MOVING PEOPLE

› *Solutions for Policy Thinkers*

The value of getting there: *mobility for stronger Australian regions*

Bus and Coach Industry
Policy Paper 10

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›Solutions for Policy Thinkers

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The value of getting there:
mobility for stronger Australian regions

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Foreword

This research Policy Paper is part of a policy series of publications aimed at decision and policy makers, academics and students.

This Policy Series focuses on land transport, land use, integrated planning and urban development challenges in Australia.

The Policy Series has been developed by the Bus Industry Confederation (BIC) of Australia and the Institute of Transport and Logistics Studies, Business School, University of Sydney, and addresses specific subject matters and issues raised in the BIC's previous reports: "Moving People - Solutions for a Growing Australia" and "Moving People - Solutions for a Liveable Australia." Both publications are available at www.ozebus.com.au.

Abstract

Mobility is a fundamental requirement for well-functioning regions and for the wellbeing of their residents (and visitors). This Paper first examines the potential for agglomeration economies from mobility improvements in Australian regions, concluding that this prospect is most likely to be relevant for those regions with the largest urban centres (e.g. 200,000 population).

The role of mobility in promoting social inclusion of regional residents is then explored, inclusion being supportive of personal wellbeing, strong communities and economic participation. The Paper highlights the importance of building bridging social capital to reduce risks of regional social exclusion. It shows that, while regional people at high risk of social exclusion may achieve relatively high trip making (mobility), they may still have problems taking trips that build their bridging social capital. Supportive public transport services can play a role here, the paper suggesting supportive service standards for small regional towns. Discussing the groups of regional people most likely to be at risk of social exclusion because of poor mobility opportunities, this Paper highlights pre-school children as a new focus for policy and research attention. To better meet regional mobility needs and achieve more effective use of mobility-supporting resources (e.g. vehicles, people), this Paper proposes a central integrating role for Regional Accessibility Committees.

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1. Context

1.1 Introduction

The BIC's Policy Paper series has included extensive discussion on mobility/accessibility priorities for Australian cities and on land use transport policy and planning directions to deliver against those priorities. Regional mobility/accessibility has received less attention. About 20 per cent of the Australian population live in cities and towns of between 30,000 and 85,000, or in smaller rural towns and remote settlements (DIRD 2015)[1]. Mobility/accessibility as it relates to these smaller towns/cities and their hinterlands, is the main focus of this Paper.

This Paper looks at regional mobility/accessibility through two main lenses. First, it looks at the potential for wider economic benefits, such as regional agglomeration (productivity) economies, resulting from improved regional mobility levels. If such opportunities exist, as research indicates they do in larger cities, they might form a significant new economic benefit from improving regional mobility, additional to traditional user benefits, and would further support efforts to deliver such mobility improvements. In this regard, the main themes in this Paper are concerned with how mobility/accessibility improvements might help to strengthen regional integration, such as through expanding regional labour market catchments. Second, it builds on our extensive work on the connections between mobility and social inclusion. Mobility improvements support social and economic participation, thereby helping to foster strong regional communities. Importantly, this Paper finds a substantial gap in research and understanding of the role of transport/mobility for those at risk of social exclusion who live in regional towns/cities.

The scope of this Paper excludes remote areas. Examination of the NSW Western Regional Transport Plan (TfNSW 2013), however, indicates that there are many common mobility/accessibility and social exclusion issues between remote regions and regions that are closer to the major centres but remote regions also have their own particular challenges which deserve separate attention, beyond the scope of this Paper.

1.2 Population trends

Australia's population growth rate has been high over the past decade, with 3.7 million people added, a compound growth rate through this period of 1.65 per cent per annum. Looking at the location of this growth, Table 1.1 shows that growth rates tended to decrease with increased regional remoteness, with the major cities becoming increasingly dominant. Between 1996 and 2006, Major Cities accounted for 86.5% of population growth and this share was only slightly lower at 80.2% from 2006 to 2016 (preliminary estimate for 2016). The population growth rate over this latter period for Major Cities exceeded the national growth rate, confirming increasing concentration in these locations. The growth in population numbers in Inner Regional locations between 2006 and 2016 shows the draw of the hinterland of Major Cities.

Outer Regional and Remote/Very Remote Areas are losing population share, as reflected in their population growth rates compared to the national rate, but still growing in absolute population numbers (over the 2006-16 decade). However, hidden within the numbers shown in Table 1.1 for the 2006-16 period is a decline in population numbers in Remote + Very Remote Australia in the last few years of the decade, numbers falling by 10,000 between June 2013 and June 2016. The major part of this decline was in Very Remote Australia. Within regions, there has been a tendency for population growth in larger centres (RAI 2015a).

The Regional Australian Institute (RAI 2015a) reports that, in regional Australia,

> *There is a clear pattern of growth in coastal areas, areas around major regional cities and in mining regions: conversely, areas that have seen population decline tend to be inland* (RAI 2015a, p. 8).

The mining effect would have reduced in recent years but the other trends remain important.

Table 1.1: Regional population numbers and growth in Australia by remoteness index

Remoteness Area	Population change 1996-2006 (000)	2006 Population (000)	2016p Population (000)	Increase 2006-2016 (000)	Compound growth rate 2006-16 % p.a.
Major Cities	2069.2	14209.1	17159.0	2949.9	1.87
Inner Regional	330.2	3828.0	4357.6	529.6	1.3
Outer Regional	9.3	1927.1	2090.6	163.5	0.85
Remote + Very Remote	-17.9	486.8	521.7	34.9	0.83
AUSTRALIA	2390.8	20451.0	24128.9	3677.9	1.65

Sources: Derived from RAI (2015a), Table 2.3 and ABS 2017, Table 1.

1 The proportion of the population living in smaller rural towns and remote settlements, in particular, has declined continually over the past century but the proportion living in towns of 30,000-85,000, after a small increase, has remained stable (albeit small) over the last two decades.

More broadly, population ageing will be a major demographic challenge for Australian regions in coming years, with the numbers aged 65 years or older expected to double nationally (RAI 2015b). This will be a particular challenge for what RAI (2015b) calls Heartland Regions and Connected Lifestyle Regions, which have relatively high proportions of seniors, particularly those aged 65-74. RAI (2015a) notes that there is a strong pattern of migration of people in their 80s and 70s from regional to capital cities (RAI 2015a, p. 91). At the other end of the age scale, relatively high young dependency rates (young children under 15 years) also tend to characterise Australia's regions, the regional rate of 31.9% exceeding that of 26.1% in metropolitan Australia. Outmigration of young adults is a further notable regional demographic trend, being adverse for regional development potential (and also tending to increase the share of the regional population that is aged over 50). RAI (2015b) suggests a good response strategy to loss of young adults is to seek to attract the slightly older 30-40 year old age groups at the early stage of family formation.

Discussion of the population groups most likely to be at risk of social exclusion due to relatively poor mobility opportunities, in both urban and regional settings, typically highlights older people, youth, people with a disability, people with language difficulties (e.g. recent arrivals), those on low incomes and those with little or no car access, with women and single parents also sometimes included (Clifton and Lucas 2004; Currie and Delbosc 2011). The higher proportions of older people and the young in regional areas suggests, ceteris paribus, relatively greater transport disadvantage challenges in the regions than in metropolitan areas. It will be argued in this Paper that pre-school children and their carers should also be added to this list of potentially transport disadvantaged groups, particularly in regional areas, because of the demonstrated high lifetime costs for children experiencing disadvantage, which are associated with being unable to attend pre-school.

1.3 NIEIR work on access to services

The National Institute of Economic and Industry Research (NIEIR 2009) examined access to services in Australia. A summary of the mobility challenge of regional Australia is provided in Figure 1.1, derived from data assembled by NIEIR on representative distances a resident of metropolitan Australia, other urban Australia and rural/township Australia, would need to travel to access a core range of essential services. These are defined as:

- Education: From child care and pre-school through the various levels of schooling to TAFE and Universities
- Health: the range of services from general practitioners through local hospitals to major hospitals, medical specialists and allied health services such as dentistry and optometry
- Welfare and related services: including Centrelink (welfare payments), aged and other residential care, and police services.

Recreational services are not included in this list, an important and common omission in much transport work. NIEIR estimates that a typical rural resident in Australia would have to travel over 30 kilometres a day to access essential services which a typical metropolitan resident can reach by travelling an average of 1.4 kilometres a day. The tyranny of rural/regional distance is immediately apparent, with distances for residents of some regions obviously being much greater than the representative picture shown.

Cooktown, Qld

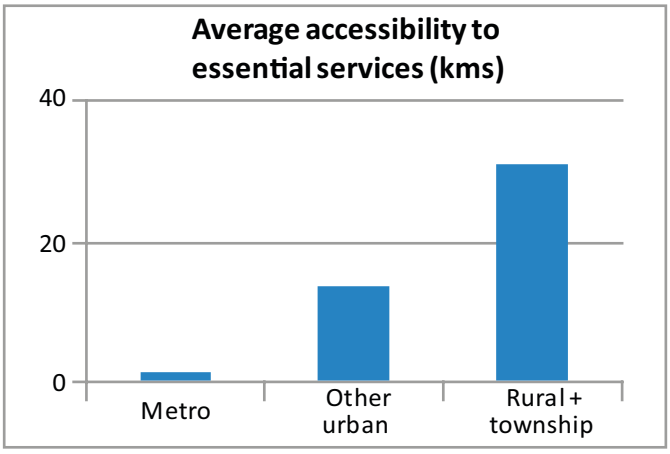
Stanley, Tas

Bathurst, NSW

Essential services can be divided into 'widespread services', such as a pharmacy, GP services, child care; and 'centralised services', such as specialised medical treatment and a university, which need a larger urban centre. People living in country towns are likely to have access to widespread services but are likely to have poor accessibility to centralised services. People living in townships under 1,000 people are likely to have poor access to both types of services.

When services, such as doctors, schools, hospitals, or pharmacies move away from small towns, becoming centralised, cost shifting takes place. The cost of transport is moved from the supplier of the service to the user of the service. This cost shifting is happening across many rural and regional communities. It is not so much a problem for those with a higher income who have mobility options, except for time loss; however, it can be a considerable problem for those on lower incomes without good mobility options. What it does is 'force' car ownership on those who are able to drive, at times creating financial stress (Currie and Delbosc 2013). This financial stress is not always obvious, thus leading to less transparency about unmet transport needs. Those who are struggling to meet car costs tend to save on operational expenses by travelling less. Those who are 'forced' to buy a car tend to use it even when an alternative means of transport becomes available; while they may be struggling to pay for a car, they don't wish to add additional transport costs through public transport.

Figure 1.1: Average Australian access distances for a core set of essential services



Source: NIEIR (2009)

1.4 Report structure

Against this background, Section 2 of this Paper presents some evidence on regional economic effects of improved transport, looking particularly at prospects for agglomeration economies. Section 3 then sets out some definitions of key concepts that are used in the remainder of this Paper and gives a brief overview on the literature on mobility and social exclusion, particularly emphasising a regional focus. Section 4 presents findings from three regional mobility case studies in which the authors have been closely involved and includes some new regional analysis on connections between mobility, social capital and risk of social exclusion. Section 5 draws attention to some wider societal costs associated with social exclusion, costs which are seldom recognised in policy deliberations on the importance of mobility choices. Section 6 sets out the Paper's conclusions.

Tenterfield, NSW

Gundagai, NSW

2 The annual cost of owning an average car that travels 15,000 kilometres in a year is $8,698 (AAA 2016).

2. Economic benefits of mobility for regional growth

2.1 Literature review

Transport improvement initiatives are usually assessed, from the benefit side, in terms of expected benefits to current and future users (Stopher and Stanley 2014; Laird and Venables 2017). Thus, for example, regional road improvements may lower road freight costs and directly improve the productivity of the freight transport task. Faster inter-regional public transport services will benefit users, including both private and business travellers. It is acknowledged, however, that in circumstances of market failure, there may be additional benefits generated by transport improvements, beyond the traditional user benefits. The body of work on wider economic benefits has evolved in recent years to address this issue. Laird and Venables (2017) discuss this topic in terms of how transport might affect proximity and productivity due to agglomeration, induced investment and land use change and employment. They summarise the potential benefits as follows:

> *... transport can raise productivity by fostering intense economic interaction; this can occur in clusters within narrowly defined areas or more widely by linking areas; transport shapes the level and location of private investment, unlocking development and triggering large scale redevelopment of urban and other areas; and transport impacts the labour market, potentially enabling more workers to access jobs. These impacts can yield real income gains, particularly where transport induced investments interact with market failures associated with increasing returns to scale, obstacles to efficient land use, and labour market imperfections* (Laird and Venables 2012, pp. 9-10).

In similar vein, DfT (2012) categorises potential wider economic benefits as agglomeration benefits, output change in imperfectly competitive markets, labour supply impacts and move to more productive jobs. In an Australian regional setting, we focus here mainly on potential agglomeration economies, which typically add substantially to the benefits from major urban transport projects, and to a lesser extent on land use changes and employment impacts that might be associated with regional transport improvements, particularly public transport improvements. Potential benefit opportunities in any of these areas would strengthen the case for investing in improved regional transport services, beyond the traditional (and significant) user benefit argument.

