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Innovative Finance for New Rail Infrastructure

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Abstract

Financial Innovation is the key to unlocking the future potential of mass transit in Australia. This paper takes an initial look at the potential role of value capture and other innovative measures in underpinning transit infrastructure expansion.

Value capture is a technique for delivering some of the real estate and other positive economic impacts created by mass transit back into the funding cycle for transit itself. Practical application of value capture has traditionally rested on three basic strategic or administrative options – joint development revenues, tax increment financing, and benefit assessment districts. In the Australian context, another potential option seems to be presenting itself, via the improved application of already-levied developer infrastructure charges into transit enhancements. The revenue streams created by these various options can also potentially be leveraged against the issue of bonds for acceleration of infrastructure delivery – and this concept, particularly in the Australian context, is treated as an “innovation” in itself.

This paper reviews some of the basic prospects for value capture and financial innovation for future transit infrastructure provision within Australia - set against a benchmarking of the level of funding that innovative financial mechanisms have provided to selected transit infrastructure projects internationally in recent times.

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1. Introduction - changes in the Australian transport context & the need for innovative finance

Trends indicate that Australia's major cities are moving through a period of substantial current and probably future growth in rail passenger numbers (Gaymer 2010; Mees & Dodson 2011; Stanley & Barrett 2010) - and the outlook for passenger rail as a business has improved. New approaches to the provision of project finance for supporting this growth are needed. Available funding to deal with expected infrastructure expansion and passenger growth trends is greatly limited however, based on prevailing arrangements and methods.

"Long term neglect has left urban public transport networks in ... (Australian) cities suffering from poor service quality marked by weakly integrated services with limited capacity to serve a wide array of potential customer demands" (Mees & Dodson 2011)

Strategic Regional planning documents across the country are outlining a need to expand existing rail networks to cater for future population growth, and to create sustainable employment agglomerations (ASBEC 2010; NSW Transport and Infrastructure 2010; Qld DIP 2009). The *Draft Connecting South East Queensland 2031* plan (TMR 2010) for example, sets out the key element of its plan as; *"Rail forming the backbone of the transport network with its ability to carry large numbers of people. Rail will be enhanced through Cross River Rail, new higher-capacity trains, more frequent services and more efficient timetabling..."* (TMR 2010, pg 1)". The cost of this "rail-volution" concept that the Queensland government suggests will meet population and employment needs over the next twenty years is not outlined in specific detail. But the capital cost to deliver the whole of the integrated transport plan is in the order of \$123 billion (*Connecting SEQ 2031*, pg 118). Meanwhile, non-capital costs (operations, maintenance & administration) are estimated at an additional \$102 billion (*Connecting SEQ 2031*, pg118). Even a rough researcher's estimate of a 30% allocation of transport capital costs into rail would imply somewhere in the order of \$31 billion in capital finance through to 2031, or around one and a half billion a year. This appears to be a reasonably challenging resourcing demand. But actual allocations into rail are only lifting incrementally so far, and mechanisms to accelerate project delivery from a constrained funding base would appear to be both useful and necessary.

The Commonwealth Government has established Infrastructure Australia (IA), a statutory body charged with advising government on infrastructure funding across the nation (see IA website 2011). But many years of infrastructure-provision backlog mean a long list of projects need to be funded. The authors therefore suggest that new methods of innovative financing for rail and transit infrastructure need to be investigated and ultimately implemented across the nation – to optimise project delivery from a given funding base.

The continued growth of passenger numbers on public transport is being driven partly by changing travel choices, but governments themselves are also increasingly establishing policies which pursue specific growth targets for mode share change from private vehicles into active transport options, especially mass transit (e.g.- DOT WA 2011; TMR 2010). The *Draft Connecting SEQ 2031* plan targets an increase in the share of public transport from 7% to 14% over a twenty year timeframe (TMR 2010). Based on the figures outlined by Mees & Dodson (2011), daily public transport usage in the SEQ region may well increase to roughly a million trips per day for an ultimate population of approximately 3.5 to 4 million over the 2031 horizon. Demands on infrastructure and project finance will, in short, be significant.

