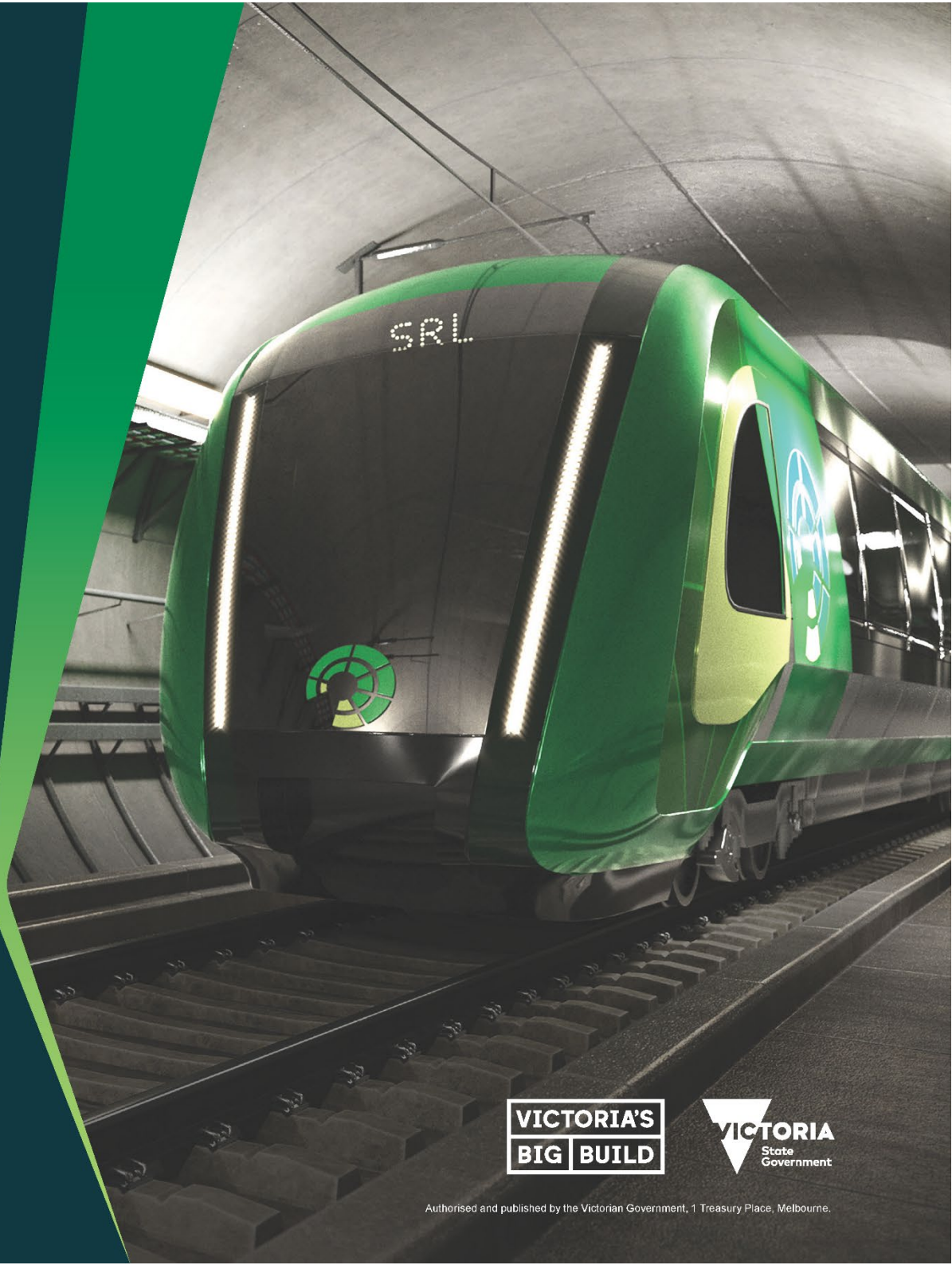
SUBURBAN RAIL LOOP EAST

# Environment Effects Statement Summary Report

SUBURBAN RAIL LOOP AUTHORITY




VICTORIA'S BIG BUILD

VICTORIA State Government

Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.

## Acknowledgement

The Suburban Rail Loop Authority respectfully acknowledges the Traditional Owners of the land and pays respect to their Elders, past, present and emerging.

# Contents

# Introduction

## Suburban Rail Loop (SRL) East

**Suburban Rail Loop (SRL) East would create a brand-new modern 26 km underground rail line in the middle ring of Melbourne suburbs that would be capable of moving passengers from the SRL station at Cheltenham to the SRL station at Box Hill in around 22 minutes.**

Melbourne needs a transport network that not only manages the significant expected growth of the city, but also meets the community's needs and diverse travel patterns. SRL East (the Project) is the first of several proposed projects that would create a Melbourne first – orbital rail travel around Melbourne's middle suburbs from Cheltenham to Werribee, including a station at Melbourne Airport.

With six new underground stations proposed between Cheltenham and Box Hill, and connections to the existing radial rail network, Victorian public transport users would have flexibility to optimise their journey times and move around the suburbs efficiently using a turn-up-and-go service, relieving crowding pressure on the inner sections of the radial rail network. The Project would also mean that public transport users can more easily navigate disruptions to the radial network services.

The SRL stations, complete with pedestrian, active and intermodal transport connections, would provide faster and easier travel to major hospitals and employment centres and connections to world-class universities which do not currently have rail access.

In addition to providing transport and connectivity benefits, the Project aims to deliver thousands of jobs. While there would be over 8,000 direct jobs created during construction and delivery, jobs in the areas connected to the new stations, enabled and supported by the stations and rapid transit times, would also grow. Boosted access to jobs means more employment opportunities and a greater likelihood that people will be able to find employment aligned to their skills and qualifications.

Liveability would also be enhanced with new and improved social infrastructure such as new and upgraded walking and cycling paths and public areas invigorated and more accessible. Access to health care, urban design and sustainability outcomes have all been considered in developing the Project.

The Project proponent is Suburban Rail Loop Authority (SRLA). SRLA is responsible for overseeing the planning and delivery of SRL, including the preparation of this Environment Effects Statement (EES).

# The need for SRL East

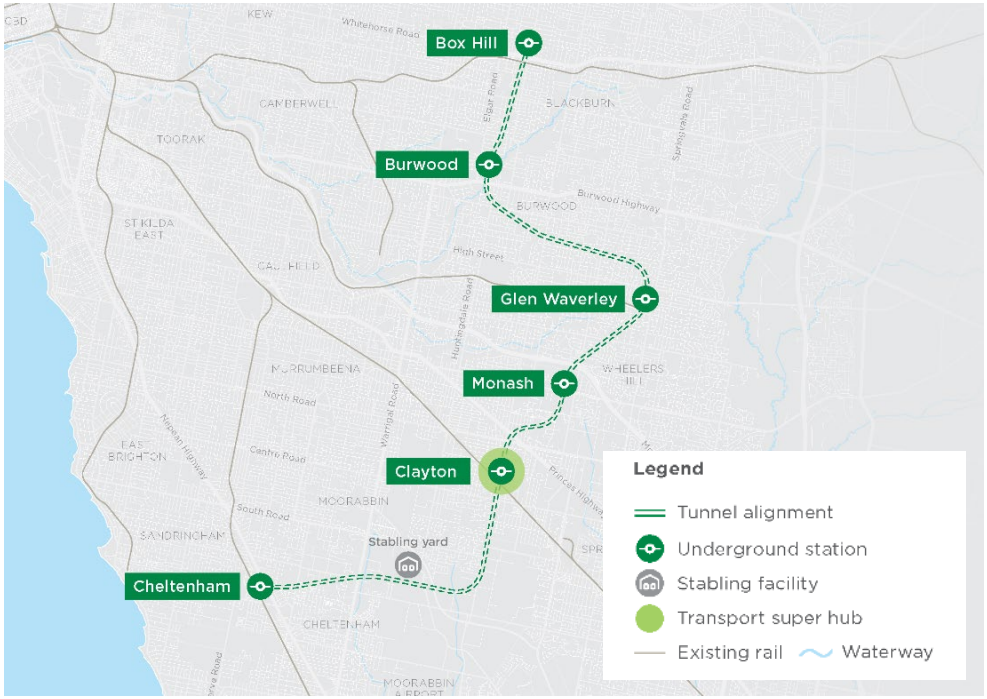
## Challenges facing Melbourne

There are three critical challenges facing Victoria:

1. Melbourne's urban form focussed on the central city is constraining economic growth
2. The concentration of population growth in the inner and outer suburbs of Melbourne is contributing to inefficient infrastructure and service provision
3. Inequitable access to affordable housing, jobs and services is entrenching disadvantage.

Growing reliance on private vehicles in areas not well served by passenger rail, and increasing use of the radial rail network, leads to congestion in the transport network. These factors threaten Melbourne's reputation for liveability which is critical to remaining competitive in attracting global talent and business investment.

With an integrated approach to deliver improved transport connections and precinct initiatives, Suburban Rail Loop responds to the challenges and opportunities presented by Melbourne's current pattern of growth. SRL East is the critical first step to transforming the shape and growth trajectory of Melbourne.




## Shaping Melbourne for the future

To support a productive city, Melbourne's transport system must better connect job-rich areas with where people live. Transport planning integrated with land use planning results in better linkage of people to work, school, services and play, influencing where businesses choose to locate and where a person chooses to live. Locations become more attractive, catalysing the '20-minute' neighbourhood that implements *Plan Melbourne* outcomes.

More broadly, integrated transport planning can continue to influence behaviour and generate land use changes long after it has been built. When areas become more attractive because of city-shaping infrastructure, this can lead to a shift in urban form including density changes and new mixed-use opportunities in a precinct.

**What are SRL precincts?**

An SRL precinct is the area within a 1600 metre radius around the new SRL station at each location. This area reflects the objective of *Plan Melbourne* to create 20-minute neighbourhoods and is based on the distance an adult would generally cover in 20 minutes walking.

## Project benefits

Planning for the six SRL stations seeks to deliver significant benefits and opportunities for services and local amenity by providing the infrastructure needed to connect people to jobs, education and services across Melbourne's middle suburbs. The Project builds on Melbourne's extensive network of existing and planned transport infrastructure, and responds to *Plan Melbourne,* laying the foundation for a creating a city of centres that will transform the way we travel. The Project would:

- Improve public transport access through better servicing customer demand and improving journey times and passenger flows. For example, crowding would be reduced on the inner sections of the busiest radial lines of Frankston, Cranbourne and Pakenham, and the train journey between Cheltenham and Clayton would be slashed from 45 minutes to under 10 minutes.
- Support the development of an integrated transport network by providing connectivity to existing metro lines and between transport modes, and by creating interchanges / intermodal transport centres including a new transport super hub at Clayton linking regional passengers to the orbital network.
- Improve connectivity between employment centres and population catchments across Melbourne, including Education Precincts at Clayton, and Metropolitan Activity Centres (MACs) at Box Hill, Cheltenham and Glen Waverley, and Victoria's largest National Employment and Innovation Cluster (NEIC) at Monash. The number of jobs accessible within an hour by public transport would be significantly increased in the municipalities of Bayside, Monash, Greater Dandenong and Whitehorse.
- Improve public transport options in Melbourne's middle suburbs and support the delivery of public transport, jobs and housing in closer proximity to one another. Public transport connectivity would be substantially improved across Melbourne's middle suburbs in the east and south east, especially in Monash and Burwood which do not currently have access to fast and convenient transit options.
- Support 20-minute neighbourhoods and liveable precincts that promote community cohesiveness, amenity, community facilities, public spaces and green areas. Public transport connectivity to several major healthcare precincts would be enhanced, enabling access to Monash Medical Centre by public transport including for regional Victorians.

## What happens if the Project is not built?

- Without the Project, the population growth of Melbourne's middle suburbs will continue to remain low. Travel times to work will increase, reducing job accessibility and affecting workforce participation rates and broader productivity.
- Congestion and over-crowding on the existing public transport network into the CBD will further increase if high value jobs are focused generally in the central city, with job accessibility across the middle suburbs continuing to be unrealised. There will be a lost opportunity to capture the high-value, knowledge-based city of centres that is envisaged as part of SRL.
- Melbourne's central city will come under more pressure, and the benefits of businesses being clustered together will begin to be outweighed by the costs.
- Melbourne will become a less attractive investment location and businesses may relocate to other major Australian cities, diminishing the productive potential of the Victorian economy.

# Planning for SRL East

## Requirement for an EES

The EES was required by the Minister for Planning in a *Public Works Order* made under the *Environment Effects Act 1978*.

The Minister determined that an EES "*will provide a transparent and integrated framework for assessing potential effects, taking into consideration design options, scheduling and mitigation alternatives for planning and delivery of the project, and an evaluation of the effectiveness of proposed measures to avoid, minimise, manage and offset environmental effects*."

## Scoping requirements and evaluation objectives

The scope of the EES assessment was set by the Minister for Planning in the procedures and requirements in the *Public Works Order* and in the EES *Scoping Requirements*.

The procedures and requirements emphasised the need for the EES to address the following:

- Amenity due to changes in visual, noise, vibration, air quality, transport and traffic and land use conditions
- Social wellbeing due to residential acquisition, loss of access to public open space and community facilities and disruption to residents
- Businesses and economic wellbeing due to acquisition of commercial and industrial land, changes in land use and disruption to business activities
- Disturbance to contaminated soils and groundwater, changes in surface water, geophysical conditions including with respect to land stability, and the management of spoil.

The *Scoping Requirements* set out evaluation objectives and the environmental matters to be investigated and documented in the EES. To address these evaluation objectives, SRLA undertook 19 technical studies to evaluate the potential environmental effects of the Project.


| Evaluation objective | Technical study |
|---|---|
| **Aboriginal cultural and historical heritage** - Avoid or minimise adverse effects on Aboriginal and historical cultural heritage values and maximise opportunities to appropriately complement and preserve these values. | • Aboriginal Cultural Heritage<br>• Historical Heritage |
| **Amenity and environmental quality** - Avoid or minimise air quality, noise and vibration effects on the amenity and health of nearby residents and local communities and protect sensitive infrastructure. | • Air Quality<br>• Electromagnetic Interference<br>• Airborne Noise<br>• Vibration and Ground-borne Noise |
| **Biodiversity and arboriculture** - Avoid or minimise adverse effects on vegetation (planted, remnant and regenerated), tree canopy and native terrestrial and aquatic flora and fauna. | • Ecology<br>• Arboriculture |
| **Business and retail** - Avoid or minimise adverse effects on businesses include upon their functionality, access to services and facilities provided by businesses and on the retail economic environment. | • Business and Retail |
| **Contaminated land and spoil management** - Avoid adverse environmental effects resulting from the disturbance and handling of contaminated or acid-forming material and minimise spoil generation, maximise reuse and manage spoil in accordance with best practice principles. | • Contaminated Land |
| **Greenhouse gas emissions and resource efficiency** - Avoid and minimise greenhouse gas emissions and capitalise on opportunities to reduce waste and use resources efficiently. | • Greenhouse Gas |
| **Landscape, visual, recreational values and built form** - Avoid or minimise adverse effects on landscape, visual amenity, open space, recreational and public realm values and capitalise on opportunities to enhance these values. | • Landscape and Visual |
| **Land use planning and infrastructure** - Achieve integration with adjoining land uses, minimise displacement of land use activities and key infrastructure and resolve inconsistencies with strategic land use plans. | • Land Use and Planning |
| **Social, community and public health** - Avoid or minimise adverse effects on the community near the project, including with regard to community cohesion, access to services and facilities and health impacts and capitalise on opportunities to enhance benefits for communities. | • Social and Community<br>• Human Health |
| **Surface water, groundwater and land stability** - Avoid or minimise adverse effects on the interconnected surface water, groundwater and floodplain environments and on land stability. | • Surface Water<br>• Groundwater<br>• Ground Movement |
| **Transport and traffic management** - Enable a significant increase in the capacity of the metropolitan rail network and improve transport connectivity and multimodal connections while minimising the adverse effects of the works on the broader and local public transport, cycling, pedestrian and road networks and their users. | • Traffic and Transport |

## Outline of EES documentation

The structure and content of the EES aligns with the Minister's *Scoping Requirements* and *Evaluation Objectives*, comprising the following four main components:

| Summary report | Specialist technical study reports |
|---|---|
| A non-technical summary document of the EES for the Project, including key points, features and impacts (this document). | Evaluation of the potential environmental effects of the Project. |
| **Digital EES** | **Attachments including EES map book** |
| Equivalent to this is the EES Main Report presented as an interactive website. Provides a plain English integrated analysis of the potential effects of the Project. | The map book depicts the location of key Project components and the Project Land.<br>Attachments include the Environmental Management Framework, the Urban Design Strategy, draft Approval documents and supplementary documentation relevant to the EES. |

## Environmental Management Framework

An *Environmental Management Framework* (EMF) (Attachment A to the EES) was developed for the Project to provide a transparent and integrated framework to manage environmental effects during construction and operation. The EMF would be included in the overall governance framework for the delivery of the Project, and outlines roles and responsibilities, as well as *Environmental Performance Requirements* (EPRs) developed to protect environmental values and/or assets.

