ARA

INNOVATIVE FUNDING AND FINANCING FOR PUBLIC TRANSPORT

A review of alternative, sustainable funding and financing sources

February 2014

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Australia faces a funding crisis. There is widespread agreement that Australia has a substantial infrastructure backlog. Infrastructure Australia costs the national infrastructure deficit at $300 billion[1] while some commentators place the required investment as high as $800 billion over the next ten years[2] – a figure equivalent to more than half the combined market value of all companies listed on the Australian Stock Exchange.

This backlog is compounded by limited funds and competing priorities. Australian governments cannot afford to continue relying on an allocation from general Government funds for public transport improvements and infrastructure investments. Although efforts have been made in some jurisdictions, the approach to transport funding and financing must broaden nationally. Australia's infrastructure investment requirements go beyond political terms. Australian governments must establish alternative funding sources for public transport whilst ensuring that the private sector plays its part in financing the infrastructure the nation needs.

Continued investment and expansion of public transport is crucial for the success of the nation. Whether Australians travel by public transport or not, they still benefit from its existence and use by others. For instance, the average passenger train takes 525 cars off the road, reducing road congestion, improving road safety and decreasing transport-related emissions[3]. As a result, an individual may not travel by rail or other modes of public transport but they still benefit from those who do.

Australian governments must innovate and embrace some of the many funding tools successfully used in cities, states and countries around the world. Alternative revenue raising tools such as value capture, transit-oriented developments, congestion charging, payroll, sales and fuel taxes and Superannuation funds have been providing dedicated funding sources for transport operations and expansions around the globe for years, some since the early 1900's. To capitalise on the broad benefits public transport provides and continue improving Australia's public transport systems, sustainable, long term funding that allows planned improvements to service offerings and the expansion of existing infrastructure is vital.

This paper explores a selection of funding and financing mechanisms currently implemented around the globe. Rather than recommend one over another, the intention is to spark debate and highlight the innovative options that could be implemented to ensure long-term investment in Australian infrastructure. For instance:

- Value Capture could fund vital public transport infrastructure within Australian capital cities. Further, if the Government acquired additional land adjacent to the high speed rail corridor, it could utilise value capture to fund high speed rail along Australia's East Coast by selling the land back to developers (as has been done in China and Japan).
- Transit-Oriented Developments are underutilised in Australia but they are capable of generating long-term support revenue for public transport systems in our cities whilst also encouraging greater use of public transport.
- Congestion charging could be introduced in the city centres of Sydney, Melbourne and Brisbane as demand management tools to curb road congestion, encourage Australians out of their cars and generate funds to re-invest in public transport systems.

- A national payroll tax could have many applications or it could provide a national revenue source for Infrastructure Australia's proposed Single National Infrastructure Fund.
- Based on 2013-14 budget forecasts, a 1 per cent increase to the GST would generate $5.03 billion in the 2013-14 financial year. This could be hypothecated for public transport infrastructure and services.
- Re-introducing CPI increases and hypothecating Australia's fuel tax for public transport and road investment would re-allow revenue from Australia's fuel tax to increase with GDP, increasing the funding pool and providing a reliable source of revenue for transport investment.
- With appropriate national financial and regulatory reforms, Australian Superannuation funds could be drawn upon to finance vital transport infrastructure projects around the nation.

FUNDING AND FINANCING

The distinction between funding and financing

One important distinction must be established in this paper - the difference between funding and financing. Both are essential in creating an efficient and effective market for public transport infrastructure investment. According to Ernst & Young, funding is the allocation of ultimate cash flows that support the construction and operation of infrastructure whereby financing is described as selecting the immediate source of cash that will physically develop the assets with the repayment of this investment over the life of the asset[4].

Similarly Infrastructure Australia distinguishes between the two, stating:

> *"The term funding... refers to how infrastructure is paid for. Ultimately, there are only two sources of funding for infrastructure, government investment or direct user charges. This is opposed to financing which refers to the way in which debt and/or equity is raised for the delivery and operation of an infrastructure project"[5].*

Infrastructure Australia follows this differentiation with the statement that "Australia must embrace bold reforms to find new opportunities to fund projects - and efficient finance - to support an enlarged program of infrastructure delivery"[6].

In essence, funding provides ongoing dollars for a project that are not required to be repaid whereas financing provides up front dollars that will ultimately be repaid (usually with interest). Particularly with regard to financing, governments have a wide range of financing solutions through both the public and private sector. These include but are not limited to Public Private Partnerships (PPP) Schemes.

AUSTRALIA'S STATE OF PLAY

Local Challenges - The need for new funding and financing models

A recent report by the Grattan Institute shows that the Australian Government is facing budget deficits of $60 billion per annum due to a combination of increasing health and welfare costs associated with an ageing population[7]. At a federal level, the Government is facing a collapse in revenue due to weakening commodity prices as it seeks to fund major initiatives including the National Disability Insurance Scheme while state governments face fiscal constraints due to weaker GST revenues, increased hospital and other costs. In the post-GFC environment, financing constraints mean that traditional PPPs models cannot be used for projects significantly larger than $2bn to $3bn. For projects of this size, a conventional PPP may constrain competition, increase pricing and place additional pressure on government balance sheets. As a result, new delivery models, funding and financing structures are needed to tackle these challenges. Marginal refinements of existing PPP structures cannot unlock the private sector financing required or attract the interest of sufficient competition from construction companies to deliver the infrastructure needed to ensure Australia's continued growth, competitiveness and prosperity. Significant reform is required.

As well as budgetary constraints, Australia faces a number of challenges; an expanding and ageing population, increasing road congestion and commute times, capacity constraints on our public transport systems and our position as one of the highest carbon emitters per capita. Public transport and the extensive benefits it provides is well positioned as a solution to these challenges.

Australia is one of the most urbanised countries in the world. In June 2012, more than 15 million people, almost two-thirds of the population, lived in one of Australia's eight capital cities[8]. With the population projected to reach 35.5 million by 2056, Australia's growing populace will continue to put pressure on our cities, public transport systems and infrastructure. According to the Australian Bureau of Statistics, between 2001 and 2011, Australian capital cities grew by 17% whilst the remainder of the country grew by 11%. This growth is unsustainable, putting increasing pressure on existing infrastructure and transport systems. Many of Australia's rail networks are at or exceeding capacity. According to Stanley and Barrett[9], between 2004 and 2008, rail patronage in Melbourne grew 10.5%, Perth experienced an 8.2% increase and Brisbane welcomed 6.4% more customers onto the rail network. To meet this growing demand, governments need to get smarter at generating funds to invest in public transport services and infrastructure improvements.

Australians are known for their love affair with cars but this clogs our roads and affects the nation's productivity. The Bureau of Infrastructure, Transport and Regional Economics (BITRE) has projected Australia's road congestion to cost the nation $20.4 billion by 2020 through lost productivity due to time wasted in traffic and yet according to the Australia Bureau of Statistics, 17.2 million motor vehicles were registered in 2013, a 12.3% increase since 2008[10]. To shift the public out of theirs

cars, Australian cities and regional centres need viable alternatives. Australian cities and regional centres should be home to world-class public transport systems but after years of underinvestment, our systems are playing catch up.

Our transport preferences contribute significantly to our position as one of the highest carbon emitting countries in the world. In 2012, the Department of Climate Change and Energy Efficiency reported that transport contributed 83.2 million tonnes or 15.3% of Australia's national carbon emissions each year[11]. Of those 15.3% transport emissions, road transport was responsible for 85.9% or 71.5 million tonnes whilst rail only contributed 3.1% or 2.6 million tonnes[12], another argument for greater investment in rail.

Transport Governance & Funding

According to Infrastructure Australia, Australia has almost 600 local, state and territory Governments that, together with the Commonwealth Government, fund and plan infrastructure[13]. Infrastructure Australia was established by the Labor Federal Government in 2008 under the Infrastructure Australia Act 2008 as a statutory authority to prioritise road and public transport infrastructure investment and take infrastructure investment out of political cycles. The Building Australia Fund was then established through the Nation-building Funds Act 2008 on 1 January 2009 to "finance capital investment in transport infrastructure (such as roads, rail, urban transport and ports), communications infrastructure… energy infrastructure and water infrastructure"[14].

The Building Australia Fund is financed by budget surpluses, proceeds from the sale of the government's holding of Telstra and its Telstra shares[15]. The Future Fund Board of Guardians, chaired by Mr David Gonski AC are responsible for determining how the fund is invested whilst payments into the fund are decided by the Government with guidance from Infrastructure Australia[16].

On direction from the Council of Australian Governments (COAG), Infrastructure Australia completed a National Infrastructure Audit in 2008 and now maintains a National Infrastructure Priority List which was being updated annually and is now updated three times a year. This list estimates Australia's infrastructure priority capital costs to be $76,528 million[17] whilst the Infrastructure Australia National Infrastructure Plan of June 2013 estimates Australia's total infrastructure deficit to be $300 billion.

