Exploring the potential for shared transport services in non-metropolitan cities of New Zealand

Christine Cheyne and Muhammad Imran

Resource & Environmental Planning Programme

School of People, Environment and Planning, Massey University, New Zealand.

The goal of increasing economic growth and productivity has been made a priority for the government's investment in land transport as indicated in the May 2009 Government Policy Statement (GPS) on Land Transport Funding. The GPS seeks to reflect existing modal choices "realistically available to New Zealanders". Essentially this means investment in roads for private vehicles. Previous targets for reductions in single occupant vehicle (SOV) trips have been replaced by a series of 'impacts' that the government wishes to achieve via the new guidance and funding framework. Investment in public transport for the population outside of the metropolitan areas of Auckland, Wellington and Christchurch will be somewhat more constrained. However, research shows that many groups in the population in non-metropolitan areas do not have the choice of private vehicles and alternatives in the form of shared or public transport will be vital for economic and social well-being. Moreover, a reduction in SOV trips will remain important to achieving New Zealand's international obligations in relation climate change commitments.

This paper presents data from research on shared (or flexible) transport in New Zealand's non-metropolitan areas. The aim of the research is to complement existing research in the international arena about shared transport and to consider the potential for increasing transport choices for residents in non-metropolitan New Zealand through shared transport services. Demand responsive transport has been widely used in Australia and the UK, in particular, to provide transport choices and achieve a modal shift including in areas of low population density. First, options for transport in non-metropolitan areas are reviewed. Second, Census data is presented on shifts in population in three non-metropolitan regions in New Zealand (Taranaki, Hawkes Bay and Manawatu-Wanganui), highlighting some implications for transport planning. Findings from interviews and a survey of residents in these regions about their travel and views about FTS are also discussed. The paper concludes with some reflections on the potential for FTS to increase transport choices for people throughout non-metropolitan New Zealand and how land use and transport planning may include FTS in the sustainable land transport mix.

INTRODUCTION

Recently published Statistics New Zealand (2009) research concerning commuting patterns is timely in terms of the effect of the economic recession on commuting behaviour. 2008 was a significant year for travel in non-metropolitan areas with the updated New Zealand Transport Strategy and the first Government Policy Statement (GPS) on Land Transport Funding foreshadowing a significant shift in targets towards reducing SOV trips. However, the recent high-level change in government direction altered that particular policy setting with the May 2009 revision GPS highlighting economic growth and productivity as the priority for government investment in land transport. This reflects both the policy of the government and an overriding concern for contemporary economic trends as a result of the

worldwide recession. Targets for reduction in SOV trips have been replaced by a series of 'impacts' that the government wishes to achieve via the new guidance and funding framework.

This research recognises the importance of transport for economic well-being for individuals, households and communities. Transport increases employment choices and enhances the economic viability of New Zealand's provincial cities and towns. The research also recognises the important role of transport in advancing environmental and health outcomes. Achieving a modal shift away from SOV trips, a focus of recent transport investment decisions, remains important if New Zealand is to meet international obligations to reduce greenhouse gas emissions. In non-metropolitan areas public transport is unlikely to exist or be viable; hence, our preference for the term 'shared transport', a term which includes demand responsive transport as well as scheduled services that lie outside of conventional public transport. Figure 1 below illustrates that shared transport takes a number of different forms that can be found along a continuum from the more organised forms associated with conventional public transport and larger vehicles such as school buses through to the most informally organised travel such as that associated with trips made in a family vehicle. Exploring the transport choices and needs of New Zealanders in non-metropolitan regions is vital for understanding the scope for shared transport to enhance economic development as well as social well-being and environmental sustainability. Due to low population density these areas face particular challenges when meeting people's transport needs. Shared transport services may expand choices and lead to better economic outcomes for these areas which continue to contain a significant section of the population.
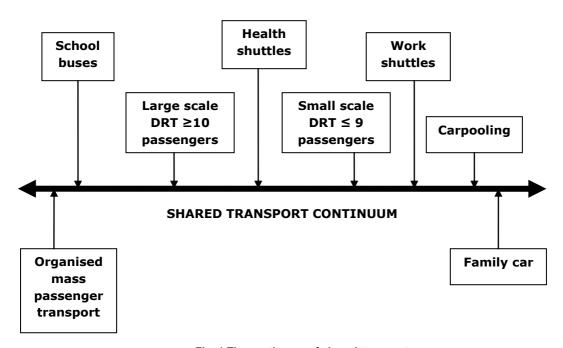

Fig. 1 The continuum of shared transport

TRANSPORT IN NON-METROPOLITAN REGIONS

The Land Transport Management Act 2003 recognises the importance of transport for access and mobility. Access and mobility are particularly critical for those who live in small towns (Wright, Nelson et al. 2009). Provincial towns in New Zealand are characterised by a small population, low population density, dispersed location and high car ownership. Generally, public transport in these areas has

been limited or abandoned because of changes to funding in the 1980s. Provincial cities are often the destination for people living in small towns for work, shopping, education/training and health services.