Agglomeration economies

BIC Policy Paper 9 (Stanley et al. 2017) pointed out that an extensive body of research has emerged over the past three or so decades on cities and productivity growth, achieved via agglomeration economies, arising from economic density, and building on ideas that extend back to Marshall (1890) and even Adam Smith (1776). The origins of such productivity gains have been understood for some time, summarized by Puga (2010) as sharing, matching and learning. Sources of agglomeration economies include improved access to inter-industry information flows (information spillovers), thick labour markets, better access to specialized services (for example, legal services, design and testing, financial services) and to locally transmitted ideas, together with improved access to public infrastructure. Economies of scale may also accrue to individual firms. Agglomeration economies are a case of market failure because the benefits from agglomeration arise through system interactions, being unable to be fully captured by the individual firms that might drive change.

In urban settings, productivity increases (agglomeration externalities) of 3-8 per cent from doubling city size[3] (Rosenthal and Strange 2004) and 4.5-6 percent from doubling employment density in a city (Ciccone and Hall 1996; Ciccone 2002) are widely cited. Ciccone and Hall (1996) suggest that density is more important than size for determining urban productivity advantages, which is important for thinking about the possible role of urban clusters. The meta-analysis by Melo et al. (2009), drawing on 729 elasticity estimates from 34 studies, suggests a mean elasticity value of 3 per cent across all its reviewed studies, with considerable variation between studies. More recent research has tended to strengthen support for the lower end of the elasticity range, as issues such as firm selection and sorting have been recognized (see, for example, Behrens et al. 2014). Relative output increases in service industries, particularly knowledge-intensive industries, many of which tend to concentrate in CBDs and other urban hubs, are typically at the high end of the elasticity range. Melo et al. (2009) for example, report an elasticity of urban agglomeration for service industries of about 8 per cent.

In terms of the subject matter of the this Paper, a key question in relation to productivity is how far the concept of urban agglomeration economies might extend to regional/rural areas, related (for example) to labour catchments that depend partly on mobility opportunities. A relevant research base in this regard concerns productivity growth in a polycentric (or multi-centred) regional development setting. This is a relatively small research base, with some of the research focused on the potential productivity benefits of networked centres within a polycentric regional setting, as distinct from agglomeration economies that arise in a single city. Meijers and Burger (2010) examined this question in a US setting and found that, other things being equal, polycentricity seems to be beneficial for productivity, particularly in smaller metropolitan areas, *but a collection of cities does not provide a substitute for the urbanization externalities [agglomeration economies] of a single large city, even though the size of the population in both may be similar* (Meijers and Burger 2010, p. 16).

An important question is whether individual cities within a polycentric region might 'borrow' from each other's sizes to capture some scale benefits, sometimes described as network economies or network externalities (Boix and Trullén 2007). Agglomeration economies are generally thought to decay with distance whereas network externalities are thought to be dependent on the strength of functional relationships and less distance dependent.

3 This elasticity range implies that the elasticity of productivity with respect to city size is in the range of 0.05 to 0.11.

At interest is whether network externalities might be a source of regional agglomeration economies. Meijers, Burger and Hoogerbrugge (2016) examined this question of borrowed size in a European setting, noting that over half of the EU 15 urban population live in small and medium-sized towns and cities of 5,000-100,000 population. Using metropolitan level functions as a proxy for agglomeration economies, the first three of their findings were that:

1. *both size and connectivity in (inter)national networks positively contribute to the presence of metropolitan functions*
2. *while cities borrow size through being well embedded in (inter)national networks, being well embedded in regional networks generally does not translate into a higher level of metropolitan functions*
3. *the effect of local size on the presence of metropolitan functions is generally substantially larger (roughly 2.5 times) than the effect of network connectivity* (Meijers et al. 2016, p. 195).

Meijers et al. (2016) also pointed out that competition between cities for some metropolitan functions may mean agglomeration losses in some places, not compensated by benefits from borrowed size. Importantly for an Australian context, they found that *small cities gain metropolitan functions from an increase in size, whereas larger cities profit more from an increase in regional and (inter)national network connectivity* (Meijers et al. 2016, p. 195).

Veneri and Burglassi (2011) examine how spatial structure affects labour productivity in Italian provinces. They found that larger regions perform better than smaller ones in productivity terms and regional agglomeration economies do not replace single-centre agglomeration effects: doubling the centralization of activities increased labour productivity by 2.7 per cent. They found no support for the idea that borrowed size was a source of agglomeration economies in Italian regions.

These studies are not encouraging in terms of the possibility of regional agglomeration economies being realizable in small (in population terms) Australian regions. However, the evidence base to support the existence of network/ agglomeration economies, which might help to inform Australian regional development policy, is sparse. As Burger and Meijers (2016) state, in reviewing this literature:

> *This discussion not only suggests that the embeddedness of cities in regional, national and international networks is important for their performance but also that small- and medium-sized cities could potentially internalize the benefits of larger cities by being well-positioned in urban networks. Unfortunately, relatively little is known about the relative importance of urban network economies vis-à-vis agglomeration externalities or which types of cities would benefit from urban network externalities* (Burger and Meijers 2016 p. 6).

More broadly, the findings of Thissen et al. (2016) are important. They found that 80% of regional growth in European regions is explained by demand-led growth in export markets. If Australian regions are to play a larger role in coming years, as we believe they should, a focus on export expansion must remain central (as it has long been). Intra-regional and inter-regional connectivity are both important contributory mechanisms here, as well as being supportive of social inclusion.

Land use changes

The potential for major transport projects, both public transport and road, to substantially change land uses in the project vicinity is well recognized (e.g. Canary Wharf in London) and is integral to much of the current discussion of value capture opportunities associated with major transport improvements. Laird and Venables (2017) distinguish here between land use changes that increase the variety of retail and service choices available to consumers, which might be thought of as agglomeration economies in consumption, and changes that increase the presence of office type activities, which may be an example of agglomeration economies in production. We focus here on agglomeration economies in consumption, discussion in the preceding section having dealt with agglomeration economies in production.

Stopher and Stanley (2014) note that:

> *Agglomeration effects in consumption, an important element of liveability, are a relatively new area of quantitative research. However, recent German analysis (for example) indicates clear evidence of agglomeration externalities in consumption, with bigger cities (in population terms) showing benefits for residents from a larger range of service choices, across areas like restaurants and bars, concerts, dancing, theatres and museums* (Stopher and Stanley 2014, p. 208).

The tendency for people to move from rural areas and smaller towns to larger Australian regional towns is a reflection, inter alia, of such influences.

In terms of generating potential external benefits in regional Australia, this issue is most likely to be clear cut in a policy context of deliberately seeking to promote stronger growth of regional centres, with initiating projects like high speed rail (HSR) and complementary networked trunk bus services as key ingredients. Hensher et al. (2012) have looked at HSR in Australia and query whether the substantial 'social agglomeration' benefits they identify are additional to the traditional user benefits attributable to generated traffic or are just another way of measuring those benefits. They do not answer this question. High end regional development initiatives like HSR, of course, involve much more than just transport improvements and need to be assessed accordingly, in the HSR case as a major alternative population settlement strategy (to continued heavy concentration of growth in the main capital cities). The potential for agglomeration economies in both production and consumption arising from a major regional re-development initiative, driven by high end public transport upgrades, should be acknowledged.

In terms of the more usual small road and public transport improvements that might be found in regional Australia, such as highway upgrades and trunk public transport service enhancements, what are the prospects for consumption benefits over and above traditional transport user benefits? If there are substantial transport bottlenecks acting as a barrier to regional development, then there may be an opportunity for land use change benefits. This would need to be identified on a case by case basis and the transport impact teased out from other structural factors influencing regional change. Part of the assessment involved needs to focus on whether land use changes are creating additional economic value or simply shifting development from one location to another.

More broadly on the topic of land use changes, the downside of large cities producing agglomeration economies is that they also generate diseconomies of size, such as congestion, crime and air pollution, an example of market failure. In terms of regional policy development, increasing population numbers in Australian regions of (say) 50,000 people, or more, would be one way to mitigate the growth in such diseconomies of large city size, with accelerated growth in the more medium sized non-metropolitan cities (e.g. 200,000 population) also providing some opportunities for agglomeration economies in production and consumption. For smaller cities, there may be opportunities for agglomeration economies in consumption. In line with this approach, and recognising the lack of empirical evidence supporting agglomeration /network externalities in small cities/regions, Burger and Meijers (2016) support stimulating integration between nearby places, as part of a no-regrets strategy to strengthen regional urban systems, which should be particularly beneficial for medium-sized cities but also supportive of smaller places and of reduced social exclusion risks across small to medium sized cities/regions.

Labour market impacts

In terms of the more usual day to day operation of public transport in most regional areas, and upgrading service standards thereof, perhaps the most interesting wider economic benefit opportunity might arise in the labour market space. Laird and Venables (2017) discuss this in terms of supply side and demand side perspectives. If a public transport service improvement, for example, encourages a person to enter the labour market, who would otherwise have been unemployed, or an underemployed person to extend their working hours, then there is a potential wider economic benefit from increased regional (and national) output and associated gain in government tax receipts. Laird and Venables (2017 p. 6) note that *These effects are important in developing economies, as well as in regions of developed economies that have significant structural un- (or under-) employment.*

To illustrate this point, market failures may entrench unemployment or underemployment in some regional locations, with current Australian housing markets relevant to the discussion. Case studies presented in Section 4 below report people moving to regional areas in search of cheaper housing. A lack of transport choice is one reason for cheaper regional housing, a circumstance that may discourage job seeking. Improved public transport opportunities, in this situation, may encourage improved employment and lead to increased value of regional output, beyond traditional user benefit calculations. As with land use changes, this needs case by case consideration but the case studies reported in Section 4 suggests there is likely to be a benefit opportunity here, in the current Australian economic setting.

The case study research reported in Section 4 identifies high monetary values from additional trip making by regional people at risk of social exclusion and high value from building bridging social capital, which is likely (inter alia) to promote employability. We suspect that the high monetary values discussed in Section 4 are partly picking up this potential regional employment support function flowing from good mobility. This is a very new and under-researched area but the Section 4 case studies support the idea that there may be regional wider economic labour market (employment) benefits from improved mobility opportunities.

Implications

The concept of polycentric regional development is particularly strong in Europe, where the European Spatial Development Perspective lists Strengthening a polycentric and more balanced system of metropolitan regions among its primary goals, recognizing the importance of international/ national and regional/local transport networks in achievement (EC 1999). The practical relevance of this approach is reflected in regions like Skåne County Sweden (population 1.3m), where a polycentric regional development strategy is firmly in place. This links across the Øresund Bridge to neighbouring Copenhagen in Denmark, with the wider Øresund Region having a total population of about 4 million. Quality intra- and inter-regional connectivity, including public transport systems, provide a foundation for regional integration and the expectation of productivity growth, through (for example) expanded labour catchments. The UK is taking a similar approach to developing the north of England, with High Speed Rail playing an important role within a polycentric framework. Successful implementation of such a polycentric strategy seems likely to support wider economic benefits of all the types discussed herein in these regional settings.

Seeking to extend this regional thinking to Australian regional settings is complicated by the population size gap between our biggest cities and the next tier, and by the distances between most major Australian cities. Given population size and geography, Australia generally does not have the density and diversity of mid-sized cities, located close to large cities, which are common in US and Europe. South Australia, for example has Adelaide at 1.3m, with Mt Gambier the second largest town at only 25,000, some distance away. In terms of seeking productivity benefits through agglomeration economies, linking Mt Gambier and surrounding towns to each other (with about 50,000 people in the total regional catchment) and then linking the region to Adelaide and Melbourne would have much lower expectations of what is possible from networking/agglomeration than from linking (say) Malmö (320,000) and Lund (120,000) to the wider Øresund Region, including Copenhagen, in a commutable polycentric region of 4 million people.

Notwithstanding these concerns about scale and population dispersion, the idea that a networked region is likely to have higher productivity than the same region without networking seems plausible, provided there is a reasonable base size. Just what that reasonable base size might be, however, lacks a solid empirical foundation, since there has been little analysis of the geographical scale of agglomeration externalities and urban network externalities. Most studies on agglomeration economies and network economies focus on large and medium sized cities, rather than small cities, and studies of network economies often have a global network focus.

The Regional Australia Institute (2016) observes that, beyond the 5 major capital cities, there are 31 regional cities in Australia, each with over 50,000 people. Adding labour catchment populations might increase this number, such as by bringing in Mount Gambier (which is not one of the 31 cities listed by RAI). RAI (2016) reports that output levels of the 31 small Australian cities grew faster than for the five major metropolitan areas between 2002 and 2010, even if absolute productivity levels are less than in the major capitals (reported as being at 88% of metropolitan city productivity by RAI 2016). This is a positive regional growth story.

However, there is no solid evidence to suggest a city/region of 50,000 will be of sufficient size to generate agglomeration economies in production.[4] For larger Australian cities/regions, such as Newcastle, Geelong and the Gold Coast, the concept of agglomeration/network economies in production is much more likely to be relevant, given size and proximity/connectivity to a major capital city. Industry mix and scale, however, suggests that such agglomeration economies will tend to be smaller than for the main metropolitan capitals, since the relative employment intensity in high-tech knowledge-based sectors, which typically have the highest agglomeration elasticities, is usually lower in these smaller to medium sized cities than in the large mainland capitals and the evidence from Meijers and Burger (2010) is that networking will not make up the difference.

