

South Yarra Station

Future demand, capacity and impacts of the
Melbourne Metro Rail Project:

Response prepared for City of Stonnington
(follow up from meeting on 15 June 2015)

Overview

This paper describes the network outcomes at South Yarra Station following completion of the Melbourne Metro Rail Project. It responds to queries raised at a meeting between officers from the City of Stonnington, Public Transport Victoria and the Melbourne Metro Rail Authority on 15 June 2015.

In particular, it responds to the following questions:

- a) What is the customer forecast for South Yarra Station?
- b) What is the capacity that will be provided to service the station?
- c) How will public transport customers access South Yarra Station during peak periods?

This discussion is underpinned by modelling undertaken by Public Transport Victoria using the Victorian Integrated Transport Model (VITM), and the rail capacity and services unlocked by future network upgrades as outlined in PTV's *Network Development Plan – Metropolitan Rail* (2012).

Forecast changes in customer demand for South Yarra Station

Local land use influences on customer demand

The land use immediately surrounding a station is a key determinant of future customer demand; at South Yarra, 77% of customers currently walk to and from the station.

Land use within the walkable catchment of South Yarra Station is mixed, comprising both lower density (Neighbourhood Residential Zone) and higher density residential, retail, lifestyle, education and employment.

The forecast development for the region broadly within walking distance of South Yarra Station is for the area to gain around an additional 10,000 jobs by 2046 and around 12,000 residents in the same period.

The Forrest Hill precinct is a key driver of growth in the South Yarra station precinct, although residential growth will slow after 2021 as the area becomes fully built out. South Yarra will continue to grow as an employment centre.

These growth patterns are reflected in the customer demand forecasts for Melbourne Metro.

Forecast demand at South Yarra Station

By the time Melbourne Metro is delivered,¹ customer demand at South Yarra Station is forecast to have grown by around 50%.

By 2031, it is expected that South Yarra Station will experience approximately 5,000 entries and exits in the two hour morning peak period (excluding transfers). The majority of the activity in the morning peak will be felt after 7:30 am, with around half of morning demand expected to occur between 8:00 am and 8:45 am. Over the day South Yarra Station will see 23,000 daily station entrances and exits (excluding transfers).

Overall, the number of travellers on Sandringham and Frankston trains leaving South Yarra Station in the morning peak period to head towards the city is expected to increase by 50-60% by 2031. This will be an increase from 22,000 passengers in 2011 to 33,000-35,000 in 2031.

Future capacity at South Yarra Station

PTV regularly reviews and updates its timetables, enabling it to incorporate service improvements, respond to new infrastructure, and to introduce additional services to alleviate crowding.

PTV monitors the average number of passengers on services through Load Standards surveys, which measure passenger loads against benchmark standards during the morning and afternoon peak periods. These surveys are undertaken twice a year in May and October. For the three lines that pass through South Yarra, the load in the peak direction between South Yarra and Richmond is monitored. Therefore, customers getting on at South Yarra Station are included in the monitoring of loads.

PTV's load survey information is used to determine when and where extra capacity may be needed to reduce crowding. The survey results can be found at <http://ptv.vic.gov.au/about-ptv/ptv-data-and-reports/passenger-load-surveys/>. They are also contractually applied in the train (and tram) franchise agreements.

When actual loads exceed the standard or trend towards it, PTV considers scheduling an additional service to help reduce overcrowding. The ability to schedule another service is dependent on a number of factors. These include the availability of train sets to operate more services, whether there is appropriate track and signalling infrastructure to accommodate an additional service – that is, whether the infrastructure can accommodate another train service to operate reliably, and demand pressures on other parts of the network.

Infrastructure constraints across the network are identified in PTV's Network Development Plan (NDP) – Metropolitan Rail and are progressively being addressed including through projects such as Melbourne Metro, rolling stock (train carriage) purchases, high capacity signalling and upgrades on the Cranbourne-Pakenham corridor.

¹ Scope of Melbourne Metro does not include an interchange station on the Melbourne Metro line at South Yarra.

