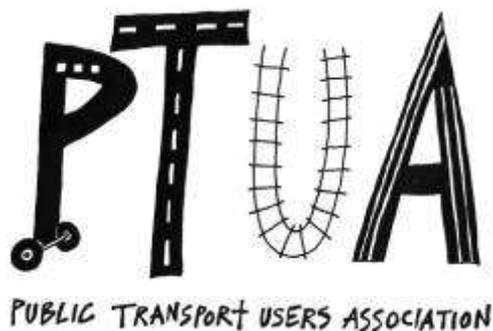




Getting Melbourne's Rail System on Track



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Introduction

Recent events have demonstrated the need for the State Government to refocus its public transport priorities to ensure that passengers are provided with a reliable, frequent and readily available service.

Over the past four years the PTUA had expressed concern over the early retirement of the Hitachi train fleet, due to the need to augment current services and provide some redundancy in case of failures with the other train fleets. This advice was ignored, despite reports that warned of looming train shortages, which would result in ‘a substantial amount of unsatisfied growth’¹, and potential issues with the new rail fleet. Given that train patronage is now rapidly increasing, this shortage has now eventuated.

While the PTUA acknowledges that Meeting Our Transport Challenges (MOTC) provides a substantial amount of funding for Melbourne’s public transport system and provides a basis in identifying the needs of Melbourne’s public transport system, it is clear that in light of ongoing issues that priorities must be reassessed.

The actions outlined in this document identify a mixture of short-term and longer-term projects that can be enacted to restore confidence in Melbourne’s rail system and build and properly handle patronage into the future to more aggressively pursue the government’s 20/2020 goal.

High priority actions (to be done in the next 12 months) are summarised on page 12.

Recruiting appropriate expertise

The current and ongoing difficulties experienced with the system demonstrates that maintaining the status quo is unsatisfactory in regard to both the efficiency of Melbourne’s rail network and passenger convenience in using it.

It has been acknowledged that there is a lack of expertise within the Department of Infrastructure (DOI) and this was publicly confirmed by the Auditor-General’s report into the Regional Fast Rail project²:

The Auditor General found that the “*DOI failed to effectively manage the delivery of the rail infrastructure upgrade to the planned timelines*”³. The DOI responded by acknowledging “*that there were limited resources and expertise*”⁴.

Based upon these findings it is clear that there is a need to recruit recognised public transport experts, including the possibility of prominent international rail experts, to ensure that world’s best practice is achieved on Melbourne’s rail system.

Reallocating expenditure and upgrading capacity

MOTC proposes up to \$1 billion of expenditure on the single project of triplicating the rail corridor from Caulfield to Dandenong⁵. Likewise there are a number of other projects, such as the installation of a third track between West Footscray and Sunshine⁶, which fail to take into account more pressing capacity constraints in other parts of the network such as the Altona loop and the Cranbourne line.

Reallocating this expenditure would allow greater benefits across the whole of the rail system and alleviate the current difficulties experienced on the network to provide more frequent services.

Melbourne’s rail network is capable of running both more frequent trains and carrying greater amounts of passengers. Train patronage was 159 million in 1929, 204 million in 1950, 170 million in 1964, 118 million in 1981 and 135 million in 2004. Since current rail patronage is approaching 170 million⁷, quick decisive action needs to be taken to get more trains on the rails to alleviate overcrowding and allow continued growth.

Cranbourne line: The 14km line from Dandenong to Cranbourne should be duplicated to allow higher service frequencies into this growing suburb.

Dandenong line: The PTUA believes that substantially higher service levels are possible on the existing double track, as exemplified in a range of cities around the world and in past Melbourne operations. Rather than embark on an ambitious plan to triplicate the whole track from Caulfield to Dandenong, which would not only be expensive but also unleash years of major disruption on the line, the priority should be on making the most of the current infrastructure:

- Re-design of the timetable to maximise train throughput by using a small number of consistent stopping patterns, rather than the confusing mix of patterns that has evolved over time, with input sought from recognised experts in public transport operations and scheduling to ensure world's-best practice. See “Stopping patterns”, page 8.
- Measures to reduce dwell times at busy stations, such as platform staff to assist wheelchair passengers and train departures
- More expresses and higher frequencies outside peak hours, to encourage commuters to stagger their hours. Encourage large CBD employers such as the Victorian government to relax core hours and encourage flexible working, to help spread peak demand.
- Upgrades to signalling between the city and Dandenong to allow trains to run with shorter headways on the existing track
- All V/Line trains to stop at major traffic generators such as Richmond, Caulfield and Clayton, to reduce instances of V/Line passengers having to use suburban trains to connect with their services, and provide a consistent stopping pattern.

