



Office of Hon Simon Bridges

MP for Tauranga

Minister for Economic Development

Minister of Transport

Minister for Communications

Deputy Leader of the House

Associate Minister of Finance

20 JAN 2017

Andrew Riddell

fyi-request-5065-e588611c@requests.fyi.org.nz

Dear Andrew

I refer to your request received on 6 December 2016, pursuant to the Official Information Act 1982, for:

"...a complete unredacted copy of the Briefing to the Minister of Transport titled 'Cost and Financing of Light Rail Projects' dated 5 February 2015."

The document you have requested is enclosed. Certain information in this document has been withheld under section 9(2)(a) of the Official Information Act, which relates to the privacy of natural persons.

With respect to the information that has been withheld, I do not consider there are any other considerations which render it desirable, in the public interest, to make the information available. You have the right under section 28(3) of the Official Information Act to make a complaint about the withholding of information to the Ombudsman.

Yours sincerely

Hon Simon Bridges
Minister of Transport

COST AND FINANCING OF LIGHT RAIL PROJECTS

Reason for this briefing	You have requested information on the costs and financing of light rail projects overseas.
Action required	Note the contents of the briefing.
Deadline	At your discretion.
Reason for Deadline	This briefing is for your information only. No decisions are required.

Contact for telephone discussion (if required)

Name	Position	Telephone		First Contact
		Direct Line	After Hours	
Matthew Ireland	Adviser	09 985 4864		
Hamish Bunn	Principal Adviser	09 985 4828	██████████	✓
Martin Glynn	Director Auckland	09 985 4829	██████████	

Withheld under section 9(2)(a)

MINISTER'S COMMENTS:

Date:	5 February 2015	Briefing Number:	OC02836
Attention:	Hon Simon Bridges	Security level:	In-Confidence

Minister of Transport's office actions

- | | | |
|---------------------------------------|---|--|
| <input type="checkbox"/> Noted | <input type="checkbox"/> Seen | <input type="checkbox"/> Approved |
| <input type="checkbox"/> Needs change | <input type="checkbox"/> Referred to | |
| <input type="checkbox"/> Withdrawn | <input type="checkbox"/> Not seen by Minister | <input type="checkbox"/> Overtaken by events |

OFFICIAL INFORMATION ACT

Purpose of report

1. The purpose of this report is to provide you with information about the costs and financing of light rail projects, following Auckland Transport recently signalling it is investigating a potential light rail network for Auckland.

Light rail capital costs

2. The capital cost of light rail (cost of construction and vehicles) varies considerably from project to project depending on a number of factors including:
 - design factors; such as the degree of vehicle separation between the light rail route and the road corridor, and the number of vehicles and stations
 - the nature and topography of the route; particularly whether bridges or tunnels are needed
 - whether underground utilities, such as sewage pipes and power lines, need to be relocated.
3. While these factors make it difficult to make cost comparisons between projects, we have identified some cost estimates from the following sources.
 - The 2012 *Wellington Public Transport Spine Study*, which found that the capital costs of light rail projects typically range from between NZ\$12 million and NZ\$141 million per kilometre (see Annex A).
 - The World Bank, which estimates an average cost of around NZ\$45 million per kilometre.
 - *The [Auckland] City Centre Future Access Study*, which found that light rail typically costs around NZ\$50 million per kilometre, based on the Australian experience.
4. We have also identified the capital costs of some recent Australian projects which provide a good basis for comparison for New Zealand. Table 1 below compares these projects with the first stage of the proposed Auckland light rail network.

Table 1 - Light rail capital costs

City	Project outline	Approximate capital cost per kilometre	Total capital cost
Auckland	<p><i>Auckland light rail proposal</i></p> <p>The first stage would be approximately 10 kilometres long, running from Wynyard Quarter to Britomart, up Queen Street and along Dominion Road. The project would include the cost of tracks, stations and vehicles.</p> <p>Auckland Transport's preferred timing is unclear, but it has indicated to us that it aspires to build the first stage very quickly, potentially on Queen Street by 2017 in time for the World Masters Games, followed by Dominion and Sandringham Roads by 2022.</p>	Around NZ \$100 million	<p>Around NZ \$1 billion</p> <p>(as indicated in the NZ Herald by Auckland Transport Chairman, Dr Lester Levy)</p>

City	Project outline	Approximate capital cost per kilometre	Total capital cost
Gold Coast	<p><i>G: link - Gold Coast Light Rail (Stage 1)</i></p> <p>A 13-kilometre line which connects Southport, Surfers Paradise and Broadbeach. The project comprises 16 stations and two bus interchanges.</p> <p>Stage 1 became operational in July 2014.</p> <p>Preliminary consideration of a potential Stage 2 of the light rail network is currently underway (to complete a 40-kilometre network).</p>	<p>A\$73 million</p> <p>(NZ\$77 million)</p>	<p>A\$949 million</p> <p>(NZ\$1 billion)</p>
Sydney	<p><i>Inner West Light Rail</i></p> <p>The first step in the New South Wales Government's plans to extend light rail in Sydney. The 5.6-kilometre line runs along a former freight rail corridor, adding nine new stations between Lilyfield and Dulwich Hill.</p> <p>The project opened in March 2014.</p>	<p>A\$31 million</p> <p>(NZ\$33 million)</p>	<p>\$176 million</p> <p>(NZ\$185 million)</p>
Sydney	<p><i>CBD and South East Light Rail</i></p> <p>A 12-kilometre line from Circular Quay to Kingsford and Randwick. The project will include 19 new stations, a bridge and a tunnel.</p> <p>Construction is expected to start in late April 2015 and open by 2019.</p>	<p>A\$176 million*</p> <p>(NZ\$184 million)</p>	<p>A\$2.1 billion*</p> <p>(NZ\$2.2 billion)</p>
Canberra	<p><i>Capital Metro (Stage 1)</i></p> <p>Stage 1 will be a 12-kilometre line connecting the City to Gungahlin. The project will include 13 new stations.</p> <p>Construction is scheduled to start in 2016 and the project is expected to be operational by 2019/2020.</p>	<p>A\$51 million</p> <p>(NZ\$54 million)</p>	<p>A\$783 million</p> <p>(includes A\$173 million contingency)</p> <p>(NZ\$824 million)</p>

