

# **Rail Futures Institute**

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## **2018-2019 Victorian State Budget Submission**

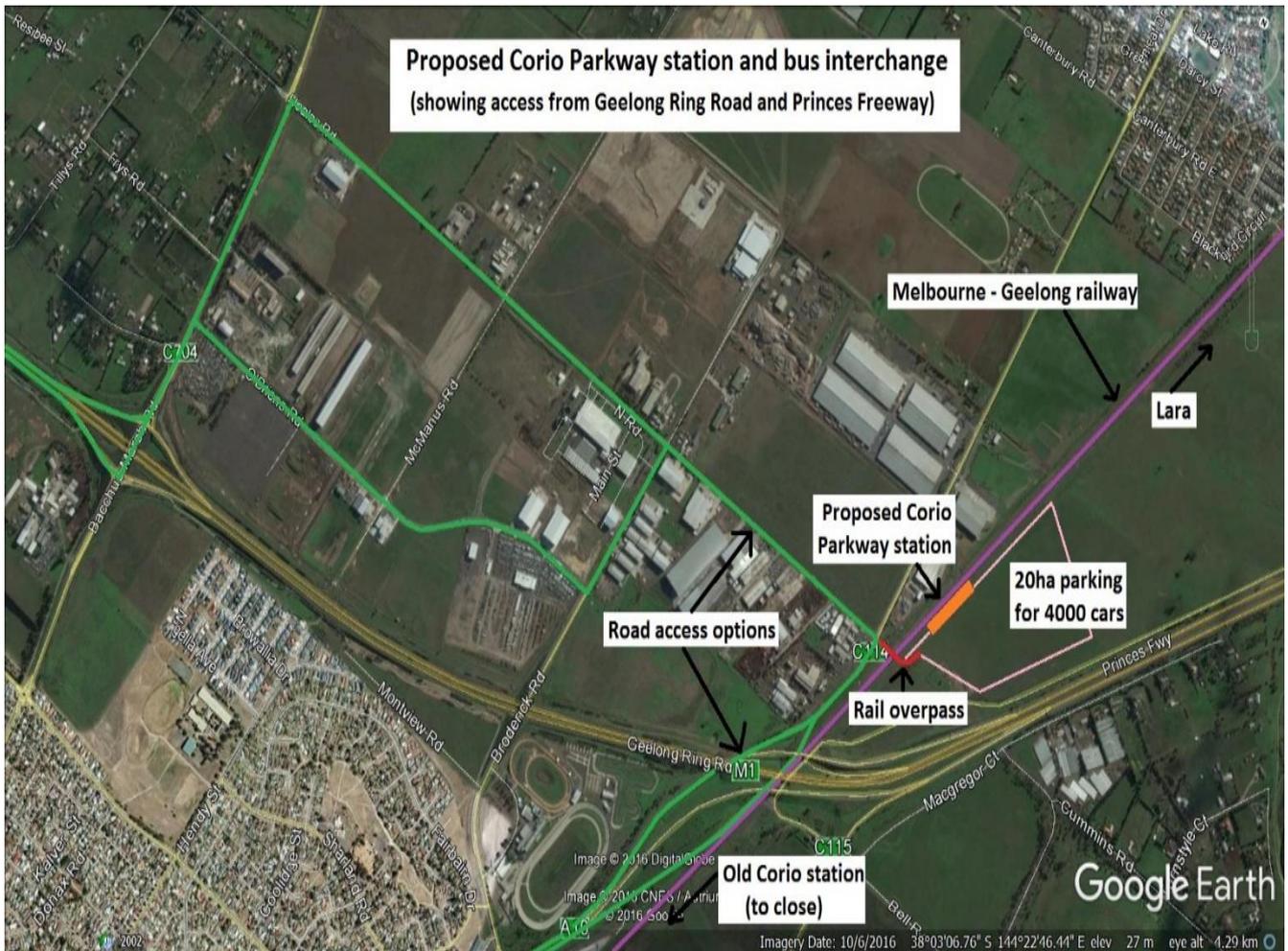
**January 2018**

This submission has been prepared by Rail Futures Institute in the public interest. Rail Futures is an independent non-partisan group formed to advocate cost-effective rail and intermodal solutions for public transport and freight problems based on sound commercial, economic and social reasoning. Rail Futures members include very experienced rail professionals, urban planners, engineers and economists.

