

Light Rail Development in Australia

2012 - 2016

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Abstract

The beginning of the 21st century has revealed a strong resurgence in light rail as a popular investment for the renewal of Australian cities. All states and territories are considering a role for light rail, either in response to inner urban growth, or to facilitate it.

This paper surveys light rail developments in Australia since 2012 and covers both projects completed, as well as those still in various stages of planning or delivery. It examines the drivers of these initiatives to understand the perceived role of light rail in contemporary Australian urban planning. More particularly the paper reflects on the decision making process and the role of 'rational' planning. The paper examines the available evidence to assess whether or not the expected outcomes are being or are likely to be realised.

1. Introduction

This paper has been prepared to inform a larger research project investigating how urban transport projects are selected. An early stage in this larger project is to catalogue potential projects, to enable the selection of specific case studies. This paper presents the Light Rail portion of this catalogue.

Currie and Bruke (2013) provided an overview of Australian light rail performance as of 2012 and also offered a brief statement on ongoing developments, including two projects under construction (Gold Coast and Dulwich Hill) and three planned (one in each of Perth, Sydney and Canberra). The two projects under construction have been completed providing an opportunity to comment on the outcomes of these investments. The Sydney and Canberra projects are proceeding, whilst the Perth project has been deferred. Again, there are potential lessons arising from the ongoing development of these projects even before they are completed. Also of interest to this paper are the new initiatives emerging including light rail schemes in the Gold Coast (Stage 2), Newcastle, Parramatta, Adelaide, and tentative steps in Darwin and Hobart. In short, a great deal has happened in the last four years with projects starting and stopping in seemingly unforeseeable ways that question the traditional views of the planning process.

The selection of urban transport projects can be controversial, as best illustrated with the ongoing debate over Canberra's light rail project, spanning both the political and planning realms. The purpose of my research is to better understand the interplay between traditional, or what some may call rational planning, and the arguments or rationalisations used by those with power to justify these projects (Flyvbjerg 1998).

This paper is not an update of the Currie and Bruke paper and its useful focus on light rail performance, but rather an examination of the way these projects are appraised and evaluated in the selection process. I am interested in project developments, the ‘comings and goings’ of projects, what is done, why, and by whom. Before examining the LRT developments around Australia the following section briefly outlines some of the literature that informs my research.

2. Research Context

2.1. Why light rail?

Investment in light rail is often controversial. Australian supporters of light rail (for example, Newman 2015; Tourism & Transport Forum 2010) argue it is a mode well suited for inner urban areas and can be the trigger for urban renewal and denser development. The use of permanent right-of-ways segregated from other traffic is seen as a key advantage when compared with conventional bus. It is also seen as a more affordable and a more easily integrated mode than the heavy rail alternative.

Others, however, question whether light rail’s claimed advantage over bus can be substantiated. Hensher (1999) for example, has reviewed the bus vs light rail debate and finds little evidence supporting the case for light rail beyond its dedicated infrastructure. He argues equivalent benefits are available with busway technology.

The literature however supports a view that public transport users have a deep seated, psychological preference for light rail (see, for example, Scherer & Dziekan 2012). Whether this bias justifies the additional cost of light rail over bus is then a key issue for transport planners. Hensher’s message is to “distance our thinking from an obsession with technology and move to study needs as a starting of inquiry” (Hensher 1999, p. 18). Light rail development then is an interesting case study of the interplay between “rational” planning and political selection of projects.

2.2 Project selection

Traditional evaluation guidelines are based on a systems engineering approach first adopted in the late 1950s (Banister 2002). An example of the current Australian approach is shown in Figure 1 (Bureau of Infrastructure Transport and Regional Economics 2014). The longevity of this ‘rational’ approach is surprising since the method seemingly fails to consistently identify the projects that will be implemented. One of the first applications of this approach was the Chicago Area Transport Study that recommended a program of highway expansion but these were quickly abandoned (McDonald 1988). Similarly, a review of Australian transport plans by Bray (2009) found little connection between the plans produced and the projects actually implemented.

