

Transport Plan – An Alternative Option

The 2010-2020 Plan





Copyright © 2009 Smart Passengers Inc

Text by Michael Angelico, David Stosser and Ryan Tofts

Photos by Michael Angelico, David Stosser, Michael Coley, Oscar Verlander and Scott Martin

For further information visit <http://www.smartpassengers.org.au/2020.html>

Executive Summary

Smart Passengers Inc is a not-for-profit group aiming to assist the state government and transport operators in improving the Melbourne public transport system. Probably the most significant form of assistance is giving feedback, from a passenger's perspective, on planned upgrades and improvements.

In this book we present "an alternative option" to current thinking about transport investment - with a focus on the use of existing transport corridors instead of building new ones.

The cornerstone of the plan is the Caulfield Quadruplication and Grade Separation Project - a 3-4 year project to upgrade Frankston, Pakenham and Cranbourne lines for all-day express services, at the same time removing nine level crossings.

This is coupled with the Newport-Laverton Capacity Upgrade project - a 2-3 year project to upgrade the Werribee line for faster journeys and better on-time running, including a new station at Maddox Road and the removal of three level crossings.

Other major improvements include:

- Minimum 10 minute off-peak frequency for most suburban trains
- 5 minute off-peak tram frequency on key tram corridors and 8 minute City Circle frequency
- Ten new and upgraded SmartBus routes
- 64 new V/Locity cars, including some with buffet facilities
- Saturday, Sunday and Public Holiday timetables (on rail, tram and bus) to be merged into a single "weekend" timetable, equal to or better than today's Saturday timetable in service level

The Caulfield Quadruplication and Grade Separation Project addresses the current level of overcrowding on the Frankston, Cranbourne and Pakenham lines. Population in the areas served by these lines has increased dramatically in recent years, and public transport capacity is limited. By adding two extra tracks to Oakleigh and one extra track to Moorabbin, capacity is provided for both express and stopping services to operate at high frequency. The elimination of nine level crossings will also give a smoother traffic flow in the area.

The Newport-Laverton Capacity Upgrade Project is similar in aims. By adding short sections of track in key positions, current problems where trains are delayed by other trains can be eliminated. This will result in capacity for both stopping and express services to operate at a regular ten-minute frequency. The project includes a new station at Newport West and the elimination of three level crossings.

Other improvements are also projected, which will benefit passengers on trains, trams and buses in Melbourne and regional Victoria. They range from extended hours in the Metlink call centre, through trials of new transport technologies, to extending tram routes to serve rail stations. These will further develop our current transport assets into a fully integrated transport system, simplifying travel and reducing Victorians' dependence on car ownership.

Some projects which have been proposed by the Department of Transport as part of the Victorian Transport Plan are not supported by Smart Passengers Inc in the short term (2011-2020). These include the rail tunnel from Footscray to Caulfield. We take the view that the \$7.5-8.5bn estimated for the tunnel is too much for the benefit it will have for commuters - if the same amount of money was spent on other projects, the benefit would be significantly greater. Melbourne will eventually need a rail tunnel to provide additional capacity, but there are many other more pressing transport needs. We believe that within the 2011-2020 timeframe, the array of proposals outlined here will deliver a better public transport system to more Victorians.

I commend to you the summary and detail pages which follow, and invite you to look through for projects which will improve the system in meeting your own transport needs.

Contents

President’s Comment	5
Introduction.....	6
Key Transport Provision Philosophy	7
Turn-Up-And-Go.....	7
Two-Tier Services	7
Multi-Mode Travel	7
Summary of Smart Passengers policies	8
Bicycles and Public Transport.....	8
Tram/Bus Priority.....	8
Public Transport Fares.....	9
Funding Public Transport Improvements.....	9
Overview - Year-by-Year	10
2011	10
2012.....	11
2013.....	11
2014.....	12
2015.....	12
2016.....	13
2017.....	13
2018.....	14
2019.....	14
2020.....	14
Ongoing.....	15
Caulfield Group Quadruplication and Grade Separation Project.....	16
Facilities and urban design	17
Project timeline	17
The works in detail.....	18
2011: Docklands tram depot	20
2011: Ringwood late-night timetable.....	20
2011: V/Locity order further extension.....	21
2011: Flinders Street Station platform capacity.....	21
2013-2014: Inner City Tram Revamp	22
2012-2019: Rail Operational Efficiency project.....	23
2015-2016: Newport-Laverton Capacity Upgrade Project.....	24
2018: Melton line upgrade	25
2019: Riversdale grade separation	25
2020 Train Timetable	26
Frequently Asked Questions	28
Epilogue	29
Glossary of terms	30

President's Comment

The Victorian Transport Plan, released in 2008, is the government's blueprint for the future of the transport system over the next decade. In the following pages Smart Passengers responds to the Victorian Transport Plan with a mix of endorsement, acceptance with suggestions for improvement, and rebuttal. Certain additional projects have also been suggested, which are expected to give a better result for Melbourne commuters per dollar of investment.

It is important to note that this document is written in the light of the Smart Passengers philosophy which says that a good transport strategy has a multi-pronged approach - it makes spot fixes where there are problems that can be addressed immediately, but also has a long-term goal. Planners should have an idea of what Melbourne's transport system should look like in the distant future, to ensure today's projects don't need to be undone or expensively modified afterwards.

To this end, a document entitled "A World Class Transport System for Melbourne" is currently being prepared, based on a goal of 30-45 minute door-to-door journey times to the nearest activity centre for 95% of Melbourne's households. This necessitates some major changes to infrastructure, which have been kept in mind while formulating the plans outlined in this book. For this reason, certain aspects of (for instance) the Caulfield Quadruplication and Grade Separation Project may seem incomplete. Readers can be assured that this is only a temporary measure to allow resources to be deployed to other urgent projects, and that a more comprehensive upgrade is planned.

I would like to thank my fellow committee members for their hard work in the preparation of this document: Vice President David Stosser and committee member Ryan Tofts.

Also I would like to thank our panel of local transport spokespeople for their area-specific input, and the many contributors to our online Discussion Forums and the web site transporttextbook.com, for their ideas and feedback.

My family also deserve many thanks for their support and understanding when I kept unusual hours and talked like a broken record about transport needs and options.

Michael Angelico
President



Introduction

There is a growing awareness in the community today that a transport network based around private cars is unsustainable - the environmental impact, both in the short and long term, will destroy the liveability of a city and cause a number of knock-on social problems.

To create a viable alternative, it is necessary to improve the efficiency of our public transport system. Melbourne already has the makings of a truly world-class transport system - an extensive suburban rail network, a grid of major roads, a multi-modal fare system which is easy to use and understand, and a joint marketing body which handles timetables and customer queries.

However, there are some significant problems to be overcome before public transport becomes a viable alternative to private cars. Perhaps the most significant problem is that capacity is unable to meet demand in many places - resulting in overcrowded vehicles and late running.

Another is poor reliability of services, due for the most part to lack of maintenance of vehicles and infrastructure. This in turn is because passenger demand has been so high that preventative maintenance has been delayed in order to provide more services.

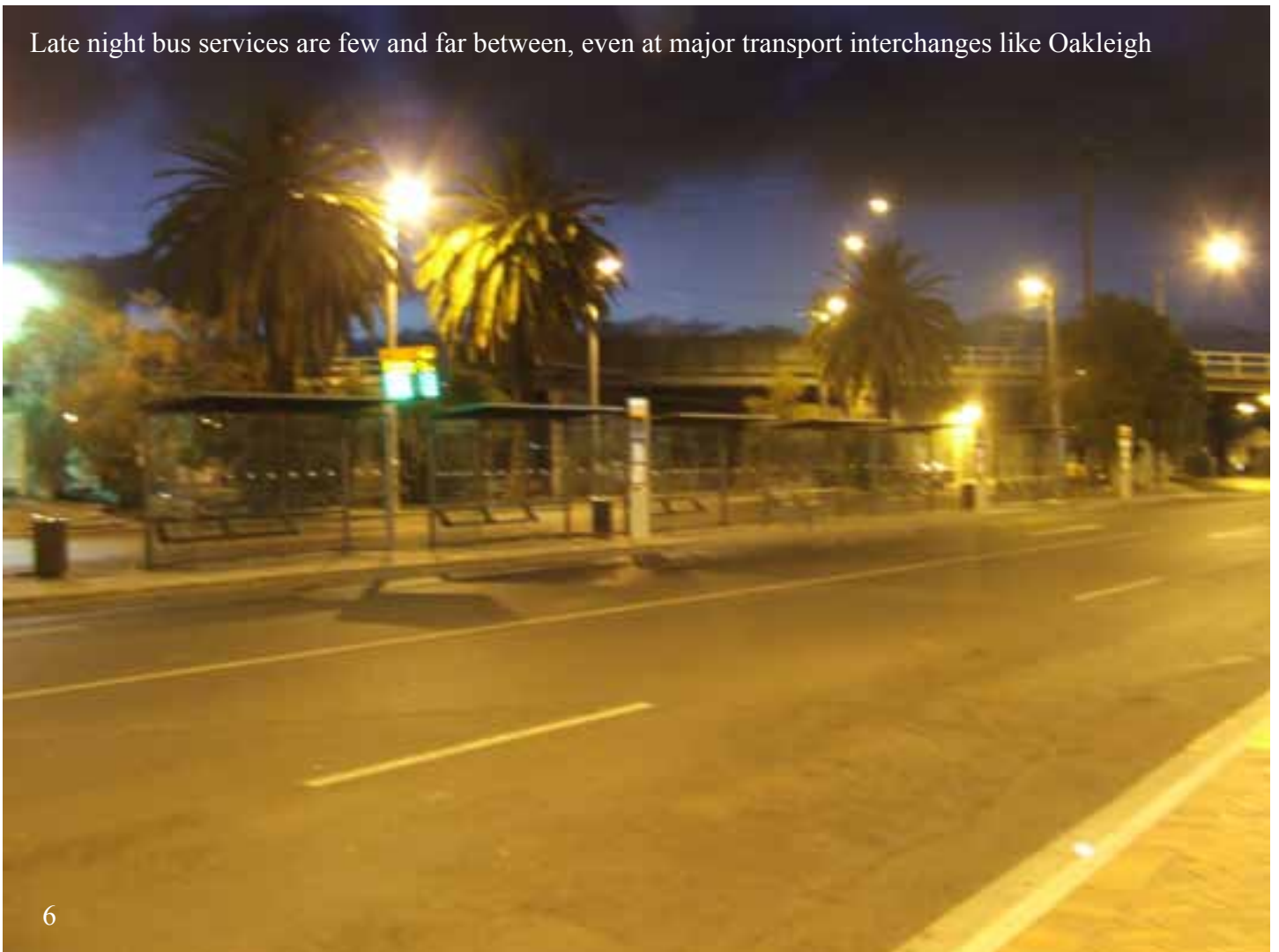
Other problems include inadequate levels of service (especially in outer suburbs and during off-peak times), a culture of vandalism, and badly designed feeder services.

The result, for passengers, is a public transport system which they cannot rely on to get them to their destination comfortably and in a reasonable time. This leads people who would otherwise use public transport to use private cars instead.

What can be done to change the situation?

The projects below are an attempt to deal with the worst problems by capitalising on the strengths which are already there.

Late night bus services are few and far between, even at major transport interchanges like Oakleigh



Key Transport Provision Philosophy

The following ideas are used with much success in other cities but have not been applied in Melbourne. Smart Passengers believes that they should be adopted as they have the potential for significant benefit to commuters.

