Tasmanian Government
2012 Submission to Nation Building 2 Program

Real Time Passenger Information

(Part of Hobart Passenger Transport Innovation Program)

September 2012

Department *of* Infrastructure, Energy *and* Resources

Tasmania
Explore the possibilities

Priority assigned by jurisdiction for NB2 funding consideration	Priority six under Connecting People
Details of full scope of project, including objectives, service requirements, project status and project phase(s) seeking funding. Note: It is expected that this will be largely addressed through the main IA submission. However, the Department requires cost estimates to be provided using the **Best Practice Cost Estimation Standard** and at both **P50 and P90**. Also to use **both 4% and 7%** for BCRs.	• Project Goal and Objectives are set out in Stage 1-6 template (Goals) • Deliverables are set out in Stage 1-6 template (Option Generation and Assessment) • Funding is sought for the Delivery Phases of the Project. • Cost Estimates are set out in Stage 1-6 template (Option Generation and Assessment) • BCR and NPV and the assumption used to derive them are set out in Stage 7 Template
Alignment with objectives of NB2 Note: This should include how a project aligns with the overarching objective of NB2, as well as how it aligns with the objective of each relevant NB2 subprogram.	The RTPI project is submitted under the *Connecting People* theme of Nation building 2 and also aligns with *Innovation* (Smart Infrastructure).
Alignment with broader Commonwealth and state/territory policies and plans Note: Specific plans/policies to be addressed (at a minimum) include the Commonwealth's Infrastructure Investment Framework; the National Urban Policy; the National Ports and Land Freight Strategies; and the Australian Government commitment on the incorporation of ITS for major urban roads (as appropriate).	Refer 'Alignment with Australian Government Policy and Planning Frameworks' Part 1-6 template.
Overall financial exposure including identification of other partner funding Note: It is expected that this will be addressed in the main IA submission.	Stage 7 template- Costs Risks and Funding, Criteria 2 and 3 The Tasmanian Government currently invests approximately $38 million a year to support delivery of urban public transport services and associated capital infrastructure. The Tasmanian Government seeks $2.5 million to meet the full-cost of delivery of the RTPI system, noting its previous substantial investment in the smartcard ticketing system, from which the RTPI capability will be developed.

Identification of key strategic risks to the project Note: It is expected that this will be addressed in the main IA submission.	Stage 7 Template- Costs, Risks and Funding, Criterion 1
Quantification of the expected benefits from the proposal Note: It is expected that this will be addressed in the main IA submission.	Stage 7 template
Information regarding the extent to which the potential for private sector involvement or investment has been evaluated Note: It is expected that this will be addressed in the main IA submission.	Stage 7 Template- Costs, Risks and Funding, Criteria 2 and 3
Likely impacts from the project proposal on citizens and the market Note: Detail is needed on how each proposal will impact citizens and the market (as two distinct groups) – positively or negatively, and the extent of the impact	The RTPI Project will impact positively on citizens by improving the predictability of public transport services. There are two aspects to this. Existing passengers will enjoy improved certainty about their bus services, and be able to reduce their waiting time accordingly. Customers may also be encouraged to use the bus service more often, thereby potentially reducing private vehicle use. The transport services market will be positively impacted because: • Ridership and revenue can be expected to increase. • A modal shift toward public transportation could result.
Identification of key stakeholders in the project and the complexity of stakeholder relationships	• Tasmanian Government (DIER). as project sponsor • Metro Tasmania, a State-owned Company, as service provider • INIT as system supplier Local Government as road owners (initially Hobart and Glenorchy Councils but would extend to other local councils as the rollout of Passenger Information Displays (PIDs) proceeds).

