Riverline

Department of Infrastructure, Energy and Resources

Wider Economic Benefits and Funding Options

Final Report

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pwc

Tasmanian Government

Contents

1 Introduction

PwC has been engaged by the Department of Infrastructure, Energy and Resources to prepare this assessment of wider economic benefits related to a potential light rail line to improve transport options in Hobart's northern suburbs.

1.1 The Hobart Light Rail proposal

The Hobart Light Rail (HLR) project proposes the development of a light rail system along the existing freight rail corridor in Hobart. The HLR involves the development of a:

- 12 km light rail service from the Hobart CBD to MONA in Stage 1. This is dependent on a highly frequent, reliable and comprehensive feeder bus service to improve access to the light rail for people living in the further northern suburbs.
- 16 km light rail service from MONA to Brighton in Stage 2
- 1.5 km extension to North Hobart in Stage 2

While conventional transportation benefits such as travel time savings form part of the proposal, the HLR aims to generate a range of Wider Economic Benefits (WEBs) beyond the conventional benefits. Determining the beneficiaries of these WEBs will highlight potential funding options for the proposal.

1.2 Wider economic benefits

Wider Economic Benefits (WEBs) are economic effects which are not routinely included in conventional transport economic appraisal (CTEA). A review of publicly available CTEAs for Australian light rail schemes indicated that:

- Unlike conventional public transport projects, light rail is unlikely to be justified solely on the basis of (unweighted) travel time savings. This is because bus improvements can achieve similar travel time savings at a much reduced cost. The additional capital cost of any light rail project is typically justified on the basis of changes in *perceived* amenity and travel time. More work needs to be done in the HLR case to quantify these perceived benefits. The outcomes might then inform specific aspects of the project such as a focus on ride quality, customer information or reliability.
- Very few of the appraisals captured a larger number of benefits which are light rail specific, including potentially capturing the impacts on non-users and/or non-motorised modes and WEBs.

The HLR project forms part of a holistic approach to reducing car dependency in Hobart and improving a range of outcomes beyond the conventional transportation benefits. The proposal seeks to leverage transportation infrastructure to improve economic, social and environmental outcomes in Hobart. More specifically, the proposal seeks to:

- Improve the economic performance of Greater Hobart by stimulating the growth in the scale and diversity of the Hobart CBD;
- Improve social equity within Greater Hobart by:
  - Improving access options to the Hobart CBD for people who are ageing, the youth and people who have low incomes or are from a low socio-economic background.
  - Acting as the catalyst for denser development along the ‘corridor’ which will provide more suitable housing for all Hobartians.
- Reduce the environmental impact of transportation in Hobart by providing a more sustainable form of transportation; and

- Improve the long term resilience of Hobart by reducing the city's car dependency and by stimulating economic development in the innovation economy which will diversify Hobart's economic base.

It is therefore important to develop an understanding of the potential WEBs that could be generated by the HLR in light of the project's broad economic, social and environmental goals.

The outcome of this review indicated potential for returns to increasing the number of light rail specific and WEBs with the HLR. However, this is contingent on a number of specific conditions for WEBs and funding realisation.

1.3 Funding options

Funding options in the context of the HLR proposal are the mechanisms through which the project can be funded. The funding options could be specific to either or both the capital and operational costs of the project. For example some funding options will raise a one-off funding stream that is relevant to the capital expense of the project and some will raise ongoing revenue that could contribute to (or completely fund) the project's ongoing operational costs.

The analysis of funding options is interlinked with WEBs analysis as options for funding should be linked to the beneficiaries of transport improvements. These beneficiaries can be called on to contribute (directly or indirectly) to the funding of the project. The mechanisms described and assessed in this report are:

- Voluntary contributions
- Transport levy – property or business
- Transport levy – parking
- Developer contributions
- Transit joint development
- Tax increment financing
- General tax or levy – State-wide
- General tax or levy – local
- Purchase and sale of public land
- Sale of Advertising

1.4 Report structure and analysis approach

This analysis of WEBs and FO is structured as follows:

- **Chapter 2** defines the concept of WEBs in terms of the effects which are not routinely captured in conventional transport economic appraisal (CTEA). The focus is on broadening the base of benefits in light of the range of non-transport outcomes expected with the HLR. In this chapter:
  - A 'WEBs matrix' is also presented which lists and defines potential WEBs, explains the way that each WEB improves the well-being of the community and identifies the conditions under which the likelihood of WEBs realisation is maximised.
  - The 'community' benefitting from WEBs is defined broadly to include potential light rail users, other road users and importantly, non-users and the general public. Again, this broad definition responds to the non-transport outcomes expected with HLR.

  - The 'WEB conditions' provide a baseline against which the likelihood that a WEB will be realised is assessed, given the land uses featured in the transit corridor. Identifying the land uses in the HLR corridor also provides an indication of the many challenges that the Tasmanian Government faces in implementing the public transport vision outlined in its Urban Passenger Transport Framework (UPTF).[1]

    However, these challenges also point to opportunities and the 'conditions' for WEBs realisation where it can be shown that HLR is part of the solution. Therefore, high level commentary is provided on the land uses and problems featured in the HLR corridor.

