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1-1-2010

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Recommended Citation

Daniels, R., & Mulley, C. (2010). Overcoming barriers to implementing Flexible Transport Services in NSW. Paper delivered at the 33rd Australasian Transport Research Forum Conference held in Canberra, on 29 September - 1 October, 2010.

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Overcoming barriers to implementing Flexible Transport Services in NSW

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Abstract

Flexible Transport Services is an emerging term in passenger transport which covers a range of mobility offers including Demand Responsive Transport, where services are flexible in one or more of the dimensions of route, vehicle allocation, vehicle operator, type of payment and passenger category. Although flexible transport services are used increasingly in Europe and the US as part of the public transport mix in areas where demand is too low to support conventional public transport, there are few sustained examples of these services in Australia. Through a series of semi-structured interviews with key stakeholders in NSW including service providers, peak organisations, users, regulators and policy-makers, the paper identifies barriers to greater use of flexible transport services in NSW. Barriers include institutional frameworks such as policy and regulation; economic issues of funding and fares; operational issues of fleet and vehicles; as well as operator and community attitudes; and information and education. The paper makes recommendations to enable and encourage greater use of flexible transport services by transport service planners and providers.

1. Introduction

Flexible Transport Services is an emerging term in passenger transport which covers a range of mobility offers including Demand Responsive Transport, where services are flexible in one or more of the dimensions of route, vehicle allocation, vehicle operator, type of payment and passenger category. Section 2 of the paper discusses the role for flexible transport services overseas and in Australia, noting that flexible transport services are used increasingly in Europe and the US as part of the public transport mix in areas where demand is too low to support conventional public transport, but there are few sustained examples of these services in Australia. Section 3 outlines the research methodology to identify barriers to greater use of flexible transport services in NSW through interviews with stakeholders. Section 4 provides examples of flexible transport services in NSW. Section 5 discusses five sets of barriers: institutional frameworks such as regulation; economic issues of funding and cost; operational issues such as fleet and vehicles; operator and community attitudes, awareness and cultures; and information and education. Section 6 makes recommendations to overcome the barriers to enable and encourage greater use of flexible transport services.

2. The role for flexible transport services

2.1 What are flexible transport services?

Flexible Transport Services is an emerging term in the transport field which covers services provided for passengers and freight that are flexible in one or more dimensions of delivery. Figure 1 illustrates the dimensions of flexibility. Flexible transport services, operated with dedicated small buses, minibuses or maxi-taxis for general public use or for closed user groups such as special services for older people or people with disabilities, are often known

as Demand Responsive Transport or DRT. DRT services are therefore a subset of flexible transport services which could, for example, additionally include an agency type arrangement where a passenger is met by the allocation of a vehicle or operator at the time of service delivery rather than being fixed in advance. In the mid 1990s, new forms of flexible transport services were made possible due to the rapid developments in communications, computing and in-vehicle systems. The ability to exploit Intelligent Transport Systems overcame key barriers in learning about customer mobility needs, analysing these needs, optimising and allocating work, handling the dispatching functions and, importantly, reducing the time taken for these activities.



Figure 1 Dimensions of flexibility in public transport services

Source: Brake et al. (2006)

2.2 Flexible transport services overseas

Flexible transport services are used increasingly in the UK, Europe and the US as part of the public transport mix in areas where demand is too low to support conventional scheduled public transport. Flexible transport can take many different forms. Enoch et al. (2004, Appendix A) gives detailed descriptions of some 70 schemes around the world as of 2003. More recent information on flexible transport is available from the on-line virtual library of the CONNECT EU Project which is now being maintained and updated by the FLIPPER Project (the successor to CONNECT EU) and is available at <http://www.interreg4cflipper.eu>. Laws et al. (2009) review demand responsive transport schemes in England and Wales. From the mid 1990s a wave of new demand responsive transport services has emerged all over Europe. Most of these are still aimed towards small-scale niche markets such as remote rural areas or groups of disabled users. However, some are on a larger geographical scale such as RegioTaxi in the Netherlands and PubliCar in Switzerland which are nationally supported and regionally organised general access flexible transport service schemes.

The success factors for flexible transport services vary considerably but include a willingness to allow flexible transport services to be part of the public transport mix, an institutional view that they are beneficial underpinned by funding and a recognition of their contribution in meeting the accessibility gap in areas of low demand.

2.3 Flexible transport services in Australia

Demand responsive transport services in Australia have been reviewed by Currie (2007) and Logan (2007). Three well-known flexible bus services in Australia are Telebus in Melbourne, Roam Zone in Adelaide, and Flexibus in Canberra. All three services are “open access”, being available to the general public rather than being restricted to specific user groups. Telebus in the outer suburbs of Melbourne is noteworthy for its longevity, having been introduced in 1978 (Usher 1978, Usher 1994). However, it should also be noted that there appear to be more examples of flexible transport service trial schemes than there are schemes in current operation. Currie (2007) notes the majority of flexible transport services have been abandoned, with financial performance a major challenge. Currie (2007) identifies the common characteristics across the three flexible bus services as offering simplified

operations at low cost for a low density market including “many to one” operations, confined small catchments, and mature residential areas.

Flexible taxi services, particularly in Queensland, are discussed by Logan (2007). For instance, the Mackay Taxi Transit Service uses spare capacity in the Mackay taxi fleet to provide some of the urban public transport network. In Brisbane, Yellow Cabs operates demand responsive services called Council Cab under contract to Brisbane City Council to provide access for eligible residents to their local shopping centre. The Council Cab model also operates on the Gold Coast.

NSW examples are discussed in section 4.

2.4 Markets for flexible transport services in NSW

Flexible Transport Services have been introduced in other jurisdictions to address transport issues that NSW also faces. Similar to other applications, opportunities for greater use of flexible transport services in NSW include:

- filling the gaps within metropolitan areas where bus routes are straightened and resources concentrated into strategic bus corridors
- providing feeder services from peninsulas and isolated valleys to major public transport corridors
- providing service on the fringe of outer metropolitan areas where low density and dispersed development means conventional services are very low frequency
- providing ‘start up’ services in new growth or developing areas where the current population may not be sufficient to justify conventional bus services, but where it is important to establish public transport
- providing services in rural and regional areas where conventional bus services are low frequency or non-existent
- providing services at times of the day or week when conventional services are not viable such as late at night, Friday and Saturday nights, and weekends
- encouraging able community transport clients to use public transport, and
- meeting the transport needs of people not eligible for community transport.

