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TITLE: Options for provision of services for the transport disadvantaged.

ABSTRACT: The provision of transport for the “transport disadvantaged” has become an increasingly important policy area. The ageing of the Australian population and the need to ensure equal opportunity for all members of the community to accessible public transport services, places demands on both welfare and policy departments. To date transport for the transport disadvantaged has been dealt with as being separate from the mainstream public transport system. The policy debate is how best can improved transport services for the transport disadvantaged be delivered either as part of, or separate from, the mainstream services. A number of different models have been adopted overseas. This paper discusses the implications of these models in the Australian context particularly in relation to the implementation of the 1990 NSW Passenger Transport Act and the Federal Disability Discrimination Act (1992). Evidence is cited from a number of major studies undertaken by the author and colleagues into the costs of providing transport through the current community transport system as well as a cost benefit study of a trial demand responsive bus system in NSW.

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1. INTRODUCTION

The availability of accessible transport for all members of society has been identified as a primary goal of social policy (Industry Commission 1994). Transport is a necessary means of achieving the basic needs not only to survive, but to achieve a reasonable quality of life in our modern society. We all depend on transport of some kind to do our shopping, go to work or some place of education, access medical services and for general social and recreational activities which enhance our quality of life. These needs are as real for those with a disability as they are for the rest of society. Yet how do we provide accessible transport for all members of society in an equitable and economically efficient manner?

This question has now been placed high on the transport policy agenda by the Federal Disability Discrimination Act (1992) which gives consumers the right in law to appeal against any perceived discrimination by service providers, which includes providers of transport services. This paper will discuss some of the options for providing accessible transport for *all* and will discuss some of the implications of those options, particularly for mainstream transport services. It will concentrate on the situation as in NSW. The situation is not dissimilar in the other states.

2. COMMUNITY TRANSPORT SERVICES

Throughout Australia, transport for the "transport disadvantaged" is provided through some form of community transport organisation network. In NSW there are approximately 120 community transport projects which provide transport for a targeted population of frail aged and those with disabilities as defined under the Commonwealth Home and Community Care (HACC) policy. Some projects also provide transport services for a wider population of "transport disadvantaged" who may be deemed to be transport disadvantaged because of isolation, lack of access to mainstream public transport services or low income. The majority of funding for these services comes from the Commonwealth Government with state funding also being available for the latter category of projects.

Transport services provided through the community transport projects are almost totally subsidised (in some cases some charge is made to users) by federal and state government funding. The services are organised at a local level with the community transport project coordinator having complete discretion (within the HACC target population guidelines and funding constraints) to provide the form of transport services considered to be necessary and most appropriate for the local population.

Services are provided on a welfare basis with little if any use of efficient transport planning policies. Because of the limitation of resources, services are supplied only to a small section of the deserving population who have become aware of and have availed themselves of the service. Although this has not been quantified, there is perceived to be a vast pool of untapped demand for such services which is not met either because of lack of resources, or because those in need are either not aware of, or choose not to use, the services available through the community transport projects.

A study of community transport projects

In 1991 a study was undertaken (Battellino and Hensher 1994) of the modes of service delivery used by community transport projects in NSW. Data was collected to assess the cost of a unit of service by the various modes used and discussions were held with users to determine the quality of service provided by these modes. A sample of eight projects, four metropolitan and four non-metropolitan, were studied. It was found that a range of vehicles and systems of service delivery were used by community transport projects. These included the minibus, being the traditional "community service" transport vehicle which was used for individually booked trips and for charter or group travel, volunteer drivers and their own vehicles, project owned cars, the local taxi service and buses chartered from the local bus operator.

The type of trips organised by the community transport projects in general terms fall into two broad categories. There are what are termed "individual transports" which are requests on a one-to-one basis for transport mainly to medical services. These services are provided in whatever vehicle is available to the project, which covers the full range of vehicles listed above. The other main type of service provided is regularly organised trips, usually in a minibus, for shopping or social recreational activities. A common example is "pension Thursday" shopping trips.

