TASRAIL

Our future on track

TASMANIAN RAIL REVITALISATION PROGRAM
RAIL INFRASTRUCTURE CAPITAL INITIATIVE

SUBMISSION TO INFRASTRUCTURE AUSTRALIA

August 2012

Tasmanian Railway Pty Ltd

1. Proposal Summary

Initiative Name:	Tasmanian Rail Revitalisation Program – Rail Infrastructure Capital Initiative
Location (State/Region(or City)/ Locality):	Tasmanian Rail Network (State-wide) as defined in Schedule 1 Part 1 of the *Rail Infrastructure Act 2007* (refer Annexure 1 – The Tasmanian Rail Network)
Name of Proponent Entity:	Tasmanian Government and Tasmanian Railway Pty Ltd (TasRail)
Contact (Name, Position, phone/e-mail):	Damien White Chief Executive Officer – TasRail 11 Techno Park Drive Kings Meadows, Tasmania 7249 www.tasrail.com.au
Executive summary	

TasRail, supported by the Tasmanian Government, is focused on rejuvenating rail so that it can be an important and integral component of an effective, efficient and sustainable transport system for Tasmania. Ultimately, the Tasmanian Government's transport priority is for rail to attract a greater share of the contestable freight market (intermodal goods) and to continue to develop new business opportunities in those markets where it has a natural advantage (bulk goods).

The Tasmanian Rail Revitalisation Program integrates securing both the safety and reliability of the rail network and the efficiency and competitiveness of rail freight operations. A detailed overview of the Rail Revitalisation Program is included at Annexure 2. The Rail Infrastructure Capital Initiative is a key component of the Rail Revitalisation Program. Combined with the Tasmanian Government's investment in the Brighton Transport Hub, and the planned investments at the Burnie and Bell Bay Ports specifically targeted at streamlining the interface between road and rail and rail and shipping at these locations, there is now a sound foundation for an efficient integrated freight network for the State.

Recent investment in rail infrastructure by the Australian Government has arrested the decline in both network condition and modal shift to road. However, following detailed engineering assessments, TasRail has identified the full scope and cost of remediation works that will revitalise the Tasmanian Rail Network to a modern and efficient operational standard – consistent with its regional counterparts forming part of the National Network. The total cost of network wide remediation works is estimated to be $325 million. A summary of projects by network segment is included in table 2 of section 4.1. Based on the existing asset condition, lifecycle maintenance costs and the current and forecast freight task, these projects have been prioritised and an amount of $240 million is sought under the Nation Building 2 Program. The balance of the capital cost will be sought through other relevant Australian Government funding processes, for example the Regional Infrastructure Fund, Infrastructure Australia's Priority List or future Nation Building programs.

TasRail has previously made a funding submission to Infrastructure Australia of $240 million to upgrade the Tasmanian Rail Network to service the freight market in Tasmania. This current submission allocates this funding across the network on the following basis:

- Relaying approximately 290 track kilometres of life expired rail track.
- Selective insertion of steel sleepers (primarily on the Fingal, Bell Bay, Derwent Valley and Melba lines).

- Completing 73 per cent of the concrete resleepering program between Burnie Port and the Brighton Transport Hub.
- All identified works on the Melba Line.

A summary of prioritised projects by network segment is included in table 3 of section 4.2.

The lack of investment in the rail infrastructure, and the impact of the deteriorated asset condition on safety, reliability and consequently market share, has been broadly observed and well documented over a lengthy period of time. Due to the nature of the problem being asset condition, options other than asset renewal have not been considered (noting that the associated renewal of above rail assets and investment in improved intermodal connections that forms the Rail Revitalisation Program have been funded by the Tasmanian Government).

This submission demonstrates that the investment previously provided by the Australian and Tasmanian Governments is delivering an initial improvement in safety and reliability outcomes, and have been undertaken with a view to 'future proofing' the network. Improvements in the rail network, in association with the TasRail business model and investment in locomotive and wagon renewal have led to significant new market opportunities for rail.

In place of creating additional capacity, the Rail Revitalisation Program targets liberating the existing network usable capacity through the improvement of overall network reliability. Due to the high fixed cost nature of rail, this increase in volume capability and improved asset utilisation translates to improvements in productivity. Productivity is measured by three key metrics – increased market share, reduced life-cycle costs operating costs and improved asset utilisation.

- *[Reference to forecast market share has been removed for commercial in confidence reasons.]*
- Currently the annual average dollar per track kilometre recurrent maintenance cost is $*[removed]* per annum. TasRail is targeting a reduction to $*[removed]*/track kilometre per annum between Burnie Port and the Brighton Transport Hub based on a completely concrete resleepered track. The reduced maintenance cost will improve rail's competitive position vis road transport and will support increased intermodal market share.
- Planned improvements in transit time in conjunction with the introduction of operations at the Brighton Transport Hub, along with the investment in new locomotives and wagons, will deliver an increased asset utilisation of around 45 per cent.

The Rail Infrastructure Capital Initiative is essential to delivering an efficient and sustainable transport system for Tasmania.

Is this a new submission?	No, an initial submission formed part of the Tasmanian Government's November 2011 submission to Infrastructure Australia. This submission is extended in scope.
Estimated cost of problems?	The estimated cost of the Rail Infrastructure Capital Initiative is $325 million.
Estimated Capital Cost of Initiative by Proponent ($M, nominal, undiscounted):	The estimated total capital cost of the Initiative is $325 million.

Commonwealth contribution sought by Proponent ($M, nominal, undiscounted):	The total cost of the Initiative has been prioritised. An amount of $240 million is sought under the Nation Building 2 Program.
Other funding (source/amount/cash flow) ($M, nominal, undiscounted):	The Rail Infrastructure Capital Initiative is key component of the holistic Rail Revitalisation Program – a broad investment framework to secure a viable rail network as part of an efficient land transport system. It is also linked to intermodal and port infrastructure investment. Associated funding components include: ▪ $130 million for above rail capital renewal (locomotives and wagons), train control system and track maintenance equipment funded by the Tasmanian Government. ▪ $78 million to plan and construct the Brighton Transport Hub (including southern rail terminal) funded by the Tasmanian Government. ▪ $16.3 million per annum (reducing to less than $12 million per annum by 2015-16) for ongoing network maintenance funded by the Tasmanian Government. ▪ $8 million for the Burnie Port reconfiguration including improved rail logistics, with joint funding by Toll Tasmania. The Australian Government has committed $4 million to this project. ▪ $9.6 million for Bell Bay Port rail and intermodal improvements (joint Australian and Tasmanian government funding). ▪ The Tasmanian Government's purchase of the rail assets.
BCR by Proponent excluding Wider Economic Benefits	The BCR is 1.4 based on a discount rate of 4 per cent.
Estimated program	Funding for the current program of works will be completely expended by 30 June 2014. It would be advantageous for there to be continuity with currently mobilised staff and contractors in order to reduce exposure to re-mobilisation costs (notwithstanding that a competitive tendering regime currently exists and is expected to continue). The prioritised program funded under this submission is planned to commence 1 July 2014, and operate for a period of five years.

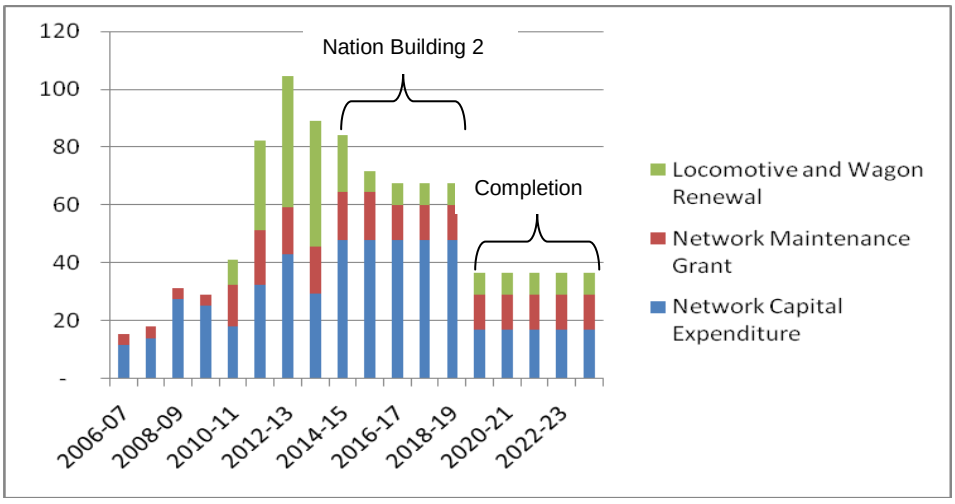
2. Goal Definition

TasRail, supported by the Tasmanian Government, is focused on rejuvenating rail so that it can be an important and integral component of an effective, efficient and sustainable transport system for Tasmania. Ultimately, the Tasmanian Government's transport priority is for rail to attract a greater share of the contestable freight market (intermodal goods) and to continue to develop new business opportunities in those markets where it has a natural advantage (bulk goods).

Since TasRail's inception in 2009, the Tasmanian Rail Network[1] and train service operations have been operated as a vertically integrated business. This affords a unique opportunity to undertake a holistic approach to planning and delivering efficient infrastructure and train services. TasRail has made valuable progress towards securing the safety and reliability of the Tasmanian Rail Network and is well down the path to acquiring contemporary and standardised locomotives and renew its wagon fleet. TasRail has also placed a high priority on developing its internal capability to improve safety processes and outcomes, undertake investment in the rail track infrastructure and to develop customer relationships and new business opportunities.

Chart 1 shows the Tasmanian Rail Revitalisation Program investment profile, including rail network capital expenditure and the Tasmanian Government's network maintenance operating grant and locomotive and wagon renewal investment program. The network capital expenditure profile includes the Australian Government's Rail Rescue Package, funding provided under the Nation Building 1 Program, funding requested under the Nation Building 2 Program and funding for completion identified in this submission. Following the completion of the Rail Revitalisation Program, all network expenditure is expected to be funded from a combination of TasRail's operating surpluses and the Tasmanian Government's ongoing network maintenance grant. This extensive 'Rail Revitalisation Program' is set out in detail in Annexure 2.

Chart 1: Tasmanian Rail Revitalisation Program Investment ($ Million)[2]



[1] A description and map of the Tasmanian Rail Network is included in Annexure 1.

[2] Chart 1 illustrates the Commonwealth contribution sought through the Nation Building 2 Program representing $48 million per annum between 2014-15 and 2018-19, with the balance of funding to be sought through other potential sources of funding (refer section 4.5.5).

'Fit for purpose' rail infrastructure, which forms the basis of this submission, is a key component to the overall Rail Revitalisation Program and to an efficient and sustainable freight transport system for Tasmania. As discussed in section 2.4, rail is an integral component of intermodal (road-rail-ship) integration across the transport system.

2.1 Positive Contribution to Infrastructure Australia's Strategic Priorities

Infrastructure Australia has previously confirmed that the Rail Revitalisation Program aligns well with a number of it's strategic objectives, including: maximising the productivity and capacity of the key northern ports (Burnie and Bell Bay), improving the efficiency of their connections to major road and rail freight corridors to facilitate domestic trade and international exports; and achieving better utilisation of existing infrastructure. In addition, Infrastructure Australia has noted that TasRail's initial funding submission is clearly aligned with the Draft National Land Freight Strategy as it is designed to deliver a competitive and sustainable rail freight network. This will be achieved by improving rail freight capacity and reliability in Tasmania.[3]

The Rail Revitalisation Program is designed to unlock the existing network usable capacity and to facilitate improved capital productivity through better utilisation of assets. This proposal aligns with Infrastructure Australia's Strategic Priorities – SP1: Expand Australia's Productive Capacity and SP2: Increase Australia's Productivity.

2.2 Alignment with State/Regional Strategic Plans

This proposal aligns with key Tasmanian Government strategic plans.

2.2.1 Tasmanian Infrastructure Strategy (www.infrastructure.tas.gov.au)

Released in 2010, the *Tasmanian Infrastructure Strategy* (TIS) is the State's integrated long-term strategy to guide future infrastructure projects and decision making. The TIS identifies the State's heavy economic reliance on its transport system to move freight from producers to processors and on to markets – within Tasmania, nationally and internationally.

The TIS recognises the role of rail in meeting the State's freight transport task with rail positioned as being both complementary and a viable competitor to road transport delivering the freight task and facilitating economic growth. In addition to the ongoing maintenance and capital upgrades of rail infrastructure, the TIS identified the development of a Rail Strategy as a key activity to complete.

2.2.2 Tasmanian Rail Network – Objectives and Priorities for Action (www.dier.tas.gov.au/plans_and_strategy/tasmanian_rail_network_objectives_and_priorities_for_action)

In March 2011, the Tasmanian Government released the '*Tasmanian Rail Network – Objectives and Priorities for Action*' (Rail Strategy) which sets out its vision for the rail network and the objectives it has identified as being important to freight transport and to the Tasmanian community. These objectives are:

- The safe operation and use of the rail network, including interaction with the broader community.

[3] 2011-12 Infrastructure Australia Assessment Brief, page 20.

- A greater proportion of Tasmania's growing freight task is transported by rail.
- A viable rail network for the long term.
- A cost effective and efficient transport system.

With Australian Government support, the Tasmanian Government has prioritised investment in the operational network, with investment funding previously allocated to the non-operational sections of the Derwent Valley and Wiltshire Lines reallocated in order to keep the core of the network operational (refer Annexure 2 – The Tasmanian Rail Revitalisation Program).

To maximise the utility of the rail network, the Tasmanian Government's '*Rail Access Framework*' gives priority access to freight, followed by works and then other users (refer section 4.5.1 – Direct User Charges).

2.2.3 Tasmanian Framework for Action on Climate Change

Tasmania has committed to reduce greenhouse gas emissions to at least 60 per cent below 1990 levels by 2050. This target has been established in legislation through the *Climate Change (State Action) Act 2008*. Transport is one of the eight priority action areas to reduce emissions.

According to the Bureau of Infrastructure, Transport and Regional Economics, heavy vehicles produce 11,382g of carbon dioxide per tonne for every 100 kilometres travelled, compared with 1,661g for rail.[4] TasRail has conservatively estimated that in 2011-12, rail freight was responsible for net environmental savings of 45,800 tonnes of CO^2 equivalent emissions compared to the same volume of freight moved by road.