The EMF embeds the General Environmental Duty and other duties under the *Environment Protection Act 2017* into the environmental management framework for the Project.

## Environmental Performance Requirements

EPRs define the environmental outcomes the Project must achieve during design, construction and operation. The EPRs are intended to minimise impacts and the risk of harm to human health and environment to the extent reasonably practicable.

The EPRs are a suite of performance-based environmental standards and outcomes that have been developed to address environmental risks and impacts identified in the EES. The EPRs describe the outcomes to be achieved, rather than how they should be achieved. This performance-based approach enables a delivery model that is flexible and encourages innovation through the procurement process by allowing tenderers to determine how EPRs would best be achieved, while developing and optimising the Project's design and construction methodologies.

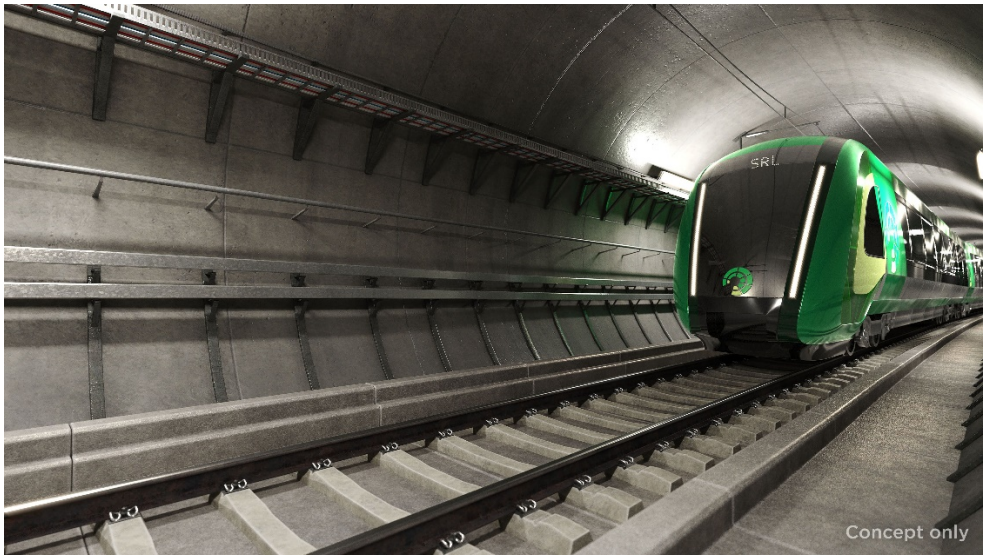
## What is not covered by the EES?

The *Public Works Order* and *Scoping Requirements* limit the need for the EES to consider initial works (such as service relocations), the future development of land surrounding the new SRL stations, future sections of SRL or other transport projects. The cumulative effects of these matters are considered in the EES, but they will be subject to separate planning, assessment and consultation processes.

## Technical Reference Group

The Department of Environment, Land, Water and Planning (DELWP) established a Technical Reference Group (TRG) to advise SRLA and DELWP on the scoping and adequacy of the technical studies during the preparation of the EES, and coordination with statutory approval processes. The TRG has advised and assisted DELWP and SRLA in the preparation of the EES through design and adequacy reviews of all the specialist technical study reports, reviews of the digital EES, as well as participating in briefings and workshops to ensure the *Scoping Requirements* are met and that the draft EES documentation is technically adequate and complete.

In addition to DELWP, the members of the TRG included Department of Health, Department of Transport, First Peoples State Relations, Heritage Victoria, Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation, Bunurong Land Council Aboriginal Corporation, Victorian Planning Authority, Melbourne Water, Environment Protection Authority, City of Bayside, City of Kingston, City of Monash and City of Whitehorse.



## EES process

- SRLA provided a Project Outline to the Minister for Planning
- The Minister declared the project to be 'public works' requiring an EES
- Initial works are excluded from the 'public works' for which an EES is required
- DELWP established a TRG to advise SRLA and DELWP during EES preparation
- The Minister issued Scoping Requirements for the EES following public exhibition
- SRLA prepared the EES in accordance with the Scoping Requirements and was informed by stakeholder and community engagement
- **The EES is placed on public exhibition.** During this time, stakeholders and members of the public can make formal submissions.


- Consideration of submissions received during public exhibition
- An independent Inquiry and Advisory Committee is appointed by the Minister for Planning to review the EES and public submissions, and facilitate a formal public hearing. The Committee reports to the Minister
- Minister prepares an assessment considering all relevant information including the EES documentation, public and stakeholder submissions, SRLA's submissions, and the report prepared by the Inquiry and Advisory Committee
- The Minister's assessment must be considered by decision-makers in deciding whether to approve the project under the relevant legislation

The EES process provides opportunities for members of the public to make submissions about the project – refer to *'Making a submission'* at the end of this summary report.

## Project approvals

### Planning scheme amendment

The key approvals required under Victorian legislation for the Project to proceed are amendments to the Bayside, Kingston, Monash and Whitehorse planning schemes under the *Planning and Environment Act 1987*.

The EES will be on public exhibition with a draft Planning Scheme Amendment (PSA). The PSA is the key approval that will provide planning approval for the rail and infrastructure components of SRL East, and put in place a planning control to protect the rail and infrastructure from development that may compromise the structural integrity of the infrastructure and the operation of SRL.

### Cultural Heritage Management Plan

Where an EES is required under the *Environment Effects Act 1978*, the project proponent must also prepare a Cultural Heritage Management Plan (CHMP) under the *Aboriginal Heritage Act 2006*.

The preparation of CHMPs for SRL East has commenced in consultation with Registered Aboriginal Parties (RAPs) - the Bunurong Land Council Aboriginal Corporation and Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation - to ensure areas of potential cultural heritage sensitivity are managed appropriately. Works assessed in the EES cannot commence until the CHMPs are approved by the relevant RAPs.

### Other approvals

Several other approvals are potentially required under Victorian legislation for the project to proceed, including consents, licences and permits in relation to the *Road Management Act 2004, Pipelines Act 2004, Water Act 1989, Flora and Fauna Guarantee Act 1988, Wildlife Act 1975* and the *Heritage Act 2017*.

# Key project features and activities

## Project operations

A journey from the SRL Station at Cheltenham to the SRL Station at Box Hill would take about 22 minutes, with trains taking 3 - 4 minutes between stations.

Trains would start service running west from the Stabling Facility to the SRL station at Cheltenham, and then stop at all stations to the SRL station at Box Hill, on a turn-up-and-go basis. Trains would operate five days a week for 20 hours, and two days a week for 24 hours. This would provide a four-hour maintenance window for the tunnel, five nights each week.

The SRL railway line would operate at a top speed of 100 km/h. Trains would operate as a turn-up-and-go service between Cheltenham and Box Hill, initially at 6 minute intervals during peak periods. The design of the Project's operating systems and infrastructure enables a 2-minute wait between services as demand increases.

Stations have been designed to be as shallow as possible to minimise travel times for passengers from streel level to platform. SRL stations will fully integrate with our existing public transport system, allowing passengers to easily transfer across both networks by connecting to our metropolitan and regional services.

The Stabling Facility would operate continuously. Routine maintenance works in the train maintenance facility would most likely occur during the day when trains are out of service, although some night works may be required.

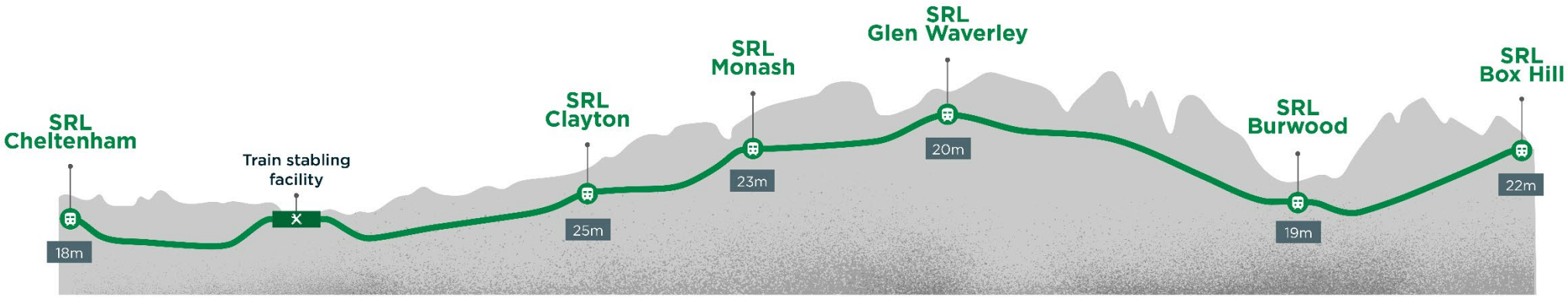
## Tunnels

The Project features a twin tunnel, stand-alone rail line that enables passengers to efficiently interchange to the existing public transport network.

Tunnelling is complex because of the different types of ground and rock formations, and the existing buildings and infrastructure associated with the suburbs above. The tunnel alignment was selected based on a range of factors including geology, topography, existing below-ground infrastructure such as basements, and the presence of sensitive equipment that occur at medical, educational and research facilities.

The tunnels would begin in the Sir William Fry Reserve at Highett, and head east to the Stabling Facility. All trains would come to the surface at this location. The tunnels gradually climb to ground level via the western dive structure for trains to access the Stabling Facility or use the eastern dive structure to return to the tunnels. From the Stabling Facility, the tunnels head east under Kingston Road before turning north toward the SRL station at Clayton, and then continue in a northerly direction along the reminder of the alignment to the SRL station at Box Hill, where the SRL East rail line ends.

The tunnels would mostly range between 20 to 40 metres below the surface, with the deepest point up to 60 metres below ground under Riversdale Road, Burwood. The SRL Stations are located approximately 18 to 25 metres underground,. Comparatively, Melbourne's City Loop station platforms are about 30 metres underground, with Parliament station 39 metres below the city streets.




*Indicative, station depths reflect the distance to the excavated station box to the ground level. These depths are subject to change.*

# Construction of tunnels and cross passages

## Construction of tunnels

The Project's twin tunnels would be constructed with custom-built tunnel boring machines (TBMs) to minimise disruption at the surface, limit the disturbance to the surrounding ground, and produce a smooth tunnel wall.

TBMs progressively excavate the tunnels, installing precast concrete sections behind and lining the seal between sections with grout. The TBMs can bore through a variety of geological conditions including rock and sand and are suitable for use in densely populated urban areas. TBMs have been used on other Victorian tunnelling projects such as the Metro Tunnel Project.

## TBM launch strategy

The tunnel sections between stations would be excavated at different times. For example, the tunnels from the Stabling Facility to Clayton would be the first section to be excavated in the Project schedule, and the tunnels from the Stabling Facility to Cheltenham would be last.

The sequence of tunnelling, and the launch and retrieval sites for TBMs, is called a TBM drive. The proposed TBM drives for the Project are described in the table below.

| TBM drive | TBM launch | TBM to | Drive lengths (estimated time) |
|---|---|---|---|
| 1 and 2 | Stabling Facility | SRL station at Clayton | 4.73 km (2 years) |
| 3 and 4 | SRL station at Monash | SRL station at Clayton | 2.6 km (1 Year) |
| 5 and 6 | SRL station at Burwood | SRL station at Glen Waverley | 5.8 km (2 Years) |
| 7 and 8 | SRL station at Monash | SRL station at Glen Waverley | 3.3 km (1.5 Years) |
| 9 and 10 | SRL station at Burwood | SRL station at Box Hill | 3.7 km (1.5 Years) |
| 11 and 12 | Stabling Facility | SRL station at Cheltenham | 3.3 km (1.5 Years) |

TBMs are proposed to be launched from dive structures at the Stabling Facility and from tunnel access shafts at the sites for the SRL stations at Monash and Burwood. Spoil is pumped to the surface to a treatment plant at the launch site of each TBM.

Tunnel access shafts provide construction access to the tunnels that are independent from the corresponding station box, providing a safe and efficient working area.

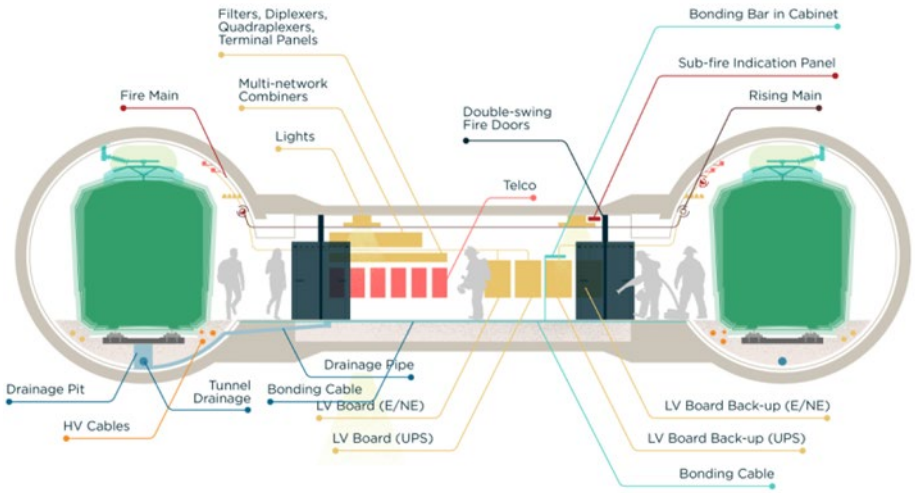
Underground tunnelling works would generally occur 24 hours a day, 7 days a week, which includes servicing and maintenance, along with above-ground sites that support tunnelling at the Stabling Facility, and at the SRL stations at Monash and Burwood. Given the hours of tunnelling works, adequate lighting would be maintained at all TBM sites. Lighting would be designed to minimise light spill from the site, while maintaining safe working conditions.

