

A bumpy ride? Transporting Australian cities into the 2010s

Jago Dodson



Urban Research Program

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Introduction: Population growth and vehicle use

Australian cities are growing apace. South East Queensland receives an additional 1500 residents each week and is expected to add another 1 million by 2026. Melbourne's population growth has recently been predicted to grow by 1.8 million by 2036. Sydney assumes that its population will grow by 1.2 million by 2031. Perth expects to double its 2001 population to 2.2 million by 2031.

This massive population growth is already leading to a range of pressures on Australia's largest cities: public services; infrastructure; housing. It is no surprise that this decade has witnessed a resurgence of metropolitan planning by state governments who are grappling with their responsibilities for managing and servicing the massive new demand created by this population boom.

Transport systems are struggling under the strain of new growth. In South East Queensland the frustration of seemingly insoluble congestion problems has become the bane of the state government and provides tasty fodder for tabloid news stories. Overcrowding on Melbourne's train system has become as much a part of the city's life as AFL and variable weather. And the flows of traffic and passengers within Australian cities are expected to surge with the growing population. South East Queensland anticipates a doubling of regional VKT by 2026 while Melbourne anticipates a 30 percent growth in car use by 2033. Current travel demand is already stressing our metropolitan transport systems.

Institutional stress

The stresses afflicting Australia's urban transport systems are not solely due to the simple additional passenger numbers. Most Australian metropolitan transport systems have suffered from poor management over many decades and there is little evidence that much is being done to redress this situation.

In South East Queensland the inefficiencies caused by competition between buses and trains shows little sign of being challenged while the Brisbane City Council and State Government tussle over the strategic management of the road network. Melbourne persists with a discredited privatization model in which franchise contract management has been mistaken for meaningful public transport planning. Sydney's transport woes are manifold but include institutional malaise and intransigence at a grand scale which has left the city incapable of introducing an integrated ticketing system of the type which every other Australian city takes for granted, while further fragmentation of the metropolitan public transport system is likely to be entrenched through the construction of an underground 'metro' line.

Transport problems bring stresses to political systems. Kevin Rudd was elected partly on the back of suburban anxiety over fuel prices. In South East Queensland a recent auditor general report into the Queensland government's congestion management put a harsh spotlight onto recently appointed roads and transport ministers. In Victoria Premier John Brumby was recently publicly embarrassed on Neil Mitchell's 3AW radio show when the host grilled him over his knowledge as to whether a senior member of Melbourne's new public transport operator had been sacked by the UK government over his performance running public transport in London.

Many of Australia's political leaders face considerable electoral risks from transport problems. Most of these problems seem due to the intersection of urban growth with managerial and institutional deficits rather than failures of infrastructure. In each of Australia's fast growing major cities, with perhaps the exception of Perth, there seems to be a profound confusion between transport planning as a task of coordinating and controlling transport networks to

maximise operational efficiency in contrast to building transport infrastructure. The lack of effective transport planning institutions within Australian cities limits the value that might be gained from the immense infrastructure investments that are proposed as a response to demand pressures and future growth.

New risks

Responses to the growth pressures facing Australian urban transport systems are likely to be complicated by the emergence of a set of new and worrying global strategic challenges that are of potentially epochal significance. Each has an intricate connection with transport activity. The first such major challenge is climate change. The significance of climate change is now accepted both as a scientific fact and as an international policy challenge. Transport systems are major emitters of greenhouse gases contributing around 23 percent of global carbon emissions from energy. In Australia transport emissions comprise 14 per cent of total national greenhouse gases released with just over half of Australia's transport emissions coming from private passenger vehicles equivalent to 7 percent of the national total. While this may sound like a modest figure transport will nonetheless be expected to play a role in supporting the 5 to 15 percent cut in national emissions by 2020. Doing so at a time when growth in urban car use over the next two decades is anticipated to be anywhere between 30 and 50 percent will be an especially challenging task.

The next major challenge is the shifting global energy security context with petroleum perhaps the most significant of such resources. Even in a period of recession oil prices are hovering between \$60 and \$70 per barrel. Although oil prices have subsided from the high levels seen in mid-2008 they are still far above the low prices seen in the first four years of the decade. The price volatility since 2004 has led to increasing acceptance that global oil supplies face considerable future constraints and risks. Production is declining in many of the major oil fields and regions and remaining reserves are becoming increasingly concentrated in politically unstable regions like the Middle East. Many trillions of dollars worth of investment will be needed to maintain or increase global oil production but the global financial crisis raises doubts about the availability of such funds. But global demand for petroleum is predicted to grow in the future, especially with the acceleration of newly industrializing economies like China, India and Brazil. The potential for international competition and tension to arise over petroleum resources cannot be discounted.