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PRIORITY	PROJECT AND RATIONALE REGIONAL RAIL INFRASTRUCTURE UPGRADES	ESTIMATED CAPEX REQUIREMENT
Very High	<p><b>Regional Rail Revival Package:</b> We congratulate the Government on the significant funding allocated under its regional rail revival package in the last budget and subsequently. This has been a most important and very welcome initiative. This submission excludes the known projects in the package which have been confirmed for implementation over the next two to three years.</p> <p><b>Melbourne Airport Railway and Regional Connections:</b> Similarly, we congratulate the Government on its budget allocation for finalising the detailed planning for the Melbourne Airport railway and strongly support the Premier’s subsequent announcement that the line would run via Sunshine and be fully connected and integrated into the regional rail network. This submission therefore deals with other regional rail needs that we see as critical, as well as proposing planning for subsequent projects which we regard as increasingly important.</p> <p><b>Geelong line:</b> It is increasingly urgent to duplicate the single line and provide upgraded signalling between <b>South Geelong and Waurin Ponds</b>, including additional platforms at South Geelong and Marshall. The single line sections South Geelong to Marshall and Waurin Ponds are a primary source of late running on the overall Geelong corridor. A late running train creates a chain reaction which then impacts several other services, including on the Ballarat line. We note that funds have been allocated to plan for this project and strongly recommend that its implementation be funded in the 2018/19 Budget. We also note that funds were allocated in 2015 for the new <b>Waurin Ponds Stabling and Maintenance Facility</b>, but that construction is yet to commence. Given ongoing VLocity fleet expansion and the inadequate capacity and inefficiency of the present stabling and maintenance arrangements, we contend that completion of this complementary project is now very urgent. We also comment that, in our opinion, allocation of scarce capital funds to duplicate the short tunnel between <b>Geelong and South Geelong</b> has no operational justification, at least for the medium term.</p>	\$215 million over three years
Medium	<p><b>A major “Parkway” station near Corio</b> is again proposed. This would replace the present little used Corio station. The new station would be designed to overcome a chronic shortage of commuter car parking in the Geelong area. It would also attract current road users by providing easy access from the Geelong Ring Road and Princes Freeway. Parking for up to 4000 cars and a bus interchange could be provided on the site. (See diagram on page 4 which illustrates the concept). An early planning study should be undertaken to confirm its feasibility.</p>	\$1 million for planning study
High	<p><b>Ballarat-Ararat-Horsham/Hamilton lines:</b> Rail Futures strongly supports the recommendations for restoration of rail passenger services between Ararat and Horsham and between Ararat and Hamilton contained in the 2017 “Grampians and Barwon South West Region Passenger Services Cost and Feasibility Study” which was partly funded by the Government. The principal enabling work for the subsequent implementation of these improvements will be <b>conversion of the Ballarat-Ararat line to standard gauge</b>. Required associated works include track and signalling modifications at Ballarat and Ararat, duplication between Ballarat and Wendouree and new signalling between Ballarat and Ararat. These costs can be partially offset by deleting the requirement for dual gauging between Ballarat and Maryborough as part of the Murray Basin Rail Project. We strongly recommend that Ballarat-Ararat standardisation be funded in the 2018/19 State Budget as a pre-requisite to passenger service restoration by 2022.</p>	\$120 million over three years
High	<p><b>Bendigo-Swan Hill line:</b> Upgrade to full active protection on approximately 20 level crossings to remove current speed restrictions imposed due to poor sight lines at these crossings.</p>	\$12 million

PRIORITY	PROJECT AND RATIONALE <b>REGIONAL RAIL INFRASTRUCTURE UPGRADES (continued)</b>	ESTIMATED CAPEX REQUIREMENT