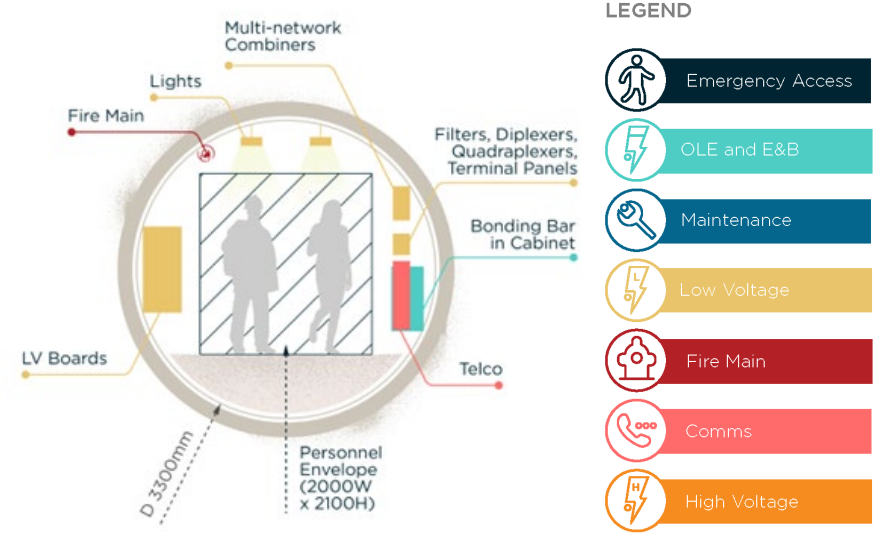
## Cross passages

The twin tunnels would be connected with underground cross passages at various points along the Project alignment. These provide emergency access for passengers to the 'safe' tunnel in the case of an incident, and access to the incident from the 'safe' tunnel for emergency services. The cross passages also accommodate rail systems, mechanical, electrical and plumbing equipment and drainage at low points of the rail alignment.

Cross passages would be constructed at varying intervals along the entire length of the Project at distances between 100 – 500 m, generally located under side streets using local roads as the construction footprint.


*Image courtesy of the Metro Tunnel Project*



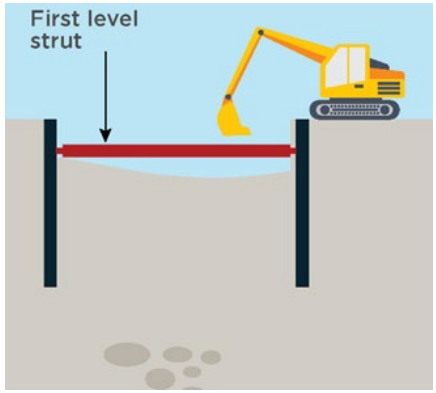




# Construction of stations

## Methodology

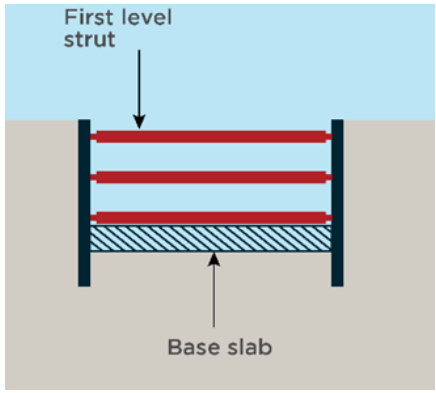
The SRL East stations would be built using a 'bottom-up' method, which involves excavating the station box before building the permanent station structures up toward ground level. The design of above-ground elements of stations would reflect the character of each local community, consistent with the Urban Design Strategy.

### Excavation and installation of steel struts



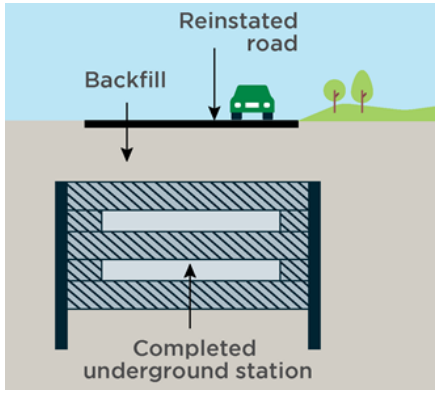

The bottom-up method of construction involves using excavation equipment to dig a large trench or rectangular hole in the ground for the station box footprint. Underground retaining walls are installed before excavation commences.

### Construction of underground structures




Soil is excavated level by level. Struts are used to support the structure until the final depth is reached. A concrete slab is then constructed at the base. Works move upwards, using concrete panels to form the various levels and internal structures.

### Backfilling and reinstatement




The process continues upwards until the roof slab is completed. After the roof slab is completed, soil is backfilled to the top strut level before the strut is removed. This is followed by backfilling the top of the underground structure and reinstating the surface area.

## General construction activities

Construction activities at station sites, Stabling Facility and Emergency Support Facility vary but would generally involve the following:

- Relocation of utilities
- Relocation of public services (for example trams or buses)
- Demolition of existing structures
- Modification, deviation or closure of affected roads
- Earthworks to prepare site and construction of temporary site compound
- Construction of walls for station box excavation
- Establishment of tunnel boring structures and facilities to enable tunnel excavation
- Installation or upgrade to power supply substation where applicable
- Excavation and construction of station box using the bottom-up method, including spoil removal
- Spoil management
- Construction of pedestrian overpasses/underpasses where applicable
- Station fit-out and construction of above-ground structures
- Completion of any civil works, landscaping and other finishing works.

Most of the construction activities on the above-ground components of the Project and spoil removal would occur during normal working hours - that is, Monday to Friday from 7 am to 6 pm, and on Saturday from 7 am to 1 pm. Some above-ground construction work may occasionally occur outside of these hours, in which case relevant stakeholders would be advised in advance.

## Construction program

A schedule of indicative key dates for delivery of the Project has been developed.

| Activity | Indicative start |
|---|---|
| Early Works | Q4 2022 |
| Main Works | Q4 2024 |
| SRL East begins operating | 2035 |

## Urban Design Approach

SRL East provides a unique opportunity to plan for future services, amenity and infrastructure across Melbourne's middle suburbs. SRLA has established an Urban Design Strategy Panel to assist in establishing key urban design outcomes for the Project. The Suburban Rail Loop East Urban Design Strategy (Urban Design Strategy) has been developed to enable achievement of the outcomes.

The Urban Design Strategy would contribute to positively shaping key areas between Cheltenham and Box Hill. It outlines the design and quality expectations for the Project and seeks to ensure urban design objectives are achieved for local areas. The performance-based design brief would encourage innovation to be incorporated into delivery of the Project and support optimisation of the design quality. It includes a range of project-wide requirements and benchmarks that define expectations for components across the Project such as station environs, public spaces, streets, materials and finishes and green infrastructure. It also sets out a range of local urban design outcomes and place-specific requirements for the Project stations and other infrastructure.

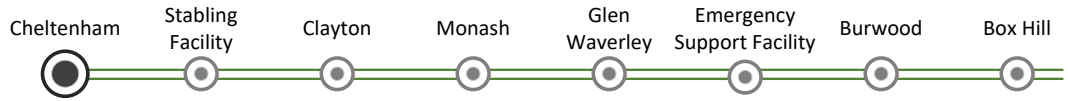
The Urban Design Strategy will drive a multidisciplinary approach to enable integrated urban design solutions and provide positive outcomes that benefit local communities; as well as to avoid, minimise and mitigate negative impacts arising from the Project. The strategy would form a requirement for SRLA and its contractors during the Project's delivery. Urban Design and Landscape Plans would be prepared that show how detailed designs will demonstrate and implement the Urban Design Strategy.

The Urban Design Strategy has been developed as part of the EES process and incorporates findings from several the EES technical investigations. Feedback and inputs from relevant stakeholders informed its development, including Victorian Government departments, local governments, Traditional Owners, large institutions as well as the Technical Reference Group.

# Above-ground infrastructure

The following sections describe the key construction activities, features and elements of the above-ground infrastructure associated with SRL East which consists of the SRL stations at Cheltenham, Clayton, Monash, Glen Waverley, Burwood and Box Hill, the Stabling Facility at Heatherton and the Emergency Support Facility at Mount Waverley.

# SRL station at Cheltenham




**Location: Site bordered by Nepean Highway to the east, the existing rail line to the west, Bay Road to the south, incorporating the southern section of Sir William Fry Reserve**

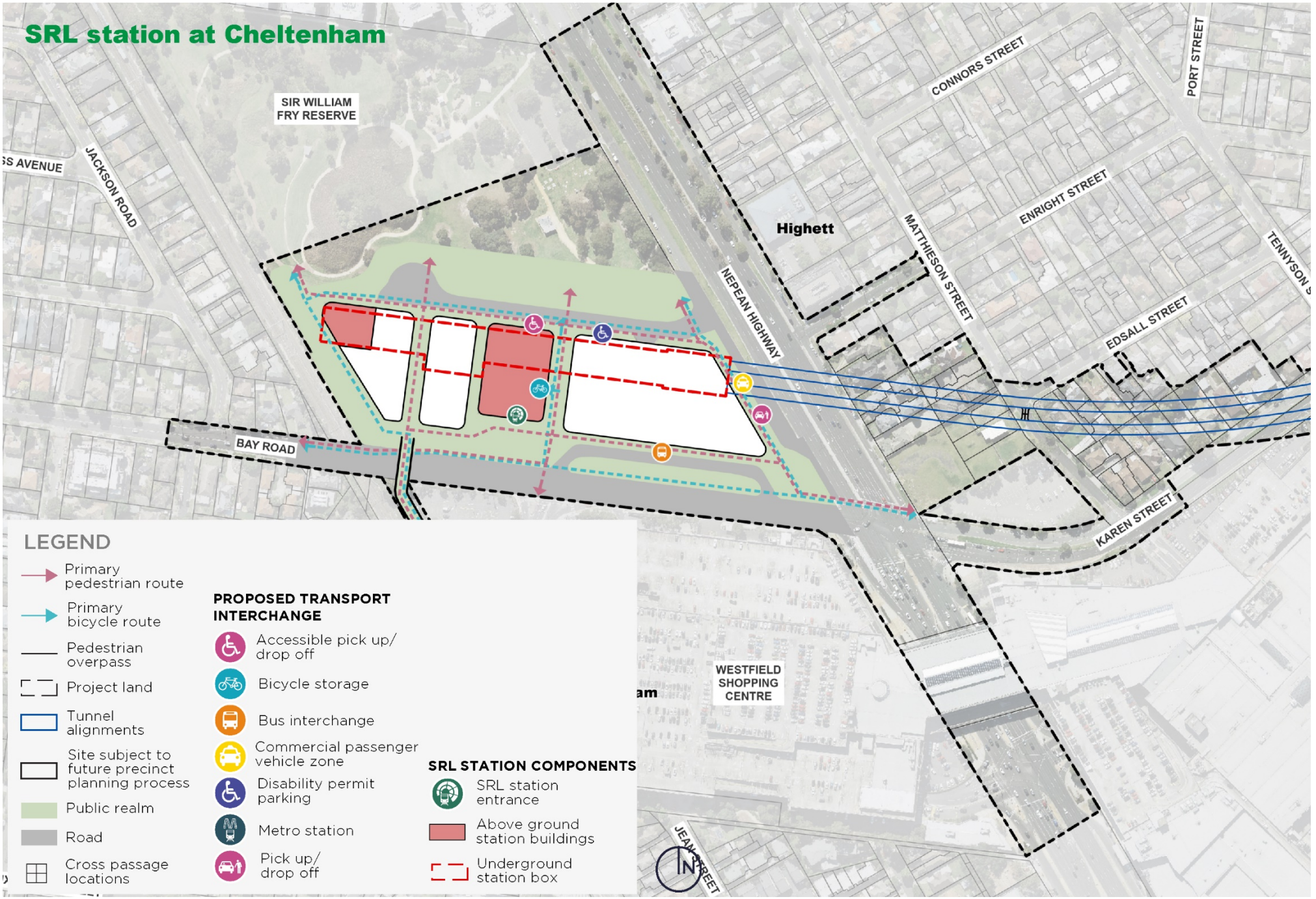
**Construction activities:**

- Construction would take approximately six years and be completed in stages
- Early works including demolition of existing structures, earthworks to prepare site, utility relocations in Nepean Highway and relocation of the Multinet gas pipeline
- Underground storage tanks at an existing service station site would be removed and a temporary groundwater recharge system established
- Excavation of station box to an approximate depth of 18 m, length of 290 m and width of 24 m (including the crossover facility) generating approximately 200,000 $m^3$ of spoil
- Construction of Bay Road pedestrian bridge to provide safe access to the Southland railway station
- Estimated daily peak of 260 heavy vehicles
- 88 carparks for peak staffing level of 176, with half the staff expected to use public transport.
- TBM retrieval by crane once the TBM breaks through into the station box
- Station completion including backfilling over the station box, construction of above-ground structures, any road and path upgrades, incorporation of public open space and planting and landscaping.

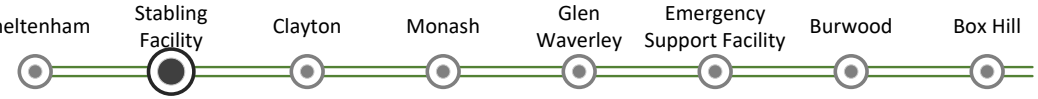
**Key SRL station elements:**

- A station entry facing Bay Road and opposite the Southland shopping centre access, with escalators and lifts connecting the concourse and ground levels
- A two-level underground station with single gate-line at concourse level
- Two platforms with escalators and lifts connecting to the concourse
- A crossover facility to enable terminating trains to start in the opposite direction
- Pedestrian overpass across Bay Road linking to the existing Southland railway station
- Station plaza area including public open space
- New bus interchange with six in-service bus stops
- Seven dedicated pick-up/drop-off facilities in the service lane of Nepean Highway
- Bicycle storage for 400 bicycles
- A cycle path along the eastern side of the Frankston railway corridor connecting to existing paths within Sir William Fry Reserve
- Changes to Bay Road crossing to provide cycle and pedestrian friendly access to the new SRL station.


