

STRATEGIC
ASSESSMENT



SUBURBAN RAIL LOOP

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**VICTORIA'S
BIG BUILD**





Purpose

This Strategic Assessment supports the development of a Suburban Rail Loop — a new 90-kilometre circle line to connect our suburbs and regions to jobs, education, health services, the Melbourne Airport, and each other.

The project, which would be completed in stages over multiple decades, would represent the biggest transformation of our public transport network in history.

This document outlines the strategic assessment undertaken by Development Victoria, supported by Rail Projects Victoria, with commercial and technical advice provided by PricewaterhouseCoopers (PWC) and Aurecon.

This includes an overview of the project rationale, the identified project corridor and the next steps needed to progress the project. This includes a full business case, planning and technical studies and stakeholder consultation to determine the precise project route, delivery method and funding mechanisms.

The Suburban Rail Loop would deliver significant urban renewal outcomes for Melbourne, improving access to jobs and providing opportunities for new industries to develop.

Introduction

The Suburban Rail Loop project would transform Victoria's public transport system. It would provide an underground rail connection between Melbourne's major employment, health services, education and activity precincts outside the central business district.

The Suburban Rail Loop would revolutionise the way that people move around Melbourne, providing mass rapid transit across the metropolitan area and enabling people to live closer to where they work.

The project responds to the challenges and opportunities presented by Melbourne's growth to a city of 8 million people and would support the Victorian Government vision set out in Plan Melbourne (2017-2050). The mostly underground rail system would form a ring through Melbourne's suburbs, connecting the Monash, La Trobe,

Sunshine and Werribee National Employment and Innovation Clusters (NEIC) with key precincts such as Box Hill, Burwood, Broadmeadows and the Airport.

The Suburban Rail Loop would deliver urban renewal outcomes for Melbourne, improving access to jobs and providing opportunities for new industries to develop. The Rail Loop would connect into every major passenger railway line in Melbourne from the Frankston line to the Werribee line via Melbourne Airport, allowing people to travel easily between suburbs, significantly reducing pressure on the existing rail network and taking 200,000 vehicle trips off our major roads by 2051.

It would reduce travel to the airport to around 45 minutes from the Frankston line and around 25 minutes from the Box Hill region. Becoming the busiest stand alone line in Melbourne by 2051 with patronage of around 400,000 per day, the Suburban Rail Loop is expected to have strong demand in both directions during peak periods providing high utilisation of the corridor.

Suburban Rail Loop conceptual map

Connecting suburbs, regions, jobs, health and education

The need for a Suburban Rail Loop

Planning for Melbourne's economic and population growth

Melbourne is Australia's fastest growing city, with population projected to reach almost 8 million people by 2051.

This growth will require some 1.6 million additional dwellings and 1.5 million jobs to be created, as well as significant investments in infrastructure, health, education and transport.



3.5 million more people



1.5 million more jobs



1.6 million more houses



10 million more trips/day



Need to protect community liveability





Nearly 1 million additional people made Melbourne their home in the 10 years to 2016, more than any other Australian capital city. While central Melbourne experienced growth in the CBD and inner-city, most of the population growth took place in the middle and outer suburbs.

Melbourne is a powerhouse of the Australian economy, with strong population, economic and jobs growth.

While the second largest city by gross domestic product (GDP), Melbourne provided the highest jobs growth of any city between 2006 and 2016. This jobs growth has changed the structure and nature of Victoria's economy, transitioning from one heavily reliant on a mature manufacturing sector to a more diversified economy with significant growth in healthcare, education, accommodation, construction and professional services.

Like many cities, Melbourne's transport system has also evolved in response to its growth and geographical size. As reliance on the CBD grew and our population moved to outer suburban communities, a radial transport network providing transport into central Melbourne developed.

This radial network faces pressure into the future as population growth continues in the outer fringes of Melbourne.

According to Plan Melbourne, our transport system will need to provide an additional 10.4 million trips a day by 2050, an increase of more than 80 per cent on the current 12.5 million trips a day. While substantial network investments are being made, continued significant investment is essential to address the pressure facing our transport system and to ensure Melbourne retains its liveability.

Infrastructure Victoria's 30-year Infrastructure Strategy also recommends investment in infrastructure to prepare for population change and provide better access to jobs and educational opportunities in major employment centres outside of the CBD.

The challenges of a radial public transport system

Melbourne's transport system has evolved and grown in response to how Melbourne itself has developed. Most of Melbourne's network was built between 1860 and 1930, constructed by private land owners looking to unlock the value of land in the suburbs and Melburnians escaping the city for land and property in these areas.

Built to support the transport of people from their residences in the suburbs to and from the city centre, Melbourne developed around a strong radial public transport network. As reliance on the CBD grew, so too did the radial transport network, servicing the demand of commuters accessing knowledge based jobs and services in central Melbourne.

Plan Melbourne and the Victorian Infrastructure Plan identify several committed and potential future transport projects, including Metro Tunnel and the Level Crossing Removal Program (as well as the West Gate Tunnel and North East Link road projects). This unprecedented level of investment in public transport will provide a significant uplift in transport network capacity, improving existing radial transport movements and unlocking capacity in the transport network connecting to the CBD.

To support the distribution of population and employment in Melbourne, further evolution of the transport network is required to connect people to jobs inside and outside of the CBD.





To support the distribution of population and employment in Melbourne, further evolution of the transport network is required to connect people to jobs outside of the CBD

A polycentric city that is well connected will provide more jobs in strategic areas



Comparison to cities with orbital rail

Train trips in Melbourne make up only 5 per cent of all weekly travel, while other major cities are able to attract a public transport mode share of 21 per cent and greater — in some cases up to 60 per cent.

Plan Melbourne has explored the approach of Melbourne becoming a polycentric city with multiple employment centres to reduce demand on the transport system and improve efficiency.

While the CBD will continue as Melbourne's largest employment centre, a polycentric city that is well connected will provide more jobs

and higher order services in strategic areas, such as employment centres and National Employment and Innovation Clusters (NEICs).

A review of cities that are polycentric indicates that train networks with higher public transport mode shares have infrastructure catering to a range of radial and orbital movements, as well as a more integrated approach to development.

