ACT LIGHT RAIL PROJECT
ASSESSMENT OF THE IMPACTS ON WORKERS

June 2015

CANBERRA NEEDS JOBS

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Assessment of the proposed ACT Light Rail project impacts on workers.

July 2015.

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Published by UnionsACT, 189 Flemington Rd, Mitchell 2911

UnionsACT acknowledges the traditional owners of the land and we pay our respect to elders, past and present.

Executive Summary

The ACT Government has proposed the introduction of a 12 kilometre Light Rail Transit (LRT) service along the Northbourne Avenue corridor. The Canberra light rail is intended to transform the Civic to Gungahlin suburbs, enhancing the quality of services and infrastructure for an increasingly liveable and connected city.

The proposal for a Canberra light rail service transcends existing, and even projected needs for transportation services alone. Rather the LRT service is designed as a transformative project for revitalising private sector economic and employment opportunities in Canberra, while enhancing workers' health, lifestyle, and engagement with their community.[1] Other benefits include private vehicle dependency reductions, improved equity, and enhanced land productivity.[2]

The LRT project is designed to generate jobs in two ways. Firstly during the construction phase from 2016 to 2018 it is expected that 3,560 jobs will be created for construction workers and support services.[3] Secondly, a range of knowledge economy and service sector jobs will be created through economies of agglomeration, as private sector firms cluster together in a networked corridor of businesses. This development of the corridor is expected to generate increasing numbers of jobs each year, with 1,830 positions in 2027 increasing to 5,000 positions in 2047.[4] Both the jobs created through the construction phase and the development of the corridor are designed to match employment opportunities with the groups of workers who are presently under or unemployed in the ACT.

The LRT project is a bold and visionary step toward diversifying the Canberra economy; one in which workers will be less reliant on the vagaries of public service employment policies. A successful project will see the Canberra economy expand and diversify as knowledge workers move into the attractive, connected and convenient Gungahlin corridor, and less skilled workers follow to provide support services (e.g. restaurants, entertainment and other services) for the new knowledge economy. For this project to be successful the ACT government will need to strategically co-ordinate land use policies to encourage effective development along the corridor.

The LRT project has been criticised by the Opposition on the basis that projected financial benefits will be outweighed by the costs of the government investment. However, criticisms have failed to take into account wider benefits that accrue from economies of agglomeration as high quality public transport and appealing amenity attracts and connects workers and places of employment. The most important of these benefits is significant private sector employment opportunities as the ACT economy is diversified.

1 Capital Metro, 2014.
2 Capital Metro, 2015. Chapter 14.
3 EY, 2014. p.2.
4 EY, 2014. p.2.


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Introduction

Public debate surrounding the proposed Civic to Gungahlin light rail transit (LRT) project for the ACT has focused on traffic congestion, commuter travel times and car parking.[5]

Critiques of the business case[6] have assessed the tangible, shorter-term benefits, with minimal acknowledgement of the broader effects of diversifying Canberra economy. Indeed, the business cases have been conservative in their capture of the wider benefits of transforming the suburbs from Civic to Gungahlin into a networked, efficient and productive urban corridor.

Analyses and comments have failed to take into account the necessity of attracting investment in private sector employment opportunities. This is required to reduce dependence on public sector employment in the territory. Transport infrastructure plays a central part in this transformation:

> *Urban transport infrastructure plays a key role in the Australian economy... Meeting the connectivity challenges that our nation faces will require governments to ensure optimum service delivery outcomes in the urban transport sector.*[7]

This report outlines how the LRT project is expected to transform Canberra, for a sustainable future. First, this report details the job creation opportunities to be expected from the LRT project. Second, the report explores wider benefits from building a light rail along the Northbourne Avenue corridor. Finally this report looks at criticisms of the proposed LRT service to understand the validity of these concerns.

5 See for instance, Belot, 2015; Lawson,2015
6 Arundell, 2015; Gordon, 2010; Nairn, 2014.
7 Infrastructure Australia, 2015. p.79.

1. Job creation

Ernst & Young (EY) conducted a study in May 2014 to understand the potential job creation benefits that will arise from a light rail transit (LRT) project in Canberra. There are two aspects to the expected job creation: jobs that are created as a result of the operation of the light rail, and jobs that are encouraged and supported by the development of a high density, innovative corridor.