International context

“State and local governments are looking for alternative strategies to help fund transit systems. Value capture strategies – joint development, special assessment districts, tax increment financing and development impact fees, are designed to dedicate to transit either a portion of increased tax revenue or additional revenue through assessments, fees, or rents based on value expected to accrue as a result of transit investments” (US GAO 2010)

Innovative methods of financing transit infrastructure projects are currently used across the world, notably in the United States, but many Asian countries also have a long history of alternative modes of financing public transport projects. Operating ratios are traditionally lower among Australian operators when compared to the larger of the US rail counterparts (BART 2009; WMATA 2010; Hale & Charles 2010). Asian rail agencies are generally more commercially-oriented, with greater business self-sufficiency, strategic independence and more strategic outlook. Examples from Singapore, Japan and Hong Kong are particularly compelling due to their consistent delivery of operating ratios that exceed 100% (Hale & Charles 2010; HK MTR 2010; JR East 2010; Keio 2008; SMRT 2010). In these cases, a sustained focus on ticket revenue improvement, in addition to diversified income streams, such as real estate, have delivered strong growth outcomes, financial performance, and *profits* to organisations running mass transit systems (Barrett & Stanley; Cervero & Murakami 2009; Shoji 2001; Tang et al 2004).

Summarising some ‘Australian peculiarities’ regarding transit funding

“Typical for an Australasian rail operator, Queensland Rail’s operating ratio is something in the order of 25% to 30% ..., placing it in the low band of internationally benchmarked performance for a major operator.” (Hale & Charles 2010)

It appears to the authors that commentators, researchers, and practitioners in Australia have become somewhat isolated in their strategic outlook regarding public transport funding and finance. The idea that the major Australian cities’ high rate of operational subsidy to transit is *abnormal* globally still seems to be considered “new” information (see the ATRF 2011 companion paper Hale 2011b for extended discussion). Equally, up until very recently the idea prevailed that *state governments* were the *only* jurisdictions with responsibilities for transit infrastructure outcomes – whereas internationally all three levels of government are usually seen as important players. On another front, there is still no major questioning in Australia of the rationale that *operating subsidy* should be generous, while capital investment remains parsimonious. This appears at face value to place a major brake on the actual level-of-service afforded to transit users. An even-handed critique would probably, however, arrive at the view that most European and Asian rail paradigms emphasise capital-side funding, while leaving the bulk of operational funding demands to the user through ticket pricing, and the transit operator or agency through reasonably strict benchmarking of operational cost recovery parameters. The end result is generally better networks and better service in Europe and Asia. In the face of new undercurrents and new ideas, certain peculiarly Australian views on money for transit do appear set to change. In summary though, our basic challenges currently include;

- Passenger numbers growing
- Operating returns stagnant
- Growing infrastructure need
- Political and other constraints surrounding the funding of transit infrastructure almost entirely through the yearly state government budget cycle
- Lack of open discussion regarding capital finance options already in use overseas

2. The Funding Options

“In this era of constrained transit funding and widespread demand for new and expanded transit systems, policy makers, transit planners and elected officials are increasingly interested in harnessing a portion of the value that transit confers to surrounding properties to fund transit infrastructure or related improvements in station areas.” (Centre for TOD 2008 p1)

There is ‘nothing new under the sun’, but there are a number of value capture instruments and other financial mechanisms being applied across the US, Europe and Asia, that are not yet used in Australia. The most prevalent and effective of these appear to include:

- Benefit Assessment Districts
- Tax Increment Financing
- TOD or joint development
- Developer charges or Development impact fees
- Bond finance linked to specific repayment streams

