

# **Rail Futures Institute**

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## **2017-2018 Victorian State Budget Submission**

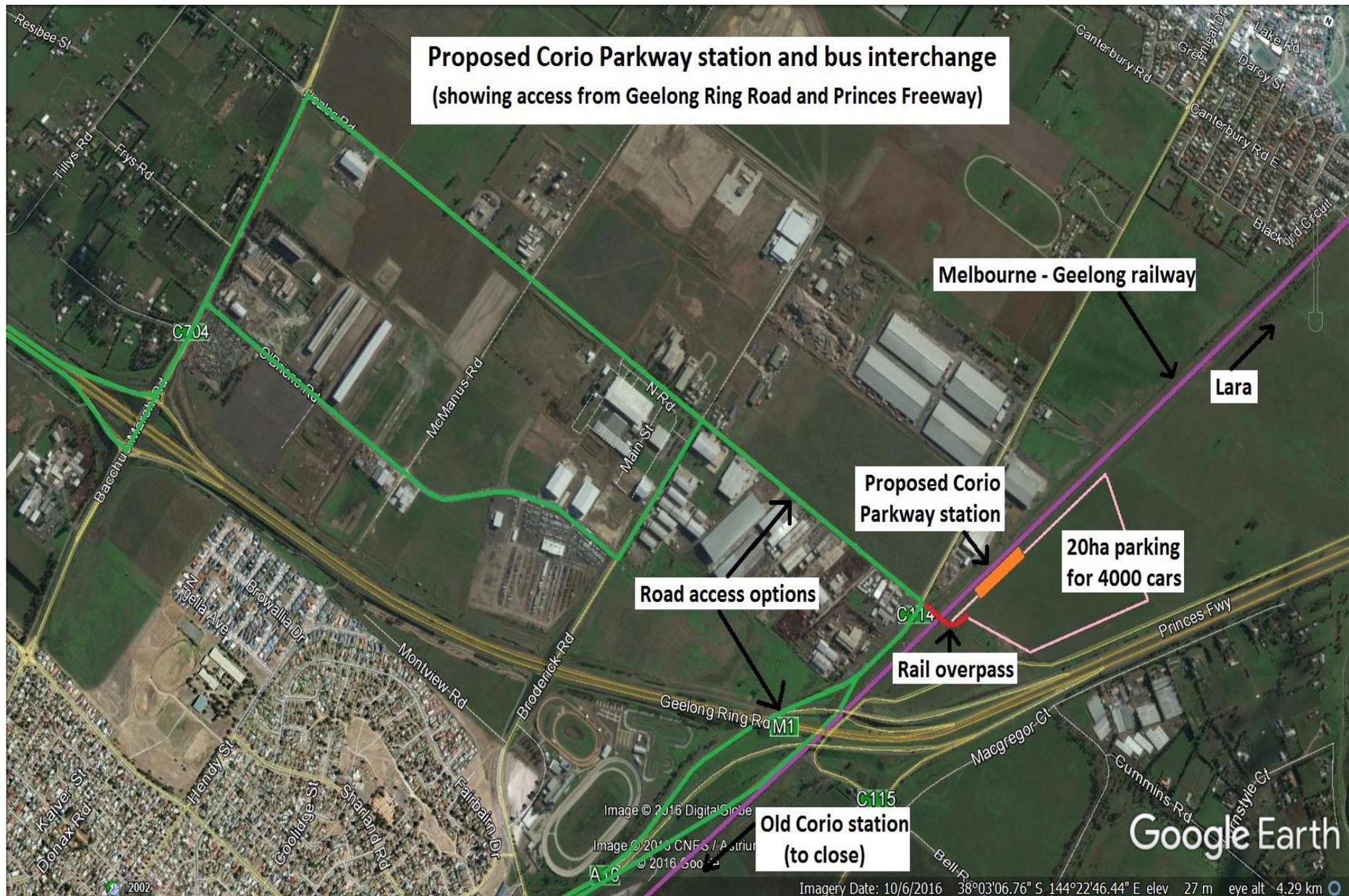
**December 2016**

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, engineers and economists.

