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# A Communal Turn for Transport? Integrating Community-Owned Transport and Public Transport for Sustainable Transport

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**Abstract:** Environmentally sustainable urban transport in Australia requires providing mass mobility in ways with low greenhouse gas emissions. Meeting current passenger mobility needs in the short-term at lower environmental costs necessitates a shifting of the mobility task from private motorcars to mass transport (ie. trains, light rail, and buses) (and to active transport, where feasible). So how to increase public transport services? In the contemporary era—where Australia's federal, state, and territorial governments follow a broadly neo-liberal philosophy—investment in public transport—and in sustainable transport more generally—has been modest. In the face of this problem, a different kind of solution is offered. Taking urban passenger mobility as constituting a common pool resource problem (ie. a collective resource) then in theory, services can be provided by either: governments; corporations; and communities. One solution is a turn to the communal. Australia has 'community transport', but an expanded concept of community-owned transport is offered here, as a means to promote sustainable transport. This paper aims to consider community transport's potential, with particular attention given to its integration into the existing public transport system as a means to expand the reach and depth of services available.

**Keywords:** Sustainable transport, community transport, collective resources.

## 1. Introduction

This paper examines the unconventional proposition that the challenge of sustainable transport could be in part addressed through institutional reform that facilitates community-owned transport services as an alternative to the prevailing models of state and private ownership of public transport.

This inquiry is founded on two themes. Firstly, the case that public transport constitutes a common pool resource (CPR) (Glover 2011) and that following Ostrom (1990), there are three options for managing CPRs: ownership by government, corporations, or the community. Building on this, the second proposition suggests that there are opportunities for community-owned public transport (Glover 2012).

Based on these conceptual themes, this inquiry considers the challenge of taking these ideas into the realm of practice by considering two research questions: 1. What is the case for community-owned transport as a means to promote sustainable transport? And, 2. Can community-owned transport services and operations be successfully integrated into existing public transport services in order to assist in the pursuit of the goal of sustainable transport?

This paper is structured as follows. In the Background section, key terms and concepts are described, with a basic review of the argument that public transport is a CPR and of what is meant by 'community-owned transport'. Section three then addresses the first research question by reviewing the problem of sustainable transport and examining how community transport might address this issue. Section four addresses the second research question of the opportunities and barriers for integrating community-owned transport into existing transport systems in ways that could contribute to sustainable transport. In the final section, conclusions are drawn.

Although it is offered that this study could apply to a wide range of situations and jurisdictions in capitalist, developed nations, here Australia is used as an exemplar and as a general case study. Further, the study deals with the problems of urban passenger transport; it does not address freight transport, international transport, or the movements of goods and people between the major urban centres.

## 2. Background

### 2.1 Sustainable transport

Concern over the social and environmental costs of motorized transport began with the first appearance of motor vehicles over a century ago. Despite these longstanding concerns, the costs associated with motorized transport only entered into the arenas of public policy following the rise of environmentalism in the 1960's—when the impacts of mass private motorization became severe and widespread. With the rise of the contemporary global environmental crises of anthropocentric global warming, biodiversity loss, and under the general framing of sustainable development, the issue of addressing the environmental and social costs of motorized transport was placed under the moniker of '(environmentally) sustainable transport'. Sustainable transport is generally taken to mean, therefore, mobility systems for passengers and freight that have low environmental and social costs and there are a considerable number of books and both, government and NGO reports, offering definitions of sustainable transport along this line (as compared to, Bannister 2005, Low 2012, Newman and Kenworthy 1999, Schiller *et al*. 2010). There are also other similar concepts, such as 'low-carbon transport' that seeks mobility systems with low or very low greenhouse gas (GHG) emissions on a per passenger or per freight volume per kilometre.

Needless to say, given the contentious character of sustainable development in theory and practice, there is a debate over the meaning and usefulness of the concept of sustainable transport. This debate amongst supporters of sustainable transport is usually concerned with differences over policy pathways, technological choices, and ultimate aims; however, there is consensus that contemporary motorized transport is environmentally unsustainable and that its current social and environmental costs need to be significantly reduced. A few facts and figures can help sketch the contours of the problem.