Between 2008 and 2018-19, through the Nation Building Program, $60 billion has been committed to road and rail infrastructure investment. Phase one of the Nation Building Program (2008-09 to 2013-14) saw $36 billion invested, $7.4 billion of which was allocated to passenger and freight rail infrastructure[18]. Phase two is being rolled out from 2014-15[19].

Although considerable focus is now being given to Australia's infrastructure backlog, in Infrastructure Australia's own words:

"Australia is challenged with:

- *Identifying, prioritising and investing in infrastructure that delivers real economic, social and environmental benefits; and*
- *Creating new opportunities to fund and finance the future infrastructure task"*[20].

Clearly, as a nation we need to get smarter at generating reliable and long-term funds for public transport infrastructure investment. Similarly, governments at all levels should take action to encourage private finance to invest in public transport projects.

In June 2011, the Infrastructure Finance Working Group (IFWG) was established to advise Infrastructure Australia on infrastructure financing policy issues. The group's terms of reference are to:

- advise Infrastructure Australia on the implementation of certain measures of the 2011-12 Commonwealth Budget relating to infrastructure investment;
- identify and advise on impediments and options for reform to infrastructure finance policy; and
- advise on the role of private finance, user charges and alternative finance models in the provision of public infrastructure[21].

In its Infrastructure Finance and Funding Reform report, the IFWG states that "a major constraint on the delivery of social and economic infrastructure is the funding capacity of Australian governments. This is distinct from the capacity of the private sector to provide financing capital for infrastructure projects. Solutions to the backlog of infrastructure investment, or 'infrastructure deficit', will require substantial funding reform but will lead to greater private sector investment in infrastructure"[22].

Although the Nation Building Program and establishment of a dedicated fund through the Building Australia Fund is a move in the right direction, as noted by the IFWG, the challenge of reliable, sustainable and dedicated funding for transport infrastructure and service investment remains. Australian governments should look to overseas examples and introduce alternative revenue-raising tools to generate dedicated and reliable funds that are hypothecated for public transport investment.

In its June 2013 National Infrastructure Plan, Infrastructure Australia addresses Australia's funding challenge, stating that "there is a fundamental disconnect between the infrastructure we want and our willingness to pay for it". The Plan goes on to recommend "seven bold reforms" to improve Australia's infrastructure and productivity. Specifically:

1. **Establish a Single National Infrastructure Fund** - Consolidating Commonwealth funding into a national infrastructure fund with a single assessment and prioritisation process to transform infrastructure spending and transparency.
2. **Use Government Budgets Innovatively** – Moving away from a reliance on State Grants for infrastructure funding and encouraging private investment by changing Government contributions and funding requirements to state and territory projects.
3. **Recycle Capital for New Infrastructure** - Encouraging Governments to recycle its capital in mature assets into new infrastructure.
4. **User Pays – User Says –** Historically Australia's public infrastructure has been funded through Government subsidies, with little or no cost recovery from users. In Infrastructure Australia's own words, "To get the infrastructure we want, when we want it, we need to pay more as users"[23].

5. **Reduce Layers of Government** - Integrated infrastructure planning across all levels of Governments to clarify which level of Government funds and delivers projects will provide efficiencies and accountability whilst minimising costs and attracting further investments.
6. **Be World Leaders in Project Governance** – Billions of dollars could be saved by improving project governance, freeing up funds for other infrastructure projects.
7. **Smarter, Leaner Infrastructure Procurement** – Similar to point six above, improving the Government's infrastructure procurement process will reduce costs for bidders and the government.

The Australasian Railway Association supports the above reforms to improve infrastructure funding in Australia. Specifically, a number of the tools explored in this paper, such as the payroll tax and sales tax could be introduced to generate dedicated funds for the Single National Infrastructure Fund. Congestion charging, or "User pays – user say" is also detailed in this paper and could be adopted within Australian cities to manage road congestion whilst simultaneously providing a revenue source for continued investment in transport systems.

Current Funding and Financing Sources

Very few public transport systems worldwide generate sufficient revenue to be self-funding. Fares typically do not cover the actual cost of the service provided and as a result, the revenue from the fare box commonly contributes but does not cover operating costs. Fare box and advertising revenue is typically topped up through government subsidies.

Public transport operators and authorities in Australia currently rely on funding assistance from governments to subsidise operations. Consequently, funding is unreliable, altering with political parties and their policies.

The majority of public transport funding is provided by State Governments and as a result, funding levels and sources vary across jurisdictions. As well as general taxation revenue, State Governments rely on revenue from vehicle registration and vehicle licencing fees, public transport fares and Australian Government capital programs to invest in their transport systems[24]. Parking levies are also utilised in Sydney, Melbourne and Perth to discourage car use and provide funds for public transport investment.

PPP's are increasingly popular contractual partnerships between government and private entities to finance, build, operate and maintain public transport infrastructure projects. The COAG's National PPP Policy and Guidelines introduced in 2008 aim to provide a consistent and streamlined framework for PPP's, ensure governance and encourage innovation[25]. However, there is still room for improvement in Australia's procurement space. For example, Australian bid costs are approximately 25 to 45 per cent higher than similar bids in Canada, providing a considerable financial barrier to private entities considering PPPs or infrastructure investment in Australia[26].

As well as the funding sources explored in this paper, superannuation and PPP's both provide viable financing opportunities that should be explored further as reliable, long-term sources to invest in Australian public transport infrastructure. According to Infrastructure Australia, at the end of June 2011, $1.34 trillion in total assets were being managed by Australian

superannuation funds[27]. This is forecast to exceed $3 trillion by 2021[28]. On 31 May 2013, Industry Funds Management, a superannuation consortium of five funds signed a $5.07 billion deal which saw the consortia assume management of Port Botany in Sydney and Port Kembla in Wollongong today through a 99 year lease agreements[29].

ALTERNATE FUNDING AND FINANCING SOURCES

Due to the global fiscal constraints, government at all levels around the world are increasingly exploring and introducing innovative ways to fund and finance vital infrastructure projects. For decades, cities, states and countries have implemented innovative revenue-raising tools to generate hypothecated funds for transport infrastructure and service improvements. These funding tools are many and varied and include but are certainly not limited to:

- **Value Capture:** capitalising on the increased value that public transport provides for nearby commercial and residential properties, value capture is a mechanism that recoups part or all of the increased worth that a transport improvement provides to nearby property. Hong Kong, Downtown Kansas City, the Sydney Betterment Tax and the London Jubilee Line Extension are all examples of value capture explored in this paper.
- **Transit-Oriented Developments (TODs):** as well as acting as a tool to encourage greater patronage, property developments at and around public transport stations are increasingly utilised to generate long-term revenue to support public transport operations. TODs in Hong Kong and the San Francisco Bay Area Rapid Transit are detailed in this report.
- **Congestion Charging:** a user-pays demand-management tool where road users are charged to access roads or areas, generating funds that can be reinvested in transport whilst also providing an incentive for road users to switch to public transport. The congestion charging practices in Singapore, Norway and London are explored in this paper.
- **Payroll Tax:** employees or employers are levied a small percentage of their taxable income that is then hypothecated to fund public transport investments. This paper includes information on the French and Portland, Oregon payroll taxes.
- **Sales Tax:** a percentage of the purchase price is added to the price of goods and services and then drawn upon for public transport investment. The Los Angeles County Sales is highlighted in this paper.
- **Fuel Tax:** a specific amount is added to the fuel price and hypothecated for transport investments. The United States Federal gas and diesel taxes are explored in this paper.

As will be highlighted in the following sections, the success of the above tools (and others not explored in this paper) to generate reliable funds for public transport investment rely on common criteria. These are:

- **CPI increases:** it is vital that any revenue raising mechanism rises with CPI to continue generating sufficient funds as the economy grows. Failure to do so (as outlined in the Australian and United States Federal fuel levies) stalls the

revenue generating capabilities of the mechanism, effectively decreasing the mechanisms revenue raising abilities each year.

- **Hypothecation:** the benefit to providing a reliable and dedicated source of revenue is that long term planning can then occur. Hypothecating, or dedicating the revenue from a specific revenue-raising tool provides certainty and allows long-term planning and commitments to be made.

In addition to the above funding tools, this paper explores the use of Superannuation funds to finance infrastructure projects as well as some key commentaries on the reforms required to attract more private sector involvement in our economic infrastructure and address the shortfalls of the existing Public Private Partnerships (PPP) schemes.

Property-based options

Value Capture

Globally, public transport has been found to have a positive influence on property and land prices. Recognising this, value capture is a funding tool, also known as a betterment tax, used to recoup part or all of the increase in property values initiated by infrastructure improvements. The size of the property value increase will depend on the proximity to the transport offering, the mode of transport, quality of service and alternative transport options available in that area[30]. Locally, properties close to rail lines are typically valued 20-25 per cent higher than those that aren't[31] and in East Asia, studies have found that a 10 per cent increase in distance from a public transport station reduces property values by approximately 1 per cent[32].