As Australia places greater value on reducing carbon emissions, rail will become increasingly relevant as a sustainable transport solution for the future. A key challenge for TasRail is to translate rail's environmental benefit over road transport into increased freight volumes. This is likely to be difficult in the short term as rail is adversely impacted by changes to fuel tax arrangements from 2012, while road transport benefits with an exemption from carbon tax measures until 2014. Passing on this additional cost to customers in the interim will reduce the competitiveness of rail in the transport market in the short term. Nonetheless, TasRail expects that the considerable environmental benefits of rail will ultimately translate into a significant modal shift from road transport, assuming satisfactory service levels can also be provided by rail.[5]

2.3 Economic, Social and Environmental Goals Quantified

TasRail has identified four key 'fit for purpose' outcomes for the Tasmanian Rail Network, based on the current and forecast freight demand. These outcomes are safety, transit time, productivity and reliability. All four goals underpin the growth in rail's share of the Tasmanian freight task – which will ultimately also delver broader safety and environmental outcomes (refer section 4.3).

[4] May not represent TasRail's actual performance.

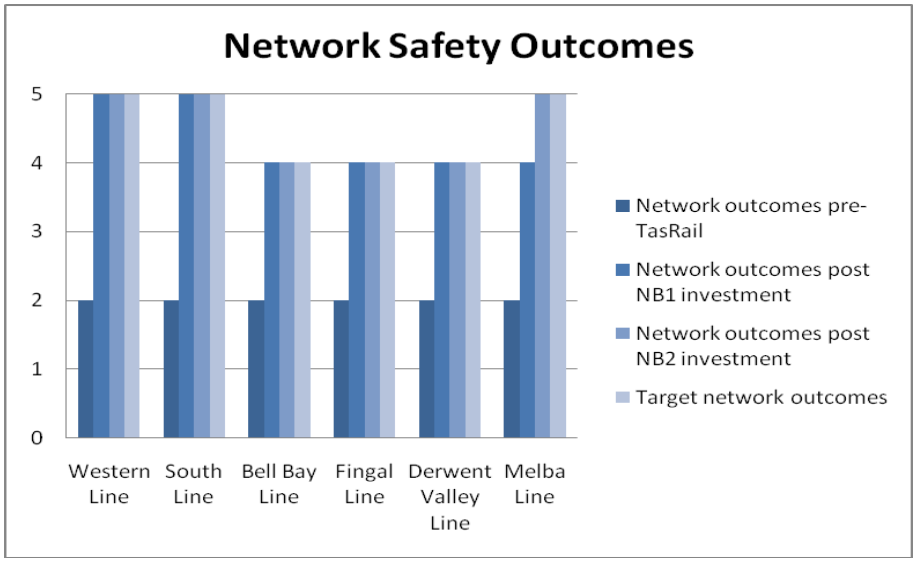
[5] The Cost Benefit Analysis Project Case assumes an increase in market share from year 11 based on anticipated increases in fuel, labour and carbon costs impacting less heavily on rail than on road.

In broad terms, operational lines are to be maintained or upgraded in accordance with engineering specifications and parameters to ensure the effective operation of the network, and, in particular, to prevent mainline derailments and to improve operating times and reliability on key routes through the reduction of temporary speed restrictions. Effective operation of the network is measured in an out of five score as discussed below. The targeted network goal is considered in terms of length of rail track that meets a higher outcome target (for example the Western, South and Melba lines). Across the network, targets vary in accordance with factors such as the predominant nature and requirements of the freight task being carried on a particular line. The scoring out of 5 represents the desired standard for the network to be 'fit for purpose' relative to the Tasmanian freight market requirements.

2.3.1 Improved safety of the rail network

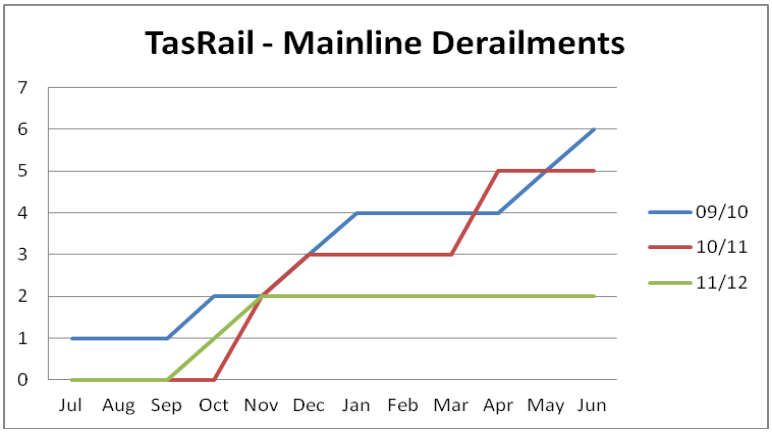
On a target scale of 5, the targeted rail network safety goal is 5 as network safety also delivers benefits in the way of service reliability and reduced operating cost outcomes – both measures being beneficial to end customers. A score of 5 means that the risk of derailments due to track condition are minimized to levels at least equal to 'best practice' for a regional rail network.

Chart 2: Network Safety Outcomes Quantified



Safety is a priority for TasRail and its customers. Reducing the number and severity of mainline derailments is a key performance indicator as they have the potential to undermine customer and industry confidence. The condition of the rail track, combined with the age and design of the current fleet of locomotives and wagons, are consistently identified as contributing factors to mainline derailments. Investment in the rail network to date, combined with improved business practices, has already demonstrated a significant improvement in the safety of the rail network; however, much work still remains to be undertaken. Chart 3 shows the improved network performance measured by mainline derailments since TasRail's inception in 2009 as a result of the existing capital and maintenance program; and improved business practices. Further investment in the rail network will be complimented by the replacement of the life-expired rolling-stock fleet funded by the Tasmanian Government.

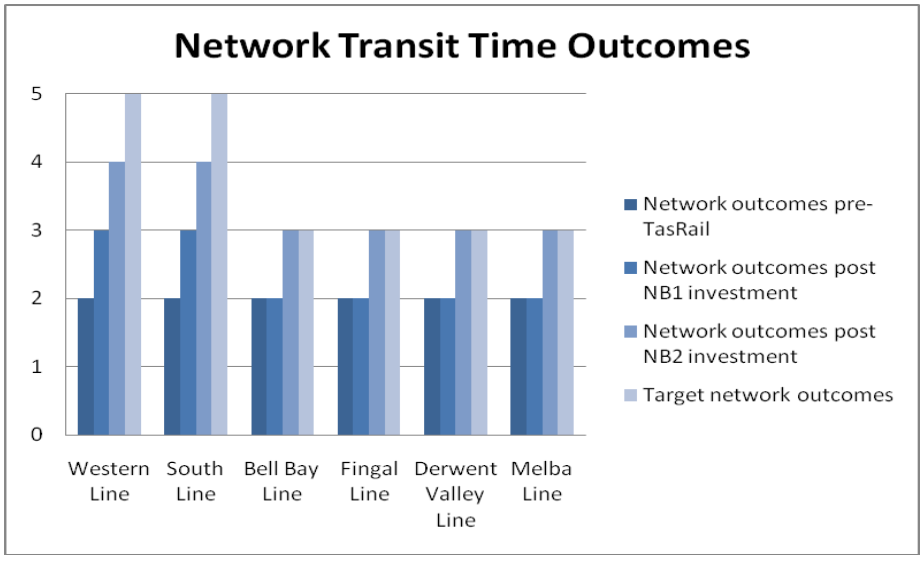
Chart 3: Mainline Derailments 2009 to 2012



2.3.2 Improved transit time of train services

On a target scale of 5, the targeted network transit time goal is 4. A score of 5 means that transit times are sufficient to capture the target market (i.e a score of 4 would not capture 'express' freight, but would be acceptable for all other freight requirements).

Chart 4: Network Transit Time Outcomes Quantified



There is a relatively small proportion of 'express' freight requirements within Tasmania, and TasRail does not intend to compete with road transport operators for that market segment. Instead, for the majority of TasRail's customers, on time reliability is the key train service outcome. However; incremental improvements in transit times are certainly an objective of this funding submission to facilitate entry into new market segments (i.e. same day transit for shipping) and to deliver improved rail asset productivity.

Transit times are currently constrained by network speed restrictions. Chart 5 shows the improvement in temporary speed restrictions since August 2010 and chart 6 shows total train delays since January 2010.

Chart 5: Temporary Speed Restrictions August 2010 to June 2012

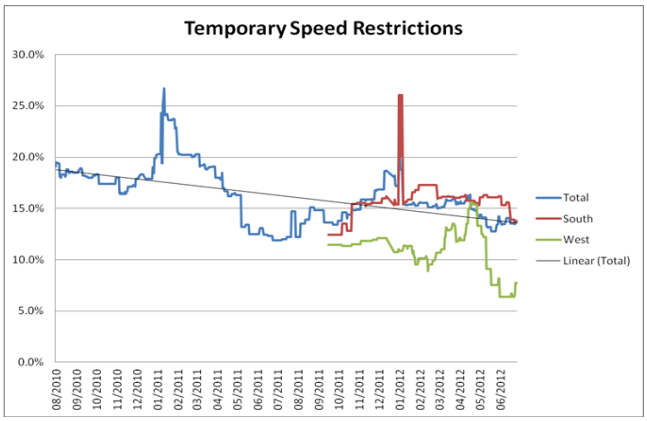
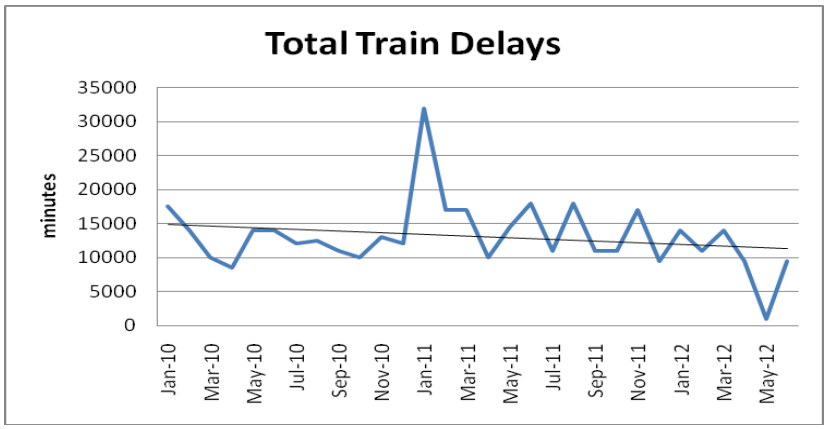


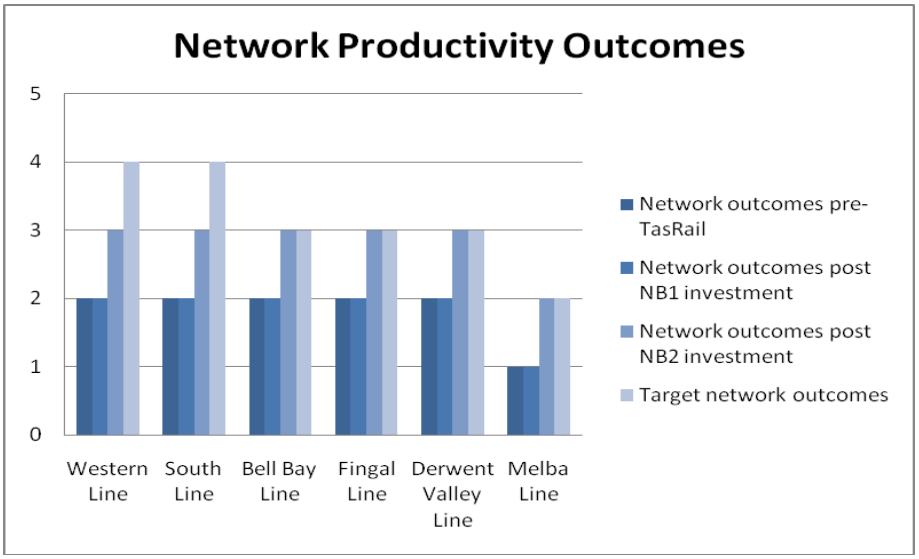
Chart 6: Total Train Delays January 2010 to May 2012



2.3.3 Improved productivity

On a target scale of 5, the targeted rail network productivity goal is 4. A score of 5 means that high levels of productivity are achieved by way of axle loads, asset utilization, asset maintenance costs etc. (i.e. a score or 4 would not include increased axle loads).

Chart 7: Network Productivity Outcomes Quantified



For rail to be in a position to provide a cost-competitive service offering, freight volumes need to increase to leverage rail's inherent economy of scale advantages compared to road transport. The recent substantial improvements in service reliability, combined with the ability to improve cost-competitiveness through more efficient track and above rail assets[6] means that rail is well positioned to build future freight volumes in a sustainable manner.

Productivity is measured by three key metrics – increased market share, reduced life-cycle operating costs and improved asset utilisation.

2.3.3.1 Increased market share

TasRail is committed to offering flexible and responsive rail freight services to the market in order to underpin future increased market share opportunities.

As a result of the Rail Revitalisation Program, the decline in patronage of rail services has already been halted and turned around.

[Reference to forecast market share has been removed for commercial in confidence reasons]..

2.3.3.2 Reduced life-cycle operating costs

TasRail measures rail infrastructure lifecycle costs on an annual dollar per track kilometre recurrent maintenance cost. Currently this is on average $*[removed]*/track kilometre per annum; however, TasRail is targeting a reduction to $*[removed]*/track kilometre per annum between Burnie and the Brighton Hub based on a completely concrete sleepered track. The motivation to reduce maintenance costs is twofold; firstly to develop and maintain an improved competitive position vis road transport; and secondly to continuously reduce the annual operating subsidy from the Tasmanian Government.

