APPENDIX 4
PROPOSED SERVICE PLAN

PUBLIC TRANSPORT VICTORIA

Melbourne Metro Program
Proposed service plans

Business Case Baseline

February 2016

Table of contents

1 Overview

1.1 Purpose of this document

This document summarises the service plan expectations for lines affected by the Melbourne Metro program:

- immediately after completion of the Melbourne Metro program; and,
- subsequent to completion of an extended program of works designed to demonstrate benefits enabled by future provisions being made as part of the Melbourne Metro design.

These proposed service plans are the baseline that should be adopted to underpin development and evaluation of the Melbourne Metro Rail Project (including preparation of the business case and associated scope for the project).

The proposed service plans do not represent a recommendation to limit development of the future network and should not constrain Government from making further improvements to the Public Transport Network. Implementation of the proposed service plans is subject to the discretion and influence of the stakeholders in Victoria's public transport network, in the context of information available closer to the time of implementation - including growth rates and policy changes.

2 Melbourne Metro Day-1 service proposal

2.1 Context

The service proposal assumes a final outcome for the completed Melbourne Metro Program, and represents the proposed operation at the completion of the full Melbourne Metro program.

2.2 Objectives of the service plan

Implement a timetable to take advantage of infrastructure provided by the Melbourne Metro project and realise benefits identified in the project business case.

The service plan should:

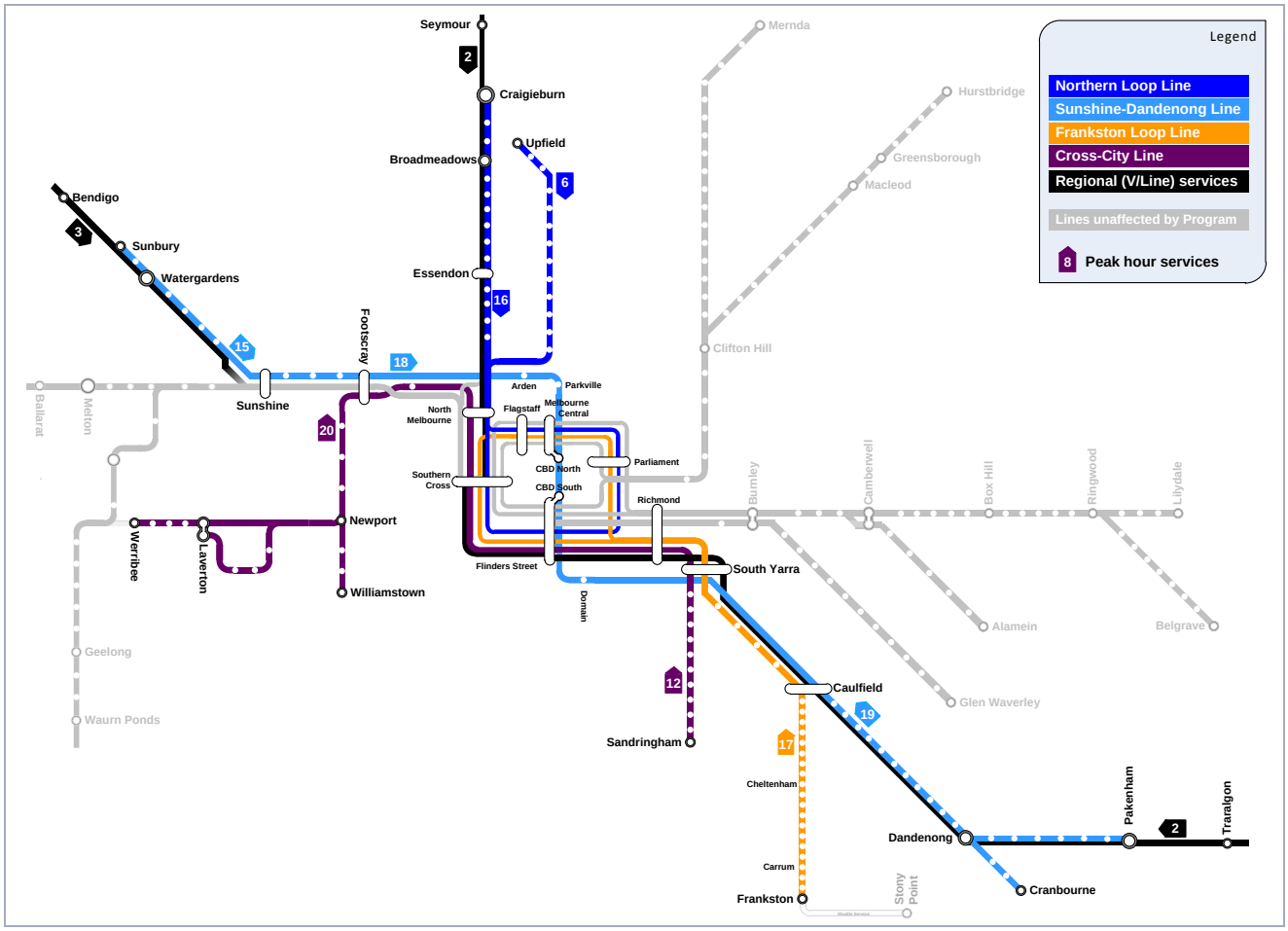
- establish the Sunshine – Dandenong line operation via the new tunnel alignment, including:
  - commencing passenger services to the new stations at Arden, Parkville, CBD North, CBD South and Domain;
  - providing service increases appropriate to meet the demands forecast for the corridor; and,
  - operating all services on the line with HCMT rolling stock.
- re-establishing a consistent Frankston line routing through the inner core:
  - with all services operating via the city loop (Caulfield underground loop); and
  - providing service increases appropriate to meet the demands forecast for the corridor.
- re-establishing a consistent routing of Craigieburn and Upfield lines within the inner core:
  - with all services operating via the city loop (Northern underground loop); and
  - providing service increases appropriate to meet the demands forecast for each corridor.
- establishing a consistent through operation from the Sandringham line via Richmond, Flinders Street and Southern Cross and North Melbourne stations as part of the Cross City group:
  - including provision of additional peak period services from South Yarra to Flinders Street; and
  - providing service increases appropriate to meet the demands forecast for the corridor.
- modify service operation on the Werribee, Williamstown and Laverton lines as part of changes to the Cross City group, to provide service increases appropriate to the demands forecast for the corridor.