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PRIORITY	PROJECT AND RATIONALE REGIONAL INFRASTRUCTURE UPGRADES	ESTIMATED REQUIREMENT
1	<p><b>Geelong/Warrnambool, Bendigo, Seymour/Shepparton, Gippsland lines</b> Geelong, Ballarat and Bendigo are developing rapidly, and strong passenger growth is occurring in these corridors. The Seymour/Shepparton and Gippsland corridors also have strong growth potential but this is being impeded by relatively poor rail service levels in the case of Seymour/Shepparton and unreliable service on the Gippsland line. On each corridor capacity constraints due to single line sections and inadequate signalling at specific locations are significant factors preventing the appropriate level of service being delivered by V/Line. However, last year's significant budget allocation for Ballarat line improvements should satisfy that corridor's infrastructure needs until the line can be electrified to Melton.</p> <p><b>Geelong line:</b> It is increasingly urgent to duplicate the single line and provide upgraded signalling between <b>South Geelong and Waurm Ponds</b>. The single line sections South Geelong to Marshall and Waurm 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. In addition, the single line results in inefficient and costly train movements to place trains in position for early morning services and return to stabling in the evening. The duplicated line will become even more essential once the proposed maintenance and stabling facility is constructed to the west of Waurm Ponds station.</p> <p>Planning for a major <b>"Parkway" station near Corio</b> is also proposed. This would replace the present little used Corio station originally provided for Shell refinery workers. 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 attached diagram which illustrates the concept).</p> <p><b>Warrnambool line:</b> The introduction of a fourth daily return Melbourne to Warrnambool service has highlighted serious deficiencies in signalling and train passing facilities on this line. This has resulted in scheduled delays of up to 20 minutes when trains have to pass using the outmoded facilities at Camperdown. A new crossing loop is urgently required at Boorcan. In addition, the existing Train Order system of train control on the line is unsuitable for passenger train operation and needs replacement with modern remote controlled signalling. Approximately 20 level crossings also need upgrading to RFR standards to eliminate current speed restrictions on the line.</p> <p><b>Bendigo line:</b> The immediate requirement is provision of remotely controlled signalling between North Bendigo, Eaglehawk and Epsom to allow the Bendigo Metro service to operate reliably and at greater frequency in conjunction with other passenger and freight services on the Echuca and Swan Hill lines.</p> <p>Suburban trains on the Sunbury line can be expected to increasingly delay V/Line regional trains from Bendigo, Castlemaine, Kyneton and Woodend. Rail Futures proposes a deviation for Bendigo line trains to avoid this problem, on an alignment via Melbourne Airport which would deviate from the present main line at Clarkefield and link to a new Airport line from Southern Cross. An engineering evaluation of the proposed corridor should commence in the coming financial year.</p>	<p><b>\$215 million staged over three years</b></p> <p><b>\$1 million for planning study</b></p> <p><b>\$20 million for new crossing loop and signalling</b> <b>\$12 million for level crossings</b></p> <p><b>Signalling works</b> <b>\$8 million</b></p> <p><b>\$1 million for initial planning study</b></p>

PRIORITY	PROJECT AND RATIONALE REGIONAL INFRASTRUCTURE UPGRADES (continued)	ESTIMATED REQUIREMENT
1 (contd).	<p><b>Seymour/Shepparton line:</b> Improvement to Shepparton services in terms of improved frequency and travel time reductions appears to be well justified and, as a medium distance operation, this would most appropriately be achieved by operating the service with VLocity railcars. Before this can be done both safely and efficiently, between Seymour and Shepparton level crossing and track upgrading will be necessary. The immediate priority should be to upgrade all 32 remaining non-compliant level crossings to RFR standards 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 up to 12 VLocity carriages will also be required at Shepparton. This work would support VLocity operation of up to six Shepparton-Melbourne trips in each direction on weekdays. Further service frequency increases, if and when required at a later stage, will require both new signalling and a new crossing loop installed between Seymour and Shepparton.</p> <p>A further Seymour line requirement is being driven by very rapid growth in patronage from Donnybrook and Wallan, together with a new station at Beveridge, proposed for construction within 3-4 years. This will require the operation of additional short trips between Southern Cross and Wallan to avoid serious overcrowding on Seymour and Shepparton trains. To facilitate this, a simple turnback facility (new crossover and additional signals) should be installed at the Melbourne end of Wallan station. Existing platform facilities are adequate to support this.</p> <p><b>Gippsland line:</b> A range of infrastructure projects are needed to improve service reliability and frequency on this vital corridor, of which the three most urgent are considered to be:</p> <ul style="list-style-type: none"> <li>• Bunyip to Longwarry track duplication - \$95 million</li> <li>• Drouin – major station car park expansion - \$10 million</li> <li>• Morwell – crossing loop extension and second platform - \$40 million</li> <li>• Stratford – replacement of Avon River bridge - \$25 million</li> </ul> <p>These projects can be procured so as to maximise the opportunity for local employment.</p> <p>A joint planning study should also be initiated with Latrobe City Council for <b>potential major redevelopment of the Traralgon station precinct and/or a completely new major public transport complex at Latrobe Central</b>, adjacent to the Mid-Valley shopping centre, between Morwell and Traralgon. The latter site on VicTrack land, which also abuts to the proposed Gippsland Logistics precinct, has the important advantages of an ample area for large scale commuter car parking, bus interchange, potential train stabling and much improved access to the Churchill development area.</p>	<p><b>\$19 million for level crossings</b> <b>\$20 million for track upgrading</b> <b>\$5 million for VLocity stabling</b></p> <p><b>\$5 million for Wallan simple turnback</b></p> <p><b>\$170 million staged over two years</b></p> <p><b>\$1 million for initial planning study</b></p>
	<b>TOTAL REQUEST</b>	<b>\$474 million staged over 2-3 years plus \$3 million for planning studies</b>