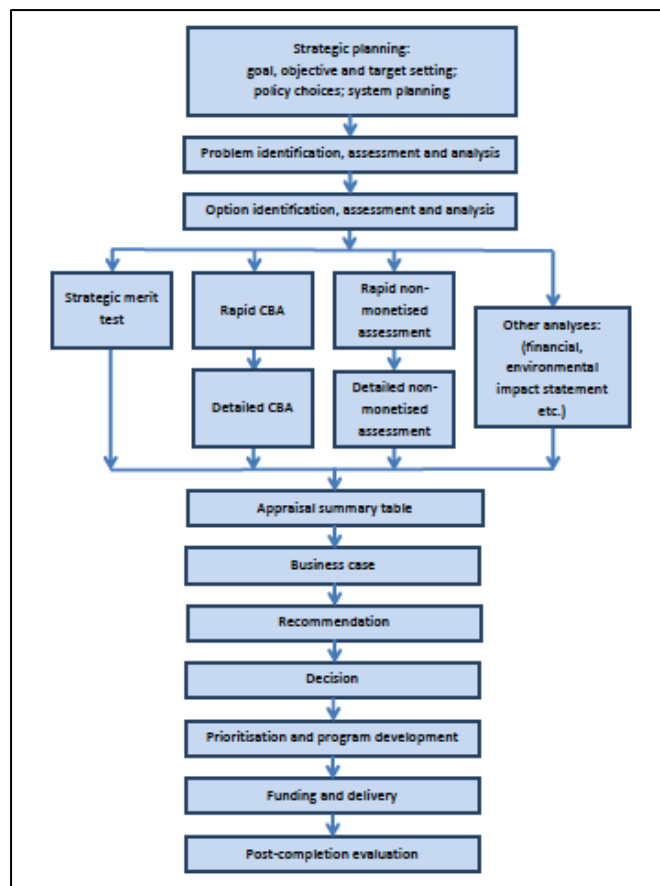
Theoretical problems with the rational approach have been long known. Lindblom (1959), for example, outlined some of the significant challenges facing rational decision-making based on comprehensive “root and branch” analysis as implied by the traditional model. These challenges include:

- resource limitations restricting the number and range of options that can be considered and
- the ability or tools to fully assess the implications of materially different options.

A further challenge for the appraisal process is the increasing breadth of social, environmental and economic outcomes expected from transport investment, many of which can be in conflict. In this regard transport is a type of “wicked” problem as described by Rittel and Webber (1973) where the search for an optimal solution is a Sisyphean undertaking.

However, grounded research into project selection identifies politics rather than rational planning as the principle means of selection. Hall (1982) explores case studies of “great planning disasters” or near disasters and identifies the political process as the villain. He describes the decision making process in terms of the interactions or conflicts between community, bureaucratic and political actors. In a similar vein, Altshuler and Lunderoff (2003) have examined the politics underpinning American transport development over the later half of the 20th century and a recent Australian review provides further evidence of political considerations influencing transport funding decisions (Terrill, Emslie & Coates 2016).

Figure 1: Typical Project Evaluation Framework



These authors find limited evidence of traditional transport planning defining the ultimate solution. In a typical case, transport “problems” start with a traffic forecast indicating growth will lead to congestion requiring more road, transit or airport capacity or, more rarely, the need to curb demand (see for example, Infrastructure Australia 2015). However, the process quickly moves beyond the remit of the planners. More significant is the role of “public entrepreneurs” (Altershuler & Luberooff 2003, p. 224) who are the public officials taking “the lead in crafting strategies, tactics and plans” to ultimately secure project approval and funding. The implemented projects are not necessarily those with the highest economic,

environment or social returns but those that best align with the interests of key members of the relevant local, state and federal legislatures.

Flyvbjerg (1998) argues that those in power define rationality and posits a “Machiavellian” selection process where proponents vested in specific project operate to a formula (Flyvbjerg 2005):

$$\begin{aligned} & \textit{Under-Estimate Costs} + \textit{Over-Estimate Revenue} \\ & + \textit{Under-Estimated Environmental Impacts} \\ & + \textit{Over-Valued Economic Development Effects} \\ & = \textit{Project Approval} \end{aligned}$$

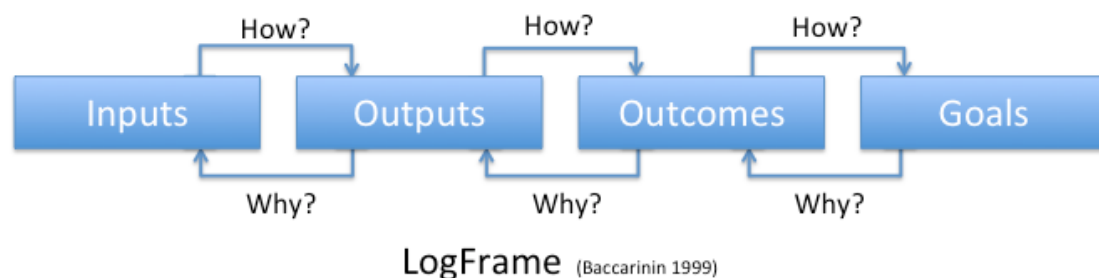
In this review we are interested to understand the project drivers in terms of both the rationality and rationalisations used to justify these investments and how these may be used to assess success.

