THE MELBOURNE PUBLIC TRANSPORT PLAN 2030-2060

SUMMARY REPORT

Public Transport for a city of 9 million

RAIL FUTURES INSTITUTE INC.
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WHAT IS THE *MELBOURNE PUBLIC TRANSPORT PLAN?*

The Melbourne Public Transport Plan is a blueprint for the next 30 years of all modes of Melbourne public transport.

The challenges of population growth require fundamental shifts in strategic transport policy and serious integration of transport and land use planning.

Public transport services have increased in recent years but population growth has been faster.

Improved public transport as part of an integrated transport policy can play a very significant role in the growth and development of Melbourne, **consistent with the objectives of the State Government's *Plan for Victoria*** and the ***Transport Integration Act*.**

The ***Melbourne Public Transport Plan*** presents a strategy for all public transport modes within the context of a fully integrated multi-modal transport system for the future.

It shows how such development, through service enhancement and phased investment, can significantly reduce Melbourne's massive car dependency and benefit the city's liveability, economic performance, social fabric and environmental sustainability.

These outcomes also require other complementary policies and programs. In particular, Government needs to take a strong strategic lead in planning policy; and new mechanisms found for funding public transport.

The ***Melbourne Public Transport Plan*** seeks to strike the right balance between ambitious and conservative approaches.

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This plan has been prepared by Rail Futures Institute Inc. in the public interest. Rail Futures Inc. is an independent non-partisan group formed to advocate cost effective rail and intermodal solutions for public transport and freight based on sound commercial, economic and social reasoning. Rail Futures members include experienced rail professionals, engineers and economists.

Foreword

Melbourne stands at a pivotal point in its development. Over the coming decades, the city is expected to grow to around nine million people, bringing both significant opportunities and substantial challenges. How we plan for that growth will shape Melbourne's economic prosperity, environmental sustainability and quality of life for generations to come.

The Rail Futures Institute (RFI) believes that high-quality public transport must play a central role in that future. It is therefore our pleasure to present the **Melbourne Public Transport Plan 2030–2060 (MPTP)**, the latest in a series of RFI publications examining the long-term development of transport across Greater Melbourne and Regional Victoria.

RFI is a self-funded, non-partisan organisation of rail professionals, engineers, urban planners and economists committed to advancing public transport solutions in the public interest. Independent of government and corporate interests, we seek to contribute informed analysis and practical ideas to the transport policy debate.

The MPTP builds on our 2019 **Melbourne Rail Plan 2020–2050**. Since that report was published, Melbourne has experienced the impacts of the COVID-19 pandemic, accelerated population growth, increasing climate pressures and heightened concerns around energy security. In 2024, RFI (with the Town and Country Planning Association Inc.) published **Growing Victoria's Regions**, a plan to re-balance Victoria's population by targeted growth of regional cities and parallel upgrading of the regional rail passenger network. In 2025, the Victorian Government released **Plan for Victoria**, a long-term plan for all the state Together, these developments have reinforced the need for a more integrated and resilient transport system.

Major investments are already transforming Melbourne's transport network through the Government's Big Build program. However, infrastructure projects alone do not constitute a transport strategy. Long-term success requires a clear and integrated vision linking transport planning, land use planning and broader economic, social and environmental objectives, consistent with the intent of Victoria's Transport Integration Act and strategic planning framework.

This report presents RFI's vision for a multimodal public transport network that integrates heavy rail, light metros, tram and bus services into a connected and efficient grid. Through staged and carefully prioritised investment, Melbourne can significantly reduce car dependency while improving accessibility, productivity, liveability and environmental outcomes.

The plan recognises the financial and resource constraints under which governments operate and proposes a realistic pathway for implementation over the next three decades. Nevertheless, the scale of investment required will be significant and will demand innovative approaches to funding and delivery.

No long-term plan can claim to provide all the answers. Cities evolve, technologies change and new challenges emerge. Effective planning must therefore be an ongoing process of review, adaptation and improvement. RFI remains committed to contributing to that process through continued research, analysis and advocacy.

We offer this Summary Report as a constructive contribution to the discussion about Melbourne's future and how Victoria can best respond to the challenges of growth, congestion, climate change and mobility. We welcome feedback and encourage those who share our interest in shaping a sustainable transport future to engage with our work and join Rail Futures. A more detailed version of this report will soon be available on our website. A membership application can also be completed from there – *www.railfutures.org.au.*

John Hearsch OAM
President, Rail Futures Institute
August 2026

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Executive Summary

Towards a World Class Public Transport System
This paper proposes how Melbourne's public transport can support the growth of Melbourne's metropolitan area to a population of about nine million over the next 30 years. A well-implemented public transport system will play a vital role in the liveability of our city. Public transport's share of all journeys must increase or car use will keep rising, worsening congestion that threatens to make our city unworkable, particularly in new growth areas.

The best public transport systems knit together different modes and routes into a comprehensive network. No single mode can fulfill the coverage, capacity and speed requirements in a city as large and dispersed as Melbourne. Therefore, our existing train, tram and bus services must be weaved together to form an integrated multi-modal network with more connection points between frequent routes. This requires upgrades and expansion of all modes.

Public transport is not keeping up with growth
Melbourne compares poorly with many other international cities which have much greater public transport mode shares. Over the last 60 years or so, Melbourne's growth has been shaped by cars. Rapid suburban development has outpaced the construction of new train stations with large coverage gaps emerging. Outer suburbs house about 45% of Melbourne's population, but only 24% of its population lives within 800m of a station. This contrasts with 88% within inner suburbs and 54% in middle suburbs. Seven-day frequent bus service is largely confined to a few routes in established suburbs while lag time for changes can stretch to many years, even for basic 'minimum standards' bus routes in growth areas.

The Vision: An integrated multi-modal network
Our vision is to create a network of rail transit services that provide frequent, rapid, low emission services across Melbourne's urban footprint, supplemented by bus and tram services that provide convenient local and regional connectivity across all suburbs. It will provide fast and convenient connectivity to activity and employment centres across Melbourne. This will increase access to jobs, health services and education and boost productivity and liveability, with the greatest proportional gains enjoyed by those in middle and outer suburbs.

Convert Heavy Rail to frequent Metro-style services
The objective is to convert the suburban Heavy Rail network into a fast and frequent transit network that will stimulate more intense development at key nodes across Melbourne. This transit network will become the transport backbone for Melbourne, encouraging more intense development in major activity centres. Several major projects will transform much of Melbourne's Heavy Rail network from its traditional radial configuration and City Loop circuit into a series of major cross-city mass transit corridors. Associated with this strategy will be selected extensions of existing metropolitan lines and/or electrification of inner parts of regional lines to service designated metropolitan growth areas and overcome the existing deficiencies in access to effective public transport.

Add new Light Metro routes
Light Metros are rail-based, automated, fast and fully grade-separated transit systems of medium capacity, bridging the gap between street-running trams and high-capacity, Heavy Rail Metro systems. Three Light Metro route networks are proposed – a modified Suburban Rail Loop, Western and South-East Networks. These will join the middle and outer city and connect with the Heavy Rail system to create a joined up and integrated city system.

Enhance the performance of Trams
Melbourne's trams are integral to the city's identity and sustainable urban mobility. We aim to move beyond Melbourne's tram legacy to propose how this highly valuable asset should be modernised and expanded in the context of Melbourne's expected growth trajectory. When implemented, these proposals will improve the productivity of tram infrastructure, tram fleet and personnel, especially within the CBD and Inner Area.

Provide more frequent, more comfortable, better connected buses
Melbourne has an extensive bus network, covering more of its population than either trains or trams but its usage is much lower than its potential. It has historically been the poor cousin of the transport network, lacking both the frequency of trams and the recent infrastructure investments of rail. Improved buses can effectively feed rail services, aid access to local destinations and enable non-radial trips rarely possible by train or tram. We propose a tiered hierarchy of service levels appropriate for a route's purpose and to optimise connectivity with trains, trams and other buses.

Implementation
A funded and staged service improvement program will be an initial priority. This will have the network's assets being worked harder to deliver higher all week frequencies and improve efficiencies by streamlining rail timetables and implementing reformed bus networks. This will deliver simpler, more direct routes, harmonised frequencies and more consistent connections. Next will be creation of an integrated multi-modal network through staged implementation of new infrastructure and further service upgrades that build on the existing train, tram and bus networks plus new Light Metro routes, the aim being a connected network that maximises the proportion of Melburnians close to frequent service.

1. Towards a World Class Public Transport System

This paper proposes how Melbourne's public transport can support the growth of Melbourne's metropolitan area to a population of about nine million over the next 30 years – comparable with that of London (UK) today. A well-implemented public transport system plays a vital role in the liveability of our city. Public transport enhances mobility by providing an efficient, affordable alternative to private car use. It enables large numbers of people to move without creating the mass congestion that reduces both productivity and liveability. Effective public transport gives people of all ages and income levels access to jobs, education, and healthcare and fosters a more inclusive and connected city. It also increases our resilience to international political events such as fuel shortages.

Public transport's share of all journeys must increase or car use will keep rising, worsening congestion that threatens to make our city unworkable. Thus a comprehensive approach to invest in public transport is needed to support growth and maintain a liveable city.

In providing a comprehensive public transport plan, this paper reinforces the need for a Transport Plan for all of Victoria, a key requirement of the Transport Integration Act 2010 (TIA). Its premise is that investment in public transport services and infrastructure provides a framework for the growth and economic development of cities and regions.

Transformational infrastructure projects plus substantial service improvements shape cities and regions by delivering connectivity outcomes that lead to wider economic benefits for the community. These wider economic benefits influence people's decisions, which shapes the footprint of a city and the way its economy operates.

Public transport and land use planning are inter-dependent – public transport is needed where people live, and people prefer to live where there is public transport. Therefore, our future public transport system should cover all communities within Melbourne, enabling quick and easy access across the city and suburbs and providing fast and convenient connections between Melbourne and regional areas.

This paper develops a vision of a future integrated multi-modal transport system for Melbourne which identifies how transport options can support sustainable growth in locations where people want to live.

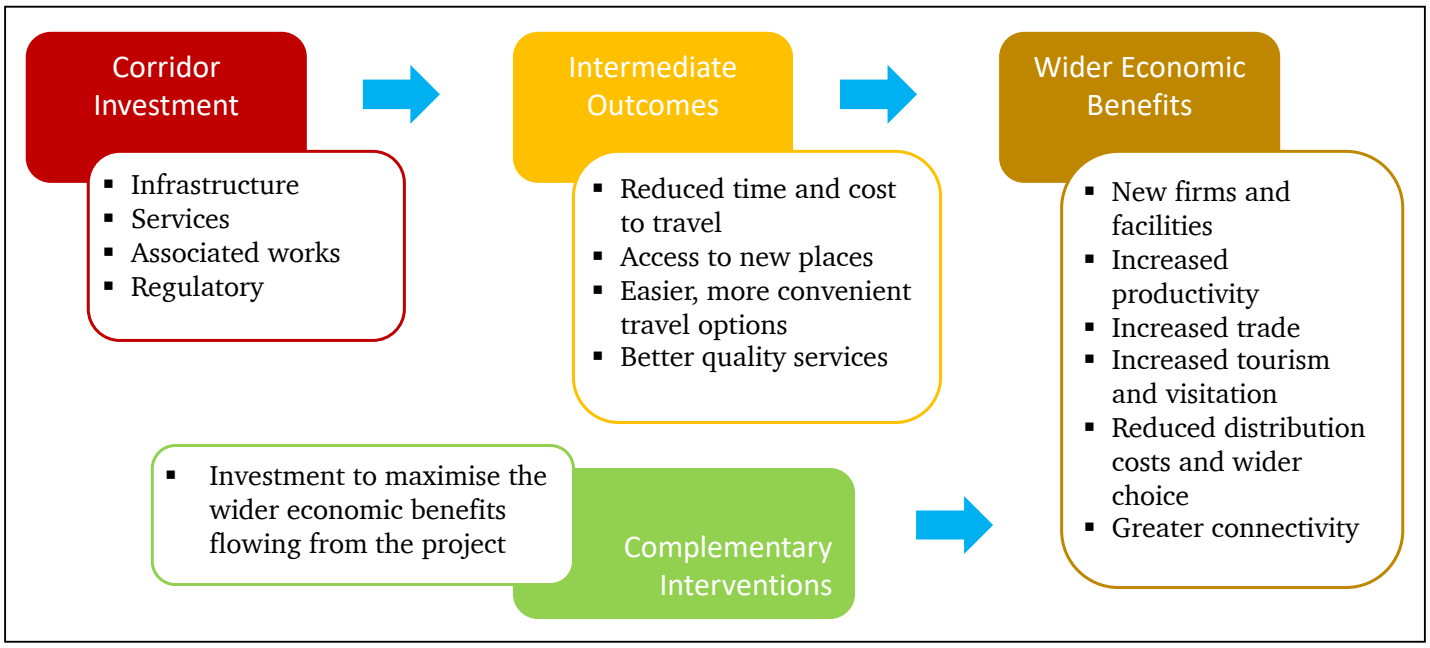


Figure 1: Investment in transport services shapes where people live and work

2. The Challenge: Public transport is not keeping up with growth

2.1 Melbourne's growth and its transport system
Melbourne's growth has been shaped by cars.60 years ago, roughly 90% of Melburnians lived in the inner and middle suburbs within 16 km of the CBD, where public transport had a substantial mode share. However, over the decades since, with increasing suburban development and sprawl driven by higher car ownership, public transport investment has been largely displaced in favour of road investment[1].

Planning for Melbourne's growth
Plan for Victoria (February 2025) describes the Victorian Government's settlement plan for Victoria based on the need to accommodate over 2.2 million new homes by 2051 (over 1.7 million in Melbourne).

The plan focuses on planning for more homes in and around activity centres well-connected to the public transport network, particularly around train stations and tram stops.

Its transport strategies and actions are linked to providing equitable and fair access to employment opportunities, education and other services and its outcomes seek to *"reduce commute times and congestion while improving your wellbeing and quality of life by expanding and modernising public transport networks, including trains, trams and buses and supporting active transport: walking and cycling paths"* [2]. Apart from the Outer Metropolitan Transport Corridor, Suburban Rail Loop and potential future airport and port developments, there are no specific new transport infrastructure projects proposed for metropolitan Melbourne by 2051.

Trains
The usefulness of trains depends not on just where they go, but also how often they run, especially whether frequent service exists only in the commuter peaks or continues all week.

Rapid suburban development has outpaced the reach of the suburban electrified network and construction of new train stations with large coverage gaps emerging. Outer suburbs house about 45% of Melbourne's population, but only 24% of its population lives within 800m of a station. This contrasts with 88% within inner suburbs and 54% in middle suburbs.

Melbourne has widely varying service frequencies across its Metro lines, with political will rather than infrastructure constraints being the decisive factor on most lines, particularly when compared to services in Perth and Sydney.

Melbourne's train network operates with 5 to 10 minute weekday peak hour frequencies on its major lines. However, service typically falls off sharply outside the peaks with all lines having 20, 30 and sometimes 40 minute maximum waits. Stations served by two lines typically have shorter maximum waits though only a single corridor (West Footscray to Dandenong via the Metro Tunnel) can claim a frequent service first train to last.

There also remain substantial variations in off-peak service levels between similarly used lines with Craigieburn line stations typically having double the intervals (20 minutes during the day) of Frankston line stations (every 10 minutes).

Perth's train network has seen a massive renaissance since the 1990s to become one of the most technologically advanced electrified networks in the country. It operates over 8 lines with comparable peak frequencies to Melbourne. Off-peak service is generally higher with all stations receiving trains every 15 minutes or better seven days until approximately 8pm after which a 30 minute service applies.

Sydney's trains operate on a "turn-up-and-go" basis on most of its 9 commuter lines and one Metro line. During peak hours, most inner-city stations see a train every 3 to 10 minutes, while off-peak services generally run every 15 minutes or better first to last. Its extensive commuter network and the modern Sydney Metro driverless rapid transit system continue to expand.

Trams
Melbourne's trams remain integral to the city's identity and sustainable urban mobility. The tram network is 250 kilometres in total length, predominantly serving inner and middle suburbs. Compared to other (newer) Australian and overseas systems, around 80% of Melbourne's tram network operates 'on street' on arterial and local roads, resulting in the average operating speeds being relatively low, around 16 km/h, and even as low as 6 km/h through shopping strips. The current shared traffic situation results in everyone losing - motorists are delayed, tram passengers are delayed.

Buses
Melbourne's bus network is extensive and reaches a large proportion of its population. However, these bus routes evolved incrementally over the years, meaning many lack a clear purpose or distinct travel need. They become overly complex and that deters potential bus passengers. Many people use buses to connect to trains or other bus services, and it can be frustrating when these services don't connect.