Indeed, a significant component of the LRT project is the development of a revitalised, higher density, productive corridor. This is designed to encourage more productive land use, enhancing connectivity, as well as convenient access to both employment opportunities and consumer goods and services. These combined effects are being strategically planned to influence land use development, which will boost private sector innovations and employment opportunities in the long-term.

Construction of the light rail system is expected to take place in 2016, 2017 and 2018, employing a total of 3,560 workers. Ongoing employment for the light rail system is expected to total 125 per year from 2019 onwards. Jobs that will be directly and indirectly created by the operation of the LRT service will initially include construction, labouring, building trade, engineering, and management positions. Jobs for workers who support the construction workers will also be provided during the construction period, such as for those working in hotels, take-away food and service stations.[8] After construction is completed the operation of the LRT service will continue to sustain jobs in rail operation, retail trade and administrative support.[9]

EY has estimated that jobs generated by the development of the corridor will steadily grow, reaching 1,830 in 2027 and 5,000 jobs in 2047. These jobs are in addition to the jobs required to construct and maintain the light rail. Long-term jobs that are expected to be created as a result of the corridor development include professional services in scientific, technical, media, telecommunications, financial and insurance sectors, as well as accommodation, retail trade and food services.[10]

The EY projections of jobs from both construction and corridor development are summarised in Table 1 below.

Table 1: Projected job creation generated by light rail and corridor development [11]

Project component	Indicator	2017 (assumed peak year of construction)	2022 (mainly operation)	2027 (mainly operation)	2032 (mainly operation)	2037 (mainly operation)	2042 (mainly operation)	2047 (mainly operation)
Light Rail	Direct effect	725	55	55	55	55	55	55
	Industry effect	640	35	35	35	35	35	35
	Consumption effect	410	30	30	30	30	30	30
	Total	1,780	125	125	125	125	125	125
Corridor Development	Direct effect	130	550	960	1,380	1,790	2,210	2,620
	Industry effect	55	230	410	580	755	930	1,110
	Consumption effect	55	260	460	665	870	1,070	1,270
	Total	240	1,030	1,830	2,620	3,420	4,210	5,000

8 Capital Metro, 2015. p.322.
9 EY, 2014. p.18.
10 EY, 2014. p.18.
11 EY, 2014. p.2.

The patterns of job creation over time for light rail and corridor development are depicted in Figures 1 and 2.

During the construction phase 1,340 direct and indirect jobs will be created for light rail construction in 2016, 1,775 jobs in 2017 and 445 jobs in 2018. Thus, the building of the LRT is expected to generate demand for a total of 3,560 direct and indirect jobs over the three year construction period.[13]

The expected employment opportunities during the construction period for each of the top 20 occupation types has been identified by EY, see Figure 3.

A critical feature of this project is the matching of employment opportunities with groups of people who are experiencing under or unemployment. It is expected that the majority of jobs generated in the construction phase will provide employment for low-skilled workers. These workers are experiencing higher levels of unemployment in the ACT, so this project will address a Federal Government key policy objective of improving employment opportunities for low-skilled youth and indigenous groups.[15] In fact, approximately 40% of the jobs created by this project in 2017 are expected to require no more than year 12 high school certificate qualifications.

Figure 1: Light rail expected job creation[12]