2.3.3.3 Improved asset utilisation

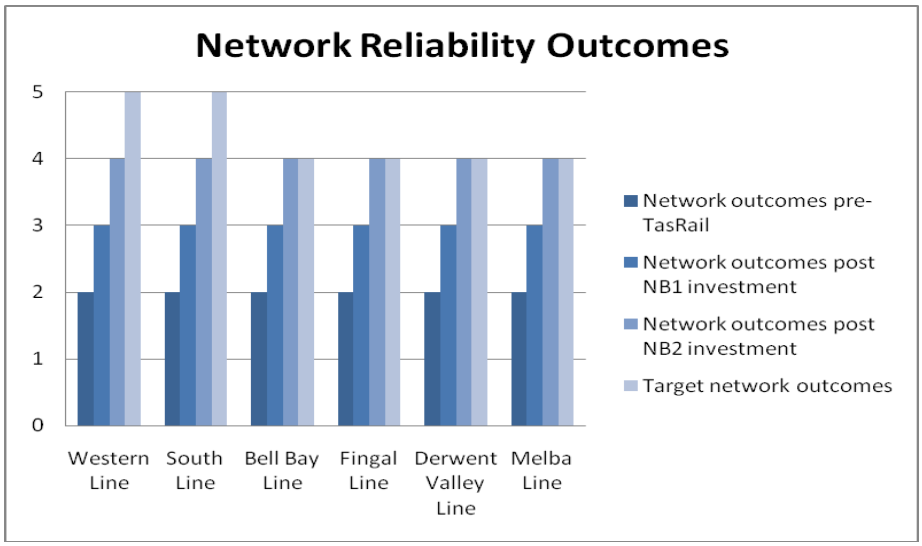
Due to TasRail being a short-haul railway, even incremental improvements in transit times will have a significant and positive impact on asset utilisation. Such improvements are fundamental to improving TasRail's pricing position vis road transport and will enable it to grow rail volumes by providing improved yet sustainable pricing outcomes for customers. Planned improvements in transit time in conjunction with the introduction of operations at the Brighton Transport Hub, along with the investment in new locomotives and wagons will deliver an increase in asset utilisation of around 45 per cent.

2.3.4 Improved reliability of train services

On a target scale of 5, the targeted rail network reliability goal is 5. A score of 5 means that high levels of reliability are achieved that satisfy the target market's needs.

[6] An identified benefit of the new locomotive fleet is increasing maximum haulage capacity from 450 tonnes to 750 tonnes (refer Annexure 2).

Chart 8: Network Reliability Outcomes Quantified



TasRail's ability to improve its competitive position compared to road transport is predicated on substantially improving service levels by improving service reliability. This is achieved by consistently delivering scheduled transit services and by substantially reducing the incidence of major disruptions – historically caused by major derailments. In recent years, customer supply chains have become increasingly sophisticated with ability to compete effectively relying on reducing whole of supply chain costs (i.e. inventory, warehousing, sub-supplier, labor, equipment etc). An unreliable freight transport solution means that additional contingency costs are built into each stage of the freight task. Alternatively, a highly reliable, but not necessarily rapid, transport solution can bring about significant cost savings to market participants.

2.4 Demonstrated Integration across Stakeholders/Infrastructure Sectors

A safe, reliable and efficient rail freight network that is able to integrate its operations with ports, road transport terminals and large industries is a critical part of an integrated supply chain which is vital to improving the overall efficiency and productivity of freight transport in Tasmania.

The Rail Revitalisation Program aligns with associated intermodal and port infrastructure investment, specifically the Brighton Transport Hub and the Burnie and Bell Bay Port Reconfiguration projects.

2.4.1 The Brighton Transport Hub

The Tasmanian Government has funded and constructed the $78 million intermodal transport and freight distribution hub at Brighton, north of Hobart. Once fully operational, TasRail's existing southern rail terminal will be relocated from Macquarie Port. The currently constrained operating environment at Macquarie Point means that volume growth is problematic and the road-rail interface is much less efficient than that which has been established at the Brighton Transport Hub.

In June 2011, TasRail was appointed the Operator of the Hub. This provides an opportunity for TasRail to become much more active in the transport logistics market by developing stronger associations with transport logistics service providers and to directly interface with customers' warehouse facilities. The Hub will also presents the opportunity to provide freight services to smaller transport operators who have previously not used rail.

The design of the new rail terminal will facilitate longer trains with reduced shunting and a more efficient interface with customers. This is consistent with TasRail's objective to increase intermodal volumes and achieve a reliable 24 hour service turnaround between the Brighton Transport Hub and the northern ports. This reduced transit time will make northbound rail freight available to service more frequent shipping schedules, particularly same day sailings across Bass Strait. The resultant reduced transit times, combined with reduced transaction times at Brighton and Burnie, will also provide substantially improved utilisation of locomotives and wagons, thereby reducing costs and enabling rail freight rates to be more competitive as compared to road transport. Importantly, the direct customer-rail interface at Brighton removes a traditional disadvantage for intermodal rail operations (i.e. the double-handling between road and rail).

2.4.2 Burnie Port Reconfiguration

TasRail is working actively with TasPorts and Toll Tasmania to develop modern terminal arrangements at Burnie Port to complement the terminal arrangements at the Brighton Transport Hub. In addition to port precinct efficiencies (improved road and rail logistics and eased congestion), this will capitalise on operational efficiencies that will flow from the Brighton Transport Hub – specifically a 24 hour operational turn-around time for train services. The ability for rail to enter new intermodal market segments is predicated on efficient interfaces. TasRail has already recommenced rail operations between Burnie and Launceston (after an absence of more than a decade) and the planned improvements at Burnie will also provide for an expansion of the Burnie-Launceston services.

The Australian Government has recently committed $4 million to fund Stage 1.2 and 1.3 of the planned reconfiguration of Burnie Port, which includes the redevelopment of the southern railyard and the creation of a high productivity transport link from the southern railyard to the existing shipping terminal. Negotiations are currently well advanced to secure a private sector commitment of $2 million.

2.4.3 Bell Bay Port Reconfiguration

Similarly, TasRail is working actively with TasPorts to improve the road-rail-port interface at Bell Bay. This project will facilitate improved transport interfaces between producers, direct road connections, port facilities and rail to enable a far more responsive approach to the changing international shipping arrangements at Bell Bay. A direct rail connection onto the wharf at Bell Bay will remain; however, this will also be augmented by a multi-purpose freight loading terminal at George Town, connected by a direct B-double capable road link. The George Town terminal will be designed to undertake the loading and unloading of both container and forestry products. The main objective for this project is to provide an efficient, rail-based 'land bridging' operation to better link Bell Bay's heavy industrial producers with their markets in the absence of a direct international container shipping service to Bell Bay. This project is fully funded by a combination of Australian and Tasmanian Government funding and the Project Proposal Report to be submitted for final approval is currently being finalised.

3. Problem Identification – Tasmanian Rail Network Infrastructure

Tasmania has a long history of rail transport as part of its land freight system (refer Annexure 4 – Historical Overview of the Tasmanian Rail System). From an infrastructure perspective, the relative contribution of the rail system to the State's freight task has been impeded by significant investment by all three levels of government in the road network (delivering successive higher productivity outcomes) while at the same time continued under-investment in the rail network by consecutive owners.

The deteriorated condition of the Tasmanian Rail Network infrastructure and more generally the unique operational challenges of the network (short haul distances, tight curves, steep gradients) have been well documented over a long period of time. Addressing these issues is complicated by the synergy required between the rail network infrastructure, above rail infrastructure (wagons and locomotives) and the business strategy aimed at attracting freight customers to rail transport. However, a fully integrated rail business model such as the one that TasRail operates within provides the ideal opportunity to address the shortcomings of the past.

TasRail was established in 2009 following the acquisition of Pacific National Tasmania's assets by the Tasmanian Government. For the first time in the State's history, all of the rail infrastructure assets and train services operations were brought together under common ownership. This has provided a unique opportunity for the revitalisation of rail transport as part of an efficient and integrated land transport system in Tasmania (refer Annexure 2 - Tasmanian Rail Revitalisation Program).

Upon TasRail's establishment and following review of the existing service operation and infrastructure, *the most fundamental issues identified to be addressed related to network (and also to a large extent operational) safety and service reliability*. Poor performance in these key outcomes is evidenced by the number and nature of derailment events and the resulting reaction from the market with the transfer of the freight task to road.

The high costs associated with maintaining the rail infrastructure to mitigate the risk of derailment events were not being met through historical investment, nor through recurrent maintenance spend – creating a circular and deteriorating cycle. Reduced operational revenue through the loss of custom added to this spiral. The historical lack of maintenance investment is the fundamental underlying cause of the current network related issues. It should be noted that Tasmania is not alone in this regard and that the same issues were faced by the ARTC prior to developing a single consistent national network.

Contrary to the gloomy history described above, an excellent early sign of the positive effects that the improvements in infrastructure condition and other operating parameters are delivering is that of TasRail's insurance arrangements.[7]

[Reference to insurance arrangements has been removed for commercial in confidence reasons. However Tasrail has achieved a 36 per cent reduction in insurance charges].

This example is provided not so much to present the quantum of the very modest savings, but to demonstrate the very real improvements to the network condition that are being delivered, and the consequential confidence in the work that is being undertaken.

[7] A comprehensive analysis of the outcomes of the current infrastructure investment is included at section 2.3.

Based on the current and future freight task, transit time requirements are not necessarily the primary issue for customer attraction and retention, however even incremental transit time improvements have a positive effect on TasRail's asset utilisation/productivity and hence commercial viability and cost competitiveness. Ultimately, this will enable TasRail to reduce the Tasmanian Government's ongoing network maintenance grant.

3.1 Underlying Causes Primary Issue 1. Rail Safety and Reliability

Primary causes of poor safety and reliability outcomes are:

- Poor formation due to lack of ballast depth, poor drainage and poor geometry (especially insufficient cant - the 'slope' of rail inward on curves) and difficult alignment (the Tasmanian Rail Network is characterised by many tight curves and steep grades).

- Excessive track buckling in hot weather. There were 108 track buckles in the summer of 2009-10, largely due to:

    - poor stress management – all rail, with the exception of the Melba Line, is continuously welded which is rare for a narrow gauge railway with very tight curves; and

    - poor maintenance techniques – former rail network operators had no recognised track standards applied to the network and had inadequate engineering support.

- Excessive broken rails due to:

    - poor rail welds causing numerous rail breaks. TasRail has identified the primary cause as being a lack of standards and training by former rail network operators; and

    - near-life expired rail.

- Poor defect inspection and response regime – largely resulting from inadequate standards coupled with historical poor management and cultural practices.

3.2 Underlying Causes Primary Issue 2. Costs Associated with Rail Maintenance

Current estimates of rail maintenance costs per track kilometre are approximately $*[removed]*/track kilometres per annum. This is primarily due to the above issues driving poor safety and reliability outcomes; and hence additional costs to mitigate those outcomes.

A priority activity undertaken by TasRail on establishment was a detailed engineering assessment of the rail infrastructure to identify track deficiencies. Prior to the establishment of TasRail, a 'metre by metre' inspection of the entire network was previously undertaken by Tasmanian Rail Management Branch of the Department of Infrastructure, Energy and Resources to fully establish the extent of the problem. This condition assessment was undertaken by specialist rail consultants Coffey Rail. Following this a comprehensive data-base and associated system to capture track condition and works undertaken was also established by Coffey Rail. This was subsequently reviewed by the Australian Rail Track Corporation (ARTC) at the request of the Australian Government on the basis of expenditure requirements versus business opportunities, particularly with respect to the AusLink Rail Network. This review recommended that funding for planned works on the non-operational Wiltshire and Karanja Lines be instead diverted to the main Hobart to Burnie Line (the Western and South lines combined), consistent with the major freight activity opportunities on that corridor. The ARTC's recommendations were subsequently developed into an integrated works program by AECOM which has been the basis of the previous Rail Rescue Package and current Nation Building 1 Program. The results of these assessments show

that a broader rectification program is required than that which is possible under the current funding arrangements. The works undertaken since TasRail's establishment have been programmed in the context of available funds at the time, the ability to undertake 'future proofing' works wherever possible, whilst at the same time combining the most critical needs with a longer-term view of the business and therefore the network.

Following the excessive heat buckles in 2009-10, an early decision made by the TasRail Board was to install concrete sleepers on the tightest curves of the network. The initial focus for concrete sleeper insertion has been to eliminate the inherent derailment risk caused by heat buckles on tight curves – albeit there are insufficient funds in the current program to fully complete this work. There is also a consequential ongoing productivity benefit as a properly constructed concrete sleeper track inherently enjoys a significantly lower maintenance cost.

This submission is for rail infrastructure capital funding beyond the term of the existing Nation Building 1 Program which expires on 30 June 2014. Ongoing funding is required to ensure that the Tasmanian Rail Network is positioned in the long term to deliver benefits for Tasmanian industry and freight users by building on the work undertaken so far. The infrastructure funding provided to date, combined with the Tasmanian Government funding commitments, has stimulated the freight industry to again view rail a key freight transport provider in the State. The long-term objective is to make rail freight operations in Tasmania sustainable by:

- Raising the average condition of the track network so that the recurrent costs of managing the asset are substantially less than the current cost.

  Works to reduce recurrent maintenance costs include relaying approximately 290 kilometres of life expired track (anticipated cost $46.8 million) and a comprehensive concrete resleepering program between Burnie Port and the Brighton Hub (Western and South lines), a total line length of 360 kilometres.

  The current works program includes concrete sleeper replacement of 70 kilometres of rail track (100,000 concrete sleepers) at a total cost $47 million. This will address around 20 per cent of the total line length between Burnie Port and the Brighton Transport Hub.

  The full concrete sleeper replacement will comprise replacing a further 409,000 sleepers, relaying 290 kilometres of rail track. The estimated cost of this program is $192.2 million. Following the completion of the concrete sleeper replacement program the expected future maintenance cost will be on average $*[removed]*/track kilometre per annum.

  In addition to the concrete resleepering program, a steel resleepering program is scheduled on the Melba, Bell Bay and Fingal lines. In total 225,740 steel sleepers will be inserted at an estimated cost of $34.2 million. It is planned for steel sleepers recovered from the Burnie Port to Brighton corridor to be reused on these lines.

- Improving the efficiency and capability of the network.

  This submission seeks to capitalise on the sound investments made by both the Australian and Tasmanian Governments on both Below Rail and Above Rail improvement activities. In the context of the Tasmanian freight environment, it has been recognised that efficient rail freight outcomes can only be possible with a very integrated Above Rail and Below Rail investment program, designed to enable the rail system to achieve its natural advantages by substantially increasing freight volumes.