Many of the projects outlined in this book are based on these three key ideas.

Turn-Up-And-Go timetables

When services run at a high enough frequency, passengers don't need to worry about timetables - they just "turn up" at any time, and "go" without any unreasonable delay. Obviously this is a significant increase in passenger convenience and makes public transport much more attractive. The effects are magnified when passengers need to change modes eg from a bus to a train - problems of "bad connections" are practically eliminated.

Smart Passengers research indicates that the minimum frequency which passengers will regard as turn-up-and-go quality is approximately 10 minutes, or 6 services per hour.

Turn-up-and-go service levels can bring about a change in commuter thinking, from rushing to catch a service at a specified time to simply catching the first service that arrives. Where frequencies are high enough, this change in thinking should be reflected in the introduction of "turn-up-and-go" style timetables:

- For the commuter, a frequency table would be published instead of a timetable, showing maximum waiting time between services instead of fixed times, plus total running time measured between multiple points on the route
- The internal Key Performance Indicator for service delivery, instead of cancellations and late running, would be statistical deviation from the published frequencies and running times.

Two-Tier Services

Smart Passengers proposes the widespread use of "Two-Tier" services on the longer suburban rail lines:

- "Outer tier" - Trains from the endpoint of the lines stopping all stations to an Interchange Station then running express to Flinders Street via the City Loop
- "Inner tier" - Trains from the Interchange stopping all stations direct to Flinders Street

Melbourne today has limited two-tier services on the Lilydale and Belgrave lines, with Blackburn as the Interchange Station. However this only applies during peak time, with single-tier services running during off-peak and weekends. A true two-tier arrangement runs both tiers at all times services are running.

True two-tier services have the following benefits:

- Better availability of faster journeys for people in outer suburbs (off-peak express services will reduce overcrowding on peak-time trips, as some passengers plan their schedules to catch express services)
- Separate services for people in inner suburbs (existing single-tier services on long lines are often impossible to board at inner stations due to the number of passengers boarding further out)
- More trains running direct to Flinders Street, taking the pressure off the few existing direct services

Multi-Modal Travel

The nature of public transport dictates that not all journeys will be able to be taken with a single trip. Therefore the system should be designed to make it as easy as possible for passengers to change from one vehicle to another. This includes making services as frequent as possible (to reduce waiting time) and designing interchanges to reduce the walking distance to a minimum.



Train-Bus interchange at Ivanhoe

Photo by Scott Martin

A summary of Smart Passengers policies

Bicycles and Public Transport

Bicycles are an environmentally and socially responsible form of transport, and their use in conjunction with public transport should be encouraged.

Use of bikes in conjunction with public transport falls into two broad categories:

- Where the passenger rides a bike to the public transport service and locks it up
- Where the passenger takes the bike onto the service for use at the other end (currently only available on trains)

The second option can be very inconvenient to other passengers under certain circumstances. New trains should take this into account and provide spaces for bikes, if this can be done without severely impacting passenger capacity.

Research should also be undertaken into options for allowing the carriage of bikes on buses and trams - assessing interstate and overseas trials, re-evaluating current regulations considering the current trend towards low-floor vehicles, and the design of devices that will help stow bikes out of the way of passengers.

With regard to the lock-up service, this is already widespread with many stations having either fully enclosed bike lockers or communal “Parkiteer” cages. Surveys should be taken periodically (eg every five years) to assess whether the number of lockers at any one station is sufficient for the demand.

Tram/Bus priority

Traffic priority should not be restricted to premium SmartBus and tram routes. Passengers everywhere should be given the benefit of faster journeys and more reliable timekeeping.

Trams

Several experiments have been undertaken into possible methods of reducing delays to trams, such as modified traffic light sequences and parking bans. The results of these should be assessed and the most effective method(s) deployed system wide.

In particular, measures to enforce laws about cars delaying trams (eg on-board cameras) should become widespread, to encourage motorists to change their habits and allow trams an uninterrupted journey.

Buses

The SmartBus project has proved to be a success - higher frequency, faster journeys due to traffic priority, and more late-night services have led to popularity with passengers and therefore strong patronage growth. In the medium term, most bus routes in Melbourne should be upgraded to this standard. The most cost-effective method is a progressive rollout:

- On new SmartBus routes, space should be allowed on the electronic information displays for all the routes that use the bus stop. Probably the simplest way would be to have the display change at intervals like the SmartGuide displays which perform a similar function at tram stops.
- All new traffic light installations should be designed to make the addition of “B” lights simple and cheap, even if no bus route is planned to use them at the time of installation
- All new vehicles bought should be fitted with SmartBus equipment, even if they are not planned for use where SmartBus infrastructure is installed



Bus lanes benefit ordinary routes as well as Smartbus routes

- Priority lanes for buses should be progressively rolled out. Any projects undertaken by federal, state or local government, which involve the modification of intersections, should be required to provide a bus lane.

By this method, when the time comes to upgrade the route to full SmartBus standard, some of the work will be done already, reducing the cost of the project. It will also prevent wasted investment due to previous works having to be undone or heavily modified in order to accommodate the SmartBus infrastructure.

Contracts with manufacturers of SmartBus hardware should include standards for reliability and accuracy, which would force them to upgrade or replace faulty installations. Electronic displays that are inaccurate are worse than useless.

Public Transport Fares

The current fare system, with time-based ticketing and fare zones, is one of the best available. It's convenient and suits the way Melbourne's commuters travel - by changing from one service to another as often as necessary.

There are of course anomalies in the system - for instance, from Camberwell it costs more to travel to Box Hill, just 5km away, than to Laverton on the other side of the city. But this will be a problem to some degree in any multi-zone system, so there isn't much point changing boundaries unless there is some serious benefit available.

Free public transport, while initially attractive due to removing the need for the costs of a ticketing system (and ticket inspectors) and increasing patronage (with the associated environmental and social benefits of increased public transport use), is not a good idea for the following reasons:

- It reinforces the idea, which is already widespread in Melbourne, that public transport is the poor people's option - only for people who can't afford to run a car. We want it to be seen as the responsible people's option - for people who don't want to contribute to congestion and pollution.
- It will probably not bring the expected significant modal shift away from car usage. Public transport is already significantly cheaper than car ownership and running costs, but its market share remains relatively low. Also, among people who are already entitled to free public transport (eg public transport employees), many still use a car. These factors indicate that price is not the only factor influencing people's decisions on travel mode - for example availability (does it run where and when I'm travelling?) and convenience (will it take me half an hour less if I use the car?) are more likely to be considered.
- The loss of fare revenue would require a significant increase in operating subsidy (up to \$50 million per year). This money would be better put to use improving the system.

Funding public transport improvements

In Australian society we believe that the people who receive the benefit of any measure should be the ones who pay for it. Who receives the benefit from improvements in public transport?

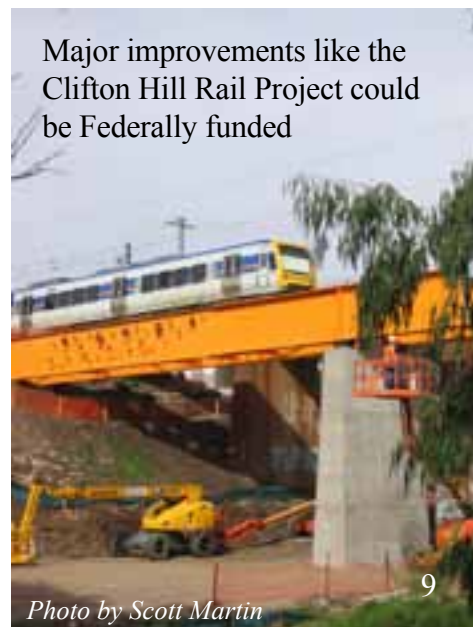
- Commuters will benefit. However, fare revenue could not generate enough money to pay for major investments to the system as ticket prices would be forbiddingly high.
- The environment will benefit. Public transport causes a lot less pollution per passenger-kilometer than private cars, especially when you include the secondary effects of driving (eg transporting the fuel from the refinery to the petrol station). The environment doesn't have money of its own, but all levels of government have programs to help build an environmentally sustainable society. Public transport investment is a valid use of that money.
- Motorists will benefit. Roads will be less congested because more people will take public transport, so a small tax on petrol is justifiable. This will also act as a deterrent tax, to alert people to the environmental consequences of driving.
- The people of the future will benefit - lack of investment now would lead to gridlocks which would cost Melbourne dearly over the next few decades. Therefore it's right for the governments to borrow money to build infrastructure, because then the next generation, which will be reaping the benefits, will also pay the bills (via their taxes).

Federal funding

Some people have called for the Federal government to contribute to the funding of public transport. Smart Passengers sees this as potentially very beneficial, but also potentially dangerous. Unless strict guidelines are made as to which level of government is responsible for which improvements, they could both end up investing very little and hoping the other would do it instead.

We might (for instance) continue to have the state government responsible for operating costs plus all improvements to existing infrastructure, and bring in Federal money for the construction of new lines (such as to Doncaster and Rowville).

According to the Australian Constitution, the Federal government has the responsibility - up to the point of being able to override state government decisions - over certain specific areas including environmental matters. The provision of a high capacity public transport corridor into a highly populated area of Melbourne which is currently served only very poorly is a prime candidate for this responsibility to be exercised.



Overview - Year-by-Year

2011

- **Change timetable for improvement to late-night services on Ringwood group (see page 20)**
- Complete Laverton station upgrade project
- Complete Westall station upgrade project
- Continue construction of Craigieburn Train Stabling and Maintenance Facility, **expanded to include all sidings originally proposed**
- Continue Improving Train Operations project
- Complete rollout of Digital Train Radio System (a more reliable communications system)
- Continue South Morang Rail Project
- Continue Sunbury electrification project
- **Start preliminary engineering design and community consultation for Caulfield Quadruplication and Grade Separation project (see page 16)**
- **Tender for 40 new generation trains to replace remaining Hitachi fleet and the least reliable trains from the Comeng and Siemens fleets (approximately 25 sets), and cater for additional services. Trains to be optimised for short distance stopping services (eg to Blackburn, Glen Waverley, or Sandringham) with single deck, five doors per carriage (on each side) and seats mainly longitudinal (sideways against the wall, similar to the Combino trams) for fast loading/unloading and maximum standing room. Carriages to be arranged in permanent six-car sets with no cabs in centre cars. High acceleration and braking rates to be required.**
- **Upgrade Flinders Street to add capacity (see page 21)**
- **Begin a program to progressively paint tram clearways red, similar to bus-only lanes on SmartBus routes**
- **Extend tram services to 1am on Friday and Saturday nights, in line with trains**
- **Purchase approximately 20 hectares of land for a major tram depot in or near the Docklands area (see page 20)**
- Continue rollout of Smartbus project - Yellow Orbital Route (Route 901, covering Frankston, Dandenong, Rowville, Ringwood, Greensborough, Epping, Roxburgh Park and Melbourne Airport)
- Roll out Doncaster Area Rapid Transit (DART) bus upgrades

Photo by Oscar Verlander



Single track sections from Keon Park to Epping will be duplicated as part of the South Morang Rail Project