2.3. Defining project success

Project success has been discussed in previous works (Allport 2011; Dimitriou; et al. 2014; Flyvbjerg 2014; Hall 1982; Samset & Volden 2016) but there is no common definition. This paper adopts the Logframe hierarchy (Figure 2) that links project inputs, outputs, outcomes and societal goals into a structured hierarchy of objectives (Baccarini 1999). In this framework the left to right logic explains how each level will deliver the next higher level of objective. For example, how will the project “inputs” produce the expected “outputs” or how will the “outputs” deliver the expected “outcomes”. The reverse logic, explains why or for what purpose lower level objective is needed.

Inputs refer the time, cost and resources required to deliver a project. Light rail outputs can be measured in terms of the project scope but more importantly the actual service that is delivered. Outcomes can then be measured in terms of patronage, mode shift or, in some of the examples, urban regeneration and activation. Goals are the higher order societal objectives usually expressed in economic, environmental and social terms.

Figure 2: The Logical Framework (LogFrame)



The following sections examine recent and current light rail projects using information available from the public domain. An attempt is made to assess success at each objective level as the difference between what has occurred against the original targets. What is found, however, is limited detailed project information is available resulting in a partial assessment. It is worth stating that in this context success implies nothing about whether light rail is “good” or “bad”, only that the project was completed as intended.

3. Gold Coast (Queensland)

3.1 G:Link Stage 1

The Gold Coast is the location of Queensland's first modern light rail system. Stage 1 of the Gold Coast light rail system began operation between Broadbeach and Griffith University on 20th July 2014. The 13km route was delivered at a total project cost of \$1.3Bn (State of Queensland 2015) and carried 6.5m passengers in its first year of operations (TransLink 2015). The claimed success of Stage 1 has been used to justify proceeding with Stage 2, now in delivery (Turnball 2015). Figure 3 shows the route alignment for Stages 1 and 2.

Figure 3: Gold Coast Light Rail: Route Map (Stages 1 and 2)



The 1997 Integrated Regional Transport Plan first proposed a new north south transit corridor starting a decade of planning and debate (Newland et al. 2012). The local and state governments committed to a light rail scheme in 2008 and it was subsequently endorsed by Infrastructure Australia (IA) as "ready to proceed" in 2009 (Infrastructure Australia 2009) receiving funding commitments from the Commonwealth that same year. A Public Private Partnership (PPP) contract was awarded to the QLink consortium in 2011 with services commencing in mid-2014.

The Gold Coast is one of Australia's fastest growing urban areas with the population expected to reach 800,000 by 2026 (Yigitcanlar, Fabian & Coiacetto 2008). The area is highly car dependent with public transport accounting for less than 5% of all trips (TransLink 2008). Congestion management or relief is therefore a major focus of the region's transport plans and a critical outcome for the project. The opening paragraph of the Concept Design and Impact Management Plan states: "The Gold

Coast Rapid Transit project is a key element of the Queensland Government and Gold Coast City Council's wider plan to address traffic congestion on the Gold Coast" (TransLink 2008, p. 5).

Is Stage 1 the success that has been claimed by the project sponsors? A post implementation review is currently being undertaken but is not yet available (TransLink 2016). The following paragraphs review the available information against the project objectives to test the claimed success of the project.

The final delivery cost was \$(2015)1.3Bn: 30% higher (after allowing for inflation; Brisbane CPI 17.8%) than the \$(2008)850m project budget at the time of IA's endorsement. Press reports highlight the project experienced a variety of commissioning problems including excessive rail noise, stray current control and traffic accidents but these matters do not appear to have adversely affected the overall operation of the service. There is a good basis to conclude that the project successfully delivered its outputs but over budget.

The claim "patronage continues to exceed expectations, with an average of more than 18,200 trips made on the G: each day" (TransLink 2015) is at odds with the original project estimates. No forecast of light rail patronage could be found but the Concept Design and Impact Management Plan forecast an 59% increase in daily (2016) regional public transport patronage from 124,500 to 197,750 (TransLink 2008, p. 13). The actual outcome has been reported by Department of Transport and Main Roads as an additional 6.18m light rail passengers in the 2014/15 financial year (consistent with 18,200 trips per day) but offset by a decline of 6.15m passenger in bus usage indicating no net increase in public transport use (State of Queensland 2015, pp. 194-5). While G:Link is enjoying a healthy ridership the available evidence shows project has failed to deliver the key outcome of increased regional public transport use.

Also key to the project's success is whether the goal of reduced traffic congestion has been realised. As stated by the proponent, "The introduction of the Gold Coast Rapid Transit project, plus a range of improvements to the wider public transport network, is predicted to remove 40,000 car from the road everyday" (TransLink 2008, p. 13). The proponent was expecting a mode shift from car (40,000 car trips) to public transport (73,250 new trips). In practice it can be observed that there has been no material change in public transport use and so it seems unlikely any mode shift has occurred.