*Artist's impression of the proposed SRL station at Cheltenham looking north west along Bay Road*


SRL station at Cheltenham
SIR WILLIAM FRY RESERVE
JACKSON ROAD
BAY ROAD
Highett
NEPEAN HIGHWAY
CONNORS STREET
PORT STREET
ENRIGHT STREET
MATTHIESON STREET
EDSALL STREET
KAREN STREET
WESTFIELD SHOPPING CENTRE
JEAN STREET
LEGEND
Primary pedestrian route
Primary bicycle route
Pedestrian overpass
Project land
Tunnel alignments
Site subject to future precinct planning process
Public realm
Road
Cross passage locations
PROPOSED TRANSPORT INTERCHANGE
Accessible pick up/ drop off
Bicycle storage
Bus interchange
Commercial passenger vehicle zone
Disability permit parking
Metro station
Pick up/ drop off
SRL STATION COMPONENTS
SRL station entrance
Above ground station buildings
Underground station box

# Stabling Facility, Heatherton



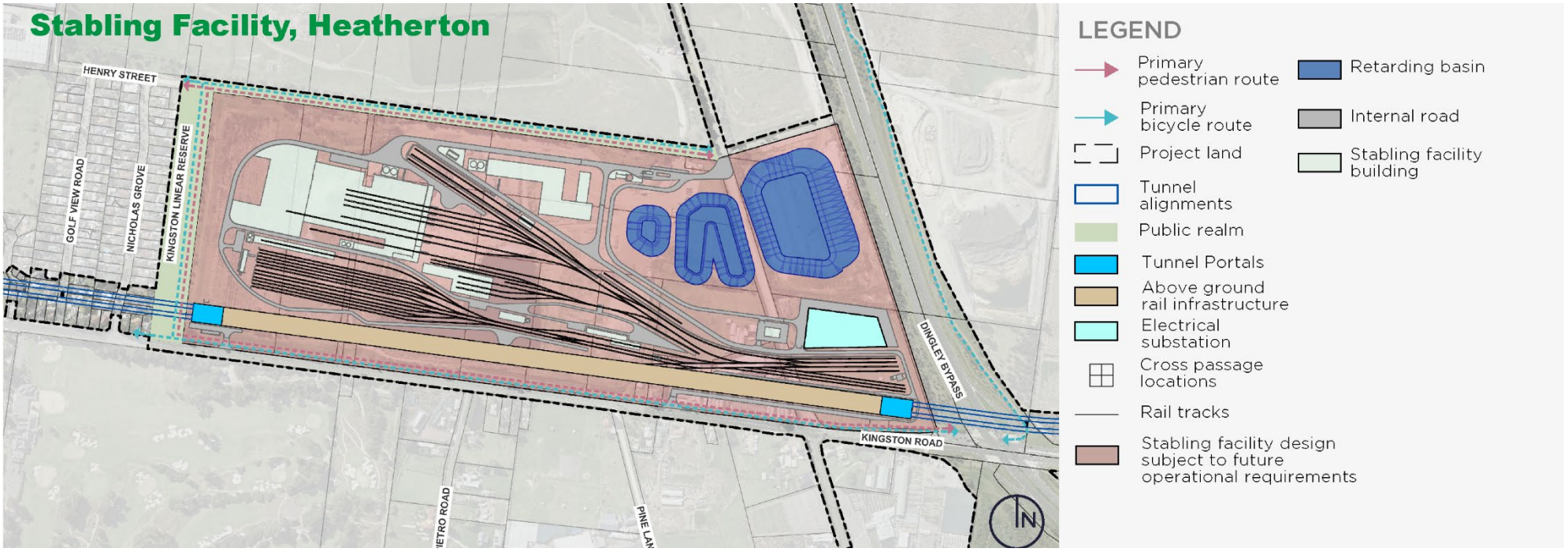

**Location: Site bordered by Dingley Bypass to the east, Kingston Walk Linear Reserve to the west, Kingston Road to the south and Henry Street Reserve to the north**

**Construction activities:**

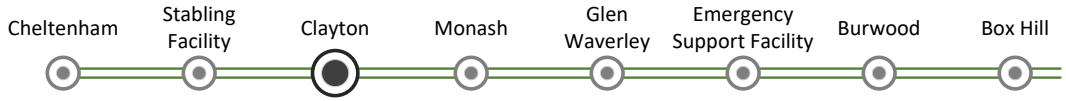
- Construction would likely take up to eight years to complete
- Early works including site establishment for the main construction compound, establishment of tunnel boring structures and facilities, closure of Old Dandenong Road, relocation of Westernport–Altona–Geelong pipeline
- Excavation of portals and dive structures
- Launch of TBMs
- Works to improve the stability of the ground to support rail tracks and removal of approximately 289,000 $m^3$ of site spoil
- Extraction and removal of approximately 723,000 $m^3$ of TBM spoil
- Building of structures and permanent tunnel portals and construction of rail tracks
- Installation of power supply substation
- Completion of road upgrades, civil works and landscaping
- Estimated daily peak of 560 heavy vehicles and estimated peak of 261 staff vehicles.

**Key Stabling Facility elements:**

- Stabling for up to 30 trains
- At grade track, dive structures, tunnel portals and headhouse above each portal structure
- A train maintenance facility for all SRL train maintenance requirements
- A wheel lathe facility for preventative and corrective maintenance of railway wheels
- A test track for testing trains before they go into operation
- An office and operational control centre
- A train wash and graffiti removal facility
- A power supply substation
- Water storage and treatment ponds to manage overland flows into and through the site
- Shared path on Kingston Road, and improvements to Kingston Linear Walk and Henry Street Reserve, including vegetation enhancement
- A vegetated earth bund along the southern boundary and vegetation along Henry Street Reserve and the western section to screen views and noise for nearby residential areas



# SRL station at Clayton




**Location: Site bordered by Clayton Road to the east, Madeleine Road to the west, Carinish Road to the south and approximate alignment of Lilian/Wright Street to the north**

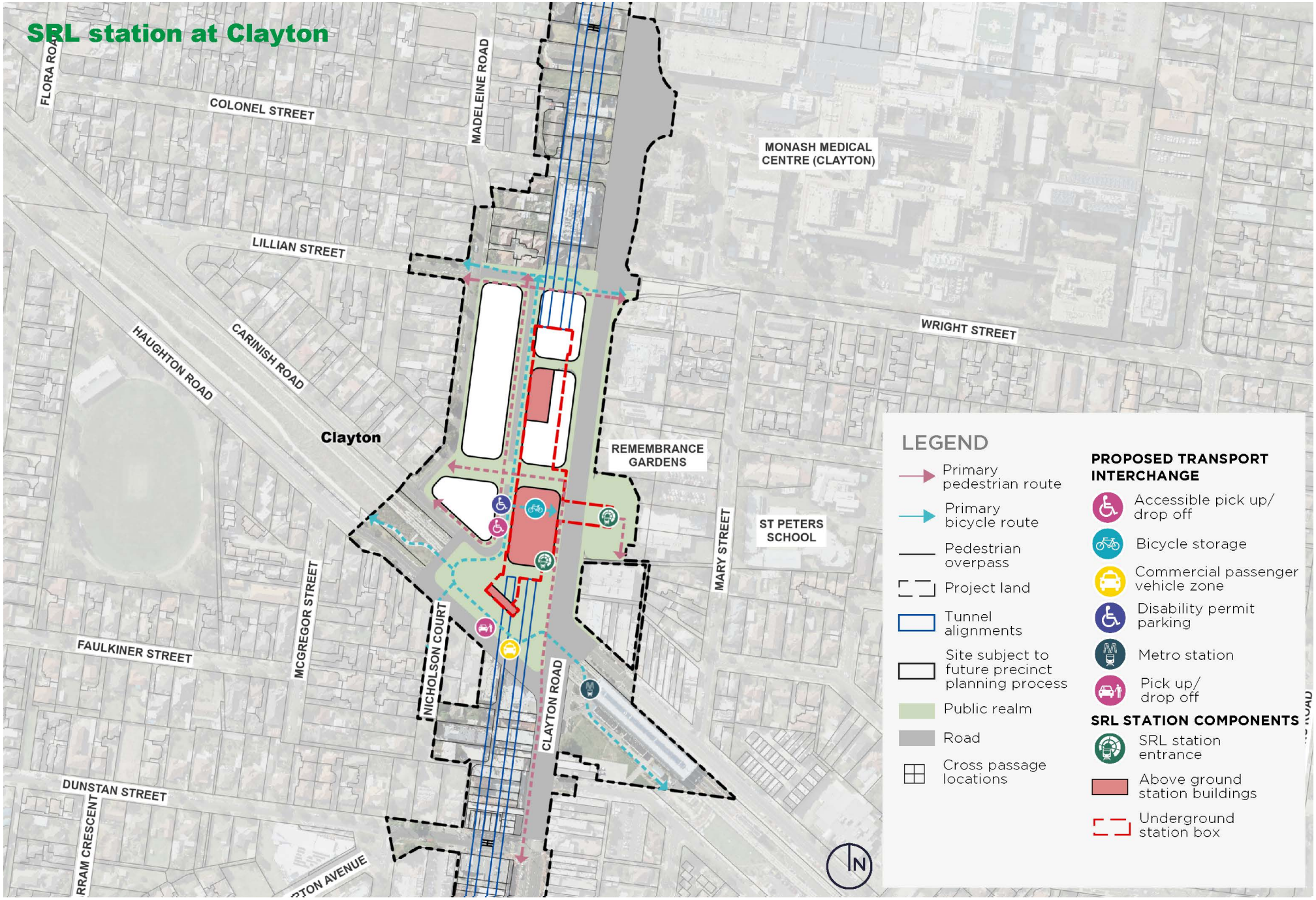
**Construction activities:**

- Construction would take approximately six years to complete
- Demolition of existing structures and earthworks to prepare site
- Protection works for existing elevated railway
- Traffic control measures required for access to site on Clayton Road and Carinish Road
- Construction of diaphragm walls for station box excavation
- Excavation of station box to an approximate depth of 25 metres, length of 196 metres and width of 34 metres, generating approximately 163,000 $m^3$ of spoil
- Construction of the station and pedestrian underpasses
- Station completion including backfilling over the station box, road and path upgrade and planting and landscaping
- Estimated daily peak of 180 heavy vehicles
- 98 carparks for peak staffing level of 195, with half the staff using public transport

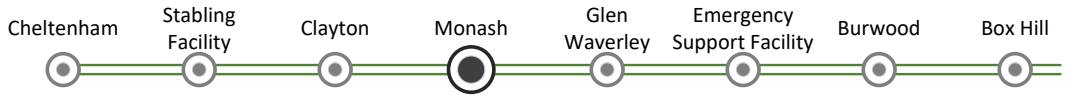
**Key SRL station elements:**

- Two station entries, east of Clayton Road in Remembrance Gardens, and west of Clayton Road, north of the existing rail viaducts
- Connection between the SRL station at Clayton and the existing Clayton railway station
- A two-level underground station including a mezzanine with one gate-line at the concourse level
- Two platforms with escalators and lifts connecting to the concourse.
- New north-south laneway and access road
- Nine dedicated pick-up/drop-off facilities
- Bicycle storage for 500 bicycles
- Cycle paths and footpaths between Madeleine Street and the Monash Medical Centre, along the eastern side of Station Street to the Djerring Trail.


*Artist's impression of the proposed SRL station at Clayton looking north west from Clayton Road*


SRL station at Clayton
FLORA ROAD
COLONEL STREET
MADELEINE ROAD
MONASH MEDICAL CENTRE (CLAYTON)
LILLIAN STREET
WRIGHT STREET
HAUGHTON ROAD
CARINISH ROAD
Clayton
REMEMBRANCE GARDENS
ST PETERS SCHOOL
MARY STREET
MCGREGOR STREET
NICHOLSON COURT
CLAYTON ROAD
FAULKINER STREET
DUNSTAN STREET
LEGEND
Primary pedestrian route
Primary bicycle route
Pedestrian overpass
Project land
Tunnel alignments
Site subject to future precinct planning process
Public realm
Road
Cross passage locations
PROPOSED TRANSPORT INTERCHANGE
Accessible pick up/ drop off
Bicycle storage
Commercial passenger vehicle zone
Disability permit parking
Metro station
Pick up/ drop off
SRL STATION COMPONENTS
SRL station entrance
Above ground station buildings
Underground station box
N

# SRL station at Monash




**Location: Site bordered by Howleys Road to the east and Normanby Road to the south**

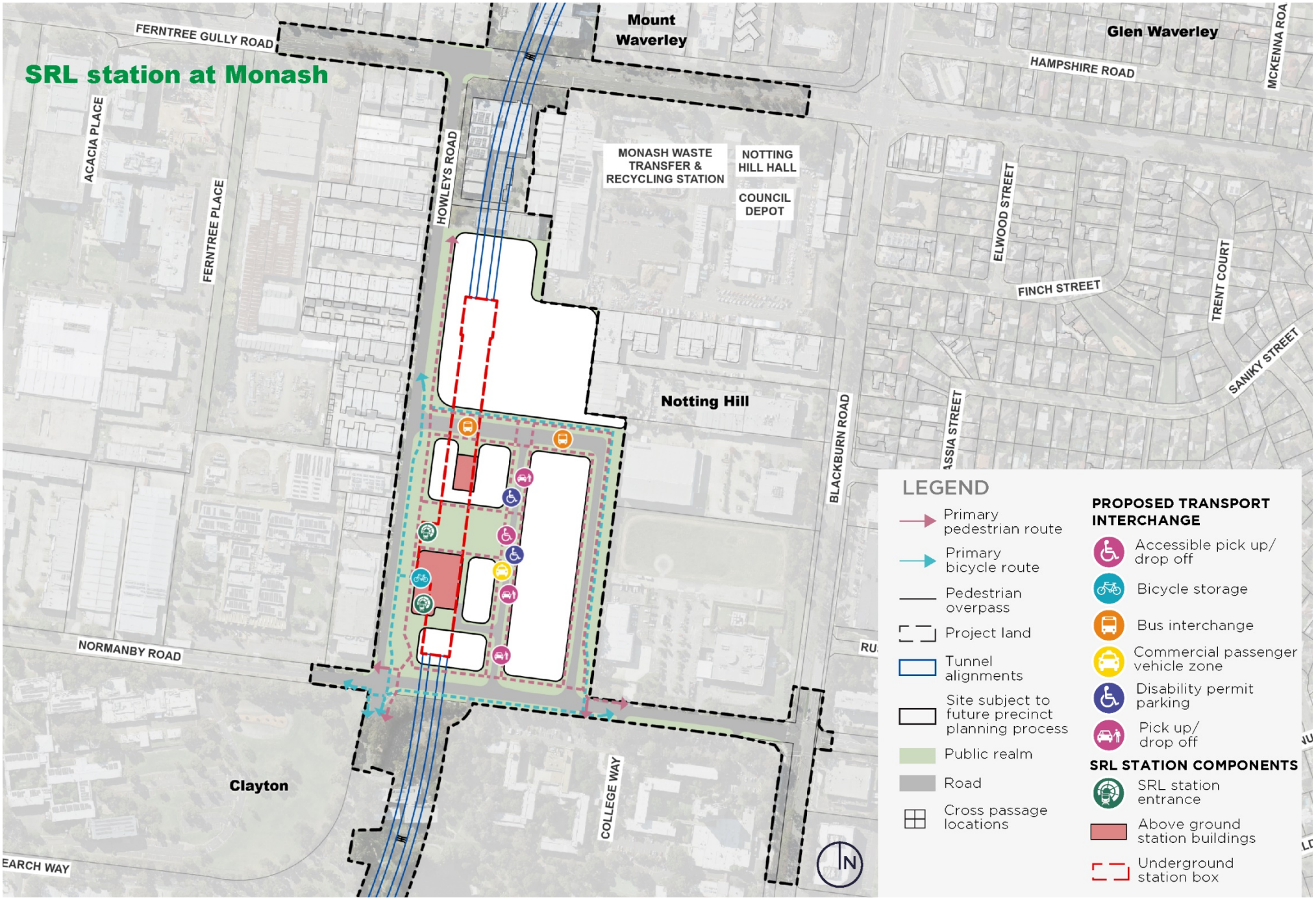
**Construction activities:**

- Construction would take approximately seven years and be completed in stages
- Early works include demolition of existing structures and earthworks to prepare site, modifications to the Normanby Road and Blackburn Road intersection, establishment of two tunnel access shafts, temporary power supply substation
- Construction of diaphragm walls for station box excavation
- Launch of TBMs
- Excavation of station box to an approximate depth of 23 metres, length of 270 metres and width of 23 metres, generating approximately 288,000 $m^3$ of spoil
- Extraction and removal of approximately 505,000 $m^3$ of TBM spoil
- Excavation of the crossover box and the station box
- Estimated daily peak of 290 heavy vehicles
- 200 carparks for peak staffing levels of 266, with a quarter of staff using public transport
- Station completion including backfilling over the station box and construction of above-ground structures.