Victorian Rolling Stock Strategy – Additional Trains

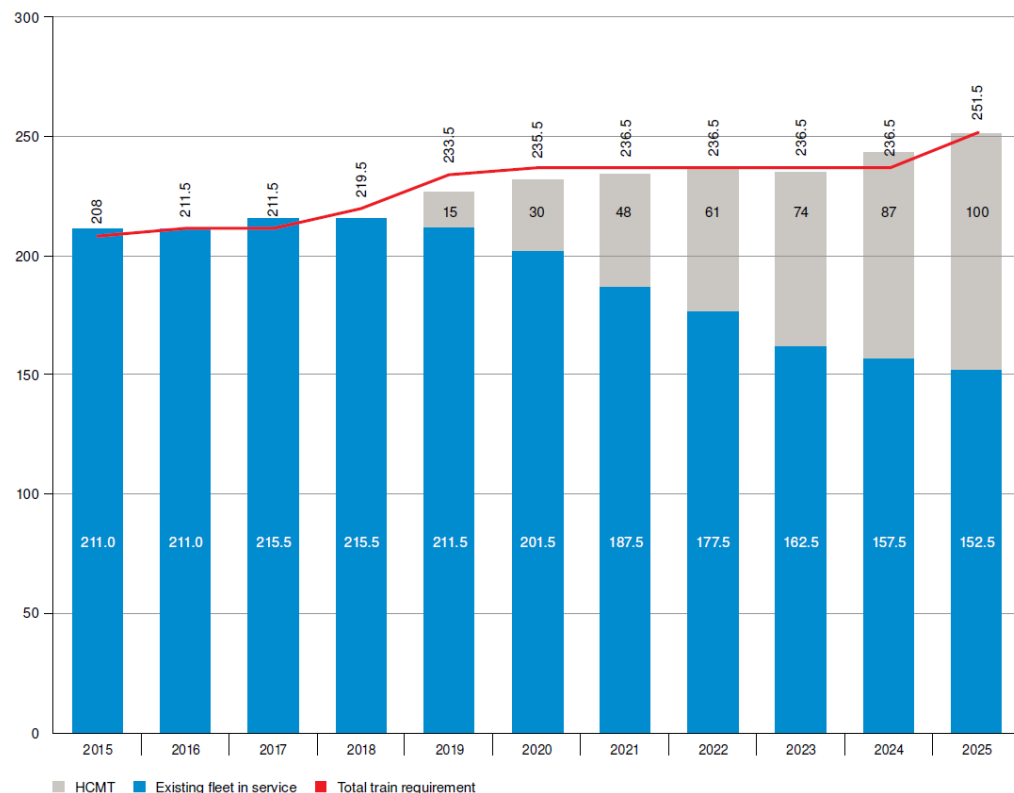
The Victorian Government (with PTV) has recently released rolling stock strategy (available at <http://www.premier.vic.gov.au/trains-trams-jobs-2015-2025>) outlines a network-wide approach to acquiring and deploying rolling stock. It identifies a need for 100 new metropolitan trains over the next decade to cater for patronage growth and operate projects such as Melbourne Metro and the Cranbourne Pakenham Rail Upgrade. The 2015-16 State Budget included a \$2 billion investment in new trains and trams for the network, including the trains needed on the Cranbourne Pakenham Rail Upgrade, as well as new X'Trapolis trains, life extension of existing trains and new regional VLocity carriages.

The Cranbourne Pakenham Rail Upgrade, which will precede Melbourne Metro, will help to meet growing customer demand on this corridor. It will accommodate an extra 11,000 passengers in the morning peak, and free existing trains to boost capacity across the network. It includes the purchase of 37 next generation, high capacity trains, upgrading rail infrastructure and removing all nine level crossings between Dandenong and Caulfield.

These new trains for the Cranbourne Pakenham Line will allow trains currently operating on this line to be reallocated to other lines, which could include the Frankston and Sandringham lines, to meet demand within the load standard.

The following graph, taken from the rolling stock strategy illustrates the required rolling stock to respond to the government's rail projects, growing customer demand and to replace ageing fleet. It shows that there will be an increase in the capacity of the rail network due to an increasing proportion of high capacity trains in operation, as well as a "bump" in capacity as Melbourne Metro is delivered.

METROPOLITAN TRAIN FLEET REQUIREMENT, 2015–2025



High Capacity Signalling - Sandringham Trial

High capacity signalling will also relieve constraints on the rail network and is to be trialled on the Sandringham rail line.

Melbourne Metro – Addressing Infrastructure Constraints

Melbourne Metro will provide additional capacity on a number of rail lines, not just the Sunbury to Dandenong (Cranbourne/Pakenham) services that would run through the tunnel. It will provide further relief of infrastructure constraints to enable more services to operate on the Sandringham and Frankston line, as outlined below.

The NDP identifies service uplifts enabled by removing these constraints. The service changes through South Yarra enabled by Stage Two of the NDP, which includes Melbourne Metro and other key upgrades are summarised as follows. Note that further project development work is currently being undertaken which will finalise these capacity increases.

	Current number of services in AM peak 2 hours through South Yarra	Capacity in AM peak 2 hours after MM (NDP Stage 2)
Sandringham	15	30(1)
Frankston	22	
Dandenong	29	
Total (through South Yarra)	65	

All of these initiatives will help PTV respond to growing passenger loads over time and help passengers get onto trains at South Yarra, by allowing more trains, and higher capacity trains to operate on south eastern train lines.

Please note, this analysis of future service levels is based on the services as outlined in the NDP. Service plans are subject to refinement as part of further development of the Melbourne Metro project, incorporating updated patronage forecasts and developments in policy and projects. Outcomes of this process will be broadly consistent with the outcomes presented in this paper.

Accommodating future demand at South Yarra

The service plan that will be introduced upon completion of the Melbourne Metro project will make it easier for customers to get on a train at South Yarra Station.

30(1)

30(1)

PTV's rolling stock strategy and high capacity signalling for the Sandringham line will also assist in meeting growing customer demand. Overall, Stage Two of the NDP outlines an additional six services on the

Sandringham corridor and seven services on the Frankston corridor in the morning peak, which will travel through South Yarra after Melbourne Metro is delivered.