On the available information the project is operating successfully but has been unsuccessful in meeting the majority of the stated objectives. The project ran over budget, has not generated a material uplift in public transport use and this in turn suggests the expected mode shift from car has not occurred. Overall it appears the project has higher costs and lower benefits than predicted leading to an overall lower economic outturn than originally expected. Have these lessons been reflected in the preparation for Stage 2?

3.2 G:Link Stage 2

Notwithstanding the formal review of Stage 1 has not been completed construction of Stage 2 is now underway. This 7.3km extension to Helensvale will add three new stations (Helensvale, Parkwood and Parkwood East) and an additional 1400 car parking spaces. Completion is due before the 2018 Commonwealth Games at an estimated project cost of \$420m (State of Queensland 2016).

The connection to the heavy rail network replace existing bus links between the Gold Coast and the wider southeast Queensland transit network by a light rail service. Once complete it will provide a rail travel option between the Brisbane Airport/Central Business District (CBD) and the Gold Coast with a single interchange at Helensvale. It is reasonable to expect that such a connection will provide some boost to patronage but whether is this sufficient to justify the cost is a key question. The claim that the project is “cost-effective solution by efficient using existing road and rail corridors, thereby reducing impacts on the community and the environment” (State of Queensland 2016) is a matter of conjecture.

The Australian Prime Minister announced in October 2015 that Commonwealth has committed \$95m towards the project on the basis of the project business submitted by the state (Turnball 2015). The business case is not a public document but IA has reviewed it and as of September 2016 Stage 2 it is yet to meet IA’s required development benchmark for implementation (Infrastructure Australia 2016). Further distorting the case for the project was the claim by the Deputy Premier Ms Trudgen that “Stage 1 has driven a 25 percent increase in public transport patronage on the Gold Coast in the first year alone” (Turnball 2015) contradicting the Department of Transport and Main Roads’ own assessment. It appears the political urgency to complete the project before the Commonwealth Games is too important to warrant a robust assessment.

Long-term plans show further stages of expansion to the south with an eventual connection to Coolangub and the Gold Coast Airport. There are no specific proposals to yet proceed with these later stages.

4. New South Wales

New South Wales is rapidly expanding its light rail system. The extension of the existing inner west light rail to Dulwich Hill was opened in 2014, contracts were awarded for the Sydney light rail project in 2015, tenders called for Newcastle light rail in 2016 and development of Parramatta light rail is progressing. This section examines each of these developments.

4.1 Dulwich Hill

The Inner West light rail was the first new line since the closure of Sydney’s tram network in 1961 (Transport for NSW 2010). The first stage from Central to Wentworth Park opened in August 1997 and was followed by an extension to Lilyfield in August 2000. The majority of these two stages were built in a disused freight corridor and the closure of the Rozelle freight line in 2009 provided the opportunity for a third extension through to Dulwich Hill as shown in Figure 4. The 5.6km extension of the Inner West light rail (Route L1) to Dulwich Hill opened on the 27th March 2014 (Transport for NSW 2016b).

The Dulwich Hill extension was announced in February 2010 as part of the new Metropolitan Transport Plan (Keneally 2010). Following this announcement Transport for NSW proceeded with the detailed project planning for “an environmentally sustainable, integrated transport corridor” including the light rail line and a parallel off-road cycle path (Greenway) from the Cooks River to Dulwich Hill (Transport for NSW 2010, 2016b). The project was originally to be completed in early 2012, two years earlier than actual completion date (Premier of New South Wales 2010).

The final project cost of \$(2015)176m (ABC 2014) exceeded the original budget of \$(2010)150m by 17% but without the cycle path (Transport for NSW 2010). The Greenway component was deleted from the project scope by the (new) government in 2011 due to escalating project cost. Patronage for the year ending June 2015 was 6.1m trips, 5% less than the 6.4m “realistic” forecast for 2016.

Figure 4: Dulwich Hill Light Rail Extension



Was the project a success? The project was delivered late and over budget however it substantially realised its patronage objectives. But, in terms of the overarching project goals it is clear that the project failed to be an “integrated transport corridor” as originally intended. It should be noted that, notwithstanding the budget overrun, the cost per kilometre is one third that of the cost of Gold Coast project but attracting similar passenger volumes. This illustrates a significant cost efficiencies for projects expanding an existing network and constructing within an established corridor.

4.2 CBD and South East Light Rail

The CBD and South East Light Rail (CSELR) project is currently under construction (Transport for NSW 2015). The project comprises two new light rail routes from Circular Quay to Randwick and Kingsford, a total route length of 12km as shown in Figure 5. The project also includes a new pedestrian zone along George St. in the central business district (CBD). The project is expected to be completed by 2018 at a cost of \$(2014)1.6Bn although reports indicate that the project cost has already increased to \$(2014)2.2Bn (Saulwick 2014).