- **Chapter 3** presents a 'WEBs realisation matrix' which compares the findings of the land use/problem statement with the WEBs conditions in the 'WEBs definition' matrix. The outcome of this process is commentary on the potential existence of a WEB to the extent to which the HLR could address a WEB specific problem. Comment on the materiality of the WEB would require further quantitative analysis.

  The outcome of the WEB realisation matrix provides an important insight into the potential funding models. By identifying the types of problems that could be addressed, the matrix also defines the type of value created and who the key beneficiaries are. This information is used to identify a range of funding sources.

- **Chapter 4** considers some mechanisms through which the beneficiaries of transport improvements could contribute (directly or indirectly) to the funding of the project. Each funding source is briefly described and its feasibility and suitability to the project is assessed. Finally, an assessment is made whether the funding source warrants further investigation.

[1] Department of Energy Infrastructure and Resources 2010, Tasmanian Urban Passenger Transport Framework, DIER, Tasmania, http://www.dier.tas.gov.au/__data/assets/pdf_file/0006/48255/PT_Framework_-_Final.pdf

2 Definition of potential WEBs

2.1 Definition of WEBs

WEBs are economic effects which are not routinely included in CTEA. In their broadest sense, WEBs measure:

- Direct benefits which are project or location specific and therefore, are not standard in conventional transport appraisals including improvements in:
  - travel time reliability;
  - pedestrian amenity from improvements in way-finding; and
  - network flexibility in the event of unplanned road closures (due to flooding or major event).
- The benefit people obtain by consuming more goods and services made available by businesses due to a reduction in transport costs
- An increase in the productivity that businesses and workers experience when improvements in transport brings them closer together
- The increase in economic activity that occurs when a transport improvement helps people to join the workforce, work more and/or access roles which best matches their skills
- People's and businesses' willingness to pay (WTP) more to locate/reside in a transport corridor. This can lead to property value uplift and a range of benefits associated with resultant urban renewal and regeneration including:
  - Lower cost to government of providing infrastructure (such as water, roads and utilities) to households and businesses located in higher density developments in the transport corridor
  - Increased conventional transport benefits due to specific travel behaviours of people living in higher density urban areas such as shorter trips that are more active and efficient (walk and public transport)
- The specific value people place on having the option to use HLR in the future and/or the benefit a person gains from (altruistically) valuing other people's (particularly family and friends) ability to use and benefit from the project
- The benefit of trip purposes (such as tourism and education) not included in the demand modelling.

Each of the effects (above) refers to a specific WEB. Table 1 below defines each WEB, the associated effect and the general conditions under which the WEB would most likely be realised. The objective of the table is to provide a comprehensive list of potential WEBs. At this stage of the report there is no assessment as to whether the WEB is relevant to the HLR context.

Table 1: WEBs definition matrix

Wider Economic Benefit	Effect	General conditions
Social inclusion	Accessible public transport promotes social inclusion. Without it, 'captive' public transport users may be constrained from accessing: work, education, health services, or participating in social and family activities. Social inclusion is a key determinant of mental health and wellbeing and reflects levels of social capital that exist within a community.	Some of the conditions under which social inclusion is improved include: • Improving public transport accessibility by reducing walk times to access the network. • Reducing total journey time and variation between journey times such as providing more frequent services on regular and predictable timetables. • Providing vehicles and stations/interchanges which are accessible to all (including people with disabilities). • Reducing public transport fares where affordability is established as a barrier to trip making.
Health benefits	Employment, residential and social centres in low density, single use urban forms are usually dispersed across a large area. This can mean that people are more reliant on motorised transport rather than public transport and active modes. These people forego the indirect health benefits of walking and cycling. People living in denser land uses tend to have higher active mode shares and enjoy the associated improvement in health and wellbeing.	Increasing the density and diversity of urban form in specific corridor/s of Hobart will concentrate activity, making more trips amenable to use of more active modes such as public transport, walking and cycling. The overall result will include health benefits for the community in those corridors and reduced health costs for the community more generally (including State and Commonwealth governments).
Pedestrian travel times and amenity	Intensification of economic activity in the corridor is partly dependent on a high quality pedestrian environment. The shopping and travel experience of pedestrians is improved when walking is prioritised. This leads to more activity being possible in existing areas. Pedestrians can experience reduced journey times through reduced delays at intersections when the length of the signal cycle and the minimum time of the green phase for pedestrians is set to favour active modes. Pedestrian amenity is also improved by decongesting crowded footpaths, de-cluttering walkways and improving way-finding.	Pedestrian travel times and amenity can be improved using a range of measures including: • De-cluttering footpaths and improving sight lines • Improving way-finding • Increasing footpath capacity through footpath widening and increasing pavement quality • Altering traffic light cycle times to reduce waiting times for pedestrians • Rationalising street furniture, signage and commercial activity such as street vending.