Further, it has been recognised that for a short-haul railway to be efficient and responsive to customer needs, there needs to be efficient interfaces with the road and shipping modes. These important interfaces have been addressed through targeted investments at the ports of Burnie and Bell Bay and the Brighton Transport Hub. Interestingly, road transport suffers the same modal transfer issues with ports in Tasmania as does rail (and in some cases more so). The modal interface improvements at Brighton, Burnie and Bell Bay will effectively place rail in a more advantageous position compared to road with respect to providing a streamlined transport solution for customers.

- Increasing revenues through higher freight patronage arising from improved reliability, improved competitive position and improved consistency of service.

Nationally, operation and maintenance of rail infrastructure on the Defined Inter-state Network (DIN) is predominantly under the ARTC. ARTC is responsible for, amongst other things, capital investment and infrastructure maintenance. The Tasmanian Rail Network does not form part of ARTC's operational responsibilities, and should therefore be considered for Australian Government funding on a separate, but consistent basis.

4. Solution Selection

For the rail infrastructure component of the Rail Revitalisation Program, the nature of the problem identified relates to the condition of the rail network (i.e. asset based).[8] As such options other than asset renewal have not been considered in the submission. The submission does however address likely implications of funding not being secured in terms of network deterioration on the key attributes of safety, transit time, productivity and reliability. The submission also identifies the safety and environmental costs of transferring the existing rail task to road.

The identified works program has been developed on the basis of demonstrated outcomes from the current works program. It is therefore expected that the works program identified in this submission will result in continued improvements in safety and reliability, with associated transit time/productivity outcomes and be able to deliver these improved outcomes in the context of the growing rail freight market. These are illustrated in charts 9 to 13 in section 4.1.

TasRail has also projected a significant reduction in the rail maintenance cost based on the proposed concrete sleeper replacement and re-railing programs. The target maintenance cost of $*[removed]*/track kilometre/per annum is based on the use of concrete sleepers.

In place of creating additional capacity, the Rail Revitalisation Program targets liberating the existing network usable capacity through the improvement of overall network reliability. However, works being currently being undertaken, and those proposed, on the rail network are being done so with a view for the future. Works such as concrete resleepering, replacing life expired rail and bridge refurbishments/replacements will be capable of increased axle loads (up to 25 tonnes). However, there will remain a number of bridge structures that will be limited to current axle load constraints as these assets are not included within the proposed program of works. A discussion on improving network capacity utilisation versus increasing network capacity is included in Annexure 3.

4.1 Preferred Option: Rail Infrastructure Capital Initiative

Completion of the Rail Infrastructure Capital Initiative component of the Rail Revitalisation Program will include the following key works:

- Concrete re-sleepering of the network between Burnie Port and the Brighton Transport Hub (the Western and South lines).
- Selective insertion of steel sleepers on the Melba, Bell Bay and Fingal lines (in total 225,740 steel sleepers will be inserted, many of which will be reused from the Western and South lines.
- Relaying approximately 290 track kilometres of life expired rail track across the entire network, excluding the Bell Bay Line (the rail on this line is in sound condition).
- Strengthening of bridges, removal of lead paint and culvert/bridge replacements, predominantly on the Western, South and Melba lines.
- Major formation and drainage rectification across the entire network.

[8] Other components of the Rail Revitalisation Program and the issues they address are discussed in Annexure 2 – Tasmanian Rail Revitalisation Program.

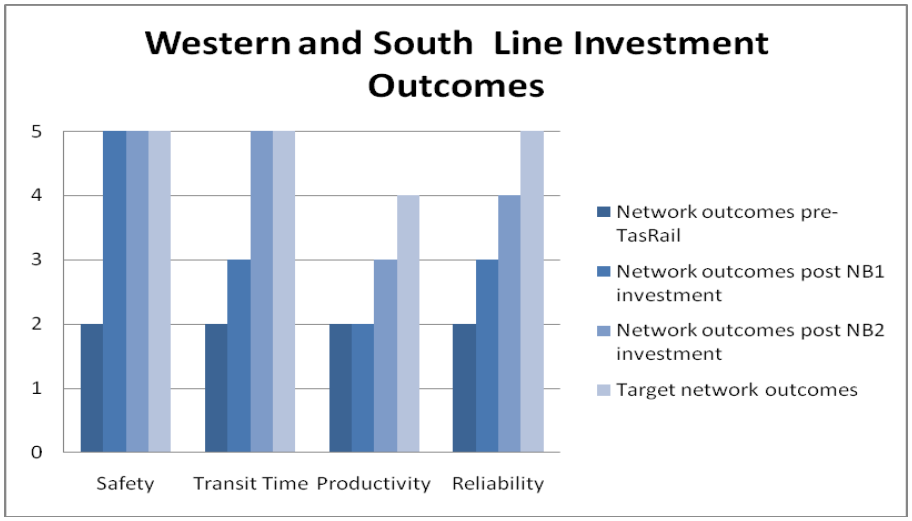
TasRail has prepared a detailed works and expenditure schedule on a line segment basis. Table 2 sets out in summary the allocation of funding across line segments by works.

Table 2: Rail Infrastructure Capital Initiative Completion Program

Rail Infrastructure Capital Initiative Completion Program ($325 million)							
Line Segment	Concrete Sleeper Program	Steel Sleeper Program	Relay Life-expired Rail	Drainage, Tamping and Formation Works	Bridges	Rail Joint/Defect Removal	Rail/Road Crossings
Western Line	$95.6 million	Nil	$14.1 million	$5.1 million	$7.7 million	Nil	Nil
South Line	$96.6 million	Nil	$15.4 million	$5.6 million	$8.4 million	Nil	Nil
Bell Bay Line	Nil	$11.2 million	Nil	$2.2 million	$3.4 million	Nil	Nil
Fingal Line	Nil	$10.0 million	$4.7 million	$1.7 million	$2.6 million	Nil	Nil
Derwent Valley Line	Nil	Nil	$1.2 million	$0.5 million	$0.7 million	Nil	Nil
Melba Line	Nil	$13.0 million	$11.4 million	$4.1 million	$6.2 million	$1.6 million	$0.4 million
Total	$192.2 million	$34.2 million	$46.8 million	$19.2 million	$29.0 million	$1.6 million	$0.4 million

On a per line basis, these outcomes are illustrated in the following charts.

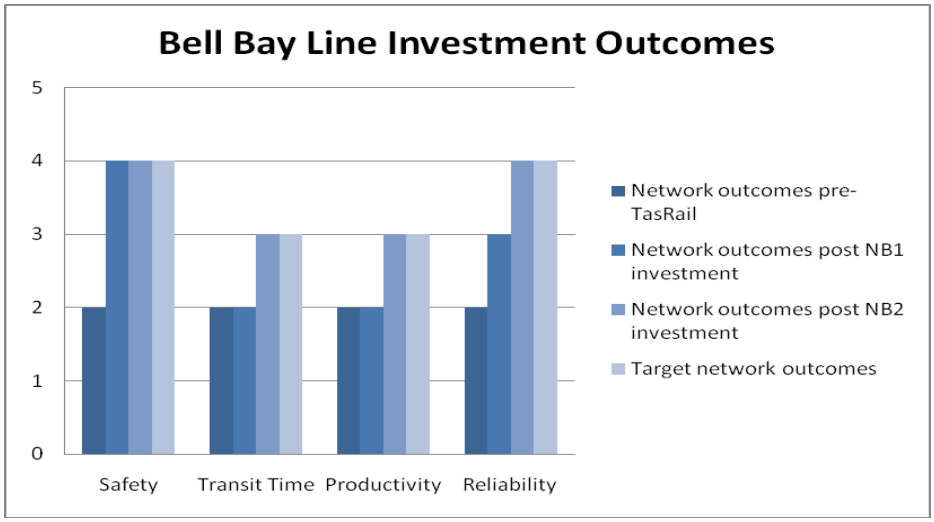
Chart 9: Western and South Line Investment Outcomes



At the end of the current investment on the Western Line ($89.2 million) and South Line ($83 million), on a 'fit for purpose' scale the lines will be safe, have marginal (around ten per cent) transit time improvement and significant productivity and reliability improvements. Although the transit time improvements are marginal in real time improvements, they are significant in effect through much improved asset utilisation and the ability to service new markets. After the proposed works have been undertaken ($122.5 million and $126.0 million for the Western and South lines respectively), existing safety levels will be retained and there

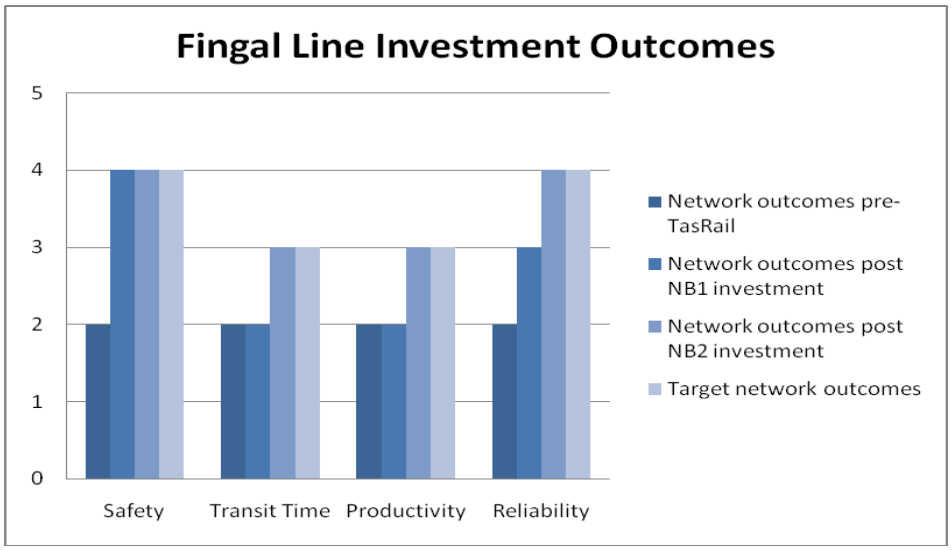
will be some further transit time improvement. Improvements in productivity are largely based on reduced track maintenance costs associated with concrete sleepers and due to increased overall freight volumes delivering improved economies of scale. An incremental improvement in reliability is largely due to track buckles being eliminated by concrete sleepers.

Chart 10: Bell Bay Line Investment Outcomes



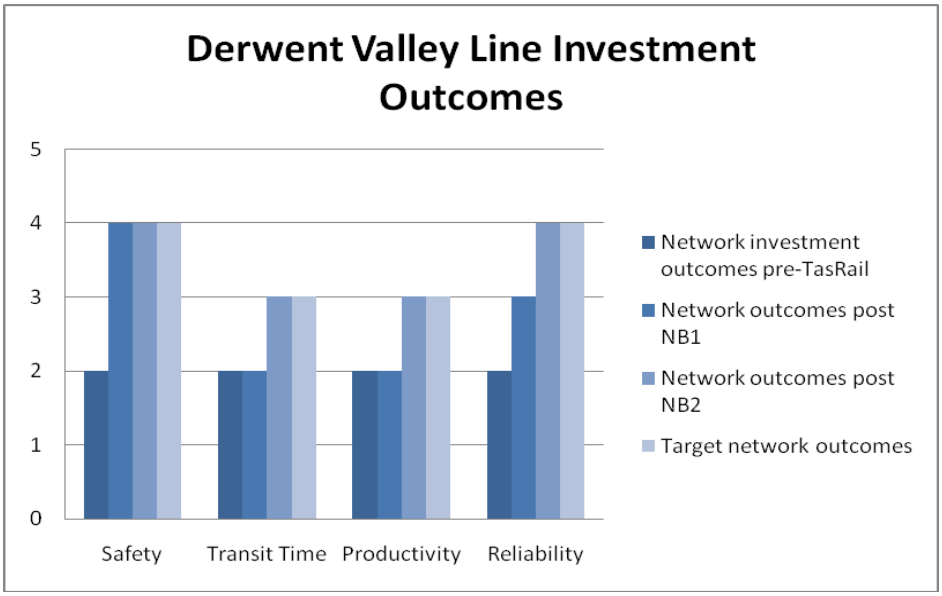
The Bell Bay line was constructed during the early 1970's and, unlike the other network lines, does not contain large sections of near life-expired rail. At the end of the current investment on the Bell Bay Line ($2.5 million), on a 'fit for purpose' scale it will be safe (recognising low projected traffic levels), but will not deliver transit time or productivity improvements, and will be only marginally more reliable that was previously the case. On this basis it is recommended to defer additional funding for this line until significant additional volumes eventuate (i.e. HardRock Coal), at which time the proposed program for an additional $16.8 million would be necessary.

Chart 11: Fingal Line Investment Outcomes



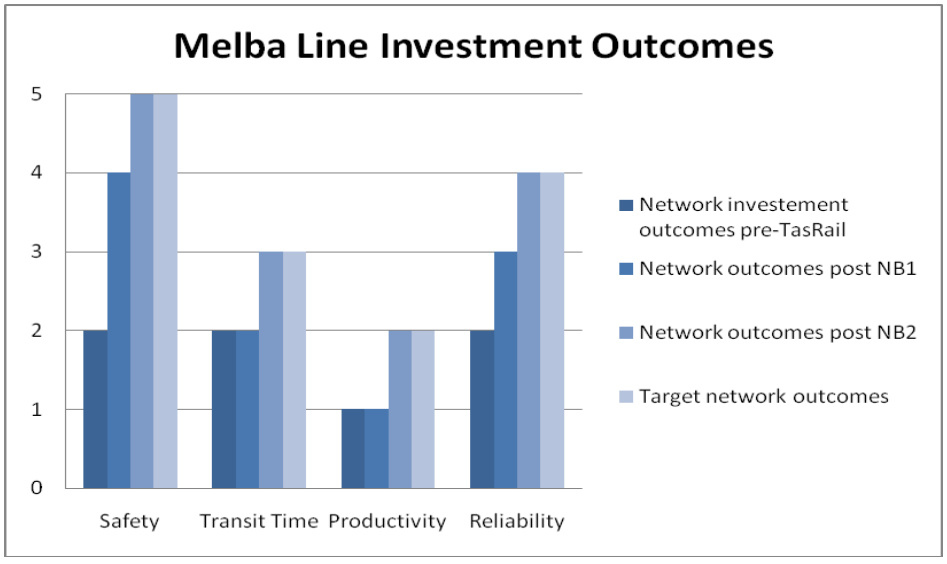
Works on the Fingal Line have been limited to resleepering, welding and formation works, and some bridge works. At the end of the current program ($5.7 million), the line will be 'fit for purpose' based on current traffic levels and will continue to require ongoing high maintenance costs. This line segment contains a significant portion of life-expired rail (around 74 per cent of the total line). Therefore, as a minimum, works associated with rail replacement ($4.7 million) will be undertaken as a priority. Consistent with the Bell Bay Line, It is recommended to defer additional funding on this line until significant additional volumes eventuate (i.e. HardRock Coal), at which time the proposed program for an additional $14.3 million would be necessary.