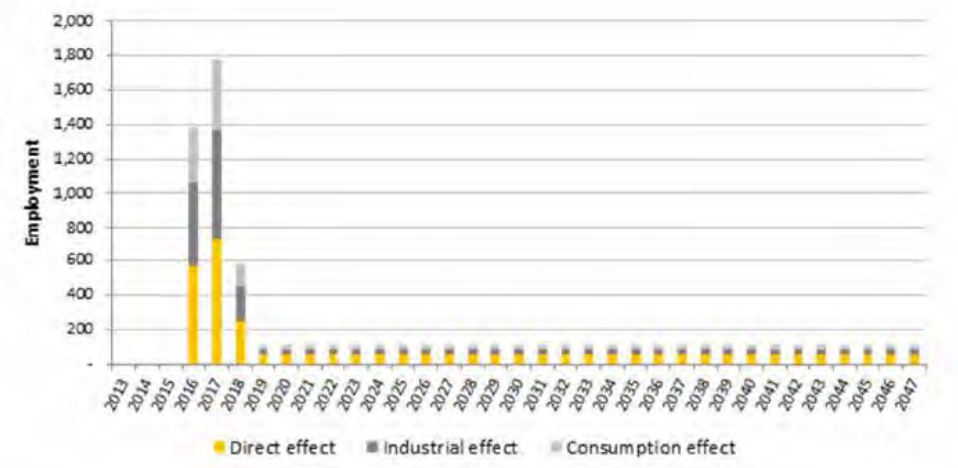
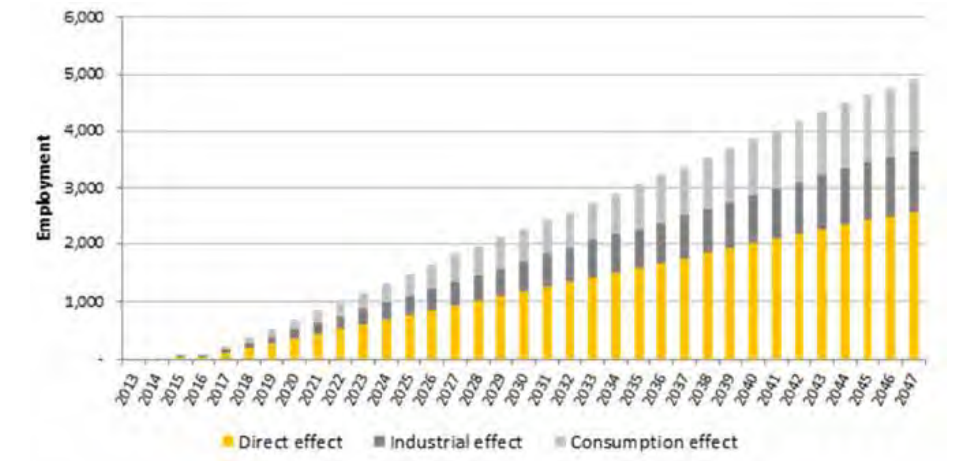


Figure 2: Corridor development expected job creation[14]



12 EY, 2014. p.17.
13 EY, 2014. p.2.
14 EY, 2014. p.17.
15 EY, 2014. p.12.

The LRT scheme construction will also generate jobs for higher-skilled workers with tertiary qualifications, who are another group of unemployed workers in the ACT. Approximately 25% of positions created by the LRT project are expected to require tertiary qualifications. Figure 4 below depicts both the current unemployment levels for groups according to their levels of qualifications, and the expected job creation for those groups in the years 2017 and 2022.

Therefore, the EY analysis demonstrates that significant job opportunities are expected to be generated by the LRT project. It is also noteworthy that the EY analysis estimates that between 50 and 60% of the jobs generated will be new positions in the ACT, with the remaining 40-50% of jobs displacing existing jobs in the ACT economy. This means that a substantial portion of the jobs will be creating new opportunities for unemployed ACT workers.

Figure 3: Job creation by top twenty occupations during light rail construction period[16]