	Metro Tasmanian is a State-owned company, with a clear contractual and corporate governance relationship in place. Metro Tasmania has existing working relationships with Local Governments, focussing on service and infrastructure issues.
Extent of multijurisdictional and/or private sector involvement in the proposal	There are no multi-jurisdictional aspects to this proposal. The only private sector involvement is through the proposed system supplier (INIT) and any local contractors for installation of roadside information displays.
Details of the level of innovation and information technology involved in the proposal, including in relation to information technology requirements to successfully manage/implement the proposal Note: Detail is to include identification of any new/untried methodologies or technologies to be used in the project, as well as IT requirements for the proponent agency to successfully manage or implement the proposal.	See Stage 7- Costs, Risks and Funding, Criterion 4 The proposal is essentially the implementation of an off-the-shelf IT system, with well researched, and understood, objectives. The key requirements, being the platform from which to develop RTPI, are already in place through the existing smartcard ticketing system. Additional software and hardware requirements form the basis of the project, and will be specified in detail in the procurement contract.
Details of the proposed procurement methods for the proposal Note: It is expected that this will be addressed in the main IA submission.	Direct procurement, subject to the Tasmanian Government's procurement guidelines
Level of complexity in construction, and any known issues in relation to the construction of the project, including environmental and heritage considerations Note: It is expected that this will be largely addressed through the main IA submission. However, the Department requires sufficient detail to fulfil its probity and accountability requirements, so any additional information not explicitly addressed in the main IA submission should be provided here.	The project is relatively straightforward, being based on a commercially available addition to an existing hardware/software platform. There are no known environmental or heritage considerations, although installation of roadside signage may raise some heritage issues at locations such as the Hobart

	CBD interchange.
Any known issues in relation to contractual or service delivery obligations stemming from the proposal Note: This is to include any issues that are not currently present but could reasonably be foreseen.	There are no known issues in relation to contractual or service delivery obligations stemming from the proposal.
Details of the proposed governance arrangements for the proposal Note: This should be largely addressed in the main IA submission. However, the Department requires an explicit statement about the experience of the management team in delivering similar proposals and whether there are any expected knowledge gaps or training needs to successfully implement the proposal.	It is expected that the project will be managed by Metro Tasmania, in accordance with its standard project governance arrangements. A steering committee to guide aspects of the project may be convened if identified as necessary. Alternatively, existing reporting and working arrangements between Metro Tasmania and DIER will be used to provide support/guidance as required. Metro Tasmania has previously, successfully introduced the smartcard ticketing system, which will form the basis of the RTPI.
Details of the proposed delivery timetables and whether there are any known challenges to achieving those timeframes Note: It is expected that this will be addressed in the main IA submission.	The estimated program is as follows: o Detailed project design, procurement, system installation and commissioning is proposed to commence in the second half of 2014. No specific challenges to meeting the timeframes have been identified.
Details of any significant interdependencies for the project Note: It is expected that this will be addressed in the main IA submission.	This Project is not dependent on any other project to enable delivery to proceed

Proposal Summary

Initiative Name:	Real Time Passenger Information Project (RTPI Project)
Location (State/Region(or City)/ Locality):	Tasmania (Hobart, Launceston and Burnie)
Name of Proponent Entity:	Tasmanian Department of Infrastructure, Energy and Resources (DIER)
Contact (Name, Position, phone/e-mail):	David Spence, General Manager Infrastructure Strategy Department of Infrastructure, Energy and Resources Tel: (03) 6233 2089 Email: david.spence@dier.tas.gov.au
Executive summary	

The goal of the RTPI Project is to utilise available Real Time Passenger Information (RTPI) technology to enhance the level of information available to:

a) public transport patrons, both current and potential; and

b) the operator of Hobart's public bus network, Metro Tasmania (Metro), to permit more responsive and efficient operation of the Hobart bus network,

and by so doing, enhance the attractiveness of public transport as a viable option for intra-urban travel.

In 2007, Metro commenced a program of infrastructure upgrades with the acquisition of a modern, smart-card and Global Positioning System (GPS) enabled ticketing system. The initial system configuration did not include the requirement for real-time data transfer to and from buses to be activated.

As a result, it is not currently possible to deliver a higher quality of passenger information through the implementation of a range of RTPI technologies (e.g. fixed roadside passenger information displays (PIDs), SMS messaging, Smartphone (both iPhone and Android) timetable and vehicle tracking applications).

Metro's current ticketing system infrastructure is, however, specifically designed to be capable of being easily upgraded. The addition of GPRS/3G/4G mobile communication technologies, and appropriate back-office computer system upgrades, will enable real-time data transfer to/from buses. Activating this capacity would allow the implementation of a range of customer-focused RTPI functions, as well as providing Metro with enhanced real-time network performance data. This will deliver increased capacity to better monitor and manage the operation, in real-time, of Metro's bus network.

The RTPI Project is one element of a broader program aimed at increasing the relevance, legibility, accessibility and therefore attractiveness, of public transport to the travelling public. It is put forward for consideration as part of a set of inter-related actions, forming the Hobart Passenger Transport Innovation Program, which also includes:

- The Transit Corridor Study;
- Macquarie Street Bus Priority Lane (concept only); and
- Hobart CBD Interchange Design Project.