Extra V/LOCITY carriages will boost capacity on regional services

- **Upgrade all SmartBus routes to 10min frequency in peak time and 20min frequency on weekends; make all SmartBus routes prepaid only (ie no ticket purchases on board, pre-purchased tickets only) to reduce delays**
 - Commence construction of Regional Rail Express line - **modified to include suburban rail extension from Werribee to Wyndham Vale (on separate tracks to those used by regional trains) and Wyndham Vale stabling yard, as per original design**
 - **Construct a passing loop and second platform at Tyabb to allow for an upgrade of the Stony Point service; construct a separate freight-only track from Tyabb to Long Island Junction**
 - **Extend the V/LOCITY production line by a further 64 carriages (see page 21)**
 - **Complete Pound Road, Dandenong South Upgrade**
 - **Complete Regional Rail Freight Network Program**
 - Continue M80 Ring Road Upgrade
 - Continue Western Highway realignment - Melton to Bacchus Marsh
 - Complete Footscray Central Activities District project
 - **Conduct an Auditor-General enquiry into Department of Transport project management, to explain high costs for infrastructure in Victoria compared to elsewhere. Commit to publishing final report on Parliament's web site.**
 - **Extend hours of Metlink call centre to all hours when services are running**
- ## 2012
- **Commence construction of Caulfield project (see page 16)**
 - Complete construction of Craigieburn Train Stabling and Maintenance Facility
 - Complete Improving Train Operations project
 - Complete Sunbury electrification project
 - Continue South Morang Rail Project
 - **Introduce Rail Operational Efficiency Project - Stage 1 (see page 23)**
 - **Extend Route 571 Trainlink service from Plenty Valley to Mernda, with buses to meet every train**
 - **Begin a program to fit bike racks to V/Line coaches**
 - Continue construction of Regional Rail Express
 - **Construct Donnybrook/Beveridge Interstate Freight Terminal (to be funded by State without waiting for Federal assistance)**
 - Complete Western Highway realignment - Melton to Bacchus Marsh
 - Continue M80 Ring Road Upgrade
 - **Merge Saturday, Sunday and Public Holiday timetables (on rail, tram and bus) into a single "weekend" timetable, equal in service level to today's Saturday timetable**
- ## 2013
- **Build Campbellfield station on the Upfield Line at Camp Road, at the same time lowering the rail line to eliminate the level crossing and duplicating the track from the south side of the Ring Road bridge to 800m north of the station**



A bus with bike racks in Albuquerque, New Mexico USA

- **Build footbridges at the city ends of Frankston and Dandenong stations for easier interchange with buses and between platforms**
- Continue and complete South Morang Rail Extension
- **Continue Caulfield Project (see page 16)**
- **Increase off-peak service frequency to a minimum of 6tph¹ on all suburban rail lines (subject to restrictions in infrastructure)**
- **Introduce Rail Operational Efficiency Project - Stage 2 (see page 23)**
- **Run a feasibility study into grade separation of Kooyong and Gardiner level crossings**
- **Begin Inner City Tram Revamp project (see page 22)**
- **Replace Tram Automatic Vehicle Monitoring system**
- **Begin a second round of Metropolitan Bus Service Reviews, on a smaller scale than the 2008 round with written submissions only instead of meetings. Make reviews an ongoing activity, with urban area divided into five districts and the bus routes in each district reviewed every five years.**
- **Continue rollout of Smartbus project - upgrade Route 703 (Blackburn-Monash University-Clayton-Bentleigh-Middle Brighton) to the service standard of the newer Smartbus routes (eg add late-night weekend services)**
- **Continue construction of Regional Rail Express**
- **Continue program to fit bike racks to V/Line coaches**
- **Introduce Truck Action Plan Stage 1**
- Continue M80 Ring Road Upgrade

¹ tph = Trains Per Hour. See also Glossary on p30.



2014

- **Alter train timetables to remove daily reversal of direction through City Loop - Clifton Hill and Caulfield Loops to run clockwise, Burnley and Northern Loops anticlockwise. Run weekend services in the opposite directions for operational reasons. Add one minute to running time at each City Loop station, and reduce time sitting at Flinders Street (“recovery time” in case of late running).**
- **Continue and complete Caulfield Project, including introduction of two-tier services to Frankston, Pakenham and Cranbourne (see page 16)**
- **Continue rollout of Inner City Tram Revamp project (see page 22)**
- **Continue rollout of Smartbus project - Route 220 (Sunshine-Footscray-City-Gardenvale)**
- **Complete construction of Regional Rail Express**
- Continue M80 Ring Road Upgrade

2015

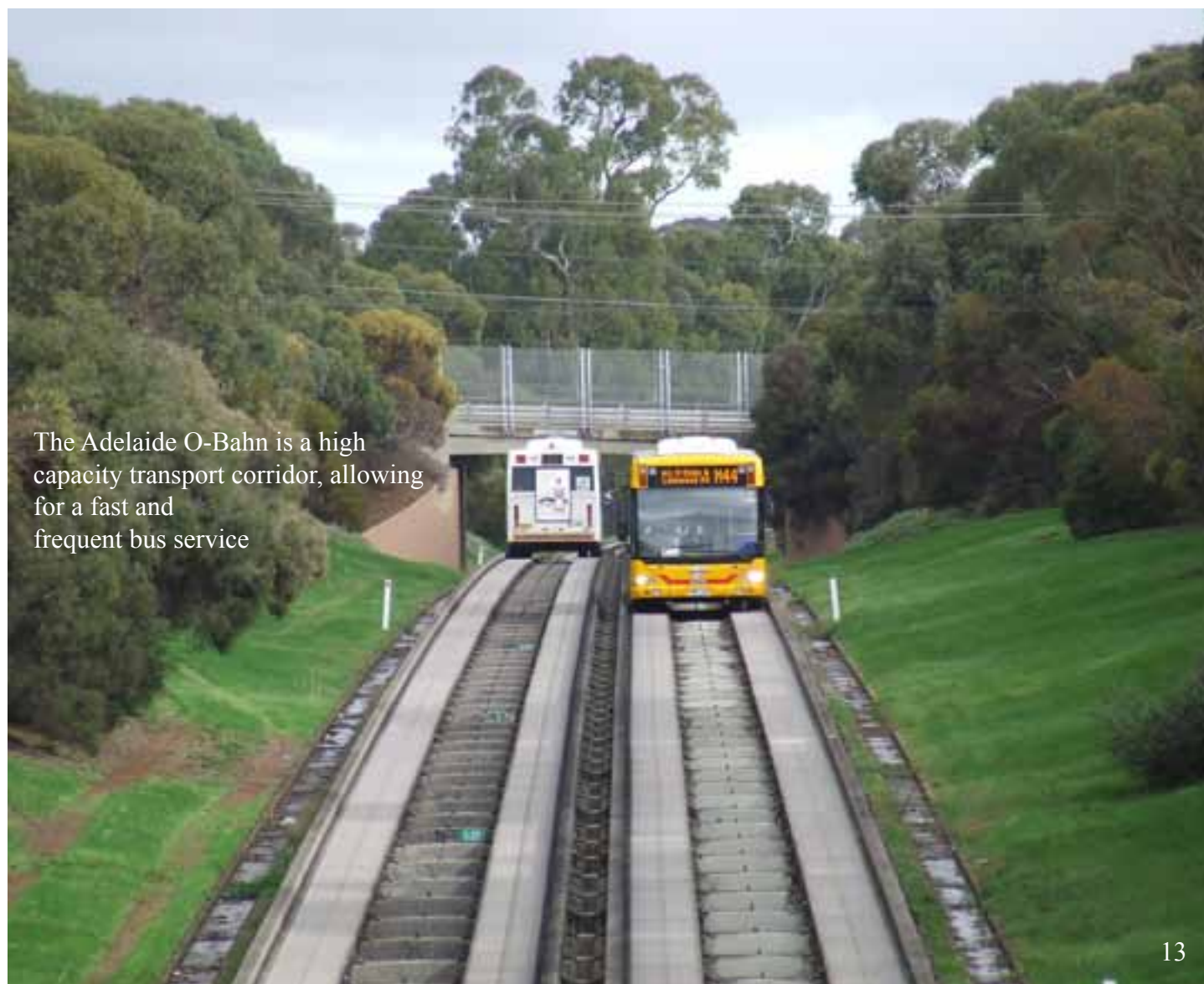
- **Commence construction of Newport-Laverton Capacity Upgrade project (see page 24)**
- **Introduce Rail Operational Efficiency Project - Stage 3 (see page 23)**
- **Extend Route 3 to East Malvern station**
- **Continue rollout of Smartbus project - Route 246 (Latrobe University-Clifton Hill-Richmond-Elsternwick)**
- **Complete program to fit bike racks to V/Line coaches**
- Complete M80 Ring Road Upgrade

2016

- **Build a station at Patullos Lane, between Roxburgh Park and Craigieburn**
- **Continue and complete Newport-Laverton project, including introduction of two-tier services to Werribee (see page 24)**
- **Increase frequency of late night trains from 30min to 20min on all lines**
- **Extend Route 48 to Doncaster Park & Ride**
- **Continue rollout of Smartbus project - Route 513 (Eltham-Heidelberg-Bell-Coburg-Glenroy)**
- **Trial express bus services with limited stops (eg 1-2km apart) on freeways and major roads in outer suburban areas by introducing a Frankston-Cranbourne route. Fit vehicles with bike racks and carry bikes subject to the same conditions as on trains.**

2017

- **Build a station at Cardinia, between Officer and Pakenham**
- **Build a station at Williams Landing, between Aircraft and Hoppers Crossing (replacing Aircraft)**
- **Extend Route 59 to Airport West Shopping Centre**
- **Continue rollout of Smartbus project - Route 733 (Box Hill-Burwood-Mount Waverley-Monash University-Clayton-Oakleigh)**
- **Trial combined tram and O-Bahn infrastructure as per Mannheim, Germany by installing concrete guideway on Victoria Parade tram track and using O-Bahn equipped buses on the Doncaster Area Rapid Transit (DART) bus routes**
- **Trial true park-and-ride with car park barriers integrated with Myki**



2018

- Build a station at Lynbrook, between Dandenong and Merinda Park
- Split Route 72 into two routes: Route 7 from Melbourne University to Gardiner station, Route 2 from Gardiner to the current terminus at Camberwell (Glenferrie and Cotham Roads). Extend north-south section along Burke Road to Waverley Road and run Route 2 from Camberwell to Caulfield. Build three-platform Super Stops at Caulfield and Gardiner for interchange between routes.
- Begin third round of Metropolitan Bus Service Reviews, as part of an ongoing process covering the whole of Melbourne every five years (see above under 2013)
- Continue rollout of Smartbus project - Route 737 (Croydon-Boronia-Knox City Shopping Centre-Glen Waverley-Monash University Clayton Campus)

2019

- Commence construction of Riversdale Grade Separation project (see page 25)
- Introduce Rail Operational Efficiency Project - Stage 4 (see page 24)

- Continue rollout of Smartbus project - Route 250 (Latrobe University-Heidelberg West-Clifton Hill-North Carlton-Melbourne Central-Flinders Street-Garden City)
- Trial car-free zone on Chapel Street (from Toorak Road to Dandenong Road) with park-and-ride facilities and very high frequency tram service. Make permits available as necessary, eg for deliveries to local businesses, but subject to peak-time curfew.
- Upgrade Melton line (see page 25)

2020 – Plan Completion Year

- Complete implementation of 2020 timetable (see page 26)
- Complete Riversdale Grade Separation project (see page 25)
- Extend Route 5 along Wattletree Road to Darling station
- Continue rollout of Smartbus project - Route 527 (Gowrie-Coburg-Preston-Northland Shopping Centre)
- Upgrade all mainline junctions on Regional Fast Rail lines to allow trains to maintain at least 80km/h when diverging
- Roll out Regional Rail Freight Network

Route 737 will receive a threefold increase in services when upgraded to SmartBus standard



“Parkiteer” bike cage at Caulfield station



Ongoing projects

- Continue Level Crossing Safety Program
- Continue Metropolitan Station Upgrades
- Continue Better Roads - Regional Victoria development
- Continue Regional Railway Station Upgrades
- Continue AusLink 2
- Continue Bass Highway Duplication
- Continue development of Port of Melbourne International Freight Terminal
- Develop Port of Hastings
- Roll out Metropolitan Freight Terminal Networks
- Continue building noise walls - **modified to include rail lines as part of reservation where they run parallel to freeways (ie no noise walls between rail line and freeway)**
- Fund maintenance for roads
- Increase utilisation of low emission vehicles
- Roll out Urban Road Management Systems
- Continue development at Regional Airports
- Continue installing Parkiteer bike cages
- Continue providing DDA access to public transport
- Develop Central Activities Districts (CADs)
- Increase Priority for Trams/Buses at intersections
- Roll out Better Transport Connections
- Roll out Cycling Package
- Roll out Transit Safety Initiatives



Priority for public transport at intersections

2011-2014: Caulfield Group Quadruplication and G

The three rail lines running through Caulfield (Frankston, Pakenham and Cranbourne) are among the most overcrowded on the system. Various projects have been mooted involving triplication or quadruplication of the line to Dandenong, but have never been seen through to completion.