Buses can have long wait times with 30, 40 and 60 minute gaps common especially on weekends, even on major routes in densely populated areas. Seven day frequent bus service is largely confined to a few routes in established suburbs while lag times even for basic 'minimum standards' bus routes in growth areas can stretch to many years.

2.2 We can do better
The global research program, Spatial Network Analysis for Multi-modal Urban Transport Systems (SNAMUTS), examined performance of a city region's current public transport network against a variety of indicators. Across Australasia, analyses have been prepared for Adelaide, Auckland, Brisbane, Melbourne, Perth and Sydney[3].

[1] In 1966, Melbourne's population was over 2.1 million across an urban area of approximately 1,700 km2. The city limits were rapidly expanding eastwards, and urban density remained relatively compact. By 2026, the population surged to about 5.4 million, and the continuously built-up urban land footprint expanded significantly to around 2,500 km2, enclosed by a sprawling Urban Growth Boundary of nearly 10,000 km^2.
[2] Victorian Government, Plan for Victoria (2025), Page 33

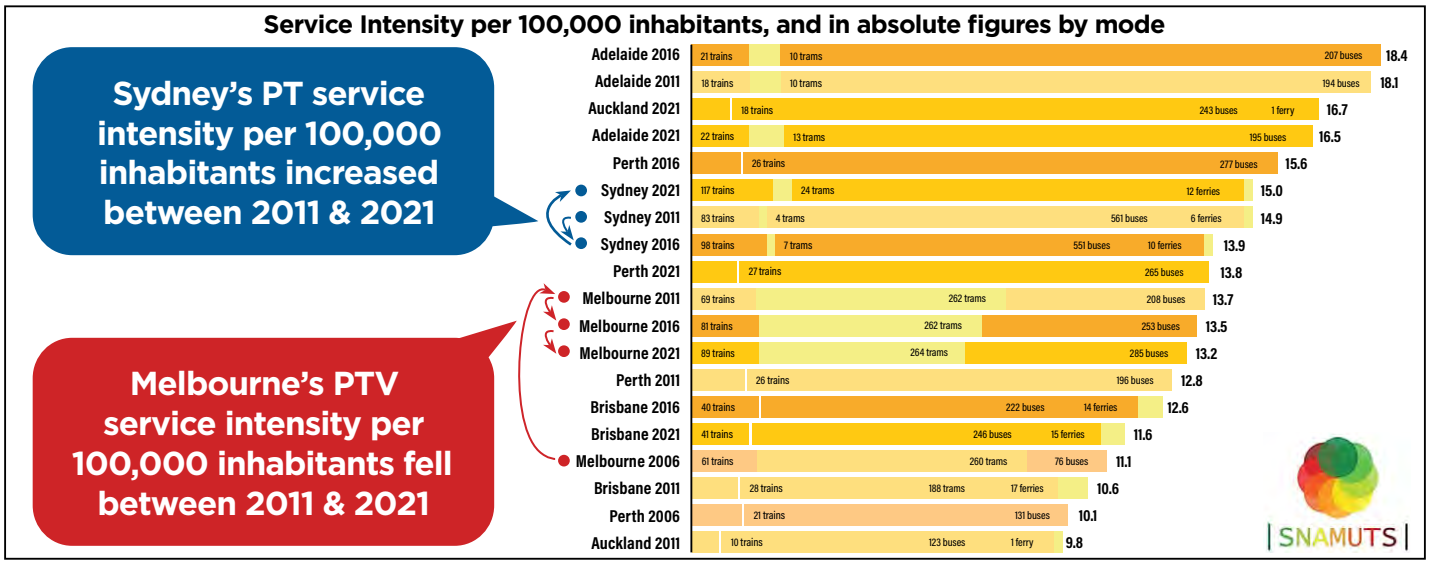


Figure 2: Service Intensity per 100,000 inhabitants, during weekday inter-peak periods

'SNAMUTS'[3] comparisons of service patterns against other cities within Australia and New Zealand show that Melbourne can make better use of its fleet by delivering more intensive service across the entire week, as opposed to current frequent-in-peaks only patterns that characterise many existing timetables. For example, the indicator, Service Intensity, measures operational input required to provide services across the system (i.e. number of vehicles or train sets) per 100,000 residents, in this case, during inter-peak periods.

Figure 2 compares of Service Intensity per 100,000 inhabitants during weekday inter-peak periods by city for 2006, 2011, 2016 and 2021. It also tells a story reflecting urban development density in Melbourne and Sydney.

Melbourne could provide better public transport service with major train, tram and bus frequency upgrades if the government chose to lift service intensity to be comparable to Sydney or Auckland. In most cases these upgrades can be done by working the existing fleet harder.

Melbourne is trailing Sydney, with the gap widening over time. Even before its new metro opened, Sydney massively boosted 7-day train frequency. Melbourne is lagging way behind, especially in the north and west, where public transport investment has not kept up with population growth.

Both cities have policy settings that favour intensification of urban development around key public transport nodes and corridors. Since 2016, Sydney has aggressively promoted medium and higher density development around key public transport nodes beyond Sydney CBD and inner suburbs, and the Greater Parramatta CBD and Bradfield emerging CBD[4].

Until recently, Melbourne has taken a softer approach to encouraging increased density beyond its CBD and inner suburbs/metropolitan activity centres. While there has been some modest density increases in other metropolitan activity centres, these have been far outweighed by extensive areas of low density development in the outer suburban growth areas. **Plan for Victoria** outlined Future Housing and Activity Centre Program initiatives across Victoria. It remains to be seen as to whether those for Melbourne will assist in reversing the downward trends in its public transport service intensity from 2011-2021. The Sydney experience suggests this could well occur.

2.3 Melbourne's future growth needs an integrated (public) transport plan

Melbourne, like other Australian cities, shows high reliance on private motor vehicles compared to Australian and international counterparts (London, Paris, Toronto, Vancouver) which have public transport mode shares much greater than Melbourne.

Public transport's share of all urban travel must increase to manage congestion, reduce pollution, and ensure accessibility as Melbourne grows.

Without a shift to a greater public transport share, increased population growth will lead to a significant rise in car use, worsening traffic delays, and a greater environmental impact. High car use (battery-electric vehicles excepted) also increases oil dependence, contributing to inflationary pressures on living costs. A comprehensive approach to public transport is necessary to support growth while maintaining a liveable city.

Infrastructure Victoria tabled **Victoria's infrastructure strategy 2025-2055**[5] in the Victorian Parliament in November 2025. The strategy contains several recommendations and future options to support Melbourne's public transport network and rail, tram and bus initiatives discussed in this report. In particular;

- Recommendations 8 – 12 address upgrades to the tram, bus and train networks.
- Recommendation 45 addresses the need to plan now for future infrastructure upgrades (including City Loop Reconfiguration, extending and electrifying metropolitan trains to north and south-east growth areas and a future Melbourne Metro 2)

The lack of long-term integrated transport planning and the disconnect between policy and implementation are at odds with the mandated transport system objectives and the transport plan requirements of the TIA[6]. Just as it attempted with **Plan for Victoria**, the Victorian Government now needs to prepare a Transport Plan for all of Victoria, including metropolitan Melbourne.

[3]SNAMUTS is an interactive decision tool designed to assist in examining the performance of a city region's current public transport network framed around the accessibility of the transport network and accessibility of place. It is used as a tool to demonstrate how city planners can find answers as they seek to improve public transport accessibility. https://www.snamuts.com/

3. The Vision: An Integrated Multi-Modal Network

The vision is to create a network of rail transit services that provide frequent, rapid and low emission services across Melbourne's urban footprint, supplemented by a tiered hierarchy of bus and tram services that provide convenient local and regional connectivity across all suburbs. It will provide fast and convenient connectivity to activity and employment centres across Melbourne. This will increase access to jobs, health services and education and boost productivity and liveability, with the greatest proportional gains enjoyed by those in middle and outer suburbs.

3.1 Aim for an integrated multi-modal network

The best public transport systems knit together different modes and routes into a comprehensive network. From a passenger's point of view, the key traits of an integrated system are that it gets you where you want to go, is convenient to use, is available when you need it, and is fast enough to get you there in reasonable time compared with car travel.

No single mode can fulfill the coverage, capacity and speed requirements in a city as large and dispersed as Melbourne. Therefore, Melbourne has to weave its existing train, tram and bus services together with new Light Metro routes on suitable corridors, to form an integrated multi-modal network with more connection points between frequent routes. This requires upgrades and expansion of all modes to support growth that has occurred, or is occurring, in higher density precincts and new growth areas.

The objective is to create a backbone transit network that provides frequent, rapid services across Melbourne's urban footprint, supplemented by a tiered hierarchy of bus and tram services that provide convenient local and regional connectivity across all of Melbourne's suburbs.

A Metro transit system will shape Melbourne's structure by connecting the CBD, satellite cities and major centres into an integrated grid across Melbourne. The core network will be the suburban rail lines that are progressively upgraded to Heavy Metro Standards, with higher speed and capacity using autonomous technology. This network will be supplemented with new 'Light Metro' transit services to create a grid that extends fast dedicated right of way connections to more parts of the city.

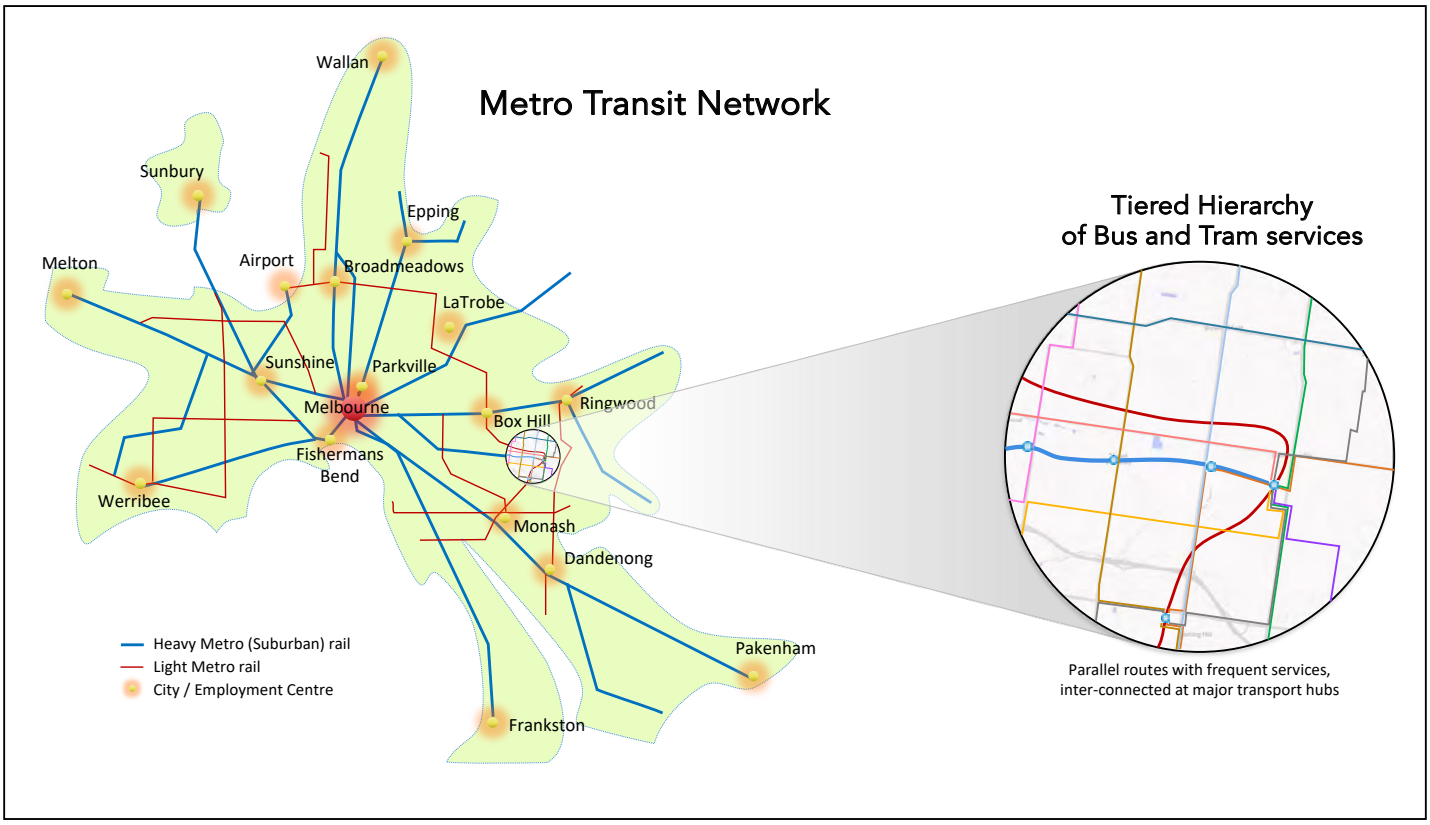


Figure 3: An integrated multi-modal system with many seamless connections

[4] See Greater Sydney Commission, Greater Sydney Region Plan — Metropolis of Three Cities, March 2018 (updated) *https://www.planning.nsw.gov.au/plans-for-your-area/a-metropolis-of-three-cities*; and NSW Department of Planning, Housing and Infrastructure, The Sydney Plan (Draft for public exhibition), December 2025, *https://www.planning.nsw.gov.au/plans-for-your-area/the-sydney-plan* The Greater Sydney Region Plan — Metropolis of Three Cities is the current strategic regional plan for Sydney until it is replaced by the finalised Sydney Plan.

[5] Infrastructure Victoria, Victoria's infrastructure strategy 2025–2055, November 2025. *https://www.infrastructurevictoria.com.au/infrastructure-strategy*

[6] Transport Integration Act 2010: Transport system objectives (sections 7 – 13 inclusive); and Transport plan (section 63)

The tram network already provides good coverage within Melbourne's inner suburbs but, as those suburbs develop at higher densities, the network can be improved with modest route changes and extensions, service upgrades and Disability Discrimination Act 1992 (DDA) compliant infrastructure.

The bus network needs greater reform. The key is to formalise a much expanded top tier with frequent services following simpler and more direct routes, preferably connecting between activity centres, train stations or into growth areas. This network should be supplemented by feeder, local and special-purpose services that provide access from local areas into activity centres, extend coverage into less populous areas of Melbourne, and meet the needs of specific groups. All bus timetables must have harmonised and optimised connections with trains, trams and other bus routes to minimise wait times.

3.2 A backbone of next generation Metro Transit services

Current	Future	Attributes
Suburban trains Radial lines	Core Transit Connecting Transit Grid network	▪ Automated trains ▪ Dedicated tracks ▪ 'Turn up and go' ▪ Extended hours ▪ Easy interchange

A fast transit network will provide rapid access to major activity centres across Melbourne. It will consist of a core network of high capacity, turn-up-and-go "Metro" services that radiate from the CBD to Melbourne's outer edges, plus new, "Light Metro" services to fill gaps in the current suburban rail network. The current suburban network provides a sound base for the core network when converted to Metro Standards to provide the services and capacity needed to support growth across Melbourne.

3.3 Frequent, structured bus and tram networks

Current	Future	Attributes
Infrequent Spaghetti Routes	Regular Structured Services	▪ Hierarchy of services ▪ More frequent services ▪ Regular service pattern ▪ Coordinated timetables

Melbourne also needs to significantly increase frequencies and provide many more convenient connections between services. Trams and buses will continue to provide local connectivity to neighbourhood and major activity centres. The bus network, in particular, needs significant reform and upgrade to provide the connectivity that underpins equity, access to jobs and social cohesion, and therefore Melbourne's liveability.

3.4 High frequency services with many connection points are today's public transport standard

Multimodal network integration is now the standard for public transport planning around the world. European Commission guidelines treat good public transport as a universal right – it guarantees mobility to all, at least public expense. They recognise that a high frequency network is essential to attract people away from the use of private cars. The best networks are simple and easy to understand. They have direct routes with the fastest possible speed and reliable services. Efficient transfers at interchange points are also essential.

This standard requires a transition to a 'supply-oriented' strategy, which recognises that supply is a major inducer of demand in transport. This has two implications: people will travel more if transport options are improved, and improving public transport relative to the private car will lead to mode shift.