Ideally, everyone would have access to high quality conventional scheduled public transport. But budget constraints of governments mean this is rarely possible. Flexible services have emerged as part of the public transport mix, to help meet transport needs and increase the total public transport market. Flexible transport services can be used for 100% of a trip door-to-door, or for part of a trip. In a number of cases outside Australia, services which have started as small niche services have generated sufficient demand to necessitate the provision of a conventional bus service over time such as in the Flanders area of Belgium, and in the north-east area of the UK.

Gaps in current transport provision, unmet transport demand and the need for flexible transport services to fill some of the opportunities identified above have been identified in several reports in NSW including Transport Planning and Management (2005) and Western Sydney Community Forum (2009).

This paper reports the outcomes of a project which sought to identify barriers to more wide scale use of open access flexible services in NSW as a way of understanding why they are not more widely used.

3. Research methodology

Discussion with key stakeholders was the methodology adopted to understand different perceptions as to the barriers to implementation of flexible transport services in NSW. Stakeholders were defined widely in this context and included users, operators, policy makers, peak bodies and administrators of transport activities.

Semi-structured interviews were conducted to discuss awareness and experience of flexible transport services, and the perceived barriers to implementation in NSW. The questions used in interviews were developed using existing knowledge of barriers from overseas experience, and knowledge of the NSW environment to explore with stakeholders their perceptions of likely barriers, and the options for overcoming these barriers. Stakeholders were drawn from the regulator, Transport NSW (formerly NSW Ministry of Transport), actual and potential operators of flexible transport services both within NSW and in Melbourne, and the peak bodies for community transport service providers, operators, taxi operators and users. The interview included a question about other stakeholders who could be consulted and this helped to ensure that relevant stakeholders, and any other sources of information, were identified.

Approval by the University of Sydney's Human Research Ethics Committee was required for the project and this governed the contact of stakeholders, the questionnaire, and format of the interviews. The semi-structured questionnaire was broad in its approach identifying each stakeholder's understanding of flexible services before moving to a discussion of how the stakeholder considered that services in their domain of interest might be improved, and then to barriers to such improvement. Most interviews were conducted by the two authors together. Written notes of the interviews were provided to interviewees as a check and record. A seminar was held in May 2010 to present the results of the study to interviewees and other stakeholders, and to seek stakeholder feedback on the issues and possible solutions.

By the nature of this study, the sample size is small with 19 stakeholder interviews conducted. For this reason the information provided by the stakeholders is not attributed to particular named stakeholders, unless the information or stakeholder position is publicly available.

4. Flexible transport services in NSW

4.1 Framework

In NSW, the provision of passenger transport services is governed by the *Passenger Transport Act 1990* and Passenger Transport Regulation 2007. The NSW budget included almost \$600 million in 2008/09 for metropolitan and outer metropolitan bus services and \$350 million per year for rural and regional bus services (NSW Ministry of Transport 2009). There are 3 community transport programs in NSW: the \$35 million Home and Community Care Community Transport Sub-program (funded 60% by the federal government and 40% by the state government), the \$3.6 million Community Transport Program for the transport disadvantaged, and the Regional Transport Coordination Program (NSW MoT 2009).

In NSW, the Unsworth Review of Bus Services (Unsworth 2004) was commissioned by the NSW Minister for Transport in response to government and industry concerns about the viability of many bus operators and bus services. This led to major changes which influence the environment for provision of flexible transport services. The NSW Government's response to the Unsworth Review resulted in significant bus reform in both metropolitan Sydney and throughout NSW involving network and service planning, contracting, funding, fares and information. One of the recommendations, which has been implemented by the Government, was the appointment of 11 regional transport coordinators across NSW to promote co-operative service provision between all transport providers to encourage flexible solutions and ensure that services for the transport disadvantaged are optimised. Over 400 projects have been trialled since 2004, with some of the Regional Coordination Program funded projects documented online (Transport NSW 2010). Few of these initiatives include demand responsive transport with most focussing on reducing the cost of use of existing bus and taxi services to users.

4.2 Examples of flexible services for the general public in NSW

Flexible services, as defined previously, are services where at least one dimension of the service such as route, frequency, vehicle or operator is not fixed in advance, in contrast to the conventional scheduled public transport which runs to a timetable along a specified route with a pre-determined vehicle. This section identifies examples of flexible transport services in NSW which are open to the general public that were identified by stakeholder discussions. It is not intended to be a complete list of all flexible services currently in operation.

In terms of vehicles, the study found services being provided by conventional bus (although often a smaller than typical vehicle is used), taxi vehicles and those vehicles owned by Community Transport, usually minibuses. The operators of these vehicles included bus operators also running scheduled services, taxi operators (operating taxis), bus operators (operating taxis), and community transport operators using their own vehicles and also taxis. The funding of these services varied from those funded under 'conventional' bus contracts from the NSW Government, Home and Community Care (HACC) funded community transport services, those funded by local authorities, and others funded by the private sector such as major employers.

Bus services (open to all)

- LocalLink Queanbeyan (from December 2005) and LocalLink South Coast, operated by Deanes Buslines, are probably the best examples of flexible bus services in operation in NSW. Services are flexible in route and collect and drop off at the passenger's home. Services are timetabled to a fixed point or points as part of the service to meet contract and regulatory requirements.
- Maitland On-call bus has been operated for over 10 years by Hunter Valley Buses, using a 24 seater midibus. At night, normal bus routes in two areas of Maitland are replaced by on-call buses which pick up and set down at bus stops and can be pre-booked. This service is likely to be replaced by a scheduled night-time bus service as part of a forthcoming network review.
- Towamba Valley Access Bus in south-east NSW operates once a week from the small isolated villages of the valley to the main centres of Bega and Merimbula on alternate weeks. It is provided by the local school bus operator using a 26 seater bus. It is open to all in the community. There are fixed pick-up points, but hail and ride applies anywhere on route or passengers may phone ahead for door-to-door service if required.