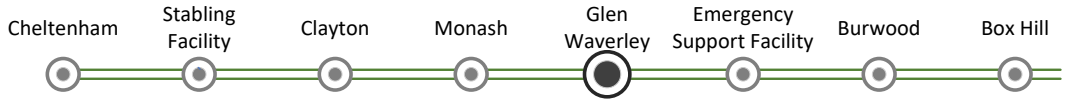
**Key SRL station elements:**

- A crossover facility to the north of the station to enable trains to restart in the opposite direction or to cross between tracks along the alignment
- Two station entries facing north and south
- A two-level underground station with a single gate-line at the concourse level
- Two platforms with escalators and lifts connecting to the concourse
- Option to provide a pedestrian underpass under Normanby Road with a southern entrance on the south of Normanby Road on the Monash University campus. This option is considered in the EES in case patronage or other considerations warrant it in future. If the underpass solution were taken up, it would replace the south facing entrance.
- Provision of a new road, eight bus bays and pick-up/drop-off area
- Nine dedicated pick-up/drop-off facilities
- Bicycle storage for 700 bicycles and new cycle paths and footpaths.


*Artist's impression of the proposed SRL station at Monash looking north from Normanby Road*


SRL station at Monash
FERNTREE GULLY ROAD
Mount Waverley
Glen Waverley
HAMPSHIRE ROAD
MCKENNA ROA
ACACIA PLACE
FERNTREE PLACE
HOWLEYS ROAD
MONASH WASTE TRANSFER & RECYCLING STATION
NOTTING HILL HALL
COUNCIL DEPOT
ELWOOD STREET
FINCH STREET
TRENT COURT
SANIKY STREET
Notting Hill
BLACKBURN ROAD
NORMANBY ROAD
Clayton
COLLEGE WAY
EARCH WAY
N
LEGEND
Primary pedestrian route
Primary bicycle route
Pedestrian overpass
Project land
Tunnel alignments
Site subject to future precinct planning process
Public realm
Road
Cross passage locations
PROPOSED TRANSPORT INTERCHANGE
Accessible pick up/ drop off
Bicycle storage
Bus interchange
Commercial passenger vehicle zone
Disability permit parking
Pick up/ drop off
SRL STATION COMPONENTS
SRL station entrance
Above ground station buildings
Underground station box

# SRL station at Glen Waverley




**Location: Site bordered by Kingsway to the east, Coleman Parade to the north, and Bogong Avenue to the south, extending under Montclair Avenue**

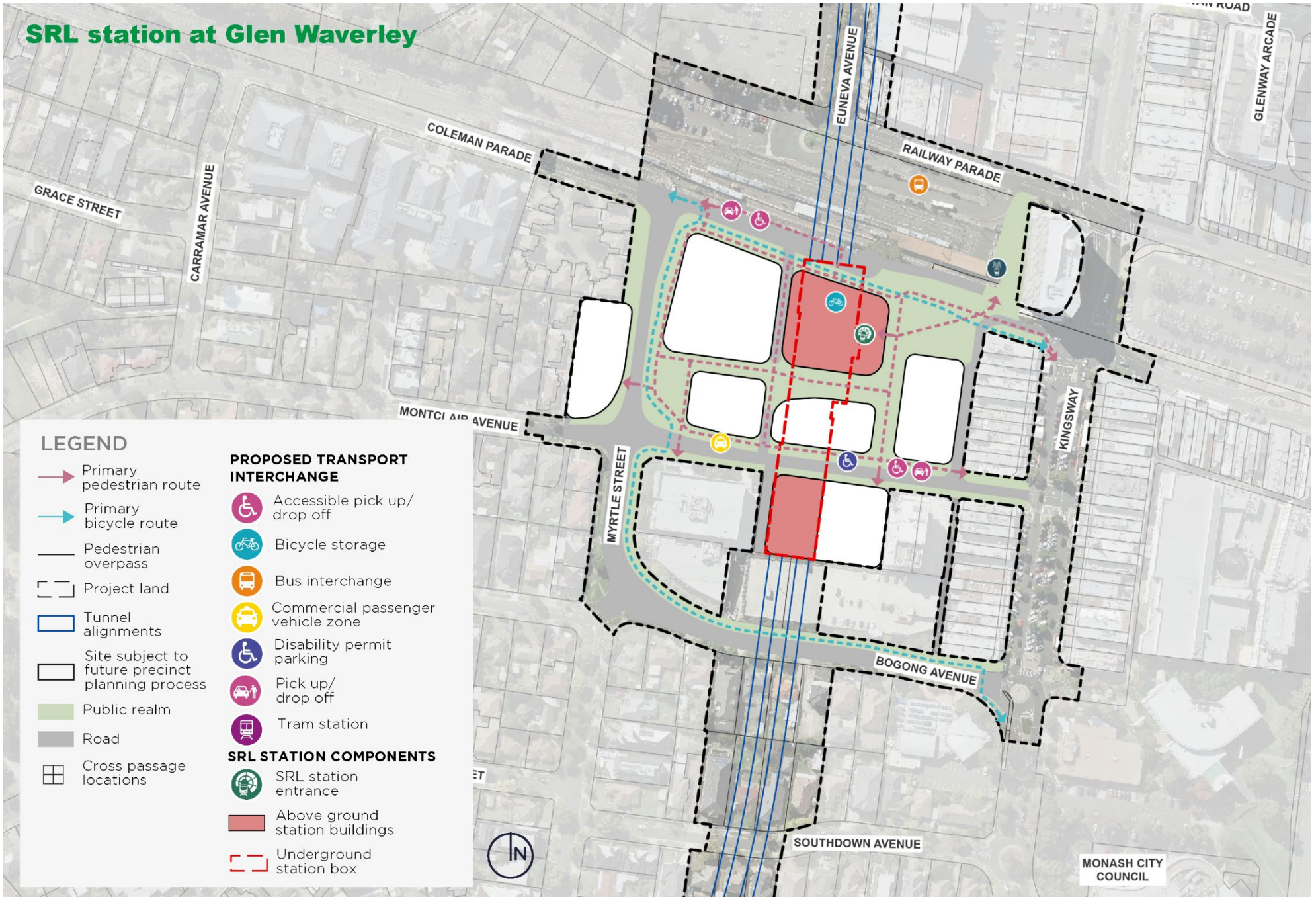
**Construction activities:**

- Construction would take approximately six years and be completed in stages
- Early works including demolition of existing structures and earthworks to prepare site
- Realignment of Myrtle Street between Coleman Parade and Montclair Avenue
- Excavation of station box to approximate depth of 20 metres, length of 160 metres and width of 21 metres generating approximately 108,000 $m^3$ of spoil
- Station completion including backfilling over the station box and construction of above-ground structures
- Estimated daily peak of 230 heavy vehicles
- 113 car parks for peak staffing levels of 225, with half the staff using public transport.

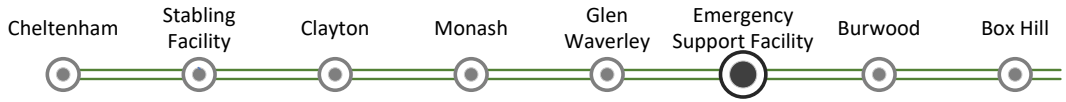
**Key SRL station elements:**

- A single station entry facing Coleman Parade, including escalators and lifts
- A two-level underground station with a single gate-line at the concourse level
- Two platforms with escalators and lifts connecting to the concourse.
- New station plaza opposite Coleman Parade, including laneways and paved surfaces around station entrance and a bicycle storage for 600 bicycles
- Upgrades to the existing Glen Waverley railway station forecourt to cater for surface connection between stations
- Closure of Coleman Parade between the Ikon building entrance and Kingsway
- Nine dedicated pick-up/drop-off facilities near Montclair Avenue
- Improvements to Myrtle Street and Bogong Avenue
- The realignment of Myrtle Street between Coleman Parade and Montclair Avenue to provide sufficient space to construct the project safely
- A cycle path along the southern side of the Glen Waverley line corridor.


*Artist's impression of the proposed SRL station at Glen Waverley looking east along Coleman Parade*


SRL station at Glen Waverley
COLEMAN PARADE
GRACE STREET
CARRAMAR AVENUE
EUNEVA AVENUE
RAILWAY PARADE
GLENWAY ARCADE
MONTCLAIR AVENUE
MYRTLE STREET
KINGSWAY
BOGONG AVENUE
SOUTHDOWN AVENUE
MONASH CITY COUNCIL
N
LEGEND
Primary pedestrian route
Primary bicycle route
Pedestrian overpass
Project land
Tunnel alignments
Site subject to future precinct planning process
Public realm
Road
Cross passage locations
PROPOSED TRANSPORT INTERCHANGE
Accessible pick up/ drop off
Bicycle storage
Bus interchange
Commercial passenger vehicle zone
Disability permit parking
Pick up/ drop off
Tram station
SRL STATION COMPONENTS
SRL station entrance
Above ground station buildings
Underground station box

# Emergency Support Facility




**Location: 601 High Street Road, Mount Waverley, the site of an existing Mitre 10 business.**

**Construction activities:**

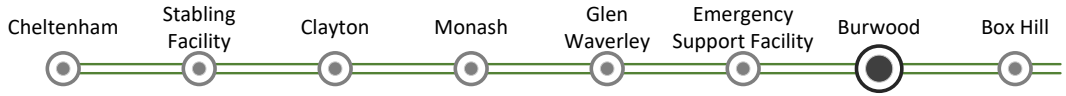
- Construction would take approximately three years and be completed in stages
- Early works would include demolition of existing structures and earthworks to prepare site
- Construction of diaphragm walls
- Excavation and construction of the Emergency Support Facility using the bottom-up method
- Extraction and removal of approximately 23,000 $m^3$ of spoil
- Construction of the headhouse and Backup Control Centre
- Fit-out of the Emergency Support Facility
- Completion of any civil works, landscaping and demobilisation of the site
- Estimated daily peak of 175 heavy vehicles
- 30 car parks for peak staffing of 30

**Key Emergency Support Facility elements:**

The Emergency Support Facility is essential for providing emergency exit for passengers and access for emergency services in case of an emergency incident, and to ventilate the tunnels during emergency incidents. The Emergency Support Facility would also include a backup control centre in the event of an incident impacting the Operational Control Centre at the Stabling Facility.

- The facility consists of infrastructure to provide access for emergency services and exit for passengers in the case of an emergency incident, as well as provide for ventilation to the rail tunnels.
- The above-ground infrastructure comprises a two-storey building accommodating equipment and the backup control centre, the ventilation structure connecting to the tunnels, at-grade car parking and a congregation area
- The Emergency Support Facility would be unmanned for most of the time, with car parking required only to ensure that, in the event of an emergency, there is sufficient parking that services are maintained safely and efficiently.

# SRL station at Burwood




**Location: Site is bordered by McComas Grove to the east, Burwood Highway to the north, Gardiners Creek to the west and 20 Sinnott Street to the south.**

**Construction activities:**

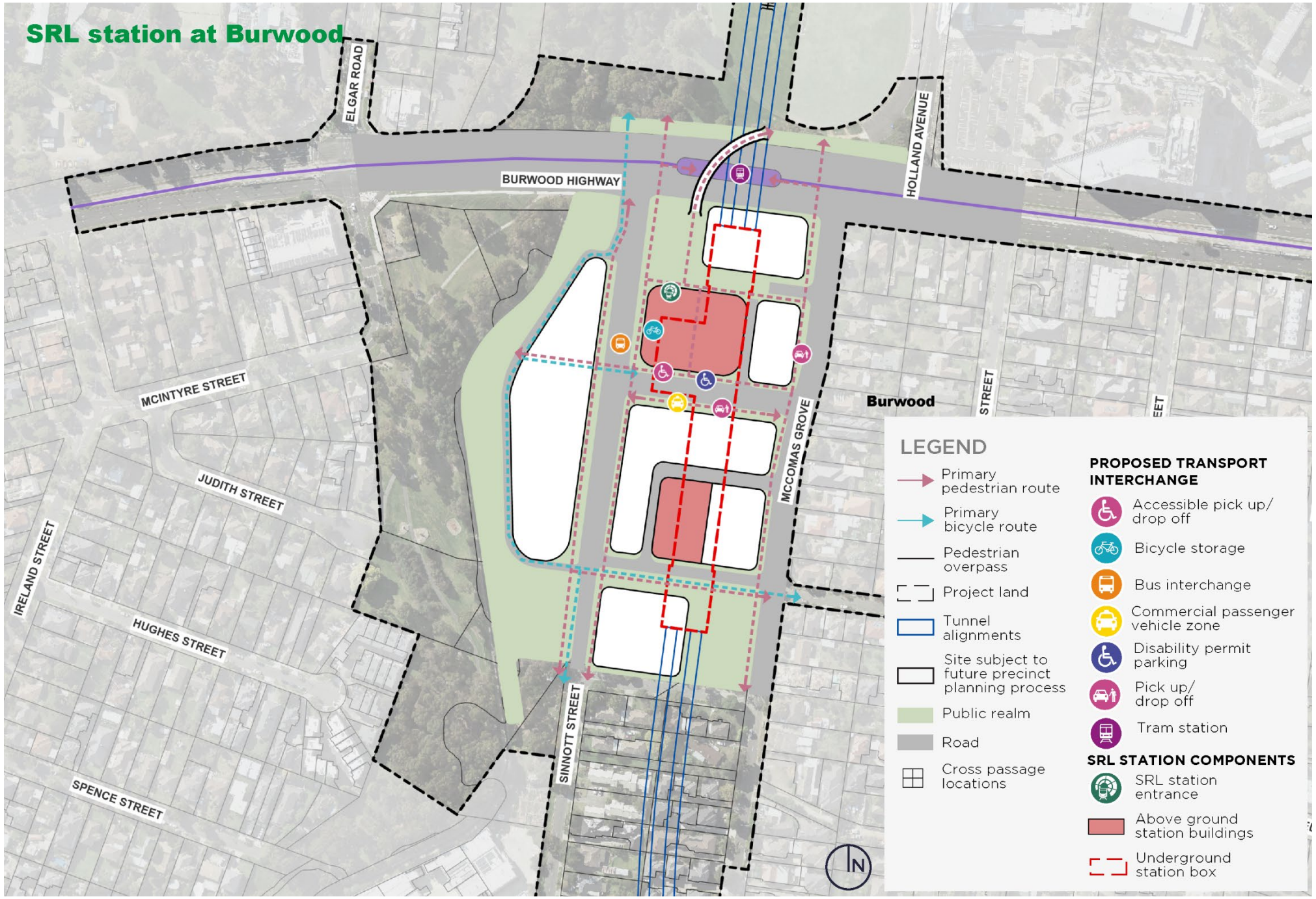
- Construction would take approximately seven years and be completed in stages
- Early works including demolition of existing structures and earthworks to prepare site and flood management measures, establishment of tunnel access shafts
- Establishment of TBM support facilities including slurry treatment plant
- Construction of power supply substation
- Launch of TBMs
- Excavation of station box to an approximate depth of 19 metres, station box length of 250 metres (including the tunnel access shafts) and width of 24 metres generating approximately 158,000 $m^3$ of spoil
- Extraction and removal of approximately 827,000 $m^3$ of TBM spoil
- Construction of the station and pedestrian overpass
- Station completion including backfilling over the station box and construction of above-ground structures
- Estimated daily peak of 370 heavy vehicles
- 185 car parks for peak staffing levels of 246, with a quarter of the staff using public transport.