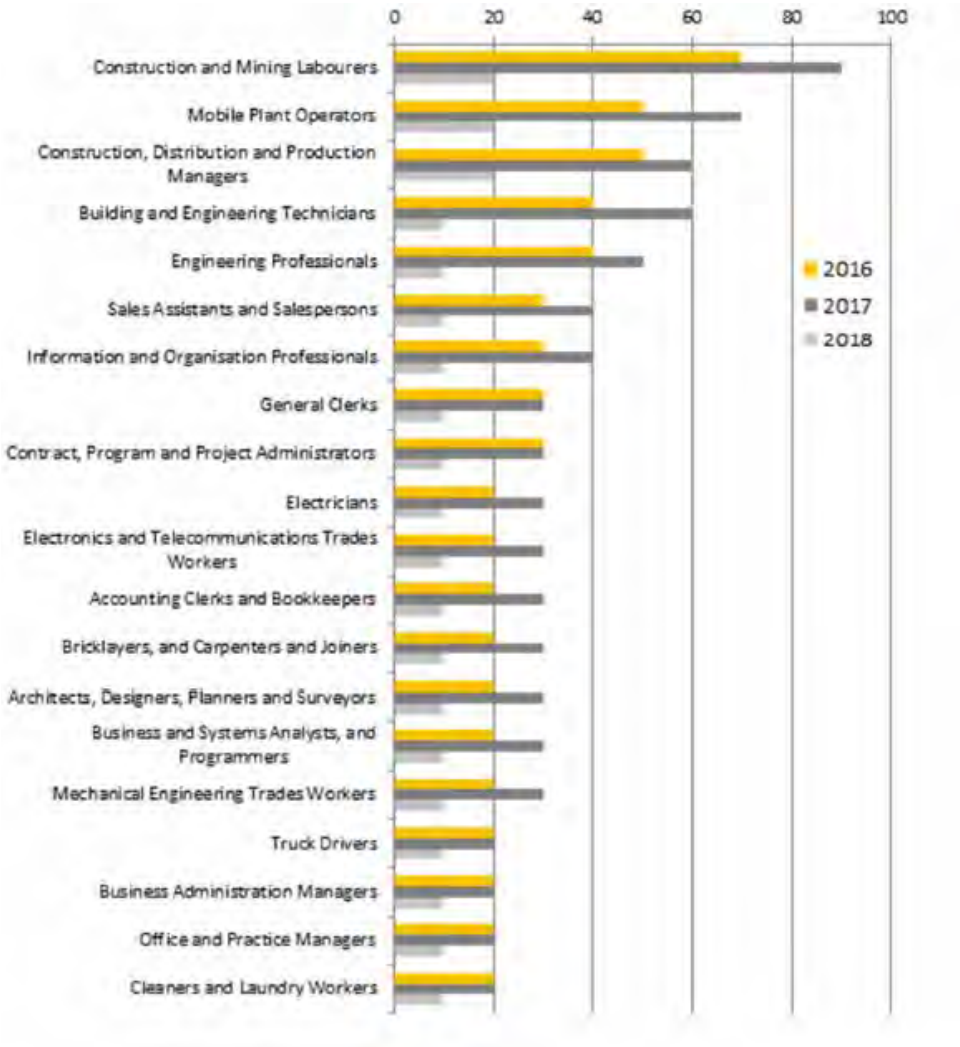
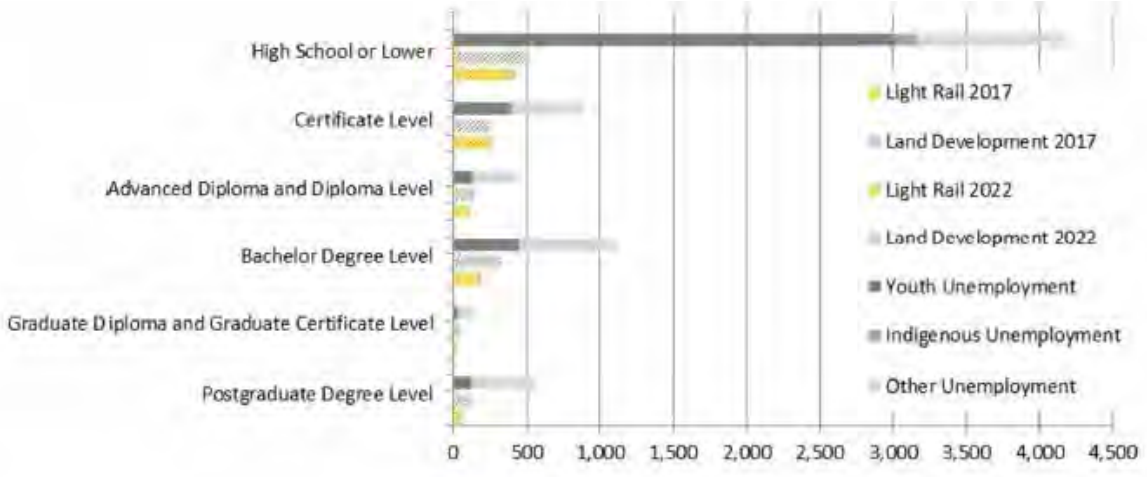


Figure 4: Combined current unemployment and projected job creation per qualification level.



16 EY, 2014. p.12.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2. Wider benefits

The ACT Government has proposed a transformative project to develop a productive corridor from Civic to Gungahlin. A key feature of this project is a 12 kilometre light rail transit (LRT) service. Five important types of wider benefits from developing a compact and efficient urban corridor with high quality public transport in close proximity to the city have been identified. These include:

- Agglomeration economies,
- Participation in the local economy,
- Reduced government costs of urban development,
- Health impacts for workers and
- Improved social equity.