Free bus services open to all

- The City of Sydney Council funds the free Village to Village service, operated by South Sydney Community Transport as a fixed route service linking health and retail venues.
- Manly Council operates the free Hop, Skip and Jump community bus service available to everyone, 7 days a week, timetabled on 4 routes in the Manly area using council-owned minibuses. It uses regular bus stops and is "hail and ride" where possible. The Council has recently extended the Hop, Skip and Jump brand to a paid weekend sight-seeing tour, partly to offset the cost of the free community service of over \$500,000 per year.
- Mosman Council operates the free Mosman Rider hail-and-ride loop service bus around Mosman, modelled on Manly Council's service. It started in December 2009 and operates 7 days a week using a 21 seat bus. It costs \$200,000 a year and is funded from parking meter revenue.
- Willoughby Council operates the free Artarmon Loop shuttle service travelling on a loop from St Leonards station through the Artarmon industrial area and Royal North Shore Hospital 5 days a week, open to everyone.
- Parramatta Council funds a free Loop Bus in Parramatta CBD 6 days a week operated by Veolia.
- Free CBD loop bus services in Sydney and Wollongong CBDs are funded by the NSW Government.

- Fare Free Zone in Newcastle offers free travel on any state government bus in the city centre between 7.30 am and 6 pm seven days a week.

Taxis

- Willoughby Council Cab is a shared ride taxi, pre-booked the previous day to arrive in a 30 minute window, with a fixed fare of \$5 subsidised by Willoughby Council. Users pre-book with the Council Coordinator who acts as the hirer of the taxi. The concept was developed as a way of providing transport services at a cheaper cost than the council buying its own community bus.
- Participants in the Maitland Liquor Accord paid for a maxi-taxi for use by the taxi company in order to provide Liquor Accord services.
- In new estates in south west Sydney, the bus company used taxis to provide intermediate services until demand increased enough to provide a bus.
- Community transport providers use taxis to provide services, as a regular part of their vehicle mix and/or as a backup when other vehicles are not available.

Community transport

Innovative community transport services in Sydney, often flexible shuttle minibus services, are documented in Transport Planning and Management (2007). Under the spare seat policy, community transport organisations can use spare seat capacity for non-HACC members of the public. South West Community Transport (SWCT) has a partnership with Picton Buslines to run a wheelchair accessible coach to provide door-to-door service for a monthly shopping service from Wollondilly to Campbelltown. SWCT provides a shuttle service to the coach pickup point. The users are mainly HACC clients, although it is open to others.

Open access or not?

It can be difficult to determine to what extent a service is open to the general public. For instance, the community transport operator Community Wheels provides a weekly shopping service to Merrylands Mall. People wanting to use the service must be pre-registered which requires an individual assessment of their need. People who are not eligible as HACC clients may be eligible if they cannot walk to a bus stop and have no family support and are assessed as transport disadvantaged. People who are temporarily unable to use public transport (say due to a broken leg) may also be eligible on a temporary basis.

Other bus services which are not open to the general public, but which meet a gap in conventional scheduled services, include employer-funded shuttle buses from major stations to the workplace such as Optus at Macquarie Park and Woolworths at Bella Vista in north-west Sydney, and courtesy buses provided by venues such as RSLs, clubs and pubs to pick up patrons from home and return them home after a night out. Rather than funding their own employee shuttle services, other employers such as Fairfax at Pyrmont and Commonwealth Bank at Olympic Park, under agreement with Transport NSW, fund extra scheduled regular bus services provided by the contracted bus operator.

Innovative operational features which emerged from discussions with stakeholders include Picton Buslines' ownership of Camden taxis providing an opportunity for part-time bus drivers to supplement their income as taxi drivers, and the way in which Kalianna Enterprises in Albury owns and operates taxis, buses and community transport. Kalianna receives a variety of funding streams which have differing purposes.

It is clear from this summary that there are very few flexible bus services operating under the *Passenger Transport Act*. But there are other services, often free, which have emerged to meet transport demands for regular services that operate outside the Act, partly due to the complexities of regulations and different funding arrangements. The next section considers the barriers to more systematic and widespread development and use of flexible transport in NSW.

5. Barriers to flexible transport services

Through interviews, stakeholders identified a wide range of barriers to greater use of flexible transport services. This section has broadly categorised these into five themes: policy, legislative and regulatory barriers; economic barriers relating to funding, costs and fares; operational barriers related to fleet and vehicle issues; barriers which arise through cultural or perception differences between regulators, funders, operators and users; and information, education and promotion barriers.

5.1 Policy, legislation and regulation

In NSW, the *Passenger Transport Act 1990* and associated Passenger Transport Regulation 2007 govern the operation of buses, taxis and hire cars with specific clauses for different types of operator. Community Transport operations are outside the Act entirely. The policy framework for the legislation is a mode-by-mode approach, rather than a holistic approach in which each mode is integrated to focus on meeting transport demand. The legislation appears to reflect a policy position that buses are for mass transit and taxis are for individual transport. This gives rise to the barrier of very mode-specific regulation. In this context, regular bus services must have a timetable and fixed stops on their routes whereas taxis are infinitely flexible in their routing and timetable. Flexible transport could be thought of as a bus acting more like a taxi in that pick-up or drop-off at the passenger's home by bus deviates from the concept of a specified route. The pigeon-holing of operators prevents the intermediate operation of flexible transport. In particular, the successful flexible services in NSW, such as Deane's LocalLink bus in Queanbeyan and the South Coast, have had to work within this rigidity by providing a timetabled portion of the service and fixed stops to meet the definition of 'a regular bus service' even though deviations from this are provided.

The complexity of the legislation, with definitions and cross-references between vehicles, licences, accreditation, accredited operators, and public passenger services, can make it difficult to determine what is allowed or not – in particular, who can provide what type of services where, and whether a fare can be charged or not. For instance, under the definitions of the *Passenger Transport Act* (clause 3), a "regular bus service" is a regular passenger service conducted by bus, where a "regular passenger service" is a public passenger service conducted according to regular routes and timetables and defined in a contract between an accredited service provider and the Director-General, and a "public passenger service" is the carriage of passengers for a fare or other consideration.

