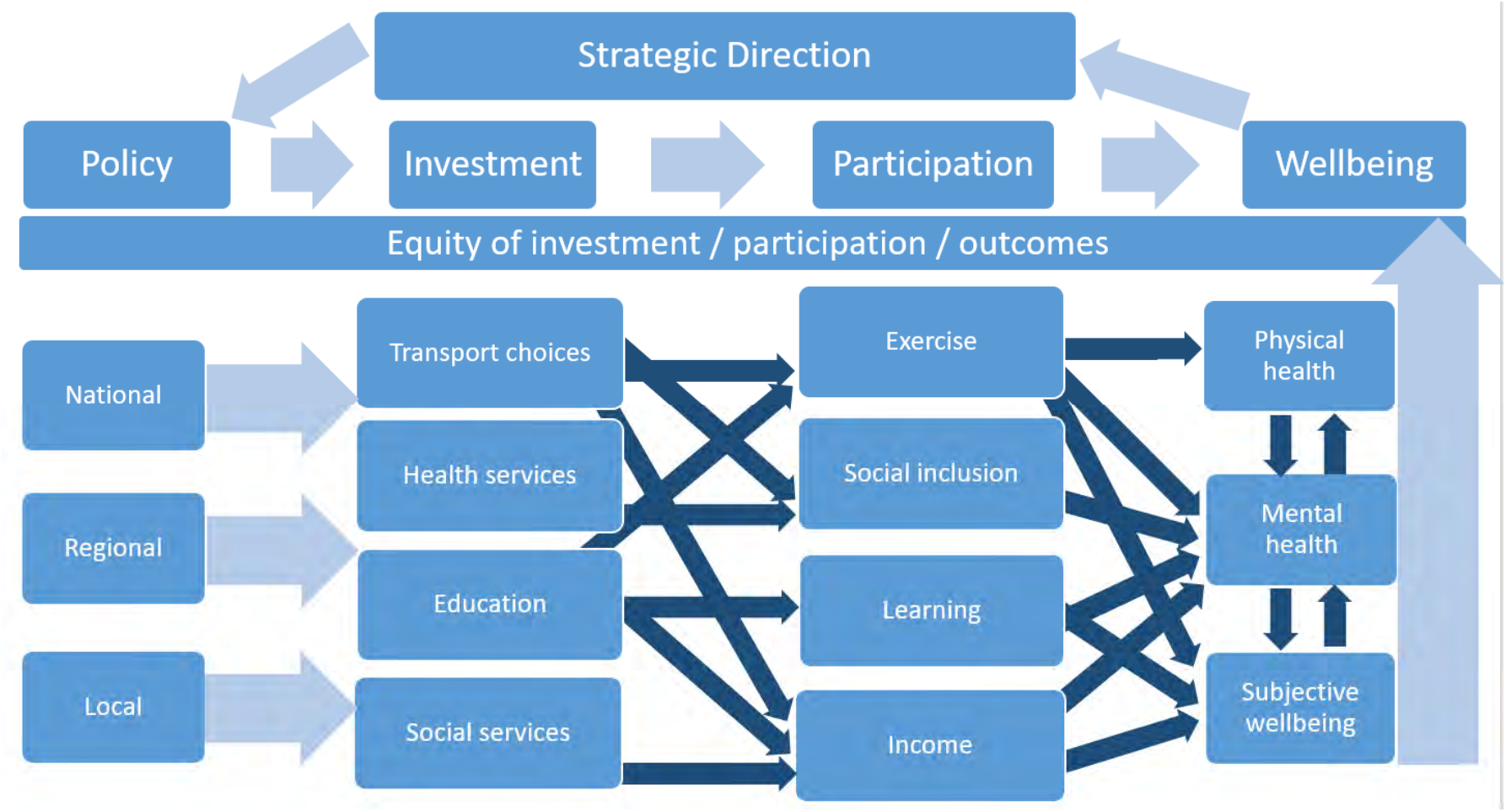


Figure 1: System Diagram: Policy, Investment, Participation and Wellbeing

3.1.3 Education and Wellbeing

The evidence concerning links between education and wellbeing are clear, in that participation in education is affected by the number and accessibility of learning options; and the extent of an individuals' education is a strong driver of a wide range of health livelihood outcomes. Income and employment choices, which are associated with health and wellbeing, are also strongly linked to education. Socio-economic characteristics such as household size and poverty are negatively correlated with educational achievement, which drives inequalities because access to education (particularly early childhood and tertiary education) is poorest for those who start out with lowest indices of health and wellbeing.

The main factor affecting access to education is proximity of education choices. There is little specific evidence that transport choices affect access to education directly.

3.1.4 Social Services and Wellbeing

Social services such as income support are provided to directly support individual and family wellbeing. Access to the correct form of support is not always automatic, which means that individuals and families can be disadvantaged. Further, the requirements for individuals to have face to face or virtual meetings to access support places some people at relative disadvantage, particularly in rural places where it may be more difficult to attend appointments. There is little evidence about links between transport and access to social services.

3.2 Empirical Evidence: Survey

Local people were invited to participate in a questionnaire about transport choices, participation and wellbeing. The questionnaire was distributed online and on paper, with 248 responses. Responses for individual questions are included in **Appendix B: Survey Results**.

In terms of how the survey respondents reflected the South Waikato District, results were compared to Census data for identical questions. The following comparisons were made between the survey sample and South Waikato District as a whole:

- Results from the 2013 Census were that 10 percent of households in the South Waikato did not have access to a motor vehicle. This is slightly higher than the 9 percent with no car access and 7 percent with no access to a car or motorbike found in this survey;
- 12.1 percent of people in South Waikato District belong to the Pacific Island ethnic group (compared with 27 percent of survey respondents); 32.6 percent of people in South Waikato District belong to the Māori ethnic group (compared with 27 percent of survey respondents and 14.7 percent for all of New Zealand); 70.4 percent of people in South Waikato District belong to the European ethnic group (compared with 51% of survey respondents and, compared with 74.0 percent for New Zealand as a whole);
- 63.1 percent of households in South Waikato District have access to the internet (of any kind), compared with 77 percent of survey respondents.

Although the sample is not a representative of South Waikato as a whole, inferences were only made between variables, and the data were not intended to reflect the South Waikato situation overall. For example, wellbeing responses were compared between groups of people, such as older and younger people; and people with or without household access to the internet.

In terms of access to transport, participation and wellbeing, the main findings from modelling of questionnaire responses were that:

- There was strong positive correlation between access to a car as a driver, health outcomes, and life satisfaction: South Waikato people who drive are more likely to report better health and to have higher life satisfaction;
- There was strong positive correlation between access to a car, and income; and
- There was no significant relationship between household access to a car, and subjective indices of wellbeing. It may be that other factors such as broader transport choices; local access to services; and health factors have mediating impacts beyond household access to a car.

In relation to perceptions about increased access to transport, participation and wellbeing:

- South Waikato people perceive that increased access to transport would improve their access to employment, education and health services;
- People who currently work part-time were most likely to report that improved access to transport would improve their access to employment; and
- Students, people in part-time employment and people currently unemployed feel that improved access to transport would improve their participation in education.

In general, findings from the questionnaire supported evidence from literature, in that access to transport choice has links to participation and wellbeing. Those who are in greatest need are partitioned as people without access to a car as a driver (equated as people with a drivers' licence for the purposes of targeting investment), or having a physical disability. There is overlap, because people with physical disability are less likely than those without, to have access to a car as a driver.

3.3 Qualitative Evidence: Focus Groups

More evidence about local transport, access and participation was collected at two focus groups held in Tokoroa and Putaruru in November 2017. The participants at the focus groups described a wide variety of community responses to needs for transport where people cannot travel independently. The ways that local South Waikato people support their own community are broad, with different ways of operation and different funding mechanisms, including for example:

- The South Waikato Pacific Island Community Services (SWPICS) who have a van used by community members for health appointments, community centre activities, or fitness classes;
- The University of Waikato provides bus transport for local tertiary students to get to the campus in Hamilton;

- Some parents pay for taxis home from early childhood education for their children because they are not able to collect them personally;
- Many members of the community use social media to request rides in cars with other people in the community, to work, functions, or shopping;
- The variety of ways that local people meet local needs for transport and participation reflect the importance of transport as a link to participation and wellbeing. Local people recognise that without independent access to transport, peoples' lives become more limited. This was reflected in stories people described at the focus groups about people they know, for example:

"My sister is currently cared for in a home and requires a wheelchair and assistance to go places. Unless scheduled well in advance, she has no access to a mobility vehicle if there is a need for her to go out on short notice – this affects her social interaction with family events and excludes her from outings." -Participant, Focus Group 1

"Someone suggested that I could get a mobility scooter to maintain my mobility. I did not think that this would ever be possible because I can't see very well and couldn't afford a scooter. After a series of meetings with District Health Board staff and tests to make sure I could see well enough, a scooter was funded for me, which has given me freedom to use around Tokoroa." -Participant, Focus Group 1

Therefore, there are challenges and opportunities concerning transport choices, access and wellbeing in South Waikato that were reflected in the focus group conversations. The community support networks that exist help some of the people to access some opportunities, some of the time. Participants felt that more information about transport and participation choices would help, as well as more support for people who cannot access these or other choices due to cost or other limitations, such as physical or other disabilities.

3.4 Identifying the People of Greatest Need

All of the evidence points towards equity of participation being a worthy goal for government, because people who 'cost' society in terms of poor health and wellbeing outcomes have the most to gain from investment that improves their participation. People who already have the most choices are also most likely to participate in education, employment and other areas, so investing in more participation for them is unlikely to accrue health and wellbeing benefits for the community overall.

The people of greatest need have been identified through synthesis of literature, the questionnaire response, and focus group insights as follows. Based on the combined evidence, people of greatest need for investment in transport and participation choices in Waikato Region are:

- Adults who do not have a drivers' licence or not be able to drive;
- People who live in a rural area, including all rural Territorial Authorities, with increasing need for the most remote rural dwellers; and
- People who identify as having disability.

There are other measures that are less direct indicators of need, namely people aged over 65 years, and people with low income. The empirical data did not support these characteristics as being groups to target directly, because they only became apparent indicators when combined with the other factors (no drivers' licence, rural, and/or identify with disability). That is, being an older person does not in itself suggest a need for targeted transport services, but many older people are within the groups identified above.

The survey and focus groups did not include questions or conversations about income directly. However, it was apparent from both sources that there are complex interactions between socio-economic and cultural factors in South Waikato which affect participation and wellbeing. For example, the South Waikato Pacific Island Community Trust (SWPICT) provides extensive, targeted support to people in Tokoroa, largely to people who identify as belonging to the Pacific Island ethnic group. SWPICT provides transport for local people to participate in cultural and community activities, mediating the need for transport that would otherwise not exist. Therefore, rather than socio-economic and cultural factors being indicators of need directly, they are not considered as significant for people in Waikato Region as the other factors listed above.

4. Recommended Response: Targeting Investment to People of Greatest Need

4.1 Investment Response: Funding Infrastructure and Services

There are two main ways that investment can be targeted towards people of greatest need. Both methods are likely to improve equity of participation, because more people are likely to be able to access services that they need. The investment approaches are:

(i) Improve inclusiveness of all investment: all agencies should continually challenge their policy, process and operations to ensure that they are delivering best-practice, universally accessible services. Standards and guidelines should be regularly assessed for improvement, and the ways that they are applied in practice should be monitored. Ultimately, revealed participation (the variety of people using services) should be monitored so that investment can be demonstrated to be inclusive.

The intervention area selected to improve inclusiveness of investment is walking.

Walking responds to people of greatest need, while addressing evidence collected for this report because:

- Walking is the most universally accessible transport mode by definition: almost all journeys involve walking at their origin and destination;
- Walking is least likely to require access to specialised equipment (although mobility aids are necessary for some people); and
- Walking is also a healthy mode of transport because it involves cardiovascular exercise, and other mental and physical health benefits such as accrual of Vitamin D.

(ii) Target investment to people of greatest need: targeted investment to groups that are demonstrably marginalised is the most direct way to improve individual and community wellbeing, because those people are most likely to experience a gap between actual and desirable levels of participation. Therefore, agencies should identify the benefits of investment, and work across layers of governance and community to ensure that interventions actually benefit those whose lives they are intended to improve.

The intervention area selected to target investment to people of greatest need is community transport.

Community transport is highly valued by people of greatest need, because it has the greatest potential to meet their needs for participation. People with disabilities and older people are least likely to be able to use public transport independently and effectively, because of issues accessing information; the physical layout of the vehicles and infrastructure such as bus stops; and difficulties with the 'last mile' between their home and destination and the bus stops in between. On the other hand, many rural areas do not have scheduled bus services or their services are very limited, so people who do not drive have fewer choices.

In summary, volunteer-based transport services (i.e., community transport) are considered most likely to improve wellbeing because of peoples' need for customised door to door services in rural and remote rural places, and for flexibility that is not typically provided by scheduled services.

4.2 System Response: Demonstrating Links Between Investment and Wellbeing

Evidence from focus groups and the survey highlighted system gaps in the provision of transport choices to support community wellbeing. Some of these gaps could be addressed by improving the connections between different government and community transport providers. For example, many people in South Waikato did not know that there were community transport options available, or that they were available to anyone with need. There were also limitations expressed by people who provide community transport, suggesting that limited funding and a limited pool of volunteers meant that they struggled to meet demand for trips.

The recommended response to the systemic gap in service provision is to provide in-person support across the transport policy and community sectors. The ultimate benefit of providing a support person for community transport in the region would be that more people can participate in more activities. The mechanism to accrue benefits would be through improved coordination of, and information sharing about existing services. Coordination comprises linking transport providers through forums and in-person interaction; support from providers to the agencies they work with, for example District Health Boards; and as a link from providers to policy staff to identify potential policy improvements. Information sharing includes data collection about the number and nature of trips made, and analysis of their benefits to local and regional communities. An important role for the resource would be to demonstrate the benefits of investment more explicitly so that it can be targeted effectively, both in the region and around the country.
Economic Appraisal

4.3 Policy Background to Economic Appraisal

The Mission of Waikato Regional Council is:

> *Working together to build a Waikato region that has a healthy environment, a strong economy and vibrant communities*[1]

Therefore, the ultimate aim of investment is to provide choices that improve individual and community wellbeing, as a contribution towards a strong economy and vibrant communities. To meet these goals, the links between policy, investment, participation and wellbeing must be articulated so that gaps can be found and filled. In particular, policy can describe what to invest in, and where to invest, or where to invest first. The question of what to invest in is policy-based, and can also be used at a national level to guide decision-making. The second question of priorities is more detailed, and requires consideration of where the greatest need is, and what extent of investment (i.e., how much) will make a measurable difference in community wellbeing.

[1] https://www.waikatoregion.govt.nz/council/about-us/wrc-strategy/

Figure 2 demonstrates one way to link policy with wellbeing. Any policy analysts and decision makers can use the framework to consider the likely distributional impacts of policy. Figure 2 includes two columns to consider the impact of different types of investment on the general population as well as to the people of greatest need. Considering the general population and people of greatest need separately is one way to assess distributional impacts of policy.

It is important to consider distributional impacts of investment when wellbeing is a desired outcome, because people on the margins are most likely to experience a 'wellbeing deficit' that can be addressed with improved participation. Increasing choices for people who already have a lot of choices is less likely to improve wellbeing because they are already likely to have all of their needs met. For this reason, community and regional wellbeing is most likely to be improved by targeting investment to benefit the people of greatest need, by identifying those who are not currently participating as much as they could.

The New Zealand Treasury recommends that "considering the distributional impacts of policy choices should be a core part of policy advice[2]". The examples in Figure 2 provide indications on how different forms of transport policy might be assessed in terms of their overall contribution to wellbeing.

[2] http://www.treasury.govt.nz/abouttreasury/higherlivingstandards/hls-ag-equity-jan13.pdf

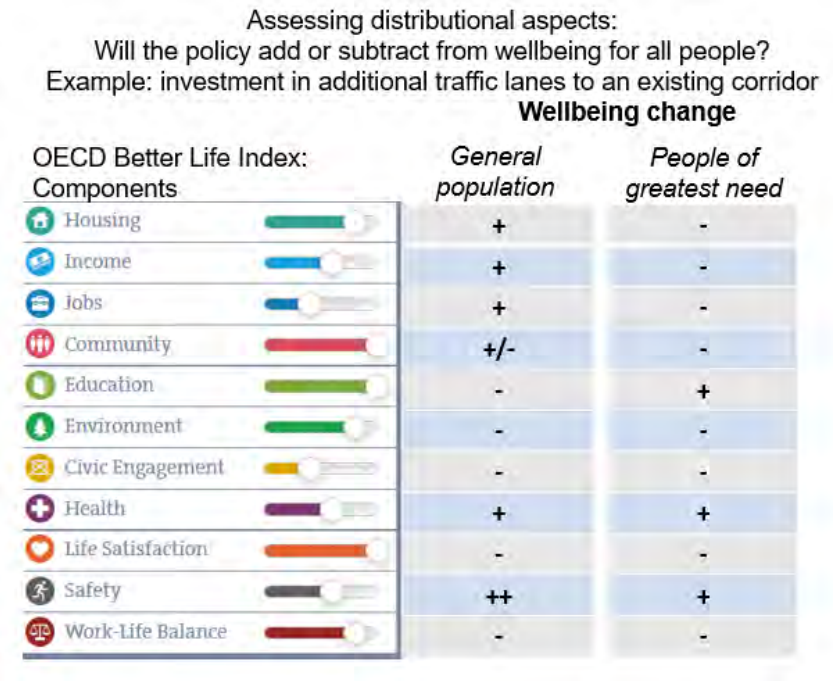


Figure 2: Example Application of OECD Wellbeing Matrix. Plus and Minus Signs Indicate Whether Peoples' Wellbeing is Likely to Worsen or Improve for Each Component, with the Magnitude of the Change Indicated by One or Two Symbols.