Urban renewal in these cities is typically integrated with urban development, transport infrastructure and value capture.



Suburban Rail Loop — benefits to Victoria

Connecting priority growth precincts

Other than central Melbourne, which will continue to be a focus of activity, Plan Melbourne identifies areas across Melbourne that also need to grow or continue to grow.

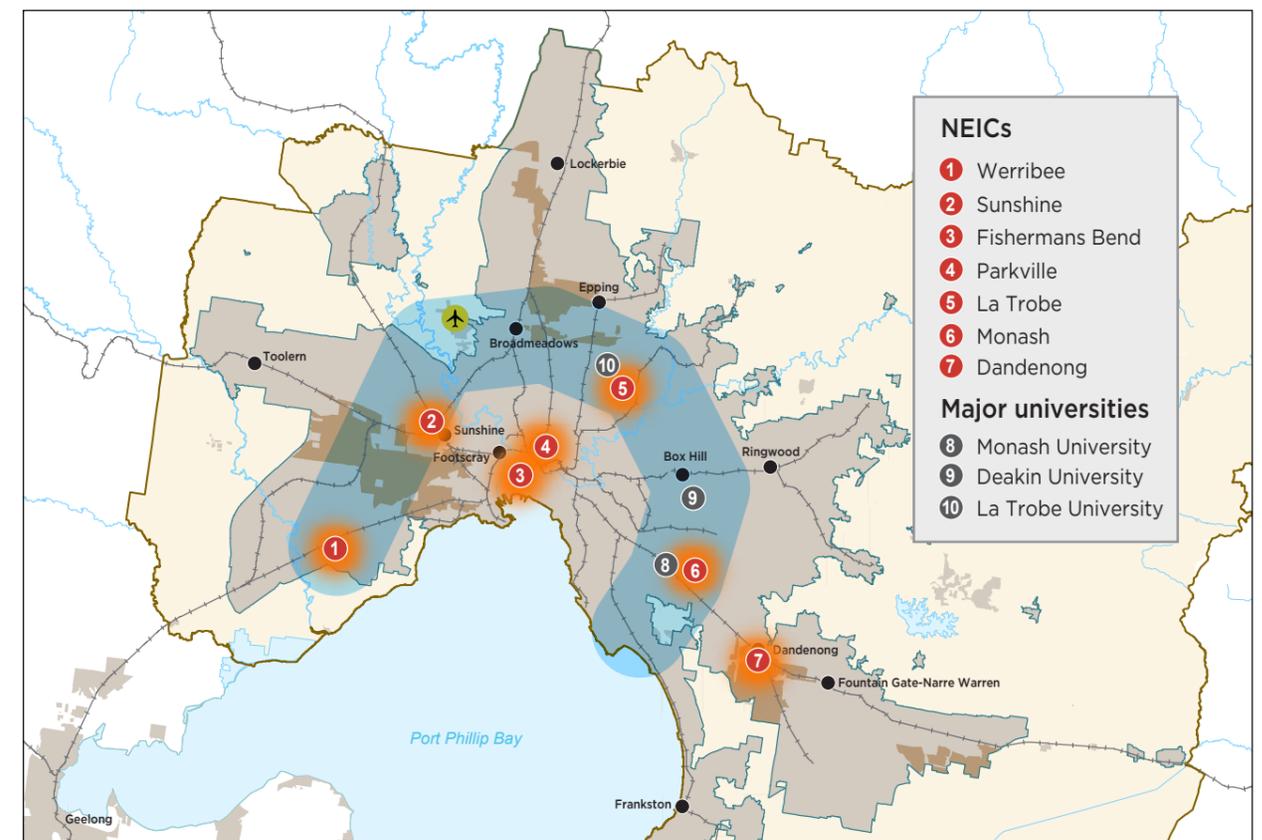
These include seven NEICs to increase business activity of national significance, as well as business cluster areas with the potential to support significant economic growth and development. The plan also highlights the importance of health and education centres that have specialised economic functions and provide opportunities for ancillary retail and commercial uses.

The Suburban Rail Loop would connect the middle suburban regions including the Monash NEIC, Burwood education precinct, Box Hill

Metropolitan Activity Centre (MAC), La Trobe NEIC, Broadmeadows MAC, Melbourne Airport, Sunshine NEIC and Werribee NEIC. It would connect three of our major university precincts — Monash, La Trobe and Deakin.

This corridor could be up to 90-kilometres in length, moving through the emerging western and northern suburbs, close to some of Melbourne’s largest growth areas, into the established eastern suburbs and some of the largest employment clusters and health and education precincts outside of central Melbourne.

The project would transform the way people access priority precincts, enabling more efficient transport movements to and between NEICs, activity centres, health and education centres.