A major issue is the merging of the existing three tracks from Frankston with three or four tracks from Dandenong into just four tracks from Caulfield to the city. Smart Passengers proposes a highly cost-effective solution - a flyover which will merge similar trains from each line onto the same tracks, without blocking any other trains.

As part of the same project it is also proposed to quadruplicate both lines (ie expand them to four tracks), to allow for the provision of express services in both directions - a true two-tier service, giving a combination of high passenger-carrying capacity with express services from the middle and outer suburbs.

The project:

- Build a flyover to carry stopping trains from the western tracks at Caulfield to the Dandenong line
- Build a lowered line to carry express trains from the eastern tracks at Caulfield to the Frankston line
- Quadruplicate and grade separate the line from Caulfield to Oakleigh by elevating to Murrumbeena and then lowering into a cutting
- Quadruplicate and grade separate the line from Caulfield to Moorabbin by lowering into a cutting to Bentleigh
- Improve the operational efficiency of the lines with various minor works as outlined below

Notes:

- Swap the current Caulfield Through and Caulfield Local tracks (from Caulfield to Richmond), with express services using the eastern pair and stopping services the west.
- Alter platforms 1, 2 and 3 at Caulfield to make room for ramps to the flyover and lowered line, by truncating the down ends (ie the ends further from the city) and extending the up ends (nearer the city). At the same time straighten them to comply with Disability Discrimination Act (DDA) requirements.
- Fill in the current pedestrian underpass to eliminate the 25km/h speed limit on all trains crossing it, and replace it with a new one large enough to incorporate future bus and tram interchange facilities
- Design all rail junctions for trains to cross at 65km/h, to allow freight trains to “rush” the gradients. This, along with the removal of the speed limit as stated above, will have the following benefits:
 - » A reduction of fuel consumption, as the trains will maintain a high level of kinetic energy instead of having to regain speed after slowing for the speed restriction
 - » A reduction of noise for the same reason
 - » A lower impact on track capacity for suburban trains, as freight trains will exit the track section sooner
- Replace all low level “dwarf” signals in the area with full height signals, to remove a barrier to the future running of Xtrapolis trains on the Caulfield lines in regular service
- Cut off the Queens Avenue underpass. An option has been mooted to restore access to Sir John



Grade Separation Project

Monash Drive by building a horseshoe bridge (like at Perth station) over the station; however the view accepted by the committee was that the Smith Street underpass will provide sufficient access.

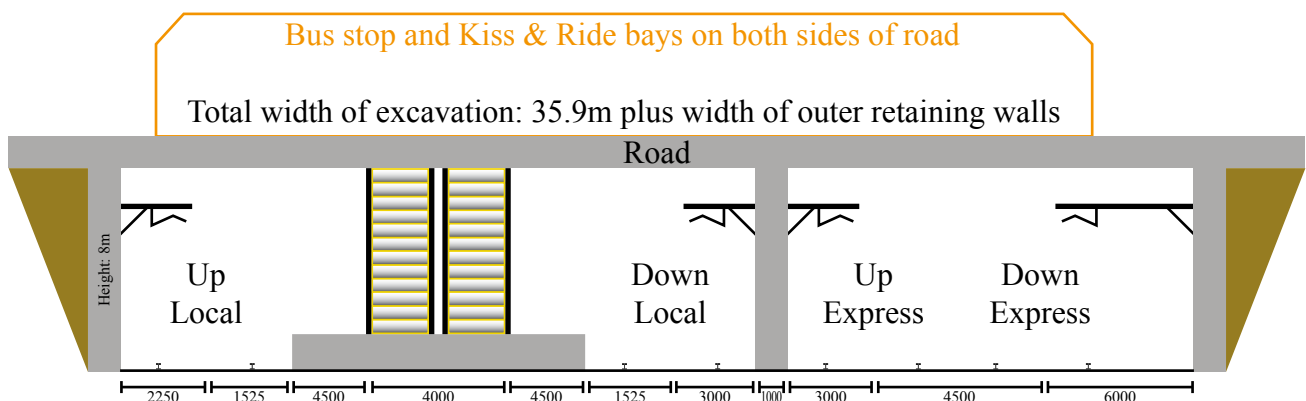
- While trains are unable to run through the area of the works, mobile maintenance crews will ensure trains receive due attention. Plan train operation carefully to minimize maintenance requirements, eg by ensuring trains are selected for reliability (Xtrapolis trains from the new batch for the Frankston line, tread-braked Comeng trains for the Dandenong line) and are given preventative maintenance before works start.

Facilities and urban design

- Provide a single island platform at each rebuilt station, between the western pair of tracks. Express services will stop only at Caulfield, Moorabbin and Oakleigh, therefore platforms will not be provided on the express tracks at any other stations. Construct all rebuilt stations to Premium Station standards; upgrade currently non-premium stations to Host stations after completion of project.
- Build stations across roads instead of adjacent to them, with exits on both sides of the road. Lay out different stations on the same line with entrances placed at different positions along the platform, to even out the passenger load along the train. Provide weather shelters along entire length of platforms.
- Build road bridges/underpasses wide enough for three lanes each way plus footpaths, bus bays, kiss-and-ride spaces and bike lanes on each side.
- Where width allows, build sides of cuttings and embankments as earth slopes with low maintenance drought-proof native plants. Elsewhere, build vertical concrete retaining walls (incorporating sound barriers) with etched patterns for interesting urban design, or if elevated, build as a bridge with side supports, with a bike track underneath.

Project timeline:

- May 2011: secure funding in State Budget
- July-December 2011: community consultation
- January-March 2012: detailed engineering study
- Labour Day Weekend 2012: install crossovers at Moorabbin (down end) as per details on p19. Replace trains with buses Moorabbin-Mordialloc.
- Easter-Queens Birthday 2012: rebuild Moorabbin-Brewer Road. Replace trains with buses Caulfield-Moorabbin.
- December 2012-January 2013: grade separate Centre Road and rebuild Bentleigh station; grade separate Grange and Murrumbeena Roads and rebuild Murrumbeena station. Replace trains with buses Caulfield-Moorabbin and Caulfield-Oakleigh.
- Labour Day-Easter 2013: rebuild Caulfield station up end. Replace trains with buses South Yarra-Caulfield, if necessary.
- December 2013-January 2014: rebuild down end of Caulfield and Frankston line as far as Dorothy Avenue underpass. Replace trains with buses Caulfield-Moorabbin and Caulfield-Oakleigh. At end of works introduce 6tph (10 minute frequency) timetable on all three lines.
- Labour Day-Easter 2014: grade separate North and McKinnon Roads and rebuild Ormond and McKinnon stations. Replace trains with buses Caulfield-Moorabbin, at 10 minute frequency to connect with trains.
- Queens Birthday 2014 and following weeks (complete before beginning of School Term 3): grade separate Koornang and Poath Roads and rebuild Carnegie and Hughesdale stations. Replace trains with buses Caulfield-Oakleigh, at 10 minute frequency to connect with trains.
- Jul-Dec 2014: Final completion works (if necessary)



Caulfield Group Quadruplication and Grade

Caulfield up end:

- Fill in the current pedestrian underpass, at the same time strengthening the roof to remove the speed restriction on all trains crossing it. Build a new underpass aligning with Derby Street, large enough to incorporate tram and bus stops. Smart Passengers long-term plans involve re-laying the tram track underground and extending the route to serve Caulfield Racecourse. Seal off future interchange area of underpass until interchange is built.
- Move bus stops westwards for easier access to new underpass. Rearrange Routes 623 and 624 to run more effectively (see www.smartpassengers.org.au/2020cfd.html). Define Sir John Monash Drive from Dandenong Road to Derby Road as one-way street for westbound traffic only, with bus lane on south side.
- Straighten Platform 4 and realign track to suit (use vertical retaining wall beside Sir John Monash Drive/ Derby Road roundabout if necessary)
- Extend island platform by 25m on the up end, at the same time straightening Platform 3; this may require some realignment of tracks of the up end junction (northeast quarter)

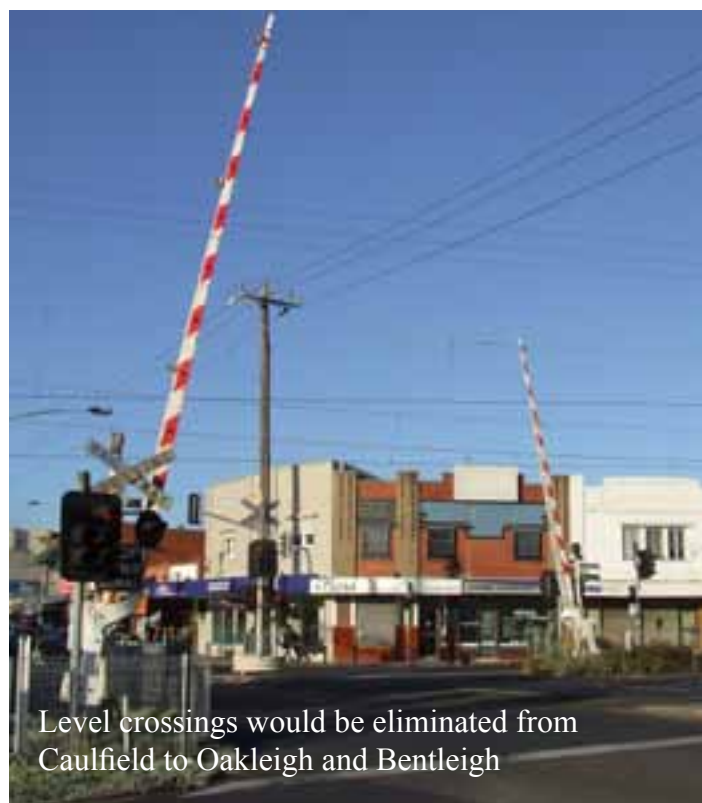
Caulfield down end:

- Remove existing works sidings and platform; build new works platform parallel to Sir John Monash Drive and single siding connecting to Platform 4 only
- Demolish the signalbox (all signalling to be controlled from Metrol)
- Remove 25m from the down end of the island platform and 8m from the down end of Platform 1
- Remove Queens Avenue underpass - north end to become part of works depot, south end to become part of landscaping around rail overpass
- Install junctions at the end of each platform road
- Excavate to make space for Frankston tracks to descend at 1:40¹ to 5m below ground level to clear Dandenong line overpass and then at 1:100 to Neerim Road (8m below ground level)
- Install pillars between Frankston tracks to elevate Dandenong line at 1:40 to 5m above ground level at start of overpass (10m above Frankston line), then at 1:160 to Grange Road (7m above ground level)

Dandenong line:

- Raise section to Murrumbeena by 7m; lower Hughesdale by 10m. Build cutting/embankment 23.5m wide between stations, 35.9m wide at stations.
- Grange Road-Carnegie section: replace private fences with vertical retaining walls to avoid property acquisition
- Carnegie: build new station slightly north of existing location. Acquire property on north-west side of crossing to make space for embankment. Build station exits on each side of Koornang Road. Offer existing footbridge and buildings for preservation. Remove the Blackwood St footpath.
- Add a foot underpass linking Oakdene Crescent with Hewitts Road

¹ Gradients in this book are expressed as a ratio of height to distance travelled. 1:40 means a 1m rise for every 40m of track.