More optimistically, the fact that many small to medium sized Australian regional towns are growing in size supports the idea that there are agglomeration benefits in consumption available in such locations, which probably extends down to towns of perhaps 15-20,000 population, large enough to support a range of services and activities. Transport improvements to support such centres can potentially enhance these consumption agglomeration benefits but at a possible risk of further de-population of smaller centres. However, improving trunk public transport services between smaller towns and regional centres may enable people to remain in the smaller location, while accessing services in the regional centre. This is a win-win situation, which may promote agglomeration economies in consumption in the regional centre, while improving life opportunities for those in smaller centres.

2.2 Conclusions

This short review on regional economic development suggests that medium to large sized cities/regions might realistically pursue agglomeration benefits in production and consumption and smaller towns/regions might be a source of agglomeration economies in consumption. In more disadvantaged regions, opportunities for net employment gains are a further potential wider economic benefit opportunity, as discussed further in our Section 4 case studies. Improving intra-regional mobility choices can support these wider economic benefit opportunities, while providing the more traditional benefits to users. Improvements in regional social participation, as discussed in Section 4, are likely to support stronger regional economic participation. The connections between mobility, social inclusion and wellbeing are important here, having both social and economic benefits for regions.

More generally, as a market failure argument to support stronger Australian regional development, regions need to highlight the benefits they provide as an alternative to the external costs of large metropolitan city size (e.g. congestion, crime, air pollution, etc). These external costs are large and growing. They should be accounted in regional policy decision-making.

4 The 50,000 threshold size in RAI (2016) seems to be based on the minimum city size designated by Uchida and Nelson (2010) in the development of an agglomeration index. That index was developed more as a way to measure city size across countries than as a way to imply threshold population numbers for agglomeration economies to be relevant.

3 Regional mobility and social inclusion

3.1 Some concepts and definitions

This Paper examines how mobility/accessibility impacts a person's risk of social exclusion in a regional Australian setting. The broad literature base on which this builds is characterised by a host of concepts that may readily confuse or even mislead a reader. These concepts include: mobility, accessibility, social capital, community, transport disadvantage, social exclusion and wellbeing. Refer to Table 3.1 for definitions of these concepts.

3.2 Literature on regional transport and social inclusion

Most of the literature on connections between mobility and social exclusion is primarily urban-based. The following summary explores research that has been reported on rural mobility and where it draws from major urban research.

The concept of social exclusion arose during the 1970s in France, to describe people who were excluded from the social insurance scheme, evolving to encompass a broader understanding during the 1990s (Lenoir 1974, Levitas 2000). In policy terms, the focus on connections between transport and social exclusion, and responses thereto, probably began in earnest with the work of the UK Social Exclusion Unit (SEU 2003). Links were drawn between the exclusion of people who do not have access to a car, and their needs for education, employment, access to health and other services and to food shops, as well as to sporting, leisure and cultural activities. Findings from the SEU's transport study were organized into five groups of barriers which need to be addressed in order to improve transport-based accessibility to key services considered by the SEU authors to be central to social inclusion. These are:

1. The availability and physical accessibility of transport
2. The cost of transport
3. Services are located in inaccessible places
4. Safety and security – fear of crime
5. Travel horizons – people on low incomes were found to be less willing to travel to access work than those on higher incomes.

The SEU argued that to remove these barriers, and reduce social exclusion through transport improvements, there is a need to understand how people access key activities and link this with planning to improve such accessibility (accessibility planning), as well as undertaking key strategic policy initiatives, such as:

- reviewing regulations governing the provision of bus services. This point is especially relevant in the UK context, where de-regulation of bus service provision outside London took place in 1985-86, with major adverse impacts on mobility opportunities for many people. Bus patronage outside London was 37% lower in 2015-16 than it had been in 1985-86, whereas it increased by 105% in London, where there was no deregulation (DfT 2015)
- integration of transport planning into planning for services provision (e.g. education), to enhance accessibility
- a range of initiatives to make transport more accessible, such as reducing cost and addressing the fear of crime associated with public transport
- the formation of partnerships between transport providers, local authorities and local service providers, such as education and health, to work on transport solutions.

More recently, and in similar vein, the UK Passenger Transport Executive Group, which represents the regional passenger transport entities outside London, summarized public transport service qualities that are required to respond to social exclusion as availability, accessibility, affordability and acceptability (PTEG 2010).

Hine and colleagues undertook research on transport and social exclusion in regional areas in the UK from the 2000s, finding considerable accessibility difficulties for the groups of people at risk of social exclusion, compounded by an absence of, or poor quality, public transport (for example, Mackey and Hine 2004; Kamruzzaman and Hine 2012). The results indicate that individuals from rural areas with a higher level of accessibility are more integrated within their local community and, as a result, are potentially less at risk of being excluded from society due to immobility. Differences, however, were also found between different groups within an area (e.g. non-car owning individuals who were more reliant on walking, and low-income individuals who made trips of a shorter distance). Reliance of older people on lifts from family/friends was found in a Canadian study of rural transport, but 34% of study participants had to forgo a desired trip due to lack of transport (Hanson and Hildebrand 2011).

To a large degree, the work on transport and social exclusion at that time was a conversation about accessibility in a narrow sense, about the need for people to obtain goods and services and get to work, school, recreation, etc. There was no systematic attempt to go further and examine how reducing transport disadvantage, and social exclusion related thereto, can impact on the wellbeing of those who benefit from transport improvements, nor to the subsequent benefits to society. The European Mobilate project changed this by examining connections between transport, the built environment and a number of personal characteristics and beliefs on the quality of life (wellbeing) of older people (Mollenkopf et al. 2005). The research found rural older people in the five European countries examined were particularly disadvantaged in relation to mobility, a situation requiring 'immediate intervention' (p.293).

Table 3.1 Shorthand Definitions [common terms used in understanding how mobility/ accessibility impacts a person's risk of social exclusion]

MOBILITY
The capacity to move around by any means, including walking, cycling, private vehicles, public transport and other mobility devices. Mobility is a pre-requisite for being able to undertake activities anywhere other than where a person is currently located.
ACCESSIBILITY
The ability to get to activities or opportunities, such as work, education, playing sport, visiting friends, etc.
SOCIAL CAPITAL
'Social capital consists of networks of social relations which are characterised by norms of trust and reciprocity' (Stone 2001 p.4). Stone et al. (2003) identify three types of social capital: > Bonding social capital describes closed networks, such as the family and perhaps work. Bonding generates closer, denser ties. > Bridging social capital spreads resources between networks, allowing people to access multiple networks and therefore resources and opportunities. > Linking SC is created through networks with those in authority or who have power and who are useful for obtaining resources. They are commonly institutional connections. Commonly, bridging and linking social capital are considered together.
COMMUNITY STRENGTHENING
Community Strengthening occurs where a sense of neighbourhood develops between individuals, families and organisations. It happens when people become actively engaged in the community. They feel socially connected, may become volunteers or leaders, and a sense of community pride is established (Vinson 2004).
TRANSPORT DISADVANTAGE
This is perhaps the most confused concept of this group, with different researchers having different conceptions of transport disadvantage (TD). As Currie and Delbosc (2011) point out, some analysts talk of TD in terms of (for example) characteristics of the transport system and urban form which make it difficult for people to undertake transport for the purpose of engaging in activities, while others focus instead on the characteristics of the groups of people who are considered most likely to have difficulties with transport (groups such as older people, youth, etc, as listed above). In their own research, Currie and Delbosc (2011) add another way of looking at transport disadvantage, based on self-reported sub-scales of perceived difficulty people have in undertaking transport. Our definition is simple: transport disadvantage occurs where people experience a shortage of transport options which restricts their mobility and hence their access to goods, services and relationships.
SOCIAL EXCLUSION
Refers to individuals or groups of individuals at risk of not being able to participate in mainstream society as a result of policy failures.
WELLBEING
This term commonly refers to notions of happiness, life satisfaction, fulfillment and human flourishing (Sen 2000, Vella-Brodrick and Stanley 2013).

Much of the early Australian research on mobility and social exclusion is set out or summarized in Currie, Stanley and Stanley (2007). Many of the chapters in that book discuss how transport can affect the life chances of particular groups, such as youth, older people, indigenous people, people with a disability, people living in disadvantaged areas and young single mothers with children. Currie (2007), for example, draws attention to the reliance on car travel in rural and regional areas and the associated dependence of young people on others for many transport needs, in conflict with their increasing desire for independence as they grow to adulthood. He emphasizes the important role that public transport can play in meeting travel needs and needs for independence of young people. He also notes the reduced trip making of young rural people, compared to those in larger regional towns, also found by Stanley and Stanley (2004, 2007). Stanley and Stanley (2004) suggested that, in Warrnambool region, young people coming from families with low incomes and living on farms were perhaps the single most transport disadvantaged population cohort in that region. Currie (2007) notes particular concerns about access to education and employment opportunities for young people, with Stanley and Stanley (2007) agreeing and adding the importance of access to entertainment and recreational opportunities. These matters are considered further in Section 4.

Hensher (2007) looks at the important role of the car in meeting travel needs of older Australians, particularly in areas with low public transport availability, such as rural and regional areas. Browning and Sims (2007) also recognize the importance of the car in providing mobility and accessibility for older Australians and point to the growing significance of the over 85 cohort, whose numbers are increasing, with a requirement for suitable travel opportunities. Betts (2007) sees the growing importance of providing travel opportunities for older Australians in rural/regional settings, a need that is being accentuated by declining populations and services in many communities, with an associated requirement for longer trips. He argues that this means inter-regional public transport service levels need to improve.

The language of social exclusion has not been part of US transport conversations, but as Rosenbloom (2007) points out, US legislation about Civil Rights (1964), Environmental Justice and Americans with Disabilities (1990) all bear social inclusion footprints, with transport elements. She argues that:

> *… social exclusion in transportation, as in many governmental services, can arise because some groups do not benefit from a range of publicly provided programs, pay an unfair price for the services they do receive, are unintentionally harmed by otherwise appropriate public or private actions, and/or are excluded from the planning processes in which important transportation decisions are made. In addition, social exclusion can arise in the planning, financing, delivery, and operation of transportation services…* (Rosenbloom 2007, pp 3.6-3.7)

Social exclusion has also not traditionally been part of the conversation in the developing world, except that there is a recent interest by international aid related organisations, the World Bank and the United Nations Sustainable Development Goals in the concept of social exclusion (see for example SDSN (Sustainable Development Solutions Network) 2016). However, transport is not mentioned in this context.

Much of the small amount of research on rural transport and social exclusion has concentrated on older people. For example, an overview of rural transport in the UK found that 37% of older people living in rural areas in the Republic of Ireland have a need for transport that is not being met by public or private means, while in Northern Ireland, 71% of people regard lack of access to public transport as a key disadvantage for older people living in a rural community (Centre for Aging Research and Development in Ireland 2010). Mobility for older people in Japan living in more rural areas and new towns (newly established townships) was recently explored (Chikaraishi et al. 2018). As with the studies in Ireland, it was found that an absence of access to a car reduced the range of accessible options and number of trips taken. People were more dependent on lift-seeking, with those without such contacts experiencing greater isolation.

3.3 Implications

The links between social exclusion and transport in rural/regional settings has been neglected, the small amount of research undertaken having mainly focused on older people, although a little Australian research has drawn attention to mobility challenges facing young people. Overlooking younger age groups experiencing social exclusion is an issue that has strong social justice implications, as well as a more profound regional economic impact and, longer term, on the wider society. Examining ways in which young people can be provided with improved regional mobility choices is one important way in which regional economic and social participation can be supported.

4. Australian mobility/ social inclusion evidence base from the Bus Industry Confederation and partner organisations

4.1 Warrnambool

Inspired by the work of the UK Social Exclusion Unit, in 2004 Bus Association Victoria undertook an exploratory study of mobility (transport disadvantage) and social inclusion in a regional Victorian community, Warrnambool, working with Warrnambool Bus Lines, to get an initial feel for the nature and scale of the challenges posed by this issue in a regional setting. The current authors undertook the major part of that research.

Warrnambool is located on the Victorian coast about 260 kilometres south-west of Melbourne. It is home to about 35,000 people, who live in one of the fastest growing regional areas of Victoria. The area has a higher population concentration in the older and younger age groups than the rest of the State.