Connecting Melbourne

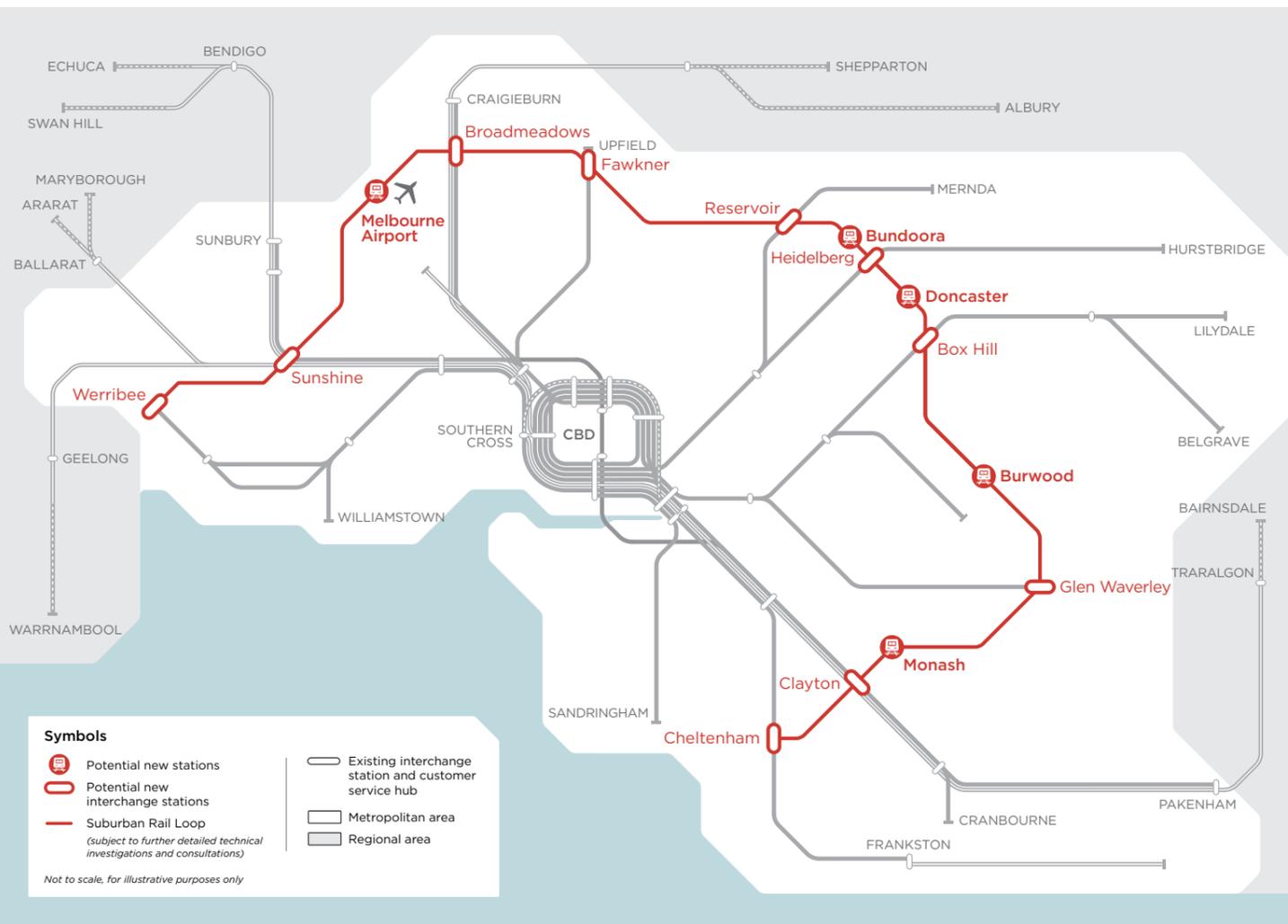
The Suburban Rail Loop could fundamentally change public transport access for Melbourne, directly connecting priority suburbs and precincts outside the inner city, reducing reliance on the radial transport network and road network.

In the east, the project would connect the Frankston line to the Melbourne Airport via the Monash activity centre, providing connections into major existing lines and better access to and from suburbs currently without efficient access to existing train lines.



Estimated travel times for the Suburban Rail Loop (approx)*

- 25 min** Clayton to Bundoora
- 35 min** Broadmeadows to Monash
- 25 min** Box Hill to Airport
- 45 min** Cheltenham to Airport



* Subject to final route selection.

The Suburban Rail Loop would provide a new option for people to access jobs and services outside the CBD. Many of the current trips across and around Melbourne are taken by car, taking longer than the expected travel times on the Suburban Rail Loop. Analysis of demand and patronage has been undertaken utilising the Victorian Integrated Transport Model to assess transport project demand and traffic movements.

This analysis suggests that by 2051, the section of the project between the Frankston line and the Airport would become the busiest stand alone rail line in Melbourne.

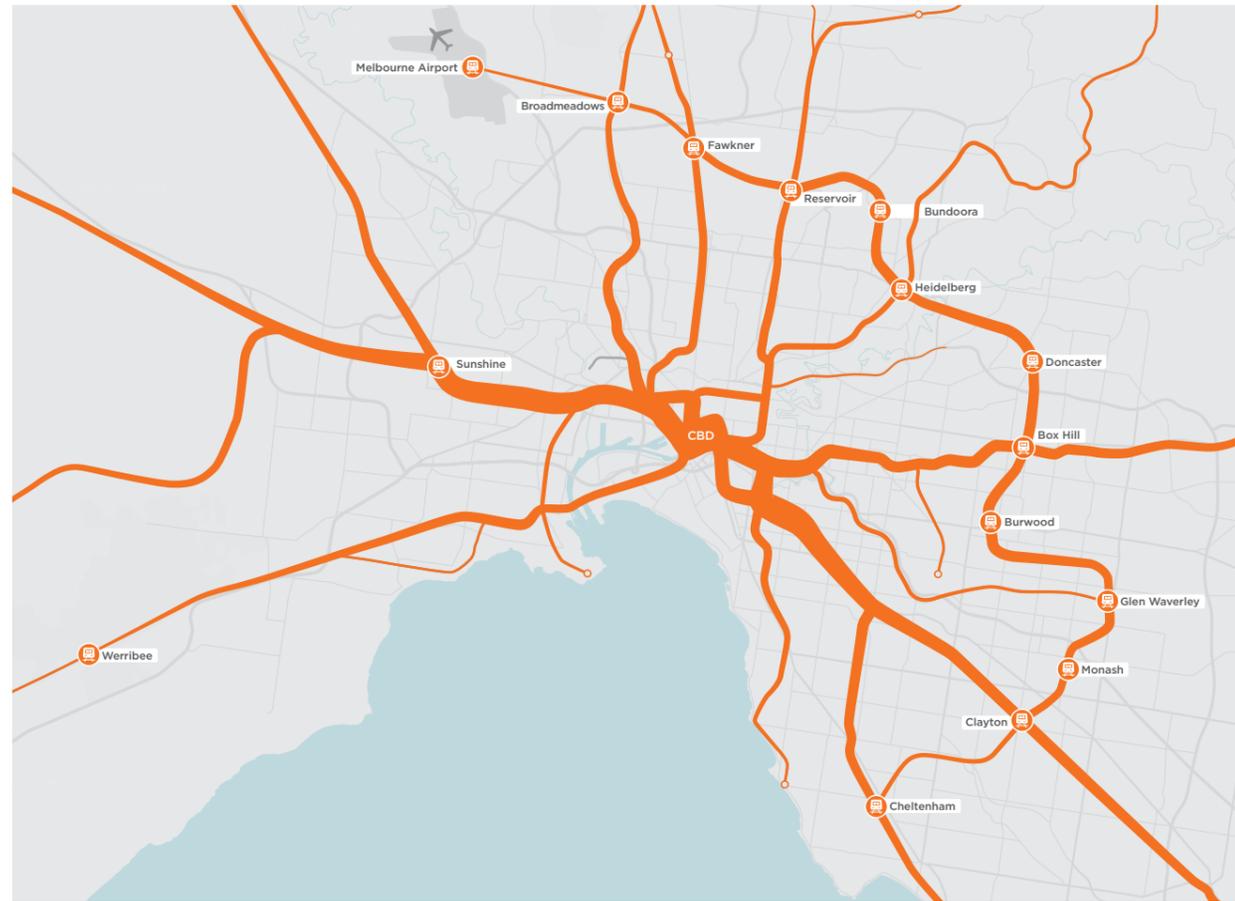
Unlike existing lines on the network, preliminary work shows the Suburban Rail Loop would have strong passenger flows in both directions (clockwise and anticlockwise) during peak hours.