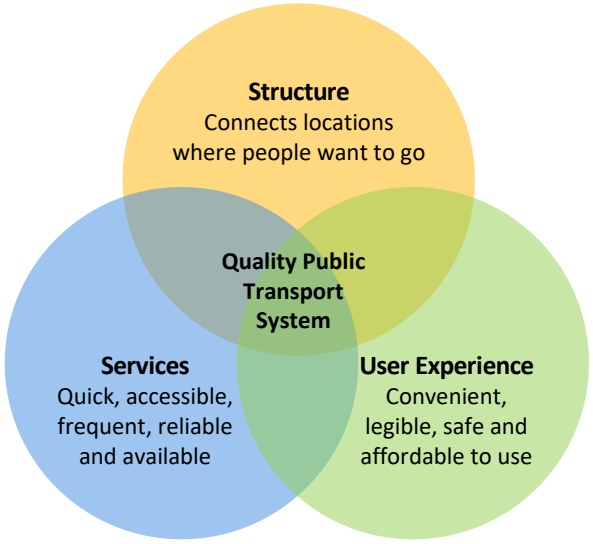


Figure 4: Key elements of best practice transport planning guidelines

This strategy is reflected in European best practice guidelines, which now can be found in planning advice for Asia and the Pacific, including Australia

3.5 Develop a service strategy to support growth

A modern connected multimodal network will have a good geometry of fast and frequent routes with easy connections between them. Coverage from these and local feeder routes will be ubiquitous and available all week. In Melbourne this network will include trains, trams and bus routes that combine to provide faster, more direct and more frequent connections between the CBD and major suburban centres.

3.6 Develop a plan to adopt multi-modal best practice

Future service levels would be taken from a small menu of harmonised frequencies compatible with each route's network role and usage. Harmonisation enables more consistent waiting times including the possibility of timed connections on feeder routes. Such a co-ordination framework would be multi-modal.

Tier 1 services should include all train, tram, heavy and light Metro services plus the main bus lines with direct routing and wider stop spacing. These provide a Frequent Network that would shape land use decisions.

Tier 2 routes would typically be bus services that provide "connector" services with many stops between urban centres. Some rail branches may also be Tier 2.

Tier 3 routes would include local services to provide neighbourhood coverage in between or beyond Frequent Network or connector routes.

Most residents and jobs would be within walking distance of Tier 1 or 2 services. Trips on these services would comprise the vast majority of public transport patronage. However Tier 3 services, similar to existing local bus routes operating to minimum service standards, would cater for certain local trips the higher tiers do not cover.

Integration of lines and modes also requires high quality interchanges developed at all nodes in the network.

Service tier	Max wait	Example modes	Connection style	Network role
Inner	5 min	Automated urban metro lines Overlapping Tier 1 routes	Turn up and go	The network's busiest corridors providing high capacity transit.
Tier 1	10 min	Metro rail (main lines) Light Metro Tram Frequent bus corridors	Harmonised	Major radial and circumferential corridors feeding the CBD and major suburban centres.
Tier 2	20 min	Metro rail (branch lines) Regional rail (inner portions) Connector bus routes	Harmonised and timed	Outer suburban and branch lines travel. Rail feeders and access to local destinations from suburban areas via direct routes.
Tier 3	30-60 min	Regional rail (other portions) Local bus routes	Harmonised and timed	Coverage of less populated areas or destinations beyond or between higher tier routes.

Proposed service frequency hierarchy

4. Convert Heavy Rail to frequent Metro-style services

The overarching objective is to convert the suburban Heavy Rail network into a fast and frequent transit network that will stimulate more intense development at key nodes across Melbourne. This transit network will become the transport backbone for Melbourne, encouraging more intense development in major activity centres. It will also support the continuing growth in the expanded area around Melbourne's CBD and provide essential access for Melbourne's expanding growth areas.

Several major projects will transform much of Melbourne's Heavy Rail network from its traditional radial configuration and City Loop circuit into a series of major cross-city mass transit corridors. Associated with this strategy will be selected extensions of existing metropolitan lines and/or electrification of inner parts of regional lines to service designated metropolitan growth areas and overcome the existing deficiencies in access to effective public transport.

This will also require the progressive adoption of new Metro Standards including autonomous operating systems that will allow closer headways between trains, thus providing greater corridor capacity.

4.1 Upgrade Heavy Rail lines to Metro Standards

The more widely accepted definition of a Metro[7] has certain common characteristics:

- High capacity and frequency
- Entirely separated from other traffic in an exclusive right-of-way. No level crossings
- Has dedicated tracks not shared with freight or other types of trains
- Operates in dense urban areas
- Uses electric traction
- Has designated stations with platform infrastructure, often with fare gates and security.

In this paper, we go further in defining proposed standards for a **Fully Compliant Heavy Rail Metro System** as requiring some additional features:

- High-capacity signalling operated with CBTC[8] or similar "moving block" control system providing the required level of automation[9]. No lineside signalling.
- Automated driverless trains without requiring on-board staff.
- Electric traction system of sufficient capacity to support frequent high-performance trains.

The recently opened Melbourne Metro or MM1 which operates between Sunbury, Pakenham East and Cranbourne is best described as a partially compliant Metro because it has dedicated tracks in the tunnel sections between South Kensington and Hawksburn. Platform screen doors are also provided at the five underground stations in this section. Beyond the tunnels and beyond Sunshine, Metro trains share tracks with regional passenger and freight trains. All level crossings along the entire corridor have been removed.

It also uses CBTC as its signalling and control system between Sunshine and Clayton. Beyond these locations, conventional signalling applies. It also operates under a degree of automation (GoA2)[10] in the tunnel sections.

A second cross-city line (currently known as Melbourne Metro 2 (or MM2) is likely to become Melbourne's first fully compliant Metro corridor, both underground and on surface or elevated sections.

A program to upgrade all other Heavy Rail Metro lines should be progressively implemented to meet these standards. This should include upgrading of complete MM1 corridors to full Metro compliance.

4.2 Convert suburban lines into cross-city services

Transforming much of Melbourne's metropolitan Heavy Rail network into a series of major intersecting cross-city mass transit corridors will facilitate efficient interchange between the Metro lines at key stations within Melbourne's extended CBD. The transformation commenced with the opening of the Metro Tunnel and connecting lines (MM1). Later, construction of MM2 will occur (see Figure 5).

As well as providing rapid access across the network, these projects also reduce the operational complexity of the network and promote its progressive disassembly into standalone operational units. Each of these units becomes self-contained, enabling more efficient train timetabling, fleet allocation, train stabling and maintenance and, to a significant extent, train crew.

In this way, overall network management is simplified and resilience increased because incidents that impact a particular line do not spread into other parts of the network. Intersections with the road network (level crossings) are also being removed which will improve the reliability of services.

[7] UITP (International Association of Public transport) defines metro systems as "an urban electric passenger transport system with high capacity and frequency and grade separation from other traffic".
[8] CBTC (Communications Based Train Control") is a system which uses the "moving block" principle which controls the safe movement of trains and separation between trains by requiring all trains to continuously communicate their status and receive data regarding the location of preceding trains to and from wayside equipment along the line. System scalable to a frequency of 30 or more trains per hour in each direction.
[9] Automation at level GoA4 is required to operate driverless trains without any on-board staff.
[10] Automation at level GoA2 provides partial automation with a driver on board to start the train but only oversee most other train movements including precise stopping to align with platform screen doors.

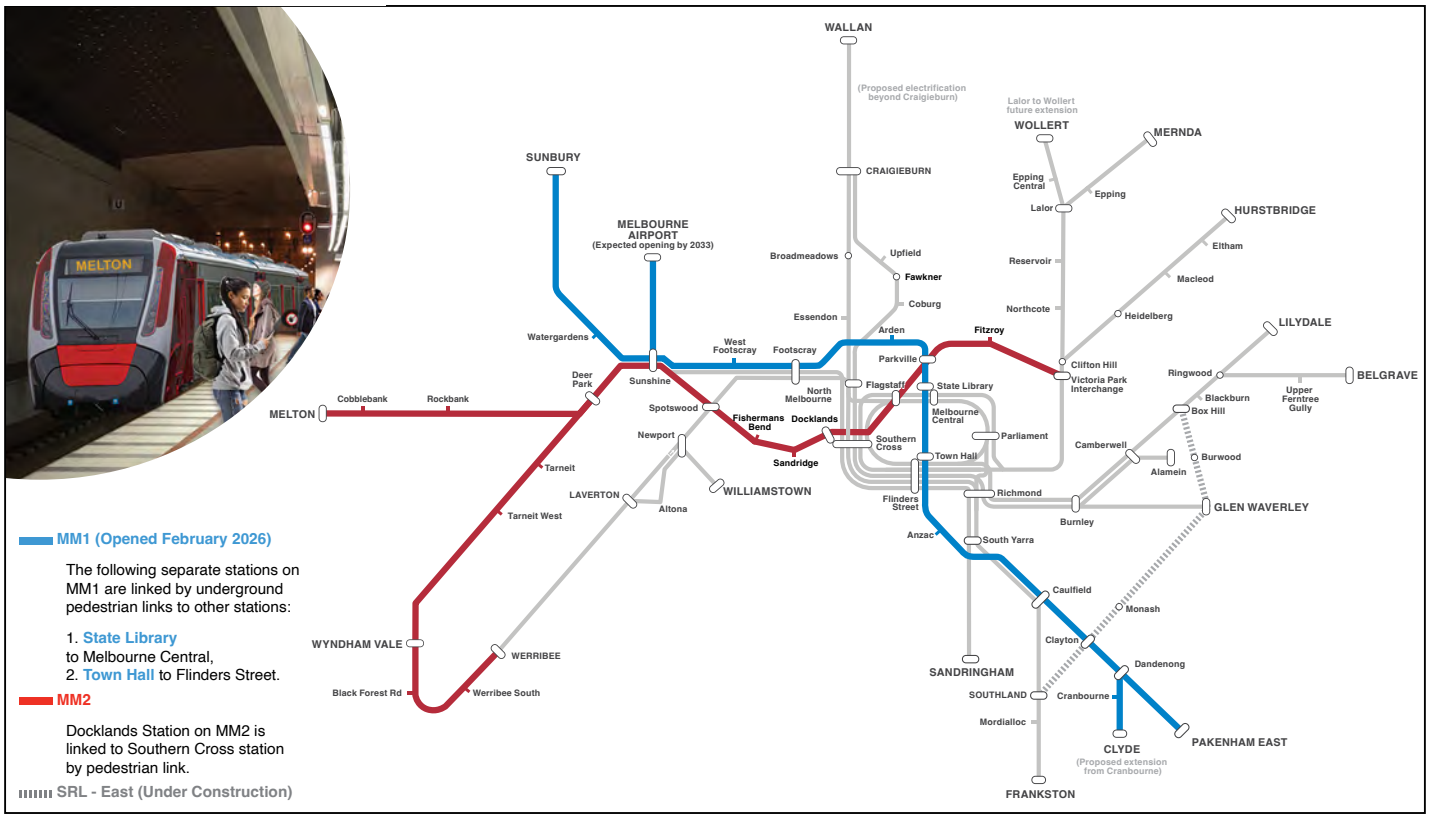


Figure 5: Diagram of MM1 (blue) and MM2 (red) routes

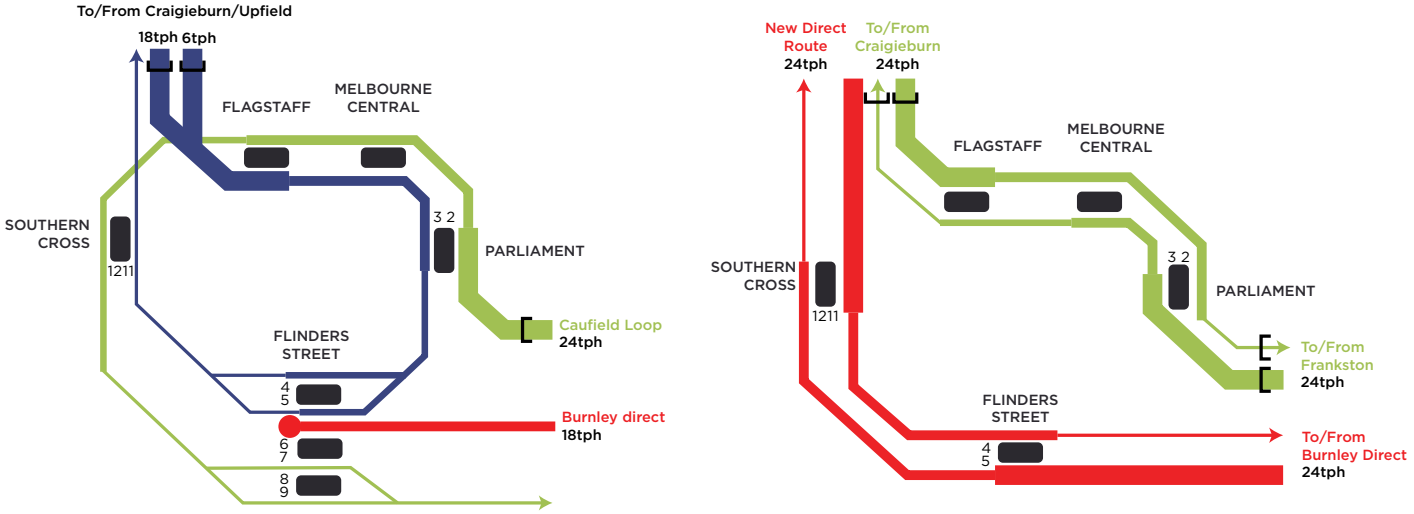
City Loop Reconfiguration

Meanwhile, to progress this transition, City Loop Reconfiguration (CLR) is required. Infrastructure Victoria has identified the need to deliver CLR by mid-2030s[11]. The City Loop has 4 sets of tracks that circle central Melbourne. The northern part of the City Loop is a bottleneck and cannot support many more trains, limiting how often trains run on the Craigieburn and Upfield lines. When completed, only the Craigieburn to Frankston line will be served by the Northern Loop line tunnel.

Similarly, the Burnley Line tunnel which services the Lilydale, Belgrave and Glen Waverley lines is already at capacity. When completed, the Glen Waverley line will no longer use that tunnel enabling more services to run on the other two lines.

This involves construction of around 3 kilometres of new tunnelled connections linking the Caulfield Loop to the Craigieburn line at North Melbourne and linking the Northern Loop to the Frankston line at Richmond, thus forming two opposing direction tunnels passing through Flagstaff, Melbourne Central and Parliament stations. This also releases two viaduct tracks between Southern Cross and Flinders Street enabling an additional cross-city operation linking the Upfield line at North Melbourne to the Glen Waverley line at Richmond.

As a result, City Loop train capacity on two of the four former loops is effectively doubled from a theoretical 24 trains per hour in each direction to 48 trains per hour, as illustrated in Figure 6.



Source: Public Transport Victoria - *Network Development Plan, Metropolitan Rail, December 2012*

Figure 6: Simplified before and after diagram of City Loop Reconfiguration (CLR) concept

[11] Infrastructure Victoria, Victoria's infrastructure strategy 2025–2055, November 2025.Future option: Reconfigure the City Loop for more frequent and reliable trains *https://www.infrastructurevictoria.com.au/infrastructure-strategy/recommendations/reconfigure-the-city-loop-for-more-frequent-and-reliable-trains*

4.3 A core transit network for Melbourne

The staged transition of Melbourne's Heavy Rail network will create five cross-city Metro lines plus two existing City Loop lines. These could be designated as:

Line 1: Sunbury and (in future) Melbourne Airport to Dandenong, Cranbourne (later Clyde) and Pakenham East via Sunshine, Footscray, State Library and Town Hall. (97 km length serving 42 stations).

Line 2: Melton and Werribee (via Wyndham Vale) to Victoria Park via Sunshine, Fishermans Bend, Docklands, Flagstaff, Parkville and Fitzroy (77 km length, serving 24 stations).

Line 3: Laverton (via Altona), Werribee and Williamstown to Sandringham via Footscray, Southern Cross and Flinders Street (42 km length, serving 29 stations)

Line 4: Wallan to Frankston via Essendon, Flagstaff and Parliament (90km length, serving 54 stations).

Line 5: Craigieburn to Glen Waverley (later Knox City) via Upfield, Southern Cross and Flinders Street (47 km length, serving 32 stations)

Line 6: City Loop to Hurstbridge and Mernda (later also Wollert) via Clifton Hill (68 km length, serving 46 stations).

Line 7: City Loop to Ringwood, Lilydale and Belgrave (57 km length, serving 34 stations) (Refer to Light Metro section for proposed Camberwell to Alamein line reconfiguration).

Lines 4 and **5**, above will be activated upon completion of **CLR** and associated works.