The Act reflects the reality that regular bus services are subsidised by government and that competition between a subsidised bus service and an alternative, even if the alternative is operated without government subsidy, could reduce passengers on subsidised services and therefore increase the gap to be met by government subsidy. With bus contracts for specific regions, the regulation focuses on preventing spatial competition. This leads to cases where feasible unsubsidised additional services, such as youth services at night, or in counter-peak directions, are disallowed. It is also a difficult and unclear process for any organisation wanting to contribute to the cost of new or extra services, which would reduce the government subsidy required.

Under NSW bus contracts, the payment of subsidies for bus services based on the agreed kilometres run also gives rise to barriers in the implementation of more flexible transport. Operationally the contracts give little freedom for flexibility. The nature of flexible transport also makes it difficult to subsidise on a kilometre run basis as there is no ex ante knowledge of the likely running distance and thus likely cost. It is also more difficult to monitor kilometres provided and reimburse operators ex post.

Under bus reform, the network planning function is now largely determined by the regulator and funder, Transport NSW, under planning guidelines for different types of bus contracts. The NSW Government's service planning guidelines for metropolitan bus contract regions

(NSW MoT 2006), for outer metropolitan bus contract regions (NSWTI 2009) and for rural and regional contract regions (NSW MoT 2008) all identify a potential role for flexible transport services. However, the guidelines do not provide any guidance to bus operators on developing and implementing services within the Act or working with other service providers such as taxis or community transport. The process for making network changes can prevent a quick response by bus operators to emerging new demand. There is also a concern, expressed by more than one stakeholder, that Transport NSW network planners support a 'consistent' public transport offer in the belief that it is easier to have services that look the same and are easier to communicate to the travelling public. This is further discussed in section 5.2 below.

Taxi operators wanting to operate more flexibly are equally frustrated by the legislation which specifies trips can only originate or finish within the licensed area of the taxi. The cost of the taxi licence is related to its earning capacity and potential. In practice this is more of a barrier in areas outside the metropolitan areas of Sydney where the licensed area is often spatially more compact.

5.2 Funding issues, fares and costs to users

Stakeholders identified a set of barriers related to the economics of flexible transport services including funding of services, subsidy, fares and costs to users relative to alternatives.

Funding

Many stakeholders identified the overall level of funding as a barrier to more flexible transport. In addition, existing funding for innovative services is subject to different rules and criteria with no long term funding for initiatives that are successful. There is a small pot of pilot or seed funding available through the Transport NSW Regional Transport Coordinators (about \$40,000 for each of the 11 RTCs per year) to support the development and trial of innovative services. However, it can be difficult for services to become viable and self-sustaining when the initial seed funding runs out and most services do not continue beyond the trial period. The NSW Government's Community Transport program for the transport disadvantaged is negligible although in addition to the joint federal-state funded Community Transport program for Home and Community Care clients.

The subsidy mechanism for regular bus services in NSW is largely determined by the kilometres travelled. For flexible services, where the kilometres cannot be determined in advance, this means the Government cannot predict with certainty the final subsidy bill. It is a significant barrier that flexible services are seen as potentially increasing the subsidy bill and that this bill would no longer be predictable with certainty. Technology such as GPS could help overcome the issue of knowing where and when flexible services operate and facilitate the payment of variable subsidies.

The original intention of new contracts under Unsworth bus reform was to provide funding for community kilometres for community groups to access buses more or less at marginal cost. This has not been implemented, partly due to lack of funding, as well as lack of definitions and process guidelines.

Operator costs

The cost of flexible transport services can be less or more than conventional services. Bus operating costs are driven by the labour costs of the drivers and the distances travelled by the vehicle. Flexible services may have higher operational costs than conventional bus services if they travel further by deviating from a straight route to collect or drop off passengers. But compared to the running of empty buses, flexible services can save kilometre-based costs by not operating unless there is a passenger, even if the labour cost is still incurred. Within the NSW context, one stakeholder suggested that the current subsidy framework means that flexible services are only likely from larger operators who may be prepared to take a commercial risk and cross-subsidise flexible services from conventional

services within their business. The evidence in NSW suggests that it is bus operators who may initiate flexible services in order to reduce operating costs, seeing the inefficiency of operating empty buses.

There is evidence from NSW (Transport Planning and Management 2008) and Europe (Commission for Integrated Transport 2008) that economies of scale can reduce costs of operation for on-demand flexible services when operations cover a larger spatial area as this increases the potential patronage, vehicle utilisation and the opportunities for increasing average loadings. As the spatial area covered by flexible transport increases, the economics of using information technology in the form of scheduling software becomes more advantageous. Scheduling software is often used in the taxi industry and its use more generally will encourage the breakdown of barriers between the modes.

This suggests that an amalgamation of small operators or joint service provision across several local government areas could reduce costs. For community transport, the LGA boundary is used to define the catchment area for clients but community transport services do provide transport beyond the boundaries of their own LGA. However, local councils currently providing support to community transport operators through services such as free rent, IT and HR services do so for residents within their own geographic boundary. Councils may not want to fund or contribute to services operating partly outside their boundary.

All stakeholders identified the current regime of bus operator incentives in the bus contracts as a barrier to the introduction of flexible transport. For operators, the issue is that there is no incentive to grow kilometres and only a weak incentive to grow patronage, and no incentive to try something new unless separate funding is given by the Government. Non-operator stakeholders argued the lack of incentive to make changes was a significant barrier although it was perceived as being easier for rural and regional operators to introduce flexible services as these operators can plan their own services within the planning guidelines with no formal approval necessary for minor changes.

User costs

There is a perception that flexible services mean that passengers receive a taxi-like service at public transport fares. This perception characterises a number of the barriers under the theme of funding and fares. From the passenger point of view, the question of what fare should be paid is a contentious issue. On the one hand, a higher quality service could be argued to be worth the imposition of a premium over the normal public transport fare and yet flexible transport is a form of public transport suggesting that a public transport fare would be appropriate. This is a difficult issue that has taxed flexible transport operators worldwide. In most cases a premium fare is charged. For the Telebus service in Melbourne, passengers have the option of door-to-door service with a premium fare, or service from a bus stop at the regular bus fare. Fares equity is an important policy objective and currently in NSW rural and regional bus fares are higher than their equivalent metropolitan fares. Taxi fares are also higher in non-metropolitan areas, reflecting the risk of a non-paying return trip. Adding a premium to existing fares may put flexible services outside the ability and willingness to pay of some passengers.