There is an approximate 60:40 split (with the AM peak being in the clockwise direction). This compares with some existing lines in Melbourne operating with 90 per cent demand in the peak direction. This bi-directional flow reflects the nature of movements between the precincts, and would provide a more efficient system utilisation than experienced in the radial network and the movements to and from the CBD.

More people closer to jobs, more high productivity jobs outside the CBD

Total daily trips are estimated at around 210,000 per day in 2031 and around 400,000 per day in 2051. By 2051, many stations on the line would be among the busiest on the network. By 2051, services in the busiest hour are expected to be around 80 per cent full.

Strong demand: Suburban Rail Loop load 2051 AM Peak

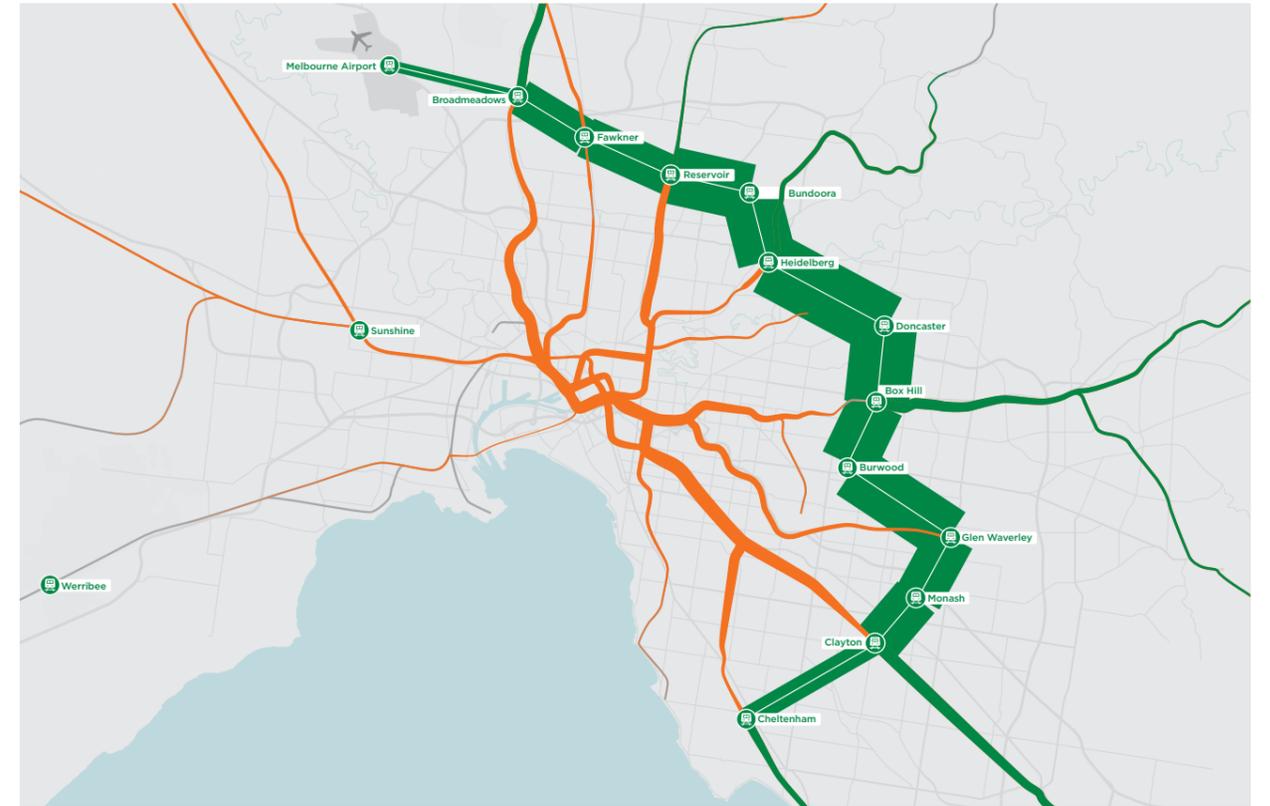


The Suburban Rail Loop would transform our transport network and be a major step towards introduction of a genuine metro style of operation, connecting with every major rail line from the Frankston line to the Werribee line via Melbourne Airport.

Suburban Rail Loop in 2051:

- Strong flows in each direction
- Services in busiest hour 80 per cent full
- Total daily trips – 400, 000 per day
- Busiest stand alone line in Melbourne.

Reducing pressure on the existing rail network: Daily network patronage redistribution (eastern) 2051



The project would ease demand on some existing rail lines, freeing up capacity for already heavily utilised lines. By interchanging with existing rail lines, it would increase network resilience and provide viable alternatives for existing train travel to the CBD.

The Suburban Rail Loop would be a fundamental refocus on public transport, shifting Melburnian's reliance on cars. The project is forecast to take around 200,000 vehicle trips off our major roads by 2051.