All NZD figures are taken as at exchange rate on 5 February 2015.

* Sydney's *CBD and South East Light Rail* is expected to be around A\$600 million over the original budget of A\$1.6 billion. Delays during construction are also expected. One of the key contributors to these issues is the need to move some 2000 subterranean services, cables and pits throughout the city centre.

5. We think the Gold Coast project probably represents the best comparison for the Auckland proposal as the length of the route and characteristics of the surrounding urban form are similar. This suggests that the figure of NZ\$1 billion provided by Auckland Transport for the first phase of the proposed Auckland light rail network is probably a reasonable estimate.

Light rail operational costs

6. The operational costs for light rail reflect the technology used, vehicle types and level of patronage.
7. Reliable data on the typical operational costs of light rail projects is difficult to obtain. However, based on the information we have been able to obtain, it appears operational costs for a light rail line similar to the Auckland proposal are often between NZ\$20 million and NZ\$40 million per year.
8. Per passenger, operating costs for light rail can be lower than buses given their larger carrying capacity. However, patronage needs to be close to vehicle capacity for this to be achieved.
9. Modelling undertaken for *the City Centre Future Access Study* indicated that the required level of demand to make a light rail network an attractive option in Auckland is around 25 years away.

Financing light rail

10. Many light rail projects overseas have been delivered through public private partnerships (PPP). PPPs have primarily been utilised to: provide greater cost certainty/efficiency, transfer some risk to the private sector, and take advantage of industry expertise.
11. Australian light rail PPPs have typically involved a consortium of private sector parties to finance, design, build, operate and maintain a light rail network for a contracted period of time. In some instances, the consortium, along with other private sector partners, provides equity to fund the initial stages of capital construction before debt financing occurs. The private sector consortium is then typically paid back in stages, with interest, by the contracting government, often beginning at the conclusion of capital works.
12. We understand that Auckland Transport is considering a form of financing involving private investment so that it will not need to pay anything for at least the first five years. While more details about this financing approach have yet to be revealed, we would expect this type of arrangement to simply defer the payments of capital plus accumulated interest costs until a later date.
13. Table 2 overleaf outlines how recent Australian light rail projects have been financed.

Table 2 - Financing of Australian light rail projects

City	Project	Financing
Gold Coast	G: link - Gold Coast Light Rail (Stage 1)	<p>The project was delivered through two packages of work.</p> <p>Package 1 - Government-funded early and enabling works including roadworks and relocation of public utilities.</p> <p>Package 2 - An 18-year operator franchise PPP agreement between the Queensland State Government and a private sector consortium to finance, design, build, operate and maintain the light rail network.</p>
Sydney	Inner West Light Rail	<p>The project was delivered by a PPP where a private company was contracted by the New South Wales Government for the detailed design and construction of the main infrastructure elements of the project.</p> <p>From mid-2015, ALTRAC Light Rail consortium (the same consortium responsible for the Sydney CBD and South East Light Rail project) will have responsibility for running the Inner West Light Rail Line.</p>
Sydney	CBD and South East Light Rail	<p>The project will be delivered through two packages of work.</p> <p>Package 1 - limited early works delivered by a managing contractor primarily undertaking relocation of utilities, particularly subterranean utilities.</p> <p>Package 2 - A PPP for the financing, design, construction, operation and maintenance of the new light rail line.</p>
Canberra	Capital Metro	<p>The project will be delivered using a PPP with a term to cover construction plus 20 years of operations. A private sector consortium will finance, design, build, operate and maintain the light rail system.</p> <p>Under the PPP, the Australian Capital Territory Government will start making 'availability payments' when the system is fully operational. Payments will continue over the agreed operating term and take into account capital delivery, operating and financing costs. The size of these annual payments will be known at the conclusion of the procurement process.</p>

Matthew Ireland
Adviser

Martin Glynn
Director Auckland

MINISTER'S SIGNATURE:

DATE:

Annex A – Costs of various light rail projects

Location of light rail line	Approximate capital cost per kilometre
Bremen, Germany	NZ\$16.7 million
Karlsruhe, Germany	NZ\$29.4 million
Bergen, Norway	NZ\$46.4 million
Dublin, Ireland	NZ\$56.9 million
Eindhoven, Netherlands	NZ\$11.6 million
Rouen, France	NZ\$50 million
Edmonton, Canada	NZ\$11.5 million
Minneapolis, USA	NZ\$44.8 million
San Diego, USA	NZ\$25 million
San Francisco, USA	NZ\$28.6 million
Seattle, USA	NZ\$275 million (included bus tunnel)
St Kilda, Melbourne, Australia	NZ\$19 million
World Bank estimate	NZ\$45 million

Source: *Wellington Public Transport Spine Study, 2012*