Benefit Assessment Districts

A Benefit Assessment District (BAD) is an instrument that is applied to a particular area by way of a *new and special levy* on properties that will benefit from the provision of new or upgraded public transit. This tax on properties (or sometimes businesses) is based on the identified economic or property value uplift that would accompany a proposed public investment in the area within which the properties are located. This funding tool is increasingly used in the United States, and some examples include (Centre for TOD 2008 p22-23):

- LA metro red line in 1993
- 17% of the first phase of the Portland Streetcar
- 50% of capital costs of South Lake union streetcar in Seattle
- Fairfax County component of the Dulles Rail Transit Improvement District (\$400 m from properties in Tyson’s corner)
- New York Avenue Metrorail station in Washington DC (28% of cost of new station)

The Transit Benefit District, as it was known in the development of the New York Avenue station in Washington DC, was an interesting example of how this type of mechanism can be used to accelerate capital financing of specific rail infrastructure projects. This benefit district involved collecting a benefit fee from property owners within approximately 200 metres of the new station - which was then allocated to service and retire \$25 million in general obligation bonds (US GAO 2010, p46). This \$25 million was then matched by the Federal Transit Administration (FTA). Property owners located within 200 metres reportedly recognised that the construction on new metro station would add significant value to their land holdings, and were willing to contribute additional funds to ensure the investment occurred (US GAO 2010, p46).

Australian examples of this project financing approach are virtually non-existent, however.

Tax Increment Financing

Tax increment financing (TIF) is a tool sometimes used in the United States to provide up-front capital for new transit infrastructure, or maybe for related interventions that make providing transit in a particular area easier (such as land assembly, decontamination, land acquisition, pedestrian linkages to future transit, and other aspects). TIFs function differently to benefit

assessment districts – in that they work on identification of taxation revenue streams from the value that new transit creates *without an alteration of the actual taxation or charges structure*.

In July 2010 the US Government Accountability Office concluded a report for congress looking at the Federal Government role in value capture strategies for public transport. This report looked at a number of value capture strategies in operation across 71 transit agencies - and described TIFs as a tool to encourage economic development. “...typically, a public sector agency issues a special bond to finance the infrastructure necessary to support new development and then uses the incremental increase in property value within a formally designated tax increment financing district to fund repayment of the bonds for the development related costs, including the costs of transit infrastructure improvements.” (US GAO 2010, p7)

TIFs have reportedly been used across a number of US jurisdictions including (US GAO 2010):

- Pennsylvania transit revitalisation investment districts (TRIDs) in 2005
- Atlanta Beltline
- Portland Streetcar line
- San Francisco Transbay Transit Centre
- Owings Mill TOD, Baltimore
- City of Oakland, MacArthur Station TOD

It should be noted that many sources and individuals seem to confuse benefit assessment districts and tax increment financing. To re-iterate: TIF requires an accounting-driven identification of revenue improvements as a result of proposed new transit infrastructure. Benefit assessment districts involve the creation of new revenues as a result of an *alteration to localised taxation or levy settings*.

Transit Oriented Development & Joint Development revenues

“By way of example, new metro lines in Hong Kong are seen as the mechanism for making possible high quality developments focused around the metro. The value added to the property through metro connections is captured through selling development rights, providing a significant proportion of the funding for the metro. This opportunity has been given relatively little attention in Australia.” (Stanley & Barrett 2010, p49)

The concept of transit oriented development is not new and many cities across the world have historically been developed on the basis of access and proximity to public transport (Cervero 1998; Cudahy 2003). Current circumstances prevailing in cities across the western world including; cost of living pressures, traffic congestion, and concerns about climate change and housing affordability, are all pointing toward the choice to live and work in areas where high levels of public transit exist or are proposed (TCRP 2004). This old/new paradigm appears to be an attractive alternative to the suburban sprawl which has predominated over the last 60 years. Increasingly, governments and transit agencies are also recognising that transit infrastructure plays a critical role in the end value of development projects, and are starting to take advantage of opportunities to share in the value uplift that comes with strong transit infrastructure provision. Hong Kong’s MTR Corporation earns around \$AUD484 million per year in profits from activities associated with real estate development in and around their stations (MTR 2010, p9). These funds allow the corporation to deliver an operating ratio well in excess of 100% (MTR 2010) which ensures that the system is maintained and operated to the highest standard. Conversely, as a capital strategy, Hong Kong MTR’s approach means there are always revenues available to expand the system to meet anticipated growth. The approach that MTR uses is described as

the “Rail + Property model” - and joint development is commonly employed to create new real estate clusters around stations (MTR 2010; Tang et al 2004; Tang & Lo 2008; Cervero & Murakami 2009).