PRIORITY	PROJECT AND RATIONALE <b>METROPOLITAN RAIL IMPROVEMENTS</b>	ESTIMATED REQUIREMENT
2	<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) will prove to be the only practical option for meeting demand from the Tarneit and Wyndham Vale areas in the near term which otherwise will overwhelm all existing and potential regional rolling stock to the disadvantage of regional passengers from Geelong and beyond. The RRL design anticipated this requirement, including land purchased for major train stabling and a potential train maintenance centre at Wyndham Vale.</p> <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-Melbourne Metro completion, it will also provide the missing link to 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> <p><b>Metropolitan Rail Infrastructure Improvements</b> The remaining single line sections of the metropolitan rail network impose significant scheduling constraints and are a prime source of service reliability deficiencies. In order of priority, duplication of the following line sections should be initiated during the next 2-3 years:</p> <ul style="list-style-type: none"> <li>• Dandenong to Cranbourne - \$180 million</li> <li>• Greensborough-Eltham - \$110 million</li> <li>• Ferntree Gully – Upper Ferntree Gully - \$20 million</li> </ul> <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 to be initiated soon.</p> <p><b>Dandenong Rail Corridor planning study</b> Added rail capacity is needed on the Dandenong Rail Corridor to reduce excessively long journey times for Gippsland commuters and those from the outer south-eastern suburbs in Casey and Cardinia. The combination of Melbourne Metro and the current Cranbourne/Pakenham Rail Project will allow peak period services between Dandenong and the CBD to increase to 24 trains per hour or more, which will further degrade the already slow and inadequate services for Gippsland travelers.</p> <p>A comprehensive independent study should be initiated to consider all issues for the provision of additional express tracks between Dandenong and Melbourne for outer metropolitan, Gippsland, and freight rail users. The study should examine options for providing express tracks, both within the existing corridor and by alternative means.</p>	<p><b>\$500 million staged over 4 years</b></p> <p><b>\$5 million for planning and preliminary design</b></p> <p><b>\$310 million staged over 4 years</b></p> <p><b>\$2 million for planning and preliminary design</b></p> <p><b>\$2 million for independent DRC planning study</b></p>
	<b>TOTAL REQUEST</b>	<b>\$810 million over 4 years plus \$9 million for planning studies</b>