<b>Medium</b>	<p><b>Bendigo line:</b> In the relatively near future, frequency of Bendigo line services will need to be improved to support and encourage population growth in the corridor. This will require selective restoration of track duplication in some sections between Kyneton and Bendigo which were singled during the Regional Fast Project. Design and planning for this work should be undertaken so that this work is ready to proceed when funding becomes available. The priority sections for this work are likely to be:</p> <ul style="list-style-type: none"> <li>• beyond Kyneton towards Malmsbury</li> <li>• beyond Castlemaine towards Harcourt</li> <li>• between Kangaroo Flat and Bendigo.</li> </ul>	<b>\$1 million for planning and design</b>
<b>High</b>	<p><b>Seymour line:</b> Seymour line patronage is being driven by very rapid growth around Donnybrook and Wallan, together with a new station at Beveridge, proposed for construction within 3-4 years. This will soon require the operation of additional short trips between Southern Cross and Wallan to provide a more frequent service and avoid serious overcrowding on Seymour and Shepparton trains. To facilitate this, new signalling will be required <b>between Craigieburn and Wallan</b> to replace the 100-year old Double Line Block system of safeworking and a simple turnback facility (new crossover and additional signals) should be installed at the Melbourne end of Wallan station. Existing platform facilities at Wallan are adequate to support this.</p>	<b>Signalling and turnback works \$20 million</b>
<b>High</b>	<p><b>Seymour/Shepparton line:</b> Improvement to Shepparton services in terms of much improved frequency and travel time reductions appear to be well justified and this should be achieved by operating the service with VLocity railcars. We note that some initial funding has been allocated to support such improvements. Before VLocity railcars can operate, level crossing and track upgrading will be necessary <b>between Seymour and Shepparton</b>. New signalling and an additional crossing loop between Seymour and Shepparton will also be required to support an appropriate service frequency (services at approximately two-hourly intervals) and to accommodate freight services on the corridor. The immediate priority should be to upgrade all 32 remaining non-compliant level crossings to RFR standards (some of which currently have speed restrictions due to poor sight lines) and undertake a modest track upgrade to Class 2 standard to permit VLocity operation at 130km/h. A secure compound for stabling and overnight servicing of VLocity carriages will also be required at a suitable site on the north side of Shepparton.</p>	<b>\$100 million over two years</b>
<b>Medium</b>	<p><b>Gippsland line:</b> The previously announced Regional Rail Package will progressively address the most significant and urgent infrastructure shortcomings between Pakenham and Traralgon together with reconstruction of the Avon River bridge at Stratford. However, these works will not facilitate improved services east of Traralgon. We believe there is justification to provide additional services to/from Sale by simple extension of at least two existing Traralgon services each way daily. This will require a basic new signalling system <b>between Traralgon and Sale</b> and a secure compound for stabling and overnight servicing of VLocity carriages at Sale.</p>	<b>\$10 million for basic signalling, \$10 million for VLocity stabling</b>
	<b>TOTAL REQUEST</b>	<b>\$487 million over 2-3 years plus \$2 million for planning studies</b>



PRIORITY	PROJECT AND RATIONALE METROPOLITAN RAIL INFRASTRUCTURE IMPROVEMENTS	ESTIMATED CAPEX REQUIREMENT
High	<p><b>Electrification Southern Cross to Tarneit and Wyndham Vale (via RRL)</b>            The opening of the new Tarneit and Wyndham Vale stations, plus others to come on the Regional Rail Link corridor, has and will continue to rapidly boost demand in the Werribee/Wyndham high growth corridor. A frequent electrified metropolitan service using high capacity metropolitan trains (HCMTs) or extended length Xtrapolis trains will prove to be the only practical option for meeting demand from the Tarneit and Wyndham Vale areas in the near term. Otherwise, burgeoning demand will overwhelm regional rolling stock to the disadvantage of V/Line regional passengers from Geelong and beyond. The RRL design from Southern Cross (platforms 15/16) to Wyndham Vale anticipated this requirement, including land purchased for major train stabling and a potential train maintenance centre at Wyndham Vale. This project should be implemented as soon as possible as the required infrastructure and operations will be completely independent of Melbourne Metro.</p>	<p><b>\$600 million staged over 3 years</b></p>