Chart 12: Derwent Valley Line Investment Outcomes



Works on the Derwent Valley Line to be completed under the current program will total $1.1 million, consisting mainly of resleepering works. However, much of the rail, 98 per cent on this line, is near life-expired. As a consequence it is recommended that as a minimum works associated with rail replacement ($1.2 million) be undertaken as a priority on this line, with additional works ($1.1 million) deferred for future programs.

Chart 13: Melba Line Investment Outcomes



Works on the Melba Line have been extensive and have included resleepering, significant drainage works and the removal of mechanical joints by welding. At the end of the current program ($15.7 million) the safety and reliability of the line will have been incrementally improved. Similar to the Fingal Line, much of the rail on the Melba Line is near life-expired (around 46 per cent). It is on this basis that the forward program of works ($36.7 million) continues in an effort to optimise costs associated with rail replacement in conjunction with resleepering, rail welding and drainage works.

4.2 Prioritisation of Proposed Funding

This submission identifies the total rail infrastructure work program assessed by TasRail as necessary to underpin the viability of rail as an efficient transport option in Tasmania.

A key challenge is to be able to program the works in a manner that balances the critical timing needs for asset replacement in many cases (i.e. those works that are of a safety nature), against those that will deliver operating improvements by way of network reliability, transit time improvement and/or improved productivity. A further complexity is introduced when one considers the optimum delivery method for rail replacement, concrete resleepering and major formation works is to undertake all of these works packages in an integrated manner. Finally, consideration needs to be given to TasRail and its contractors' capacity to deliver the works over the Nation Building 2 Program timeframe. In consideration of the above, it is proposed to deliver the entire program of works in the following manner.

Table 3: Prioritisation of Rail Infrastructure Capital Initiative Works Program

Nation Building 2 Program ($240 million)							
Line Segment	Concrete Sleeper Program	Steel Sleeper Program	Relay Life-expired Rail	Drainage, Tamping and Formation Works	Bridges	Rail Joint/Defect Removal	Rail/Road Crossings
Western Line	$68.8 million	Nil	$14.1 million	$5.1 million	$7.7 million	Nil	Nil
South Line	$72.2 million	Nil	$15.4 million	$5.6 million	$8.4 million	Nil	Nil
Bell Bay Line	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Fingal Line	Nil	Nil	$4.7 million	Nil	Nil	Nil	Nil
Derwent Valley Line	Nil	Nil	$1.2 million	Nil	Nil	Nil	Nil
Melba Line	Nil	$13.0 million	$11.4 million	$4.1 million	$6.2 million	$1.6 million	$0.4 million
Total	$141.0 million	$13.0 million	$46.8 million	$14.8 million	$22.3 million	$1.6 million	$0.4 million

Replacement of life-expired rail across the network (excepting the Bell Bay Line which is comparatively new construction) is a priority project. In total $46.8 million is allocated to rail replacement in this submission.

Where rail replacement coincides with the requirement for concrete or steel sleepers and associated formation works, those works would also be undertaken concurrently.

On lines where rail replacement is required, but concrete sleepers are not programmed then generally only rail replacement will be undertaken (for example the Fingal and Derwent Valley lines). The exception to this is the Melba Line where the full program of works has been prioritised as these works are of a safety-critical nature. Valuable gains in improving the quality of the track on this line have been made in recent years.

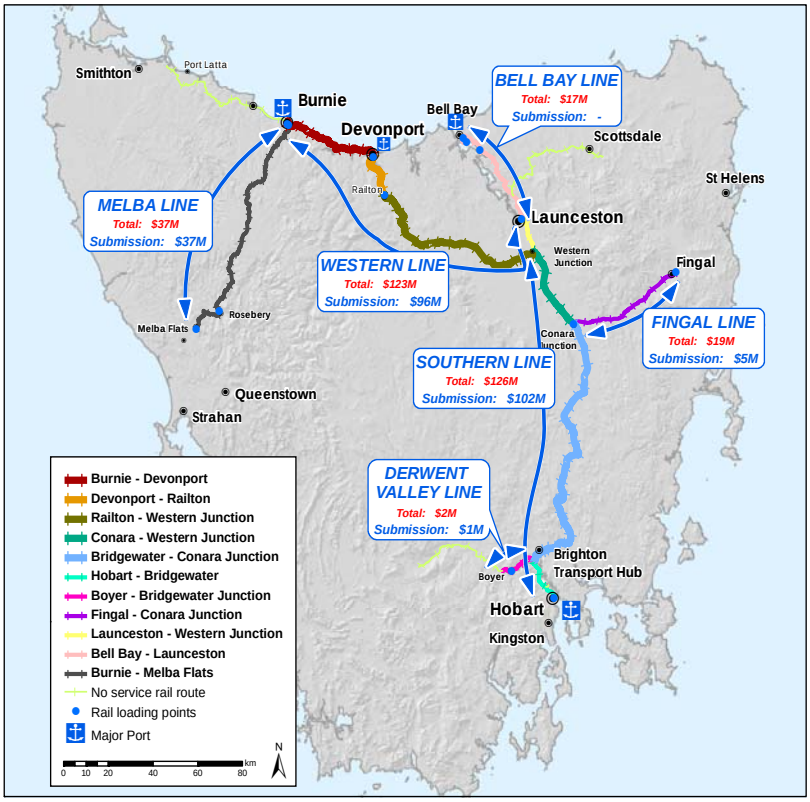
Current demand for rail services at Bell Bay for shipping is limited. The expected rail freight volumes for the short to medium term will be limited to product moving to and from the major industrial producers at Bell Bay to the Burnie and Devonport ports for subsequent export, and the potential Hardrock Mine coal transport from Fingal to Bell Bay Port. On this basis, an internally-funded general maintenance and renewals program will continue, commensurate with the freight task. Only a relatively minor portion of the Bell Bay Line contains near life-expired rail. This approach will need to be reviewed in the event that the Hardrock Coal freight task materialises.

With the exception of rail replacement, works on the Fingal Line have been deferred at least to the point that the proposed HardRock Mine commences in full production. Even at one million tonnes per annum it is envisaged that only internally-funded general maintenance and renewals are required in the short to medium term. Therefore, any capital works on this line will be programmed towards the end of the overall program.

Similar to the Fingal Line, with the exception of the replacement of near life-expired rail, works on the Derwent Valley Line have been deferred and will be programmed towards the end of the overall capital program.

Chart 14 shows the identified and prioritised Rail Infrastructure Capital Initiative by line segment.

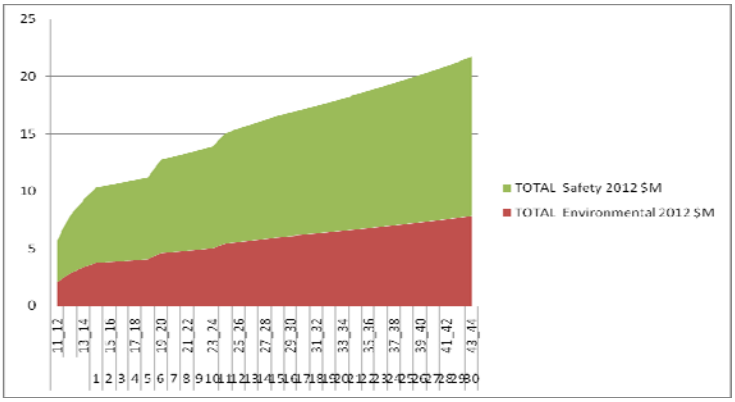
Chart 14: Identified and Prioritised Rail Infrastructure Capital Initiative



4.3 Safety and Environmental Benefits of the Projected Rail Freight Task

The Benefit Cost Analysis set out in section 4.4 identifies the significant social and environmental benefits of the current and projected rail freight task (or the cost of that task transferring to road). These benefits are quantified in Chart 15 below.

Chart 15: Estimated Safety and Environmental Benefits ($ Million)



4.4 Solution Evaluation

TasRail engaged consultants Pitt&Sherry to undertake an independent benefit cost analysis of the $325 million Rail Infrastructure Capital Initiative. This analysis confirms that the investment program is robustly cost effective under a range of scenarios, with Benefit Cost Ratios (BCRs) ranging between 2.0 and 1.4 at 4 per cent real discount rate. Internal rates of return vary between 6.6 per cent (Scenario 1) and 9.6 per cent (Scenario 3).

When the overall investment is broken down by line, project cost-effectiveness varies as described below. In all cases, the main North-South line renewal (Burnie Port to the Brighton Transport Hub and extending along the Derwent Valley Line) remains very cost effective (BCR 2.0 – 2.2) at 4 per cent real discount rate. Internal rates of return also vary, reaching 18 per cent on some line segments in Scenario 3.

Three scenarios have been prepared to 'stress test' the benefit cost analysis:

Scenario 1: A conservative freight outlook (no new major mining projects or forestry activity) and high rail freight retention in the base case through the entire period of analysis.

Scenario 2: The same conservative freight outlook as Scenario 1, but applying TasRail's commercial judgment regarding line closures in the base case (due to poor commercial viability).

Scenario 3: A more optimistic freight outlook, involving two prospective minerals projects proceeding, plus a modest recovery in the forestry freight task.

A discussion on the projected rail freight market share is included in Annexure 3.

The conservative freight outlook on the road/rail corridors served by TasRail (described as the 'foundation' freight task in Scenario 1 and Scenario 2) has been sourced from the Department of Infrastructure, Energy and Resources, in consultation with TasRail.[9] The 'base case' for each scenario assumes completion of the current program of capital works, including above rail investments, by the end of 2013-14, and describes the expected evolution of each line/corridor without further rail renewal (but assuming ongoing contributions from the Tasmanian Government towards rail maintenance). The 'project case' describes the impact of the planned 'rail renewal' investments for the network as a whole and by line, with capital works completed during five years from 2014-15 onwards.

Generally, benefits from the project case arise in proportion to the share (and absolute size) of the contestable freight task that is carried by rail in each scenario, including capture of new freight tasks and retention of existing tasks. This is because there is a clear reduction in freight operating costs and associated externalities per ntkm in operating rail when compared to road freight operations in Tasmania. Therefore, the benefit cost analysis improves both as a function of growth in the freight task but also when risks of line closure due to inadequate commercial performance are included in the analysis.

4.4.1 Benefit Cost Analysis – Detail Scenario 1

Scenario 1 is a 'whole of network' analysis. This analysis compares the investment cost ($325 million in total) of completing the renewal of the Tasmanian Rail Network with the economic benefit of performing a given freight task on rail rather than road. For example the quantity of freight carried on rail under the project case in 2019-20 is 671 million ntkm, while the quantity under the base case is 470 million ntkm. The benefit in that year is the lower cost of carrying the 201 million ntkm difference on rail rather than road (around *[Removed]* cents per ntkm vs around *[Removed]* cents). A small additional benefit is the reduced network maintenance per kilometre cost that results from the renewal works (although these benefits only apply in the years where the line is open in the base case).

The foundation, project and base cases under Scenario 1 are outlined below.

Foundation freight task scenario: This scenario projects an increase in rail's market share of the contestable freight task over the years 2012-13 to 2014-15 based on network and above rail performance improvements resulting from current investments under the holistic Rail Revitalisation Program. Thereafter, market share remains steady, however total freight task steadily increases as projected rates of growth, by commodity/freight type are applied. The average growth rates are 2.3 per cent until 2030 and 1.9 per cent thereafter. There are no 'new tasks' under this scenario, rather gradual increases in the existing freight tasks. The foundation task is considered conservative.

Base case: The freight task under the base case mirrors the foundation task for 2014-15 and 2015-16 (project years 1 and 2). TasRail expect the network to recommence deterioration in 2016-17 in the absence of the project investment. The accompanying drop in network performance sees a gradual, but increasing loss of freight custom under the base case. The exclusions to this are the Melba and Derwent Valley Lines; and the section of the Western Line between Railton and Devonport, where current freight tasks are retained through the entire period; and retaining 50 per cent of the Burnie Port to Brighton intermodal task.

[9] Note that the full analysis of road/rail competition is contained in Scenario 3, with a simplified 'rail only' task described in Scenarios 1 and 2.

Project case: The project case mirrors the foundation case over the first five years as the renewal takes place. On completion of the project, as a result of improved network performance, market share is increased on corridors with large and mixed freight tasks, and retained on lines with less likelihood of market share growth. In Year 11, as further increase in market share is applied as it is anticipated that rail's competiveness will have increased relative to road on a ntkm basis with likely increases in fuel, labour (driver) and carbon costs impacting less heavily on rail than road. The project case freight task is considered conservative, and therefore is plausible, for two key reasons. Firstly, it is based on a foundation scenario that does not introduce any new tasks (although new mining tasks for instance are quite likely). Secondly, although there is some gain of freight custom by rail at the expense of road, the rate of gain is modest. TasRail management is confident that the actual share of the freight task will be larger than projected under Scenario 1.

The foundation, project and base cases under Scenario 1 are shown in the chart below:

[Reference to scenario analysis has been removed for commercial in confidence reasons].

4.5 Claim for Australian Government Funding

Ultimately, there are only three sources of funding for rail infrastructure – direct user charges, borrowings by TasRail or government investment. This section of the submission considers each of these funding sources in turn; and, makes the claim for the full cost of the proposed projects in funding from the Australian Government.