The project rationale is to meet the future demand for travel within the CBD and provide improved customer service (Transport for NSW 2013). It is expected that

there will be 100,000 new CBD jobs over the next twenty years which will significantly increase the demand for travel; light rail is intended to meet this challenge by replacing buses with higher capacity light rail vehicles (450 passenger/LRV) while freeing road space for other users. Proponents also state that customers will also benefit from higher frequency services and improved stop and on-board amenities. The summary business case claims a benefit to cost ratio of 2.5 with half the quantified benefits accruing to public transport users, and estimates 31.4m trips per annum.

Figure 5: CBD and South East Light Rail Route



Is the CSELR likely to be a success? Only a summary business case has been released preventing a detailed review. From the available information we can observe that the CSELR project is the most expensive light rail project currently being undertaken in Australia. The project is 80% more expensive on route.km basis than the Gold Coast project reflecting the complexity of building within a dense CBD environment. However, it is also expected to carry almost five times the number of passengers making it a potentially a more cost effective service in terms of passenger movement than the Queensland project.

4.3 Newcastle

The Newcastle light rail is a 2.7km, six stop route from the Wickham Interchange to Pacific Park through the CBD area, as shown in Figure 6 (Transport for NSW 2016c). It replaces an existing heavy rail service that was discontinued in 2012 as part of a program to redevelop the Newcastle CBD. The route uses a short section of the existing heavy rail corridor before diverting to Hunter St, the main CBD thoroughfare. The project budget is \$460m including \$340m allocated from the lease of the

Newcastle port and is due to be completed by 2018 (State of NSW 2016). No business case has been released for the project.

The 'Revitalise Newcastle' strategy is intended to boost the local economy following the closure of the steel works. Removal of the heavy rail infrastructure is argued as necessary to improve the access between the CBD and the Hunter River. The attraction of light rail is its ability to be integrated with the urban redevelopment underway in the area. Whether this project is a success is dependent on the overall success of Newcastle's urban renewal program.

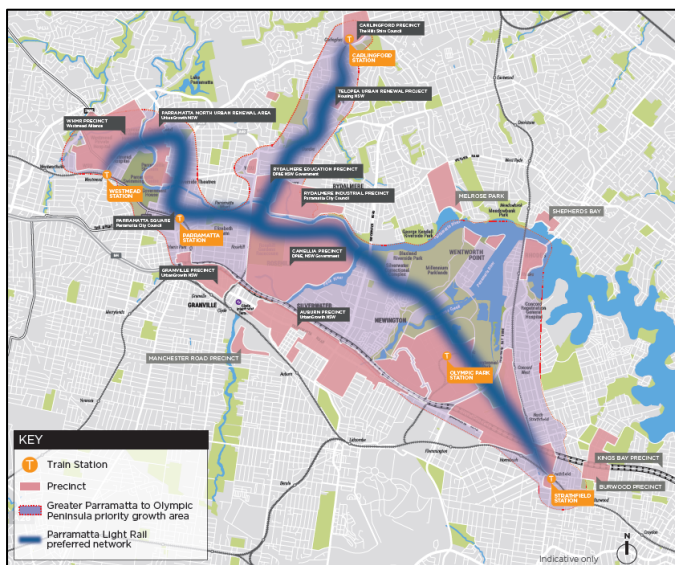
Figure 6: Newcastle Light Rail Route



4.4 Parramatta

Parramatta Light Rail is a 20km network of three lines as shown in Figure 7, with services due to commence operation in 2018/19 (Transport for NSW 2016a). The project includes the conversion of the Carlingford heavy rail line as well as the creation of a new route from the Westmead Hospital to Strathfield via the Sydney Olympic Park.

Figure 7: Parramatta Light Rail: Indicative Routes



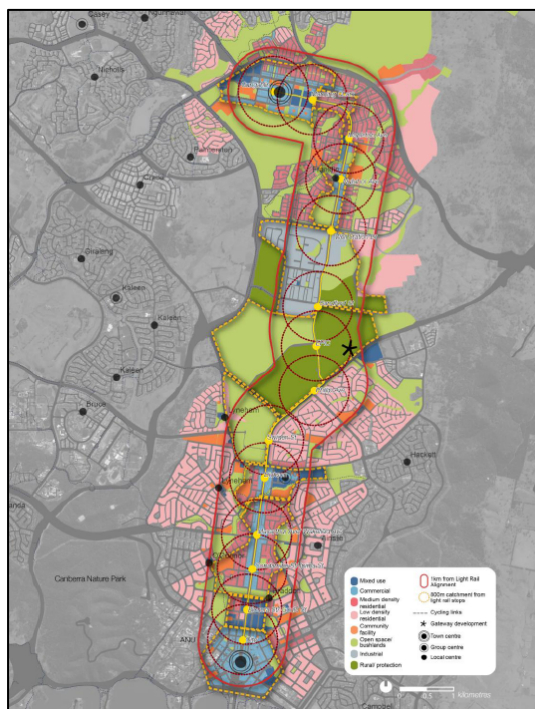
The project gained significant momentum following the release of a favourable preliminary feasibility study by the Parramatta City Council in 2013 (City of Parramatta 2016). The NSW government subsequently endorsed the project and commenced detailed planning. The total project cost is expected to exceed the \$1B allocated by the state government with additional funding generated by a new property levy. The use of a levy to fund light rail is unique to the Parramatta project with no similar mechanisms being in place of the Newcastle or CSELR projects. No details of the levy are yet available.

