PENINSULA RAIL LINK

October 2024

Contents

Executive Summary

Overview

The Mornington Peninsula, an hour south of Melbourne, is a highly popular holiday destination. While it has a permanent population of 163,151 as of the 2016 census, this number swells significantly during holiday periods, especially during summer.

The Mornington Peninsula is also one of the most car-dependent regions in greater metropolitan Melbourne, and has its second worst public transport network after Cardinia. Its bus services run at low frequencies (between 1 bus every 40 minutes and 3 buses a weekday) and are often overcrowded, and its only passenger rail service runs on a single-track railway line that can only run services once every 100 minutes. In addition, there are no cross-peninsula bus routes; all bus routes on the peninsula run to Frankston (or connect with services that do), and passengers have to change to a suburban train at Frankston station, adding to overcrowding on the Frankston line.

40% of commuters who park at Frankston station's car park hail from the Mornington Peninsula, adding to pressure on the car park, and on traffic congestion on the peninsula's major roads. The newly built Peninsula Link helps ease pressure on other roads, but itself has become gridlocked during peak and holiday periods.

The Peninsula Rail Link project aims to provide Mornington Peninsula residents with an alternative to the car by building a new train line to Rosebud and upgrading the line to Stony Point, reducing traffic congestion and providing mobility to those people who can't drive.

Fast services to and from Melbourne

All bus and train services on the Mornington Peninsula that carry city-bound passengers terminate at Frankston. This adds to pressure on Frankston line trains, especially during peak periods.

A one-way trip from Rosebud to Flinders Street currently takes around 2 hours 20 minutes. From Stony Point a train service to the city, stopping all stations, takes 1 hour 45 minutes, or 1 hour 35 minutes on a peak hour express.

The Peninsula Rail Link aims to run dedicated express trains from Rosebud and Stony Point to Melbourne, separate from Frankston line trains, with trains from Rosebud running to Flinders Street in 1 hour 20 minutes by 2031 and 1 hour 15 minutes by 2037, and trains from Stony Point running to Flinders Street in 1 hour 20 minutes by 2031 and 1 hour 10 minutes by 2037.

3-stage approach

The Peninsula Rail Link project takes a staged approach to upgrading the Mornington Peninsula's public transport network.

Stage 1, to be completed by 2027, upgrades the Stony Point line and the bus network, and prepares the Frankston line for future V/Line expresses. Works include:

- Completion of Melbourne Metro rail tunnel
- Upgrade frequencies on multiple bus routes in Frankston and on the Mornington Peninsula

- New cross-peninsula bus routes from Hastings to Mornington and Rosebud, and from Somerville to Mornington
- New bus routes from Frankston to Cranbourne via Carrum Downs
- Town buses in Langwarrin, Mornington, Somerville and Hastings
- Upgrade Frankston station platform 1 to carry Stony Point and suburban trains at the same time
- 3 crossing loops on Stony Point line
    - Langwarrin station (1km long)
    - Somerville-Tyabb
    - Bittern station (1km long)
- Move Leawarra closer to Frankston Hospital
- New stations at Frankston Heights and Langwarrin
- Removal of McMahons Road level crossing in Frankston and Station Street level crossing in Mordialloc
- Grade separation of Mordialloc station and upgrade to its stabling yard
- Stabling yard at Crib Point and maintenance facility near Kananook
- Introduction of next-generation 1-car battery-electric railcars for the Stony Point line

Stage 2, to be completed by 2031, introduces rail to Rosebud and further upgrades the Stony Point line. It also sees trains from both lines to run as V/Line expresses to the city. Works include:

- New train line to Rosebud
- Goods yards at Mornington and Capel Sound
- Stabling yard at Capel Sound
- Duplication Frankston-Somerville
- High-capacity signalling
- Triplication Mentone-Southland
- Removal of Baxter-Tooradin Road and Eramosa Road level crossings

Stage 3, to be completed by 2037, aims to separate regional and suburban trains by running peninsula trains via Dandenong and Cranbourne. Works include:

- Frankston-Cranbourne Rail Link
- Extension of Melbourne Metro rail tunnel to Caulfield
- Quadruplication of Dandenong-Caulfield rail corridor
- Removal of Webster Road level crossing in Dandenong

Costs

Each stage in this project has been costed separately based on the projects therein.

Stage 1 will cost between $572m and $741m. These figures exclude the construction of the Kananook maintenance facility or the expansion of the Peninsula's bus depots.

Stage 2 will cost between $4.87b and $6.3b before inflation.

Stage 3 will cost between $15.23b and $17.75b before inflation. This excludes the removal of the Webster Street level crossing in Dandenong.

In total, this project is anticipated to cost between $20.26b and $24.36b before inflation.

Introduction

The Mornington Peninsula, south of Melbourne, has no single public transport service to the city. The fastest way to get from Rosebud to the city by public transport is with the route 788 bus to Frankston, and then the connecting train, which takes around 2 hours 20 minutes in total, depending on traffic. This forces residents to drive to the city to save time, adding to traffic congestion.

To compare, trains alone take two hours to get to the city from Bendigo, an hour and forty minutes from Ballarat, and an hour and a half from Warragul and Seymour.

The Peninsula Link freeway does a good job of getting residents to the city quickly, but not all residents own cars, and still rely on public transport to get around. In addition, Eastlink's tolls and the high price of petrol are deterrents from using the car.

By building a railway line through the highly populated western side of the Mornington Peninsula, traffic congestion is further eased, allowing for easier travel for road and rail commuters all the way into Melbourne. Fewer cars on the road also helps reduce pollution in the long run. Furthermore, travel time would be cut by forty minutes if the trains go all the way to the city. Myki will also be cheaper in the long run than petrol and Eastlink tolls combined.

History of rail on the Peninsula

The first railway line on the Mornington Peninsula opened from Frankston to Baxter on Monday October 1 1888, and was then quickly extended to Mornington and Hastings on Tuesday September 10 1889, and then to Stony Point on Tuesday December 17 1889. Passenger services back then ran to and from Flinders Street in Melbourne, hauled by two steam locomotives. At Baxter, the train would split into two trains, each hauled by a single steam locomotive.

On Monday July 6 1914, a spur line was built outside Crib Point to serve the HMAS Cerberus Naval Base, with one regular passenger service each Saturday.

On Friday December 2 1921, a line was built from Bittern, via Balnarring and Merricks, to Red Hill. This line mainly carried goods, but once a week it carried goods and passengers in a "mixed" train. The Red Hill line was short-lived, being closed on Wednesday July 1 1953. The line was dismantled shortly afterward, with much of the line, especially on Frankston-Flinders Road, built over.

During the 1950s, passenger trains to Melbourne largely ceased, being replaced shuttles to Frankston. However, one service each Sunday ran from Flinders Street to Stony Point, its carriages hauled by a suburban set as far as Frankston, and then a steam locomotive would take them the rest of the way.

On Saturday March 29 1969, a new spur line was built between Tyabb and Hastings, serving the new steel mill at Long Island.

During the 1980s, the New Deal For Country Passengers served to completely reshape Victoria's regional network. Part of this included closing every branch line in the state. The Mornington and Stony Point lines were among the first to go, the Mornington line closing on Monday June 15 1981, and the Stony Point and Naval Base lines closing a week later. The Mornington line was leased to preservation group Mornington Railway, and they run the line to this day.

On Thursday September 27 1984, the Stony Point line was reopened to revenue service, the only branch line in Victoria to do so to this day. Services were run as shuttles between Frankston and Stony Point.

The Naval Base line did not reopen except for a brief period as a tourist railway before Mornington Railway moved to Moorooduc on the Mornington line. It was dismantled, along with all sidings on the Stony Point line, in the early 1990s.

Rail on the Peninsula today

Today, the only rail services run on the peninsula are 10 (on average) return passenger services between Frankston and Stony Point, and two return steel trains to Long Island per day, as well as at least 16 return tourist services a month on Mornington Railway. The Stony Point line being single-track for its entirety limits how many trains a day can run on it.

Despite being home to 30% of the peninsula's population, the region from Dromana to Portsea, including Rosebud, has never had its own heavy rail service. Its only ever services towards the city were bus routes 788 (Portsea-Frankston), the recently introduced 887 (Rosebud TAFE-Monash Peninsula via Frankston), and a short-lived daily express bus to Melbourne.

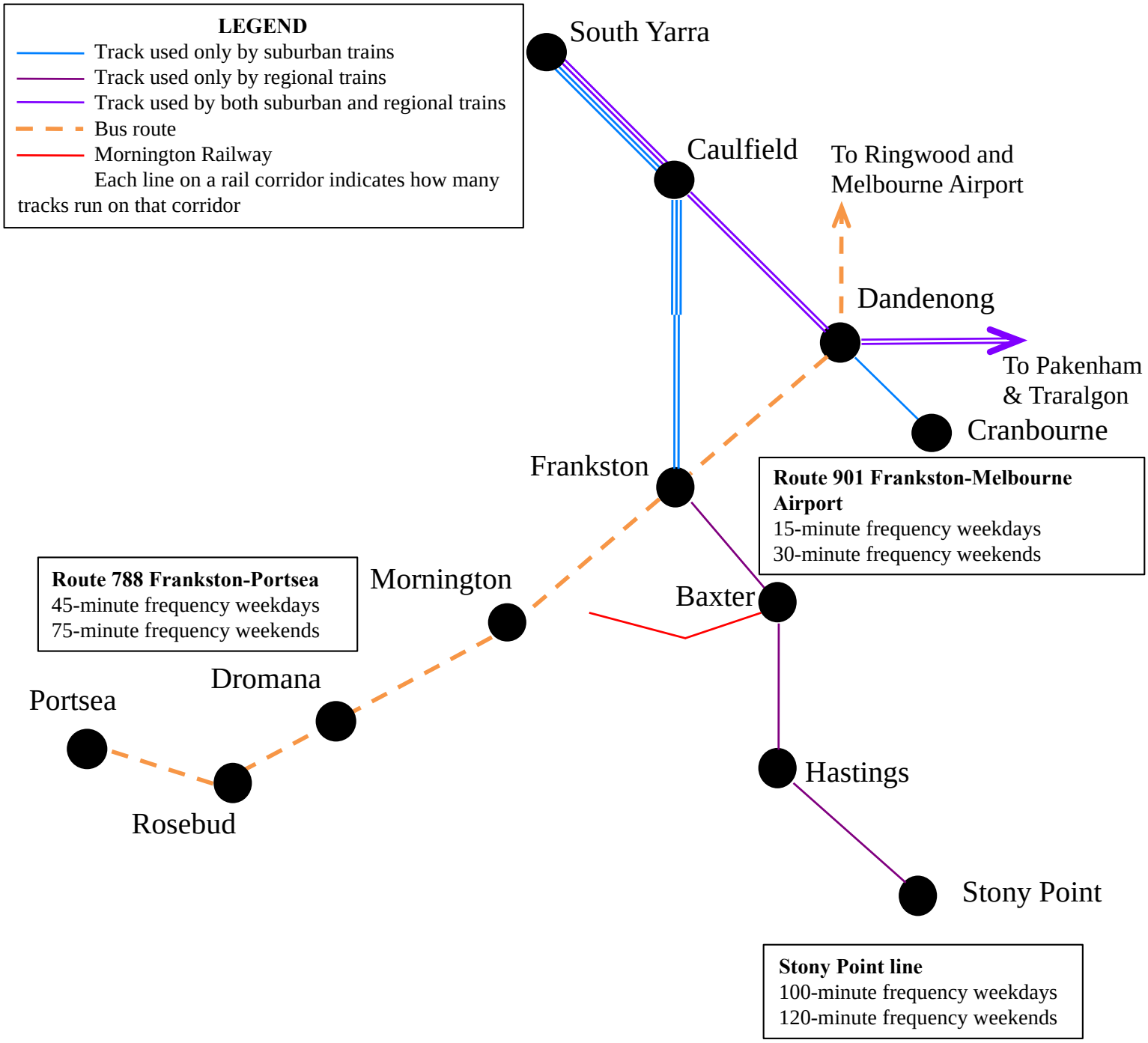


Figure 1: Schematic diagram of current public transport network in Frankston and the Mornington Peninsula (major routes only)

Trains per hour	Peak hour	Peak 2-hour period	Inter-peak	Evening	Weekend peak	Other off-peak
From Frankston (all stations to Cheltenham, express Cheltenham-Caulfield, Malvern-South Yarra, all stations direct)	5	8	-	-	-	-
From Frankston (all stations to Moorabbin, express Moorabbin-Caulfield, Malvern-South Yarra, all stations direct)	2	3	-	-	-	-
From Frankston (all stations direct)	-	-	6	6	6	3
From Frankston (all stations via City Loop)	2	4	-	-	-	-
From Carrum (all stations via City Loop)	3	4	-	-	-	-
From Mordialloc (all stations via City Loop)	2	2	-	-	-	-
From Moorabbin (all stations via City Loop)	-	3	-	-	-	-

Table 1: Current service frequencies on the Frankston line

Trains per hour	Peak hour	Peak 2-hour period	Inter-peak	Evening	Weekend peak	Other off-peak
Stony Point-Frankston (all stations)	1	0.5	0.5	-	0.5	-

Table 2: Current service frequencies on the Stony Point line

Figure 2: Map of proposed route for Peninsula Rail Link

The Plan

The entire Peninsula Rail Link project can be completed in two stages, all incorporating other projects that have already been proposed, funded or even begun construction.

- Stage 1 (2024-2027) overhauls the bus network and upgrades the Frankston and Stony Point lines.
- Stage 2 (2026-2031) builds the new train line to Rosebud and extends the Stony Point line's services to Melbourne as expresses.
- Stage 3 (2028-2037) sees the line's services separated from suburban services between Frankston and the city, with the construction of a new "Frankston-Cranbourne Rail Link" via Carrum Downs, boosting capacity and reliability for the Rosebud and Stony Point lines.

Stage 1 (2024-2027)

The first stage of the project focuses on improving public transport on the Mornington Peninsula itself, overhauling the bus network, upgrading the Stony Point line, and preparing the Frankston line for future all-day express trains.

Melbourne Metro rail tunnel (2018-2025)

The Melbourne Metro is a rail tunnel that will run from South Yarra to Footscray underneath Melbourne's CBD. It will be used by Pakenham, Cranbourne and Sunbury trains, and later by Melton, Rowville and Airport trains.

The Melbourne Metro will get trains out of Flinders Street, Southern Cross and the City Loop, allowing for the running of more trains throughout metropolitan Melbourne, reducing traffic congestion all over Victoria. It will also provide room at Flinders Street and Southern Cross stations for peninsula trains to run to Melbourne.

Southland-Mentone Triplication (2024-2027)

To allow easy transition between Rosebud and Stony Point trains at Baxter, trains will need to cross each other there. Unfortunately, this prevents Peninsula trains from being able to use the middle track between Moorabbin and Caulfield at the same time, as they would cross there. To this end, a 2nd section of the line would need to be triplicated to allow trains in the counter-peak direction to overtake stopping-all-stations suburban trains, which peak direction trains would do between Moorabbin and Caulfield.

Mass level crossing removals across the Frankston line leaving no provision for a 3rd track is making this triplication increasingly difficult, but the rebuilt station at Cheltenham does allow for an overtaking move there, allowing for triplication between its neighbouring stations of Mentone and Southland. If future level crossing removals allow, this triplication could potentially go all the way to Moorabbin, extending the existing triple track section to Mentone.

Stony Point line crossing loops (2024-2027)

The entire Stony Point line is single-track. This limits how many services can run on it. Building crossing loops along the line will greatly boost capacity.

In Stage 1 of the project, 3 new crossing loops will be built:

- Between Frankston Heights and Langwarrin stations (includes new stations at Ferndale Drive and Bayside Christian College respectively)

- Tyabb station (1km long, start at station and head north)
- Between Bittern and Morradoo stations

This project will include the upgrade of Somerville, Hastings and Crib Point stations to Staffed stations; new stations at Frankston Heights and Langwarrin; a maintenance facility near Kananook station to service next-generation rollingstock; and the construction of sheds at Crib Point to stable trains.

In addition, platform 1 at Frankston will need to be upgraded to become a through platform that can carry 10 carriages at a time, allowing it to carry a 6-car suburban train and a 4-car Stony Point train at the same time, similar to platforms 2 and 3. This is because this form of the plan requires Frankston station to carry 2 Stony Point trains at the same time for short periods.

This project will in theory allow for a 20-minute frequency at all times. However, the Long Island Steel train, which runs 2 return services per day, will disrupt this pattern, forcing a 40-minute off-peak and weekend frequency. A 20-minute frequency is still possible in both directions during peak periods provided the steel train does not run during these times.

Trains per hour (total)	Peak hour (3)	Peak 2-hour period	Inter-peak (3)	Evening (3)	Weekend peak (3)	Other off-peak (3)
Stony Point-Frankston (all stations; every second service would originate/terminate at Crib Point)	3	6	1.5	-	1.5	1.5

Table 3: Service frequencies on the Stony Point line at the end of Stage 1

New regional train fleet (2024-2037)

A brand new fleet of trains would be introduced to the Rosebud, Stony Point and Gippsland lines. These new trains would have special doorways next to the driver cab that would allow passengers to walk between carriage sets while the train is moving, without having to leave the train. These trains would be capable of speeds up to 160km/h and have high-capacity signalling capabilities installed in them.

These trains would provide comfort, speed and reliability to the peninsula and Gippsland. They would also be able to divide or couple together partway through a trip, without forcing passengers to board specific carriages beforehand.

The trains would be battery-electric, using existing electric wires on the Frankston line to charge their batteries, but able to run beyond Frankston without the need to build new electrification infrastructure, except only for charging stations at Crib Point, Stony Point, Rosebud and later Hastings.

These trains would be built in Australia, most likely replacing VLocity trains on the production line for Alstom's Dandenong factory, but possibly open to tender.

These new railcars will be referred to in this report by the name of "Cell" railcars.