4.5.1 Direct User Charges

The Tasmanian Rail Network (excluding the Melba Line which was then privately owned by Pacific National) was declared open access by the Tasmanian Government on 2 October 2007. The access arrangements for a ten year period were set out in the Rail Maintenance and Management Deed (RMMD) as part of the Rail Rescue Package negotiated between the Australian and Tasmanian governments and Pacific National Tasmania. Within these access arrangements, funding contributed by both the Australian and Tasmanian governments through the Rail Rescue Package was excluded from network cost recovery charges levied on users. Specifically, the then rail network manager[10], Pacific National Tasmania, was not permitted to recover the costs from any third party to the extent that those costs were met by Government contributions. That is, government funding of the rail infrastructure rehabilitation does not form part of the 'cost base' to be recovered from the market through direct user charges.

[10] The duties and obligations of the rail network manager are set out in the *Rail Infrastructure Act 2007*.

When the Tasmanian Government acquired Pacific National's Tasmanian operations in 2009, the rail network access arrangements, including charges to be applied to users contained within the Rail Maintenance and Management Deed were rolled-forward by the Tasmanian Government in a 'transitional access framework'. At that time a review of the access framework was identified as a future action to be undertaken – the Tasmanian Government and TasRail's immediate priority being the safe operation and use of the network and rebuilding capability within the business to maintain market share.

There is no capacity within TasRail's existing market arrangements (some of which, in particular relating to the bulk market, are under long-term contract) to increase user charges. Intermodal rates, which face strong competition from road transport are constrained by road pricing in order to remain competitive. However, there is an expectation that access charges for any new bulk segment customers will recoup additional infrastructure investment required to meet their freight task. There is no investment of this nature included in this funding submission.

In a similar manner, there is no capacity to gain better utilisation of the existing assets beyond an increase in the freight market share through the operation of regular passenger services. Passenger rail services between Hobart and Launceston were terminated in the late 1970s based on low patronage and competition from road services. The cost of upgrading the existing rail line to a standard capable of supporting fast passenger rail is now significant and would include both line upgrades and the reinstatement of facilities required to support a modern and attractive passenger rail service, including stations and rolling stock. It is unlikely there is sufficient passenger demand to support this level of investment as the Midland Highway carries relatively low volumes of passengers compared to urban areas, or other parts of the AusLink Network, and these volumes are forecast to remain comparatively low. In any case this type of investment is outside the scope of this funding submission.

4.5.2 TasRail's Capacity to Internally Fund Proposed Projects

Since it was established in 2009, TasRail has operated in two distinct business segments, Below Rail and Above Rail. The Below Rail segment relates to the management and operation of the Tasmanian Rail Network and related infrastructure, including all maintenance and capital programs. The Above Rail segment relates to the provision of rail freight services in Tasmania, including the operation of container terminals. In addition, TasRail owns and operates the Burnie Port bulk storage and shiploader facility.

The Above Rail segment earns revenue from rail customers which is applied to paying the Rail Network Access Charge (or internal arm's length transfer price) and Above Rail operating costs. While the Tasmanian Government has made a $130 million equity commitment to train and wagon replacement and renewal, TasRail has identified ongoing sustaining capital requirement of $7.5 million per annum beyond the current major replacement program. TasRail estimates that revenue from rail customers will be sufficient to meet this sustaining capital requirement within five years; however, this will mean that this operating surplus is not available to reduce the rail maintenance operating grant through an increase in access charges; or be applied to Below Rail capital renewal. At this time, the position of the Tasmanian Government is that operating surpluses will be used to progressively reduce the operating subsidy (provided for recurrent track maintenance and renewals); and any requirement for Above Rail sustaining capital will be considered on a case by case basis by Treasury.

On the basis of this operating structure, TasRail's commercial goal is to operate the Above Rail segment on a commercial (self-renewing) basis and contain the level of the below rail maintenance loss within the Tasmanian Government operating grant of $16.3 million per annum based on the current freight task and existing per kilometre maintenance costs. TasRail will continue to monitor efficiencies to work within this target, and wherever possible increase revenues to reduce the target by attracting new freight business on a commercial basis and by improving the cost recovery of the existing freight task.

At this time, TasRail does not have the borrowing capacity to contribute to the identified projects.[11]

4.5.3 Tasmanian Government Investment in Rail Infrastructure

TasRail's Below Rail segment provides rail network infrastructure on behalf of the Tasmanian Government on an open access basis. Consistent with the Tasmanian Government's objective for rail to be a viable part of the Tasmanian efficient land transport system, the network must be maintained at a sufficient standard to meet the current and future rail task in a safe and reliable manner. To support this objective the Tasmanian Government has provided substantial funding to TasRail and for the construction of associated infrastructure. Specifically, the Tasmanian Government has:

- Under the Rail Rescue Package, committed $44.8 million over ten years toward rail track maintenance. This has increased to $16.3 million per annum ongoing.
- Funded the purchase of Pacific National's Tasmanian operations.
- Provided $11 million on TasRail's establishment as working capital to enable it to commence the rebuilding process.
- Provided $130 million for capital funding for, amongst other things, locomotive, wagon and train control system replacement.
- Funded and constructed the $78 million intermodal and freight distribution hub at Brighton, north of Hobart.
- Provided contributions towards rail-port interface enhancements at Burnie and Bell Bay.

4.5.4 Australian Government Investment in Rail Infrastructure

The Rail Infrastructure Capital Initiative component of the Rail Revitalisation Program identified in this submission is based on renewal or replacement of existing assets – a consequence of a long period of underinvestment while the rail network was outside the ownership and/or control of the Tasmanian Government.[12] Similar to the anticipated ongoing subsidy for below rail operations, long periods of underinvestment in the rail network is not unique to Tasmania.[13]

As shown in chart 18, the main North-South and Western Lines of the Tasmanian Rail Network, linking Hobart and the three northern ports, forms part of the National Land Transport Network (formerly AusLink Network).

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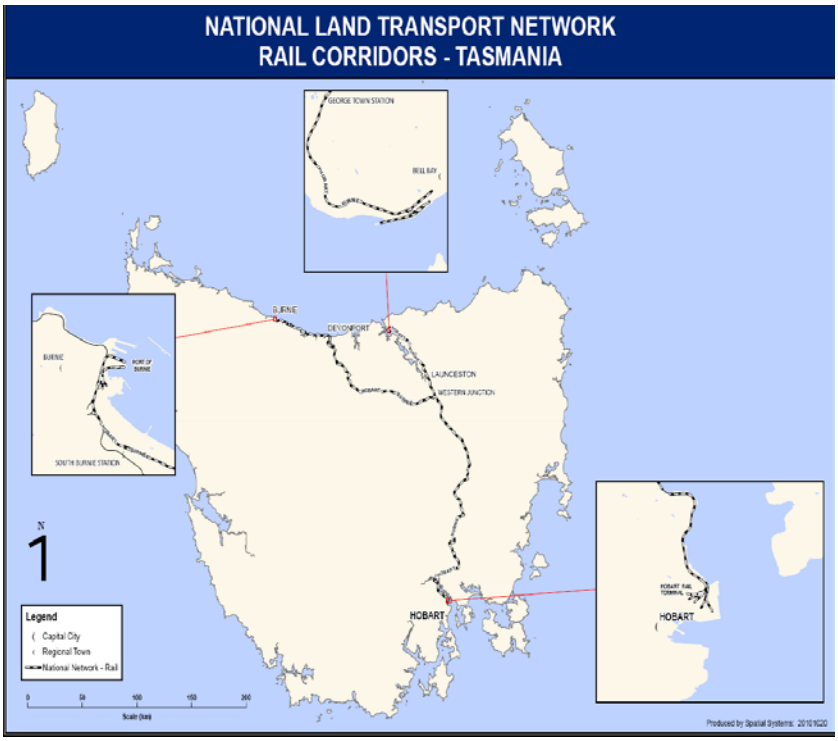
[11] Based on estimated future cash flows, below rail assets were impaired in FY2011 by $30.3 million.
[12] Including a lengthy period of ownership by the Australian Government as part of the Australian National Railways Commission (ANRC) between 1975 and 1997.
[13] A similar situation was faced by the ARTC in developing the National Network on mainland Australia.

Chart 18: National Land Transport Network Rail Corridors - Tasmania



Source: www.nationbuildingprogram.gov.au/whatis/network

The National Network identifies transport and intermodal connections that are of critical importance to national and regional economic growth, development and connectivity. The National Network also identifies the road corridor that compliments these rail lines.

Similar to the provision of capital funding to ARTC for other parts of the National Network, the Australian Government has previously provided funding for capital infrastructure renewal to enable the Tasmanian Rail Network to be open to rail users in a safe and reliable manner.

The Australian Government has previously committed $78 million under the Rail Rescue Package and a further $127.3 million in 2007 through election commitments to the Tasmanian Rail Network – of which $106 million was allocated to projects on the National Network.

4.5.5 Other Potential Sources of Funding

Projects on the Melba, Fingal and Bell Bay lines may be eligible for funding under the Regional Infrastructure Fund (RIF) recently established by the Australian Government. The broad objectives of the RIF are to:

- Promote development and job creation in mining communities, and in communities which support the mining sector;
- Provide a clear benefit to Australia's economic development, and to investment in Australia's resource or export capacity; and
- Address potential capacity constraints arising from export production and resource costs.

Specifically, Stream 2 of the RIF funding provides for Economic Infrastructure Projects which includes critical rail infrastructure. Where the market is not able to fully support additional capital investment (substantial axle load improvements on the Melba Line may be one example), then TasRail will seek Stream 2 RIF funding for projects associated with the mining sector.

4.6 TasRails's Capability and Capacity to Undertake the Identified Investment

TasRail's investment program has been developed to strike a balance between preparing for future opportunities and maintaining a realistic assessment of current circumstances, both within the context of a limited budget.

Over the past two years, TasRail has developed internal project development and management capability and has proven that it is able to undertake detailed engineering analysis, project scoping and project delivery. It has done so in a difficult environment (i.e. delivering the rehabilitation program) requiring prioritisation of pressing infrastructure needs against a restricted funding framework.

TasRail has also developed internal rail infrastructure engineering expertise and has developed new track construction and maintenance standards by developing a thorough understanding of the unique operating environment in Tasmania and integrating those needs within a standard engineering framework established by the Rail Industry Safety and Standards Board.

Since the establishment of the Tasmanian Government's Rail Infrastructure Branch in 2007, and subsequently the founding of TasRail in December 2009, more than $200 million of rail infrastructure projects have been planned and almost $150 million of those projects have now been delivered.

This engineering, project management and procurement capability has been developed from a 'zero base' as the previous owner's well established engineering expertise was based out of Melbourne and was removed from the business upon TasRail's establishment. With such a sound foundation in engineering know how, project management expertise and contractor capacity and capability, TasRail is well positioned to successfully deliver the proposed program of works.

TasRail has also established a stringent procurement process to deliver the lowest cost for the solutions identified in section 4.1. The two largest components of the Rail Revitalisation Program are the concrete sleeper replacement and rail replacement projects (intended to be delivered concurrently to minimise cost and impact on operation of the network).

For the concrete re-sleepering program (which has commenced under the Nation Building 1 Program), TasRail initiated an international request-for-tender process to source concrete sleepers and has established a cost effective production and transport solution. TasRail has established a sleeper supply contract at prices comparable to steel sleepers which covers the capital investment program through until 2013-14 and is extendable into the future. These sleepers have a design rating of 25 tonne axle load.

Whilst the initial order of 100,000 sleepers failed to identify a suitable local (Tasmanian) production solution, any subsequent tender process will again seek to explore whether the local production of concrete sleepers is possible.

Similarly, TasRail has sourced sound, second-hand 47 kilogram rail from ARTC which has been found to adequately satisfy TasRail's long term needs at around one third of the cost of new rail – including transport to Tasmania. The rail has been visually inspected, and rail profile and ultrasonic testing records have been provided by ARTC to attest to its condition. An efficient transport plan has been developed to enable TasRail to relocate rail to Tasmania at the lowest possible cost. To illustrate the detail considered in the initial procurement of this rail, individual rail lengths were maximised in order to optimise shipping and welding costs. The lengths of new rail are about half the length of that currently being procured from ARTC, meaning that welding costs of around $200 per weld will be minimised. Reduced welds also translate into a reduction in potential failure points in continuously welded rail. It should also be noted that this rail is likely to have been otherwise uneconomic to even convert to scrap by ARTC due to the remote locations where it is currently situated and the cost of transporting it to a location for scrapping (based on current scrap steel prices). Effectively, the procurement strategy developed by TasRail as described above will save the Australian Government more than $20 million by using assets that would otherwise have been scrapped.

With reference to Infrastructure Australia's recent report 'Improving Efficiency in Major Infrastructure Procurement', it is in interesting to note that even recognising TasRail's relative 'immaturity' with respect to the development of its project planning and delivery resources, the approaches being undertaken are not inconsistent with those being recommended within the report. This no doubt reflects close engagement with the Australian Government; and TasRail's need to establish its capability from scratch, thereby developing and implementing contemporary procurement approaches (instead of being constrained by the inertia of past internal practices).

4.7 Tasmanian Rail Network outcomes without proposed funding

TasRail's expected network and customer outcomes without the proposed Rail Infrastructure Capital Initiative is captured in the Cost Benefit Analysis Base Case (refer section 4.4.1). In the absence of project investment (and without additional maintenance expenditure), TasRail projects that reliability, transit time and productivity will begin to decline, progressively shrinking the freight task. The key drivers are insufficient reliability (due to a high risk of derailments caused by sleeper failures and fatigued rail) and inadequate transit time on the Western and South lines to synchronise with shipping schedules. This scenario is included in the Benefit Cost Analysis as the Base Case.