4.4 Linking Investment and Wellbeing: Benefit/Cost Appraisal

4.4.1 Walking

There are established links between more accessible, walking-friendly environments and more walking[3], and commensurate links between more walking, and better mental and physical health[4].

The costs associated with poor mental and physical health are also well documented. For this appraisal, costs associated with serious mental illness have been used to calculate potential benefits due to more investment in walking infrastructure. The annual estimated burden of disease for serious mental illness in New Zealand is estimated as $130,000 per person affected. This sum is based on an overall estimate of $12 billion dollars in New Zealand[5], spread among the estimated 92,000 individuals affected each year.

The calculations are based on investment in a rural territorial authority in Waikato Region (that is, not Hamilton City). The calculations are based on an average population of 30,000 people, based on 2013 Census populations for each of ten Territorial Authorities.

[3] Saelens, B. E., Sallis, J. F., & Frank, L. D. (2003). Environmental correlates of walking and cycling: findings from the transportation, urban design, and planning literatures. Annals of behavioral medicine, 25(2), 80-91.

[4] Frank, L. D., Sallis, J. F., Conway, T. L., Chapman, J. E., Saelens, B. E., & Bachman, W. (2006). Many pathways from land use to health: associations between neighborhood walkability and active transportation, body mass index, and air quality. Journal of the American planning Association, 72(1), 75-87.

[5] https://www.mentalhealth.org.nz/assets/Uploads/MHF-Quick-facts-and-stats-FINAL.pdf

Assumptions for the walking appraisal are:

- Investing in safer, more accessible walking infrastructure within 1.5km of each rural town centre will reduce incidence of serious mental illness, such that prevalence of serious mental illness will reduce by 1%, from 2.30% of the population to 2.28%: that is, 7 people in an average rural territorial authority will not develop or experience a serious mental illness who otherwise would have (assumption based on literature linking walking with mental health generally);
- Investment is based on unit costs for kerb cuts ($2,500 each), refuge islands ($3,000 each), raised platform zebra crossings ($5,000 each) and footpath repairs ($8,000 per 100m length);
- Quantities of infrastructure investment to improve walking (such that health and wellbeing benefits are achieved) are based on creating a walkable 1km catchment of the main shopping area or supermarket within town centres in a community. Estimates for an average territorial authority in Waikato Region comprise 200 kerb cuts, 40 refuge islands, 40 raised platform zebra crossings and 3500m of footpath improvements, constructed around the town centres of each territorial authority as a one-off investment;
- Annual maintenance of $50,000 for the new infrastructure is included for 25 years, and one-off investments of $200,000 are included in Year 7 and Year 14 to maintain the accessibility of the infrastructure.

The benefit cost appraisal is outlined in Appendix C. It shows that the above benefits and costs yield a BCR of 6.5, with a range between 2.7 and 12.1. A BCR of 6.5 suggests that investment in the walking infrastructure noted will provide a strong return on investment.

4.4.2 Community Transport

Clearly there are links between community transport provision and subjective indices of wellbeing. Everybody who uses community transport talks of its value to their lives. However, the links in dollar terms are not direct. Neither are there precedents internationally for calculation of a benefit/cost ratio. Therefore, this work begins with some assumptions about how investment might improve wellbeing. Over time, the assumptions should be challenged and improved with more evidence, to give increasing confidence to investors of the return to community.

The benefit/cost appraisal is outlined in Appendix C. By 'community transport' it is assumed that grants would be given for community groups to provide local and regional transport services as they see fit to serve their community. The trips would be flexible and within the discretion of the provider, which is different from the hospital and specialist trips provided for within the current Waikato District Health Board funding.

Included in the cost of community transport appraisal is resource funding to allow for a part-time regional resource to provide better coordination, information, support for community transport providers, and to capture and analyse data that demonstrates a return on investment in community transport (see Section 4.2). The purpose of the resource is to link the 'system gaps' identified through the evidence collection, so that the effectiveness of funding can be assessed, and to provide the best chance of investment being effective in providing transport that improves wellbeing for people of greatest need.

The likely benefits of community transport provision are broad. However, there are limited robust assessments of societal costs that might be reduced through more people being able to access services if they had community transport as an option. Therefore, assumptions for the community transport appraisal are based on links between social inclusion, and reduced likelihood of an individual to develop dementia. The social costs of dementia are well documented and robust, which makes for a strong but conservative appraisal. The calculation does not include any broader impacts on volunteers' and participants' mental and physical health, or of other benefits to local and regional economies and government departments related to improved equity of participation.

Assumptions related to community transport appraisal are:

- Community transport investment (the cost component of the calculation) is based on funding match from Waikato Regional Council equivalent to current expenditure by Waikato District Health Board, which is the equivalent of $15,000 (average) across 19 community groups within the ten rural Territorial Authorities in Waikato Region (note that this is not how Waikato District Health Board funds community transport, but is a useful average value for appraisal purposes);
- Community Transport is estimated to reach an average of 500 people per invested community, per year (estimate based on current reach of community transport for health trips, including a higher number of shorter trips in local communities with a regional government-sponsored service);
- An assumed one percent of people who access community transport services in any community (five people, per community, per year) will not develop dementia due to their improved resilience because of increased healthy participation (based on an estimate that a 10%-20% reduction in dementia prevalence could be achieved with changes that improve individuals' health[6], and our assumption that 5% to 10% of those modifiable factors can be addressed through community transport provision).

The benefit cost appraisal is outlined in Appendix C. It shows that the above benefits and costs yield a BCR of 4.5, with a range between 1.5 and 9.6. A BCR of 4.5 that includes only one small component of the likely benefit (but all of the costs) suggests that investment in community transport will provide a strong return on investment.

[6] http://www.alzheimers.org.nz/getmedia/79f7fd09-93fe-43b0-a837-771027bb23c0/Economic-Impacts-of-Dementia-2017.pdf/

5. Recommendations

5.1 Transport Sector Actions

5.1.1 National Transport Policy

Central government has several important roles through which it defines and delivers transport policy. These include setting the policy and regulatory framework for the transport system, and investing in transport infrastructure and services provided by others, both of which are relevant to transport access and wellbeing.

Government policy and investment priorities are signalled through the GPS, which is updated by the Ministry of Transport every three years. The most recent GPS is draft, released in March 2018. Its objectives include "a land transport system that provides increased access to economic and social opportunities" (p12). The GPS also acknowledges that a land transport system is "…in the public interest where is supports economic, social, cultural and environmental wellbeing" (p46).

Within the Strategic Priority area of 'Environment', the GPS states that the Government will "work to… …improve public health outcomes by substantially increasing the use of… …modes such as walking"; "Increasing walking… …has positive public health benefits through reduced heart disease, obesity and the incidence of diabetes." (p18). The current draft GPS has clearer links between transport and public health than previously. It also acknowledges that "traditional approaches to transport economic evaluation have tended to… …understate the benefits of walking, cycling and public transport investment" (p21).

The draft GPS has a Strategic Priority of 'Access', defined as "people's ability to connect with people, goods, services and opportunities" (p12). Its objectives include "A land transport system that enables transport choice and access" (p15), including equitable access so that "all people" (p15) can access opportunities. Among the results sought are to shift trips from private motor vehicles to walking, cycling and public transport in towns and cities; and "More transport choice (including for people with less or limited access to transport)" (p16). The work presented in this report provides some potential direction to support more comprehensive economic appraisal that links transport investment with equitable health and wellbeing outcomes, particularly for towns and smaller cities where comprehensive high-frequency public transport services are impractical.

The GPS provides the framework under which the NZTA develops the NLTP, which allocates National Land Transport Fund investment. It does this by specifying funding ranges, which reflect government priorities, to NLTP infrastructure and services activity classes. Two that are directly relevant to transport access and wellbeing are the Public Transport and Walking & Cycling activity classes.

The public transport activity class allocates funding across several work categories, which reflect distinct services and infrastructure sub-activities. None of these currently allow for specific funding of community transport options, which this report has demonstrated will help to improve access and wellbeing, although some existing community transport services receive funding through the Bus Services and Total Mobility Operations work categories. Neither work category is ideal for this purpose, since the former is intended to

support scheduled network-based public transport services, and the latter is intended to support door-to-door subsidised taxi or specialist transport provider trips for people with disabilities. It is therefore recommended that Waikato Regional Council advocates for the creation of a new community transport work category for the next NLTP, which would provide a channel for the specific funding of volunteer-based schemes, enable such funding to be standardised and tracked, and take account of the unique role and characteristics of such specialised access-based services. Those community transport schemes that fulfil total mobility role could still be eligible for fare subsidy support through that work category.

The Walking & Cycling activity class allocates funding into two work categories, reflecting the separate Walking and Cycling sub-activities of this class. The Walking work category is very relevant to local access, given the strong links between walking and health, and the role of footpaths and related facilities as an enabler of it, but this work category currently only allows for the funding of new or improved walking facilities. The lack of a funding source to support (and encourage) the ongoing maintenance of such facilities has led to their gradual degradation over time, making them less suitable for users, particularly those with some form of impairment. This is particularly relevant in rural towns, where other non-car forms of transport (e.g. bus or taxi) may not exist. It is therefore recommended that Waikato Regional Council supports subsidy of footpath maintenance, as signalled in the draft GPS.

To the end of 2017, the NLTP contributed approximately $300m-$400m to public transport activities and $15m-$35m to walking and cycling activities nationally per annum[7]. The new work categories recommended above are likely to only require a fraction of each activity class. For example, an annual $1m NLTP contribution to a community transport work category would likely support all existing and many new community transport schemes across the country at the cost discussed in Section 5.2, which represents less than 0.3% of the current public transport funding allocation. A similar contribution to a footpath maintenance work category would only require around 5% of the walking and cycling funding allocation, but enable all territorial authorities to establish an ongoing footpath maintenance programme. Both would offer considerable value for money to investing organisations.

5.1.2 Transport Policy in Waikato Region

Regarding strategic transport policy and planning, and public transport policy and planning, the evidence supports policy that aims to improve wellbeing by targeting investment and services to people of greatest need. Waikato Regional Council can use this evidence in policy advice and leadership, and by supporting territorial authorities with advice on targeting local investment to improve wellbeing.

The specific mechanisms to deliver wellbeing outcomes through provision of inclusive transport choices should be developed through subsequent business cases involving local people, and any other relevant stakeholders. Evidence from this report suggests that more support for flexibility in public and community transport solutions is warranted, as is more targeted investment to improve walkability of town centres in rural Territorial Authorities.

[7] Local government also contributes funding to these activities, at a level that roughly matches the NLTP contribution.

It is recommended that an investigation of community-centric responses consider the transport choices themselves (such as community vans, for example) and also a governance and resourcing model to provide ongoing, regional and local authority in-person and financial support for the establishment, operation, governance and monitoring of any existing and new transport services. All of these components are important, both to give each transport initiative the best chance of success, and to ensure flexibility of approach over time given that transport and participation choices change over time, as will the nature of need for individual communities. As discussed, local communities are best placed to respond to the most urgent needs of individuals, but overall benefit will be greatest when health-supporting choices such as participation in employment and education are also supported regionally.

It is important that in addition to resourcing transport choices, the gains to wellbeing of the investment are monitored. Wellbeing gains are most likely to be achieved by ongoing improvements in inclusiveness of investment. Measuring the inclusiveness of investment in transport is complex but can be achieved by, for example, measuring participation at services and facilities (that is, counting people), and by measuring inclusiveness through counting the proportion of people of greatest need who are participating. Recommended metrics to monitor the participation of people of greatest need are:

- People who do not have a drivers' licence: intercept survey of people arriving at a facility, using a path or public bus; or participating in an activity or event;
- People who live in a rural area: Monitor revealed equity of participation by collecting data about where people come from (for example, through appointments at a General Practice clinic or through enrolment at a tertiary facility). Compare revealed participation in terms of the proportion of urban and rural people to the underlying distribution of home location in the local population; and
- People who identify with disability: count people who use a mobility aid arriving at a facility, using a path or public bus; or participating in an activity or event; combine with intercept surveys asking about difficulties in everyday life to compare revealed equity of participation to underlying prevalence of disability in the local population.

5.1.3 Local Transport Policy and Practice

City, District and Regional councils are defined as local government' in New Zealand. The Local Government Act 2002 states that the purpose of local government is:

- To enable democratic local decision-making and action by, and on behalf of, communities; and
- To meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses[8].

City and District Councils around the Waikato Region have their own policy mandates for investment in transport that supports wellbeing, and in cross-sector conversations to provide opportunities for people to participate. While there is diversity between Councils in the way that they prioritise investment, all Councils are required to prepare a Long Term

[8] Local Government New Zealand: Local Government Basics, accessed 15th June 2015 from http://www.lgnz.co.nz/home/nzs-local-government/local-government-basics/

(ten year) Plan every three years to describe the way that they will invest to meet the objectives in the Local Government Act.

Based on findings from this project, the main ways that local councils such as South Waikato District Council might promote wellbeing through its investment and operations are:

(i) Improve the inclusiveness of ongoing investment in infrastructure and services within local control, such as footpaths and road crossings, by improving technical specifications and standards to ensure that they represent best practice; by completing accessibility audits of any proposed improvements; and by targeted consultation with people of greatest need for accessible infrastructure (such as people with disabilities);

(ii) Target investment in footpaths and road crossings where it is most likely to result in more walking trips by more people, by ensuring accessible routes within one kilometre of essential services such as supermarkets, pharmacies and health clinics; and within one kilometre of schools, early childhood centres and tertiary education providers;

(iii) Improve access to information about transport choices, by working with the Waikato Rural Transport Forum to identify and support local community transport providers; and monitoring patronage by people of greatest need on any public or subsidised transport services; and

(iv) Working with health, education and social service sectors to identify gaps between participation options, and peoples' participation, so that gaps can be addressed through virtual or physical means, including monitoring of the effectiveness of any interventions as measured by participation by people of greatest need.

The community of South Waikato appears to be relatively well served by a variety of formal and informal transport and participation choices. However, information about these services and choices does not seem to be shared widely across the whole community. Therefore, monitoring of revealed participation (using methods described above) would help because then initiatives to meet the needs of under-represented groups could be developed.

5.2 Health, Education and Social Sector Implications

Results suggest strong links between opportunities to participate, and people's wellbeing. However, the evidence was not clear about specific gaps for people in South Waikato District or elsewhere in terms of priorities for investment. It is recommended that representatives from each sector continue to work together to identify sector-specific evidence gaps, and interventions that would improve wellbeing in line with their own strategic objectives.

Generic actions that sectors could support related to links between transport and wellbeing are:

- Continued support for community transport as a means of participation in health, education and social services, for example through the Rural Transport Forum;

- Support for cross-sector resourcing between each sector and transport policy and operations, so that gaps related to transport and participation can be more readily identified; and
- Continued engagement in a regional process to improve links between policy, investment, participation and wellbeing, through attending workshops; sharing findings within their own sector including at management and governance levels; and sharing of sector-specific evidence to inform regional investigations.

5.3 Community Sector Implications

The community sector is strong in South Waikato, in that there are several supportive and effective community groups responding to local needs. However, these groups could be more effective with a layer of direct support between them and the agencies that govern and fund their operations.

There is a perception that some community groups are not as effective or efficient as they could be, manifested for example in several health shuttles arriving at Waikato Hospital with one patient and several empty seats. The view from a regional governance perspective is that coordination of some of these services may be more efficient, because shuttles passing through a town could collect passengers, reducing the overall number of trips and saving each group on travel costs and volunteer time.

The converse view from the local perspective is that individualised services are essential because they are directly responsive to local individuals who need them. Further, the service is personalised, providing much more holistic support for a hospital patient than a simple transport service. Therefore, if the service were to be changed and centrally coordinated, it would not be as convenient for local people. They would not necessarily know or trust the people running a centralised system, and they may be reluctant to travel as part of a larger group.

One mechanism to balance these conflicting views: that services could be more efficient, and that services should stay community-centric and individualised; is to provide support for community groups without direct coordination or control of services. Therefore, there is a role for community sector governance that is separate from local and regional government and from the agencies who provide services.

Evidence from this project suggests that the value of community sector support can be strongest for community-centric solutions such as community transport. Sector support can help community groups to be sustainable and to improve their service to local people by:

- Providing a forum for information-sharing, so that groups can learn from each other about how to navigate agency and government rules and regulations, and to share resources and ideas (for example, to provide a marketplace for community vehicles, or to discuss management of volunteers);
- Providing links between community groups and representatives of agencies they deal with, so that problems or barriers to participation can be articulated and addressed; and by
- Providing a link for government and agencies directly to the community voice that is most directly affected by changes to policy and practice.