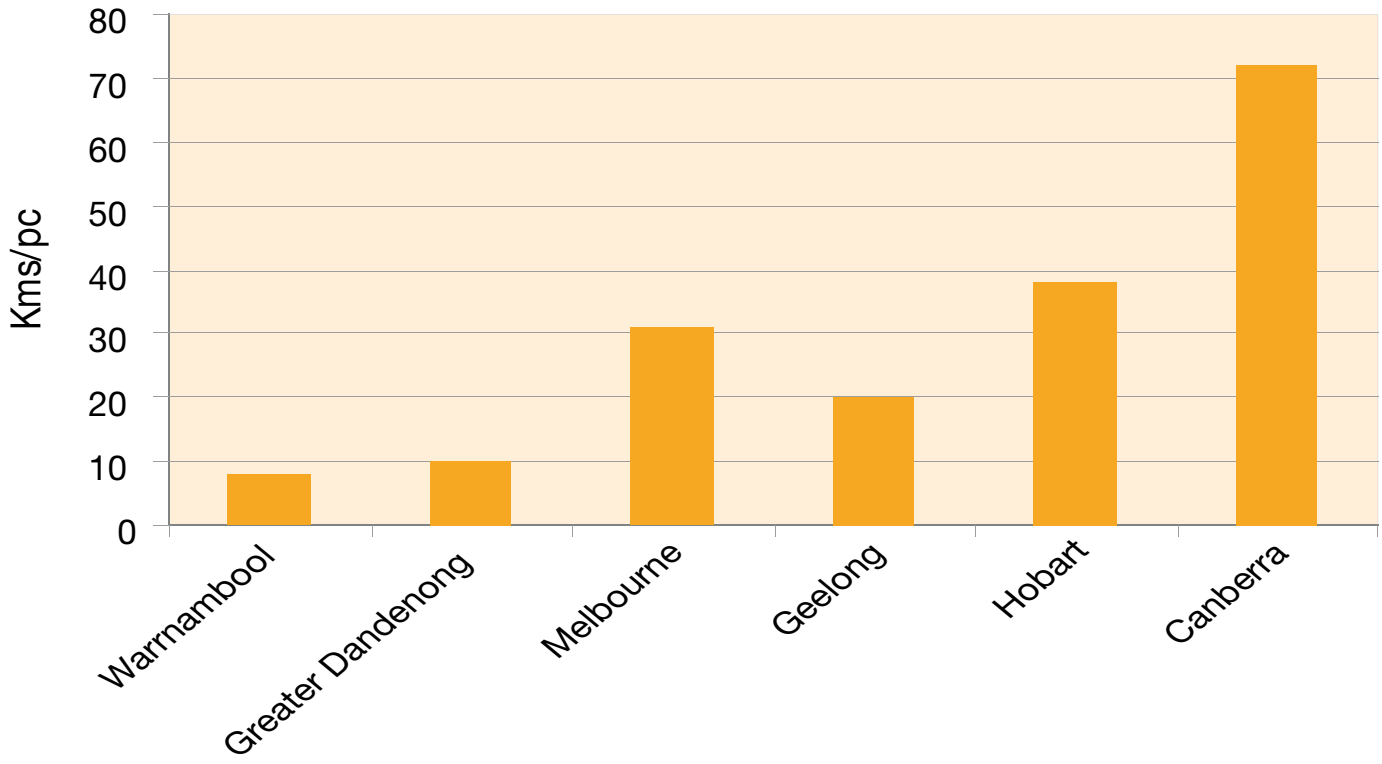
Both these age groups tend to be relatively more dependent on public transport for access than is the case for the age groups in between. In 2004, these younger and older age groups accounted for four out of every five tickets sold on the town's route bus service. Numbers in both age categories are growing, with an associated increase in the requirement for public transport services.

In 2004, Warrnambool had three major local/regional public transport systems:

1. Route bus services: with about 7.8 service kilometres per capita provided at that time, about three quarters the level then available in outer Melbourne (Figure 4.1). Services did not cater for normal journey to work times because of the heavy service focus on peak school travel
2. School bus services: half a million service kilometres per year were provided, with about 500,000 student boardings annually. These services were complemented by shuttle services and urban school services that carried an additional half million journeys per year. In total, carriage of school children accounted for five out of every six route plus school service journeys in 2004, showing the importance of the school bus task
3. Regional bus services (V/Line): 50,000 passengers per year and 450,000 service kms.

There is also a rail service to Melbourne.

Figure 4.1: Public transport service provision in 2004



Source: Stanley and Stanley (2004).

In addition to public passenger transport services, a number of community transport services were identified, usually centred around community health, aged or disability services, some using Council-provided vehicles. These services were meeting vital mobility needs for some groups who are in contact with welfare agencies but some of the transport services had poor operating efficiencies. Service availability was found to be restrictive and vehicle use tended to be low. Taxis play a minor but important complementary transport role for those who can afford them or have eligibility for a disability concession.

Transport Disadvantaged Groups and Their Travel Needs

The Warrnambool study focused mainly on travel needs of groups who were identified by sources such as SEU (2003) as potentially being transport disadvantaged but also gathered some comparative information on those without such expected disadvantage. A shopping survey, where car use dominated travel mode choice, together with a small household survey, clearly showed the strong attachment to the car in the region and the high level of mobility it provides for those with a car.

Route bus users tended to see they had no travel alternative, two-thirds having no car available and some others not possessing a drivers' licence. Bus users often travel alone and the travel experience itself can be an important part of social inclusion. The two-hour bus ticket tends to encourage quick trips, which discourages social inclusion (for example, reducing time windows for meeting with friends) and can cause financial difficulties for those on low incomes.

Young people can be both independent and dependent in terms of travel needs. Independence comes from being able to walk or cycle for many trips, with weekends being notable. Dependence comes from reliance on parents/others for car travel, especially during the week and particularly for those living outside urban Warrnambool. Some young people were doubly disadvantaged, by living in non-urban locations and coming from low income households that are unable to pay for alternative transport (e.g. a second household car or taxi fare). Particular problems were found in relation to youth access to alternative educational programs, work and entertainment, with rural youth seen as facing the greatest relative transport disadvantage.

Deakin University has a campus on the edge of town. Deakin University residential students without a car tended to face transport difficulties, particularly outside (and between) route bus service times. Reliance on others for travel was common and was seen by some as a source of concern. Female international students faced particular problems, being least likely to ask others for lifts. The University saw improved public transport service levels as an important input to increasing its international student numbers.

Seniors are a significant and growing part of the regional population. Car use is high and those with car availability tend to have good accessibility, but at times within a limited range. However, the strong car culture among many seniors is associated with neglect of planning for personal mobility requirements in later years, when car use is less of an option or simply not possible. Road safety issues may arise from this lack of planning. Many older people, no longer driving and living in a form of institutionalized setting, suffered from significant social exclusion.

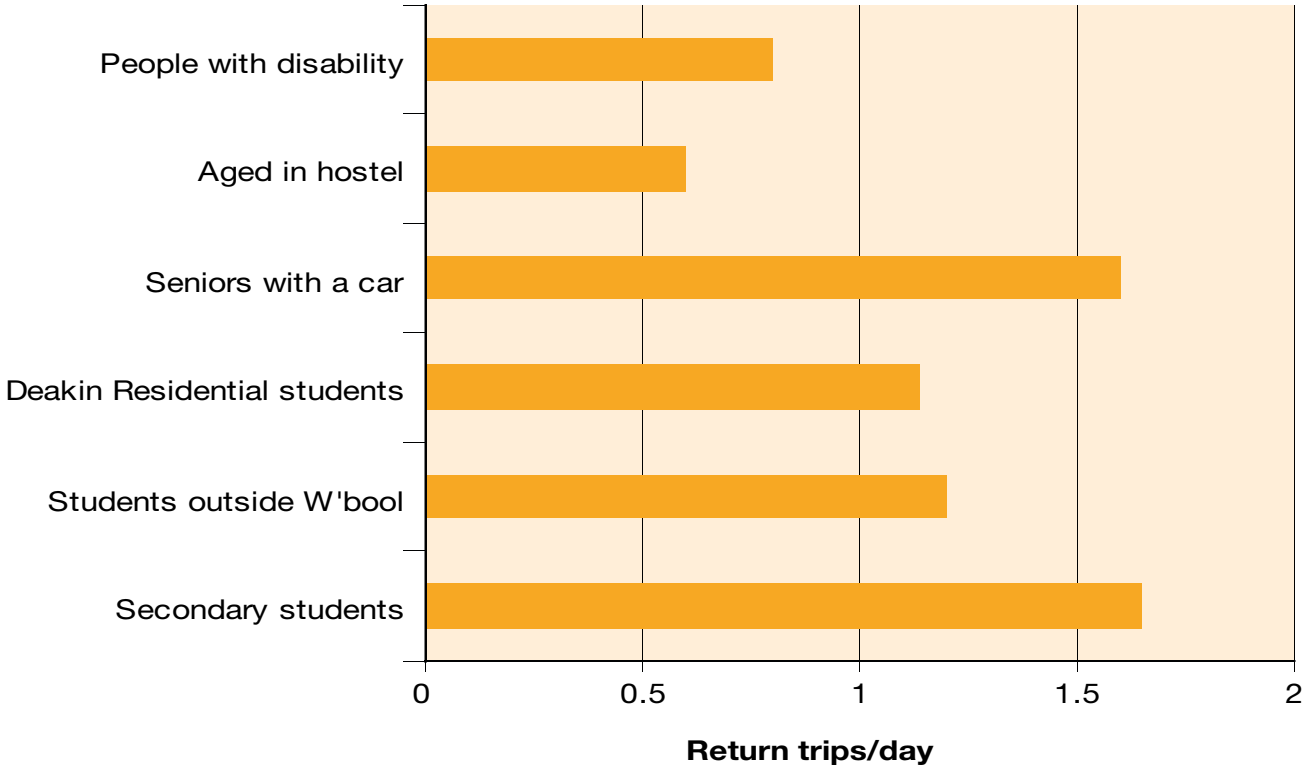
Many people with a disability have never been part of the car culture and have organized their mobility requirements around using alternatives. These alternatives include public transport (CT), walking, friends'/families' vehicles and subsidized taxis. Those with a disability living outside urban Warrnambool faced particular mobility problems.

Those on low incomes tended to be relatively more reliant on public transport, being less able to afford other transport options. Those living in areas with concentrations of socio-economic disadvantage, and particularly young single mothers, were a group at relatively high risk of social exclusion.

The regional Indigenous community had its own buses that were well utilized. The need for such vehicles was indicative of transport disadvantage faced by many in this community, who also felt uncomfortable using route buses, often due to racist remarks. Many in the Indigenous community experienced multiple sources of transport disadvantage, especially those living just outside the urban area of Warrnambool.

Figure 4.2 shows the number of daily return trips undertaken by some groups of respondents to a small survey that was administered during this study. It shows that a couple of groups have particularly low trip rates, being suggestive of a relatively greater risk of mobility-related social exclusion. For example, older people living in care at a retirement home were only getting out, on average, about every second day.

Figure 4.2: Warrnambool survey trip rates for some groups in 2004



Source: The authors.

Accessibility Planning

The Warrnambool study found many unmet travel needs and, at the same time, the existence of many underutilized resources that could have been used more effectively to meet some of these unmet needs. Personal transport is essentially about meeting accessibility needs and fostering social inclusion. However, institutional arrangements for service delivery tend to occur along different (siloed) lines, based around services and modes. This mismatch largely explains the anomaly of unmet travel needs existing alongside no or few public transport services and underused transport vehicles. No entity, government or otherwise, is responsible for accessibility per se. In regional areas, public transport services, school bus services and CT services operate mainly in isolation, rather than being seen as part of a single service delivery system. Following the work of the SEU (2003), the British approach to this problem was to implement an "accessibility planning" approach, based (in their case) essentially on giving local government ownership of accessibility problems. By this approach, clear responsibility was assigned for dealing with some of the issues raised by transport disadvantage/social exclusion.

The major recommendation from the Warrnambool study was to establish a multi-stakeholder Regional Accessibility Committee, whose role would be to undertake needs assessment, propose improvement priorities and contribute to more co-ordinated regional resource use in meeting mobility/access needs. That Committee has been established, together with ConnectU, its service delivery arm. ConnectU has the aim of addressing unmet transport needs in a coordinated and cost effective way, thereby improving the inclusion and wellbeing of local residents.

ConnectU provides members of the community with access to a central hub for transport services, assistance and information. Users of the service include individuals who are unable to access public transport and those who are having difficulty finding a means of travelling to and from their destinations. ConnectU organises volunteer drivers to provide door-to-door transport for clients to attend medical appointments, shopping, social outings, or to meet other needs. A fare of $8 is charged for return local Warrnambool trips and $15 for Port Fairy based trips. The service provided often extends beyond vehicle transportation. For example, it may assist passengers from the car and into a medical clinic for their appointment or familiarise passengers with public transport by accompanying them on their public transport trip.

A review of ConnectU was undertaken in 2014 (Wines et al. 2014). Excluding intangible benefits, the benefits to volunteers and the wider community, a benefit/cost ratio of 2.81 was estimated, with the opportunity to increase if scale economies can be realized. Passengers almost unanimously reported how they valued the service. Small but important improvement in the wellbeing of passengers and their attachment to community was measured, despite the fact that one third of the surveyed passengers had only used the service once.

ConnectU works on the model that mobility should be available for all people without an external body deciding on the purpose for travel (a feature which constrains much CT). A study on the purpose of travel on a new bus service in the outer suburbs of Melbourne found that people travelled to participate in activities they enjoyed, and valued self-reliance, independence and choice (Bell et al. 2006). Social capital building is the key here but is commonly ignored in accessibility planning.

Research assessing the need for a transport hub in Warrnambool (Stanley and Stanley 2012) found that there were many under-utilised vehicles, which could be used to transport people. However, the shared use of these vehicles became a significant barrier to the operation of ConnectU, which has been only partly overcome. Complications arise due to the complex funding and uncoordinated arrangement of CT, an issue that will remain complex under the new Federal government arrangements around the National Disability Insurance Scheme and My Aged Care program.

