

Transport Planning and Management

*Filling the gaps in transport need –
a new approach to an old issue.*

Some thoughts on mobility management

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Introduction

Despite the evidence of packed buses, overflowing railway platforms and long queues for taxis at airports, relatively few people in Australia use public transport. In urban Australia, the overwhelming choice for transport is the private car and in country areas, apart from travel to school, the private car is almost exclusively used to get around. Those who live in or near a town or city and who have access to a car and affordable parking enjoy a great degree of mobility and can access commercial, community and government services almost at will.

The overuse of the car has led to the planning and design of government and commercial services to suit car users. Shopping centres spend millions of dollars on building car parks, employment centres are moving away from the traditional centralised business districts to where there is more space and health facilities are increasingly developed on cheaper land away from public transport infrastructure in the knowledge that most patients will arrive and depart by private means.

It is now widely recognised that the primacy of the private car as a mode of travel has had detrimental effects on the environment, people's health, social amenity and on the public budget. There is a general consensus nowadays that as a community we urgently need to reduce car use and to encourage the use of public transport.

A more immediate problem is that people who do not drive or who cannot access private transport as a passenger and who depend on public transport have ended up with greatly restricted mobility. The situation is worse for those for whom public transport is not easy to access, is not affordable, does not run to where they want to go or in areas where there are infrequent services or where it does not exist at all.

It has been suggested that Government could take a much more active role in promoting the development and use of public transport by ensuring that transport planning better reflects the needs of the community. However, nobody has yet been able to adequately explain how this is to be done. Most transport planning is not only based on particular transport modes but it is almost always based on existing demand patterns. The corollary of this is that transport solutions tend to be "more of the same", rather than innovations that actually reflect the needs of the community. Planning effort, infrastructure funding and public subsidies are also overwhelmingly dedicated to the school and commuter markets, despite the fact that they represent only a small minority of overall travel.

Notwithstanding this, attempts have been made to meet the needs of non-car users and the wider non-commuter market. The main approaches can be categorised as follows:

- The provision of user side subsidies such as pensioner concessions;
- The funding of transport services such as community transport;
- The provision of funding to enable non-transport services to provide transport to their clients (funding buses to day-care centres for example);
- Transport brokerage schemes where underutilised transport resources are used to meet unmet transport demand;
- Coordination strategies;
- Transport development strategies;
- The imposition of minimum service levels in public bus contracts; and
- Improvements to physical access to transport systems (generally driven by legislation).

While this list may look impressive, a closer examination reveals that these initiatives have had a limited impact due to restrictive eligibility criteria, limited resources and a lack of any systematic coordination.

Why coordinate transport?

A number of studies have suggested that failure to coordinate transport services leads to inefficiencies and poor value for money for both funder and passenger. A recent set of guidelines for coordinating transport operations suggests that the following would be typical in any local area:

- a multiplicity of operators each with its own mission, equipment, eligibility requirements, funding sources and institutional objectives;
- the absence of a formal mechanism for cooperation or communication between these operators;
- a total level of service well below the total level of need;
- inefficient use of vehicles;
- significant variations in services available during particular times of the day or days of the week and to specific groups of persons, duplicative services in some neighbourhoods but substantial gaps where no service is available in other areas;
- substantial variations in service quality, including safety standards, from provider to provider;
- a lack of reliable information for consumers, planners and service operators, describing the services being provided and their costs;
- the absence of an overall compendium of services available or of the funds being used to provide them; and
- the absence of a reliable mechanism to quantify overall service needs and to create a comprehensive plan to address those problems¹.

It is suggested that effective coordination can wring the inefficiencies out of disparate operations and service patterns of a multiplicity of providers by providing the economies of scope and scale not available to small projects. The volume of services and the efficiency can be increased by clustering passengers, scheduling fewer one-way trips and reducing costs through shared use of personnel, equipment and facilities².

However, simply improving the coordination of transport services may not be enough. What is required is a new way of planning the operation of transport services that emphasises the generic needs of passengers rather than the concentration on the mode of transport to be provided.

One approach that may assist us in achieving this ideal is the concept of mobility management. Mobility management is a flexible form of transport coordination which can operate on a number of different levels and in a variety of ways. A recent report described it as "...an institutional state of mind that emphasises moving people instead of the mode of transport³".

¹ Coordinating Council on Access and Mobility, The Office of the Secretary US Department of Health and Human Services and the Federal Transit Administration US Department of Transportation (2000) "Planning Guidelines for Coordinated State and Local Specialized Transportation Services".

² Department of Health and Human Services, Office of Inspector General (1995) "Coordination of Specialized Transportation Services", Report No. A-05-95-00023, Washington DC.