The locational disadvantage of small towns makes them a *'transport disadvantaged area'*. Hurni (2005) defines 'transport disadvantaged areas' as those without close proximity to transport or where there are few public transport options. Inaccessibility to public transport means greater reliance on private vehicles and dependence on family and friends for travel.

As a result, reliance on private car grew significantly in small towns, which ultimately led to forced car ownership. Banister defines *'forced car ownership'* as being where: 'there are no alternatives. In rural [small towns] areas, there is clear evidence of "forced" car ownership, since cars are owned at lower-income levels and are seen to be one of the items of household expenditure that cannot be foregone' (Banister 1994 p. 7).

Forced car ownership has a severe impact on a range of people and makes them *'transport disadvantaged'* (Currie and Senbergs 2007; Currie, Richardson et al. 2009). The literature points to the elderly, women, youth, disabled and low income people as being the most 'transport disadvantaged people' (Dodson, Gleeson et al. 2004; Buchanan, Evans et al. 2005).

Lack of transport has an impact on access to education, health, social, recreational and employment activities in small towns. In the UK, transport in small/rural towns is linked with the concept of *'social exclusion'* (Clifton and Lucas 2004*)*. It is argued that a lack of adequate transport prevents people accessing employment, health, shopping and other social facilities (Social Exclusion Unit (SEU) 2003) ultimately leading to *'transport poverty'* (Gleeson and Randolph 2002; Currie, Richardson et al. 2009) as shown in Figure 2.
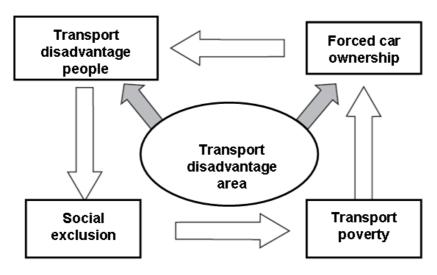

Fig. 2 Interaction of variables associated with transport disadvantage
(Source: Banister (1994); Dodson et al. (2004); Currie (2004); Hurni (2005))

There is inadequate literature and data relating to the travel needs of people living in small towns in New Zealand which reflects a low public perception of a particular issue. These settlements have particular transport needs and issues that require somewhat different responses to the needs and issues of residents of metropolitan areas. Different population groups (such as the elderly, young people, families with small children, people with disabilities, low income groups and unemployed people) have different travel needs compounding the geographical impact. This situation demands

shared or flexible transport in accordance with diverse needs of people living in small towns in New Zealand. One of the shared transport solutions suggested in literature is the introduction of Demand Responsive Transport (DRT) (Brake, Nelson et al. 2004; Enoch, Potter et al. 2004; Logan 2007; Laws, Enoch et al. 2008).

DRT is an intermediate form of public transport where flexibility is incorporated in terms of route, time, vehicle allocation and selection of operator. The current research will report on whether shared transport (Brake, Mulley et al. 2007) has potential for connecting small towns to essential employment, health or retailing services to provincial cities in New Zealand.

SHARED TRANSPORT SOLUTIONS IN AUSTRALIA

Demand Responsive Transport (DRT) is one form of shared transport that has been in operation for over 25 years in Australia. Some Australian case studies that have been developed DRT solutions are as follows:

1. **Runaway Bus, Western Australia:** The "Runaway Bus" service has been operating since 1989 in small towns of South Western Australia. The aim of this service is to provide public transport services to popular beaches for young people during the summer school holidays. The involvement of the bus operators in planning and financing the Runaway Buses, the support of local government and the advertising of services are key factors in the success of Runaway Buses.

2. **Invicta Telebus, Victoria**: Telebus started operating in the early 1980s in Victoria, Australia. It provides services to shoppers, commuters and school students living in low dense areas on the outskirts of Melbourne Metropolitan areas. The Telebus services was successful because it was integrated with other forms of public transport and provided connected services to low demand suburbs.

3. **Dial-a-Bus, South Australia**: The Dial-a-Bus service was introduced in Adelaide in 1973. The aim of this service was to provide access to local shopping centres. The Dial-a-Bus service failed due to poor planning, market competition and the dispersed low density land use along the route. However, a one hour door-to-door 'dial-a-ride' service operates in and around the township of Gawler and the surrounding suburbs to the northeast of Adelaide.

4. **Mackay Taxi Transit, Queensland**: The Mackay Taxi Transit service was established in 1993 to service the low demand areas in Queensland. The Mackay Taxi Transit service provides an hourly frequency to geographically dispersed areas that are difficult to service with traditional public transport at a reasonable cost.

5. **Translink, Shellharbour, New South Wales:** The Shellharbour Council in NSW initiated a DRT scheme in 1992. The service was designed with the help of modern technology including real-time information, digital stop, announcement systems and guaranteed transfers between services. Later, this initiative failed due to over-reliance on untested technology and a lack of planning.

6. **Taxi voucher project, Tasmania:** The Taxi voucher project was initiated in late 1990s to address the lack of safe transport options for young people at night in Tasmania. The aim of this service is to encourage young people to pay for their taxi fares using pre-paid taxi

vouchers available at many retail shops. The low set-up cost and simplicity of the project are significant factors in the success of Taxi voucher project.

