The social impacts of poor access to transport in rural New Zealand
June 2012

Gerard Fitzgerald
Fitzgerald Applied Sociology

An important note for the reader

The NZ Transport Agency is a Crown entity established under the Land Transport Management Act 2003. The objective of the Agency is to undertake its functions in a way that contributes to an affordable, integrated, safe, responsive and sustainable land transport system. Each year, the NZ Transport Agency funds innovative and relevant research that contributes to this objective.

The views expressed in research reports are the outcomes of the independent research, and should not be regarded as being the opinion or responsibility of the NZ Transport Agency. The material contained in the reports should not be construed in any way as policy adopted by the NZ Transport Agency or indeed any agency of the NZ Government. The reports may, however, be used by NZ Government agencies as a reference in the development of policy.

While research reports are believed to be correct at the time of their preparation, the NZ Transport Agency and agents involved in their preparation and publication do not accept any liability for use of the research. People using the research, whether directly or indirectly, should apply and rely on their own skill and judgement. They should not rely on the contents of the research reports in isolation from other sources of advice and information. If necessary, they should seek appropriate legal or other expert advice.

Acknowledgements

Abbreviations and acronyms

BOP	Bay of Plenty, New Zealand
DIY	do it yourself
IAIA	International Association for Impact Assessment
MoT	Ministry of Transport
MV	motor vehicle
NZHTS	New Zealand Household Travel Survey
NZTA	New Zealand Transport Agency
PHO	Primary Health Organisation
PT	public transport
SEU	Social Exclusion Unit, Office of the Deputy Prime Minister, UK
SIA	social impact assessment
TCDT	Takitimu Community Development Trust

Contents

Executive summary

This report investigates poor access to land transport in New Zealand rural communities and its social consequences in order to inform and enhance planning for sustainable communities. The research informing this report was undertaken by Fitzgerald Applied Sociology (Christchurch), in association with Boffa Miskell Ltd and with funding from the New Zealand Transport Agency.

The research

The research combined analysis of data from the New Zealand Household Travel Survey and the Census of Population and Dwellings, consultation with sector stakeholders, and community case studies of Fairlie and Ohai-Nightcaps. The former rural area was selected because it was 'typical' in terms of social characteristics and household access to motor vehicles, while the latter was selected because of the particular social characteristics, level of access to motor vehicles and public transport, and level of socio-economic deprivation. The community case studies themselves involved qualitative and quantitative research.

A review of the social research literature found very little in the way of systematic assessment of the social impacts of poor access to transport. It also failed to reveal much in the way of sociological research on rural transport in New Zealand. It did, however, identify a body of European material in two related areas of discourse – *accessibility* and *social exclusion*. Both of these are concerned with fairness, though the latter focuses more on the processes by which people become poor.

Access to transport in rural New Zealand: 2006 Census

The 2006 census data shows that 3% of New Zealand's 203,433 rural households did not have access to a motor vehicle, while 93% of rural households had access to at least one operational motor vehicle, and 70% had more than one vehicle. While it is not known whether these vehicles were registered and warranted, and if access was evenly distributed among the adult members of households, access to transport did not appear to be an acute problem for most rural residents in 2006.

However, motor vehicle access varies across different types of rural area, with there being a clear negative correlation between level of access to a motor vehicle and the degree of rurality of the area. In short, and ironically, the proportion of households without a motor vehicle was highest in 'highly rural/remote areas', and lowest in 'rural areas with a high urban influence'. The average number of vehicles available to households also increased with the level of urban influence on the particular area. This pattern of availability also occurred with public transport: the apparent availability decreased as level of 'urban influence' dropped off.

In 2006, 184,455 rural people were travelling to work away from their place of residence, up 27% from 1996. However in the same period, the number using public transport to travel to work rose only 3%, and the number using public buses actually fell by 29%. In two thirds of the 481 rural census area units in 2006, no one reported using public transport to get to work.

This report finds that rural areas that are comparatively transport poor areas are more remote, and have:

- higher proportions of people aged 65 and over

- higher proportions of Māori residents

- lower levels of educational attainment

- smaller household sizes

- lower median household incomes

- lower levels of access to telephones and to the internet.

Importantly, the rural areas with poor access to transport have higher levels of socio-economic deprivation as measured by the New Zealand Index of Deprivation.

Based on the analysis of the available data on transport availability, and the case studies, the report concludes that:

- access to a motor vehicle is essential to mobility among rural people

- this mobility is essential for getting access to the goods, services, activities and opportunities that rural people need to sustain themselves

- those with poor access to adequate transport are likely to experience multi-dimensional disadvantage.

The social impacts of poor access

The impacts of poor access to transport depend on the circumstances and capacities of those affected, and the situation of the community in which they live. In rural New Zealand, lack of access to transport is not intrinsically problematic: it is only an issue where people cannot get to the goods, services and activities they need to sustain themselves and their communities. Unfortunately, in many rural communities there is an observable spiral of depopulation and associated loss of such services, activities and opportunities. This has been occurring in all types of rural areas except those 'with a high level of urban influence'. In the latter, populations are growing, largely because of high levels of access to motor vehicles and associated infrastructure, and high incomes. Since commercial, professional and social services, employment and people have become progressively concentrated in the cities, rural people have had to look increasingly to larger towns and cities to meet their needs. Consequently, reliable access to motorised transport has become essential and standard.

The main impacts of people and communities of poor access to transport are therefore to do with a) not being able to access the goods, services, activities and opportunities that they need, and b), the efforts and investments made to overcome these accessibility problems. In this report the various impacts identified in the case studies and other research have been grouped into:

- effects on the quality of people's living environment

- effects on material wellbeing

- effects on physical and mental health

- effects on family, community and social networks

- effects on institutions, political structures and equity

- effects on cultural identity and expression.

Importantly, the research suggests poor access to transport is probably occurring in places that are already struggling with social and economic sustainability. That is, rural communities with comparatively poor access to transport face a range of disadvantages and deprivations. Decreasing access to transport, whatever its causes, is most likely amplifying existing poverty and adding to the challenges of sustaining rural communities.

Dealing with the impacts of poor access to transport

Five possible strategies for avoiding and/or mitigating the impacts of poor access to transport in rural areas are presented. These fall into two broad types: a) strategies that seek to improve access to the services, goods, activities and opportunities that people need, and b), strategies that seek to change the context or situation.

The first includes most of the common strategies, namely:

- improving the movement of people

- moving the location of the goods, services, activities etc

- rescheduling or substituting the goods, services and activities.

The second includes:

- reducing socio-economic disadvantage at the individual, household and community level

- changing peoples' and the community's perceptions of, and expectations about the accessibility of goods, services etc in modern rural New Zealand.

The report provides examples of suggested or attempted interventions in each category.

More generally, the report concludes by proposing the use of accessibility planning and anticipatory impact and sustainability assessment in rural district and services planning, more integration and coordination of the plans and activities of different agencies, and more assistance for local rural communities attempting to develop their own solutions to problems of accessibility.

Abstract

Little social research on rural access to transport in rural communities has been carried out in New Zealand. With assistance from the New Zealand Transport Agency, the researchers addressed this issue and the social effects of poor access. Census and national travel survey data provided a picture of access to private and public transport, travel patterns and socio-economic characteristics of residents in areas with different levels of transport access. Two rural community case studies were conducted to document the social issues and impacts of poor access to transport, and to identify local attempts to solve transport problems. Options for addressing poor access to transport and its effects were explored with government and private sector transport specialists.

Access to private motor vehicles was found to be nearly universal among New Zealand rural households. However, some communities and sections of the rural population suffer from significant transport-related disadvantage. Two main types of strategy for mitigating the impacts are presented: a) those that set out to improve access to services, goods, activities and opportunities rural people need, and b) strategies that seek to change the context in which disadvantage is experienced. The authors propose the use of accessibility planning and anticipatory social impact assessment in rural services and district planning, along with more assistance to local communities to develop their own solutions to transport problems.

1   Introduction

1.1   Background

This report details the findings of the New Zealand Transport Agency (NZTA) funded research project directed at understanding the social impacts of poor access to transport in rural New Zealand communities and the consequences of poor access. Four objectives were specified for the research:

- Identify rural communities and subpopulations that are comparatively disadvantaged in terms of access to land transport.

- Identify the possible causes of poor access in these communities and groups.

- Describe, and where possible, quantify the socio-economic impacts of poor access, especially in communities with ongoing disadvantages.

- Identify possible interventions and policies for improving access, especially in the more disadvantaged communities.

The research was conducted in five stages:

1   A review of the relevant New Zealand and international literature

2   Statistical analysis of time-series census and other official transport data at the area unit and meshblock level

3   Two community case studies, including selected individual interviews and focus groups

4   Consultations with agencies and other stakeholders, including local councils on possible interventions and impact mitigations

5   Final reporting.

The research was conducted by Fitzgerald Applied Sociology (FAS) in collaboration with Boffa Miskell Ltd.

1.2   Structure of the report

The remainder of this report is structured as follows:

- Chapter 2 outlines the key concepts which have informed the project and the final report, including social impact assessment (SIA), transport, access and accessibility, and social exclusion.

- Chapter 3 describes the study methodology.

- Chapter 4 describes the New Zealand rural transport situation, and in particular, rural household travel patterns, travel to work, access to motor vehicles, and availability of public transport.

- Chapter 5 reviews the characteristics of rural communities that have comparatively poor access to transport.

- Chapter 6 explores the transport situation for the two case study communities of Ohai-Nightcaps and Fairlie.

- Chapter 7 discusses the social impacts of poor access to transport drawing mainly on the two community case studies.

- Chapter 8 discusses the possible strategies for mitigating the negative social impacts of poor access to transport in rural New Zealand communities and summarises the strategies adopted by people in the case study communities.

- Chapter 9 provides our conclusions and recommendations.

The report also contains a reference list and an appendix.

2   Key concepts

There are a number of concepts which must be understood in order to make the most of this research project. This chapter will discuss three key concepts.

2.1   Social impact assessment

Social impact assessment (SIA) refers to a systematic process for analysing and managing the intended and unintended consequences of any public or private actions that alter the ways in which people live, work, play, relate to one another, organise to meet their needs and generally cope as members of society (Vanclay 2002; Interorganizational Committee 2003). This definition is similar to that endorsed by the International Association for Impact Assessment (IAIA) (2003) in its *International principles for social impact assessment*. While Vanclay refers to the outcomes of 'social change processes' on the 'human environment', the IAIA also refers to 'cultural impacts involving changes to the norms, values, and beliefs that guide and rationalize [peoples'] cognition of themselves and their society' (Interorganizational Committee 2003, p231).

Van Schooten et al (2003) suggested a systematic examination of social impacts arising from some environmental or socioeconomic change might be organised around various key 'domains' of human life, ie:

- quality of the living environment and amenity (ie the 'liveability of settlements and workplaces')

- material wellbeing

- health (physical and psychological wellbeing)

- family, community, and social networks and relations

- institutions, legal and political structures, and equity

- culture.

The concept of 'social' in SIA is therefore a broad one encompassing many aspects of human life at various levels of social aggregation – from individuals, households and families, to formal and informal groups, communities, and the society as a whole.

SIA has been institutionalised in decision-making and policy procedures in a number of governments, corporations and non-government organisations, and has been incorporated into development programme and project decision making in the World Bank, Asian Development Bank and some UN agencies.

As a field of practice, SIA is well established internationally though it has been applied mainly to the ex-ante assessment of planned projects and programmes, and to a lesser extent to institutional and economic reforms and other policies. It is used much less for ex-post assessment or evaluation of social effects of actions and events – planned or unplanned.

In New Zealand, SIA is mainly used as part of the resource consenting process under the assessment of environmental effects requirements of the Resource Management Act 1991, although it has also been applied in the past to assessment of the impacts of gambling and casino establishment, energy policy and programmes, Māori health services planning, and the management of the impacts of state sector restructuring. In reference to transport in New Zealand the use of SIA has been largely limited to the planning and consenting of infrastructure projects. Under the banner of 'health impact assessment', regional transport strategies and plans have been subject to social assessment.

2.2 Rural

2.2.1 Concept and definitions

'Rural' generally connotes non-urban, and especially, non-metropolitan space and places. Occupied rural space is also referred to in New Zealand as the 'country', and typically associated with agricultural land uses, especially pastoral farming. Commonly, rural areas and communities have been thought of as being culturally and socially distinct (and perhaps simpler and closer to nature – as inferred by the use of 'rural' to mean 'rustic'). This is consistent with the main definitions offered in the Shorter Oxford English Dictionary.

In developed western societies this concept of 'rural' is increasingly contested, especially the tendency to equate rural with 'agricultural' and the assumption that rural communities have significant cultural and social differences from urban communities and areas. This contestation is reasonable; as can be observed throughout New Zealand and in the official statistics, the former social and cultural divide has mostly disappeared – largely as the result of huge improvements in transport, communications, and the availability of mass global media in most parts of New Zealand.

Rather than adopt a cultural meaning, we take 'rural' to refer to space and places that have human presence/settlement, but at comparatively low density. Areas with little obvious human physical presence – including people, built structures and significantly modified landscapes – tend to be referred to as remote areas, the back blocks and the outback.

In this study, the focus is on areas and places with comparatively low human populations and without a strong social and economic attachment to metropolitan areas. More formally, we have operationalised the term 'rural communities' to refer to places (ie towns, settlements, villages, neighbourhoods and districts) within areas that have been classified by Statistics NZ as falling at the rural end of a urban-rural continuum (see below). In this study, rural residents and rural people are taken to be members of communities in areas that are not urban, and that experience moderate, low, or almost no economic influence on them from metropolitan centres. Note that we have generally not included in our discussion rural areas with a high level of urban influence, ie 'peri-urban' areas.

2.2.2 The classification of rural areas in New Zealand

There is no international standard definition of urban and rural areas, although most countries use population size and density to distinguish between them. Prior to 2006, Statistics NZ classified areas as urban or rural according to the size of their resident population and whether they were part of an urban settlement or not. In this system, a 'rural centre' was an area with a population of between 300 and 999 in a reasonably compact area that serviced surrounding 'rural areas' (Statistics NZ 2003). A 'rural area' was therefore an area that was not part of an urban area, and not within a 'rural centre'. Census area units (generally equivalent to a district or suburb) were classified accordingly.

Subsequent to the 2001 census, Statistics NZ developed a classification schema based on peoples' place of work compared with their place of usual residence 'as a proxy for both distance from, and the need to travel to, an urban area for employment' thereby providing an index of 'rurality' (ibid). Table 2.1 compares the 2001 classification of New Zealand census area units with their classification under the new scheme (the urban-rural continuum). It can quickly be seen that over half of the 'rural centres' (small towns and villages) were quite removed from the influence of urban centres, while others were in reality peri-urban settlements. Examples of the latter include Bombay, Sanson, Taitapu and Karitane.

Table 2.1   Classification of census area units in 2001 compared with their urban-rural continuum classification

Urban-rural continuum (2006)	Area unit classification (2001)		
	Not rural (pop >999)	Rural centre (pop 300–999)	Rural area
Main urban areas	1056	0	0
Satellite urban areas	47	0	0
Independent urban areas	210	0	0
Rural areas – high urban influence	8	22	49
Rural areas – moderate urban influence	1	31	66
Rural areas – low urban influence	0	56	156
Highly rural/remote areas	0	25	67
All area units	1322	134	338

2.3   Transport

2.3.1   Concepts and definitions

Transport refers to the means by which people gain physical access (entrance or admittance) to the goods, services and activities they need for their livelihoods and wellbeing. These places include workplaces, shops and markets, educational facilities, health facilities, leisure and sport facilities, meeting places, places of worship and so on. An essential feature of transport is that it enables people to be mobile.

Providing adequate physical and human capital is available, transport services function to move material goods and services to people and communities (as consumers), and to take people to the places where goods, services, activities and other people can be found (such as a bus service that takes a shopper to the market or a worker to their job in another town). Transport is therefore a key means by which people and communities acquire the means of their existence and access other needs. In this context, 'access' refers to the physical reachability and usability of something.

Transport is therefore a crucial part of a community's physical capital and human capital. The former – the transport-related physical capital of a community – includes the roadways (paths, tracks, highways, railways), pick up and drop off infrastructure (bus stops and shelters, railway stations, airports, freight depots), vehicles (cars, buses, trucks, trains), maintenance facilities and equipment (repair shops, fuel stations), and support, control and management facilities. The latter – transport-related human capital – refers to the people who make the transport services and physical assets/capital work, and their skills and experience (eg of drivers and pilots, technicians, maintenance experts, planners, systems managers etc). In this report, we use the term 'transport' to refer to the systems for moving people and goods to and from rural communities in New Zealand.

The significant features of New Zealand rural areas that influence transport services are their low populations, low settlement densities, low concentration of physical capital, and predominance of employment in the primary sector, especially close to home. The first three of these features (population size and density, and availability of infrastructure) generally influence the provision of public transport and therefore result in a lack of public transport in rural areas. When we talk about those with poor access

to transport in these areas, in practice we are talking about people without, or unable to use, a private motor vehicle (MV) and who do not have access to acceptable substitutes.

2.3.2   Public transport

In this report reference is made to 'public transport' (PT). This is intended to refer to passenger transport that is shared with other members of the general public. More specifically, and in keeping with the definition in the Public Transport Management Act 2008, in this report 'public transport' refers to 'the carriage of passengers for hire or reward' using passenger vehicles that 'run to a schedule' and are available to the general public (Public Transport Management Act 2008). This excludes other passenger services such as taxis, shuttles, private hire services, school buses, and tour and charter buses.

It should be noted that the term 'public transport' is also used by the NZTA in a restricted sense to refer to 'passenger transport services provided or subsidised by local or central government' (NZTA 2009, p13). We do not use 'public transport' in this restricted sense.

2.3.3   Mobility

Transport and 'mobility' are closely related but not synonymous. Hillman et al (1973) defined mobility as 'the capacity that a person has for getting around', with Tolley and Turton (1995, p59) noting that mobility 'depends on personal factors such as health and financial resources and upon the range of transport facilities that are available'. Hence mobility is individual and particular, and changes throughout a person's life time, requiring different types of transport services.

2.4   Access and accessibility

2.4.1   Concepts and definitions

This study is concerned with access to transport. In common speech, 'access' refers to both the means and the process for 'approaching, entering and gaining admittance' to an activity, event, space etc (Shorter Oxford English Dictionary). Personal access is achieved, therefore, when one has been able to approach, enter, gain admittance, and to use or be engaged in something. In the accessibility literature we reviewed for this study, these 'somethings' are often referred to as 'opportunities' or 'activities'.

'Accessibility' appears in the social science and related literature as a comparatively recent concept. It is most commonly associated with services planning to refer to the ability of people to 'get at' services and activities that are important for their wellbeing (SEU 2003; Mitchell and Town 1976). New Zealand researchers Chapman and Weir (2008), having reviewed much of the literature on accessibility and accessibility planning, state succinctly that accessibility 'relates to ease of access'. This is echoed in the findings of a 2009 literature review on the health aspects of transport planning by the Canterbury District Health Board (CDHB). Personal accessibility is interpreted as 'the ability or ease with which activities, either economic or social, can be reached or utilised' (Chapman and Weir 2008, p16). Abley (2010) uses a similar definition in relation to transport.

The CDHB noted in their literature review that the meaning and scope of 'access' and 'accessibility' vary between different fields: for example, in transport, accessibility refers to physical access to goods, services and destinations; in geography it refers to the relative ease of reaching a particular location (CDHB 2010, p21), and in social planning it refers to people's ability to use services and opportunities – especially people with disabilities (Litman 2008).

The UK Social Exclusion Unit (SEU 2003, p2) observed that the accessibility of a service or activity is generally a function of its usability and usefulness, cost, timeliness and ease of physical access. With respect to transport, its accessibility depends on availability, affordability, convenience and reachability of services (eg bus stops and train stations), safety and security of roads, walkways, and public services and personal individual travel horizons.

'Accessibility' also implies an attempt to express the scale and quality aspect of access against some standard or expectation. It can therefore be thought of as a comparative measure or judgement. Accessibility with respect to an 'opportunity' is therefore culturally or socially relative to what is considered a 'normal' or fair level of access in the particular society, and/or a specified 'objective' standard of access. The process for measuring how easy it is for someone to reach the thing, activity or service is referred to as 'accessibility assessment' (Abley 2010).

2.4.2   Accessibility and social exclusion

More generally, accessibility is said to be about the life opportunities open to people, and that access to such opportunities is a necessary condition for social inclusion and social justice (Farrington and Farrington 2005). For Chapman and Weir also, accessibility is central to participation in the society:

> *[Accessibility is] a fundamental basis of economic and social interaction, whether for work, education, health, shopping, recreation or other purposes, and is a function of the spatial distribution of activities – their size, quality, character and their ease of reach.* (2008, p16)

It holds then, that lack of access to such opportunities can result in deprivation, and the individual or group affected becomes impoverished in various ways. Lack of access to wellbeing opportunities is sometimes referred to as 'social exclusion'.

Social exclusion is the subject of a large and sometimes confusing body of literature, most of which has emanated relatively recently from Europe and the UK. In the literature 'social exclusion' is used to refer to an undesirable *state* (ie poor or deprived) and *the process* by which people become poor/deprived, and ultimately marginalised from the mainstream of society 'because they don't get a fair deal' (SEU 2004). The former SEU of the UK Cabinet Office provided an often quoted explanation:

> *Social exclusion is a shorthand term for what can happen when people or areas face a combination of linked problems such as unemployment, discrimination, poor skills, low incomes, poor housing, high crime, bad health and family breakdown. These problems are linked and mutually reinforcing so that they can create a vicious cycle in people's lives.*

> *The main causes and consequences of social exclusion are poverty and low income, unemployment, poor educational attainment, poor mental or physical health, family breakdown and poor parenting, poor housing and homelessness, discrimination, crime, and living in a disadvantaged area.* (SEU 2004, p13)

More recently, researchers at Bristol University have described social exclusion as:

> *involving the lack or denial of resources, rights, goods and services, and the inability to participate in the normal relationships and activities, available to the majority of people in a society, whether in economic, social, cultural or political arenas.* (Levitas et al 2007, p9)

Social exclusion is therefore synonymous with ongoing lack of access to important life opportunities – such as employment, education and social services. Such lack of access is also what is meant by 'poverty' as captured in the welfare economist Amartya Sen's notion of 'capability deprivation'. In commenting on the concept of social exclusion Sen (2000) noted that lack of access to opportunities/exclusion might

come about by deliberate action (ie active exclusion) or might be unintended or unplanned (ie passive exclusion). The latter could also result from certain groups or individuals not being consciously included or considered in a policy, programme or activity. An example of passive exclusion might be the scaling back of a rural bus service, which then prevents people without cars from accessing their places of work, which then leads to unemployment, and consequently other forms of deprivation. This example also illustrates what Sen refers to as the 'instrumental consequences' of exclusion versus direct (or 'constitutive') consequences, such as bus users no longer being able to interact with each other on a daily basis. It will be seen in later chapters that most of the consequences of poor access to transport in New Zealand rural communities are instrumental, and generally flow from low population density and withdrawal of services.

In this report, we prefer to use the more common and established terms of 'deprivation', 'disadvantage', and 'poverty' rather than 'social exclusion'.

2.4.3   Accessibility and transport

There is a growing literature around the role of transport in social exclusion and inclusion. In this literature lack of transport is sometimes referred to as 'transport poverty' or 'transport deprivation'.

The UK Social Exclusion Unit (SEU 2003), in considering accessibility as a factor in social inclusion, looked at the role of transport and suggested, among other things, ease of access depended on whether:

- transport exists between the people and required services

- people know about the transport, trust its reliability and feel safe using it

- people are able to physically and financially access the transport service

- services and activities are located within a reasonable distance.

These are similar to the factors indicated in the New Zealand Public Transport Management Act 2008 that determine the accessibility of a PT service for particular users, ie access to information, identifiability of the service, ability to get on and off the vehicle, availability and usability of seating and facilities, and ability to identify the right place to alight.

The SEU also identified five key transport-related barriers to accessing services:

1   Availability and physical accessibility of transport

2   Cost of transport

3   Services and activities located in inaccessible places

4   Safety and security (or perceptions of safety and security)

5   Personal travel horizons, ie perceived 'long' journey times or distances.

Based on the SEU's conditions (bullet-pointed above) accessibility is likely to be lower in rural areas, simply because populations are low and spread out, and services (if they exist at all) are more spatially fragmented (Gray et al 2006). In the literature, a frequently cited disadvantage of living in rural areas is lack of transport (Harrop and Palmer 2002; Nutley 2003; Stokes 2008).

There can also be considerable variation in the effects of access on rural residents, and individuals can respond differently to rural mobility issues (Gray et al 2006) – an important consideration in developing solutions to problems of poor access.

As discussed later, the planning approach to addressing transport and deprivation in many areas now focuses on 'accessibility planning'. As yet, there appears to be no broadly accepted methods for measuring or indicating the accessibility of services, including transport, although Chapman and colleagues have been undertaking research on behalf of the NZTA to operationalise and test accessibility planning in the New Zealand context.

3   About the study

In order to address the key research objectives a five-stage process was used. This included a literature review, collation and analysis of time-series census data, case studies of two rural communities, consultations and discussions of rural transport access strategies and policies, and lastly the preparation of an overall research report.

The research was commissioned in 2008 and completed in 2010. The Christchurch earthquakes of September 2010 and February 2011 delayed the finalisation of the research report as well as reducing the availability of stakeholders to give consideration to potential interventions to improve access to transport in rural New Zealand.

3.1   Literature review

The first stage of the work was a review of relevant literature. It was essentially part of a scoping exercise which helped inform the remainder of the research. Two main sets of published and 'grey' literature were searched and reviewed by the research team, including:

* existing social impact studies, commentary and methodologies relating to assessment of the consequences of poor access to transport in rural communities

* recent literature on transport accessibility and its assessment.

The relevant references identified in the literature review have been included in chapter 10 'References'. A working paper was completed which outlined the relevant literature.