2.1 Agglomeration economies

The project is designed to increase housing supply and density along the corridor, which will improve the accessibility of workplaces, services, and recreation facilities for workers.[17] High density living and working spaces are critical for agglomeration economies, where high tech, or other knowledge-based workers cluster or agglomerate with similar workers.[18] Indeed, well-designed, high density urban spaces can improve positive community interactions and reduce social problems.[19] Social cohesion is strengthened as the physical environment is more attractive and appealing and workers can readily connect with services, social activities and, in particular, employment opportunities.[20]

Increased opportunities for face-to-face interactions facilitate the sharing of skills and improve social capital.[21] As Peter Newman from Curtin University has stated:

> *[Agglomeration economies] is the main reason why high value jobs are mostly available where there is high density urbanism.*[22]

Therefore,

> *The key to the new economy based on transactions between knowledge/services professionals is the ability to meet and interact.*[23]

In turn, the labour supply will be enhanced as workers have improved access to better jobs, with requisite improvements in the productivity and efficiency of workers in the area.[24] It has been proven that cities with efficient transit infrastructure create more wealth as less resources and time are wasted on workers commuting.[25] Thus, transport is a critical component of agglomeration economies; a lack of investment in transport infrastructure would diminish potential opportunities for connections that support a productive knowledge/service-based economy.[26]

2.2 Participation in the local economy

The development of a compact and efficient corridor enhances the convenience of access to local services, such as restaurants, entertainment and small retailers. This can become a virtuous cycle, as entrepreneurs are drawn to establish businesses along the corridor, with improved viability of businesses in the area.[27] Businesses are attracted by the certainty of investment, as light rail stops are fixed and long lasting.[28] This in turn creates and supports ongoing employment of local residents. Local residents spend their money locally on restaurants, recreation, entertainment and other services, which supports the creation of more jobs. This supports growing vibrancy in the area, attracting customers from further afield, who spend money in the corridor, further supporting the local economy.[29]

2.3 Reduce government costs of urban development

By increasing the urban density the land will have improved productivity and energy efficiency.[30] It is more costly for governments to build and maintain infrastructure for fringe suburban dwellings, than it is for higher density, urban residences.[31] These costs for governments include building and maintaining infrastructure and amenities including roads, public transport services, schools, health services, gas, electricity, telecommunications, and water services.

17 Capital Metro, 2015. p.321.
18 Kane, 2012. p.7.
19 Newman, 2014. p. 6478.
20 Capital Metro, 2015. p.323.
21 Newman, 2014. p.6479.
22 Newman, 2014. p.6479.
23 Newman, 2012. p.4.
24 Capital Metro Authority, 2015. p.321.
25 Newman, 2012. p.1.
26 Kane, 2012. p.8.
27 Capital Metro Authority, 2015. p.322.
28 Newman, 2012. p.4.
29 Newman, 2014, p.6479.
30 Capital Metro Authority, 2015. p.350.
31 Newman, 2014. p. 6479.

A scholarly study conducted in 2008[32] estimated that upfront government infrastructure investments cost 2.7 times more for fringe developments than for infill in inner city developments in Perth, Western Australia. Car and road transportation costs (including time, transit and externalities) for inner city and fringe dwellers compare similarly, with annual transport costs calculated to be 2 times higher for fringe development than infill in inner city areas.

Furthermore, a study conducted by the Centre for International Economics in 2010 found that providing infrastructure for urban infill developments costs 7-12% less than for fringe developments in Sydney, New South Wales. The reason for lower estimated differences than the Trubka, Newman and Bilsborough study found are explained by lower education and health cost estimates in outer areas of Sydney than Perth, as per estimates from the NSW Departments of Education and Health.[33]

The important finding from both studies is that fringe developments cost more for governments to supply, but are less valued by householders, who tend to pay less for dwellings that are further from workplaces, less convenient and accessible with less infrastructure and amenity.[34] Therefore the ACT Government proposal to improve the transport infrastructure, amenity and liveability for workers and families along the Gungahlin corridor will cost less to produce than fringe dwellings, and be more highly valued by householders. This will also create property wealth that is not necessarily captured by government analyses of the business case.

2.4 Health impacts for workers

Studies have found that not only are people more likely to use light rail than bus services, but they are willing to walk further to access light rail. Light rail stops are more easily integrated with high quality amenity, including pedestrian accessibility, than bus stops, making them more popular and appealing to use.[35] Respondents in a SMEC study found that workers are willing to walk up to 200 metres from their home to a bus stop, but will walk 800 metres from their home to a light rail station.[36] This means that a worker who catches light rail could walk up to 3 kilometres per work day, compared to someone catching a bus walking less than 1 kilometre for their commute, or a person driving in their private vehicle who may walk very little to complete their commute.