Proposed Features

- Top speed: 160km/h
- 27m long
- Battery-electric, with roof-mounted solar panels, and pantograph to charge battery while on electrified network

- 1-car and 2-car variants (2-car variants would be introduced in Stage 2)
- 103 seats per 1-car unit
- 111 seats per carriage per 2-car unit
- Handholds for peak hour commuters
- Toilets and baby change tables
- Fold-down seats near doors that allow room for bikes and wheelchairs
- Automatic ramps for wheelchairs that fold at the push of a button by the driver
- Automated announcements for station arrivals and closing doors

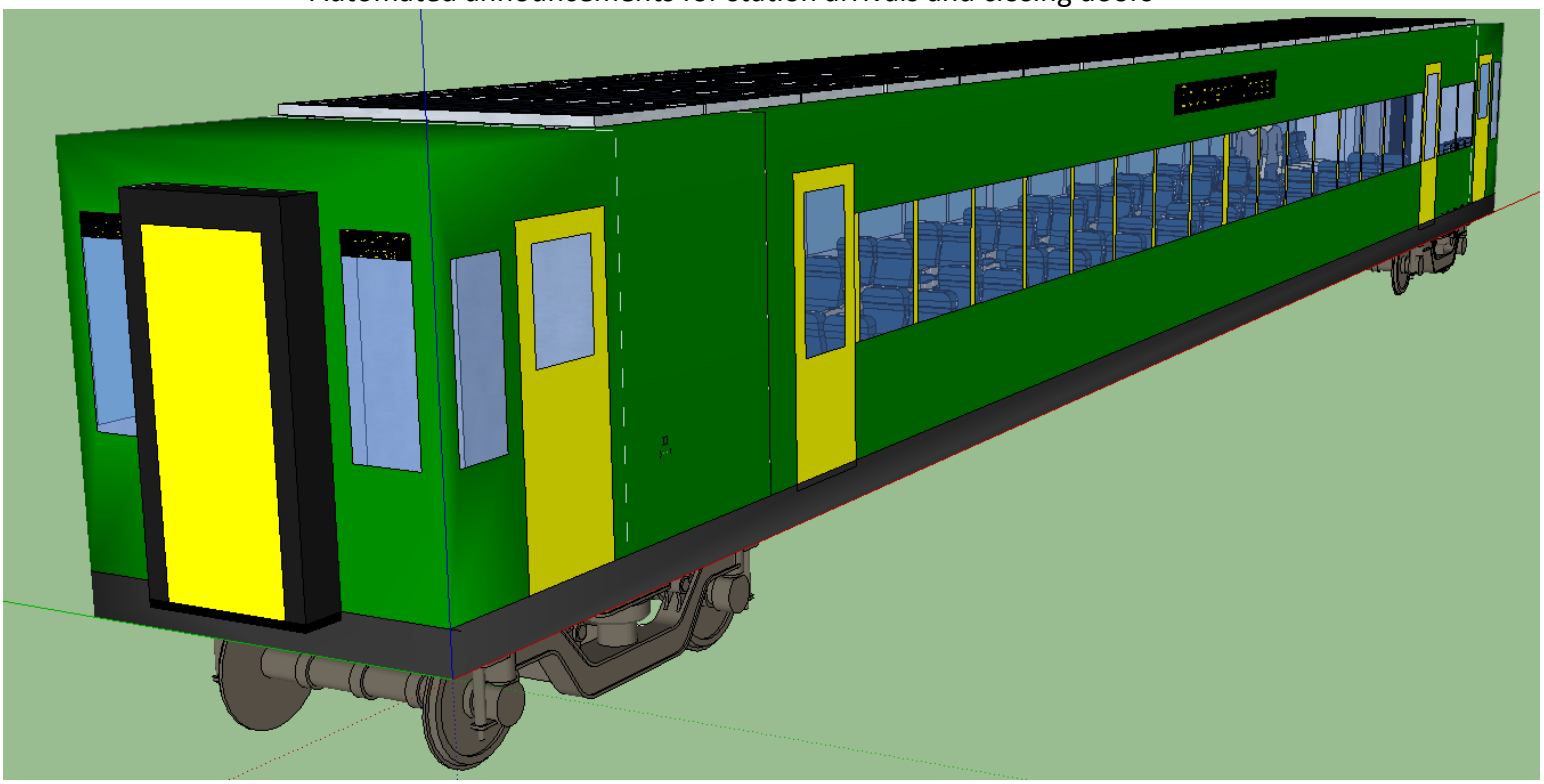


Figure 3: A rough artist's impression of a 1-car variant of the Cell

Level crossing removals

- Remove the Station Street, Bear Street and McDonald Street level crossings in Mordialloc
- Remove the McMahons Road level crossing in Frankston as a road under rail grade separation

Box 1: Level crossing removals on the Frankston line

The re-elected Andrews Government has promised to remove every level crossing on the Frankston line, including those in Mordialloc, but has not made any commitment to build any facet of the Peninsula Rail Link project.

An earlier version of this project's design had triplication run from Aspendale to Cheltenham. To this end, Mordialloc MP Tim Richardson was contacted in May 2017 to discuss the imminent level crossing removal in Mentone, in hopes of leaving provision for a 3rd track for express trains. Unfortunately, the contact attempt did not yield results, and the new station was rebuilt without provision for a 3rd track, and the design had to be changed.

If a 3rd track is not provided for express trains, Peninsula trains would be forced to run behind stopping-all-stations Frankston trains, increasing travel times by 5 minutes in peak periods and 4 minutes in the off-peak and weekend peak. While making the Frankston line level-crossing free works to the Peninsula Rail Link's advantage in the medium term, a 3rd track in the Mordialloc area MUST be provided for fast Peninsula expresses.

Bus service upgrades

Mornington Peninsula

About 80% of the Mornington Peninsula has no public transport at all, including buses. Most of the 20% who do have low frequencies, the only exception being the corridor between Mornington Secondary College and Frankston station, which sees 5 buses per hour on weekdays and 4.5 buses per hour on weekends.

In addition, there are no cross-peninsula buses connecting the east and west coasts of the peninsula. Commuters who want to cross the peninsula must either drive, or change services at Frankston. A Mornington-Hastings route was trialled in 2011, but failed because its services only ran in the off-peak.

The following bus network upgrades are proposed for the Mornington Peninsula as part of this project:

- Increase the frequency of bus route 788 (Frankston-Portsea) from 2 buses per hour (bph) on weekdays and 1.5 bph on weekends to 3 bph at all times
- Introduce 4 cross-peninsula bus routes to cover cross-peninsula demand and Green Wadge gaps, all running at 3 bph
    - Somerville-Mornington
    - Hastings-Mornington
    - Hastings-Rye via Red Hill, Jetty Road and St Andrews Beach
    - Hastings-Rosebud via Flinders
- Introduce routes from Flinders to Mornington and from Dromana to Red Hill, to better connect Red Hill to the rest of the peninsula, the former running at 1 bph (3 bph during peak) and the latter at 3 bph.
- Introduce a new bus route from Moorooduc to Frankston, running at 3 bph.
- Introduce an express bus between Dromana station and Dromana Secondary College, run only during the school peak
- Introduce town buses to Mornington, Somerville and Hastings

- Build staffed bus stations at Flinders, Red Hill and Moorooduc
- Upgrade the Kananook, Mornington, Hastings and Rosebud depots to accommodate more buses

Box 2: Green Wedge bus stations

Most of the Mornington Peninsula's Green Wedge, even with the construction of the Peninsula Rail Link, is way too far away from locations where Myki cards are sold to easily access the public transport network, even when buses are introduced to the area.

To address this, three bus stations would be built at the bus interchanges at Flinders, Red Hill and Moorooduc to vastly improve access to facilities including buying and topping up Myki cards.

These stations would have:

- Customer service and PSO facilities
- Myki top up machines
- Sheltered waiting areas on both sides of the road
- Timetable pamphlets
- PIDs detailing upcoming services
- A pedestrian crossing to allow for safer interchange
- CCTV and lighting

Frankston

Frankston has a much more established bus network than the Mornington Peninsula, but it still has a number of holes that need addressing. Boosts to frequencies are also advised to better connect with trains and each other, and to boost accessibility.

Carrum Downs Regional Shopping Centre has the potential in the long term to become a significant bus interchange, especially after the Frankston-Cranbourne Rail Link is complete.

The following bus network upgrades are proposed for Frankston as part of this project:

- Increase the frequency of bus route 901 (Frankston-Melbourne Airport) from 4 bph on weekdays and 2 bph on weekends to 6 bph on weekdays and 3 bph on weekends. This will increase capacity and reduce overcrowding in Melbourne's outer suburbs.
- Increase the frequency of all other bus routes in Frankston to 3 bph to encourage patronage growth
- Merge the Mornington and Langwarrin trunk routes so commuters are not forced to change at Frankston
- Truncate bus route 760 to terminate at Carrum Downs Regional Shopping Centre instead of Cranbourne
- Extend route 772 (Eliza Heights-Frankston) to Carrum via Nepean Highway and Pearcedale via Baxter, the latter replacing the south end of the 776
- Extend route 773 (Frankston-Frankston South) to Dandenong South via Hall Road and Cranbourne, and Mount Eliza via Canadian Bay Road

- Introduce new bus route 775 from Frankston to Mornington via Moorooduc, running 3bph
- Run route 776 (Frankston-Pearcedale) direct to Frankston in both directions
- Extend route 778 (Kananook-Carrum Downs) to Karingal Hub, replacing route 777, and increase its frequency to 3 bph
- Introduce new bus route 777 from Carrum Downs to Baxter via Langwarrin, running every 20 minutes
- Extend route 779 to Belvedere Park Shopping Centre, and Baxter via Heatherhill Road (replacing current route 775)

Figures 4-6 show maps of the proposed bus network for all of Frankston and the Mornington Peninsula as of stage 1.

Figure 4: Proposed bus network for Frankston and the northern part of the Peninsula, including Mornington

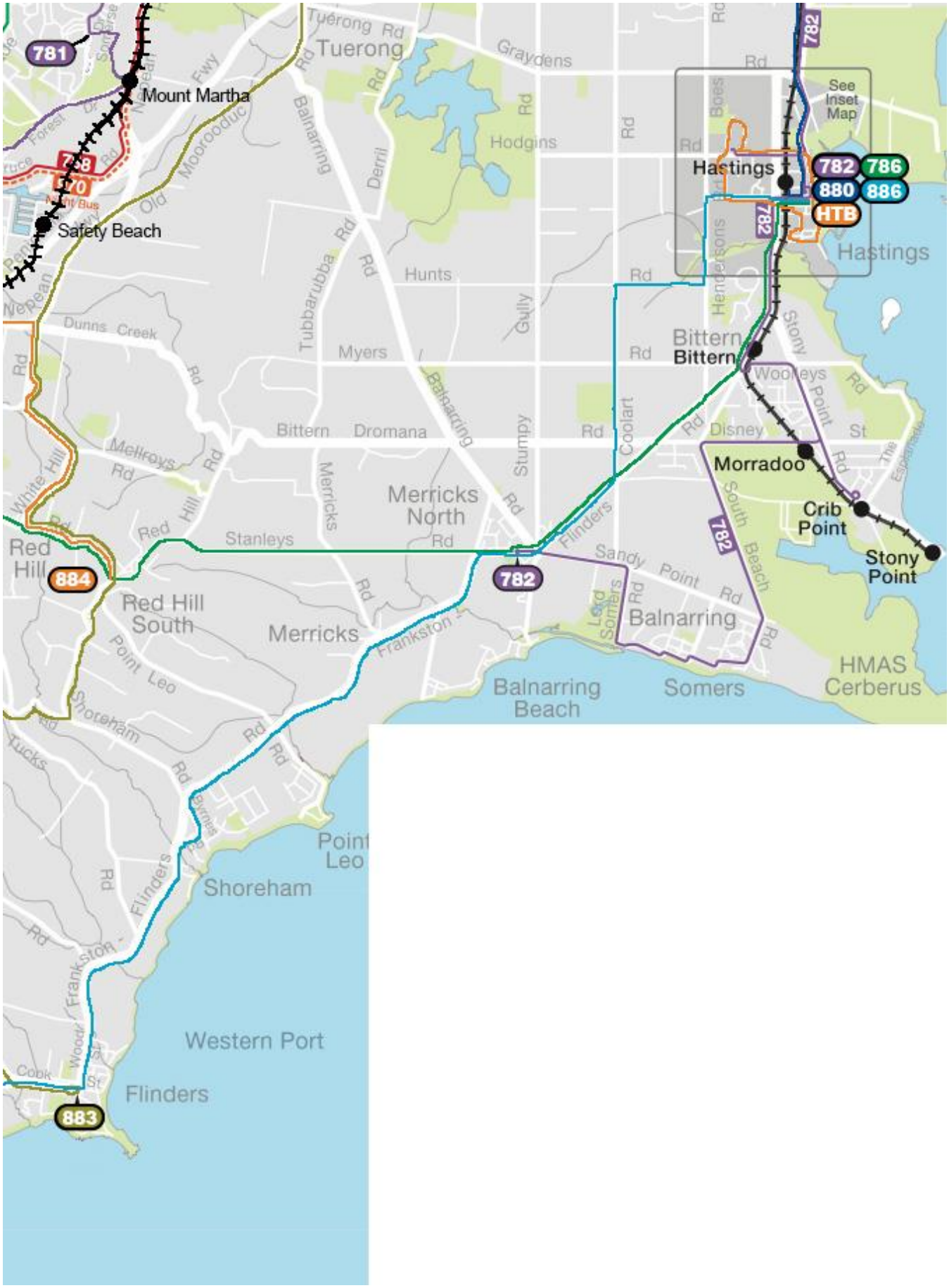


Figure 5: Proposed bus network for southeast of Mornington Peninsula

Figure 6: Proposed bus network for west and south coasts of Mornington Peninsula. Orange shaded area is Flexiride region.

Depot	Approximate address	Routes served
Kananook	Bardia Avenue Seaford	760, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782 (shared with Hastings), 788 (shared with Rosebud), 832, 833
Mornington	Mornington-Tyabb Road Mornington	781 (shared with Cranbourne), 784 (shared with Cranbourne), 880 (shared with Hastings), 882 (shared with Hastings), 883, Mornington Town Bus
Hastings	Cnr Cool Store Road and Wallis Drive	786 (shared with Rosebud), 782 (shared with Kananook), 880 (shared with Mornington), 882 (shared with Mornington), 886 (shared with Rosebud), Somerville Town Bus, Hastings Town Bus
Rosebud	Colchester Road Boneo	786 (shared with Hastings), 787, 788 (shared with Kananook), 884, 886 (shared with Hastings)

Table 4: Depots on the Peninsula and their route disposition

2 different sizes of bus will run on the Peninsula, their allocation based on demand. Lower demand outside peak periods will free up smaller buses to run on routes with higher off-peak demand, maintaining higher frequencies.

In addition, larger articulated buses would run more specialised, higher-capacity services along the Mornington Peninsula's west coast. Although primarily they would transport schoolchildren between Dromana station and Dromana Secondary College, they could also transport holidaymakers between Rosebud station and the hotels beyond during holiday peak periods, and run train replacement services during maintenance works.

Table 5 details what size bus runs on each route, as well as frequencies for each route.

Route		Peak		Off-peak		Weekend	
		Buses per hour	Bus size	Buses per hour	Bus size	Buses per hour	Bus size
760	Seaford-Carrum Downs	3	Small	3	Small	3	Small
770	Frankston-Baxter via Karingal	3	Small	3	Small	3	Small
771	Frankston-Langwarrin	3	Small	3	Small	3	Small
772	Pearcedale-Carrum via Baxter, Frankston & Nepean Highway	3	Small	3	Small	3	Small
773	Mount Eliza-Dandenong South via Cranbourne & Carrum Downs	3	Large	3	Large	3	Large
775	Frankston-Mornington via Moorooduc	3	Small	3	Small	3	Small
776	Frankston-Pearcedale	3	Large	3	Small	3	Small
777	Baxter-Carrum Downs	3	Small	3	Small	3	Small
778	Kananook-Karingal via Carrum Downs	3	Small	3	Small	3	Small
779	Baxter-Frankston North	3	Small	3	Small	3	Small
780	Frankston-Carrum via Seaford	3	Small	3	Small	3	Small
781	Dromana-Narre Warren North	3	Large	3	Large	3	Large
782	Frankston-Balnarring	3	Small	3	Small	3	Small
784	Osborne-Narre Warren North	3	Large	3	Large	3	Large
786	Rye-Hastings via St Andrews Beach & Red Hill	6/4	Small	3	Small	3	Large
787	Rosebud-Sorrento	3/4	Large	3	Large	3	Large
788	Frankston-Portsea	3	Large	3	Large	3	Large
832	Frankston-Carrum Downs	3	Large	3	Large	3	Large
833	Frankston-Carrum via Frankston North	3	Large	3	Large	3	Large
880	Mornington-Hastings	4/3	Large	3	Large	3	Large
882	Mornington-Somerville	5/3	Large	3	Small	3	Small
883	Mornington-Flinders	3	Small	1	Small	1	Small
884	Dromana-Red Hill	3	Small	3	Small	3	Small
884a	Dromana Secondary College express	6/0	Articulated	0	N/A	0	N/A
886	Rosebud-Hastings via Flinders	5/3	Large/Small	3	Small	3	Large
901	Frankston-Melbourne Airport	6	Large	6	Large	3	Large

Table 5: Bus route frequencies and bus sizes throughout Frankston and the Mornington Peninsula. For peak services with 2 values, the first number is in the direction shown under Route during morning peak while the second number is in the opposite direction in the morning peak (reversed in the afternoon peak)

High-capacity signalling (2024-2027)

Higher-capacity trains will be introduced to the Frankston line following the completion of the Metro Tunnel. High-capacity signalling would be installed on the Frankston line and throughout the peninsula as part of this rollingstock rollout.