Annexure 1 - The Tasmanian Rail Network

The Tasmanian Rail Network consists of the railways defined in Schedule 1 Part 1 of the *Rail Infrastructure Act 2007,* being:

- Bell Bay Line (approximately 57 km running from the East Tamar junction to Bell Bay);
- Derwent Valley line (approximately 71 km running from the Bridgewater junction to the railyard west of Maydena known as the 'Florentine rail yard'). That part of the Derwent Valley Line running from Boyer to Maydena is currently non-operational.
- Fingal Line (approximately 55 km running from Conara Junction to Fingal);
- North-East Line (approximately 73 km running from Coldwater Creek junction to Tonganah). The North-East Line is currently non-operational.
- South Line (approximately 199 km running from the Hobart rail yard to Western junction).
- Western Line (approximately 259 km commencing at the Inveresk Railyard (the 2 km at the western end of the rail bridge on the North Esk River is non-operational) and running to Wiltshire via East Tamar and Western Junction). That part of the Western Line running from Burnie to Wiltshire (often described as the Wiltshire Line) is currently non-operational.
- Risdon Line (approximately 3 km running from Derwent Park to the former siding at the Risdon Smelter). The Risdon line is currently non-operational.
- The Melba Line (approximately 130 km running from the port at the City of Burnie to Melba Flats).
- The Hellyer Line (being the railway running from the Hellyer Mine site to the eastern boundary of the Melba Line at Moorey Junction). The Hellyer Line is currently non-operational.

This network is illustrated the map below.

The rail network dates from the late 1800's and its alignment has changed little since. The network is a single rail line, narrow gauge (1067 mm) transport system and consists of a total of 632 route kilometres of operational lines and a further 213 kilometres of non-operational lines. The operational network extends from Hobart to Western Junction and then to Bell Bay Port in the north-east and to Burnie in the north-west. Connections are also provided to Fingal in the east and Boyer in the Derwent Valley. The Melba Line connects the west coast to Burnie. Across the operational track there are 355 bridges, 360 level crossings, 122 active road crossings, 2 tunnels and approximately 948 000 sleepers.

The Land Corridor

The land corridor sits under the rail freight network and varies in width. As a general rule, the corridor is about one chain in width (1 chain = 66 ft or 20.12 metres). This adds a further complexity for the Tasmanian Rail Network as it means almost all rail maintenance vehicles need to travel on rail to work sites because of the lack of trackside access roadways (due to the narrow land corridor reducing the productivity of maintenance forces. The inherent low-maintenance characteristics of concrete sleepers means that this efficiency impairment can be negated). The land corridor is retained as Crown Land and leased to TasRail.

In addition, the land corridor under the former rail line between Melba Flats and Zeehan has been identified as having potential future significance for the transport of mineral ore concentrates from the west coast. This land corridor has been preserved for consideration of future rail requirements in addition to the currently non-operational lines.

Track Capacity – Speed and Load Capacity

Track capacity (the length and weight carrying capacity of trains) is influenced by a number of factors. Significantly, Tasmania's difficult topography confines the speed and load capacity the rail freight network, particularly creating the need for steep gradients (up to 1:40) and tight curves.

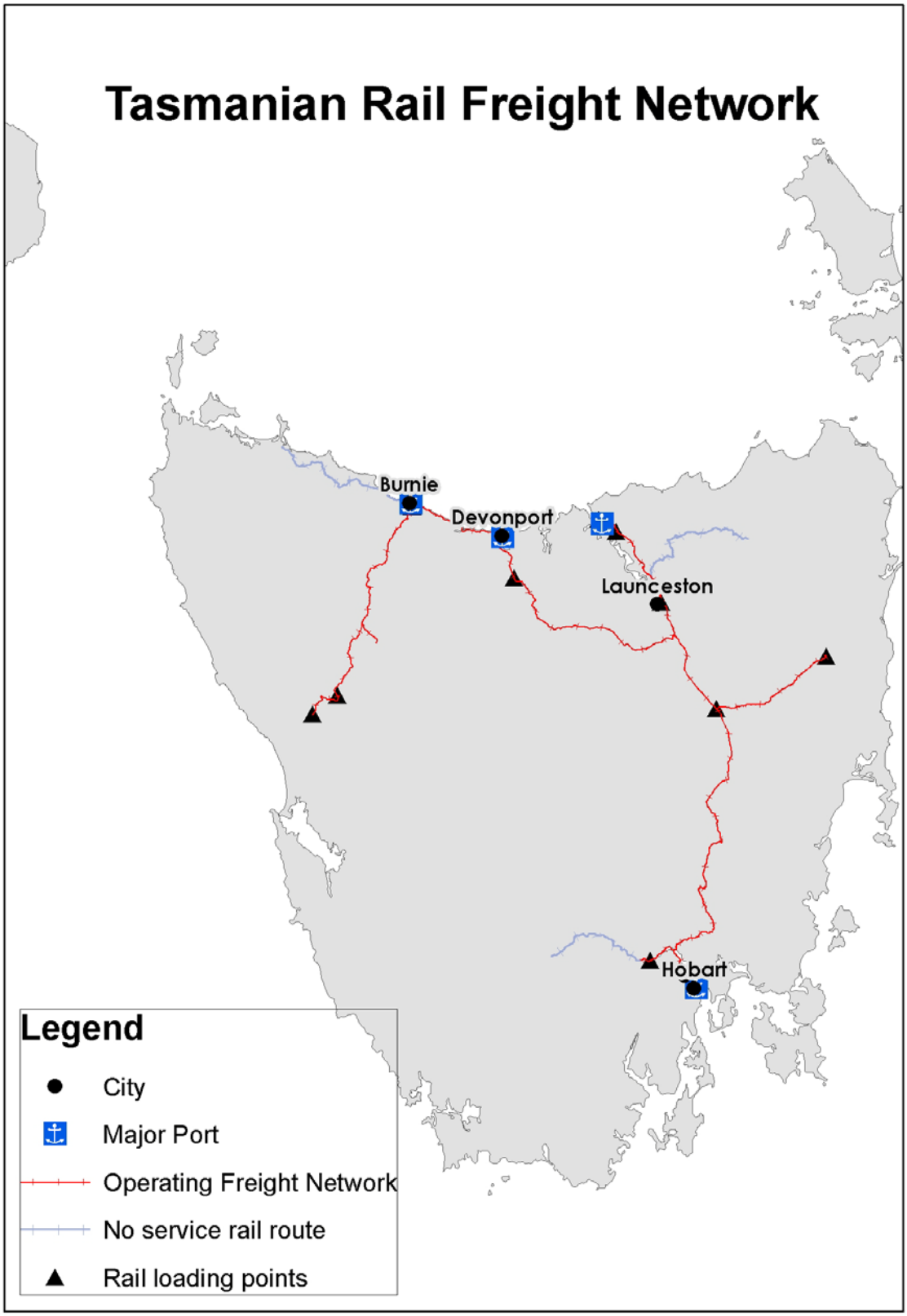
The single line rail network means that trains running in opposite directions are limited by passing loops. Passing loops on the rail freight network are typically 850 metres to 900 metres in length. Maximum train lengths, and hence the capacity of the rail freight network, is partially controlled by the length of the passing loops. The size of arrival/departure sidings, the number of crossing loops along the track, and the relative location of the passing loops also impact on the track capacity.

There are around 240 active and passive level crossings on the rail network (of which 37 cross State roads) that impact on the travel speed of trains, particularly in urban areas. There is also a significant number of pedestrian and private crossings (both formal and informal) used to access private land.

The design speeds of the rail network are very low compared to the road speed limits on the corresponding road network, particularly where the rail network mirrors the National Network (where speeds are typically 100km per hour for heavy vehicles). Rail speed limits are nominally 70km per hour; however, there are sections of the network that are much lower than this due to track condition (temporary restrictions) and/or track alignment (permanent restrictions).

There are two key freight business segments for rail within Tasmania – 'bulk' and 'intermodal'; both of which have vastly different characteristics. The needs of bulk customers are continuity of supply and low cost. Therefore, the service needs are based on reliability rather than transit times, although equipment cycle times are important in order to reduce operating costs. For intermodal customers, again reliability is key, and whilst there is some express freight within Tasmania, much of the freight arriving into the state is for 'next day' transit. It is on this basis that TasRail is confident of significantly increasing modal share for this market segment.

Ultimately, it is the axle load restrictions that determine the carrying capacity of wagons. The axle load limit for the rail network is 18 tonnes, except for the Melba Line which is 16 tonnes.


Tasmanian Rail Freight Network
Burnie
Devonport
Launceston
Hobart
Legend
City
Major Port
Operating Freight Network
No service rail route
Rail loading points

Annexure 2 – Tasmanian Rail Revitalisation Program

The Tasmanian rail network and train service operations are undertaken through a vertically integrated business – TasRail. As such, there is a strong synergy between the above and below rail business and investment strategies to support market growth that will underpin long-term sustainability. Investment in the rail network, over and above that to address safety issues, is based on forecast market demand. This approach results in different strategies across segments of the rail network.

TasRail, supported by the Tasmanian Government, is committed to improving the long-term competitiveness of rail transport such that rail is able to offer a viable alternative to road (for the contestable portion of the freight market) as part of an efficient land transport system. Improved rail infrastructure is also able to support projected growth in the freight task and to enable the rail to improve its market share through new business opportunities. Ultimately, the Tasmanian Government's strategic objective is for rail to capture a greater share of the contestable land freight market.

The historical investment shortfall in the Tasmanian rail network has been acknowledged by both the Tasmanian and Australian governments, which have supported the revitalisation of rail in the Tasmanian freight market through funding commitments.

Since inception TasRail has embarked on an extensive Rail Revitalisation Program to secure both the safety and reliability of the rail network and the efficiency and competitiveness of train service operations.

Securing the safety and reliability of the Tasmanian rail network

The need for investment in the rail network has been recognised by both the Tasmanian and Australian governments; and the then rail operator Pacific National Tasmania in 2006, resulting in the development and funding of the Rail Rescue Package. Under this package, the Australian Government committed $78 million towards capital upgrades and the Tasmanian Government committed $44.8 million over ten years toward rail track maintenance. This funding has enabled TasRail (and formerly Pacific National Tasmania) to maintain parts of network as operational, particularly the north-south line, retaining intermodal freight task on rail.

In the 2010 State Budget the Tasmanian Government increased its commitment to below rail maintenance to around $16.5 million per annum. TasRail has forecast that with the infrastructure works currently in progress and the projects that are the subject to this submission, the Tasmanian Government's grant will reduce to around $11.5 million on an ongoing basis.

The Australian Government's Rail Rescue Package funding has been delivered through the completion of a series of projects, including: re-sleepering 190,000 sleepers, re-railing in excess of 30km of rail, drainage works, formations works, crossings upgrades and bridge replacement.

In 2007, as part of its infrastructure election commitments, the Australian Government committed a further $127.3 million to Tasmania's rail network. This funding was dedicated to specific parts of the network, including the non-operational sections of the Derwent Valley and Wiltshire Lines. In 2009, this funding was subsequently reprioritised in order to keep the core of the network, including the Melba Line, operational. Projects on the non-operational line have been deferred until after the existing operational network is strengthened.

Australian Government's election commitment funding included the following:

- Rail capacity improvements at Rhyndaston $24 million
- Upgrade of the Burnie to Western Junction line $28.9 million
- Upgrade for the Hobart to Western Junction line $20.3 million
- Main north-south line rail capacity improvements $31.6 million
- Upgrade of the Fingal line $5.7 million
- Upgrade of the Boyer line $1.1 million
- Upgrade of the Melba Flats to Burnie Line $15.7 million

Table 7: Delivery of the Australian Government's Rail Rescue and Nation Building 1 Packages

Rail Rescue Pack age ($78 million) and Nation Building 1 Funding ($128.6 million)							
Line Segment	Concrete Sleeper Program	Steel Sleeper Program	Relay Life-expired Rail	Drainage, Tamping and Formation Works	Bridges	Rail Joint/Defect Removal	Rail/Road Crossings
Western Line	$21.0 million	$22.8 million	$6.8 million	$5.6 million	$28.2 million	$0.5 million	$4.3 million
South Line	$26.0 million	$28.3 million	$8.4 million	$7.0 million	$7.5 million	$0.6 million	$5.3 million
Bell Bay Line	Nil	Nil	Nil	$2.3 million	Nil	$0.2 million	Nil
Fingal Line	Nil	$4.3 million	$0.5 million	$0.6 million	$0.1 million	Nil	$0.2 million
Derwent Valley Line	Nil	$1.1 million	Nil	Nil	Nil	Nil	Nil
Melba Line	Nil	$10.0 million	Nil	$3.1 million	$0.8 million	$0.9 million	$0.8 million
Total	$47.0 million	$66.5 million	$15.7 million	$18.6 million	$36.6 million	$2.2 million	$10.6 million

Note: Some funding relating to scoping minor works and Rhyndaston tunnel have not been allocated in the above table

Contemporary and standardised locomotives and a renewed wagon fleet

In conjunction with the below rail revitalisation program, TasRail has also embarked on an extensive program to secure contemporary and standardised locomotives and renew its wagon fleet. In 2010, the Tasmanian Government committed $130 million to fund this renewal program. TasRail has recently awarded a $60 million+ supply contract for seventeen new, purpose built locomotives which are schedule to start arriving mid-2013 with delivery complete by mid to late 2014. The new locomotive fleet will come in convertible 16 tonne and 18 tonne axle loads – providing interoperability between the Melba Line and the rest of the network. The new fleet of locomotives is designed to deliver substantial savings in fuel and maintenance costs; and to provide improved levels of reliability and hauling capacity. The photo below shows the new locomotives.

The expected benefits of the new locomotive fleet are set out in table 8, below:

Table 8: Expected benefits of the new locomotive fleet

The current TasRail fleet	The new locomotive fleet
Life expired condition and beyond end of useful operating life (30+ years old).	New build to TasRail specification and design.
Characterised by three compatibility types, four engine types, five generator types. Limited inter-operability – system is capacity constrained.	Single locomotive design able to convert between configurations for operation of axle load (16 tonne Melba Line and 18 tonne Mainline).
Train consist requires 3 to 4 locomotives to haul.	2 locomotives per consist.
Maximum hauling capacity 450 tonnes.	Maximum haulage capacity of 750 tonnes.
Unreliable with frequent breakdowns and very high level of intervention and unplanned maintenance.	High level of reliability.
Spare parts no longer available.	Readily available parts, service and warranty support.
Planned scheduled maintenance cycle of a maximum of 90 days.	Planned schedule of maintenance cycle of 180 day.
Fuel inefficient.	Significant fuel and emission saving.
Tunnel operations present significant risk of breakdown and related OH&S issues.	Improved performance through tunnel operations.
Safety features progressively retrofitted by TasRail.	Superior driver safety including improved collision protection in design.
Diesel only operation.	Capable of Bio Diesel (B40 fuel) should technology advance/fuel become available.