Wider Economic Benefit	Effect	General conditions
Increase in output from transport improvement	Increased capacity of the transport network (in the form of a more efficient mode) will increase the proportion of the metropolitan population who can reach Hobart's CBD within 30 minutes. Transporting up to 1,200 people into the CBD in the peak hour on a new mode would remove around 1,000 vehicles from the road network (based on vehicle occupancy of 1.2 people per vehicle). This would reduce congestion, making it easier to reach all businesses in metropolitan Hobart and making businesses with exposure to journey times more efficient. The exposure to journey time costs is felt in many sectors (not just logistics), as many sectors rely on the road network for efficient movement of people and goods.	The increase in the employable population who can reach Hobart CBD within 30 minutes has an impact on the attractiveness of Hobart CBD as a place to locate business. The transport improvement can also have a material positive impact on business travel times through: • Reduced congestion for non-users • Improved journey times and utility for users Land use intensification, particularly in public transport corridors can increase the efficiency of public transport services by providing a higher density of customers and facilitating shorter journeys and higher passenger turnover along the corridor.
Agglomeration	Agglomeration refers to the location of many businesses in proximity to each other. Businesses that are located close to each other are generally more productive because of greater access to knowledge, ideas, suppliers and skilled labour force. Increasing the capacity of transport to Hobart CBD and strengthening the northern corridor will assist with agglomeration of businesses and generate benefits for businesses in the CBD. It will encourage more businesses to locate in the CBD and northern corridor.	A transport project is most likely to lead to an improvement in agglomeration economies where: • The proposed project is located in an area which features a significant economic or employment centre • The project leads to a reduction in generalised transport cost within and between these economic or employment centres
Labour supply	When people make decisions about whether or not to work, where to work, how much to work and what type of job to take, they compare the wages on offer with the costs they will incur in achieving those wages, including transport costs. High commuting costs can discourage people from working, or convince them to work less or in less productive jobs than otherwise. For example, if improved commuting allows people to access higher paid jobs, this is recognised in conventional transport appraisal by commuters' willingness to pay for time savings. The additional impact that is not captured by the individual's willingness to pay is the change in tax revenues that accrue to the Government from the individual's employment choice (see discussion of tax increment financing in section 4.1 of this report).	Labour impacts can be expected where it can be shown that: • More people choose to work as a result of commuting time savings (because one of the costs of working - commuting costs - has fallen), i.e. there is evidence that the lack of adequate transport services means that people who want to work cannot take up available jobs • Some people choose to work longer hours (because they spend less time commuting) • Relocation of jobs to higher-productivity areas (because better transport makes the area more attractive and accessible to firms and workers).

Wider Economic Benefit	Effect	General conditions
Benefits from denser urban form	Conventional appraisal of transport projects usually assumes the land use (density and housing mix) does not change with the project. However, transport improvements almost always impact on the attractiveness of living or working in a particular location. This increases demand for residential and commercial floor space and results in increased land prices. Property value uplift can attract re-development of sites currently used for low density housing. Evidence indicates that development will tend towards greater development densities in corridors which offer good accessibility to public transport and especially to rail based modes. Denser urban forms are usually associated with: • Changed travel patterns for residents – residents in higher density developments tend to take shorter and fewer trips than otherwise. These residents also tend to make greater use of public transport, car pool, as well as walking and cycling more. These travel behaviours re-enforce 'first round' effects of conventional environmental benefits, crash cost savings, private vehicle operating cost savings and health benefits • Infrastructure savings – higher density development allows more intensive use of existing infrastructure in urban areas, avoiding some resource costs of providing new infrastructure to fringe areas.	Benefits from denser urban form are expected when the project: • Increases property values within the transit corridor. • Is coupled with policies and seed funding to facilitate redevelopment including higher density and mixed uses. • Encourages people (who would have resided in lower density areas) to relocate to higher density centres. • Significantly changes travel behaviour and journey patterns. • Increases the proportion of population that live within a 30 minute commuting distance of Hobart CBD.
Option and non-use values	Public transport services confer use value for the passenger, but there is evidence that this is only a part of its Total Economic Value (TEV). Comprehensive appraisal of public transport should include not only user benefits, externalities and conventional 'WEBs' but also estimates of option values and non-use values (ONUVs). An option value is an element within the TEV of a good. People value the option of being able to use a public transport service and evidence exists to show they are willing to pay for the option. Similarly, people might value public transport even if they never use it, for example because they value its availability for other people.	Benefits from ONUVs are expected when: • The broader population (outside the corridor served) believe the project is a good idea • There is a large population that "might use" the project.

Wider Economic Benefit	Effect	General conditions
Wider sources of demand (tourism, night economy and education)	Most public transport models forecast demand for peak periods. These forecast periods may exclude segments of light rail demand and hence, benefits.	Project satisfies material demand for inter-peak and off-peak trip making.

3 Realisation of potential WEBs

3.1 Problems targeted by HLR

The previous chapter identifies a range of potential WEBs which are associated with transport improvements. The discussion also outlines the broad conditions under which each WEB is most likely to occur. These conditions could point to a range of existing problems within the HLR corridor. If the HLR contributes to the solution of these problems, WEBs may be expected to be generated.

Each of the key problems is discussed in Table 2 below. The second column provides summary evidence of the problem. The third column identifies indicators of the problem. Further detail is provided in the submission to Infrastructure Australia (IA). These indicators are examples of some of the outcomes associated with the problems. These provide a basis (not exhaustive) for later assessing whether improvements in these outcomes are within scope and potentially generated by HLR.