Crucially, no systematic assessment of the social impacts of poor access to transport in rural areas was identified. Where assessments have been documented they have typically been framed as largely exploratory investigations of 'social exclusion'.

3.2   Profiling of rural transport access

A time-series analysis of rural community residents' and households' access to transport was completed using Statistics NZ census data from 1996, 2001 and 2006. The analysis made use of district, area unit and meshblock data, and covered three types of rural areas as classified on the 'urban-rural continuum'. These areas were:

* rural areas with moderate urban influence

* rural areas with low urban influence

* highly rural and remote areas.

Each geographical unit was classified according to the level of access to transport among the residents and presented on thematic maps. The socio-economic characteristics of the various types of rural area were described along with their transport access profiles. As well as providing a picture of access to transport and of transport-disadvantaged communities in New Zealand, the statistical analysis was used as a basis for the selection of the case studies communities.

3.3   Rural community case studies

Two communities in rural New Zealand were selected as case studies for the research. The small townships of Ohai and Nightcaps in Southland were selected to represent communities with severe disadvantage in terms of access to transport. The township of Fairlie in the Mackenzie District was chosen as the second case study community representing a more typical transport access situation for rural New Zealand.

The case studies communities were selected using indicators derived from area unit census data, including:

- the ranking (using Z scores) of the percentage of households in the area without access to a MV

- the ranking of the average number of MVs per adult resident in the area

- the ranking of the percentage of households without access to telecommunications devices in the area

- the likely presence of PT in the area as suggested by the census data on means of travel to work.

Fairlie was chosen because its rankings were average for a rural community in New Zealand, while the Ohai-Nightcaps community (represented by two separate area units) was chosen because it ranked poorly across the indicators.

The case study fieldwork was conducted over several months in mid-2009 using well established social research fieldwork methods, such as:

- preparation of a social profile using census and other secondary data (including a review of previous community studies and historical accounts of the study area)

- face-to-face and telephone interviews with a selection of key local informants and service providers, to learn about local social and transport conditions, trends and needs

- face-to-face interviews with a selection of householders. Interviewees were recruited using referrals from officers of local organisations and community workers. The interviews explored people's transport experiences and needs, along with the impacts on them of access problems

- field observations

- three focus groups – one in Ohai-Nightcaps and two in Fairlie – with a selection of service providers, and representatives from the community, relevant agencies and other stakeholders. The discussions covered the transport needs of the local community, the current situation and potential solutions to poor access to transport.

The interviews and focus groups were recorded, key-worded and then collated using qualitative data analysis software.

3.4   Rural transport access strategies and policies

In this stage the issues identified in the statistical analysis and social impact fieldwork were explored further through consultations and discussions with district planning, transport and social service agencies. This process was used to identify possible interventions and mitigations, along with more general longer-term strategies and policies. The discussions were carried out face to face and via telephone, and a workshop was conducted with the project advisory group.

4   The rural transport situation

This chapter of the report examines the available data on the transport situation in rural New Zealand and the travel patterns of rural New Zealanders. The discussion begins with an examination of data on travel to work and MV ownership from the New Zealand Census of Population and Dwellings. This is followed by an examination of the findings of the New Zealand Household Travel Survey (NZHTS) on patterns of travel. The discussion in this chapter uses publicly available secondary data and statistics – especially census area unit data that has been classified by Statistics NZ according to rural/urban location, as described in section 2.2.2.

4.1   Travel to work

The 2006 Census question on travel to work covered individuals who *worked for pay, profit, or income for an hour or more in the previous week, or who worked in a family business or family farm without pay, or who worked a job, business or farm but who were not working the previous week*. These individuals were asked to indicate the *main way* they travelled to work on Tuesday 7 March 2006. Respondents selected from the following options:

- worked at home

- did not go to work that day

- public bus

- train

- drove a private car, truck or van

- drove a company car, truck or van

- passenger in a car, truck, van or company bus

- motorbike

- bicycle

- walked or jogged

- other (eg taxi, ferry, plane).

The census findings on means of travel to work are made available at all levels of aggregation – from the meshblock (equivalent to a neighbourhood) and area unit (typically a suburb, town or local district) through to local government territories and the nation as a whole. As explained in section 2.2.2, each area unit is also classified on a scale of how urban or rural the area is according to its degree of labour-market attachment to urban centres. For most of this report, except for the discussion on the findings of the NZHTS, 'rural' refers to area units classified by Statistics NZ as rural areas with high, medium or low 'urban influence', and to 'highly rural or remote' areas.

Out of the two million New Zealanders in employment on census day in 2006, 20% either worked at home or did not go to work. Statistics NZ classified someone as working 'at home' when their workplace address was the same as their residential address. Unfortunately, Statistics NZ does not provide data on the means of travel to work for those who do not work at their physical residential address, but work in the same meshblock area.

The remainder of this section on means of travel to work is therefore focused on those who went to work but did not work 'at home'. Seventy-seven percent of the 1.5 million people in this situation reported they drove a car, van or truck to work, and a further 6% said they travelled as a passenger in such a vehicle (see table 4.1).

Among the travelling workers in rural areas, 81% reported they drove a car or van to work. Driving a vehicle was most common among those living within commuting distance of large towns and cities, and less common among residents of highly rural or remote areas. In the latter, a comparatively high proportion travelled to work on foot (16%) or by motorcycle (7%). The extent of pedestrian travel in these more remote areas is unexpectedly high, since the workers concerned were not working in the same meshblock as their homes.

Table 4.1   People travelling to work by type of transport and residential location, 2006

Type of area	People travelling to work							
	Car/van driver	Car/van passenger	PT	Motor cyclist	Cyclist	On foot	Other transport	Number of travellers
Main urban areas and satellite urban areas	76.3%	6.0%	6.6%	0.8%	2.6%	6.7%	1.0%	1,168,377
Independent urban areas	76.7%	7.4%	0.6%	0.8%	3.6%	10.4%	0.6%	158,604
Rural areas with high, moderate or low urban influence	83.3%	4.8%	0.7%	4.3%	1.1%	5.1%	0.8%	168,036
Highly rural or remote areas	63.9%	4.7%	0.3%	11.6%	1.5%	16.2%	1.8%	16,419
New Zealand	77.0%	6.0%	5.2%	1.3%	2.5%	7.0%	1.0%	1,511,436

Source: Statistics NZ: *2006 Census of population and dwellings*

The use of cars for work by rural people is growing – generally due to the loss of jobs in local rural centres, increased availability of private MVs, population increases in peri-urban areas and mode switching. These influences can be seen in the 36% increase between 1996 and 2006 in the number of rural people driving to work, the 36% increase in those taking motorcycles, the 22% and 13% decreases respectively in those using bicycles and travelling on foot – both of which are typically confined to making short journeys.

The percentage of working people using public buses or trains to get to work generally varies according to proximity of the area to an urban centre. Among rural residents, use of PT for work was greatest in rural areas with a high level of urban influence (ie close to cities) in the North Island. Even then, only 1% used PT to get to work. Regionally, rural workers in the Wellington region were the most likely to use PT (4.3%).

In practice, only a very small minority of rural residents (less than 1%) use PT to get to work. Having access to a MV is therefore a necessity and the norm. Table A.2 in appendix A lists all the census rural area units where someone reported using PT to get to work in 2006.

4.2　Access to motor vehicles in rural New Zealand

The census also gathers information on household access to MVs[1]. Statistics NZ defines household MVs as those 'that are mechanically operational, but not necessarily licensed or having a current warrant of fitness, and are available for private use by the usual residents of private dwellings'. Such MVs include cars, station wagons, vans, trucks and 4WD vehicles that can be used on public roads. The definition excludes motor cycles, business-only vehicles, and farm vehicles.

In 2006, 88% of all New Zealand households regardless of residence had access to a MV; 36% had access to one MV, 37% had two MVs, and 15% had access to three or more MVs, giving an average of at least 1.6 MVs per household. Using the census data, it can be broadly estimated that the total number of MVs available to households in New Zealand in 2006 was at least 2.26 million[2].

Compared with urban households, households in rural areas were more likely to have a MV. For example:

- 92.8% of rural households had at least one MV available – compared with 87.4% of urban households

- 2.7% (or 5547) of rural households had no vehicle – compared with approximately 9% of urban households

- rural households had an average of at least 1.8 MV each – compared with 1.5 per urban household.

Since 1996, the proportion of rural households with access to a MV has increased from 89.9% to 92.8%, and the proportion without a MV has halved – from 5.4% to 2.7%. Of all rural households, those in *highly rural or remote* areas and *rural areas with low urban influence* (with the greatest potential for social isolation) had the lowest level of access to MVs – indicated by the proportion of households without a vehicle (4.4% and 3.0% respectively) (tables 4.2 and 4.3). However, access has been improving even in these areas, albeit at a slower rate. For example, in 2006, approximately 3500 such households had no access to a MV, though this is somewhat less than the 6000 recorded in 1996.

In rural New Zealand, MVs were most available in areas with *high urban influence*, ie within easy commuting distance of a city and, ironically, where PT appears to be more available. Looking at rural census area units in 2006, there is a statistically significant inverse relationship between level of rurality of the area and the average number of MVs available per household (Spearman's Rho: 0.4, P<0.001), ie the more rural an area is, the lower the average number of vehicles there are per household (table 4.2).

---

[1] Data on registered vehicles is only available at the local authority or district council level, so it not possible to get an accurate picture of the registered rural vehicle fleet.

[2] According to the New Zealand motor vehicle registration statistics from June 2006, there were 3.23 million vehicles nationally, of which 2.56 million were registered passenger cars and vans (ie an average of 1.8 per household). 0.49 million were goods vans, trucks or utilities – some of which might have been available for household use.

Table 4.2   Motor vehicle availability in New Zealand households in 2006

Type of area	Average number of vehicles per household in 2006 (minimum)		
	New Zealand	North Island	South Island
Main urban areas	1.5	1.5	1.5
Satellite urban areas	1.5	1.5	1.7
Independent urban areas	1.5	1.4	1.5
Rural areas with high urban influence	1.9	1.9	2.0
Rural areas with moderate urban influence	1.8	1.8	1.9
Rural areas with low urban influence	1.8	1.7	1.9
Highly rural or remote areas	1.6	1.5	1.7
All rural areas	1.8	1.8	1.9
All areas	1.6	1.5	1.6

Source: Statistics NZ: *2006 Census of population and dwellings*

When this pattern of access is taken together with the longer distances that rural people have to travel to obtain essential goods and services, the possibility emerges for higher levels of transport poverty and social isolation among people in the areas with *low urban influence* or more *remote* rural areas (table 4.3).

Table 4.3   Percentage of households with no motor vehicle in 2006

Type of area	% of households with no motor vehicle in 2006		
	New Zealand	North Island	South Island
Main urban areas	8.5	8.4	9.1
Satellite urban areas	8.0	9.0	5.0
Independent urban areas	9.1	9.6	8.2
Rural areas with high urban influence	1.7	1.7	1.4
Rural areas with moderate urban influence	2.4	2.6	2.0
Rural areas with low urban influence	3.0	3.3	2.4
Highly rural or remote areas	4.4	5.3	3.7
All rural areas	2.7	2.9	2.4
New Zealand	7.8	7.8	7.6

Source: Statistics NZ: *2006 Census of population and dwellings*

Table 4.4 lists the census rural area units with low numbers of household MVs, and therefore potential transport disadvantage, in 2006. These are also mapped on figures 4.1a and 4.1b. Parts of Northland, the East Coast and Bay of Plenty (BOP) particularly feature here as having comparatively few MVs per household.

Table 4.4   **Rural area units with the lowest average household vehicle availability**

Rural area unit/community	Motor vehicles per household in 2006
Ruatoria (Gisborne)	1.05
Mt Cook (Canterbury)	1.10
Great Barrier Island	1.10
Te Kaha (BOP)	1.14
Kohukohu (Northland)	1.14
Te Kopuru (Northland)	1.16
Granity (West Coast, South Island)	1.17
Cape Runaway (BOP)	1.20
Taneatua (BOP)	1.21
Tokomaru Bay (Gisborne)	1.22
Omapere and Opononi (Northland)	1.22
Kaingaroa Forest (BOP)	1.25
Hokianga North (Northland)	1.26
Tuai (Hawke's Bay)	1.28
Waverley (Taranaki)	1.28
Ohai (Southland)	1.28
Rawene (Northland)	1.28

Source: Statistics NZ: *2006 Census of population and dwellings*

Figure 4.1a   Proportion of North Island households with no motor vehicle, 2006 (area units)

Percent Households with no Motorvehicles

6.3 to 42.9 (92)
3.8 to 6.3 (58)
2.7 to 3.8 (53)
2 to 2.7 (75)
1.5 to 2 (51)
0.2 to 1.5 (80)

Communities and areas where >10% or more of households have no motor vehicle

Ruatoria – 17.3%

Te Kaha – 15.8%

Ratana Community – 14.7%

Taneatua – 13.3%

Te Kopuru – 12.9%

Te Karaka – 12.3%

Kawhia Community – 12.1%

Matahina-Minginui – 11.9%

Te Teko – 11.3%

Tolaga Bay – 11.2%

Waverley – 11.1%

Cape Runaway – 11.0%

Tokomaru Bay – 10.9%

Omapere and Opononi – 10.6%

Kaingaroa Forest – 10.4%

Eketahuna – 10.3%

Rawene – 10.2%

Kohukohu – 10.0%

Source: Statistics NZ: *2006 Census of population and dwellings*

Figure 4.1b   Proportion of South Island households with no motor vehicle, 2006 (area units)
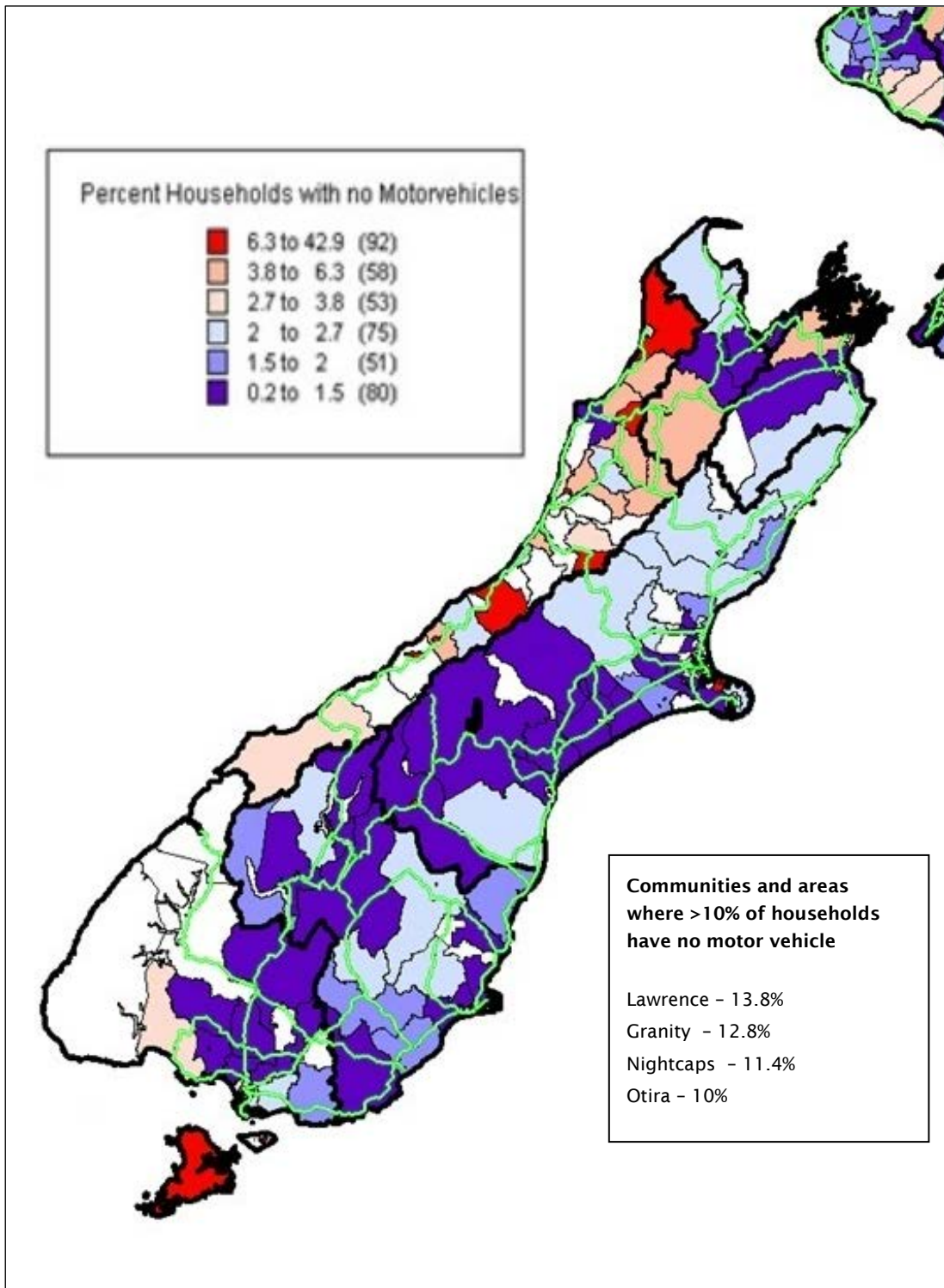
Source: Statistics NZ: *2006 Census of population and dwellings*

4.3   Availability and use of passenger transport

Quantifying the actual incidence of public and other passenger services in rural New Zealand, as an alternative to using private MVs, is difficult due to the seeming inaccessibility of regional-level official information, including on contracted public services and passenger service licences. Here, we have drawn on central government information (such as numbers of vehicle registrations, census data and NZHTS data), and the limited industry information available on the internet to build a picture of the rural passenger transport situation.

4.3.1   Vehicle registration data

NZTA vehicle registration data indicates that in June 2009 there were 19,494 registered buses in New Zealand providing various kinds of services, including public transport, commercial passenger services, charters, or school bus services. This represents a 14% increase on the June 2006 national bus fleet – although some local government districts experienced a decline in the number of buses. Areas with declining or static bus numbers were mostly non-metropolitan and rural districts, such as Kaipara, Taupo, Gisborne, Stratford, South Wairarapa, Kaikoura, Ashburton and Clutha Districts (table 4.5).

Table 4.5   Territorial local authorities (TLAs) where the number of registered buses fell, 2006–09

North Island	Total buses 2006	Total buses 2009	Change in bus numbers	% change
Whangarei District	290	265	-25	-8.6
Kaipara District	87	65	-22	-25.3
Papakura District	168	139	-29	-17.3
Franklin District	159	154	-5	-3.1
South Waikato District	69	64	-5	-7.2
Waitomo District	95	91	-4	-4.2
Taupo District	214	195	-19	-8.9
Gisborne District	261	210	-51	-19.5
Stratford District	52	42	-10	-19.2
Ruapehu District	143	138	-5	-3.5
Rangitikei District	54	48	-6	-11.1
Tararua District	80	73	-7	-8.8
South Wairarapa District	24	17	-7	-29.2
South Island				
Kaikoura District	36	31	-5	-13.9
Grey District	100	99	-1	-1.0
Westland District	56	54	-2	-3.6
Waimakariri District	171	146	-25	-14.6
Ashburton District	148	126	-22	-14.9
Timaru District	221	212	-9	-4.1
Chatham Islands Territory	7	5	-2	-28.6
Waitaki District	160	159	-1	-0.6
Clutha District	127	94	-33	-26.0

According to the New Zealand Bus and Coach Association (BCA), which has some 365 members and is the main representative body for bus operators, the members' fleet consists of 6000 buses, including 2000 tour and charter coaches, 1900 school buses and 2000 city buses (BCA 2010). Only about a third of registered buses, therefore, appear to be actually involved in providing passenger transport.

4.3.2 Use of public transport for work

Census data on means of travel to work may be useful in indicating the availability of PT. Table 4.6 gives the numbers of people who reported using a public bus or train to travel to work at the time of the 1996, 2001 and 2006 censii.

Table 4.6 Census counts of rural residents* using public transport for work, 1996–2006

Rural area units*	Total travelling for work	Public bus users	Train users
1996 Census	144,795	957	264
2001 Census	153,576	840	543
2006 Census	184,455	681	582
Change 1996–2006	+39,660 (+27%)	-276 (-29%)	+318 (+120%)

Source: Statistics NZ: *2006 Census of population and dwellings*

* refers to rural area units with high, medium or low urban influence, and highly rural/remote areas.

While the number of rural people travelling to work increased by 27% over the 10 years to 2006, the number using PT increased by only 3%. This includes a reduction in the number using buses, but a significant increase in the number using trains – especially among those living in the rapidly growing peri-urban areas. While the reduction in bus use may be due to changing transport preferences, it could be the result of loss of services, especially in the more remote areas where the bus-user base was already small. In these areas in 2006 there was a small increase (4%) in the number of people travelling away from home for work, but a proportionately major decrease in the number using PT.

Public transport was reportedly used for work by local residents in 174 (36%) of the 481 rural census area units in 2006 (table 4.7 and figure 4.2), with trains being used in 58 of these area units. Examination of the location of these areas, however, suggests the data cannot necessarily be relied on to indicate the local presence of PT[3] and could, rather, refer to travel to work while the person was visiting another location. Additional study is required to assess the meaning of census data on the use of PT for work among rural residents.

---

[3] For example, residents in Golden Bay, Riwaka, North Cape and other locations where there is no active railway reported using trains to travel to work.

Table 4.7   Rural census area units where public transport was used to travel to work, 2006

Type of census area unit	Area units where PT was used for work	Total number of area units
Rural areas – high urban influence	50 (63%)	79
Rural areas – moderate urban influence	40 (41%)	98
Rural areas – low urban influence	71(34%)	212
Highly rural or remote areas	13 (14%)	92
Total	174 (36%)	481

Source: Statistics NZ: *2006 Census of population and dwellings*

4.3.3   Other uses of public transport

The census of population and dwellings does not gather data on other uses of public or passenger transport. However, the NZHTS (discussed below) provides some insights into the use of passenger transport for a range of purposes. Generally, regionally funded or subsidised public transport does not seem to be available in rural areas other than those closest to the main cities (eg Woodend, north of Christchurch). However many rural communities do have access to some form of commercially operated public transport. For example, many settlements that lie close to state highways and tourist routes have daily scheduled Intercity Coachlines buses and others passing through, possibly stopping at a local bus stop. Figure 4.3 shows the extent of the network of the largest New Zealand operator, Intercity Coachlines. On the South Island routes, Intercity lists approximately 160 non-urban bus stops, and on the North Island routes there are approximately 250 non-urban stops.[4] These services enable rural residents to travel to larger towns and cities on the network for holidays and socialising, and to access the health, social, professional and retail services in the larger centres.

Some rural settlements may also have pick up and drop points for shuttle services that, in some cases, might be supported by NZTA regional funding (eg the Twizel to Timaru service, as described in section 6.3). Some communities may also have commercial bus services operating on a scheduled or demand basis (eg Winton). Such services may use smaller buses or mini-vans, and be operated under sponsorship to meet particular needs (eg the Ohai and Nightcaps shoppers bus, as described in section 6.2).

Among the BCA members, 50 are listed as having charter and tour operations based in larger rural centres. A similar number are listed as providing school bus services and school charters. Many of these (mostly small) operators survive by providing a variety of services to local communities, eg sports clubs and interest groups. Sometime local operators provide buses on a 'dry hire' basis (ie vehicle hire only), and the clubs provide their own drivers. Overall, the extent of the patronage of rural bus services and charters is not known, although the NZHTS suggests approximately 2.5% of all trips by people living in areas and centres with populations of less than 10,000 people are made by public transport, and that such trips are typically over 13km.