Connecting regional Victoria

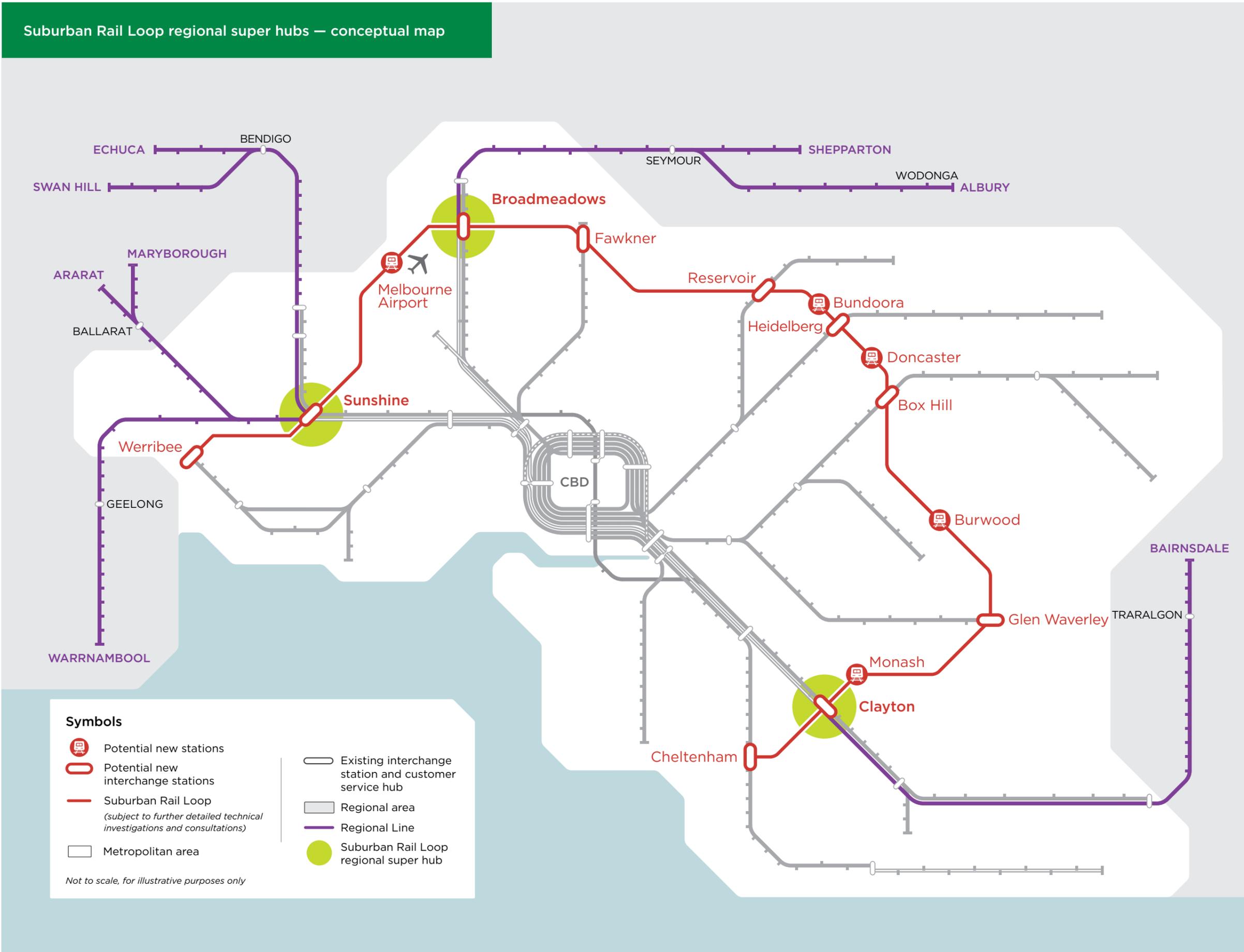
Regional Victorian passengers would benefit from interchanges at Clayton, Broadmeadows and Sunshine.

These direct connections into growing economic precincts outside the central business district, would provide Victorians with better access to economic opportunities as well as world-class education and health services.

Travel to and from the regions would become more reliable with around 200,000 vehicles forecast to be removed from our major roads as a result of a Suburban Rail Loop.

Regional super hubs

Three new regional super hubs would connect regional passengers into the Suburban Rail Loop to access a range of world-class health, education and employment opportunities along the project corridor.



Enabling growth and creating value

Improved transport access would enable growth around stations and within precincts. The Suburban Rail Loop would enable Melbourne to grow in strategic areas along the project corridor, with a focus on creating places and spaces that are vibrant, safe, accessible, intermodal and practical.

As well as transforming the way that people move around Melbourne, the project would be a catalyst for transforming communities and precincts along the corridor – particularly those where new stations would be introduced for the first time.

Many of the new underground stations would be integrated as major new interchanges with existing stations, providing an opportunity for precinct renewal.

Implementing the project together with strategic precinct plans would ensure that suburbs are more likely to grow in a way that meets the vision and outcomes reflected in Plan Melbourne.

A full business case should include the development of master plans for each precinct to be prepared in consultation with stakeholders and communities.



Creating places and spaces that are vibrant, safe, accessible, inter-modal and practical.





Delivering economic benefits

Given the level of patronage, the project is expected to deliver strong transport benefits to public transport and road users. Significant urban renewal benefits would also be generated due to increased density and urban amenity in station precincts.



Economic benefits of the project would include:



Productivity

Economic benefits resulting from enhanced business productivity and labour supply particularly associated by connecting NEICS, health and other precincts along the corridor and enabling broader interconnectivity between the new orbital and existing rail lines.



Liveability

Urban renewal benefits in precincts along the corridor with further liveability improvements as more people take advantage of living and working in a highly accessible area with high amenity along the project corridor.



Accessibility

Transport benefits associated with improved transport travel times, public transport frequencies and increased capacity along the corridor, and lower reliance on the existing radial rail network and roads resulting in improvements more broadly across the transport network.

The Suburban Rail Loop project

Defining the Suburban Rail Loop

Three potential broad corridors were considered for the project, reflecting the places of state significance set out in Plan Melbourne.

These three 'inner', 'middle' and 'outer' corridor options would loop around Melbourne from one side of Port Phillip Bay to the other, connecting to various lines on the existing radial rail network.