Firstly, the transport sector is a major source of GHG emissions in Australia because of the extent of private motorcar use (passenger cars account for 80 per cent of travel and public transport for 11 per cent, a ratio that has been steady for the last 30 years (National Sustainability Council 2013, p. 220). In the 2011 national census, 74 per cent of the journeys-to-work were by car, 11 per cent by public transport, and five per cent by walking and cycling (National Sustainability Council, 2013, p. 223). GHG from transport in 2010 were 83,198 gigagram carbon dioxide equivalent ($CO_2$-e), of which 71,475 gigagrams were from road transport (ie. 85.9 per cent); transport accounted for 15.3 per cent of national emissions (excluding land use-related emissions) (DCCEE 2012, p. 28). Although the growth in transport emissions has slowed to a point of stabilization in recent years, overall increases since 1990 measure around one-third higher (with road transport 31.6 per cent emissions higher).

Secondly, our passenger transport systems have a high social cost arising from road trauma and health losses due to air pollution from road vehicles in cities. Road trauma (such as fatalities and injuries) costs Australia around AUD$27 billion annually and fatalities in 2012 totalled 1310 (BITR 2013, p. 2). While the historical trend has steadily improved, Australia's cumulative road fatalities (around 180,000) is twice that of Australia's total war losses. Estimating the health impacts of air pollution is notoriously difficult (with the vexed question of valuing human life) and attribution to road transport pollution further complicates this task. A number of research studies have shown the financial costs of air pollution on health to be very high. A national study of the health costs of Australian (motor vehicle) transport emissions found a mortality cost of between AUD$1.1–2.6 billion and morbidity costs of between AUD$0.4–1.2 billion for the year 2000 (BTRE 2005, p. ix). A 2005 study of the greater Sydney region estimated the annual health costs of air pollution as AUD$4.7 billion (mid-point value) (DEC 2005, p. 42).

Thirdly, there is great social inequity in access to mobility, although Australian research in this field is not extensive and has tended to concentrate on economic, rather than social, dimensions. Transport disadvantage usually refers to the difficulties in accessing mobility services because of their cost, inadequate accessibility, or inadequate service availability. Such disadvantage is usually tied to socio-economic status; poorer households and disadvantaged groups (eg. women, youth, unemployed, and indigenous persons) are more likely to suffer transport disadvantage. Such disadvantage also has a strong geographical dimension associated with the general diminishing of public transport services with increasing distance from city centres, a consequence of post-war car-based transport planning. Distance from the CBD has increasingly been negatively associated with housing price. One effect of uneven housing affordability is that low-income groups have been pushed into outer-urban locations. Households in areas with poor public transport are forced to own and use motorcars (ie. they are *car-dependent*) even though this entails financial stress for those who are poorer (Currie *et al*. 2010).

Fourthly, the effectively total dependence of Australian road transport on fossil fuel energy sources in light of the 'peak oil' problem has serious economic and social implications in the medium-term. Peak oil is not the problem of exhausting the world's supply of conventional (and unconventional) oil reserves, but the effect of dwindling reserves and growing demand, making oil far more expensive than it is today. Australia's own reserves are dwindling and in future will be reliant on imported product and paying the international rates. Higher global oil prices will undermine the logic that underpins Australia's paradigm of mass urban mobility based on private car ownership and use and associated massive public investment in road

infrastructure. Faith that alternative technologies, such as electric vehicles, biofuels sourced from agriculture, and even hydrogen energy sources, which offer alternatives to cheap oil, is misplaced. These alternative fuels and energy sources are not sufficiently developed, cheap enough, or capable of sufficiently rapid uptake to replace the existing motor vehicle fleet (Moriaty and Honnery 2010).

So what does sustainable transport look like in light of these issues? Moriarty and Honnery (2008) states that the only immediately viable solutions to these problems lies in, replacing nearly all private car use with public transport, doing more trips by walking and cycling, and reducing the overall demand for urban mobility.

