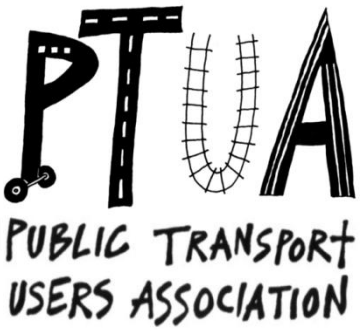
Submission to the Inquiry into

The role of public transport in delivering productivity outcomes

February 2014



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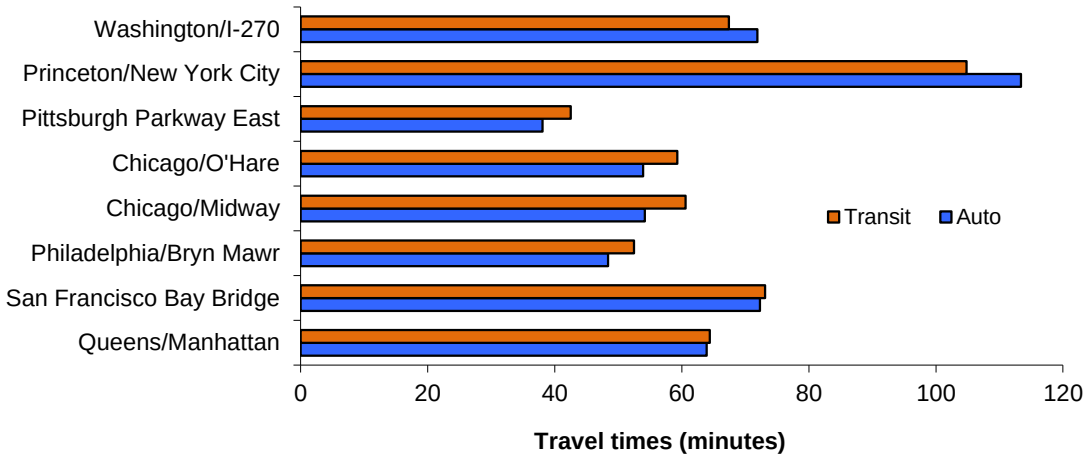
1 Congestion

In general, travel choices are based on which option is the fastest and/or most convenient. Potential road users will avoid using roads if there is a more attractive alternative, such as travel by a different mode of transport, telecommuting, or driving when traffic volumes are lower. This places a ceiling on the level of congestion that a road network experiences, with the height of that ceiling dictated by the availability and quality of alternatives.

For example, commuters will typically opt to drive if public transport journey times are longer than driving, and road congestion will continue to worsen as a result. Once congestion reduces traffic speeds to the equivalent of public transport journey speeds, commuters will be more likely to choose public transport and consequently road congestion and traffic speeds will stabilise at an equilibrium level (see Figure 1-1).

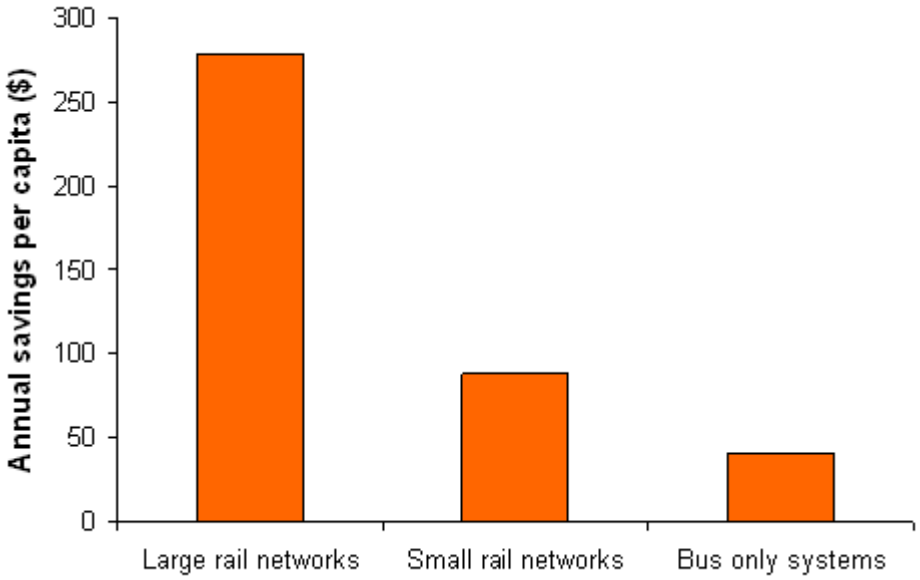
Figure 1-1: Convergence of door-to-door travel times