These modern trains will greatly boost capacity, reliability and safety on the Frankston line. They would also allow for the retirement of nearly the entire fleet of suburban Comeng trains.

Bike network

By introducing separated bike lanes to most main roads throughout Frankston and the Mornington Peninsula, bike use can be encouraged as a cheaper, cleaner alternative to the car for local trips. This can be combined with the construction of bike sheds at every station, and at key destinations throughout the region, as well as an advertising program to educate the public about the economic and environmental benefits of cycling.

Mornington Peninsula Shire has also proposed an upgraded trail network called the Mornington Peninsula Bay Trail. This trail network has the goal of boosting tourism and allowing holidaymakers to more easily explore the Mornington Peninsula at their own pace. It could also be used by commuters, who can use the trails to walk or cycle to work, saving money and reducing pollution while taking pressure off the bus network.

Figure 7: Proposed Mornington Peninsula Bay Trail network

In addition to expanding the bike network, shops could be set up at key locations throughout the Mornington Peninsula, where commuters can buy new bikes, parts for existing bikes, equipment for general maintenance, and have their bikes repaired by professionals. While most could be run by private companies through the free market, those at train stations could be run by the operator of the station. Mornington, Safety Beach, Dromana, McCrae, Jetty Road, Rosebud, Somerville and Hastings would have these facilities built into their stations.

Stage 2 (2026-2031)

The second stage of the project builds the new line to Rosebud that is the centrepiece of the project. It also upgrades the Stony Point line so its trains can run as V/Line expresses to Melbourne while also supporting a small boost to frequencies.

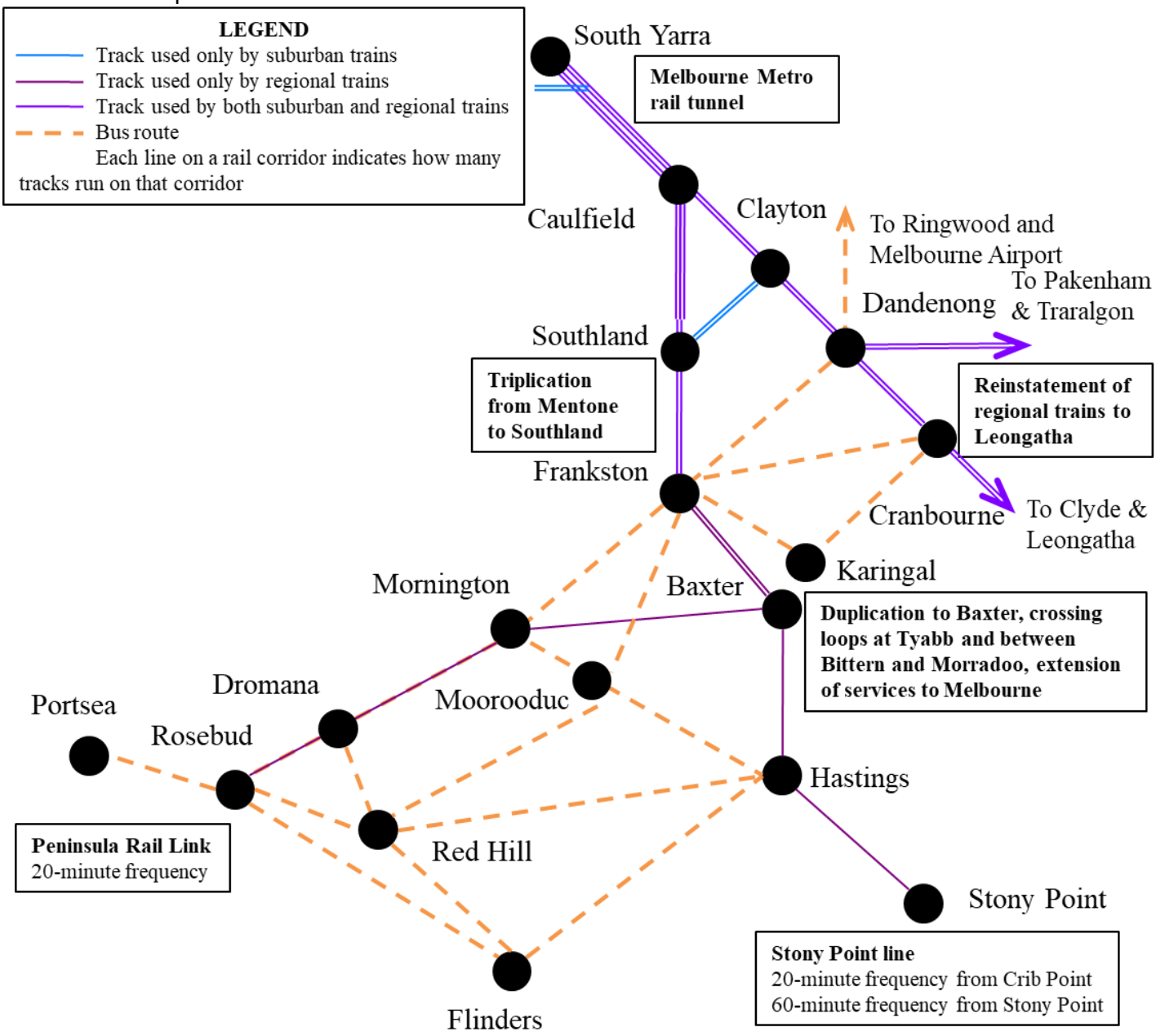


Figure 8: Schematic diagram of public transport network in Frankston and Mornington Peninsula after stage 2 (major routes only)

Stony Point line duplication (2029-2031)

In stage 2 of the plan, trains from the Rosebud and Stony Point lines will couple together and form a single train at Baxter when heading to the city, or divide at Baxter when travelling outbound. As a result, trains running between Frankston and Baxter will cross each other at different points compared to Stage 1. This requires the full duplication of this section of track so trains can cross anywhere without restriction. Due to future timetable requirements, and to provide space for the Long Island steel train, this duplication would extend to Somerville station (but exclude Somerville station itself).

Peninsula Rail Link (2026-2031)

The Peninsula Rail Link itself can be built once the Stony Point line's duplication reaches Baxter, from which the new line would be built. The line would be single track with 4 crossing loops, and 8 new stations would be built on the line. In addition, the existing Tanti Park station, currently used by Mornington Railway, would be modernised and reopened.

The crossing loops would be located:

- At Tanti Park station (1km long)
- Between Mornington and Safety Beach stations
- Between Dromana and Arthurs Seat stations
- Between McCrae and Jetty Road stations

The line to Rosebud will allow peninsula residents to get to Melbourne in a single mode of public transport, or to Frankston faster and in more comfort than a bus.

Holiday season buses

Along with the completion of the Peninsula Rail Link to Rosebud, 2 additional bus routes would be introduced, but run only during holiday peak periods. Both routes would connect Rosebud station and Sorrento Pier to the many hotels dotted around the district in between.

Route H1 would run from Fairways Resort in Rosebud Country Club to Mercure in Portsea Golf Club, running via Boneo Road and Point Nepean Road. Since this will serve the vast majority of the hotels in the region, it will be run by the Peninsula's bendy bus fleet.

Route H2 would serve the hotels away from Point Nepean Road that route H1 misses, starting at Rosebud station and ending at Sorrento Pier.

Both routes would run only during holiday periods such as long weekends and January, and would run every 20 minutes. On the day before long weekends, multiple buses would run each route at the same time, meeting the extra holiday train from Rosebud (see Holiday Specials, page 53) and ferry from Sorrento Pier.

Upgraded stations

Southland

Southland station is the location of choice for the start of the Suburban Rail Loop, which will connect nearly every railway line in Victoria outside the CBD. Peninsula trains will call at this station to connect with both the Suburban Rail Loop

and Southland Shopping Centre. 2 new platforms and customer service facilities would be built underground, connecting with both locations.

Frankston

Rebuilding Frankston station as part of the Frankston Station Precinct Redevelopment is necessary for any form of rail expansion beyond Frankston.

As previously stated, Stage 1 of this project would see the current platform 1 upgraded to a through platform. As part of stage 2 of this project, a new island platform would be built. Platform 2 and the new platform 3 would be used by suburban trains, with passengers easily able to transfer from peninsula trains using the outer platforms (platform 1 heading citybound and the new platform 4 heading outbound) when travelling to or from stations skipped by peninsula trains. This will allow trains from Stony Point and Rosebud to easily run all the way to Melbourne without having to awkwardly manoeuvre around suburban trains.

40% of people who park in the carpark at Frankston station live in the Mornington Peninsula. The Peninsula Rail Link will move most of these cars to carparks at peninsula stations, freeing up room for more local cars to take suburban trains.

While most stabling would be moved to Kananook and Mordialloc, one siding would remain north of platform 1, where two suburban trains could continue to use it.

Leawarra

Melway ref: 102 E4
Platforms: 2
Carpark spaces: 20
Bike racks: 20
Bus terminal bays: 0
Staffed: No
Features: PSO facilities

A new station at Frankston Hospital was announced as part of the Turnbull federal government's promise to do a feasibility study to electrify the line between Frankston and Baxter in the 2016 election. This station will only have a basic design, with no toilets, footbridges or staff facilities except for PSOs.

This station will replace the current Leawarra station, as the new location can serve the Frankston Power Centre and Monash University just as well while also serving Frankston Hospital.

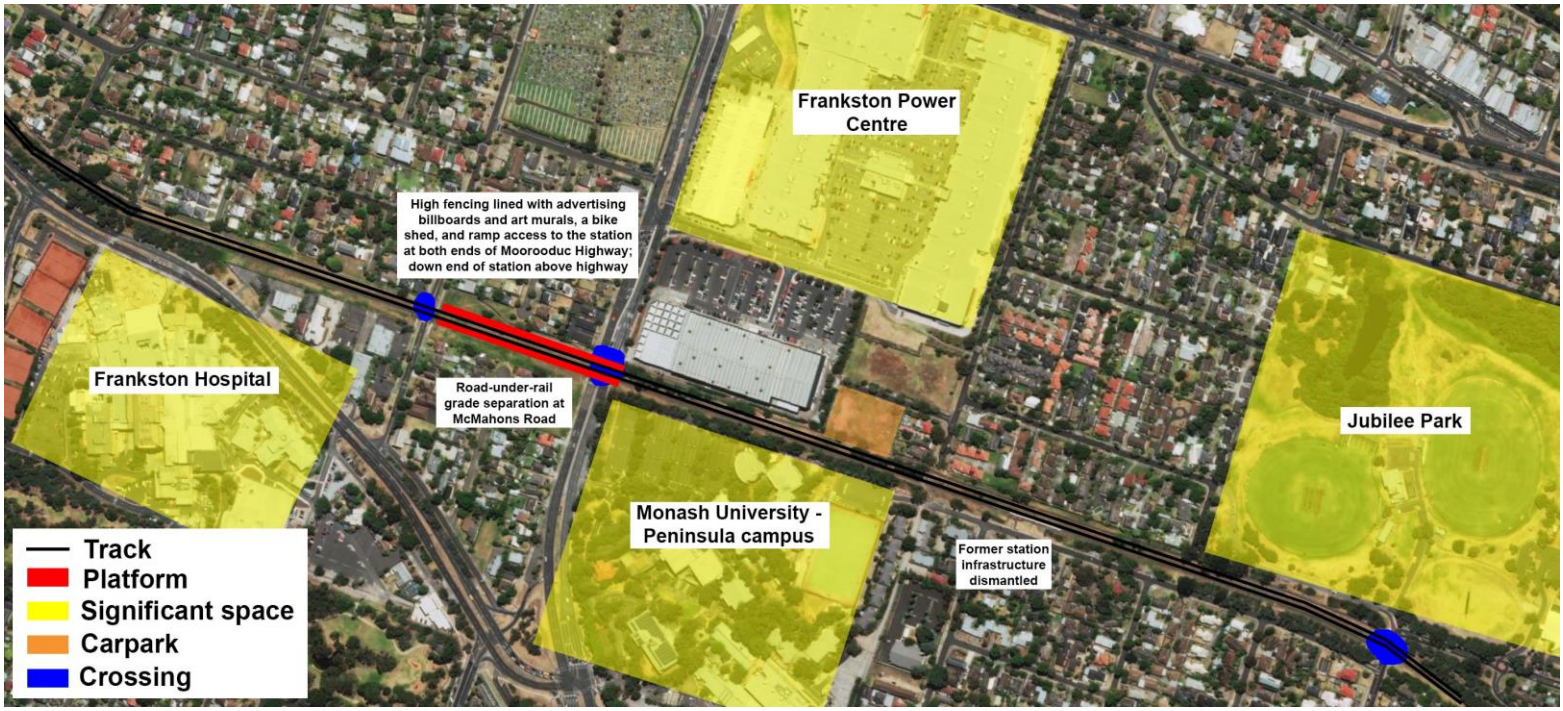


Figure 9: Map of Leawarra station, and surrounding area

Frankston Heights

Melway ref: 103 B7
Platforms: 2
Carpark spaces: 0
Bike racks: 100
Bus terminal bays: 0
Staffed: No
Features: PSO facilities

Frankston City Council has proposed a new railway station near Ferndale Drive in the eastern section of Frankston, connected to Karingal Hub shopping Centre via it and the Peninsula Link walking trail. This will give local residents direct access to the train network as well as the shopping centre, and could encourage gentrification and development in between to maximise the area's potential.

The area is inaccessible by bus or even car, but bikes and pedestrians will be able to access the station from both sides, using the Frankston-Baxter Trail in the north and the land above a water pipe in the south, atop which a shared use path could be built. Building bike sheds on both sides of the station would further encourage access to the station by bike.

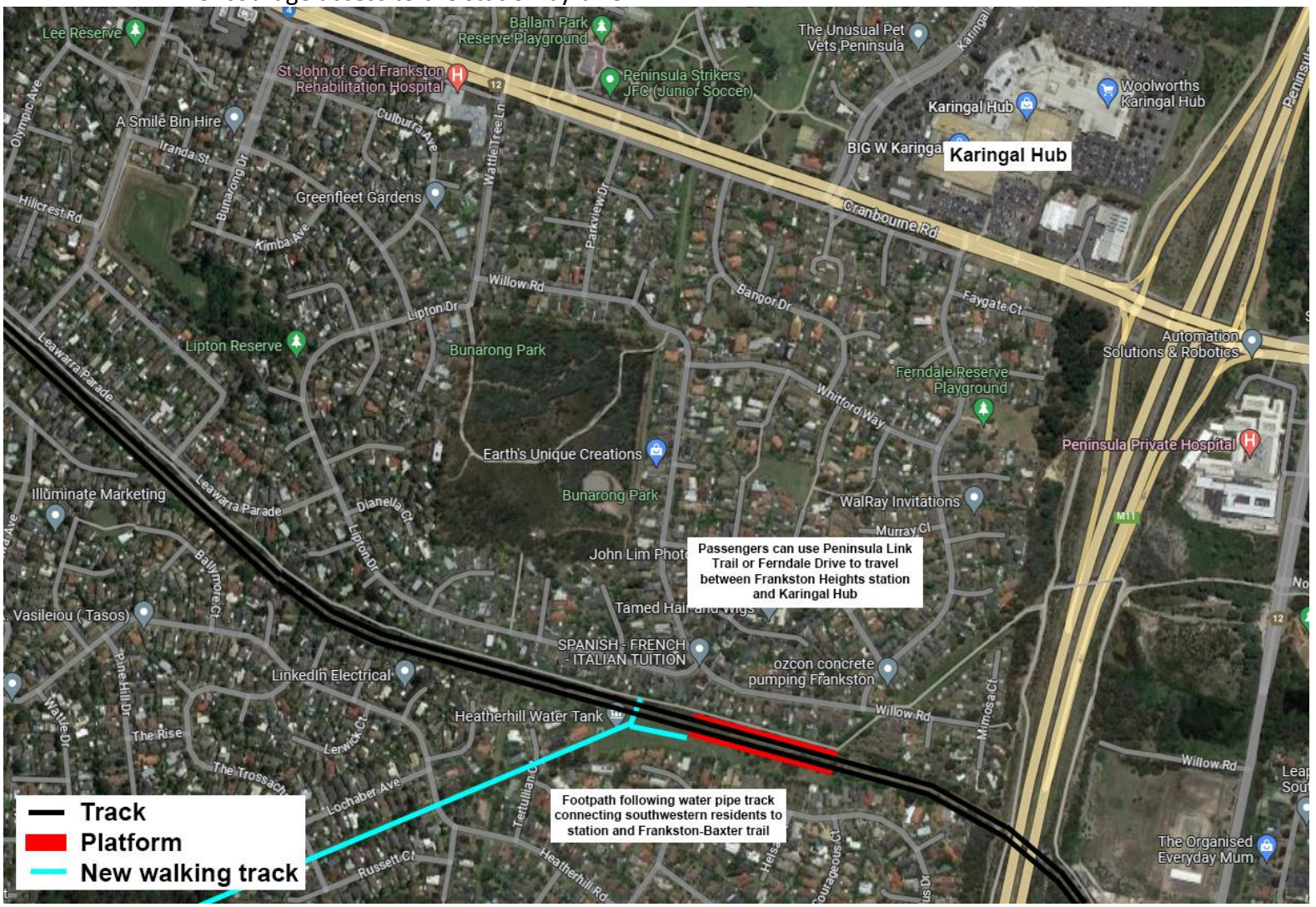


Figure 10: Map of Frankston Heights station and surrounding area

Langwarrin

Melway ref: 103 C11
Platforms: 2
Carpark spaces: 200
Bike racks: 0
Bus terminal bays: 4
Staffed: No
Features: PSO facilities

Langwarrin station can be rebuilt on the northern end of Robinsons Road next to Bayside Christian College's Northern campus, with 2 platforms, shade areas and PIDs. Its design would be similar to Frankston Heights station.

In October 2014, PTV also discussed two other options with the public for the location of a potential new Langwarrin station: one on the former 1970s site, and one closer to Karingal Shopping Centre. The result of this consultation session is unknown.