The potential for a severe mismatch between the outputs of the global petroleum supply system and the needs of the global economy is strengthening. The International Energy Agency, which is the foremost authority on energy issues has become increasingly alarmed at the deteriorating petroleum supply context. The IEA's chief economist Fatih Birol has warned that the year 2020 is emerging as a likely moment when these pressures become acute. While few official organs have endorsed the notion of 'peak oil' according to which the world's petroleum supplies will soon hit a point of permanent decline their number is growing. The Australian Senate, Infrastructure Australia, the Queensland Government and the Brisbane City Council, The National Transport Commission, among others, have all endorsed the notion of peak oil and warned of its implications for Australian cities.

Severe constraints on petroleum production would cause considerable stresses to a growing global economy and to highly petroleum dependent nations. This problem operates at two levels. First is the simple macro economic effect of the import cost of petroleum on national economies. The economist James Hamilton has demonstrated convincingly that the ramp up in global oil prices in the period to 2008 was a key factor in the United States entering an economic recession. Indeed Hamilton has identified oil shocks as major contributing factors behind seven of the most recent nine economic recessions or depressions in the United States. While similar

analysis is not yet available for Australia comparable if slightly less severe, effects are likely. And with Australian oil production in seemingly permanent decline the nation faces large potential import costs if current petroleum consumption patterns continue.

Transport systems are likely to be particularly affected by any deterioration in the global petroleum supply situation whether due to higher prices or weakening security of deliveries. Around 97 percent of Australia's transport activity relies on petroleum-based fuels. Australian cities are among the most petroleum dependent in the world outside North America. Road vehicles accounted for 75 per cent of Australian transport fuel consumption and passenger vehicles comprise approximately 62 per cent of this total. The private passenger motor vehicle fleet is therefore a key contributor to Australia's petroleum energy dependence and to national greenhouse emissions. Reducing the energy and carbon intensity and the Australian transport system, especially the urban private motor vehicle fleet, should now be a key objective for policy makers.

A large body of scientific research attests to the effects and implications of automobile and petroleum dependence on Australian cities. The social consequences of car dependence in Australian cities are particularly distressing because car dependence typically intersects with the socio-spatial structure of Australian cities to create a regressive spatial arrangement in which poorer households are forced by housing markets into outer and fringe suburban zones where they then face high transport costs due to lack of alternative transport options. A further stream of Australian research over many decades has shown that such households can face considerable 'locational disadvantage' because the dispersed character and land-use segregation in Australian cities forces long trips to access employment, education, and other services.

But the failure of state governments to provide public transport infrastructure to new suburban zones has been identified as a fundamental factor that can lead to 'transport disadvantage' in Australia's fringe and outer suburbs with considerable implications for their social sustainability. Graham Currie has revealed with rather depressing vividness the problem of 'forced car dependence' in Melbourne which arises where poor households are forced into higher levels of car ownership than would otherwise be the case if the areas they could afford housing were serviced by good quality public transport to give them a cheaper travel alternative.

My own research with Neil Sipe into the problem of oil vulnerability in Australian cities has clearly demonstrated the sharp social divisions that accompany the regressive connections between housing affordability, socio-economic status and car dependence.

Households' socio-economic status – typically their labour market position – strongly conditions their locational housing affordability. Those on modest or low incomes are inevitably allocated to lower priced housing sub-markets which in Australia's highly centralized housing markets are usually found in outer and fringe areas as well as the surrounding peri-urban zone. Because of the extensive public transport deficits in Australian suburbs these low-income households are forced into much higher levels of car use than the wealthier residents Australian middle and inner suburban zones. These problems are already contributing to household disadvantage but if fuel prices were to rise considerably due to either carbon pricing or declining petroleum security, or a mixture of both then the consequences for the social sustainability of Australian cities could be severe.

Current policies

In this context it's highly relevant to assess whether public policy is responding to these kinds of challenges and whether such responses are likely to have any significant effect on urban transport

systems. Such analysis might start with Federal level policy given that this level of government has purview over carbon, energy and transport policy, as well as considerable influence on other areas of policy with transport implications, such as fuel excise.

In the area of carbon reduction the Federal government is doing very little other than prosecuting its Carbon Pollution Reduction Scheme through the Senate which if passed would have a secondary impact on transport systems by requiring vendors of petroleum products to purchase emissions quota with costs presumably transferred to consumers. Even if the CPRS becomes operative the target of a 5 percent reduction in national CO₂ emissions by 2020 doesn't necessarily mean that transport will be one of the areas which is affected by carbon pricing. And there is little to indicate that the CPRS will lead to any direct changes in the provision of public transport services in Australian cities. Any shift away from automobiles for transport would likely occur in areas where households have viable transport alternatives and where the slight additional pressure from carbon pricing would motivate a mode shift. However such areas are already probably those which are experiencing patronage growth.