³ Murray G., Koffman D., Chambers C. and Webb P. (1997) "Strategies to Assist Local Transportation Agencies in Becoming Mobility Managers", TCRP Report 21, Transportation Research Board, National Academy Press, Washington DC. p 15

The key to the concept is that it does not just treat transport as an industry that needs to be planned and regulated; it treats transport as a means of satisfying the mobility and access needs of people.

Mobility management – the travel agency approach

In trying to understand mobility management, a good starting point is to use the analogy of a travel agency. A travel agent is a conduit through which demand for travel flows. The travel agent examines the demand and feeds it to suppliers out in the market place. The agency acts as an information source, a booking centre and also handles financial transactions. These are all core activities for a mobility manager.

An early concept behind mobility management was the notion that this “travel agency” approach could create a market for local transport by linking the needs of passengers with transport operators.

The “Mobility Manager” is a mechanism for creating a market for local transportation by matching the preferences of users with service suppliers, and providing a clearinghouse for individual and organisational financial transactions. The purpose of creating a market for intra-city transportation is both to provide alternatives to single occupant automobile travel and to provide special population groups with greater mobility. The Mobility Manager accomplishes its goals by linking together all travel modes – bus, taxi, vanpools, express bus, specialized services, carpools etc. at an informational level and, in most cases, at a transactional level as well⁴.

In this case, mobility manager acts very like a travel agent with involvement in providing information, handling bookings and billing. As such it is relatively easy model to establish and would not be expensive to run, particularly if agency fees were to be charged.

The central premise behind this approach is that adequate transport resources exist in most communities, but that:

1. informational, infrastructure and market mechanisms are needed to connect consumers (either individuals or organisations acting on behalf of individuals) with suitable providers; and
2. the management of financial transactions associated with service provision are often insufficiently developed.

The objective of the mobility management is to establish an organisational and electronic infrastructure which permits efficient access to transport information and which facilitates transactions among participants in the intra-city transport market⁵.

The mobility management scheme does not create or run services but makes use of what already exists.

⁴ Parker and Associates and the International Taxicab and Livery Association “Mobility Management and market-oriented local transportation”, Urban Mass Transportation Administration, US DoT, (1991). p 16.

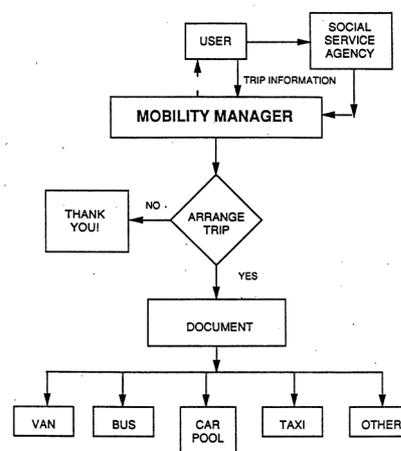
⁵ Denmark D. (2000) “Scoping Study to Determine Future Policy Options Available in Response to Unmet Transport needs: Background Paper” p 79, Brisbane City Council.

...all service providers retain their individual identities, policies and subsidy mechanisms. The Mobility Manager itself does not establish fare, subsidy, or eligibility policies. The Mobility Manager is essentially a facilitator; it operates and administers a clearinghouse network governed by the rules of programs established by others and provided documentation which verifies that transactions have been conducted in accordance with prevailing guidelines and regulations⁶.

This model is illustrated in figure A⁷:

Figure A

A. HOW TO USE MOBILITY MANAGEMENT SYSTEM



The idea of coordinating transport operations is not a new one. However, mobility management provides the mechanism whereby not only can the transport services be coordinated, more importantly, they can be coordinated *with the transport needs of potential passengers*.

This is an important distinction. The value of coordinating transport services and resources has always been recognised, however, the notion of coordinating the demand for services is relatively new. Transport demand that has traditionally been satisfied by relatively expensive exclusive ride services (taxis and individual transport) could, under this model, be directed to cheaper, more efficient multi-ride or multi-hire services. In most existing systems, such as those operated by taxi and hire car companies, each request for transport is treated as a separate trip or job. The full cost of providing that service falls on the passenger, this making the service expensive, and too costly for many people. Linking demand together through mobility management has the potential to match passengers who have similar origins and destinations and to direct them to a common service. This reduces the cost to them as they share the fare. It is also more efficient in that, in the long term, fewer transport resources are needed to satisfy the demand and fewer vehicles use the roads, thus providing benefits in terms of reduced congestion and pollution and increased social amenity.

⁶ Parker and Associates and the International Taxicab and Livery Association "Mobility Management and market-oriented local transportation", Urban Mass Transportation Administration, US DoT, (1991).