Each project is the subject of separate submissions under the Connecting People and Innovation Themes. They share a common focus on goals to encourage modal shift and increase public transport patronage. In combination, these projects will result in a much higher standard of public transport across metropolitan Hobart.

The RTPI Project is submitted for consideration under the Connecting People Theme under the Urban Living Program, also recognising its links with the Smart Infrastructure Theme under Innovation.

The project aligns with Infrastructure Australia's stated encouragement for all levels of governments to use information and communication technologies that enable smart urban infrastructure outcomes.

Is this a new submission?	Yes
Estimated cost of problems?	Described in Stage 7
Estimated Capital Cost of Initiative by Proponent ($M, nominal, undiscounted):	$2.5 million
Commonwealth contribution sought by Proponent ($M, nominal, undiscounted):	$2.5 million
Other funding (source/amount/cash flow) ($M, nominal, undiscounted):	$38 million (approx) – annual recurrent expenditure by Tasmanian Government on the provision of urban bus services via the Government-owned company Metro Tasmania.
BCR by Proponent excluding Wider Economic Benefits	Rapid BCA indicates a ratio of 1.50 (based on 7% discount rate)
Estimated program	Detailed project design, procurement, system installation and commissioning is proposed to commence in the second half of 2014.

Goal Definition

The goal of the proposed initiative is to utilise available Real Time Passenger Information (RTPI) technology to enhance the level of information available to:

- public transport patrons, both current and potential; and
- the operator of Hobart's public bus network, Metro, to permit more responsive and efficient operation (e.g. network monitoring and schedule adherence) of the bus network,

and, by so doing, enhance the attractiveness of public transport as a viable option for intra-urban travel.

Alignment with Australian Government Policy and Planning Frameworks

Infrastructure Australia's Strategic Priorities

The project aligns with Infrastructure Australia's (IA) stated encouragement, as outlined in the IA report to COAG in June 2012, for all levels of governments to use information and communication technologies that enable smart urban infrastructure outcomes. These activities include:

- Sending real-time information to network operators and customers; and
- Remote sensing information that helps network operators to manage demand, for example load indicators on roads and bridges.[1]

Nation Building 2 – Proposal Themes

- The RTPI project aligns with the Connecting People Theme under the Urban Living Program. It also aligns with the Innovation Theme under Smart Infrastructure.

Alignment with State Government Policy and Planning Frameworks

Tasmanian Infrastructure Strategy

The *Tasmanian Infrastructure Strategy* (Strategy) provides the guiding framework for all infrastructure investment decisions across government. The RTPI Project is consistent with the Strategy, as it focuses on maximising the use of our existing transport network and making the best use of our existing investment in public transport services through the use of technology and innovation.

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[1] Australian Infrastructure Progress and Action – A Report of the Council of Australian Governments, June 2012.

The project aligns with the following theme in the Strategy*:*

- ***Viable and Sustainable Infrastructure:*** The project focuses on improving the existing public transport system as opposed to building new infrastructure and investing in new services. The project concentrates on developing public transport to cater more effectively for users and ensuring that it is an attractive alternative to the car.

Tasmanian Urban Passenger Transport Framework

The RTPI Project aligns with outcomes contained within the *Tasmanian Urban Passenger Transport Framework,* namely the moving people theme, which advocates high frequency public transport delivered with high quality infrastructure that enhances the attractiveness, efficiency and utility of public transport. RTPI is specifically identified as a key action as part of the *Moving People* strategy.

The Framework articulates priorities in terms of implementing the Passenger Transport elements of the Strategy, supported by the regional-level *Southern Integrated Transport Plan*.

The Framework seeks outcomes at a State-level as follows:

- Reduced greenhouse gas emissions by encouraging the use of low carbon emission transport such as public transport, walking and cycling.
- Creating liveable and accessible communities through encouraging land use patterns that integrate with the public transport system to improve the attractiveness and effectiveness of public transport, walking and cycling options.
- Improved travel reliability by providing consistent travel times, in particular, the overall time of undertaking a journey, including waiting times for all users of the transport system.
- Creating healthy, active communities by encouraging use of walking and cycling trips either as part of a trip or for the total trip.
- Better integration of transport and land use planning to ensure transport and land use planning system are integrated and work together to support an attractive and effective passenger transport system.

The Framework was developed, in part, from the *Hobart Passenger Transport Case Study* (Case Study) which was commissioned by the Tasmanian Government in 2009 to better understand the issues facing the urban passenger transport system and to develop appropriate, sustainable responses that meet Tasmania's long term challenges.