Whilst a form of public transport, taxis, unlike regular bus services, operate as a commercial business with higher fares than bus based public transport. For instance, Sydney taxi fares are \$3.20 flagfall plus \$1.93 per km and a \$2.10 booking fee, while adult bus fares in Sydney are \$2.00 for 1-2 sections (a distance of up to 3.2 km) and \$3.30 for 3-5 sections (up to 8 km). Under the MyZone fare reform introduced in April 2010, no Sydney bus fare is more than \$4.30 per trip, even for an hour long trip over 40 km such as Sydney to Palm Beach. Although people on low income (often with no car or licence) are one of the markets for taxis due to their lack of other transport options, the unsubsidised cost of taxis is a big barrier to their use by low income users.

Potential involvement of taxis in providing flexible services would mean finding a way of successfully implementing shared or collective taxi services that are used by passengers not already using taxis so as not to undermine taxis' existing passenger base. For passengers, the level of fares for single use of taxis is too high and the current fare rules for multiple occupancy do not significantly reduce the fare to the individual. If sharing a taxi, one person pays the fare. Under multiple hiring, the taxi is hired more than once at the same time and each user pays 75% of the fare, and the driver can earn a higher fare if destinations are close. There is also a 50% surcharge on maxi-taxis (with seating for 6 or more passengers), which may be justified on the basis of the increased cost of larger vehicles, but increases the cost of sharing taxis. Overall there is little financial incentive for taxis to be involved in innovative schemes. The maximum fares taxis can charge are set, but taxis can offer lower fares. Taxis could provide subsidised trips, but the question then is who pays what? There is need for a new approach to the use of taxis as part of the public transport mix. Shared taxi schemes require a coordinator, or someone to act as the "hirer" of the taxi, as Willoughby Council does for its subsidised Council Cab scheme.

The community transport sector was identified by many stakeholders as the most probable operators of flexible transport in NSW. But Community Transport operators are currently predominantly funded for the transport of a specific group of HACC clients who meet specific eligibility criteria. HACC services are targeted at people living in the community, who in the absence of HACC services, are at risk of premature or inappropriate long-term residential care including older people and frail persons with moderate, severe or profound disabilities, younger people with these disabilities, and their carers. The eligibility criteria are subject to interpretation by individual operators leading to inconsistency in eligibility between areas. Access to services is based on relative need. Other funding dedicated to meeting the needs of non-HACC clients who are transport disadvantaged is the Community Transport program of less than \$4 million across NSW. Interpretations of eligibility for this can also vary.

Being outside the *Passenger Transport Act*, community transport services are not allowed to charge fares, but instead ask for "donations" and are not allowed to refuse service to people due to inability to pay. Despite this, community transport services are advertised with a "fare". As charges are set by each individual community transport provider, there is no state-wide common pricing structure for community transport charges, which were identified as expensive by a number of stakeholders, leading to inconsistencies across the state. Being outside the *Passenger Transport Act 1990*, concession fares such as the Pensioner Excursion Ticket are not valid for community transport services.

5.3 Fleet and vehicle issues

Fleet and vehicle issues were also identified as an operational barrier to greater provision of flexible services. This includes the nature of the existing fleet of vehicles, accessible vehicles, vehicle utilisation and capacity, and vehicle brokerage.

The fleet profile for conventional bus services in NSW is driven by the need to provide school services and peak period route services. The funding mechanism for bus operation in NSW provides an incentive to acquire a 'full size' bus to meet these demands, where a full-size bus can be 12 m long and seat 45 passengers. This means that in the off-peak it is 'full size' vehicles that are available to meet additional demand and these are most suited to providing the conventional fixed route services. Stakeholders who operated in this conventional market identified that costs were not significantly lower when operating smaller, conventional buses although the smaller buses were able to use roads and penetrate areas not available to the 'full size' vehicle.

Stakeholders from all sectors identified significant spare capacity in all vehicles during the off-peak period: this included buses, taxis and community transport. The absence of a recognised process to provide effective brokerage of vehicles is identified as a barrier to greater use of this pool of vehicles and spare capacity. Aligned to this is the way in which

many community groups, Liquor Accords, venues such as RSLs and clubs, and community and youth services campaign for funds for their own vehicle which, once acquired, may be unused for significant periods of the day or week. Difficulties in encouraging greater use of the existing fleet include determining an appropriate cost to charge out vehicles to other users, ownership and insurance issues, the provision of drivers, as well as a need for information on where and what vehicles are available. The spare capacity policy for community transport is often misunderstood to imply that all non-HACC users should pay full cost recovery, but this is not the case. Technology, including internet-based brokerage services such as SmartLink for the Blue Mountains, can help overcome some of these barriers.

The greater use of the vehicle fleet by brokerage also raises issues relating to the drivers of these vehicles, with different standards of driver accreditation for bus drivers, taxi drivers and community transport. Drivers also have different training. Community transport drivers are highly trained in the manual handling of passengers and assisting passengers, and there is a high, although decreasing, reliance on volunteer drivers.

The accessibility of vehicles is also an issue in vehicle sharing, and greater flexibility of use of vehicles. The proportion of accessible buses in the total fleet is increasing due to the Standards for Accessible Public Transport under the Commonwealth Disability Discrimination Act requirements for accessible vehicles and government funding of replacement and growth vehicles, but not all existing vehicles are suitable for more flexible services open to the general public. Community transport operators use accessible vehicles for their services, due to the needs of their clients, and the policy requirement, for organisations funded by HACC, that vehicles purchased over 8 seats are accessible for wheelchairs. However, the community transport sector perspective that community transport vehicles are not subject to the Standards for Accessible Public Transport as they are not providing services to the general public is an untested area of law.

5.4 Attitudes, culture, perceptions and relationships between stakeholders

The discussions with stakeholders revealed a complex set of barriers in the form of differences in attitudes, culture, perceptions and expectations amongst stakeholders leading to often conflicting approaches to public transport.

Operators

There is a perception that bus public transport is focussed on scheduled routes because of the certainty for both operators and government as the funder. Flexible services have less certainty in the relationship between funders and operators. This is reinforced by operators who are focussed on the provision of scheduled and school services as the mainstay of their business. The lower certainty in outcomes, for both operator and funder, seems to be based on a symmetry of mistrust leading to both parties being insecure about the financial outcome.