Workers who have transportation routines that require them to be active enjoy health benefits that enhance their quality of life and productivity at work. One study estimated that transforming a community from car-based to active commutes to and from work could save the government $4.2 million over 50 years in health-related costs alone for one community. This calculation has not taken into account additional benefits from enhancing workers' productivity by workers being more active.[37]

Workers' and residents' health will also be positively impacted by the reduction in pollution from petrol and diesel vehicle emissions, as people use electric light rail instead of private vehicles or buses. It has been shown that vehicle emissions, including carbon monoxide, ozone and nitrogen oxide increase the risk of cardio-vascular and respiratory diseases (such as asthma) and bronchitis.[38]

Furthermore, by commuting to work on an accessible and high quality light rail system, workers are likely to have a more reliable and less stressful journey than using private vehicles. Light rail is more reliable, a smoother ride and routes and timetables are more easily understood than the public transport alternative of buses.[39] These reductions in commuting stress will have significant impacts on coping and tolerance levels and thus the way workers interact with other people and their city.[40]

2.5 Improved social equity

Access to quality public transport systems is an important social equity consideration as different levels of access will impact the opportunities that are available to individuals.[41] A light rail system along the Gungahlin corridor will improve equity for residents along that corridor; in particular, reliable and convenient transport will be available for those who do not own cars or are mobility impaired.[42]

32 Trubka, Newman, & Bilsborough, 2008. p.2.
33 Centre for International Economics, 2010. p.22.
34 Centre for International Economics, 2010. p.18.
35 Scheurer, Newman, & Kenworthy. 2012. p.18.
36 SMEC Australia, 2013.
37 Trubka, Newman, & Bilsborough, 2008. p.2.
38 BTRE, 2005.
39 Scheurer, Newman, & Kenworthy, 2012. p.17.
40 Bissell, 2015.
41 Infrastructure Australia, 2015. p.58
42 Capital Metro Authority, 2015. p.323.

3. Criticism of Canberra light rail project

Bob Nairn Consultant Pty Ltd has conducted a critical assessment of the Capital Metro Authority (CMA) full business case for the light rail transit (LRT) project.[43] The criticisms of the Nairn report will be assessed in this section.

In broad terms Nairn's report supports the CMA cost projections, and when compared with the Gold Coast light rail cost projections, both estimates seem reasonable.[44] Therefore the cost projections provided by the CMA are credible and not disputed by Nairn.

On the benefit side Nairn adopts different assumptions and methods for compiling total projected benefits; however he reaches similar conclusions to the CMA full business case, particularly with regards to the estimated direct benefits. Nairn criticises the indirect benefits adopted by CMA and disagrees with the inclusion of expected land use outcomes as an indirect benefit. The CMA full business case includes $381 million in land use benefits and Nairn only includes $12 million in expected land use benefits. Therefore the biggest discrepancy between the CMA and Nairn approaches is that CMA estimates there will be approximately $500 million in wider benefits and Nairn estimates there will only be approximately $25 million in wider benefits.

43 Nairn, 2014.

44 The CMA LRT budgeted cost is $610M for 12km, with $173M contingency, total = $783M, or $65M per km. At current exchange rates (1 AUD = 0.79 USD) and converted to miles (8/5), this equates to USD$82.16M per mile. The best data point provided by the CMA full business case is the Gold Coast LRT cost of $949M for 13km of line (CMA Full Business Case, p.82), for a cost of $73M per km. Gold Coast costs were higher because they included $170M of land acquisition costs, far higher than required in Canberra; 16 stations rather than 13; a higher order maintenance facility; and more difficult construction, including a major river crossing. The ACT LRT has clear advantages in being relatively straight and flat, with the land largely being available and no material bridges required.

It could be said that the Nairn report misses the point. The light rail is being introduced to Canberra to transform the city from having an economy dependent on Commonwealth public service employment, to a diversified economy with employment available across a range of high-skill/ knowledge and lower skill jobs.