When full cost allocation of all these services was undertaken the cost of providing a unit of service was found to be high compared with services provided by the private bus operators, as shown in Table 1. This result could be expected and acceptable given that this is a subsidised community service obligation. However what was of concern was the lack, in most cases, of any attempts to achieve efficiencies in service delivery. Individual transports were organised on an individual demand driven basis, with grouping of passengers to common or closely related destinations only if this was a coincidence of the demand for the day. Other inefficiencies were evident in the under utilisation of capital in some cases, with vehicles, despite a high level of demand, not being fully utilised. This may be due to lack of drivers or vehicles carrying less than capacity loads due to incompatibility of trip demands.

The use of volunteer labour is often cited as evidence of the "low cost" nature of the provision of services through the community transport projects. Apart from the philosophical arguments surrounding the use of unpaid labour, there are many practical, and thus economic, difficulties of relying on the services of volunteers. In many cases the volunteers that were used were providing an excellent level of service, however the projects reported increasing difficulty in securing the services of volunteers in most areas. Often high levels of reimbursement were paid in return for the use of their vehicles and a high level of co-ordination time was often required to arrange the volunteer services. Thus the apparent low cost nature of this source of labour was generally overstated.

Table 1. Performance measures: A comparison across service suppliers
(\$1991)

Indicator	Private	Public	Community Transport			Bus
	Bus Car	Minibus Car	Project Bus	Volunteer	Charter Operators	Operator
					Service	
Revenue/vkm	\$2.09	\$3.38	\$0.38	\$0.31	\$0.16	\$0.93
Revenue/pass	\$0.86	\$1.50	\$1.51	\$8.89	\$4.37	\$3.22
Revenue/total cost	1.08	0.98	0.17	0.39	0.21	0.62
Total Cost/vkm	\$2.01	\$3.54	\$2.32	\$1.24	\$1.01	\$1.79
Percent of Total Cost						
labour (%)	47.4	50.0	74.0	74.0	65.3	-
fuel (%)	11.4	7.3	6.3	18.7	-	-
maintenance (%)	7.8	10.0	5.2	4.5	-	-
Total Cost/seat km	\$0.03	-	\$0.16	\$0.31	\$0.25	\$0.04
Total Cost/pass	-	-	\$9.00	\$27.50	\$25.00	\$4.96
Cost efficiency	40.40	-	9.99	6.32	6.06	30.00
Pass/seat km	-	-	0.27	0.44	0.52	0.35
Pass/vkm	-	-	3.85	1.77	2.07	1.56
Total Cost/passkm	-	-	\$0.84	\$0.88	\$0.93	\$0.36

(vkm = vehicle kilometre, pass = passenger, passkm = passenger kilometre)

Source: Battellino and Hensher (1994)

The main concern arising from the study of community transport projects was the lack of integration of these services with the mainstream transport services provided in the area by the local bus operator. In the main considerable antagonism exists between the community transport projects and the local bus operators with the former considering that the bus operator provides inadequate services especially for those who have difficulty in using conventional transport services. On the other hand the local bus operator often charges the community transport projects with competing unfairly in their market by providing services to those who could use the mainstream bus services.

3. NEW LEGISLATION

The NSW 1990 Passenger Transport Act

It is hoped that the arguments outlined above can become a relic of the past given the new requirements under the NSW 1990 Passenger Transport Act which places a greater onus on bus operators to increase the level of service provided. This means that operators have to more actively market and plan services to meet the needs of their local area. One way of doing this would be in co-operation with the community transport projects who may have useful information on the transport needs of the elderly or those with special transport requirements. Trips provided by the local bus operator have been shown to be more economically efficient per unit of service (Battellino and Hensher 1994) than those provided by the community transport projects. This overall efficiency is increased if, wherever possible, those passengers who are able to use mainstream transport services are encouraged to do so allowing the scarce resources of the community transport projects to be targeted to those who are truly "transport disadvantaged".