The two common models of value capture are:

- **Tax Increment Financing:** where a certain increase is forecast within a region or district around the development and a certain percentage, or increment is agreed to be levied to fund the infrastructure investment. This approach is predominantly used in the United States and is explored in the Downtown Kansas City section.
- **Joint Property Development:** when a government partners with infrastructure developers and allows the developer to recoup the value capture through its own property development as a revenue source to fund a specific transport projects or to reinvest in the system. Hong Kong is an example of joint property development value capture.

Hong Kong

Unlike most public transport systems in the Western world, Hong Kong's metro is not subsidised by its Government. Instead the system operator is self-funded through the fare box, commercial station retail rent and residential and commercial property developments, using a combination of joint property development value capture and transport oriented developments.

First announced by the government in 1973 with an initial cost of HK$ 500 million, by 1982 the Hong Kong metro system was already generating a profit, partly due to the increase in land value along the metro line[33].

Land in Hong Kong is nationalised, or owned by the State. MTR Corporation, who operate and manage the system have adopted a "Rail+Property" approach to fund investment in the metro. In a joint property development approach to land value capture, MTR leases land adjacent to its rail extensions from the government and then develops the land either into commercial or residential properties (or a combination of both). MTR pays the government the value of the land without the rail line, allowing the corporation to capture and profit from the value the rail expansion generates.

In 2012, in addition to its residential and commercial properties, of which the commercial station rental contributed 16 per cent of the company's revenue[34], MTR held a property investment portfolio of 13 shopping malls and 18 office floors of the two International Finance Centre ("Two ifc") office towers, generating HK $3.2 billion per annum.

Downtown Kansas City

After unsuccessful attempts to fund a city-wide light rail network, the Kansas City local government established the Transportation Development District (TDD), an area around a proposed two-mile streetcar route that was identified to directly benefit from the project. The local government then put a land value capture, or "real estate tax" within the TDD up for public vote. On 12 December 2012, residential and commercial property owners within the TDD voted in favour of land value capture to contribute funds towards the construction of the Downtown Kansas City Streetcar. 319 voted yes, 141 voted no[35]. A 1 cent sales tax within the TDD was also approved. According to the Kansas City Streetcar project website, 75 per cent of the project's costs will be funded through innovative local public and private funding. The revenue from the TDD value capture and sales tax will be used to cover net operating and maintenance costs[36].

The Kansas City Government had previously put the vote to the entire City unsuccessfully but identifying the specific region that will benefit from the two-mile streetcar achieved a 60 per cent support in funding assistance and has permitted the project to proceed.

Local levies

Sydney and Melbourne have both previously implemented a land value capture tax, or "betterment levies" to fund infrastructure. Most recently, the Gold Coast has introduced a land value capture tax to assist in the funding of the Gold Coast Light Rail line.

Introduced through two Acts in 1970, the NSW State Planning Authority was authorised to implement a 30 per cent land value increment levy on land that was rezoned from rural to urban uses within the Sydney metropolitan area. The tax was hypothecated for urban works and services within the new urban areas and used to fund sewerage works and metropolitan infrastructure investment to accommodate the expansion of Sydney. By 1972/73, the betterment levy had successfully generated $9 million and yet the legislation was repealed in 1973 just prior to a state election under the guise that it was affecting land prices during a time of severe housing and land shortages[37].

In addition to this, one third of the construction of the Sydney Harbour Bridge was funded through a betterment tax imposed on landowners north and south of the harbour who were recognised as beneficiaries of linking the city and Sydney's North Shore. The levy was imposed for 15 years at 0.2 per cent on the unimproved capital value of the lands.

In Melbourne, a "benefited area levy" was introduced to contribute to the funding of the City Loop which commenced construction in 1971 and was completed 10 years later[38].

Most recently, to help fund the first stage of the Gold Coast Rapid Transit Light Rail Line, the Gold Coast Council introduced a $111 annual transport improvement levy that will see contributions from ratepayers who own property in the vicinity deemed to "benefit" from the construction of Gold Coast Light Rail line[39].

Jubilee Line Extension, London

London Property Developer Don Riley penned a book "Taken for a Ride" in which he reviewed the construction of the London Underground's £3.5 billion Jubilee Line Extension which linked Central London with East London.

The underground rail line extension was fully funded through government general revenue without any of the value the line provided to local property owners recouped. In his book, Riley estimates that in the 10 years (1992-2002) following the extension, properties within a 1000 yard radius of the new underground stations increased in value by approximately £13 billion. This has become a common example of why governments should consider value capture as a mechanism to fund major transport infrastructure investment.

Local opportunities

Value capture has a long and successful track-record of funding public transport infrastructure and supporting public transport services around the globe. Locally value capture could be utilised to fund or contribute to the funding of the high speed rail line along Australia's East Coast. The Government could acquire more land than is required for the corridor and then sell the land back to developers. Public transport providers in Australian cities could also collaborate with real estate agencies and property developers to capitalise on the heightened value improved public transport services will provide for property values.

Transit-Oriented Developments

Transport or transit-oriented developments (TODs) are increasingly popular commercial, residential and retail spaces located at or within walking distance of transport hubs that are used to generate revenue to fund or support transport investments whilst stimulating urban growth. TODs can be newly constructed or redevelopments of existing structures. Similarly, air-rights to construct a TOD above a station can be sold to property developers as a means to fund a transport development. Alternatively, the transport operator or authority develops and manages a TOD to provide ongoing funding for the transport system. TODs are extensively used throughout Asia and are acknowledged as a primary funding source that negates the need for government subsidies of Hong Kong's metro system.

As well as providing a long-term funding mechanism to support transport operations, TODs are also seen as a successful tool to increase public transport ridership.

Hong Kong

MTR Hong Kong credits its long-term success on its integration of rail and property development. According to the MTR website, "our use of transit-oriented development enables us to self-finance our day-to-day railway operations, establish reasonable fares and ensure sustained patronage of the system"[40]. A review of the Hong Kong metro system and 25 of its TODs in 2010 found that an MTR station with a TOD added around 35,000 weekday passengers to the system[41].

The Tung Chung Station Development is just one of MTR's many TODs. Planned in 2007 to accommodate 108,000 people, the initial development was such a success that in 2012 the Tung Chung New Town Development Extension was introduced to expand the new town to accommodate 220,000 people[42]. The Tung Chung Station Development currently includes three sites combining high-rise and low-rise buildings that are linked by elevated walkways[43]. The development includes 32 high-rise residential blocks which offer a variety of housing types and sizes; approximately 56,000 square metres of dedicated retail space, including a major shopping centre; a 15,000 square metre office tower; a 440 room hotel with conference facilities and restaurants; more than 3,800 car parking spaces as well as landscaped open areas, a wet market and four kindergartens[44].

San Francisco Bay Area Rapid Transit

The San Francisco Bay Area Rapid Transit District (BART) runs a 104 mile rail system with 43 train stations spread through four counties. In July 2005, to increase ridership, secure annual revenue, reduce taxpayer subsidies, improve connections with the community and create a more liveable community, the BART Board of Directors adopted a Transit-Oriented Development Policy[45].

As a result, the San Francisco BART is currently engaged in 18 TOD projects at its stations, representing over $2.7 billion in private investment and is in negotiations for another 7 valued at $1.15 billion[46].

Strengths and Weaknesses

TODs have a proven record at generating significant funds that can be reinvested in public transport. As well as providing ongoing sources of revenue for transport services and infrastructure investment, TODs have been shown to encourage public transport patronage and reduce road congestion by encouraging people to walk and ride public transport instead of drive.

Local opportunities

Although TODs do exist in Australia, there is scope to expand the number of these developments. Local governments could follow Hong Kong and San Francisco's examples and establish property developments around transport hubs to help provide long-term revenue for transport infrastructure and service investment. These could either be sold as "air rights" or given to property developers to manage or public transport operators could diversify as has been done in Hong Kong and San Francisco where the public transport operator manages the developments.

Road User Charging

Congestion Charging

Congestion charging or congestion pricing is a "user pays" tool typically used to manage traffic demand. By charging road users to access certain roads or areas of a city, congestion charging is used to reduce road congestion and transport-related emissions by encouraging road users to adopt alternative transport options. These systems generate significant revenue that can then be utilised to invest in and improve public transport offerings.

There are four general types of congestion charging or pricing.