Only after the above options have been exhausted should additional track be considered, on a "best bang per buck" basis. For instance, a passing loop from Hughesdale to Springvale (exclusive) would involve no land acquisition, and could be built with minimal disruption, but would provide an overtaking facility longer than that used successfully on the Frankston line.

Werribee line: duplication of the single-track sections of the Altona Loop from Altona Junction through to Seaholme as well as Westona to Laverton would provide a substantial capacity increase and alleviate genuine constraints that ripple right across the western suburbs. The current proposal, which seeks triplication of West Footscray to Sunshine⁸, will merely create a situation that feeds into these bottlenecks.

Epping line: Duplicating the track from Keon Park to Epping would, in conjunction with the duplication from Clifton Hill to Westgarth duplication in MOTC, remove the most significant of the remaining single track bottlenecks on the Clifton Hill lines, allowing more frequent services to the north-eastern suburbs.

Level crossings: Commencement of removal of level crossings, with priority given to the four crossings where trains intersect with trams, which limits rail line capacity due to slow train speeds and which also cause delays to trams.⁹

Expanding the network

With funds from the Dandenong triplication reallocated to address genuine capacity concerns, it will be possible to implement or bring forward extensions and new stations on the rail network to bring fast, frequent electric train services to more of Melbourne's suburbs, particularly outer areas. This will increase the reach of the rail system and maximise the benefit of the removal of zone three.

Rail extension or electrification projects would include:

- Bringing forward the extension from Epping to South Morang and Mernda
- Extending from Cranbourne to Cranbourne East
- Electrification to extend suburban trains from Frankston to Baxter
- Electrification to extend suburban trains from Sydenham to Sunbury
- Electrification and duplication from Sunshine to Melton
- Rail from Victoria Park, along the Eastern Freeway to Doncaster Shoppingtown and East Doncaster
- Rail from Huntingdale to Monash University and Rowville and Stud Park



New stations on existing lines would include:

- Southland shopping centre (Frankston line)
- Newport West, Derrimut and Forsyth Roads (Werribee line)
- Lyndhurst Park (Cranbourne line)
- Campbellfield (Upfield line)
- Pakenham Lakeside (Pakenham line)
- Caroline Springs (Melton line)

Upgrading signalling and Metrol

Metrol, Melbourne's train control system, was due to be replaced in 2003 although this was deferred largely due to the lack of expertise within the Department of Infrastructure in managing such projects¹⁰. The Metrol upgrade, though now running late, should be completed by 2010, and in conjunction with signalling upgrades can, defer the need for track infrastructure investment¹¹,

ensuring that capital investment is allocated efficiently across Melbourne's rail network. In particular a new signalling can result in an improvement of the 'track capacity from around 24 trains per hour to 30. This will mean that some track amplification projects will be able to be deferred if the new signalling system is deployed'¹².

Expanding the train fleet

MOTC includes the purchase of new trains and trams from 2011 onwards¹³. The purchase of additional trains needs to be brought forward to augment the current rail fleet and thus relieve current overcrowding and provide additional services to continue growing patronage.

The Melbourne Metropolitan Train Plan warned the State Government of potential train shortages due to rising patronage, 'leaving a substantial amount of unsatisfied growth demand'¹⁴, although this advice was not acted upon at the time.

Likewise, as far back as 2002 the PTUA cautioned against the removal the Hitachi fleet from service. Since the Comeng trains were recently refurbished and have modern passenger conveniences, such as air conditioning, there is little need to replace this fleet from 2011. With appropriate maintenance the Comeng trains can be retained in service, enabling the train fleet to continue expanding.

Operational improvements

Extra travel has already been generated by the removal of zone 3 from March 2007¹⁵, and both bus and rail systems will need a major frequency and reliability boost to manage expected patronage increases. Because parking facilities at stations can only ever provide limited capacity, and most of Melbourne's population lives beyond walking distance from the rail network, bus frequency and operating hours will need to more closely match trains.