Centre for TOD's 'Capturing the Value of Transit' paper (2008), described joint development as: *“A real estate development project that involves coordination between multiple parties to develop sites near transit, usually on publically owned land.”*

While the MTR model sees the agency controlling the development process from 'birth to death', usually with experienced partners, the story is a little different in the US. To obtain funding from the Federal Government in the United States for joint development, a number of criteria need to be met. These include that the joint development project must (US GAO 2010; TCRP 2004); enhance economic development or incorporate private investment; enhance the effectiveness of a public transportation project or establish new or enhanced coordination between public transport and other transport, and; provide a fair share of revenue to be used for public transport...

A prominent US example, the LA Metro, has a Joint Development Program which *“encourages comprehensive planning and development around station sites and along transit corridors”* (LA County 2009, p1). This program has resulted in approximately 13 completed projects, one project under construction, 16 under negotiation and 15 under consideration (LA Metro 2009). There are also a number of examples where transit agencies are engaged in TOD or joint development across Europe and Asia including;

- Japanese private rail companies (TOBU 2010; Keio 2008; JR East 2010; Tokyu Land 2010)
- Land Transport Authority and SMRT, Singapore (SMRT 2010)
- WMATA, Washington DC (WMATA 2008)
- LA Metro (LA Metro 2009)
- BART, San Francisco Bay Area (BART 2003; MTC 2005)
- Transport for London – especially via the *Crossrail* project (GLA 2010)

Effective utilisation of development charges or impact fees

“The premise behind development impact fees is that development should pay the full cost of providing additional facilities necessary to accommodate development, and as such, is not directly connected to either property values or the value of development” (Centre for TOD 2008)

United States and Australian authorities with the legislative power to implement development charges do so with different intentions in mind. The Australian scenario sees infrastructure charges legislated by the State but valued, charged and collected by the local authority. Using Brisbane City as an example, these charges extend to five areas, including; community infrastructure, water infrastructure, sewer Infrastructure, **transport Infrastructure** (including a nominal allocation to transit), and waterways (BCC website 2011).

While some sections of the development industry are totally opposed to infrastructure charges at current levels, the user-pays mentality is generally supported in most cases (Hale 2011b). However, a consistent problem with infrastructure charges as they apply in Brisbane City appears to be that payments go into consolidated revenue and not into a fund that would specifically invest in transit infrastructure at the location of development.

The US system is framed around charges that defray the cost of expanding and extending public services in a particular area (with transit seemingly afforded more specific attention and resourcing). For example in Broward County, Florida, the local government implemented a Transit Oriented Concurrency (TOC) system. As the Centre for TOD's (2008) *Capturing the of Value Transit* paper describes;

“Within each district, a five-year Transit Development Plan identifies needed transit improvements. The total cost of the improvements is charged as a fee on all new development. The costs are allocated to individual projects using a formula based on expected trip generation. Projects designed to encourage transit usage and affordable housing are eligible for fee reductions. The program is expected to raise \$10.8 million for the 2006-2010 periods, which would cover 28% of total transit operating and capital costs for that period.”

This type of model, or some form of clarified arrangement for connecting infrastructure charges to transit infrastructure *needs* could conceivably be rolled out among local governments across Australia. The main requirement appears to revolve around ensuring that developer charges or impact fees are *specifically targeted to fund the transit infrastructure required within the location of development* from which the fee or charge was levied.