In the interim, to boost freight capacity, TasRail has purchased four second hand locomotives ex QR National and is refurbishing seven locomotives from the existing fleet to cover additional freight needs.

The second key above rail project is the substantial replacement and/or upgrading of much of the wagon fleet (coal, cement and containers) due to the life expired condition and restrictive operation of existing assets. The existing aged design of much of the wagon fleet causes operational inefficiencies and can contribute to an increased risk of derailments.

Investment in hi-rail vehicles and include train control process and investment. When completed, these initiatives will deliver significant recurrent funding savings, particularly in relation to maintenance costs, as well as customer service improvements through reduced running times and increased reliability. Better asset utilisation relating to interoperability will lead to productivity achievements.

In addition, the Tasmanian Government committed $11 million on TasRail's establishment to enable it to rebuild the business that has been under-resourced for decades. This has included developing internal capability to improve safety processes and outcomes, undertake the investment in rail track infrastructure and to develop customer relationships and business opportunities. Specific actions include:

- Establishing an Infrastructure Division responsible for delivering the maintenance and infrastructure across the network for all assets. An Asset Management Team supports the Infrastructure Division through activities as planning and scheduling maintenance and capital works, project management and legal support.

- TasRail has recently employed a Business Development Manager with more than 20 years experience working with local, interstate and overseas freight logistics companies; and has undertaken a comprehensive review of all freight activities and opportunities within Tasmania. This position will work with existing rail customers and potential rail clients to explore new and additional business opportunities.

Annexure 3 – Rail Freight Market Share

The Department of Infrastructure Energy and Resources (DIER) undertakes a comprehensive Freight Demand Survey once every three years. This data is used to support strategic infrastructure planning and investment decisions on the State's transport network. The most recent was undertaken in 2009[14], approximately 2.3 million tonnes of freight per year was carried on the rail freight network which represented 5.1 per cent of the total State freight task.[15] On a net tonnes kilometres basis, approximately 308 million tonne kilometres was transported by rail, representing 8.7 per cent of the total State-wide freight task.

Rail freight operations are split into two broad markets: 'bulk' and 'intermodal'.

Bulk freight consists of cement (transported from Railton to Devonport), mineral ore concentrates (transported on the Melba Line from the West Coast to Burnie Port) and coal (transported from Fingal to Railton). In 2009 bulk freight constituted approximately 1.6 million tonnes with represented 3.5 per cent of the total State freight task in terms of gross tonnages or 2.5 per cent in terms of net tonnes kilometres.

Intermodal freight consists of containerised goods – for example paper products, zinc ingots and retail products, primarily on the main north-south line between Hobart and Burnie Port. In 2009, intermodal freight constituted approximately 0.7 million tonnes which represented 1.6 per cent of the total State freight task in terms of gross tonnage, or 6.3 per cent in terms of tonnes kilometres.

Typically, in Tasmania bulk freight is moved over shorter distances as in the case of cement from Railton to Devonport Port (21 km) and mineral ore from the West Coat to Burnie Port (average distance 112 km). In contrast intermodal freight is moved over longer distances from Hobart and Boyer to the Burnie Port. The average distance such freight moves has been calculated at approximately 335 km.

Freight Growth Assumptions – Benefit Cost Analysis

The Benefit Cost Analysis utilises a foundation freight task scenario. The foundation freight task for Scenario 1 and Scenario 2 has been established by applying growth rates for the existing freight task (bulk and intermodal) based on the commodity type. The average growth rates are 2.3 per cent until 2030 and 1.9 per cent thereafter. The foundation freight task also projects a contestable market share of intermodal task – this is estimated to be an additional 800,000 tonnes of which a modal shift to rail is assumed over the years 201-13 to 2014-15 based on network and above rail performance improvements resulting from current investments.

There are no new bulk freight tasks included in the foundation freight task scenario. However, the potential new tasks outlined below have been included in the foundation freight task for Scenario 3.

[14] An update of the Freight Demander Survey will be undertaken in the second half of 2012.

[15] Total heavy freight task for road sourced from Survey of Motor Vehicle Use 2010, Australian Bureau of Statistics.

Potential New Large Freight Tasks

During 2010-11 TasRail commenced the development of a marketing strategy that included initiatives for growing market share and identifying opportunities for increased, consistent volumes across the network.

TasRail is working closely with the Tasmanian minerals sector to determine how mining freight that is currently being carried by road can be transferred to rail. TasRail is also working closely with the proponents of two projects in particular to undertake the primary transport task for the new mining activity (discussed below).

In addition, TasRail has engaged with the forestry sector, identifying a number of potential opportunities. Trial transportation of logs between the north and south of the State have been undertaken over the last six months using refurbished rolling stock. This is a sector that has not used rail for many years due to numerous derailments over time. However, TasRail is now confident that the track is now in a much better condition, forestry product is now of a much more consistent nature (i.e. regrowth product) allowing improved load distribution. Load securing and wagon dynamic issues have been identified and resolved. New rolling stock options which enable back-loading of containers would also benefit over road haulage when there is not a log backhaul task. This sector has very real potential to transfer significant volumes from road to rail, particularly if the current reduced number of processing or export locations remains resulting in longer distance haulage.

TasRail seeks to be innovative about the types of services it offers and to step more broadly into total transport logistics by becoming more involved in loading and unloading and other activities of the supply chain where this would add to customer value.

In planning to meet Tasmania's projected freight growth, the road and rail networks should not be considered in isolation of or in opposition to each other. Any land freight network must be thought of in holistic terms with freight being transported by either rail, road or in combination.

Further, co-ordinated intermodal investment is fundamental to improving the efficiency of freight transport in Tasmania. The proposed road-rail-port interface at Bell Bay is an excellent case in point. When completed, the project will facilitate improved transport interfaces between producers and rail. An efficient, direct road connection will link producers with both rail and port facilities to enable a far more responsive approach to the changing international shipping arrangements. A direct and more streamlined rail connection directly onto the wharf at Bell Bay will remain; however, this will also be augmented by a multi-purpose freight loading terminal at George Town, connected by a direct B-double capable road link. The George Town terminal will be designed to undertake the loading and unloading of both container and forestry products. This project is fully funded by a combination of Australian and Tasmanian Government funding and the Project Proposal Report to be submitted for final approach is currently being finalised.

Similarly, further development works are planned at the Port of Burnie to provide for expanded rail capacity to satisfy the growing intermodal task at that location. Initial works have been funded by TasRail and further, more substantial works are expected to commence this financial year. These works will be funded by a combination of Australian and Tasmanian Government funding, combined with a not insignificant contribution from the private sector.

Whilst TasRail is projecting that the main growth in rail utilisation will be through an increasing intermodal task. There are also the aforementioned bulk mining projects that have a very real likelihood of realisation. The contributing factor in both these cases is the

opportunities presented by the introduction of new rolling stock, particularly as a result of providing additional capacity and improved service levels; and a growing level of confidence in the market place of the improving condition of the track network; and hence improved reliability outcomes.

TasRail is currently in active discussion with three new potential customers for the following significant freight tasks.

[Reference to new potential customers has been removed for commercial in confidence reasons].

Annexure 4 – Historical Overview of the Tasmanian Rail System

Similar to the interstate rail networks, the Tasmanian rail network as evolved over time. Ownership of the rail network and the operation of train services, have, at various times, passed between government and the private sector; and the rail network has operated structurally as both vertically separated and vertically integrated.

Tasmania has a long history of rail transport as part of its land freight system.

Between 1885 and 1938 the rail network (excluding the Melba Line) was owned by the State and operated as the Tasmanian Government Railways (TGR). Ownership transferred to the Tasmanian Transport Commission between 1938 and 1975 when, as part of a Commonwealth initiative to amalgamate Australia's railways into one entity, the Tasmanian Government sold the railway to the Australian Government. The Transport Commission operated the network between 1975 and 1978 on behalf of the Australian Government, who owned and operated it as part of the Australian National Railways Commission (ANRC) until 1997. In 1997 the Tasmanian Government resumed ownership of the rail land asset as a strategic corridor. Ownership of the fixed assets (rail track infrastructure) was severed from the land itself and sold by ANRC along with the business to the Australian Transport Network Consortium, led by Wisconsin Central and Tranzrail, (ATN). The Tasmanian Government leased the land corridor to ATN. ATN continued to operate the business as ATN Tasrail, annexing the Melba Line through the purchase of the Emu Bay Railway Company (giving it access to Melba Flats on the west coast and the mineral concentrates traffic) and merged the two businesses.

In early 2004 ATN sold Tasrail to Pacific National (a subsidiary company of Asciano Limited), who in 2006 approached the Tasmanian Government for funding to continue operations. In June 2006, the Tasmanian and Australian Governments announced a joint "Rail Rescue Package" of funding over 10 years towards capital upgrades and track maintenance. In conjunction with the Rail Rescue Package, the rail network infrastructure (excluding the Melba Line) was transferred to the Tasmanian Government from Pacific National Tasmania (PNT) on 1 January 2007 for $1 and declared open access under the Trade Practices Act 1976 (Cth), making it available to third party rail operators. Under the terms of the Rail Maintenance and Management Deed (RMMD), PNT continued to have responsibility for managing and maintaining the asset for the term of the RMMD. PNT continued to privately own and operate the Melba Line without government assistance.

In 2008 Asciano Limited announced its intention to cease business operations in Tasmania and following a failed market sale process entered into formal negotiations with the Tasmanian Government to acquire PNT. In November 2009, the Tasmanian Parliament approved the Rail Company Bill 2009, establishing a new State-owned Company, TasRail to own and operate the rail network and to undertake train services. TasRail began operation on 1 December 2009.

Annexure 5 - Improving Network Capacity Utilisation v Increasing Network Capacity

The rail infrastructure component of the Rail Revitalisation Program addresses the underlying cause of the issues identified, being the lack of investment in the rail track infrastructure by successive owners of the network over a lengthy period. Infrastructure Australia has previously noted[16] that the works identified are to upgrade or replace existing assets, and therefore would generally not be classed as capital but as renewals or refurbishment. Capital would normally be classified as increasing the network capacity beyond its original design.

In place of creating additional capacity, the Rail Revitalisation Program targets liberating the existing network usable capacity through the improvement of overall network reliability. This forecast increase in volume capability and utilisation translates to improvements in productivity (due to the very high fixed cost nature of rail). Rail infrastructure investment is complimented by investment in the new locomotive fleet which is anticipated to increase maximum hauling capacity from 450 tonnes to 750 tonnes (refer Annexure 2 – Tasmanian Rail Revitalisation Program).

Increasing the productivity of the Tasmanian Rail Network through increases in network capacity beyond the current design has recently been raised in the context of Infrastructure Australia's Tasmania's Ports and Freight Strategy report. Specifically, the report indicates a possible task of the 'Freight and Logistics Co-ordination Team'[17] could be to progress strategic work with long term planning to lift the rail track infrastructure standards to a carrying capacity of 25 tonne axle loads consistent with the national rail system.

The current standard of the Tasmanian Rail Network is an allowable maximum axle load of 18 tonnes on all lines except the Melba Line, where the maximum axle load is 16 tonnes. A targeted axle load capacity of 25 tonnes, consistent with the national rail system should be considered in the context of the geographical and infrastructure constraints of the Tasmanian Rail Network and the projected freight task.

TasRail has estimated more than one billion dollars would need to be invested to achieve 25 tonne axle loads across the entire Tasmanian Rail Newtork, with limited productivity benefits in the context of the current Tasmanian freight market. For example, for the intermodal freight task (for which rail and road compete) 25 tonne axle loads would enable three containers per wagon in lieu of the planned two containers per wagon with the proposed investment under the Rail Revitalisation Program. The only real benefit is a slight saving in the tare weight of wagons and a small reduction in train length. Other marginal benefits would be realised by way of more standardised future rolling-stock purchases; however, TasRail's current rolling-stock procurement process has realised efficient outcomes for the purchase of non-standard equipment. Due to the need for TasRail to replace rolling stock now, these new rolling stock purchases will, by necessity, be designed around the 18 tonne axle load constraint. However, if key portions of the network were to be ultimately upgraded to a higher axle load capacity, this new rolling stock would still be suitable for use.

Due to the short-haul and lower volume nature of much of the Tasmanian land freight task, modal shift between road and rail is predicated on improved service offering rather than by productivity improvements such as increasing axle loads. In the Tasmanian context, rail's

[16] 2011-12 Infrastructure Australia Assessment Brief page 2.

[17] The 'Freight and Logistics Co-ordination Team' is an initiative of the Australian Government funded under the $20 million funding package to assist Tasmanian exporters.

ability to be responsive to customer service demands, and be able to deliver more rapid cycle times along with improved transit schedules will provide far greater productivity benefits by way of increased asset utilisation (i.e. locomotives, wagons and customers equipment) as compared to simply increasing axle loads.

Similarly, operational modeling undertaken to determine the benefits of increased axle loads (25 tonne v 18 tonne) for a bulk traffic task (1 million tonnes per annum export coal from Fingal to Bell Bay) resulted in annual operating cost savings in the order of $400,000 per annum on a cost base of around $4.2 million per annum. Whilst in percentage terms these benefits are not insignificant, the expected cost to construct a track suitable for 25 tonne axle loads would be expected to be in excess of $100 million for the task in question. Based on this scenario (the most optimistic one in the Tasmanian context), such an investment would not be considered viable.

However, as previously noted, works being undertaken now under the current investment program are being done so with a view for the future. For a relatively low additional incremental cost TasRail has been able to undertake works such as concrete resleepering, re-railing and bridge refurbishment/replacement that will be capable of increased axle loads. However, there will still remain a number of bridge structures that will be limited to current axle load constraints as these assets are not included in the proposed program. Nonetheless, at the completion of this program, the line between Burnie and the Brighton Transport Hub will be ready to complete a substantial axle-load increase project should the need arise.

Inter-operability with the National Rail system is not a specific goal under the Rail Revitalisation Program. Tasmania is an isolated regional network and network performance characteristics are focused on meeting local environment and projected freight demand rather than national consistency aspirations. Key inter-operability issues are centered on rail terminals and ports, rather than attempting to improve the connectivity of freight volumes that are sourced/destined for the mainland rail network.