To handle and encourage patronage growth, the base level of rail frequency should be improved to at least 15 minutes (at least 10 minutes during peak times) to every station, from morning until midnight, seven days a week, to provide the level of service that will attract "choice" passengers, make interchange between lines easier, and encourage travel outside peak hours to help relieve overcrowding. This should include outer-suburban services to Lilydale, Belgrave, Pakenham and Cranbourne (the latter enabled by duplication from Dandenong to Cranbourne).

The need for 15 minute services is affirmed through the Department of Infrastructure's Train Plan (2003) that states the desired '*standard adopted for train services is a 15 minute service frequency between the hours of 6.00am and 10.00pm, seven days per week*'¹⁶, this frequency requirement is further reiterated through both the Metropolitan Tram and Bus Plans to ensure consistent frequencies, service spans and coordination across the urban public transport network.

Dealing better with growth

There is a need to improve service levels during shoulder-peak times to help redistribute current peak demand across a wider timeframe. Shoulder-peak expresses, combined with frequency improvements across the network, will provide a saving in travel time and encourage modal shift from car travel towards public transport. This will allow the metropolitan train network to grow its market share as train travel times will be improved in comparison to car travel.



But passenger crowding does not just occur in peak hour, or during special events. The use of short trains now routinely results in passengers having to stand for long periods of time, or even being left behind on platforms on weekends¹⁷ or in the evenings.

To allow for current and future passenger growth, six-car train operation should be the standard on all lines seven-days-a-week during daylight hours (except quieter routes such as Williamstown and Alamein shuttles, and Upfield outside peak hours), and evenings until at least 10pm on the Ringwood and Caulfield lines (as well as at other times as dictated by special events).

Train loadings should be periodically monitored for overcrowding, including passengers standing for periods longer than 15 minutes outside peak hours (including weekends and evenings). Where these conditions are established to be a regular occurrence, and train and/or track capacity is available, they should be resolved as soon as possible by deploying longer or more trains.

Stopping patterns

A number of Melbourne's train lines use a wide variety stopping patterns (see box: "A myriad of stopping patterns"). In some cases this limits the capacity of the lines, and also results in confusion for both passengers and train operating staff¹⁸.

Cutting the number of express stopping patterns down to 2 or 3 variations per line would greatly simplify things for passengers, as well as improving operations, signage/maps and help make the most of track capacity.

This does not mean the removal of express services, rather it would mean a consistent stopping pattern for express services to ensure efficient scheduling of train paths and to provide an easy to understand service for passengers. While some communities may lose direct access to express services, a consistent pattern will allow the boosting of train frequencies. When combined with easy interchange points between stopping and express services, and timetables that are easier to memorise, it will increase the overall net benefit for passengers.

Increasing the speeds of Melbourne's trains

Melbourne has the slowest rail speeds of any Australian capital city¹⁹. In fact Melbourne's rail speeds have not altered substantially since the Tait trains were introduced in 1919, despite the fact that the modern train fleets have superior acceleration and braking compared to these trains, which were withdrawn from service in the 1980s.

A myriad of stopping patterns

As an example, here is a list of the stopping patterns on the Ringwood lines:

- Flinders Street to Ringwood all stations except East Richmond
- Flinders Street to Camberwell all stations (to Alamein or Riversdale)
- Flinders Street to Ringwood express Richmond to Camberwell
- Flinders Street to Ringwood express Richmond to Camberwell to Box Hill
- Flinders Street to Ringwood express Richmond to Glenferrie to Camberwell
- Flinders Street to Ringwood express Richmond to Glenferrie to Camberwell to Box Hill
- Flinders Street to Ringwood express Richmond to Glenferrie to Camberwell to Surrey Hills to Box Hill to Blackburn to Mitcham to Ringwood.
- Flinders Street to Ringwood express Richmond to Glenferrie to Camberwell to Surrey Hills to Box Hill.
- Flinders Street to Blackburn all stations except East Richmond
- Flinders Street to Ringwood express Richmond to Surrey Hills to Box Hill
- Flinders Street to Ringwood express Richmond to Box Hill to Blackburn to Mitcham to Ringwood
- Flinders Street to Ringwood express Richmond to Box Hill
- Flinders Street to Ringwood all stations

This list excludes loop variations, and shows outbound direction only. A similar number of variations exist in the opposite direction, and on other lines.