The Warrnambool study proposed improvements in:

1. Public transport service frequency, coverage and service span - some of which has now been implemented

2. Better marketing of public transport services – the local bus operator has taken a much stronger role in this area but more remains to be done, with support from the State Government

3. Regulatory reform to increase the flexibility with which services can be provided – more flexible use of school buses was a particular focus, where little progress has been achieved

4. The arrangements for planning of transport systems within the region and State – where establishment of the Regional Accessibility Council (RAC) has been achieved but the development of a stronger partnership between CT and the State Government has not progressed as far as was expected. We return to this matter in Section 6.

4.2 South Western Victoria

In 2012, a study was commissioned by the Victorian Government's Transport Connections program (now ceased) to examine the transport needs of 25 smaller settlements in South Western Victoria, in the Shires of Moyne and Corangamite (Stanley and Banks 2012). The researchers were instructed to find solutions not requiring major government expenditure and not involving public transport but in the area of CT. The study found few and deteriorating transport options in the study area. For some, particularly young families, the cost of housing meant that the choice was often a roof over their head at the cost of poor accessibility. This position appeared to be deteriorating, with services moving away from small towns, transport costs being shifted to the consumer. Some aged people expressed loneliness and many youth had problems reaching education and TAFE courses. Considerable hidden transport disadvantage was found to be present. Rather than complain (which would do little good!) people accommodated their lives to less transport, therefore cut down on 'unnecessary' mobility, often activities around quality of life and connections with community.

Most community buses were orientated towards older people and those with a disability, while the needs of younger people and those struggling on a low income, such as sole parents, were largely not catered for. Similarly, the critical role of leisure activity and the associated social contact is often overlooked. It is through these contacts that not only individual social inclusion and wellbeing is created, but also community strength and social capital are built, leading to a better resourced, happier and more productive community.

The process of providing transport for people experiencing disadvantage and with lower wellbeing is not always organization of mass transit in smaller more isolated towns but a process of detailing, meeting specific needs and accepting lower numbers travelling on transport, recognizing that the value of achieving mobility for this group of people is much higher than the value of an additional trip for a person with good realized mobility (Stanley et al. 2012). In a sense it is a bridging program or even a community development program, where for many people capabilities can be strengthened, resources improved, inclusion developed, thus enabling those people to become independent and more in control of their own lives, building capabilities and economic opportunities.

4.3 South Australia

The authors have recently examined links between mobility/accessibility and social inclusion in three South Australian regions: the Riverland, Mount Gambier and Port Pirie Regions. The boundary of each area was defined as the likely South Australian resident catchment of the region's major urban centre(s) for higher order services, consumer durables, and such like, as follows:

- Riverland = LGAs of Berri and Barmera, Loxton, Waikerie and Renmark Paringa (31,000 population in 2011). This was the only region of the three in which population numbers declined between 2006 and 2011 in every municipality, by more than 2% in every case, suggesting a region under stress

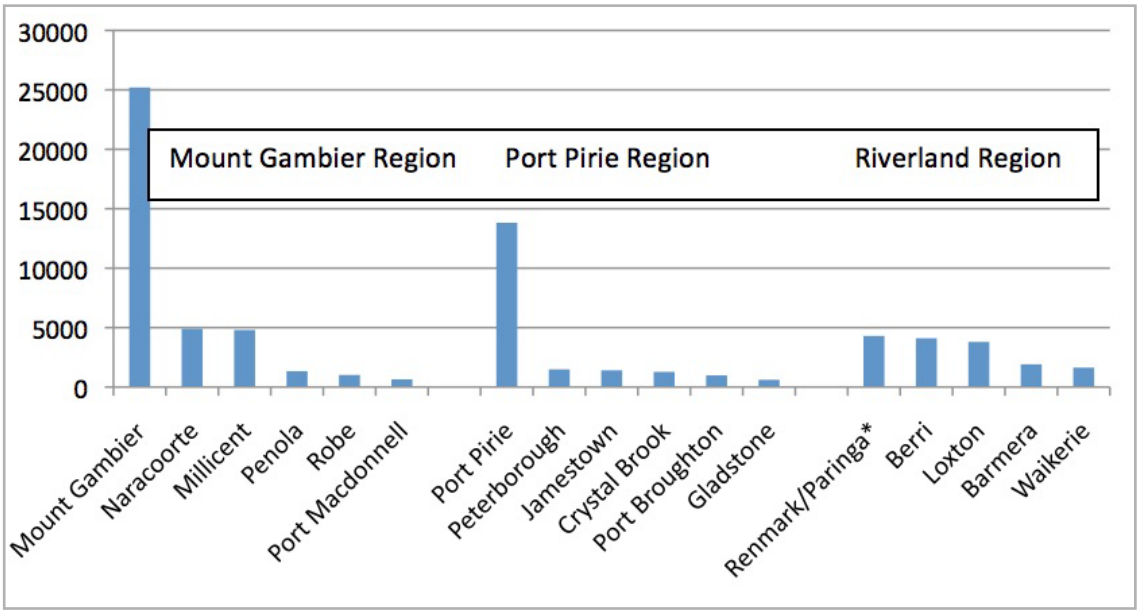
- Mount Gambier Region = LGAs of Mount Gambier, Grant, Naracoorte and Lucindale, Robe and Wattle Range (just over 50,000 population in 2011). The 2011 population was 2.3% higher than in 2006, the only one of the three regions studied in which total regional population numbers increased over this five year period, albeit at less than half the rate of increase of South Australia as a whole (largely because of the growth in Adelaide)

- Port Pirie Region = LGAs of Port Pirie, Northern Areas, Barunga West, Mount Remarkable and Peterborough (just under 29,000 in 2011). Between 2006-11, population numbers increased slightly in the municipalities of Port Pirie and Mount Remarkable (1.1% in each case) but fell substantially in Northern Areas (-3.1%), Barunga West (-3.5%) and Peterborough (-9.1%).

The population growth/decline patterns reflected in these regions suggest a growing dominance of Adelaide within South Australia as a whole. Figure 4.3 shows the major urban centres within each region, the dominance of the major towns of Mount Gambier and Port Pirie in their respective regions being notable and the lack of a dominant town in the Riverland being equally notable.

Socio-economic data for the three regions suggest Port Pirie Region is facing greater socio-economic hardship than the other two, with regional income levels, employment penetration rates, the proportion of older and younger people and child vulnerability all suggesting the prima facie likelihood of transport disadvantage being a serious issue, as found in the authors' prior work and in other literature sources (see Section 3.2).

Figure 4.3 Populations of main Regional Urban Centres and localities in S.A. study areas: 2011



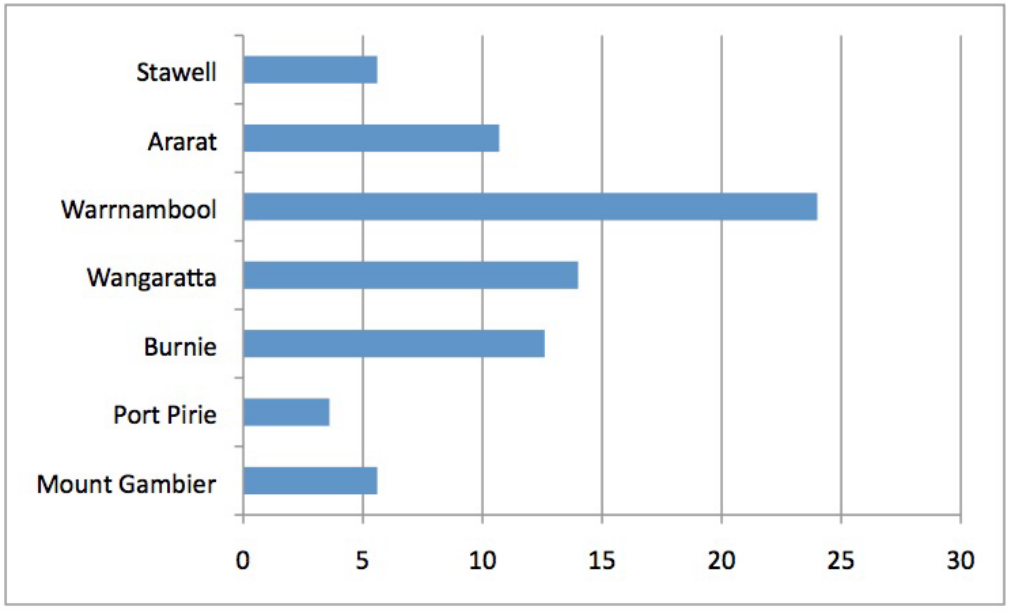
Source: From ABS Quickstats data (ABS (nd)).

Existing public transport services

Mount Gambier and Port Pirie have town route bus services. Spatial coverage is quite good in both cases but there are areas that lack service, including areas of Mount Gambier with a large retirement population and a new urban development with young families. Service hours in both cases are not geared to peak work travel, with the school market getting priority. Weekend service offerings are poor compared to weekday services and to weekend services in comparable towns interstate. Most users are concession travellers, at young and senior levels of the age range, as was the case in Warrnambool, indicating again the vital role the services play in catering for these transport disadvantaged groups.

We chose a few towns of similar size to the main towns in the SA study regions, to compare public transport service levels, as one way to help benchmark service levels in SA regions. Figure 4.4 shows relevant data summarised as service kms/per capita (service density) for those towns for which we were able to access or estimate data. The two SA study area towns with a route service are notably at the low end of the service densities shown, suggesting greater likelihood of social exclusion from poor mobility than in the other locations included in the table.

Figure 4.4: Public transport town route bus service density, service kms/per capita (2016)



Source: Authors' estimates.

Intra-regional public transport offerings in the three South Australian areas are minimal. The main intra-regional corridors in each case, which mainly connect the particular towns shown in Figure 4.3 to the main regional town, receive little service. While fare concessions are available for intra-regional public transport, no service subsidies are provided by the South Australian Government, which tends to mean fares are higher than would otherwise be needed, which can increase transport disadvantage.

PT to/from Adelaide is relatively well provided from the Port Pirie Region, although the need for an additional medical service was articulated in a number of consultations. Mount Gambier/Adelaide services provide an interesting contrast with services to/from Mount Gambier/Melbourne, which are faster and cheaper. Adelaide is likely to be losing some business to Victoria from the lack of an SA service subsidy beyond fare concessions to public transport services to/from Adelaide. The Victorian Government subsidises intra-regional and inter-regional, but not inter capital, services in that State.

School bus services

There was widespread expressed support for making better use of spare capacity that is effectively available on school buses. Some steps are currently taken to use this capacity, commonly by extending travelling rights to students who do not meet the distance eligibility criterion (of 5 kms). Extension to wider groups of travellers is rare but has much to commend it in terms of reducing risks of social exclusion. Given that spare passenger space may be limited, relevant access criteria could include:

- access to further education opportunities. TAFE students, for example, have a strong case in each region, given the challenges of youth retention and lack of public transport service offerings.
- adults attending meetings at a school
- access to employment opportunities
- low income households/no car availability
- medical and health needs.

The practice of reducing bus size when all seats are not filled by school children should be discontinued in order to allow the public to use these spare seats.

Concerns were raised about the safety of children travelling on a school bus with others, if access to school bus services is opened to a wider range of people. However, one of the researchers for this Paper, an expert in child protection, could find that there is little evidence to support this extent of concern, whereas there are benefits to be gained from a mixed passenger group. While it cannot be conclusively said that no child will ever be abused or assaulted while travelling on a school bus, should some spare seats on the service be extended to some of the travelling public, the risk is very low, no greater than anywhere else and less than the risk children face from assault by relatives and other intimates (AIFS 2016; Gallagher et el. 2008; Stanley and Goddard 2002). Indeed, there are suggestions that adults on the bus may provide some protection to children (Sainio et al. 2011), particularly from the more common and potentially highly damaging behaviour in relation to bullying, which can pose a serious risk to mental health (Fluke 2016). The presence of other adults on a bus is likely to reduce the incidence of bullying, particularly where the community and bus drivers are made more aware of the signs of bullying and abuse, and effective ways to intervene (Hawkins et al. 2001). It would be of benefit for the bus driver to be given some education on the grooming behavior of abuse perpetrators and signs of bullying behavior.

Community transport and the NDIS and My Aged Care

The pressures that SA regional welfare services are facing in terms of growing demand was particularly apparent in the case-studies, in terms of aged, child development, family violence and substance abuse but is also an issue for groups such as young people more broadly. Many of these issues of high need and increasing need, have a transport disadvantage dimension. Existing CT providers have little capacity to respond to such varied pressures, partly because of the way their limited funding is usually tied to particular need categories, largely older people and medical/disability services.

A new federal government National Disability Insurance Scheme (NDIS), after a three year trial, is being progressively rolled out from July 1 2016, to be fully implemented in 2019 with about 460,000 customers nationally (Fisher 2016). The aim is to assist people who have a significant and permanent disability. Individuals aged <65 years will receive a package of funding to purchase the supports needed according to their individual plan. Those aged 65 and over who develop a disability, will gain assistance through aged care services (My Aged Care). People are eligible if they are deemed to have 'significant and ongoing support needs', representing about 10% of Australians with a disability. The average individual client allocation to date is $39,600 (Laragy 2016). The clients decide how to use the package money they are offered and can, for example, use the funds to purchase IT goods, if this is their choice. However, if the package (or a significant part of the package) is spent this way, it is unclear how they will receive the other services they have been assessed as needing. While a key aim of the new program is to enable decisions about care to be made by the client, as of July 2016 only 7% of eligible customers have chosen to self-manage their funds; 35% are self and agency managed and 58% are fully agency managed (Laragy 2016).

