

NP2004

A ZERO CARBON PPP LIGHT RAIL TO GREATER CURTIN

Research Question

This research will develop a model for delivering public transit rail 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: Curtin-Stirling Light Rail

Methodology

The study will proceed as follows:

- Identify key land parcels for re-development, using data from the Western Australian Government's land ownership register.
- Estimate the value uplift of the new line, and its potential profitability. Rail infrastructure has been shown to generate land value uplifts by numerous studies, both in Australia and internationally.
- Develop land use scenarios.
- Review international case studies of

rail and land co-development, and development-funded private contributions to the cost of rail.

- Review the legislative framework under which Perth's tramways were built, and the commercial activities that helped fund it.
- Investigate the powers of various Western Australian Government agencies to acquire land and levy charges on property owners.
- Investigate the power requirements of contemporary light rail vehicles and the capacity and cost of solar and battery technology.

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 harnessing this value uplift to fund the infrastructure.

This value uplift was exploited in the first generation of railways around the world. The entrepreneurial approach to railway building is still practiced in East Asia. This has included new town developments designed to promote passenger flow in the opposite direction from the city centre commuters.

Surprisingly, this same form of entrepreneurial railway building was to be found in early twentieth century Perth, with the tramway company building hotels and even public baths at the end of one of its lines. This resulted in a substantial tram network in the city.

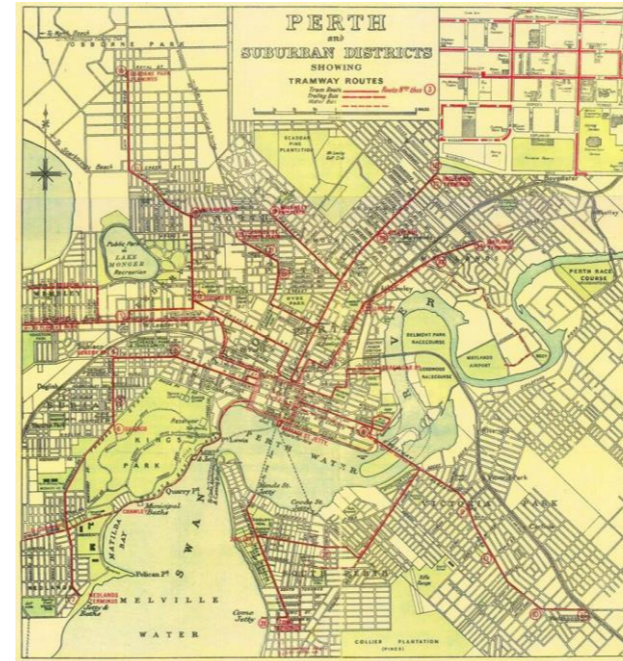


Figure 2: Perth historical tram network.

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. (Western Australian Planning Commission 2007).

Conclusions

Entrepreneurial railway building has a long history, but is no longer practiced in Australia. However, international case studies, historical precedents, large areas of under-developed urban land and estimates of rail construction costs all suggest that it is possible to re-introduce this model of rail building.

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