2.3 Proposed network structure

Implementation of the Melbourne Metro project will lead to a major reconfiguration of the Melbourne metropolitan network. It will commit development to a network design that relies on independent operation of rail lines and passengers interchanging to reach their destination.

This is a similar model to that of metro services in London, New York and Paris. It will also move Melbourne to a turn up and go network, with metro style services running at increased frequencies, greater reliability, with simplified service patterns and trains with more capacity. Figure 2-1 shows the proposed network structure, each line and the infrastructure upgrades required are discussed in more detail below.

Figure 2-1- Metropolitan rail network at the completion of Melbourne Metro program



The Melbourne Metro project will address constraints caused by the increasing levels of patronage demand that would otherwise mean that the number of services required to operate through the Caulfield and Northern loops would exceed the operational capacity of these track sections to support delivery of reliable services without excessive crowding. To achieve this outcome, Melbourne Metro will alter the CBD routings associated with a number of lines on the Melbourne network as shown in Table 2-1.

Table 2-1: Inner city routing changes associated with Melbourne Metro

Line	Current operational plan	Operational plan post Melbourne Metro tunnel project
WERRIBEE and WILLIAMSTOWN	*Weekdays:* All trains operate via Southern Cross and Flinders Street and most through to Frankston Line *Weekends*: All trains operate via City Loop	All trains operate via Southern Cross and Flinders Street and through to Sandringham line
SUNBURY	All trains operate via City Loop	All trains operate via MM tunnel
CRAIGIEBURN	All trains operate via City Loop except 3x AM peak services that run via Southern Cross to Flinders Street	All trains operate via City Loop
CRANBOURNE and PAKENHAM	All trains operate via City Loop	All trains operate via MM tunnel
FRANKSTON	*Weekdays:* Off-peak and 50% peak trains operate via Flinders Street and Southern Cross through to Werribee/Williamstown Line; 50% of peak trains operate via City Loop *Weekends:* All trains operate via City Loop	All trains operate via City Loop
SANDRINGHAM	*Weekdays:* All trains operate to/from at Flinders Street *Weekends:* All trains operate via City Loop	All trains operate via Flinders Street and Southern Cross and through to Werribee/Williamston line
Note that the MM project does not propose any alterations to the routings of the Upfield, South Morang, Hurstbridge, Belgrave, Lilydale, Alamein and Glen Waverley lines		

2.4 Service levels proposed for affected lines

The service levels shown in Table 2-2 demonstrate the 'Day-1' operations proposed, noting that frequencies for non-project corridors (including non-electric suburban services and regional services not interfacing with affected Melbourne Metro lines) are not included.

Table 2-2: Passenger rail service levels with Melbourne Metro program (relevant lines)

Services – Melbourne Metro Day 1 (Day 1 = Modelled 2026)	AM Peak[1] Hour (peak direction)	AM Peak[1] 2-hours (peak direction)	Inter-peak and counter-peak (tphpd)	Typical other off-peak[2] (tphpd)
Sunbury services	6	9	3	3
Watergardens services	9	15	-	-
West Footscray turn-back services)	*3*	*7*	*3*	*3*
Sunshine/Dandenong line from west (suburban services – total separates turn-back services)	15 *(+3)*	24 *(+7)*	3 *(+3)*	3 *(+3)*
Bendigo Line (V/Line diesel service) Total, inclusive services originating from Swan Hill, Echuca, Epsom, Eaglehawk, Bendigo and Kyneton	3	5	1	1
Pakenham services	10	17	3	3
Cranbourne services	6	12	3	3
Dandenong services	3	3	-	-
Westall services	-	3	-	-
Sunshine/Dandenong line from east (suburban services)	19	35	6	6
Traralgon Line (V/Line diesel service) Total, inclusive services Bairnsdale and Traralgon	2	4	1	1
Frankston services	10	16	6	3
Carrum services	4	5	-	-
Mordialloc / Cheltenham service	3	9	-	-
Frankston Loop line (suburban services – total)	17	30	6	3
Craigieburn services	10	19	6	3
Broadmeadows or additional Craigieburn services	2	3	-	-
Essendon services	4	6	-	-
Upfield services	3	6	3	3
Gowrie or additional Upfield service	3	6	3	-
Northern Loop (suburban services – total)	22	40	12	6
Seymour Line (V/Line operated diesel services)	2	3	1	1
Werribee services	13	22	3	-
Werribee via Altona services	-	-	-	3
Laverton via Altona services	4	7	3	-
Williamstown services	3	7	3	3
Cross-City line from west (suburban services)	20	36	9	6
Sandringham services	9	15	6	3
Middle Brighton services	3	6	-	-
South Yarra towards Flinders Street service	*4*	*8*	*3*	*3*
Cross-City line from east (suburban services – total separates turn-back services)	12 *(+4)*	21 *(+8)*	6 *(+3)*	3 *(+3)*

[1] Service levels are shown for the morning peak train numbers, similar numbers would apply in the PM peak.
[2] Figures shown are generally representative of late evening weekday service, some lines may operate different service levels at other off-peak times (for example early morning weekday, Saturday or Sunday services).

2.5 Unaffected services and lines

In the description of the network structure and service plans in the preceding section, several lines have been identified as ‘unaffected’. The expectation is that the Melbourne Metro program should not significantly impact or constrain development of lines, and this expectation is further described in this section.

Omission of change proposals for these ‘unaffected lines’ as part of this document does not reflect a recommendation or intent to abstain from concurrent development or investment in improvement of these lines.