As part of the review of travel demand measures in the Case Study, the following observations were made with regard to real time passenger information:

“Give public transport priority

...Examples of measures available to improve bus services are peak-period bus lanes, traffic signal pre-emption, real-time passenger information and high quality bus waiting facilities. Further investigations into possible treatments and measures is required to determine the feasibility, design, costs and travel time savings of such schemes. It is also important to note that investments in priority for public transport should be focused on the public transport corridors, not highways. This will help to attain the desired integration of land use and public transport to reduce greenhouse gases.

Public transport corridors should incorporate real time information which informs passengers when services are expected to arrive. Successful public transport systems are reliable and convenient in the minds of the users, so the ability to receive information on services arriving provides an attractive and competitive service. Further investigations into the feasibility of providing advance travel information via mobile and web-based technologies should be considered as it has potential to offer a viable and cost effective option in coverage and asset management...”[2]

Draft Capital City Plan

In 2009, COAG announced reforms aimed at ensuring that all Australian capital cities would have comprehensive and integrated strategic plans in place by 2012. The State Government has prepared a draft Capital City Plan for Hobart which collates State, regional and local Government policies into a strategic document.

The plan develops an integrated strategic framework of actions and priorities to guide Government and utility providers in their investment and planning decisions. Objectives and directions in the Plan support the RTPI Project.

A stated objective of the Hobart Capital City Plan (H.30) is to improve transport networks, services and infrastructure connections to provide real modal choice and meet people’s diverse travel needs including:

- public transport services,
- pedestrian and cycle linkages; and
- targeted infrastructure upgrades.

[2] *Future Land Use and Transport Scenarios Discussion Paper*, November 2009, p32

A key direction under this objective is to 'improve public transport services, supporting infrastructure and service information.'

One of the Transport Network Initiatives contained within the Hobart Capital City Plan is the 'implementation of a marketing campaign to encourage travel by public transport, including improved provision of on-line and real-time passenger information.'

The RTPI project fully aligns with this Initiative.

Problem identification, assessment and analysis

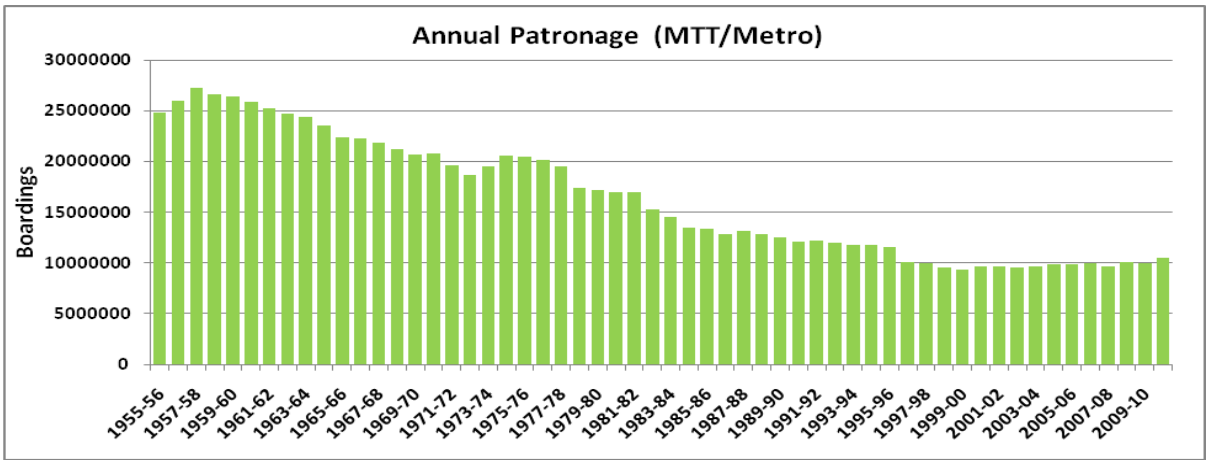
What is the Problem that the proposal is seeking to address

The *Tasmanian Urban Passenger Transport Framework* identifies a set of challenges, largely reflecting the existing, private car-oriented transport system.

Amongst the challenges to achieving the desired outcomes described in the Framework are:

- Complex trip patterns;
- Low use of alternative modes, including public transport; and
- The high cost of providing public transport.