The Federal Disability Discrimination Act (1992)

The other new piece of legislation which has the potential to change the way we currently provide transport services for the transport disadvantaged is the Federal Disability Discrimination Act (1992). This Act provides consumers with the means of bringing a case of discrimination against suppliers of services, including public transport services, if those services are not deemed to be accessible to them. For example this could mean that a person who uses a wheelchair could be considered to be discriminated against if they were not able to access mainstream public transport services. This Act only came into force on 1 March 1993 and as yet has not been tested in the courts. There is much discussion and negotiation taking place in the industry about the implications of this legislation and the best means for meeting its requirements.

To contribute to that debate this paper will discuss some of the approaches which have been adopted overseas to providing accessible transport for all members of the community and consider the lessons which could be learned which would be useful in formulating an appropriate policy in the Australian context.

4. OVERSEAS EXPERIENCE

The United States approach

In the USA the Americans With Disabilities Act (ADA) which was introduced in 1990, mandates the elimination of discrimination against persons with any form of disability. The implications of this Act are that all suppliers of services, including public transport services, must make their facilities and vehicles accessible to all persons including those who use wheelchairs or have a vision or hearing disability. This is federal legislation so the actual implementation of the Act varies significantly between the states. However in some states similar state legislation has been in place for some time. For example in New York State these requirements have been enacted for about 10 years and New York is generally considered to be an example of the full implementation of the regulations. So that in New York no new vehicle is allowed to be put into service without being equipped to load wheelchairs. The implementation of this policy is made possible in the US by the fact that all public transport services are federally funded. Thus any additional costs to the operator would be met by increased subsidy.

The New Zealand experience

New Zealand has addressed the issue of transport for the transport disadvantaged with the introduction of a Total Mobility Scheme. This scheme has as its key principles "access to transport is considered the key to independence" and "equity for people with disabilities compared with the able bodied" (Knight 1993). This scheme makes transport available to those with disabilities through a system of taxi vouchers which are issued to eligible persons and returned by the taxi companies to the Regional Councils for reimbursement. The vouchers entitle the holder to, in most cases, a 50% subsidy on the metered fare. The scheme is managed by the Regional Councils which handle the issuing of vouchers and the processing of claims. The funding is provided 40% from Transit New Zealand and 60% from the Regional Councils.

A recent review (Knight 1993) of the scheme highlighted some areas of concern regarding its operation. Among these were that many eligible users were not aware of the scheme, budget constraints often resulted in inequitable limitations on ridership, monitoring and eligibility criteria were inadequate and cheaper alternatives needed to be evaluated. As a result of the

review a number of reforms were planned for the scheme. However there was still concern that not all users of the scheme were in need of such a high level of service and that they could have been accommodated in the mainstream transport services if the accessibility of those services was improved.

The Swedish system

Sweden has adopted yet another approach to the provision of transport for the transport disadvantaged. Their approach is based on the philosophy that public transport must be adapted to the needs of the market. Different groups in the community have different transport needs thus transport services should be designed to meet these different types of need recognising the passenger's physical limitations, travel patterns and level of required care and attention. This recognition led to the design of an integrated transport service which consists of three service levels. These are:

- (i) Traditional fixed route services which use standard 40ft vehicles and meet the needs of mass transport for people with little or no mobility limitation.
- (ii) Service routes which use smaller vehicles (20 - 26ft) which are fully accessible with low floor and a wheelchair ramp. However they do not have a wheelchair lift. These vehicles run on a regular route service but one which winds through residential areas and gains better access to public spaces than does the traditional fixed route service. Thus the accessibility and mobility of those with disabilities who have difficulty using the traditional services is increased. There is no eligibility requirement for these services and they can be used by all passengers.
- (iii) Special transport services are provided in taxis or vans which are equipped with a wheelchair lift for those people who require door to door service and more personal assistance.