Mistrust also features as a barrier to greater co-ordination between the different modes with many conventional bus operators and community transport operators seeing each other as a threat to their own market. Similarly, where flexible bus services are in operation, both taxi operators and community transport felt its presence a threat, at least initially. Whilst similar distrust has existed between taxi operators and community transport operators, their peak bodies have worked hard to reduce this barrier by developing a model contract for use of taxis for community transport, training and education for both taxi drivers and clients, and “opt-in” choices for taxi drivers for community transport work.

The unique structure of the taxi industry with taxi network owners, taxi licence owners, owner-operators and bailee drivers may influence attitudes to customer service and quality as licence owners see bailee drivers, who pay a fee for the right to operate the taxi for a shift, as their clients, rather than the users of taxis themselves.

The philosophy of HACC-funded community transport is that community transport is a community care program, rather than a transport program. This is reflected in the inability to refuse service if a client does not make a donation. As a community service, community transport operators are not encouraged to act commercially.

Local government

Whilst the institutional framework for the regulation of bus services lies with state government, a number of stakeholders pointed to the unevenness of support from local government. Local government has an important role and good relationships are critical to partnerships working. Local government provides roads at the local level, footpaths and bus stops which are essential for access to local services, and approves bus use of local roads. Some local governments were identified as proactive in seeking good working relationships with operators of services involving these operators in, for example, the design of new residential developments with developers to create an understanding of the infrastructure needs of public transport. In other areas where these relationships were not so good, operators identified the physical layout of new developments as being a barrier to the development of effective bus provision or the lack of kerb and guttering required for low floor vehicles. Some local governments are more supportive of flexible transport, seeing it as part of their commitment to community services, while others see no role for local government in public transport. Active local government support for flexible transport can include financial support, relocation of bus stops, support in marketing and promotion, as well as support for Transport Working Groups.

Multiple stakeholders and Transport Working Groups

A Transport Working Group (TWG) is a mechanism used to draw multiple stakeholders in an area together, including the Regional Transport Coordinator, bus operators, taxis, community transport, local government, and community representatives, to ensure greater coordination of service provision. There are no formal requirements for TWGs in NSW, and no guidelines on the effective working of a TWG. While there are a number of TWGs in NSW, often based around a large centre in each region, the effectiveness of TWGs varies depending on the local environment and support. Local government support is important for the operation of TWGs in terms of the formal support necessary for regular committees such as provision of venues, catering and secretariat services, as well as commitment to the aims of the TWG.

Further barriers to implementation were identified as a result of lack of co-ordination between all levels of government from Commonwealth, state, to local government, and between agencies at the same level of government as highlighted within NSW with the regulator, Transport NSW, defining a 'bus' differently from the Roads and Traffic Authority.

Users

On the demand side, a number of attitudinal and cultural barriers to flexible services were raised by stakeholders. Policy makers believe that the community expects conventional route services because it gives a certainty of service, even if they do not want to use it. Perhaps more importantly, several stakeholders identified that passengers want 'normal' services as opposed to 'special' services with community transport identified as being for disadvantaged or disabled users and 'shopper-hopper' services seen as a loss of independence and dignity in accessing the wider conventional network for a greater variety of activities. Stakeholders also identified a lack of understanding of sharing any mode of transport other than the conventional bus. Shared taxis do exist but there is poor understanding of shared ride and multiple hiring rules with the outcome that users feel the payment structure is unfair to them (see section 5.2 above). Users have little experience of negotiating shared rides, and there is a culture of being unwilling to share.

Successful flexible services require good relationships between the service provider and a wide range of potential users such as local clubs, community groups, and venues such as RSLs, pubs and youth centres. Regular group bookings, such as picking up the members of

a war widows' group from their homes, taking them to a weekly meeting at a club then returning them home, can provide the foundation for a flexible service. In many cases, good relationships and an awareness of an available flexible transport opportunity could avoid the need for individual groups or clubs to buy their own bus.

An overarching barrier identified by many stakeholders was the time required to change the public's travel behaviour. The travelling public is not used to innovative services and it takes time to build both acceptance and patronage, requiring the provision of information and education, as discussed in the next section.

5.5 Information, education and promotion

Information as a barrier includes information and awareness by both operators and the public of the opportunities offered by flexible transport. Stakeholders identified that there was a need to have better data to understand what needs flexible transport could meet over and above, or instead of, what is currently being provided by road-based public transport. Alongside this, operators are comfortable with their core business, whether buses, taxis or community transport, but are unfamiliar with what is required to run more flexible services.

A lack of understanding by passengers was also identified as a barrier. For the flexible bus services that are in operation, it has been necessary to educate both passengers and staff in the industry to understand that the service is not a taxi. Reaching potential passengers has also been an issue for flexible transport in operation since the more flexible the service, the less presence it has in the community and the more marketing becomes a necessity to generate patronage. In line with experience outside Australia, the operators of flexible services identified word of mouth as the most effective form of advertising. A number of stakeholders also identified the travelling public's lack of knowledge about travel options and the mechanics of use, such as timetables and ticketing, as a barrier to more public transport use in general and flexible transport services in particular.

6. Discussion on overcoming barriers

Barriers to the implementation of flexible services in NSW are varied and many of these are inter-related. This section recognises that many barriers are not insurmountable as indicated by the presence of those flexible services in existence. This purpose of this section is to identify changes so that it would be easier to introduce more widespread flexible transport services as part of NSW's public transport offer.

6.1 Overcoming policy, legislation and regulation barriers

While there were major changes in NSW in 2005 to contracts, funding and planning as part of Unsworth bus reform, there was no change to the underlying policy framework for passenger transport. The *Passenger Transport Act* makes an artificial distinction between modes rather than seeing vehicles as a means of providing a public transport service. The contrived distinction between modes is linked to the subsidy of regular bus services by the government. Changing legislation would need to recognise that different road-based modes have comparative advantages in serving different passenger needs and make provision for different kinds of route operation, including flexibly delivered services.