National carbon policy is also operating within an ambiguous relationship to national energy policy. And energy policy itself is unclear on issues of petroleum security. Energy policy is caught between recognition that there will likely be future constraints on petroleum availability and the knowledge that Australia's abundant coal resources have potential to serve as profitable petroleum substitutes – if the carbon problem can be resolved. As a result energy policy is has been very slow at shifting the magnitude or composition of Australian energy consumption – in potential conflict with carbon policy. The National Energy Security Assessment doubts that there will be little more than a 'slightly negative' change in the supply of crude oil to Australia over the next 15 years. And the conclusions of National Liquid Fuels Vulnerability Assessment were largely dismissive of any serious petroleum security threat. To the extent there is a clear policy it seems to be that higher oil prices will be of advantage to Australia because they will increase the economic viability of converting Australian coal to liquid fuel. The question of any urban social disruption arising from higher transport costs in suburbia seems to have gained scant attention in this equation.

A further area of Federal policy with implications for urban transport systems is automotive industry policy. Following the Bracks review of the automotive industry sector the belief in the capacity of vehicle technology to solve energy and carbon problems has strengthened. The \$6.2 billion Green Vehicle Plan seeks to re-tool the automotive sector for eco-efficient vehicles. This policy comes as electric vehicle entrepreneurs are spruiking the potential rollout of vehicle charging and battery stations across Australian cities in the expectation of an electric car future. Such schemes are highly optimistic given the current state of and cost of electric vehicle technology. The leading hybrid-electric vehicle, Toyota's Prius, currently retails for around \$37,000 in Australia, which is far more than most conventional small and light cars and beyond the affordability of many vehicle purchasers.

Any long-run replacement of the Australian vehicle fleet with hybrid or electric vehicles also runs into the problem of urban socio-economic structure. Simply put the poorest most car dependent urban households tend to operate older larger cars compared to less oil vulnerable urban residents who tend to own newer smaller cars. My research into this issue in Brisbane with colleagues Terry Li and Neil Sipe shows this issue quite clearly. To reach the highly oil dependent outer and fringe suburbs of Australian cities, the next generation of eco-efficient vehicles faces many years of filtering through second-hand markets before it is affordable to those who need these vehicles most from a social and emissions perspective. Even if every vehicle sold from now on in Australia used a hybrid or electric drive-train it would be a long time before these vehicles passed through the second hand market and achieved widespread take-up by the most car-dependent households. This timeframe will be extended if equilibrium effects of price

suppression on older larger vehicles make them more affordable to lower socio-economic status households. We probably don't have time to wait for such market processes to solve our carbon and transport energy security problems.

The Federal government has also leapt into the urban transport arena through the Infrastructure Australia Nation Building Fund. Brisbane's Inner City Rail and Eastern Busway links, the Gold Coast's Light Rail and the Sydney and Melbourne Metro schemes are all supported by the IA plans. While these will certainly get the shovels readied to beat back the current economic crisis they are unlikely to have major impact on transport outcomes in Australia's car dependent suburbs either because they are spatially concentrated in central areas that are already well served by public transport, or because their construction time-frames are so long that it will be years - decades perhaps in the case of Brisbane's inner city rail - before they are completed. There is a considerable risk with the Infrastructure Australia projects that they will expend billions of dollars on projects that shovel a lot of concrete but fail to address the most severe transport deficits in Australian cities, particularly the lack of basic public transport services in the highly car dependent outer and fringe suburbs. Twenty billion dollars could go a long way to funding outer suburban bus services in Australia's cities.

At the State level there has been a proliferation of land-use and transport plans over the first decade of the millennium. The first of these, Melbourne's 2030 metropolitan strategy, promised to integrate land-use and public transport across a constellation of 'activity centres' and 'transit cities'. This policy is doomed to failure even in its most recent iteration in which six new central activities districts will be promoted in middle-suburban zones. Three particular problems afflict this policy. First, the latest iteration of the scheme is aimed at solving congestion issues on the public transport network rather than resolving the lack of suburban public transport and high levels of outer and fringe car dependence. The 846,000 extra residents exiled to the Melbourne@5million growth areas will see little gain from the IA schemes.