DRT initiatives in Australia show that local community involvement, sustainable funding, appropriate organisation, communication among transport providers and users, utilising existing transport services and good promotion, are the key factors for making success in innovative DRT projects (see Table 1 below).

Success factor	Explanation of relevance
Regulation and licensing	• The status of shared transport services needs to be clarified as registration systems have often been designed for fixed route services.
Service planning and design	• A high level of collaboration between stakeholders is important to integrate service design with budgetary constraints. • The degree of flexibility is the major determinant and will be dependant on geographical coverage, mode integration, the level of technological input and the booking criteria. • Flexible fleet management can minimise empty vehicle trips. • Political commitment for shared transport services is important. • The most efficient services will be where demand is sufficiently concentrated to maintain high resource utilisation. • Shared transport services may not be able to overcome low density highly dispersed land use patterns
Marketing	• Awareness-raising is crucial for new services and must be sufficiently resourced. • All stakeholders need to understand the operational principles of the service. • Appropriate and distinctive branding of all vehicles, timetables and advertising materials is vital. • There may be cultural aversion to sharing vehicles. • The target niche must be big enough to maintain the service. • Use simple fare structures and through ticketing. • Word-of-mouth recommendation is important to promote confidence in services.
Funding	• Services which are well matched with markets and resources are likely to be less reliant on long term subsidies. • Operating strategies need to anticipate the cessation of start-up funding and subsidies. • Single agency brokerage of pooled vehicles may improve long-term financial sustainability but this requires high levels of commitment, cooperation and integration from the entities involved.
Costs	• The relevant costs are those which would not be incurred if the service did not run such as administrative, operating and capital costs. • The most significant relationship is between revenues and avoidable costs.
Overall visibility	• Generally a service where revenues exceed avoidable costs should continue to operate. • In the longer term a surplus is required to replace capital items. • It may be pragmatic to set fares so that anticipated passenger numbers generate avoidable cost covering revenue.
Technology	• There is a clear trade-off between complexity and cost. • Cost effectiveness is likely to require the support of multiple schemes. • Pre-registering passengers minimises booking times. • Travel dispatch centre hours should be maximised.
Emissions	• Small vehicle flexible transport services have the potential to minimise emissions when compared with conventional fixed route public transport services in low demand density areas.

Table 1: Success factors for DRT services
(Source: Brake et al. (2006): Brake et al. (2007); Diana et al. (2007); Enoch et al. (2004))

Now we turn to consider the potential of DRT services in small towns of New Zealand.

METHODOLOGY

Fifteen small towns in three non-metropolitan regions (Taranaki, Hawkes Bay and Manawatu-Wanganui) were selected as case studies (see Figure 3). The Taranaki towns (and their 2006 population) were as follows: Oakura (1800), Inglewood (3090), Stratford (5562), Eltham (1980) and Hawera (9570). In the Manawatu-Wanganui Region the following eight towns were included: Marton (4872), Bulls (1659), Foxton (4446), Levin (15507), Shannon (1368), Dannevirke (5520), Pahiatua (2745) and Feilding (13359). In Hawke's Bay Region, Waipawa (1926) and Waipukurau (4008) were

selected. The methodology to examine attitudes and behaviour of people to public transport in these towns develop in two stages:
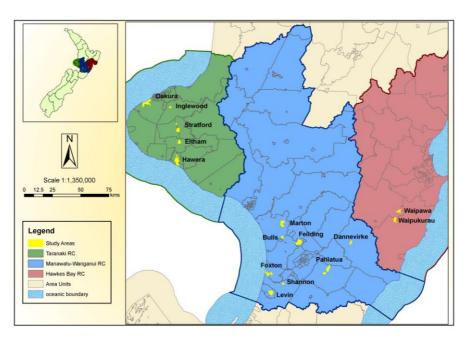

Fig. 3 Case Study Areas

1. *Census data analysis:* This analysis encompasses socio-economic characteristics, and data on main means of travel to work obtained from 2001 and 2006 Census data. The aim was to identify trends in the use of passenger transport at the sub-local level in the selected towns. The focus is on the uptake of existing non-private transport services (i.e. passenger transport as well as non-conventional shared transport services such as shuttles).

2. *Primary survey:* Primary data were collected through a one-page questionnaire that collected information about the transport use of different types of resident living in case studies areas. Three thousand survey questionnaires were distributed to residents using a range of distribution mechanisms (i.e. through community newspapers and clients of community organisations) depending on the demographic characteristics and the nature of the settlement. The aim was to gather data on the perspectives and experiences of different age, ethnic and income groups in relation to passenger transport; and, based on this data and analysis, to identify priority areas for enhancing use of shared transport especially by commuters and the transport disadvantaged. The response rate was approximately 10%.

3. *Interview data:* The location selected for the interviews was Marton, the largest town in the Rangitikei District. Marton has a population of 4680 (Statistics New Zealand 2006), situated in the lower Rangitikei basin on the Tutaenui Stream.