**Key SRL station elements:**

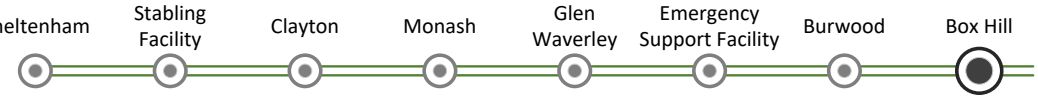
- A single station entry facing Burwood Highway
- A two-level underground station with a single gate-line at the concourse level
- Two platforms with escalators and lifts connecting to the concourse.
- A pedestrian overpass over Burwood Highway providing improved north south connection across Burwood Highway
- A new bus interchange adjacent to the station on Sinnott St
- Eleven dedicated pick-up/drop-off facilities
- Bicycle storage for 750 bicycles
- New cycling paths
- Improvement of the Gardiners Creek corridor, with naturalisation of the concrete-lined channel waterway between Burwood Highway and the existing bridge structure at Sinnott Street Reserve.


*Artist's impression of the proposed SRL station at Burwood looking north from McComas Grove*

# SRL station at Burwood



# SRL station at Box Hill




**Location: Site is bordered by Irving Avenue to the north, Station Street to the east, Main Street to the south and Market Street to the west, extending under Whitehorse Road**

**Construction activities:**

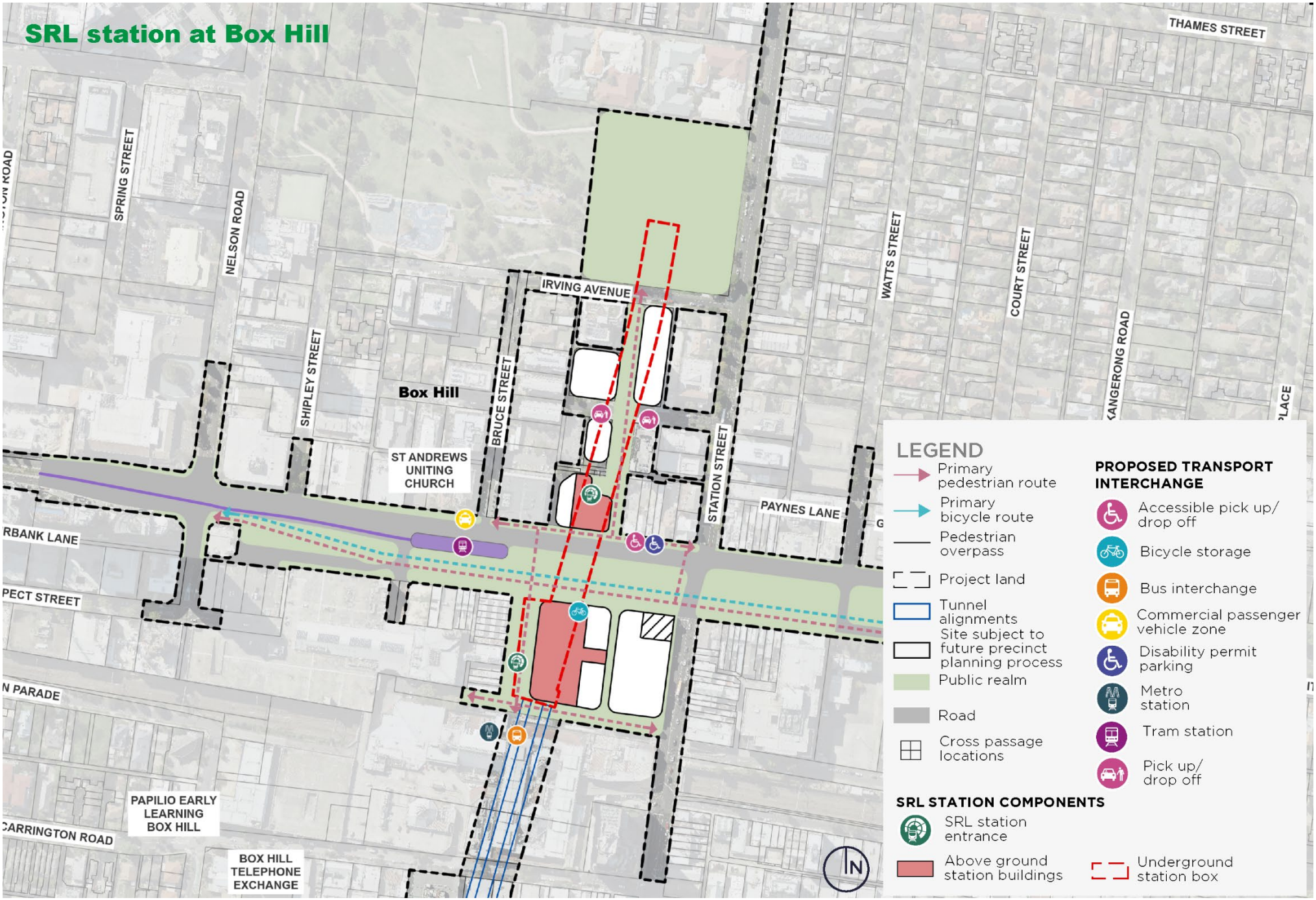
- Construction would take approximately six years and be completed in stages
- Early works including demolition of existing structures and earthworks to prepare the site, tram terminus relocation, and a temporary road and utility bridge over the station box footprint used to divert traffic on Whitehorse Road during main construction activities.
- Excavation of station box to an approximate depth of 22 metres, length of 400 metres and width of 22 metres, generating approximately 237,000 $m^3$ of spoil
- Construction of the station
- Station completion including backfilling over the station box and construction of above-ground structures
- Estimated daily peak of 230 heavy vehicles
- 112 car parks for peak staffing levels of 223, with half the staff using public transport.

**Key SRL station elements:**

- Two entries, within Market Street as a stand-alone entrance with a surface connection to the existing Box Hill railway station, and north of Whitehorse Road.
- Two-level underground station with two gate-lines at the concourse level
- Two platforms with escalators and lifts connecting to the concourse
- An end-of-line station for SRL East, with a crossover facility north of the station to enable trains to restart in the opposite direction.
- A new tram terminus to the west of Market Street, as close as practicable to the Market Street pedestrian crossing.
- New public open space along Whitehorse Road between Market Street and Station Street
- New pedestrian promenade linking Whitehorse Road to Box Hill Gardens
- Realignment of Whitehorse Road between Nelson Road and Linsley Street to the northern side of the road reserve with two traffic lanes in each direction
- Seven dedicated pick up/drop off facilities
- Bicycle storage for 500 bicycles and new cycling paths and footpaths.


*Artist's impression of the proposed SRL station at Box Hill in Market Street facing north*

# SRL station at Box Hill



# Assessing and managing Project impacts

## Assessing impacts

The assessment of the Project to inform preparation of this EES has adopted a systematic and risk-based approach to understanding the existing environment and social values, the potential impact of the Project on environmental and social values, and to evaluate the effectiveness of measures to avoid, minimise or manage risks and impacts.

A Project design and Project Land were developed as the basis for assessing the Project activities and their location. The Project development and design process was iterative, and informed by the impact assessment process to address potential impacts.

The impact assessments have been undertaken in five main phases:

1. Characterising existing conditions of the Project Land and broader Study Areas, as defined by each of the subject matter specialists.
2. Undertaking an impact assessment which involved identifying the potential impacts of the Project on the existing environment (pre-mitigation), then considering how Project design and practicable mitigation measures could avoid, reduce and/or mitigate the likelihood, magnitude, extent and/or duration of potential impacts.
3. Characterising and evaluating the significance of the residual impacts of the Project on the existing environment once the design and mitigation measures were applied, taking into account any uncertainties in the impact assessment. This included assessing whether the Project would achieve the EES evaluation objectives, given the potential residual impacts. Where required, additional mitigation measures were considered to eliminate or otherwise further minimise the risk of harm to the extent reasonably practicable.
4. Cumulative impacts could occur when impacts from the Project interact or overlap with impacts from other projects, potentially resulting in a larger overall impact. Cumulative impacts may also occur when projects are constructed consecutively. The cumulative effects of the Project, the Initial Works for SRL East and other major projects that overlap have been considered and assessed in the EES. The SRL future stages (including SRL North) would be subject to further assessment and approvals processes once the design and construction methodology is further developed. To enable a cumulative assessment of potential overlapping SRL East and SRL North, continued occupancy of Box Hill Gardens was assumed.
5. Developing EPRs based on the assumed design and example mitigation measures to minimise risks and impacts.

Further details are provided in the digital EES and in the impact assessments included as technical appendices to the EES.

## Managing impacts

The EMF provides the integrated framework to manage environmental effects during construction and operation and the EPRs define the environmental outcomes the Project must achieve.

SRLA has committed to a range of measures to manage and minimise impacts associated with the project, which are outlined in the:

- Urban Design Strategy
- Public Open Space Framework
- Business Support Guidelines
- Residential Support Guidelines
- Business and Residential Relocation Support Guidelines
- Interim Land use Guideline
- Sustainability Objectives and Targets.

Further details on these measures are provided in the Attachments to the EES.

In addition, a Groundwater Disposal Strategy and Spoil Management Strategy have been prepared and are included in relevant technical Impact Assessments.

## Impact assessment summary

The outcomes of the impact assessments undertaken for the Project are summarised in the sections below. The key potential impacts and example mitigation measures of the Project addressed in the EES are summarised in several ways:

- A Project-wide summary of the impact assessment for construction and operation of the Project addressed in each technical study
- A Project-wide summary of the assessment of the impacts of construction and operation of the tunnels, with key issues identified where necessary.
- A Project-wide summary of the impact assessment of greenhouse gas emissions and human health
- A site-specific summary for above-ground infrastructure where the impact assessment identified key issues or outcomes which are specific to a particular site. Above-ground infrastructure sites where no impacts are predicted or where the residual impact would be low are not discussed here, but further detail is provided in the EES.

# Aboriginal Cultural heritage

## Project-wide construction effects

Aboriginal people have lived in southern Australia, including what is now Victoria, for thousands of years. The physical evidence of their activities survives in cultural heritage places and objects which provide a connection between the past and present for the Aboriginal community, and an historical context of the landscape for all Australians. The Project would be in Melbourne's suburban middle ring which has a long history of occupation by Aboriginal people, but has been extensively impacted by post-European contact developments. This means that there are limited locations with the potential to support Aboriginal cultural heritage values.

The likelihood of impacts from the Project is reduced because most of the tunnel construction would take place in a geological formation which pre-dates the potential to contain Aboriginal cultural material. Project works at surface would also be in highly modified areas where Aboriginal heritage sensitivity has largely been diminished through previous extensive ground-disturbing activities. There are, however, two known registered Aboriginal places located on the Project Land.

Two Cultural Heritage Management Plans would be prepared in consultation with the representative Aboriginal cultural heritage stakeholders to appropriately assess and manage potential impacts to known Aboriginal places, and to any cultural heritage that may be identified during construction. The Cultural Heritage Management Plans would specify management conditions to avoid and minimise impacts to Aboriginal cultural heritage.

## Project-wide operational effects

There would be no impacts to Aboriginal cultural heritage from operation of the Project.

## Tunnels

Impacts on Aboriginal cultural heritage values are unlikely as most tunnelling activities would occur in geological formations and at depths that pre-date Aboriginal occupation of the landscape. In some instances, the cross passages that connect the twin tunnels at depth require ground improvement works to occur at the surface. No existing Aboriginal heritage values have been identified within Project Land at the locations where surface level ground improvement works are proposed.

## Key above-ground sites

### *Stabling Facility*

One registered Aboriginal heritage place was identified on land within the Dingley Bypass. The cultural material was previously collected and no impact would occur because of the Project. Impacts to previously unregistered Aboriginal cultural heritage would be managed under the Project Cultural Heritage Management Plans.

### *Burwood*

One registered Aboriginal heritage place was identified on Project Land. The cultural material was previously collected and the potential for previously unregistered Aboriginal cultural heritage to occur would be further assessed and managed under the Project Cultural Heritage Management Plans.

*View south at the east of the Project Land at the Stabling Facility*

*View north on west side of Gardiners Creek, Burwood*

# Airborne noise

## Project wide construction effects

Airborne noise would be generated during surface-level construction works for the Project and TBM launch and retrieval activities, as well as from works within the excavated station boxes and tunnel access points. This would include works for the SRL East stations, the Stabling Facility, Emergency Support Facility and the Burwood Substation, and would include noise from construction traffic.

Construction noise levels are generally expected to comply with construction noise guideline targets. However, at times (for example, for short durations when specific noise-intensive works are proposed to be conducted), construction noise may exceed appropriate construction noise benchmarks developed in accordance with *EPA Victoria Publication 1834 Civil Construction Building and Demolition Guide*, and the Project-specific *Residential Support Guidelines*. Predicted exceedances of noise benchmarks are typically associated with site establishment works which may require the short term, intermittent use of a hydraulic hammer.

The *Residential Support Guidelines*, and application of best practice noise mitigation measures, will provide the basis for construction activities to comply with the General Environmental Duty. Example mitigation measures regarding the use of the hydraulic hammer have been outlined for each Project location, which could include using alternative demolition techniques, using the smallest size hydraulic hammer capable of completing works, and using source noise reduction measures such as low-noise rock breaker attachments. If this equipment is required, exposure would typically be short term and intermittent for several weeks, rather than continuous exposure for months. Once works progress below the surface, residual airborne noise levels at noise sensitive areas would be significantly lower.

## Project wide operational effects

As train movements would mostly be underground in the twin tunnels, this would not be a source of discernible airborne noise at noise-sensitive areas, as the ground around the tunnels would provide a significant barrier to airborne noise transmission.

Operational airborne noise from fixed plant and equipment at station sites, the Burwood substation, the Emergency Support Facility and the Stabling Facility was assessed against the EPA *Noise Protocol*, which establishes a procedure for establishing noise limits for commercial, industrial and trade premises. Operational airborne noise predictions indicated that the fixed infrastructure can be designed to achieve the applicable Noise Limits set out in the *Noise Protocol*. Predicted noise levels from fixed infrastructure are similar to or lower than the ambient noise environment observed around the fixed infrastructure sources.

Compliance with the *Noise Protocol* would be verified with on-site measurements as part of the commissioning process and, in the event of a non-compliance, additional noise mitigation would be applied.

## Tunnels

There would be short-term airborne-noise from surface-level ground improvement works for cross passages along the route of the twin tunnels, in the Kingston and Monash local government areas.

The duration of cross passage works would generally be between 3 to 6 months per location, depending on access. However, it is not expected that construction noise from the works would be at levels that exceed ambient noise levels throughout this entire construction period, with noise levels decreasing at times when quieter equipment is in use and/or when less intensive use of equipment is occurring. The typical worst case noise levels may occur for a few hours per day for several weeks, but would be separated by periods of quieter work.

Airborne noise modelling predicts that with appropriate shielding measures such as solid hoardings or acoustic curtains, construction noise levels could be controlled to within the construction noise level benchmark.

Noise from ground improvement works may exceed the noise benchmark for educational uses by up to 4 dB at the Monash Sustainable Development Institute. However, this exceedance is relatively limited, and it is not expected that noise levels of this magnitude would occur continuously during the three-to-six-month construction period.