Table 2: Problems and outcomes

Problem	Description	Outcomes
Ageing population	The Problems Statement (see *Draft Strategic Assessment* Report) indicates that Hobart's population is ageing faster than that of any other Australian capital city. Since 1992, Tasmania's median age has increased 8.1 years compared with 4.7 nationally.[2] Mobility of older people is critical to ensuring they do not become socially excluded.	• 'Captivity' to public transport and active modes due to physical and financial constraints on car ownership and operation • Importance of trip making to access essential services such as health, shopping, family • Increased demand for accessible, frequent, reliable travel in inter-peak and off-peak periods • An ageing population has a greater proportion of discretionary journeys. Fare elasticities are often high for this type of journey and journey comfort is of greater importance. • Need infrastructure (e.g. interchanges, stops and stations), vehicles and rolling stock which support people with limited mobility • Improved ride quality and consistency to ensure on-board comfort and safety • Improved legibility of public transport network and information on routes and times where accessible services are available

2 Taylor, L. 2013, *Tasmania in transition (presentation at the Skills Tasmania conference)*

Problem	Description	Outcomes
Social disadvantage	Brighton has the lowest socio-economic ranking of any LGA in Tasmania (SEIFA), and Glenorchy also has a low SEIFA ranking. The Brighton and Glenorchy LGAs share a range of characteristics symptomatic of socio-economic disadvantage including: - low weekly incomes, - high reliance on government housing, - very high rate of single parent families with young children - high rates of unemployment, - low rates of educational attainment, - high rate of people employed in low skilled occupations. It is important that Hobartians, particularly those from lower socio-economic backgrounds, are able to access health, education services and employment and recreational opportunities. Barriers to access can result in social exclusion that perpetuates disadvantage through multiple generations.	• 'Captivity' to public transport and active modes due to financial constraints on car ownership • Financial hardship from "forced car ownership" in the absence of other transport options • Increased sensitivity to public transport fares, particularly for people who are not entitled to a concession fare and/or over-reliant on taxi travel • Increased demand for travel in inter-peak and off-peak periods • Increased importance of reducing the out-of-vehicle components of the door to door journey time including access/egress and interchange, particularly for people travelling with children and/or walk to and from transport nodes • Importance of trip making to access essential services such as health, shopping, family, education • Infrastructure (e.g. interchanges, stops and stations), vehicles and rolling stock which support people with diverse needs including children, luggage and shopping. • Lighting, surveillance and emergency response at interchanges and on-board vehicles must meet the specific safety needs of families, young children and women.
Small and dispersed population	The dispersal of a small population across a wide geographic area places a strain on transport networks and family budgets due to a high level of car dependence. This type of urban form does not provide adequate choice of housing or transport options.	• High car dependency; high car mode share. • High cost to Government of improving quality, accessibility and frequency of existing PT (particularly buses) and/or introducing new modes. • Increased average trip lengths leading to high cost of travel. • Low density residential development characterised by single detached dwellings on large blocks in suburban areas, along with significant settlement of peri-urban areas and semi-rural and beachside areas.

The discussion above identifies the key problems and associated 'symptoms' within the HLR corridor. The problems are cross-matched against the relevant WEB in Table 3 below. This also provides summary evidence on whether the HLR is expected to affect these outcomes. Based on this assessment, the potential likelihood that the WEB will occur is indicated as High, Medium, Low or Not Relevant.

Table 3: WEB realisation matrix

Problem	Wider Economic Benefit	Status of WEB realisation condition	Potential likelihood of WEB
Ageing population and social disadvantage and small dispersed population	Social inclusion	• Buses already provide access between key origins and destinations in the HLR corridor, but at lower frequencies on some routes in outer areas. • Bus frequencies can be changed at a relatively low cost particularly when such target groups travel outside peak periods. • Analysis indicates that the market comprising individuals in the corridor who cannot access a bus, but could access light rail, is very small. • Improvement of access to stops will not be materially affected because of the number of existing bus stops will always exceed light rail stops. • Permanent way infrastructure associated with HLR does not provide service flexibility, but does provide route simplicity and legibility.	Low
Small and dispersed population	Benefits from denser urban form	• Inadequate transport is not a key demand side constraint to infill development. • The cost of infill development (such as construction costs, site amalgamation, remediation of contaminated sites, sale price) can be a barrier to the redevelopment of land for residential development in the northern corridor. • Increasing demand for infill development will require facilitating a range of infill development types and housing choices along the corridor. • Higher density and higher priced infill development is more likely to be in demand closer to the CBD, whilst lower density infill development is likely to be popular and feasible north of New Town. Exceptions may arise on a site-specific basis. • Low population and economic growth and the small price differential between higher density dwellings and detached housing is constraining demand for infill development. • Institutional factors heavily geared towards 'greenfields' development. • Previous attempts to increase infill development (including mixed use) within inner urban areas of Hobart have met some community resistance where this is seen as destructive of the local character (such as heritage and amenity).	Low
Small and dispersed population	Health benefits	• The low demand for infill development will constrain the health benefits of increased active mode share which characterise high density developments. • Journeys on HLR would typically involve a longer walk access component (assuming the traveller is willing to bear the additional cost due to a strong and offsetting preference for light rail over bus).	Low