My Aged Care (MAC) is a Federal scheme introduced on 1st July 2015. It offers a range of care services brokered by an assessor. Services are offered to eligible people 65 years and over, registration by the Federal government being required to assess eligibility. Services are provided for Indigenous people 50 years and over. Grades of service packages (one to four) are offered, depending on need. The highest level (four) provides 12 hours of support a week.

Transport to aged-care and disability services is undertaken by CT providers, who were largely funded (and promoted) under the previous HACC service arrangements, where a financial allocation was made to the welfare agency for transport. Under the new federal arrangements block funding to service providers has been moved to funding provided on a case-by-case basis to people on individual care packages.

As the person with the disability is now able to choose the type of service and who will provide it, this is creating uncertainty about the viability of some CT, as funding may prove to be insufficient to maintain the transport service. The new federal programs also create the possibility of for-profit organisations entering the sector. For example, the researchers were told that Woolworths is considering this option. It would seem that remote clients may be particularly vulnerable under these new schemes if CT viability is at risk. In turn, fewer clients will mean less finance available to the provider. CT service providers reported that they are particularly concerned that they will be left with the most costly trips and providing service to those not financially covered, while at the same time being in a less secure financial position.

Who is missing out?

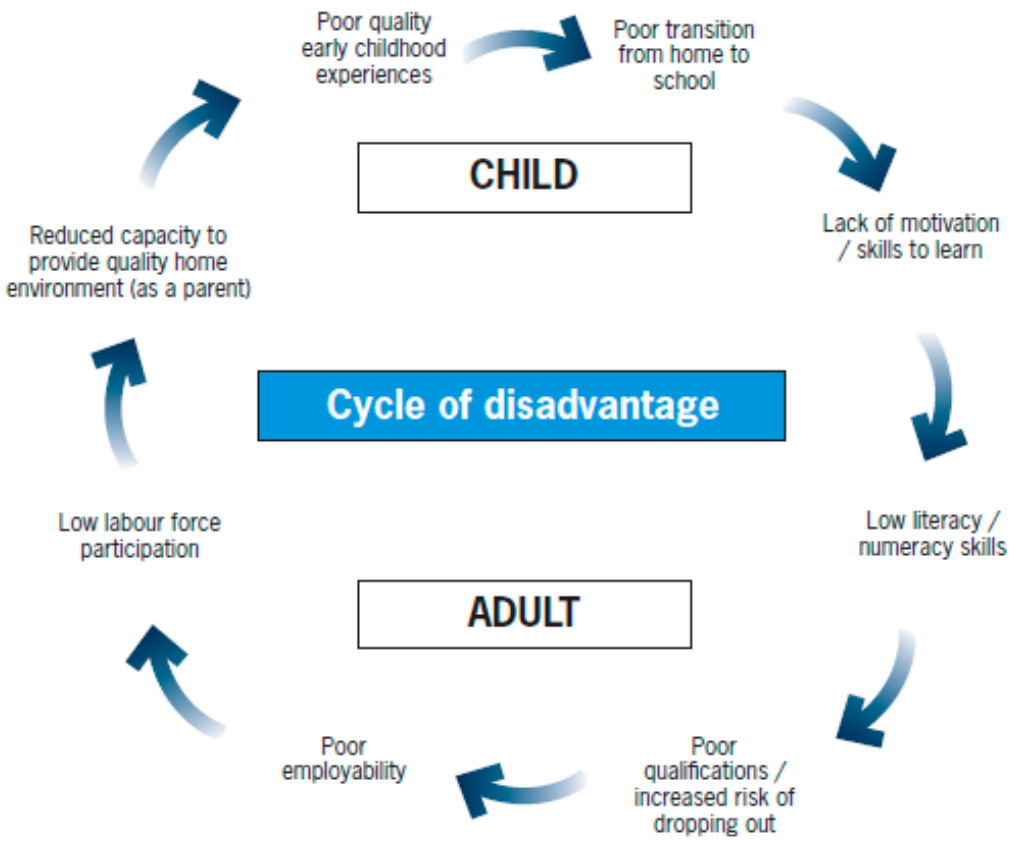
While many of the findings from the prior studies were also present in the SA case studies, particular attention here is drawn to the issue of relatively low levels of child development present in some rural areas of SA. The Australian Early Development Census (Australian Government 2016) has examined the percentage of children on school entry who have reached the developmental milestones of physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication skills and general knowledge.

The Australian average sits at 11.1% of children having two or more developmental delays on reaching school age. Of considerable concern are a couple of areas in the three SA Regions studied that have a high proportion of children with developmental delays: in Port Pirie Region, Peterborough with close to one-quarter of children (24.8%) and Port Pirie with 16.4%, and in the Mount Gambier Region, Wattle Range with 19.6% and Mount Gambier town with 16.7% of children in this category. These places are notable for their high proportions of young children who are vulnerable on two or more indicators. From 2009 to 2015, the percentage of children with developmental delays on two or more indicators in Peterborough, Port Pirie, Mt Gambier and Wattle Range about doubled.

Findings from two major international assessments of student learning show that educational disadvantage is a bigger problem in Australia than in many comparable countries, such as Canada, and it has not improved over the past 15 years (Perry 2017). Delayed early development leads to either poorer outcomes in terms of health and/or employment for adults, or more difficult and costly later interventions to change this trajectory, as can be seen in Figure 4.5 (The Smith Family 2010).

> *The sooner a child receives access to healthcare, intellectual and social stimulation and guidance from loving and attentive adults, the more likely that child will grow up to be happy, healthy and productive (The Smith Family 2010, p.6).*

Figure 4.5: The cycle of disadvantage



Source: The Smith Family (2010)

Investigation needs to be made as to why these developmental outcomes are occurring but there are strong suggestions that part of the problem may be reduced access to early childhood education services. For example, Maternal and Child Health Nurses spoke of their concern that some infants could not access pre-school due to distance and lack of transport. Evidence of transport difficulties was also noted in the school bus policy where, in most situations, pre-schoolers were not permitted to travel on the school bus, or their parents were not permitted to travel with them. As was found in the study in South Western Victoria, it was suggested that housing costs were also a contributory factor, with families moving to cheap housing in areas that lack transport choices. We flag this as an important issue of regional transport disadvantage, because very young children have not been on the transport disadvantage radar to any significant extent to date. Future analyses of regional transport disadvantage should consider very young children and their carers as a potentially transport disadvantaged group. Unfortunately it is often the case that children's transport needs are overlooked. It has been shown that children's sense of happiness and wellbeing is strongly correlated with connection to others (Tucci et al. 2007). The report notes that the need for the community to become more supportive and inclusive of children has been long argued and this remains the case, as is clearly the story that comes from the authors' research.

Youth also stand out as having many unmet transport needs in regional SA, impacting on educational, employment and recreational opportunities. Youth can be isolated on farms, particularly if there is the lack of a vehicle and no internet availability. For some, this was found to be having a severe impact on their education opportunities. For example, in the Riverland Region one person told us that she knew of three Indigenous youth who have left school and are not able to get to TAFE to further their education. This issue extends to apprenticeships. Researchers were told that youth from a town are more likely to be offered an apprenticeship, due to known transport barriers confronting those living elsewhere. Students are required to undergo work experience in year 10 but this is not possible for some due to transport issues. Parents often have to take time off work to drive their children to work experience, which can be a problem in a region with low household incomes.

Opportunities for improving regional mobility in SA

The development of priorities for improved regional mobility should ultimately be a matter for those communities to negotiate with the state government, assisted by findings like those we report herein. Decision-making will also be assisted by benchmark service levels linked to population levels, as suggested in Section 6 for town public transport services. Improvements to intra-regional PT services along the key intra-regional movement corridors are important for connecting people, economic participation and social inclusion. These corridors include regular Riverland services between the four main towns, services in the Mount Gambier-Millicent and Mount Gambier-Naracoorte corridors and in the Port Pirie-Peterborough corridor.

Some improvements in public transport service offerings between each region and Adelaide would assist integration of the regions with the state capital.

Medical travel is an immediate need but, longer term, improved development opportunities, including for education, in the three regions would be assisted by increased travel choices to/from the state capital, as well as stronger intra-regional connectivity.

Improved intra and inter-regional travel opportunities should include subsidised public transport travel along similar lines to what is available in neighbouring Victoria, to support inclusion but also, in some cases, to reduce potential leakage of economic activity from SA to Victoria. In terms of relative priorities, service improvements to/from Adelaide would probably rate lower than improved intra-regional public transport improvements in each region, given the low levels of the latter currently on offer.

A strong unifying theme to improve the provision of more integrated regional accessibility in SA is again the idea of a Regional Accessibility Committee, a concept that was supported in each of the regions studied, with a keenness to implement such an approach among many stakeholders.

4.4 Australian Research Council project

The BIC member organisation, BusVic, was a partner in an Australian Research Council (ARC) supported project, 'Investigating Transport Disadvantage, Social Exclusion and Wellbeing in Metropolitan, Regional and Rural Victoria', with the current authors being major contributors to the research and reporting undertaken for that project. This project has been widely reported, so the method is not repeated here but can be found in the following references (for example, Currie 2011; Stanley et al. 2010; Stanley et al. 2011a,b; 2012; Stanley and Hensher 2011; Vella-Brodrick and Stanley 2013). That research showed significant associations between trip making, social capital, household income and a person's risk of social exclusion, with that risk in turn being significantly associated with wellbeing. Sense of community was also a significant contributor to wellbeing. For the purposes of this Paper, additional analysis was undertaken on the Regional survey data collected in that project.

The project gathered information from a self-completed Victorian government questionnaire on travel (VISTA), for the period between April 2007 and June 2008. A number of respondents to this travel survey aged 15 years and over were then given the opportunity to opt in to an additional comprehensive home-interview, which gathered detailed information on factors such as demographics and household composition, social exclusion risk factors, social capital and connectedness to community, subjective well-being, psychological well-being, personality, transport usage and transport difficulties. Surveys were undertaken in Metropolitan Melbourne (N = 535) and the Latrobe Valley (a regional area in the State of Victoria) (N = 148).

As explained in Delbosc and Currie (2011), the survey sample was not chosen to be representative of the Melbourne and Latrobe Valley populations as a whole, because of an intention to ensure adequate coverage of people and locations likely to face transport difficulties, in line with the main focus of the research.[5] A supplementary survey targeted people likely to be highly socially disadvantaged (N = 336, with 87 of this group in the regional sample), since the researchers found that such people were unlikely to respond to the VISTA survey process, which was a pre-condition of being able to opt-in to the subsequent household survey. The regional special survey sample is an important resource for the new analysis that is reported in this Paper. The information gleaned from its 87 participants, compared to that gathered from the initial 148 regional respondents, supports important insights into the role of mobility/accessibility in regional social exclusion. Summary descriptors of each of these Latrobe regional samples are set out in Table 4.1.

The most striking differences between the two samples is that respondents to the special survey are much younger, with a lower level of education and are much more likely to be unemployed and born in Australia.

Table 4.1: Respondent characteristics from Latrobe Regional Surveys (2008)

CHARACTERISTIC	ORIGINAL SAMPLE (N= 148)	SPECIAL SURVEY (N=87)
EMPLOYMENT		
Full-time	23	3
Part-time	11	6
Casual	3	4
Retired	40	2
Study	7	17
Unemployed	6	50
Home duties	7	4
Other	3	1
AGE		
15-17	5	23
18-35	12	41
36-50	23	20
51-65	33	2
66+	28	1
Average age	55	29
EDUCATION		
Some primary school	1	-
Finished primary school	57	61
Finished secondary school	24	11
Diploma	42	13
Degree	14	2
Post-graduate degree	10	-
COUNTRY OF BIRTH		
Australia	122	83
English speaking country	15	3
Non-English speaking country	11	1

Source: Data from surveys undertaken as part of Australian Research Council Industry Linkage Program Project LP 0669046: Investigating Transport Disadvantage, Social Exclusion and Well Being in Metropolitan Melbourne, Regional and Rural Victoria

5 Thus older people and young people, for example, were relatively over-sampled, compared to their presence in the wider populations of Melbourne and the Latrobe Valley. The Latrobe Valley sample was also overweight on persons born overseas, low income households and households with two or more cars (low regional public transport availability may mean high car ownership levels cause stress on other aspects of household budgets). The Melbourne sample was overweight on females, low income households, people living in outer urban areas and underweight on households with two or more cars and overseas born (reflecting the intentional slant towards transport disadvantaged groups).

Table 4.2 sets out some key descriptors of participants in the two samples in terms of numbers of social exclusion risk factors, with a maximum of 5 possible risk factors measured: income, employment, political activity, social support and participation. Mean performance scores on some key associated factors are also shown. Sample numbers are less in this table because the table only includes respondents from whom a full set of responses was received, across the variables shown, these complete responses subsequently being used for modelling purposes. The table shows that the special survey respondents, on average, failed twice as many exclusion risk thresholds as respondents to the original survey; they also had much lower levels of bridging social capital, household income and cars per adult in the household than respondents to the original regional survey, but made more trips per day than those original survey respondents.