---

[4] See www.intercity.co.nz/timetable#stopsnorth

Figure 4.2   Area units where people reported using public transport to travel to work in 2006
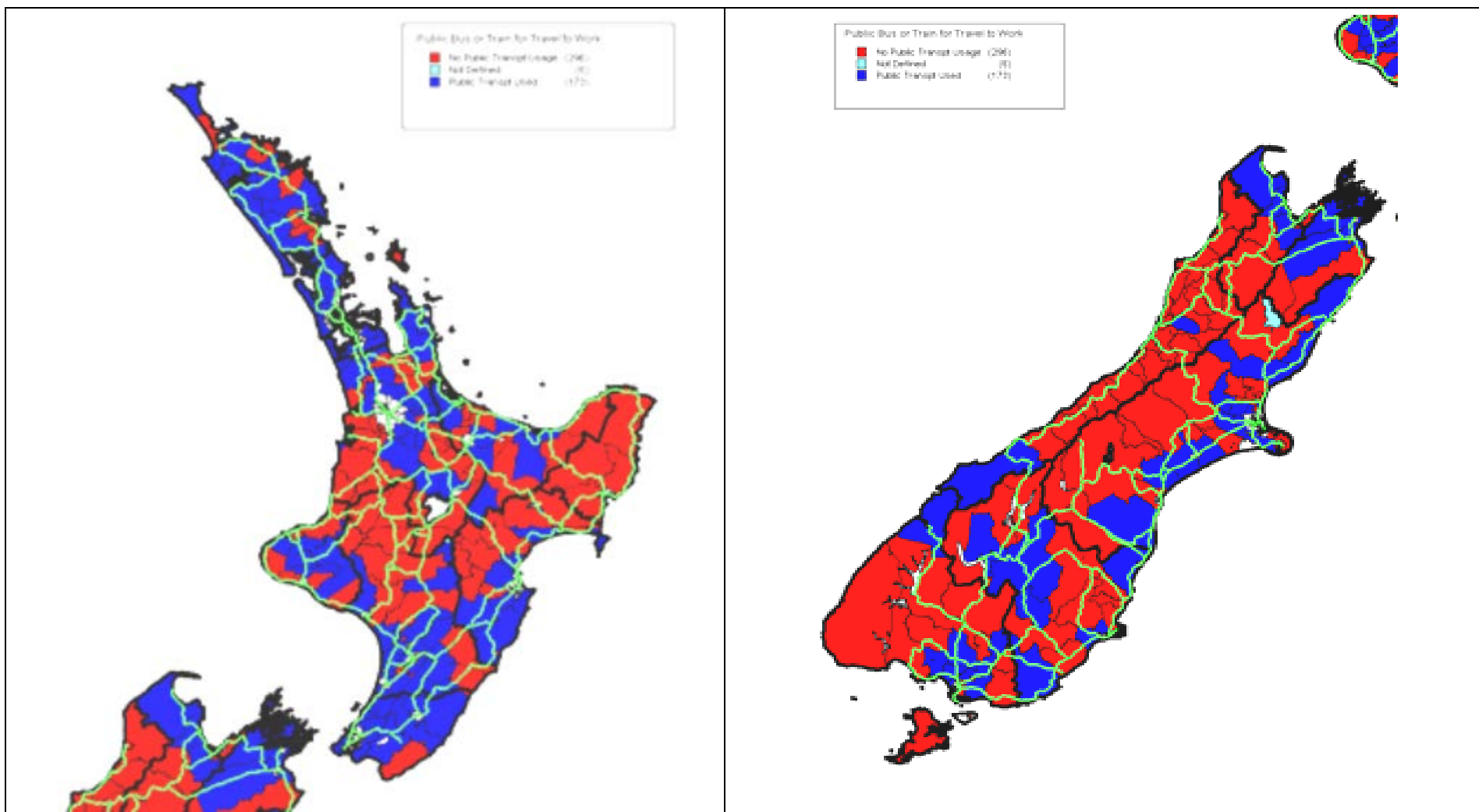
Note: Blue (darker) colouring indicates use of PT. Data source: Statistics NZ: *2006 Census of population and dwellings*

Figure 4.3   Intercity Coachlines bus routes

Source: www.intercity.co.nz/home/route-map/

4.4   Rural household travel patterns

4.4.1   The New Zealand Household Travel Survey

The NZHTS gathers data on patterns of travel among the public, including time spent travelling, distance, mode and travel purpose for each leg of travel. The data is gathered on a continuous basis throughout the year from a representative sample of households. The results of the survey are made available as aggregations of several years' annual data – typically in three-year blocks. For this discussion, all the pooled travel survey data from 2003 to 2009 has been used, making a total sample of 25,471 people who were collectively representative of the whole population in terms of location and age.

Twenty-eight percent of those surveyed in the NZHTS over the 2003–09 period were described as 'rural' residents. The Ministry of Transport (MoT) uses a different definition of rural from Statistics NZ; in the context of the survey, 'rural' refers to areas with populations of less than 10,000, regardless of the relationship of the areas with urban centres. The MoT includes what more commonly is described as 'minor urban areas' (eg provincial towns), rural centres (townships with up to 1000 people) and rural/country areas. Unfortunately, in reporting the survey results the MoT does not distinguish between these different types of area.

When considering data from the NZHTS, it must be kept in mind that rural survey respondents may live in places that have their own shopping precincts, schools, sports clubs, medical centres etc, including in some cases, passenger transport services.[5] The travel patterns for residents of such centres are more likely to resemble those of urban dwellers. On the other hand, the smallest towns and country areas are unlikely to have facilities and services close at hand, and people from such places are likely to have different travel patterns from those in larger settlements.

The NZHTS data therefore probably obscures the true travel patterns of genuine rural residents. Nevertheless, the survey does provide some insight into patterns of travel and availability of services for the 20% or so of New Zealanders who do not live in large towns, cities or metropolitan centres.

4.4.2   Rural residents' trips

The survey data shows that rural (ie non-urban) people make longer trips than urban residents – averaging 11.8km per trip leg[6] compared with 7.1km and 8.0km respectively for those in main urban areas and secondary urban areas. Rural residents also spend more of their time travelling. If separate data was available for rural centres and rural areas, it would probably show the latter travel even greater distances and spend even more time travelling.

Those in the 20–39 and 40–64 year age groups seem to be the most mobile in that they make more trips and cover more distance than others. Within each age group, rural residents make the longest trips (figure 4.4). At an average of 13.1km per trip leg, rural 20–39 year olds travel the greatest distances, followed by rural 40–64 year olds (12.1km per trip). When the share (percentage) of trips and the distance for each age group and place of residence is adjusted according to the group's share of the survey sample, 20–39 year olds living in main urban areas emerge as the most frequent travellers. In contrast, those aged 65 and over living in rural areas or secondary urban areas make the least number of trips.

---

[5] Prior to 2006, these towns were referred to as 'minor urban areas'. In 2006, there were 97 minor urban areas with less than 10,000 residents, collectively containing 8% of the New Zealand population. They included substantial centres such as Thames, Matamata and Motueka, and rural towns such as Murupara, Patea and Waimate.

[6] A 'trip leg' is defined as a non-stop leg of travel by a single mode.

Figure 4.4   Share of age group travel by residence
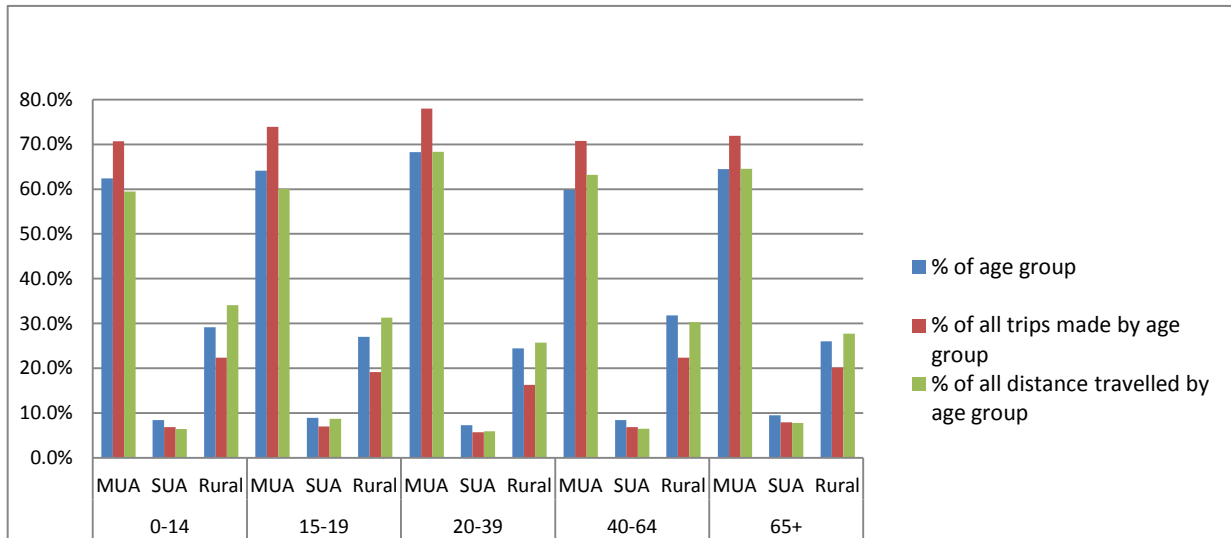
Source: NZHTS 2003–09

4.4.3   Mode of travel

Cars and vans are the predominant mode of road transport, being used for 78% of all trips. Expectedly, rural residents are more dependent on MVs than others, using them for 80% of all their trips and for 95% of all the distance travelled. Walking is the second most common mode of transport in New Zealand (accounting for 17% of all trips), though rural residents make comparatively few trips on foot. Less than 3% of trips by rural residents involve the use of PT, mainly because it is not available as a transport option away from the towns and cities. The average trip made by rural residents is 11.8km. Table 4.8 provides the average trip distance for each mode of travel.

Table 4.8   Mode of travel for rural residents

Main modes	% of all trips	% of all km	Average trip distance (km)
Driving car or van	53.8	59.0	12.9
Passenger in car or van	26.2	35.9	16.1
Pedestrian	14.2	0.9	0.7
Public transport	2.5	2.8	13.5
Motorcycle	1.3	0.5	4.2
Bicycle	1.4	0.4	3.3

Source: NZHTS 2003–09

4.4.4   Purpose of travel

Shopping accounts for the largest percentage of journeys made by New Zealanders, followed by social activities and entertainment. However, social activities and entertainment account for the largest percentage of the distance travelled (table 4.9). In other words, New Zealanders travel most often for shopping, but the longest distances for social activities and entertainment.

Rural people have similar reasons for making journeys as urban people, though they travel further. Leaving aside the return journeys and infrequent unusual types of journeys, rural people travel further to participate in social activities and for recreation than for other purposes – averaging 13.4km and 13.1km per trip respectively. Among rural residents 84% of all work-related trips are done by car or van (mostly as the driver), 9% are on foot, 4% by motorcycle and 1% by bicycle. This is fairly consistent with the census findings on means of travel to work.

Table 4.9   Purpose of travel by residence

	Percentage of all trip legs			Percentage of all distance		
Purpose	**Main urban areas %**	**Secondary urban areas %**	**Rural areas %**	**Main urban areas %**	**Secondary urban areas %**	**Rural areas %**
Returning home	34.0	33.9	32.6	33.7	34.3	35.0
Social/entertainment	11.7	11.7	12.2	15.5	13.1	13.9
Accompany/transport someone	10.6	10.8	11.1	10.0	10.8	10.9
Shopping	13.1	12.9	12.7	9.8	7.5	9.9
Work – main job	8.9	9.1	7.4	8.9	10.3	7.3
Recreational	5.9	5.6	6.1	7.0	8.6	6.8
Work – employer's business	4.8	5.1	6.4	6.7	7.1	6.4
Personal business	5.4	5.5	5.7	4.6	4.2	5.4
Education	4.2	3.4	4.1	2.5	2.3	2.8
Medical/dental	0.8	1.1	0.9	0.6	0.9	0.9
Work – other job	0.5	0.8	0.6	0.3	0.8	0.5
Social welfare	0.1	0.1	0.1	0.2	0.1	0.1
Left country	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0
Overnight lodging	0.0	0.0	0.0	0.0	0.0	0.0
Totals	100	100	100	100	100	100

Source: NZHTS 2003–09

4.4.5   Services accessibility

The available data, (summarised in table 4.10) shows that residents of non-urban areas travel further than urban residents to access all main services and facilities.

The amount of travel required by rural residents to access key services suggests they are more likely than their urban counterparts to face difficulties in accessing services and activities that are important for their wellbeing. Examples here include the long trips required to reach medical care, employment and welfare services. People in rural areas and small towns are more dependent on motor cars for accessing such services and they use up more of their resources doing so. For example cars and vans are involved in:

- 90% of all social welfare trips
- 84% of all travel to work trips
- 81% of all shopping and medical trips.

Cars are still important for accessing education (used in 49% of trips), though PT is also important, being used in 25% of trips. Figure 4.5 gives the average length of trip made by rural residents when travelling to key services and activities, and confirms that most people are able access the services and activities they need through use of a MV.

Table 4.10   Access to key services and activities by residence

Purpose	Average journey distance (km) by residents		
	Main urban areas	Secondary urban areas	Rural areas
Education	4.2	5.1	8.3
Shopping	5.3	4.7	9.2
Social welfare	8.6	6.6	11.1
Medical or dental	5.7	6.6	11.1
Main job	7.1	9.0	11.6
Recreation	8.4	12.5	13.1
Socialising and entertainment	9.4	9.0	13.4

Source: NZHTS 2003–09

Figure 4.5   Average trip length by purpose and mode
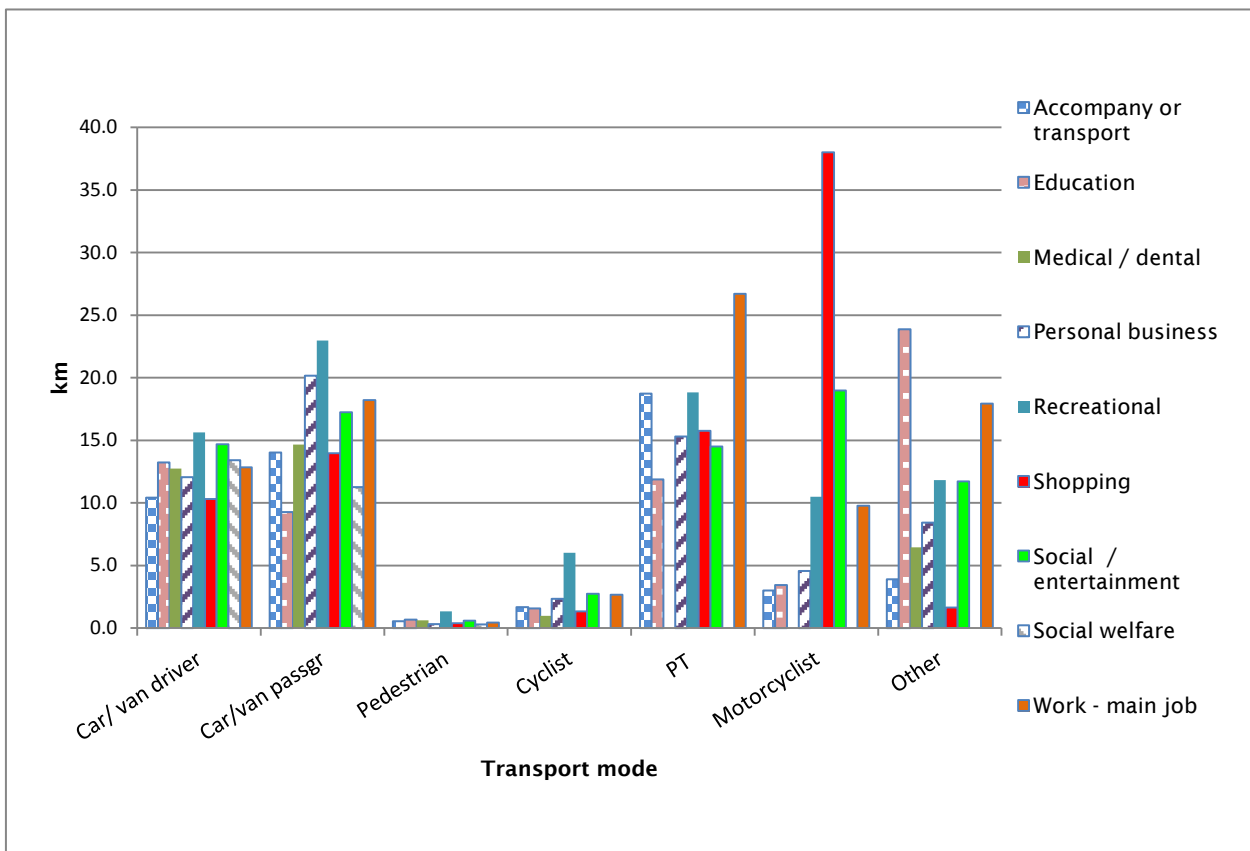
Source: NZHTS 2003–09

5 A profile of rural communities with poor access to transport

This chapter describes the social and economic characteristics of rural communities that are comparatively transport poor. This has been done using area unit data from the 2006 Census of Population and Dwellings and a derived scale of access to transport. The scale combines, for each census area unit, the level of access to MVs and the apparent availability of PT (derived from census data on travel to work). The strength of statistical relationships between social characteristics and access to transport for rural area units was tested using the Spearman rank-order correlation coefficient (Spearman's *rho*). Note that some data is not made available for some area units due to confidentiality requirements of Statistics NZ. The total number of area units reported on in the tables below may therefore vary.

5.1 Social characteristics

5.1.1 Population

There appears to be a relationship between population size and access to transport (table 5.1). As the population decreases so does access to transport (Spearman's *Rho* = 0.43, $p<0.001$). This makes sense since public and other passenger transport is less viable and therefore less likely to be available in areas with low populations.

Table 5.1   Average census rural area unit population by level of access to transport

Comparative transport access situation	Number of rural area units	Average population per area unit
High % of households with no MV, & PT not available	57 (11%)	523
High % of households with no MV, & PT available	7 (2%)	942
Low – moderate % of households with no MV, & PT not available	231 (49%)	839
Low – moderate % of households with no MV, & PT available	179 (38%)	1864
All rural area units	474 (100%)	1190

Approximately 11% of rural area units fall into the category of low access to transport. Collectively these area units contain approximately 30,000 residents. However, within each area unit/community there is considerable variation in access to transport among its households.

5.1.2 Age profile

The available census data tables on age of the local population include the median age and the numbers of residents in various age cohorts. Here we use the median age as well as the percentage of the population aged 65 and over.

There is no clear statistical relationship between the median age of the residents of an area and access to transport. However, access to transport is related to the percentage of elderly people in the population (Spearman's *Rho* = -0.24, $p<0.001$) suggesting that the higher the proportion of elderly residents, the lower the access to transport. This seems to be due largely to low availability of MVs among older people (see table 5.2) or their inability or unwillingness to use the vehicles that might be available to them. This

suggests that older people in rural areas are more likely to experience transport poverty and the disadvantages that this brings.

Table 5.2   Proportion of elderly people in the rural population by access to transport

Transport access situation	Number of rural area units	Average % of residents aged 65 and over
High % of households with no MV, & PT not available	57 (11%)	13.9
High % of households with no MV, & PT available	7 (2%)	13.4
Low – moderate % of households with no MV, & PT not available	231 (49%)	10.9
Low – moderate % of households with no MV, & PT available	179 (38%)	9.0
All rural area units	474 (100%)	10.6

5.1.3   Ethnicity

The rural area unit data indicates the higher the percentage of Māori in the local population, the worse the overall transport access situation is likely to be (Spearman's *Rho* = -0.28, $p<0.001$) (table 5.3). This is primarily due to the lower levels of MV access rather than apparent lack of PT (Spearman's *Rho* = 0.5, $p<0.001$ for the percentage of Māori and the level of access to MVs).

Table 5.3   Percentage of Māori in the rural population by level of access to transport

Transport access situation	Number of rural area units	Average % of Māori
High % of households with no MV, & PT not available	57 (11%)	37.9
High % of households with no MV, & PT available	7 (2%)	49.0
Low – moderate % of households with no MV, & PT not available	231 (49%)	14.7
Low – moderate % of households with no MV, & PT available	179 (38%)	12.6
All rural area units	474 (100%)	17.2

5.1.4   Educational attainment

The census data suggests there is a relationship between formal educational attainment (or lack thereof) and access to transport (Spearman's *Rho* = 0.39, $p<0.001$ for the percentage of those aged 15 and over without an educational qualification and the level of access to transport) (table 5.4).

Based on an examination of the partial correlation coefficients between the various socio-demographic variables discussed here, the statistical relationship between educational attainment and access to transport seems to be accounted for mainly by the proportion of Māori in the population and the proportion of elderly people, ie Spearman's *Rho* = 0.11, $p<0.05$, for educational attainment and access to transport when controlling for other social variables.

Table 5.4   Educational attainment in rural areas and level of access to transport

Transport access situation	Number of rural area units	Average % without an educational qualification
High % of households with no MV, & PT not available	57 (11%)	33.1
High % of households with no MV, & PT available	7 (2%)	32.9
Low – moderate % of households with no MV, & PT not available	231 (49%)	23.1
Low – moderate % of households with no MV, & PT available	179 (38%)	28.0
All rural area units	474 (100%)	26.8

5.1.5   Household size

The 2006 Census data shows the larger the average household, the better the access to transport is likely to be (Spearman's *Rho* = 0.21, *p*<0.001) (table 5.5) – primarily because larger households tend to have more MVs available (Spearman's *Rho* = 0.34, *p*<0.001 for access to transport and the number of MVs per adult resident).

It should also be noted that the greater the number of elderly people in an area unit, the smaller the average household is likely to be, and therefore the lower the chance of households having a MV.

Table 5.5   Average rural household size and level of access to transport

Transport access situation	Number of rural area units	Average number of household members	Average number of vehicles per adult
High % of households with no MV, & PT not available	57 (11%)	2.49	0.68
High % of households with no MV, & PT available	7 (2%)	2.29	0.67
Low – moderate % of households with no MV, & PT not available	231 (49%)	2.68	0.84
Low – moderate % of households with no MV, & PT available	179 (38%)	2.62	0.84
All rural area units	474 (100%)	2.62	0.81

5.2   Economic circumstances

5.2.1   Income

Income data for census area units published by Statistics NZ only covers median personal income and median household income.

Level of access to transport in rural areas is related to the level of personal income and, particularly, the level of household income (Spearman's *Rho* respectively= 0.36 and 0.42, both *p*<0.001) (table 5.6). In other words, the higher the median household income is in an area, the better the access to transport is likely to be. There is a clear difference in median income between communities that have relatively good access to MVs and those which do not.

Based on the average number of vehicles per household and the median household income, in 2006 each vehicle required an income in the order of $26,400.

Table 5.6   Median personal and household incomes in rural areas and level access to transport

Transport access situation	Number of rural area units	Average median personal income ($)	Average median household income ($)
High % of households with no MV, & PT not available	57 (11%)	18,707	33,826
High % of households with no MV, & PT available	7 (2%)	14,129	24,214
Low – moderate % of households with no MV, & PT not available	179 (38%)	23,929	46,225
Low – moderate % of households with no MV, & PT available	231 (49%)	24,818	51,790
All rural area units	474 (100%)	23,492	46,515

The area unit data indicates that household income is related to geography (Spearman's *Rho* = 0.47, *p*<0.001 for median household income and the degree of urban influence). In short, the closer a rural area is to an urban centre, the more likely its residents are to be involved in the urban labour market, and the higher their incomes are likely to be. These higher incomes enable the residents to acquire and maintain private MVs. At the same time, the closer a rural community is to an urban area, the more likely it is that PT will also be available.

5.2.2   Access to telecommunications

There is a clear relationship between an area's access to information and communications technologies (ICT) and the type of area (table 5.7), with household access to telecommunications decreasing with increasing rurality. This is confirmed in the statistical correlations, ie Spearman's *Rho* = 0.30 *p*<0.001 for type of area and percentage of households in the area without ICTs, and Spearman's *Rho* = 0.43, *p*<0.001 for type of area and percentage without the internet. This suggests rural areas are less well served for ICTs, such as mobile phone and data networks and broadband internet, than urban areas. From the previous section, it also appears that residents of rural areas are less likely to be able to afford the technologies even when they are available, and may not have the knowledge and education to use them.

Rural communities and households are at a particular disadvantage if they have poor access to transport (for physical mobility) as well as poor access to the ICTs that can provide 'virtual mobility' as a partial substitute for physical mobility. This kind of multiple disadvantage can lead to disconnection from the social and cultural life of the wider community and potentially to social isolation. The potential for social isolation is greater in rural areas because, with lower population density, the chances of casual social interactions (eg with neighbours) are likely to be lower.

Table 5.7   Access to telecommunications by type of rural area

2006 urban-rural type		% with no ICTs	% without internet
Rural areas - high urban influence	mean	1.8	36.0
	area units	78	78
	std. deviation	1.9	11.0
Rural areas - moderate urban influence	mean	2.2	42.1
	area units	96	96
	std. deviation	2.5	11.9
Rural areas - low urban influence	mean	3.6	48.3
	area units	210	210
	std. deviation	3.6	11.7

2006 urban-rural type		% with no ICTs	% without internet
Highly rural/remote areas	mean	4.7	51.2
	area units	74	74
	std. deviation	4.8	11.1
All rural area units	mean	3.2	45.4
	area units	458	458
	std. deviation	3.6	12.6

Table 5.8 shows that in 2006 approximately 7% of rural areas (57 units) were in such a double disadvantage situation. The census data also reveals a clear statistical relationship between the level of access to transport in a community and the level of access to ICTs (Spearman's *Rho* = -0.36 *p*<0.001 for level of access to transport and percentage of households without any ICTs, and Spearman's *Rho* = -0.49 *p*<0.001 for access to transport and percentage of households without the internet).

Table 5.8   Access to telecommunication systems and access to transport in rural areas

Level of transport access	Average % with no telecommunications	Average % without internet
High % of households with no MV, & PT not available	6.9	60.5
High % of households with no MV, & PT available	5.9	64.1
Low – moderate % of households with no MV, & PT not available	2.9	45.6
Low – moderate % of households with no MV, & PT available	2.2	39.4
All rural area units	3.2	45.4

The specific rural area units that had poor access to both transport and telecommunications in 2006 are listed on table 5.9. These appear to have been the most disadvantaged in terms of transport and its substitute virtual mobility technologies in rural New Zealand.

Table 5.9   Rural area units* with both comparatively poor household access to transport and poor access to telecommunications

Area unit	Local authority (district council)	Region	Type of rural area	Rural area/centre
Kaeo	Far North	Northland	low urban influence	rural centre
Kohukohu	Far North	Northland	low urban influence	rural area
Rawene	Far North	Northland	low urban influence	rural centre
Waharoa	Matamata-Piako	Waikato	low urban influence	rural centre
Kaingaroa Forest	Rotorua	Bay of Plenty	mod urban influence	rural centre
Taneatua	Whakatane	Bay of Plenty	mod urban influence	rural centre
Te Teko	Whakatane	Bay of Plenty	low urban influence	rural centre
Matahina-Minginui	Whakatane	Bay of Plenty	low urban influence	rural area
Te Kaha	Opotiki	Bay of Plenty	highly rural/remote	rural centre
Cape Runaway	Opotiki	Bay of Plenty	low urban influence	rural area
East Cape	Gisborne	Gisborne	highly rural/remote	rural area
Ruatoria	Gisborne	Gisborne	low urban influence	rural centre
Tokomaru Bay	Gisborne	Gisborne	low urban influence	rural centre

Area unit	Local authority (district council)	Region	Type of rural area	Rural area/centre
Te Karaka	Gisborne	Gisborne	mod urban influence	rural centre
Tolaga Bay	Gisborne	Gisborne	low urban influence	rural centre
Whakaki	Wairoa	Hawke's Bay	low urban influence	rural area
Kaponga	South Taranaki	Taranaki	low urban influence	rural centre
Waitotara	South Taranaki	Taranaki	low urban influence	rural area
Inangahua Jctn	Buller	West Coast	highly rural/remote	rural area
Kumara	Westland	West Coast	low urban influence	rural area
Fox Glacier	Westland	West Coast	highly rural/remote	rural centre
Otira	Westland	West Coast	low urban influence	rural area
Ohai	Southland	Southland	highly rural/remote	rural centre

*excluding islands

5.3   Level of deprivation

Poor access to transport can exacerbate social and economic disadvantage, and can itself be a product of social and economic disadvantage (SEU 2003; 2004). Here we examine the relationship between the level of access to transport in rural areas of New Zealand and their level of socio-economic disadvantage.