Figure 11: Map of Langwarrin station and surrounding area

Baxter

Melway ref: 107 B4
Platforms: 2
Carpark spaces: 50
Bike racks: 100
Bus terminal bays: 4
Staffed: Yes
Features: PSO facilities

Baxter station will be the junction between the Rosebud and Stony Point lines. The current platform will be demolished in favour of an island platform, which will allow passengers travelling between the Rosebud and Stony Point lines to interchange easily, as will the trains' arrival times be synchronised so trains in both directions arrive at the same time.

The island platform will be long enough to accommodate Rosebud and Stony Point trains at the same time, as following stage 1, trains from both lines will couple together or divide at Baxter, allowing trains on both lines to run to the city without further adding to congestion on the Frankston line. However, since these individual trains would go through Baxter-Tooradin separately, its boomgates would be closed to allow 4 trains to go through in one closed period. This would result in long wait times and worsened congestion, and would necessitate the crossing's removal.

The junction immediately south of the station would be converted to a triangular platform to allow empty car movements to move between the Rosebud and Stony Point lines without disrupting train services or the Baxter-Tooradin Road level crossing.

In April 2018 a feasibility study for electrification to Baxter was commenced. This study was completed in July 2019 and released in November 2020. This study recommended against electrifying the line due to its high cost, instead suggesting cheaper alternatives such as crossing loops.

Somerville

Melway ref: 107 F12
Platforms: 2
Carpark spaces: 100
Bike racks: 100
Bus terminal bays: 2
Staffed: Yes
Features: PSO facilities

As one of the largest towns on the Mornington Peninsula's east coast by population, Somerville would be one of four stations on the Stony Point line to be upgraded to be staffed full time, the other three being Hastings, Crib Point and later Baxter. It would also be given a second platform as part of duplication works. Both platforms would also be extended to fit 5 27m carriages (see New Regional Train Fleet, page 11).

Access to the station by means other than the car would be promoted, with a dedicated town bus route, and an expanded bike network.

As part of the streamlining of the double roundabout on Frankston-Flinders Road/Eramosa Road, this station and its nearly level crossing would be rebuilt in a

trench. This rebuild presents an opportunity to significantly upgrade the station with a 2nd platform and modern staffing and other facilities.

Tyabb, Bittern and Morradoo

Melway ref: 148 H10 (Tyabb), 164 F7 (Bittern), 164 H12 (Morradoo)
Platforms: 2 (Tyabb and Bittern), 1 (Morradoo)
Carpark spaces: 40 (Tyabb), 50 (Bittern), 0 (Morradoo)
Bike racks: 80 (Tyabb), 50 (Bittern and Morradoo)
Bus terminal bays: 2 (Tyabb and Bittern), 0 (Morradoo)
Staffed: No
Features: PSO facilities (Bittern would also get a bike shop)

Tyabb, Bittern and Morradoo stations would all only get the basic upgrades, including sheltering standards set by Public Transport Victoria (60% sheltering citybound, 20% outbound), Protective Service Officer (PSO) facilities, and platform extensions to accommodate 3 27m carriages. Tyabb and Bittern stations would also be given a 2nd platform each.

Hastings

Melway ref: 154 H10
Platforms: 1
Carpark spaces: 100
Bike racks: 100
Bus terminal bays: 2
Staffed: Yes
Features: PSO facilities

Like Somerville, Hastings would be upgraded to be a staffed station, with its platform extended. A bus terminal would be built in the carpark to accommodate local and cross-peninsula bus routes, and improve non-car access to the station.

Opposite the station, a retired 6-car Comeng train could be plinthed as an interactive display for graffiti artists to express themselves legally as an alternative to active trains and infrastructure.

Figure 12: Map of Hastings station and surrounding area. Stabling yard would be added in Stage 3.

Crib Point

Melway ref: 195 B3
Platforms: 1
Carpark spaces: 50
Bike racks: 100
Bus terminal bays: 1
Staffed: Yes
Features: PSO facilities, bike shop

Crib Point would become the primary terminus for the Stony Point line. Two trains per hour would terminate here, and a third would continue to Stony Point.

The stabling shed beyond the station would have its tracks connect to the outbound side of the line so trains running to Stony Point can go there directly.

The stabling shed built at this station would be 4 tracks wide and serve trains originating and terminating at Crib Point and Stony Point. It would be vandal-proof, and decorated by young local street artists under controlled conditions. The aim in engaging young street artists is to keep them out of trouble and help them become a respected and engaged part of their local community.

To encourage bike use in the area, a bike shop would be built as part of customer service facilities. This bike shop will also include a repair service, and spare parts for bikes. This will not only encourage sustainable local transport for commuters, but also provide an additional source of income for the line, allowing it to become less dependent on government subsidies.

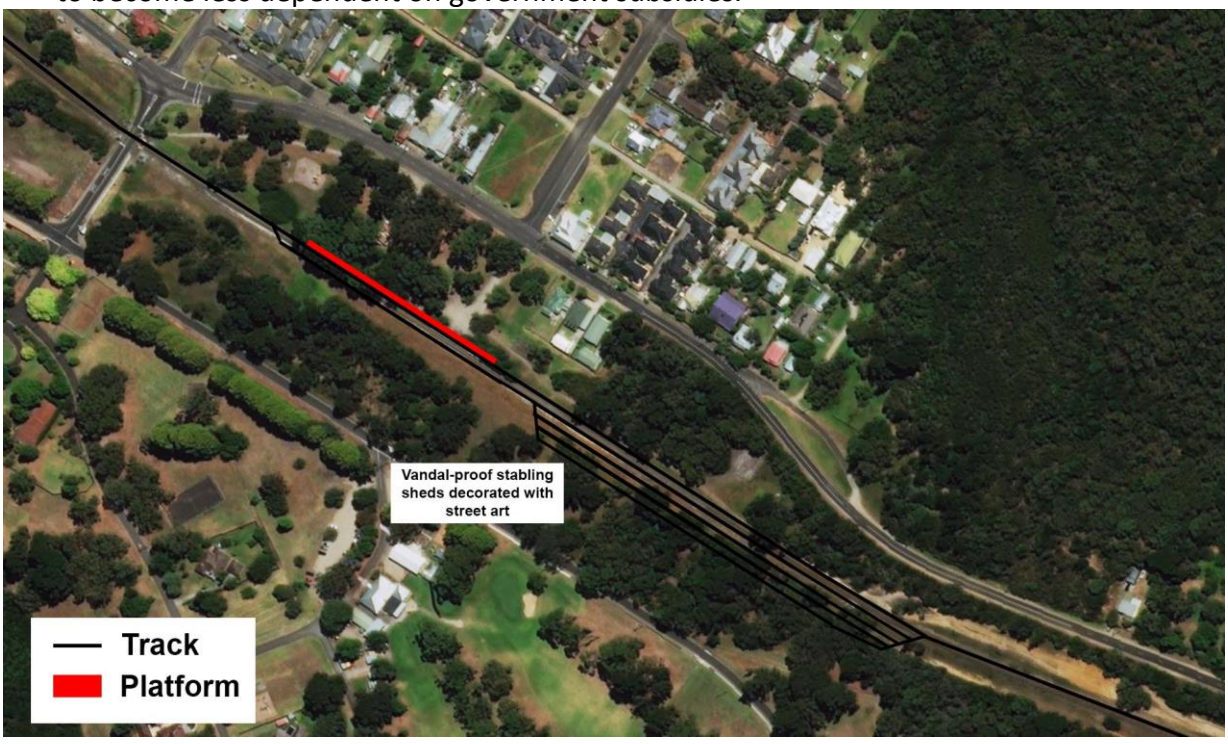


Figure 13: Map of Crib Point station and surrounding area

Stony Point

Melway ref: 195 E5
Platforms: 1
Carpark spaces: 0
Bike racks: 0
Bus terminal bays: 0
Staffed: No
Features: None

Stony Point station only serves a few houses, a caravan park and a ferry terminal. Thus, only one train would run this far every hour. The ferry to French Island and Phillip Island would also have its frequency boosted to hourly to match, to better connect their residents to the city. Because of its low frequency, the line between Crib Point and Stony Point stations would remain single track.

While normally Stony Point station would only run standard hourly trains, on occasion it would also play host to much larger special express trains, serving Phillip Island holidaymakers during holiday periods, and Phillip and French Island residents during special events in Melbourne. To accommodate these larger trains, the current platform, which was truncated by Metro Trains Melbourne in 2016 for unknown reasons, would have its length restored.

New Rosebud line stations

Tanti Park

Melway ref: 105 A12
Platforms: 2
Carpark spaces: 80
Bike racks: 40
Bus terminal bays: 2
Staffed: No
Features: PSO facilities

Tanti Park is a station from the original Mornington line that ran revenue services until 1981, and is currently used by Mornington Railway as part of their heritage rail services.

Built to serve Mornington Racecourse, the station will once again be used for that purpose, as well as to serve the growing north-eastern section of Mornington.

Box 3: Mornington Railway and its potential future under this project

Mornington Railway is a heritage railway that has preserved most of the former Mornington train line, running 4 return services per day every Sunday, plus works trains, charters, special events and Driver Experience runs.

The Peninsula Rail Link will reopen this line in its entirety, bringing these services to an end. However, Moorooduc station, where the Mornington Railway Preservation Society (MRPS) has its HQ and yard, will not be reopened as part of the project, as buses will be sufficient for all travel by public transport in the area, and the township of Moorooduc will see its own bus interchange. This will allow the station and yard to remain as a rail museum.

Although shuttle trains to Mornington would no longer be able to run, MRPS would have the option to continue to run their trains on the main network at their discretion. Unfortunately, the steep gradients proposed for the line south of Mornington are expected to be too much for their locomotives, so larger locomotives may have to be allocated to the railway to run these grades. In addition, a turntable may have to be built at Rosebud if steam-hauled services are to be encouraged to boost tourism.

MRPS could also be called upon to run holiday specials during holiday peak periods to take pressure off the transport network. An express to Rosebud would help carry holidaymakers to Point Nepean combined with the local articulated bus fleet, taking pressure off the Mornington Peninsula Freeway; while an express to Stony Point could transport holidaymakers to Phillip Island combined with a large ferry, taking pressure off the Bass Highway.

Mornington

Melway ref: 145 F2
Platforms: 1
Carpark spaces: 400
Bike racks: 100
Bus terminal bays: 4
Staffed: Yes
Features: PSO facilities, taxi rank, goods yard, bike shop, restaurants

The new site for Mornington station will be above the intersection to Nepean Highway, Main Street and Mornington-Tyabb Road. The downhill grade into the current site of Mornington station on Yuilles Road allows for the construction of a skyrail with a level gradient. Due to the mostly flat grade towards Mount Martha, this skyrail would continue at a level grade until Inga Parade, after which the skyrail would form a taller bridge over Balcombe Creek followed by a steep on-land uphill climb to Mount Martha station.

A bus interchange would be built on Main Street near the traffic lights, allowing for easy interchange between all bus routes. Bus lanes will also be added between the Eastern Ring Road and Mornington Racecourse, and between Bungower Road and Strachans Road, to allow for the easy movement of buses through the area (see Figures 15 and 16).

A double-storey carpark would be built at the site of the restaurants to the south of the station. These restaurants will be rebuilt on the site with improved facilities that will use less space. A taxi rank could also be built here, providing further ease of access for residents to travel to parts of Mornington and Mount Martha not easily accessible by bus.

Facilities for bike storage and maintenance would be incorporated into the station building and provide additional income for the line, reducing net operating costs. A kiosk that sells snacks and small meals could also be built here, as would PSO facilities.

A goods yard will be built at Watt Road, near the site of the current Mornington station. Due to the heightened grade of the line from the project, the yard will be located above ground, accessed by trucks by ramp. This could potentially allow administration facilities to be built underneath. The close proximity of the yard to so many factories and shops will allow for the easy import and export of goods while also keeping away from traffic on nearby major roads.

Figure 14: Map of Mornington station, Watt Road goods yard and surrounding area

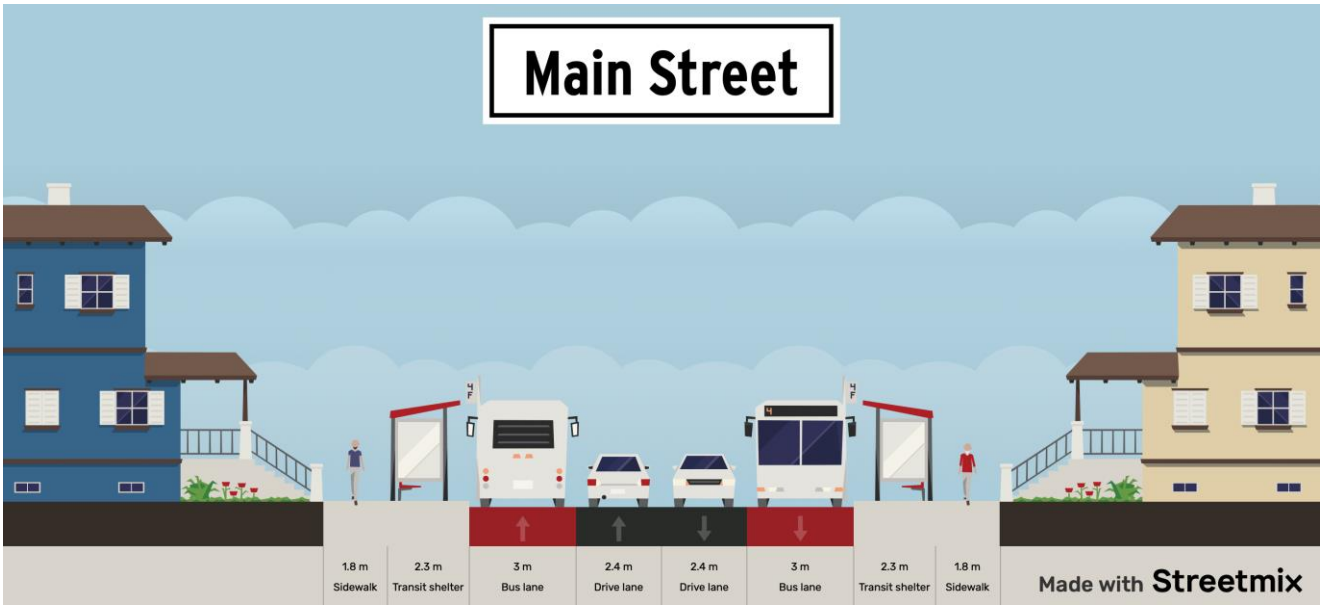


Figure 15: Streetmix cross-section of an upgraded Main Street

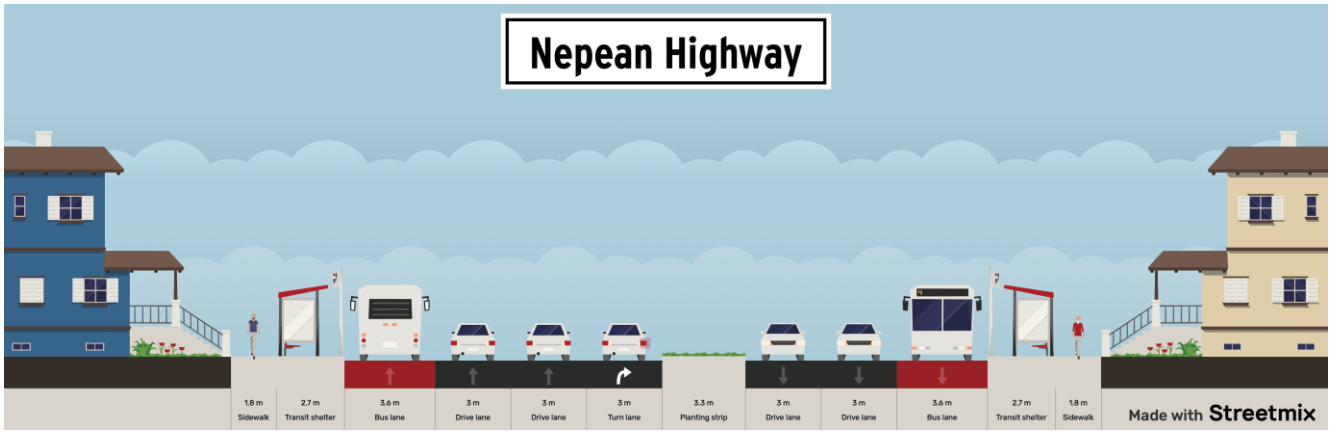


Figure 16: Streetmix cross-section of an upgraded Nepean Highway

Mount Martha and Safety Beach

Melway ref: 151 C5 (Mount Martha), 160 H1 (Safety Beach)
Platforms: 1
Carpark spaces: 500 (Mount Martha), 100 (Safety Beach)
Bike racks: 0 (Mount Martha), 100 (Safety Beach)
Bus terminal bays: 2 (Mount Martha), 1 Flexiride (Safety Beach)
Staffed: No
Features: PSO facilities, bike shop (Safety Beach only), supermarket (Safety Beach only)

This section of the railway will slope steeply down Mount Martha. While the steepest a railway can be is 1:30 (1 metre up or down for every 30 metres travelled), this gradient is achievable if proper grade separation is undertaken at road crossings. Mount Martha station would be built at the top of such a steep grade, underneath Nepean Highway and Range Road, while elevated rail would be built above Bruce Street just north of Safety Beach station.

Safety Beach station would be accompanied by a new supermarket and bike shop, and both stations would have PSO facilities.