The project objectives include: establishing Parramatta as Sydney's second CBD; supporting urban development; connecting people and places; and providing additional transport choice. No business case has been released for the project.

5. CapitalMetro (Australian Capital Territory)

CapitalMetro is a 12km light rail route between Gungahlin to the Canberra centre including 13 stops as shown in Figure 8 (Capital Metro Agency 2014). It is the first stage of a proposed larger light rail network serving the nation's capital. The total outturn cost is expected to be \$830m. Contracts were let in May 2016 with operations expected to commence in 2019 (Capital Metro Agency 2016a). The project is anticipated to generate daily ridership in 2021 of 15,120 or 4.7m trips annually (Capital Metro Agency 2014, Table 46).

Figure 8: Capital Metro Route



This project is only one of two examples in this review where the full project assessment has been made publicly available (the other being Hobart). The business case shows an expected benefit to cost ratio of 1.2 including the so called wider economic benefits (Capital Metro Agency 2014). The business case identifies two primary problems to be addressed by the project (p49):

- *The need to build future transport capacity in the ACT. Canberra experiences a high and growing level of car dependency and usage, with attendant traffic congestion and other problems (particularly along the Northbourne Avenue – Federal Highway corridor); and*
- *The need for enhanced sustainable urban re-development and densification in the ACT (as outlined in the ACT Planning Strategy). Potential constraints exist to the future supply of developable greenfield land in the ACT.*

Land use benefits are anticipated to be a significant (39%) contributor to the project; these are expected to arise from increased development density along the corridor (Capital Metro Agency 2014). The realisation of this redevelopment is, according to the project business case, dependent on future decisions by ACT government to introduce new land use controls. Separating these planning reforms from the delivery of light rail project therefore introduces a significant risk that these benefits will not realised. The business case also notes that the ACT government is expecting increased development density in a number of other corridors and town centres not served by the current project, begging questions of nexus between this project and the projected development benefits.

The project has generated considerable debate. The Liberal opposition have stated that if they win office in the October 2016 election they will move to cancel the contract (Hanson 2016). The key areas of contention are affordability and whether a bus-based solution would be more cost effective. The project proponents justify the selection of light rail because of its “higher capacity and also its ability to increase commercial and social activity along the route” (Capital Metro Agency 2016b). The ACT Government’s submission to Infrastructure Australia, however, highlights that a bus rapid transit alternative provides approximately twice the economic return when compared with light rail (ACT Government 2012, Table 10). The most recent business case avoids any assessment of bus (or other) alternatives (Capital Metro Agency 2014). The information available fails to provide a reasoned case for the selection of light rail over bus thereby providing grounds for the current political debate. If the project proceeds, realisation of higher urban densities along the corridor will be critical to its success.

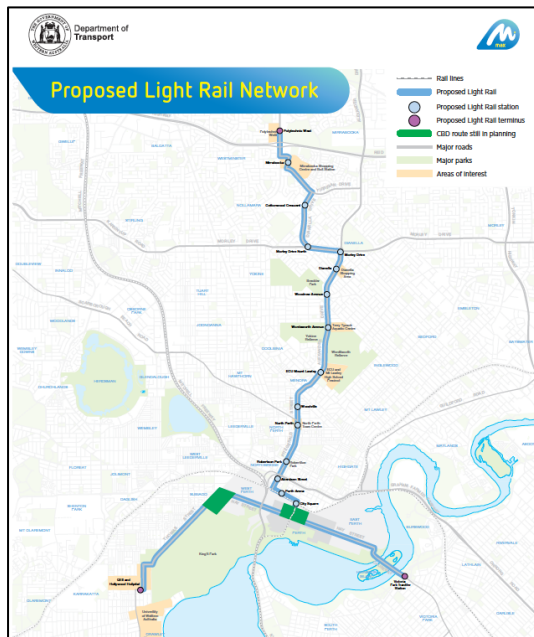
The ACT Government have also released a master plan for an additional six new light rail routes (ACT Government 2015). The total length of this network will be in the order of 75-80km (author’s estimate) making Canberra the most expansive capital in terms of light rail development.