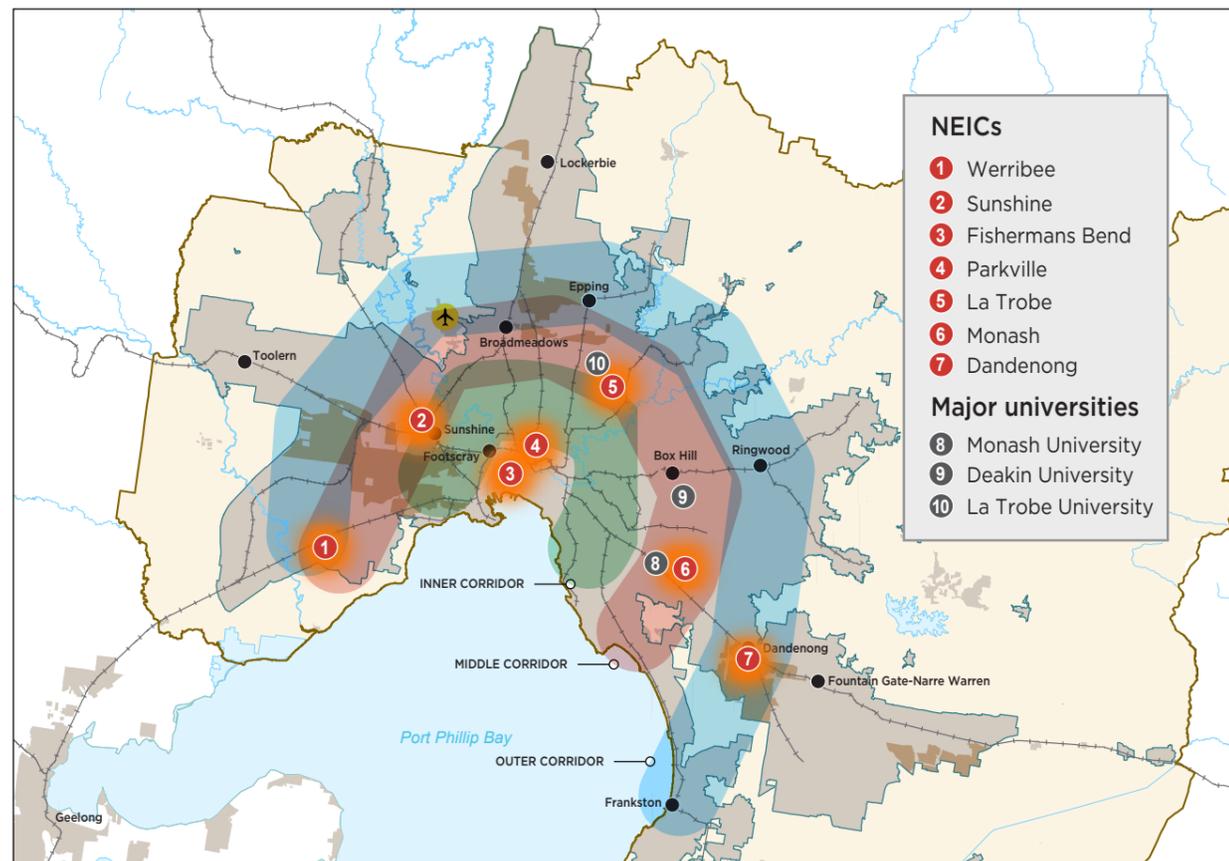
The three options were:

Inner: Connecting inner suburban regions, with opportunities to connect areas including Caulfield, Camberwell, Kew, Coburg, Essendon and Footscray.

Middle: Connecting middle suburban regions including opportunities to link Monash NEIC, Burwood, Box Hill, La Trobe NEIC, Broadmeadows, Melbourne Airport, Sunshine NEIC and Werribee NEIC.

Outer: Connecting middle-outer suburbs including Frankston, Dandenong NEIC, Ringwood, Epping, Melbourne Airport and outer west growth areas.

The middle corridor was identified as it provides the greatest opportunity to link NEICs and other major health, education and employment precincts. It also provides an efficient and integrated transport route which better connects all Victorians.



Assessment of corridor options

Plan Melbourne outcome	Key drivers	Assessment (highest ranked corridor in bold under each)
Melbourne is a productive city that attracts investment, supports innovation and creates jobs	<ul style="list-style-type: none"> Melbourne is a global city of opportunity and choice Change the shape of the city to support access to jobs and services in central Melbourne, NEICs, and MACs 	<p>The Inner corridor would not connect NEICs.</p> <p>Middle corridor would connect four NEICs along with other major health, education and employment precincts.</p> <p>Outer corridor would connect two NEICs and many other major health, education and employment precincts.</p>
Melbourne provides housing choice in locations close to jobs and services	<ul style="list-style-type: none"> People have options to live where they want Melbourne is inclusive Improve housing choices in liveable communities with good access to public transport and jobs 	<p>All corridors present opportunities for connecting housing closer to where people work.</p> <p>The inner corridor may be more challenging given levels of built up areas.</p> <p>Middle corridor would enable bigger uplift in housing choice for more people, particularly noting job rich areas in the middle corridor.</p>
Melbourne has an integrated transport system that connects people to jobs and services and goods to market	<ul style="list-style-type: none"> A transport system that meets the needs of a growing and changing Melbourne to better connect people with jobs and services Promote greater mode share of more sustainable transport options including public transport, walking and cycling 	<p>Inner corridor provides opportunity to integrate however this would overlap with existing tram network that provides many of these connections.</p> <p>Middle corridor could integrate well with the transport system, presenting an opportunity to connect with existing rail lines (metro and regional).</p> <p>Outer corridor could integrate with existing rail network yet will not connect with some existing lines reducing the catchment.</p>
Melbourne is a distinctive and liveable city with quality design and amenity	<ul style="list-style-type: none"> Protect Melbourne's status as an iconic and liveable city 	<p>This objective is not a distinguishing factor between the options.</p>
Melbourne is a city of inclusive, vibrant and healthy neighbourhoods	<ul style="list-style-type: none"> Develop a city of thriving local communities that are vibrant, safe, healthy and accessible with more 20-minute neighbourhoods 	<p>Middle and outer corridors present a better opportunity to create new 20-minute neighbourhoods across the city.</p>
Melbourne is a sustainable and resilient city	<ul style="list-style-type: none"> Help Victoria become a zero-carbon economy by 2050 Melbourne remains a healthy and productive city 	<p>Each corridor presents an opportunity to reduce emissions (reduced car use and energy efficient transport). This objective is not expected to be a distinguishing factor between options, although the inner corridor may not see as much mode shift and therefore less reduction in car usage.</p>
Regional Victoria is productive, sustainable and supports jobs and economic growth	<ul style="list-style-type: none"> Turn Melbourne into a city of centres linked to regional Victoria — creating social and economic opportunities across the state 	<p>The inner corridor would not be expected to encourage better links with regional Victoria.</p> <p>Middle and outer corridors present an opportunity to connect precincts with regional communities. Major stations like Sunshine, Clayton/Dandenong, and Broadmeadows present this opportunity.</p>