Bond finance linked to dedicated repayment streams

The issue of bonds as a means of resourcing transit expansion and infrastructure upgrades has long been a popular form of financing for US transit projects. *Municipal bonds*, for example, are best described as a debt security issued by a city or county to finance capital projects. A critical aspect is the ability of the raiser to provide a recurrent and sustainable income stream to make the bonds attractive to the market and acceptable to constituents and other stakeholders as a responsible financial strategy. The provision of an income stream for servicing bonds financing new transit infrastructure up-front is often delivered via one or a combination of the mechanisms outlined above. For example, the San Francisco Transbay Transit Centre, which is a \$US4.2 billion new multi-modal transit centre in downtown San Francisco, will be financed via a TIF and a special assessment district (US GAO 2010, p20). The income from these tools is expected to be in the order of \$1.4 billion. This revenue will be used to service the bonds raised by the Transbay Joint Powers Authority, as project principal.

Other methods and approaches exist. In November 2008, the voters of LA County voted a two thirds majority to pass “Proposition R”. This proposition is officially know as the Traffic Relief and Rail Expansion Ordinance and it provides for the establishment of a 0.5% sales tax on all retail transactions within LA County. This Measure R initiative is expected to raise \$30 billion over a thirty year period. This provides the ability for LA Metro to issue “...*limited tax bonds from time to time and secured by sales tax revenues to finance any program or project*” (Los Angeles County 2008, p16). This financing tool enables the LA authority to deliver what was initially a thirty-year program of rail, road, and public transit infrastructure in an accelerated period of ten years (LA Metro 2009). In this sense, intelligent use of bonds appears to be a financial lever that can dramatically transform a city, its transport strategy, and sustainable infrastructure outcomes.

“A broad consensus in America’s definitive car city makes a \$6 billion subway extending down Wilshire Boulevard, Los Angeles a realistic possibility” (The Transport Politic website 2011)

3. Financial Innovation in Practice

The table below depicts approximately \$74 billion in transit investment across the USA, UK and Hong Kong. These investments are being funded through value capture and other “innovative” financing mechanisms - delivering anywhere between 7% to 100% of project capital costs.

Table 1. Innovative Project Finance & Value Capture - Selected international rail project examples*					
Location	Project	Project Timeframe	Project Cost \$US May 2011 exchange rates	Value capture & innovative finance: % project cost	Mechanism
Los Angeles	Red Line Metro	Completed 1993	\$1.42b	9%	Benefit assessment district
Los Angeles	Exposition Boulevard LRT phase2	2012-2015	\$1.63b	57%	Bond finance, repaid by local sales tax increase
Los Angeles	Regional Connector LRT	2015-2025	\$1.32b	12%	Bond finance, repaid by local sales tax increase
Los Angeles	Crenshaw Transit Corridor LRT	2012-2018	\$1.47b	82%	Bond finance, repaid by local sales tax increase
Los Angeles	Gold Line Eastside extension LRT	2022-2035	\$1.31b	97%	Bond finance, repaid by local sales tax increase
Los Angeles	Gold Line Foothill extension LRT	2010-2017	\$758m	97%	Bond finance, repaid by local sales tax increase
Los Angeles	Green Line LAX extension LRT	2012-2028	\$200m	100%	Bond finance, repaid by local sales tax increase
Los Angeles	Green Line Redondo Beach to South Bay Corridor LRT	2028-2035	\$280m	97%	Bond finance, repaid by local sales tax increase
London	Crossrail	2007 - 2018	\$26b	7%	TOD/joint development
London	Crossrail	2007 - 2018	\$26b	50%	Bond finance, repaid by “business rate supplement” within Greater London Authority Area