6. Perth (Western Australia)

The Max light rail scheme envisages a 22km light rail route connecting Perth’s northern suburbs with the CBD (Figure 9) and providing an east/west connection through the downtown area (Government of Western Australia 2013). It is estimated it will carry over 100,000 passengers a day at a total project cost of \$(2013)1.9B (Infrastructure Australia 2013).

The project rationale is to provide increased public transport options for Perth’s northern corridor that has been identified as being significantly affected by growing congestion. The current WA Government, however, has deferred the project to 2022 due to the downturn in the WA economy and reluctance by the Commonwealth (Abbot) government to fund transit projects (O’Connor 2015). The state government has also indicated that consideration is being given to replacing some elements of the project with bus solutions.

Figure 9: Perth Light Rail - Max Network

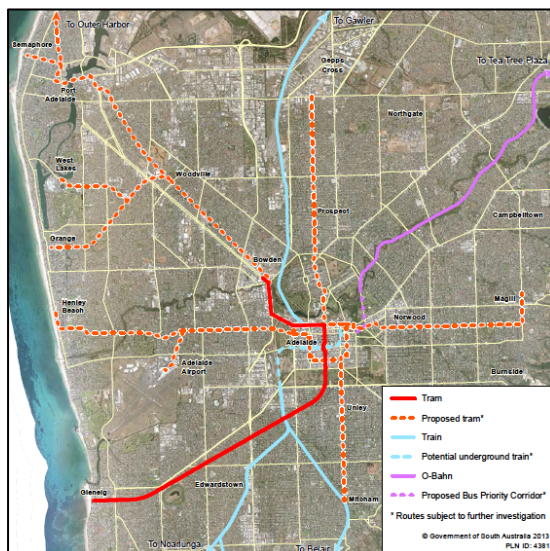


7. Adelaide (South Australia)

The South Australian government released a Integrated Transport and Land Use Plan for the state in 2013 (Government of South Australia 2013). A key action is to “bring back the trams to Adelaide to inject more vibrancy and activity into our city” (p3). The plan shows five new routes significantly expanding the existing, single route network as shown in Figure 10. The total route lengthy is in the order of 60km (author estimate).

In 2016, the government announced it was proceeding with the development of a business case for the first stage of the project (Mullighan 2016). Notwithstanding the lack of a business case the Federal Opposition (Labor) committed \$500m to the project if they were returned to office in the 2016 election (Ellis 2016).

Figure 10: Adelaide Light Rail - AdeLink Network



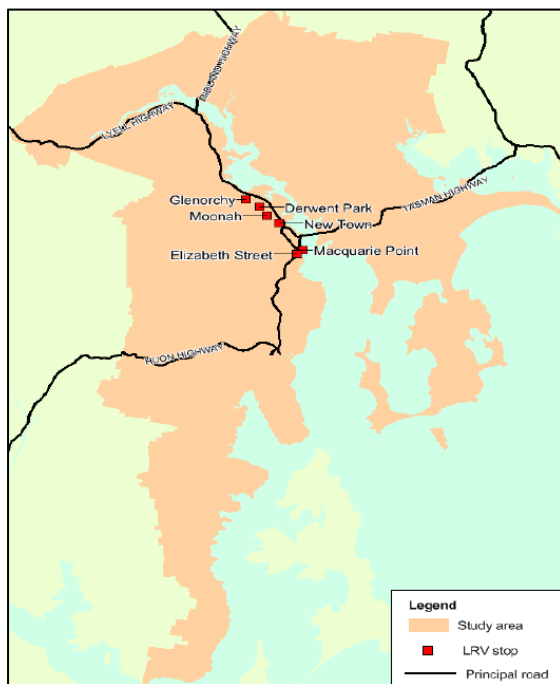
8. Hobart (Tasmania)

The Tasmanian government have recently announced that they would reserve a corridor for light rail between Hobart and the northern suburb of Granton (Hidding 2016). This announcement follows a review of the proposed scheme by Infrastructure Tasmania which found that the scheme is not presently viable but further work is warranted “to better understand how land use adjacent to the corridor can be shaped to support a light rail service” (Garcia 2016, p. 18).

Various light rail options have been considered since 2011 and the most promising scheme is a 8.6km line from Hobart to the northern suburb of Glenorchy (Figure 11) using a disused freight rail corridor (ACIL Tasman 2013). The scheme is expected to cost \$(2013)70-78m or less than one third the cost/route.km of the next cheapest scheme in this review (Dulwich Hill). It is estimated to have a benefit to cost ratio of close to 1:1.