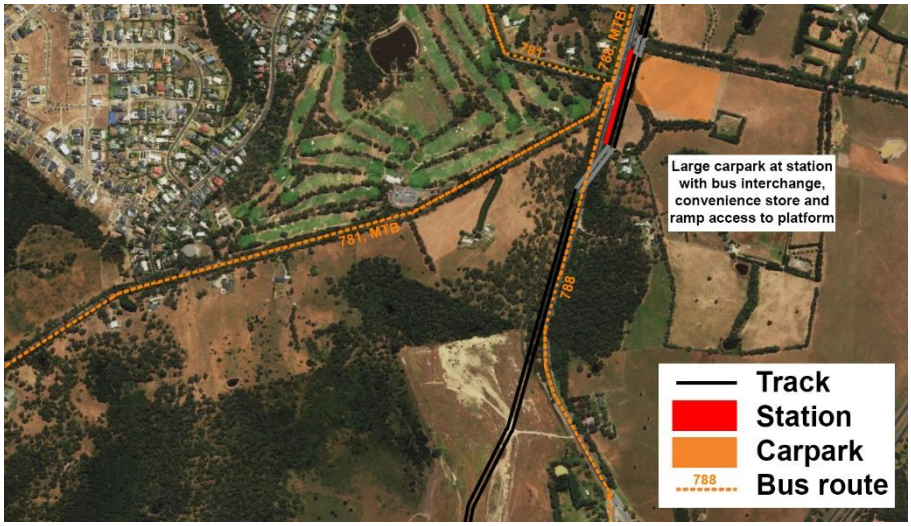


Figure 17: Map of Mount Martha station and surrounding area

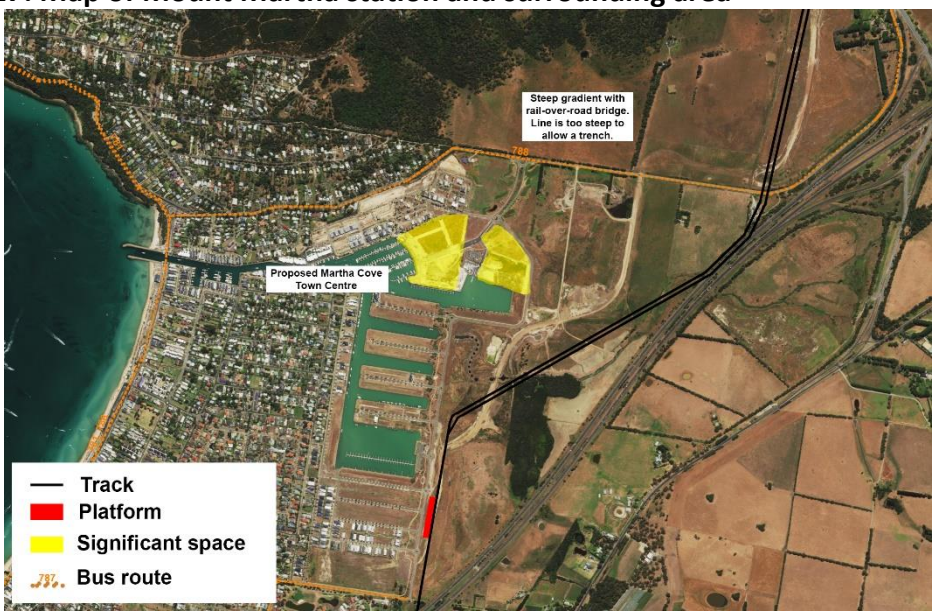


Figure 18: Map of Safety Beach station and surrounding area

Dromana and Arthurs Seat

Melway ref: 159 J7 (Dromana), 159 E9 (Arthurs Seat)
Platforms: 2 (Dromana), 1 (Arthurs Seat)
Carpark spaces: 0 (Dromana), 100 (Arthurs Seat)
Bike racks: 100
Bus terminal bays: 1 Flexiride
Staffed: Dromana only
Features: PSO facilities, bike shop (Dromana only)

If the line goes down the middle of the Mornington Peninsula Freeway, the freeway's nature strip would have to be widened slightly to allow for two platforms at Dromana station. The station would reside underneath a footbridge, which would be used as station access. The footbridge itself would be rebuilt with a roof, customer service facilities, toilets, PSO facilities and a bike shop.

This station would be a short walk away from the local shops, and Dromana Primary School.

The primary purpose of Arthurs Seat station is to serve Arthurs Seat State Park. It would be a short walk from the new Gondola, built on the site of the former chairlift.

This station would be even closer to Dromana Primary School than Dromana station, and so would be more convenient for students to use, especially if they live further down the peninsula towards Portsea.

Figure 19: Map of Dromana and Arthurs Seat stations and surrounding area

McCrae and Jetty Road

Melway ref: 158 J12 (McCrae), 170 E4 (Jetty Road)
Platforms: 2 (McCrae), 1 (Jetty Road)
Carpark spaces: 0
Bike racks: 300 (McCrae), 50 (Jetty Road)
Bus terminal bays: 1 Flexiride (Jetty Road also has 2 standard bays)
Staffed: No
Features: PSO facilities, bike shop, convenience store

The line between Arthurs Seat and McCrae stations is very steep, so a small tunnel would need to be built to ease the track's gradient as it passes through this part of the line.

McCrae and Jetty Road stations would not be staffed with customer service facilities, but would each have PSO facilities, a bike shop and a convenience store. The idea of having convenience stores at these stations is to take pressure off the supermarkets on Point Nepean Road, which can be overwhelmed during holiday peak periods. They will also be located closer to the vast majority of local residents, especially those who live south of the Mornington Peninsula Freeway. The profits from these facilities can also allow the line to become less dependent on government subsidies. This addition was made in response to feedback from local residents who are concerned about the potential increase in traffic from the boost to tourism the Peninsula Rail Link could bring to the area.

Figure 20: Map of McCrae station and surrounding area

Figure 21: Map of Jetty Road station and surrounding area

Rosebud and Capel Sound

Melway ref: 170 A6
Platforms: 1
Carpark spaces: 200
Bike racks: 500
Bus terminal bays: 3 (1 Flexiride)
Staffed: Yes
Features: PSO facilities, taxi rank, bike shop, souvenir shop, shopping centre

Rosebud station would be one of the busiest stations on the line, if not *the* busiest. It would be built on the eastern side of Boneo Road, with a level crossing connecting the station to its stabling and freight yards. The level crossing keeps costs down, while the station's position minimises how many trains go through the crossing while ensuring they move slowly enough that they do not cause fatalities.

A taxi rank would be built at the carpark opposite the station, allowing passengers to more easily access tourist hotspots, hotels and other locations not easily accessible by bus. This taxi rank could also be used by tourist buses to transport larger groups of people to key locations.

A bike shop and souvenir shop would be built at the station itself, while a hotel and shopping centre would be built opposite. The shopping centre could include a supermarket and food court, providing a pit stop for commuters and holidaymakers while further encouraging job creation.

Next to the shopping centre, a goods yard would be built to allow goods to reach the area by rail, taking trucks off major roads in Melbourne, and also boosting local employment.

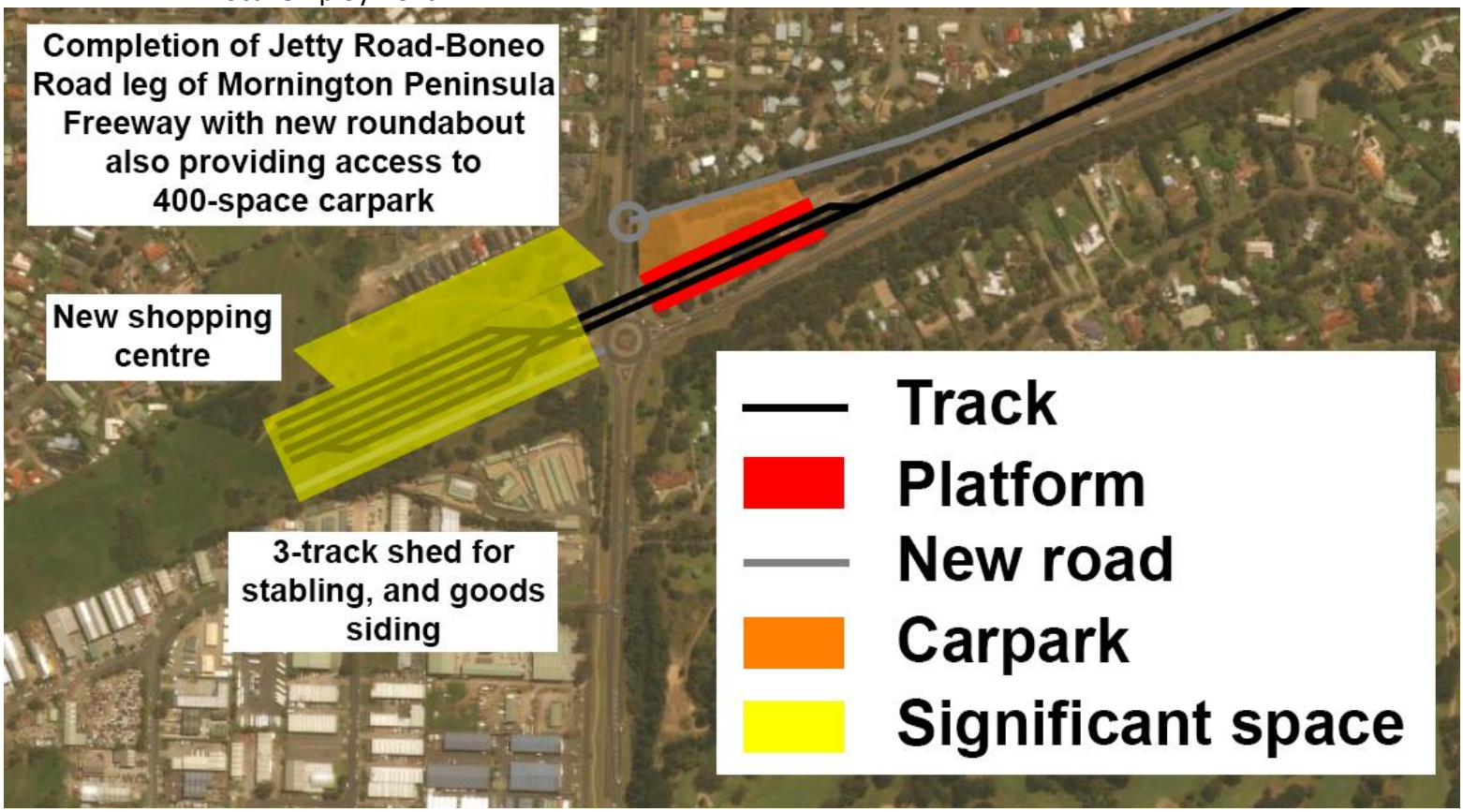


Figure 22: Map of Rosebud station and Capel Sound goods yard

Service Frequencies

By the time the Peninsula Rail Link is complete, so too will the Melbourne Metro rail tunnel, which will provide the space in the inner city to run more suburban trains from Frankston, and for trains from beyond to run all the way to Melbourne.

The Rosebud line will run 3 trains per hour. 3 trains per hour will also run to Crib Point, with every third of those trains continuing to Stony Point.

Stony Point line duplication will be completed before the Rosebud line will, and before the completion of all upgrades on the Frankston line. Until Frankston line upgrades are completed, the Stony Point line will see a gradual boost to frequencies, but remain as a shuttle to Frankston. Initially trains would run every 20 minutes during peak periods and every 40 minutes outside peak periods but gradually increase over the course of the project. Once all upgrades to the Frankston line are completed, Stony Point trains will start running to Southern Cross.

To minimise congestion in suburban Melbourne, trains from both lines heading to the city would couple together and form a single train at Baxter where the junction is. Likewise, outbound trains will divide at Baxter and then run down both lines. This practice is common in the UK, especially services out of London.

Due to demand, an extra peak hour service would run to and from Rosebud during peak periods. To balance demand and rollingstock supply, another service would run from Southern Cross during the afternoon peak, with the front carriages running to Rosebud and the back 2 carriages running to Hastings. At Hastings, the two carriages would then divide, with the north carriage immediately running empty to Rosebud for the following morning peak, while the front carriage would wait until the citybound trains end before running empty to Crib Point. On Fridays, however, both carriages would immediately run empty to Southern Cross to run weekend services from there.

Trains per hour (total)	Peak hour (18)	Peak 2-hour period	Inter-peak (6)	Evening (3)	Weekend peak (6)	Other off-peak (6)
From Frankston (all stations to Mordialloc, express Mordialloc > Southland > Caulfield, Malvern > South Yarra, all stations via City Loop)	6	12	-	-	-	-
From Frankston (all stations via City Loop)	-	-	6	3	6	6
From Kananook (all stations to Mordialloc, express Mordialloc > Southland > Caulfield, Malvern > South Yarra, all stations via City Loop)	3	6	-	-	-	-
From Mordialloc (all stations via City Loop)	9	18	-	-	-	-

Table 6: Service frequencies on the Frankston line after stage 2

Trains per hour (total)	Peak hour (3)	Peak 2-hour period	Inter-peak (3)	Evening (3)	Weekend peak (3)	Other off-peak (3)
Stony Point-Southern Cross (all stations to Frankston, express Frankston > Southland > Caulfield > Richmond, all stations direct)	1	2	1	-	1	1
Crib Point-Southern Cross (all stations to Frankston, express Frankston > Southland > Caulfield > Richmond, all stations direct)	2	4	2	3	2	2
Southern Cross-Hastings (afternoon peak only) (All stations direct to Richmond, express Richmond > Caulfield > Southland > Frankston, all stations)	1	1	-	-	-	-
Rosebud-Southern Cross (all stations to Frankston, express Frankston > Southland > Caulfield > Richmond, all stations direct)	4*	7*	3	3	3	3

Table 7: Service frequencies on the Stony Point and Rosebud lines after stage 2. * = Plus 1 extra service in afternoon peak

Stage 3 (2028-2037)

The main goal of Stage 3 is to separate regional and suburban trains. A lot of work is required to do this, but the benefits go well beyond the Mornington Peninsula, reaching out to the Pakenham and Cranbourne lines, and even Gippsland.

Because of the boost in capacity created by this stage of the project, trains from Stony Point and Rosebud would no longer need to couple together or divide at Baxter, saving time otherwise spent combining/dividing them.

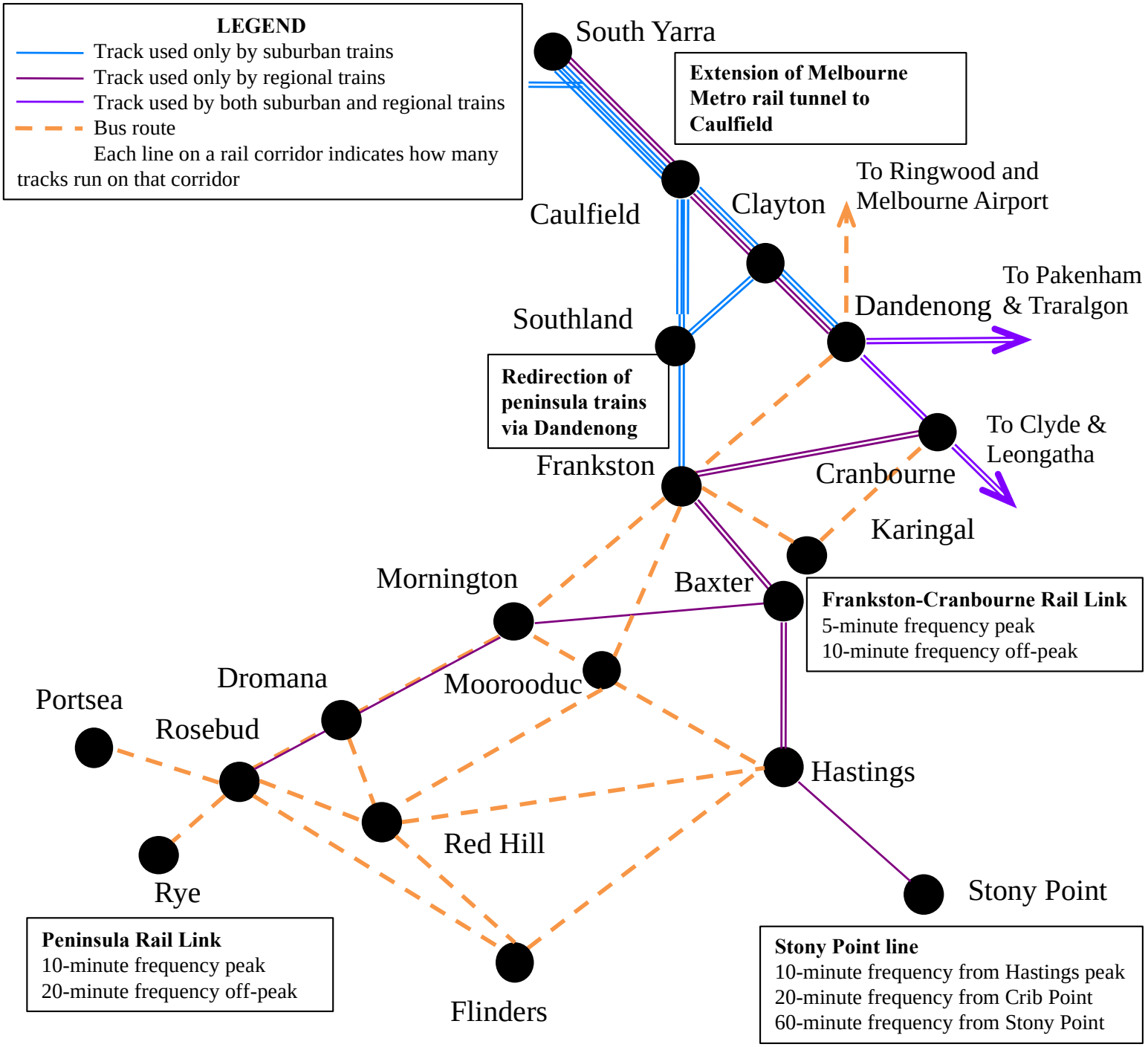


Figure 23: Schematic diagram of public transport network in Frankston and Mornington Peninsula after stage 3 (major routes only)

Somerville-Hastings duplication (2035-2037)

At the completion of Stage 3, Stony Point and Rosebud trains would no longer need to couple together or divide at Baxter, altering times Stony Point trains will run, and by extension where they will cross each other. This necessitates the full duplication of the Stony Point line to Hastings (including a 2nd platform at Somerville), and the extension of the Bittern-Morradoo crossing loop to Crib Point, providing Morradoo with a 2nd platform.