## Key above-ground sites

### *Stabling Facility*

Airborne noise generated by fixed infrastructure would include airborne rail noise, train maintenance workshop operations, operation of the tunnel ventilation system fans at the eastern and western portals, and the Stabling Facility electrical substation. Additional operational noise mitigation measures were included in the assessed design for the Stabling Facility include setting the north-west portion of the site approximately 5 to 7 metres lower than the western residential area and providing shielding to this residential area, use of acoustically absorptive lining in buildings with potential to generate considerable noise levels, locating the main doors of the train maintenance facility away from the residential area to the west, and incorporating acoustic attenuation in the ventilation system and barriers in the design for the static frequency converters at the electrical substation.

The Project design avoids the need for the use of train horns within the Stabling Facility which was a key concern raised through community feedback. All train movements within the depot are automated meaning that the workforce would be physically separated from operational train movements by fences and interlocked gates and that horns would not be required.

Potential airborne rail noise impacts are only relevant for the section of the Project's rail alignment that is above ground between the east and west tunnel portals south of the Stabling Facility (approximately 900 metres of track). Predicted noise levels from the surface rail line adjacent to the Stabling Facility comply with the Victorian Government *Passenger Rail Infrastructure Noise Policy* (PRINP) investigation thresholds for a new rail corridor when the Project opens and when SRL East was operating at its planned capacity in 2041.

# Air quality

## Project wide construction effects

As the Project would largely be constructed below ground, the air quality assessment has focussed on temporary and localised dust emissions associated with surface works during construction of above-ground infrastructure.

Common air pollutants already widely distributed in the air include carbon monoxide, nitrogen dioxide, ozone and sulfur dioxide and particulate matter which range in size ($PM_{2.5}$ and $PM_{10}$). Occasionally there are days with higher background concentrations of particulate matter in the air due to windblown dust or bushfires, traffic, home heating and industrial emissions across Melbourne, especially when the weather is calm.

Modelling predicted that with the implementation of conventional and proven controls there is a low likelihood of exceeding air quality objectives for concentrations of particulates set by the Environment Reference Standard at the SRL stations at Cheltenham, Clayton, Monash, Glen Waverley and Burwood, and the Emergency Support Facility. The predictive modelling adopted a number of conservative assumptions meaning that the predicted concentrations during construction are likely an over estimate of the potential impacts. The ***Human Health Impact Assessment*** confirmed that with implementation of measures in accordance with EPRs, impacts on community health and wellbeing from odour and dust emissions would be low.

Additional mitigation measures were identified for the Stabling Facility and the SRL station at Box Hill as these sites represent a higher risk profile due to the size of the construction footprint, volume of spoil to be handled and proximity to residential areas (see 'Key above-ground sites'). Where a site required a specific construction approach such as the launch sites for the tunnel machines or management of contaminated soil, additional spoil management controls would be implemented to further minimise potential impacts.

Construction activities with the potential to generate nuisance dust occur intermittently and at different locations for varying durations. There may be occasional days where residents generally within 50 to 100 metres of the station construction sites and 100 to 200 metres of the Stabling Facility experience dust settling on surfaces. The extent, duration and frequency of these impacts will be minimised through adapting site practices and implementing real time monitoring.

A screening assessment was undertaken for each construction site to assess the potential for impacts associated with vehicle emissions during the construction phase. The assessments found that in general the magnitude of the heavy vehicles anticipated during the construction phase were of such a small proportion of the existing traffic flows (most under 1%) that a noticeable increase in vehicle emissions associated with construction traffic would not be anticipated.

## Project wide operational effects

Operation of the Project is not expected to generate air pollutants as electric trains do not discharge combustion gases from their engines.

Air pollutants associated with discharges from the tunnel ventilation systems are addressed through the detailed design and are not considered likely to be significant.

## Tunnels

Tunnel construction would utilise a TBM which maintains excavation below ground and removes tunnel spoil as slurry. This spoil is treated at the surface to maintain the moisture content in the soil, which in turn prevents dispersion to air.

Ground improvement may be required at the cross passages utilising jet grouting between Cheltenham and Clayton, however this is not a dust generating activity. There are no anticipated emissions to air associated with tunnel construction.

## Key above-ground sites

### *Cheltenham*

Known ground contamination occurs at this site, likely from the former Highett Gasworks historically located immediately to the north. Once contaminated soil is exposed either in situ during the excavation or in stockpiles, it can generate odour, however, with implementation of effective management controls, the potential for odour generation would be minimised. There may be short term odour noticeable by the community, although this will be transient and only at times where contaminated soil is being excavated.

### *Stabling Facility*

Various stages of construction were modelled at the site including construction of the portals and a worst case excavation ground improvement scenario. For all the modelled scenarios, with additional mitigation measures incorporated into the model, such as minimising work areas, stabilising exposed land areas when not in use, staggering wind breaks across the site, ensuring adequate water supply, and sealing frequently used haul roads, it was predicted that there is a low likelihood of exceeding the Project's air quality objective set in the Environment Reference Standards.

### *Box Hill*

The SRL station at Box Hill has a higher air quality risk profile due to the distribution and proximity of a number of residential towers and other sensitive receptors to the construction site. The predictive modelling concluded that even with implementation of conventional and proven controls, the incremental concentrations contributed by the Project are potentially quite large compared to the background concentrations at this location. Additional modelling of a combination of reasonably practicable measures such as a shed over the spoil stockpile and partial decking over the station box excavation near sensitive receptors, demonstrated that a significant reduction of incremental contributions could be achieved at the site. The ***Human Health Impact Assessment*** confirmed that impacts would be low.

The contractor would be required to develop an Environmental Air Pollution and Dust Management Plan (EAPDMP) setting out controls to reduce, so far as reasonably practicable, impacts on health and amenity due to dust emissions during construction. The EAPDMP would include the requirement to prepare a Risk Management and Monitoring Program outlining monitoring methods including surveillance monitoring, real time instrumental monitoring with trigger concentrations, and community engagement and public reporting processes. This monitoring program would provide early notice of potential issues so that they are investigated and mitigated before there are actual impacts to the surrounding community.

# Arboriculture

## Project wide construction effects

A total of 3257 trees were assessed across the 26 kilometre alignment. Forty three per cent would require removal (1411 trees), and 13 per cent would be potentially impacted (409 trees). Approximately half were assessed as either unlikely to be impacted by the Project or were identified for retention. Of the trees identified as requiring removal, none were assessed as having an arboricultural value of 'very high' and only 15 per cent assessed as having an arboricultural value of 'high'. Trees assessed as unlikely to be impacted would be protected by a Tree Protection Plan, which includes the requirement to monitor trees subject to protection for a three-year period after completion of construction, to assess ongoing viability.

Tree removal for the Project would result in short to medium term impacts to canopy cover and local amenity provided by the urban forest at the proposed new stations and surrounding local area, with Cheltenham, Monash, and Box Hill locations likely to be most affected due to the volume of canopy loss and the number of trees affected. Detailed design would seek to reduce impacts to arboricultural values through minimising the construction footprint required for above-ground infrastructure, retaining as many existing trees as possible and applying best practice construction management processes.

The *Urban Design Strategy* provides for revegetation to restore the amenity of the station locations immediately post-construction in order to mitigate these impacts. There would be a loss of trees over the medium term until the canopy has been replaced to existing levels, however amenity impacts due to tree loss would be managed by commencing replacement planting as soon as practicable.

SRLA is committed to generating a net gain in urban canopy through targeting a doubling of tree canopy removed by the Project by the year 2050, in each of the Kingston, Monash and Whitehorse local government areas.

## Project wide operational effects

Operational impacts are expected to be positive with a net gain of tree canopy cover through implementation of the proposed tree canopy replacement.

## Tunnels

Tunnelling works would not affect arboricultural values.

## Above-ground sites

### *Cheltenham*

The arboricultural environment consists primarily of Indigenous, Victorian and Australian natives located in Sir William Fry Reserve and exotic street trees planted along the Nepean Highway and adjacent streets. Construction would require removal of 197 trees, however the Project would avoid impacting the River Red Gum of 'very high' arboricultural value on the perimeter of the Study Area at Cheltenham, and the northern section of Sir William Fry Reserve would not be impacted as it is outside the area required for the Project.

### *Stabling Facility*

The site provides only a minor contribution to the urban forest in Heatherton, with much more substantial stands of trees occurring locally at the Kingston Heath and Capital Golf Clubs, Karkarook Park and the linear reserves surrounding the site. Arboricultural impacts have been minimised through refinements to the design and construction layout and avoiding impacts within Henry Street and Kingston Walk Linear Reserves. Most of the 252 trees that would require removal are juvenile (less than 5 years old) with low or no arboricultural value.

### *Clayton*

Arboricultural impacts have been minimised through refinements to the design and construction layout with 63 trees within the Remembrance Gardens area needing removal to facilitate the second station entrance. Design of the Project retains the Lone Pine tree of high arboricultural value within the Remembrance Gardens, and the high value Peppercorn Tree adjacent to the existing Clayton station would also be retained and protected.

### *Monash*

Construction would require removal of 323 trees, some of which are of moderate and high arboricultural value. Impacts would be most significant surrounding Normanby House, and on the south side of Normanby Road, reducing the canopy cover and impacting local amenity in the short-term during construction. Although the canopy contribution of smaller trees would be replaced quickly, there would be a time delay before re-planted trees can achieve the same contribution as large trees that require removal.

### *Glen Waverley*

Construction would require removal of 100 mostly native street trees, almost half of which were assessed as of low or no arboricultural value.

### *Emergency Support Facility*

Construction would require removal of 29 trees, 25 of which were assessed as having low or no arboricultural value. Trees close to the boundary of the site in the adjacent reserve and neighbouring properties are unlikely to be impacted by the Project and would be protected by a Tree Protection Plan.

### *Burwood*

The arboricultural environment is characterised by trees within Gardiners Creek Reserve, Bennetswood Reserve, the Zinfra depot, and along Sinnott Street and other adjacent roads. Most construction works have been centred at the Zinfra site and the residential precinct to the immediate east, limiting impacts to overall tree numbers by avoiding more densely vegetated parklands to the west along Gardiners Creek Reserve. Nevertheless, substantial numbers of high and moderate value trees would be impacted, and works would encroach into parkland south-east of the Zinfra site. Overall, construction would require removal of 340 trees.

### *Box Hill*

Most of the 102 trees to be removed are within the central median of Whitehorse Road or the eastern section of Box Hill Gardens and are a combination of exotic and Australian native species. Many are mature trees of high or moderate arboricultural value but no trees of very high arboricultural value or trees protected under the Significant Landscape Overlay have been proposed for removal.

# Business and retail

## Project wide construction effects

For most localities, adverse impacts from construction on business and/or retail are expected to range from negligible to moderate. Displacement of businesses (and employment) and reduced demand (fewer customers) due to disruptions caused by construction works were identified as key potential impacts from Project construction. There may also be temporary effects on local amenity due to access changes, traffic, noise and dust which may impact local businesses.

Measures have been proposed to manage displacement impacts including assistance with business relocations where possible. Ongoing engagement would be undertaken with affected businesses and support provided in line with SRLA Business and Residential Relocation Support Guidelines. Localised Business Disruption Mitigation Plans and EPRs addressing amenity and access would minimise the potential for impacts and disruption to local businesses.

## Project wide operational effects

Operation of the Project would substantially improve the commercial attractiveness of the SRL station localities as business, shopping, dining, employment and entertainment destinations. This would particularly be the case for the four designated activity centres (Cheltenham, Clayton, Glen Waverley and Box Hill) where new stations would improve accessibility, increase activation and possible additional retail, commercial, residential and other development.

The SRL station at Monash, an industrial area on the perimeter of Monash University would also be expected to transform to higher density employment uses. There is risk of long-term effects on existing industrial businesses as improved public transport access leads to increased rental costs, pushing out current uses in favour of high-density employment uses such as offices, retail, hospitality and business accommodation.

## Tunnels

Negligible business and retail impacts are expected from construction and operation of the Tunnels.

## Above-ground sites

### *Cheltenham*

Land acquisition for the SRL station would displace four businesses with a negligible loss in job numbers as a proportion of total employment in the Study Area. Impacts from disruption of access to Southland Shopping Centre from Bay Road and amenity impacts due to construction works would be minor.

### *Stabling Facility*

Seven commercial properties would be acquired, displacing four businesses. With local relocation of three of these businesses (nurseries and private dog park), residual impacts to the local economy are considered minor.

Permanent closure of Old Dandenong Road would have a negligible impact on travel times for the materials processing business located adjacent to Dandenong Road. Property access to local other businesses would be maintained.

Project construction would provide over 150 jobs on-site for 6.5 years and once operational, the Stabling Facility would provide employment to train maintenance and cleaning crews and opportunities for engagement of local businesses to support activities and site employees.

### *Clayton*

Acquisition of 26 properties would displace approximately 24 businesses which includes 16 retail and six health care businesses, currently accounting for around 1 per cent or less of jobs in the Clayton Activity Centre/Health Precinct.

Impacts on businesses from the closure of Carinish Road and reduction of traffic movements along Clayton Road, would be managed through implementation of a Business Disruption Mitigation Plan. Residual impacts from disruption and access impacts to Clayton Road are predicted to be minor.

### *Monash*

Thirty four commercial properties would be acquired, displacing between 20 to 30 businesses. These businesses are located on industrial land identified as regionally significant, in an area where relocation to suitable alternative sites may be difficult.

Successful relocation would mitigate the business impacts of the Project, and SRLA will work closely with affected businesses in accordance with the SLRA Business and Residential Relocation Support Guidelines to achieve this outcome.

### *Glen Waverley*

Construction may result in reduced demand (fewer customers) for local businesses or retailers, particularly south of Coleman Parade if there is significant net loss of car parking from this area. Replacement of all or most of the 300 to 350 car parking spaces lost from the acquisition of the Glendale Street car parks and the removal of some on-street parking would mitigate this impact.

### *Emergency Support Facility*

The Project would require the acquisition of one property currently occupied by a hardware store, but no additional business loss is anticipated.

### *Burwood*

Four businesses would be displaced due to land acquisition for the SRL station and the electrical substation. SRLA has reached in-principle agreement to relocate the significant civil construction business to secure its uninterrupted operation. The jobs associated with this business would exist elsewhere in the successfully relocated businesses, resulting in negligible job losses overall.

### *Box Hill*

An estimated 72 commercial properties would be acquired for the SRL station, resulting in the displacement of 50 to 60 businesses. A number of these are widely used by customers with Asian cultural background and contribute to the cultural life of the centre, but with local relocation residual impacts during construction are predicted to be moderate. Impacts from loss of car parking are expected to be minor due to the volume of car parking available in the centre and the relatively small reduction in parking during the Project's construction

# Contaminated land

## Project wide construction effects

Site-specific ground investigations undertaken across the 26 kilometre alignment included drilling 340 boreholes and the analysis of almost 3,400 soil, groundwater and vapour samples. The investigations show that most contaminants detected were below respective assessment criteria and do not pose a significant risk to human health, the environment, buildings or structures. Additional mitigation to minimise contaminated land impacts may be required at the SRL station at Cheltenham site and the Stabling Facility site. In total, it is estimated that less than 5% of spoil is predicted to be a 'priority waste' requiring disposal to landfill. The Project has identified there is significant air space available with respect to sites suitable to accept spoil for reuse and facilities able to accept reportable priority wastes.