   By road, Marton is about 44 kilometres north-west of Palmerston North and 37 kilometres south-east of Wanganui. New Zealand's major state highway running between Auckland and Wellington is a short distance away, while State Highway 3, which runs along the west coast of the North Island from Wellington to Auckland is about 14 kilometres west. The North Island main trunk railway line passes within about 4 kilometres to the south east of the town. Marton is also linked by rail to New Plymouth and Port Taranaki. The Overlander, a long distance train service between

Auckland and Wellington, arrives in Marton once a day in each direction during the summer (but operates on a restricted timetable during winter). Marton residents also have access to InterCity (long distance) buses. There is a weekday commuter bus service between Marton and Palmerston North (approximately 1 hour by bus).

The coastal lowlands around Marton are known for their quality and productivity as farm land. The town's first major industry was a flourmill, followed by a variety of agricultural and food related manufacturing industries. The opening of Lake Alice Hospital, a psychiatric institution, in 1950 increased Marton's population and employment opportunities, and sawmilling, joinery manufacture, general engineering and clothing and textile manufacture have also provided employment. Although the town's population has seen a significant decline since 1996, (partly because of the closure of Lake Alice Hospital), Ohakea Airbase and the recently opened Canterbury Meat Packers facility, north of Bulls on State Highway 1, provide sources of employment for Marton residents.

Nineteen respondents from Marton were interviewed. The respondents were asked to describe their travel, particularly with respect to trips away from Marton. They were asked about what forms of shared or public transport would work for them and their knowledge and experience of carpooling and car sharing. Respondents were also asked to explain how they plan for travel and whether their transport arrangements might change over the next five-ten years.

Age group	Female	Male
15-24	-	2
25-49	5	1
50-64	3	3
65+	3	2
Total	**11**	**8**

Table 2: Age range of the respondents

RESULTS AND FINDINGS

- *Declining population:* The Census data shows that the population is either slowly declining or stagnant in all case studies except Oakura in Taranaki. Marton and Bulls in Manawatu-Wanganui region lost over 10% of their population between 1996 and 2006.

- *Low income level:* The median income of the residents living in the case study towns is between $24,000 and $40,000 which is below the NZ median income ($51,400). Only Oakura in Taranaki region has a higher median income ($67,100) level then the NZ median income level. On the basis of these figures, we can describe these towns transport disadvantaged areas. Therefore, the cost of any proposed shared transport services should be cheaper than car.

- *Car dependent transport behaviour:* Journey to work (JTW) data clearly demonstrates the absence of, or limited, public transport in the case study settlements. Over 80% people living in these areas rely on private vehicle for JTW trips and others are dependent on either walking or cycling. As a result, most of the people living in these towns have one or two cars. Additionally, the survey shows that driving alone (31%) and car riding as a passenger (38%) are the common ways of getting to and from these towns, followed by walking (13%), public transport (6%), cycling (4%), taxi (3%), motorbike (2%), hospital van (1%), company car (1%) and others (1%). The data confirms the need for an alternative mode of transport in small towns.

- *Reasons for living in small towns:* The lifestyle choice (32%) and affordability (19%) are the main reasons for living in small towns. The other reasons for living in small towns are: proximity to work (18%), family links (13%), place of birth (8%), proximity to school (5%), retirement place (3%) and other reasons (2%). The data indicates that it is important to understand people's preferences in relation to living in small towns and incorporate this understanding into planning of any future transport services.

- *Purpose of travel:* The survey data show that travel patterns in small towns are very different from metropolitan areas. The main purpose of travel in these areas is shopping (29%), followed by health (23%) and social/leisure (21%) trips. Only 16% of respondents preferred JTW trips as a main purpose of travel. The results indicate that in order to initiate shared transport the service should be designed in a way that accommodates the timing and purpose of services required by the majority of people.

- *Attitude to public transport:* Almost half of the survey respondents have reservations about the use of public transport. The reasons for this reservation are that people have never experienced public transport or have negative impressions associated with public transport. There may be a link between these two with people who have never experienced public transport viewing it negatively as they have not experienced its positive features. Interestingly, the same people are open to sharing their car with someone else. Thus, there may be considerable potential for increased use of shared transport through coordinating car sharing in an appropriate network. Deepening understanding of contradictory attitudes towards public transport is an important insight from the survey. The research suggests that improving the image and levels of shared transportservice may encourage people to change their mode of transport to something less private and more shared, if not indeed public.

- *Limitation of the data*: The results of the survey are likely to be influenced by the somewhat skewed gender and age group of the respondents. For example, 64% of respondents of questionnaire surveys are female. Similarly, large proportions of respondents are either over 65 (34.6%) or belong to the 50-64 age groups (31.4%). However, these are significant subsets of the transport disadvantaged and the limitations of existing data mean that data should be gathered regularly in these small towns and policies should be designed towards specific target groups.

Interview data

The results show that transport choices are constrained by availability, knowledge, cost, and personal circumstances (such as health status).

Availability and flexibility

Many respondents identified a requirement for public or shared transport services that were flexible to their needs and available at times other than available via the commuter service or those offered by Intercity. These times included evenings, at weekends and during the day other than at commuter times.

> R: A big thing would be that it would need to run after hours, because a lot of what I've want to do out of town is after hours and that includes things like going to the pictures, as well as the other things that I do on a regular basis (J4, 139-141).