## 2.2 Public transport as a common pool resource

Under the neo-liberal reforms that swept the world's capitalist nations in the late 20th century, there was considerable debate and protest over privatization, of which changes to state-owned transport monopolies were prominent. Australia was apart of this movement, which oversaw the transfer of a range of state-owned passenger and freight systems to private interests and control. Although there was little meaningful resistance to these changes, in fact, in some instances, there had been greater protest over the preceding phase of corporatization (such as occurred in Victoria), and there was considered academic debate over the merits and implications of these initiatives (as compared to Stone 2009).

Although it might have been expected that this debate would have given rise to questioning over the understanding of public transport, this was not the case. To the contrary, Glover (2007 and 2011) found that there were very few contemporary efforts to define 'public transport' or 'public transport systems'. It appeared that the phrase and concept were in such common use that nearly all authors on the subject largely assumed that their readers shared the same understanding as themselves.

A simple review revealed that public transport was understood generally as all transport that was not privately owned or was state-owned, or referred to a group of transport modes that carried mass ridership. Such sweeping approaches were deeply flawed as these gave little assistance in resolving the identity of transport systems in ambiguous situations in practice or knowing where the divide between private and public system lay along a continuum of degrees of public/private ownership and management.

In Glover (2011), it was found that there were two areas of scholarship, which had produced a sound understanding of the identity of public transport. Firstly, there was a set of empirical observations from historical studies that covered the late 19th and early 20th century phase of nationalization (ie. ownership by governments of one sphere or another) of transport systems. With the motorization of transport, particularly the invention of railways and the electrification of tramways, under a broadly laissez faire approach, came considerable growth in services, especially in the capital cities.

But this growth was far from orderly; there was duplication of services on popular routes and no services in many areas, there was excessive charging on services holding monopoly positions, there were unsafe operations, and there were bankruptcies and fluctuating fortunes disrupting services, along with the inevitable calls for government bail-outs. Further, as Vuchic (2005) points out, governments had a growing interest in gaining the economic benefits from mass passenger and freight transport (and a growing capacity to be able to

assume the control of such systems). Governments responded in Australia and around the world by ending the laissez faire approach with programs of nationalization or the imposition of tight state regulatory control.

Secondly, a theoretical understanding of these issues comes from economics that recognizes this class of problems as constituting market failures. Essentially, there are three types of market failures of interest here:

- *Collective goods problems*: If transport service providers can select to service only particular territories than there will be no universal coverage within cities or states, leading to inefficiencies; governments intervene in these circumstances in order to ensure that the entire market is served. In contemporary times, the major externalities are environmental degradation, such as caused by pollution, and social costs, such as to human health and welfare losses
- *Externalities*: In a fragmented and privatized transport system, there was no party to provide such services as overall transport planning, to ensure safety standards, to organize services to maximize net economic welfare to the state, and so on. Government assumption of ownership provides a means that such benefits and costs to wider society can be taken into account; and
- *Natural monopolies*: Many transport services can only be reasonably supplied by a single firm; for example, there can only be a single set of railway lines within a neighbourhood and most likely only a single rail operator for a type of service, such as passenger services. When there is no possibility of competing firms, the market is a natural monopoly. And when firms have a monopoly in a market (such as providing the only available motorized transport within a territory) there are incentives for behaviours inimical to the interests of consumers, notably unreasonably high charges and unreasonable levels of service. Governments respond to this problem by either regulating competition or by assuming ownership and creating a public monopoly.

These insights assist in understanding public transport. Definitions and assumptions of public transport that deal with types of modes, institutional designs, common practices, ownership of rolling stock and infrastructure capture aspects of the identity of public transport, but fail to explain the essential differences between private and public ownership. What is essential here is to grasp the insight that public transport arises from the characteristic group of market failures of transport systems that necessitate modern states in capitalist nations to intervene and assume ownership and control of transport systems. Essentially, these other aforementioned features associated with public transport are consequences of state intervention, not defining features. Although it does not concern us here, the design of privatization initiatives directly concerns creating market-based solutions that can accommodate these market failures; privatization is shaped by the same transport system conditions, as is nationalization.