Problem	Wider Economic Benefit	Status of WEB realisation condition	Potential likelihood of WEB
Small and dispersed population	Pedestrian travel times and amenity	• HLR would run through a pedestrian zone passing Mawson Place. Risks include pedestrian safety (conflict between pedestrians and light rail) and reduced amenity from the catenary (i.e. poles/wires). • HLR would create opportunities for better pedestrian (and cyclist) travel times along the northern suburbs corridor. The rail priority would create opportunities for increasing ped/cycle priority at the same time all along the corridor at each road crossing.	Low
Small and dispersed population	Increase in output from transport improvement	• HLR is not expected to materially reduce generalised trip cost (including business trips) between key origins and destinations because outside peak hours bus and car travel in most cases is equally quick or quicker. • In some cases HLR is expected to improve off-peak journey times such as through the Main Road corridor, however a smaller proportion of the population would benefit than at peak times.	Low
Small and dispersed population	Agglomeration	• HLR is not expected to materially reduce generalised trip cost (including business trips) between key origins and destinations.	Low
Small and dispersed population	Labour supply	• Unlikely that there is a significant number of people in the affected areas who are unwilling to make use of the existing bus service to access employment. • However, the HLR would include more frequent 'feeder bus' services from Brighton, Bridgewater and New Norfolk than currently exists, improving the quality of service. • HLR is not expected to materially reduce generalised trip cost (including business trips) between key origins and destinations.	Low
Small and dispersed population	Option and non-use values	• Broad community support for HLR is expected, but has not been tested (in terms of willingness to pay for the infrastructure or use the service). • Community perceives that HLR will add brand value to Hobart as a city.	Moderate
Small and dispersed population	Non-conventional sources of demand	• There is a number of key tourism and "event" locations in the HLR corridor. • Previous demand modelling captures existing tourists. Increasing tourism could be a source of additional patronage, but tourists typically have a low value of time, and increased focus on ease of use, ride quality and amenity. • In the case of tourists the time benefits of HLR are likely to be less important than the ease of use, ride quality and amenity benefits.	Low

Problem	Wider Economic Benefit	Status of WEB realisation condition	Potential likelihood of WEB
Small and dispersed population	Non-conventional sources of demand - MONA	• The key attraction (MONA) is currently accessible by ferry and bus services (at low frequencies, direct from Sullivans Cove and hotels). The ferry service in particular has become 'part of the MONA adventure'. • MONA currently operates the ferry and bus services with no government assistance (i.e. users cover the full cost of providing the service). • A government funded, competing service would need to be carefully priced and branded so as not to detract from the current MONA customer offer. • HLR travellers would need to walk about 800 metres to access MONA. Provision of a feeder bus is unlikely to be feasible (due to cost and short travel distance). • Level of future (tourist) demand is uncertain. It is not expected that the HLR would generate significant tourist demand by itself.	Low
Small and dispersed population	Non-conventional sources of demand – business travel	• Business travel has not been assessed in previous business cases. However, outside peak hours, HLR is expected to be slower than car/taxi travel. • The proposed HLR would be less frequent than the existing bus service and could be less reliable (due to the technical limitations resulting from single track operations).	Low

4 Monetisation of WEBs – funding options

4.1 Mechanisms for monetising benefits

Previous chapters have explored the types of transport benefits and wider economic benefits that can be realised by major urban transport improvements, as well as their likelihood of being realised by HLR.

This chapter considers some mechanisms through which the beneficiaries of transport improvements can be called on to contribute (directly or indirectly) to the funding of the project. The following section describes each mechanism and provides a strategic assessment of their suitability as a potential option for contributing to the funding of HLR.

The mechanisms described and assessed are:

- Voluntary contributions
- Transport levy – property or business
- Transport levy – parking
- Developer contributions
- Transit joint development
- Tax increment financing
- General tax or levy – State-wide
- General tax or levy – local
- Purchase and sale of public land
- Sale of Advertising.

4.2 Assessment of feasibility of funding options

The strategic assessment of each mechanism reflects four components:

- **Opportunity** – A definition of the mechanism.
- **Critical success factors** – A description of the factors that, if present and strong, suggest the opportunity is likely to be material.
- **Potential feasibility and suitability in Hobart** – A strategic assessment of the strength of the critical success factors in the case of HLR as well as any other factors that will affect the suitability of applying the mechanism for HLR.
- **Further investigation warranted** – Are the resources necessary to enable more detailed investigation of each option justified, given the outcome of the relevant strategic assessment?

Table 4 provides an overview of the results of the strategic assessment. This assessment suggests there are six potential funding mechanisms that warrant more detailed investigation:

1 **Voluntary contributions** – An approach could be developed to tap into the 'grassroots' support for implementation of the project. This would likely require the establishment of a delivery authority at arm's length from government. Such an authority could develop a prospectus, set the terms for public contributions, and deliver the project if sufficient funds are raised.