Line 2 (formerly **MM2**) will be the largest and most complex of the core transit projects. Covering 77 route km, including 16 km of twin tunnels and 24 stations, 8 of them underground, this project extends from Werribee (via Wyndham Vale) and Melton in Melbourne's west to Victoria Park in the inner suburbs. Priority would be given to its western component from Docklands to

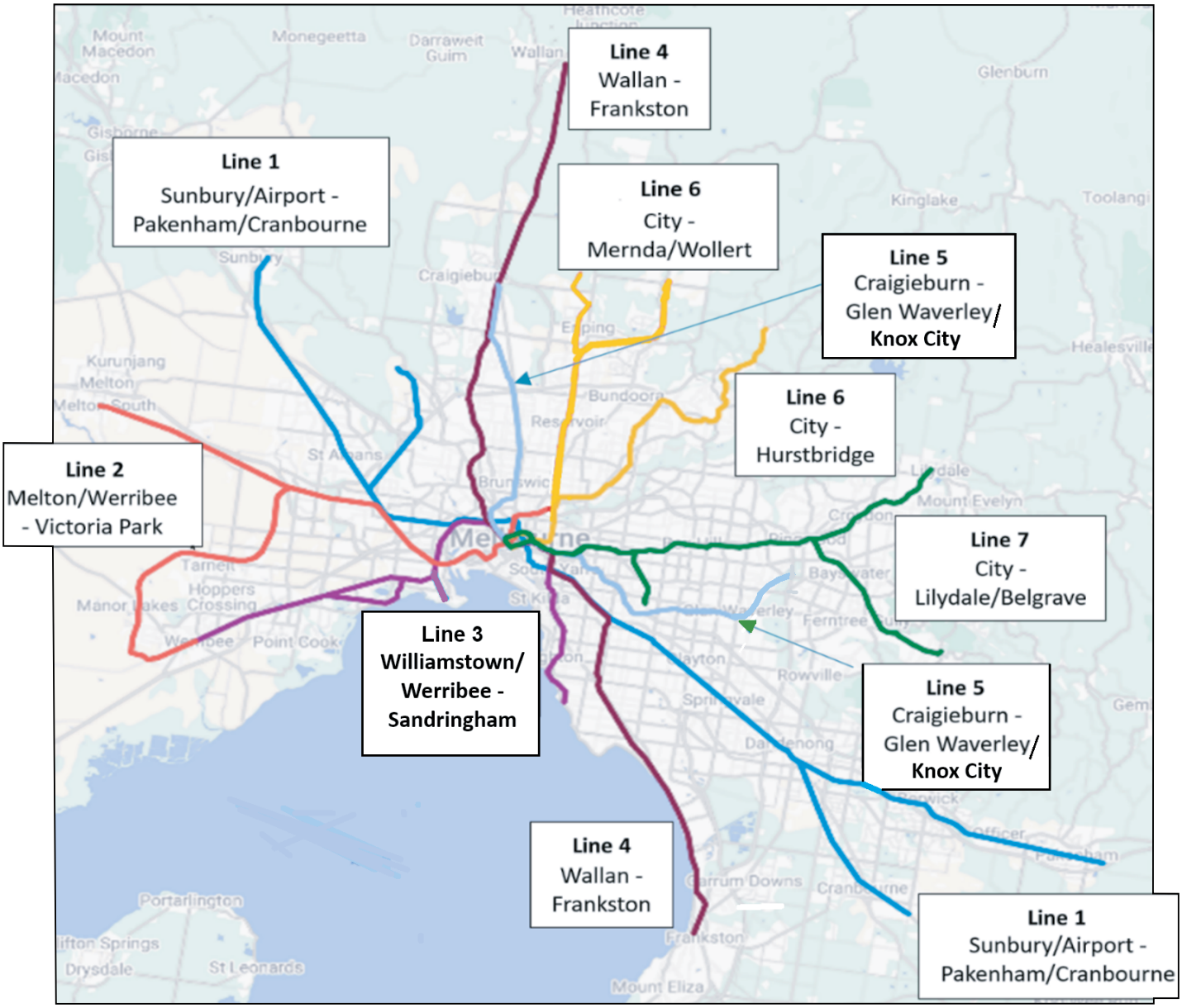


Figure 7: Proposed Heavy Rail Metro core transit network

Sunshine via Fishermans Bend and Spotswood then joining existing and upgraded corridors via Deer Park to Melton and Werribee. Later stages would extend from Docklands to Flagstaff, Parkville, Fitzroy and Victoria Park with provision for future extension to the northern suburbs.

The combination of these major new, existing and reconfigured Heavy Rail corridors will provide high capacity, high frequency connectivity across Melbourne for a wide range of users, in addition to those travelling to the CBD. Journeys from one side of Melbourne to another for employment, education or health purposes will become more straightforward, faster and facilitate counter peak travel.

Multiple rail corridors will also intersect at stations with trams, proposed Light Metro routes and a restructured bus network of trunk, feeder and local services, providing numerous opportunities for passenger interchange. This will provide a wide range of new travel options and local access to areas surrounding those key stations, effectively creating a high-quality public transport grid network, especially in the extended CBD area.

It is proposed that **CLR** and **Line 2** be sequentially implemented because of the extensive planning, approval and construction resource requirements and cost. Proposed sequencing for construction is generally at 4 to 5-year intervals after the secondary **Line 1** link to Melbourne Airport is completed around 2030.

When completed, the core Heavy Rail network for Melbourne will be as shown in Figure 7.

4.4 Provide network extensions and capacity upgrades

Proposed extensions to the metropolitan electrified network are listed below in suggested priority sequence.

Sunshine to Melbourne Airport (Line 1 connecting link)
Branching from the **Line 1** corridor at Sunshine, this new 15km line will be located on the west side and parallel to the existing standard and broad gauge north-east lines. It will cross the Maribyrnong River valley and continue to Steele Creek where it turns north onto a greenfield corridor and enters the median of Airport Drive for 4.8km to an elevated two-platform station near Terminal 4 at Melbourne Airport. An intermediate station will be provided at Keilor East. Melbourne Airport trains will operate as an integral part of the overall **Line 1** corridor.

Cranbourne to Clyde (Line 1 extension)
This project will involve restoration, rebuilding, duplicating and electrifying 5.8km of the former South Gippsland line between Cranbourne and Clyde, grade separation of the South Gippsland Highway level crossing at Cranbourne and associated rebuilding of Cranbourne station. The project will also include a new intermediate station at Cranbourne East. Once operational, the Clyde extension will become an integral part of **Line 1**.

Wyndham Vale to Werribee (Line 2 project)
This project will provide a twin track 10 km connecting link between Wyndham Vale and Werribee including new stations at Black Forest Road and West Werribee. The central part of the new connecting link is a 1.6 km section on greenfield land between the original Werribee – Geelong and Regional Rail Link (RRL) corridors. Land for the connecting link is an approved Public Acquisition Overlay in the City of Wyndham Planning Scheme and later becomes part of the overall **Line 2** corridor. The connection will include construction of a 3.2km double track connection from Black Forest Road to west of Werribee, a new Black Forest Road station at the currently reserved site and a new West Werribee station in the vicinity of Browns Road on the original Geelong line.

Craigieburn to Wallan electrification (Line 4 project)
Installation of electric traction infrastructure extending 21 km from Craigieburn to Wallan is initially needed to allow extension of metro electric services from Craigieburn to Wallan by the early 2030s. Once **CLR** is completed it would form part of the 90 km **Line 4** Wallan-Frankston cross-city line via Essendon. New stations will be added at Cloverton (could be called Kalkallo) and Beveridge plus two additional platforms at Wallan for terminating trains and to facilitate passenger interchange with V/line regional train services.

Upfield to Craigieburn (Line 5 project)
This project will reopen, duplicate and electrify the former freight line between Upfield and Roxburgh Park (otherwise known as Somerton), provide grade separation with the existing ARTC lines at Roxburgh Park and construct additional twin tracks on the west side between Roxburgh Park and Craigieburn, by-passing Roxburgh Park platforms. This will enable Metro trains to operate between the CBD and Craigieburn via either Coburg/Upfield or Essendon/Broadmeadows, initially sufficient to accommodate additional services following extension of electrification from Craigieburn to Wallan. **CLR** will fully separate the **Line 4** and **Line 5** corridors providing greater long term capacity and future proofing to accommodate the massive population growth anticipated in Melbourne's outer north in coming decades.

Lalor to Wollert (Line 6 extension)
This project will provide a grade separated junction on **Line 6** at Lalor leading to a mainly elevated 8 km double track line to Wollert. It will pass over High Street, Deveney Road and local access roads serving the Northern Hospital and Epping Plaza to a new elevated Epping Central Station located immediately south of Cooper Street. Beyond Cooper Street, new elevated island platform stations will be at Epping North, Aurora and Wollert with elevated structures passing over Longford Road, O'Herns Road, Rockfield Street, Gammage Boulevard, Harvest Home Road, Contempo Boulevard and Craigieburn Road. It will then return to grade to cross the High Voltage Transmission Lines easement to a new Wollert terminal station immediately south of the planned Wollert Town Centre.

Melton to Bacchus Marsh electrification (Line 2 future extension)
Extension of electrification of **Line 2** from Melton to Bacchus Marsh would include installation of 25kV AC electric traction infrastructure extending 16km from Melton to Bacchus Marsh and Maddingley stabling sidings and duplication of the single line section

between Telephone Road (west of Melton Reservoir viaduct) and Bacchus Marsh incorporating the existing crossing loop at Parwan. It would also include future proofing for later construction of an additional Melton Reservoir viaduct track, a new station at Parwan and a third platform at Bacchus Marsh for terminating Metro electric trains.

Glen Waverley to Knox City (Line 5 future extension)
The Glen Waverley line will continue to have significant unused capacity. By 2050, it is proposed that **Line 5** will be extended a further 6km in Melbourne's east from Glen Waverley to Knox City, resulting in a 53 km overall corridor from Craigieburn (via Upfield) to Knox City serving at least 35 stations. The Knox City extension will include two sections of underground twin tunnel totalling 5km to extend the line from Glen Waverley to Knox City. It will provide new underground platforms at Glen Waverley, a new intermediate station, major "park and ride" facility, bus interchange and train stabling sidings on the surface at Wantirna South to replace those at Glen Waverley. Knox City would have a new underground terminal station at Knox City Major Activity Centre.

Victoria Park to northern suburbs (Line 2 future extension)
Provision will made for a future extension of **Line 2** beyond Victoria Park to parts of the northern or north-eastern suburbs not currently served by a readily accessible Heavy Rail corridor. This will be future proofed by constructing the Victoria Park underground station at sufficient depth to enable the extension to pass under the Yarra River and Yarra Bend Park on a generally north-eastern trajectory.

Other network capacity upgrades
Duplication of problematic single line sections and junction improvement:

- Gowrie-Upfield (Critical pre-requisite for Upfield to Craigieburn project)
- Mooroolbark – Lilydale
- Ferntree Gully – Upper Ferntree Gully
- Burnley Junction reconfiguration (enables counter peak services on **Line 5** and **Line 7** to be fully segregated). This is a critical prerequisite for City Loop Reconfiguration.

New stations in growth areas
Several new and additional stations will be needed on both existing metropolitan lines and on sections where electrification is to be extended to support rapid residential development in designated growth areas. In some cases, there will be opportunities for multi-purpose developments within or close to station precincts with value capture potential to offset establishment costs.

New station sites have been identified based on criteria including general site suitability, distance from adjoining stations (minimum 2 km, ideally 3 km or greater), extent of potential residential development

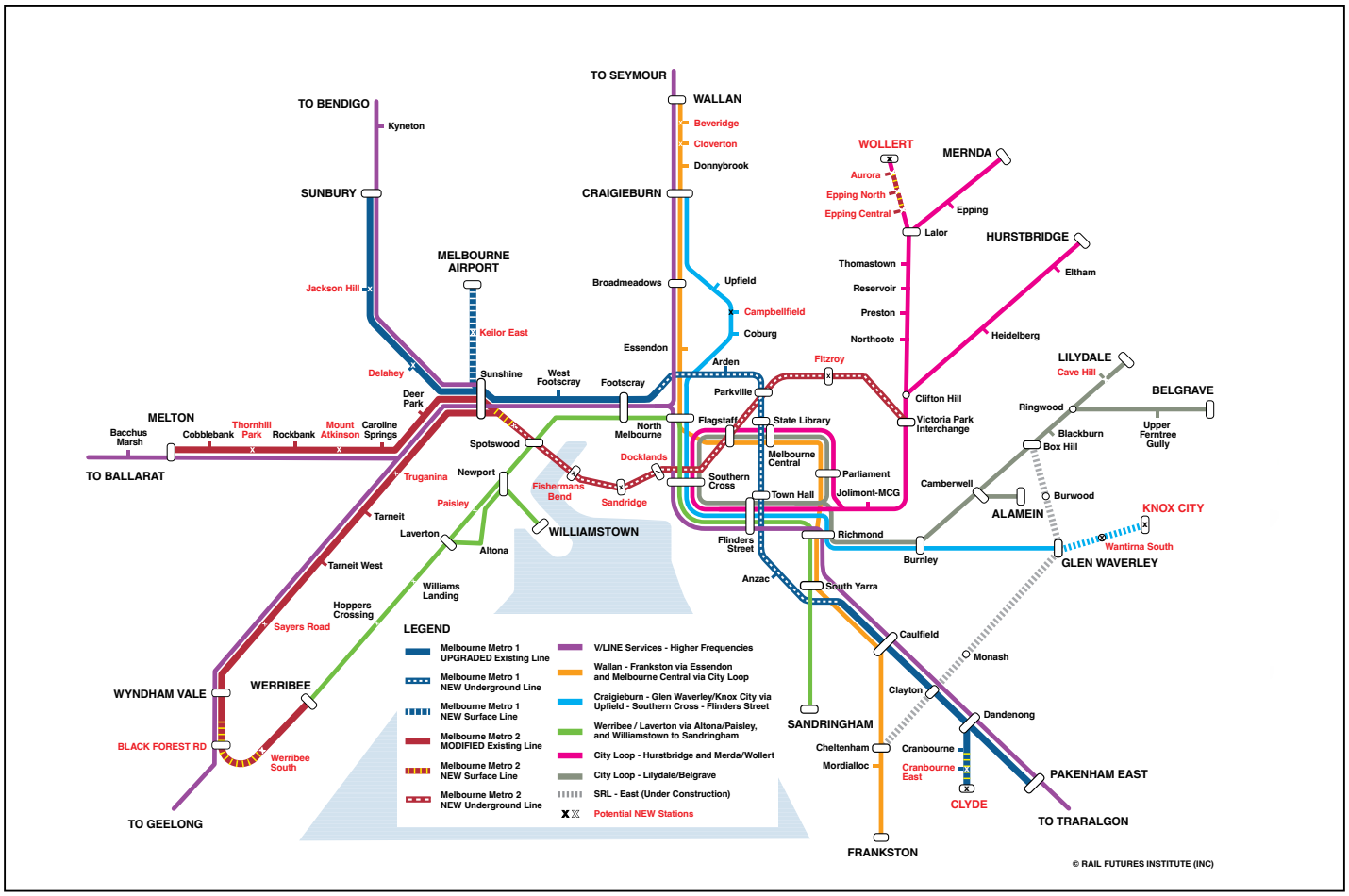


Figure 8: Locations of proposed new stations shown in red

or workplaces within 1 km radius, ease of road access, suitability for bus interchange and land availability for commuter parking.

The locations concerned are depicted in red in Figure 8.

4.5 Separate regional services from metropolitan rail lines

Regional passenger services need to be physically separated from burgeoning metropolitan services to increase overall capacity of both the metropolitan and regional networks, enhance reliability and segregate express from slower stopping services. Each has quite different requirements in relation to stopping conditions, speed and technology and each serves a market with different user expectations.

Where both types of service are forced to use common infrastructure, the outcome has increasingly become sub-optimal as regional trains operate on train paths squeezed between more frequent Metro trains and their differing performance characteristics consume disproportionate levels of scarce track capacity. Regional passengers are increasingly frustrated by very slow journeys through the metropolitan area following Metro trains that mostly stop at all stations.

- Bendigo trains – between Sunshine and Sunbury
- Seymour/Shepparton trains – between Southern Cross and Craigieburn
- Gippsland trains – between Southern Cross and Pakenham East

Geelong and Ballarat trains would also face similar issues with Wyndham Vale and Melton trains when these are electrified. However, the proposed scope of **Line 2** will provide for additional tracks for regional trains to operate independently from metropolitan services. New tracks will also have to be implemented in parts of the **Line 1** Sunshine to Sunbury corridor to separate fast Bendigo regional trains.

Separation of the Seymour corridor from **Line 4** will ultimately occur by converting it and the Shepparton/Tocumwal line to standard gauge in conjunction with capacity enhancement of the existing corridor via Sunshine.

Electrification from Craigieburn to Wallan is a pre-requisite for this work, including new interchange facilities between Metro and regional trains at Wallan.