These features tell us why states own or control public transport, but still leave the question: What is the public transport system? Glover (2011) proposed that public transport constituted a particular type of resource (or economic good), namely that it is a CPR. There has been interest in considering the collective goods character of transport systems, particularly from Europe where the question of the collective use of the international rail system has been a

significant political issue (eg. Künneke and Finger 2009). Wills-Johnson (2010) used the CPR concept as offering lessons for the collective use of Australia's railway infrastructure.
Two conditions denote a CPR: Firstly, users compete for use of the resource, which in this case means use of the public transport system, and that this system is subject to capacity constraints; the supply of public transport is limited and one person's demand for services denies another person when the system is at capacity. Secondly, it is difficult to restrict access to the resource, and services are not rationed. In combination, these features of 'non-exclusivity' and 'rivalry' between users define a CPR. While a collective good is one that can be shared between many users, if use can be restricted, it is a 'club good' and if use cannot be restricted, the collective good is a CPR.

Public transport systems satisfy the conditions of a CPR. Firstly, there is competition for use of the resource because the system has capacity limits at any point in time, either as service delivery (as limited by infrastructure capacities) or as vehicle carrying capacities. At the point of reaching vehicle capacities, crowding occurs and additional potential passengers are competing for space within vehicles. Secondly, it is largely impractical to restrict use of public transport services and rationing of such services rarely occurs. Most public transport systems have service obligations and certainly there are public expectations that the service is available to all, a significant factor in democratic political systems. Pricing does not serve to ration public transport services, although high fares reduce use by lower-income groups.

### 2.3 Community-owned transport

In developed, capitalist nations, public transport is commonly owned and operated by public (ie. state) or private (ie. corporate) regimes, often with a mix of both. As stated above, economist, the late Elinor Ostrom (1933–2012), who was responsible for much development and application of CPR theories, offered that a third institutional option for protecting CPR was common property ownership. Scholarship into CPR regimes has identified an enormous range of commons management practices across all societies and from all historical eras, concentrating on the small-scale management of local resource stocks by community and tribal associations. Scholarship by Ostrom and others identified CPR in a range of contemporary infrastructure and associated institutions for common property management, such as for transport systems, communication infrastructure, the Internet (see, eg. Dolsak and Ostrom 2003, Frischmann 2005, Hess and Ostrom 2003). Yet, although public transport is a CPR, there is almost no common property management.

There is insufficient space here to explore the explanation for the absence of community ownership in public transport or the apparent lack of recent historical interest in this possibility. Suffice to say, a major factor has no doubt been that public transport has tended to seek returns from scale, especially in urban settings, so that entry into the market of providing public transport has required substantial capital investments. Accordingly, this has probably served as a sufficient barrier to entry for small-scale community ownership.

Australia does have transport services called 'community transport' which would seem to denote something of community ownership. Community transport in Australia covers quite an array of organizations and institutions, organizational structures, business models, services offered. A national organization for community transport was formed in 2011 (Australian Community Transport Association) and several Australia states have state-based umbrella organizations (Victoria, New South Wales, and Queensland); however, information on the sector is difficult to come by and what is available is fragmented.

Most community transport is in fact a local government service, much of which is funded through welfare programs, using volunteer labour and providing either, short-trip local services on a regular basis, or on-demand services on an individual basis. Community transport in Australia, is therefore, either another form of state-owned transport or is owned by charitable organizations.

A review of Victorian community transport assessed its contributions to the transport system (VicHealth 2003). Generally, the review found that community transport was essentially separate from the public transport system and that it offered a very limited form of transport service. It found (VicHealth 2003):

- Limited hours of operation (usually not in evenings and weekends)
- Small service territories
- High priority to medical trips; low priority to social trips
- Vehicle fleets underutilized
- Few institutions to coordinate or optimize fleet use
- Carrying capacity of vehicles underutilized
- Service providers focus on vehicle acquisition, not service provision, and
- Information on services not widely disseminated.

Daniels and Mulley (2010) address these limitations and offer several possible resolutions. Notwithstanding this contribution, these limitations offer a guide to the types of challenges that may afflict community-owned transport.