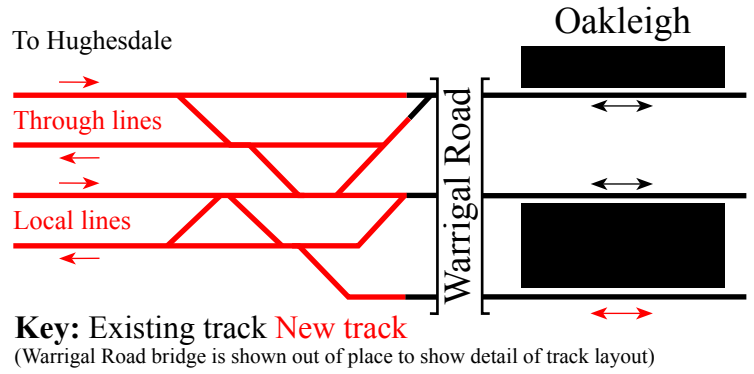


Level crossings would be eliminated from Caulfield to Oakleigh and Bentleigh

Separation Project - the works in detail

- Murrumbena: Build station on piles instead of embankment to allow the halves of Neerim Road to be connected and to retain access to car park areas beside rail line
- Descend into a cutting as natural ground level rises, to alleviate gradient for trains
- Hughesdale: Close off side roads and bike track for duration of works; rebuild them on cantilevers from side walls when station completed
- Rise at 1:65 to return to ground level before Warrigal Road overpass; merge stopping tracks into single track, terminate in Oakleigh Platform 1
- Signal express tracks for 1.5 minute headways and stopping tracks for 2.5 minute headways

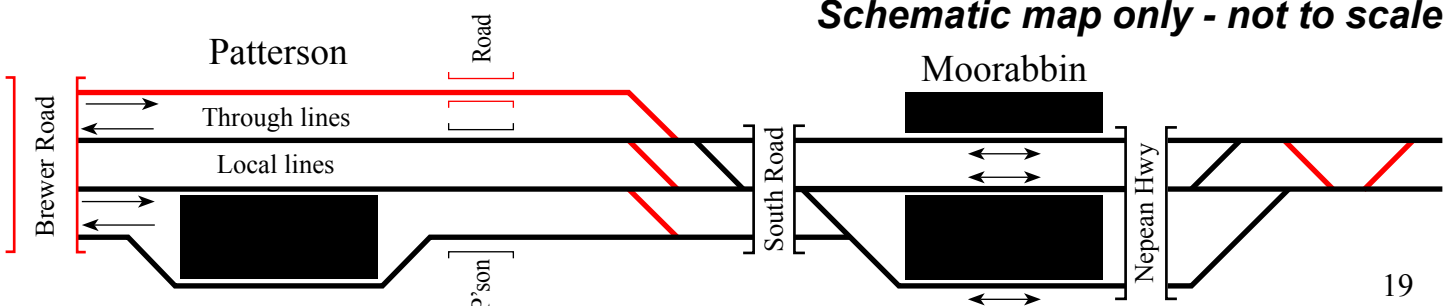
Schematic map only - not to scale



Frankston line:

- Lower the line to Bentleigh by 8-10m
- Lord Street: build overpass to reconnect halves
- Glenhuntly: Remove car park for duration of works, rebuild it on cantilevers above rail line when complete. Build island Super Stop above station on Glenhuntly Road with escalator for tram-train interchange, as a trial for the widespread use of escalators at minor stations. Offer existing Platform 3 building for preservation.
- Dorothy Avenue: replace underpass with an overpass running from Woodville Avenue to Oakleigh Road (retaining access to both Dorothy Avenue and Royal Avenue/Katandra Road)
- Ormond: Remove parking space for duration of works, rebuild it on cantilevers above rail line when complete
- Murray Road: Build a footbridge connecting the two sides
- McKinnon: Remove parking space for duration of works, rebuild it on cantilevers above rail line when complete; rebuild with more on the down side of McKinnon Road to avoid property acquisition
- Bentleigh: as per Ormond
- Brewer Road: replace bridge with one wide enough for four tracks; track will be approx 4m below current level, alleviating gradient for bridge. Ensure structure is capable of withstanding potential undercutting during Bentleigh grade separation.
- Patterson: demolish Platform 3 and use space for fourth track; add a single track bridge beside existing structure to cross Patterson Road.
- Moorabbin: Add a double crossover between the up and down lines just beyond the current crossovers (there is no requirement for high-speed curves so close to the station); convert all signalling to be controlled from Metrol
- Signal express tracks for 1.5 minute headways and stopping tracks for 2.5 minute headways

Schematic map only - not to scale





Tram depots are a vital asset in the provision of services and more capacity is required

2011: Docklands tram depot

Provision for future expansion of the tram fleet (to provide extra services) requires a large amount of extra depot space. This should be reserved immediately, even if the depot is not to be used for some time. Otherwise no suitable land will be available when current depot capacity runs out.

A depot in the Docklands area is the most logical option available, as most tram routes pass through the city area. Land is currently available at the western end of Docklands Drive near the ramp to the Bolte Bridge; approximately 20 hectares should be set aside for a tram depot.

Smart Passengers' proposal for the Docklands depot will be set out in future publication, "A World Class Transport System for Melbourne"; at present the most important step is to reserve sufficient land.

2011: Ringwood late-night timetable

Passengers on late-night trains to Lilydale and Belgrave are currently faced with half-hour frequencies and trains which stop all stations. This service is unattractive due to the excessive overall journey time when compared with a taxi or private car on the Eastern Freeway.

The service can be improved by alternating stopping and express trains, which is possible with existing infrastructure as long as frequency is not increased beyond 4tph.

The proposal should be trialled for a period of not less than six months, after which a passenger poll should be taken to gauge the success of the timetable. If it is deemed successful:

- The trial timetable should be made permanent (until the 2020 timetable is introduced, see p26)
- Similar timetables should be brought out for the Dandenong lines
- A crossover should be installed at Ringwood to allow down trains to use both sides of the island platform without conflicting, which would make changing from a Lilydale to a Belgrave train easier.

Under this proposal, a stopping train will depart Flinders Street via the City Loop for Lilydale every half hour. Ten minutes later, an express train will depart direct to Richmond for Belgrave. Ten trains will be required to maintain the service.

The arrangement is also compatible with other timetable alterations proposed: the distribution of recovery time from Flinders Street to the rest of the City Loop stations (proposed for 2014) and the increase in frequency of late-night trains from 2tph to 3tph (2016).



2011: V/Locity production line extension

The current production of V/Locity trains should be extended to provide rollingstock for the following purposes:

- Boosting off-peak service frequency on the Melton line to 6tph by 2018 (see page 25).
- Provision of additional passenger capacity and buffet facilities on the seventeen V/Locity sets which will remain in two-car configuration after the current deliveries are complete
- Expansion of the V/Line fleet to release two Sprinter railcars to boost the Stony Point service to hourly by late 2011



The additional carriages should consist of:

- 10 full three-carriage sets identical to the current fleet, numbers 1151-1160, 1251-1260, 1351-1360
- 17 intermediate cars (ie the centre car of a three-carriage set) identical to the current fleet, numbers 1301-1317
- 17 new intermediate cars, structurally identical to the current fleet but fitted with a mini buffet capable of the same level of service as is currently provided in the “N” carriages, numbers 1401-1417

This will bring the V/Locity fleet to 17 four-car sets with buffet facilities for intercity services, and 43 three-car sets for interurban services.

2011: Flinders Street Station platform capacity

Platform capacity at Flinders Street is currently one of the major bottlenecks preventing a large scale increase in services on the rail network. In the medium to long term major works will be necessary to allow for a truly world-class service, but in the short term the following minor works should be undertaken, to provide a useful amount of additional capacity:

- Refurbish Platforms 12, 13 and 14 with white lighting and a false ceiling and walls to allow them to be used for regular services
- Build an exit from the east end of Platform 14 direct to the Russell Street end of Federation Square
- Convert the two crossovers from Track 9A (the middle track between platforms 9 and 10/12) to Track 10 into Delta Crossovers (which provide for trains to cross in either direction), allowing both platforms 10 and 12 to be used for either terminating or through services

After these works are completed, the platforms should be renumbered to avoid confusing passengers. Numbers 12 to 14 should be removed, with 12 and 13 becoming 10-East and 11-East, and 14 becoming 1-East.



2013-2014: Inner City Tram Revamp

The following projects are proposed to provide extra capacity and faster journeys on various tram routes in the inner city area.

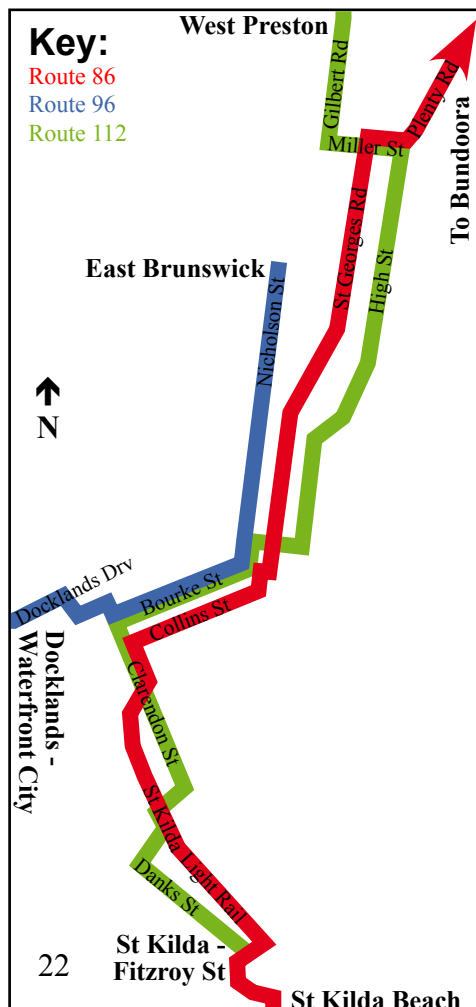
Stage 1: Easter 2013

The Flemington Road/Abbotsford Street intersection currently allows trams to run from North Melbourne to West Maribyrnong and Airport West but not to the Zoo. New curves should be installed to allow this.

This new track will allow the introduction of a free tourist route, similar to City Circle and running at the same frequency, from Flinders Street Station (Elizabeth and Flinders Streets) to the Zoo via North Melbourne, using W-class trams converted to City Circle standard.