Experience in the US suggests voluntary ('crowdsourced') funds can be generated for transport and urban space projects, such as a cycle hire scheme in Kansas City (US$400,000).[3] However, the approach does not have a track record with large scale infrastructure projects.[4]

This option provides clarity for the Tasmanian Government regarding public appetite for the project for example if sufficient funds are:

– raised, the government can top up and commit to operational funding and the project can be implemented

– not raised, the government has a clear signal that the public would prefer to spend their money on other things (the assumption being that this sentiment would reflect how the public wants their tax dollars spent).

2 **Parking or driving charges (tolls)** – Additional charges could be levied on public and private car parking or particularly road links within the light rail corridor (or to address specific perceived or real congestion problems across Greater Hobart), particularly in the CBD, with additional revenue directed to fund the light rail implementation.

A parking levy is a potentially suitable mechanism, however research in Melbourne shows that its congestion levy creates additional problems due to the regressive nature of such a charge and how it is passed-on (or not) to end consumers. Road pricing (tolls) are potentially more effective, but are usually associated with a screen-line (or point) payment for using a specific link in the transport network.

Some cities such as London, Singapore and Stockholm have implemented congestion charges that must be paid by motorists entering a specific core area of the city. This type of charge is appropriate only in very specific circumstances that do not apply to Hobart.

The mechanism can help rebalance the transport options through a 'carrot and stick': improving public transport provision while increasing the cost of car use. Experience from the UK suggests that directing motoring charge increases to public transport upgrades can improve support for the change.[5]

3 **Developer contributions (in fringe areas)** – The problem of car dependency, and dispersed activity that makes public transport less financially viable is borne from the sprawl of sub-urban development on Hobart's fringe. The development that is causing the problem (negative externality) and benefiting financially while creating the problem, should be paying to solve the problem.

4 **Transit joint development** – The co-development of the HLR project with property development(s) at stops represents a further potential source of funding. The feasibility of this option would depend heavily on setting up appropriate conditions to attract developer interest and commitment, including suitable land

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3 See http://neighbor.ly/projects/bikesharekc

4 Bjerg, A, 2013, "Neighborly fights infrastructure woes with crowdfunding" California Economic Summit, http://www.caeconomy.org/reporting/entry/neighbor.ly-fights-infrastructure-woes-with-crowdfunding

5 See for example, House of Commons Environmental Audit Committee, 2011, "Budget 2011 and environmental taxes", page 36, http://www.publications.parliament.uk/pa/cm201012/cmselect/cmenvaud/878/878.pdf "Hypothecating revenues for environmental ends can restrict spending flexibility. It can also help, however, to build trust and acceptance of environmental taxes. The Treasury should therefore consider greater use of at least partial hypothecation of revenues from environmental taxes"

availability, Government funding commitment to the project, and early provision of planning approvals. Local Government has a particularly important role and responsibility to ensure public transport projects are supported through land use decisions, local government funding and alignment of long term development strategies to support public transport corridors and existing activity centres.

5 **Purchase and sale of land** – The government doesn't own significant parcels of land in the HLR corridor that are suitable for sale. It could however purchase a strategic land bank to capture the property value uplift generated by transport improvements and facilitate development (types and densities) that supports public transport viability. In many other jurisdictions, including Washington D.C. and parts of Asia, the property developments are jointly owned by the transit agencies and rental income can provide up to 40% of the transit agencies' annual revenue.

6 **Sale of advertising on Service Infrastructure** – The positioning of advertising on transport infrastructure can be fraught with difficulties including safety risks and lack of market demand (for advertising space). It can however generate an income stream worthy of consideration if the potential difficulties can be worked through.

It is worth noting that other seriously entertained light rail projects in Australia have alignment of all levels of government and include an aspect of local government funding.

Table 4: Strategic assessment of funding mechanisms for HLR

Mechanism	Opportunity	Critical success factors	Potential feasibility and suitability in Hobart	Further investigation warranted?
Voluntary contributions	A voluntary and non-refundable payment from interested people to a project delivery organisation to fund construction.	• Option value (occasional users). • Non-use value (civic pride and altruistic values of others' use). • Accessibility improvements (faster travel times to and from locations in the Hobart region).	• Appropriate structure required to enable payments to be made (and returned in the event project does not proceed). • Some public support for implementation of the project – even among people who do not plan to use the future services. Provided that suitable mechanism is established to facilitate payment of contributions in this manner, this may translate into willingness to pay. • There is no recent precedent for this type of funding in Tasmania. There is likely to be a widely-held perception that private citizens should not be called upon to personally fund what are traditionally Government responsibilities. Development of public transport infrastructure would be an example of such a responsibility. • Relatively low capital cost may make the size of the average payments feasible. Benefits to those not in the immediate vicinity of the service may need to be explained. • Scheme may operate as a sale of minor pieces of infrastructure such us 'ownership' of individual sleepers, seats and the like.	✓
Transport levy – property or business	A special charge levied upon existing property owners (or business owners) surrounding the improved transport.	• Accessibility improvements.	• There must be a reasonable connection between the fee amount and the actual cost of providing facilities to levied properties. • There may be legal impediments and/or the measure may require a high level of political co-operation depending on how the levy is collected and by whom (i.e. local or state government). • Depending on the level of service provided by HLR, the contributions from business or property owners in the corridor may outweigh the benefits received in terms of business competitiveness or property price appreciation. Developer costs already inhibit infill development. As such, the approach may not be politically acceptable or, if implemented, could result in business relocations to avoid the levy (such property market impacts would circumvent strategic planning policies).	✗