### 2.4 Social enterprise models for community-owned transport

Perhaps the most obvious model for institutions to own and, or, manage a local or neighbourhood transport service under conditions of community-owned transport is that of the social enterprise. There are many definitions of this concept, but at its most basic, a social enterprise is one that operates on business principles to achieve progressive social and/or environmental protection goals ('… an umbrella term for any form of organization that innovates or trades for a social purpose' (Ridley-Duff and Bull 2010, p. 1)). Social enterprises can take many forms, including cooperatives, mutual societies, charities, and social businesses. Such institutions differ from firms because the profit is not the ends of activity as it is for firms, but only the means to achieve the enterprise's goals.

There is experience in social enterprises in Australia, although information on the sector is sparse, with Barraket (*et al*. 2010) providing one of the few available overviews of activity. Barraket (*et al.* 2010) estimated that there are 20,000 social enterprises in Australia and concluded that the sector was 'mature, sustainable and internally diverse with regard to mission and organizational structure' (p. 4). Social enterprises were found to operate in every sector of the economy (including manufacturing, retail, and wholesale), but most traded in local and regional markets. Widely varying in scale, most are small enterprises and involved in every form of economic activity. Although most enterprises are predominantly fee-for-services businesses, resources are derived from income, in-kind contributions, paid and volunteer labour.

Benefits of social enterprises include: that they are engaged in productive activity (rather than being philanthropic), they have autonomy and are not managed by states or firms, they are voluntary, they assume the economic risks of their activities.

Ridley-Duff and Bull (2010, p. 34) usefully distinguish between social enterprises that have either an external (ie. benefitting the general public or an external group) or internal (ie. benefitting the members of the enterprise) orientation for beneficiaries (or a mix of both). They also distinguish between the funding and fund-raising orientation that can be pro-market and anti-market. Accordingly, a matrix of different types of social enterprise can be developed.

## 4. Community-owned transport and the challenge of sustainable transport

How might community-owned transport contribute to the goals of sustainable transport? To refine this inquiry, another way to posit this question would be to identify those unique advantages offered by community-owned transport that are unavailable to state and private ownership models. Three unique advantages are offered: 1. That small-scale community-owned services can service areas that are currently not serviced by public transport thereby providing a social welfare function to provide more equitable mobility to the community; 2. That community-owned services can provide mobility services as a viable alternative to private motor car use thereby reducing the GHG per passenger per length of journey; 3. That community-owned transport can be integrated with existing public transport services so as to increase the use of public transport and reduce the need for private car use.

Firstly, a major limitation with Australian public transport services is that they do not provide services for the entire community. There are many dimensions to this problem, but to begin with the most obvious condition of the capital cities, namely that public transport services are generally very poor in the middle, outer, and peri-urban areas. Rapid urban growth has readily outstripped the provision of public transport and neither state nor private operators have moved to supply services to these areas. Car ownership and use increase with distance from the central business districts of the Australian capitals. But any presumption of universal access to private car use is fraught; there are many either without car access or are unable to drive (including the young, elderly, disabled, and the poor). Further, Australia has an ageing population for whom life-long car use cannot be universally assumed.

Community-owned transport could provide mobility in those areas without transport. It could be argued that state or private providers could better supply this service, but empirically there have been few efforts to expand the services into these areas or to systematically consider meeting the needs of those of impoverished mobility opportunities.

Secondly, there are only a few basic options for significantly reducing GHG emissions from the transport sector now and in the immediate future and these do not include alternative fuels and energy sources for motor cars as the diffusion and adoption times will stretch into many decades (Moriarty and Honnery 2008). Basically, sustainable transport entails reducing use of the private car (with an internal combustion engine) to an absolute minimum. These choices for (urban) mobility are, broadly, public transport, active transport (ie. walking and cycling), and travel demand management (ie. travelling shorter distances and travelling less often), such as achieved by land use policy and planning.

Community-owned transport will be using motor vehicles, but through multiple passenger loading will provide mobility at a significantly less GHG emissions. However, achieving satisfactory loadings is the critical issue. Critically, the role of community-owned transport is to provide a viable alternative form of transport to the private car and in doing so, reduce the transport sector's GHG emissions.