R: I guess the ideal would be some kind of flexibility with time, I don't know how that would work, but because there's sort of fairly regular times that I have but sometimes I want to go early or do something else or whatever, you'd need some kind of flexibility with it but yeah I think after hours would really be the crucial one for me (J4 173-177).

R: Yeah, yep and …it leaves fairly early in the morning for us – we're not morning people and leaves at five, about five at night. It's… not ideal for our personal… normally I… we travel quite a lot later. Also, because of the bus you can't cart as much. So, the type of trips… we end up with an empty car going over and a full car coming back. It was good for the novelty factor and … if we didn't have to combine all those trips we could use that more for just going over for the day and having an enjoyable day, you know more of a leisure type experience than getting stuff done… yeah, we'd use it more (M2, 99-106).

Flexibility is clearly important for respondents, the majority of whom indicated that travel outside Marton is for social and/or leisure purposes, which may also be combined with other trip-chained activities:

R: Quite often it'll be sports events and school trips (M1, 22)

R: I think because we lived in Wanganui for so long and have only lived in Marton for five or six years we still tend to do a lot of our socialising… and I'm still involved with sports in Wanganui, or not as much as I have been… and I think, yeah… because our friends still live over there… most of our contacts, we still tend to socialise over there (M3, 221-224).

R: Well, usually…. We have indoor soccer on Friday nights in summer so we'd usually do our grocery shopping before or after… like at Pak'n'Save and/or, like go out for dinner after soccer and now on Saturday's we go to Palmerston [North] for outdoor soccer because its winter and we'll do the same sort of thing, yeah (M4, 31-34).

R: Last trip prior to that would have been a trip to Palmerston North and that was to attend a folk concert… at the folk club. And that was in our own car and we both went… (M5, 29-30).

Accessibility and comfort

For respondents with health constraints the accessibility and comfort of any form of shared transport was a constraint which affected both their ability and willingness to travel outside of Marton:

R: Yes well partly to do with the bus, it's the steps, it's like climbing Mount Everest! I've because I've got short legs I've got… my hip problem I find it difficult getting in the last two steps and before we went, there's 2 trips I went on… they started in February, we went to Ashley Park out the other side of Waverley… the bus they had that day was most uncomfortable it was too high for me and… the seats were too deep and so the next trip they went to New Plymouth, so I said no thank you, it was far too far for me to travel and then the next trip was to Wellington and I said no thank you, I don't want to go to Wellington, they went to Te Papa, but climbing in and out of the bus is more tiring than anything and when the seats are too, depending on which bus they have then, so there's lots of activity things that don't suit me (M8, 164-174).

R: …I went up to Taupo for a reunion. A long, long time since… I find it very uncomfortable in buses... this leg is permanently stiff and it's quite hard with some of the seats to get my foot underneath… (J5, 86-88).

This also applies to the location of any form of shared transport stopping points:

> R: … it depends whereabouts the terminus was at the other end, whereabouts it stopped, with my you know lack of mobility I can't go too far anywhere (J5, 187-188).

> R: I'd have to get a taxi from my house that takes me up to the bus-stop, which I have to be there by…sometimes…most times they pick you up at 8:30 [a.m.] because they've got the school children's run when school's on and you're sitting up there in the cold bus shelter… (M12, 24-27).

> R: did I tell you about the little bus shelter we've got up in Marton? … well, it's very inconvenient. It's got a concrete top, it's got a wooden seat in it and lots of times people have been there eating things, spilling things all over the seat; tomato sauce and some people have even been sick on the concrete ... path ... the footpath and the rain drives in on the seat and you cannot sit on the seat – you're sitting on the back… on the back of the seat which is not very safe for elderly people. Many times, I've had to go down and stand in the Club shelter down, just in there out of the rain because it's been raining. So, there are a lot of quite sensible shaped shelters in Porirua and Palmerston North, they seem to have very sensible shelters and they come out further than what the people are in the bus shelter… (M12-276-287).

> R: … where the bus pulls in [Palmerston North], it's quite a long walk. It is even in Wanganui but they do… both Palmerston North and that do have that, but it's very difficult in Palmerston North getting back, way back to the bus stop… (M12, 137-141).

Location of stops is also a factor for those without mobility difficulties:

> R: And I guess the other thing is where things stop, you know, where you can get on and off, whether it's door-to-door or whether you have to sort of be dropped off at a certain point and then walk, you know go for a 50 minute walk to wherever it is you actually want to go or get a taxi or another bus or something... how easy it is to get to the final destination as opposed to just somewhere within the town boundaries (J4, 222-227).

Cost and affordability

For some respondents travel is highly cost constrained and has to be based around specific events/needs:

> [Interviewer]: So every two weeks you will make a trip into Palmerston?

> R: Yep, yeah and sometimes more frequently if there's two other events that we must go to and … but like they're three weeks apart, so there'll be three trips… (M2, 67-69).

Elderly respondents in particular indicated that travel cost were a concern, particularly in relation to their pension payment cycle:

> Rb: And you'd work it out for us pensioners, for when pension day falls because if it's an off pension week nine or ten of us can't afford to go anywhere anyway (M7, 162-163).

R: …there's quite a few Marton people who, well younger than me, actually, they go [on the bus to Taihape]. I don't know where they get the money from because it's $10 to go and by the time you (M8, 127-129).