In terms of legislation and contracts, many of these issues would be overcome by:

- Explicitly recognising in the legislation flexible transport services as a road passenger transport service where one or more of the vehicle, operator and route is not pre-determined.
- Regulating the operator of a road passenger transport service independently from the type of vehicle used. Operator accreditation for safety would still apply to all operators of a road passenger transport service.
- Widening the types of vehicles that can operate as road-based passenger transport to include conventional bus, minibus, hire cars and smaller, taxi-sized vehicles. In this re-

specification it is important to ensure that relevant safety regulations are in place for the vehicle type.

- Clearly specifying the types of route that can be operated as road passenger transport to include more flexibly delivered transport services.
- Amending the contract between the government and an operator to allow flexible services without the need for these services to include, for example, a bus stop.
- Amending the service planning guidelines to explicitly recognise flexible delivery of services and the role that these services may play in network design which focuses on building up frequencies on strategic corridors or 'straightening out' routes to provide quicker journey times, and provide more detailed guidance on implementation.
- Ensuring the ability, for operators who see an opportunity to provide a service without government subsidy, to apply for permission to operate and for this to be granted unless there is a compelling reason to refuse. The reasons for refusal might be, for example, that the proposed service competes with an existing route and would attract passengers thus increasing net government subsidy. This provision would allow, for example, youth services to provide safe journeys home, or Community Transport to provide targeted services where none exist.

Changes to the policy framework and legislation would have impacts on current operators, and industry consultation and research on costs and benefits would be required.

An integrated planning approach to meet transport needs within an area could be trialled in a bus contract region in the metropolitan area and in a rural and regional bus contract region. A project was proposed for the Penrith region before the Unsworth reforms (Transport Planning and Management 2005).

6.2 Overcoming funding and fares barriers

Funding is related to fleet use issues. The current funding of both routes and vehicles does not encourage operators of conventional bus services to examine whether alternative forms of delivery might be more efficient. More targeted incentives to consider flexible transport services as part of the public transport mix might be necessary to provide a step change in thinking about alternative delivery strategies leading to more mixed size fleets. In the case of taxi-sized vehicles operating more like buses, there are issues about separate payments of fares by individuals. For shared taxis, the rules for multiple hirings could make the fare system closer to public transport fares. For taxi-sized vehicles operating to a fixed timetable and route, the ability to charge separate fares is crucial.

Funding and fares issues could be overcome by:

- Increasing the level of funding for flexible transport. The level of funding was identified as an issue in the provision of services. Flexibly delivered services are perceived as more expensive or designed for special needs, such as meeting the needs of the HACC clients serviced by Community Transport. Whilst flexibly delivered services are more expensive to provide per passenger than heavily loaded mass transit, such as peak hour journey to work type services, flexible transport services that only operate when passengers demand journeys are likely to be cheaper per passenger than conventional buses with few or no passengers.
- Increasing incentives for innovation for operators in their contracts. With the current 7 year metropolitan bus system contracts due for renewal in 2012, there are opportunities for the new contracts to increase the incentives for operators to be innovative and increase patronage.
- Encouraging exploitation of economies of scale in operations to reduce costs.
- Recognising long development times in funding new services. The service development and funding of new flexible transport services must recognise that schemes take longer than conventional services to reach maturity. Flexible services are less visible to the

travelling public and European experience suggests that the demand build up can take up to seven years to achieve (Commission for Integrated Transport 2008).

- Ensuring fares reflect the level of service provided. The fare paid by the passenger is critical to the level of take-up of more flexible services. For those flexible services which are truly part of the public transport mix, the normal public transport per km fare should apply with a premium add-on if the service deviates from the route for pick-up or delivery to the door (as opposed to a bus stop). The introduction of integrated ticketing with an electronic SmartCard in the future will help if this relates to all public transport services.

6.3 Overcoming fleet and vehicle barriers

For much of the provision of road passenger transport services in NSW, the vehicle used is driven by the requirement for large vehicles for school services. In contrast, the low density nature of much of the operating territory in NSW means that smaller vehicles on timetabled routes and smaller vehicles providing more flexible services might be a better way to match demand and supply for some parts of the territory or times of day. In many countries the use of different vehicles by time of day or potential loading has been achieved by use of brokerage of vehicles between organisations. Brokerage makes good use of existing capacity to exploit the economies of scale derived from using existing capacity more intensively and reducing the kilometre cost (by reducing the fixed cost element). Outside Australia, the provision of pump-priming funding to set up brokerage agencies has been a successful approach.

Changes to address fleet and vehicle issues could include:

- Writing the sharing and brokerage of government-funded vehicles into contracts with operators to raise the profile of brokerage.
- Developing guidelines on sharing of government-funded vehicles including charge-out rates to provide flexible transport, and increasing awareness of the existing utilisation of spare capacity policy for community transport.
- Ensuring funding of new vehicles achieves an appropriate fleet mix.
- Encouraging greater flexibility in use of drivers across vehicles.

6.4 Overcoming attitudes and perceptions barriers

For flexible transport services to be successful, it will require a change in attitude and perception by both operators and passengers, and better relationships between different types of operators. Current attitudes of operators reflect the regulatory environment, contracts and funding arrangements. Attitudes also reflect the level of information and awareness about flexible transport services and interpretation of the current regulatory environment.

For flexible transport services to be successful, it will also require a change in attitude and perception by potential passengers. Currently, Community Transport services for the elderly and infirm are the only flexible services which the general public are aware of. Many potential passengers do not want 'special' services but services which are open to all. Having flexible transport services as part of the public transport mix will require an attitude shift – one which other countries and Deane's LocalLink in Queanbeyan and on the South Coast have found possible by effective marketing with a focus on the outcome (provision of the service) rather than being linked to a particular vehicle or mode. Once established, flexible transport services often grow fastest through word of mouth since their flexibility mitigates against normal forms of self advertising such as bus stops, timetables, and bus presence.

Possible changes to overcome attitudes and perceptions, which are also related to information and awareness, include:

- Developing a manual or case studies on flexible transport services to assist operators and other stakeholders understand how to implement and benefit from flexible transport services.