The New Zealand Index of Deprivation is used to summarise the relative socio-economic conditions in each area, and to target intervention programmes and policies. The index was developed by the University of Otago's Department of Public Health by combining a selection of nine variables from the Census of Population and Dwellings. It takes the form of a decile rating for each census meshblock and area unit: that is, the index score for an area ranges in value from 1 to 10, with '10' meaning the area is within the most deprived 10%. The most recent version of the index is NZDep2006 and is constructed from the variables listed in table 5.10.

Table 5.10   Composition of the 2006 NZ Index of Deprivation

Dimension of deprivation	Variable – in order of decreasing weight
Income	People aged 18–64 receiving a means tested benefit
Income	People living in equivalised* households with income below an income threshold
Owned home	People not living in their own home
Support	People aged <65 living in a single parent family
Employment	People aged 18-64 unemployed and seeking work
Qualifications	People aged 18-64 without any educational qualifications
Living space	People living in equivalised* households below a bedroom occupancy threshold
Communication	People with no access to a telephone
Transport	People with no access to a car

 *Equivalisation: method used to control for (or standardise) household composition. Source: Salmond et al (2007)

Table 5.11 shows the deprivation index and the deprivation scores in 2006 for each type of rural area. This suggests the more rural an area is, the greater its deprivation is likely to be (Spearman's *Rho* = 0.33, *p*<0.001 for both deprivation index and score and rurality score).

Table 5.11   Deprivation index and score by type of rural area, 2006

Type of rural area unit	Number of rural area units	Average deprivation index 2006	Average deprivation score 2006
Rural areas with high urban influence	79	3.29	942.7
Rural areas with moderate urban influence	96	4.42	969.4
Rural areas with low urban influence	211	5.84	1002.4
Highly rural/remote areas	81	5.67	999.7
All rural area units	467	5.09	985.1

Table 5.13 shows there is also a clear relationship between the level of transport access and the level of deprivation (Spearman's *Rho* = -0.45, *p*<0.001 for transport access and deprivation score and index). While household MV access is included in the makeup of the deprivation score the clear (negative) statistical relationship between deprivation and transport access does not disappear when access to a MV is omitted from the deprivation score and index. Also, as we showed earlier, transport access is related to income and level of educational attainment – both of which figure in the deprivation index.

Table 5.13   Deprivation index and score by transport access situation

Transport access situation in area	Rural area units* included	Average deprivation index 2006	Average deprivation score 2006
High % of households with no MV, and PT not available	55/57	8.42	1091.2
High % of households with no MV, and PT available	6/7	8.50	1102.8
Low – moderate % of households with no MV, and PT not available	231/231	5.06	975.8
Low – moderate % of households with no MV, and PT available	175/179	3.95	959.8
All rural area units	467/ 474	5.09	985.1

* Note: deprivation scores were not available for some area units.

Figure 5.1 shows the location of the most deprived areas in New Zealand in 2006 as mapped by the Ministry of Health. The most deprived areas match very closely with areas with poor access to MVs and lack of PT as indicated on the thematic maps presented earlier.

Figure 5.1   Distribution of deprivation in New Zealand, 2006
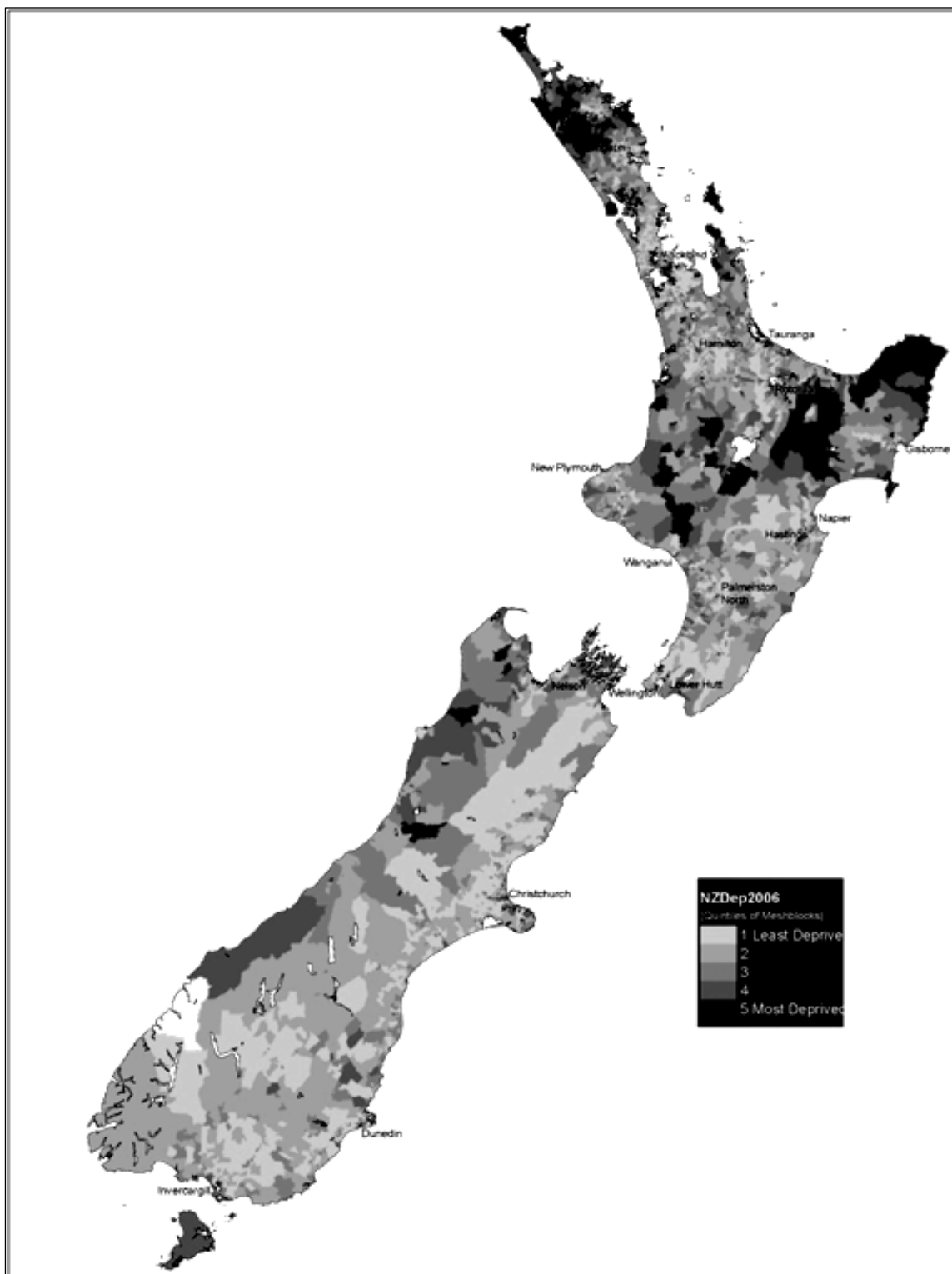
Source: White et al, Ministry of Health (2008)

6 The case studies

As part of this research project we conducted two community case studies: one of a community which is particularly disadvantaged with respect to transport, and one of a community with a 'typical' transport access situation. This section of the report summarises the findings of these two case studies, starting with the 'extreme' situation of Ohai and Nightcaps in Southland District, followed by the 'typical' situation of Fairlie in Mackenzie District in South Canterbury.

6.1 Selection of the case study communities

The identification of disadvantaged and typical communities with respect to access to transport was made using several indicators which were derived from census data for rural census area units. These indicators were, for each area unit:

- the relative ranking of the percentage of households in the area without access to a MV

- the relative ranking of the average number of MVs per adult resident

- the relative ranking of the percentage of households without access to telecommunications

- the presence of PT in the census area unit – as indicated by the census data on means of travel to work.

The relative rankings were achieved using z-scores (also known as standard scores) for each rural census area unit – that is, the number of standard deviations by which each area unit varied from the mean for all area units.

Both Ohai and Nightcaps (which are located very close together in Western Southland and are closely connected socially) ranked very low for percentage of households with access to household MVs, and for apparent non-availability of PT. Fairlie, represented by a single area unit, fell into the group of about 20 'average' areas on access to household MVs, availability of PT and access to telecommunications.

Out of a number of possible candidate case study communities for the extreme situation, Ohai (along with its close neighbour Nightcaps) was selected because:

- it was classified by Statistics NZ as 'a rural area with low urban influence' or 'highly rural'

- it has a balance of Māori and non-Māori residents

- it has been the subject of previous community studies in the 1990s, and was therefore quite well documented

- the study was seen as possibly adding value to a community-based review of social services in Western Southland.

Of the possible typical situation case study candidates, Fairlie community was selected because it:

- was also classified by Statistics NZ as 'a rural area with low urban influence' or 'highly rural'

- had a reasonably typical mix of people for a New Zealand rural community

- had a reasonably typical economic base and history

- was also quite well documented.

The case studies were undertaken over several months in mid-2009 using the following qualitative and quantitative research methods:

• review of previous studies, and historical and recent descriptive accounts of the area

• analysis of census and other official statistics for the area

• face-to-face and telephone interviews with key local stakeholders, especially local and regional service agencies and providers, representatives of local organisations and local residents

• a focus group with local residents with poor access to transport (Ohai and Nightcaps) with local older residents (Fairlie) and with mothers of pre-school children

• a focus group with community leaders (Fairlie)

• field observations in the district.

The interviews and focus groups were transcribed, and then thematically analysed using the AskSam software.

6.2   A poor transport situation

6.2.1   The case study community (Ohai and Nightcaps)

Ohai is a coal mining town in rural Western Southland, located 44km west of Winton on provincial Highway 96, and approximately 75km from Invercargill. During its 80 years and more, Ohai's social and economic fortunes have been intimately linked with those of coal mining. At the last census in 2006 there were 357 usual residents in 132 occupied dwellings[7], Ohai's lowest population since its founding in the 1920s.

Nightcaps is Ohai's nearest neighbour, situated 9km to the east on Highway 96. In 2006 Nightcaps had a usually resident population of 309 and 132 occupied private dwellings. Nightcaps is also closely associated with coal mining but is older than Ohai, having been established in the 1880s, and has had more of a service role.

The population of the Ohai and Nightcaps area has been largely dictated by the growth and decline of the local coal mining industry. As such, the population peaked at over 1600 usual residents in 1961. From the 1970s through to the mid-2000s coal mining declined as an employer in the district, and the population decreased significantly in both towns, with the decrease in Ohai being more rapid than in Nightcaps.

---

[7] According to the local community development worker, in 2009 there were 115 occupied dwellings in Ohai.

Figure 6.1   Map of Western Southland, New Zealand

Source: Tumonz 5

6.2.2   Socio economic profile

Ohai and Nightcaps exhibit a high degree of similarity in their socio-economic characteristics. The main features of these communities apparent in the 2006 Census data and in field research are as follows:

Ohai:

* a decreasing and aging population (30% population decrease between 1996 and 2006)

* a bias in the population in favour of males (54% compared with 49% for New Zealand)

* a relatively high proportion of Māori (45%)

* a below average labour force participation rate (57%)

* very low incomes (median personal income $14,100)

* a high proportion of workers in blue collar occupations (labourers 30%, technicians and trades workers 21%, and machinery operators or drivers 15%)

* low educational attainment (45% of those aged 15 and over with no qualification)

* below average household size (2.5 persons compared with 2.8 for New Zealand)

* a high proportion of those in the workforce travelled for work (89%) compared with workers in other highly rural and remote areas (49%), ie a low proportion worked at home

* among those travelling to work, a low proportion (46%) drove themselves, and a high proportion travelled as passengers (19%)

* below average household access to telecommunications (9% without access compared with 2% for New Zealand)

- low household access to the internet (23% with access compared with 58% for New Zealand, and 27% for highly rural and remote areas)

- total lack of commercial services (garage car repairs only)

- minimal local social services (marae support, community worker, policeman, visiting doctor, community hall)

- high levels of welfare benefit dependency, social problems and marginalisation

- lack of local employment opportunities

- poor housing quality

- comparatively poor transport accessibility – including no regular passenger transport

- very high level of deprivation (being among the most deprived 10% of New Zealand communities).

Nightcaps:

- decreasing and aging population (22% population decrease between 1996 and 2006)

- a bias in favour of males (55%)

- an above average proportion of Māori (20%)

- a below average labour force participation rate (63%)

- low incomes (median personal income $17,300)

- high proportion of working residents in blue collar occupations (eg labourers 30%, machinery operators or drivers 14%)

- low educational attainment (48% no qualification)

- low household size (2.2 persons)

- driving a MV was the main means of travelling to work (49%); 8% travelled as passengers

- relatively low household access to telecommunications (4% without access)

- low household access to the internet (31%)

- minimal commercial services (one grocery shop with cash machine, one hotel)

- some social services (two primary schools, playgroup, doctor, community worker)

- employment largely limited to the Takitimu coal mine, local transport company and nearby farms

- high levels of welfare dependency, social problems and marginalisation

- poor housing quality

- poor passenger transport accessibility

- high level of socio-economic deprivation – among the 20% most deprived New Zealand communities.

6.2.3 Local services

6.2.3.1 Transport services

In 2006 approximately 27 Ohai and Nightcaps households (or about 10% of the community) did not have access to a MV, making them dependent on community transport and the good will of their whanau, neighbours and friends. A further 123 households (or 46%) had access to only one vehicle.

There is a general perception among residents and others that, despite the cost of running it, a car is a necessity if one wants to live in Ohai or Nightcaps. A district transport specialist summed up the position:

> *Petrol is not considered a luxury any more – it's as essential as milk and bread. People will put petrol in the car before they register it or get new tyres or a warrant.* (Anonymous A, pers com 2009)

Despite this necessity and lack of alternatives, Ohai and Nightcaps have among the lowest numbers of vehicles per household for New Zealand rural communities. Local interviewees commonly mentioned the poor condition of local vehicles and the quietly tolerated practice of operating vehicles without a warrant of fitness or registrations, especially by those with limited incomes.

Among those without vehicles, obtaining rides with neighbours, friends and family members is the most common solution to lack of transport (as discussed below). However, people report they prefer to be offered a ride, rather than having to ask for one because they feel embarrassed asking for help. As an elderly female resident said

> *I like to be able to do things myself – I prefer to be independent. You don't ask unless you have to. I'd have to be pretty desperate to ask – needing to go to the hospital or something* (Anonymous B, pers com 2009)

During our fieldwork in mid-2009, the Ohai garage was being re-established as a vehicle repair shop only. However, it was not certified to issue warrants of fitness. Vehicle owners at Ohai therefore needed to travel out of the town for warrant of fitness testing, a further barrier to running and maintaining a legal and roadworthy vehicle. Likewise, refuelling required a trip to the service station at Winton or Otautau (a distance of 44km and 32km respectively).

There are no dedicated PT services in, to, or from Ohai or Nightcaps, and there is no taxi service. Members of the public are able, with prior notice, to travel from Ohai and Nightcaps to Winton on the weekday morning school bus and to return in the afternoon. However interviewees said they felt uncomfortable using this service because they had to share with a busload of teenagers and the timing was inconvenient.

McDermott's Coachlines, headquartered in Invercargill, runs two daily buses from Winton departing at 8am and 10am and taking 30 minutes to get to Invercargill. The one-way fare is $10. McDermott's return trips depart at 3.50pm and 5.10pm. The Intercity Coachlines buses between Queenstown and Invercargill, and Te Anau and Invercargill pass through Winton in the late morning and pick up passengers if pre-booked. Their reverse trip from Invercargill departs at around 1pm. To access either service, Ohai and Nightcaps residents must travel to Winton, adding a significant barrier to access. Furthermore, it is difficult to coordinate the Invercargill – Winton bus trip with the afternoon school bus from Winton to Nightcaps.

Nightcaps has two primary schools, both of which draw on surrounding rural areas as well as Ohai and Nightcaps townships. The two schools are served by five bus runs, including one from Ohai (Ministry of Education 2010). During the re-tendering of school bus runs by the Ministry in late 2008, four of the primary school runs were contracted to Southbus Ltd, reportedly based in Te Anau but registered in Dunedin. The other run was contracted to a Nightcaps operator, Braziers Motors – a long-standing local bus company that previously held the contracts for all five runs. The viability of Braziers local business was reportedly reduced with the loss of the contract for school bus services.

Central Southland College in Winton is the main secondary school for the local district. It is served by two buses from the Takitimu area (Ohai and Nightcaps), which are provided by Braziers on subcontract to McDermott's Coachlines.

Ohai and Nightcaps have a community transport service. Started in 2006, the Takitimu Community Development Trust (TCDT) facilitates rides in private vehicles for those in need, and sometimes the community worker drives people to urgent appointments in Winton or Invercargill. The Trust also runs a fortnightly minibus service to Invercargill. This service, which is provided by Brazier Motors and heavily subsidised from Lions Club earnings from gambling machines, costs passengers $5 per trip. Up until the end of 2008, the service reportedly ran reliably, with occasional over-demand. In 2009 it only ran occasionally due to lack of demand, but despite the difficulties it has managed to keep operating until the present (mid-2011). Its popularity appears to be linked to the cost of running private vehicles, ie when the petrol price goes up, some local people switch from using their cars to using the community minibus.

Being based at Nightcaps, with local drivers and close associations with the community, Brazier Motors is the main provider of charter bus services for school trips, sports trips and community group excursions (such as the senior citizens outings subsidised by the Community Organisations Grants Scheme of the Department of Internal Affairs). Charter services are also provided by operators from Winton and beyond.

From our interviews it seems the main alternative to lack of public and other passenger transport is lift-giving and ride sharing. This is reflected in the census statistics on means of travel to work. Ride sharing is especially evident among older and long-term residents. This can have the effect of strengthening community networks, though many interviewees also noted they felt embarrassed having to ask others for a ride and preferred that others made the offer.

Several interviewees reported they car pooled for club meetings and events out of town. Parents also car pool for children's sports and school outings, although some reported problems in getting enough parents to help out and share the burden of supplying transport.

With Nightcaps being the base for Transport Services Ltd, the district is well served for freight and rural cartage. The company operates a daily freight service to and from Invercargill and some locals reported it was possible to get a ride on the freight truck to Invercargill if necessary. These vehicles are difficult to access physically, especially for older people, and are only located in Nightcaps. Being able to use this option requires having the right social connections.

6.2.3.2   Business and commercial services

Over the past 25 years or so, Ohai and Nightcaps residents have seen the withdrawal of many commercial services and the closure of most local shops (Fitzgerald 1998). Both towns are now severely disadvantaged in terms of commercial services. Ohai residents have to obtain all of their groceries and other retail needs from outside the settlement, while Nightcaps residents can obtain groceries, takeaway food, alcohol, tobacco and cash locally. Typically, Ohai and Nightcaps residents make fortnightly shopping trips to Winton or Invercargill, and only buy incidentals at the Nightcaps Four Square store. Business services (for example, accountancy and legal) are mainly obtained in Invercargill.

6.2.3.3   Social services

Despite the lack of retail and commercial services, it seems Nightcaps and Ohai are quite well off for social services, community facilities, and clubs and societies. The ongoing local provision of services in a situation of population and economic decline has been made possible by sharing services with other centres, and provision of extension services by Invercargill-based helping agencies. Hence local residents do not necessarily have to travel out of the district to access all key services.

A recent survey of 31 social services in Western Southland found that 74% were based in Invercargill (Taylor et al 2009). At the same time, some 43 social service agencies, support groups and welfare organisations extended their reach into Western Southland, although the extent to which the services reached their client groups was considered 'highly variable' (ibid).

The TCDT's community worker is an important resource for Ohai and Nightcaps residents. This part-time worker has a physical base in Ohai which has space for small meetings (including appointments with visiting agency representatives) and provision of written information. A similar service focusing on local Māori people is provided at the Te Oruanui Marae in the former Ohai Rugby Club rooms.

The Ohai primary school closed over 10 years ago, so local primary school children have to travel by school bus to St Patrick's School or Takitimu School in Nightcaps. Local secondary schoolers mostly attend Central Southland College in Winton.

Ohai has a small medical centre that is attended for two half-days per week by doctors from Tuatapere. At Nightcaps, primary health care is provided by the Nightcaps Community Medical Trust at the Nightcaps surgery. The Nightcaps surgery also has rooms for small meetings and for visiting agencies to see their clients. Access to specialist medical and health services requires making a trip to Invercargill or beyond, for which the Primary Health Organisation (PHO) is able to provide petrol vouchers. Other social services (eg Work and Income) are provided to both communities by mobile workers travelling out periodically from Invercargill or even Winton.

6.2.4   Key local issues

6.2.4.1   **Disadvantage and socially excluded communities**

By national and regional standards both Ohai and Nightcaps are socio-economically disadvantaged. This stems from long-standing dependence on the coal mining industry which has been subject to cycles of rapid development, disinvestment, uncertainty and mine closure. Development capital has shifted to other sectors (including tourism, dairy farming and forestry) and to other districts. With long periods of economic uncertainty, people and businesses have progressively disinvested and eventually left the area. Hence Ohai and Nightcaps now stand on the periphery of the economic and social life of Southland. This has left a section of the population with various types of deprivation.

Ohai has a high proportion of low-income, under- or unemployed, aging, socially marginal and needy households, often with no or low access to private transport and other mobility-related technologies (such as the internet). Similarly Nightcaps has a high proportion of elderly residents, and therefore people on fixed (and low) incomes, with high levels of need for health services, and diminishing mobility. Social exclusion is evident in both Ohai and Nightcaps.

6.2.4.2   **Lack of services**

Other than the few services provided by visiting agencies, most services are not available in the Ohai and Nightcaps area. Most people therefore need to travel to other centres to access services, especially shops. As noted previously, there is a general store at Nightcaps but support for this is limited due to perceived inflated prices and its distance from Ohai. Nevertheless the elderly, those without cars and/or licences, and the physically less mobile, are forced to use this store for their day-to-day needs and are reliant on others in order to access city supermarkets and shops etc. Even though most households have a MV, there is no petrol station in the area, and nowhere to get a warrant of fitness and vehicle registration.

The lack of services causes extra living costs, which exacerbates problems of low incomes and lack of local employment opportunities for Ohai and Nightcap residents.

6.2.4.3   **Lack of public transport**

Public transport in the Ohai and Nightcaps area is absolutely minimal and is seldom used. As mentioned previously, the only service available between Ohai, Nightcaps and beyond is a school bus to Winton and then by commercial bus service to Invercargill. For most potential users, such as non-drivers and older

people attending hospital or other services in Invercargill, this service is inconvenient because of bus swapping and timing, especially the connection with the school bus in Winton for the return journey.

The area was once quite well served for commercial public transport, but due to the declining population and increasing car ownership, these services became unviable and were stopped in the 1980s. As mentioned, the viability of the remaining local charter bus company is in question due to its loss of many of its school bus run contracts in 2009.

6.2.4.4   Dependence on private transport and getting lifts

Most people in the area own MVs, although low household incomes and geographical isolation mean the quality and legal compliance of some of the vehicles and their drivers is variable.

Single women and the elderly are particularly disadvantaged in their access to private vehicles. Some older local people, especially women, do not have driver licences and are unable to drive even though they may own a serviceable vehicle. The wives of recent dairy worker migrants are reportedly also experiencing isolation on local farms due to lack of access to vehicles. This adds to their isolation due to cultural barriers to participation in the community.

With the shortage of reliable and accessible public and community transport, those without vehicles are very dependent on getting rides with neighbours, friends, family members and local community workers. But people in this situation are commonly reluctant to ask for assistance (unless in an emergency). The PHO for Ohai provides petrol vouchers to help defray some of the MV running costs for those being given rides to medical appointments elsewhere.

Loss of driver licence due to health impairment is a major challenge for older people being able to continue living in Ohai and Nightcaps. Lack of transport is therefore a major 'push' factor in older people moving elsewhere. This, in turn fuels the cycle of depopulation and service decline.

6.2.4.5   Low access to telecommunications

Households in Ohai and Nightcaps have a low level of access to the internet – dialup or broadband. Social and community services that are becoming increasingly available online, and which would obviate the need to physically travel to access them, are therefore not accessible to a section of the community. This creates a digital divide within the community. Those on limited incomes who cannot afford computers and internet access charges, who have limited education and lack access to MVs, are therefore the most excluded. They remain very reliant on visiting services by welfare and support agencies and medical specialists. With cut backs in government spending on community and adult education, opportunities to acquire computer skills and to gain access to publicly available computers appear to be diminishing in the district.

6.2.4.6   Local social challenges in transport planning and provision

Community workers and key service providers report that Ohai and Nightcaps face serious challenges due to their socio-economic disadvantage. These challenges place extra demands on services, volunteers and resources, and an above average (and under-met) need for specialist out-of-town services. Service challenges noted by various local providers include:

- an aging population with declining mobility and limited family support

- low property values and poor housing, making it hard for people to sell up and leave the local area

- unemployment or under employment, and lack of work opportunities so that Work and Income designated Ohai and Nightcaps as a 'no go area' for job seekers and those on benefits

- physical isolation (despite having good roads)

- poverty and associated welfare dependency

- disproportionate level of health and social problems

- a relatively high transient population (associated with shearing and dairy farming)

- declining family support for elderly family members as younger people move from the area

- the increasing expense and inefficiency of maintaining two separate and relatively isolated small townships, their infrastructure, utilities and services, and related to this, how to physically and socially combine the two settlements into a single more viable township.