Source: Lewis & Williams 1999, p.112

Faster, more attractive public transport means that equilibrium is reached with less road traffic congestion. In practice, fast and attractive public transport generally means high capacity rail services operating in a dedicated right-of-way. Furthermore, where communities are walkable with good public transport access, the total amount of travel required by any mode is reduced due to characteristics such as co-location of destinations (Holtzclaw 2000). This interdependence highlights the importance of public transport in addressing road network congestion and efficiency.

Figure 1-2: Annual congestion cost savings from transit



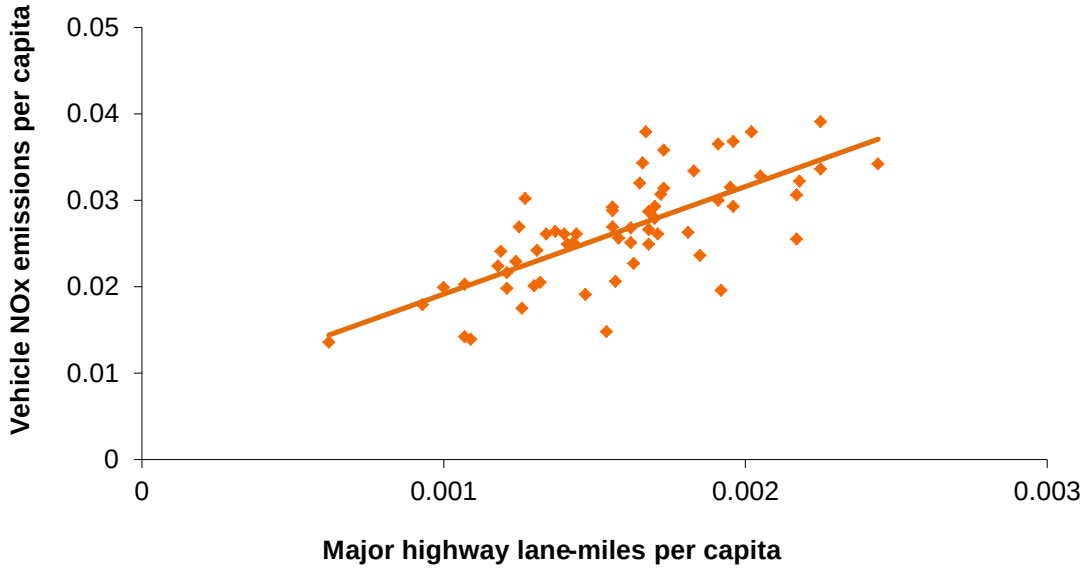
Note: Comprehensive rail networks are fundamental to minimising the cost of congestion.
Source: Litman 2006

In contrast, there is now widespread recognition that expansion of road capacity encourages additional traffic through effects such as encouraging the shift of journeys from other modes onto the road, and encouraging new journeys that were previously not considered worthwhile. This not only diminishes any time-savings benefits of travel on expanded roads, but also increases the amount of traffic and congestion on feeder roads. The flow-on effects may even result in more congestion and slower traffic than prior to road capacity expansion. For example, traffic modelling on the proposed East West Link motorway in Melbourne shows the likelihood of traffic worsening on various key roads if the project were to proceed (Gordon 2013). Unfortunately it appears that either the Victorian Government is not heeding this message (Victorian Auditor-General 2013), and/or federal funding is distorting its priorities (see Section 5).

2 Social and environmental benefits

The observation of induced traffic in cities around the world has debunked assumptions that, by supposedly improving traffic flow, road capacity expansion would reduce traffic emissions (Williams-Derry 2007). In fact, emissions and pollution increase hand-in-hand with road supply and traffic, whereas air pollution is minimised in cities with good quality public transport.