Precinct selection and station locations

The Suburban Rail Loop would connect with all the major passenger railway lines in Melbourne between Frankston and Werribee.

Preliminary selection of interchange points was based on the identification of key precincts along the corridor aligned with project objectives:

- identification of NEICs, MACs and other major health and education precincts
- identification of higher density residential locations along the corridor that would benefit from better connections to these major employment and activity precincts
- integration with the existing rail network
- ensuring an efficient transport route could be achieved.

The assumed station options are indicative and would be subject to detailed options analysis, design and engineering investigations and be informed through various levels of stakeholder engagement and data analysis as part of a full business case.



Potential Suburban Rail Loop stations

Potential station	Existing Features	Potential precinct vision
Cheltenham area		Maintain a strong retail focus around Southland Shopping Centre, with strong growth in this corridor.
Clayton (Part of Monash NEIC)		Focus on connecting to and growing the Monash Hospital and health precinct to the north.
Monash (Part of Monash NEIC)		Precinct will continue to grow and develop into a knowledge centre to support Monash University, as well as increased retail and community facilities in the area.
Glen Waverley		Precinct will maintain strong retail and employment growth.
Burwood area		Urban renewal opportunity to create a community that can support Deakin University.
Box Hill (Metropolitan Activity Centre)		Precinct currently experiencing high levels of residential and commercial growth which is expected to continue. Precinct is also an important health and knowledge centre supporting Box Hill Hospital, Epworth Eastern and the Box Hill Institute.
Doncaster area		Precinct will continue to cater for strong residential growth, with existing high density residential growth along Doncaster Road, near retail and commercial uses centred around Doncaster Shopping Centre.
Heidelberg (Part of La Trobe NEIC)		Precinct will continue to support the Austin Hospital, health and commercial uses, with opportunities for improved links.
Bundoora area (Part of La Trobe NEIC)		Precinct will continue to develop as an innovation and knowledge centre to support La Trobe University and other facilities in the area.
Reservoir		There are opportunities for intensification of residential and commercial / retail in immediate vicinity of the station, building on the existing retail centre.
Fawkner		The current lack of services and mix of uses in the area presents an opportunity for urban renewal centred around the rail interchange.
Broadmeadows (Metropolitan Activity Centre)		Precinct is expected to continue to grow and function as an employment and activity centre for the northern suburbs, with population growth in the northern growth corridor.
Melbourne Airport		Melbourne Airport is a major transport hub for Victoria servicing over 35 million passengers a year. The Melbourne Airport Rail Link project will connect to the airport via a super-hub in Sunshine.
Sunshine (Part of Sunshine NEIC)		Sunshine NEIC is a major activity precinct and transport hub in the west. Sunshine provides connections to the Airport, as well as for the Sunbury Railway line and Geelong, Bendigo and Ballarat regional services.
Werribee (Part of Werribee NEIC)		Werribee NEIC is an important precinct for the west of Melbourne. Many options exist for how Werribee and Sunshine could be connected. This would require further consideration in the full business case.

Potential other stations in the west – depending on the route selected for connecting key precincts in the west there may be potential for inclusion of additional stations. This would require further consideration in the full business case.



Metro Interchange



VLine Interchange



New Station

Project delivery

The Suburban Rail Loop would be a substantial investment and a project of this scale requires significant development and staged delivery over several decades.

Exact project staging, timing, route and construction methodology would be confirmed as part of a full business case for the project.

Cheltenham to Box Hill (south-east)

- Fully underground rail to minimise impacts
- Further technical assessment required to determine precise station locations, staging and construction timeline as part of the full business case
- Work could commence by end-2022.

Box Hill to Melbourne Airport (north-east)

- Fully underground rail to minimise impacts
- Further technical assessment required to determine precise station locations, staging and construction timeline as part of a full business case.

Melbourne Airport to Sunshine (north-west, Airport Rail Link)

- Potential sections of underground and surface rail
- Technical assessment being undertaken as part of the Melbourne Airport Rail Link
- Work could commence in 2022.

Sunshine to the Werribee line (south-west)

- Potential sections of underground and surface rail
- Further technical assessment required for this stage as part of the full business case
- Would be constructed in sections over a period of decades.