Mechanism	Opportunity	Critical success factors	Potential feasibility and suitability in Hobart	Further investigation warranted?
Transport levy – parking or tolls	A special charge levied on parking or the transport network near the proposed light rail stops, including the CBD.	• Light rail to offer an alternative transport option to car	• Need to clearly link the provision of public transport alternative to higher parking or driving costs in order to gain broad community acceptance. • Such a levy may help to reduce current practice of competing councils providing low price (and free) car parking, and would help to suppress private vehicle use. • Ease of car use and the dispersed nature of land use drive a problem to be addressed by HLR (inability for public transport to compete). • Would require cooperation of all Greater Hobart Councils, or the unintended consequence would be to discourage businesses wanting to be located in the area that government want to intensify. For example, businesses would likely minimise future internal costs by locating in Cambridge or Rosny Park away from the areas near the rail corridor. This process would increase long term community costs of dispersed transport demand.	

Mechanism	Opportunity	Critical success factors	Potential feasibility and suitability in Hobart	Further investigation warranted?
Developer contributions (across all of metro Hobart)	Development contributions are payments made towards the cost of providing the public infrastructure and facilities which are required as a consequence of development.	• Accessibility improvements. • Constrained alternative land availability.	• Low suitability due to low development rates and significant competition from other geographies (including other Tasmanian and mainland cities). • The comparatively low rates of development in Hobart (and Tasmania) make it difficult to impose a developer contribution that has nexus to the benefits without displacing development to another part of the city or State. • Relatively high developer costs (land assembly and construction costs, as well as approvals process) are a barrier to infill development compared with greenfield sites. Best prospects for infill development have been in the CBD/waterfront area where returns on investment are highest.	

Mechanism	Opportunity	Critical success factors	Potential feasibility and suitability in Hobart	Further investigation warranted?
Developer contributions (in fringe areas)	Growth Area charge made towards funding public transport as a consequence of car dependent development on the urban fringe. Note that the charge would go to priority PT projects anywhere in metro Hobart – not just to PT in the growth area.	• Alternative land availability in Metro Hobart (infill).	• High suitability due to their being significant fringe demand within a constrained supply of land (i.e. if the urban growth boundary is permanent then there is only 20 years of land supply left in Brighton, Kingston, Sorell, and Clarence). • Government has an interest in making that land supply last as long as possible, developers have an interest in developing it as fast as possible. This funding strategy would assist to meet other long term objectives of the government. • The charge could be levied on all fringe development across the state. Nexus to the external costs to government has been researched highlighting that each fringe housing lot costs the community an estimated $0.3m over the life of the house in terms of transport congestion created and increased servicing costs[6]. • Relatively high developer costs (assembling land package and infrastructure costs, as well as approvals process) are a barrier to infill development compared with greenfield sites. A charge on greenfield sites could address that imbalance and incentivise development that (consistent with the Southern Tasmania Regional Land Use Strategy) seeks to locate where intensification is being sought. • Additional charges on any development are likely to be passed on to consumers and may lead to a perception that prices are increasing and housing is becoming less affordable. Key to solving cost of living problems is improving the supply of housing in inner city highly accessible locations. Long term affordability is related more to location than the original cost of the dwelling construction.	

[6] Trubka, R., Newman, P. & Bilsborough, D. 2008, Assessing the costs of Alternative Development Paths of Australian Cities. Curtain University

Mechanism	Opportunity	Critical success factors	Potential feasibility and suitability in Hobart	Further investigation warranted?
Transit joint development (TJD)	A development underpinned by a formal agreement between a public transit agency and a private individual or organization that involves either private-sector payments to the public entity or private-sector sharing of capital costs in mutual recognition of the enhanced real estate development potential or market potential created by the siting of a public transit facility.	• Accessibility improvements. • Suitable land available at relatively low cost in the corridor (e.g. large blocks, low land values). • Underlying demand for higher density housing and mixed use development.	• Feasible given the low intensity of land use around the existing rail corridor, particularly near Glenorchy and Moonah stops where industrial land may be converted to residential or mixed use. • The impact needs to be carefully considered given the ease with which other sites in the metropolitan area can be developed, and could render the in-corridor sites uncompetitive. • Ageing population may drive demand for infill developments which are attractive and convenient for that age cohort. • A critical issue is the land assembly and seed funding required to reduce the level of developer risk. Government could support this process through land acquisition and future sale of consolidated development parcels (see sale of land discussed below).	