Figure 2-1: Correlation between road supply and air pollution



Source: Cassady et al 2004

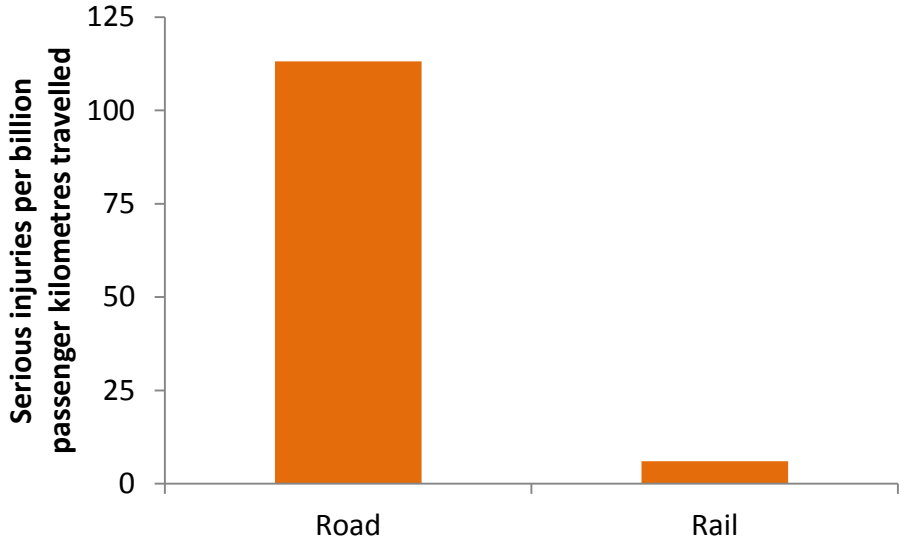
Motor vehicles are the major source of numerous airborne pollutants which contribute to, and exacerbate, various respiratory diseases (PTUA 2009, pp.6-7; ITF 2012, pp.31-32). With induced traffic shown to thwart attempts to reduce emissions through improvements to traffic flow, efforts to reduce transport-related pollution should instead focus on vehicle emissions standards and mode shift to walking, cycling and public transport. In particular, electrified public transport offers major air quality benefits for urban areas.

Transport policy choices also have significant impacts on other aspects of public health. Private motor vehicle use leads to more sedentary lifestyles that are associated with higher incidence of overweight and obesity, along with non-communicable diseases (NCDs) such as diabetes (PTUA 2007, pp.9-12; Sugiyama *et al* 2013). Encouragement of public transport, along with active transport, should be considered a positive public health measure that can reduce the disease (and associated financial) burden of an aging population, and minimise the negative impacts of NCDs on workforce participation and productivity (MacDonald *et al* 2011; PTUA 2011b, p.1; Rissel *et al* 2012).

Motor vehicle crashes are the leading source of death among some age groups, and cause pain and suffering for thousands of Australians each year (PTUA 2009). Public transport offers a much safer form of transport, particularly for higher risk drivers (Litman 2013; PTUA 2009, pp.12-13; PTUA 2011;

PTUA 2012), as recognised in the *National Road Safety Strategy 2011–2020* (Australian Transport Council 2011, p.37). The national road safety strategy's endorsement of public transport should be given practical effect through the joint funding of public transport improvements by the national government.