1. **Cordon Area**: Drivers are charged to enter a zone, or "cordon area". The charge can be a fee each time a driver enters the zone, a flat daily rate or a variable fee depending on the time of travel and vehicle driven. Singapore and London both use cordon-based congestion charging to manage road congestion. Case studies are detailed below.
2. **Single Facility**: Charges are applied for the use of a "single facility" such as a specific road (or lane on a road), bridge or tunnel. Again, these charges can be a flat daily rate, variable depending on the vehicle and time of travel or a set fee each time the facility is accessed.
3. **Toll ring road/s:** ring roads typically circle a city. A toll ring road can include either a single-facility toll where road users are charged to access a single lane on the ring road in return for less traffic and a faster journey or, the ring road can act as the barrier to tolled roads entering the city. Norway uses toll road charging extensively which is discussed below.
4. **Distance-based**: Vehicles are equipped with a distance-monitoring system and road users are charged according to the vehicle type and distance driven within the charging zone.

Singapore

Singapore introduced its Area license System (ALS) in 1975. Without the technological capabilities available today, the system was predominantly manual. Drivers entering the CBD restricted zone during the morning peak paid $3 Singapore dollars and displayed a daily or monthly sticker on the inside windshield (vehicles with four or more people were not charged)[47]. Evening peak charges were added in 1989 and the system moved to a flat all day rate in 1994[48]. Although the manual nature of the system meant it was labour intensive, (relying on about 150 staff in ticket booths at 34 locations to check vehicles), the system led to an almost immediate 45 percent reduction in Singapore's road congestion[49]. It also saw average road travel speeds almost double from 11 mph to 21 mph[50].

The system was modernised in 1998 and replaced with Electronic Road Pricing (ERP). On-board units were added to Singaporean cars which have the ability to charge varied prices depending on the type of vehicle, time of travel and location. The move to the ERP system saw another 15 percent decrease in road congestion and in 2012, 65 per cent of Singaporean commuters reportedly used public transport[51]. Today the system is revised quarterly and only Emergency vehicles are exempt. Singapore's CBD, major arterials and expressways are all charged and the system is said to generate about $150 million annually which is used to construct, maintain and improve roads and public transport in the City-State.

The Singapore congestion system is recognized world-wide as a successful implementation of congestion charging to manage road congestion and improve public transport patronage whilst generating funds to reinvest in the continued improvement of the public transport offering in Singapore.

Bergen and Oslo, Norway

Norway has implemented toll road charging, not to manage traffic demand but to fund and fast-track infrastructure improvements for more than 70 years. Bergen introduced Norway's first toll ring road in 1986, the first in the Western World. The system was introduced to raise funds to fast-track the implementation of a 1983 masterplan for the city which included the provision of additional parking and roads. Buses were exempt from the toll charge but all other vehicles entering the tolled area between 6am and 10pm Monday to Friday were charged. Cars paid 5 Norwegian Krone (NOK) and trucks paid 10 NOK. The system was initially forecast to raise 35 million NOK (£3.2 million) but by 2000 it was generating about 70 million NOK a year for the city. Approximately 20% of the funds raised went to operating costs, whilst 70% was used for road construction, and the remaining 10% was put in a fund[52.]

Oslo followed closely behind Bergen and is now recognised globally for the three toll packages it has implemented. The first toll ring scheme opened in February 1990 with a similar goal to Bergen, to generate funds for road construction and in doing so, reduce road construction times from 35 to 15 years[53]. 10 per cent of revenue from package one was initially earmarked for public transport investments but this was revised to 20 per cent. The system was not designed to manage traffic and yet estimates suggest that the toll ring road charge resulted in up to 10 per cent of motorists "rejecting" car travel[54].

Oslo's second package was introduced and run between 2001 and 2011. This included a shift in the allocation of funds with 45 per cent of revenue allocated to public transport. The 10 year package was said to generate 1.85 billion euros and was used to fund a new metro ring, new bus lanes, improvements to the reliability, user-friendliness and attractiveness of public transport networks as well as the modernisation of stations. Collectively these public transport improvements funded through Oslo's roll roads achieved a 7 per cent increase in public transport patronage and a 1.5 per cent reduction in vehicles on the roads[55].

Oslo's third and current package was introduced in 2008 and is scheduled to run until 2030. This package allocates 60 per cent of revenue to public transport improvements and aims to promote environmentally friendly transport options that increase mobility levels of Oslo residents. Oslo's increasing allocation of revenue to public transport investments aligns with a global shift that recognises the wider benefits of public transport.

London, United Kingdom

In February 2003, according to the UK Department for Transport, Central London's traffic had slowed to speeds averaging 13 km/hr[56]. In an effort to reduce road congestion and increase travel speeds, London introduced a cordon area congestion charge on 17 February 2003. Using an Automatic Number Plate Recognition system, cameras photograph vehicles between 0700 and 1800, Monday to Friday that enter or exit the congestion charging zone (8 square miles, or 21 square kilometres inside the city's inner ring road in the London CBD). Commercial and private vehicles are charged once and can enter and exit multiple times without additional costs. Motorbikes, mopeds and bicycles are exempt, individuals who live within the zone

receive a 90 per cent discount, and vehicles with nine or more seats or Ultra-Low Emission Vehicles status (some electric and plug-in hybrid cars) also receive a discount[57].

The flat daily fee commenced in 2003 at £5, increasing to £8 in July 2005. The zone was expanded to include the "Western Extension Zone" in February 2007 but this was removed in January 2011[58]. 10 years, on 1,360 closed-circuit cameras at 348 locations charge a flat rate of £10 if paid in advance or on the day of travel, £12 if paid by midnight the charging day after travel, or £9 for those registered for Congestion Charging Auto Pay[59].

According to the London Mayor's Transport Strategy, the system was introduced to reduce congestion within the London CBD, improve London bus services, improve journey times and reliability for road users and the distribution of goods and services and encourage Londoners to travel by public transport. By UK Law, revenue raised through the congestion charge must be reinvested to improve London's transport offering. During the 2009/10 financial year, the congestion charge generated £148 million in net revenue, the majority of which was used to improve bus operations in Greater London[60].

Prior to the introduction of the scheme in 2003, London bus services were increased to accommodate transferring road users. According to the sixth Annual Impact Report, after the first two years of operation, the congestion charge had achieved a 30 per cent drop in congestion (against pre-charging congestion levels in 2002)[61]. By 2005, congestion had increased slightly, measuring a 21 per cent reduction on 2002 levels and by 2006, congestion was reported to be only 8 per cent below 2002[62].Today congestion levels are said to be similar to what they were in 2002 but the London congestion charge is still recognised as an improvement on what congestion levels would have been today without the congestion charge reducing and slowing the road congestion growth.

The system has faced varied criticisms but continues to undergo review and public consultation. According to the Victoria Transport Policy Institute, the London congestion charging system could be improved by:

- adopting a distance-based charging approach;
- varying the fee according to time;
- varying the fee according to;
- reducing the high overhead costs; and
- further improvements to the transit system (particularly the Tube)[63].

Strengths and Weaknesses

Congestion charging systems have proven to be successful tools at reducing and managing road congestion, increasing public transport patronage levels, reducing emissions and generating substantial funds to reinvest into transport systems and infrastructure.

The introduction of a congestion charge is likely to generate initial public opposition. As a result, strong political will is required to introduce these schemes. However, the longevity of the systems in Singapore and Oslo as outlined aboce and the positive results the systems have achieved are proof that a congestion charge can be a successful tool to improve the transport system of a city whilst providing a source of revenue for long term investment.

Local opportunities

Congestion charging would be challenging to introduce in Australia as it is likely to generate significant opposition. However, with strong political will, it could be done. In its June 2013 National Infrastructure Plan, Infrastructure Australia recommends seven funding reforms, one of which is "user pays – user says" and makes the case for "users to make a direct contribution to infrastructure and in turn, get a say on the level of service provided". Introducing congestion charging within Sydney, Melbourne and Brisbane that are each particularly challenged by road congestion would not only improve the flow of traffic but also establish significant funds to invest in the transport systems of those cities.

Taxes

Payroll tax

A payroll tax applies to taxable income or wages and is a levy that an employer either withholds or pays on behalf of their employee to the government[64]. Payroll taxes have been introduced in some regions around the world to generate dedicated revenue for public transport.

Two successful examples of transport-dedicated payroll taxes follow, one that taxes employees, the other that taxes employers or self-employers.

France

French employers have been contributing to the funding of public transport in France since 1971 when the "Versement Transport", a compulsory hypothecated payroll tax was introduced within the Île-de-France, the Paris district of France. The tax has gradually been expanded and today towns of 10,000 or more are included. Employers with more than nine employees pay a small percentage of their employee's gross income to the local Transport Authority who then utilise the revenue to subsidise and invest in local transport systems.

The percentage paid depends on the size of the region with the Paris District paying the highest percentage. Towns with 100,000 people and below are capped at 0.9 per cent whilst Paris residents are taxed between 1.4 and 2.6 per cent[65].

In 2008, the Versement Transport in the Paris region generated 35 per cent of public transport funding. Interestingly, in the same year 12.1 per cent of the region's public transport funding was generated through parking tickets.

France's ability to invest in its many light rail networks are attributed to the funding generated through the Versement Transport.