In the Waikato Region there is already a strong link between community groups and regional transport governance, through the Rural Transport Forum[9]. However, the Forum could be more effective if it were resourced more directly, so that it could set its own strategic objectives related to the potential roles listed above.

[9] http://www.waikatocommunitytransport.org.nz/

6. Conclusions

There are short-term and longer-term actions recommended to improve wellbeing for South Waikato people, and for others in Waikato Region. It is concluded that national, regional and local stakeholders can use evidence to prioritise investment that contributes to individual and community wellbeing. There are specific opportunities to improve peoples' lives through investment in walking and community transport solutions, which provide strong returns on investment.

Beyond the urgent priorities for more demonstrably inclusive transport provision, broader gains could be made through continued co-investment across transport, health and education sectors. The links between transport and health in particular warrant more intentional action at a regional level. Combined resources across Waikato Regional Council and Waikato District Health Board to address inclusion and wellbeing would be a useful step towards more productive collaboration.

Recommended direct actions are:

(i) Regional investment in community transport provision, through collaboration with Waikato District Health Board and local councils to fund community groups;

(ii) Regional resourcing of personnel to support community transport providers directly by visiting them in person, sharing information and advice about operating and governance of community transport, and being a conduit between local emerging issues and regional policy; and

(iii) Targeted local investment in walking by Territorial Local Authorities to enable more local trips to improve physical and mental health, as well as accruing broader wellbeing benefits of participation.

Recommended supporting actions are summarised as:

(iv) Support NLTP subsidy for footpath maintenance and renewals to improve local council access to funding for improvements that result in more walking;

(v) Encourage NLTP investment in community transport;

(vi) Inter-regional collaboration to support best-practice governance of community transport around New Zealand, through resourcing, networking and shared monitoring of outcomes; and

(vii) Ongoing cross-sector collaboration to identify priorities for new or changed services in rural centres, particularly primary health care; education services; and social services.

Appendix A

Literature

TRANSPORT AND HEALTH		
Reference	**Summary**	**Link**
Kenyon, S., Lyons, G., & Rafferty, J. (2002). Transport and social exclusion: investigating the possibility of promoting inclusion through virtual mobility. Journal of Transport Geography, 10(3), 207-219.	This paper introduces a mobility dimension to social exclusion, suggesting a strong correlation between a lack of access to adequate mobility and lack of access to opportunities, social networks, goods and services. This correlation exists as both a cause and consequence of social exclusion. The authors question the likelihood that increased physical mobility, by car or public transport, can, by itself, provide a fully viable or sustainable solution to mobility-related aspects of social exclusion.	Reduced transport choice is correlated with social exclusion.
Kenyon, S., Rafferty, J., & Lyons, G. (2003). Social Exclusion and Transport in the UK: A Role for Virtual Accessibility in the Alleviation of Mobility-Related Social Exclusion? Journal of Social Policy, 32(3), 317-338. doi:10.1017 /S0047279403007037	This paper questions the likelihood that increased physical mobility can, by itself, provide a fully viable or sustainable solution to mobility-related aspects of social exclusion. Findings from both a desk study and public consultation suggest that virtual mobility is already fulfilling an accessibility role, both substituting for and supplementing physical mobility, working to alleviate some aspects of mobility-related social exclusion in some sectors of society. The paper incorporates an analysis of the barriers to and problems with an increase in virtual mobility in society, and concludes that virtual mobility could be a valuable tool in both social and transport policy.	Virtual mobility could help social outcomes.
Stanley, J., & Vella-Brodrick, D. (2009). The usefulness of social exclusion to inform social policy in transport. Transport Policy, 16(3), 90-96.	As currently understood and measured, the concept of social exclusion is not sufficient to encompass all social policy requirements in relation to transport, there being the need to use other theoretical concepts, especially in relation to well-being and community connectedness. Knowledge around the interplay of these issues in order to build efficient and effective mobility systems will not only be enhanced by a clear understanding of well-being and relationships, but also how psychological factors interplay with these needs.	Links between transport and social exclusion are complex.
McCarthy, L., Delbosc, A., Currie, G., & Molloy, A. (2017). Factors influencing travel mode choice among families with young children (aged 0–4): a review of the literature. Transport Reviews, 37(6), 767-781.	A variety of factors influence parents' and caregivers' decisions on mode choice when traveling with young children. More and safer pedestrian and cycling infrastructure would improve the likelihood of people traveling with young children to choose active transport modes, and more accessible public	Accessibility and availability of transport choices affects mode choice.

TRANSPORT AND HEALTH		
Reference	**Summary**	**Link**
	transport choices would increase their usage of public transport.	
Columbia University's Mailman School of Public Health. (2007, February 21). Living Near Shops, Subways Linked To Lower Body Mass Index In New York City. *ScienceDaily*. Retrieved November 19, 2017 from www.sciencedaily.com /releases/2007/02/ 070220182848.htm	The authors discovered that three characteristics of the city environment -- living in areas with mixed residential and commercial uses, living near bus and subway stops and living in population-dense areas -- were inversely associated with BMI levels. For example, city dwellers living in areas evenly balanced between residences and commercial use had significantly lower BMIs compared to New Yorkers who lived in mostly residential or commercial areas.	Access to active and public transport is correlated with good physical health outcomes.
Kenyon, S. Transport and social exclusion: access to higher education in the UK policy context. Journal of Transport Geography, Volume 19, Issue 4, July 2011, Pages 763-771	This paper enhances the transport and social exclusion literature by exploring mobility-related educational exclusion. The paper finds a clear link between access to and achievement in higher education in the UK. Focus group findings suggest that access to learning, social and other activities is compromised by poor transport. Results highlight a clear role for transport in initiatives to widen participation to HE in the UK.	Access to education is compromised by a lack of transport choices.
Graham Currie, Tony Richardson, Paul Smyth, Dianne Vella-Brodrick, Julian Hine, Karen Lucas, Janet Stanley, Jenny Morris, Ray Kinnear, John Stanley. Investigating links between transport disadvantage, social exclusion and well-being in Melbourne—Preliminary results. Transport Policy, Elsevier. July 2009.	The analysis in this paper has painted a new and original picture of transport disadvantage in fringe urban Australia. Forced car ownership affects a numerically larger number of fringe urban households in Melbourne than zero car ownership. Hence transport disadvantage on the fringe does not necessarily mean lack of transport. In addition, much previous social research has focussed on those without cars and the problems these people have in using a sparse and low-frequency public transport system. While these cases certainly occur this research suggest that most car-less low-income families on fringe urban Melbourne live near to activities they can walk to. Importantly these activity centres also tend to have higher quality public transport than suburbs away from activity centres. Hence the image of the socially isolated car-less community on the urban fringe represents the minority not the majority of Australia's urban transport disadvantage.	Lack of access to a car does not necessarily define transport disadvantage: proximity to services may be more useful.

TRANSPORT AND HEALTH		
Reference	**Summary**	**Link**
Janet Stanley, Karen Lucas. Social exclusion: What can public transport offer? Research in Transportation Economics, Elsevier. 2008.	Social policy in transport is newly defined territory. It is increasingly being understood as a key component, along with economic and environmental goals, to facilitate both personal well-being and enhance the capacity of people to fulfil their productive potentials. Social exclusion has been used as an important concept to assist in defining and understanding the content of social policy. However, while important, it does not appear to encompass all aspects of social policy needed to understand the importance of mobility and the requirements for public transport as a facilitating factor to achieving a raft of governmental goals in areas such as health, housing and employment.	Transport as a component of access should be considered in conjunction with policy for other sectors including health and education.
Marottoli, R. A., Mendes de Leon, C. F., Glass, T. A., & Williams, C. S. (1997). Driving cessation and increased depressive symptoms: prospective evidence from the New Haven EPESE. Journal of the American Geriatrics Society.		Access to a car as a driver is linked with good mental and physical health.
Mollenkopf, H. (Ed.). (2005). Enhancing mobility in later life: personal coping, environmental resources and technical support; the out-of-home mobility of older adults in urban and rural regions of five European countries (Vol. 17). Ios Press.		Access to transport choices is correlated with quality of life for older people.

HEALTH SERVICES AND HEALTH OUTCOMES		
Reference	**Summary**	**Link**
Yoder, R. A. (1989). Are people willing and able to pay for health services? Social science & medicine, 29(1), 35-42.	Article explores inelastic demand between Gov. funding cuts and number of patients accessing healthcare. Article shows that when funding is cut to healthcare patients forgo regular vaccinations, meaning that when people do go to health centres it is more likely for more serious issues. The forgoing of vaccinations also means less social contact.	Investment in health services improves health outcomes.
Jordan, H., Roderick, P., Martin, D., & Barnett, S. (2004). Distance, rurality and the need for care: access to health services in South West England.	Distance from health clinics and access to health care are highly correlated with the rate of limiting illness increases with every mile from a health	Distance from healthcare services (actual distance and drive distance) is negatively correlated with health outcomes.

HEALTH SERVICES AND HEALTH OUTCOMES		
Reference	**Summary**	**Link**
International journal of health geographic, 3(1), 21.	centre. Paper notes that we see similar drop offs in urban areas over shorter distances, and theorizes drive time may be a better indicator than actual distance.	
Aisbett, D. L., Boyd, C. P., Francis, K. J., Newnham, K., & Newnham, K. (2007). Understanding barriers to mental health service utilization for adolescents in rural Australia. Rural and Remote Health, 7(624), 1-10.	Participants described how the lack of reliable transport to and from the mental health service affected the utilization of the service by rural young people. They also expressed concern regarding a lack of qualified professionals in their region who specialize in child and adolescent mental health. Participants reported frustration at long waiting lists and the lack of an after-hours service.	Reduced transport choice reduces participation in mental health services.
Butler, K., McArthur, M., Thomson, L., & Winkworth, G. (2012). Vulnerable families' use of services: Getting what they need. Australian Social Work, 65(4), 571-585.	This study explored how parents defined their families' needs, their current levels of formal support, and their experiences of navigating multiple service systems and networks. Parents identified a range of issues that they viewed as adversely impacting on their health and wellbeing. They also described barriers to accessing services and the features of helpful service experiences. Families provided important information as to how those with the greatest need can be effectively assisted to access needed resources and services.	Access to healthcare affects participation in health services.
Barnett S, Roderick P, Martin D*, et a.* A multilevel analysis of the effects of rurality and social deprivation on premature limiting long term illness. *Journal of Epidemiology & Community Health* 2001 ;**55:**44-51.	This study highlights the need to treat rural areas as heterogeneous, although this has not been the tendency in health research. Generic deprivation indices are unlikely to be a true reflection of levels of deprivation in rural environments. The importance of CDPs that are specific to the area type and health outcome is emphasised. The significance of physical isolation suggests that accessibility to public and health services may be an important issue, and requires further research.	Defining people of greatest need is complex: rural populations are heterogeneous.
Julian Tudor Hart. THE INVERSE CARE LAW. The Lancet, Volume 297, Issue 7696, 27 February 1971, Pages 405-412	The availability of good medical care tends to vary inversely with the need for it in the population served. This inverse care law operates more completely where medical care is most exposed to market forces, and less so where such exposure is reduced. The market distribution of medical care is a primitive and historically outdated	Governance of access to healthcare would help if targeted to people of greatest need rather than service provision being dictated by the market forces.

HEALTH SERVICES AND HEALTH OUTCOMES		
Reference	**Summary**	**Link**
	social form, and any return to it would further exaggerate the mal-distribution of medical resources.	

TRANSPORT AND EDUCATION		
Reference	**Description**	**Evidence**
Bond, S., & Horn, M. (2009). The cost of a free education: cost as a barrier to Australian public education.	Low income households spend a greater percentage of their income on education Leaving les available for other key expenses. Comments on best practice for school funding including, making fees public, providing free excursions and stationary as well as free public transport for access.	Lack of transport choices affects participation in education.

SOCIAL PARTICIPATION / INCLUSION AND HEALTH OUTCOMES		
Reference	**Description**	**Evidence**
Koopman-Boyden, P.G. & Moosa, S. Living alone as a lifestyle among older people in New Zealand, Paper presented at New Zealand Association of Gerontology Conference: The Age of Ageing, 12-14 September 2014, Dunedin, New Zealand.		Participation is correlated with good health outcomes.

Table 1: Literature: Transport and Health

Appendix B

Survey Results (Report Provided by Waikato Regional Council)

Transport and Wellbeing in the South Waikato District

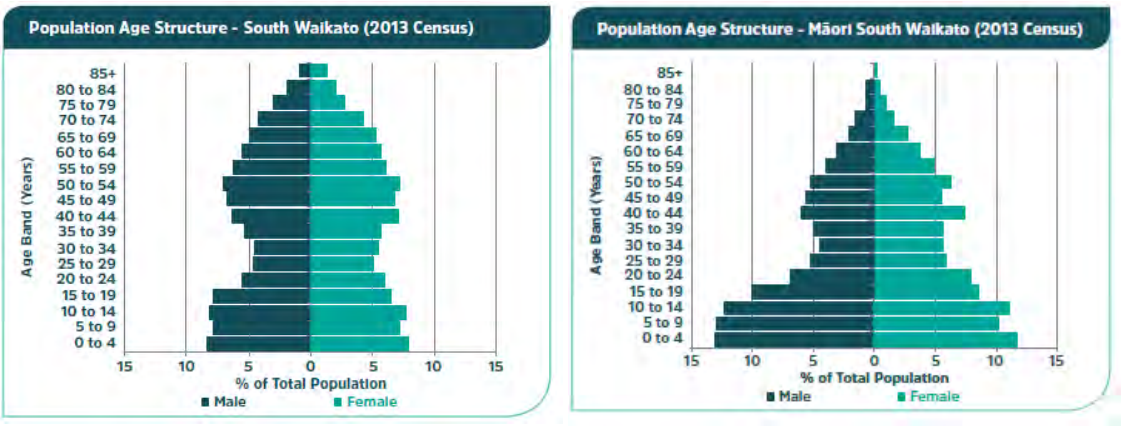
About the South Waikato District

The South Waikato District lies at the heart of the North Island. State Highway 1 runs through three of the District's main towns - Tokoroa, Putaruru and Tirau (Figure 1). About half of the District is in forestry and most of the other half is in farming, mainly dairy farming. In terms of geographical size, South Waikato District ranks 41st out of the 67 districts in New Zealand and has less than one percent of the country's population. At the time of the 2013 Census there were 22,074 people resident in the District. This was a decrease of 570 people (2.5 percent) from the 2006 Census.

Figure 1: South Waikato District

The age-sex profile of the total population and Māori population are shown in Figure 2. In total, 32.6 percent of people in South Waikato District belong to the Māori ethnic group (compared with 14.9 percent for all of New Zealand) with 70.4 percent of people in South Waikato District belong to the European ethnic group, compared with 74.0 percent for New Zealand as a whole.

Figure 2: South Waikato at the 2013 Census



Source: From the Waikato DHB, South Waikato Health Profile 2015

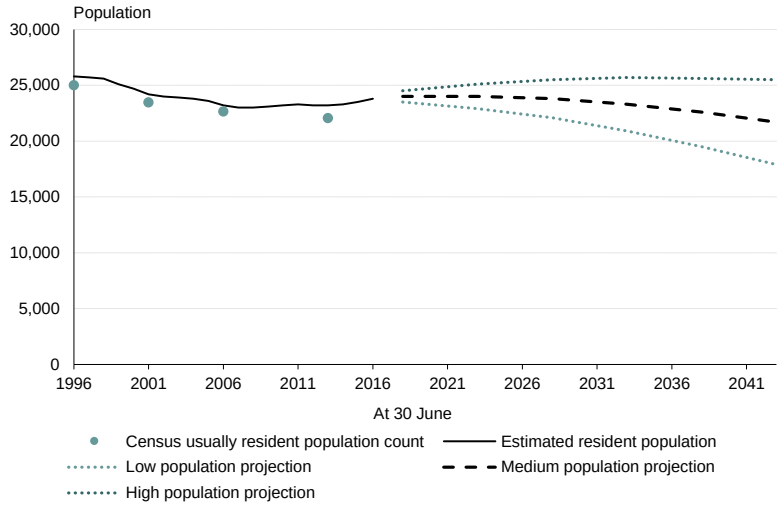
The median age (half are younger, and half older, than this age) is 38.4 years for all people in the South Waikato District. For New Zealand as a whole, the median age is 38.0 years. In total, 15.8 percent of people in South Waikato District are aged 65 years and over, compared with 14.3 percent

of the total New Zealand population. Conversely, 23.6 percent of people are aged under 15 years in South Waikato District, compared with 20.4 percent for all of New Zealand.

The median age of Māori (half are younger, and half older, than this age) is 23.3 years in South Waikato District, compared with a median of 23.9 years for all Māori in New Zealand. 5.9 percent of Māori in South Waikato District are aged 65 years and over, compared with 5.4 percent of New Zealand's Māori population. 35.7 percent of Māori are aged under 15 years in South Waikato District, compared with 33.8 percent for all Māori in New Zealand.

The major population issue facing the South Waikato District over the next ten to twenty years include the projected longer term declining and ageing population. While there have been small increases in population in 2016/2017 across the District – this is not expected to change the future of declining and ageing population.