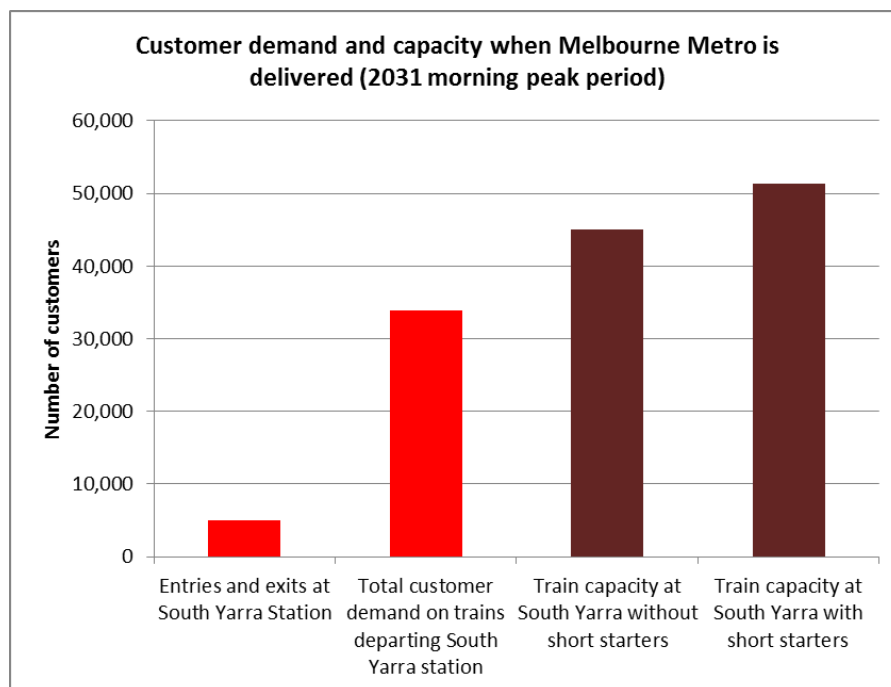
Significantly, Melbourne Metro will also enable trains to start at South Yarra Station, going to Flinders St and onwards on the Werribee line. As there are more customers travelling to the city from the Werribee line than the Sandringham line, not all trains from Werribee to the CBD will need to operate all the way to Sandringham. Current practice is to end these train journeys from Werribee at Flinders Street.

The Melbourne Metro project is providing new track infrastructure so that these train journeys can end and turn around at South Yarra instead of Flinders Street. Empty trains starting their journey at South Yarra Station means customers getting on at South Yarra will be able to get a seat on these trains.

The actual number of trains starting at South Yarra will depend on the difference between the demand coming in on the Werribee line to the CBD compared to the Sandringham line.

30(1)	30(1)
30(1)	

Melbourne Metro will provide new infrastructure capacity to enable additional services to operate through South Yarra station to meet future customer demand as presented below. In particular, customers going to and from the city in peak periods will benefit from trains starting at South Yarra going to Flinders Street, Southern Cross and beyond. These customers will have the opportunity to get a seat at South Yarra Station.



Conclusion

South Yarra customers who are travelling into the CBD in the morning peak are always taken into account in understanding crowding, as load surveys are measured between South Yarra and Richmond. This is an integral part of PTV's service planning and the franchise agreement.

Rolling stock and infrastructure constraints can restrict PTV's ability to address overcrowding by providing more capacity on the rail network.

The Victorian Rolling Stock Strategy outlines a plan to procure more trains and trams to meet growing demand, enable capacity unlocked by major rail projects and replace ageing trains. The 2015-16 State Budget included \$1.3 billion for 37 new, high-capacity metropolitan trains. These trains will serve the Cranbourne Pakenham Rail Upgrade, and existing trains currently operating on the Cranbourne Pakenham corridor will be cascaded to provide additional services on other lines.

The Cranbourne Pakenham Rail Upgrade and the high capacity signalling trial on the Sandringham corridor, followed by Melbourne Metro are delivering on the objectives of Stage Two of PTV's Network Development Plan – Metropolitan Rail, enabling service improvements and increased capacity on south east rail corridors.

Melbourne Metro will further remove constraints on rail corridors in the south east, enabling the return of Frankston trains to the City Loop and connection of the Sandringham and Werribee lines. This untangles the operations of these lines and will enable service uplifts on each of these corridors. The service plans indicated in the Network Development Plan - Metropolitan Rail show an additional 6 services on the Sandringham corridor and 7 services on the Frankston corridor in the morning peak.

In addition, the short starters (empty trains) at South Yarra Station to the city (and onto Newport/Werribee) will represent up to one in eight trains leaving the station in the morning peak period – these services alone will provide the capacity required to accommodate people wishing to get on the train from South Yarra in the morning when the Melbourne Metro project is delivered, as well as to accommodate future growth on this corridor. Track infrastructure enabling these trains to start at South Yarra (instead of Flinders Street) is being built as part of the Melbourne Metro project.