High	<p><b>Stage 1 Electrification Deer Park to Melton (pre-Melbourne Metro completion)</b>            The rapid build-up of population on the Melton corridor justifies electrification to Melton at the earliest possible time. To date, it has been assumed that this cannot feasibility occur until completion of Melbourne Metro (MM). However, a Stage 1 scheme has been devised that can provide an interim electrified service to Melton in conjunction with electrification to Wyndham Vale (above) using the RRL corridor to Deer Park. The remaining works (Stage 2) including a grade separated junction at Sunshine and quadruplication and removal of three level crossings beyond Sunshine would still follow completion of MM.</p>	<p><b>\$400 million staged over 3 years</b></p>

PRIORITY	PROJECT AND RATIONALE METROPOLITAN RAIL INFRASTRUCTURE IMPROVEMENTS (continued)	ESTIMATED CAPEX REQUIREMENT
High	<p><b>Planning and Design for Melbourne Underground Rail Loop Re-configuration</b> Re-configuration of the Melbourne Underground Rail Loop to directly connect the Caulfield and Northern Loops was an integral part of the Network Development Plan – Metropolitan Rail released in 2012. This will enable through working between the Craigieburn and Frankston lines and provide important network connectivity and operational benefits including the release of two tracks on the Flinders Street to Southern Cross viaduct to provide needed additional capacity on other corridors. The project would include re-configuration of tracks between Richmond and South Yarra and near North Melbourne to provide passenger cross-platform interchange at Richmond and North Melbourne. <b>Timing of this work is critical, as the only opportunity to undertake construction (requiring closure of the Caulfield Loop for several months) without major service disruption to the Frankston line is to do so immediately following completion of the Melbourne Metro project.</b></p>	\$10 million for planning and design
Medium	<p><b>Planning and Preliminary Design for Werribee to Wyndham Vale connection</b> The proposed Werribee to Wyndham Vale electrified rail connection, including new stations at Werribee West and Black Forest Road (supported by Werribee Street level crossing removal) will also be required to meet burgeoning demand from that sector of the Werribee/Wyndham high growth corridor. Importantly, post-MM completion, it will also restore the missing link between Werribee and Geelong and enable operation of an enlarged segregated Cross-City Group extending from Southern Cross via Wyndham Vale and Werribee to Flinders Street and Sandringham with Wyndham Vale becoming the primary Cross-City Group train stabling and maintenance centre.</p>	\$5 million for planning and preliminary design
High Medium Medium	<p><b>Metropolitan Rail – Removal of Infrastructure Impediments</b> The remaining single line sections of the metropolitan rail network impose significant scheduling constraints and are a prime source of service unreliability. In order of priority, duplication of the following line sections should be progressively initiated during the next 2-3 years:</p> <ul style="list-style-type: none"> <li>• Dandenong to Cranbourne - \$190 million</li> <li>• Greensborough to near Eltham - \$120 million</li> <li>• Ferntree Gully to Upper Ferntree Gully - \$25 million</li> </ul>	\$515 million staged over 4 years
High	<p>Three rail/tram level crossings remain in Melbourne, all of which involve speed restrictions for rail traffic, safety issues and high maintenance costs. Of these, Glenhuntly, with three rail tracks carrying high frequency Frankston line services and freight trains to Hastings, is considered a high priority for removal:</p> <ul style="list-style-type: none"> <li>• Glenhuntly Road, Glenhuntly (rail/tram crossing) - \$180 million</li> </ul>	
High	<p><b>Planning and Preliminary Design for Cranbourne to Clyde extension</b> The south-eastern high growth corridor in the City of Casey is also developing at a rate that will necessitate extension of the Cranbourne line to Cranbourne East and Clyde in the near term. This project is complicated by the proximity of the South Gippsland Highway to the present Cranbourne station and is likely to involve a significant planning study to determine the optimum solution at this location. It is therefore important that planning and preliminary design for this extension be initiated as soon as possible.</p>	\$2 million for planning and preliminary design