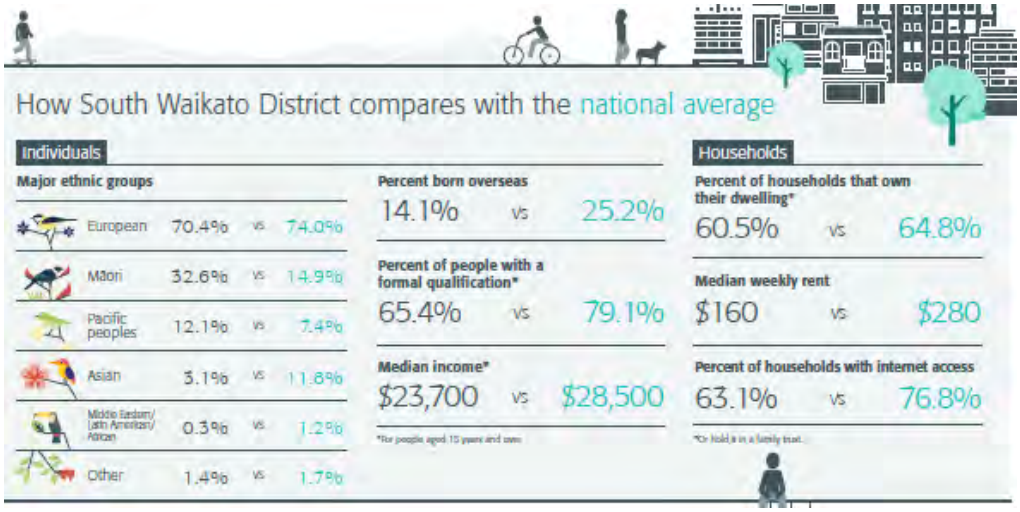
Figure 3: Population counts and projections 1996-2041



Source: Statistics New Zealand (excel file: Local population trends March 2017)

Figure 3 (below) shows how the District compares to the national average across several areas including; ethnicity, education, income, home ownership and internet access.

Figure 3: South Waikato at the 2013 Census



Source: Statistics New Zealand, 2013 Census poster about South Waikato District

Access to Transport and Wellbeing Survey

Descriptive Results

In total 248 people living in the South Waikato District responded to the survey. The following figures and tables provide an overview of survey results. Some respondents skipped a question (or questions) or choose options such as 'I don't know'. Due to this, each graph presented shows the number of people included in any analysis.

1) Respondent age group, gender and ethnicity

Most survey respondents were female (65.8 percent overall – not shown in Figure A1 or A2). There were differences by age group however, with males being the majority of respondents for those aged 15-24 years and at 75+ years (Figure A1 and A2).

Survey respondents came from three main ethnic groups; New Zealand European, Cook Island Māori and Māori. In total, 245 people gave 306 responses when choosing their ethnic group (Figure A3) as multiple responses were allowed. It is interesting to note that the majority of older people responded as New Zealand European but the proportion generally decreased towards more young people reporting their ethnicity as Māori and Other ethnicity.

Figure A1: Survey respondents by age and gender (n=245)

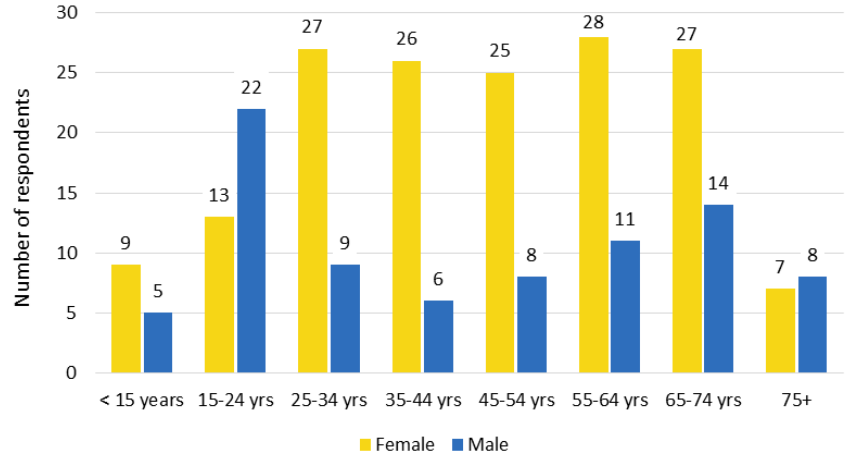
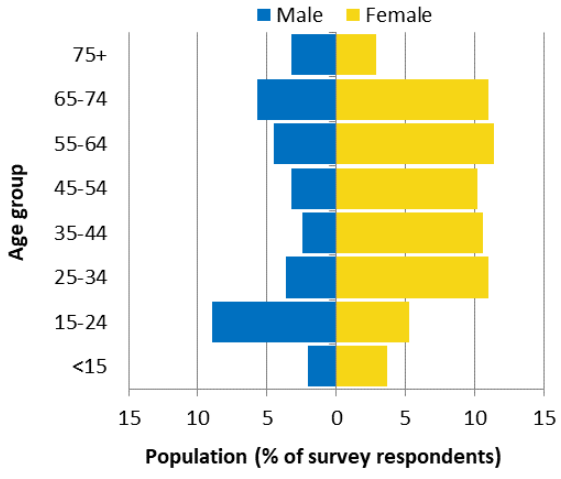


Figure A2: Survey respondents - proportion by age and gender (n=245)



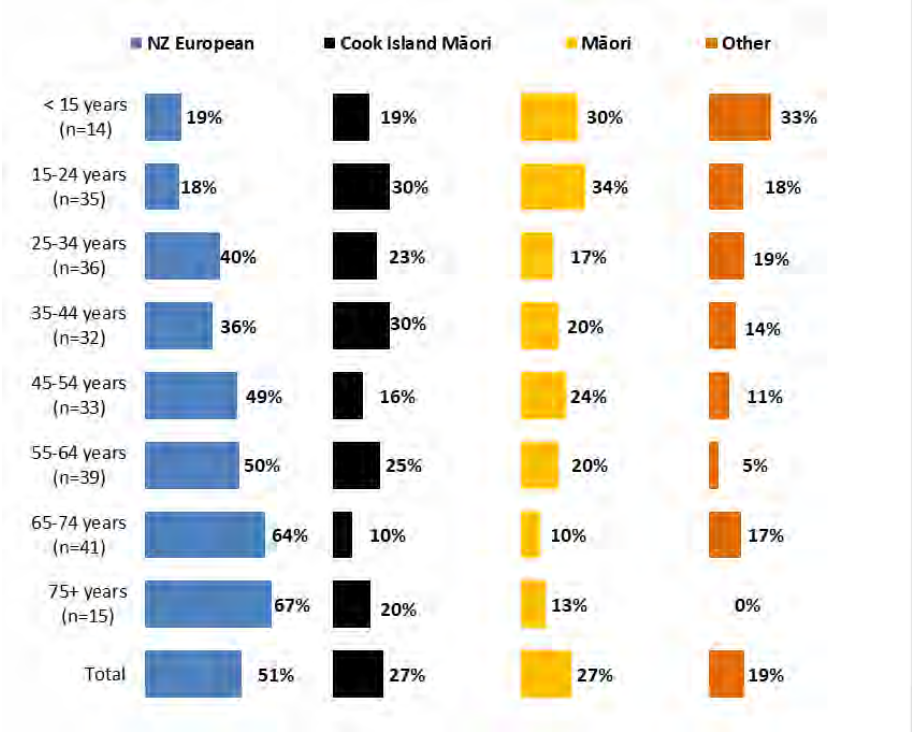
The question…

3. Which ethnic group do you belong to? Mark the space or spaces which apply to you.

- ☐ New Zealand European
- ☐ Māori
- ☐ Samoan
- ☐ Cook Island Maori
- ☐ Tongan
- ☐ Niuean
- ☐ Chinese
- ☐ Indian

Other such as Dutch, Japanese, Tokelauan. Please state:

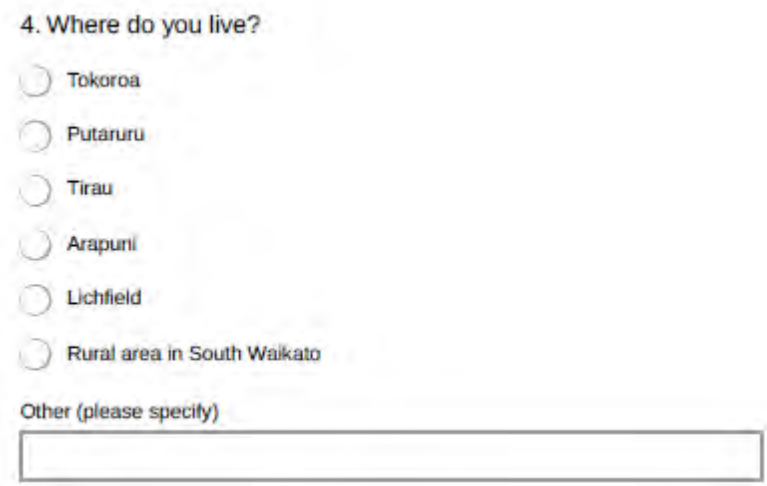
Figure A3: The ethnicity of respondents in each age group (n=245, total ethnic groups n=306)



2) Residence

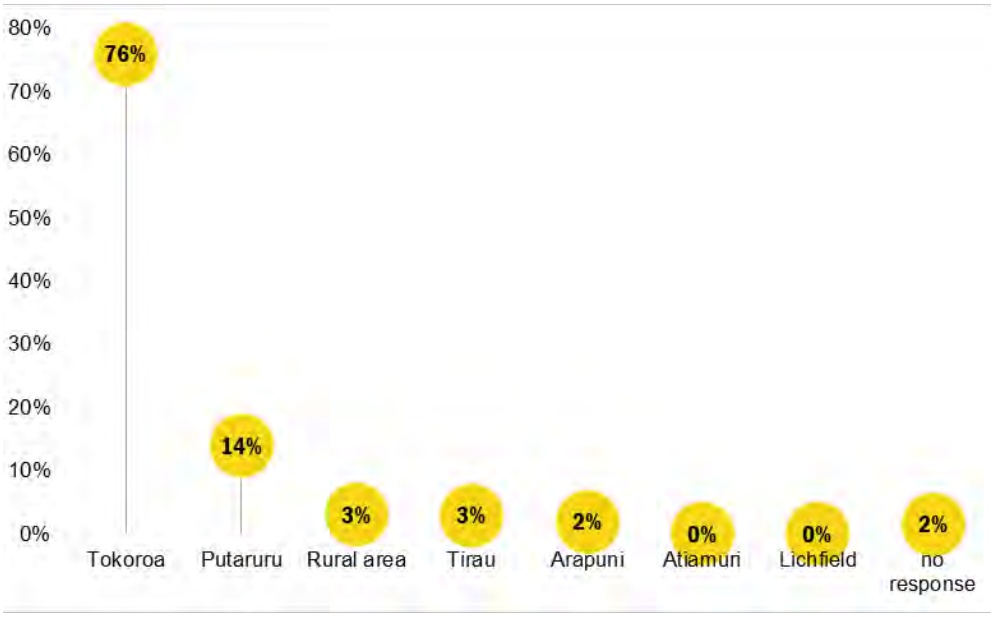
Respondents were asked their place of residence. Six options were available for selection and a free text field for responses not already defined by the given categories.

The question…



Just over three-quarters (76 percent) of people live in Tokoroa (n=188) with a further 14 percent (n=34) in Putaruru. The remaining 10 percent of reported residences were spread across the other categories (and from answers provided in the free text field). Overall, some three percent of respondent were living in rural areas (n=9) with an additional three percent in Tirau (n=7). Smaller numbers of people responded from Arapuni (n=4), Lichfield (n=2), Atiamuri (n=1). Four people did not provide an answer to this question.

Figure A4: Residence of survey respondents (n=248)



3) Current Occupation

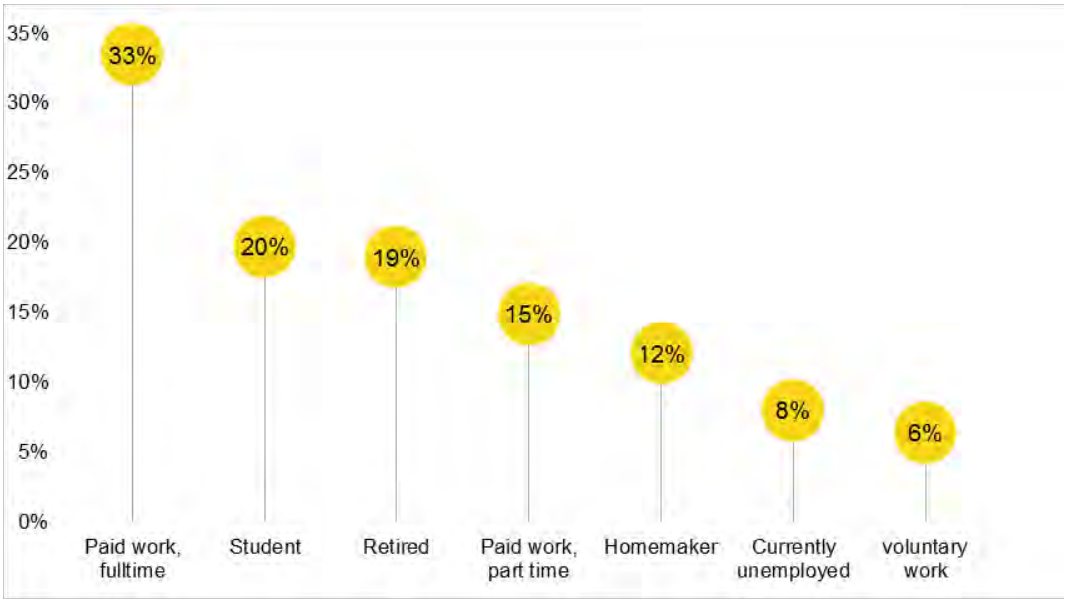
Respondents were asked to identify their current occupation(s). In total 246 people provided 282 responses. A third of respondents were working fulltime (33 percent, n=83) with almost equal numbers self-identifying as students or retired (20 percent and 19 percent respectively). Overall, eight percent (n=20) identified as currently unemployed. Note that given the multiple responses in this question that the percentages shown in Figure A5 total to more than 100 percent.

The question…

5. What is your occupation? Select as many answers as you like.

- ☐ Paid work, fulltime
- ☐ Paid work, part-time
- ☐ Voluntary work of any kind
- ☐ Student
- ☐ Retired
- ☐ Homemaker
- ☐ Currently unemployed

Figure A5: Stated occupation(s) of survey respondents (n=282 responses)



4) Speed limit where the respondent lives

Respondents had five responses to choose from to identify the current speed limit on the street or road where they live. Just over three-quarters (77 percent) of people identified their street's speed limit as 50km/h. This fits with the majority of respondents living in Tokoroa or Putaruru townships. Almost 10 percent of respondents did not know the speed limit or did not respond (most of those aged under 15 years did not know the speed limit where they lived – and this is perhaps expected).

The question…

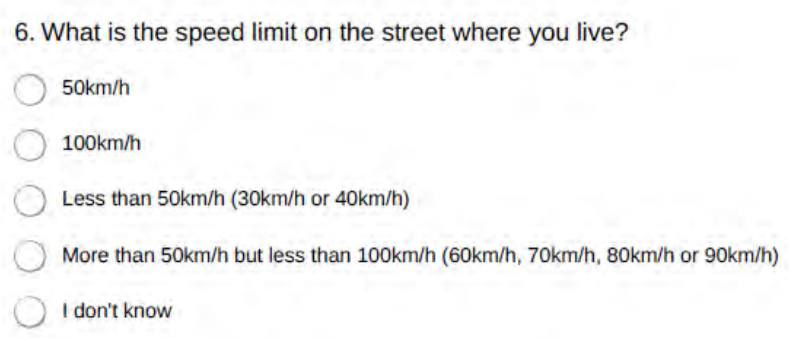
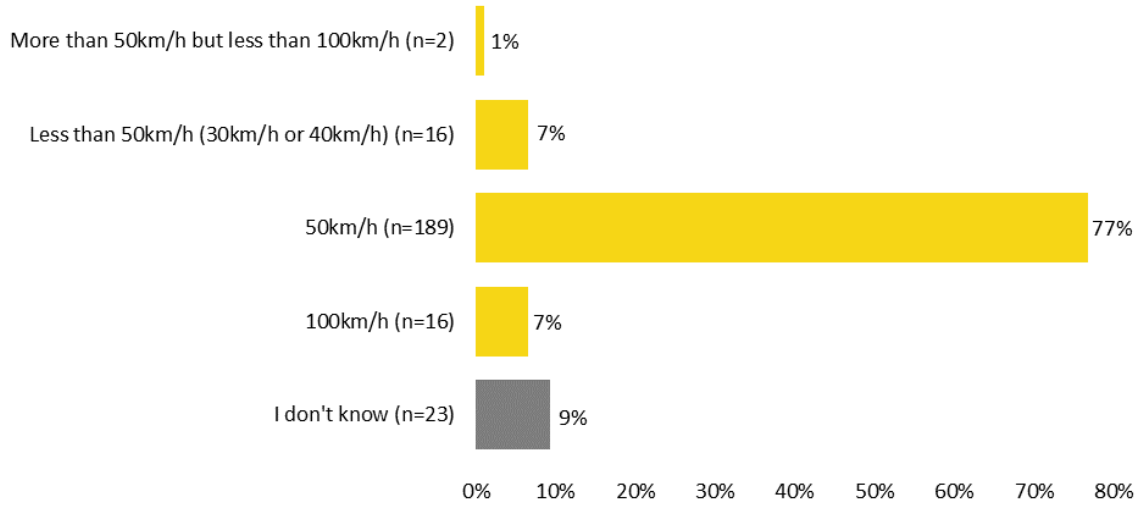


Figure A6: Speed limit on the street where people live (n=246)



5) Number of vehicles available in households

People were asked to identify the number of vehicles available to their household for use. Those providing no response to 'motorbike' are assumed to have no access (n=108). Some four people did not provide an answer to the number of cars available. Those four people are excluded from the denominator for car availability. According to survey respondents, nine percent of households did not have access to a car, and seven percent did not have access to a car or motorbike.