By 1991 approximately 50 Swedish cities had service route networks in place and this system had also been implemented in other European countries such as Denmark, Norway, Finland and the Netherlands and in some Canadian cities, for example Toronto. The experience of the service routes in Sweden has been that there has been a steady increase in patronage overtime and that they have generally improved public transport services for all. There is also evidence that they have reduced the dependence on the special transport services by filling the gap between the traditional route services and the very personal one-to-one service level provided by the special services (McLary et al. 1993).

We however must look again at the issue of who pays? Public transport in Sweden, as in the US, is publicly funded with very high subsidy levels. Thus all three levels of service, which might be operating in one area, are provided by the same public sector operator. Thus the

overlap in the markets between the traditional fixed route services and the service route passengers does not present the same problem as any overlap which may occur between the local bus operator and the community transport project would present in the Australian context.

5. THE AUSTRALIAN CONTEXT

The Federal Disability Discrimination Act (1992) holds the possibility of forcing all public transport vehicles to be made accessible for all members of the community as does the Americans with Disabilities Act in the US. However the essential difference is that public transport services in the US are publicly funded which meets any costs imposed by such legislation, compared with the Australian bus industry, which has a significant private sector operating on a commercial profit orientated basis, and a public sector which is undergoing reform to improve its cost efficiency. Thus the impact of any additional costs resulting from such regulations has to be considered carefully in this situation. Apart from the initial capital cost of installing a wheelchair lift on every vehicle a number of significant operating costs have been identified.

Firstly, the addition of more equipment on the vehicle increases the probability of breakdown resulting in higher maintenance costs. This involves not only the cost of repair but also the cost of requiring additional vehicles to cover those that are out of service. It has been estimated that in New York State 10-12% of vehicles are off the road at any time due to the need to service the wheelchair lifts. Secondly, given the possibility of picking up passengers using wheelchairs, allowance must be made in the timetable for the increased time taken for the wheelchair and its occupant to be loaded and secured safely. This is a difficult timetabling issue as the number of lifts on any one run is unknown. Significant costs *could* be incurred if there is a need for additional vehicles to cover the same number of routes if the time for the runs has to be increased to allow for picking up passengers using wheelchairs. Alternatively, if insufficient allowance is made in the timetable and there are more lifts than expected, the service could run late thus inconveniencing other passengers. The implications of these costs are not only important for their direct impact on the bus operator's costs but also for their impact on the efficient operation of the service and its acceptability for the majority of passengers. Patronage could be expected to decline if services become unreliable or are slowed by the need to accommodate wheelchair lifts. The bus could then become an even less attractive form of public transport competing even less favourably with the private car.

The usefulness of the Swedish example lies in the fact that it highlights that there is a "grey area", an "in between" market which fits between those passengers requiring high levels of personal door-to-door service and those who can easily use the mainstream services. This is

the market which still needs to be adequately addressed in the Australian industry. The question is should this market be served by highly subsidised services through the community transport organisation or can it be adequately and more efficiently served by the mainstream public and private bus operators? I would suggest that as much as possible of this market be accommodated within the mainstream services for efficiency reasons discussed earlier and that the community transport organisation be given the charter to focus solely on providing services for those passengers requiring the high level of door-to-door service which will always make mainstream transport inaccessible for them.

In NSW, and similar legislation has been adopted or is being considered in some other states, the 1990 Passenger Transport Act places the onus on the local operator to achieve designated minimum service levels so as to meet the needs of the market in the local area. One way of achieving this could well be in providing more accessible vehicles and more flexible route systems to increase access to bus travel.

Some initiatives in this area have already been taken by the NSW operators. There has been some purchases of new low floor vehicles, the introduction of high frequency services using smaller vehicles and a trial of a demand responsive flexible route system. The Institute of Transport Studies (ITS) was involved in the monitoring of the trial demand responsive services in the Shellharbour area of NSW which is worthy of further consideration here (Battellino et al. 1994).