	<b>TOTAL REQUEST</b>	<b>\$1,930 million over 4 years plus \$17 million for planning studies</b>

PRIORITY	PROJECT AND RATIONALE METROPOLIAN AND REGIONAL ROLLING STOCK	ESTIMATED CAPEX REQUIREMENT
<b>High</b>	<p><b>Metropolitan Rolling Stock</b> Additional High Capacity Metropolitan Trains (HCMTs) or Xtrapolis trains will be required to service the proposed electrification Southern Cross to Wyndham Vale (via RRL) and early electrification to Melton (see previous section), in addition to the 67 trains previously ordered for the Melbourne Metro (MM) corridor. The appropriate fleet size for these corridors will need to be separately determined. This procurement would include provision of a major stabling and maintenance facility at Wyndham Vale.</p>	<p><b>Additional trains to service Wyndham and Melton growth corridors (fleet size to be determined)</b></p>
<b>High</b>	<p><b>Additional new trams</b> To meet the DDA requirement for full compliance by 2032, an average of 22 new trams per annum are required. A further minimum order of 30 E class trams is essential for this purpose, to add necessary capacity on key routes and reduce the average fleet age.</p>	<p><b>Additional 30 E class trams (Funded by leasing costs via VicTrack).</b></p>
<b>Very High</b>	<p><b>Expanded VLocity sets</b> The Government has committed to provide an additional 39 VLocity carriages during 2018-19, resulting in a total fleet of 88 x 3-carriage VLocity sets. Given the lack of additional metropolitan train paths, 88 VLocity sets are likely to be at or beyond the number that can be effectively utilised. Subsequently, the most expedient and cost-effective solution to providing sufficient seating capacity to meet demand from regional (i.e. non-metropolitan) travel on the Geelong, Ballarat and Gippsland lines until the mid-2030s would be to order 40 to 50 intermediate trailer carriages so that around half of the VLocity fleet can be progressively expanded to 4 carriages from late 2019. This would also allow train sizes to be more closely aligned to demand by options of operating 3, 4, 6, 7 or 8 car consists as needed, in lieu of the present inflexibility of only operating either 3 or 6 cars. This option provides around 40% more peak period capacity per train path (up to 8 cars with 624 seats compared with 444 seats in 6 cars), allow many shoulder peak and off-peak services to be operated with 4 cars (312 seats) instead of 6 cars and have lower unit operating costs. The 4-car sets would be maintained at the new Waurin Ponds depot. Some platforms on the Geelong and Ballarat lines would require lengthening to accommodate up to 8-car consists. <b>Note that due to the future need to pass through long underground tunnels, VLocity diesel trains will be unsuitable for the Bendigo and North-Eastern lines once these lines are connected to operate via Melbourne Airport in the early 2030s, as foreshadowed in the Premier’s recent announcement. The same would apply to the Geelong and Ballarat lines when new capacity is needed for these lines between Melbourne and Sunshine in future.</b></p>	<p><b>Acquire 40 to 50 non-powered VLocity trailer carriages for delivery from 2019 onwards at an estimated capital cost of \$240 to \$300 million. (Funded by leasing costs via VicTrack).</b></p>
<b>High</b>	<p><b>New Generation regional trains</b> The elderly V/Line long distance carriage fleet needs to be replaced as soon as possible with a modern fleet designed to contemporary international standards. The existing carriages are very dated and bring little credit to the State, having been in service for between 33 and 60 years with minimal change since the 1980s. The new long-distance trains would become the Government’s flagship <b>“new generation regional trains”</b> operating at 160km/h (and possibly more) where track standards allow. Consistent with current overseas examples, and for the reason highlighted above, the design must be “future proofed” for bi-modal operation, i.e. use of either diesel or electric power, the latter for use in long tunnels and underground stations where emissions from diesel operation would not be permitted. Such tunnels will be required to provide additional train paths through Melbourne suburbs early in the