Notwithstanding Infrastructure Tasmania’s reservations about the viability of the project the Tasmanian government has flagged its intentions to seek Commonwealth funding (Smith 2016).

Figure 11: Hobart Light Rail



9. Melbourne (Victoria)

Melbourne is host to Australia’s largest and longest running tram network. Current investment focus is to improve and modernise the existing network including accessibility improvements, modernising and expanding the fleet, depots and power supplies and works to improve on road priority (Public Transport Victoria 2016).

The only new route under consideration is a line through the Fishermans Bend Urban Redevelopment area (State of Victoria 2016b). Early options for this route include a new crossing of the Yarra River (Figure 12) which has raised concerns about impacts

on river traffic most particularly yachts using the Yarra Edge marina, and on the open space within the Yarra Edge development itself (State of Victoria 2016a). The government is yet to announce a preferred alignment.

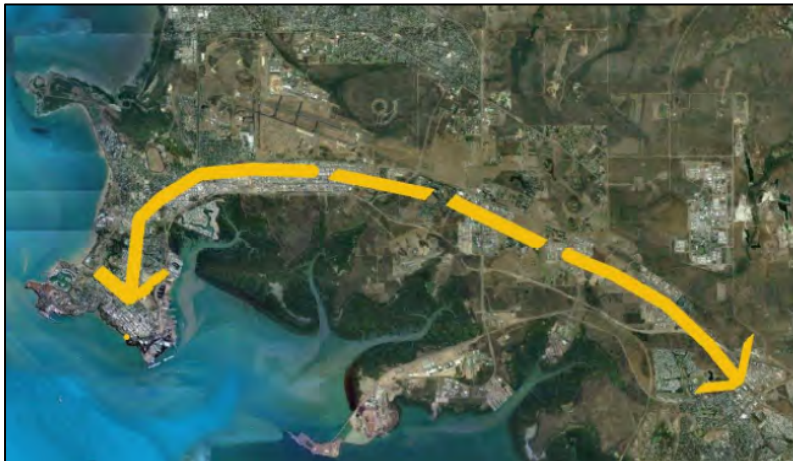
Figure 12: Fishermans Bend Light Rail - City of Port Phillip Yarra Crossing Concept



10. Darwin (Northern Territory)

In 2014 a new Master Plan was released for Darwin (City of Darwin, Northern Territory Government & Australian Government 2014). The plan recommends that provision be made for a light route from Darwin to Palmerston (Figure 13). It notes that the NT government has assessed that the line is not currently viable but expects this may change in the future.

Figure 13: Darwin Light Rail: Indicative Route



11. Discussion and Conclusion

Currie and Burke (2013) reported that around Australia there were two light rail projects under construction and three in development. This paper finds that the two projects under construction have been completed, four new projects are now under construction and no less than sixteen potential projects are under some stage of development. In short, a lot has happened in the last four years.

The two completed projects are promoted as successes. These claims, however, overlook that they were delivered over budget (Dulwich Hill and Gold Coast), overtime (Dulwich Hill) and both have failed to produce the intended outcomes. Dulwich Hill was to be part of integrated corridor and the Gold Coast has not seen the expected patronage uplift need to reduce car use. These observations are consistent with Flyvbjerg's "iron law" of projects, "over cost, over time, time and time again" (Flyvbjerg 2014).

Of the projects under construction the paper finds that light rail has been chosen to encourage urban development outcomes (Canberra and Newcastle), or as a more efficient transport mode (CBD and South East and Gold Coast Stage 2). A similar split of rationales is observed for the projects still under development.

Notwithstanding the increased adoption of light rail it remains a controversial choice. The debate over the merits of bus vs. light rail continues to be an issue, perhaps because of the lack of compelling evidence. The claim that light rail stimulates urban development in ways not realisable using bus technology has not been directly addressed in the (limited) information released for the projects reviewed. In Canberra, where bus was formally considered as an alternative, the appraisal favoured bus and yet light rail was chosen with minimal supporting evidence. In other cases such as Newcastle and Adelaide no formal assessments are available for review.

Several themes emerge from this review:

- The rationale for most of these projects cannot be independently assessed as the detailed business cases have been withheld.
- The decision to proceed with the project occurs regularly precedes completion of the detailed evaluation suggesting these are political decisions rather than the result of rational planning (Gold Coast 2, Dulwich Hill, Newcastle, Parramatta and Adelaide).
- A belief that light rail will transform the urban fabric or solve congestion continues to be the rationalisation for light rail investment despite an absence of evidence from the projects completed to date.

Notwithstanding the lack of any clear rational more projects are proceeding than ever before. We are left to assume these projects proceed on the basis of their political appeal rather than on any objective basis. How we might attempt to narrow the gap between rational planning and the rationality of those in power is the focus of my ongoing research.

12. Acknowledgments

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