Shellharbour demand responsive trial

A trial project which was initiated by the local Council and supported by Federal Government funding was conducted in the Shellharbour Municipality during the period August 1992 to August 1993. The corner stone of this project was the trial of sophisticated computer technology which provided communication between vehicles on the road and a central control system to allow real time route planning around a predefined flexible route system (Battellino et al. 1994). While the successful operation of the computer technology was not achieved, for reasons which will not be discussed here, the project did demonstrate the possibilities of the operation of demand responsive flexible route services using two way radio systems. A cost benefit analysis of the trial, which was in operation for the twelve month period, calculated on the basis of using both high cost and low cost technology, proved the project not to be commercially viable (Raimond and Battellino 1994). However this conclusion should be considered in the context of a very limited trial period and within the context of a project which had some inherent operational problems which could have influenced this result.

Despite this negative economic result from the trial project there were some interesting and useful social outcomes which were important. The project involved the establishment of some designated optional flexible routes around the main trunk route system. Passengers who wished to be picked up or set down on one of the demand loops could make a booking with the central office which would arrange for the vehicle to deviate around that loop on that particular trip. As part of the monitoring of this project ITS undertook onboard surveys which captured passengers using the buses on the main trunk routes as well as the demand responsive passengers, and a telephone survey sampled from the booking lists of the demand responsive service. These surveys yielded some interesting results about the impact of the demand responsive system on patronage.

Although the monitoring of the project revealed that overall there had not been a significant increase in patronage during the trial project, it did seem that the "Translink" service, as the trial was known, did succeed in improving the accessibility of public transport for at least a small proportion of the population. For the users of the demand responsive system the demand loop routes brought the bus service within 100 metres of 84% of users homes. Whereas before this service only 18% of respondents had been within 100 metres of a bus stop. The majority of passengers using the demand responsive service were found to be travelling on pensioner concession fares (49%) with student and unemployed concessions also being strongly represented. The main trip purposes of passengers were for shopping and medical trips. Although the booking service did not generate a significant increase in patronage, the patronage which was generated by the demand responsive facility was primarily induced bus travel. Sixty seven percent of the respondents to a telephone survey of demand responsive users did not use the regular bus service before the demand responsive system was in place. The previous modes used by these respondents for the surveyed trip are shown in Table 2. Those demand responsive passengers surveyed who had used the bus before the Translink service, did not seem to have increased the frequency of bus travel, but the service did seem to induce some trips by previous non-users.

The addition of a demand responsive facility I would suggest allows the regular bus service to move some way towards filling the gap between the regular services and the more individual service provided by the community transport projects. This not only brings benefits to the individual passengers in terms of improved access to public transport, but it is also more efficient in terms of resource allocation, as discussed earlier. Thus a demand responsive system provided by the local bus operator could be expected to be a more cost effective method of service delivery than that provided by the community transport organisation, if a sustainable level of demand could be established to cover the cost of its operation. In the time allowed for the trial project in the Shellharbour area, the demand responsive system did not generate the level of demand which the bus operators considered sufficient to warrant its continued

operation. However the pattern of use of the demand responsive bus stops was useful to the operators in designing new routes which took into account the newly revealed areas of patronage potential.

Table 2.
Mode used prior to demand responsive service

<u>Mode</u>	<u>Percentage of previous non-users</u>
Driving their own car	13
Driven by friend or relative	28
Walking	28
Taxi	15
Bicycle	5
Other	11