The majority of households in which respondents live have access to one or two cars (70 percent combined), although it is unknown the size of the households. A further 21 percent of respondents' households had two or more cars (or vans). The vast majority of households did not have access to a motorbike (93 percent).

Results from the 2013 Census were that 10 percent of households in the South Waikato did not have access to a motor vehicle. This is slightly higher than the 9 percent with no car access and 7 percent with no access to a car or motorbike found in this survey.

The question…

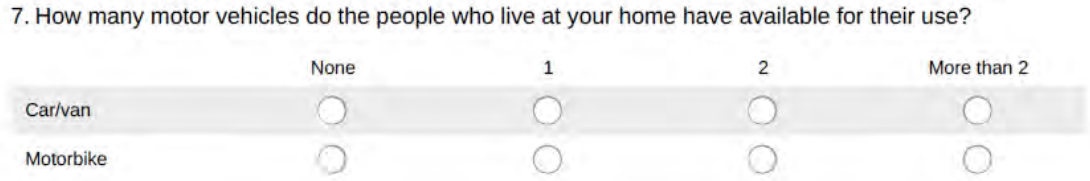
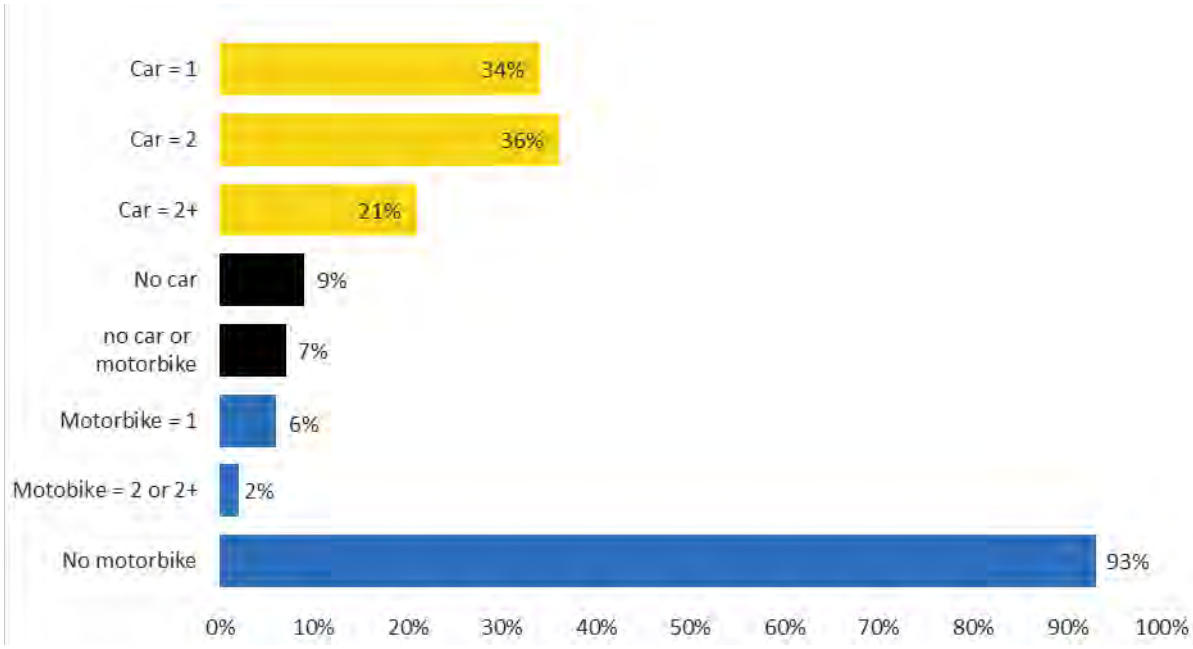


Figure A7: Number of vehicles available to households (n=244)



6) Access to phones and the internet (in any way)

Respondents provided 953 responses to the question on access to cell phones, a landline and the internet. There were five response categories available (shown in yellow and blue in Figure A8). Two additional categories were developed from the data provided; those with only a landline (4 percent) and those responding they had a landline and a cell phone able to make calls and receive texts – but not connecting to the internet – this group made up 8 percent of respondents.

In total, 77 percent of people responded that they had access to the internet in any way – matching the result for those with access to a computer or tablet. This compares with the results of the 2013 Census where 63.1 percent of households had internet access in the South Waikato District (compared with 76.8 percent nationally). The 2013 Census found that just over 80 percent of households had access to a cell phone or mobile phone – this compares roughly with 90 percent in this survey having a cell phone to make calls and texts and 74 percent with a cell phone that could connect to the internet.

The question…

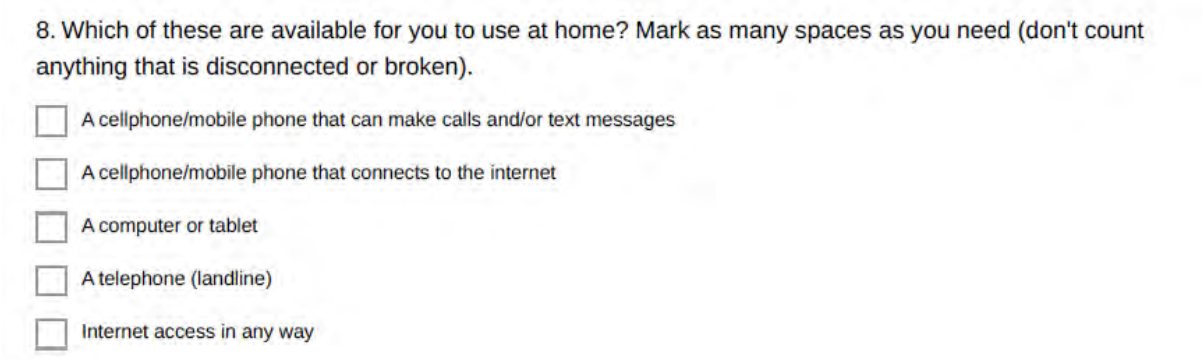
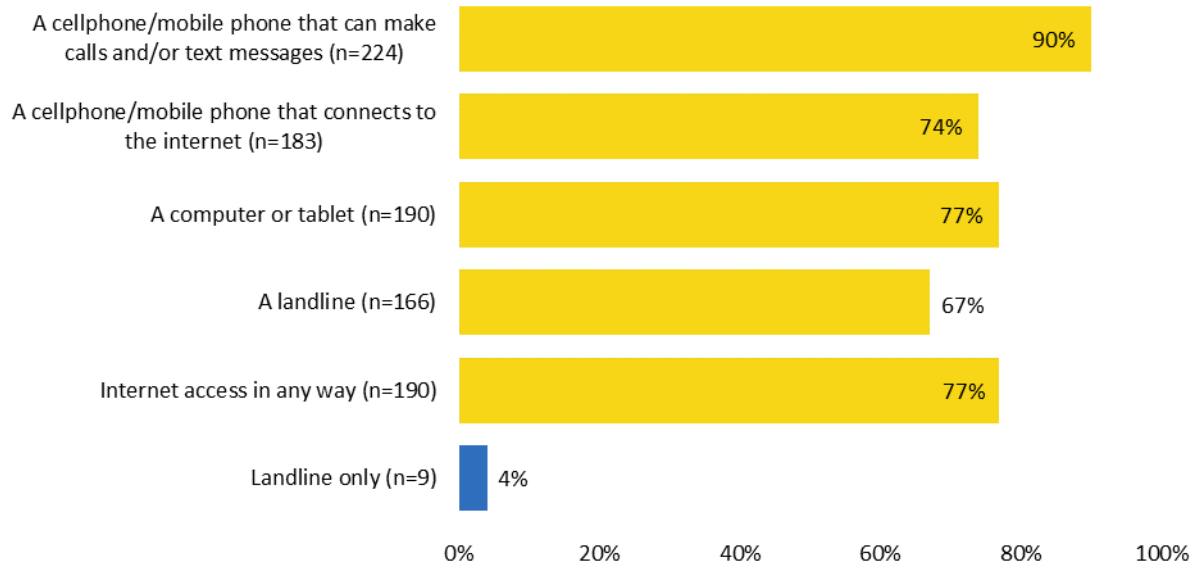


Figure A8: Access to phones and the internet



7) Health problems and/or conditions

Respondents were asked about any health problems or conditions they might have. Multiple responses were allowed but no information was collected on the length of time people had had their respective condition or the degree of severity. Of all 243 people responding, 64 percent (n=159) reported no health problem or condition. The remaining 84 people answering this question identified 151 health conditions. Of those 151 people, 34 percent (n=51) identified 'walking, lifting or bending' as an issue for them – this was the most common issue (Figure A9).

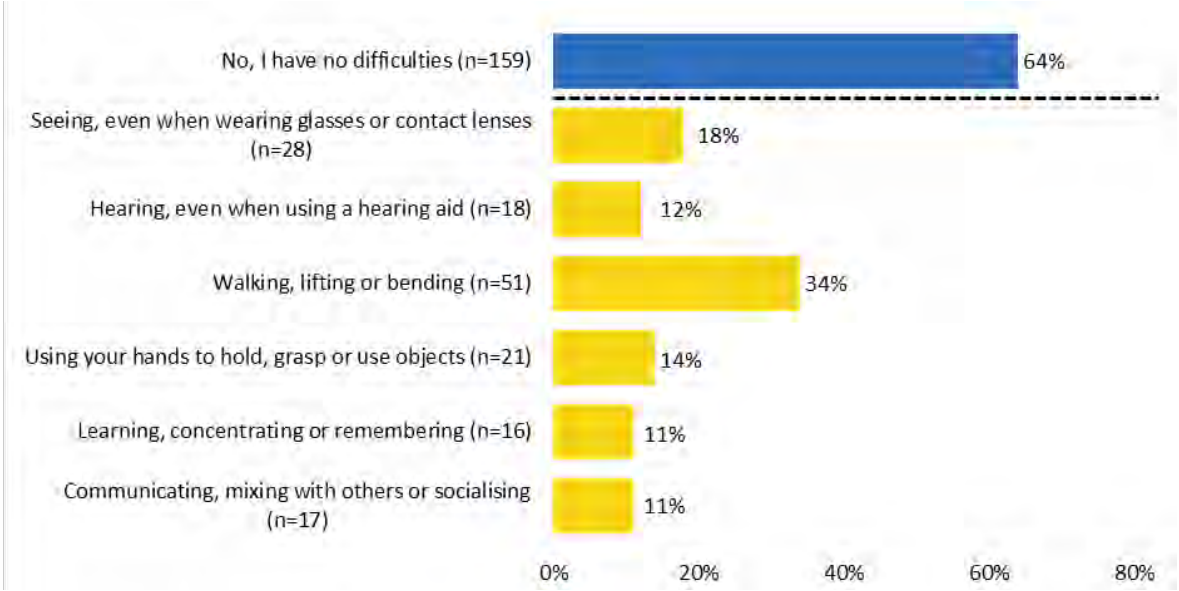
Some people noted they had multiple health problems or conditions. In total 44 people noted one condition (any condition), 22 people noted two conditions, 12 people had three conditions, five people had four conditions and one person noted five areas (excluding only the 'communicating, mixing with others or socialising' option). Three people responded that they had 'no difficulties' but then choose a health condition category. In total 243 respondents choose 310 category responses.

The question…

9. Does a health problem or a condition you have right now cause you difficulty with, or stop you from doing any of these things (mark as many spaces as you need to answer this question)?

- ☐ no, I have no difficulties
- ☐ seeing, even when wearing glasses or contact lenses
- ☐ hearing, even when using a hearing aid
- ☐ walking, lifting or bending
- ☐ using your hands to hold, grasp or use objects
- ☐ learning, concentrating or remembering
- ☐ communicating, mixing with others or socialising

Figure A9: Percentage with health problem or condition(s) (n=243 people gave 310 responses)



8) How people typically travel

People were asked to identify how they 'typically travelled' and to indicate the frequency of that travel. Given the relative complexity of answering this question (compared to some of the previous questions) many respondents skipped one or more of the rows provided. Because of this in Figure A10 it is noted for each question how many responses are included in the percentage breakdown.

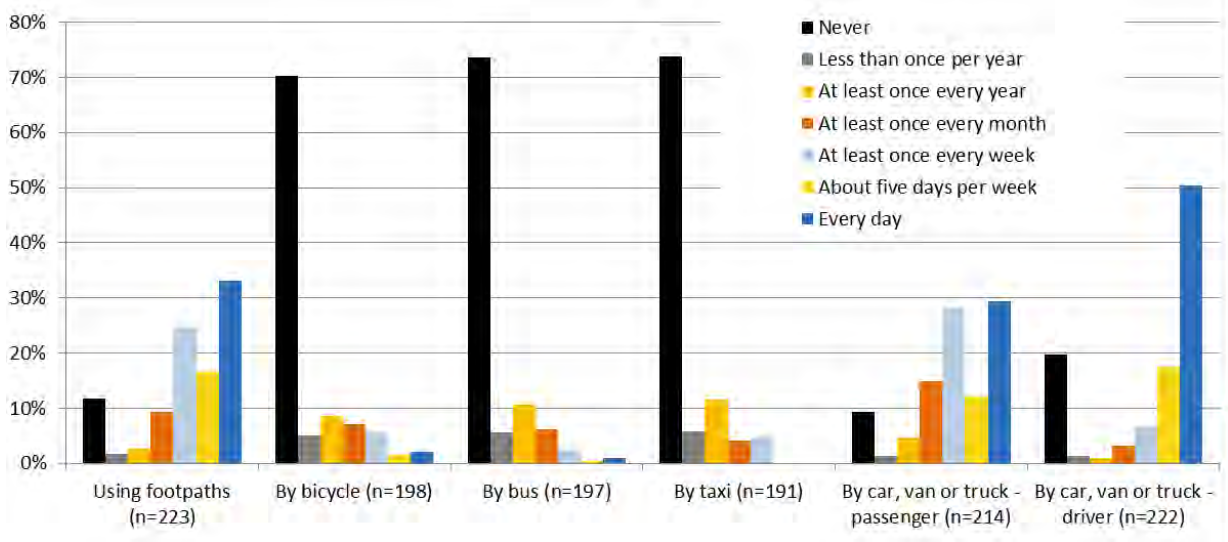
Perhaps most obvious result in Figure A10 are the black 'never' responses for travel by bicycle (70 percent never), by bus (74 percent) and by taxi (74 percent). In addition, 20 percent of people identified that they never travelled by car, van or truck as the driver (obviously including the 6 percent of all respondents who were aged less than 15 years). Conversely from the 'never' category, the 'every day' category was highest for those driving or travelling as passengers in vehicles, or using footpaths. Very few were using a bus, taxi or bicycle everyday (or even '5 days a week').

The question…

10. How often do you typically travel outside of your home in these different ways?
Please choose one answer per row.

	Never	Less than once per year	At least once every year	At least once every month	At least once every week	About five days per week	Every day
Using footpaths (walking, or using a wheelchair or mobility scooter etc)	○	○	○	○	○	○	○
By bicycle	○	○	○	○	○	○	○
By bus	○	○	○	○	○	○	○
By taxi	○	○	○	○	○	○	○
By car, van or truck as a passenger	○	○	○	○	○	○	○
By car, van or truck as a driver	○	○	○	○	○	○	○

Figure A10: How people typically travel



9) Better Access to Transport

People were asked to perceive whether or not having 'better access to transport' would affect selected activities and if so, whether by a little or a lot. The number of responses differed from 224 people responding to 'education' to 230 concerning the 'visiting friends or family' category.