R: …I'm skimping by the end of the fortnight. I work on a budget, you have to (M8, 148).

R: Yes, because now I'm on a single pension and you don't have… it's very difficult to manage on a single pension (M12, 193-194).

Other respondents, whilst not specifically regarding themselves as cost constrained currently, identified that carpooling represents a significant budget saving and that further fuel cost increases would influence their travel planning:

R: Well, I think too that one of the advantages with my husband's work with the van, I mean, as I said to him, that probably saves us a good five grand a year… realistically. Because I'm not traveling every day now but I think if I was when petrol was really high, probably would have been a factor… and the wear and tear on your car for considering you're doing the k's (M3 129-133).

R: I think when it really went up – the petrol, we did stop the short running backwards and forwards and we'd do more in a trip… and then that can leave you absolutely exhausted at the end of the day though (M3 207-209).

R I think that cost is always a factor to anybody and I think that you think twice about going anywhere at the moment, you know over the last 12 months anyway. One time we never thought anything of it, but we do now, um we think twice about um …(M9, 143-147).

Trip-chaining
Fourteen respondents identified a need to combine multiple activities into one trip to minimise costs and maximise their use of time whilst on trips away from Marton.

R: I took my daughter to a concert, to an orchestral concert. Visited my Mum and did some groceries and errands – shopping, picked up mail, banking (M2 27-28).

Accessing 'big box' retail stores on the periphery of towns such as Bunnings in Palmerston North as part of trip-chaining activities was seen as a reason not to consider the use of car pooling or sharing:

[Interviewer]: So, when you make these trips out of town, would you usually plan a whole lot of activities or would you just go for one specific thing, or…?

R: Well, generally, except for something specific like for example, the folk concert or the hospital appointment, we would plan activities so we did a list of things in one trip.

[Interviewer]: So, could you give me examples of the kinds of things that you might bundle up together, the kinds of activities?

R2: A trip to Bunnings for me…

R: Yes, it would be mainly shopping, we would do that because that's more or less what we go out of town for…

R2: Clothes that we can't get in Marton…

R: Yes, so specific… specific shopping for things that we can't get here would be the main reasons (M5. 53-64).

R: Ah, mainly because we do those combination trips where we're going from one end of town to the other. Ah, parents live at the far end of town and we go to places like Bunnings, you know places that aren't right in the city centre all the time so… that's just easier for us to take our own car and, yep…(M2, 45-48).

The necessity of trip-chaining combined with the need to be flexible enough to respond to emergencies such as children becoming ill whilst at school was seen as a barrier to using forms of shared transport.

R: It is a case of being able to get up and go and I think one of the issues as well with car pooling is, especially if you've got young children if ever they're sick or the school rings you, being able to get back and… see to the children (M6, 121-123).

Supporting existing services

Several respondents believed that it was important to actively supporting existing bus services to ensure that those services continued to serve the town:

R: I think… my main reason, and it probably sounds silly, but when it was first offered I made up my mind that I was going to use that service if it was offered to us, and I've had different people offer me a ride, and I've said no, I'm supporting my bus. Now that might sound crazy but I wanted to keep that bus going, and I wasn't going to be the only one that would keep that bus going, and I knew that but it wouldn't have helped if I hadn't gone, and I've appreciated it. So I virtually made up my mind, if there's a bus available I'm going to go on that bus… (M9, 264-270).

R: … I guess I don't expect things to keep on going if I… and then if it hadn't kept on going I would have turned round at the end of that and said you know oh I wonder why it didn't keep on going but it certainly wasn't my fault, I did my best to support it, yes (M9, 281-284).

Ra: … what you're looking at is a service that's on a regular basis that can be used, and it's like anything people have got to be educated to use it, and that's the issue you look at what we think is what is viable to use and when it's there that service is there to use and a lot of people say well that's a good idea but when you do put one up nobody wants to use it, and that's a use issue (M7, 164-168).

Availability of shopping in Marton

Whilst for some respondents the range of shops in Marton provided sufficient variety for their day-to-day needs, it was identified that purchase of certain products involved trips outside of Marton:

Rb: Mainly when we go over to Wanganui it's just for a break, you know like going to town here there's certain things you can't get in town. There's no shoe shop, if you want to buy underwear ladies or men's, we can get it at the supermarket for men but for ladies unless you can afford it, you're going to McGruers and you're paying top dollar, where we can go, I can go to the Warehouse and pick up undies and get about 3 pairs for virtually the price of one. It's just things, you know personal bits and pieces where, you do most of your shopping in town but there's odds and sods that you can't get here (M7, 146-153).

R: Well no you can't, no, no, well these, yeah. I really need to go out of town soon because, I'm a church person and next month we're going camping over to Pohongina so I need a pair of

gummies, and I need a raincoat, or a something so I need to go out of town to get those… (M8, 144-147).

R: … you have to go to PN to get an organic vegetable around here, which is just crazy… (J4, 294-295).