The recent review of rural social services in Western Southland by Taylor et al (2009) also concluded that transport is an important issue in the accessibility of services. Issues identified by the Western Southland review include:

- poor access to transport, caused by lack of PT, cost, vehicle breakdown, licensing problems, health and disability or lack of driving skill and confidence

- the limiting or withdrawal of outreach services due to cost

- lack of understanding of transport and rural communication problems by social service providers

- difficulty in coordinating the various transport assistance being provided by community groups

- negative attitudes by local people to asking for and using transport assistance (eg volunteer drivers, funding assistance)

- the variable supply of suitably skilled volunteer drivers with suitable vehicles.

Many of these issues were identified in our interviews and discussions with local Ohai and Nightcaps residents and service providers.

6.3   A typical transport situation

6.3.1   The case study community (Fairlie)

Fairlie is a picturesque South Canterbury farming and tourism service town in the Mackenzie District, located 62km northwest of Timaru at the junction of State Highway 8 (Timaru – Omarama) and State Highway 79 (Fairlie – Geraldine). The town lies in the Fairlie Basin, close to the foothills of the Southern Alps. As such, it can experience extremes of weather, such as the June 2006 snow storm that isolated the area for up to three weeks.

The Fairlie Basin is a fertile mixed farming area which includes the farming districts of Clayton, Ashwick Flat and Sherwood Downs. In 2006, the town had 717 usual residents and 315 occupied dwellings.

6.3.2   Socio economic profile

The main socio-economic features of the Fairlie area unit are:

- a slowly declining population (by 11% between 1986 and 2006)

- a population bias in favour of females (53% compared with 51% for New Zealand), and older residents (with a median age of 47 years, cf 35 years for the nation as a whole)

- ethnic homogeneity – the most numerous ethnic group being people of European descent (79%) followed by others who call themselves 'New Zealanders' (20%)

- slightly below average formal educational achievement (26% with no qualification compared with 22% for the nation)

- slightly below average labour force participation rate (62% compared with 66% for New Zealand)

- predominance of work in the service of others, especially in the accommodation, cafes and restaurants (15%), education (13%) and construction (12%) sectors, and in blue-collar and sales and service jobs

- a net supplier of labour to other areas (the township being the workplace for 306 people, while 363 residents were in employment)

- comparatively low personal incomes (median personal income $17,800 compared with $24,400 for New Zealand)

- a high proportion of households in receipt of New Zealand Superannuation and veteran's pensions (33% compared with 20% for New Zealand)

- a low average household size (2.4 persons compared with 2.8 for New Zealand)

- a high level of home ownership (65% compared with 51% for New Zealand)

- reasonable household access to a MV (1.6 per household, same as New Zealand), but a slightly lower average number of vehicles per household than other rural areas

- driving a MV is the main means of travelling to work for residents of Fairlie (45%), although 26% of workers cycle, walk or jog (compared with 9% for New Zealand)

- reasonable household access to telecommunications (99% with access) and 50% with access to the internet

- slightly above 'average' socio-economic conditions for a New Zealand community (as indicated by the 2006 deprivation index).

Figure 6.2   Map of the Mackenzie District, New Zealand
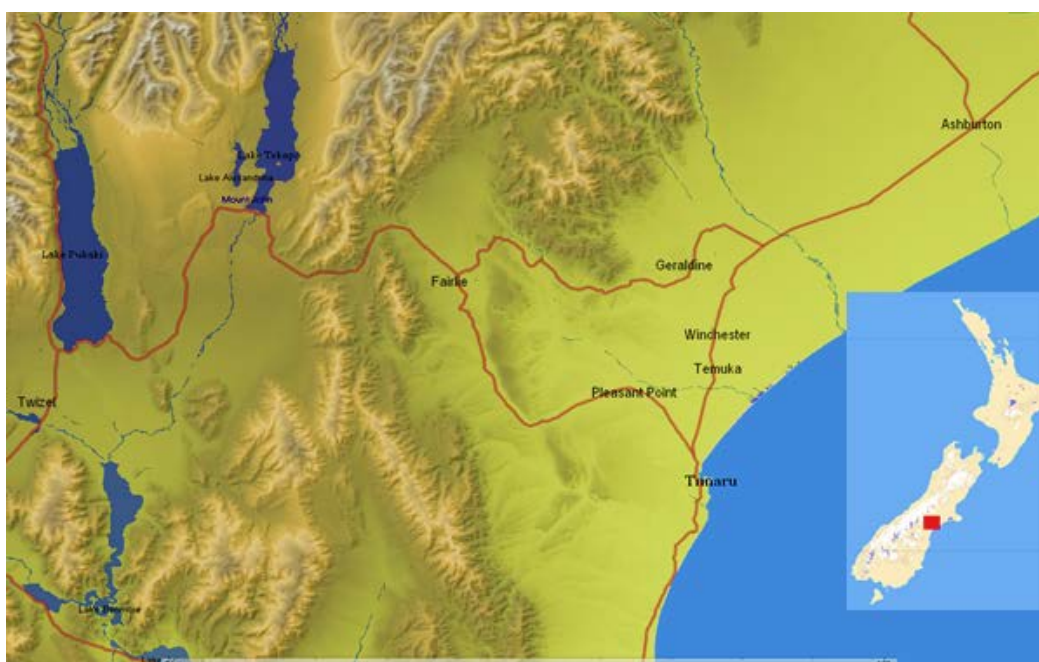
Source: Tumonz 5

6.3.3 Local services

6.3.3.1 Transport services

Motor vehicle ownership and servicing

In 2006, approximately 264 of Fairlie's 300 households (92%) had access to a MV – 117 of them having access to only one vehicle. Twenty-one households (ie about 7%) did not have access to a MV, making them dependent on the good will of their family and fellow community members, community transport and PT. These are typical levels of access by national standards, but a little low by rural standards. Data from the last three censii suggests Fairlie has tended to lag behind other rural areas in MV ownership. From our interviews it seems that those who lack access to a MV are mainly elderly people, especially older women living alone, and youth.

Having a car is regarded by locals as essential for living in Fairlie. A group of young mothers interviewed for the study all had their own vehicles, and did not question the cost of transport since having a car is seen as a 'necessity'. As one woman with two children noted 'a lot of partners around here don't work, but everyone has a car because there is no taxi service. My family has three cars, though not all of them are legal'.

People who have a vehicle (excluding those commuting for work) report that they travel at least once a fortnight to Timaru, regarded as 'town' by most locals. Some travel to Timaru weekly, while others, commonly older people, seem to limit the number of trips they make due to the distance and cost. When they do make the trip, it's a multipurpose one.

Fairlie is quite well provided for in terms of vehicle servicing. Residents can get repairs, fuel, consumables, registrations and warrants of fitness at several businesses in the township. However, while the Heartlands Fairlie Resource Centre can undertake the written testing for driver licences, driver testing is not available locally. Young people sitting for their licences and older people aged 75 have to do the MoT on-road driver safety test in Timaru. Hence some young people reportedly 'drive around without a full licence for years'.

Public passenger transport

The main journeys that might require PT are within the township itself, to Timaru, and occasionally to Geraldine, Ashburton and Christchurch. However, there are only limited passenger services available. There is no taxi for local travel and only one regular bus service which runs one day a week between Fairlie and Timaru. This service is provided by Geraldine Tourism Services which puts on a Friday bus from Twizel, stopping at Fairlie for pick ups at 9.15am and terminating at Timaru Hospital about 10.15am. Stops are scheduled for most settlements along the route to town. The return bus, which departs Timaru at 3.30pm, gets to Fairlie at 4.30pm. The round trip costs $30 per adult and $16 per child and is subsidised from NZTA regional funding.

Interviewees for the study reported that 'hardly any local people use the Timaru bus because it is not regular enough' and that it tended to be used mainly by boarding school students returning home for the weekend and by tourists travelling to and from the Mackenzie Country.

A local health worker observed separately that the Friday bus 'does not suit a lot of people who are old or unwell and who may have an appointment in town'. Another key interviewee reported that the Fairlie Community Board does not contribute to the running of the service because (ironically) it is not sufficiently well patronised.

Being on the Christchurch – Mt. Cook-Queenstown tourist route, several bus services pass through Fairlie each day. Those wanting to travel north from Fairlie to Christchurch (or Geraldine and Ashburton) have the choice of four buses per day – all in the afternoon. Southbound buses to Queenstown from Christchurch pass through Fairlie in the late morning or early afternoon. This explains why local people claim that it is

'easier to get to Christchurch and Queenstown by bus than it is to get to Timaru'. However, those who have used such services note that because of the scheduling, one has to stay away overnight – even if simply making a 'day' trip to Ashburton or Geraldine.

School and community transport

Fairlie has two primary schools and a high school. All three schools are decile 7 (ie located in relatively economically advantaged communities) and they draw heavily on the surrounding rural areas for their students. Six school bus routes serve all three Fairlie schools and average 53km in length. In mid-2009, over half of Fairlie Primary School's students were coming to school on the buses from throughout the Fairlie Basin and Tekapo.

Since 2009, after the nationwide re-tendering of school bus services by the Ministry of Education, all six Fairlie runs (and three for Albury School) have been operated by Ritchie's Transport Holdings which is based in Timaru. Prior to the re-tendering, the school buses were operated by Atkinson and Dossett (aka Landmark Lines) based in Pleasant Point. Atkinson and Dossett employ local drivers and are regarded as a 'local' company.

For smaller school trips, the primary schools are able to borrow minivans owned by the two local hotels, and also get parents to help out. For larger trips they charter buses from Atkinson & Dossett or Ritchie's. Mackenzie College uses the same bus charter companies for transporting larger groups, but for smaller group trips it has two minivans of its own which are driven by staff members.

Figure 6.3   Mackenzie College students with the school minibus

Source: Fairlie Accessible 2010: 10–08: 4

Transport is therefore an important factor in schooling in Fairlie. In addition to school buses making it possible for students to attend school from the surrounding rural area, their schedule dictates the rhythm of the day and the extent to which schools can provide after-school activities and sport. Participation in cultural and sporting events, most of which occur away from Fairlie, depends on sufficient funds being available for charter buses, whether the operators can synchronise with the rural school bus runs, the availability of parents (many of whom are farmers) to assist with outings, and the ability of parents to pay.

Community and group transport

At the time of our fieldwork there was no formal community transport service, though there was an expressed need for a minibus or community car to shuttle people to appointments in the township and in Timaru. Subsequently in April 2010, the Fairlie Resource centre, with the help of the Waimate Vehicle Trust and volunteer drivers, began a three-month trial of a dial-a-ride community vehicle service (*Fairlie Accessible* 2010, 10–08: 1). User fees were set at $3 for a trip one way in the 50km area of Fairlie and $40

to Timaru return. This service has since been made permanent and operates in response to demand rather than on a schedule (see figure 6.4).

The volunteer-operated Mackenzie St. John Ambulance service is based in Fairlie and covers Tekapo and Twizel. Because it does not have sufficient volunteers to provide full-time coverage for the area, an ambulance from Timaru has to fill in when the local ambulance is un-manned. Hence time-consuming ambulance transfers to and from Timaru or Christchurch are a problem.

There is no Fairlie-based charter bus provider, though there are providers at Pleasant Point, Geraldine and Timaru. As noted, the local schools use these charter services for transporting larger groups of students to school sports and cultural events out of town.

Figure 6.4   The Community Car service advertised in *Fairlie Accessible* community newsletter

Community and informal transport

Ride sharing is the main means for circumventing the lack of PT in the Fairlie area, especially among older and long-term residents. Some arranging of rides is done through the Fairlie Resource Centre. Some of the older people interviewed for this study noted that people actively look out for neighbours with limited mobility, unable to drive, and without locally resident family members. However, older people are often reluctant to ask neighbours for assistance with transport, preferring to ask family members first. A local health worker also noted:

> *There is good community support in the town; people give each other rides, but some people*
> *don't like to ask for help (is this a kiwi thing?), especially when they have a number of issues*
> *and are required to make several visits into town [Timaru]. They don't like to be thought of*
> *as demanding. People who have lived here for a while seem to manage OK. They may have*
> *kids and they are able to enlist a bit of support, but it's not the same for everyone.*
> (Anonymous, pers com 2009)

Generally it appears lack of PT encourages older people to keep their driver licences and vehicles longer than they might if living in the city. Younger women with children generally have their own vehicles, and because they prefer to be flexible and independent, do not tend to car pool for shopping trips or getting to playgroup. The census data also indicates that comparatively few people get a ride to work.

Local children travel regularly to Timaru and elsewhere in South Canterbury for sport and other activities. Several interviewees reported that families car pooled for sports. Some travel funding from Sport and Recreation New Zealand is available to help enable rural children to compete in regular events. Several teachers who were interviewed noted that provision of transport by parents is 'vital if local kids are to

participate in activities such as sport, the performing arts, and out-of-town educational events'. Without transport, supportive parents, or the ability to meet the costs, local children can become excluded from involvement in active and creative group activities. Some believe that such exclusion leads to problems of petty crime and vandalism in the town.

Freight and goods transport

Fairlie and surrounding district seems to be well served for goods transport and cartage. The locally owned and operated Barwood Motors provides a daily freight service to and from Timaru, and two courier services (Posthaste and New Zealand Couriers) pass through Fairlie on their daily routes to and from Twizel.

6.3.3.2   Business and commercial services

Fairlie has a typical mix of commercial and personal services for a settlement of its size and function today. It is particularly well served with businesses focusing on farming, such as agricultural contractors, rural carriers and general contractors. Historical reviews of Fairlie by Biggs (1949) and Thomson and Moran (2000) indicate that for much of the twentieth century there were more residents able to support a larger range of shops and services, and shoppers had considerable choice. However, retail and related services began to contract when MVs became available to most households, various social and economic pressures led to a falling population, and by the 1990s supermarket shopping in the city became the norm.

Most householders reportedly travel to Timaru at least fortnightly. While mainly for supermarket shopping, these trips tend to be multi-purpose and multi-point trips. Interviewees noted that buying their groceries in Timaru saves $20–$30 per trip, which in turn pays for the cost of petrol. As in other rural towns, people are torn between supporting the local shop in order to keep it viable and thus meet the needs of community members unable to travel to Timaru (typically older people) and reducing or containing their living costs.

While several businesses have EFTPOS terminals, Fairlie does not have an ATM (cash machine). It does however, have a branch of the Westpac Bank. Some fear that installation of an ATM would precipitate closure of the bank.

6.3.3.3   Social services

Fairlie appears to be quite well off for social services, community facilities, clubs and societies. The 2008 Community Directory listed contacts for 20 community organisations, 24 sports clubs or groups, seven welfare organisations, seven hobbies clubs, and two service clubs. Most key social services are available at Fairlie, including preschool, primary and secondary education, primary health care, emergency services, elder care and associated home-based services and welfare assistance. The two main formal service delivery points in Fairlie are:

- the Fairlie Medical Centre, which is the home for the local general practice (two doctors), the district nurses, and visiting medical health specialists and workers

- the Fairlie Resource Centre, which is the home base for the local community workers. It also operates as a Ministry of Social Development Heartland Services Centre and contact point for approximately 22 central government and non-government agencies, along with other local services and groups.

Respondents in this study felt that having a local medical centre, high school, shop and resource centre was essential to the viability of the Fairlie community. Some especially noted that the services available for retirees, including having the Moreh rest home, the Council's pensioner flats, the Elder Persons Forum, the community worker and various forms of home support, made it possible for older people to stay in Fairlie, and for others to be able to move into the Fairlie for work or retirement, thereby bringing in new residents.

Nevertheless Fairlie residents are still highly reliant on Timaru for dentists, specialist medical, personal and professional services, hospital services, specialist retail purchases, discount food and groceries, and many cultural and sporting activities. Reaching these services requires access to reliable transport.

6.3.4 Key local issues

6.3.4.1 Inadequate passenger transport

Key informants and others interviewed for this 'typical community' case study reported that insufficient passenger transport is an important issue for some Fairlie residents, especially its elderly and youth. In the past the area had adequate PT, but daily bus services to Timaru and elsewhere wound down and then ceased running in the 1970s, leaving a 'public transport vacuum'.

As outlined, the only PT is a weekly (Friday) Twizel to Timaru bus and the various tourist shuttles passing through on the Christchurch–Queenstown route. Locals say they generally do not use the weekly bus service because it does not meet their needs. More generally they see PT as slow, involving excessive waiting, and restricting their independence and flexibility of movement.

At the time of the fieldwork Fairlie had no taxi service. The less mobile and those unable to transport themselves therefore had difficulties getting to shops and services in the township, especially to the medical centre that is located at the western end of residential area. For those able to afford them, mobility scooters are ideal for use in the township. The 'community vehicle' attempts to plug the local accessibility gap for others and to provide flexible pre-booked door-to-door transport to Timaru.

6.3.4.2 Access to services

Many essential services can be found in Fairlie, but specialist services must be sought from Timaru or further afield. Most people therefore need to travel out of Fairlie periodically. There is only one grocery shop in the town, and while some rely on it for most of their needs, most households do not do their main shopping there due to the higher prices and limited choice, preferring to make regular trips in private MVs to the various Timaru supermarkets.

Primary health care is provided in Fairlie, but all other medical and health needs require a trip to Timaru where the hospital and specialists are based. Since Fairlie has a comparatively aged (and aging) population, the need for specialist services is high and will increase.

Various interviewees referred to friends or family who had been compelled to relocate to Timaru in order to access services that are not available in Fairlie. Should the district nursing services and home help for the elderly be cut back, or the volunteer-operated rest home close or be curtailed, Fairlie could have an outflow of older residents.

While the town has facilities for the most popular sports, much sport occurs at the sub-provincial level requiring sports persons and teams to travel away regularly. This can be expensive and time consuming for participants and supporters, thus excluding some individuals and families from being involved in or contributing to pooled transport.

While having a high school in the town is a significant advantage and local schools receive additional funds to mitigate isolation, youth have limited local social and cultural opportunities. Because they lack access to PT, young people tend to get their driver licences and MVs as soon as possible.

6.3.4.3 Disadvantaged groups

As a rural service and retirement town, Fairlie is reliant on the surrounding farming community. It is therefore quite susceptible to fluctuations in agricultural conditions (for example climatic events and

export prices). The rural downturn of the 1980s and 1990s, and contraction of both on-farm and off-farm workforces resulted in a loss of population and services from Fairlie. More recently the population decline has slowed, possibly due to the growth of dairy farming and the related farm workforce, and an increase in 'life-style' residents.

Fairlie is also a retirement town, evident in the high proportion of middle-aged and older residents. Average incomes are low and there is a high proportion of residents not in the workforce and therefore reliant on national superannuation and other benefits. Fairlie is therefore vulnerable to changes in government policies regarding the elderly and level of provision of support services. With an aging population, tightening social expenditure by government, and a strong likelihood of higher petrol and food prices in the future, Fairlie could face increasing marginalisation of its older and poorer residents.

In this context, the most disadvantaged residents, and potentially at risk from negative social impacts such as social exclusion, are thought to be:

- those living on fixed incomes (such as national superannuation, and a single parents benefit), especially those living alone, with health or disability issues, without relatives living locally, or without reliable transport – elderly people especially feature here

- the wives and families of seasonally transient and immigrant dairy farm workers living on farms in the district who possibly find themselves socially and physically isolated

- the children of those on low incomes who have reduced opportunities to participate in activities outside of the town.

As the storm events of 2008 showed, during periods of bad weather with heavy snow and flooding, the whole Fairlie community can become isolated, and the difficulties of the most vulnerable can become acute.

6.3.4.4   Private transport and getting lifts

Local people put a lot of store by independence and self-reliance and are reluctant to 'burden other people apart from family' by asking for assistance unless in an emergency. But with the lack of PT those without vehicles, or who are not keen on driving outside of the township, must rely on getting rides with others or, if they can afford it, use the community car. The local community worker attempts to organise rides for those in need, but this reportedly requires careful management.

Loss of a driver licence due to impairment or age is a major challenge for older people being able stay in the community. Lack of accessible transport therefore helps perpetuate the cycle of rural depopulation and service decline. Petrol prices are reported to be an important factor in the amount of carpooling that occurs, and affect the frequency of trips people make to Timaru. However, there seems to be no community-level system for carpooling.

6.3.4.5   Scattered amenities and events

As in many rural areas, amenities and recreational activities and events are not always available locally, and so transport is required to access them. As noted elsewhere, most sports and cultural activities require participants to travel away regularly within South Canterbury. This can mean trips as far as Waimate. Some young people are therefore excluded from participating in sport or cultural activities and the associated socialising due to the cost or lack of transport.

6.3.4.6   Access to telecommunications

Almost every Fairlie household has access to a telephone. However, access to the internet is below average. High-speed broadband is available locally, though the quality of connections varies depending on location. Services that are becoming increasingly available online, and which would obviate the need to

physically travel to access them (such as specialist shopping, banking, markets and advisory services), are therefore not available to sections of the community, especially the elderly and the poor.

While there have been significant attempts to introduce computing to older people as a form of virtual mobility and for adult education, subsidised training courses and access to computers were expected to come to an end due to changes in government policy over funding of local community education programmes.

6.3.4.7   Other issues

At the time of the fieldwork for this case study there were barriers to the provision of community-based transport in Fairlie. For example, some community members had been discouraged from becoming volunteer drivers for the Cancer Society because they have to pass a legally required test which can only be done in Timaru. Others were being discouraged from giving rides to neighbours or entering into carpooling because of perceived issues with insurance and liability. These issues are being addressed with the new 'Community Car in Fairlie' service.

Fairlie and the Mackenzie District periodically encounter extreme weather conditions which can severely disrupt transport and access to services.

7   The social impacts of poor access to transport

This chapter addresses the various direct and indirect impacts of poor access to transport on rural communities, drawing mainly on the case study findings. Where an impact was observed in one but not both of the case study communities this has been noted in the discussion. Where available, the findings of other studies are included. However, as noted earlier, our literature review failed to identify any systematic assessments of the human/social impacts of poor access to transport in rural areas in developed countries. For the most part, the relevant literature is framed in terms of social exclusion and equity, but does not cover the range of human social effects that individuals and communities may encounter.

7.1   A note on social impacts

In the UK, transport poverty has been linked to social exclusion, isolation and reduced wellbeing (eg Lucas 2004; Farrington and Farrington 2004, Hine and Mitchell 2003; Kenyon et al 2002; Gray et al 2006). Similar broad links have been made for New Zealand and Australian rural communities as part of the ongoing practical and theoretical interest in social exclusion (eg Rose et al 2009; Currie et al 2009).

In chapter 2, we made the distinction between the direct effects of poor access or deprivation and the indirect consequent effects, (or in other terms, between the constitutive and the instrumental consequences (Sen 2000). We also noted that the effects of poor access to transport are likely to be mainly indirect because transport is primarily a means or instrument of access to opportunities rather than an opportunity in itself.

In the case study communities we saw that the effects of poor access to transport are tied up with income level and standard of living, family status, aging, resource/rural industry dependence and downturn, depopulation, service closure and the decline in PT closely associated with an increased use of private MVs. Similarly, a series of New Zealand rural community studies conducted between 1996 and 2000 in which the author was involved[8] showed that rural community social and economic downturn, disadvantage, and even deprivation are linked directly with changes in central government, local government, private sector economic policy, natural resource availability and policy, industry restructuring, rural service provision, and skills transferability, and that the effects are self-reinforcing..

The webs of interrelated social impact causes and effects can therefore be complex and difficult to separate, and while it is not the purpose of this report to map out the wider linkages and effects of poor access to transport, it is important to recognise the various interlinking factors when designing and evaluating interventions and policies for rural communities. Further discussion on this point follows in chapter 8.

The following sections outline the main social impacts of poor access to transport using Vanclay (2002) and Van Schooten et al's (2003) analytical schema for the human impacts of projects, programmes and policies. We therefore examine the effects on:

- *Quality of the living environment and amenity*, that is, the liveability of settlements and workplaces – including actual and perceived quality of the physical living environment, leisure and recreation,

---

[8] Research papers from the Resource Community Formation and Change project are available at www.tba.co.nz/projects/frstproject-tbsx0001.html

aesthetic quality, housing availability and quality, physical infrastructure, personal safety and hazards, security of property and person, and maintenance of social order.

- *Material wellbeing* – including economic factors, such as work, standard of living, community prosperity, economic resilience, income, value of assets (especially land), employment, replacement cost of environmental functions, economic dependency, concentration and distribution of assets and wealth (including natural resources and land), debt burden, access to credit and division of labour.

- *Health and wellbeing* – including death and associated grief, injury and illness, nutritional status, physical health and fertility, mental health, life aspirations, individual autonomy and actualisation, future plans, social stigma and inclusion.

- *Family, community, and social networks* – including family structure and functioning, family and household security, division of household labour and resources, social networks, identification with community, sense of belonging, sense of place, community cohesion, social equity and social harmony.

- *Institutions, legal and political structures, and equity* – including the functioning and integrity of governmental and non-governmental agencies, people's rights (including tenure and use), participation in decision making, equity of impacts and access to justice

- *Culture* – including cultural values, cultural integrity and resilience, inclusion, health of the language, customs and culturally important places.

7.2 Impacts on the quality of the living environment and amenity

In our research, those who continued to choose to live in rural (versus peri-urban) areas reported they enjoy features of the local environment that enhance their sense of wellbeing and enjoyment of life. In the case studies, the frequently cited benefits of rural living included

- visual amenity, that is, open natural landscapes uncluttered by urban forms and structures, and often with unique scenic vistas

- privacy (ie visual and auditory distance from neighbours)

- good access to outdoor hobby and recreational opportunities, some of them highly specialised, such as hunting, four wheel driving, off-road cycling and motocross, animal breeding and racing etc

- being able to work on the land

- being able to work at home or close to home (eg on a farm or horticultural unit)

- the simplicity, slower pace and civility of small town life.