life of these trains. The initial version for long distance operation should have 5 or 6-cars and include a business class section, on-board catering and ample space for luggage, bicycles, wheelchairs and mobility scooters. A fleet of 16 sets (80 to 96 cars) would meet operating and maintenance requirements for increased frequency of Warrnambool, Swan Hill, Albury and Bairnsdale services plus the likely addition of Horsham services. Later versions would be needed for shorter distance services to Bendigo and Seymour/Shepparton. A new maintenance depot at a suitable site will also be required, potentially on land acquired for this purpose and train stabling at Ballarat West and accessible by both standard and broad gauges.</p>	<p><b>A likely \$800 million investment over 4 years assuming at least 50% local build content (Funded by leasing costs via VicTrack).</b></p>

PRIORITY	PROJECT AND RATIONALE <b>METROPOLITAN TRAM INFRASTRUCTURE IMPROVEMENTS AND PLANNING STUDIES</b>	ESTIMATED CAPEX REQUIREMENT
<p><b>High</b></p> <p><b>Medium</b></p> <p><b>Medium</b></p>	<p><b>Tram Service Capacity and Efficiency Improvement Projects</b></p> <ul style="list-style-type: none"> <li>• Additional Platform Stops – accelerated implementation</li> <li>• Dedicated Tram Lanes (re-allocation of road space) – accelerated implementation</li> <li>• Traction supply upgrading and depot expansion to support additional E class trams</li> </ul> <p><b>Tram Network Enhancement Studies</b></p> <p>Significant opportunities exist at modest cost to extend tram services from current unconnected termini to major activity centres and/or provide efficient modal interchange at suitable railway stations. Such extensions will be important in helping to convert the network into one with logical destinations that support inner and middle suburban densification, create land value uplift and considerably strengthen network connectivity – all essential elements in reducing car dependency and improving urban amenity. Potential tram network extensions that should be the subject of priority studies in the context of wider urban planning objectives and as part of an ongoing program of tram network enhancements are:</p> <ul style="list-style-type: none"> <li>• Park Street, South Melbourne – new 300m connection to allow selected St Kilda Road routes to run via Clarendon Street to Southern Cross Station and Docklands.</li> <li>• Tram Route 82 – 500m extension and re-alignment at Footscray to service both North and South campuses of Victoria University.</li> <li>• Tram Route 3 – extension of 2.7 km from East Malvern (Darling Road) to East Malvern Station and Chadstone Shopping Centre</li> <li>• Tram Route 11 - extension of 4.6 km from West Preston to Latrobe University via Reservoir Station (following High Street, Reservoir level crossing removal)</li> <li>• Tram Route 86 - extension of 4.2 km from Bundoora RMIT to South Morang station via Westfield Plenty Valley Shopping Centre</li> </ul> <p>Subject to satisfactory business case assessment showing a net benefit when the economic, social and environmental factors are properly considered for each extension, they should then be prioritised for implementation.</p> <p><b>New Light Rail Transit (LRT) Corridor Pre-Feasibility Studies</b></p> <p>High quality LRT corridors will be needed in future years to provide cross-suburban services on medium density corridors that cannot support heavy rail solutions but which have potential to exceed acceptable bus route capacity. These corridors will also need to demonstrate city-shaping outcomes in terms of development potential and value capture and form key elements of a longer term comprehensive LRT network.</p> <p>Identified LRT options that warrant initial pre-feasibility studies are:</p> <ul style="list-style-type: none"> <li>• Melbourne Airport to Latrobe University via Broadmeadows, Keon Park and Bundoora</li> <li>• North Melbourne and CBD to Doncaster via Parkville, Fitzroy and Eastern Freeway</li> <li>• Elsternwick to Rowville via Gardenvale, Ormond, Huntingdale and Monash University</li> <li>• Dandenong to Ringwood via Rowville, Scoresby, Knox and Wantirna.</li> </ul>	<p><b>\$280 million staged over 3 years</b></p> <p><b>\$3 million for planning defined tram network enhancement projects</b></p> <p><b>\$4 million for LRT pre-feasibility studies</b></p>
	<p><b>TOTAL REQUEST</b></p>	<p><b>\$280 million over 3 years plus \$7 million for planning studies</b></p>