Internet shopping was seen by several respondents as an alternative to lack of choice of shopping. This option was seen as both an economic and an environmental response to the potentially limited choice available in Marton. However, this option was constrained by the inability to purchase perishable goods locally via the internet:

R: Here it's a bit of a nuisance because we live "rurally" we can't receive any dairy products, refrigerated items or anything like so basically your down to dry goods which you can buy in larger quantities, at anytime so there's no real… (M2, 215-217).

R: We can order shopping online here from Woolworths, I know it's available…

[Interviewer]: Here in town?

R: Oh yes, Woolworths do online shopping; it was the first thing we looked for 'cos I don't enjoy going shopping. The thing we discovered is that's fine as long as you don't want any consumables, if you like… you see you can't order any fresh fruit and vege, you can't order any milk or dairy products, which kind of negates the whole purpose, if I can't do it all I'm not going to do any of it. I'm not going to get half the order and then go out anyway, that's just ridiculous (M!, 207-214).

Health-related travel

With an aging population there is a significant level of need for health care services:

R: Well, there are all sorts of… not us personally but we certainly see them, there are all sorts of transport problems for people in a community like this and I think, particularly with the elderly. For example, I was talking to a relative today who doesn't drive and has to get herself to Wanganui hospital for a very minor operation that can't be done here. And so she has to sort of go to… I think Red Cross are taking her. There is something available but it's… it's not particularly easy for her to… to organize that (M%, 269-274).

Patients requiring hospital treatment need to travel to travel to Wanganui or Palmerston North. There are currently six hospital shuttles per week taking patients from Marton for dialysis in Palmerston North. When the shuttle bus driver overslept on one occasion one patient who has dialysis three times per week, made his own arrangements:

Rb: … he took the van, there was no parking in front so he had to park in a car park, then he had to get himself, and all he had was his walking stick, by the time he got to the main entrance he was on his knees so they had to go and get him a wheel chair because he didn't have a wheelchair or nothing, he couldn't get it out of the van. And I worried all day that he'd got down there in a whole piece until he got home again (M7, 201-206).

Location decision-making

According to the Census data 43 percent of Marton residents worked in Marton in 2006, down from 57 percent in 1996. Travel for work was scattered to other areas with Wanganui, Palmerston North City,

Bulls and Lake Alice all receiving 3-6 percent of working residents. 4 percent went to other regions, probably Wellington.

Respondents indicated that the travel arrangements and costs involved in living in Marton and travelling for work and health related trips can lead to population loss:

> R: … if people have got work out of town and they find the travel too difficult then they move and that isn't good for us. So it would make sense yeah to look at the options [for car pooling or car sharing organised by Project Marton] (J4, 69-71).

> R: … when Tranzit took over the run, originally there was around about eight or nine people regularly on the trip [the commuter bus between Marton and Palmerston North]. Over the years, that increased to around about fourteen per trip and now it's doing a slight decline, back to about ten per trip… I kept a record of all of the people who travelled with me in a database, and I noticed that the majority of them, after about two years more over to Palmerston [North] for some reason – either for work or for recreation or just to be closer to their workspace (M10, 56-63).

> R: Well, I have tried to sell the house here because of the stress and the size of the section, the quarter acre section's getting… I'm getting past looking after it but there hasn't been any bites. Haven't even had an offer on the property because I would have liked to have shifted to Palmerston [North] where… where I would be cared… my church people would care for me… in either Wanganui or Palmerston [North] - there's no point in shifting to Feilding or somewhere because you're still in the same boat (M12, 247-252)

In summary, the interview data reveals considerable diversity in people's travel needs but also some similar experiences in terms of lack of choice and difficulty using the extremely limited alternatives to private vehicles. As a result of these difficulties and the generally poor quality of infrastructure and service, public transport is often viewed very negatively. However, people often willingly share transport (whether it is families transporting children from more than one household to children's activities, or people sharing a vehicle to travel to work outside the town, or patients using a health shuttle) because of the economic and other benefits. This suggests there is scope to promote shared transport.

CONCLUSION

This purpose of this paper is to review some of the international literature on shared transport services and to present data on the attitudes and behaviour of residents of small New Zealand towns in relation to transport.

Up to the 1970s there was much greater availability and patronage of public transport outside metropolitan areas. People's travel behaviour and attitudes were significantly different in relatively recent times to what they are in the mid 2000s. The current lack of alternative transport modes means that car ownership has become necessary and not a choice. Changing patterns of work and leisure, an aging population, increasing income inequality, internal migration and growth and decline of regional populations are reflected in recent Censuses which show declining populations in many non-metropolitan areas. For those in the working-age population, employment options outside of the small

towns in nearby larger urban areas may be reduced if there are not suitable transport services. Likewise, some employers in small towns (for example, local industry, local high school) may have difficulty attracting workers. This research shows that many groups in the population in non-metropolitan areas do not have access to private motor vehicles or public transport and alternatives in the form of shared transport are vital for social and economic wellbeing. Age and health status may prevent some people from driving and, where there are not suitable alternatives to a private vehicle, access and mobility are severely impeded for these people.

The research shows lifestyle choice, proximity to work and affordability are the main reasons for living in small towns. This is not surprising since the median income in all but one of the case study towns in below the NZ median income. The current lack of or highly restricted forms of public and shared transport that are available in the case study towns combined with low median income levels presents clear evidence of "forced" car ownership. The benefits of affordable housing can however, to some extent be offset by living costs associated with shopping and travel.