Figure 2-2: Serious injury rate by transport mode - 2009

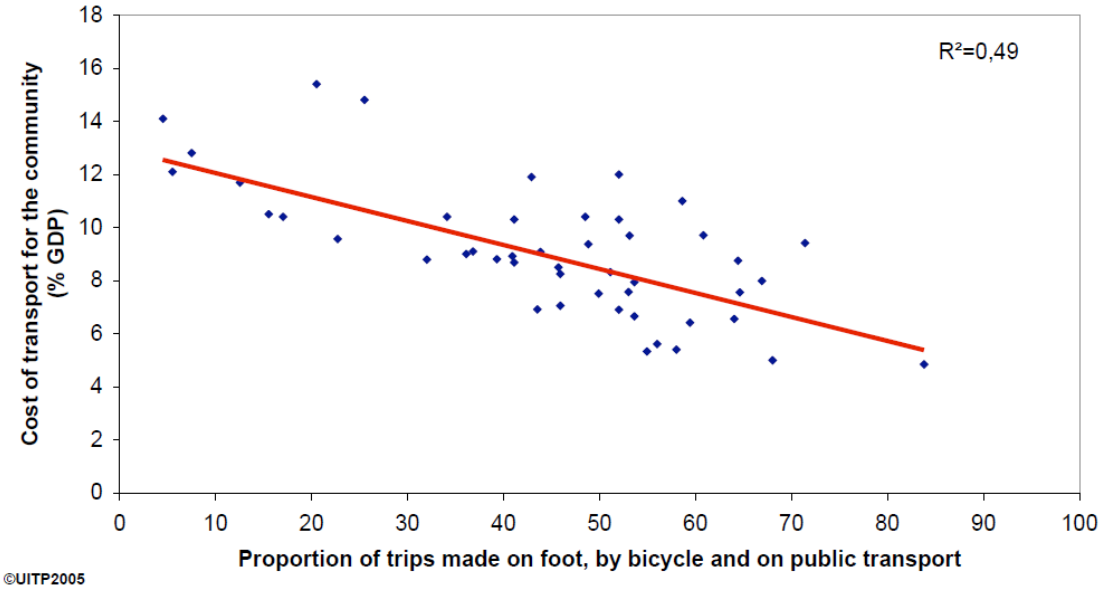


Source: BITRE 2012, p.114

3 National significance

The costs of car-based mobility include construction and maintenance of roads, purchase and repairs of vehicles, fuel and insurance. Where motor vehicle use becomes a necessary pre-requisite for participation in society due to the poor quality of alternatives, a large amount of costly road infrastructure is required (funded either through taxes or tolls), and households face higher vehicle operating costs. As a result, regions where the share of journeys made by car is high must spend a higher proportion of their income on transport, crowding out spending on other goods and services (see Figure 3-1).

Figure 3-1: Cost of transport for the community vs modal split



Source: Vivier & Pourbaix 2006

The decline of the Australian automotive industry has been the subject of much discussion and debate in recent times. Regardless of one's views on continued industry assistance, a number of facts remain: most vehicles sold in Australia are imported; cars assembled in Australia include significant imported content; the majority of fuel is imported (in either crude or refined form); and the profits of car and petroleum companies are largely repatriated overseas. In other words, consumer expenditure on owning and operating cars is of limited benefit to the Australian economy compared to many goods and services with higher local content (see Table 3-1).

Public transport investment also offers more employment than road construction, partly because less of the cost is made up of land acquisition and more of the expenditure goes to employing people (Bernstein *et al* 2010).

Table 3-1: Economic Impacts per $1 Million Expenditures

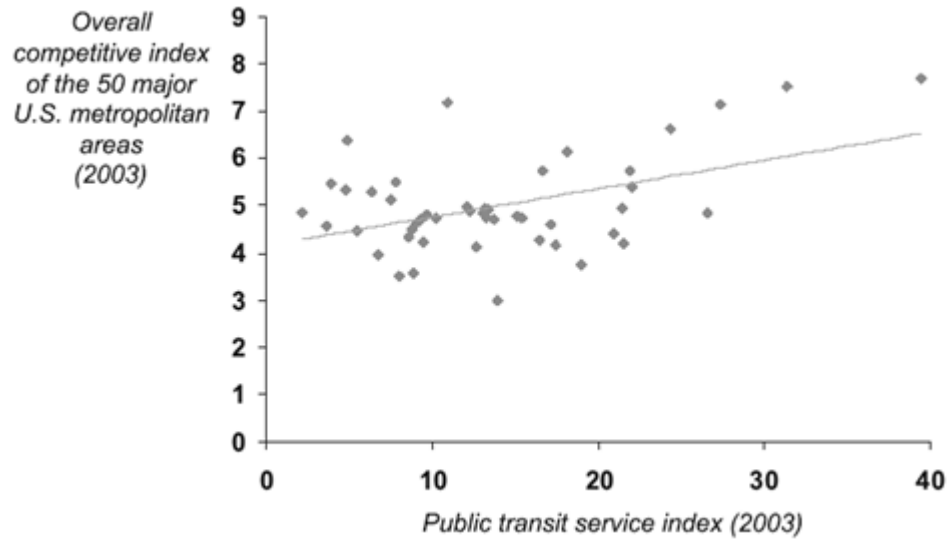
Expense category	Value Added 2006 Dollars	Employment FTEs	Compensation 2006 Dollars
Auto fuel	$1,139,110	12.8	$516,438
Other vehicle expenses	$1,088,845	13.7	$600,082
Household bundles			
Including auto expenses	$1,278,440	17.0	$625,533
Redistributed auto expenses	$1,292,362	17.3	$627,465
Public transit	$1,815,823	31.3	$1,591,993

Note: Expenditure on motor vehicles generates comparatively less employment than other consumer expenditure.

Source: Chmelynski 2008 cited in Litman 2010, p.43

Litman (2010) provides a comprehensive discussion of the economic impacts of transport and we draw the Inquiry's attention to this.