With the North Melbourne section covered by the Zoo Tourist Service, Route 57 should be diverted via Flemington Road (parallel with Route 59) for a faster journey. This will have the additional advantage of providing a higher frequency service to the schools and hospitals on Flemington Road.

By 2013 the new E-class trams ordered as part of the Victorian Transport Plan will be beginning to enter service. This will allow the replacement of all remaining W-class trams still in use on regular route service. 16 of the replaced vehicles should be upgraded to City Circle/Zoo Tourist Route standard, in order to provide a service frequency of 8 minutes on both routes. The balance should be held in storage in case of future accidents resulting in a tram being written off. To make space for storage, the non-operational W-class trams currently held at Newport should be offered for sale to museums and tram operators overseas.



Stage 2: Summer holidays 2014

Currently the north-western and inner south-eastern suburbs have a number of tram routes, bringing public transport within easy walking distance of most of the population. However due to narrow streets and other traffic, journeys are on average slow compared to private transport. Smart Passengers proposes an alteration of Routes 86, 96 and 112 to provide one high speed, high frequency route for distance travel, and two lower speed routes which will act as feeders to the high speed route. Interchanges with Superstops should be built at Thornbury (corner Plenty Road and Miller Street) and Crown Casino (Clarendon Street), and the Miller Street/High Street intersection should be modified to allow trams to turn from Miller Street into High Street (heading South).

The three resulting routes would be:

- Route 86 (the high speed route): from Bundoora to Thornbury Interchange (as per current practice), along Miller Street to St Georges Road, along St Georges Road and Brunswick Street to the city (currently part of Route 112), along Collins Street and Clarendon Street to Crown Casino, then along the reserve track to St Kilda (currently part of Route 96)
- Route 96: from East Brunswick along Nicholson Street to the city (as per current practice), along Bourke Street and then along Spencer Street, Latrobe Street Extension and Docklands Drive to Waterfront City (currently part of Route 86)
- Route 112: from West Preston to Thornbury Interchange (as per current practice), along High Street and Smith Street to the city (currently part of Route 86), along Bourke Street and Clarendon Street to Crown Casino, then along Clarendon Street to St Kilda (as per current practice)

Stage 3: Early-Mid 2014

Delivery of the new E-class trams ordered as part of the Victorian Transport Plan will allow higher frequency services on busy routes. The routes upgraded should be:

- A high frequency combined service along St Kilda Road, with Melbourne University-Domain Interchange shuttle trips running in between regular suburban route services
- New high speed Route 86 from Bundoora to St Kilda
- Route 109 from Port Melbourne to Box Hill

As part of this upgrade, timetables should be altered to Turn-Up-And-Go style (see page 7).

2012-2019: Rail Operational Efficiency project

The following changes, like the Sydney Clearways project, are proposed due to their low cost and relatively large effect in allowing the rail system to operate more efficiently. Timing of the four stages of the project is to allow upgrades to be performed when other work is being done, minimising the number of shutdowns with buses replacing trains. This list should not be considered exhaustive.

Stage 1: Clifton Hill group (2012)

- Victoria Park: Connect Siding A to Clifton Hill, to be used for a stand-by train to prevent late running trains from affecting other services in the city area
- Eltham: Extend sidings to hold 6x6-car trains; improve lighting level for safety and security (as is already proposed by the Department of Transport but not funded)

Stage 2: Caulfield group (2013)

- Dandenong: Install a fourth platform by converting current Siding No.5 to a running track and removing No.6 to make space for a single side platform; convert remainder of yard to extra stabling yards (totalling space for 17 trains – diagram available online at www.smartpassengers.org.au/2020dng.html); redesign down end junction to allow for simultaneous arrivals from Pakenham and Cranbourne into Platforms 3 and 4
- Carrum: Alter overhead wiring to allow trains to depart Siding No.3 even when overhead wires between Carrum and Frankston are turned off
- Chelsea: Rationalise signalling by replacing signal box with automatic signalling (including provision for simpler procedures in case of a signal failure)
- Mordialloc: Interlock the security gates
- Brighton Beach: Restore Platform 1 as passenger facility; install power-operated points and security gates to sidings to allow them to be used for train stabling
- Elsternwick: Add safety footpath at the down end crossover to allow trains to terminate

Stage 3: Northern group (2015)

- Laverton: add crossovers (rated for 80km/h) at each end to allow up trains to overtake a stopped train in Platform 1 using Platform 2 as a loop
- West Footscray: Rationalise signalling by replacing signal box with automatic signalling; provide for simpler procedures in case of a signal failure
- Showgrounds: Restore the Refuge Siding at the up end to use in case of emergencies
- Broadmeadows: Modify signalling to allow higher speed running for V/Line services (see online at www.smartpassengers.org.au/2020bms.html)
- Roxburgh Park: Remove any remains of electrified crossover from former connection with Upfield line;



Port Melbourne trams are proposed to run to a Turn-Up-And-Go style timetable

replace crossover at up end with an experimental design allowing diesel or electric trains to diverge at 130km/h; signal down line from Broadmeadows to Roxburgh Park for bi-directional running to allow fast trains to overtake slow trains

- Essendon: alter signalling to remove speed restriction for up trains approaching Platforms 1 and 2; extend Platform 1 in the down direction to full suburban platform length
- Coburg: Reverse the crossover to allow down trains to terminate in Platform 1
- Macaulay Light Repair Centre: Extend Siding 7 to allow 6-car trains to divide into 2x3-car trains

Stage 4: Burnley group (2019)

- Lilydale: Extend Siding C to allow stabling of 2x6-car trains; install powered security gates
- Ringwood: Extend footpath on the down Lilydale line to allow trains to terminate and form an up service
- Camberwell: Reorganize junction to make the track layout more versatile, and more capable of absorbing disruptions to normal running (see diagram at www.smartpassengers.org.au/2020riv.html), in conjunction with Riversdale Grade Separation project
- Burnley: Add footbridge to the down end for passenger interchange
- Ashburton: Fence siding and add lighting to allow it to be used for lay-by trains

2015-2016: Newport-Laverton Capacity Upgrade

Like the Caulfield lines, the Werribee and Williamstown lines have suffered severe overcrowding in recent years. Smart Passengers proposes making minor changes to remove “pinch points” that restrict capacity, and introduce a new timetable with regular high frequency services.

Full details including diagrams are available at www.smartpassengers.org.au/2020nptlav.html

The project:

- Quadruplicate the track from Newport to Altona Junction, to ensure trains on the express route and the Altona route don't conflict
- Construct Newport West station at Maddox Road, according to the standards for stations rebuilt as part of the Caulfield project (see page 15)
- Duplicate the track from Altona Junction towards Altona to increase train capacity
- Upgrade track and signalling between Altona Junction and Altona to increase speed limit to 80km/h
- Grade separate level crossings at Champion, Maddox and Kororoit Creek Roads by elevating rail line

Project timeline:

- August-December 2013: Conduct feasibility study
- May 2014: Secure funding in State Budget
- July-December 2014: Community consultation
- January-April 2015: Conduct Detailed engineering study
- Anzac Day-Queens Birthday 2015: Grade separate Champion Road level crossing (between Newport and Altona Junction) by elevating rail line, with space for four suburban and two freight tracks
- December 2015-January 2016: Grade separate Maddox Road by elevating rail line, quadruplicate track from Newport to Altona Junction and build Newport West station
- Labour Day-Easter 2016: Duplicate track from Altona Junction to bridge over Melbourne Water drain to remove capacity pinch point; grade separate Kororoit Creek Road level crossing by elevating rail line
- May-June 2016: Finalise works

Maddox Road will be grade separated and will also be the site of Newport West station



2019: Melton line upgrade

Growth in the western suburbs requires a significant upgrade to the Melton line service. Once the Newport project is completed there will be construction capacity available to:

- Duplicate track from Deer Park to Melton to allow for higher train frequency
- Construct stabling sidings at Melton to provide capacity for current and future patronage growth
- Construct Ravenhall station between Deer Park and Rockbank (at the junction with the Regional Rail Express line)

Electrification is not required at this stage.

Once these projects are completed the service frequency can be boosted to 6tph all day, in line with the rest of the suburban network. This should be achieved by altering all current V/Line Western services to run express from Melton to Sunshine (providing a faster journey for passengers from Bacchus Marsh and beyond), and adding services originating from Melton, stopping all stations to Sunshine then running express to Southern Cross as per current practice. Nine train sets would be required to maintain the timetable.

2019: Riversdale grade separation

Long journey times make the Alamein line unattractive as a way of commuting to the CBD or other nearby destinations such as Box Hill shopping centre. These are governed by three major factors:

- Low track speed limits - the most obvious one being the tram/rail crossing at Riversdale
- Closely spaced stations, preventing trains from reaching their maximum speed before having to slow down
- Poorly designed station facilities, with no capacity for interchange with buses and trams

Smart Passengers proposes a project to counter these factors, involving the grade separation of the Riversdale Road crossing and the relocation of stations in order to allow trains to maintain a high average speed, while maximizing coverage and providing convenient interchange from trains to trams and buses.

Details of the works are available at www.smartpassengers.org.au/2020riv.html

The project:

- Grade separate Riversdale Road and Prospect Hill Road crossings by lowering the rail line
- Build interchanges based on the recently rebuilt Nunawading station, for buses on Prospect Hill Road and trams on Riversdale Road
- Remove Willison station, as the distance between Riversdale and Willison is too short
- Relocate Burwood station to Toorak Road, for better interchange between trains and Route 75 trams; if the trial of escalators for interchange between trams and trains at Glenhuntly (see p19) is deemed successful, construct a similar facility at the new Burwood station
- Remove Hartwell station, as the distance between Hartwell and Burwood will then be too short
- Add a new bus route running parallel to the line, running at the same frequency as the train, with interchanges at Camberwell, Riversdale, Burwood and Ashburton (route map available on the above web page). This will bring public transport within walking distance of a larger number of local households than are currently served by the trains.



2020 Train Timetable

Smart Passengers proposes that the current train timetable be completely replaced, and a new one implemented with the following goals:

- To introduce two-tier services (see page 7) on longer lines, for faster journeys and higher capacity
- To reduce fleet usage to 90% (that is, at all times at least 10% of the fleet will be available for preventative maintenance)
- To withdraw the remaining non-air conditioned Hitachi trains and any Comeng and Siemens trains which have poor reliability or recurring major faults
- To increase service frequencies to a minimum of six trains per hour (ie a train every 10 minutes) except where track and signalling infrastructure will not allow it:
 - » Beyond Greensborough/Eltham
 - » The Altona and Williamstown sections
 - » The Stony Point line
- To take full advantage of the delivery of 38 Xtrapolis and the new Fifth Generation trains
- To standardise all stopping patterns by line (eg all Moorabbin trains would run direct to Flinders Street and then form Williamstown trains, while Pakenham trains run via the City Loop and back to Pakenham)
- To streamline the network operationally. A major problem today is that trains from different lines, operating on different patterns, interfere with each other at junctions. This is why trains sometimes stop between Richmond and Flinders Street. Also, these problems can cause a chain reaction of late running onto other lines - delays at Newport may affect Upfield line services, for example.
- To introduce clockface timetables, where trains depart at regular intervals and at the same time past each hour
- To take full advantage of all the infrastructure improvements proposed in this book

The proposed timetable removes the operationally complex daily reversal of the City Loop. Due to technical issues it is necessary that all four tracks change direction at some point during the week, and for this reason the weekend services will run in the opposite direction to weekday services:

Group	Platform	Monday to Friday	Weekends
Clifton Hill	1	Flinders Street before Parliament	Parliament before Flinders Street
Caulfield	2	Parliament before Flinders Street	Flinders Street before Parliament
Northern	3	Flagstaff before Southern Cross	Southern Cross before Flagstaff
Burnley	4	Flinders Street before Parliament	Parliament before Flinders Street

As a guide, most stations will receive six trains per hour during the daytime off-peak period, and three trains per hour during early mornings (toward the city) and late evenings (from the city). During morning and evening peaks trains will run at the highest possible frequency (subject to operational reliability), with some stations receiving up to thirty-five services (in the peak direction) over the two hour peak period.