Source: Connex timetable, October 2006

	Melbourne	Perth
Station	Highett	Fremantle
Distance from city centre	18.8 km	18.7 km
Intervening stations	13	14
Travel time to city (all stops, direct)	31 min	28 min
Average speed	36 kph	40 kph

Table 1 Rail speeds in Melbourne and Perth (source: It's Time to Move, 2002)

Increasing rail speeds will result in higher utilisation of the existing fleet as well as drivers, meaning that the existing fleet can provide a better level of service across metropolitan Melbourne for no extra cost. It will also make train travel more time-competitive with car travel, increasing patronage.

Melbourne's trains have the same power to weight ratio as Perth's suburban electric trains, yet on comparable rail lines, the Perth trains are 25% faster overall from end to end²⁰.

Such modifications could be incorporated within wider timetable changes, where it is common practice for operators to review their timetabling and schedule on an annual basis.

City Loop capacity

It is often claimed that the City Loop is at or nearing capacity. Despite this, the number of suburban trains entering the CBD has diminished over time. In 1929 there were 116 trains entering Flinders Street between 8am and 9am, compared to 108 in 1964, 87 in 2005 and 90 now. These figures demonstrate that spare capacity does exist.

Prior to the construction of the Loop the constriction point for trains within the CBD was the four tracks on the viaduct between Flinders and Spencer Street stations. There are now six viaduct tracks plus the northern side of the Loop running through Flagstaff, Melbourne Central and Parliament Stations.

Uniquely, Melbourne's underground loop system reverses direction at lunchtime each working day, leaving gaps of up to half-an-hour between trains at some Loop stations²¹. This results in confusion for passengers, means that travel around



the CBD is unnecessarily complex, and makes some trips impossible to make at certain times, without changing trains outside the CBD.

To more fully utilise CBD rail capacity, all services approaching the CBD (except for the historically separate Clifton Hill line trains) would continue to pass through Richmond and North Melbourne stations for interchange purposes as per the current situation. Some services would run directly to Flinders Street/Southern Cross and others would continue to provide a dense, frequent service through the City Loop, ensuring passengers needing to change between direct and loop trains need wait no more than a few minutes.

By avoiding the situation where multiple lines converge into just four City Loop tracks, this would result in a dramatic increase in the number of trains that could run into and through the CBD.

Prior to the city loop, many suburban services from the east of the city connected through Flinders Street and Spencer Street to provide another service going out to the west, and vice versa. As a result no train spent long periods stopped at Flinders Street to perform driver changeovers and other tasks. By avoiding delays at Flinders Street the throughput of rail platforms can be increased thus allowing more frequent services. In addition by avoiding the circumnavigation of the Loop and sending more services directly across the CBD, service frequencies could be upgraded.

Public Transport tendering

Since the government does not maintain the overall coordination and scheduling of Melbourne's public transport system there is little compulsion on the part of operators to ensure coordination between train, trams and buses or to seek frequency improvements.

If it is not to be brought back completely under government control, Melbourne's public transport system should be tendered on a fee for service model that ensures that government is able to introduce frequency or capacity improvements when required, and to more closely manage important issues that affect the day-to-day reliability of the network, such as maintenance and security.

The current financial arrangements do little to entice Connex or other operators to operate in an efficient manner, hence resulting some of the current difficulties experienced by Melbourne's public transport system. While Connex currently earns some 40% of any increased fare revenue,

this has not been enough incentive to initiate improvements such as running longer trains on weekends when overcrowding is occurring²².

Indeed, most recent service improvements, such as the virtual doubling of Sunday services in 1999, the extension of late-night Friday and Saturday services, and all-night services on New Year's Eve, have all been mandated and paid for by government.

The need for such an approach is demonstrated through Western Australia's Department of Planning and Infrastructure (DPI) which annually publishes the number of public transport journeys per capita per year to benchmark against its goals of increasing public transport usage. Likewise the department also measures multimodal coordination, ensuring coordination between bus and train timetables. Progress against such goals is difficult under Melbourne's current arrangements where each operator manages and plans its own services. Given the need for public transport to operate as a network, such functions must be managed through a centralised government body that will then competitively tender the operations of services.

It is only with this type of accountable, central control that Melbourne can hope to boost its public transport services and market share to reach 20% by 2020, and to truly meet the transport challenges of traffic congestion, pollution, oil dependence and climate change.