Future South-East (Gippsland-Geelong) *Fastline*

The recently upgraded Caulfield-Dandenong corridor still only comprises two tracks between South Yarra, Caulfield, Dandenong and Pakenham to accommodate all Regional, Metro and freight services. This Plan proposes completion of the South-East FastLine **(SEFL)** as a separate route from Southern Cross to Dandenong, with intermediate stations only at Flinders Street, Caulfield, Chadstone and Monash, enabling both Gippsland trains and Metro express trains to bypass the busy **Line 1** corridor between the CBD and Dandenong. It will also allow Gippsland trains to overtake stopping **Line 1** trains on a section of bi-directional third track between Dandenong and Pakenham. **SEFL** would carry

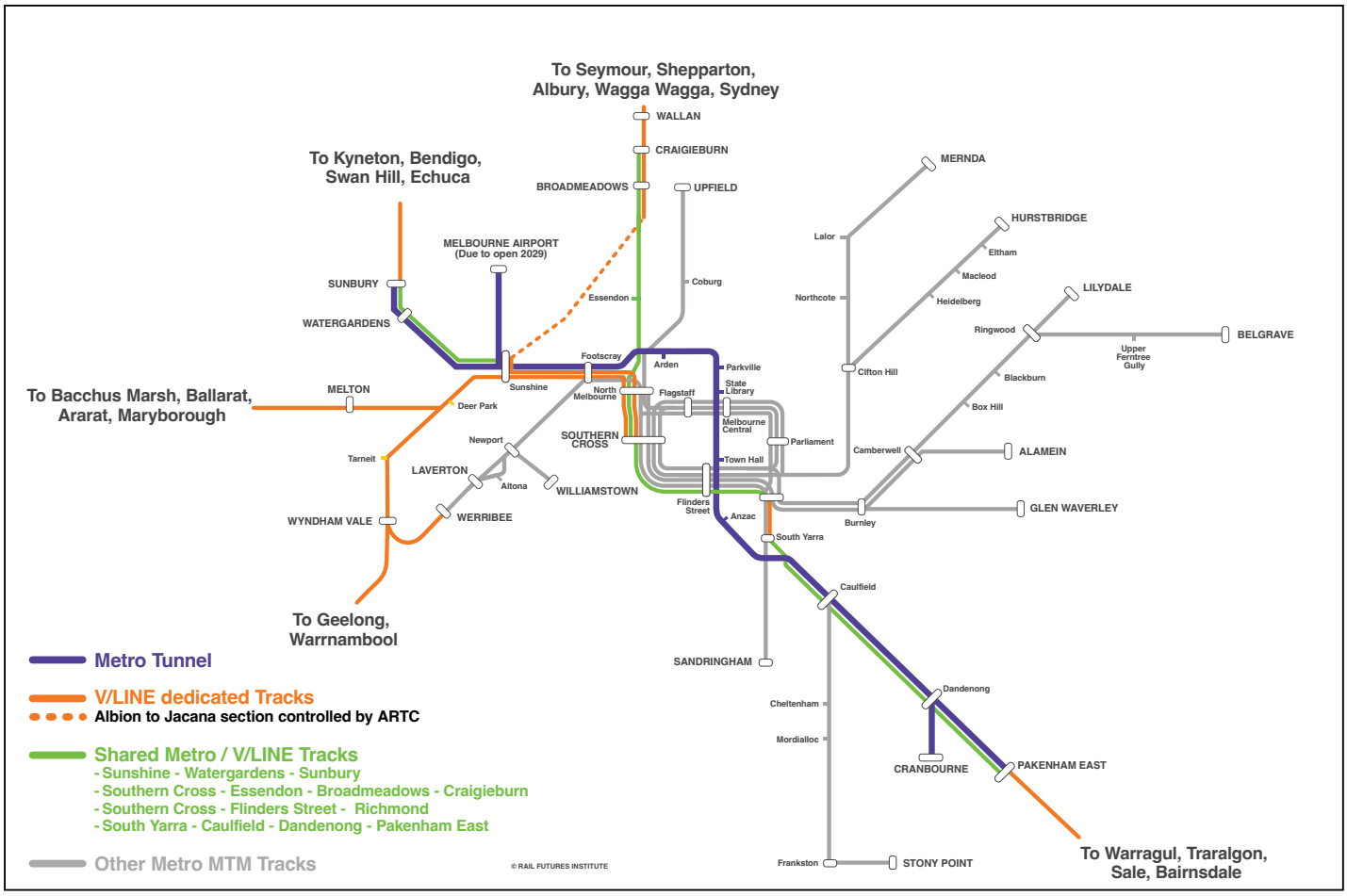


Figure 9: Metropolitan corridors with tracks shared between Metro and regional train services

Metro express services from beyond Dandenong, all V/Line Gippsland services and fast services to Geelong and beyond. It would finally directly link Geelong to Traralgon in Gippsland.

4.6 Continue upgrades to existing assets

Passenger Amenities at Stations and Interchanges

An ongoing program would progressively improve passenger experience and amenity at stations and interchanges. The program needs to encompass a wide range of matters including weather protection, lighting, security systems, DDA compliance, placement and opening hours of entrances and exits, information systems (static, dynamic, visual and audio), toilet upgrading and wayfinding.

Key interchange stations in need of significant upgrading include Richmond (noting its important role in facilitating major events), South Yarra and Caulfield. In particular, Caulfield urgently needs a new western concourse and escalators to all platforms and adjacent streets for it to fulfil its important role as a major interchange station between **Line 1** and **Line 4**, Gippsland trains, trams and buses.

Sunshine station also needs further upgrading for it to adequately performs its role as a major interchange station between **Line 1** (including to Melbourne Airport), the future **Line 2**, regional trains, buses and a future tram line.

Other stations will become important interchange locations in future, particularly as Light Metro lines are developed, some tram lines are extended and trunk bus routes are improved.

Facilities for quick interchange between cars and rail-based transport ("kiss and ride") should be provided at most rail stations. "Park and Ride" may be appropriate for urban fringe areas where land is cheaper and not suited to other uses such as residential or commercial development, walking and cycling distances are too long for most people, and density does not support good bus services.

Other infrastructure upgrades and renewal

Ongoing upgrading and renewal programs will be essential to bring the general standard of the metropolitan rail network infrastructure to a level where it is considerably more robust and resilient than is presently the case in many areas. Many service failures and delays are attributable to known infrastructure deficiencies, most of which have been developing over a long period.

Progressive segregation of the network into standalone operational groups will improve network reliability and resilience but it is equally important for the condition of both new and legacy infrastructure assets to be at a suitable standard to overcome the likely impacts of climate change and to ensure maximum benefit is obtained from the new projects detailed in this Plan. This will need to be assessed on a larger scale as lines are prepared for upgrading to Heavy Rail Metro Standards.

Rolling Stock

At June 2025, the metropolitan train fleet comprised 267 train sets of the following types:

- 55 Comeng 6-car trains built between 1980 and 1988
- 36 Siemens 6-car trains built between 2003 and 2006
- 106 Alstom X'Trapolis Mk1 6-car trains built between 2002 and 2020
- 70 HCMT 7-car trains built between 2018 and 2023
- In addition, 50 Alstom X'Trapolis Mk2 6-car trains are expected to enter service from 2026 to 2031.

The 70 High Capacity Metropolitan 7-car trains (HCMTs) built by Downer Rail and Changchun Railway Vehicles, China, are dedicated to the operation of **Line 1** services including to Melbourne Airport, currently expected to open in 2029.

The 50 X'Trapolis Mk2 trains will support continued progressive replacement of the ageing Comeng fleet. Further orders of similar trains will be required to complete the ComEng replacement program and support increasing operations on **Line 4** and **Line 5**.

Line 2 operations will require a very different type of train, being normally operated autonomously and supported by a 25 kV 50 Hz traction system. Due to its size and complexity, **Line 2** will be implemented in stages allowing for the progressive delivery of new driverless trains over a number of years.

Line 3 services will likely continue to be operated by the Siemens train fleet until around 2040 which will then require replacement by additional X'Trapolis Mk2 trains or similar.

Line 6 and **Line 7** will continue to be operated by the X'Trapolis Mk1 fleet noting that the earlier versions of which would be due for retirement and replacement by the late 2030s or early 2040s. The remainder of the Mk1 fleet will continue to be deployed on these lines until around 2050 or later.

Train stabling and maintenance facilities

The progressive re-structuring of the metropolitan Heavy Rail network into a series of self-contained operating groups requires train stabling facilities at suitable locations that are aligned with train crew depots and of sufficient scale to accommodate dedicated train fleets for each group. This also requires train maintenance facilities to support routine servicing and maintenance for each dedicated train fleet to a level that enables achievement of required availability and reliability performance.

With the coming of non-divisible HCMTs and X'Trapolis Mk2 trains, much larger facilities are needed that have the capacity for jacking entire train sets up to 230m in length and for efficient component exchange. Such a facility operates at Pakenham East to support the HCMT fleet. The modern facility at Craigieburn has been modified to accommodate 150m non-divisible 6-car trains, as can the recently completed facility at Kananook. Nonetheless, 3-car units of the Siemens and X'Trapolis Mk1 fleets will doubtless remain in service for many years to come, enabling some of the existing maintenance facilities to remain functional for the foreseeable future.

Line 2 will require special facilities to service autonomously operated trains. These are likely to be provided at Wyndham Vale, Rockbank and Cobblebank.

5. Add new Light Metro routes

5.1 What is a Light Metro?
A Light Metro is a rail-based, automated, and fully grade-separated transit system with medium capacity, bridging the gap between street-running light rail or trams and high-capacity, heavy metro systems. Often driverless, they feature shorter trains (2–4 cars), smaller stations and high frequency, making them cost-effective, reliable, and suitable for urban areas requiring rapid transit without the massive infrastructure of heavy subways. Examples include the Suburban Rail Loop, Docklands Light Rail (London), Lille's Metro, Vancouver's SkyTrain and Copenhagen's Metro.

Figure 10: Examples of Light Metros in world cities

Light Metros can run with minimum headways between trains of 60 to 90 seconds allowing smaller and shorter trains to deliver comparable capacities to that of many Heavy Rail networks. With smaller trains, the supporting infrastructure is also reduced in size. Light Metro requires less significant infrastructure and does not take as much space as Heavy Rail but can deliver similar operating speeds and excellent reliability with expenditure levels closer to regular tram infrastructure and much less than the very high cost of conventional Heavy Rail technologies. Light Metro capital costs are typically 35 percent to 55 percent of Heavy Rail and are lower for tunnelling costs due to smaller bore tunnels and greater potential to use cut and cover methodology.

5.2 Why we need Light Metro?
Light Metros could fill gaps in capacity and in geographic coverage of Melbourne's public transport system without needing to compete with other road space users and congestion. Most of these gaps occur in the middle-ring and growth area suburbs.

Melbourne has a range of lower-capacity vehicles (buses and trams) and higher-capacity vehicles (Heavy Metro vehicles or trains) but no middle level vehicle type to fulfill a medium capacity role in keeping with the city shaping role of key transport initiatives.

The benefits of implementing Light Metros on selected corridors to complement the existing Heavy Metro, Tram and Bus networks in Melbourne include:

- **Increased network capacity:** Light Metros will enhance public transport lifting capacity over wide metropolitan areas and allow better load management of connected higher capacity trains and lower capacity trams and buses.
- **Enhanced connectivity:** Light Metros will act as orbital connectors or crucial feeder routes to other major transport networks and to activity centres, improving access between suburbs without forcing passengers into the city centre. With Light Metros, more multimodal connection points will occur across the whole city network.
- **Faster, reliable and safe trips:** Light Metros operate in dedicated corridors, typically grade-separated (elevated or underground). This ensures "turn-up-and-go" reliability unaffected by local street traffic and improves passenger safety.
- **Lower capital costs:** Light Metro systems require lighter track infrastructure, more compact stations, smaller tunnels compared with heavy rail, significantly reducing construction expenses. The lighter infrastructure and modular components allow for quicker and less disruptive construction.
- **Convenience, choice and comfort:** Light Metro vehicles are designed for medium length, high-frequency trips with rapid boarding, offering greater passenger capacity than conventional trams or buses.
- **Catalyst for development:** The permanency of light rail infrastructure typically incentivises high-density housing and commercial development at activity centres along the corridors, supporting population growth sustainably and connectivity with local bus, walking and cycling networks.
- **Energy efficiency and reduced emissions:** Light Metros consume less power, while regenerative braking systems further reduce overall energy consumption making them one of the most sustainable and eco-friendly forms of mass public transit. By shifting commuters from private vehicles, Light Metros also significantly lower urban greenhouse gas emissions and traffic congestion.

5.3 How Light Metro should be applied in Melbourne
Light Metros should provide new linkages to significant Activity Centres and other growth nodes. Connectivity should concentrate on routes between and across Heavy Rail corridors, tram lines and significant bus routes. The key difference should be to create Light Metro along new routes which could create higher long-term residential and commercial densities.

Light Metros would mostly be above-ground on raised bridges or at surface level following the arterial road system. Where necessary, Light Metros will rise above open space areas and would be subject to necessary planning and environmental approval processes. Lowering the track into cut and cover trenches or tunnelling may be unavoidable in high value areas that are fully developed and where retrofitting a new corridor into the existing built environment is not feasible.

Light Metro routes are ideally installed in freeway or wide boulevard medians but can also use elevated structures in suitable thoroughfares.

- **In middle suburbs**, Light Metro corridors could be retrofitted into and utilise wide arterial road reservations and boulevards, a legacy of previous generations of sensible road planning. Where this is not practicable, new infrastructure on high patronage corridors may need to be built to provide completely segregated thoroughfares for increased capacity and speeds, including on elevated structures.
- **In growth areas**, Light Metro corridors should be identified as part of the Principal Public Transport Network in all growth area plans and dedicated land reserved in precinct structure plans.

Overall Network

The Light Metro systems will join the middle and outer suburbs and integrate with the Heavy Metro system to provide links across the entire city, creating a joined up and integrated city system.

The Light Metro systems will provide Melbourne a cost-effective way to expand the mass transit system if it is appropriately designed to maximise the value of each line and appropriate rolling stock is deployed. The rolling stock would be 'off the shelf', driverless, and scalable from a two to a four-car system and typically run on 750-volt DC systems. Any potential to convert less effective Heavy Rail systems to Light Metro can also return capacity to the main higher capacity trunk system.

As part of the proper hierarchy of public transport for Melbourne, three Light Metro networks are proposed - a modified Suburban Rail Loop, Western and South-East networks. These will provide a much-needed public transport boost in areas the city most needs and provide the best way to move people in a fast and reliable way.

The three Light Metro networks are shown in Figure 11.

Figure 11: Proposed Light Metro routes for Melbourne to 2060

- **An Orbital Line** – a modified Suburban Rail Loop but changing the initial Light Metro underground system to an above ground system in the north.
- **Two Regional coverage systems** – above-ground Light Metro systems covering the West and South-East of Melbourne.

Modified Suburban Rail Loop (SRL)
The currently proposed SRL format would serve better as a true Light Metro format in frequency, performance and vehicle type. As such, this reformat should be performed as soon as economically viable.

- **SRL East** is in the early stages of construction as an underground system. It will link Southland to Box Hill via Clayton, Monash University, Glen Waverley and Deakin University (Burwood).

  SRL North can morph into an above-ground system over as much of the route as is practical.

  This proposal modifies the SRL North former tunnelled route to be elevated from west of Heidelberg along a modified alignment. It will link Box Hill to Melbourne Airport via Northland, La Trobe University, Keon Park and Campbellfield and Broadmeadows.

A future extension from Westmeadows to Merrifield could occur when the population and centres spread more to the western side of the Northern Growth Area.

- **SRL Airport** remains as a Heavy Rail system linked to Metro **Line 1**.
- **SRL West** as proposed in **Plan for Victoria** would not be required. Our proposals for Heavy Rail and Light Metros in the Western Region will achieve the same objective of connecting Sunshine and Werribee while better serving the suburbs in between.

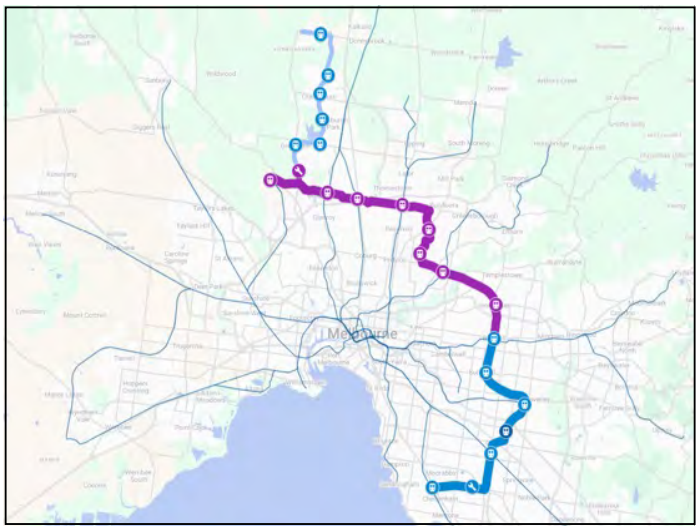


Figure 12: Proposed Modified Suburban Rail Loop Lines to 2060

Western Region Light Metro Network
The **Western Network** would initially link north-to-south from Watergardens to Werribee across major Heavy Metro **Line 1**, **Line 2** and **Line 3** (Sunbury, Melton, Tarneit/Wyndham Vale and Werribee) and regional Geelong, Ballarat and Bendigo lines as touch points across the area. This is a priority link and establishes the baseline or foundational Light Metro link for Western Region.