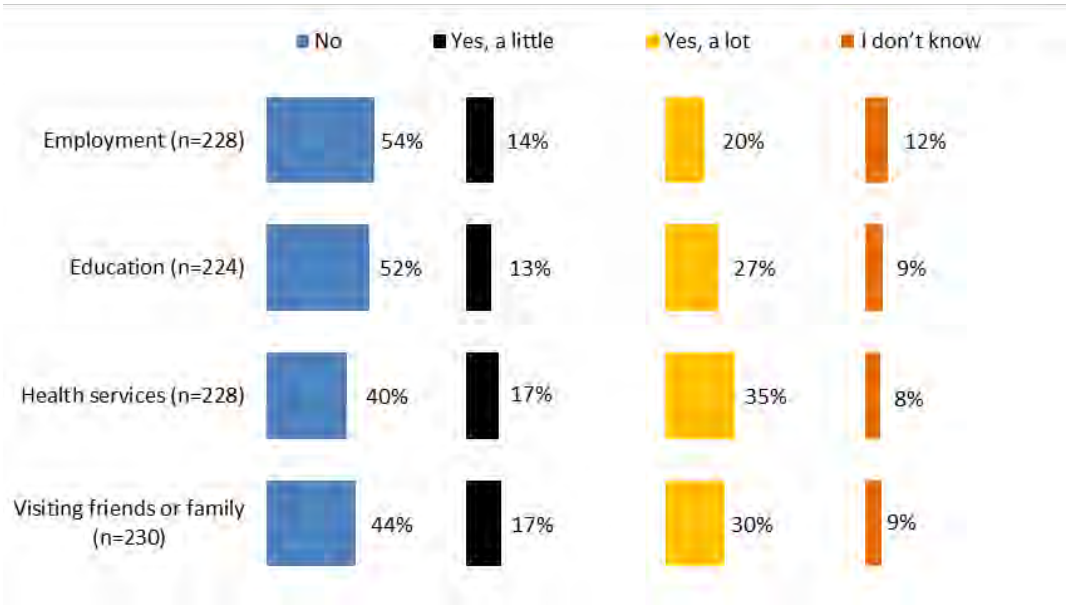
The majority of respondents perceived that better access to transport would not improve their access to employment (54 percent) and education (52 percent). Conversely, a higher percentage thought that their access to health services (35 percent) and visiting friends and family (30 percent) would improve a lot with greater access to transport. Across all questions between 8-12 percent of respondents chose the 'I don't know' category.

The question…

11. Would better or more access to transport improve your access to the following activities?

	No	Yes, a little	Yes, a lot	I don't know
Employment	○	○	○	○
Education	○	○	○	○
Health services	○	○	○	○
Visiting friends or family	○	○	○	○

Figure A11: Would better access to transport improve access to activities?



10) Frequency of participation in selected activities

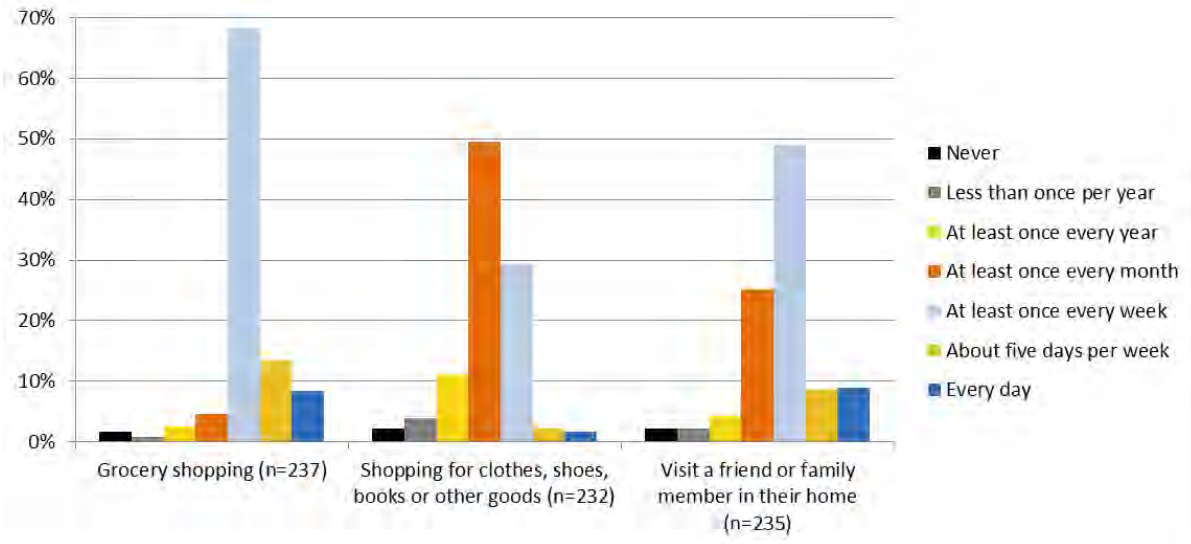
People were asked to respond to how frequently they participated in the three activities of grocery shopping, shopping for clothes and other goods and visiting a friend or family member in their home. Some 68 percent of the 237 people answering the grocery shopping question indicated that they did that activity at least once every week (with an additional 14 percent at least 5 days per week and 8 percent responding they did that activity every day – in total 90 percent of people generally do some sort of grocery shopping once a week or more frequently. For shopping for clothes and other items, half of respondents did that activity at least once per month. Visiting a friend or family member occurred at least once per month for 25 percent of respondents or at least once a week for another 49 percent of people.

The question…

12. How often do you participate in these different activities?
Please choose one answer per row.

	Never	Less than once per year	At least once every year	At least once every month	At least once every week	About five days per week	Every day
Grocery shopping	○	○	○	○	○	○	○
Shopping for clothes, shoes, books or other goods	○	○	○	○	○	○	○
Visit a friend or family member in their home	○	○	○	○	○	○	○

Figure A12: Frequency of participation in various activities



11) Frequency of exercise

Respondents were asked about the frequency of exercise in six different environments, being; going for a walk, exercising at a home (theirs or others), at an outdoor facility, at a gym, at an indoor sports facility and at a swimming pool or aquatic centre.

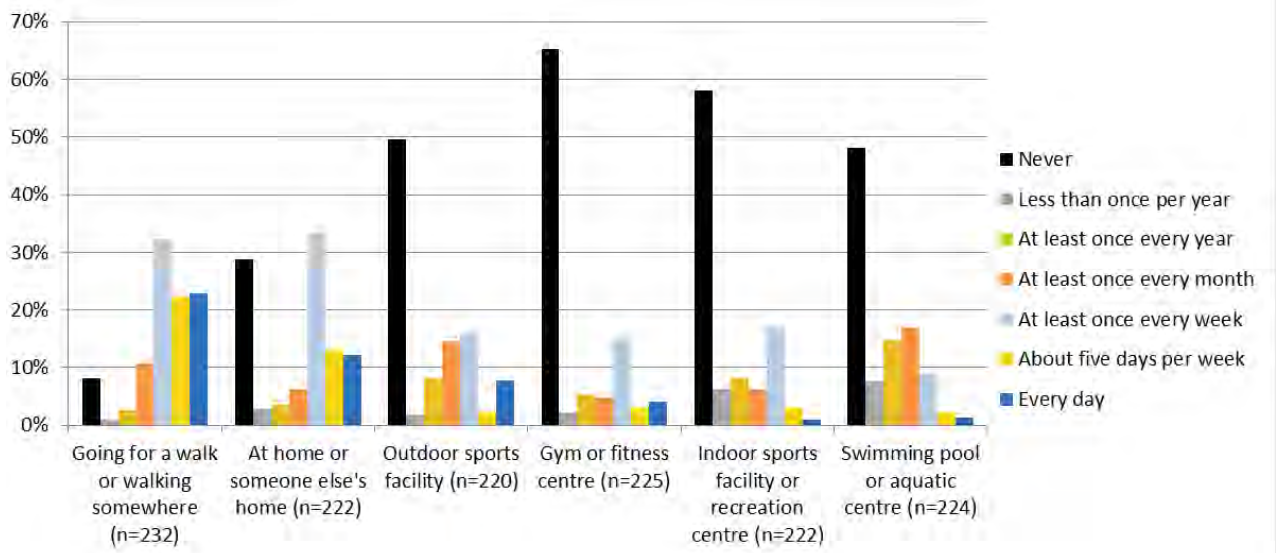
In four of the six activity categories the 'never' response was the most common response – for 65 percent of respondents answering the 'at a gym or fitness centre' to 48 percent of those responding to the 'at a swimming pool or aquatic centre' question. In the 'going for a walk or walking somewhere' category some 77 percent of respondents went for a walk at least once a week and 59 percent exercised at their own home or someone else's at least once a week. Perhaps surprisingly, some eight percent of people said they never went for a walk or walked somewhere.

The question…

13. How often do you exercise?
Please choose one answer per row.

	Never	Less than once per year	At least once every year	At least once every month	At least once every week	About five days per week	Every day
Going for a walk or walking somewhere	○	○	○	○	○	○	○
At my home or someone else's home	○	○	○	○	○	○	○
At an outdoor sports facility	○	○	○	○	○	○	○
At a gym or fitness centre	○	○	○	○	○	○	○
At an indoor sports facility or recreation centre	○	○	○	○	○	○	○
At a swimming pool or aquatic centre	○	○	○	○	○	○	○

Figure A13: Frequency of participation in various exercise activities



12) Use of health services in the last 12 months

People were asked to recall how often they had used five health related services over the previous 12 month period. The 'not at all or hardly ever' response was the most common in three health service categories- visiting a counsellor, psychologist or other mental health professional (86 percent); having a phone or internet consult with a GP (73 percent) and visiting the dentist (42 percent).

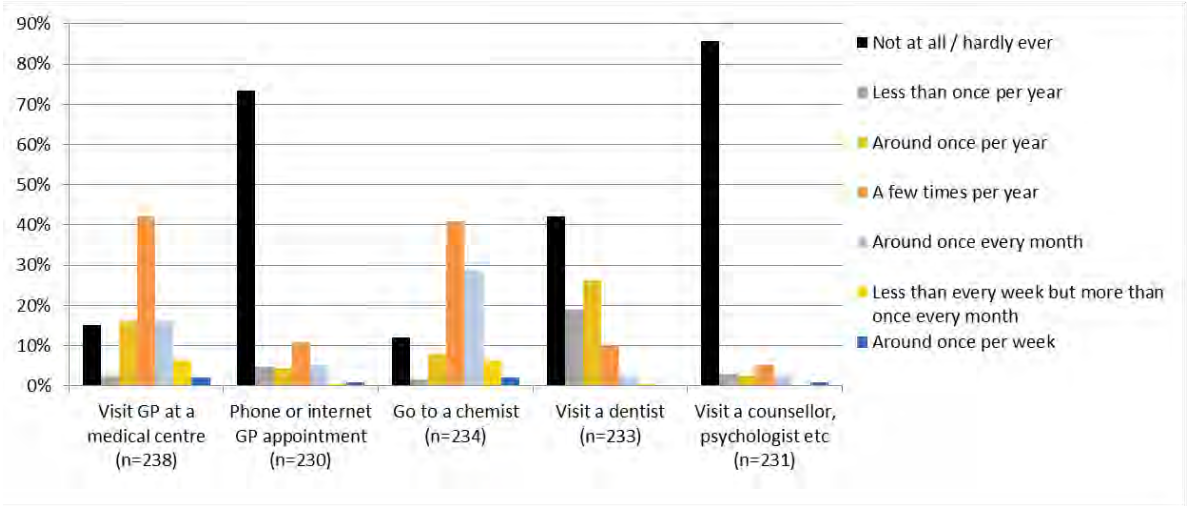
About 40 percent of respondents went to the GP at a medical centre and visited a chemist a 'few times a year'. When the three most frequent categories are combined almost a quarter (24 percent) visit their GP at least once a month and 37 percent visit the chemist at least once a month.

The question…

14. How often have you accessed these health services (for yourself) in the last 12 months? Please choose one answer per row.

	Not at all / hardly ever	Less than once per year	Around once per year	A few times per year	Around once every month	Less than every week but more than once every month	Around once per week
Visit a GP at a medical centre	○	○	○	○	○	○	○
Have a phone or internet appointment with a GP	○	○	○	○	○	○	○
Go to a chemist	○	○	○	○	○	○	○
Visit a dentist	○	○	○	○	○	○	○
Visit a counsellor, psychologist, or other mental health professional	○	○	○	○	○	○	○

Figure A14: Frequency of use of various health related services



13) Use of hospital services in the past year

Respondents were asked two questions about their use of hospital based health services over the last year – like the previous question this required respondents to generally recall visits and where those visits occurred.

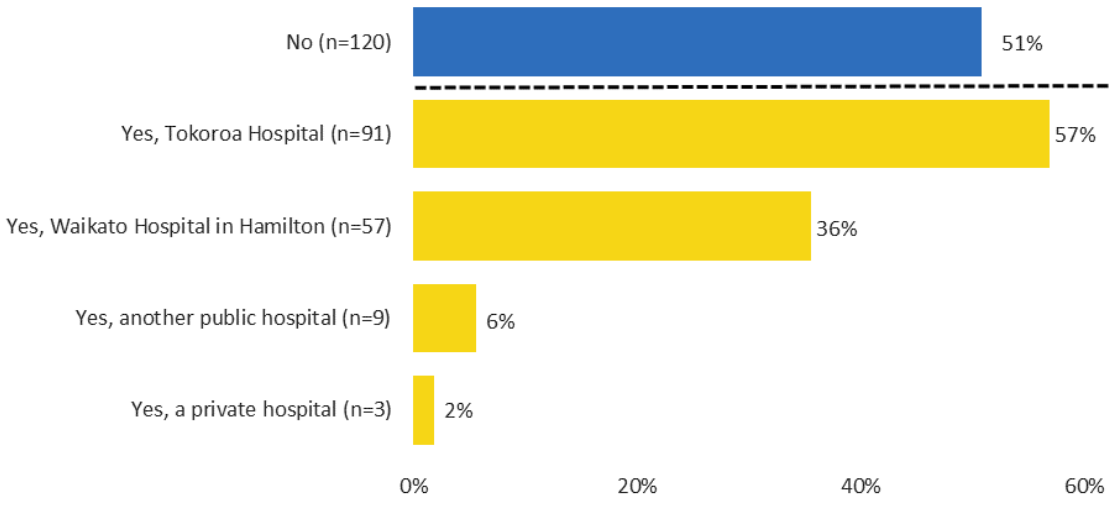
In total 236 people answered 'part one' (results in Figure A15) and provided 280 responses. Of the 236 respondents, 51 percent (n=120) indicated they had not used any of the noted hospitals. The remaining 116 people provided 160 responses. Some 57% percent of the 116 people indicated they had used Tokoroa Hospital (at least once in the past 12 months). A further 36 percent (n=57) had used Waikato Hospital in Hamilton for some type of service (used a service or been admitted).

The question…

15. In the last 12 months, have you yourself used a service at, or been admitted to a hospital as a patient? You may select more than one answer.

- ☐ No
- ☐ Yes, Tokoroa Hospital
- ☐ Yes, Waikato Hospital in Hamilton
- ☐ Yes, another public hospital
- ☐ Yes, a private hospital

Figure A15: Has a particular hospital based service been used or not in the previous 12 months?



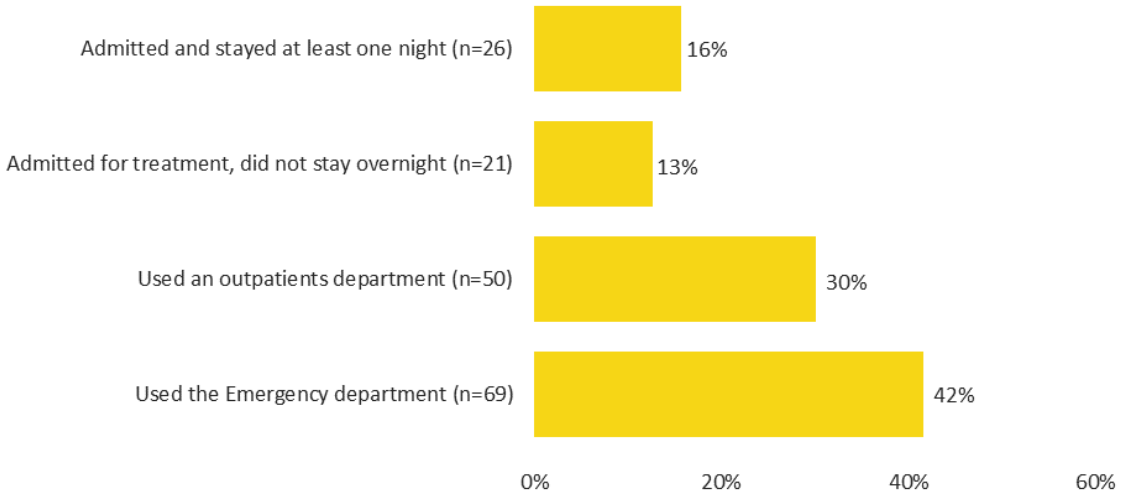
The second part of the question…

16. In the last 12 months, if you have been to a public or private hospital, which of the following happened?

- [ ] You used the Emergency department
- [ ] You used an outpatients department
- [ ] You were admitted for day treatment, but did not stay overnight
- [ ] You were admitted as an inpatient and stayed at least one night
- [ ] Don't know

In general, those who answered 'no' to the previous question on service use should not have provided a response to this follow up question. In total 119 people provided 166 responses, these are shown in Figure A16. Of those respondents who had used a service, some 42 percent had used the emergency department (not differentiation was made between the ED at Tokoroa Hospital or Waikato Hospital in Hamilton). 30 percent of had used an outpatients department in the past year (again including both Tokoroa and Hamilton based hospitals). Slightly smaller percentages had been admitted for day treatment (13 percent) or admitted with at least an overnight stay involved (16 percent). It is important to note that people were not asked to recall how many times they had used services in the past year, just whether a particular service has been used at least once in that time period.