Conclusion and priority action plan for the next twelve months

With train patronage showing strong growth, decisive action must be taken to handle demand. To not grasp this opportunity to set the public transport system on a path of continuing growth is to condemn the government's 20/2020 goal to failure.

The points in this document detail actions to be taken over the next few years. Some of them however can and should be acted upon immediately to provide quick relief at the worst pressure-points on the network and continue to encourage further patronage growth. The following actions can be started immediately, and fully implemented within the next twelve months:

1. As soon as is practicable, provide more shoulder-peak trains, including express services, such that peak frequencies are maintained from 6:30am to 9:30am (inbound) and 4:30pm to 8pm (outbound), to immediately help spread peak loads over a wider timeframe.
2. Return to service any Hitachi trains that are able to be done so cost-effectively. Upgrade as appropriate with new intercom and security systems.
3. Order extra trains, to be put into service as soon as possible to boost peak-hour services. (See "Expanding the train fleet", page 6)
4. With minor exceptions (as detailed in "Dealing better with growth", page 7), all trains to run as six cars until at least 10pm, seven days-a-week.
5. A review of stopping patterns and operations, making use of recognised expertise and world's best practice, and focussing initially on the Dandenong line, to simplify stopping patterns (see "Stopping patterns", page 8) and get more peak hour services running, ahead of commencement of any infrastructure changes.
6. Prepare for a new timetable (including employment and training of new drivers and other operational staff) to boost off-peak services to at least every 15 minutes to midnight, seven-days-a-week (20 minutes on the Northern group lines until the Altona loop and any other bottlenecks are fixed) to provide a consistent level of service across the entire metropolitan system.
7. Begin upgrading frequency and operating hours of bus and tram services (where required) to ensure modal coordination with the new rail timetable.

Further reading

PTUA: The Real Transport Challenges: A Call for Vision – October 2006

www.ptua.org.au/publications/real-transport-challenges/

PTUA: Five Year Plan for public transport – November 2005

www.ptua.org.au/publications/fiveyearplan/

¹ Department of Infrastructure (2003), Melbourne Metropolitan Train Plan (unreleased), p. 76.

² Auditor General Victoria, (August 2006), Results of special audits and other investigation.

³ Auditor General Victoria (August 2006), Delivering regional fast rail services, p.91.

⁴ Auditor General Victoria (August 2006), Delivering regional fast rail services, p.22.

⁵ Meeting Our Transport Challenges (2006), p. 41.

⁶ Meeting Our Transport Challenges (2006), p. 41.

⁷ The Age, Customers left standing on platforms, 25 April 2007

⁸ Meeting Our Transport Challenges (2006), p. 41.

⁹ Given that motorists are the main beneficiaries of level crossing eliminations, the PTUA believes these should be largely funded as road improvements.

¹⁰ The Age, Safety alarm on rail signals, 8 December 2001.

¹¹ Department of Infrastructure (2003), Melbourne Metropolitan Train Plan (unreleased), p. 79.

¹² Department of Infrastructure (2003), Melbourne Metropolitan Train Plan (unreleased), p. 79.

¹³ Meeting Our Transport Challenges (2006), p. 42.

¹⁴ Department of Infrastructure (2003), Melbourne Metropolitan Train Plan (unreleased), p. 76.

¹⁵ The Age, Customers left standing on platforms, 25 April 2007

¹⁶ Department of Infrastructure (2003), Melbourne Metropolitan Train Plan (unreleased), p. 43.

¹⁷ PTUA: Connex driving away customers; call for weekend upgrades, www.ptua.org.au/2006/11/03/weekend-train-overcrowding/ and Channel 7 news, Commuter Crush, 3 November 2006

¹⁸ PTUA members regularly note train drivers inadvertently missing stops, or stopping where not timetabled to do so.

¹⁹ Timetables (various).

²⁰ Timetables (various) and train specifications.

²¹ On the Burnley loop, no train serves Parliament between 12:35pm and 1:05pm on weekdays. Similar gaps occur on the other loops. Source: Connex timetable effective September 2007.

²² PTUA: Connex driving away customers; call for weekend upgrades, www.ptua.org.au/2006/11/03/weekend-train-overcrowding/ and Channel 7 news, Commuter Crush, 3 November 2006