PRIORITY	PROJECT AND RATIONALE <b>METROPOLIAN AND REGIONAL ROLLING STOCK</b>	ESTIMATED REQUIREMENT
3	<p><b>Metropolitan Rolling Stock</b> Additional High Capacity Metropolitan Trains (HCMTs) will be required to service the proposed extended Cross-City Group via Werribee and Wyndham Vale (see previous section) in addition to the 67 trains previously ordered for the Melbourne Metro corridor. The appropriate fleet size for this corridor will need to be separately determined. This procurement would also form a key component of the Com-Eng train replacement program and include provision of a major stabling and maintenance facility at Wyndham Vale. If necessary, it could be by way of a parallel contract with an alternative supplier. In the interim, V/Line rolling stock released from Wyndham Vale can be redeployed to support Melton/Bacchus Marsh services.</p> <p><b>Expanded VLocity sets</b> The Government has committed to provide an additional 27 VLocity carriages during 2017-18, resulting in a total fleet of 75 x 3-carriage VLocity sets. Beyond this order, and particularly having regard to the lack of additional train paths available until Melbourne Metro has been completed, by far the most expeditious and cost-effective solution to providing sufficient seating capacity to meet the expected demand from regional (i.e. non-metropolitan) passengers on the Geelong, Ballarat, Bendigo, Gippsland and Seymour/Shepparton lines until around the mid-2030s would be to acquire an additional 40 to 50 non-powered trailer carriages so that at up to two-thirds of the 3-carriage VLocity train fleet can be progressively expanded to 4 carriages from late 2018. This would also allow train sizes to be more closely aligned to patronage demand by the options of operating 3, 4, 6, 7 or 8 car sets as needed, in lieu of the present inflexibility of only operating either 3 or 6 car sets. The 4-car option would provide more peak period capacity (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 and 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.</p> <p><b>New Generation (long distance) 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 "<i>new generation regional trains</i>" operating at 160km/h (and possibly more) where track standards allow and configured for rapid turnaround at terminal stations. Consistent with current overseas examples, the design should be "future proofed" for bi-modal operation, i.e. potential use of diesel and electric power – the latter for use in tunnels and other locations where diesel operation would not be permitted. Such tunnels will be required to provide additional train paths through Melbourne suburbs during the life of these trains. These 5 or 6-car train sets would 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. A new maintenance depot at a suitable site will also be required.</p> <p><b>VLocity trains – improved communication transmission.</b> The VLocity fleet also requires modification to eliminate the present poor communication transmission from the passenger saloons which makes the use of mobile devices problematic, even where signal strength is good. Investigation and scoping should occur in the coming year.</p>	<p><b>Additional HCMTs to service Wyndham growth corridor (fleet size to be determined)</b></p> <p><b>40 to 50 non-powered VLocity trailer carriages should be procured for delivery from late 2018 onwards at an estimated capital cost of \$195 to \$240 million. (Funded by leasing costs via VicTrack).</b></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> <p><b>Allow \$1 million for scope and costs to be investigated.</b></p>
	<b>TOTAL REQUEST</b>	<b>\$1 million for scoping study plus rolling stock leasing costs via VicTrack</b>

PRIORITY	PROJECT AND RATIONALE <b>METROPOLITAN TRAM IMPROVEMENTS AND PLANNING STUDIES</b>	ESTIMATED REQUIREMENT
4	<p><b>Tram Service 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> </ul> <p><b>Tram Network Extension Studies</b></p> <p>A range of modest tram route extensions that link to major activity centres, local activity centres or potentially provide efficient modal interchange at nearby railway stations appear to have prima facie justification. Such extensions would be important in helping to convert an old and somewhat unconnected 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 individually investigated in the context of combined public transport network strengthening and wider urban planning objectives include:</p> <ul style="list-style-type: none"> <li>• Tram Route 3 extension – East Malvern (Darling Road) to East Malvern Station and Chadstone Shopping Centre</li> <li>• Tram Route 11 extension – West Preston to Latrobe University via Reservoir Station (coordinated with High Street, Reservoir level crossing removal)</li> <li>• Tram Route 48 extension – North Balwyn to Westfield Doncaster</li> <li>• Tram Route 82 minor extension and re-alignment at Footscray to service both North and South campuses of Victoria University.</li> <li>• Tram Route 86 extension – Bundoora RMIT to South Morang station</li> <li>• Park Street, South Melbourne – new 300m connection to allow selected St Kilda Road routes to run to Southern Cross Station and Docklands.</li> <li>• Pre-feasibility Study of Light Rail options in middle suburbs, including Ballarat Road (Footscray to North Sunshine) and North Rd (Gardenvale to Rowville via Ormond and Huntingdale).</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>\$80 million staged over 2 years</b></p> <p><b>\$8 million for planning defined tram network improvement projects</b></p>
	<b>TOTAL REQUEST</b>	<b>\$80 million over 2 years plus \$8 million for planning studies</b>