Second, consolidation relies on relatively slow housing and commercial development processes to solve transport problems. The long time-frame for redevelopment means that such policies simply can't resolve congestion or energy vulnerability problems within even medium time-frames. Third, the policy doesn't recognize or address any of the institutional and managerial problems in Melbourne's public transport systems, such as the franchising arrangements, which have been identified but multiple independent assessors as fundamental contributors to the poor supply performance of public transport. Without a change in the formal processes of public transport management and provision in Melbourne it seems unlikely that the city's public transport system can expand to meet the new suburban growth demands. This problem is exemplified by the flawed cost estimates for the extension to the Epping line produced by the Victorian government.

More broadly there is considerable doubt about urban consolidation as a method to overcome transport problems, especially spatial service deficits, in Australian cities. Housing markets tend to centralise high-cost higher density development to inner and middle urban zones where household incomes are relatively high and car reliance relatively low. In contrast the outer and fringe suburbs are unlikely to receive much high density development as land prices provide only weak signals to encourage developers to undertake high density housing. The transit oriented developments proposed in some Australian cities will depend on private property markets for their success and will thus tend to congregate within the existing good quality public transport service zones. Any policy which depends on higher densities to solve the transport problems of car-dependent outer and fringe suburbs and which relies on private property markets to achieve this solution is unlikely to achieve much success.

Similar problems apply to the recent proposals to allow higher densities along Melbourne's tram routes. 'Tilt-slabbing the tramways' may result in higher densities but unless the program somehow also induces new public transport services to appear in the outer and fringe suburbs it seems at best a distraction from greater metropolitan transport problems. Building high-density well served citadels in the inner suburbs seems to be a misplaced solution to the failure of the State government to plan, supply and coordinate adequate bus and train services in dispersed outer, fringe and new growth areas. Inner-urban densification also imposes amenity costs on existing inner-urban households and risks setting up a false and unhelpful inner- versus outer-suburban conflict rather than seeking a broader agreement on equitable modes of development and transport coordination.

Conclusions – a new path for Australian urbanisation?

So what can Australian cities do to solve their transport woes? I can't cover all solutions in the present discussion but three points are worth making. First there is a clear failure of transport governance in Australian cities. We have some of the most extensive networks of public transport infrastructure in the world yet we seem incapable of managing them effectively. The result is a perpetuation of poorly performing management structures which avoid scrutiny by framing their failures as technical, not institutional problems and thus identify infrastructure solutions rather than re-thinking their planning and management processes and systems. There is good international evidence that public management and coordination of public transport networks is crucial to their efficient and effective function. Yet such management is barely known in Australian cities. Improved governance is perhaps the most single important factor in solving Australia's urban transport woes.

New improved transport governance needs to be linked to new network planning strategies for Australian suburbia. The slow crawling incrementalism associated with the rollout of services to growth areas is incapable of delivering the scale of service improvement needed to overcome the risks exposed by the VIPER and VAMPIRE analysis. Instead of spending billions of dollars on adding capacity to congested inner city infrastructure transport planning should be concentrating on redressing the network deficits or what Professor Garnaut termed the spatial market failures of public transport supply in outer and fringe suburban areas. Unfortunately the scale of this task is too great and too complex that one could expect a private agent to both conceive and deliver. It needs detailed and sustained government intervention both in planning and implementation.

A third and perhaps more significant question concerns the need to form a new political settlement around housing, tenure, transport and urbanisation. In most instances the supply of transport systems and the spatial distribution of land uses are solutions to a wider problematic rather than an enterprise in their own right. Suburbia at its most radical is one of many alternative solutions to the problem of providing housing for populations at a socially acceptable quality and under a given set of political and institutional conditions. In Australia's highly centralized housing markets road transport systems are used to open up cheap peripheral land to make housing affordable – a model that has been pursued since the end of WWII. Credit backed by land is also one of the fundamental pillars of Australia's financial system. But the urban frontier offers poor respite for those fleeing the tyranny of spatial housing markets whose inner zones are monopolised by that social fraction made up of high-income earners and wealthy investors. We've continued to pursue the frontier model even though the stresses and strains it's placing on our urban transport, economic, social, political, resource and environmental systems have become increasingly acute. Current consolidation policies are failing to satisfy the full array of housing aspirations in Australia, in part because higher density development is overwhelmingly dominated by the insecure tenure of private rental housing. The burgeoning inner urban lifestyle citadels offer little long-term stability for families and those of modest means. We need a new

model of (sub)urbanisation in which security of tenure is neither dependent on ownership of a detached dwelling on an individual lot nor on the private automobile as a mode of transport. This broader problem is rarely posed in Australia but will become more pressing as our transport woes persist and as the looming resource pressures begin to force new spatial arrangements on our urban social and economic systems. We're in for a bumpy ride if we don't start re-thinking our suburban transport and its intersection with wider suburban settlement patterns and social and political processes.



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