Table 4.2: Descriptive statistics relating to risks of social exclusion for regional survey respondents (2008)

Variables	Units	Original sample (N=141)	Special survey (N=69)	Combined sample (N=210)
Risk of social exclusion	Number of thresholds failed (5 possible)	1.04	2.10	1.40
Number of trips on travel day	Trips/day	3.55	4.65	3.93
Bridging social capital score	1-12 continuous scale*	7.27	6.01	6.87
Cars per adult in household	Number	1.06	0.59	0.90
Household annual income	$'000 p.a.	52.62	34.49	46.38

Note: * Continuous scale derived from two 6 point rating scales.

Source: Data from surveys undertaken as part of Australian Research Council Industry Linkage Program Project LP 0669046: Investigating Transport Disadvantage, Social Exclusion and Well Being in Metropolitan Melbourne, Regional and Rural Victoria

Stanley et al (2011a) showed that the number of trips taken by respondents in the original regional sample on the survey day (N=141) was significantly related to risk of social exclusion, the higher the risk of social exclusion the lower the number of daily trips, and that the implied value of an additional trip to a regional person at such risk was $19.40 (2008 prices). That regional model replicated a model that had been previously estimated by the authors and colleagues for metropolitan Melbourne, to enable comparison of the implicit values of additional trips as between the two sample areas. Similar values were found, at $24.40 for Melbourne and $19.40 for regional Victoria.

The regional modelling did not seek to explore additional variables that might have influenced risk of social exclusion but some preliminary analysis along these lines was undertaken for this Paper. Initial simple linear regression modelling examined the association between number of trips and risk of social exclusion, the resulting models suggesting that increasing the number of trips undertaken by members of both regional sample groups (i.e. the original Latrobe Region sample and the special survey sample) would reduce the risk of social exclusion, with the effect being significant for the original sample but less so for the special sample (respective t values of -2.2 and -1.47). This is not surprising, given that respondents to the special sample undertook about 30% more daily trips, on average, than respondents to the original survey, the latter being (on average) at much lower risk of social exclusion.

Given the older age profile of the original regional sample, the suggestion is that facilitating additional trips may be one way of reducing risk of social exclusion among older regional/rural people. This conclusion is further supported by examining the association between trip rates and risk of social exclusion for a larger sample of over 65s, which included both metropolitan and regional respondents. That larger sample of people aged 65 years or more (N=200) suggested that risk of social exclusion fell by about 0.5 units per additional trip taken (t = -2.6). This conclusion does not extend to younger regional people at risk of exclusion, for whom trips per se do not appear to be the issue.

Such a finding should not be unexpected as youth, testing their growing independence from family, commonly seek bonding social capital from their peers. Youth are more likely to engage in active transport, walking and cycling and using other mobility devices, such as skate boards. As found in the Warrnambool study, they are also very good at lift giving and sharing. When one of their peers has access to a car, the rest pile in! However, while bonding social capital is highly important for youth, it is bridging social capital that is more important for facilitating broader societal social inclusion, as reported below.

Building on findings from the earlier ARC research, bridging social capital, car availability and household incomes were then added as independent variables to the modelling, being expected to contribute significantly to explaining risks of social exclusion. Table 4.3 sets out the resulting multiple regression models for the original regional sample and the special survey sample, with risk of social exclusion as the dependent variable.

Table 4.3: Modelling Latrobe regional risk of social exclusion: Dependent variable = Social exclusion risk thresholds failed

Variable	Original sample (N=141)	Special survey (N=69)
Constant	2.541	3.431
Number of trips on travel day	-.017 (-.569)	.042 (.975)
Sum of bridging social capital	-.108 (-4.169)	-.126 (-3.326)
Cars per adult in household	-.164 (-1.211)	-.330 (-1.545)
Household income ($000 annual)	-.009 (-3.585)	-.017 (-2.959)
Adjusted R2	.280	.312

Once the additional variables are included, number of trips ceases to be a significant contributory variable in both models. This is not surprising: number of trips is correlated with bridging social capital, cars per adult in the household and household income at the 6% level of significance or better in the special survey sample and, in the original regional sample, number of trips is correlated with bridging social capital and household income at the 3% level or better. The correlation between number of trips and household income was not significant in the original regional model (17% level only), perhaps suggesting that, if you have income, then trips will take care of themselves.

Bridging social capital and household income are both particularly significant in each of the regional models. The higher co-efficient values in the special survey model underline the importance of striving to build bridging social capital and household income among those at most risk of exclusion, to reduce exclusion levels among this group. This reflects the significant bridging capital and income deficits between the special survey group and the original regional sample group.

Increasing the availability of cars per adult is also likely to reduce risk of social exclusion among those who are more at risk of such exclusion from mobility sources, although this variable is only significant at the 13% level in the special survey model. Low household incomes are mirrored in low cars per adult in the household, which limits mobility and accessibility opportunities of at-risk people. Adding cars without adding income is only likely to compound household budget problems for the most at-risk groups, so other ways of providing improved access to vehicles need to be identified. This might involve measures such as improved public transport service levels, car sharing or use of vehicles provided through programs like ConnectU in Warrnambool (as discussed in Section 4.1).

Looking at associations between the independent variables in each model[6], higher household income levels, higher levels of car availability per adult in a household and higher levels of bridging social capital tend to coincide in people at relatively lower risk of social exclusion, and conversely for those at greater risk. Building bridging social capital is valuable in its own right, as a way of reducing risk of social exclusion, and it is also one way in which policy might seek to promote longer term growth in household incomes, this then (in time) being likely to lead to higher levels of regional car availability.

Supporting trip-making opportunities is one way to help build critical bridging social capital, with public transport an important contributor.

Delbosc and Currie (2011) point out that, within the various ARC sample sub-groups, regional respondents were more likely to report activities they cannot do because of transport difficulties than respondents from the metropolitan area. The analysis in this Paper indicates that these difficulties apply mainly to the special survey respondents, who are generally at higher risk of social exclusion than the original regional survey respondents. Even though the more at-risk, special survey regional respondents generally undertook more daily trips than the original regional survey respondents (Table 4.2), the special survey respondents were also much more likely to report activities they could not do because of transport problems. Table 4.4 sets out the main kinds of activities that respondents to both regional surveys reported they could not do because of transport difficulties, with associated frequencies. The most frequently cited activities were activities that are likely to build (the very important) bridging social capital.

The original regional survey group (N=148) only elicited 30 replies to this question (~1 per 5 respondents), an indicator that average social exclusion risks for this group, associated with mobility, are relatively low. The most frequent activities that these respondents were not able to do because of transport difficulties were enjoyment (getting out and about = 8), visiting friends and relatives (8) and sporting/leisure (6). The original survey sample respondents mainly appear to be at relatively low risk of social exclusion and, associated with this, not greatly constricted by mobility opportunities.

6 The correlation matrix is not included in the paper.

Table 4.4: Activities people cannot do because of transport problems: Latrobe Region surveys (2008)

Activity unable to undertake	Original survey responses (N=148)	Special survey responses (N=87)
Work	3	13
School/university/TAFE	1	5
Shops	0	1
Sporting/leisure	6	14
Personal business	1	4
Visiting friends and relatives	8	12
Accompanying a child/elderly, etc	2	2
Enjoyment (getting out and about)	8	15
Interview for jobs	1	8
TOTAL	30	74

Source: Data from surveys undertaken as part of Australian Research Council Industry Linkage Program Project LP 0669046: Investigating Transport Disadvantage, Social Exclusion and Well Being in Metropolitan Melbourne, Regional and Rural Victoria

Conversely, and even though they averaged more trips a day, the special sample group (N=87) came up with 74 activities that could not be done because of poor transport (~5 per 6 respondents). Interestingly, the same types of activity appear as those not able to be done because of poor transport as were cited by the original sample survey respondents: enjoyment (15), sporting/leisure (14) and visiting friends and relatives (12). Of some concern, given the large number of the special survey group who were unemployed, 13 respondents identified work as an activity they could not do because of poor transport, with another 8 reporting getting to an interview for jobs.

While the special sample undertook trips, they had relatively low social inclusion. Given that the sample has large numbers of youth and people with a low income, much of their travel is likely to be active travel or travel by public transport. Table 4.5 confirms this, showing the main travel mode used by respondents to the regional surveys (both the initial survey and special survey), compared to level of social exclusion risk. Those at higher risk levels make relatively fewer trips as car drivers and more trips by active transport or PT. The availability of transport for these groups to undertake particular activities associated with bridging social capital, outside social contact with their peers, neighbour and family groups, is particularly important and this may require some longer trips. Thus, in the absence of a car, public transport becomes very important as a means of linking people to opportunities to become more embedded in society, thus reducing the personal and social costs associated with exclusion.

Table 4.5: Method of travel, by risk of social exclusion

Risk level	Sample size	All car driver trips	All car passenger trips	All PT passenger trips (50% or more PT trips)	All walk/cycle trips (50% or more walk/cycle trips)
0-1 risk factors	110	40.9%	10.0%	1.8% (3.6%)	6.4% (19.1%)
2 risk factors	44	34.1%	15.6%	6.8% (13.6%)	18.2% (20.5%)
3 or more risk factors	45	20.0%	4.4%	11.1% (24.4%)	8.9% (26.7%)
Full sample	199	34.7%	10.1%	5.0% (9.5%)	9.5% (21.1%)

Source: Data from surveys undertaken as part of Australian Research Council Industry Linkage Program Project LP 0669046: Investigating Transport Disadvantage, Social Exclusion and Well Being in Metropolitan Melbourne, Regional and Rural Victoria

The equations set out in Table 4.3 enable the implicit value of regional bridging social capital to be estimated for both sample groups, since bridging social capital and household income (annual) are both significant explanatory variables in each model. This involves strong assumptions about continuity of the bridging social capital variable but estimating implicit values does provide a broad sense of the importance of bridging capital, using the everyday measuring stick of money.

The implicit value of bridging social capital is derived by dividing the co-efficient for bridging social capital in Table 4.3 by that for household income (in $000), which results in an annual value of $12,000 for the original sample, $7,400 for the special survey sample and $11,450 for the combined sample (not shown in Table 4.3). All values are in 2008 prices and are substantial and close enough to the metropolitan Melbourne value estimated in Stanley et al. (2012) to provide comfort. In other words, increasing the value of bridging social capital (as measured) of a person in the combined regional sample by one unit is roughly equivalent to giving that person an additional $11,450 p.a. income.

It is notable that the mean score for bridging social capital levels among respondents to the special survey was 6.01, some 1.26 units less than the level for respondents to the original regional survey. If policy measures were able to lift respondents to the special survey up to the average bridging social capital score of the original regional survey respondents, the implication is that the value per respondent would be worth about 1.26 times $11,450, or about $14,430, which is equivalent to around 80% of the household income gap between the two groups (using the combined sample value for social capital). This underlines the importance of seeking to build bridging social capital among people at risk of social exclusion. These findings suggest that public transport can play an important role here.

The main conclusions that we draw from this new regional analysis are as follows:

1. If you are a regional resident at relatively low risk of social exclusion, you are likely to have relatively good bridging social capital, come from a household where income levels are relatively high and have relatively few transport problems, partly because car availability will be relatively good. Older people may be more vulnerable among these general descriptors and may need support achieving access to desired activities

2. Conversely, if you are a regional resident at relatively high risk of social exclusion, you are likely to have relatively poor bridging social capital, come from a household where income levels are relatively low and be more likely to experience activities you cannot undertake because of transport problems, partly because car availability will be relatively poor. Trip making per se may not be a problem but being able to travel to the activities you wish to undertake when you wish to undertake them, including getting to work, is more likely to be a problem, with adverse consequences for building important bridging social capital. Younger people are likely to be relatively more prominent among these cohorts. Providing affordable travel capacity that meets trip making demands, especially those that facilitate inclusion in the broader community and which facilitate greater capacity for independence and social mobility (getting on in life as distinct to getting by), is important for these people.

5. Societal cost of social exclusion

McDonald et al. (2013) undertook analysis of NIEIR data to examine regional towns in Victoria that were enjoying higher and lower rates of economic growth. They found four broad categories of growth-supportive factors (p. 6):

- Industry and employment (industry mix, employment and innovation)
- Human capital (education and skills)
- Infrastructure and connectivity and connectivity (transport, communications technology, agglomeration)
- Liveability (amenity and housing).

A couple of points have particular relevance to this Paper. Those regional cities with higher growth had fewer youth (aged 15 to 19 years) not engaged in work or further education (6.8% versus 8.2%), more people living near public transport (73% versus 64%) and a lower share of the population who experienced transport limitations (22% versus 27%). The authors concluded that improved transport infrastructure supports regional economic growth through improving accessibility to social opportunities and services and opportunities for social participation, and access to clients and suppliers for business.

The reduction of risk of social exclusion through the improvement of the provision of public transport is important on the grounds of social justice and equity, but it also has been shown to improve the wellbeing of other members of the community. Mobility enables individuals to explore the world, accumulating social resources and obtaining skills, thus gaining a sense of satisfaction and positive emotions. This creates an upward spiral of positive affect that promotes more sustained wellbeing and mobility is a means of improving mental health (Vella-Brodrick and Stanley 2013). Having a community with good health and wellbeing also increases the region's economic and business opportunities. This point was confirmed by the OECD (2006), who found that the growth of regional cities is constrained by social costs of unemployment and poor human capital. Vella-Brodrick and Stanley note that 'more attention needs to be devoted to these less direct pathways, particularly those that are amenable to change through policy, as is the case with transport mobility' (2013, p. 241).