Subsequent routes would extend east-west from Spotswood to Manor Lakes through the Werribee Growth area and from Footscray to Aintree/ Rockbank via Keilor East (Airport line) and Caroline Springs.

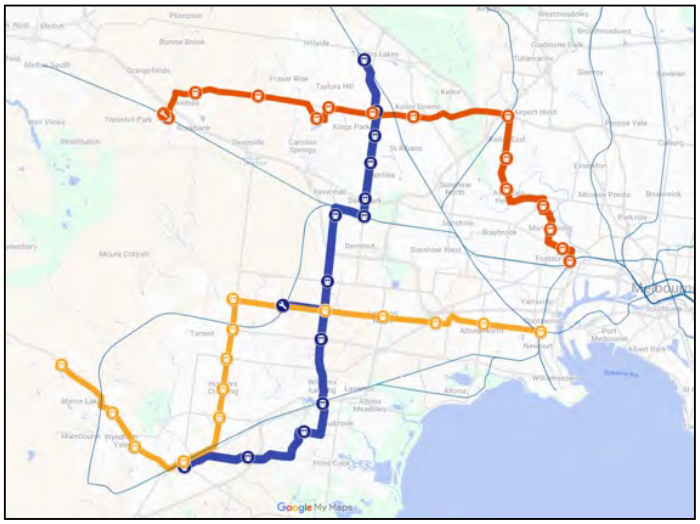


Figure 13: Proposed Light Metro Western System to 2060

South-East Region Light Metro Network
The **South-East Network** comprises three inter-connected links.

The first will provide a key link from Camberwell via Chadstone Centre (not previously connected) to Monash University SRL station (providing a second access point to the Monash NEIC). This also connects the middle suburban Heavy Metro to Lilydale/Belgrave **Line 7** and to Glen Waverley **Line 5**.

The advantage of early conversion of the Alamein Line to Light Metro would be to link Camberwell directly to Chadstone, then enable interchange with **SRL East** at Monash and Light Metro to Elsternwick and Rowville. This would be a very attractive line with substantial patronage and would benefit a wide area of the city. The next links access from Elsternwick connecting Sandringham **Line 3**, Frankston **Line 4** and Dandenong **Line 1** to Rowville via Monash University.

The last link extends from Dandenong South to Ringwood North connecting the East Pakenham/ Cranbourne **Line 1** at Dandenong and the Lilydale/ Belgrave **Line 7** at Ringwood.

Figure 14: Proposed Light Metro South-East System to 2060

6. Enhance the performance of Trams

Figure 15: Modern Low Floor Tram in Congested Traffic – Burke Road, Camberwell

Today's Melbourne tram network has over 250 kilometres of double track, operating over 24 routes, with a diverse fleet of 520 trams predominantly serving inner metropolitan areas. Melbourne's trams remain integral to the city's identity and sustainable urban mobility.

We aim to move beyond Melbourne's tram legacy to propose how this highly valuable asset should be modernised, expanded and staged in the context of Melbourne's expected growth trajectory. When implemented, these proposals will improve the productivity of existing tram infrastructure, tram fleet and personnel, especially within the CBD and Inner Area.

Improved and extended services, and new fully accessible passenger interchanges will be important steps in improving overall network integration, inducing increased patronage and reducing car travel.

6.1 Achieve greater priority for tram services on the road network

Around 80 per cent of Melbourne's tram network operates 'on street' on arterial and local roads. This results in the average operating speeds of Melbourne's trams being relatively low (around 16 km/h), compared to other Australian and overseas systems where greater separation of trams from other road traffic is achieved. On some sections of tram corridors through Melbourne shopping strips, notably Sydney Road and Chapel Street, average tram speeds are as low as 6 km/h.

Delays to trams and current low average tram speeds make for poor utilization of available street space, extend passenger travel times and impose ongoing operating cost imposts. As travel times and reliability deteriorate along any route, more trams are required to maintain the same service frequency at extra capital cost. These trams also require additional drivers, consume additional energy and incur added labour and maintenance costs.

The current shared traffic situation results in everyone losing - motorists are delayed, tram passengers are delayed - perpetuating a very inefficient system of competing modes sharing the limited available road space. Some re-allocation of existing road space will therefore be essential with a focus on key locations where the potential benefits are greatest.

The priority should be moving people, NOT cars, making the most efficient use of limited available road space.

The 30 cars travelling in the same direction as the tram in the above photo on average carry 36 persons, whereas the tram carries 90 persons. Larger capacity trams can carry up to 180 passengers.

6.2 Re-structure operations and services with a focus on the greater CBD area

An early priority is to re-structure the operational heart of the tram network to make it more efficient, increase its passenger carrying capacity and that of the extended CBD tram network. The re-configured CBD

tram network will provide greater frequency and more diversity of route destinations in CBD streets. This will reflect the very significant shifts in commercial activity and job locations within the extended Melbourne CBD and Docklands over the past 20–30 years.

Opening of Metro **Line 1** has created the opportunity to re-distribute tram services through the inner city to better align with the city's development since the opening of the Underground Rail Loop in the 1980s. It is therefore proposed to progressively re-structure and enhance existing CBD and extended Inner Area services to deliver:

- A greater number of cross-CBD tram routes, minimizing transfers for tram passengers completing trips within the extended CBD area.
- A wider choice of tram travel options to / from and between fifteen CBD / Inner area rail stations.
- Improved connectivity between tram, train and bus routes by offering an additional CBD access route for St Kilda Road trams from Anzac station to Southern Cross station, the western end of the CBD and North Melbourne station.
- New supplementary services on key tram routes from the CBD to inner suburban locations, relieving pressure on longer distance tram routes from the CBD.
- Three (3) orbital tram corridors in Inner Melbourne to form a key component of the future inner area grid network of public transport services (see Figure 17).

Enhancements to the CBD and Inner Area network infrastructure

New twin track sections, connecting links and turnbacks will be constructed within the CBD and inner suburbs linking with existing tracks to leverage best use of existing tram track infrastructure and allowing introduction of new CBD and cross-CBD routes (see Figure 16).

6.3 Extend selected lines for better connectivity

Existing tram routes are mostly radial in nature inheriting several inbuilt factors, largely historical in nature, that do not sufficiently contribute toward a network of public transport services needed to maximize interchange opportunities with other tram and bus routes and the rail network.

It is proposed to progressively re-structure and enhance the existing and extended network to achieve a tram network that plays a greater role in creating an overall grid network of public transport services.

Part of the solution to Victoria's housing crisis is encouraging development in designated urban renewal areas such as Fishermans Bend and Arden. These brownfield areas allow development to proceed without the usual impediments encountered in established areas. By necessity, these developments must be transit-oriented, there being little demand for higher density housing without access to good public transport. Planning for each area was premised on the availability of new tram services to integrate these new communities with the surrounding urban area and allow easy access to employment opportunities within the CBD and beyond.

It is proposed to construct two new tram routes into the Fishermans Bend precinct to service the southern residential and northern employment areas of the precinct respectively:

- **Route 66** will link **SANDRIDGE / WIRRAWAY** with **CLIFTON HILL STATION**
- **Route 68** will link **WESTGATE PARK / LORIMER** with **VICTORIA MARKET**

The Arden precinct would be served by two extensions from the CBD tram network:

- **Route 5 ARDEN / NORTH MELBOURNE STATIONS** to **CAULFIELD STATION**
- **Route 77 MACAULAY STATION** to **ELSTERNWICK STATION**

Six (6) additional extensions of existing routes are proposed. This will see them terminate at major activity centres and/or locations currently targeted by State Government planning policy for urban consolidation and accelerated population growth. Four of these routes currently end at "nowhere in particular", a legacy of most tramway construction being suspended during the 1930s Great Depression. These extensions will create a multiplicity of new cross-suburban trip options by connecting with other tram routes and trains at key stations, as under:

- **Route 3 EAST MALVERN Darling Road** from the existing terminus 1.1 km to **EAST MALVERN STATION**
- **Route 5 MALVERN Burke Road** from the existing terminus 1.2 km to **CAULFIELD STATION**
- **Route 11 WEST PRESTON** from the existing terminus 2.75 km to **RESERVOIR STATION**
- **Route 48 NORTH BALWYN** from the existing terminus 1.1 km to **GREYTHORN SHOPPING CENTRE**
- **Route 70 WATTLE PARK** from the existing terminus 1.4 km to **DEAKIN UNIVERSITY (Burwood Campus) and in future BURWOOD STATION on SRL East**
- **New Route 80 HIGHPOINT INTERCHANGE** 5.5km to **VICTORIA UNIVERSITY and SUNSHINE STATION**

New low floor DDA compliant accessible G class tram, capacity 150 passengers

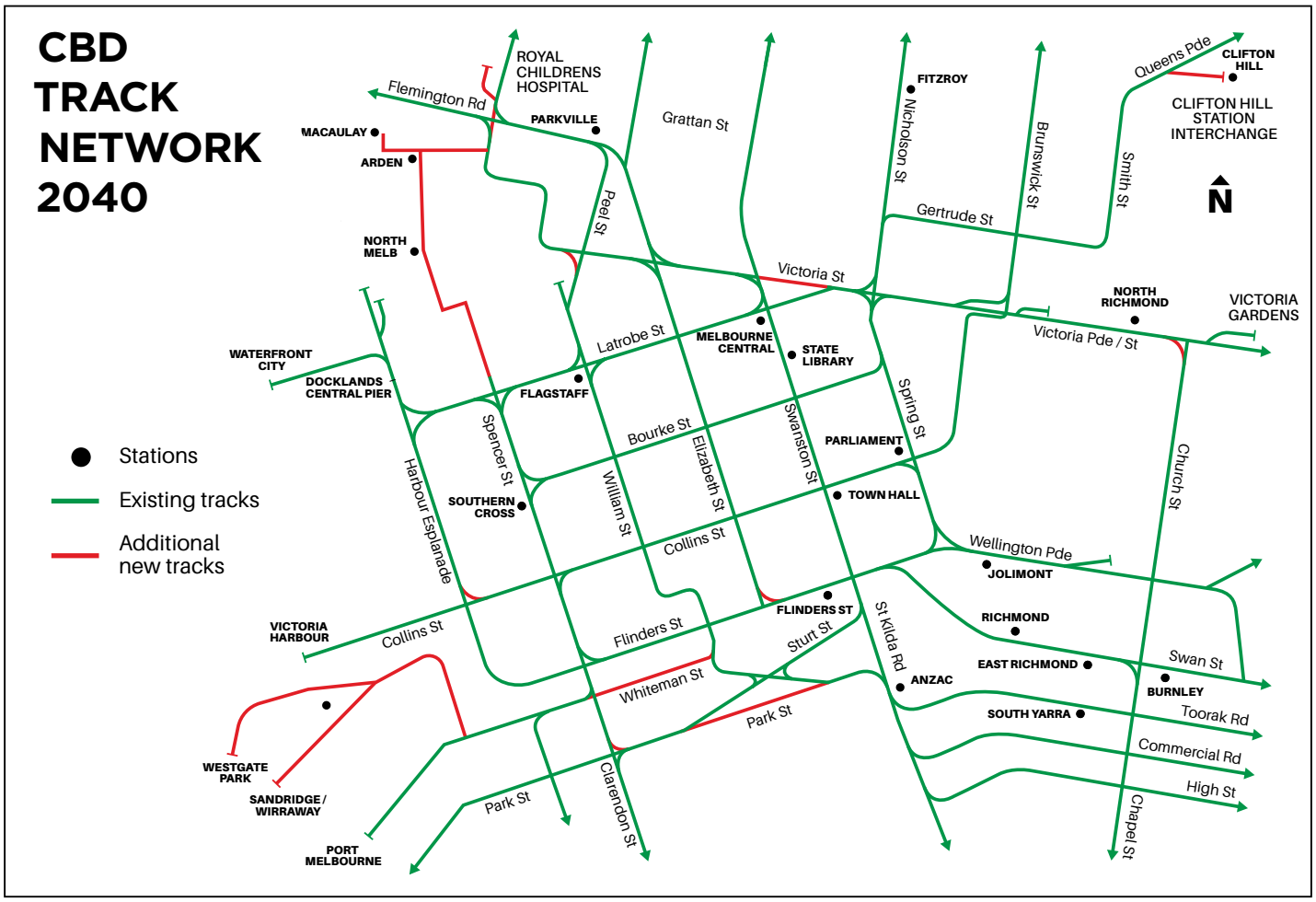


Figure 16: Proposed CBD track network by 2040

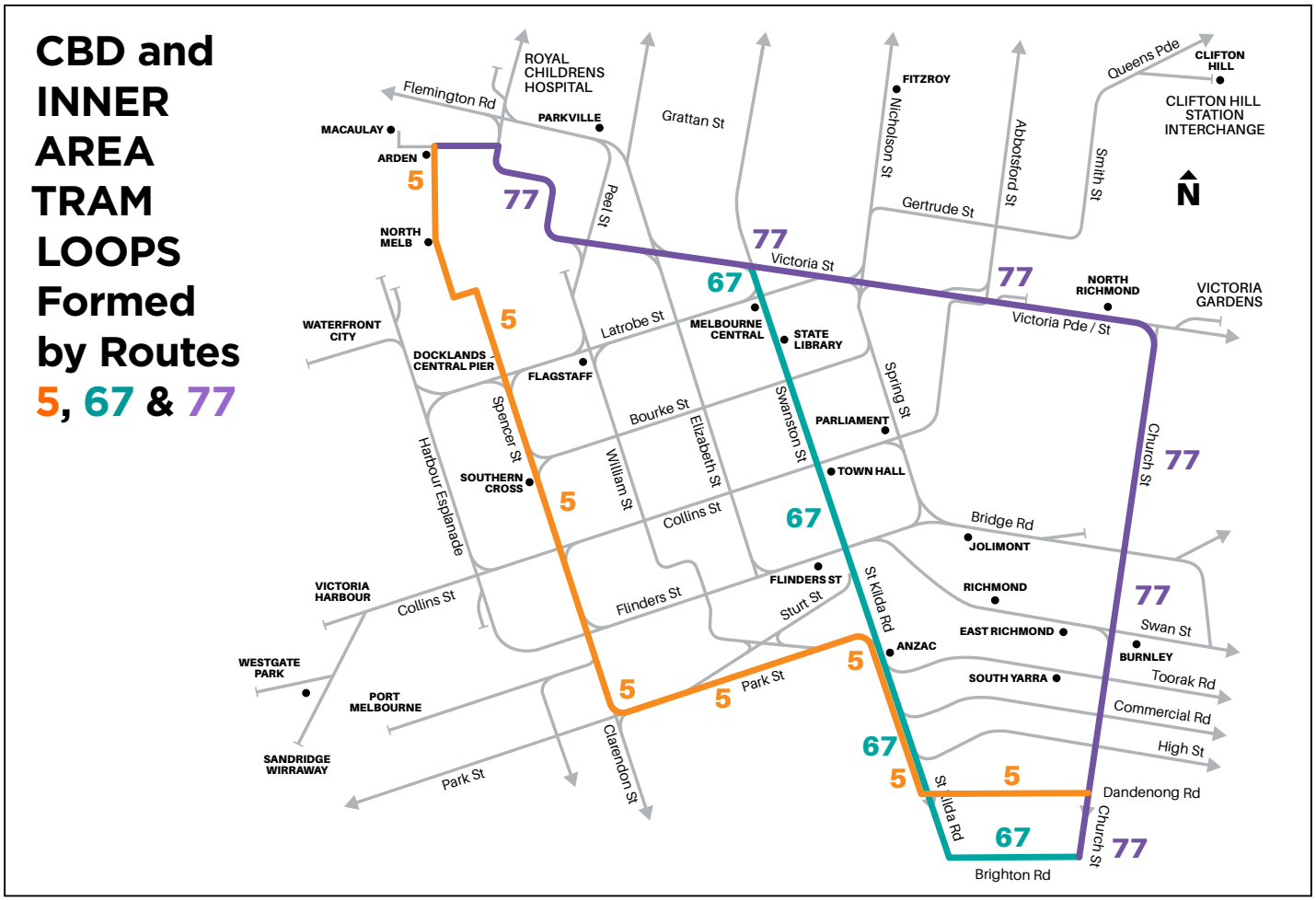


Figure 17: Proposed CBD and Inner Area orbital tram corridors

6.4 The future Melbourne tram network

By 2050, Melbourne's overall tram route network will be substantially different to that today, including changes to fourteen existing routes and several completely new or extended routes, as listed above. The proposed network in 2050 is shown in Figure 18, below.