2.5.1 Metropolitan train operations on Clifton Hill and Burnley groups

The Melbourne Metro program is not expected to significantly impact the infrastructure or operations associated with the Clifton Hill loop, Burnley loop or Burnley direct services. These lines have been described as ‘unaffected lines’ as the planning and development of these lines can be undertaken with limited interface to works proposed for Melbourne Metro; and it is therefore expected that development planning for these lines can be pursued with limited impact on the Melbourne Metro program.

Notwithstanding the above, PTV will remain responsible for ensuring that service plans and rolling stock cascades for the network are integrated and coordinated across all lines prior to implementation.

2.5.2 Regional train operations operating on RRL

The Melbourne Metro program is also not expected to significantly impact the infrastructure or operations associated with the Regional train network, except to the extent interactions of Bendigo and Traralgon line services with metropolitan train operations in shared track sections between Sunbury and Sunshine and Southern Cross and Pakenham East (respectively) and Seymour services on the Craigieburn line. In these sections the Melbourne Metro service plans have been designed to protect current service levels and similar arrival times on these lines

It is expected that the Melbourne Metro Project will not significantly change operations of the Regional Rail Link trunk or regional network outside these sections.

Other projects may separately alter and increase service levels on the regional corridors prior to Melbourne Metro, for example initiatives identified in the forthcoming Regional Network Development Plan. PTV will ensure that any project that alters service plans on the affected regional lines will be integrated with service plans developed for the Melbourne Metro project.

2.5.3 Freight and ancillary rail operations

Melbourne Metro should not negatively impact freight services on any surface network route already supporting their operation, and will provide some additional flexibility to staging of trains between South Yarra and Flinders Street station to assist management of pathing constraints for freight trains operating across the city.

However, due to the changes and increases to passenger train operations at both peak and off-peak times, it is acknowledged that some freight services scheduled during the inter-peak may need to be re-timed.

3 Extended Program service proposal

3.1 Context

The Melbourne Metro program business case identified a series of subsequent investments with benefits substantially relying on 'future-proofing' elements on the Melbourne Metro design.

An 'Extended Program' including a range of these investments to enable the operations and passenger catchment of the Sunshine-Dandenong line to be expanded was therefore included in the business case to demonstrate the longer-term benefits of the Melbourne Metro investment. These subsequent investments, and associated benefits expected, include:

- substantial increase in capacity and service provision to the growth area west of Sunshine through amplification and electrification of the rail line to Melton, to enable:
  - a high-frequency, high-capacity suburban service to be provided to this growth area; and
  - improved and maintained separation of suburban and regional trains operating on the Regional Rail Link corridor to improve capacity and reliability of regional services on the Bendigo, Ballarat and Geelong corridors.
- introduction of Extended HCMT[3] across the corridor to accommodate rapid growth forecast for the growth areas east of Dandenong and west along the Sunbury and Melton corridors.

It is critical to note the Extended Program does not represent a recommendation to limit development of the future network and should not constrain Government from making further improvements to the Public Transport Network. The Extended Program and service plans within this section have been specifically developed to demonstrate the flexibility and capability of the core infrastructure proposed for delivery by Melbourne Metro to support future development of the Sunshine – Dandenong line only.

3.2 Objectives of the service plan

The Melbourne Metro Business Case describes a range of outcomes associated with the Extended Program including:

- increase both seating and overall capacity provided on each service through introduction of Extended HCMT across the Sunshine – Dandenong corridor to accommodate rapid growth forecast;
- extended metropolitan services to Melton to service the growth area extending west from Sunshine to relieve congestion and improve reliability of regional trains serving the Ballarat and Geelong corridors; and
- provide further uplift in peak service appropriate to meet the demands of existing branches operating as part of the Sunshine – Dandenong line.

[3] Extended HCMT refers to an extended high capacity metro train design developed as part of the HCMT procurement. These trains are expected to cater for over 42% more passengers than the Day 1 HCMT design through addition of intermediate carriages – resulting in a longer train.