Melbourne Metro Rail Tunnel extension (2032-2037)

Even after the construction of the Melbourne Metro Rail Tunnel, the Caulfield-South Yarra corridor will remain a bottleneck that will prevent an increase in service frequency in Victoria's southeast. This can be solved by extending the Melbourne Metro tunnel to Caulfield. This extra pair of tracks will separate Pakenham and Cranbourne trains from Gippsland trains, allowing for more frequent trains on all three lines.

In addition, line speeds on the entire Caulfield-City corridor would be increased from 60km/h to 130km/h, further reducing travel times.

Dandenong line quadruplication (2028-2033)

The Dandenong corridor is the busiest in Victoria. The frequency of suburban trains on the corridor causes a bottleneck on the existing two tracks during peak periods, slowing regional trains and preventing the running of expresses. Quadruplication will widen the corridor by adding two express tracks.

Quadruplication will provide the capacity boost needed to run peninsula trains via Dandenong. It will also reduce travel times for Gippsland trains by allowing them to overtake suburban trains. The track will be built to the Regional Fast Rail standard speed of 160km/h, further reducing travel times.

The Dandenong line corridor can be quadruplicated at any time to boost Gippsland line travel times, but is not needed for the Peninsula Rail Link until stage 3.

Frankston-Cranbourne Rail Link (2032-2037)

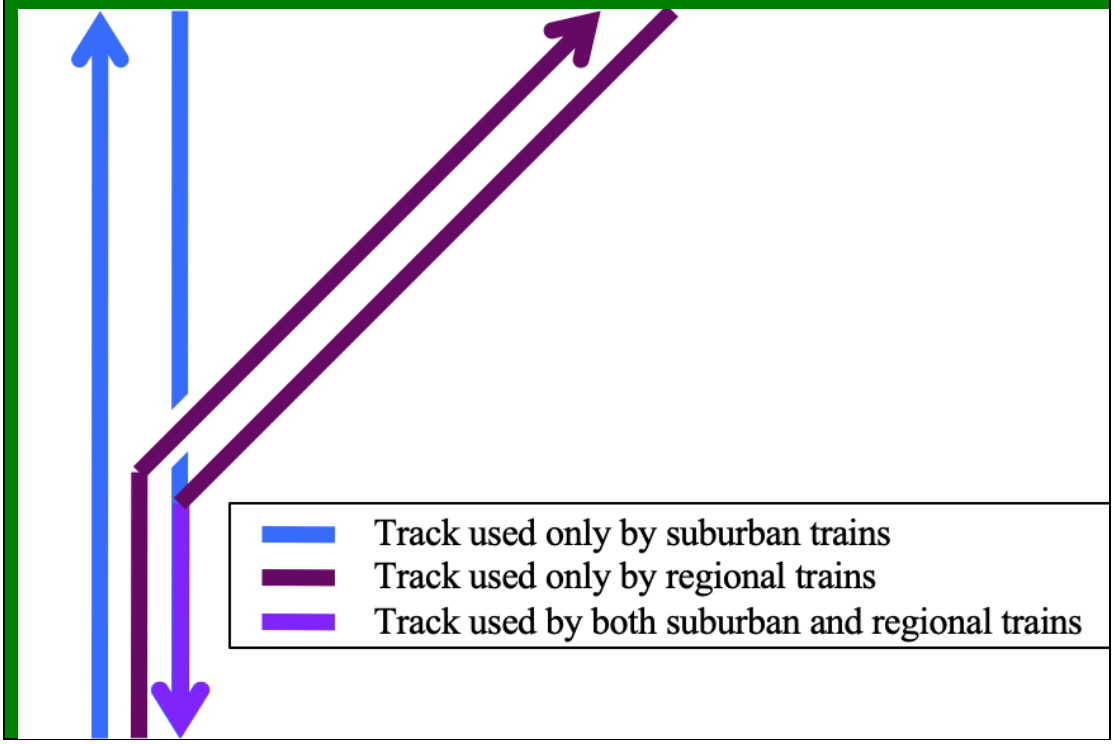
This project would combine with the Melbourne Metro extension to provide the capacity needed to separate peninsula trains from Frankston trains. The double-track line from Frankston to Cranbourne would also provide a faster alternative to the pre-existing bus route in connecting the two major suburbs. Trains would also run via Dandenong, better connecting it to Frankston and the peninsula. The line would have 3 new stations: Frankston North, Carrum Downs and Cranbourne West. This project would be combined with the removal of every level crossing between Dandenong and Cranbourne.

The new line would allow Carrum Downs residents to get to Melbourne in a single mode of public transport. The boosted capacity would also allow for trains to no longer need to couple or divide at Baxter, reducing travel times and allowing 6 tph off-peak frequencies between Baxter and Cranbourne, and 12 tph in the peak direction during peak periods. The connection via Carrum Downs would also ease pressure on the Frankston line by moving passengers to more local trains.

Box 4: The Skye/Overton Road junction

The Skye/Overton Road level crossing was recently grade-separated as a rail bridge. This rail bridge leaves space for a third track in the middle of the existing two tracks, and this will be used in stage 3 to build the Frankston-Cranbourne Rail Link.

This middle track will carry citybound peninsula trains over the existing skyrail, with its ascent starting earlier to ensure clearance over the existing outbound track.



New and upgraded stations

Hastings

Stage 3 is anticipated to see a surge in demand for rail from commuters to Cranbourne and Dandenong, resulting in a doubling of frequencies during peak periods. To that end, a new stabling yard would be built in Hastings, with all new services on the Stony Point line originating and terminating here and using it.

Dandenong South

Melway ref: 95 H3
Platforms: 2
Carpark spaces: 0
Bike racks: 0
Bus terminal bays: 2
Staffed: No
Features: None

Dandenong South station could be built well before stage 3 as a new station for the Cranbourne line.

Dandenong South station would be used to provide improved public transport access to the Dandenong South industrial centre. This access can be further improved with connecting buses from the station to the rest of the suburb. This could be accomplished by extending the Frankston-Karingal-Cranbourne buses to different parts of Dandenong South via the station, and doubling their frequencies.

All passenger services would stop at Dandenong South on weekdays, regardless of their origin. Peninsula trains, however, would skip the station on weekends.

Figure 24: Map of Dandenong South station and surrounding area

Cranbourne

In stage 3 of the plan, peninsula trains would be redirected via Cranbourne and Dandenong. In Cranbourne, the line would run underground, and the station would be lowered under the road, removing the crossing at Camms Road. However, a third platform would be built for trains from Clyde (and future services from Leongatha) on the surface, with a track to Rosebud and Stony Point running underneath. This will prevent a potential bottleneck, as these trains would cross trains heading from the city to Rosebud and Stony Point.

Platform 1: In trench; trains from Rosebud and Stony Point to Melbourne

Platform 2: On surface directly above platform 3; trains from Clyde and Leongatha to Melbourne

Platform 3: In trench; trains from Melbourne to Rosebud, Stony Point, Clyde and Leongatha

The stabling yard at Cranbourne would be moved to Clyde, and the space left behind used for upgraded car and bike parking facilities, as well as a bike shop similar to those proposed on the Peninsula in stage 2.

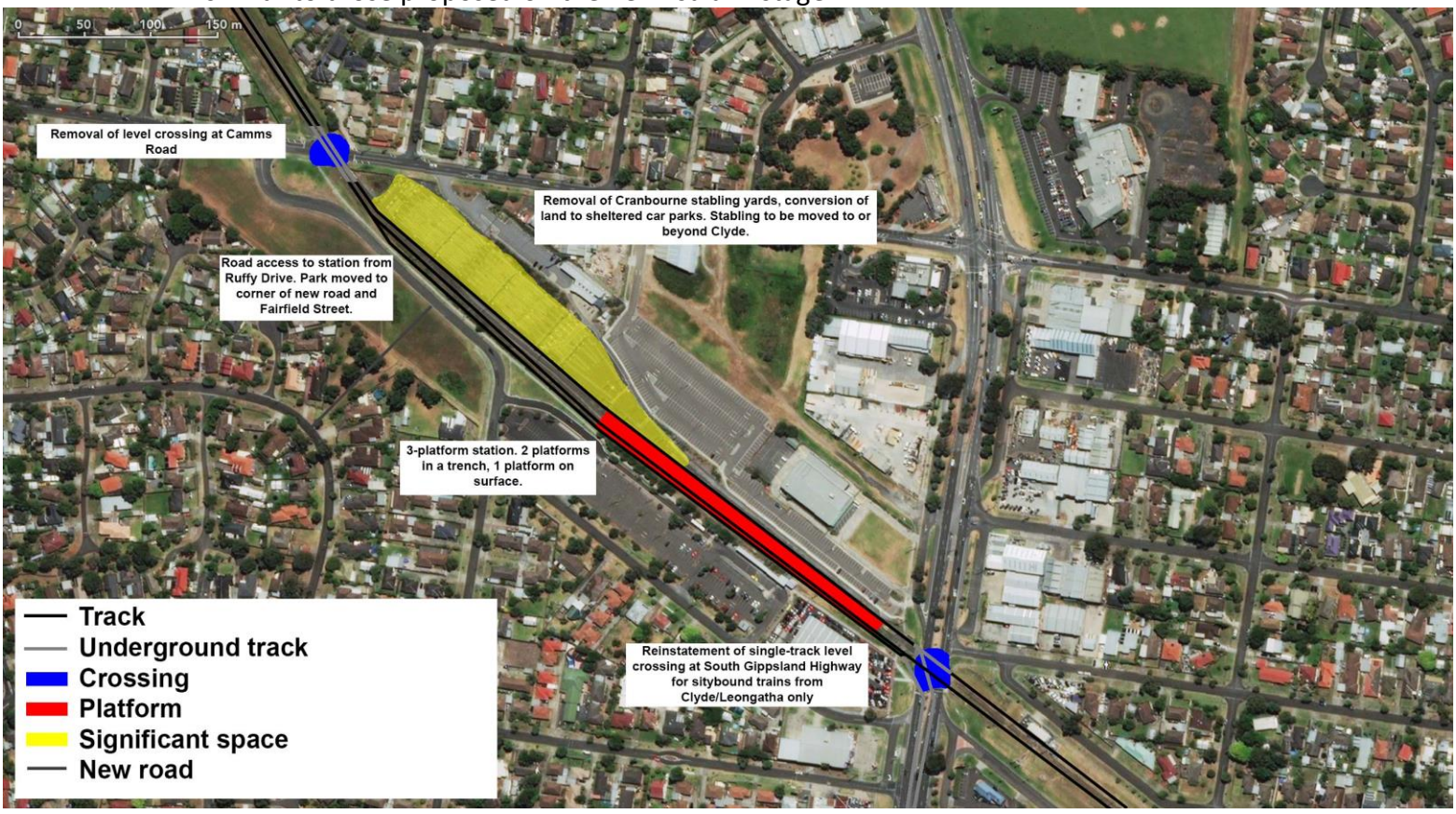


Figure 25: Map of Cranbourne station and surrounding area

Cranbourne West

Melway ref: 133 B5
Platforms: 2
Carpark spaces: 100
Bike racks: 100
Bus terminal bays: 4
Staffed: No
Features: PSO facilities, bike shop

Cranbourne West station will serve a part of the fast-growing part of Cranbourne that would otherwise miss out on a direct rail service to the city based on existing transport plans.

A shopping centre is proposed near the station. It's recommended a bike shop be opened here to support bike parking and bike use in the area.

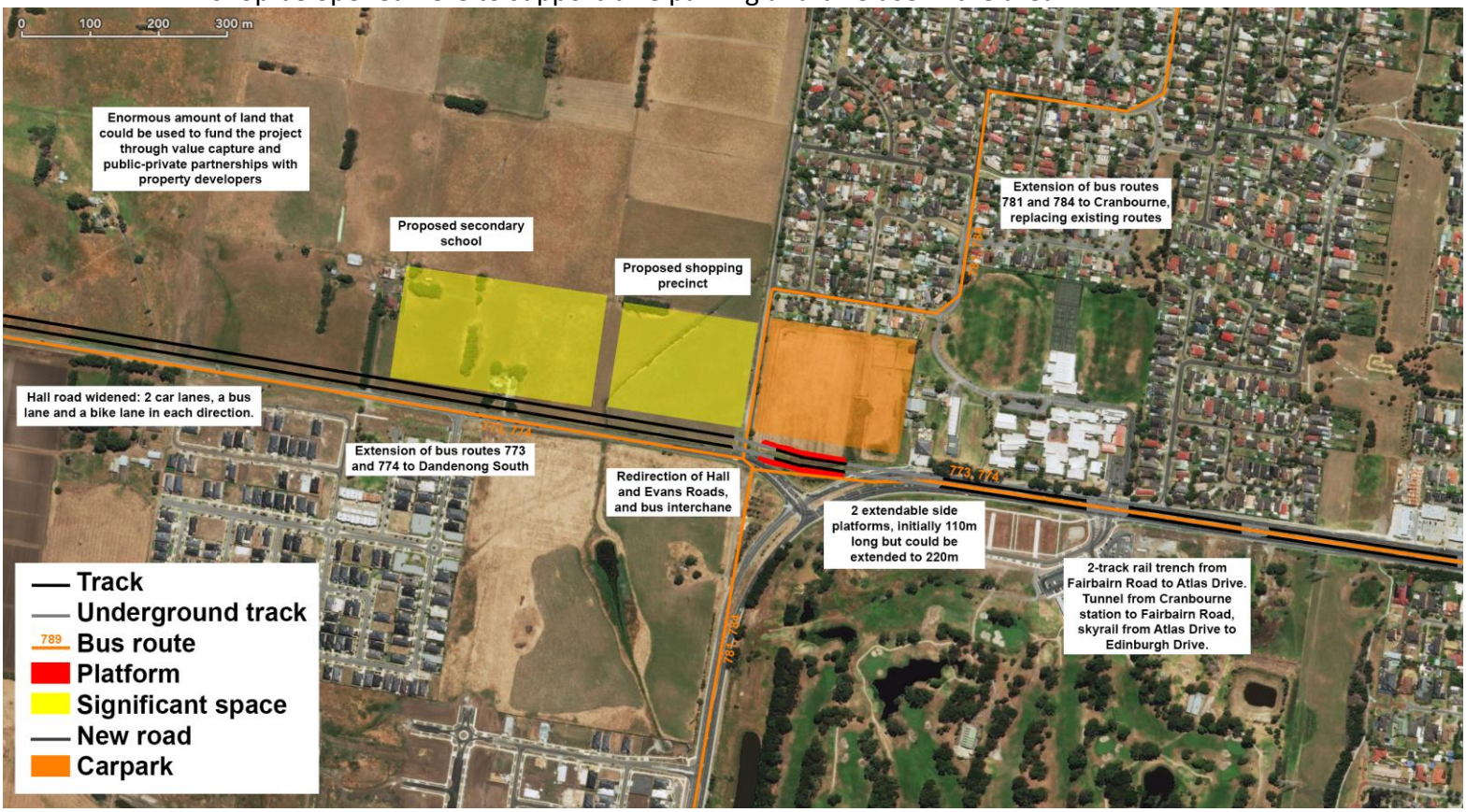


Figure 26: Map of Cranbourne West station and surrounding area

Carrum Downs

Melway ref: 100 H2
Platforms: 2
Carpark spaces: N/A
Bike racks: 100
Bus terminal bays: 4
Staffed: Yes
Features: PSO facilities, bike shop

Carrum Downs is one of the most car-dependent areas of Melbourne. Building a train station in its central business district will greatly encourage a mode shift to public transport a lot more effectively than the buses introduced in stage 1. Its location and proximity to a shopping centre would also encourage bike use, supplemented by a potential bike shop at the shopping centre.

Figure 27: Map of Carrum Downs station and surrounding area

Frankston North

Melway ref: 100 A6
Platforms: 2
Carpark spaces: N/A
Bike racks: 30
Bus terminal bays: 4
Staffed: No
Features: PSO facilities, bike shop

Frankston North has always been one of the most disadvantaged suburbs in Australia. Improved non-car mobility is one means of decreasing that disadvantage, and that is a major focus throughout this project, starting with boosted bus frequencies in the suburb, and ultimately finishing with its own train service to Melbourne.

A bike shop run by the station's operator could be built under the station, along with PSO facilities.