Mechanism	Opportunity	Critical success factors	Potential feasibility and suitability in Hobart	Further investigation warranted?
Tax increment financing (TIF)	Appropriating tax revenues derived from increases in property values within a prescribed development area (the 'TIF District') typically resulting from a program of infrastructure investment. These 'incremental' tax revenues are used to fund the investment over time. There is no new tax or impost on the property owner but a redistribution of tax revenue to the TIF authority.	• Accessibility improvements. • Property price increases. • Additional development in the corridor.	• Moderate suitability due to low levels of existing development around the corridor tempered by the fact that without significant assistance, developers will be wary of risks associated with an unfamiliar product (density near light rail). • The impact of TIF is highly dependent on macro-level property economics of the wider region and the degree to which the HLR makes the northern corridor different to other development locations. • It could apply to local government rates, stamp duties, land tax, and Commonwealth taxes. Each level of government would need to agree in advance that the incremental revenue benefit that results from the project can be hypothecated to the project. • It involves hypothecation of tax revenues, which is not standard practice for the management of the Tasmanian Government's finances.	✗
General tax or levy – State-wide	An increase in the rate (or coverage) of one or more of the Tasmanian Government's general taxation measures applied equally across the State.	• Option and non-use value for residents outside Hobart.	• General taxes are not as effective at addressing the problems as are taxes targeted to the cause of the problems (fringe development and over reliance on car use). • Likely to be politically difficult to apply project-specific taxes on people outside the project's likely catchments, given the tax would not be able to be applied selectively to those who are particularly supportive of HLR. • A significant difference with voluntary contributions is that those who will not use the project, but would like to see it happen, have the choice to contribute. Removing the element of choice would add to the State's tax burden for a project that has only marginal value to the state. Put another way if the state increases taxes, there may be better projects to spend the tax revenue on, but if voluntary payments are made then taxpayers have specifically decided to fund HLR over other options (such as donations to hospitals or schools).	✗

Mechanism	Opportunity	Critical success factors	Potential feasibility and suitability in Hobart	Further investigation warranted?
General tax or levy – local	An increase in the rate (or coverage) of one or more of the Tasmanian Government's general taxation measures applied selectively to an assumed area of potential beneficiaries (e.g. Hobart, Glenorchy).	• Accessibility improvements.	• Targeting a tax increase on areas most likely to receive benefits may assist with broad community support. • A legislative definition of the scope of tax increase may be difficult to develop in a way that is enforceable. • There may be additional resistance to local tax rises for HLR following larger than CPI increase in Glenorchy Council rates over recent years. • Tax measures should be focussed on the cause of the problem. If they are focussed on the potential benefits then the tax measures will stifle development in areas that support public transport viability. • Some areas have low income levels and increases in taxation may lead to increased default on payments.	✗
Sale of public land	Property prices for Tasmanian Government or Local Council owned land is likely to increase with the provision of HLR. Sale of this land could contribute to funding of the HLR.	• Amount of Government land in the corridor that can be sold. • Property price increases.	• Other than the Cornelian Bay Cemetery, Botanic Gardens, and Government House the Tasmanian Government does not have any significant land holdings in the corridor. • Local government does have some land in the corridor, some of which may be able to be sold and developed. • Government could purchase land in specific locations in the corridor (such as around each station) to facilitate site consolidation and directly capture the land value increase that may occur. This could form an expansion of Transit Joint Development discussed above.	✓
Sale of advertising on Service Infrastructure	A light rail service will have visible assets which can be sponsored or naming rights sold (LRVs, stops).	• Prominently placed assets with respect to population.	• The HLR would be a highly visible and marketable service, with all three stops close to larger retail centres and vehicles seen in retail areas as well as running near the major arterial Tasman Highway. • Advertising or branding may be opposed by stakeholders as a break from railway tradition. • Bus advertising already sold in Tasmania and there are many examples of trams world-wide carrying all over advertising livery. • Advertising unlikely to cover a large proportion of costs.	✓

5 Conclusions

This report has considered the broad ranges of WEBs that could be generated by a light rail project and then considered these within the specific context of HLR. Broadly the HLR is not expected to directly deliver significant WEBs over and above the WEBs that may be generated by alternative approaches to fix the known problems. This is because the problems are not specifically related to capacity constraints on the public transport network and the current land use density in the northern corridor is not supportive of high capacity public transport. Over time, policy changes and long-term investment in the corridor could increase the potential for HLR to generate WEBs subject to demand for travel and the attributes of competing mode choices.

Some WEBs lead directly to potential funding sources. This report has considered those funding sources and other alternative funding strategies (including those not linked directly to WEBs). Some of these potential funding sources and strategies are worthy of further consideration, specifically:

- Voluntary contributions - crowd-source funding
- User Charges – such as a parking levy or toll
- Developer contributions in fringe areas
- Transit Joint Development
- Purchase and future sale of land
- Sale of advertising space

The high potential options that warrant further investigation are:

1. Crowdsourcing – including understanding of the mechanisms which could facilitate a voluntary contribution process, the potential success of such a program, previous experience from similar projects around the world and likely risks.

2. User charges – including how they can best be applied to motorists and ways that the user charging regime could facilitate better demand management particularly in peak periods and on specific links of the road network. This would include consideration of the specific benefits, winners and losers, wider impacts (such as on land use) and risks associated with various options.

3. Development charges – specifically those that can be applied to development that is contributing to the problems such as car dependence, in particular development on Greater Hobart's urban fringe. This would need to include a holistic review of the wider economic impacts such as the impact on housing prices, affordability and years of land supply remaining within the urban growth boundary. It should also generate a range of options for types and scales of charges and assess the degree to which they can be targeted to address the specific problems identified.


Riverline