6.5 Continue upgrades to existing assets

Tram stops and interchanges

Currently, only 28% (472) of Melbourne's 1700 tram stops have level boarding access. The current program for providing stops with level boarding access to comply with the Disability Discrimination Act (DDA) needs to be substantially accelerated. As this is uniquely an issue for Melbourne, the Commonwealth and Victorian governments should jointly fund an accelerated program of platform stop construction, ideally using largely modular components to reduce costs.

In general, tram stops need significant improvement to ease overcrowding and improve connections for walking, particularly in inner city areas. Better stop design and traffic treatments and upgraded real-time information displays should be provided at key tram/train, tram/tram and tram/bus interchange points. Improved interchanges between tram, train or bus, will help create a more permeable walking environment to ease some of the current overcrowding, safety and amenity issues.

Tram fleet requirements

Current orders for new trams are limited to the acquisition of 100 new generation G class trams each with a capacity of 150 passengers being delivered from 2026 over a 4 to 5 year period. In the immediate term the priority will be to retire all 156 remaining low capacity high floor trams of the Z and A classes, followed by 130 high-floor articulated B2 class trams by late 2032.

To cater for both replacement of remaining low floor trams to meet full DDA compliance by late 2032, for projected patronage growth and proposed route extensions, a total low floor tram fleet of around 600 trams will be required by 2032. This compares to around 500 in 2026, a 13% increase in fleet size, and around 700 trams by 2050, a further 14% increase compared to 2032. This will require an accelerated tram acquisition program involving delivery of approximately 50 new trams per annum, or more than double the current delivery rate.

Depots, Stabling and Maintenance Facilities

The progressive increase in fleet size coupled with the transition to a total fleet of longer articulated vehicles will require provision of expanded depot / stabling space and additional maintenance facilities. These must be programmed to dovetail with the fleet procurement program for new trams.

Other tram infrastructure

Melbourne's transition from a network and power supply system designed for a fleet of traditional smaller trams to a future network operating larger trams operating at greater frequencies will require detailed study of future options for vehicle energy efficient traction systems, energy storage and an updated power supply network leveraging the latest and most suitable technologies available internationally.

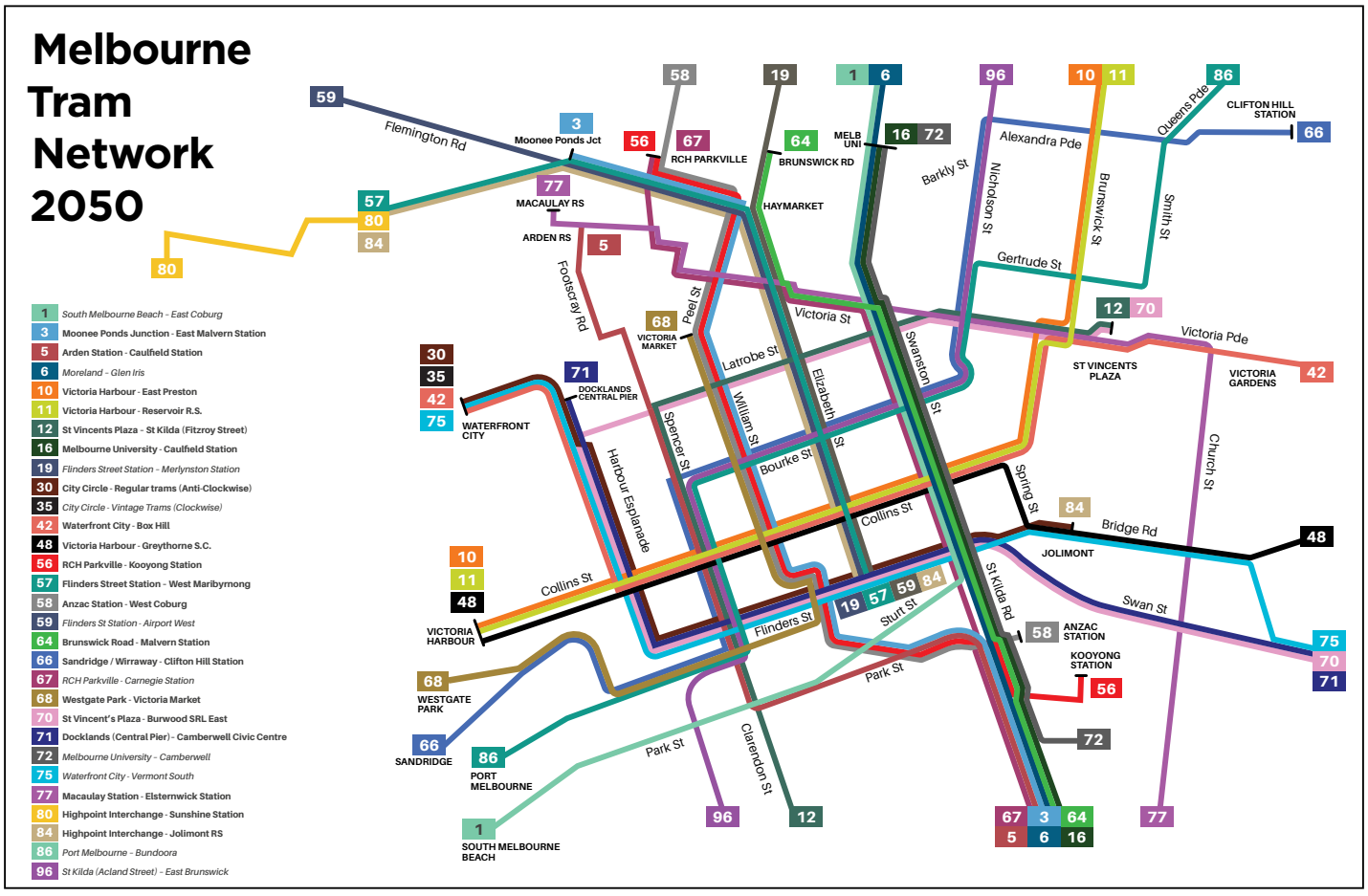


Figure 18: Proposed Melbourne Tram Network – 2050

7. Provide more frequent, more comfortable, better-connected buses

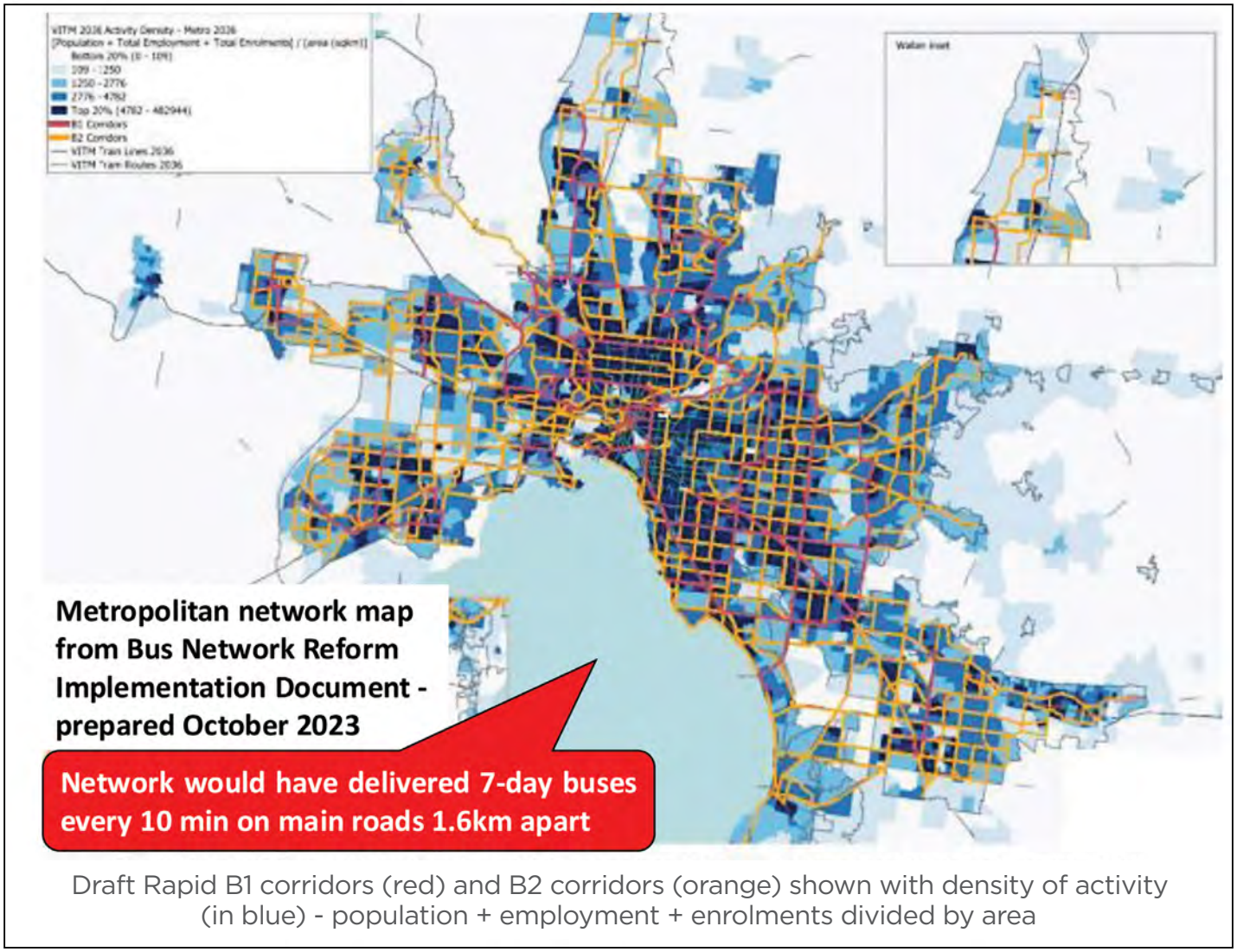


Figure 19: DTP plans in 2023 for a frequent main road bus network integrated with land use

While Melbourne has an extensive bus network, covering more of its population than either trains or trams, its usage is lower than its potential. It has historically been the poor cousin of the transport network, lacking both the frequency of trams and the recent infrastructure investments of rail.

Investment in bus services has barely kept up with outer suburban population growth.

Governments have launched various bus plans over the years but few have been substantially implemented. This is despite buses being a major form of transport in all large cities, including those with popular rail and metro networks. For example, buses in London carry more people than either the Tube or Overground networks individually.

7.1 Realise the potential of buses

Improved buses can effectively feed rail services, aid access to local destinations and enable non-radial trips rarely possible by train or tram. Buses can also be used as precursors to later train and tram extensions.

Due to their already extensive coverage and many routes operating at less than potential ridership, there is potential for buses to carry as many people as trams. If such growth (around 80 million passenger trips per year) was adopted as a target, bus reform would become the largest major transport project in the state in both people carried and geographical terms, far exceeding the much dearer North East Link, West Gate Tunnel or Suburban Rail Loop East projects later train and tram extensions and proposed Light Metro routes.

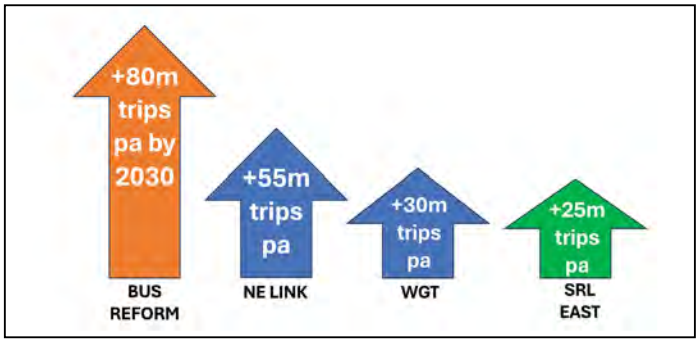


Figure 20: Bus network upgrade and reform can be a major transport project

Bus patronage growth from reformed networks in areas such as Wyndham and Brimbank as well as service upgrades on other routes across Melbourne have demonstrated the potential of buses to contribute more to the transport effort than they currently do. They just need to be done at a higher rate with greater advantage taken of efficiencies available through timetable optimisation and network reform.

7.2 Transform the buses into a modern network of tiered services

More than any other public transport mode buses can perform a wide range of purposes, ranging from local neighbourhood feeder services to rapid transit radial and orbital services. The same vehicle may even be used for different network functions. However, existing operating hours and service levels may not reflect a route's role, leading to examples of under, or less common, over servicing.

To address this we propose a tiered hierarchy of service levels that provide services appropriate for a route's purpose and optimise connectivity with trains, trams and other buses. Each route would be assigned a service tier and category based on its network role after review of its usage, usage potential and community needs.

An example of a bus network hierarchy structure is in the table below.

7.3 The Frequent Network

A **Frequent Network** (Tier 1) would form the centrepiece of the upgraded bus network. This would comprise at least fifty all-week frequent and direct routes that combine with train and tram lines to form a frequent and connected grid serving more than 100 new suburban interchange points.

A potential concept, with about 1000km of frequent bus routes, is shown in Figure 21.

The lines in Figure 21 are indicative and reflect what a much upgraded network might look like in the 2030s. In later decades it is expected that there would be more Tier 1 routes than shown, particularly in outer growth areas and older established suburbs that have seen redevelopment and population densification. In the majority of cases these routes would have started as Tier 2 or Tier 3 routes with Tier 1 status earned following land use change, population growth, high demand or consolidation of lower frequency routes as part of network reform.

Passengers will be able to arrive randomly at a Frequent Network stop and have a service arrive within 10 minutes at most times. This consistently frequent service will enable many to travel without looking up a timetable or wait long for a connection. The latter is particularly important for providing an efficient versatile network suitable for efficient cross-suburban as well as to-CBD travel.

Frequent Network routes would typically have wider stop spacings, improved shelter at stops, better and more prominent passenger information and bus priority. Special branding, articulated buses and headway based scheduling may also feature.

The Frequent Network should play a strong part in land use planning with regard to allowable densities and building heights, parking regulations, urban centres, government services and housing policy. Some Frequent Network bus routes could be precursors to future train, tram, light metro or bus rapid transit lines.

7.4 Other bus routes

Connector routes are the second middle tier of the bus network. The largest in number and route kilometres on the network, they would feature a wide span of operating hours across the week. Alignments would be as direct as the road network, access to major destinations and need to provide reasonable coverage allows.

The basic service across the week would be every 20 minutes with potentially higher frequencies during peak periods. Sufficient Connector category routes would

Service tier	Service category	Min hours (Mon-Sun)	Max wait (6am – 10pm)	Connections	Network role
Tier 1	Frequent	5am – midnight (Night Network all routes)	10 min (peaks may be higher)	Harmonised	The highest patronage routes with enhanced speed, passenger information and stop facilities operating directly along main corridors. The bus component of the Frequent Network and a major influencer of land use.
Tier 2	Connector	5am - midnight (Night Network some routes)	20 min (peaks may be higher)	Harmonised and timed	High patronage, relatively direct routes performing important interchange feeder and access roles. Overlapping Connector routes may be timed to provide a frequent corridor along the common sections.
Tier 3	Local	6am - 10pm	30-60 min (peaks may be higher)	Harmonised and timed	Provide coverage, connections and feeders to locally important facilities and transport interchanges, especially in areas between or beyond Frequent and Connector routes.
Tier 4	Special	Varies	Varies	Varies	Comprise school, peak-only, industrial, limited shopper or other special purpose routes.