Although it is called the 2020 timetable, certain parts of it will be implemented sooner, as infrastructure, trains and drivers become available. This includes two-tier services on the Caulfield group and the Werribee line.

To run the timetable, the driver pool will have to be increased by approximately 230 people. In order to achieve this by 2020 (taking retirees into account), the rate of driver recruitment and training will need to be doubled.



There will be three new timetable-patterns:

1. Day - Applies 6am to 10pm Monday to Friday excluding morning and evening peak. Most services will run from 4:30am to 1am but at lower frequencies than those stated below.
2. Weekend - Applies weekends and public holidays. Differs from the Day pattern by the reversal of the City Loop only - all stations outside the centre of Melbourne will have the exact same timetables.
3. Peak - Applies during weekday peak hours. During this time, services may be unevenly spaced or counter-peak services run at a slightly reduced frequency to allow for increased overall passenger capacity. For the purposes of this timetable, morning peak time is defined as trains arriving at Flinders Street from 7am to 8:59am and evening peak as trains departing Flinders Street from 5pm to 6:59pm.

Please note that this table is a summary only. Some services on these lines may run to a slightly altered stopping pattern due to varying passenger needs or infrastructure limitations, for example adding an extra stop or finishing short of the terminus. Some stations may receive extra services outside of peak time to cater for school starting times or other patronage increases. Full details are available at www.smartpassengers.org.au/2020tt.html

Clifton Hill group	Frequency	Duration
South Morang, stopping all stations via City Loop	6tph (10min)	Day, Weekend, Peak
Greensborough, stopping all stations to Heidelberg, then running express to Ivanhoe, Clifton Hill and Jolimont then via City Loop	3tph (20min)	Peak only
Eltham & Greensborough ¹ , stopping all stations to Jolimont then via City Loop	6tph (10min)	Day, Weekend, Peak
Hurstbridge, stopping all stations to Eltham (three-carriage train)	2tph (30min)	Day, Weekend, Peak

Burnley group	Frequency	Duration
Lilydale & Mooroolbark ¹ , stopping all stations to Box Hill then running express to Camberwell, Glenferrie and Richmond, then via the City Loop	6tph (10min) 7tph (9min)	Day, Weekend Peak
Belgrave & Upper Ferntree Gully ¹ , stopping all stations to Box Hill then running express to Camberwell, Glenferrie and Richmond, then via the City Loop	6tph (10min) 7tph (9min)	Day, Weekend Peak
Box Hill ² , stopping all stations direct to Flinders Street	6tph (10min)	Day, Weekend, Peak
Alamein & Ashburton ¹ , stopping all stations to Camberwell (three-carriage train)	3tph (20min) 8tph (8min)	Day, Weekend Peak
Glen Waverley, stopping all stations except East Richmond then via the City Loop	6tph (10min) 8tph (8min)	Day, Weekend Peak

Caulfield group	Frequency	Duration
Oakleigh ² , stopping all stations direct to Flinders Street (forming a Wyndham Vale service)	6tph (10min)	Day, Weekend, Peak
Pakenham, stopping all stations to Oakleigh, running express to Caulfield, South Yarra and Richmond then via the City Loop	6tph (10min) 8tph (8min)	Day, Weekend Peak
Cranbourne, running as per Pakenham	4tph (15min)	Peak
Cranbourne, stopping all stations to Dandenong (three-carriage train)	4tph (15min)	Day, Weekend
Moorabbin ² , stopping all stations direct to Flinders Street (forming a Williamstown service)	6tph (10min)	Day, Weekend, Peak
Frankston, stopping all stations to Moorabbin, running express to Caulfield, South Yarra and Richmond then via the City Loop	6tph (10min) 8tph (8min)	Day, Weekend Peak
Stony Point, stopping all stations to Frankston (diesel service)	1tph (60min)	Day, Weekend, Peak
Brighton Beach, stopping all stations direct to Flinders Street	6tph (10min)	Peak
Sandringham, stopping all stations direct to Flinders Street	6tph (10min)	Day, Weekend, Peak

Northern group	Frequency	Duration
Williamstown, stopping all stations direct to Flinders Street (forming a Moorabbin service)	6tph (10min)	Day, Weekend, Peak
Laverton, stopping all stations to Newport (three-carriage train)	3tph (20min)	Day, Weekend, Peak
Wyndham Vale, stopping all stations to Laverton, running express to Newport, Footscray and North Melbourne then stopping all stations direct to Flinders Street (forming an Oakleigh service)	6tph (10min)	Day, Weekend, Peak
Sunbury & Sydenham Watergardens ¹ , stopping all stations except South Kensington via the City Loop	6tph (10min) 8tph (8min)	Day, Weekend Peak
Craigieburn & Broadmeadows ¹ , stopping all stations via the City Loop	6tph (10min) 8tph (8min)	Day, Weekend Peak
Upfield and Coburg ¹ , stopping all stations via the City Loop	8tph (8min)	Day, Weekend, Peak

¹ These lines may require up to half of all services terminating at the second location named rather than the first due to infrastructure limitations such as sections of single track, or to avoid blocking V/Line trains.

² Most trains on these inner-tier lines will terminate at the location named. Some trains may start or finish further away from Melbourne; in these cases the corresponding outer-tier service may run express over the affected section. For instance, when a Box Hill train runs to Blackburn, a Lilydale or Belgrave train may run express from Box Hill to Blackburn.

Frequently Asked Questions

Q. When will these projects be completed?

A. This is only a proposal. It is not government policy, only a plan put together by Smart Passengers Inc as a suggestion to the Victorian Government.

Q. How much will it cost?

A. The plan has not been fully costed, but initial estimates are that the cost will be significantly lower than the cost budgeted for the Victorian Transport Plan.

Q. Why is the Footscray-Caulfield Metro rail tunnel not included?

A. The tunnel was Sir Rod Eddington's suggestion for a way to increase train capacity through Footscray and Caulfield. However our proposed Caulfield and Newport-Laverton projects provide a similar increase in capacity, while providing other benefits - provision for express services, and the removal of level crossings. As a bonus, they are expected to cost a fraction of the price of the Metro tunnel.

The other purpose of the tunnel was to provide rail stations at Domain and Parkville, to relieve overcrowding on the trams which currently serve the areas. Our Inner City Tram Revamp, while not giving as much benefit as the tunnel, will provide enough added capacity to "buy time" until a proper solution can be implemented.

Melbourne will need a rail tunnel in the medium to long term, but in the short term there are other projects which will give more benefit per investment dollar.

Q. What about an airport train?

A. The service offered by Skybus is as convenient and fast as any currently affordable train based option. The only advantage to replacing it with a train would be to increase passenger capacity. Today's passenger loads on Skybus services are not yet sufficient to justify the extra expense of building a rail line.

Q. Will my train service be better than it is now?

A. Almost every station on the network will have more services than it does today, and many will have express trains for a faster trip. For details about your station check our proposed timetables at www.smartpassengers.org.au/2020tt.html

Q. What about trains to Doncaster and Rowville?

A. Our current plans are for Rowville and Doncaster rail lines to be built soon after 2020. The Doncaster Area Rapid Transit (DART) bus upgrade, as proposed by Sir Rod Eddington and budgeted by the Victorian government as part of the Victorian Transport Plan, is fully endorsed by Smart Passengers. Rowville will also be better served by buses under our plan to further boost frequencies on all SmartBus routes.

Q. My train is often cancelled or very late. Will your plans fix this?

A. No system is ever 100% perfect, but many of the projects proposed in our plan will help reduce cancellations and late running. Track improvements will help ensure delays on one line don't cause more delays on other lines. New trains will take the pressure off maintenance facilities, reducing cancellations due to faulty trains. More peak time and off-peak services, along with Metro-style trains which are easier to board, will reduce overcrowding, which helps trains run on time. Other projects will improve the operational efficiency of the system, allowing it to cope with disruptions with less impact on passengers.

Also, increased service frequencies will mean that even if your train is delayed or cancelled, the waiting time will not be as severe as it is today.

Q. The car park at my station is always full when I need to travel. When will it be expanded?

A. Feeder bus services are more cost efficient than parking space, and will usually mean you don't have to walk as far once you arrive at the station. Upgrades to feeder buses will be delivered through the Metropolitan Bus Service Reviews.

If you have any further questions, please join our online forums at www.smartpassengers.org.au/forum/ - one of our committee members will be happy to help you.



Epilogue

The projects outlined in this book only take Melbourne's public transport system through the next decade, to 2020. The population of our city is constantly increasing, and we will need to continue to update and expand our network as this happens. To that end, Smart Passengers has further plans leading up to the year 2030 including such projects as:

- A rail line to Doncaster
- Electrification of the Melton line
- An extension of the Alamein line to Chadstone, Oakleigh, Monash University Clayton Campus and Rowville
- Further capacity upgrades to allow an eventual 12 services per hour (five minute frequency) on most suburban rail, tram and bus routes
- Further quadruplication and extended express running on the Ringwood, Dandenong and Frankston lines (including a station at Southland Shopping Centre)

Naturally some of the plans leading up to 2020 will quickly outgrow the capacity provided, and that is why the Metro One Rail Tunnel – from Footscray to Parkville, Melbourne, Domain and Caulfield – will be necessary before 2030. Smart Passengers does support the project, provided that other urgent upgrades are completed first.

Other projects, like the Doncaster-Area Rapid Transit, will also be outgrown, and to that end Smart Passengers advocates the construction of a network of light rail lines, similar to the off-road portions of tram routes 96 and 109. This “Light Metro” technology, while not offering the same passenger-carrying capacity as a suburban rail line, has a number of benefits: its lighter and smaller construction allows tighter curves (useful in hilly areas) and allows Light Metro Vehicles to run closer together than trains, which generally must be at least two minutes apart and often three or more. A good example of this lighter vehicle/higher frequency rule can be found on the Adelaide O-Bahn. Light Metro is also cheaper to build than suburban rail, especially where tunnelling is required. The Alamein line (along with its extension to Rowville) and the Doncaster line are good candidates for Light Metro technology.

Despite all this, all cities have a practical limit to their size; Melbourne is no different. As the population grows, urban planning must incorporate transport planning, in order to ensure the transport options are palatable. Therefore Smart Passengers will be advocating the further development of suburban activity centres outside of central Melbourne – variously known as “Transit Cities”, “Central Activity Districts” or “Multiple Business Districts”. By 2050, places such as Broadmeadows, Dandenong, Epping, Frankston, Greensborough, Ringwood, Sunshine and Werribee must all become central areas of employment, education and shopping for their surrounding regions, to reduce people's travel distances. A ring of smaller commercial districts at the mid-points between these cities – places like Box Hill, Footscray and Moonee Ponds – will further reduce the demands on the transport network. Under this plan, 90% of people will experience a daily commute time of no more than 60 minutes, door-to-door.