Figure A16: The type of service(s) used in the past 12 months



14) Using GP services

Respondents were asked three related questions about their use of GP provided health care services; being around having a need for care but not visiting their GP due to cost, appointment availability or not having transport. This section has combined the responses from three separate questions into Figure A17. Beside each question the number of people responding is noted.

For those resident in the South Waikato the lack of suitable appointment times seems to be a reason for not visiting a GP – some 54% of respondents identified this. Cost of a GP consult has been a reason for not attending medical care for 36 percent of 237 people. Lack of transport to attend a GP consult was noted as a reason by 11 percent of respondents – with the majority (80 percent) responding that lack of transport had not been an issue (in this regard) in the past 12 months.

The questions…

17. In the past 12 months, was there a time when you had a medical problem but did not visit a GP because of cost?

- ◯ Yes
- ◯ No
- ◯ Not sure

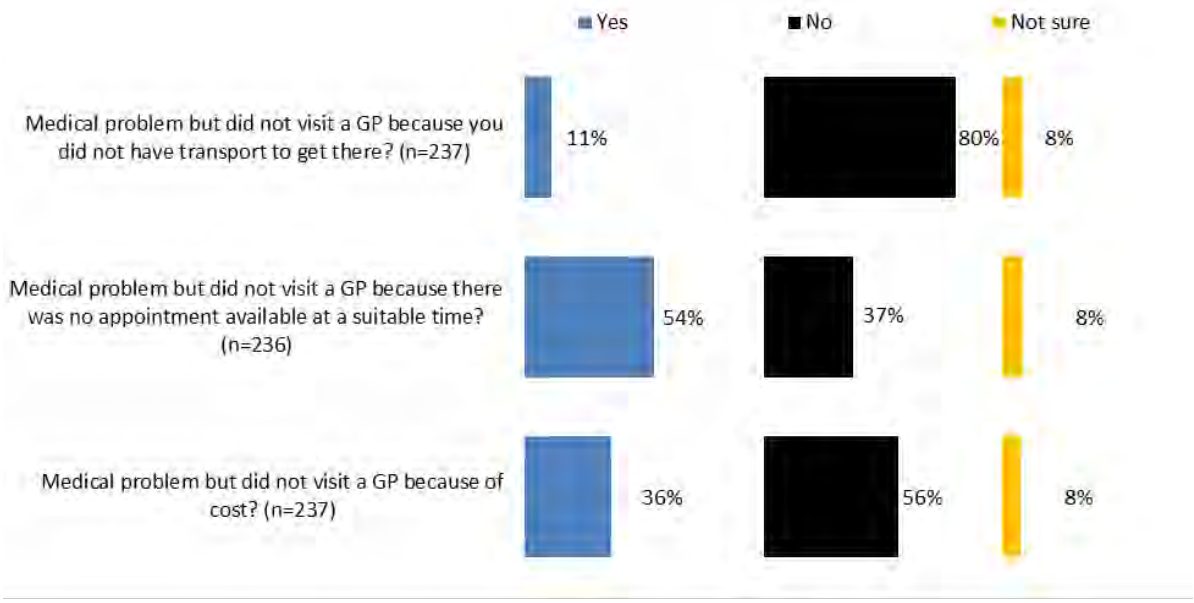
18. In the past 12 months, was there a time when you had a medical problem but did not visit a GP because there was no appointment available at a suitable time?

- ◯ Yes
- ◯ No
- ◯ Not sure

19. In the past 12 months, was there a time when you had a medical problem but did not visit a GP because you did not have transport to get there?

- ◯ Yes
- ◯ No
- ◯ Not sure

Figure A17: Access to and use of GP health services in the past 12 months



The New Zealand Health Survey[1] reports on 'unmet need for GP due to cost in the past 12 months'. In the 2016/17 year in total 14.3 percent of adults (15+ years) reported that the cost of a consult had affected their decision to seek health care. In this survey of South Waikato residents 36 percent reported that cost had stopped them visiting a GP (with an additional eight percent 'not sure'). Figure A17 shows this data. It also shows that the availability of a suitable appointment time was an issue for 54 percent of respondents, and transport to get to an appointment had been an issue for 11 percent of respondents.

[1] See https://minhealthnz.shinyapps.io/nz-health-survey-2016-17-tier-1/

15) Self-rated health

People were asked to rate their health as either excellent, very good, good, fair or poor (or they could respond 'don't know'). In total 236 people answered this question (Figure A18). Almost half (47 percent) self-rated their health as either very good or excellent with an additional 26 percent reporting good health (combined 73 percent had good, very good or excellent health). Conversely some 22 percent reported only 'fair' health and 4 percent that they had 'poor' health.

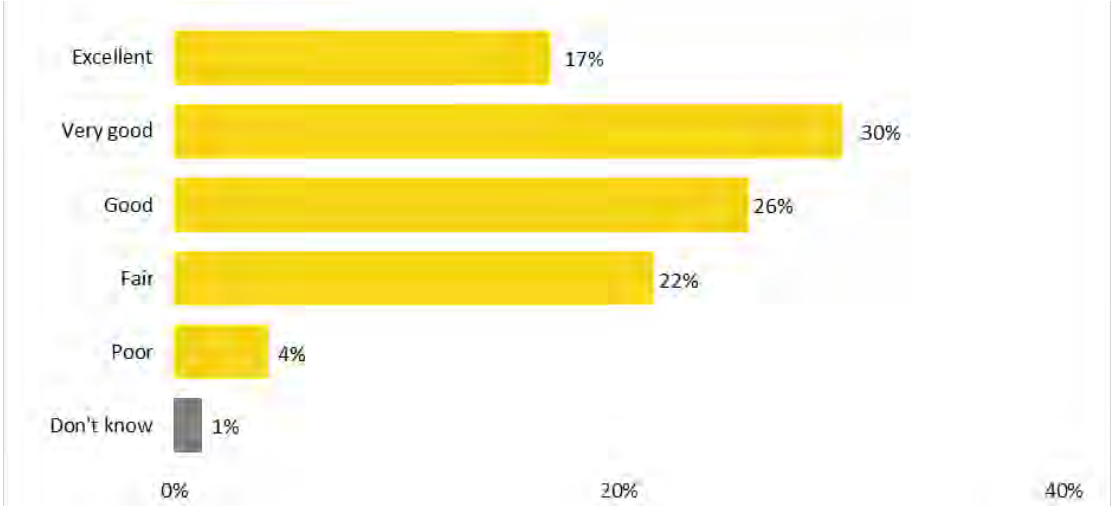
The reporting of self-rated health is a Tier 1 statistic[2], produced by Statistics New Zealand from the New Zealand Health Survey. The 2016/17 survey reported that 88.2 percent of New Zealand adults (aged 15+ years) report their health as "excellent", "very good" or "good" compared to 73 percent in this transport and wellbeing survey (all ages included).

The question…

20. In general, would you say your health is excellent, very good, good, fair or poor?

- Excellent
- Very good
- Good
- Fair
- Poor
- Don't know

Figure A18: Self rated health (n=236)



[2] https://minhealthnz.shinyapps.io/nz-health-survey-2016-17-tier-1/

16) Rating of income level (to meet needs)

Respondents were asked their perception of how well their household income met their everyday needs. The emphasis was on everyday necessities including such things as accommodation costs, food and clothing.

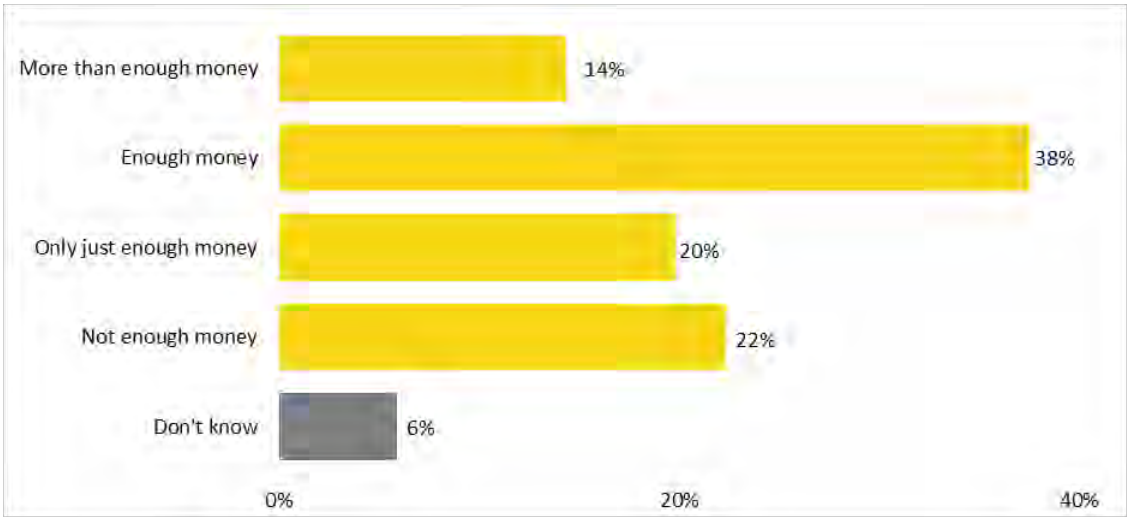
Just over half of respondents (52 percent) felt their household had enough or more than enough for everyday necessities. Similar proportions noted they only just had enough money (20 percent) and not enough money (22 percent). Some six percent did not know (most respondents aged under 15 years chose this response).

The question…

21. How well do you feel that your household income meets your everyday needs for such things as accommodation, food, clothing and other necessities?

- ◯ Not enough money
- ◯ Only just enough money
- ◯ Enough money
- ◯ More than enough money
- ◯ Don't know

Figure A19: Self rated income level (n=237)



17) General life satisfaction

People were asked how satisfied they were with their life in general. In total 234 people responded with a combined two-thirds of people (67 percent) being either somewhat or completely satisfied. An additional 21 percent (n=48) chose the 'neutral' category response and three percent didn't know. The remaining nine percent (n=23) were 'dissatisfied' (three percent completely dissatisfied and six percent somewhat dissatisfied).

The question…

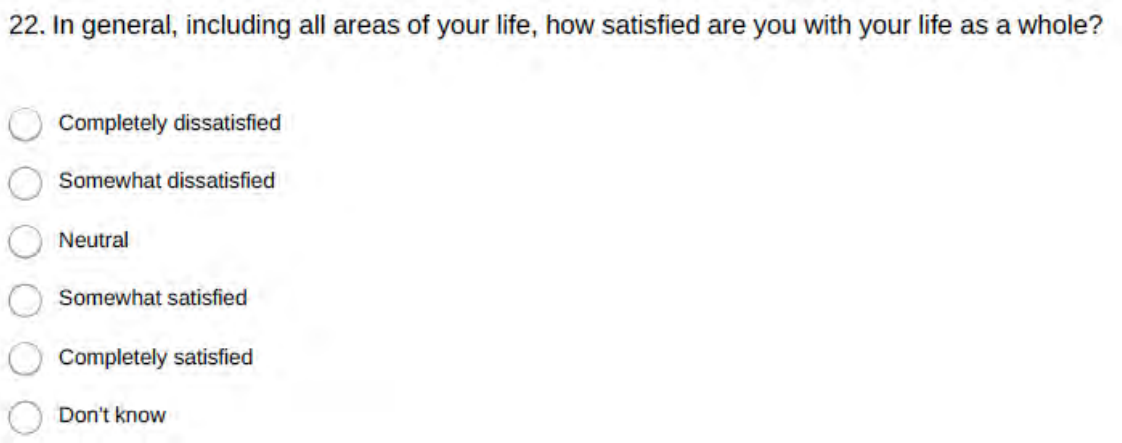
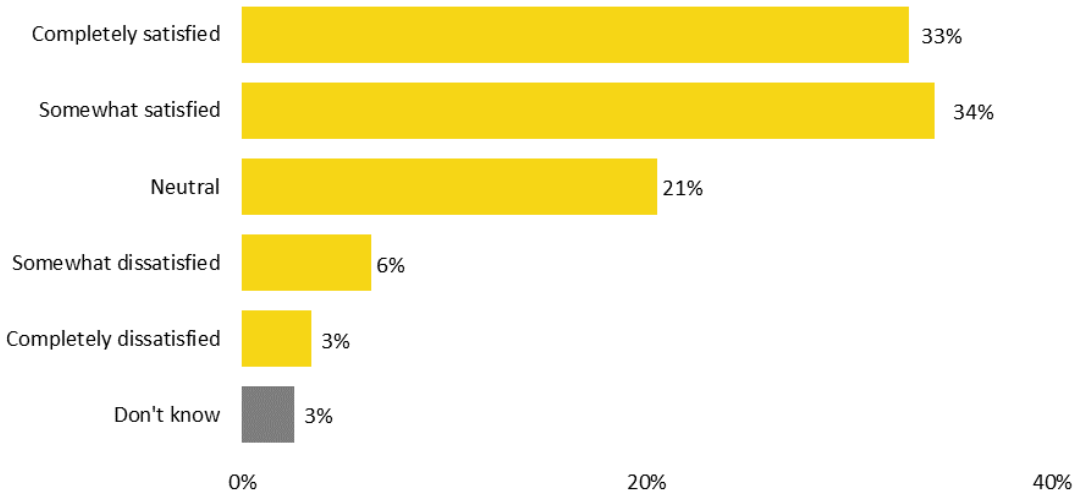


Figure A20: General life satisfaction (n=234)



18) Effects of reduced access to transport

Respondents were asked to gauge the effects that potentially reduced access to transport would have on their employment, education, access to health services and their visiting of friends or family. The 'yes' option was divided into 'yes, a little' and 'yes, a lot'. In total just over two-thirds of respondents (67 percent) thought that 'yes' visiting friends or family would be affected by either a little (24 percent) or a lot (43 percent). Close behind was the effect on participation in health service use, on a combined 65 percent, with 30 percent responding their participation would be affected 'yes, a little' and another 35 responding 'yes, a lot'. Almost half of respondents (48 percent) answered that their participation in education or employment would not be affected. For each of the activity categories between seven percent and 11 percent of respondents responded "I don't know".

The question…

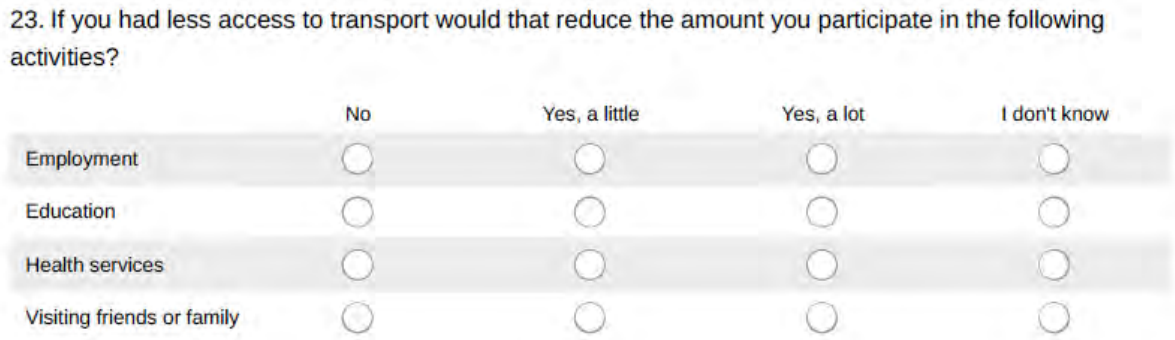
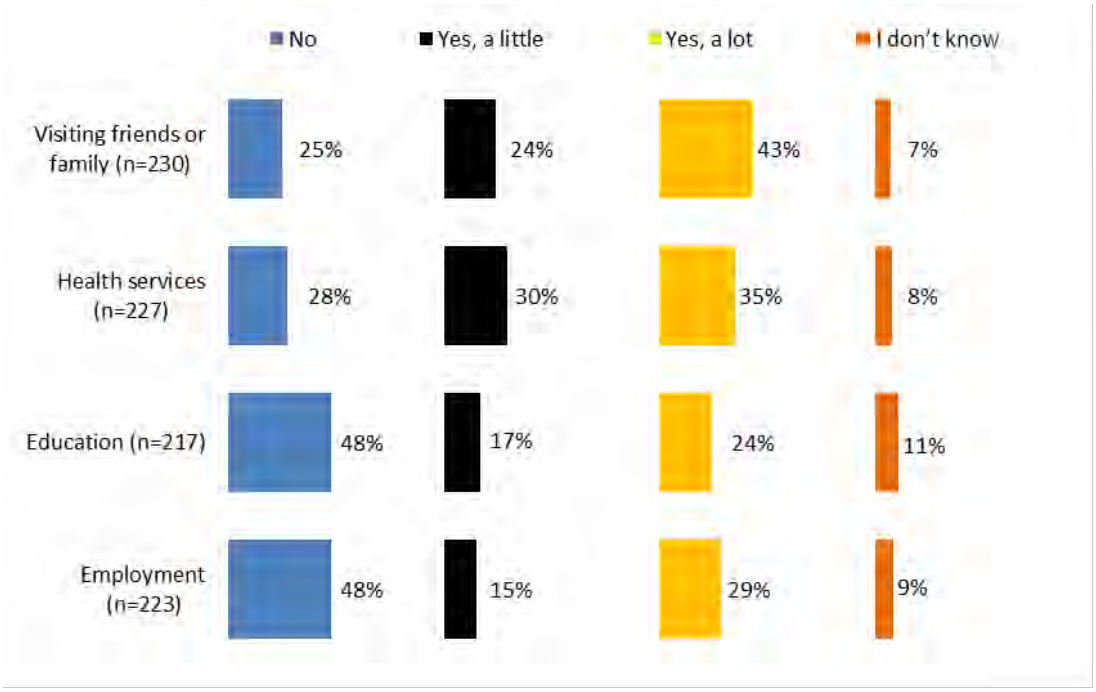
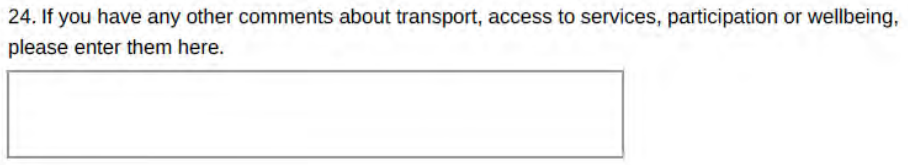


Figure A21: Less access to transport? Perceived effects on activities



19) Responses to the final open ended question

The survey ended with an opened ended question to gather any remaining comments.