Portland, Oregon

Tri-County Metropolitan (TriMet) Transportation District in Portland Oregon generates funds for the Portland Oregon metropolitan region through its self-employment tax which levies individuals with businesses within the region. The tax is charged according to postal codes that fall within a published TriMet District Boundary Map.

According to the 2012 Approved Budget, 55 per cent of TriMet's operating budget was generated through the self-employment tax whilst 25 per cent was generated through the fare box[66]. Specifically, during the 2011-12 financial year, 26.79 per cent, or in excess of $232 million of TriMet's $867 million budget was provided through the tax[67].

On January 1, 2013, the tax rate increased slightly to 0.7137% ($7.14 per $1,000.00) of net earnings.

Strengths and Weaknesses

As a payroll tax tends to be a small percentage paid by all individuals, it tends to be a fairly distributed tax. However, if only introduced in regions such as the Tri-County Metropolitan (TriMet) Transportation District and not across an entire jurisdiction, inequalities can arise as high income earners or businesses relocate to avoid paying the tax. A payroll tax limitation is that revenue can fluctuate with the economy and during times of recession or lower employment levels, the tax revenue has been shown to reduce. Conversely, a payroll tax will also grow with the economy, providing larger revenues as incomes increase therefore coming back to the initial statement that a payroll tax as a small percentage of income-earners can be a balanced source of revenue.

Local opportunities

As noted earlier, Infrastructure Australia has recommended that establishment of a Single National Infrastructure Fund to reduce the overlap between existing Government funds, assessment frameworks and decision making mandates[68]. A national payroll tax could be introduced to raise the dedicated revenue for the proposed Fund.

According to the 2013-14 Budget, the Commonwealth Government will raise $175.4 billion through income tax during 2013-14 on an accrual basis[69]. Based on these figures, a 1 per cent income tax increase would generate $1.75 billion whilst a 0.5 per cent income tax could generate $877 million. These funds could be used to provide a dedicated revenue source for the Single National Infrastructure Fund.

Sales tax

A sales tax is a percentage added to the purchase of goods of services. In the context of this paper, a sales tax relates to those that are introduced specifically to generate funds for transport investment.

Los Angeles County

Since the 1960's, counties in California have had the power to introduce regional sales taxes. On 4 November 2008, with a 62.7% support rate, Los Angeles County residents approved Measure R, a 0.5 cent sales tax increase from 8.25% to 8.75% for 30 years to fund public transport and road infrastructure projects. Forecast to generate $40 billion during its 30 year life, the County also voted for the breakdown of the funding, allocating 40% to specific transport projects, 25% to transport operations, 20% for highway projects and 15% for local jurisdictions[70].

Strengths and Weaknesses

The potential revenue of a sales tax depends on the breadth of its application. A sales tax will be most beneficial or will generate the most revenue when applied to all or most goods and services sold in a region. The broad application of a sales tax can generate significant income whilst only charging a small percentage. Conversely, a sales tax can be limited in its

revenue capabilities if a number of items or services are exempt as each exemption from the sales tax effectively reduces the revenue pool.

Local opportunities

The Australian Government has forecast $50.3 billion in revenue from the GST during the 2013-14 financial year[71]. If the government was to increase the GST by 1% taking it to 11%, the GST would generate an additional $5.03 billion during the 2013-14 financial year that could be hypothecated for infrastructure investment.

Again, this revenue could be hypothecated for the Infrastructure Australia Single National Infrastructure Fund which would assist in the funding of key infrastructure projects such as Sydney's second Harbour tunnel, the Melbourne Metro Tunnel or Brisbane's Cross River project.

Fuel tax

In 1919 the State of Oregon introduced the first State-based fuel tax in the United States (US). Almost a century on and 9.2 per cent of transit funds in the US are generated through State gas taxes. Canada also uses gas taxes as a revenue source for public transport. In 2010 a 15 cent per litre fuel tax was dedicated to transit in Metro Vancouver. In the same year, two cents per litre of Ontario's provincial gas tax was devoted to public transit, whilst Calgary and Edmonton allocated 5 cents of the State-based gas tax collected in each city for road and transit funding[72].

United States

To build its interstate highway system, the United States Highway Trust Fund was established in 1956 and primarily funded through the introduction of a national gas tax. In 1982, the Surface Transportation Assistance Act was passed, establishing the Mass Transit Account and allocating 1 cent of a 5 cent per gallon gas tax increase to public transport[73]. In 1993, the Federal Government stopped CPI increases to the gas taxes and they have remained at the following allocations since:

- Federal gas tax: 18.4¢ per gallon (constant since 1993)
    - 15.44¢ to Highway Trust Fund
    - 2.86¢ to Mass Transit Account
- Federal diesel tax: 24.4¢ per gallon (constant since 1993)
    - 21.44¢ to Highway Trust Fund
    - 2.86¢ to Mass Transit Account

Halting CPI gas tax increases in 1993 stalled growth in the revenue for The Highway Trust Fund and Mass Transit Account, meaning the Highway Trust Fund fluctuates between $33 and $35 billion per year and the Mass Transit Account receives revenue of approximately $5 billion (including interest)[74]. In 2008 the Highway Trust Fund hit a $41 billion shortfall that was boosted by Treasury through general funds[75]. The Congressional Budget Office has since reported that the Highway Trust Fund and its subaccount, the Mass Transit Account are both unsustainable. A 2003 status report identified that with current CPI projections, the Highway Trust Fund will raise insufficient funds again in 2015 and by 2023, cumulative shortfalls will leave the Highway Trust Fund about $92 billion short and the Mass Transit Account about $34 billion short[76].

The Congressional Budget Office has calculated that if CPI increases had been maintained, the gas taxes would be 29 cents per gallon of fuel and 39 cents per gallon of diesel[77]. Stalling the federal fuel tax prices in 1993 has effectively meant the Highway Trust Fund generates only 62 per cent of what it raised 20 years ago[78]. Estimates by the Joint Committee on Taxation found that a 1 cent rise on the gas tax would generate an additional $1.5 billion per year but due to the size of the shortfall, to avoid reducing infrastructure investments or increasing revenue through other means, a 10 cent per gallon increase would actually be required[79].

Strengths and Weaknesses

As a fuel tax only taxes one item, to generate substantial revenue, the tax rate must be set much higher than a sales tax. Further, like a payroll tax, fuel taxes are vulnerable to the economic environment and can therefore be a fluctuating revenue source. As is noted above, a key criterion of sustainable revenue through a fuel tax is the need to increase the tax with CPI otherwise the revenue effectively decreases by CPI each year. Further, as greater portions of the population move to public transport and vehicles become increasingly efficient, a fuel tax generates less revenue. In 2007, some American States began exploring replacing the state-based fuel taxes with a "Vehicle Miles Travelled fee" but as the average annual miles driven in the US peaked in 2008 and have remained under 2008 levels for the last five years, this too is likely to face similar limitations[80].

Local opportunities

In the early 1900's, the Australian Federal Government introduced a petrol and diesel excise to fund the construction and maintenance of roads but in 1959 the road hypothecation was removed and over the years the revenue raised through the fuel tax has gone to general government revenue[81]. In 2001, the automatic indexation for inflation was ceased to counter the impact of the goods and services tax (GST), effectively stalling the tax at 38.5 cents per litre. As a result, income from the petrol excise has plateaued at around $17 billion per annum. In 2012, the lost CPI increases (which would equate to an additional 12 cents per litre) was estimated to have cost the Government $5 billion in lost revenue[82]. As outlined in this paper, Australia now faces the same issue as the United States where the revenue generated through the fuel excise effectively decreases each year.

A 12 cent per litre hike on fuel prices would face considerable backlash from communities. However, the government could reintroduce CPI increases to the Fuel Tax rate as the rates currently stand. Although this would still leave the revenue slightly behind where it could have been had CPI increases not been removed, it would stop the income from the Fuel Tax decreasing each year and would re-allow the revenue from Australia's fuel tax to grow with CPI. Income generated from the Fuel Tax could also be hypothecated for public transport and road investment, establishing much needed dedicated and reliable funds.

Superannuation funds

Using private superannuation funds to finance infrastructure projects is not a new concept. Super funds have been directly and indirectly drawn upon to finance infrastructure projects in Australia for many years. Some examples include the Lane Cove Tunnel and Cross City Tunnel in NSW, Port of Brisbane, Adelaide Airport and Melbourne Airport. One of the most recent projects is Port Botany in NSW where the NSW Ports Consortium led by Industry Funds Management, AustralianSuper, CBus, HESTA, HOSTPLUS and Tawreed Investments Limited, a wholly-owned subsidiary of the Abu Dhabi Investment Authority, was the successful bidder.