Combined bus patronage in Hobart, Launceston and Burnie has experienced a significant and sustained decline from the mid 1950s through to the mid-1990s. From this point onwards, patronage has remained relatively static at around 10 million boardings per year.



Problems associated with delivery of public transport

'High penetration, low frequency' service model

Public transport in the major Tasmanian cities is characterised by the provision of low frequency, high penetration services.

The reasons for the evolution of this service model have recently been considered as part of the Main Road Transit Corridor Project being undertaken by the Tasmanian Government.

The following metropolitan-level problems for Hobart, relevant to the current public transport network structure, were identified:

"**Population growth in outer urban areas:**

- Places pressure on urban arterial road networks.
- Outer urban areas have high levels of car dependence as they are separated from places of work and activity; this reduces walking and cycling options.
- Public transport services are often limited in outer areas as density is lower than inner areas.

Low levels of population density:

- Greater Hobart has a dispersed settlement pattern with an average density of 12 people per hectare (ABS 2006).
- This level of density is well below the agreed standard for effective delivery of public transport services that other states use (15 people per hectare) (NSW 2001); resulting in bus routes being planned on a low-frequency, high penetration basis.
- This means that bus routes are often very long and not competitive with the car in terms of travel times."[3]

The existing style of public transport service provision can therefore be understood to have evolved in response to a number of factors, including:

- low population densities, coupled with the growth of outer suburbs, which has necessitated expansion of the urban bus network, and encouraged increasingly long and circuitous routes to provide adequate coverage;
- the topography of Hobart, Launceston and Burnie, which influences the ability/ preparedness of people to access bus services and generates demand for the provision of more complex route structures to minimise walking distances; and

[3] *Glenorchy to Hobart CBD Transit Corridor Transit Corridor Assessment Report – Stage one Problem identification – Metropolitan Level*, July 2012, p 3

- the historical target market for public transport services, focussing on transport disadvantaged passengers, who are prepared to trade longer travel time for a shorter walking distance to the bus stop.

This situation has resulted in a system that, with the exception of a number of high frequency corridors, must trade frequency for spatial coverage, in order to support reasonable service levels across a dispersed geographic area.

Complex public transport network

The outcome of this situation is that, prior to the current review process which commenced in 2006/07[4], Metro Tasmania's network was difficult to comprehend and navigate which undoubtedly acted as a deterrent to increased use of public transport. Network legibility is a key factor in the ability of public transport to provide a viable alternative to other modes of transport, particularly the private car.

Traditional paper-based timetables are limited in the extent to which they can provide comprehensive system information, especially in situations where there are multiple and/or complex routes in operation, or where multi-leg journeys are required.

To illustrate this point, there are currently in the order of 65 core routes in Hobart's Northern Suburbs with a considerable number of additional time and day-specific route variants. These routes are compiled into 12 paper timetables, meaning that potentially up to 12 timetables are required in order to understand and plan public transport journeys in Hobart's Northern Suburbs. This contrasts with the situation in Launceston where the entire bus network is covered by five timetables.

The situation in the Northern Suburbs contrasts with the two other Hobart regions (Southern and Eastern), where routes have been reviewed in recent years, and where there are approximately fifty percent fewer routes and associated route variations than exist in the Northern suburbs.

Analysis of problems

The Tasmanian public transport system has to provide a reasonable level of service, across dispersed urban areas with low population densities. Public transport services are expensive to provide, requiring high levels of subsidy, particularly to support concession fares. The return to the community, in terms of improved accessibility and participation for transport disadvantaged members of the community, in part,

[4] Metro Tasmania commenced a process of network review and route/timetable simplification in 2006/07 (Burnie and Launceston) and 2008/09 (Hobart Southern and Eastern suburbs). The last service area review (Hobart Northern Suburbs) is scheduled for completion in mid 2014.

offsets this cost. However, it is not a public service that can be expanded indefinitely, without diluting the value of those wider community benefits, or the Tasmanian Government's ability to support them.

The low use of public transport may be viewed as symptomatic of other problems, leading to a high reliance on cars. However, the failure to attract a higher proportion of trips already suited to public transport (eg direct, short trips on existing high frequency corridors), indicates that aspects of the public transport system itself contribute to low patronage and act as barriers to modal shift for those people who have a choice in mode.

The combination of low-service frequencies, and complex route structures, act as a barrier to increasing the attractiveness of public transport. Small, dispersed populations and low population growth mitigate against large-scale measures to improve the competitiveness of public transport. The challenge for Government is how to encourage wider modal shift, particularly during peak periods, where potential passengers have a choice in modes, while still delivering adequate levels of service across a wide temporal span.