Attitudes and behaviour are not always conflated and people's behaviour (how they travel) may be limited by availability of different modes rather than preference. Socio-economic characteristics, travel patterns, travel purposes and reasons for living in small towns shape residents' attitudes and behaviour towards shared transport. Having alternatives to private vehicles is therefore for both economic and social well-being. Older people in particular have a high degree of reliance on the various health shuttle services, increasing the frequency and seating capacity of these shuttles could, by extending the service to other groups could increase social participation for older and low income people. However, people in small towns have so little experience of public transport they need to be assisted to think about how shared transport services could work for them. In addition, as in metropolitan areas, reducing SOV trips will contribute to better environmental outcomes. The challenge lies in the co-ordination of different individuals' travel. This study highlights a degree of informal sharing already occurring, encouraged by increasing fuel prices, especially among families with children that need transport to school, sports and recreational activities. This informal sharing provides a model for a much more broadly-based sharing of transport by people in other age groups for their travel to work, healthy appointments, shopping and social/recreational activities.

Shared transport services have developed in other countries which have similar settlement patterns. Such services can avoid the difficulties associated with scheduling conventional (mass) public transport services. In particular, the Australian experience has particular relevance to New Zealand and demonstrates that there is significant scope for innovative solutions. The research indicates that small and declining populations need the provision of shared transport to help promote the goal of economic growth and suggests both an identified need for some groups to have access to more shared transport services, with potential interest from others. These transport services need to be designed in such a way that they accommodate the specific travel needs of the residents of small towns. The increasing availability of information and communications technologies means shared transport services can enhance transport choices. Economic, social and environmental benefits will accrue to these communities and the country as a whole from improved transport choices.

References

Banister, D. (1994). Internalising the social costs of transport. Paris, OECD/ECMT Seminar.

Brake, J., Mulley, C., & Nelson, J. D. (2006). Good Practice Guide for Demand Responsive Transport Services using Telematics. Newcastle upon Tyne: University of Newcastle.

Brake, J., C. Mulley, et al. (2007). "Key lessons learned from recent experience with Flexible Transport Services." Transport Policy **14**: 458-466.

Brake, J., J. D. Nelson, et al. (2004). "Demand responsive transport: towards the emergence of a new market segment." Journal of Transport Geography **12**: 323-337.

Brake, J., & Nelson, J. (2007). "A case study of flexible solutions to transport demand in a deregulated environment." Journal of Transport Geography **15**: 262-273.

Buchanan, N., R. Evans, et al. (2005). Transport Disadvantage and Social Status: A Gold Coast Pilot Study. Brisbane, Urban Research Program, Griffith University.

Clifton, K. and K. Lucas (2004). Examining the empirical evidence of transport inequality in the US and UK. Running On Empty: Transport, social exclusion and environmental justice. K. Lucas. Bristol, Polity Press**:** 15-38.

Currie, G. (2004). "Gap analysis of public transport needs: measuring spatial distribution of public transport needs and identifying gaps in the quality of public transport provision." Transportation Research Record: 137-146.

Currie, G., A. J. Richardson, et al. (2009). "Investigating links between transport disadvantage, social exclusion and well-being in Melbourne-Preliminary results." Transport Policy **doi:10.1016/j.tranpol.2009.02.002**.

Currie, G. and Z. Senbergs (2007). Exploring Forced Car Ownership in Metropolitan Melbourne. 30th Australasian Transport Research Forum, Planning and Transport Research Centre.

Dodson, J., B. Gleeson, et al. (2004). Transport Disadvantage and Social Status: A review of literature and methods. Brisbane, Urban Policy Program, Griffith University.

Enoch, M., S. Potter, et al. (2004). Intermode: Innovations in Demand Responsive Transport. Loughborough, Department for Transport and Greater Manchester Passenger Transport Executive.

Gleeson, B. and B. Randolph (2002). "Social disadvantage and planning in the Sydney context." Urban Policy and Research **20**(1): 101-107.

Hurni, A. (2005). Transport and social exclusion in Western Sydney. Sydney, Australasian Transport Research Forum.

Laws, R., M. Enoch, et al. (2008). "Demand Responsive Transport: A review of schemes in England and Wales." Retrieved 6 July 2009, from https://dspace.lboro.ac.uk/.

Logan, P. (2007). "Best practice demand-responsive transport (DRT) policy." Road and Transport Research **16**(2): 3-12.

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

Statistics New Zealand (2006). Usually resident, 2006 Census. Wellington, Statistics New Zealand.

Statistics New Zealand (2009). "Commuting Patterns in New Zealand: 1996-2006." Retrieved 6 July 2009, from http://www.stats.govt.nz/analytical-reports/commuting-patterns-in-new-zealand-1996-2006/default.htm.

Wright, S., J. D. Nelson, et al. (2009). "An evaluation of the transport to employment (T2E) scheme in Highland Scotland using social return on investment (SROI)." Journal of Transport Geography **doi:10.1016/j.jtrangeo.2008.10.006**.