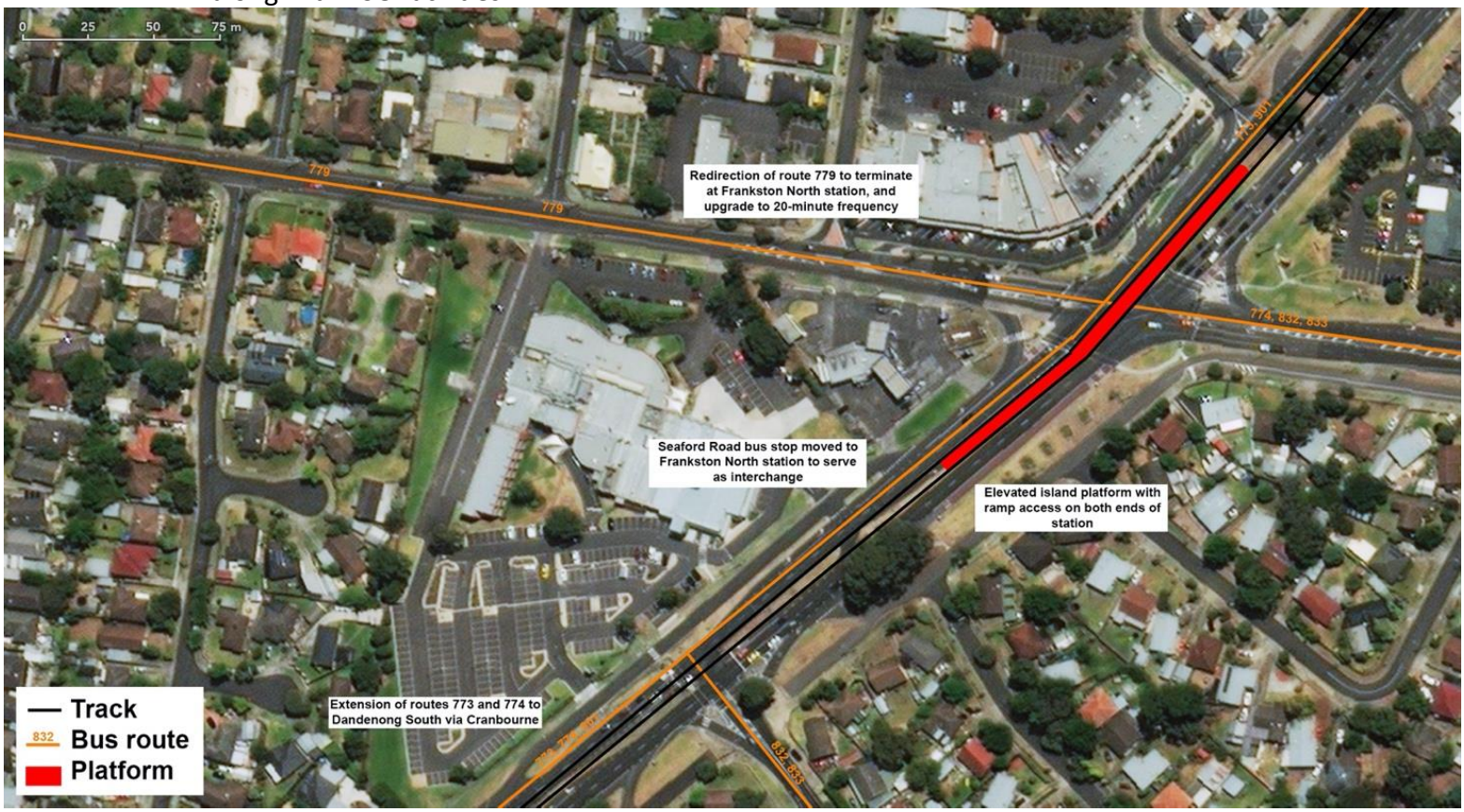


Figure 28: Map of Frankston North station and surrounding area

Service frequencies

As part of stage 3, peak frequencies from Hastings and Rosebud will double, to 6 trains per hour. Trains would also no longer have to couple together or divide at Baxter, meaning frequencies would be doubled between Baxter and Cranbourne compared to beyond Baxter, to 6 trains per hour in the off-peak and on weekends, and 12 trains per hour in the peak direction during peak periods.

The Frankston suburban line's services will not change following stage 1. Boosts to capacity will be covered by the rollout of longer high-capacity trains to replace the current fleet.

Trains per hour (total)	Peak hour (6)	Peak 2-hour period	Inter-peak (3)	Evening (2)	Weekend peak (3)	Other off-peak (3)
Stony Point-Southern Cross (all stations to Cranbourne, express Cranbourne > Dandenong South, express Dandenong South > Dandenong > Clayton > Caulfield > Richmond, all stations direct)	1	2	1	-	-	-
Crib Point-Southern Cross (all stations to Cranbourne, express Cranbourne > Dandenong South, express Dandenong South > Dandenong > Clayton > Caulfield > Richmond, all stations direct)	2	4	2	-	-	-
Stony Point-Southern Cross (all stations to Cranbourne, express Cranbourne > Dandenong > Clayton > Caulfield > Richmond, all stations direct)	-	-	-	-	1	1
Crib Point-Southern Cross (all stations to Cranbourne, express Cranbourne > Dandenong > Clayton > Caulfield > Richmond, all stations direct)	-	-	-	3	2	2
Hastings-Southern Cross (all stations to Cranbourne, express Cranbourne > Dandenong South, express Dandenong South > Dandenong > Clayton > Caulfield > Richmond, all stations direct)	3	5	-	-	-	-
Rosebud-Southern Cross (all stations to Cranbourne, express Cranbourne > Dandenong South, express Dandenong South > Dandenong > Clayton > Caulfield > Richmond, all stations direct)	6	12	3	-	-	-
Rosebud-Southern Cross (all stations to Cranbourne, express Cranbourne > Dandenong > Clayton > Caulfield > Richmond, all stations direct)	-	-	-	3	3	3

Table 8: Service frequencies on the Stony Point and Rosebud lines after stage 3

Project delivery

The Peninsula Rail Link project is made up of a collection of smaller projects, which can be spread out evenly to better manage funding.

Table 9 is a GANTT chart detailing how these projects can be spread.

Project	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Bus procurement														
McMahons Road level crossing removal														
Stony Point line duplication														
Rosebud line														
Triplication Southland-Mentone														
High-capacity signalling														
Frankston station reconstruction														
Quadruplication Caulfield-Dandenong														
Extension of Metro Tunnel to Caulfield														
Cranbourne-Frankston Rail Link														

Table 9: Service delivery plan by project

Planning	
Stage 1	
Stage 2	
Stage 3	

Services

The Peninsula Rail Link and the Stony Point line are regional lines. Thus, their services aim to match those of other regional services, such as Ballarat and Traralgon, and also be run by regional rail operator V/Line.

Citybound V/Line services stop picking up passengers once they reach suburban stations, and outbound V/Line services do not set down passengers until they leave suburban Melbourne. The only exceptions are Sunbury and Pakenham, where passengers can take either a suburban or a regional train in and out of the city. This results in more empty space closer to the city, which could be used to relieve pressure on suburban services, especially during peak periods. To that end, this restriction would not apply to peninsula services, and it is advised it also be lifted from all V/Line services.

Peninsula trains will run as expresses to Southern Cross, calling at Caulfield, Richmond, Flinders Street and Southern Cross. Following stage 2 trains will also call at Southland to connect with the Suburban Rail Loop and major shopping centre. Following stage 3 trains will stop all stations to Cranbourne, and then call at Dandenong South (except on weekends), Dandenong and Clayton instead of Southland.

Between stages 2 and 3 of the plan, in order to ease congestion on the Frankston line, trains from Stony Point and Rosebud would couple together at Baxter on their way to Melbourne and become one train, while trains from the city would divide at Baxter and then go on to both Rosebud and Stony Point. Once Stage 3 is completed and peninsula trains are completely separated from suburban trains, this will no longer be necessary.

Station	Stage 2 (peak)	Stage 2 (off-peak)	Stage 2 (evening)	Stage 3
Rosebud	1 hr 28 min	1 hr 27 min	1 hr 23 min	1 hr 20 min
Dromana	1 hr 17 min	1 hr 16 min	1 hr 14 min	1 hr 9 min
Mornington	1 hr 6 min	1 hr 5 min	1 hr 3 min	58 min
Stony Point	1 hr 26 min	1 hr 25 min	1 hr 22 min	1 hr 14 min
Hastings	1 hr 16 min	1 hr 15 min	1 hr 12 min	1 hr 4 min
Baxter	57 min	56 min	53 min	50 min
Frankston	46 min	45 min	42 min	39 min

Table 10: Travel times to Flinders Street from major stations (add 5 minutes for Southern Cross)

Holiday specials

The Mornington Peninsula and Phillip Island are major tourist drawcards, which each see thousands of people flock to them during holiday peak periods such as Summer and long weekends. This causes major traffic gridlock on the Mornington Peninsula Freeway and Bass Highway respectively.

The Peninsula Rail Link will provide tourists with an alternative to the car to access both locations, but the plan will not provide enough rollingstock to support the added traffic during these times, since such demand increases only occur a few times per year.

Instead, as a way to take pressure off both transport networks, heritage trains could be used to run extra services during these busier times. This will minimise the cost in building new trains that would otherwise only get used a few times per year and spend most of their time in stabling doing nothing, while further encouraging mode shift and supporting the rail heritage sector.

One train each could run as an express to Rosebud and Stony Point, the latter for Phillip Island holidaymakers. A third could also run as a limited express out of Rosebud for the many Peninsula residents who leave the Peninsula to escape the influx of holidaymakers during holiday periods.

Table 11 details stopping patterns for each train, and recommended rollingstock.

Service	Stopping pattern	Recommended rollingstock
Southern Cross-Rosebud	Southern Cross>Flinders Street>Richmond>Mornington>Dromana>Rosebud	R class steam + wooden carriages
Southern Cross-Stony Point	Southern Cross>Flinders Street>Richmond>Stony Point	K Class steam + wooden carriages
Rosebud-Southern Cross	All stations to Tanti Park, then Tanti Park>Richmond>Flinders Street>Southern Cross	A Class diesel + steel carriages

Table 11: Holiday trains during holiday peak periods

Ferries

Large ferries can also play a key role in transporting tourists during holiday peak periods.

The Stony Point train for Phillip Island commuters can transport passengers as far as Stony Point, but a new, large enough ferry would be needed to take passengers from there directly to Cowes.

On the Peninsula's west coast, in addition to the train, a ferry could also take holidaymakers directly to Sorrento, taking pressure off both the road and rail network. Another could also potentially take Peninsula residents out of the Peninsula as an alternative to the train for those who live beyond Rosebud.

These ferries could be car-carrying ferries. This would help encourage people to travel on their own to various tourist attractions not as easily accessible by public transport once they arrive on the Peninsula, helping to encourage alternative transport to the car and reduced peak congestion. Likewise, holiday trains could include motorails (if available) to carry cars by rail.

Freight

Opportunities also exist for freight services to run to various parts of the Frankston, Rosebud and Long Island lines. Table 12 outlines these services and how often they could run.

Goods yard	Service	Standard Stage 2 Frequency	Standard Stage 3 frequency
Capel Sound and Mornington	Dandenong South-Capel Sound Goods	N/A	4 times daily
	Port-Capel Sound Petrol, Goods and Produce	4 times daily	Daily
	Capel Sound-Somerton Produce	Daily (harvest times only)	Daily (harvest times only)
Long Island	Long Island Steel	Twice daily	Twice daily
	Dandenong South United Petrol and goods	N/A	3 times daily
	Somerton United Petrol	Daily	Daily
	Altona United Petrol	Daily	Daily

Table 12: Freight services for Frankston and peninsula lines

Until the Frankston-Cranbourne Rail Link is completed, all goods trains on the Peninsula Rail Link would be run out of the Port of Melbourne. Afterwards, goods trains could be run out of Dandenong South once the Port Rail Shuttle project is complete.

Patronage

The biggest factor that would determine the success of any public transport project is how many people will use it.

As of the 2016 census, 96,873 people live along the west coast of the Mornington Peninsula, between Mornington and Portsea, and in other nearby towns. This is a larger population than the towns served by the entire Gippsland, Bendigo and Seymour lines.

Table 13 details patronage levels between peninsula stations and suburban stations, both inbound and outbound, based on 2016 Census data. Factoring in population growth, these numbers are expected to be higher at the completion of each stage. In addition, these numbers only include workers travelling to and from work, and do not factor in other commuters, such as students and holidaymakers.

Line	Stage 2	Stage 3*
Rosebud (inbound)	5,608	8,500*
Rosebud (outbound)	2,655	3.202
Stony Point (inbound; includes Baxter)	3,221	6,748*
Stony Point (outbound)	1,577	2,340

Table 13: Patronage statistics for Stony Point and Rosebud lines as of the 2016 Census (not factoring in population growth forecasts) * = includes half of anticipated patronage from Frankston-Cranbourne Rail Link

Station access and connectivity

While train lines reduce traffic congestion by getting cars off busy roads, the use of them results in much of that congestion being moved to each station. This congestion, however, can also be managed through local solutions.

Cars are among the most common means of access to most stations, but they are the cause of this congestion. Thus, alternatives are highly recommended, especially walking, cycling and buses. Car parks and taxi ranks will still be necessary at stations that serve larger areas, namely Mornington, Mount Martha and Rosebud. However, even they will need to be backed up with more sustainable alternatives, from footpaths to bike lanes and more frequent buses that allow quick and easy connections with trains.

Figure 29 is a Streetmix cross-section of how Boneo Road and Mornington-Tyabb Road could look redesigned to separate bikes and buses from cars.

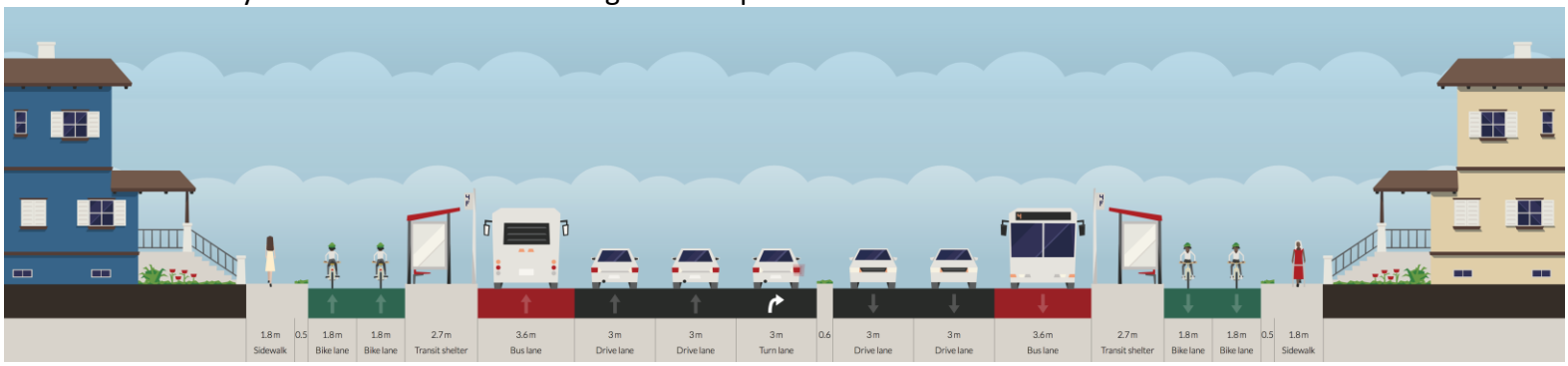


Figure 29: Streetmix cross-section of redesigned Boneo Road (40m wide)

The more different modes of transport exist to any destination, the less pressure there will be on each mode. This applies just as much to station and interchange access as it does to cities and employment clusters.

The stations that are situated on the Mornington Peninsula Freeway's median strip (Dromana, Arthurs Seat, McCrae and Jetty Road) are unable to support car parks without some level of property acquisition. Instead, it is advised to focus

on foot, bus and bike access. The new Rosebud Flexiride bus serves all four, and each station would become a Flexiride Hub. Dromana and Jetty Road will also have local routes service them. Also, all stations would have large, secure bike sheds installed for cyclists. For added security, biometric locks could be considered at these sheds to prevent theft.

Box 5: The Rosebud Flexiride

Flexiride is a versatile bus service that allows commuters, especially those who struggle to access conventional public transport services, to access various common destinations (called Flexiride Hubs) such as transport nodes and shopping centres, similar to a taxi or a school bus.

Rosebud's Flexiride, introduced in February 2022, stretches between Safety Beach and parts of Capel Sound, replacing the convoluted and low-frequency route 787 that used to run through the area.

Using the Flexiride app, or by phone, passengers can organise a ride up to a week in advance for a bus to pick them up from their homes or a key transport node. The bus then picks up passengers travelling from/to common destinations and takes them where they need to go, when they need to go there.

The Peninsula Rail Link would run through the Rosebud Flexiride zone, with each station between Safety Beach and Rosebud inclusive able to serve as Flexiride Hubs, allowing residents who live in the area to use it to access the train as an alternative to driving, walking or cycling.

Bus routes all over Frankston and the peninsula can be upgraded to better connect with trains and each other. This can be managed by running all routes to a 'pulse' format, where groups of routes can arrive at an interchange at the same time, exchange passengers, and then depart together a few minutes later. This method would also allow groups of similar routes (e.g. Frankston to Cranbourne and Mornington) to more easily maintain regular frequencies on corridors they share.

In the Frankston district, bus 'pulses' can occur at 10-minute intervals, running between the 10-minute frequent trains to allow for quick and smooth connections between buses and trains. However, route 901 would not be part of this pulse, and instead run between pulses, allowing a potential 5-minute frequency along the route it runs, as far north as Frankston North station.

In Mornington, routes would pulse together at Mornington station at 20-minute intervals, although route 775 would aim to pulse at an interchange to be built at Moorooduc. A second pulse interchange could also be created at the intersection of Main and Barkly Streets, where these routes could connect with buses to Frankston and Cranbourne via Mount Eliza.

At Red Hill, 3 bus routes would meet, 2 of which pass through the town while the 3rd would terminate. Buses in both directions on both through routes would pulse together along with the terminating bus route 884 to allow easy interchange.

3 bus routes would run between Rosebud station and Rosebud Gardens Shopping Centre. These services would alternate based on demand for train connections, running at a combined frequency of 1 bus every 6 minutes 40 seconds.

Level Crossing Safety

One of the biggest issues regarding rail transport and safety is level crossings. Due to the hilly terrain of the peninsula, level crossings are not viable, making the line crossing-free beyond Tanti Park. The crossings that remain would be upgraded with lights and double boomgates. In addition, the Frankston-Cranbourne Rail Link will be crossing-free.

The state government has pledged to remove every level crossing of the Frankston line, allowing for the running of more frequent trains, including those from the Peninsula during Stage 2, without adding to congestion on neighbouring roads, while also making walking and cycling safer.

Box 6: Double boomgates

In the UK, some level crossings have double boomgates, which cover the entire street instead of only the half vehicles travel on. This prevents vehicles from driving around them and potentially into the path of trains.

To prevent cars from getting stuck on the tracks, the gates on the further side of the road to cars will close a few seconds later to give cars time to move out of the way.

The image below is an example of such a crossing in action. Source: Network Rail.