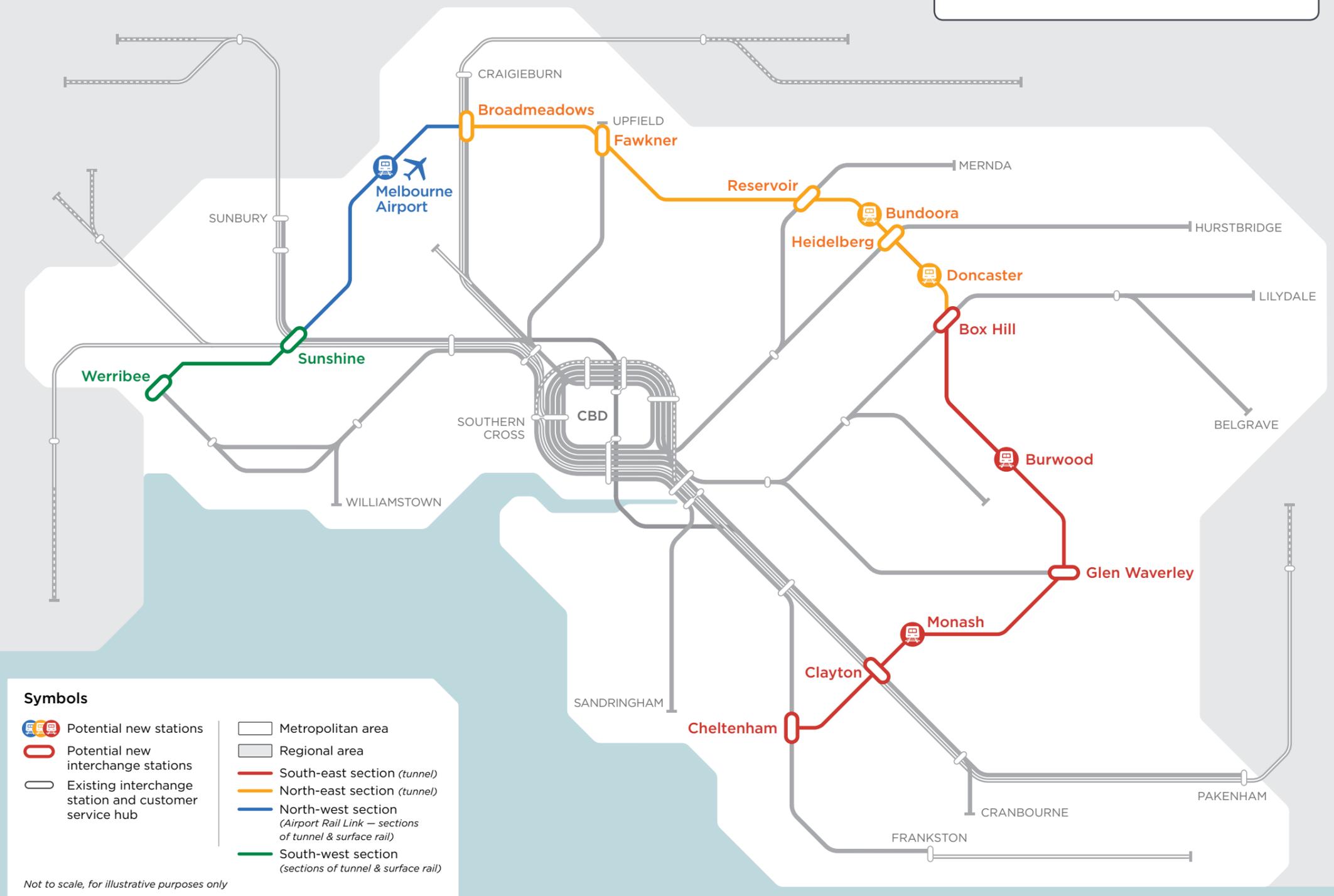
Staging options

The target to begin work on the Melbourne Airport to Sunshine section of the project as part of the Airport Rail Link is 2022.

Delivery priority

In the east, connection of major NEICs, education, health and retail precincts would be the key focus with the south-east section between the Frankston line and Box Hill considered the priority for delivery. Work could commence by end-2022.

A full business case would consider the best staging approach and sequencing within sections.



Project cost and funding

Further technical work would be needed to define the estimated cost of the Suburban Rail Loop as part of a full business case.

The combined Suburban Rail Loop south-east and north-east sections are expected to cost in the order of \$30-50 billion to be delivered over several decades. The Melbourne Airport Rail Link section is expected to cost \$8-13 billion.

The Suburban Rail Loop would be a significant investment and opportunities to offset capital costs and capture value should be considered in a full business case.

This would include direct commercial arrangements or developments at stations together with broader value capture mechanisms. These mechanisms would draw on recent policy examples, such as the development contribution scheme at Macaulay.



Next steps

This Strategic Assessment has confirmed that investment in the Suburban Rail Loop is warranted.

The key next step should be the development of a full business case, with potential interim milestones to inform continued investment in the project given its scale and complexity. This would enable work on the Suburban Rail Loop to commence by end-2022.

Business case

A full business case for the project would be informed by further technical work, industry engagement and stakeholder consultation. Business case development could commence in early-2019.

Market engagement

Market engagement with industry would be required to inform the business case development, and to seek innovative technical and commercial solutions for the project. Innovative financing and funding approaches should also be explored, particularly those aimed at offsetting the capital cost of the project through developer contributions and value capture.

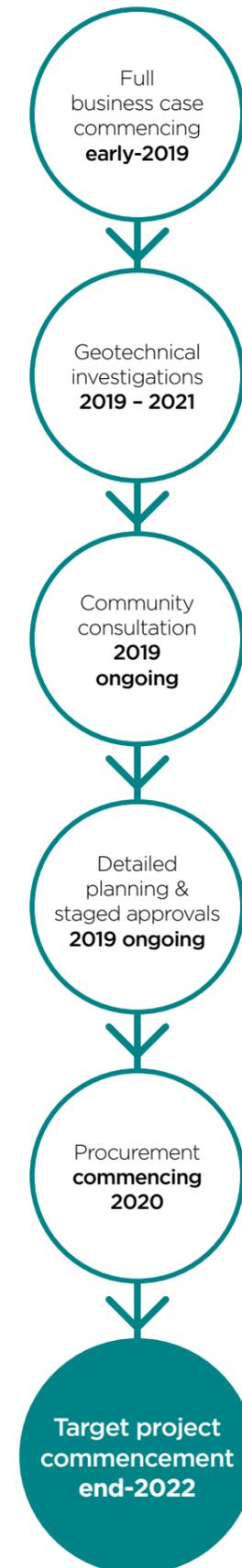
Consultation

An extensive stakeholder consultation process should be undertaken and could commence in early-2019 to seek input from communities, local government, peak bodies, developers and key health, education, retail and industry stakeholders along the project corridor.

Planning and technical development

Detailed technical and planning work would be needed to develop the project scope and assess the economic, social and environmental impacts of the project. This work would help to inform the project business case, as well as appropriate planning and approval processes to enable project delivery.

Indicative timeline



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