In total 53 comments were made. These comments have been themed into four broad categories; bus service / public transport related; accessibility comments; health service comments and more general comments. These are presented below.

Table A1:

Bus service / public transport comments	
1	Need more for people with no transport e.g. Buses (free)
2	Bus service in Tokoroa is necessary to have for our community!
3	Need transport to WINTEC
4	New bus service in Tokoroa great!
5	We have a bus to go to town
6	My concern is as I'm getting older that there is no taxi service in Putaruru. It is my main consideration about continuing to live here. I would really like to stay in this town.
7	The only transport available in Arapuni is private motor car
8	Public transport is important for the young and the old. Currently I am neither (i.e. in-between).
9	Urban connector is a brilliant initiative!!
10	Love the shuttle bus that goes around our street school holidays very useful my niece and nephew love going on it
11	I would like to use the bus more to go into Tokoroa or Putaruru however the cost to use it is too high. I work 2 days a week to supplement my income. I would volunteer more however as I live in the country the cost to travel is too high. At the moment my husband is in a home so I need to visit him regularly
12	I would use regular transport links to Rotorua and North if they were available
13	As a farmer I don't care about public transport
14	I think Tokoroa has pretty good transport systems in place and is well utilized (connector + taxis)
15	Rural people do not have access to any public transport, and there are more important things such as gate collection of recyclables and rubbish collection. Our rates are far too much for minimal services.
16	I've always wanted to use a bus service that leaves tokoroa to hamilton and returns same day to visit friends and family as i don't have a car. i have mental health issues and been able to leave town for a day every now and again is a good way to do something different that doesn't cost too much.
17	We need to keep public transport going I'm not one to use them but I know many people, families who rely on these transport to get to and from their destinations and the ones without cars and can't drive they will benefit from this service and one less stress to worry about and these should be funded by council so get fundraising council lol.. We need more herbalist on our health sector. I used the online app to consult with doctor and that is such a cool service for those who can get internet. I told him my symptoms and what it could be. I was right I didn't do any test instead I turned to herbal tea, organic foods! Best choice I made for myself in years and I have no doubt that this worked for me.

Table A2:

	Accessibility comments
1	There needs to be more awareness around what is available for use. What is accessible for the people of the South Waikato.
2	It is so frustrating to know the local bus stop is only a few metres from our gate but I can't manage to get onto the bus *[edited: due to accessibility issues]*. It would be great to bus to Putaruru/Tirau to have coffee and then return.
3	We need more and better services available in the town so that travel isn't required
4	If there was more buses they need to be able for the older with walker's as a lot of older people have trouble getting upstairs
5	I have good access to transport our car, and a good town bus service going past my gate.
6	*[edited] Now living in* Putaruru I can say that my anxiety levels have shot right up with the lack of most facilities here, including buses or taxies, I am still able to drive myself but the burden of keeping myself well is a huge responsibility....and I don't really know anyone here should I need the help.
7	Congestion and narrow parking
8	Cant live rural and not have your own car.

Table A3:

	Health service comments
1	Desperately need more GPs
2	Reduce time to book in to see the GP - waiting a week. Have to use after hours and week-end doctors.
3	Need better transport to Waikato Hospital; transport to Waikato Polytech.
4	Transport to Waikato Hospital from Tokoroa and to WINTEC (Need more)
5	Transport for early appointments to Waikato, early return! Same for evening.
6	My partner has to take leave from work for me to attend hospital appointments at Waikato hospital. Only other option is using St Johns. Currently dont want to drive myself up there as too stressful.
7	Ive got easy access to Tokoroa hospital but its them that dont wana see us, and our rates is so high for a town thats got nothing for our children.
8	Absolutely disgraceful how hard it is to get an appointment with a GP now. Makes it very hard to get medication when needed and doctors certificate for work. Have been offered appointment for a week and a half later when trying to get in.
9	Please fix this doctor appointments problem. It so bad. You can't get in to see a doctor. Almost have to sell them your first born to get an appointment within the week it terrible
10	Putāruru Doctors consultations are too expensive $38 per 15 mins crazy!! Would rather go to Tokoroa but even always fully booked. Considering using 'Connector' bus
11	Sad, that if you are dying, being looked after at home, from Tokoroa go to Waikato Hospital for more iron/blood that the cost to come home in an ambulance (ordered by the doctor) that the cost of the account is $500. Also, if you are being looked after at home while you are dying and then doctor says you go to rest home for your last days that the ambulance cost for 200 metres is $200. Sad that being looked after at home costs your family $$ - and if you are in a rest home it costs the govt lots of money.
12	My answer about satisfaction of life is currently low because of health issues and not being able to sort them as medical professionals keep 'passing the buck' on me. This has led to me not being able to go for walks as often as I need to. I would love to use the town pools but I can't afford to.
13	Better parking at Tokoroa Medical Centre, as hilly parking can be very awkward.
14	I have a vehicle to get me to the doctors, but its a long walk from the car park to the doctors, so I avoid going to the doctor completely because I can't walk that far due to being overweight. I need help, but don't know how to access the help.
15	We need more GO services here. We had to book into the Tokoroa Family Service as no space in Putaruru which adds to the cost

Table A4:

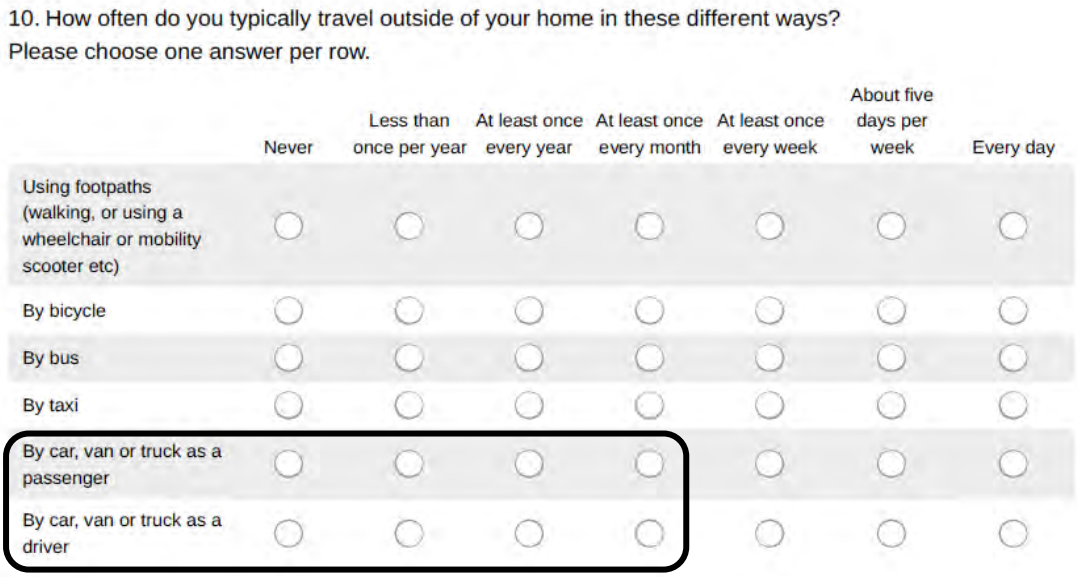
General comments	
1	So far so good
2	Very happy
3	I drive my own car so can get places.
4	*[Edited]* I have easy access. I have lived in Tokoroa for years it has been a good place and town to live in. It is a friendly place and everyone in Tokoroa seem to be one big happy family. For a multicultural town it is the best place in NZ.
5	Taking family to appointments, we had to take time off work which has an effect upon employment.
6	I would still have to go to work but without a car it would be a lot more difficult. Ditto re health and visiting.
7	Keep doing quality good work
8	Speed limit on street where I live is 50km but the way people drive you would think its 100km
9	Would be stuck if I lost drivers licence
10	Just moved to Tokoroa 3 months ago and very pleased to be back in the Nth Island again.
11	doing ok thanks - occasionally lonely
12	[Edited] I travel to Tauranga fortnightly to do groceries. While there I do all clothes/shoe shopping. The footpath by our house is poorly maintained and the 100k sign is just 100m from my driveway, and nobody ever slows down enough for me to ever trust my child waking along it alone, despite the primary and kindy being in view from our house. People also speed up once they pass the service station, so if traffic is flying, I have to stop to turn into my own driveway, and I cannot count how many times I have nearly been rear ended. My driveway is shared with 5+ other households, 3 of which have children. If anything could be done, could the 100k sign be moved to the other end of the golf course and a speed camera be set up to catch those coming in and risking lives.
13	Not advertised enough to the Public.

Respondents with low access to travel (by vehicle)

The previous section presented the results of each survey question sequentially. This section looks at those survey respondents considered to have lower levels of access to transport, where they live and how lack of access to transport may affect them.

People were identified as potentially having 'low access to transport' from their responses to survey question 10 (below). Travelling only once a month or less as either a driver and/or passenger was used as a proxy for reduced access to transport. If people had very regular access as a passenger but not as a driver they were not included. In other words, responses to both sub questions (highlighted below) needed to be at the level of 'never, 'less than once per year', at least once every year' or 'at least once every month'.

The question was…


10. How often do you typically travel outside of your home in these different ways?
Please choose one answer per row.

	Never	Less than once per year	At least once every year	At least once every month	At least once every week	About five days per week	Every day
Using footpaths (walking, or using a wheelchair or mobility scooter etc)	○	○	○	○	○	○	○
By bicycle	○	○	○	○	○	○	○
By bus	○	○	○	○	○	○	○
By taxi	○	○	○	○	○	○	○
By car, van or truck as a passenger	○	○	○	○	○	○	○
By car, van or truck as a driver	○	○	○	○	○	○	○

In total 33 respondents met this derived criteria (13 percent of all survey respondents). When referenced against question 7 (the number of vehicles), in total 11 people (33 percent) noted that their household had no access to a vehicle.

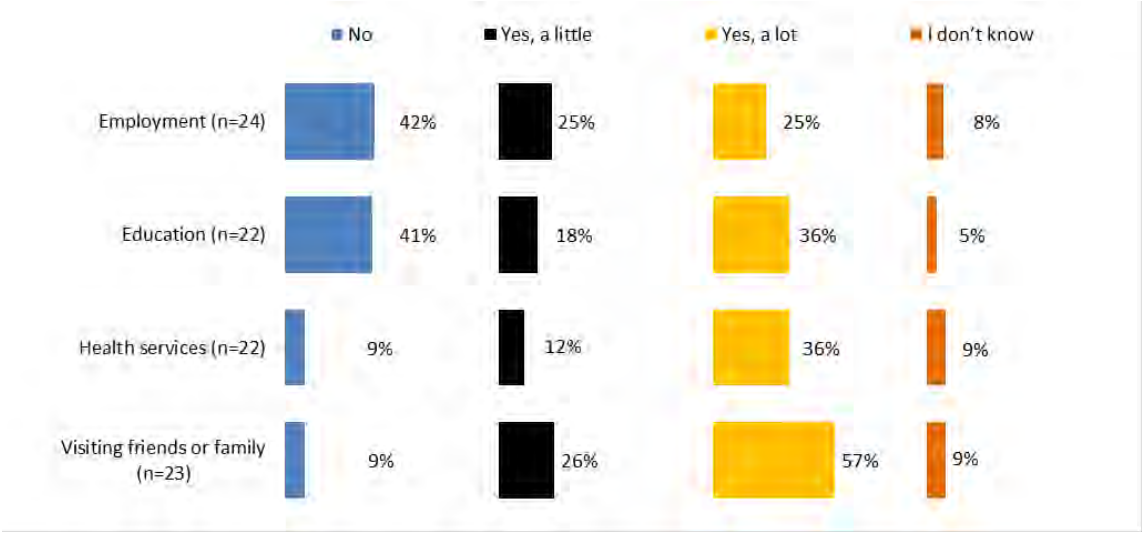
Of the 33 respondents some 11 (33 percent) were aged 15-24 years with another 18 percent aged 65-74 years and 15 percent aged 25-34 years. 28 (85 percent) of respondents were resident in Tokoroa, with one resident in each of Arapuni, Putaruru and Tirau (2 people did no report their residence). Being a 'student' was the most common occupation category, with 12 respondents (36 percent) reporting as students and another 8 respondents (24 percent) reporting themselves as 'retired'.

"Would better access to transport improve your access to activities?"

The 33 respondents also answered survey question 11 ("would better access to transport improve your access to the following activities?" (see below). Figure A22 shows the responses for each activities, noting that the numbers of people responding to the effect of better access on each activity was quite low (n=22 to 24). Given that many of the 33 people with low access to transport

self-identified as students or retired it is not surprising that 42 percent and 41 percent perceived no improvement in access to employment or education respectively. In total 83 percent (n=23) of those with lower access to transport thought that visiting friends and family would be improved by more access to transport.

Figure A22: Would more access to transport improve your access to activities?



Appendix C

Benefit/Cost Appraisal Calculations

BENEFIT COST APPRAISAL	
Walking	**Description**
Costs	Infrastructure cost: 200 new/replaced kerb cuts ($2,500/ea) = $500,000 40 new refuge islands ($3,000/ea) = $120,000 40 new raised pedestrian crossings ($5,000/ea)= $200,000 3500m of footpath improvements ($8,000/100m) = $280,000 = $1,100,000 one-off investment in Year Zero
	Lump sum maintenance costs: = $200,000 in Year Seven and Year Fourteen
	Annual maintenance cost: = $50,000 per year
	Net Present Value of total cost to territorial authority, before application for subsidy from National Land Transport Fund: = $1,497,492
Benefits	Average size of community: 30,000 people
	Number of people in each territorial authority who walk enough to not have Type 2 Diabetes: = 166 people Annual economic cost of Type 2 Diabetes: = $2,104 per person Annual benefit through reduction in Type 2 Diabetes: = 166 x $2,104 = $348,225
	Number of people who walk enough to not experience serious mental illness: 7 people Annual economic cost of serious mental illness: = $130,000 per person Annual benefit through reduction in serious mental illness: = 7 x $130,000 = $883,685
	Total annual benefit for each territorial authority = $348,225 + $883,685 = $1,231,909
	Net Present Value of annual benefit to territorial authority, based on 25 years of benefit of $1,231,909: = 11,182,091
Benefit/Cost Ratio	= $11,182,091/ $1,497,492 = 6.5
Sensitivity Test	Assume +/-40% on assumptions of number of people who do not develop diabetes and serious mental illness Assume +/-20% on assumed costs of construction including maintenance BCR range 2.7 – 12.1

Table 2: Benefit/Cost Appraisal for Investment in Walking

Benefit Cost Appraisal	
Community Transport	**Description**
Costs	Grant to each Community Transport provider: 19 grants x $15,000 per community = $285,000 per year
	Support cost: salary for Regional Council / Community support employee, net $60,000 (part-time role), across 19 communities = $60,000 per year
	Total cost to Waikato Regional Council: = $285,000 + $60,000 = $345,000 per year
Benefits	Average size of community: 10,000 people
	Number of people accessing Community Transport service: 500
	Number of people accessing Community Transport service who do not develop dementia each year, who otherwise would have: 5
	Annual economic cost per person with dementia in New Zealand = $26,904
	Total annual benefit for Waikato Region = 5 people x 19 communities x $26,904 per person = $2,555,880
Benefit/Cost Ratio	Net present value benefits: =$38500000 Net present value costs: = $-7030000 Benefit/Cost ratio = 4.5
Sensitivity Test	Assume +/-40% on costs; +/- 20% on benefits; Discount rate 4% or 8% BCR range 1.5 - 9.6

Table 3: Benefit/Cost Appraisal for Investment in Community Transport[10]

[10] Note that the costs and benefits described in Table 3 are annualised. All of the costs are paid, and benefits accrued each year, so there is no need to calculate the Net Present Value of any components.