Scholars and practitioners have found that the introduction of light rail services has far greater benefits than the continuation of bus services. These benefits have not been incorporated into Nairn's business case:

> *[Light Rail's] main advantages turn out to be what are often considered to be disadvantages — its high cost and inflexibility. In political terms, these attributes give it a high profile as a symbol of commitment in the early stages, and make it a confident, futuristic symbol of the city when it is implemented. Inflexibility becomes redefined as 'security' — the population is confident that change of political power or financial situation will not result in the new system being taken away from them, and can therefore plan their lives knowing that the system will be there in the future.[...] Therefore it remains the mode of choice as an instrument for strategic transformation of urban transport in cities led by confident and forward-looking administrations who understand the concept of integrated transport planning. By the same argument, the main disadvantages of relying on conventional buses are what are usually assumed to be advantages — its cheapness and flexibility.'*[45]

45 Hass-Klau, 2003. P.5.

By way of example, the 13 kilometre light rail service in the Gold Coast, completed in 2014, has already attracted $6 billion in investments, with 36 major developments approved so far. Investors have committed to building tourist accommodation, residential apartments and renovations of shopping complexes and the Jupiters casino proximate to the light rail service.[46]

In other examples, long sighted governments globally have been introducing light rail, including for the capital cities of the United States and Canada. Light rail was introduced to Washington DC in 1976 and has had a transformative effect on housing and employment patterns, supporting the diversification of employment, resulting in an economy less reliant on public service positions.[47]

Another relevant example is the case of Ottowa, the capital city of Canada. An efficient and comprehensive busway system was introduced in Ottowa in the 1980s. This was a successful approach for solving congestion issues in the short term; however it was never successful in meeting the government's urban intensification objectives. Instead, to increase urban infill the Ottowa government forced urban densification policies through regulations, which were begrudged by developers and not widely accepted. In 2008 the government made the decision to replace the busway system with light rail to resolve increasing congestion and town planning issues.[48]

46 Weston & Potts, 2015.

47 Scheurer, Newman, & Kenworthy, 2012. p.19.

48 Scheurer, Newman, & Kenworthy, 2012. p.19-20.

Nevertheless, critics of the LRT project and the CMA business case have concluded that improvements in bus services will be adequate for Canberra.[49] Indeed, scholars have concluded that:

> *'From a perspective of international best practice, bus solutions cannot conceivably achieve similar results in passenger growth, sustainability outcomes and urban consolidation as rail solutions along a the most critical transport and activity corridors of a fast-growing metropolis.'*[50]

A summary of other discrepancies in the Nairn report is provided below:

- Construction costs are calculated on the basis of per kilometre costs of AUD$44.22M, for 12kms. Nairn concludes that construction costs are $915M, or $799.92 for track and station, yet 12kms*$44.22M = $530M. This miscalculation results in Nairn concluding that the project has a substantial negative net present value.
- Nairn assumes that annual time saved by all travellers as a result of the LRT service will be approximately 3 times higher than the CMA estimates, yet uses a cost of that time saved of approximately half the CMA rate. These discrepancies are unexplained, but result in a total estimate of savings by Nairn of $343.23M, which is higher than the CMA estimate of $222M.[51]
- Rolling stock in the Nairn analysis is based on an estimate of $4.81M per vehicle for 14 vehicles = $67.31M. However, Table 6 calculates rolling stock as $22.46M.
- Nairn adopts a build timeframe of 2 years, yet the actual build assumption is 3 years.

49 Arundell, 2015; Gordon, 2010; Nairn, 2014.

50 Scheurer, Newman, & Kenworthy, 2012. p.16.

51 The CMA Full Business case (p.92) values time at the following rates - $17.3 p/h for public transport users, $19.10 p/h for car users and $53.95 p/h for commercial vehicles. These values help contribute $222M of present value of the transport benefits. By contrast Nairn (p.9) values this time at its resource cost estimate of $12.25 p/h. Thus even if the assumed time savings were the same, the Nairn time value would roughly halve the time benefit. Despite this, Table 6 of the Nairn report (p.12) shows time as the major saving, with a figure of $343.23M (higher than the $222M).

4. Conclusion

It is not possible to adequately capture up front the full gamut of benefits that can accrue from governments investing in big, bold visionary projects. As with the building of the Sydney Harbour Bridge in the 1920s and, more recently, the Gold Coast light rail, government commitment to long term transport infrastructure can influence more than just people's transportation habits.

The Ernst and Young analysis of job creation has concluded that tens of thousands of jobs will be generated in the decades following the establishment of a productive, high capacity, high quality light rail corridor from Civic to Gungahlin. The light rail is a visionary and enterprising commitment to diversifying the Canberra economy by attracting private firms and a range of workers to a high density, superior amenity corridor.

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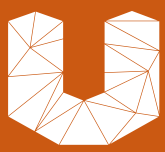

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