In addition, three level crossings would be removed along the Stony Point line:

- **McMahons Road, Frankston** – This level crossing sees by far the most traffic on the entire Stony Point line. With train frequencies growing with every stage completed, this crossing's boomgates would be down for longer time, worsening congestion and necessitating the crossing's removal. Due to the steep gradient of the track here, the crossing would be road under rail to avoid making the track any steeper.

- **Baxter-Tooradin Road, Baxter** – Baxter station, where trains would couple or divide during Stage 2, is located immediately north of the Baxter-Tooradin Road level crossing. This crossing's boomgates would thus be closed during long periods of time as 4 trains go through at once as part of the dividing and coupling processes, and because trains going both ways would arrive at the same time to allow easy interchange. Removing this crossing would remove that potential bottleneck. Because of the 1:50-grade Langwarrin Bank on the other side of the station, this crossing would be rail over road to soften, rather than worsen, the steep gradient.
- **Eramosa Road, Somerville** – next to this level crossing is a double roundabout notorious for confusion and road rage incidents. The double roundabout exists because the road, which runs at an angle to the train line, corves so it goes through the track at a 90-degree angle. In addition, nearby Frankston-Flinders Road is vulnerable to high congestion, especially during peak periods. Removing this crossing would allow for the straightening of Eramosa Road West and the streamlining of the roundabout, as well as the easing of congestion in the area. Because the crossing and nearby Somerville station sit atop a plateau with an uphill climb to them from both sides, this crossing would be rail under road to minimise gradients and reduce running costs, especially for freight trains.

Environmental Impacts

One of the most important aspects of the project is reducing the line's potential impact on Climate Change. One way to achieve this would be to install solar panels at every station. By using solar panels to power each station, we save electricity, which helps save money and the environment. This translates to greater profits and a longer-lasting, greener planet.

During construction of the line, many trees along the Mornington Peninsula Freeway will be destroyed. To make up for this, it is recommended to plant a large amount of new trees around the peninsula at a 2:1 ratio (2 new trees planted for each tree destroyed) so the environment also becomes stronger as part of the project. New trees could be planted at each station as part of this, so that the line doesn't completely sever ecosystems on either side of the corridor.

It will also be prudent to invest in more environmentally friendly railcars to eventually take over from current stock. In India, solar panels are being installed as a trial on their carriages. The same could be done on the next generation of Victorian trains. In Byron Bay, a heritage train has been converted to run fully on solar power. These technologies could be expanded for mainstream use on new rollingstock to allow solar to replace diesel like diesel replaced steam in the 1950s.

The average passenger train removes 525 cars from our roads. This alone will drastically reduce carbon emissions, and also reduces traffic congestion in the inner city.

The Mornington Peninsula Shire's slogan is "Committed to a Sustainable Peninsula". Public transport plays an important role in making a region sustainable.

Reducing emissions is one factor, and reducing traffic congestion is another, but so too is car dependency. Having access to fast and reliable public transport as an alternative to the car makes a community less vulnerable to the increasing price of petrol, and gives people mobility if they lose their car or licence. Furthermore, people who travel more on public transport will spend less on petrol. Since most petrol money goes offshore, this will strengthen Victoria's economy by keeping more money in Victoria.

Benefits to the Broader Community

In addition to the western Peninsula towns the line would serve, the construction of the Peninsula Rail Link will have a ripple effect that will benefit almost the entire Mornington Peninsula, and ripple out to the entire nation.

Peninsula benefits

Having trains go from both sides of the peninsula all the way to Melbourne advertises the peninsula as an accessible holiday destination to interstate and overseas tourists, attracting more tourists to the peninsula, and thus boosting the local economy. It will also boost mobility for all commuters by reducing traffic congestion and public travel times, while also addressing car dependency and giving mobility to people who can't drive.

Not only will the Peninsula Rail Link boost mobility, but it will also better connect peninsula residents to a wide variety of jobs all over Melbourne, as well as all four Monash University campuses (directly to its Caulfield and Peninsula campuses), boosting job and education opportunities for residents across the peninsula.

The project itself will create thousands of jobs in planning and constriction, while its operation is anticipated to create around 200 direct permanent jobs including (but not limited to):

- Train drivers
- Train conductors
- Station staff
- Shunters
- Train maintenance crews
- Track maintenance crews
- Freight terminal workers
- Bus drivers
- Bus maintenance crews

Hundreds more jobs will also be created indirectly through tourism, by encouraging more people to visit the Peninsula, especially those who can't drive. The tourist bus and taxi industries can also set up on the Peninsula so they can transport tourists to key tourist hotspots and hotels easily.

The Long Island steel mill in Hastings will be able to provide the steel needed to build and maintain the line's rails, minimising transport costs and fuelling job-creation.

State benefits

By providing an alternative to the car for getting in and out of the Peninsula, the Peninsula Rail Link will encourage a drop in car use, reducing traffic congestion and travel times for all commuters all the way to Melbourne.

Once stage 3 is completed, the project will more easily connect passengers to Gippsland and the Bass Coast with stops at Cranbourne and Dandenong connecting with multiple Gippsland services. Boosted and streamlined train and ferry services to Stony Point will also help better connect French Island and Phillip Island to the city, further boosting tourism.

The restoration of the line between Baxter and Moorooduc, where Mornington Railway Preservation Society has their HQ, will allow the preservation group to run their trains on the mainline for railtours. This will help boost tourism throughout the state, with tourists paying Mornington Railway to board their tours, and then spending their money in any destination their trains run to.

National and global benefits

Running train services all the way to Melbourne will advertise the Mornington Peninsula to tourists from all over Australia and the world, encouraging tourism and encouraging tourists to stay longer and visit more often, boosting the tourism economy statewide. It will also make it easier for Peninsula residents to access interstate train services and Melbourne Airport.

Farms will benefit from being able to save money by transporting their produce by rail throughout Melbourne and Victoria, and more easily transferring their goods to Standard Gauge trains for export all over Australia. Until the Port of Hastings is built, it can also be used to transport goods bound for overseas markets to the port of Melbourne.

By encouraging less car use, the Peninsula Rail Link will also reduce the consumption of oil, a finite resource. This has three benefits:

- The finite resource will last longer, allowing more future generations to use it before it runs out
- Oil (including petrol) prices will go down as supply increases (compared to not building it) and demand drops
- Pollution from oil drops, improving health and reducing the Peninsula's impact on Climate Change

If the Frankston line is closed due to track works or suspended, the Long Island steel train cannot run, and its steel has to be transported by truck, increasing steel prices by increasing running costs. Stage 3 of the Peninsula Rail Link will provide the train with a 2nd route, keeping costs down and boosting resilience against disruption.

Why Finish at Rosebud?

Earlier versions of this proposal suggested that the line run to Rye rather than Rosebud, and a possible extension to Sorrento was also floated as an idea. Unfortunately, Mornington Peninsula Shire Council recently decided to oppose all development over the Tootgarook Wetlands, including rail. Running over the Tootgarook Wetlands cannot be avoided without property acquisition, forcing the

Peninsula Rail Link's design to finish at Rosebud. To compensate, bus route 786 and 787 have been extended to meet trains at Rosebud station (see figure 6).

In order to cross the Tootgarook Wetlands without any infrastructure going into or through it, a bridge with a span of 2.2km is required. This is longer than any existing bridge in the world, but could form part of a longer-term plan if it's proven bridges with such long spans can be built.

Cost estimates

The Peninsula Rail Link is a 3-stage project, with each stage funded separately.

Baxter electrification has already been funded by the state and federal governments, and has been costed at $225 million. Although the project is not part of this plan, the money could instead go towards the Peninsula Rail Link as a whole. This project has not been factored into this section's cost estimates.

The new tracks in stage 1 are those built with the triplication of the Frankston line between Mentone and Southland.

Part of stage 1 involves the procurement of a large number of new buses to help expand Frankston's and the Mornington Peninsula's bus networks. Table 14 details how many new buses would be built for each route, and what size of bus would run each route. Table 15 details cost estimates based loosely on those of Volgren's 2016 Life Cycle Cost report.

Route	New buses required	Size
760	2	Small
770	10	Small
771	6	Small
772	7	Small
773	6	Small
774	6	Small
776	8	Small
777	0	Large
778	0	Large
779	6	Small
780	5	Small
781	4	Large
782	14	Small
784	16	Large
786	9	Small
787	6	Small
788	10	Large
832	0	Large
833	0	Large
880	13	Large
882	7	Large
883	7	Small
884	4	Small
884a	3	Articulated
885	17	Small
886	18	Small

Table 14: New buses required for each route. Routes with a value of 0 will be assigned large buses from other routes through reallocation, but not have new buses built for them.

Size	Cost per bus	Quantity built	Total cost
Small	$300,000	127	$38,100,000
Large	$450,000	46	$20,700,000
Articulated	$600,000	3	$1,800,000
Total		**163**	**$60,300,000**

Table 15: Cost estimates for new buses

All non-vehicle cost estimates are based on costs of recent transport projects dated back to 2001.

Table 16 details the minimum and maximum cost estimates for various aspects of infrastructure, Tables 17 and 27 detail cost estimates for each stage, and Table 28 details the total cost of all 3 stages combined.

Heavy Rail	Cost per KM	
	Low	High
Tunnel (cut and cover)	$170,190,000	$216,810,000
Tunnel (Tunnel Boring Machine)	$371,111,263	$404,315,745
Elevated	$67,276,647	$78,437,067
Trench	$92,170,285	$105,593,142
At grade	$15,000,000	$30,000,000
Stations (underground unless otherwise advised)		
Low cost station	$215,600,000	$227,600,000
Medium cost station	$377,300,000	$398,300,000
High cost station	$431,200,000	$455,200,000
Stations elevated	$107,800,000	$113,800,000
Stations at grade	$5,000,000	$15,000,000
Acquisition costs per square metre		
Residential and farming	$1,700	$3,500
Commercial	$800	$5,500
Industrial	$550	$3,500
Cell BMU costs		
3-car VLocity	$17,000,000	
1-car unit	$10,000,000	
2-car set	$16,000,000	

Table 16: Cost estimates per unit

Stage 1

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
At grade	5.241km	$78,615,000	$157,230,000
Stations			
Station	**Quantity**		
Level	5	$25,000,000	$75,000,000
Elevated	1	$107,800,000	$113,800,000
Rollingstock			
Rollingstock	**Quantity**		
1-car unit	16	$160,000,000	$160,000,000
3-car VLocity	1	$17,000,000	$17,000,000
Total		**$177,000,000**	**$177,000,000**
Subtotal		$393,415,000	$523,030,000
Contingency (30%)		$118,024,500	$156,909,000
Grand total		**$511,439,500**	**$679,939,000**

Table 17: Cost estimates for initial Stony Point line crossing loops (includes removal of McMahons Road level crossing and Crib Point stabling yard but not Kananook maintenance facility)

Project	Cost	
	Min	Max
Stony Point line crossing loops	$511,439,500	$679,939,000
New buses	$60,300,000	$60,300,000
Total	**$571,739,500**	**$740,239,000**

Table 18: Cost estimates for Stage 1

Stage 2

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
At grade	2.959km	$44,385,000	$88,770,000
Total		**$44,385,000**	**$88,770,000**
Subtotal		$44,385,000	$88,770,000
Contingency (30%)		$13,315,500	$26,631,000
Grand total		**$57,700,500**	**$115,401,000**

Table 19: Cost estimates for Mentone-Southland triplication

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
At grade	11.68km	$175,200,000	$350,400,000
Stations			
Station	**Quantity**		
Level	2	$10,000,000	$30,000,000
Elevated	2	$215,600,000	$227,600,000
Trench	1	$215,600,000	$227,600,000
Rollingstock			
Cell BMU	**Quantity**		
1-car unit	12	$120,000,000	$120,000,000
2-car set	3	$48,000,000	$48,000,000
Subtotal		$784,400,000	$1,003,600,000
Contingency (30%)		$235,320,000	$301,080,000
Grand total		**$1,019,720,000**	**$1,304,680,000**

Table 20: Cost estimates for Stony Point line duplication in Stage 2 (includes crossing loop in Hastings)

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
Elevated	21.77912km	$1,465,226,168.21	$1,708,290,294.64
At grade	14.7km	$220,500,000	$441,000,000
Trench	2.74km	$252,546,580.90	$345,225,209.08
Total		**$1,938,272,749.11**	**$2,494,515,503.72**
Stations			
Station	**Quantity**		
Elevated	1	$107,800,000	$113,800,000
Level	7	$35,000,000	$105,000,000
Trench	1	$215,600,000	$227,600,000
Total		**$358,400,000**	**$581,400,000**
Rollingstock			
Cell BMU	**Quantity**		
1-car unit	7	$70,000,000	$70,000,000
2-car set	19	$304,000,000	$304,000,000
Total		**$374,000,000**	**$374,000,000**
Acquisition			
Land type	**Area (sq m)**		
Housing/Farmland	31,520	$53,584,000	$110,320,000
Subtotal		$2,724,256,749.11	$3,560,235,503.72
Contingency (30%)		$817,277,024.73	$1,068,070,651.12
Grand total		**$3,541,533,773.84**	**$4,628,306,154.84**

Table 21: Cost estimates for Rosebud line from Baxter (excludes freeway upgrade)

Project	Cost	
	Min	Max
Stony Point line duplication	$1,019,720,000	$1,304,680,000
Mentone-Southland triplication	$57,700,500	$115,401,000
High-capacity signalling Frankston line	$250,000,000	$250,000,000
Rosebud line	$3,541,533,773.84	$4,628,306,154.84
Total	**$4,868,954,273.84**	**$6,298,387,154.84**

Table 22: Cost estimates for stage 2

Stage 3

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
Tunnel (Tunnel boring machine)	12.958km	$4,808,859,758.26	$5,239,123,433.30
Stations			
Station	**Quantity**		
Tunnel	1	$431,200,000	$455,200,000
Subtotal		$5,150,059,758.26	$5,694,323,433.30
Contingency (30%)		$1,545,017,927.48	$1,708,297,029.99
Grand total		**$6,695,077,685.74**	**$7,402,620,463.29**

Table 23: Cost estimates for Metro Tunnel extension to Caulfield

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
Elevated	13.06km	$878,633,010.60	$1,024,388,098.02
At grade	23.44862km	$351,729,300	$703,458,600
Trench	0.444km	$40,923,606.86	$46,883,355.43
Tunnel (Cut and cover)	1.03538km	$176,211,322.20	$224,480,737.80
Total		**$1,447,497,239.66**	**$1,999,210,791.25**
Stations			
Station	**Quantity**		
Elevated	1	$107,800,000	$113,800,000
Level	1	$5,000,000	$15,000,000
Total		**$112,800,000**	**$128,800,000**
Acquisition			
Land type	**Area (sq m)**		
Housing/Farmland	87,554.57	$148,825,769	$306,045,995
Commercial	6,817.93	$5,454,344	$37,498,615
Industrial	8,458.22	$4,652,021	$29,603,770
Total		**$158,932,034**	**$363,507,380**
Subtotal		$1,719,229,273.66	$2,491,518,171.25
Contingency (30%)		$515,768,782.10	$747,455,451.38
Grand total		**$2,234,998,055.76**	**$3,238,973,622.63**

Table 24: Cost estimates for Caulfield-Dandenong Quadruplication

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
Elevated	9.54km	$641,819,212.38	$748,289,619.18
At grade	0.8km	$12,000,000	$24,000,000
Trench	11.7km	$1,078,392,334.50	$1,235,439,761.40
Tunnel (Tunnel boring machine)	3.8km	$1,410,222,799.40	$1,536,399,831
Total		**$3,142,434,346.28**	**$3,544,129,211.58**
Stations			
Station	**Quantity**		
Elevated	1	$107,800,000	$113,800,000
Level	1	$5,000,000	$15,000,000
Trench	3	$862,400,000	$910,400,000
Total		**$926,300,000**	**$997,300,000**
Rollingstock			
Cell BMU	**Quantity**		
1-car unit	5	$25,000,000	$25,000,000
2-car set	27	$432,000,000	$432,000,000
Total		**$457,000,000**	**$457,000,000**
Subtotal		$4,525,734,346.28	$4,998,429,211.58
Contingency (30%)		$1,357,720,303.88	$1,499,528,763.47
Grand total		**$5,883,454,650.16**	**$6,497,957,975.05**

Table 25: Cost estimates for Cranbourne-Frankston Rail Link (includes rebuilt Cranbourne station, new Dandenong South station and new stabling on Peninsula)

Unit	Quantity	Cost	
		Min	Max
Tracks			
Rail	**Length**		
At grade	9.305km	$139,575,000	$279,150,000
Stations			
Station	**Quantity**		
Level	2	$10,000,000	$30,000,000
Rollingstock			
Cell BMU	**Quantity**		
1-car unit	12	$120,000,000	$120,000,000
2-car set	3	$48,000,000	$48,000,000
Subtotal		$317,575,000	$477,150,000
Contingency (30%)		$95,272,500	$143,145,000
Grand total		**$412,847,500**	**$620,295,000**

Table 26: Cost estimates for Stony Point line further duplication in Stage 3

Project	Cost	
	Min	Max
Stony Point line duplication	$157,943,500	$370,435,500
Metro Tunnel extension	$6,695,077,685.74	$7,402,620,463.29
Caulfield-Dandenong Quadruplication	$2,234,998,055.76	$3,238,973,622.63
Cranbourne-Frankston Rail Link	$5,883,454,650.16	$6,497,957,975.05
Stony Point line further duplication	$412,847,500	$620,295,000
Total	**$15,226,377,891.66**	**$17,759,847,060.97**

Table 27: Cost estimates for stage 3

Stage	Cost	
	Min	Max
1	$571,739,500	$740,239,000
2	$4,868,954,273.84	$6,298,387,154.84
3	$15,226,377,891.66	$17,759,847,060.97
Total	**$20,667,071,665.50**	**$24,798,473,215.81**

Table 28: Total cost of project by stage