The Tasmanian Government must continue to prioritise meeting the travel needs of the most transport disadvantaged members of the community. Reasonable limits must be placed on walking distances to bus stops and minimum service levels must be maintained to ensure communities have reasonable accessibility to basic services. These factors will continue to require dispersal of services and the trading of travel time for spatial coverage over most of the network.

The potential waiting time for public transport is therefore likely to remain a significant component of the total travel time for a journey, particularly over short distances. In areas of lower frequency, the potential implications of missing the desired bus service are further magnified. For potential passengers who have a choice in mode, low service frequencies, coupled with uncertainty over arrival time, exacerbate perceptions of the inconvenience of the public transport system. Waiting for a bus with uncertain arrival times is often seen as an anxious and stressful experience[5] .

One of the key priorities identified in the Framework is a greater focus on travel reliability. Rather than focussing on reduced in-vehicle travel times between two points, travel reliability focuses on providing consistent travel times for all transport users, ensuring they can predict the time taken to travel to a destination and reliably

[5] Mazloumi, Currie, Rose 2008

plan their journey. In an environment where service frequencies remain relatively low, the predictability of arrival times is critical. Greater predictability can also provide the additional benefit of reducing total travel time, by reducing the waiting time component of a trip.

Option Generation and assessment

Based on the research conducted through the Hobart Passenger Transport Case Study (Case Study), the Framework describes a set of mutually supportive actions/measures designed to respond to these challenges.

A high-level, multi-criteria analysis was used in the Case Study to select and prioritise the specific recommended actions.

Table 2-1: Summary assessment of potential TDM options

	Greenhouse emissions	Implementation cost	Operation cost	Accessibility + social equity	Safety	Health (activity)	Cost to user	Difficulty of implementation
Road/infrastructure based solutions								
Provide road capacity	x	$$	✓✓✓	✓			✓✓	**
Reduce road capacity	✓✓	$$	✓✓✓	✓✓	✓✓	✓	✓✓✓	*
LATM	✓	$	✓		✓✓	✓	✓	*
HOV lanes		$	✓				✓	**
Rideshare		$	✓					***
Car club		$$		✓✓			✓	**
Passenger transport								
PT improvements – service	✓✓	$$	✓	✓✓✓	✓	✓		*
PT improvements – infrastructure	✓✓	$$$	✓✓	✓	✓	✓		***
Taxi improvements					✓✓✓			*
Active transport								
Cycle planning	✓		✓✓✓	✓✓	✓✓	✓✓✓	✓✓✓	*
Pedestrian facilities	✓✓		✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	*
Cycle/transit integration	✓		✓✓	✓	✓✓	✓✓✓		**
Land use planning								
Contemporary neighbourhood design	✓	$$	✓✓✓	✓✓				**
Location efficient development	✓	$$	✓✓✓	✓				*
Transit oriented development	✓✓	$	✓✓✓	✓				**
Car free planning	✓✓✓			✓✓✓				***
Shared parking	✓		✓					**
Market based								
Road pricing	✓✓✓		✓✓					***
Fuel taxes	✓✓	$$$	✓✓✓	x			x	***
Parking pricing	✓	$$	✓	✓			x	*
Consumer financial incentives	✓	$$	✓	✓			✓✓✓	*
Consumer and organisational								
Peak spreading								**
Telecommuting	✓							*
Individualised marketing	✓							*
General TDM marketing			✓✓				✓✓✓	**

$ lowest cost $$$ highest cost

✓ fair performance/low cost to user ✓✓✓ excellent performance/high cost to user

* relatively easy to implement *** difficult to implement

The Framework targets seven aspects of public transport services for improvement (based on the recommendations made in the Case Study). These are:

- Improving frequency and span of services;
- Development of off-bus infrastructure;

- Pricing mechanisms;
- Better provision of information;
- Integration of modes;
- Delivering transit priority on key corridors; and
- Marketing services.

Assessment of options

Real Time Passenger Information

RTPI has been identified in the Framework as one of the key recommended actions to ensure better provision of information.

The goal is to provide accurate information to passengers on (1) when the next service is expected to arrive at a certain stop and (2) the current location of a particular service.

This information would be provided in three forms:

- Applications for smart phones, to show the arrival time of the next service and/or current location of the next service;
- Web-based journey planner showing the arrival times of the next and subsequent services; and
- Fixed signage at highest use bus stops showing the arrival time of the next service (upgraded to bus 'station' standard).