- Allowing for marketing and education costs when developing a new service.
- Ensuring that public transport information sources routinely identify the presence of flexible transport services where they exist and explain how they are used (such as eligibility, cost, booking). In NSW this would mean including flexible services in Transport Infoline 131500. For geo-referenced systems this can be problematic since a flexible route will not, by definition, have a 'route' to be referenced, although geocoding of flexible services can be done within a "shaded roam zone" type mapping along a core route or corridor.
- Developing relationships between stakeholders, building on the work of Regional Transport Coordinators.
- Educating users on shared services to encourage a cultural shift in sharing.

6.5 Overcoming information and education barriers

This research identified a lack of knowledge about flexible transport services amongst stakeholders in general. Operators, local government and state government need to be more aware of the potential of flexible transport.

Changes to overcome information and education barriers, which are closely related to attitudinal and cultural barriers, include:

- Compiling data on the opportunities offered by flexible transport, to increase awareness amongst stakeholders.
- Providing evidence as to the effectiveness of flexible services as part of the public transport mix. Information on current ridership of road-based public transport is available but of course, the scale of the potential need for flexible transport services as part of the public transport mix is inextricably linked with the level of provision of conventional services.
- Providing information on situations in which flexible services would be appropriate and cost effective for both operators and peak bodies representing users.
- Synthesising best practice and transferring good ideas from even the limited use of flexible transport services in NSW.
- Formalising the operation and membership of Transport Working Groups in NSW as a practical measure to bring all stakeholders together would allow the potential of flexible services to be explored alongside other initiatives in a given geographical area. This forum would help to break down the barriers between the different levels of government and their respective responsibilities in the provision of local services.

6.6 Other issues

Technology and infrastructure will help increase use of flexible transport services when they are introduced, but there is a need to overcome some of the barriers identified first. The use of technology, particularly in rural and regional areas, can help overcome distinctions between different modes, and help coordinate sharing of passengers and vehicles. Infrastructure is required to support flexible transport including the provision of high quality interchanges, taxi stops and bus stops with appropriate signage, lighting, visibility, safety and security.

7. Conclusions

Flexible transport services are not used as widely in Australia as they are in other countries including the UK and Europe, despite their potential to increase accessibility and improve social inclusion where conventional public transport services are not viable. There are very few flexible transport services in operation in NSW open to the general public, with only LocalLink operating a flexible bus service as a regular passenger service. There are free services, outside the *Passenger Transport Act*, that reduce the cost of public transport to users.

By consulting with 19 stakeholders, the research identified barriers to the implementation of flexible transport services in NSW. Barriers were grouped into five themes: policy, legislation and regulatory environment; economic issues of funding, costs and fares; operational issues of fleet and vehicles; attitudes, culture and perceptions amongst stakeholders; and barriers of information and education about flexible transport services. Many of these barriers are inter-related, with operator attitudes and perceptions influenced by the regulatory environment and funding, and passenger attitudes also influenced by the current environment and experience. Greater use of flexible transport services requires change to the policy context with greater recognition of the role of flexible transport services, which would then be reflected in appropriate legislation and funding. The potential to re-organise the planning and delivery of services to better meet transport needs could be investigated through a properly resourced trial in a large spatial area such as a bus contract region. Regulatory change is important, but, in the absence of regulatory change, increased information and education of both operators and the public could show how flexible transport services can be provided within the current institutional framework to better meet public transport needs and provide transport more efficiently.

Acknowledgements

The authors recognise the time willingly given by the stakeholders who participated in the research and without whom this study would not have been possible. All errors and omissions are the responsibility of the authors.

References

- Brake, J., Mulley, C. and Nelson, J. (2006) *Good Practice Guide for Demand Responsive Transport Services using Telematics*, University of Newcastle.
- Commission for Integrated Transport (2008) *A New Approach to Rural Public Transport*. www.cfit.gov.uk
- CONNECT (2010) CONNECT project. <http://www.flexibletransport.org/>
- Currie, G. (2007) *Demand Responsive Transit Development Program Report Final Report*, Institute of Transport Studies, Monash University.
- Enoch, M., Potter, S., Parkhurst, G. and Smith, M. (2004) *INTERMODE: Innovations in Demand Responsive Transport, Final Report*. <http://design.open.ac.uk/potter/documents/INTERMODE.pdf>
- Laws, R., Enoch, M., Ison, S. and Potter, S. (2009) Demand Responsive Transport: A review of schemes in England and Wales, *Journal of Public Transportation* 12 (1), 19-37.
- Logan, P. (2007) Best practice demand-responsive transport policy, *Road and Transport Research* 16 (2), 3-12.
- NSW Ministry of Transport (2006) *Service Planning Guidelines for Sydney Contract regions*, NSW Ministry of Transport, Sydney. www.transport.nsw.gov.au
- NSW Ministry of Transport (2008) Schedule 10 Service Planning Guidelines for Rural and Regional bus services, in Rural and Regional Bus Service Contract B. www.transport.nsw.gov.au
- NSW Ministry of Transport (2009) *Annual Report 2009*. www.transport.nsw.gov.au
- NSW Passenger Transport Act 1990 and Passenger Transport Regulation 2007. www.legislation.nsw.gov.au
- NSW Transport and Infrastructure (2009) *Outer Metropolitan Service Planning Guidelines*, November 2009. www.transport.nsw.gov.au

Transport NSW (2010) Regional Coordination Program funded projects.

www.transport.nsw.gov.au/lact/regional-projects.html

Transport Planning and Management (2005) *A Framework for an Integrated Transport System or Network in the Wentworth Region*. Prepared for the NSW Ministry of Transport by Transport Planning and Management, August 2005.

Transport Planning and Management (2007) *Review of Innovative Models for Community Transport*. Report for Sydney Metro Transport Development Project.

Transport Planning and Management (2008) *Greater Inner West Community Transport Transport Simulation – Section 11 Report on a Transport Simulation*.

Unsworth, B. (2004) *Review of Bus Services in NSW*, NSW Ministry of Transport.
www.transport.nsw.gov.au

Usher, J. (1978) Possibilities for demand responsive bus operation in outer suburbs, *Papers of the 4th Australian Transport Research Forum*, Perth.

Usher, J. (1994) Remember Telebus? – The Rowville report, *Papers of the 19th Australasian Transport Research Forum*, Lorne.

Western Sydney Community Forum (2009) *Connecting with Buses: Reducing transport disadvantage by supporting bus services in Western Sydney*, WSCF Position Paper, August 2009. www.wscf.org.au