Thirdly, community-owned transport can provide an important feeder service to existing public transport services. Such a function provides multiple benefits. Access to the existing public transport network offers community-owned transport users access across the entire network, connecting their homes with a wide array of broadly distributed destinations. Such connectivity means that the reach of existing public transport has been greatly increased, but without having made any infrastructure investments. Importantly, the greater the extent of mobility offered by public transport, the less its disadvantage (and perceived disadvantage) against private car use for the same journey.

It is worth noting that the equity objective (achieved by increasing access to mobility) and environmental objective (achieved by reducing road vehicle emissions) can be in conflict. Increasing access to mobility of those with poor options and few opportunities through community-owned transport necessarily increases the overall number of journeys; thereby increasing transport emissions if all else remains constant. It follows that the challenge is to increase the overall level of public transport and lower private car use to the extent that there are net gains to the sector's environmental performance. In any event, the general principles of sustainable transport aim to meet equity and environmental objectives and environmental gains are not sought at the expense of equity. Although this argument has not been part of the sustainable transport debate, it has featured in the sustainable development discourse for many years.

## 5. Integration of community-owned transport into public transport systems

There are likely to be numerous objections to community-owned transport and from many sources. In this section, one of the possible major objections from the transport planning community is considered. Since the two papers on which this study is primarily drawn (Glover 2011 and 2012) were peer-reviewed and presented at a national transport conference, it was clear from outside comments that the problem of integrating community-owned transport into the existing public transport systems was considered as a major issue. If the concept of community-owned transport is to win wider attention, then the objections regarding integration need to be addressed.

Integration has become something of a holy grail in transport planning in recent years, although it has come to mean many different things to different people (for instance, see the review in Glover 2007). For the sake of clarity, here we take the theme of integration to apply to the integration at the scale of the operations of a transport network within a city.

What is likely to concern transport planners promoting the integration of services within a transport network is that at the very time when great efforts are being made to make the different modes and operators act in coordinated ways so as to deliver 'seamless' public transport services, community-owned transport would undermine this effort and add to the fragmented and uncoordinated systems that generally characterize Australia's urban public

transport services. Together with the associated objection to community-owned transport, such a concern is entirely reasonable.

Two responses are offered to this challenge, although they are possibly in opposition to each other, and if not, then are at the least offering different perspectives. By way of context, it should be stated that the level of integration within the areas with poor public transport services across Australia is exceptionally poor. Timetables and services are rarely coordinated and different operators operate their services with little regard to each other. So it should be recognized that the introduction of new services in these areas is not going to wreck something that is working well, rather, the objection is that it will worsen a bad situation. Without resorting to hyperbole, the urban areas with poor, or no levels of service, are extensive and the transport services are simply terrible. Further, for the areas with poor public transport, the primary service comprises bus lines—usually owned by private operators operating under licence to state governments—and community-owned transport would similarly be primarily a bus service.

Firstly, there is no reason why community-based transport services cannot be integrated into the existing system. This objection may have arisen out of confusion by equating community-owned transport—which exists as little more than an idea at this point in time—with the already-existing community transport that is not connected to the transport system in any meaningful way and is unlikely ever to be integrated in this way. But community-owned transport could have its services organized in such a way that it is coordinated with existing public transport services. Furthermore, since the owners of community-based transport are likely to be its greatest users, if they can see merit in being able to readily access the existing public transport system then they can simply do so. On this point, arguably community-owned transport has a far greater incentive for integrating its services with the existing network than the private operators.

Secondly, even if community-owned transport was not properly integrated in the existing public transport systems this may be an acceptable price to pay for increased social and environmental performance of the transport systems. If the choice was between increased mobility in transport-impoverished areas or the continuance of the lack of services on the basis of integration, then surely those without decent public transport would choose to have improved services.

## Conclusion

Sustainable transport challenges Australian communities who, in the post-World War II era, have essentially followed a paradigm of passenger mobility based on motorcar use, with comparatively little investment in public transport despite the extent of urban expansion over this period. Based on the CPR concept, the use of community-owed transport could be a viable alternative to public and private ownership and management of public transport. This alternative paradigm offers a means to promote increased use of public transport in ways that match the goals of sustainable transport. Integrating community-owned transport is possible in theory and need not serve as a major barrier to community-owned mobility services.

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