RTPI reduces reliance on paper-based timetables and removes the element of uncertainty involved in predicting the arrival time of the next service at any given bus stop. It also provides a much higher level of situational awareness to the service provider.

RTPI has been identified as delivering the following benefits:

- Customers perceive that the waiting time at a bus stop with real-time bus arrival information is reduced, and, therefore, waiting is more acceptable.
- Customers are encouraged to use the bus service more often.
- Ridership and revenue can be expected to increase.

- A modal shift toward public transportation could result.[6]

Total travel time is a key consideration in decision making as to travel mode. Initiatives that reduce time spent waiting at bus stops are likely to increase the demand for public transport, by making bus trips more competitive with travel by private car.

The main risks of RTPI are that its introduction does not result in the expected level of change in travel behaviour. In other jurisdictions, the level of influence on modal shift has been overestimated compared to the actual response.[7] However, RTPI provides benefits to the operator (in terms of operational efficiencies), as well as existing passengers, and the benefits arising from its introduction must be viewed in that context.

Furthermore, RTPI is not a self-contained solution to the identified problems. The Framework recommends a set of actions to be implemented as a package. In considering the potential role for RTPI, the Tasmanian Government notes that a number of other options that can address the identified problems are already in place, or being implemented in Tasmania.

These measures include:

Enhanced provision of timetable information

Metro Tasmania is undertaking a program to provide a new, simplified format bus timetable at bus stops across the Network. Metro is also progressively rolling out revised electronic timetables, again with a view to providing a more simplified format for passengers.

While these are important improvements, they do not overcome the uncertainties that arise from lack of reliability of bus services. Timetables only provide an indication of the time a bus will pass a particular point on the route. The number of timing points is limited. For bus stops in between those timing points, passengers must estimate the likely time of arrival, which can have a variation of up to 5 minutes. Metro Tasmania advises passengers:

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[6] Transportation Research Board, *TCRP Synthesis 48: Real-Time Bus Arrival Information Systems, A Synthesis of Transit Practice, 2003, p 28*

[7] Prior to the introduction of the Stopwatch system in Hampshire UK, 16.3% of people felt this would make them use the buses more, however post-implementation this figure had dropped to 3.7% (see Dept of Transport (UK) assessment of RTP at http://www.dft.gov.uk/itstoolkit/Tools/T20.php, sourced 22 September 2012)

"Please note all times are approximate only and may vary due to traffic conditions. It is advisable to be at your bus stop at least five minutes ahead of the indicated time."

These improvements can assist in reducing the appearance of complexity in the bus system, but it does not provide a complete solution.

Network simplification

In their historic form, the design of the bus networks themselves has been identified as a contributing problem. Simplification of those networks is, therefore, an obvious option.

Metro Tasmania's networks have undergone systematic reviews since 2005, to implement the current Urban Service Standards. These reviews have resulted in streamlined networks being implemented in Burnie, Launceston and most of Hobart. Hobart's northern suburbs is the last area to be examined and its review is of services is expected to be completed in mid-2013.

Network simplification has supported the development of high-frequency corridors, and resulted in notable service improvements (such as the introduction of Saturday services in Burnie, and re-introduction of evening services in many parts of Launceston). The network changes have also resulted in increased patronage, most notably in Launceston where a patronage increase of approximately 10 per cent.

This work has been informed by extensive investigation and analysis of transport disadvantage in Tasmania. The Urban Service Standards, which were developed from this work, have provided a strong evidence base for the relative distribution of services across the network. This has enabled much more effective targeting of service funding.

Network simplification is not able to address the inherent limitations in supply and demand that arise with small, dispersed populations. On many parts of the network, half-hourly and hourly frequencies are standard, particularly during inter-peak and weekends. At these frequencies, the consequences from missing a bus are much greater than in areas of high frequency.

Network simplification is a complex process that requires a careful balancing of competing travel needs and priorities. Circuitous services, and irregular route deviations, suit time rich passengers with poor personal mobility. These same services are very unattractive for commuters and other time-sensitive passengers.

Journey Planner

Network complexity can also be addressed by providing tools to assist passengers to link trips. Metro Tasmania is introducing an internet-based journey planner, commencing in Burnie, and which is expected to be available in Launceston and Hobart by early-2014. The journey planner enables the planning of more complex

trips on public transport, using multiple buses, without requiring a prior knowledge of timetables and routes.