Initial estimates of the privatisation of Port Botany by the NSW Government were between $3-4 billion.[83] The proceeds from the transaction, the NSW Government has committed to invest in Restart NSW – the fund established by the NSW Government to deliver vital infrastructure projects, with 30 per cent of the fund to be reserved for projects in regional areas.[84] The final sale price of Port Botany was $5.1 billion.[85] This exceeded all estimates and truly reflected the global demand for quality infrastructure for our nation.

The super industry has experienced significant growth in recent times growing by around 92% from $637 billion in 2004.[86] The projects outlined above are a good indication of the move by the Australian and State governments to embrace this financing model however the investment to date only constitutes a small amount of super funds total assets which are estimated to be around $1,225 billion.[87]

According to the Association of Superannuation Funds of Australia, the actual range of investment by a super fund depends on a number of factors. Some do not invest in infrastructure while others may invest over ten per cent of their total assets. General allocations range between two to over ten per cent of the assets.[88] Data reveals that at present specialist infrastructure investment managers manage about $48.8 billion.[89]

Ernst and Young stated in a recent report that only a small amount of the super funds total assets are allocated to the infrastructure sector. As banks' appetite for infrastructure funding continues to decrease, superannuation funds become an even more lucrative source of financing. If Australia is to continue its economic growth and international competiveness, it is imperative that superannuation funds assume a greater role in infrastructure investment.

The willingness to increase private sector participation

Recently the Australian and State governments as well as the Superannuation industry have expressed their willingness to increase super funds participation in infrastructure investment. In 2012, the Federal government released a new tax and other infrastructure reforms that would allow for a "lower weighted average cost of capital for eligible projects, lower compliance costs and greater certainty, especially for brownfield investors such as superannuation funds"[90]. The PPPs reform in Victoria is also a good example of State government commitment to this issue. The Victorian government reduced bid costs, modified finance structures, introduced a framework that delivers better value for money, expanded coverage of services and more accessible PPP models for smaller projects to help boost the level of PPP investment in Victoria. It is believed that the new PPPs arrangements in Victoria are in response to fluctuations in market conditions, specifically, the

Government and private sector's fiscal limitations and the public's increasing demand for quality infrastructure and services. Either way, the reforms show a clear commitment from the Victorian Government for an increase in the level of PPPs in the jurisdiction, and a willingness to address changes in market conditions.

The Superannuation industry has also stated that Australian super funds are willing to provide more of the $1.3 trillion super savings into infrastructure projects such as rail and power stations, given the right investment framework and allocation of risk[91]. However, despite willingness from the public and private sector, the involvement of super funds in transport infrastructure projects remains low. This is due to a number of regulatory, structural and political barriers including the lack of a clear project pipeline and government commitment, the lack of suitably structured projects for institutional investment, inconsistent and complex procurement processes and extreme regulatory pressures. These factors are explained in detail in the following sections. It is imperative that these barriers are removed to allow super funds to invest more in Australia's infrastructure projects.

Superannuation funds in Australia

In Australia, the structure of superannuation is mostly based on the defined contribution model where the retirement benefit of members is an accumulation of employer and member contributions to the super fund. The implication of this structure is that most assets are on stand by and there is a need for balance between liquidity and long term investments[92]. This type of superannuation structure is very well suited to the long term nature of infrastructure investment[93].

When determining which stage of project lifecycles to invest in, super funds will look at the type and allocation of risks as well as the availability of capital in the market and the project's return of investment (including the performance of similar projects). This is essential as the primary objective of superannuation funds is to provide retirement incomes to beneficiaries. Therefore, it is essential that superannuation products match the income needs of its members. This requirement means that there must a good rate of return on investment that is sufficiently attractive for super funds to invest in public transport infrastructure. Examples of risks mentioned in infrastructure projects include high bid costs and risks associated with the tender process, construction risk and the fluctuation of the level of patronage and general operational risks.

Barriers to Success

As mentioned above, there are a number of barriers that prevent superannuation funds from investing in Australian infrastructure. Some of the key barriers are outlined below.

- **Inconsistent, complex and expensive bidding processes:** The complexity and costs of bidding for major projects particularly PPPs, has become a major impediment to market entry in Australia. Even though governments have worked to address this problem, more work is required. It has been acknowledged that tender costs normally amount to about one per cent of the contract price so the bid cost for a $5 billion project is likely to be around $50 million. Few private sector companies, including superannuation funds have the financial capability to be involved in tender processes that require such a significant upfront investment, without any guarantee of success. Therefore, to encourage more private sector investment, governments could institute procurement process reforms to allow a

faster transition to preferred bidder. As well as reducing tender costs and risks, this will allow the redeployment of resources to other projects.

- **Lack of clear project pipeline and government commitment:** A lack of clear project pipeline and government commitment is also a key barrier for private sector investment. The changes in government priorities lead to delayed and cancelled projects which in turn impact on the risk profiles, project costs and the rate of return on investment for the private sector. For institutional investors such as superannuation to invest, there must be certainty around future project pipelines, specifically around the funding sources and commitment of the sponsor government.
- **Lack of structured projects for institutional investment:** A recent survey shows that the super funds industry has a view that governments have difficulty understanding all superannuation fund investment is done for the benefit of their members and not on social good[94]. Therefore, all investments must earn a return that match with the assessed risks. The super industry believes that current project risk profiles have not been designed to encourage efficient institutional investment.

To effectively address these barriers, Infrastructure Partnerships Australia has suggested two key initiatives, namely, the creation of superannuation products that better match infrastructure's revenue and risk profiles and the creation of a stable, transparent and accessible infrastructure market[95].

Public-Private Partnerships (PPP)

There are two types of PPP in Australia. The first is government-funded PPP where the primary revenue stream that repays the private sector finance used to pay for the building of the facility, takes the form of a service payment from government. The second is user-funded PPP where the primary source of funding takes the form of charges paid by the users of the infrastructure.

In recent times there have been calls for the federal and state governments to step in and improve the existing PPP frameworks. A recent report released by KPMG in June 2013 clearly states that governments must adopt measures aimed at reducing barriers to domestic and overseas bidders and reduce costs[96]. The report shows that PPP projects in Australia have become much more expensive while at the same time market capacity has decreased considerably due to the Global Financial Crisis. Barriers as outlined previously were also raised consistently in the KPMG paper. Going forward the paper recommended that governments take practical measures to reduce these barriers. These actions include:

1. Accepting a lower level of financing commitment in bids instead of the traditional model where there is a requirement for underwritten commitments of finance for a period of six months or more;
2. Taking steps to encourage maximum competition for debt finance which may include a funding competition after appointing a preferred bidder;
3. Being willing to provide capital grants or debt finance where appropriate;
4. Investigating credit guaranteed finance or counter indemnity models as possible ways of increasing market capacity and reducing fund costs; and
5. The commonwealth increasing its guarantee to cover states' long term PPP obligations[97].

Other measures that have been recommended by the private sector also include more risk sharing among participants, more robust financing structures, sensible management of probity, an improved project governance framework, expanding scope of services and disclosure of weightings for evaluation criteria[98].

New Models and Financial Structures to Increase Superannuation Funds Involvement in Financing Infrastructure Projects

Recently, financial advisory firm, Pottinger developed a number of delivery models and financial structures to address the current challenges and opportunities in finding the right sources of infrastructure project funding and financing. The new models include converting infrastructure bonds, initial superannuation offerings and credit insurance. A brief description of the three models is provided below.

Converting infrastructure bonds

By combining a conventional government-financed "Design, Build and Operate" construction contract with a forward sale of the asset in question on guaranteed, pre-specified terms, the construction phase of major projects could be funded using low cost government debt, whilst ensuring that the capital cost of the asset and associated interim borrowings are transferred off the government balance sheet at completion.The end result would be identical to a conventional PPP, but risks would be better matched. In particular, construction companies would accept and manage construction risk, and long-term investors would accept long-term ownership risks. Importantly, this approach would allow project proponents to access a much larger pool of investment capital to deliver major projects, as long-term investors would be protected from short-term construction risks. This would allow more projects to be financed, and at lower cost, than using conventional PPPs. Meanwhile, during the construction phase, financing would be provided by long-term investors subscribing for government bonds, which would convert into equity ownership once construction had been satisfactorily completed. Thus, debt taken on by the government to finance construction would be clearly matched against the asset in question. There would be absolute certainty that this debt would be extinguished once construction was complete, reducing or eliminating any potential short- term impact on state credit ratings.

Initial superannuation offerings ("ISOs")

By combining the principles of a conventional IPO with a private ownership model for infrastructure, institutions and governments would benefit from a more open and lower cost mechanism to allow investors to provide long-term capital to existing infrastructure assets. The structure would be relatively straightforward to implement. The business in question would be prepared for sale following typical pre-IPO processes. Appropriate public company governance and management arrangements would be introduced as needed. Superannuation and other interested investors would bid for direct ownership of shares in the company, without the need to participate in bidding consortiums. Following the ISO, the company would be a prudently leveraged, unlisted public company, and investors who wished to increase or reduce their holding would negotiate private transactions amongst themselves. The ISO structure preserves the advantages of public offering financing structure while also addressing its shortcomings for infrastructure investors. Long-term investors (like superannuation funds) would be able to invest directly in relevant infrastructure assets, assured of long-term ownership, whilst avoiding the external consortium management costs typically associated with bid vehicles as well as mark-to-market valuation uncertainties. Governments could retain minority holdings in assets should they wish,

and high governance standards could be maintained by imposing standards and requirements analogous to those required for listed public companies.