Figure 3-2: Relationship between competitiveness and level of public transport service



Note: High quality public transport services are associated with the competitiveness of metropolitan areas in North America

Source: Board of Trade of Metropolitan Montreal 2004, p.11

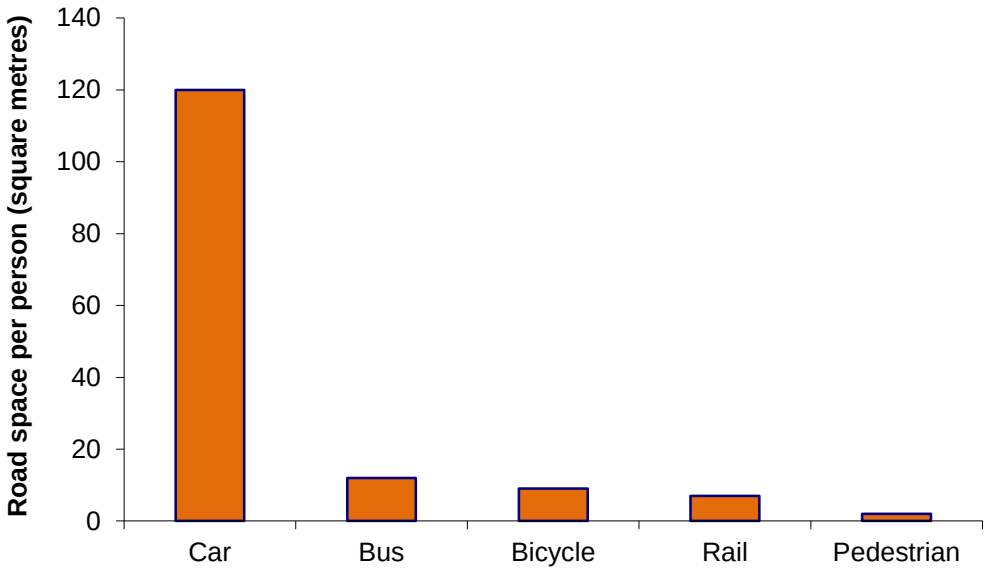
4 Well-functioning cities

Cities with clustering of economic activity into business districts has been a feature of human settlements for centuries. This proximity provides great advantages that boost productivity, and that have become recognised in more recent times as agglomeration benefits (Infrastructure Australia - Major Cities Unit, 2013, p. 85).

Agglomeration benefits are maximised with increasing activity density and high levels of accessibility. This density and accessibility cannot be provided with car-based transport due to the large space requirements for roads and parking (Voith 1998).

Public transport is absolutely essential as the basis of achieving agglomeration economies in modern cities (Daniels & Mulley 2011).

Figure 4-1: Road space requirements per person by mode of transport



Source: Teufel 1989

5 Federal funding

Australia has a relatively high level of Vertical Fiscal Imbalance (VFI) where a large proportion of revenue raising capacity is vested with the national government, but much of the service delivery (i.e. expenditure) is undertaken by state governments (Bennett &Webb 2008). A sizable proportion of state revenue is comprised of tied grants from the Commonwealth and comes with conditions attached on how the money is to be spent. Tied funding from the Commonwealth often requires an equivalent state contribution which must come from the finite pool of own-source revenue available to fund the states' own priorities. This means that, perhaps counter-intuitively, prescriptive Commonwealth funding can place significant constraints on state expenditure.

When Commonwealth grants are provided for road projects, these generally require sizable co-contributions from the state government, which comes from the limited pool of funds available for other state priorities. Furthermore, state priorities are distorted when Commonwealth funding is made available exclusively for roads, such that state treasuries and transport departments are lured into prioritising road projects with the promise of Commonwealth funds, while other options languish due to the state bearing the full cost.

For example, the Melbourne Metro rail tunnel proposal has been assessed as having a superior benefit-cost ratio (BCR), a higher priority and greater public support than the East West Link motorway. However, aided by the promise of federal funding, the Victorian government is attempting to fast-track the construction of the motorway while progress on the rail tunnel has, for all intents and purposes, stalled due to lack of funding. The enormous cost of the Commonwealth-supported motorway appears to guarantee that the rail tunnel will not proceed in the foreseeable future. This is a very real example of arbitrary restrictions on Commonwealth transport funding subverting local priorities.

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