Thus the personal costs of social exclusion discussed in this Paper are reinforced by broad societal costs of failing to reduce severe disadvantage. This can also result in a lack of social cohesion. By way of example, some anger was expressed to the researchers about the fact that some youth 'don't want to work'. However, when the barriers to work become frequent and high, such as when there is a lack of transport to get to work (see Section 4.3) a learned helplessness evolves and people stop trying (Seligman 1975). Evidence for this association between mobility and positive affect has been empirically shown, the influence being mediated by the role of mobility in forming social capital and connections with the community (Vella-Brodrick and Stanley 2013).

The inability of a child to attend pre-school, due to transport disadvantage, risks social exclusion in later life. It affects health and opportunities across a lifetime, risking chronic stress and difficulties in the areas of concentrating, forming healthy relationships, physical health and difficulties controlling emotions (Hertzman 2004, Moore 2014). The lifetime costs of neglect in this area have been estimated by NIEIR (2016), who calculated the cost per person of social security income to 65 years of age, other social and infrastructure expenditure and the cost of substitute adult migrants to do the work, adding up to just under $2 million dollars per person whose early developmental needs were not adequately met. This is a huge cost that needs attention.

6. Conclusions

A strong case is building in this transport research. Poor regional mobility options and accessibility is resulting in increased risk of social exclusion and diminished personal wellbeing, right through the age groups. Importantly, barriers around mobility contribute to a lack of personal opportunities from a very early age. Children who are not able to get the benefit of early socialisation in a pre-school setting, especially those children from families experiencing a range of disadvantages, are more likely to struggle with keeping up with their education and therefore leave school or disengage from school and on-going educational options and thus employment options, with substantial societal costs resulting. While those who have poor mobility may maintain contact with their immediate family and/or peer group, their greater opportunities for a more fulfilling life may be limited. At the other end of the age scale, the aged in an institution can often only socialise with a narrow group of people if they lack transport, evidence suggesting some experience loneliness and a narrowing down of experience and enjoyment. Older people living independently also need mobility choices that sustain their social networks and wellbeing.

The ARC research discussed in Section 4 showed poor mental health is linked with social exclusion, within its urban sample. A further examination of the special needs group who live outside a major urban area showed that youth, while mixing with their peers, may lose self-esteem and also experience a lack of purpose in life. While they are mobile, their activities more commonly involve interaction with peers, the bridging activities that connect them with societal opportunities (education, work, a broader network of contacts) being less available to them. Work in the US by Perry has shown that one of the greatest benefits from an enriched early childhood education (preschool program and weekly home visit) is a criminal pathway foregone, encompassing both personal and societal benefits (Heckman et al. 2010).

The NSW Western Regional Transport Plan (TfNSW 2013) provides a neat framework within which to examine regional mobility/accessibility challenges and responses thereto, focussing on supporting travel to and from a region, travel within a region and on supporting communities within the region. The Plan then frames its policy directions and actions in terms of providing better transport services, ensuring effective regulation and improving transport infrastructure. This general approach is very much in line with the approach taken in the present report, although some of the conclusions that we draw differ from those in the NSW Western Regional Plan or involve matters that received little attention in that Plan, particularly regional governance arrangements and, associated with that, the pursuit of what the UK has come to call 'total transport'. The current report is also more specific about what the authors see as target regional public transport service standards. In general, however, the current report aligns quite closely with what the NSW Western Regional Transport Plan proposes, even though remoteness is an important theme of that report but not of the current report.

TfNSW (2013) highlights how the NSW Long Term Transport Master Plan identified a number of main transport challenges facing regional NSW.

- *Delivering better transport links to and within cities*
- *Improving accessibility through a better mix of transport options across regional NSW*
- *Providing convenient, reliable and safe travel in regional areas by modernising and making best use of our transport networks – especially our bus, rail and taxi services*
- *Making sure our state roads in the regions support the needs of customers, communities and regional industries*
- *Finding workable transport solutions that will preserve the vitality, amenity and character of country towns*
- *Making walking and cycling easier and safer and giving customers choice when travelling within their towns*
- *Facilitating access to vital services for an ageing regional NSW population and people with disabilities*
- *Identifying and preserving key transport corridors* (TfNSW 2013, p. 10).

This Paper endorses these directions but adds the following, in relation to regional person movement:

1. Recognising and acting on the place of intra-regional transport in improving social inclusion and strengthening capacities for individuals and the region
2. Enabling regional communities to have more control over planning and delivering regional transport improvement priorities that affect their wellbeing and that of their communities, through the mechanism of Regional Accessibility Committees
3. Using a 'total transport approach' to planning and delivering regional mobility services, with wider access to school bus services a key part of this direction in situations where these services are currently reserved for school children but have spare capacity
4. Within this total transport approach, establishing public transport service standards that provide a decent social safety net for mobility/accessibility
5. Giving high priority to the mobility needs of regional young people, including a much greater focus on the needs of pre-schoolers.

Regional Accessibility Committees and a 'Total Transport' approach

Instead of thinking about individual modes, a more effective regional transport system needs to start with users needs and look at how to best combine the resources that are already used, frequently ineffectively, to meet such needs, adding additional resources when needs demand. The present disaggregated system leads to service overlap and gaps. By bringing together existing transport providers and their resources, together with others who understand community mobility priorities, a 'total transport' approach can be pursued. Key components are that:

1. The current perverse administrative and governance barriers between transport modes (route buses, school buses, community transport, etc), which encourage siloed thinking and behavior, are removed
2. The needs of the travelling public are made the central focus
3. Existing assets are worked harder and
4. Funding for additional service provision is needs based at regional level.

Regional Accessibility Committees (RACs) can play an important regional role here, engaging local people and stakeholder representatives in needs identification, identification of resource availabilities (e.g. people, vehicles and money) that might help better meet outstanding needs and either advising governments on implementation priorities and/or implementing some such priorities themselves. Warrnambool has taken steps along this path.

The two major barriers preventing successful implementation of such an approach are typically the incapacity of authorities to step outside siloed thinking and the parochial attitude of many current mobility service providers to 'their assets', which have often been provided by government money or by donation with government tax support. Disrupting funding flows within a regionally integrated approach is a way to deal with these barriers, with RACs playing the regional integration role.

The aim should be to encourage independent mobility, drawing on a full range of offers from special purpose transport to mainstream transport options, wherever possible. While the route bus system is the back-bone of local public transport, it needs to be part of a regionally integrated system that offers transport information, education and assistance and co-ordinates all forms of local transport (route buses, spare seats on school buses, community transport, taxis, walking and cycling, share cars, uber, mobility scooters, wheelchairs, etc), to better meet regional mobility needs. This will also involve related accessibility-oriented activities such as education on bus use and encouraging the movement of hospital outpatient appointments to coordinate with route bus timetables. Over time, and with the emergence of new transport technologies, vertical integration of regional service provision is likely to evolve, which should help realize much of the potential for improving regional service offerings.

This idea of an integrated approach to service provision in low transport demand settings is consistent with conclusions reached by the UK House of Commons Transport Committee in its report on Passenger transport in isolated communities.

That Committee concluded:

> *Total transport' involves pooling transport resources to deliver a range of services. For example, it might involve combining hospital transport with local bus services. That new approach could revolutionise transport provision in isolated communities by making more efficient use of existing resources. We recommend that the DfT initiates a large-scale pilot to test the concept in practice.* (UK House of Commons Transport Committee 2014, p. 3).

A similar approach has been proposed by the Ontario Ministry of Transport:

> *All public transportation services within a community should be coordinated to expand or provide more efficient transit service. This can include coordination between conventional or specialised agencies; long term care agencies; social service agencies; hospitals, ambulance and patient transfer operators; school boards and school bus companies; intercity bus companies; taxi operators; and volunteer groups.* (MOT Ontario 2012, p. 105).

The UK PTEG (2014) report recommends the establishment of a 'Connectivity Fund', with contributions from a range of government departments, such as health and education, thus recognising the importance of transport in achieving the desired outcomes of these departments. It would be reasonable to ask other organisations to share transport costs to better enable their passengers to access their services, in recognition of the value that transport offers to these services and their client populations, as detailed earlier. However, the Auditor General of Scotland and the Accounts Commission (2011) notes the difficulties that can be associated with convincing agencies to release some control and to work at breaking down silos of responsibility for the greater good, as there are long established practices and boundaries between different policy areas. A similar challenge has been found in Warrnambool.

The regional mobility integration function, working under a RAC, should be performed by the entity best placed to do this in any regional context. In many cases it will be the main regional route/school bus operator, who will most likely be the largest service provider and should be well placed to provide a cost-effective coordinating service. In some regional SA settings, the integration function might be performed by an expanded Community Passenger Network agency. These are matters for regional resolution, recognising the way that evolving technology is likely to support regional vertical integration of mobility service delivery.

This Paper proposes the roll-out of a number of demonstration studies of Regional Accessibility Committees in each State, with significant real decision-making authority for identifying and tackling regional mobility needs devolved from the State Government to regional level, with associated financial capacity to ensure quality planning and service delivery. Back office functions, such as trip scheduling, should be capable of being replicated across entities, to reduce costs. A major focus should be on breaking down the silos that hinder services meeting needs and opening up school bus services for wider access, an issue of major symbolic importance in the push for better integration. Successful delivery should lead to a comprehensive roll-out, adding strength to regions in terms of mobility/accessibility delivery and associated social and economic participation.

Public transport service standards

Provision of improved regional and urban trunk public transport systems will provide such benefits as:

- expanding the regional labour catchment, a source of increased job opportunities
- increasing access to educational opportunities, at post-secondary level but also at secondary level, where it can assist (for example) in improving access between secondary schools, to support a broadening of senior years subject choices between schools/campuses
- improving access to medical, health and other services, including community services and pre-school
- improving access to friends, recreational and other opportunities, to help build vital bridging social capital.

These benefits are mainly about increasing social inclusion, both individual and community scale, but they are also about better regional integration.

The Australian regional case studies discussed herein suggest that towns of under about 5,000 to 6,000 population do not tend to have a normal town route bus service, the smallest Victorian regional town identified with a town route bus service, for example, having a 2011 UCL population of about 5,700. Where regional town route bus services do exist (i.e. larger towns), this study has found variable service levels, with (for example) SA service levels broadly similar to those in WA regional towns but both being at a lower PT service density (kms/per capita) than Victorian regional towns.

The case studies identified some interesting service ideas, such as:

- using a school bus to market test a possible route bus service and using school buses to provide town route bus services (at marginal cost) between school peaks and after the pm school peak in small towns (<~5,000 population)
- concentrating service more highly in key trunk corridors to improve effective frequencies in parts of the service area (common in larger towns and cities)
- use of open access route/school services into a town, running from areas that might have otherwise been school only, showing how service scoping can evolve into a wider purpose
- using a mail service to provide a (low frequency) route bus service in an area without any such service.

Ideas such as these will emerge if regional stakeholders are given a greater opportunity to influence planning and delivery of regional mobility services. They can help in providing higher town and intra-regional PT service levels than might otherwise be achievable.

The town route bus services considered in the case study areas suggest that target or benchmark PT route bus service levels in regional towns might be something like the following:

1. Town population 3,000-~6,000: Hourly 'public transport' type service: Monday to Friday 8.00am to 5.00pm start of last run; Saturday morning 8am to 12pm. Use school buses (including spare seats thereon) or community buses as far as possible, vehicle sizing depending on load expectations, and using volunteer drivers would help to contain costs. This may create issues with disability access, so availability of a vehicle with wheelchair access is important. These services should be timetabled but with a dial-up (on-demand) opportunity, if this only requires a small route deviation (implying a little slack in the timetable).

2. Town population ~6,000-~15,000: Hourly regular PT route service: Monday to Friday 7am to 7pm start of last run; 8am to 4pm Saturday; 9am to 2pm Sunday. Use low floor route buses complemented by school buses and community transport vehicles, including volunteer drivers, for some runs, if needed and feasible, with all vehicles accessible.

3. Town population ~20,000>: Hourly PT service, with 2 or so additional services in both the am and pm peaks; Monday to Friday 7am to 9pm, or later, start of last run; Saturday hourly headway 8am to 6pm; Sunday 9am to 4pm. All services operated by low floor route buses. The additional peak services could perhaps be provided by community transport or school buses in the pm peak.

These indicative target service levels are higher than what Australian towns usually provide but are warranted by the high value of services that support social inclusion (Stanley and Hensher 2011). More creative means of service provision, involving a total transport approach, should make achievement more feasible.

Intra-regional public transport service frequency will depend on the spatial distribution of population and jobs in a region. However, towns of more than 2,000 population should have multiple return services to the largest regional town on a daily basis, probably at around a two- or three hourly frequency, to support regional integration, social inclusion and economic opportunity, provided this does not involve a one-way trip of more than about an hour. As town size increases, so should service frequency, towns of perhaps 5,000 having a one to two hourly service to the regional centre. Spare seats on school buses, or other existing community transport services, may be able to provide some of these travel opportunities, provide this is done in an integrated way. The demonstration studies proposed above for RACs provide an opportunity to test out such intra-regional service standards, which can be little more than suggestive at this time, given the variability in regional scale and demographies, and to explore innovative ways to provide such service.

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