Credit insurance

Following the GFC, credit insurers have withdrawn from the Australian market and are unlikely to return over the near to medium term. As a result, we believe that there is an important role for the Australian Government to play in supporting the formation of a credit reinsurance provider to address this market failure. This would replicate the approach adopted to address an analogous market failure in relation to terrorism risk, which resulted in the creation of The Australian Reinsurance Pool Corporation.This entity would provide credit insurance on arm's length, commercial terms, helping larger projects access financing that would otherwise not be available. The entity would also have an important role to play in providing credit enhancement to mortgage securitisation vehicles, helping to improve the competitiveness of Australia's smaller residential mortgage lenders and creating a more even playing field between these entities and Australia's big four banks[99].

INTERNATIONAL CASE STUDIES OF ALTERNATIVE PUBLIC TRANSPORT FUNDING

The United States of America

In addition to Federal funding, State and Local Governments in the US have the ability to draw on a variety of taxes to generate dedicated funds for public transport. These funds are then utilised for the expansion or ongoing operation of existing public transport systems and to subsidise or cover the costs of mobility initiatives such as free travel for seniors.

State and local transit funding can be generated through a combination of any of the following revenue raising tools:

- Sales Taxes
- Property Taxes
- Motor Fuel (wholesale / retail)
- Vehicle / Driver Registration
- Car Rental / Leases / Tires
- Hotel Occupancy
- Impact Fees / TIFs
- Realty Transfer
- Naming Rights
- Sponsorships
- Lottery proceeds
- Airport Passenger Charges
- Internet Sales Taxes
- Special Assessment Districts
- Parking Fees
- Tolls / Road Pricing
- Payroll/ Earnings/ Wage
- Corporate Income
- Personal Income
- Utility Fees
- Corporate Franchise Taxes
- Excise Taxes
- Poured Drinks
- Taxi Surcharges
- Casino Revenues
- Energy Taxes

Through its Survey of State Funding for Public Transportation, the American Association of State Highway and Transportation Officials (AASHTO) reviews and reports on federal, state and local government public funding in American jurisdictions.

During the 2010 financial year, AASHTO reported that State and Local governments in the USA contributed more than 57 per cent of public transport funding. State Governments provided $13.6 billion whilst federal funds contributed $10.1 billion[100].

Of the 51 States that participate in the survey, 5 did not fund public transport during the 2010 financial year. Of the remaining 46 states, the main sources for transport funding were gas taxes, bond proceeds, registration/licence/title fees, general sales tax and motor vehicle/ rental car sales tax[101].

Ontario, Canada

On 2 April 2013, Metrolinx, the government body responsible for managing and integrating road and public transport in the Greater Toronto and Hamilton Area in Ontario, Canada released its Investment Strategy. The strategy is designed to raise dedicated funds for the next tranche of $34 billion transport infrastructure investment as identified in *The Big Move* Strategy[102]. Adopting the position that "everyone benefits" from transport improvements, Metrolinx reviewed 25 investment tools currently implemented around the world that generate dedicated transport funds[103]. To ensure "everyone contributes", both business, and individuals, the Investment Strategy recommends the implementation of the following four tools[104]:

1. **Sales Tax**: a 1 per cent increase on the Harmonized Sales Tax which is estimated would raise $1.3 billion annually. To balance this tax and ensure those with lower incomes are not "disproportionately" affected, Metrolinx has also recommended a **Mobilty Tax Credit** which, at a cost of about $105 million annually, would be covered by the revenue generated from the sales tax increase.
2. **Fuel and Gasoline Tax**: a 5 cents per litre fuel tax which is estimated to raise $330 million annually.
3. **Business Parking Levy**: a tax on all off-street non-residential parking spaces which is estimated would generate around $350 million annually.
4. **Development Charges**: on the view that land development is a "key beneficiary" of transport improvements, Metrolinx has proposed a variable 15 per cent increase to development charges (the increase would vary between municipalities). It estimated that this would raise about $100 million annually.

In total the above tools are projected to raise $2 billion. The revenue raised would then be hypothecated into a new Transportation Trust Fund. Similar to the Buidling Australia Fund, this would be governed by a board of trustees.

To compliment these tools from a policy perspective, Metrolinx has also recommended the adoption of three policies, high occupancy tolls, land value capture and paid parking at transit stations[105]:

POLICY RECOMMENDATIONS

The Australasian Railway Association is of the view that governments of all levels should explore and introduce innovative funding mechanisms such as those outlined in this paper to fund public transport infrastructure and service investments.

Based on this position, some recommendations include:

- The use of value capture to fund or contribute to the funding of public transport improvements or the funding of a high speed rail line along Australia's East Coast.
- Further developing Transit-Oriented Developments to provide supporting revenue for public transport systems in Australian capital cities.
- The re-introduction of CPI increases to Australia's fuel tax and potentially the hypothecation of the revenue generated through the fuel tax for public transport and road investment.
- A small increase to the GST hypothecated for public transport infrastructure and service investment.
- The introduction of a small payroll tax hypothecated for public transport infrastructure and service investment.
- The use of congestion charging to manage road user congestion and generate dedicated funds to invest in the public transport systems in cities.
- Review of the current PPP frameworks and other financing mechanisms to encourage greater private sector (local and international investors) to participate in economic infrastructure financing.

CONCLUSION

An effective and efficient transport system forms the backbone of a nation. As Australia's population grows, so too does the pressure on public transport systems and infrastructure. Long term, reliable funding for planned investment in public transport infrastructure is vital if Australia's public transport systems are going to continue providing service for Australia's growing population.

The funding tools explored in this paper highlight a selection of potential revenue sources currently in use in other cities, states and countries around the world. Each mechanism has strengths and weaknesses that would need to be reviewed either against a specific project or for a particular jurisdiction. However, the fact remains that the current approach by Australian governments to fund public transport is not sustainable.

The whole nation benefits from an integrated public transport system that efficiently moves the population. Increasing the funding pool for public transport through a combination of innovative funding mechanisms that raise hypothecated funds for public transport will ease the pressure on Australian governments during this constrained economy and benefit the nation. So too will reforms that encourage greater investment from the private sector.

---

[1] Infrastructure Australia, *National Infrastructure Plan*, June 2013
[2] Grattan Institute, Superannuation's Contribution to Australia's Economic Future, June 2013
[3] Deloitte Access Economics for the Australasian Railway Association, *True Value of Rail Study*, 2012
[4] Ernst & Young, *Financing Australia's Infrastructure Needs: Superannuation investment in infrastructure*, Financial Services Council, 2011
[5] Infrastructure Australia, *Infrastructure Finance and Funding Reform,* April 2012
[6] Infrastructure Australia, *Infrastructure Finance and Funding Reform,* April 2012
[7] Grattan Institute, Superannuation's Contribution to Australia's Economic Future, June 2013
[8] Australian Bureau of Statistics, *3218.0 - Regional Population Growth*, Australia, 2011-12
[9] Hale, C, *Evolving Futures for Australian and International Passenger Rail*, 2011
[10] http://www.abs.gov.au/ausstats/abs@.nsf/mf/9309.0, sourced 16.11.13
[11] www.carbonneutral.com.au/climate-change/australian-emissions.html, sourced 22.07.13
[12] www.carbonneutral.com.au/climate-change/australian-emissions.html, sourced 22.07.13
[13] Infrastructure Australia, *National Infrastructure Plan*, June 2013
[14] www.finance.gov.au/investment-funds/nbf/baf.html, sourced 22.07.13
[15] www.futurefund.gov.au/about_the_future_fund/outline. sourced 22.07.13
[16] www.futurefund.gov.au/about_the_future_fund/outline, sourced 22.07.13
[17] www.nics.gov.au/Home/PriorityProjects, sourced 17.07.13
[18] www.nationbuildingprogram.gov.au, sourced 05.08.13
[19] www.nationbuildingprogram.gov.au, sourced 05.08.13
[20] www.infrastructureaustralia.gov.au/reform_investment/strategic_priorities/index.aspx, sourced 17.07.13
[21] Infrastructure Australia, *Infrastructure Finance Reform Issues Paper*, July 2011
[22] Infrastructure Australia, *Infrastructure Finance and Funding Reform,* April 2012
[23] Infrastructure Australia, *National Infrastructure Plan*, June 2013
[24] Government of South Australia, *The Integrated Transport and Land Use Plan,* October 2013
[25] Infrastructure Australia, *National Public Private Partnership Policy Framework,* December 2008
[26] Infrastructure Australia, *Infrastructure Finance and Funding Reform,* April 2012
[27] Infrastructure Australia, *Infrastructure Finance and Funding Reform,* April 2012
[28] Infrastructure Australia, *Infrastructure Finance and Funding Reform,* April 2012