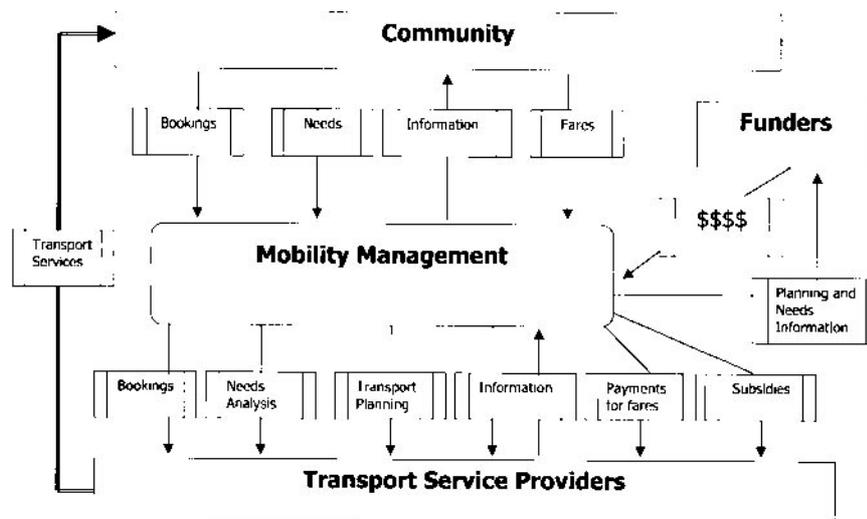
⁷ *ibid*.

Mobility management and pooled funding

A further development of mobility management is to use the model to manage pooled transport funding resources. In any given geographic area there will be many transport operations that are receiving funding or subsidies from a wide variety of sources.

One argument is that the funding Departments will be able to buy more services and gain better value for money if the funding and subsidies are pooled and managed by one regional agency. This is a function that would complement the activities of mobility management agencies as described above. One such model has been suggested for the Central Coast⁸ (see figure B).

Figure B.



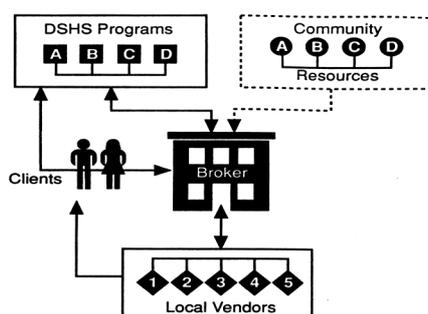
This notion is similar to one described in the mid-1990s in a report on brokerage of transport services⁹.

In this model the sponsoring programmes for eligible clients do not provide transport directly, nor do they purchase services directly from transport suppliers. When an eligible client requires transport the broker is contacted. The broker arranges for transport with a suitable supplier and then bills the sponsoring agency for the cost of the trip. This aggregation of demand at the broker level means that there is the potential to match the trips of a number of individuals which can then be contracted, as a single service, to a supplier. This reduces the cost to the funding programme and also to the passenger if they are required to make a financial contribution. This process is illustrated in figure C.

⁸ Denmark D. (2000) "Research into the Transport Needs of Older People on the Central Coast of NSW", p 20, Central Coast Area Health Service.

⁹ RustPPK (1994) "Research Project: - Community Transport Brokerage Schemes for the National Accessible Transport Committee: Final Report", Commonwealth Department of Transport, Canberra.

Figure C



The model has the added advantage in that the broker becomes skilled at dealing with the suppliers, expertise that is unlikely to exist in programmes whose core purpose is not to provide transport.

The Rushmoor and Hart Project

Such a model was recently recommended in Hampshire in the UK¹⁰. The proposed passenger transport coordination project is to:

1. provide a “one-stop” travel enquiry and booking service;
2. allocate the most appropriate and cost effective solutions for each journey request; and
3. offer the opportunity for respective purchasing agencies to secure the best value for money and best use of resources through a coordinated approach.

The project was to achieve this by undertaking a number of functions including:

- managing social services transport in the area;
- offering dial-a-ride booking and scheduling;
- hosting and operating a voluntary car scheme clearing house;
- coordinating joint use of vehicles;
- managing a pilot Taxicard scheme;
- acting as a central information and booking point;
- developing and facilitating a minibus brokerage scheme; and
- working with others to support new service development.

Finance for the project was to be in the form of grants from the existing funders involved in the above services

The Winston-Salem Mobility Manager

An extension of this model is for the agency to adopt the service provider role as well or to contract the transport operation out to an outside supplier. In both cases one operator is used to supply the services. An example of this is the Winton-Salem Mobility

¹⁰ Hampshire County Council (1999) “Rushmoor and Hart Transport Project: Report of the County Surveyor”, Public Transport Committee, Hampshire County Council.

Manager in North Carolina. The project concentrates on a paratransit service and contracts day-to-day operations to a private firm¹¹. An analysis of the system after six months operation found that:

- ridership increased;
- total operating costs rose 15% but the client base doubled;
- the unit operating costs dropped;
- The capital cost of the dispatch and scheduling system spread over 5 years accounted for only 3.5% of the cost of a passenger trip ;
- service coverage increased in terms of both vehicle miles per passenger trip and vehicle hours per passenger trip;
- service responsiveness improved; and
- Service quality improved with average passenger wait times falling by more than 50%¹².