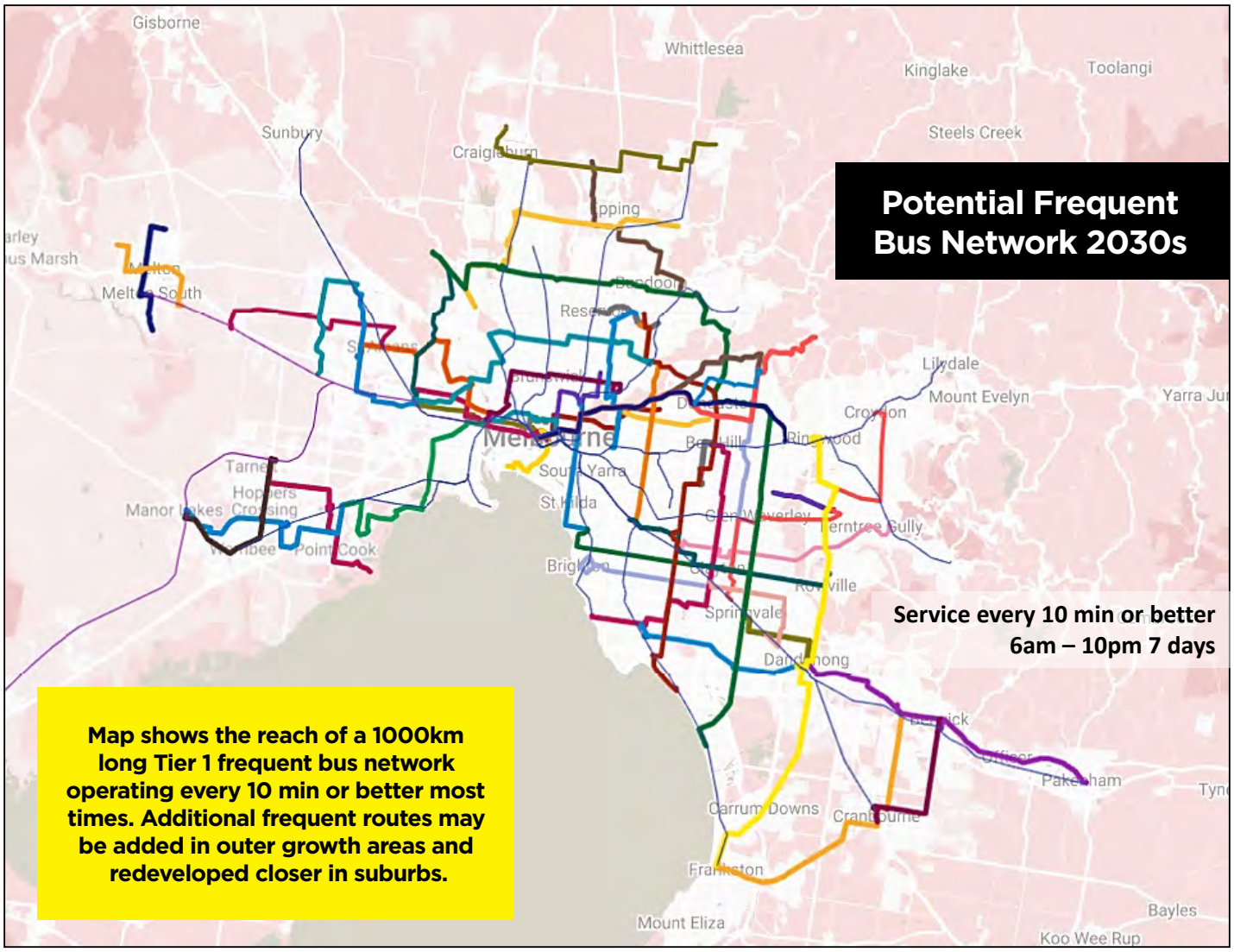


Figure 21: A frequent bus network like this enables cross-suburban travel and efficiently feeds trains

operate to ensure that 80 per cent of the urbanised population is within a ten minute walk of a Frequent Network or Connector level service.

Bus network simplification would aim to create Connector routes from less frequent local routes where this can be done without serious coverage loss. Where two Connector routes share a significant corridor effort should be made to stagger departures to provide a combined even ten minute service on the common section. The busier Connector routes would be candidates for upgrade to Frequent Network status in their own right.

Local routes are intended to provide neighbourhood coverage in between or beyond Frequent Network or Connector routes. Services are less frequent but would still meet minimum hours and frequency standards. An upgrade program would seek to upgrade all local routes to such standards, starting with those with the highest usage or serving high social needs catchments. There would be sufficient local routes to ensure that 90% of the metropolitan population is within 500 metres of at least one local or higher level service.

Special routes would serve specific needs that do not justify a local, connector or frequent service. Examples include school, industrial, commuter, Night Network and interpeak shopper services.

8. Implementation

Anzac Station: designed to be a convenient tram/train interchange facility

8.1 Create an integrated multi-modal network through reform and staged upgrades

We propose the creation of an integrated multi-modal network through staged implementation of service upgrades and new infrastructure that builds on the existing train, tram and bus networks. A network plan would guide the development of each mode and integrate them into a connected network that maximises the proportion of Melburnians close to frequent service. This will inform the planning and delivery of infrastructure and service improvements focused on each mode of transport – Heavy Rail/ Metros, Light Metros, Trams and Buses – to provide the best value of quality service.

Network Planning: The first step is to **establish a strategy to build a new structured network** that provides universal coverage with a tiered hierarchy of cost-effective connecting services. This strategy must be based on **an agreed approach to integrate services** into a multimodal network, with a tiered frequency hierarchy, minimum service standards for all routes, and many seamless connection points. This should be followed by a **priority service upgrade program** focusing on the greatest opportunities for improvement by delivering higher all week frequencies that work the network's assets harder, thus making public transport more useful for more trips[12]. A rolling asset forward investment program of evaluated projects for at least a decade ahead should follow and be updated annually. These plans and programs must be **managed through a single public agency** to ensure all modes and services integrate into a seamless system.

Heavy Metro Rail Plan: The focus is to convert suburban rail lines into a modern, Metro transit network. With the MM1 (Metro Tunnel) now operational, the next step is to further **unscramble the suburban rail network into separate cross-city lines,** with CLR (City Loop Reconfiguration) likely having the highest priority.

Concurrently, planning and construction of the more ambitious automated MM2 (Metro 2) should commence. Subsequently, other lines would be **progressively upgraded to modern Metro Standards** offering high capacity, high frequency and ultimately, automated services across Melbourne. This will require new and existing regional rail lines to be **physically separate from suburban/Metro** lines where required. In the meantime, it will be essential to implement a range of measures to maintain and **upgrade the capacity and capabilities of each of the suburban rail lines** before they are transitioned to become Metros.

Light Metro Program: This innovative mode introduces new, lower capacity Metros that provide radial and orbital services to supplement the Heavy Metro transit network. These will eventually develop into three regional networks with a **modified Suburban Rail Loop** linking the suburbs to the north and east of Melbourne, a **Western Light Metro Network** integrating the western suburbs and a **South East Light Metro Network** connecting the suburbs across the south and east. Frequent limited stop bus routes may become a precursor to establish travel habits and test demand for potential Light Metro routes.

Tram Network Plan: This focuses on a range of improvements to the tram network that already provides comprehensive coverage of Melbourne's inner suburbs. It includes a range of service improvement actions to **increase priority for tram services** on the road network, re-structure operations and services with a focus on the greater CBD area, **extend selected lines** for better connectivity, and continue upgrades to existing assets. A critical and urgent upgrade is the provision of **DDA (Disability Discrimination Act 1992) compliant stops** on all tram lines.

Bus Network Plan: The objective is to provide more frequent and better-connected buses throughout Melbourne. A **staged network reform program** would transform the current collection of routes into a coherent network with tiered service levels and seamless connections. Each layer in the hierarchy would fulfil a specific role e.g. main corridor, feeder service, local access, or special purpose and operate at a matching service level.

[12] Refer to proposed Service Frequency hierarchy table in Section 3.6.

8.2 Establish a service improvement program across all modes

A funded and staged service improvement program is a high priority. This should have the network's assets being worked harder to deliver higher all week frequencies and improve efficiencies by streamlining rail timetables and implementing reformed bus networks. This will deliver simpler, more direct routes, harmonised frequencies and more consistent connections. Melbourne's grid road network makes our city particularly amenable to simplified bus routes, especially if direct and safe passenger interchange is provided at road junctions.

The centrepiece of network reforms should include a harmonised pulse frequency hierarchy for its transport network across modes as proposed in the table above. Combined with simpler stopping patterns for trains and timed connections for local buses this will make connections easier and more convenient, driving the growth of public transport. This would be a major advance as Melbourne's network has lacked consistent harmonised frequencies for many years.

Bus service reform varies in its complexity. Simpler reforms improve service levels on existing routes by widening hours and increasing frequency, especially at off-peak times when the existing fleet can be worked harder.

These need only a short lead time to implement as they do not require public consultation or new bus purchases.

Such upgrades require budgeting for extra annual service kilometres unless offsetting savings can be found. However they still represent good value for money if applied to routes that are busy relative to their service level, serve areas with high social needs or connect to busy weekend destinations such as large shopping centres at Sunshine, Epping, Northland, Box Hill, Chadstone and Dandenong. These all have high potential for an increased proportion of their trips to be done by public transport.

More complex reform adjusts routes as well as timetables. There is necessary in parts of Melbourne that have not had significant bus network reappraisals for many years due to the prevalence of routes that unnecessarily overlap and/or do not reach now important destinations or interchange points. Work can either be done in small or large clusters of routes.

Such reform takes longer than simple timetable upgrades but it can deliver higher benefits per dollar spent by increasing the population near more frequent routes (diagram below).

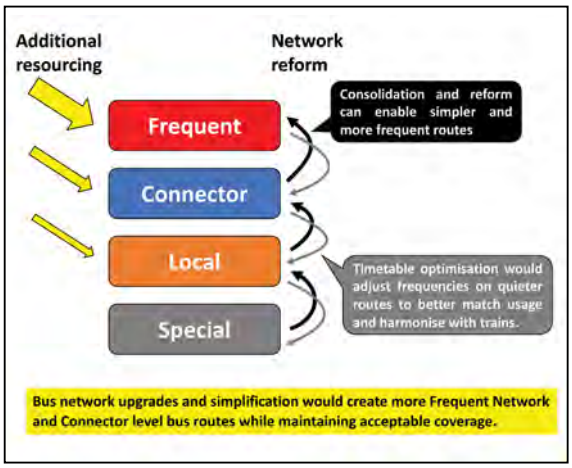


Figure 22: Additional funding and efficiencies from bus network reform would maximise the reach of frequent public transport

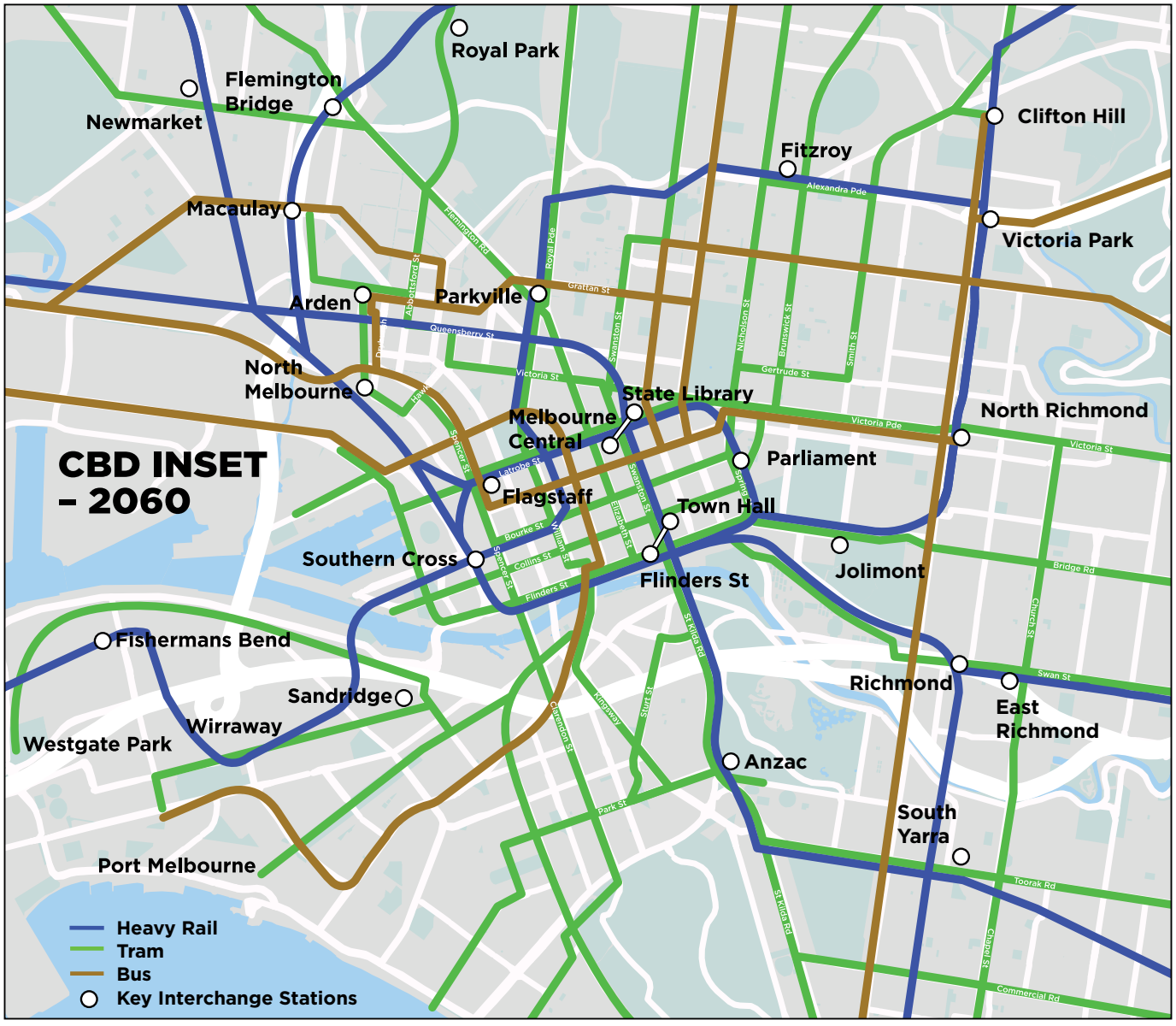
Other cities have done bus network reform, such as discussed above, on a larger scale and at a faster rate than Melbourne. They have also been more proactive at monitoring patronage patterns and adjusting service levels.

Smaller scale bus service reform ranging from timetable optimisation to minor route adjustments should be regarded as routine business. DTP should have a budget to flexibly do many more small-scale reforms than it does currently. A staged service upgrade approach that prioritises heavily used routes with long maximum waits is suggested.

Sandringham station, a rare Melbourne example offering largely weather protected interchange between train and bus.

THE MELBOURNE PUBLIC TRANSPORT PLAN 2030 - 2060

CENTRAL CITY INSET



MELBOURNE PUBLIC TRANSPORT PLAN NETWORK – 2060

N

↑TO CLARKEFIELD

↑TO WALLAN

← TO BACCHUS MARSH

← TO GEELONG

↘ TO FRANKSTON

TO CLYDE ↘

TO PAKENHAM →

SUNBURY
Diggers Rest
MELTON
Cobblebank
Thornhill Park
Rockbank
Mount Atkinson
Caroline Springs
Brimbank Central
WATERGARDENS
Delahey
Keilor Plains
Keilor East
Ginifer
Ardeer
DEER PARK
Derrimut
Truganina
Tarneit West
TARNEIT
Sayers Road
WYNDHAM VALE
Black Forest Road
WERRIBEE
Werribee South
Hoppers Crossing
Point Cook
LAVERTON
Williams Landing
ALTONA
WILLIAMSTOWN
Albion
SUNSHINE
FLEMINGTON RC
West Footscray
Brooklyn
Spotswood
Fishermans Bend
NEWPORT
FOOTSCRAY
CRAIGIEBURN
Greenvale
Roxburgh Park
MELBOURNE AIRPORT
UPFIELD
BROADMEADOWS
Fawkner
Airport West
Avondale Heights
Moonee Ponds
Moreland
Merlynston
North West Coburg
Coburg
Keilor East
KEON PARK
Campbellfield
WOLLERT
MERNDA
Epping Central
Epping
South Morang
LALOR
Bundoora
MACLEOD
Latrobe Uni
Reservoir
East Coburg
Greensborough
ELTHAM
HURSTBRIDGE
LILYDALE
Heidelberg
Donvale
East Brunswick
Northcote
FITZROY
CLIFTON HILL
Victoria Park
Kew Jct
East Kew
Greythorn SC
DONCASTER
Union
BOX HILL
Mitcham
RINGWOOD
Nunawading
BURNLEY
CAMBERWELL
Burwood
Wattle Park
ALAMEIN
East Burwood
Vermont South
Toorak
Port Melb
Sth Melb Beach
St Kilda
Gardiner
Glen Iris
Malvern
Darling
Mount Waverley
Wantirna South
KNOX CITY
Balaclava
Elsternwick
CAULFIELD
East Malvern
CHADSTONE SC
Carnegie
GLEN WAVERLEY
Gardenvale
Ormond
Oakleigh
Notting Hill
MONASH
BELGRAVE
East Brighton
Huntingdale
Clayton
Rowville
MOORABBIN
SANDRINGHAM
Springvale
Southland
CHELTENHAM
Noble Park
Mentone
DANDENONG
Keysborough
Mordialloc

LEGEND

- Heavy Rail
- Tram
- Light Metro
- Bus (Tier 1 only shown)
- V/Line (Non Electrified)
- See separate CBD Map

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