[29] www.nswports.com.au/news/article/historic-handover-of-port-botany-and-port-kembla-to-nsw-ports, sourced 16.08.13
[30] ADB and Institute for Transportation & Development Policy, *Opportunities for value capture to fund public transport: A comprehensive review of the literature with a focus on East Asia,* publication date unknown
[31] Infrastructure Australia, *Infrastructure Finance and Funding Reform,* April 2012
[32] ADB and Institute for Transportation & Development Policy, *Opportunities for value capture to fund public transport: A comprehensive review of the literature with a focus on East Asia,* publication date unknown
[33] Ernest & Young, *Land value capture as a funding source for urban investment – The Warsaw Metro System,* 2011
[34] MTR Hong Kong, *Sharing our Growth Annual Report 2012*
[35] http://dnakcmo.org/streetcar.html, sourced 08.08.13
[36] www.kcstreetcar.org/about-kc-streetcar.htm, sourced 08.08.13
[37] Phil Day, Griffith University, *Incentives and disincentives: The potential of property taxes to support public policy objectives*, January 2005
[38] Grattan Institute, *Can we afford to get our cities back on the rails?* December 2012
[39] www.melbourne.org.au/cms-commentary/media/editorials, sourced 15.08.13
[40] www.mtr.com.hk/eng/sustainability/2012rpt/busi-overview.php, sourced 15.08.13
[41] Hong Kong IQP, *A Comparative Study of Transit-Oriented Developments in Hong Kong*, February 2013
[42] Civil Engineering and Development Department, *Tung Chung New Town Development Extension Project Profile*, July 2012
[43] www.mtr.com.hk/eng/properties/prop_dev_tc.html, sourced 15.08.13
[44] www.mtr.com.hk/eng/properties/prop_dev_tc.html , sourced 15.08.13
[45] www.bart.gov/about/business/development/, sourced 15.08.13
[46] www.bart.gov/docs/BART_TOD_121510.pdf, sourced 15.08.13
[47] US Department of Transportation, Federal Highway Administration, *Technologies That Enable Congestion Pricing,* date unknown
[48] Commin, H, *The Congestion Charging Schemes of London and Singapore: Why Did London Choose Different Technology, and Was this a Mistake?* Date unknown
[49] Commin, H, *The Congestion Charging Schemes of London and Singapore: Why Did London Choose Different Technology, and Was this a Mistake?* Date unknown
[50] www.dac.dk/en/dac-cities/sustainable-cities-2/all-cases/transport/singapore-the-worlds-first-digital-congestion-charging-system/, sourced 29.07.13
[51] www.dac.dk/en/dac-cities/sustainable-cities-2/all-cases/transport/singapore-the-worlds-first-digital-congestion-charging-system/, sourced 29.07.13
[52] Osmose, *The Oslo Toll Ring (Norway) Case Study*, 2002
[53] Osmose, *The Oslo Toll Ring (Norway) Case Study*, 2002
[54] City of Oslo – Agency for Urban Development, *Impact on public transport of the Toll Ring in Oslo Norway,* October 2012
[55] http://ec.europa.eu/environment/europeangreencapital/winning-cities/previous-finalists/oslo/index.html#sthash.WjS1Cj9z.dpuf, sourced 04.08.13
[56] Michelle Dix, Director of Congestion Charging, Transport for London, *How much does the scheme cost: the London experience,* date unknown
[57] www.visitlondon.com/traveller-information/getting-around-london/congestion-charge, sourced 22.07.13
[58] Transport for London, *Demand Elasticities for car trips to Central London,* September 2008
[59] www.visitlondon.com/traveller-information/getting-around-london/congestion-charge, sourced 22.07.13
[60] www.tfl.gov.uk/roadusers/congestioncharging/6723.aspx sourced 17.07.13
[61] Transport for London, *Sixth Annual Impacts Monitoring Report,* July 2008
[62] Transport for London, *Sixth Annual Impacts Monitoring Report,* July 2008
[63] Victorian Transport Policy Institute, *London Congestion Pricing Implications for Other Cities*, November 2011
[64] www.payrolltax.gov.au/definitions/e, sourced 13.08.13
[65] www.caprice-project.info/spip.php?article30, sourced 13.08.13
[66] Tri-Country Metropolitan Transport District of Oregon (TRIMET), *Adopted Budget*, 2011 -12
[67] Tri-Country Metropolitan Transport District of Oregon (TRIMET), *Adopted Budget*, 2011 -12
[68] Infrastructure Australia, National Infrastructure Plan, June 2013
[69] www.budget.gov.au/2013-14/content/overview/html/overview_44.htm, sourced 16.08.13
[70] Conservation Law Foundation, *Case Study: 2008 Los Angeles County Ballot Measure to Pass a Transportation Sales Tax (Measure R)*, July 2012

[71] www.budget.gov.au/2013-14/content/bp3/html/bp3_04_part_3.htm, sourced 16.08.13
[72] Metro Vancouver, 15 cents per litre fuel tax was dedicated to transit, sourced 14.08.13
[73] American Public Transportation Association, *Primer on Transit Funding: The Moving Ahead for Progress in the 21st Century Act and Other Related Laws,* FY 2013 through FY 2014
[74] Congressional Budget Office, *Statement for the Record: Status of the Highway Trust,* April 2013
[75] Congressional Budget Office, *Statement for the Record: Status of the Highway Trust,* April 2013
[76] Congressional Budget Office, *Statement for the Record: Status of the Highway Trust,* April 2013
[77] Congressional Budget Office, *Statement for the Record: Status of the Highway Trust,* April 2013
[78] Congressional Budget Office, *Statement for the Record: Status of the Highway Trust,* April 2013
[79] Congressional Budget Office, *Statement for the Record: Status of the Highway Trust,* April 2013
[80] School of Urban Planning, Montreal University, *Financing Public Transit in Metro Detroit*, September 2012
[81] http://fueltaxinquiry.treasury.gov.au/content/backgnd/002.asp#P21_1956, sourced 15.08.13
[82] http://blogs.crikey.com.au/theurbanist/2012/03/15/what-did-abolition-of-petrol-excise-indexation-cost-us/, sourced 15.08.13
[83] Australian Financial Review, Ports sale reaps 'historic' $5bn price for NSW, April 2013
[84] NSW Government, Refinancing of Port Botany and Desal Plant to Fund Major Infrastructure Projects, September 2011
[85] Australian Financial Review, Ports sale reaps 'historic' $5bn price for NSW, April 2013
[86] Ernst & Young, Financing Australia's Infrastructure Needs, Financial Services Council, 2011
[87] Ernst & Young, Financing Australia's Infrastructure Needs, Financial Services Council, 2011
[88] ASFA, Investing in Transport Infrastructure Discussion Paper, September 2012.
[89] ASFA, Investing in Transport Infrastructure Discussion Paper, September 2012.
[90] The Hon Anthony Albanese, Former Federal Minister for Infrastructure and Transport, 8 November 2011
[91] Ernst & Young, Financing Australia's Infrastructure Needs, Financial Services Council, 2011
[92] Ernst & Young, Financing Australia's Infrastructure Needs, Financial Services Council, 2011
[93] The Hon Anthony Albanese, 'Superannuation Funds Wary of Rudd's Nation-Building Plan', the Australian, 17 October, 2008.
[94] Ernst & Young, Financing Australia's Infrastructure Needs, Financial Services Council, 2011
[95] Infrastructure Partnerships Australia, The Role of Superannuation in Building Australia's Future, 2010
[96] KPMG, Financing Australian PPP Projects in the Global Financial Crisis, June 2013
[97] KPMG, Financing Australian PPP Projects in the Global Financial Crisis, June 2013
[98] Clayton Utz, Improving the Outcomes of Public Private Partnerships, 2013
[99] Pottinger, Building Australia: New Models for Financing Infrastructure, April 2013
[100] American Association of State Highway and Transportation Officials, *Survey of State Funding for Public Transportation*, 2012
[101] American Association of State Highway and Transportation Officials, *Survey of State Funding for Public Transportation*, 2012
[102] www.metrolinx.com/en/regionalplanning/funding/investment_strategy.aspx, sourced 22.07.13
[103] www.metrolinx.com/en/regionalplanning/funding/IS_May_27_Presentation_EN.pdf, sourced 23.07.13
[104] www.metrolinx.com/en/regionalplanning/funding/IS_May_27_Presentation_EN.pdf, sourced 23.07.13
[105] www.metrolinx.com/en/regionalplanning/funding/investment_strategy.aspx, sourced 23.07.13