Possible options for Australia

The perceived lack of success of the Shellharbour demand responsive system may well be due to problems inherent in the particular project and the technology which was employed rather than to a failing of such a system per se. It would be unfortunate if this type of system was not given the opportunity to be tested in other areas because of this. As stated earlier this project began with the aim of implementing very expensive and sophisticated computer technology which proved unworkable for a number of reasons. The system from an operational point of view was successfully conducted by the use of very simple standard two way radios which are commonly in use in the bus industry. This level of technology was sufficient, given the fairly low patronage levels of the Shellharbour area. However in higher patronage metropolitan suburbs more advanced technology may be required. Developments are taking place in the technology for demand responsive systems which could still make it a feasible option for any local bus operator. In the US "the advent of low-cost, high performance computer hardware, generic data base systems, moderately priced scheduling and dispatching software, mobile computers, inexpensive card readers, hand-held data transfer devices, off-the-shelf automatic vehicle location technology and electronic mapping software" are making demand responsive systems achievable and relatively affordable (Teal 1993).

Research has shown that flexible route systems do have higher average operator costs and thus require higher fares, than the traditional fixed route system. (Chang and Lee 1993). On the other hand they have lower **user** costs due to improved accessibility. The higher cost of these services may not be able to be met by users if, as has been shown, the main users of such systems are from the lower income groups. If these services prove not to be economically viable for the local bus operator, to what extent should some form of government subsidy be available for them and would the subsidy required be lower than that required to provide a similar service through the community transport projects? As the bus industry and the regulators are reluctant to introduce any form of direct operator subsidy a user side subsidy for those who are in need of these services but are unable to pay, would be the more appropriate method. It may not be unreasonable for those that are able to pay, to be charged an additional fee for the demand responsive service on top of the standard fare. This option would seem preferable to that of making all vehicles universally accessible.

The option of making all vehicles accessible for all members of the community I would suggest, is not viable in the Australian context in terms of the ultimate goal of providing an efficient means of public transport which maximises the mobility of all members of the community. Reforms have only recently taken place to ensure the continued viability of the private bus industry in NSW and the improved efficiency of the public sector provider, while at the same time bringing about an improved level of service for the consumer. The policy dilemma facing regulators is the trade-off between the equity arguments of providing an

accessible level of service for all members of the community, but which would require significant levels of public sector subsidy to be viable, and the economic arguments of encouraging a self sufficient mainstream public transport service.

As identified in Sweden, there will always be a proportion of the population who require a high level of personal transportation service which is difficult to incorporate in an economical manner into the mainstream services. On equity grounds these people are entitled to access to transport at a cost which is comparable with mainstream service users but which is provided in a cost efficient manner. One means of providing such a service would be to contract out identified "special services" in areas to be provided for eligible users by a competitive tendering process. Thereby improving the efficiency of service delivery and minimising the government subsidy required. Strict standards however would have to be applied to the level of service required.

6. CONCLUSIONS

As the proportion of the population of Australia in the older age brackets increases, there will be a growing market for more accessible transport. With age usually comes declining mobility and thus difficulty in using the traditional transport services. More accessible vehicles and flexible route systems, possibly with demand responsive facilities, would meet the needs of this market as well as those of the "more mobile" population of people who use wheelchairs. Although there is some interest in the use of smaller vehicles, more accessible low floor vehicles and demand responsive services, no operator has yet put all these items together as a package to market a more accessible service. It is hoped that the incentives provided under the NSW 1990 Passenger Transport Act will encourage operators to be more innovative in their methods of service delivery.

The provision of accessible transport for the "less mobile" market and those requiring special transport is not being adequately addressed in Australia at the present time. The services which are in place are not delivered in a cost efficient manner and subsidies are often poorly targeted. In NSW, and similarly in other states, new passenger transport legislation has laid the ground rules for more commercial market orientated bus services. The onus is on the local operator to do as much as is commercially viable to meet the needs of the market segments in their local area. On the other hand other legislation holds the possibility of imposing increased costs upon the traditional services which may hinder their economic operation and may reduce the attractiveness of bus travel for the wider travelling public. In the long run this holds the possibility of reducing the mobility of all the community rather than increasing the mobility of a few. A combination of market innovation by the operators and subsidy review by the regulators is required to achieve an equitable and accessible transport system for all.

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