In short they value a combination of lifestyle, physical and social qualities and opportunities that are either not available or hard to obtain in urban settings. Some opportunities noted above are transport-based activities (eg off-road four-wheel driving, car-rallying, mountain bike riding, road cycling, and even horse trekking). Lack of access to the appropriate 'vehicle' means one is directly excluded from participating in the particular opportunity or activity, while in other cases lack of transport means the activity/opportunity is inaccessible (eg being able to get to a scenic walking track, or an equestrian event in another area).

Rural residents with limited mobility due to disabilities or lack of transport, however, do not necessarily miss out on the other benefits. Hence, despite the inconveniences and disadvantages of being transport

poor, some still prefer the local way of life and its features, and even where services have all but disappeared they still prefer to stay in their community.

As our research informants noted, the case study settlements offer affordable and even very cheap housing for those on limited incomes, and generally have quite adequate physical capital such as reticulated electricity and water, and good main roads. These communities (Fairlie more so than Ohai and Nightcaps), have amenities and recreational facilities, well established social networks and support systems, and some access to key services, providing one is able to be mobile, at least within the local area.

For some Ohai and Nightcaps residents, life in the area is made difficult due to the cost and inaccessibility of goods and services, and the distance from centres of employment and entertainment. For others, the isolation, privacy, personal freedom, frugality and simplicity of local life make the area highly attractive. Such residents are not necessary the 'victims' of social exclusion as assumed in the literature, and indeed contribute to the community's (albeit limited) social and economic viability.

The need to access workplaces, schools, supermarkets and specialist health services outside the immediate area seems to generate most of the demand for people transport in rural communities, which in turn leads to high levels of private MV use and ownership. Further, rural people report that the more private vehicles are used, the more the service providers in urban areas assume rural people have good transport and are mobile and flexible, resulting in fewer services being provided locally. Examples here include the scheduling of multiple hospital outpatient appointments 'in town'.

Specific effects of poor or limited transport access on the quality of peoples' living environment are noted below:

- Lack of regular PT or a reliable alternative for those who do not have their own vehicles (in particular the elderly, those on low incomes, youth, children and some married women) is a cause of significant inconvenience and frustration. For those affected, rural living is less attractive than it might otherwise be or has been in the past (eg when they had a vehicle, were more mobile, more services and facilities were available locally, or there were better PT services available).

- Without their own vehicle, people in rural areas are less able to engage directly with the countryside and to take advantage of the passive or active recreational and leisure opportunities available. Hence, for the least mobile the countryside can become an open-sided prison.

- Where there is a lack of affordable local shops etc, people have to make periodic shopping expeditions to town. This means they have to plan ahead and stock up on necessities such as food, groceries and heating fuel, requiring careful budgeting, planning, the time available for shopping trips and access to suitable transport. Those new to rural living often do not have such organisational skills or insight into the demands of rural living and can soon run into budgeting problems. Where community or other passenger transport is available, it may not be suitable for transporting people's bulk purchases or specific items (eg cooking fuels). Those living alone can find themselves under pressure from family and agencies to move to town because of the regular calls on their time to assist.

- On the other hand, poor mobility and access to transport by some sections of the community, which force people to regularly use local shops and services, can help keep those convenient shops and services in business. This benefits all local residents.

- Lack of local access to petrol and vehicle-related services (as in Ohai and Nightcaps, and increasingly common in rural communities elsewhere) causes significant inconvenience, frustration and loss of amenity for vehicle operators. It also increases their costs. The risks and associated fears of running out of fuel on quiet country roads increase, and these are more acute where mobile phone coverage is poor. In the case of Ohai and Nightcaps, where the closest fuel station and warrant of fitness

workshop is about 40km away, and yet car ownership is almost essential, lack of vehicle services seems to have led to an increase in non-warranted, unregistered and substandard vehicles on local roads. This in turn, increases risks for the vehicle operators and other road users. This situation has been increasing due to the dramatic reduction in rural service stations since the 1980s. For example, between 1976 and 2009, the number of service stations in New Zealand fell from 4400 to 1100, with independent rural operators becoming increasingly rare (TVNZ 2009).

• Rural residents who are forced to hitchhike, cycle, horse ride, or walk to their destinations on country roads and highways report they are at increased risk of road crashes and injury due to the behaviour of car and truck drivers and the lack of footpaths, off-road tracks and cycleways. Hitchhikers and cyclists are more vulnerable to the elements, which can frequently lead to trips being postponed.

In summary, rural areas can clearly offer people easy access to unique opportunities and lifestyles, many of which require good mobility. This is often offset by lack of easy access to essential services. To achieve a workable balance of opportunity and costs, rural residents need a MV. Those without such access can therefore experience poor amenity and reduced quality of their living environments.

7.3 Material wellbeing effects

Material wellbeing effects cover the impacts on peoples' and communities' material standard of living, their work and employment, income and expenditure, value of assets, debt and credit situation, economic dependency and distribution of wealth and assets (Vanclay 2002). Such effects are a key focus in 'social exclusion' literature, with the main economic effect of transport poverty being exclusion from participation in the labour market (SEU 2003), and increased costs of accessing goods and services. As noted earlier, many of the economic impacts of poor access to transport are indirect impacts – what Sen (2000) referred to as 'instrumental' consequences.

The New Zealand census data indicates that poor access to transport and having a low income are related – most likely in a spiral of cause and effect; that is, people on low incomes are less likely to have a reliable vehicle and to be able to maintain it. Especially in rural areas, not having a vehicle limits their mobility and thus their ability to access employment opportunities. Limited employment choice (such as seasonal work and farm labouring) and unemployment have a negative effect on personal and household incomes, which if persistent, leads to poverty – and so on.

Likewise, as Sen (2000) notes, in addition to reducing a person's financial capital, unemployment also reduces people's social capital, that is, the opportunities to interact with people in the workplace and elsewhere. It is often through these interactions that people hear about jobs and other economic opportunities.

The main observed effects of poor or limited transport access on rural peoples' and communities' material wellbeing are:

• Inability to access employment or income opportunities within commuting distance of home. Hence those without reliable private or public transport tend to have higher levels of unemployment or underemployment and associated dependence on welfare payments. This in turn means low incomes and a lower material quality of life.[9] This was a particular issue for those in Ohai and Nightcaps where

---

[9] The 2006 Census data for rural area units shows a strong inverse correlation between the number of MVs per resident adult and the percentage of unemployed workers in the area (Spearman's Rho = -0.49, p<0.001). There is a similarly strong inverse correlation between median household income and the average number of vehicles per household.

there were very few employment opportunities. It also features in the literature as one of the main 'social exclusion' effects of poor access to transport (Rose et al 2009).

- Increased household and individual expenditure on purchasing and running MVs (out of necessity). The cost is further compounded by the extra maintenance required when a lower quality (but initially affordable) vehicle is used on rough country roads and frequent long distance trips.

- Dependence for food and supplies on the local stores – which are typically more expensive than supermarkets in larger centres. At Ohai and Nightcaps, up to 20% of the population depend on the local store for their basic needs. The additional expenditure can be significant. In addition to limiting expenditure on other areas of life and in meeting basic needs there may be flow-on effects to peoples' nutrition and health. However, patronage of the local shop helps ensure its survival, which benefits the whole community, visitors and travellers.

- Additional expenditure by community groups and individuals in supporting the less mobile and transport poor and providing assistance to people who have low incomes and poor financial management skills. In rural areas, those most likely to volunteer with driving neighbours etc are older people, who themselves tend to have lower than average incomes. Providing outreach services to compensate for poor transport services also imposes extra costs on agencies.

- Lack of access to vehicle-related services can result in increased expenditure and time in obtaining the necessary services from elsewhere. This is especially true for making fuel purchases. For this reason, most people in our case study areas reported they do not make special trips to refuel their cars, but rather buy fuel as part of multi-purpose trips.

Some of these various effects can be seen in the following comment from a long-term resident of the Ohai and Nightcaps area:

> *Some locals who are on benefits have to shop every week because they don't have the money to buy a month's supplies. They have to drive to Tuatapere or Winton [both over 35km away] to get their petrol, which is expensive in itself. It all adds up. No wonder they have clapped out vehicles, no licence, and no registration. But cars are high priority – no matter what, people still want and need a vehicle!* (Anonymous, pers com 2009)

The need for regular healthcare and other services (especially among the elderly, the sick and those with young children) in combination with lack of private and public transport, can force people to relocate to larger centres. In addition to the cost of making such a move, higher house purchase and rental prices in urban centres can result in the person or family being worse off financially. On the other hand, relocating to a larger centre because of transport problems can also bring financial benefits, such as cheaper food, groceries, and access to public and other passenger transport.

Importantly, in the case of people moving from economically depressed areas, relocating to larger centres can vastly improve opportunities for employment for all members of a household.

7.4   Health effects

It is difficult to separate the health impacts of poor access to transport from the impacts of deprivation more generally. Some of the effects on physical and mental wellbeing are direct effects, but mostly they are indirect effects, that is, they result from a deprivation or difficulty arising from some other consequence of poor access to transport.

Some of the most obvious direct impacts on rural people's health and wellbeing are:

- Increased risks of accidents and illness from having to walk, hitchhike or cycle on rural roads, particularly in poor weather. This is an ever present risk among children who catch rural school buses[10].

- Benefits to health and general wellbeing from having to use 'active' transport such as walking and cycling. While only typically used for journeys of, respectively, 0.7km and 3.3km, these forms of transport can improve health status, as well as reduce air pollution and other negative effects of MVs on people and property.

- In other research, those who are forced to use PT in relatively isolated areas, where street lighting is often absent, suffer heightened fear of attack while waiting for buses etc and while walking to and from PT stops and stations.

- Increased risks of accidents among elderly, partially impaired and/or inexperienced drivers having to drive on open roads (and on busy city streets) because there are few alternatives. These risks increase for afternoon homeward trips and in poor weather. This was particularly noted among older drivers in Fairlie.

- Increased risk of serious illness or death due to people being unable to quickly get emergency medical help. People without access to transport also reportedly delay seeking medical assistance when they are unwell, and consequently present in a more serious condition than they might otherwise have. This is also more likely where there is no locally resident doctor and medical services are not available on a daily basis (eg in Ohai and Nightcaps).

Indirect impacts on people's health and wellbeing are commonly mentioned in the literature on accessibility and social exclusion. The main impacts identified in our research are as follows:

- Increased likelihood of loneliness and depression due to social isolation. That is, poor access to transport can severely limit the social capital available to some rural people. Isolation is more likely among those living alone, unemployed, single parents on limited incomes, youth, young families with only one vehicle (which is not available to other household members during the daytime), and those without local family connections. Risk of isolation is amplified by lack of access to a telephone, the internet and information about support services. Depression arising from isolation can lower people's ability to work and to connect with others, and has significant and compounding negative effects on general wellbeing. Health workers in our study observed that people in this situation commonly 'self-medicate' with alcohol, food, nicotine and cannabis, each of which has negative effects on physical health and relationships.

- Lack of mental and social stimulation due to insufficient access to cultural, artistic and recreational activities or meeting places can also contribute to depression, early aging and ill health.

- Health risks arising from isolation and/or other causes can be amplified due to the limited availability of health care services, and the long distance from hospital and emergency services. Distance from services is a considerable source of anxiety for elderly rural people with medical conditions and limited mobility and transport options.

---

[10] NZTA statistics show there were 40 open-road crashes involving injury to pedestrians of all ages in 2009 and 55 involving injury to pedal cyclists. Pedestrians most at risk were those aged 10–19, and 80 and over. Cyclists most at risk of accident were 10–14 year olds.

- Lack of transport options can lead to people having to relocate to larger centres to be closer to essential services. This can cause social dislocation and isolation – a particular issue for older people who are often very strongly attached to their local community and very reluctant to move and 'start all over again'.

- Those who are transport poor can suffer from difficulties with self-esteem caused by repeatedly having to ask for transport assistance from other people. Being accused of being 'bludgers' can make matters worse. This was especially evident in rural communities where the low cost of housing has attracted low-income residents.

- Not having access to transport reduces the ability of people to participate in the activities and affairs of the community and wider society, and to be seen participating in it. This can result in the political marginalisation and exclusion of some sections of the community, such as the poor and the elderly.

- In poorer rural households nutritional and other wellbeing issues may arise when budget trade-offs have to be made in favour of having a MV. This was noted in our case study areas where a car was considered a necessity in low-income families.

- Lack of fitness and associated weight issues among young people/youth can occur due to lack of participation in sports because of lack of transport or ability to pay for group transport. This is especially an issue for some local children and youth in Ohai and Nightcaps.

Poor access to transport can have beneficial health effects. For example, in the case studies, those without MVs and who are physically mobile reported they have to do a lot of walking. Where this is not onerous, it can have physical and mental health benefits. Seeking assistance from neighbours and others can also help establish and maintain longer-term supportive relationships and stimulate friendships. These connections help reduce social and psychological isolation and add to people's sense of general wellbeing.

7.5   Family, community, and social network effects

This category of impacts is about effects on the collective side of human life. Collective social life refers to different types of groups – from households and nuclear families to extended family/whanau, neighbourhoods, clubs and societies, interest groups and the wider community. In the language of 'social capital', the total network of direct relationships with those to whom we feel connected and who help us go about our daily lives is referred to as 'bonding capital'. Those relationships with people from other groups or networks, whom we might think of as 'contacts' we could call on for particular purposes, are referred to as 'bridging capital' (Putnam 1995; Stanley et al 2010).

Connecting with other people requires some form of physical or virtual mobility. Urry (2007) claims that in modern society people still prefer face-to-face contact over the use of the post, telephones and computers for building and maintaining relationships. Those who are transport poor are likely to have fewer opportunities for face-to-face interaction, but, at the same time, they tend to have lower access to these technology-based alternatives.

Stanley et al (2010) note the importance of transport in facilitating relationships and therefore social inclusion. In their recent Australian research they found that, compared with others, people at risk of social exclusion have lower levels of vehicle ownership, are less likely to use PT, make fewer trips and are generally less mobile. They also noted that those who travel less frequently and less far tend to have fewer 'bridging' contacts and interactions. Travel, therefore, seems to be highly influential on social networking and for accessing activities that promote a sense of belonging and being active in the community and society at large (Stanley et al op cit). Travel, of course, requires access to transport.

Household transport appears to be related to the availability of social capital in a community. For example, the New Zealand 2006 Census data indicates that the more rural the area is (on the urban-rural continuum), the more likely it is the residents will be involved in voluntary work with groups in the community. The data also shows, ironically, that for rural areas, there is an inverse relationship between the level of MV access and the percentage of residents involved in voluntary work (Spearman's Rho = -0.32, p<0.001). In other words, the higher the number of MVs per household, the less likely it is that people are available for helping out in their communities. It seems that while vehicles may enable people to travel at will and meet with people face to face, their vehicles also take them away from involvement in their own communities.

Different household and family members may have different levels of access to transport. In one-car households, the main working person typically uses the car for work – especially where PT is not available. While the car is away, the partner and children are effectively reliant on fellow community members. Children and youth in this situation are often unable to participate in group-based after-school activities and even weekend sports and entertainment which are especially important for youth socialisation. However, in New Zealand rural communities, it is elderly people who appear to be most at risk from the effects of poor access to transport.

The direct and indirect effects of poor access to transport on social networks and relationships noted in the rural community studies are as follows:

- Members of rural communities with poor transport come to rely heavily on neighbours, friends and family members to help them do their shopping, get to appointments, attend social and cultural events and participate in recreation. Over time, requests by the transport poor for help to get to appointments etc and the obligation that people feel to provide help, can strain relationships. In small communities, breakdown of such relationships can lead to estrangement and social isolation.

- Support networks among neighbours sometimes do not extend to provision of transport due to:

  – fear of behavioural, medical, or even legal problems (for example, uncertainty over the extent to which one should physically help a passenger)

  – fear of an accident which might injure the passenger

  – loss of freedom and spontaneity of travel and movement

  – time commitment (eg relatives outside the district may be called on to help)

  – additional costs

  – disregard for those seen as lacking in self-reliance.

- The flow on effects to the community of transport-related exclusion from group-based activities (eg church services, hobbies, sports) include loss of social capital, reduced viability of social groups, and, at the individual level, a reduced sense of identification with the community. In rural communities, marginalisation of some members can lead to the development of 'alternative' communities and groups which reduce the unity and viability of the broader community.

- On the other hand, those who do not have a vehicle are less likely to be travelling away from the area for social and other activities, and are likely to be more available for voluntary work.

- As small town and rural services shrink, and the rural population becomes more socio-economically marginal, there is increased demand on stretched community service providers, local volunteers and other resources to develop and provide substitute services (eg a community vehicle).

- Inability of the transport poor to have regular contact with relatives can cause family estrangement, exacerbating social isolation.

The work of individuals and groups in organising and providing community transport also contributes to the maintenance and building of the sense of community and local social capital. Examples include organised lift giving, carpooling, volunteer driving and charter-bus outings, and the establishment of specialist community organisations.

7.6   Effects on institutions, legal and political structures and equity

New Zealand formal institutions, government and non-government agencies and organisations tend to be based in the cities and larger towns. Compared with their urban counterparts, rural residents have to invest more money, time and effort if they want to access institutions and be involved in decision making. For instance a resident of the case study community of Ohai would need to travel 75km if they were to visit the Southland District Council's main office in Invercargill.

Rural people tend to be quite aware that the decisions and actions of distant central government agencies and private sector corporations can directly affect the fortunes of their whole community. However, many feel their ability to influence decisions is minimal. As described by McClintock and Fitzgerald (1998), government decisions in the 1980s and 1990s relating to the farming sector and state-owned and operated resource industries, precipitated out-migration of working-aged people from many rural districts and the withdrawal of many supporting services. Housing surpluses then led to in-migration of welfare beneficiaries into those areas and towns. Local communities were largely left to cope with the social and economic changes on their own. In Ohai and Nightcaps, for example, there is a common feeling that since the 1990s, the local area has become increasingly 'invisible' to decision makers.

As institutions, agencies and the population have become increasingly urbanised, rural residents have to travel to urban centres more often, and have become more dependent on them. Yet public rural transport services have all but disappeared. In response, in Fairlie and other rural centres community groups have established resource centres to coordinate support, provide information and services, and foster local economic development. Some, such as the Fairlie Resource Centre, also operate as a government Heartland Services Centre which aims to improve access to key agencies. These centres tend to be run as partnerships between local community groups/trusts, district councils and government agencies.

With regard to transport, rural communities (especially rural people, who do not have access to MVs) do not figure highly in the planning of agency service delivery. For example, Southland regional PT planning and strategy is focused on Invercargill city's needs, while the main rural focus is on providing road infrastructure to support industry. Hence the problems of transport poverty among residents of Ohai and Nightcaps and elsewhere in Western Southland are generally left to the community to solve with their own resources. This has given rise to community transport initiatives but, in western Southland, these have been difficult to sustain due to uncertainty of funding, unpredictable demand, institutional changes, shortage of volunteer drivers and organisational inexperience.

Even in the 'typical' case study community of Fairlie, lack of access to PT is a problem. The private sector service is inadequate for local needs yet does not have the resources to expand. As in Southland, rural PT planning is largely focused on larger urban areas in the region, while the main focus of the Mackenzie District Council is on providing and maintaining the very extensive road infrastructure.

The urbanisation of agencies and other institutions means there is sometimes insufficient consideration by decision makers of the social consequences of their decisions for rural communities and their mobility, especially for the rural disadvantaged. Examples quoted to the researchers include the effects of school bus run tendering, the closure of petrol service stations, the ending of local postal deliveries, fuel price and related tax increases, and changes in health service delivery. As noted above, the problems of transport poverty are generally being left to the communities themselves to solve however they can – typically through ride sharing, volunteer drivers, fuel subsidies, community shopping buses, and more recently, community taxis.

In terms of political and social equity, the internet and mass media enable people in remote and rural areas to be more informed and involved than they might otherwise be. However, those without access to transport also tend to lack access to the internet. Fortunately, some local councils have recognised these disadvantages and are attempting to take decision making to the community, rather than expecting the community to come to centralised meetings in town.

7.7 Cultural effects

There are both positive and negative cultural effects of poor access to transport. Residents of the case study communities and many New Zealand rural areas are often members of families and groups that have long associations with the particular area. In some cases, they may have the unique status of being *tangata whenua* – with particular values, history and traditions attributed to the area and its peoples. In some instances, lack of access to transport may compromise the expression of those values; in others, it may reinforce them.

Typically, in the case study communities, people value independence and self-reliance. This has been noted by Fitzgerald et al (1998) and by Taylor et al (2009). For the Ohai and Nightcaps communities the potential for independence is an important motivation for living in the area. Long-term residents also recognise that belonging to a supportive community is vital to a decent life in a rural area. However in some rural areas since the 1980s, newcomers have brought cultural and social diversity and there are now noticeable subgroups. Some may have come into the area for projects or jobs in particular industries and have their own culture (eg North Island Māori shearers shifting to Ohai, or East European and Filipino dairy farm workers moving into rural areas throughout New Zealand). Such groups tend to have only one vehicle per household.

Other arrivals into rural settlements have included 'city people' wanting the room to live 'alternative' lifestyles, needing to recover from difficult life circumstances or events, wanting to get away from bureaucratic controls, or just seeking more privacy. Some of these newcomers have low incomes and/or are transport poor, are city oriented and likely to be less self-reliant than those raised in the countryside. We recorded instances where such newcomers were belittled because they lacked transport.

In Fairlie, older long-established residents provide much of the community support and social capital. The younger residents of the area are reportedly less likely (or able) to join in with local groups than in the past. Younger people are also more mobile and transient (especially if associated with dairy farming). Access to vehicles enables people including youth, to have wider cultural horizons and thus more association with city/town (rather than with local activities and groups).

On the other hand, with long-run population decline and loss of local services and opportunities including PT, it is now regarded necessary to have a car so that people can have their cultural and social needs met in nearby urban centres. Those who do not have access to alternative reliable transport are less able to access urban centres and therefore can experience 'cultural poverty'. Clearly this adds to their risk of

social exclusion. Community transport has gone some way to enabling residents in some communities to travel out of their local area – even if it is just for the day.

Connection to the wider society is especially important for the educational and social development of children and youth. For example, Fairlie children are known to travel to Timaru for drama, dance and music tuition. However, those individuals and families without access to a vehicle or reliable alternative transport are less able to be connected to the wider community and what it has to offer them – culturally, socially and economically.

Rural Māori appear to be more disadvantaged than others in their access to transport (Spearman's Rho = -0.53, $p<0.001$ for the correlation of the percentage of Māori people in the area with the average number of MVs per household). At the same time, the percentage of Māori in a rural area is positively correlated with the overall level of local participation in voluntary work – irrespective of the availability of a MV. To Māori, it seems, community belonging (whanaungatanga) is not dependent on the level of access to MVs.

8 Mitigating the negative social impacts of poor access to transport

8.1 A range of strategies

This chapter discusses strategies for reducing the negative impacts of poor access to transport among rural residents.

In 1979, Mosely outlined various policy options for dealing with problems of accessibility of rural residents to services, that is, make the user more mobile, make the service more mobile, relocate the user, or relocate the service. In a similar vein, in figure 8.1 we outline five main types of interventions for mitigating the impacts of poor access to transport. Three of these types of interventions focus on improving access to activities[11], including improved movement of people, moving activities to make them more accessible, and substituting or rescheduling activities. The other two involve changing the situation for those who are experiencing disadvantage, including reducing socio-economic deprivation, and modifying people's perceptions and expectations. Examples of mitigation strategies in each category are provided in figure 8.1.

For this discussion the mitigation strategies or interventions have been split into institutional or community strategies. Approaches that could be directly adopted or implemented by commercial (for profit) organisations have not been included here as it is assumed that responsibility for mitigating negative impacts of poor access to transport lies with governmental or third-sector agencies, and the community itself. Lastly, theoretical frameworks and policy-targeted approaches to improving accessibility are discussed, including accessibility planning.

It is important to note again, that for the most part, transport is the means to an end rather than the end in itself. In that sense it may be thought of as part of the supply chain of 'social goods' or opportunities (such as education, health services, employment, recreation and social interaction) and physical goods such as food supplies, and farm products etc (Chapman, pers comm 2011). Lack of access to transport is not intrinsically a problem. Rather, lack of access to transport causes problems because transport provides an important means for 'getting at' opportunities, services, goods and services that people require.

There are, however, two instances where transport (or access to it) is the end in itself. The most obvious of these is travelling for leisure, covering, for example, people who enjoy driving or travelling on trains as a pastime – where they are going is not important, rather that they are sitting behind the wheel or in a train carriage. The second instance is the perception or feeling of independence and self-reliance that having access to transport can provide. Case study interviewees spoke of these values as being important to them: owning a functioning vehicle (such as a car, mobility scooter, or motor cycle) or having the ability to order a taxi may provide a sense of independence even if no use is ever made of the car or taxi.

---

[11] The term 'activities', is used to refer to the services, facilities, occupations, events, pastimes and other opportunities which individuals may participate in or make use of.

