

NP2000

A ZERO CARBON PPP LIGHT RAIL TO GREATER CURTIN

Research Question

This research will develop a model for delivering rail transit infrastructure using a build, own, operate and finance public-private partnership, funded by land development. A proposed light rail route in Perth will be used as a case study, running from Curtin University, through the Perth CBD to Scarborough Beach. This light rail will run on solar-powered batteries – catenary-free and zero-carbon.

Figure 1: Catenary-free light rail line.



Methodology

The study will proceed as follows:

- Identification of key land parcels for regeneration/infill development. Cadastral data has been requested from the Western Australia Government's land ownership register.
- Estimation of the value uplift of the new line, and potential profitability of the line. Rail infrastructure has been shown to generate land value uplifts

by numerous studies, both in Australia and internationally.

- Development scenarios, based on principles of transit oriented development design principles.
- Investigation of the powers of various Western Australia Government agencies to acquire land, and to levy charges on property owners, and to raise revenue for this purpose.
- The feasibility of a zero-carbon, catenary free light rail will be determined by investigating the power requirements of contemporary light rail vehicles, and the capacity and cost of emerging solar and battery technology. Much of this research is already being undertaken at CUSP.

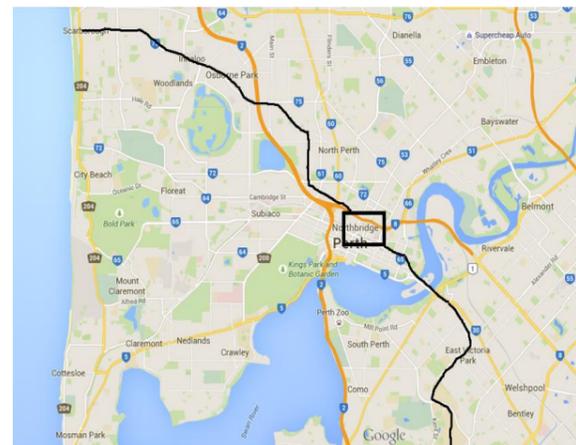


Figure 2: Indicative light rail alignment.

Results

Previous studies, both Australian and international, have shown that rail infrastructure increases the value of the

land that it services (for example, McIntosh et al. 2013). This study proposes a method for capturing this value for the purpose of funding the infrastructure (value capture).

The State and local governments, and a variety of statutory authorities, have the power to acquire land for the purpose of public works in Western Australia. This includes the power of compulsory acquisition. This power is regularly used by Main Roads WA for the purposes of highway construction.

In Perth, a mechanism exists for raising funds for the purposes of government acquisition of land. The Metropolitan Region Improvement Tax (MRIT) is a land tax levied on commercial and residential investment properties within the metropolitan region. There is recent precedent for using the MRIT for public transport-based developments, in that its funds were used to purchase the site above Perth Underground Station, built as part of the Mandurah Line development. This site was developed as a 20-storey office building and is currently occupied wholly or predominantly by government departments (Western Australian Planning Commission 2007).

Initial investigations and prior work have found support among local governments for light rail development along the proposed route. The route would pass through the proposed Stirling City Centre, which the local authority has planned as a major redevelopment precinct.

Conclusions

The state's primary role in a land development-based PPP is to assist with land assembly and supply. There are the necessary land acquisition powers, and an appropriate funding source in the MRIT,

Anticipated Impacts

Developing a workable model for private rail delivery funded by land development would significantly increase total funding available. Public funding of rail infrastructure would be multiplied with profit-seeking private capital. This is essential at a time when there is growing demand for rail infrastructure but heavily constrained public finances.

Curtin University's Bentley campus is already at capacity for parking during the day and is serviced by slow and indirect public transport connections. The Greater Curtin vision cannot be achieved without a high capacity public transport link. Current government finances make it difficult for this project to be funded within the required timeframe. The funding developed in this research could enable the light rail to be funded.

Contact

Sebastian Davies-Slate

Curtin University Sustainability Policy (CUSP) Institute

042 66 77 944

Sebastian.Davies-Slate@curtin.edu.au