Hong Kong	South Island Line (East)	2011 - 2014	\$1.6b	100%	“Rail plus property” model
Hong Kong	Kwun Tong Line Extension	2010 - 2014	\$681m	100%	“Rail plus property” model
San Francisco	Transbay Transit Centre	2009 -	\$4.12b	33%	TIF and assessment district
Washington DC	New York Ave Metro Station	Opened 2004	\$110m	23%	Assessment district
Virginia	Dulles Metro Corridor extension	2010 -	\$5.25b	14%	Assessment district
Atlanta	Atlanta beltline	2007-	\$2.8b	61%	Tax increment financing
Dallas	DART LRT Green Line	Opened 2010	\$868 m	18.5%	Tax increment financing
Portland	Portland Streetcar	Opened 2001	\$103m	40%	TIF & assessment district

***Sources & References:** LA Metro 2008; GLA 2010; MTR 2010; US GAO 2010.
 Note – HK figures include researcher’s estimates based on best available information.

There are, however, a number of critical aspects to successful implementation of innovative tools for value capture and financing of new and expanded transit infrastructure. The authors suggest that some of these include:

- Governance and accountability
- Leadership in the initial adoption of mechanisms as-yet not utilised in Australia
- Policy formulation capabilities and the ability to analyse and structure new financial packages
- Capturing, developing and articulating a body of evidence on these mechanisms
- Meeting markets (where bonds or TOD mechanisms are utilised, for example)
- Project scale – with the suggestion that the financial mechanisms listed above are probably best employed in projects exceeding a minimum of \$100m capital cost, with most conducive conditions perhaps emerging with projects an order of magnitude larger again than that

4. Recommendations for Australian Cities

“Transport infrastructure is costly in terms of both capital investment and maintenance. Yet it is often not managed or used to its full capacity. Connecting centres and facilities with well targeted, reliable, high frequency, low cost, integrated active and public transport networks can provide greater accessibility options for urban populations. Placing a priority on non-car transportation systems and networks, such as public transport and active transport, is an important step in achieving better productivity, sustainability and livability objectives. Smart infrastructure, pricing and travel demand mechanisms can further serve to improve the effectiveness of transport networks.” (DOIT 2011, p25)

While many state and federal government documents and sources in Australia now identify the benefits and desirability of better public transport networks, few have taken the logical next step of investigating in detail the opportunities and options available for accelerated financing of transit investment.

There appears to be no sound reason why the strategies employed by established leading transit cities (such as London and Hong Kong) or others engaged in more of a “catch-up” investment dynamic (LA, Dallas and Portland perhaps) should not be adapted into the Australian market. Moreover, Australian cities and jurisdictions are offered the profound possibility of innovation via the combining and multiple-leveraging of more than one of the main financial innovation strategies identified in this paper. The authors suggest that a program of strategic deployment of multiple strategies in a single investment program offers significant potential. This is hinted-at by the combining of TIF and BAD in the San Francisco Transbay example, or TOD + BAD in the London Crossrail example. Careful consideration of any cross-method impacts would need to be actioned, as well as analysis of the overall level of levies and imposts - but for the most part a “multiple sources” strategy appears workable. Although the research program represented in this paper is still at a relatively early stage, the authors are willing to provide the following recommendations for consideration:

- That “new and alternative” methods of financing transit infrastructure are possible, desirable, and ultimately *necessary*
- Key stakeholders in Australia need to engage robustly with this emerging field in order to be able to meet their stated transport sustainability and infrastructure roll-out goals
- The capabilities for successful implementation of innovative transit finance options largely lie *outside the common planning-based skills sets* of most Australian public transport organisations – and a new prioritisation of financial and economic skills in transit organisations and government is needed
- That stronger results are likely to come from some *combination* of the 4-5 available financial mechanisms identified in this paper
- Pilot programs addressing the range of value capture strategies should be pursued

Any path toward innovation in transit project finance appears to be a scenario of challenges and opportunities. But the concepts outlined briefly in this paper appear ready to transform transit resourcing in Australia - especially if supported by improvements to organisational capabilities. A new period of positive transformation of Australian cities may well emerge via a meeting of agreed transport sustainability goals and transit orientation ideals with the full range of financial mechanisms used internationally to reach those goals.

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