Figure 8.1   Strategies for mitigating the negative social impacts of poor access to transport in rural communities
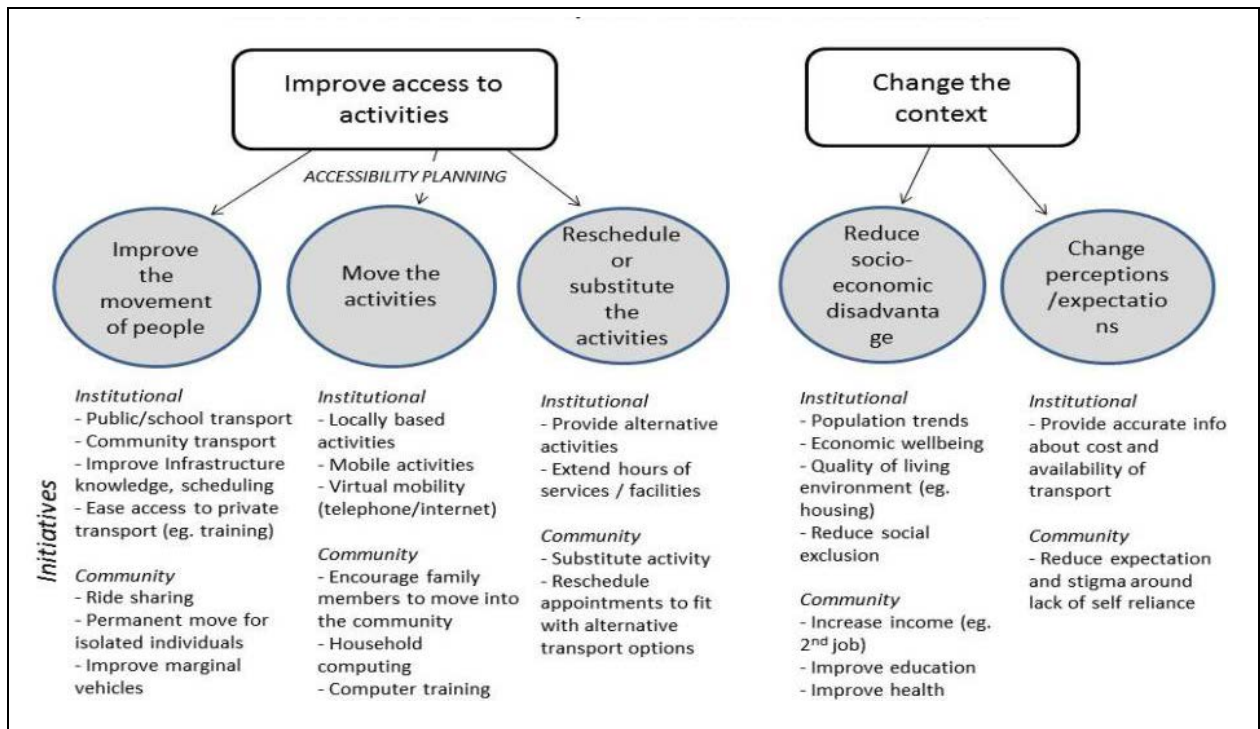
Note. The lists of initiatives are not exhaustive

8.2   Improve peoples' mobility

Improving the movement of individuals to give them access to activities and opportunities is one of the most important strategies for avoiding or mitigating the negative social impacts of poor access to transport in rural communities. Options range from improving or restoring the mobility of individuals, through to establishing new transport systems. Much of the literature on rural transport access and transport planning focuses on this area, that is, on modifying existing transport methods and systems to make them more efficient, responsive or attractive, and/or on developing innovative schemes for improving mobility.

In terms of interventions by institutions, they could improve the movement of rural people, and therefore their access to opportunities and services, through PT, community transport, better coordination of existing transport services and improved infrastructure. Importantly, public and private sector agencies should be including transport in the planning for the supply/provision of their services to rural communities, rather than assuming there is universal access to transport among rural residents.

Passenger transport is generally lacking in rural communities in New Zealand, especially those most removed from metropolitan and other urban centres. The case study communities were no exception to this, having neither taxi services nor suitable bus and shuttle services. From our consultations and background research, increased access to passenger transport in rural New Zealand could be achieved, in theory, through the following:

- Introduce new types of services (where the infrastructure is available) and there is a potential provider (eg dial a ride).

- Re-introduce a service which has previously ceased to operate, but more suitably scaled (eg small passenger vehicles).

- Combine the funding from multiple sources such as Work and Income, Ministry of Education and the District Health Board.

- Improve the timing, flexibility and/or geographical coverage of existing services by shifting to more demand-responsive transport.

- Increase the comfort and physical suitability of existing services to better meet the needs of the users (eg more accessible vehicles for the elderly and disabled).

- Combine the funding from multiple sources such as Work and Income, Ministry of Education and the District Health Board to enable sharing and achieve better integration of existing passenger transport services (eg public buses, school buses, hospital taxis, goods/parcel services and even couriers).

- Reduce the cost of passenger transport for low-income families and older travellers, perhaps using discount vouchers paid for out of existing regional transport and/or other funds.

- Improve the operating conditions for locally based commercial providers of passenger transport (eg through subsidies, driver training initiatives, and development of demand-responsive services).

Community transport refers to the provision, by the community itself, of not-for-profit transport for those who do not have access to suitable transport services. It is typically provided by social service and charitable organisations or local councils. In the UK, community transport has been found to be a valuable means of improving accessibility to essential services, particularly for those who are vulnerable and do not have a MV. An example of such a service in New Zealand is in Fairlie where a community car service (effectively a taxi) has operated since April 2010. Based on a model developed for Waimate, the service is funded by a local Trust and operated by volunteer drivers. Fees for use of the community car were set at a low level and after a successful three month trial the service was continued. In the past a service was provided in Fairlie by the Red Cross. Other forms of community-based and sponsored transport noted in our research include:

- organised ride-sharing or carpooling

- agency-provided transport

- marae, club and hotel-owned minibuses

- local community-operated minibuses

- health provider shuttle cars, mobility/minivans and petrol vouchers

- volunteer ambulance services.

School transport is important in rural areas where students and facilities are spread over a wide geographic area. Adequate transport services are essential for maintaining access to education for young people, and for enabling parents to fulfil their legal obligations regarding the education of their children. School transport includes the regular legally required daily services to and from school as well as transport for non-classroom activities, such as educational fieldtrips, special events and sports. Young people are particularly vulnerable to the negative social effects of poor access to transport, and therefore maintaining or improving school transport is a key strategy for mitigating or avoiding such effects. Giving preference to locally based providers of school transport (rather than larger providers based in urban centres) could provide an incentive for local transport operators to upgrade and expand their services. As noted, the viability of locally based bus operators was reportedly compromised when they lost school bus contracts

to outside companies. In some cases the small local operators also provided low-cost charter services and driverless hire to community organisations and clubs. At the time of our field research, some of these services and local driving jobs were in danger of being lost.

Transport infrastructure and support services may be improved through, for example:

- increased awareness of, and availability of information about transport services

- training of transport providers and volunteers in demand-responsive services, such as flexible routing and timetabling, and home pick up and drop off

- improved facilities for users while waiting for a public service (eg lighting and bus shelters)

- improved footpaths, cycleways and roads.

Improving access to private transport could be achieved through such interventions as:

- providing petrol vouchers to disadvantaged individuals

- reduced vehicle registration fees or road user charges for residents of remote rural communities

- support and skills courses for older drivers

- learn to drive courses

- vehicle maintenance courses

- increasing access to mobility scooters.

Local communities and individuals also have an important role in improving peoples' mobility. In many cases transport access initiatives are being implemented by local communities out of necessity. However the most deprived communities tend to lack the social and financial capital to initiate such strategies, so outside assistance is usually required to get community transport started. Some examples of possible interventions include:

- organised carpooling

- shared use of vehicles, with cost sharing or low cost hire

- improving the condition of private vehicles to enable them to operate more widely, (eg though do it yourself (DIY) vehicle maintenance training)

- assistance in relocating socially excluded individuals closer to activities and services

- specialist training for volunteer drivers.

Strategies for improving the movement of people offer some of the most visible and practical solutions for promoting better access to activities. Improving PT, community transport, school transport, transport infrastructure and information availability as well as community-based initiatives would significantly reduce the negative impacts of poor access to the goods, services and activities required for rural people to achieve and maintain wellbeing.

8.3   Move activities to the people

Another possible approach to mitigating negative social impacts of poor access to transport is to take the opportunities, services and activities to the people who need them.

In many rural communities, including the case study areas, the number and range of locally available services and facilities has been in decline for many years. This phenomenon is well documented in New Zealand and Australia. In the case of Ohai and Nightcaps local services have almost completely disappeared. The initial strategy for mitigating negative impacts should be to halt the decline of locally provided key activities and services. If a permanent service or facility (for example an office or shop) is becoming unviable, it is important to examine the social impacts of its loss, including for other services and for the tax-payer. As observed, one of these impacts will be increased reliance on transport to access the service/goods at a location outside the local area, and increased costs to users of that service. Another might be to try to live without the service or find a substitute (often it becomes DIY).

There are several ways by which institutions could bring activities closer to the community. First, new or revamped permanent services or facilities could be installed in the local area, such as:

- establishing community-based services, such as a health clinic

- revamping local halls, marae and other community facilities to provide more convenient spaces for activities involving smaller groups and visiting service providers

- promoting conditions which stimulate investment, for example:

  - government-backed financing for start-up business and services in rural areas

  - rates and other rebates on new service premises and renovations, especially those operated by not-for-profit organisations

  - upgrading infrastructure such as telecommunications

  - area promotions for increased tourism.

Generally, establishing mobile or limited services able to visit the community is likely to be a more cost-effective method of provision. This second approach could take several forms, for example:

- mobile service providers who visit individuals in their home on an as-needed basis (eg health and welfare professionals who make house calls)

- delivery and on-the-spot services (eg travelling shops, hawkers or home delivery)

- providers who come to fixed location in the community on a regular basis (eg mobile library, training providers, and government support and advisory services).

The case study areas and other rural communities throughout New Zealand show that these activities can be provided from a central and suitably outfitted point such as a local resource or community centre (as used in the Heartland Services model) which would allow for sharing of costs and easy access for the community. Rationalisation of human and physical resources has been a successful strategy for providing public-good services in the case study communities.

A third way of bringing essential opportunities/activities, goods and services to the community is through telecommunications and/or the post. These allow individuals to access a wide range of services without leaving their homes, and should be carefully considered as part of any strategy to mitigate negative impacts of poor access to transport. Some examples of how service providers may make use of telecommunications and postal access include using:

- central and local governmental websites, eg Newzealand.govt.nz, Work and Income, Inland Revenue

- online shopping, with delivery by post, freight or courier

- postal services (eg postal voting during national elections, mail-order shopping)

- enhanced telephone services (eg telephone ordering, telephone banking, 0800 number services, Healthline and other wellbeing services)

- online community forums, networks, blogs and consultations (including voice and video calling over the internet)

- online home or telecentre-based work

- conference telephone calling

- email, as an alternative to using a post office box

- mobile phone text messaging (eg civil defence text message alerts).

These methods are predicated on access to the necessary technology and knowledge of how to make use of it. In this respect the vast majority of rural homes have access to a telephone and some level of postal services. However in 2006, over 40% of rural New Zealand households did not have access to the internet (let alone broadband), and this percentage was considerably higher in more deprived areas, including the case study area of Ohai and Nightcaps. Households with limited incomes, education and low level of access to MVs are less likely to have access to these technologies – that is, they suffer multiple accessibility disadvantages. Strategies to increase access to these technologies include community and adult education, improved telecommunications infrastructure, and low cost or free public access points at community resource centres, libraries, marae, telecentres and schools.

Communities and individuals can also help to bring services, facilities and opportunities closer in a number of ways including:

- encouraging friends and family members to move into the local area

- increasing the ability of households to store food (eg fridge and freezer)

- purchasing a computer and internet access to enable online shopping and mail order services

- attending computer training (if available) to improve skills and knowledge

- promoting community and home gardening for food production

- signing up to online social networking to enable contact with friends and family living elsewhere

- establishing and participating in cash-less goods and services exchange systems (eg skills trading and time banks)

- participating in co-operative bulk buying for self-supply (as occurred at Karamea with petrol).

Since the reduction in government support for PT and other services in the 1980s and 1990s and its coincidence with private sector rationalisation, there has been a growing service gap in rural communities. For the most part, attempts to plug the gaps have been through provision of visiting and mobile services. More recently, the push has been to make services available online. To complement this, the government is planning to provide improved broadband services in rural areas. If the accessibility divide is to be closed, the broadband roll-out needs to be complemented with the provision of low-cost computer equipment and computer education in rural areas, especially for older residents and low-income earners.

8.4   Reschedule or substitute the activity

As pointed out by Lucas (2004), in many cases it will not be possible for an individual to proceed with a desired activity given difficulties of poor access to transport. In such cases substituting or rescheduling the activity rather than abandoning it completely could reduce the negative impacts.

Institutions and service providers could adopt this strategy of providing alternative services or facilities. For example if it is absolutely necessary for the branch of a bank to close (and the next closest bank cannot be accessed via PT) then installing an ATM would help mitigate the negative impact on customers. Another option would be to extend or alter the hours of the activity to increase ease of access for users dependent on a limited transport service.

Community members could also substitute and/or combine activities. For example, an individual could choose to participate in a sports team (or even a sport) that is closer to home, or alter the time or place of a regular engagement in order to combine the trip with a visit to the local shops. However, substitution or combining activities is not always possible.

8.5   Reduce socio-economic disadvantage

Poor access to transport among rural New Zealanders is typically part of a pattern of socio-economic disadvantage. The various aspects of disadvantage (or advantage) are interconnected and cyclic; if an individual is disadvantaged in one aspect of their socio-economic situation (eg housing quality) this is likely to have a negative influence on other aspects of their lives (such as their health).

Within every community there are individuals and groups that are more disadvantaged or excluded than others. These are the most likely to be experiencing poor access to transport and its impacts. They should therefore become the prime focus of any institutional efforts to improve local socio-economic conditions. In the case study communities and from the census data, the most vulnerable groups in rural New Zealand (and indeed elsewhere in the world) were found to be:

- the elderly, especially those living alone

- low-income households

- Māori and other ethnic minorities

- the unemployed

- teenagers

- young mothers, especially solo parents

- the sick and disabled

- those with limited access to a MV.

As discussed, access to transport indirectly contributes to people's wellbeing. Therefore improving the socio-economic wellbeing of an individual or household is likely to mitigate some of the negative impacts of poor transport access.

There are a vast number of approaches and methods for reducing socio-economic disadvantages such as social exclusion, poverty and various types of vulnerability. It is not the intention to review these here, but we have noted some of the interventions that were identified in our case studies, as follows:

- providing improved local support services for the disadvantaged

- improving access to employment through transport provision and local development

- improving access to educational and training opportunities (eg apprenticeships, night courses, community education, extension block courses)

- improving housing, eg by promoting or subsidising more efficient home heating and housing maintenance

- arresting population decline (which will help sustain services and employment).

Individuals may also be able to improve their own socio-economic wellbeing through a variety of actions. Some were suggested in the course of the community cases studies, such as:

- increasing income, eg through a second job or home enterprise

- reducing living costs, eg though home food production and bulk buying

- increasing social networks through local volunteering, networking, community projects and neighbour support

- improving education and skills (eg enrol in distance learning)

- improving health (eg take regular exercise or stop smoking)

- participating in the barter economy, including skills and time-sharing schemes

- improving finances by seeking budgetary advice.

8.6   Change perceptions and expectations of access to transport and other services

Individual, community and agency expectations and understanding of access to goods and services in rural areas can sometimes be unrealistic or erroneous. This includes expectations of what services should be available and understandings of the actual availability, including of transport. Changing expectations can directly or indirectly offset the perceived or experienced negative impacts of poor access to transport.

Many rural people interviewed for this study considered it was unrealistic to expect the same level of access to opportunities, goods and services as in larger centres. This included access to passenger transport services. Consequently, one had to be able to 'do things for oneself', 'make do', to 'join in and make your own fun and entertainment' – in short, to be more self-reliant. Others felt that rural people pay rates and taxes, and provide important support services to New Zealand's primary industry but do not receive their fair share of public services, such as PT, in return. Some in our study communities were immigrants from urban areas and perhaps unprepared for the difficulties of rural life.

For some rural residents, not having one's own transport and having to rely on others is a social deficiency. Hence individuals who have to call on other community members for their transport sometimes feel stigmatised, derided and even excluded. Some individuals respond by not requesting help from their neighbours etc, thereby increasing the risks of further deprivation. Others make do with alternative transport such as hitchhiking, cycling and walking.

City-based agencies and service providers, as well as local communities, reportedly need to be more fully informed about the availability of transport in local rural areas. Better understanding of the transport situation would help reduce the unrealistic expectation of complete self-reliance among rural residents

and along with it, the stigma of having to ask for help. It would also modify the inappropriate expectations of agencies about rural peoples' mobility and flexibility for appointments etc. Public agencies may therefore need to incorporate transport (and other accessibility) considerations into the design and delivery of their services to rural people. Alternatively, if responsibility for transport is shifted completely onto individual community members, some will need to relocate out of rural areas, thereby reducing the viability of local services for those who remain.

At a larger scale it may be more realistic for an unsustainable settlement to be disestablished and the residents relocated, rather than councils and others having to meet ongoing demands for expensive services and infrastructure. Ohai is a case in point where institutional intervention on the town's long-term future would seem necessary. In this respect, some peoples' expectations of being able to continue to live without transport and other key services in financially unsustainable rural settlements need to be adjusted.

Strategies involving changing public perceptions and expectations should be used with caution; while some individuals may experience positive impacts from, for example, relocating, those who choose to remain, and expect public services, may experience increased negative impacts.

8.7   Accessibility planning

Some of the worst social effects of poor access to transport in rural New Zealand could be avoided or mitigated through more integrated and systematic approaches to services, community and district planning – as is being attempted in 'accessibility planning', and in the use of anticipatory social impact assessment and sustainability assessment.

The process of accessibility planning is relatively new, yet is being implemented in the UK as part of strategies for dealing with transport and social exclusion. Chapman and Weir (2008, p7) define accessibility planning as 'a structured process for the assessment of and planning for, access'. Lucas (2004, p44) says the purpose of accessibility planning is 'to ensure a clear and consistent process for identifying groups and areas with accessibility problems, linked to an action plan for addressing these'. The UK Social Exclusion Unit believes that accessibility planning would provide a mechanism to enable agencies:

> *to assess more systematically whether people facing social exclusion can get to key activities, and to work more effectively together on implementing solutions.* (SEU 2003, p61)

Lucas (2004) describes a four-stage process of accessibility planning:

- an accessibility audit to identify whether people can get to key activities within a reasonable time and cost, safely and reliably

- a resources audit to identify the existing resources and potential funding sources that are available to address identified problems

- an action plan to develop and prioritise solutions and a cross-agency strategy for delivering these

- plan implementation and monitoring.

Accessibility planning offers a possible approach to addressing social impacts of poor access to transport in rural New Zealand. It could be used independently or in conjunction with social impact assessment and sustainability assessment to predict and evaluate the social, economic and environmental changes that arise from particular policies and intervention programmes, as well as increases in fuel prices and/or decreasing fuel supply.

As such, it is a process which may be useful in future if the broader accessibility agenda is adopted by a range of departments and agencies. As Chapman and Weir note:

> *Accessibility planning has the ability to improve the life chances of all New Zealanders by delivering improved accessibility to key services and activities... It does this through the detailed assessment of origins, modes of transport (and transport alternatives) and destinations together with the identification of the needs of individuals, groups, and communities.* (2008, p11)

8.8   Individual and community responses to poor access to transport in rural areas

When people are faced with limits on access to transport, Lucas (2004) believes they make one of five choices, the particular choice depending on the person's situation, the planned activity and the transport access situation. The options are:

- proceed with the activity by finding an alternative means of travel, or putting up with the difficulties
- reschedule the activity or the trip
- replace or substitute the activity for another
- relocate the activity (and in the longer term, themselves)
- abandon the activity.

In situations where people are deprived or disadvantaged they may have to abandon activities that are important for their wellbeing (Lucas 2004, p43). Such behaviours were observed in our case study communities, eg delaying a visit to the doctor, not attending a job interview, or failing to register or repair a MV.

Judith Davey (2004), in her research on how older people in New Zealand manage without a car, recorded various strategies consistent with Lucas's model, some of which were observed in this study, including:

- relying on lifts from friends, neighbours, and family
- keeping the household car and finding someone to act as driver
- using PT if available
- using community transport
- taking taxis
- using mobility scooters
- walking
- moving house to be closer to services and social networks
- staying at home more, or travelling less often.

8.8.1   Strategies employed in the case study communities

The members of the rural case study communities would reportedly do the following to cope with transport difficulties:

- Proceed with the activity, ie find alternative transport, including:

- get someone else to drive their vehicle for them

- use a substandard vehicle and accept the risks of breakdown or prosecution for lack of licence, registration or warrant of fitness

- get a ride from a neighbour or friend (for local trips especially) and share the petrol cost, or in an emergency or for a long trip, ask for a ride from a family member. Ride sharing can include organised carpooling for work or leisure

- ask for assistance from a community worker, who may provide a ride themselves, organise a ride share with other residents, or organise a volunteer driver

- catch the community minibus or car

- borrow a car from a neighbour or friend

- hitchhike

- use a mobility scooter.

- Reschedule the activity: reduce or reschedule the number of trips. This typically involved:

  - planning ahead and prearranging appointments

  - making multi-stop and multi-purpose trips (eg shopping and entertainment)

  - buying in bulk and maintaining good supplies of essential items and food (including having a home freezer).

- Replace the activity: find an alternative local source for goods, services and activities, for example:

  - barter or swap in the informal local economy

  - online shopping or renting

  - take up locally available activities (eg switch to a different team or club)

  - participate more in local activities and groups.

- Relocate: move the activity to make it more accessible or move the individual closer to the activity:

  - use alternative access methods to effectively bring the activity closer, including postal services, telephone, fax, or the internet to access services remotely and to purchase goods that are then delivered to the door by post or freight

  - personally move residences, most often to town or an area with good services, or into residential care.

- Abandon: stay at home and 'do without in the meantime'.

8.8.2   Strategies used by service providers

Among service providers, difficulties of transport and mobility were being mitigated in the case study communities by:

- taking the service to the client, using one of two methods:

  - having representatives of the agency or organisation visit the communities regularly to see clients. This is the main approach used throughout rural small town New Zealand and is being used by a governmental agencies and health and medical specialists in both of case study communities. Heartland Services and resource centres are an example

- providing postal, telephone and internet-based services where general members of the public can find answers to queries and get various tasks done without leaving the local area or even their home. This approach will become more common with the expansion of high-speed broadband internet throughout rural New Zealand

- providing transport to take the client to the service (either as an on-demand or scheduled car or mini-bus service). The Takitimu PHO's partial funding of volunteer-driven health shuttles is an example here, as are the community vehicles found in Fairlie and elsewhere.

8.8.3   Alternative strategies

During fieldwork, research informants proposed a number of additional ideas that could assist with transport and access to services. These included:

- home deliveries of food and groceries, either from the local store or from mobile vendors. This was a feature of rural life in the past

- ongoing support or skills courses for older drivers and classes for older people wanting to learn to drive

- community education or training in computer and internet use and online shopping, especially for the elderly

- increased access to mobility scooters

- improving local access to up to date information on road conditions

- a morning commuter bus (eg from Ohai via Nightcaps and Winton to Invercargill) and returning in the evening for workers, shoppers and those attending appointments. This could also carry light freight

- workers buses for specific large employers and development projects (eg in the dairy and meat processing sectors)

- a subsidised or sponsored door-to-door shuttle or taxi for those with reduced mobility.

9 Conclusions and recommendations

9.1 Assessing the social impacts

This research set out to improve our understanding of poor access to land transport and its social consequences in New Zealand rural communities in order to enhance planning for sustainable communities. A review of the social research literature found very little in the way of systematic assessment of the social impacts of access to transport or a lack of it. The literature review also failed to reveal much in the way of sociological research on rural transport in New Zealand, although it did identify a growing body of semi-applicable European material. The latter falls into two related areas of discourse: accessibility and social exclusion. Both fields are concerned with social justice, although social exclusion studies also focus on the processes by which people become poor and marginalised.

In terms of datasets to aid research on rural accessibility and its impacts, our scoping work showed that while some New Zealand census data is readily available in a geographically disaggregated form, most statistics on transport and services are not available to the public in a form that facilitates a study of this nature. Future research to quantify rural services accessibility will need to grapple with the availability and collation of administrative data that is spread across various agencies and jurisdictions.

9.2 Trends in rural New Zealand

When addressing accessibility in rural areas, the very nature of rurality is important. That is, compared with urban areas, rural areas have low populations and low population densities, and thus many services and opportunities are (and most likely have always been) less available locally. Historically, rural communities have had to be more self-sufficient. Hence many smaller towns across the country have managed to establish their own services, albeit with government involvement, and to build and sustain a wide range of organisations to help meet local peoples' needs.

However, rural New Zealand has been depopulating for decades as a result of changes in transportation, agricultural technology and scale, and rationalisation of the provision of services. The vast majority of New Zealanders now live and work in urban areas, and many services have disappeared from rural areas and become concentrated in urban centres. Accordingly, many rural settlements do not have sufficient services and employment to meet the needs of their residents, and they have to increasingly rely on the cities and large towns. This has further accelerated the acquisition and use of private MVs by rural households. Going by the distances they travel and the time spent travelling, rural residents put more effort and expenditure than urban residents into accessing their main needs. The vast majority of rural people now have access to MVs and use them to go to urban centres for supermarket and other shopping, work, education, healthcare, socialising and recreation. At the same time, rural households have also been acquiring better telecommunications services such as the internet, which offers opportunities for remotely accessing services, entertainment, information and social networks. The general pattern, then, is towards increasing dependence of rural dwellers on urban areas and services.

With various social and economic changes and pressures over time, PT and other forms of passenger transport have all but disappeared in rural areas except those areas bordering on cities. Because of the distances travelled and the nature of the roads they use, rural households also tend to need larger vehicles. This means that as fuel prices increase and people look to reduce their vehicle use and running costs, rural residents will find themselves with few transport alternatives and their living costs will

increase. Without community or public transport solutions, sustained high fuel prices could result in further hardship for some, further rural depopulation, and ultimately reduced viability for smaller rural centres that support the agricultural sector.

9.3   Access to transport in rural communities

Access to MVs increased considerably in rural New Zealand in the 1990s and 2000s, so that by 2006 93% of rural households had access to a vehicle. Even though the proportion of rural households without a MV halved (from 5.4% to 2.7%) between 1996 and 2006, there were still 5547 rural households without a MV in 2006. The vast majority of these households were in areas where there was little if any PT or other forms of passenger transport, and where there were comparatively high levels of socio-economic deprivation.