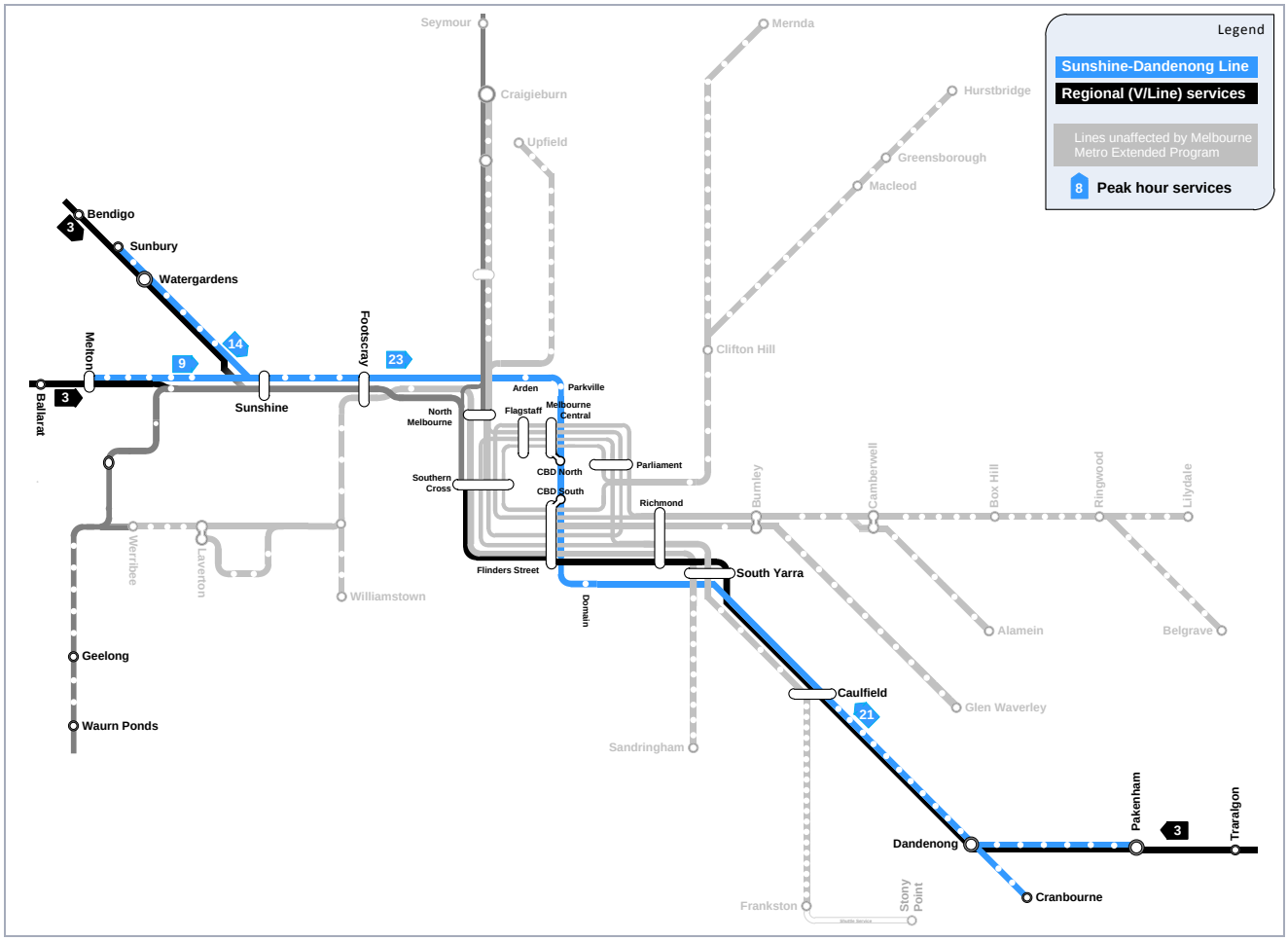
To support this outcome, the following subsequent investments are expected to be required:

- Provision of an additional track pair between Sunshine and Deer Park for dedicated use by regional services operating on the RRL trunk.
- Electrification of a track pair between Sunshine and Deer Park, providing platforms suitable for Extended HCMT operation at all existing stations in this section.
- Provision of a grade-separated junction enabling electric services to operate on the newly electrified track pair west from Sunshine to merge into the Sunshine Dandenong line on the Down side of Sunshine station (continuing to/from the CBD) without facing conflicts with any other services.
- Duplication and electrification of the track pair between Deer Park and Melton, with provision of Extended HCMT stabling and a turn-back facility at Melton for electric services.
- Provision of an at-grade junction between the RRL and electrified track pair on the Down side of Deer Park, to enable regional services operating on the Ballarat line to merge with suburban services to Melton.
- Expansion of the number of HCMT trains dedicated to operation of the corridor and lengthening of some trains to provide a mix of Standard and Extended HCMT trains.
- Upgrade to any surface stations, stabling, maintenance or traction power systems on the Sunshine Dandenong line not already supporting Extended HCMT operation at MM Day-1.
- Upgrades in the regional area to accommodate growth and changes to regional paths.

3.3 Proposed Sunshine – Dandenong Line structure (Extended Program)

The Extended Program is expected to be otherwise independent of development plans for metropolitan and regional lines outside the Sunshine – Dandenong corridor as shown in Figure 3-1. Subsequently, implementation of the Extended Program would not require major reconfiguration of the network.

Figure 3-1- Metropolitan rail network with Extended Program



3.4 Service levels proposed for affected line

The number of passenger services proposed to be operating on the corridor under the Extended Program is described below. It is expected by the early 2030s that Extended HCMT operation would have been at least partially implemented on the corridor (with a mix of Standard HCMT and Extended HCMT operating on all branches of the Sunshine-Dandenong line).

Frequencies for lines not interfacing with the Sunshine-Dandenong line are not described, as these lines are treated as unaffected for the purpose of the Extended Program.

Table 3-1: Service levels assumed for the Sunshine-Dandenong line by 2031.

Services – peak period	AM Peak[4] Hour (peak direction)	AM Peak[4] 2-hours (peak direction)	Inter-peak and counter-peak (tphpd)	Typical other off-peak[5] (tphpd)
Pakenham service	9	17	3	3
Cranbourne service	6	12	3	3
Dandenong service	6	6	-	-
Westall service	-	2	-	-
Total suburban from East	**21**	**37**	**6**	**6**
V/Line express services to/from beyond Pakenham (share corridor Pakenham – South Yarra)	**3**	**6**	**1 1/2**	**1 1/2**
Sunbury services	6	9	3	3
Watergardens services	8	14	-	-
Melton services	9	15	3	3
Total suburban from West	**23**	**38**	**6**	**6**
V/Line express services to/from beyond Sunbury (share corridor Sunbury – Sunshine only)	**3**	**6**	**1 1/2**	**1 1/2**
V/Line express services to/from beyond Melton (share corridor Melton – Deer Park only)	3	6	1 1/2	1 1/2

3.5 Unaffected services and lines

In the description of the network structure and service plans in the preceding section, all lines other than the Sunshine – Dandenong line have been nominated as 'unaffected'. This assumption has been made to align with the scenario objective of demonstrating the benefit associated with design features specifically future-proofing to preserve and enable future development of the Sunshine – Dandenong line; and reflects the expectation that these Extended Program investments would not significantly impact or constrain development of these lines.

Omission of change proposals for these 'unaffected lines' as part of this document does not reflect a recommendation or intent to abstain from concurrent development or investment in improvement of these lines.

[4] Service levels are shown for the morning peak train numbers, similar numbers would apply in the PM peak.
[5] Figures shown are generally representative of late evening weekday service, some lines may operate different service levels at other off-peak times (for example early morning weekday, Saturday or Sunday services).

4 Glossary of abbreviations and special terms

Abbreviation / term	Explanation
CBD	Central Business District
Down (direction)	Away from the CBD station nominated as the central station for the service or line (generally Flinders Street, CBD South or Southern Cross)
HCMT	High Capacity Metro Train
RRL	Regional Rail Link
Up (direction)	Towards the CBD station nominated as the central station for the service or line (generally Flinders Street, CBD South or Southern Cross)
PTV	Public Transport Victoria
tphpd	trains per hour per direction