A journey planner can link timetabled services, but in the absence of RTPI, cannot provide current information on connections between services. Again, the value of journey planners is demonstrated in many jurisdictions, but it could never be considered a complete solution to the problems identified in this submission.

Increase in service frequencies

As described above, network simplification has enabled the provision of higher frequency services across parts of the network, at no net increase in service costs. In particular, the simplification has refined the balance between walking distances to bus stops and service frequencies, by establishing a network that emphasises the benefits of working further to route with higher service frequencies.

Service frequency is consistently identified as the single most important factor in influencing travel choice. [8] The reality is that most of the network remains on a low frequency model, reflective of the key problem of small, dispersed population that is expanding at the fringes.

These challenges suggest that simply providing additional services is not an effective answer. The high cost of service delivery, and relative low demand, mitigates against operating services on most corridors at frequencies where passengers no longer rely on a published timetable (ie they simply walk to the nearest stop and board the next service). To do so would be to diminish the return on public investment and divert funding from those areas where the greatest community benefit can be achieved.

Through the Transit Corridor Project, the Tasmanian Government is targeting delivery of highest standard bus services, in terms of frequency and service span. This model can only be supported where current and anticipated future land use justifies the investment in infrastructure and services. For most of the network, the competing priorities of spatial and temporal coverage mean that relatively low frequencies will prevail. In these areas, in particular, the focus must be to ensure service reliability and predictability, to minimise the waiting time and uncertainty associated with catching public transport.

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[8] See Currie, C and Wallis, I, Effective Ways to grown urban Bus Markets- a Synthesis of Evidence, **Thredbo International Conference Series on Competition and Ownership in Land Passenger Transport- Conference Paper,** sourced from http://www.thredbo-conference-series.org/papers/#thredbo10 on 24 September 2012.

Improve service reliability

Service reliability is an emerging issue in Tasmania, particularly on Hobart's and Launceston's key public transport corridors. Service reliability is primarily affected by traffic volumes, particularly during peak periods. It is also affected by aspects of the public transport system itself, such as route design, location of interchanges, bus stop spacing and aspects of the road network, such as one-way streets in the main business districts.

The Tasmanian Government has recognised the need to improve travel time reliability, if public transport is to be seen as a viable alternative to the private car. The Main Road Transit Corridor Project is examining the operation and role of the Main Road Corridor as the key (current) public transport corridor in Hobart's Northern Suburbs. A separate submission is being put forward to fund short-term measures to improve public transport priority on the Main Road Corridor. These measures, if implemented, will improve the reliability of bus services on that corridor.

Improved travel time reliability will improve the predictability of bus arrivals at any point along a route. However, priority measures cannot address all circumstances, and can only reduce, not remove, delays. Variations, such as the number of passenger boardings, can affect travel time, as can less predictable events such as traffic accidents or breakdowns. In these circumstances, the ability to keep both passengers and the operator informed of bus movements is an important feature of a truly high-standard bus system.

The preferred option

This submission describes a set of initiatives that, once implemented, will improve passenger transport outcomes in Tasmania. The introduction of RTPI is the preferred option, as part of this set of initiatives.

The measures described in this submission have already been demonstrated to improve the attractiveness and use of public transport. Individual measures, such as increases in service frequency, can theoretically be carried through to a very high level in isolation. However, costs of service provision place practical limits on the degree to which this can be achieved, or, in fact, is desirable where patronage increases are not commensurate with the level of service.

The RTPI Project is one element of a broader program aimed at increasing the relevance, legibility, accessibility and therefore attractiveness, of public transport to the travelling public. It is put forward for consideration as part of a set of inter-related actions, forming the Hobart Passenger Transport Innovation Program, which also includes:

- The Transit Corridor Study;
- Macquarie Street Bus Priority Lane (concept only); and

- Hobart CBD Interchange Design Project.

Each project are the subject of separate submissions under the Connecting People and Innovation Themes. They share a common focus on goals to encourage modal shift and increase public transport patronage. In combination, these projects will result in a much higher standard of public transport across metropolitan Hobart.

In combination, these projects will result in a much higher standard of public transport across metropolitan Hobart. In this context, RTPI is an initiative that can not only stand alone, but as part of a wider package of measures, can multiply the benefits attainable across those measures.

Summary of overall funding required

Funding is sought for the following:

- Delivery of an RTPI system, using Metro Tasmania's existing INIT smartcard ticketing system

Estimated program

The estimated program for RTPI is $2.5 million.