Conclusion

The options outlined in this book offer “An Alternative Option” to the lengthy and expensive projects outlined in the Victorian Transport Plan, and in the short-to-medium term will deliver greater benefits to the travelling public. Smart Passengers encourages you to show this book to your local Member of Parliament and opposition candidate, and point out to them that an effective public transport system is both possible and affordable.

Michael Angelico
David Stosser
Ryan Tofts



Glossary of terms

Automatic Signals: Signals that function automatically, based on the position of trains around them

Bank: an inclined section of track, often named after the nearest station eg the Glenroy Bank

Banked Curve: A section of curved track which is tilted with the outside rail higher than the inside. This counters the centrifugal force as the train turns the corner at speed, making the ride more comfortable for the passengers.

Boom Barriers (commonly called Boom Gates): Barriers at a level crossing which lower when a train is approaching to indicate that road vehicles should not cross

Box: short for Signal Box

bph: Abbreviation for Buses per Hour

CAD (Central Activities District): an area of dense commercial development which becomes the focal point of the surrounding suburbs for shopping and employment. Today it usually indicates the development of multiple CADs in the Melbourne suburbs, to allow residents of outer suburbs to go to a local CAD rather than the centre of Melbourne.

Car: Passenger Carriage

Catenary Wire: On electrified railways, a cable which runs between gantries to support the weight of the Contact Wire.

Comeng train: Air conditioned suburban trains built in 1981-1989. There are currently 93 sets in service, making them the most prolific design. There are two major sub-types, tread-braked and disc-braked; the tread-braked examples are generally more reliable.

Contact Wire: On electrified railways, a wire which carries electricity to the train. In Melbourne and Sydney the electricity supply is 1500 volts DC; other Australian cities use 25,000 volts AC.

Crossing Loop: A section of a single-track railway where two tracks are provided for a short distance, to allow trains to pass each other

Crossover: A short section of track connecting two parallel lines, to allow a train to move from one track to the other

DDA (Disability Discrimination Act): An Australian Commonwealth Act of Parliament passed in 1992 which, among other things, specifies design features of public transport facilities to allow people with limited mobility or other impairments to use public transport services without assistance.

Derailment: When a train comes off the rails

Down: Away from the city, eg “a Down Sydenham service” means a service running from the city towards Sydenham. Opposite of Up. The **Down Line** is the line used by Down services. When facing in the Down direction, the Down line is usually on the left.

Droppers: On electrified railways, short sections of steel cable which hang from the Catenary Wire and hold the Contact Wire

Duplication: building two parallel tracks to allow trains in opposite directions to pass without stopping

Feeder Services: Services, usually run with buses, designed to take passengers to the nearest interchange point (eg a major rail station) where they can catch another service to take them to their destination.

Flyover: A bridge carrying rail lines across other streams of traffic to avoid the requirement to stop traffic in order to let the train through. For example, the Burnley Flyover takes trains from the northernmost tracks and allows them to run south to the Glen Waverley line without interrupting trains on the southern tracks. Flyovers allow services to run faster and more reliably, but are expensive to build.

Gantry: A pole or structure that looks similar to a streetlight pole, to hold up the overhead wires over electrified train or tram tracks, or any other object suspended above the rails, eg signals.

Headway: Compared to road vehicles, trains take a long time to stop so it's not possible to avoid collisions by watching the train in front. Trains are timed to ensure there is always a safe distance in between; this separation (expressed in minutes) is the headway.

High-Speed points: Points where the curve followed by diverging trains is gentle enough to be taken at 65 or 80km/h. Regular points limit diverging trains to 40km/h. High-Speed points cost more and take up more space than regular points.

Hitachi train: Non-air conditioned suburban trains built in 1972-1981. Currently 7 sets remain in service.

Host station: A suburban station where Station Hosts are rostered during peak time to assist passengers

Interchange: A location where passengers can change from one service (or type of vehicle) to another.

Intercity (description of service): a long-distance service, typically 100km or more, which is usually only taken by occasional travellers rather than regular commuters. Intercity services require high speed trains and on-board facilities including toilets and a snack bar or buffet.

Interurban (description of service): a medium-distance service, typically 20-100km long, running between major Activities Districts. Usually taken by regular and semi-



Signals at Broadmeadows showing
Clear, Normal Speed



An intercity train at Manchester Piccadilly station, UK

regular commuters. Interurban services require high speed trains and toilets but no snack bar.

Island Platform: A station or tram stop which consists of a single platform structure with track on each side. Opposite: Side platform.

Junction: A location where a rail service splits into two or more

Junction Station: A station located at a junction, eg Ringwood, Dandenong, Footscray.

Lay-by: A train standing by (running and with a driver present) ready to replace a train which fails while in service. **Lay-by Siding:** a siding reserved for lay-by trains

Loop: Short for Crossing Loop

Metro (description of service, not to be confused with the Melbourne train operating company): A service aimed at short trips, usually under 20km. Typical Metro-style services run at high frequency (eg every 10 minutes or better) and stop all stations. Metro-style services require few seats (to make space for standees), lots of doors and a high rate of acceleration and braking.

Metrol: The central control facility for the Melbourne suburban rail system.

O-Bahn: A precision-cast concrete structure which allows ordinary buses with minor modifications to run at high speed without needing the driver to steer. Adelaide's 12km example is the world's longest.

Pantograph: A metal structure on top of an electric train or tram which touches the Contact Wire and conducts electricity to the vehicle

Parkiteer: A Canadian-designed system recently launched in Melbourne. Simple bike parking is provided inside a locked steel cage, preventing theft or vandalism. In a given amount of space, Parkiteer can house more bikes than the bike lockers previously provided at railway stations in Melbourne.

Passing Lane: similar in purpose to a Crossing Loop, but long enough that trains can pass each other at speed

Points: An arrangement of track which can be set to direct trains in multiple directions

Premium station: A suburban station which is staffed from

first to last train and has toilets, payphones and facilities to sell tickets

Quadruplication: building four parallel tracks, to allow fast trains to overtake slow trains in both directions

Rollingstock: Any vehicle which runs on rails

Side Platform: A platform which is on the side of a set of tracks, serving only the trains on the nearest track

Siding: A dead-end section of track which can be used to store trains until they are required

Siemens train: Suburban trains built in 2005-2006, used on the Caulfield and Northern groups of lines

Signal: The equivalent of traffic lights for trains. Signals can tell the driver how far ahead the next train is, whether there are any speed limits, or which direction the train is heading at a junction.

Signal Box: A building which houses the controls for all the signals in the area

Sleeper: The horizontal piece of wood, concrete or steel that holds rails together

Spanish Solution: An arrangement where there are platforms on both sides of a train or tram, allowing doors on both sides to open. Allows faster loading or unloading when there are large numbers of passengers.

Stable: to put a train into a siding, usually overnight

Terminus: The end location of a service

tph: Abbreviation for Trains/Trams per Hour

Train Trip: A lever on a train which applies the emergency brakes if it passes a red signal

Triplication: building three parallel tracks, allowing fast trains to overtake slow trains in one direction only. Useful to allow for peak time express services.

Turnout: The technical term for a rail junction

Up: Towards the city. Opposite of Down. The **up line** is the line used by an Up service.

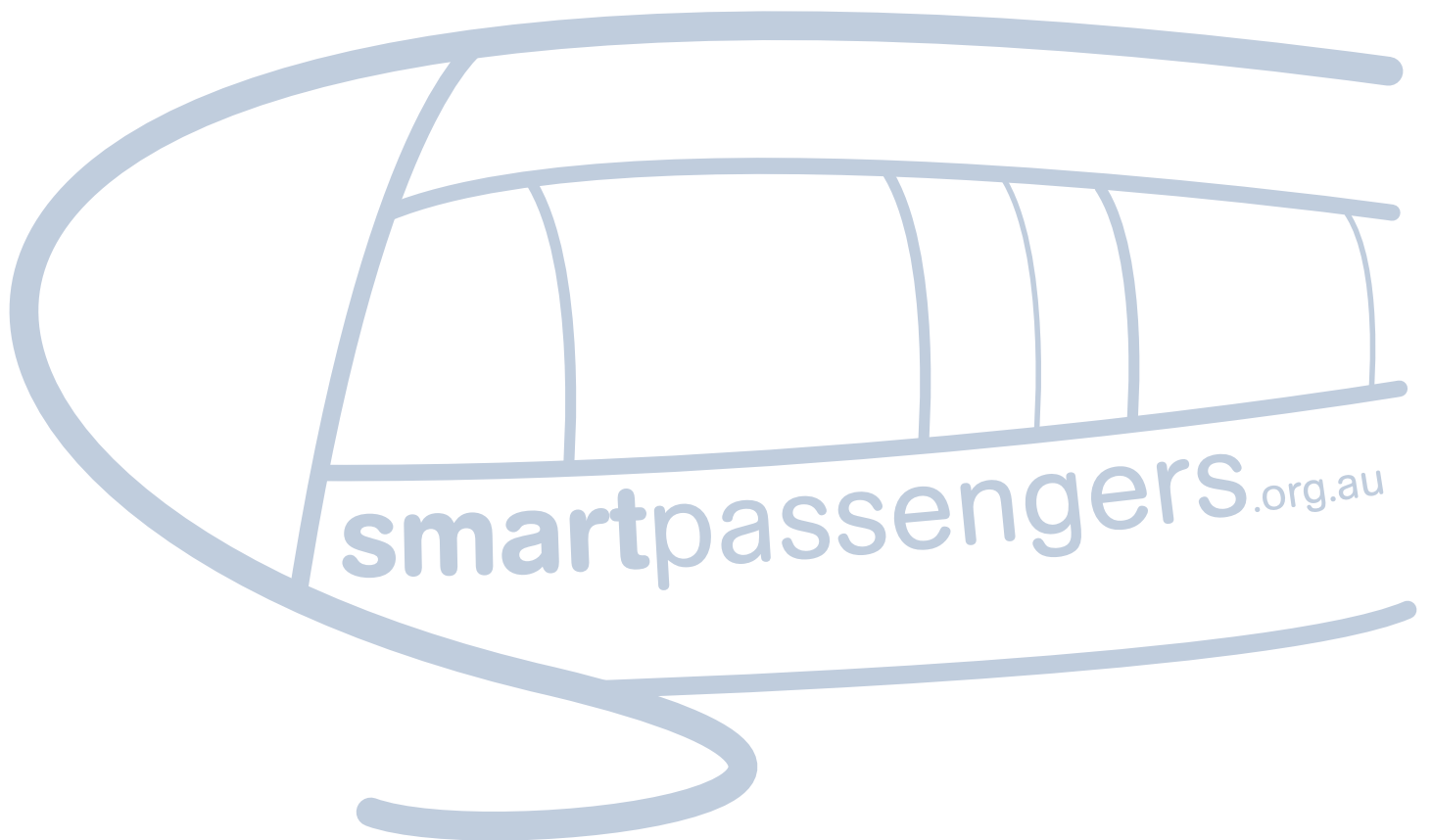
V/Locity train: Trains used on regional services, capable of 160km/h. Originally built for Regional Fast Rail services from 2004 but additional orders have been placed due to their fuel efficiency and reliability.

Works (eg works siding, works train, etc): any vehicle or asset which is used for track maintenance rather than carrying passengers or freight

Xtrapolis train: Suburban trains built 2002-2004 and 2009-2011, used on the Clifton Hill and Burnley groups of lines



The tram terminus at Box Hill



Smart Passengers Inc

PO Box 310

Mount Waverley VIC 3149

enquiries@smartpassengers.org.au

www.smartpassengers.org.au