In addition the system seemed to be well accepted by passengers, receptionists, dispatchers, schedulers, drivers and management.

Mobility management - the service development approach

While there would be obvious advantages in providing a service in the manner described above, at the end of the day, it remains a passive system. The agent has no role to play in filling the gaps in service delivery and unmet transport need remains uncatered for. This point is reflected in a recent report from the UK.

Mobility Management is primarily an information and co-ordination based approach which can be implemented in the short term at relatively low cost...[it] encourages the implementation of supporting measures, but in itself does not usually provide major new infrastructure or improve existing transport supply¹³.

This the point at which the travel agency analogy ceases to be useful as we reach the stage where we start to use mobility management to take an active role in service development. While some unmet transport can be addressed by referring people to appropriate services, for many, those services do not exist. There is a need therefore, for a system that not only recognises unmet need, but which also has the ability to bring forth new, innovative services that can address that need. In the US the term “mobility management” has a significantly different meaning from that in the UK.

...mobility management means brokering, facilitating, encouraging, coordinating and managing both traditional and non-traditional services to expand the variety of transportation services to diverse consumer groups¹⁴.

This comment from a recent US report encapsulates the wider role of mobility management. Far from being passive, the mobility manager, once it has identified unmet transport need, can have an active role in encouraging, brokering or even providing the necessary services.

¹¹ Cervero (1997) “The Transit Metropolis: A Global Inquiry”, Island Press Washington DC.

¹² Stone J. (1995) “Winston-Salem Mobility Management: An Example of APTS Benefits”, North Carolina State University, Civil Engineering Program.

¹³ University of Westminster & Nottingham City Council (1997) “History and Summary of Mobility Management in Nottingham”, Nottingham City Council.

¹⁴ Murray G., Koffman D., Chambers C. and Webb P. (1997) “Strategies to Assist Local Transportation Agencies in Becoming Mobility Managers”, TCRP Report 21, Transportation Research Board, National Academy Press, Washington DC p 13.

This is possibly the aspect of mobility management that has the greatest potential in terms of changing the way public transport operates. The agency approach may make existing service types and options work more effectively, the pooled funding approach may achieve better value for money for funding programmes but the service development approach can bring forth new ways of providing services.

Mobility management processes will be able to recognise not only demand (which it directs to transport suppliers) but will also be in a strategic position to identify and record unmet transport need. The mobility management model may take on the service development role itself, however it may be more effective if it were to work with a Transport Development Project that would negotiate directly with a range of transport operators.

Models of operation

There will be some debate around what type of organisation is best suited to providing a mobility management service and what form that service should take. In the USA research has been undertaken into the effectiveness of different types of mobility management in Florida where a Community Transportation Coordinator has been established in each county¹⁵. Four types of agency were used as Coordinators:

1. non-profit;
2. private for-profit;
3. government agency; and
4. transit agency.

The agencies provided three different models of operation.

1. sole providers (provided all the transport services themselves);
2. all brokerage (all transport services are brokered to other agencies); and
3. part provider, part brokerage.

Three cost measures were used to evaluate the performance of each model:

1. expense per passenger trip;
2. expense per vehicle mile; and
3. expense per revenue mile (termed passenger kilometre in Australia).

48 agencies were reviewed and a variety of measures were used to identify a coordinator structure that is the most cost-effective. The approach of the study was to search for consistent results across multiple measures. The inconsistency in results suggested that no one structure is inherently least expensive overall.

Conclusion

There is a continuing and increasingly important need for innovation in public transport. Retrospective planning processes have failed to provide new insights into either transport need or ways of dealing with it. Most existing operations are based on heavy infrastructure or rigid route systems that do not suit the large and growing non-commuter market. Attempts to ameliorate the present situation through small funding programs for transport operations, subsidies and concessions have limited impact due to poor resourcing and strict eligibility and operational guidelines.

An alternative approach is to consider the potential of mobility management as a mechanism that:

- can assist in revealing transport need;

¹⁵ Center for Urban Transportation Research, University of South Florida (1993) "How Structures Compare: A Cost Comparison of Community Transportation Coordinators in Florida", Florida Transportation Disadvantaged Commission.

- can improve the utilisation and utility of existing services and resources; and
- has the potential to call forth new types of transport operation in direct response to the community's travel needs.

As the examples quoted above illustrate, mobility management can operate at a number of levels. In its simplest form it can be used to enhance to operation of existing systems (the travel agency function). It can also be used to maximise the effect of funding by pooling resources and buying transport "in bulk" or on a multi-share or multi-hire basis. However, the greatest potential in mobility management is in the role it can play in the development of new transport services that reflect the travel needs of the population.

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