In general, rural New Zealand appears to be well served for the transport of school children and for the movement of goods, especially agricultural inputs and outputs. Where problems occur, they are in the movement of older people and the socio-economically disadvantaged, especially those who do not have a MV and lack access to adequate PT. Unfortunately, detailed information on the availability of passenger services in rural areas was not readily available for this study.

MV registration data suggests the rural bus fleet and services are shrinking, especially in the South Island. The loss seems to be happening among smaller rural operators who once had school bus runs: these operators often also provided charter services to local clubs and societies, and in some cases weekly shopping buses. Nowadays, regular PT appears to be restricted to rural areas that are close to cities and/or on intercity bus routes.

In 2006, 27% more rural people were travelling to work away from their homes than in 1996. Most of this growth was among people who live close to the cities. In the same 10-year period, the number using PT to get to work increased only 3%, and public bus use actually fell by 29%. Not surprisingly, less than 1% of rural workers in 2006 reported they used some form of PT to get to work. In addition, the number of rural residents going to work by bicycle or on foot has also been decreasing. Rural workers therefore rely almost exclusively on MVs to get to work.

The statistical trends and research fieldwork interviews confirm that access to a household or personal MV has become a basic necessity in rural areas. Ironically, the number of petrol stations and other support facilities in rural areas has reduced considerably in the past 10 years, and the cost of fuel has risen dramatically.

Agencies and service providers reportedly assume that rural people have access to transport when it comes to setting appointments and meetings etc. Those without access to a MV therefore encounter practical difficulties in accessing their needs, as well as increased risk of economic deprivation and social exclusion. Overcoming such transport difficulties is largely left to the person or household themselves, perhaps assisted by local community groups, volunteers, neighbours and family.

9.4   Impacts of poor access on rural communities

Living in a rural environment means that many of the goods, services and activities people need are harder to access than in urban areas. This applies even in rural service centres and townships. A lower level of accessibility is generally accepted as part of rural life; a common view is that if one is to enjoy the benefits of rural living and work, one has to have the resources and be sufficiently organised to cope with the inconveniences and challenges. One of the main resources is reliable, convenient and affordable transport.

Most rural residents seem to be aware of this, and by having their own vehicles are able to act independently to get the things they need.

For those without access to reliable transport, the main impacts flow out of first, not being able to get at the goods, services, activities and opportunities they need, and second, the additional efforts and expenditure required to overcome these accessibility problems. Hence marginal or poor access to transport can have a range of direct and indirect social effects which can be suddenly exacerbated by fuel price rises. The extent and intensity of the effects depend on the circumstances and capacities of those affected, and the situation of the wider community.

In this study we have broken down the impacts of poor access to transport into various types, that is, effects on material wellbeing, effects on physical and mental health, effects on family, community and social networks, effects on institutions, political structures and equity, effects on cultural identity, life and expression, and effects on the quality of people's living environment. By far the most common, crucial and direct effects are on people's and communities' material circumstances, and on their health and wellbeing. Also important is that the inability to participate in community and cultural activities and social networks due to poor mobility can lead to social isolation and the progressive weakening of bonds within communities.

9.5   Coping with poor access in rural communities

A range of strategies have been described in this report for avoiding or mitigating the impacts of poor access to transport, and examples of their implementation have been provided.

The traditional response of rural communities and agencies is to try to improve the physical movement of people so they can get to the places where the goods and services they need are available. Commonly, people talk about restoring or improving public bus services to town and places of work. But with dwindling population numbers and almost universal car ownership, traditional types of bus services are unlikely to be viable. Even when flexible and cheap, as with Ohai's community funded fortnightly minibus to Invercargill, public passenger services may only be well patronised when petrol prices are very high relative to fixed incomes[12]. More effective planning for and integrated use of existing services such as school buses, couriers, goods delivery and agency services may offer alternative mobility solutions in some areas.

Of the other mobility solutions, lift giving or ride sharing is the most common and acceptable way of addressing the issue, especially to older people. It also helps build social relations and contributes to community cohesion. There are disadvantages with lift giving and sharing, though these could be reduced with driver education and up-skilling, cost-sharing arrangements, and better coordination between owner-drivers and those in need of transport. Community owned and operated car services, which essentially operate as pre-booked door-to-door taxis, are a recent successful development in some communities. Once established, community transport can be extended to include the coordination of lift giving and carpooling, volunteer driver training, and provision of charter and group-hire vehicles.[13] Interventions such as provision of petrol and taxi vouchers, concessionary PT fares, reduced vehicle licence charges, and assistance with vehicle repair and maintenance, are aimed at reducing the costs of mobility to those in need.

The second main strategy being used for mitigating the negative impacts of poor access to transport is to move the goods, services and activities closer to those who need them. This is being achieved through provision of community-based local services with assistance from public agencies. The community medical

---

[12] For this reason, support for PT or community transport is likely to rise in response to increasing fuel prices.

[13] See, for example, Rural Lift for South West Fermanagh, Ireland. www.rurallift.com

trust is a common model in New Zealand – with the local health centre serving as a base for visiting doctors and health specialists. Likewise, community resource centres, sometimes operating under the banner of Heartland Services, provide a base for accessing information and a range of important social and community services, some of which are provided by visiting specialists. It appears, however, that rural community-based resource centres and services regularly struggle with funding, and need to be put on a more sustainable long term footing by government. Rural telework centres can provide opportunities for working remotely, for small businesses to band together to share resources, and for providing local training and adult education. Where they are available, mobile shops and door-to-door services reduce the need for locals to travel.

The main current thrust by agencies and businesses for improving accessibility for rural people is to use the internet to deliver web-based information and services right into homes and community centres. Such 'virtual mobility' represents a significant potential improvement in accessibility to goods, banking services, family and social networks, information, entertainment and political participation. However, rural household access to the internet lags well behind their access to MVs. Indeed, those who lack access to vehicles generally also lack access to the internet, making them doubly disadvantaged. Rural householders note that, as well as assuming there is universal access to transport, agencies tend to assume they have similar levels of internet access as urban households. Rural people also report that other means of accessing information are disappearing or becoming harder. The success of the internet for delivering information and improving access to services for rural people therefore needs to be complemented by provision of training and public computers, especially for the rural disadvantaged and the elderly. At the same time, other information channels and means of access to important services need to be retained.

While other strategies for minimising or mitigating the negative effects of poor transport access in rural areas are available, including the highly controversial idea of abandoning unviable rural settlements and relocating the remaining residents, such effects are best avoided through use of more integrated planning and decision making. Several models are available, including the use of social and/or health impact assessment to evaluate proposed policies and plans that affect rural areas, sustainability assessment, or more broadly, the incorporation of accessibility planning into district, regional, and agency policy and plan making.

9.6   Recommendations

9.6.1   The role of transport in rural areas

For the most part, people have responded to widespread rural decline by relocating to urban areas, and/or by acquiring private motor vehicles and commuting to regional centres for work and other needs. However, there are sections of the rural population who have been able to do neither. These people are at a considerable and on-going economic, social and cultural disadvantage which needs to be tackled.

- *This research recommends the government acknowledges the need for 'social transport', that is, services designed to avoid or reduce socio-economic disadvantage and exclusion, and enhance community and individual wellbeing.*

- *In recognising the need for social transport, rural transport plans and mobility proposals would include an explicit 'social wellbeing' decision criterion, weighted according to the level of deprivation and the accessibility of the area in question.*

Targeted support for improving rural peoples' mobility is already needed in rural areas that are facing high levels of deprivation. That is, disadvantaged people need, among other things, suitable means for

travelling to places where they can access the goods, services and livelihood assets important for their wellbeing.

- *Therefore, it is recommended relevant agencies actively promote and fund a range of new and existing flexible transport solutions, including community-based and informal volunteer-based services, in communities with significant levels of deprivation. Planning for such services should directly involve the transport-poor.*

9.6.2 Developments in accessibility

Government and private-sector organisations are increasingly turning to the internet and mobile telephones to push their services out to consumers, at the same time scaling back on distributed location-based services. While the internet has improved some rural people's access to the goods, services and relationships they need, a significant section of the rural community has no such access. Such lack of 'virtual mobility' is due to poor internet and mobile 'smart' phone services in many rural areas, combined with lack of computing equipment and arrangements for developing information technology skills and literacy among rural residents, especially the disadvantaged. The transport and information technology poor sections of the rural community are therefore in danger of becoming further marginalised and disadvantaged by current developments.

- *It is recommended the government seeks to maximise the return from its high-speed broadband roll-out, as a complementary accessibility tool to social transport, by working in close collaboration with rural communities, to:*
  - *assess the capacity of rural residents to take advantage of information technology-based service provision*
  - *assess the social and cultural impacts of promoting 'virtual mobility' in rural New Zealand*
  - *develop programmes and plans to ensure that accessibility and mobility are maintained and enhanced in rural areas. These may include a combination of improvement in IT services, mobile/visiting services, integrated delivery of services, and sharing of resources and facilities.*

9.6.3 Information needs

To better understand the extent of accessibility issues among rural communities and residents, their mobility needs and challenges, and the adequacy of their current transport arrangements, better information is needed. This could be achieved through the following recommendations:

- *That appropriate agencies undertake a national survey of a representative sample of rural communities and residents to build a clear picture of mobility and accessibility in rural areas.*
- *The Ministry of Transport makes changes in the New Zealand Household Travel Survey to make rural travel more 'transparent', by, for example:*
  - *coding all participating households by their residential census meshblock, which in turn should be coded according to the Statistics New Zealand rural-urban continuum*
  - *geocoding the location of households in rural meshblocks to enable calculations of exact distances to urban and provincial centres.*

9.6.4   Holistic service planning and provision

It appears that there may be sufficient vehicles in rural communities to provide local transport services but their level of utilisation is low due to lack of sharing, coordination, and recognition of the wider social value of access to transport and mobility. A typical example is with school buses, and with club, marae, service-provider, and school owned and operated vehicles.

- *Relevant agencies could determine utilisation levels by conducting a review of spending on rural transport and mobility. This would assess provision and uptake across different government and non-government agencies with respect to their contribution to improving rural accessibility, equity and efficiency, and include investigation of:*

    - *barriers to closer coordination between service providers over rural transport*

    - *the need for training in community transport planning, organisation, administration, operations and related aspects of community transport.*

- *Further optimisation of rural transport opportunities could be achieved if school transport planning and provision in rural areas took account of the transport needs of the whole local community, and communities were empowered to have a greater say in school transport decision making.*

9.7   Summary

Poor access to transport can be both a cause and product of economic and social disadvantage, and exclusion. It can also result from poor planning. But poor access to transport is not widespread in rural New Zealand because the vast majority of households have their own motor vehicles. If they can afford it, they use these vehicles to access the goods, services and activities that are not available locally. Television, radio, the internet and private vehicle ownership have largely eliminated the traditional isolation and disadvantages of rural living; it has become much easier both for country to go to town and for town to reach into the countryside.

Where there are problems, they tend to be concentrated in particular regions, districts and communities, and among particular sections of the rural population – that is, the poor, unemployed, socially isolated, disabled, elderly and Māori – and in the more remote or economically peripheral areas of New Zealand. In short, poor access to transport tends to occur most among those already experiencing deprivation and exclusion. Increases in fuel prices will almost certainly increase the amount of hardship in these more marginal areas and decrease accessibility in rural New Zealand generally.

Current on the ground efforts to deal with problems arising from poor access to transport are being led mainly by community organisations responding to the needs of their own communities. However, eliminating the deprivations that come with enduring transport poverty and improving the sustainability of rural communities will require more than conventional transport planning. Rather, government agencies and communities may need to envisage the role of transport as part of the 'supply chain' of social and economic wellbeing rather than as a separate service. This will require the adoption of a more holistic and integrated approach to planning and development, such as those offered by accessibility planning and sustainability assessment.

10   References

Abley, S (2010) Measuring accessibility and providing transport choice. *Australian Institute of Traffic Planning and Management (AITPM) national conference.* Hilton Brisbane.

Baines, J, B Morgan and B Buckenham (2003) From technology-focused rules to socially responsible implementation: an SIA of proposed home heating rules in Christchurch, New Zealand. *Impact assessment and project appraisal 21*, no.3: 187–194.

Biggs, MH (1949) *A survey of the social development of Fairlie and the Mackenzie Country.* Thesis presented for the degree of Master of Arts (with Honours in History). University of New Zealand.

Burdge, DA and F Vanclay (1995) Social impact assessment. In *Environmental and social impact assessment.* F Vanclay and DA Bronstein (Eds). Chichester: Wiley & Sons.

Bus and Coach Association New Zealand (2010) The New Zealand Industry. Accessed November 2010. *www.busandcoach.co.nz/profile/facts.asp*

Canterbury District Health Board (2010) *Wider health and wellbeing impacts of transport planning: literature review.* Christchurch: Community and Public Health, Canterbury District Health Board.

Chapman, S and D Weir (2008) Accessibility planning methods. *NZ Transport Agency research report 363.*

Currie, G, T Richardson, P Smyth, D Vella-Brodrick, J Hine, K Lucas, J Stanley, J Morris, R Kinnear, J Stanley (2009). *Investigating links between transport disadvantage, social exclusion and well-being in Melbourne – preliminary results.* www.thredbo.itls.usyd.edu.au/downloads/thredbo10_papers/thredbo10-themeD-Currie-Richardson-Smyth-Vella-Brodrick-Hine-Lucas-Stanley-Morris-Kinnear-Stanley.pdf

Davey, J (2004) *Coping without a car.* Wellington: Office for Senior Citizens, Ministry of Social Development.

Farrington, J and C Farrington (2005) Rural accessibility, social inclusion and social justice: towards conceptualisation. *Journal of Transport Geography 13*, no.1: 1–12.

Fitzgerald, G (1998) *Resource community formation and change: a case study of Ohai.* Christchurch, Taylor, Baines and Associates and Fitzgerald Applied Sociology.

Gray, D, J Shaw and J Farrington (2006) Community transport, social capital and social exclusion in rural areas. *Area 38*, no.1: 89–98.

Harrop, A and G Palmer (2002) *Indicators of poverty and social exclusion in rural England.* London: New Policy Institute on behalf of the Countryside Agency.

Hillman, M, I Henderson and A Whalley (1973) Personal mobility and transport policy. *Political and Economic Planning*, Broadsheet 542, London.

Hine, J and F Mitchell (2003) *Transport disadvantage and social exclusion.* Aldershot: Ashgate.

International Association for Impact Assessment (IAIA) (2003) International principles for social impact assessment. IAIA special publication Series no.2. Accessed February 2012. *www.iaia.org/publicdocuments/special-publications/SP2.pdf*

Interorganizational Committee on Principles and Guidelines for Social Impact Assessment (2003) Principles and guidelines for social impact assessment in the USA. *Impact Assessment and Project Appraisal 21*, no.3: 231–250.

Kenyon, S, G Lyons and J Rafferty (2002) Transport and social exclusion: investigating the possibility of promoting inclusion through virtual mobility. *Journal of Transport Geography 10*: 207–219.

Land Transport New Zealand (2007) *New Zealand motor vehicle registration statistics.* Palmerston North.

Levitas, R, C Pantazis, E Fahmy, D Gordon, E Lloyd and D Patsios (2007) The multi-dimensional analysis of social exclusion. Bristol: University of Bristol.

Litman, T A (2008) *Evaluating accessibility for transport planning.* Victoria, BC: Victoria Transport Policy Institute.

Lucas, K (Ed) (2004) *Running on empty: transport, social exclusion and environmental justice.* Bristol: The Policy Press.

McClintock, W and G Fitzgerald (1998) *Resource community formation and change: a case study of Tuatapere.* Christchurch: Taylor, Baines and Associates and Fitzgerald Applied Sociology,

Mitchell, C and S Town (1976) *Accessibility of various social groups to different activities.* Crowthorne: Transport and Road Research Laboratory.

Ministry of Education (2010) School bus routes. Accessed November 2010. *www.minedu.govt.nz/NZEducation/EducationPolicies/schools/SchoolOperations/SchoolTransport/Schoo lTransportHomePage/SchoolBusRoutes.aspx.*

Ministry of Transport (MoT) (2003–2009) *New Zealand household travel survey.* Wellington.

Ministry of Transport (MoT) (2011) Connecting New Zealand. Accessed December 2011. *www.transport.govt.nz/ourwork/KeyStrategiesandPlans/Documents/Connecting%20NZ_online_version_ 9_September.pd*f

Mosely, M (1979) *Accessibility: the rural challenge.* London: Methuen & Co.

New Zealand Transport Agency (NZTA) (2009) National land transport programme: Southland*. www.nzta.govt.nz/resources/national-land-transport-programme/2009- 2012/regional/southland/docs/southland.pdf*

Nutley, S (2003) Indicators of transport and accessibility problems in rural Australia. *Journal of Transport Geography 11*, no.1: 55–71.

Putnum, R (1995) Bowling alone: America's decline social capital. *Journal of Democracy 6*: 65–78.

Rose, E, K Witten and T McCreanor (2009) Transport related social exclusion in New Zealand: evidence and challenges. *Kōtuitui: New Zealand Journal of Social Sciences Online,* 4: 191–203.

Rural Lift for West Fermanagh (2011) www.rurallift.com.

Salmond, C, P Crampton and J Atkinson (2007) *NZDep2006 index of deprivation.* Wellington: Department of Public Health and Dunedin: University of Otago.

Sen, A (2000) *Social exclusion: concept application and scrutiny.* Manila: Asian Development Bank.

Social Exclusion Unit (SEU) (2003) *Making the connections: final report on transport and social exclusion.* United Kingdom: Office of the Deputy Prime Minister.

Social Exclusion Unit (SEU) (2004) *Breaking the cycle: taking stock of progress and priorities for the future.* United Kingdom: Office of the Deputy Prime Minister.

Stanley, J, J Stanley, D Vella-Brodick and G Currie (2010) The place of transport in facilitating social inclusion via the mediating influence of social capital. *Research in Transportation Economics 29*: 280–286.

Statistics New Zealand (2003) *New Zealand: an urban/rural profile.* Wellington: Statistics NZ.

Statistics New Zealand (2006) *2006 Census of population and dwellings.* Wellington: Statistics NZ.

Stevenson, A (Ed) (2007) *Shorter Oxford English dictionary.* Oxford: Oxford University Press.

Stokes, G (2008) Rural transport in a wider context. TSU Seminar Series – Hilary Term 2008 (28 February 2008). Oxford: Transport Studies Unit, Oxford University Centre for Environment *www.tsu.ox.ac.uk/news/ht08_seminars/*

Taylor, CN, CH Bryan and CG Goodrich (2004) *Social assessment: theory, process and techniques.* Middleton, Wisconsin: Social Ecology Press.

Taylor, CN and G Fitzgerald (1991) Social assessment in New Zealand: a bibliography. *DSIR Social Science Series*. Christchurch, DSIR Social Science.

Taylor, N, R McCall and C Taylor (2009) *Going the extra mile: meeting future social needs in Western Southland.* Invercargill, New Zealand: Presbyterian Support Southland.

Television New Zealand (TVNZ) (2009) Rural petrol stations lose the pumps. One News 9 November 2009. *http://tvnz.co.nz/business-news/rural-petrol-stations-lose-pumps-3122829*

Thompson, A (Ed) (2010) *Fairlie Accessible,* 10-08: 1. Accessed November 2010. *www.fairlienz.com/community/the-accessible.*

Thomson, A and R Moran (2000) *Fairlie 1866–2000.* Fairlie, New Zealand: The Fairlie Work Trust.

Tolley, R and B Turton (1995) *Transport systems, policy and planning: a geographical approach.* Singapore: Longman.

Urry, L 2007 *Mobilities.* Cambridge: Polity Press.

Vanclay, F (2002) Conceptualising social impacts. *Environment Impact Assessment Review 22*, no.183: 211.

Vanclay, F (2003) Social impact assessment: international principles. *IAIA special publication series no 2.* Fargo: International Association for Impact Assessment. **p**8.

van Schooten, M, F Vanclay and R Slootweg (2003) Conceptualising social change processes and social impacts. In HA Becker and FM Vanclay (Eds) *The international handbook of social impact assessment: conceptual and methodological advances.* Cheltenham: Edward Elgar.

White, P, J Gunston, J Atkinson and P Crampton (2008) *Atlas of socioeconomic deprivation in New Zealand.* NZDep2006. Wellington: Ministry of Health.

World Bank Group (2003) *A user's guide to poverty and social impact analysis.* Washington: The International Bank for Reconstruction and Development.

World Bank *(*2010) *Social analysis sourcebook.* Accessed November 2010. *www.worldbank.org/socialanalysissourcebook/home.htm*

Ziller, A and P Phibbs (2003) Integrating social impacts into cost-benefit analysis: a participative method. Case study: the NSW area assistance scheme. *Impact Assessment and Project Appraisal 21*, no.2: 141–146.

Appendix A: Data on access to public transport in rural communities

Table A.1   **Percentage of travelling workers using public transport, 2006**

2006 urban-rural type	In New Zealand %	In North Island %	In South Island %
Rural areas - high urban influence	0.8	1.0	0.3
Rural areas - moderate urban influence	0.5	0.5	0.2
Rural areas - low urban influence	0.2	0.3	0.2
Highly rural or remote areas	0.1	0.2	0.1
All rural areas	**0.4**	**0.5**	**0.2**

Source: Statistics NZ: *2006 Census of population and dwellings*

Table A.2   **Rural census area units where residents reported using public transport to travel to work in 2006**

North Island	
Area unit	**Local government district**
Awanui	Far North
Karikari Peninsula	Far North
Herekino	Far North
North Cape	Far North
Hokianga North	Far North
Hokianga South	Far North
Kapiro	Far North
Ohaeawai	Far North
Waihou Valley-Hupara	Far North
Ngapuhi-Kaikou	Far North
Opouteke-Tanekaha	Whangarei
Marsden Point-Ruakaka	Whangarei
Ngunguru	Whangarei
Maungatapere	Whangarei
Punaruku-Kiripaka	Whangarei
Pataua-Whareora	Whangarei
Parua Bay	Whangarei
Bream Head	Whangarei
Kaipara Coastal	Kaipara
Maungaru	Kaipara
Rehia-Oneriri	Kaipara
Tauhoa-Puhoi	Rodney
Tahekeroa	Rodney
Cape Rodney	Rodney

North Island	
Area unit	**Local government district**
Parakai	Rodney
South Head	Rodney
Kaukapakapa	Rodney
Muriwai Beach	Rodney
Rewiti	Rodney
Riverhead	Rodney
Karekare	Waitakere City
Oruanui	Taupo
Rangitaiki	Taupo
Otakiri	Whakatane
Waimana	Whakatane
Urewera	Whakatane
Waiotahi	Opotiki
Tuai	Wairoa
Raupunga	Wairoa
Mahia	Wairoa
Tangoio	Hastings
Sherenden-Puketapu	Hastings
Poukawa	Hastings
Waimarama	Hastings
Tikokino	Central Hawke's Bay
Elsthorpe-Flemington	Central Hawke's Bay
Papatawa	Tararua
Kaitake	New Plymouth
Egmont Village	New Plymouth
Kaimata	New Plymouth
Douglas	Stratford
Toko	Stratford
Pembroke	Stratford
Mangatoki-Moeroa	South Taranaki
Whenuakura	South Taranaki
Maxwell	Wanganui
Mangaweka	Rangitikei
Moawhango	Rangitikei
Lake Alice	Rangitikei
Kiwitea	Manawatu
Pohangina	Manawatu
Tokorangi-Hiwinui	Manawatu

North Island	
Area unit	**Local government district**
Sanson	Manawatu
Himatangi Beach	Manawatu
Oroua Downs-Waitohi	Manawatu
Moutoa	Horowhenua
Kauwhata	Manawatu
Turitea	Palmerston North
Kaitawa	Kapiti Coast
Mangaore-Manakau	Horowhenua
Otaki Forks	Kapiti Coast
Te Horo	Kapiti Coast
Nabhra	Upper Hutt City
Riverstone Terraces	Upper Hutt City
Pencarrow	Lower Hutt City
Paekakariki Hill	Porirua City
Maungakotukutuku	Kapiti Coast
Cloustonville	Upper Hutt City
Mangaroa	Upper Hutt City
Makara-Ohariu	Wellington City
Mangatainoka	Tararua
Nireaha-Tiraumea	Tararua
Kopuaranga	Masterton
Whareama	Masterton
Waingawa	Carterton
Mt Holdsworth	Carterton
Te Wharau	Carterton
Kahutara	South Wairarapa

South Island	
Area unit	**Local government district**
Havelock	Marlborough
Wairau	Marlborough
Marlborough Sounds	Marlborough
Kaikoura Rural	Kaikoura
Golden Bay	Tasman
Mapua	Tasman
Kaiteriteri	Tasman
Motueka Outer	Tasman

South Island	
Area unit	**Local government district**
Wai-Iti	Tasman
Riwaka	Tasman
Orowaiti	Buller
Dobson	Grey
Nelson Creek-Ngahere	Grey
Haast	Westland
Parnassus	Hurunui
Hurunui	Hurunui
Tuahiwi	Waimakariri
West Eyreton	Waimakariri
Mandeville	Waimakariri
Ashley Gorge	Waimakariri
Kirwee	Selwyn
Burnham Military Camp	Selwyn
West Melton	Selwyn
Little River	Christchurch City
Dunsandel	Selwyn
Springston	Selwyn
Hinds	Ashburton
Chertsey	Ashburton
Winchester	Timaru
Orari	Timaru
Waihao	Waimate
Maheno	Waitaki
Kakanui	Waitaki
Waikouaiti	Dunedin City
Waitati	Dunedin City
Taieri	Dunedin City
Clutha	Clutha
Teviot	Central Otago
Lawrence	Clutha
Ranfurly	Central Otago
Dunstan	Central Otago
Milford	Southland
Wakatipu	Queenstown-Lakes
Chatton	Gore
Hokonui	Southland
Waianiwa	Southland

South Island	
Area unit	**Local government district**
Oreti Beach	Invercargill City
Dacre	Southland
Waituna	Southland
Fairfax	Southland