Spoil removal will be largest at the Stabling Facility, and the SRL stations at Monash and Burwood. Spoil management would require assessment of the condition of the soil before excavation or tunnelling and identification of the preliminary waste classification to enable early planning for on-site or off-site reuses of spoil as far as reasonably practicable. Disposal to landfill would be a last resort. The majority of spoil would be reused, and managed in accordance with the Spoil Management Strategy, with the contractor required to develop a Spoil Management Plan that includes a Contingency and Unexpected Finds Plan should actual conditions encountered during construction be different to the expected conditions.

Groundwater drawdown could create pathways for migration of contaminants in groundwater towards excavations and Project structures. The Project incorporates several design features to inhibit ingress of groundwater and the subsequent movement of any contaminated plumes. These include use of TBMs to establish the tunnels which provide a near water-tight lining, and diaphragm walls at some station boxes and the eastern and western portals at the Stabling Facility, which seal (or 'tank') the structure to minimise inflows during construction. Where this is not possible, mitigation measures such as recharge schemes are an effective mitigation to restrict lateral movement of groundwater, thereby minimising potential for contaminant migration.

## Project wide operational effects

No substantial risk of harm or impact to human health and the environment is expected from contaminated land or migration of contaminated groundwater during operation of the Project.

## Tunnels

The tunnels are to be constructed entirely in natural soils and rock and mostly below the groundwater table. Spoil would be characterised by elevated concentrations of naturally occurring arsenic and other metals and inorganics. Potential acid sulfate soils would be found extensively in the tunnelled sections, but in particular in the tunnel from the Stabling Facility to the SRL station at Clayton.

The tunnelled section in the southern half of Clayton Road also passes close to several landfills with groundwater quality in the vicinity indicating a weak leachate that has escaped from these landfills. Construction of cross passages would require additional mitigation measures to manage potential risks to human health of workers.

SRLA would undertake further investigations, sampling and analysis of contaminated soil, groundwater, and vapours to identify the nature and extent of contamination at these locations before construction works for the Project begin.

## Key above-ground sites

### *Cheltenham*

Disturbance of buried gasworks waste from the former Highett Gasworks would likely give off an offensive smell when encountered during excavation of the station box, however this would only be a small portion of the material to be excavated. As well as general construction management measures, additional measures would be in place during excavation addressing temporary stockpiling and transport of malodorous materials, and the risk of contamination impacting human health and the environment is considered low.

*c. 1970 aerial photograph of the Highett Gasworks and approximate location of the Sir William Fry Reserve (red arrow) (Source: Kingston Local History)*

### *Stabling Facility*

At the Stabling Facility site, there is potential for sub-surface methane gas from the Henry Street Landfill to be mobilised during ground improvement works.

A hazardous ground gases management plan would be prepared including requirements for continuous monitoring during the work period within the tunnel or during cross-passage construction with provision of increased ventilation as required.

Management of hazardous gases characterised by methane and carbon dioxide associated with natural and man-made sources is proposed to minimise risks to human health (where applicable) by constructing gas venting barriers, 'over-grouting' cross passages before construction starts, and increased ventilation.

# Ecology

## Project wide construction effects

Impacts would be limited due to the urban setting of the Project, and location of most of the construction works underground. In locations where there are surface works, few ecological values exist. Ecological values that are present are small pockets of native vegetation, areas of revegetation of varying complexity and diversity and other planted trees, generally with an exotic grass understorey.

Design of the Project has sought to avoid removal of native vegetation where possible, with removal limited to 0.782 hectares consisting mostly of stands of a single species of Coast Tea-tree (*Leptospermum laevigatum*), Silver Wattle (*Acacia dealbata*), young River Red Gums (*Eucalyptus camaldulensis*) or Swamp Paperbark (*Melaleuca ericifolia*) which are of relatively low biodiversity value.

The limited and localised loss of habitat would not have a significant impact on any species, including threatened fauna species that may utilise native and planted vegetation within the Project Study Areas as low quality foraging or roosting habitat. No critical habitat for threatened species has been identified within the Project Study Areas and most animals present are common species that have adapted to living in urban environments. Some common, non-threatened fauna species would be displaced directly by tree and understorey vegetation removal, and fauna utilising habitats adjacent to the Project may also temporarily relocate as a result of noise impacts during construction.

The Project would significantly contribute to local habitat in the longer-term through the target to replace double the tree canopy removed, using local indigenous species to maximise habitat value and connectivity for native fauna where appropriate, and through obtaining native vegetation offsets.

Impacts from construction noise and lighting would be temporary and localised and operational noise and lighting are not anticipated to result in a long-term decline in the distribution or abundance of these species.

Negligible impacts are expected to ecological values associated with surface water and groundwater systems. Best practice mitigation measures to treat and reduce the volume of surface water runoff from the Project would ensure impacts on water quality and flow regime and aquatic ecosystems downstream are negligible.

## Project wide operational effects

Operating noise levels of the Project would be below current ambient levels, except for noise from at-surface trains travelling through the Stabling Facility. The rail line would be located at a distance from retained habitat in the Kingston Walk and Henry Street Linear Reserves, and design solutions have been incorporated to minimise noise associated with at-surface train movements. Noise would be relatively continuous and predictable and it is likely that fauna utilising retained habitat would become accustomed to the noise and continue to utilise these areas of habitat.

The impact to fauna from lighting during the Project's operation would be minor and localised. Fauna present are likely to have coping mechanisms for persisting within well-lit environments, and the Project would not result in a long-term decline in the distribution or abundance of fauna.

## Tunnels

Construction and operation of the twin tunnels have the potential to impact aquatic or terrestrial groundwater dependent ecosystems (GDEs) by changing groundwater levels, flow or quality. The tunnels have been designed to be watertight to minimise groundwater discharge. Measures would be implemented during their construction to prevent groundwater of unsuitable quality being discharged into surface waters.

## Key above-ground sites

### *Cheltenham*

The Project would require removal of a significant proportion of the planted mature trees within Sir William Fry Reserve but only a very small amount of native vegetation, with no significant impacts to any species predicted, including threatened fauna species.

### *Stabling Facility*

The small amount of native vegetation that would be removed within the Project site has relatively low biodiversity value. The loss of low quality foraging habitat would have minimal impact on fauna that may currently forage within the area, given the presence of similar and higher quality habitat at the many golf courses and parks in the surrounding area.

Native vegetation in the Henry Street and Kingston Walk Linear Reserves would be retained as important habitat corridors with additional plantings to enhance their amenity. Vegetated retarding basins would be connected to these corridors, enhancing habitat values at the site.

### *Monash*

Mature trees to be removed at the site are likely used for foraging and nesting by common non-threatened fauna, well adapted to living in urban environments. Impacts are not expected to any of these species at the population level although individuals may be displaced as a result of removing the trees. Higher quality habitat at the nearby Jock Marshall Reserve would be retained and continue to provide habitat for fauna in the area. No significant impacts to any species are predicted including threatened fauna species.

### *Burwood*

The vegetation patches, although planted, have higher biodiversity value as they include mature trees with a greater diversity and complexity of understorey plantings. Gardiners Creek provides an important corridor of habitat for fauna within an otherwise built-up urban environment. Removal of habitat from the western side of Gardiners Creek would be kept to the minimum needed for the naturalisation of the creek.

The Project would contribute to local habitat and biodiversity in the long-term through the naturalisation of Gardiners Creek, application of *Urban Design Strategy* for the Project which provides for enhancing the biodiversity values of Gardiners Creek, and the tree canopy replacement target.

### *Box Hill*

Trees impacted include those in Box Hill Gardens, road reserves and the centre median of Whitehorse Road. Mature trees are likely used for foraging and nesting by common non-threatened fauna well adapted to living in degraded urban environments. No significant impacts to any species including threatened fauna species are predicted.

# Electromagnetic interference

## Project wide effects

Electromagnetic fields (EMF) are invisible forces produced by electrically charged objects. They originate from natural phenomena (such as the Earth's magnetic field and lightning) as well as manufactured objects (such as lights and mobile phones). Railway traction power systems can introduce new electromagnetic fields into the environment that could potentially affect human health and sensitive electrical equipment.

Electromagnetic field fluctuations can also be caused by the movement of metallic or ferromagnetic objects, such as the tunnel boring machines or piling activities during the Project's construction, or the movement of trains in the SRL East tunnels during operation. This is known as moving metal mass. The impact from moving metal mass drops off very quickly with distance.

### *Human Health*

The Project has been designed to use alternating current, a power system that means that the smaller and lighter SRL trains would generate lower electromagnetic fields compared to most urban railways. Modelling shows that electromagnetic fields generated by the Project would not affect the health or amenity of residents and communities, with emissions well below the public exposure limits stipulated in international EMF exposure guidelines. Disturbance of background electromagnetic fields from moving metal mass does not generate any potential impacts for human health.

### *Sensitive equipment*

Thirty-two sensitive receivers across the tunnel alignment were identified as requiring further investigation due to the presence of specialised medical, research or manufacturing equipment that are sensitive to electromagnetic interference (EMI). These included CSIRO at Clayton, Monash University and Deakin University. For most of these sensitive receivers, the predicted EMI from the Project is below levels that would impact the operation or accuracy of sensitive equipment such as electron microscopes. Most sensitive equipment is located at a sufficient distance from the tunnels for impacts of any additional electromagnetic fields to be negligible.

For three sensitive receivers at Monash University, the predictive modelling identified that EMI levels at these receivers would approach their immunity limits under rare railway operating conditions and with a highly conservative margin of error applied. Further analysis s to be undertaken during detailed design which is expected to demonstrate that the Project is unlikely to impact on the performance or accuracy of any equipment.

### *Moving Metal Mass*

The route selection for the Project and the depths of tunnels sought to maximise the horizontal and vertical clearance from sensitive receivers, where reasonably practicable. This means there is a low likelihood of fluctuations to electromagnetic fields from tunnel boring machines and passenger trains having an adverse impact on the operation and accuracy of most of the sensitive equipment within proximity to the Project.

The appointed contractor(s) would be required to consider potential electromagnetic interference impacts on existing and known committed future developments in the design process, and determine operational electromagnetic interference limits. Where it is determined that the Project's electromagnetic fields are expected to exceed immunity limits or fluctuations in electromagnetic fields may result in impacts, further mitigation at-source should be prioritised. If at-source mitigation is not technically feasible or reasonably practicable then alternative options for 'at receiver' mitigation would be identified in consultation with the equipment owner and manufacturer.

# Greenhouse Gas

## Project wide construction effects

Greenhouse gas emissions from construction and operation of the Project would contribute less than 0.2 per cent of Victoria's average annual emissions, and less than 0.05 per cent of Australia's average annual emissions (based on the latest available data).

Project construction is predicted to result in a marginal increase in Victorian and local government emissions profiles through to 2030. Mitigation measures to reduce construction emissions are currently being investigated as part of the Project, however as these are still being developed, they are not reflected in the Project's projected greenhouse emissions. Mitigation measures being considered in the ongoing development of the Project include:

- optimising design to minimise the size and extent of Project works, which would reduce the amount of construction materials required
- integrating lower carbon materials into the Project design
- exploring material alternatives such as cement replacement, recycled and warm-mix asphalts, and other materials with recycled content.

Investigations are also underway to maximise the electrification of construction and maintenance plant and equipment, and to explore using renewable electricity for the Project's construction where practicable. Commitments to energy efficiency are underpinned by the focus on reducing waste and efficient resource use set out in SRLA's Sustainability Policy.

## Project wide operational effects

Initiatives to minimise the greenhouse gas impacts of the Project's operation have been integrated into the Project through good design principles which support the energy and resource efficiency objectives of the Sustainability Policy. These initiatives were included in the greenhouse gas emissions model and include integration of a 25kV traction power network to enable high levels of regenerative braking which reduces the power needs for operating the trains by 32 per cent when compared to the 1500V system currently in place across the remainder of Melbourne's rail network.

All residual operational greenhouse gas emissions would be offset as part of SRLA's commitment to carbon neutral operations, consistent with the Government's commitment to power public transport with 100 per cent renewable energy from 2025. Performance would be monitored and benchmarked in line with industry leading sustainability rating tools.

Quick journeys, easy connections to existing transport networks, and enhanced active transport infrastructure resulting from the Project would improve Melbourne's overall transport efficiency as the population continues to grow. More frequent services and faster trips would provide a viable alternative to private vehicle trips and lead to less burning of fossil fuels associated with road vehicles.

The Project would result in an estimated decrease of 14,200 t $CO_2e$ for the first year of operations resulting from direct emissions savings from reduced private vehicle trips, as well as corresponding emissions savings from reduced car production and maintenance, equating to a decrease in emissions of 0.1 per cent for Greater Melbourne.

The decrease in emissions is despite an increase in Melbourne's transportation capacity, as the Project would facilitate a 0.7 per cent increase in total passenger kilometres travelled including in modes other than SRL itself. This means that the average emissions intensity of travel in terms of kg$CO_2e$ per passenger kilometre travelled decreases due to the Project by 2.9 per cent for Greater Melbourne.

# Ground movement

## Project wide construction effects

Ground movement refers to the vertical and horizontal movement of the ground due to sub-surface activities and is an expected outcome of any tunnelling project. If left unmanaged, ground movement has the potential to impact assets such as buildings, infrastructure and utility assets above, or in proximity to, the Project alignment.

Limited ground movement is expected from excavation works conducted for construction of the Project. With implementation of standard measures based on sound engineering practices and appropriate construction methodologies and controls, residual impacts to buildings, infrastructure and utilities at the SRL stations at Glen Waverley, Burwood and Box Hill, the Stabling Facility and the Emergency Support Facility are predicted to be negligible to minor and limited to non-structural, easily repaired, aesthetic and superficial effects. Management measures would require the Project design and construction to limit ground movements and remediation of any damage caused by ground movement due to the Project.

Moderate residual ground movement impact ratings were modelled for roads at the SRL stations at Cheltenham, Clayton and Monash and impact effects would be expected to include dips in road surfaces. Ground movement impacts to sections of Nepean Highway, Normanby Road and a section of Clayton Road would occur progressively, resulting from excavations for the stations and entrances, with durations of more than a year, in combination with a brief period of the TBM arrival or departure.

A more detailed analysis using additional information on these assets would be undertaken during detailed design of the Project to assess the extent of the potential impacts. Additional mitigation measures tailored to the specific structure or predicted ground movement impact would be implemented where necessary to reduce the ground movement impacts to negligible or minor.

## Project wide operational effects

No ground movement is anticipated to result from the operation of the Project.

## Tunnels

Some degree of settlement of the ground above or in proximity to the Project alignment is expected from underground works associated with the Project. The predicted impacts from ground movement at the tunnel section in the Whitehorse local government area would be negligible to minor with aesthetic and superficial effects only.

Moderate ground movement impacts were modelled for a 340 metre section of Kingston Road, a 60 metre section of the Dingley Bypass and two sections of Clayton Road (85 and 55 metres) for the tunnel section in the Kingston local government area. Monitoring for potential structural damage may be undertaken to identify if any remedial works, such as reprofiling of the road surface, are required.

A 65 metre section of Waverley Road in the Monash local government area was also modelled to have moderate impacts from ground movement. Instrumentation would be installed, and monitoring undertaken to identify if any unacceptable damage occurs in the road pavements and to identify if remedial works are required.

## Key above-ground sites

### *Cheltenham*

Moderate residual ground movement impacts are predicted for a 190 metre section of the Nepean Highway. Instrumentation would be installed, and monitoring would be undertaken to identify if any unacceptable damage occurs in the road pavements and to identify if remedial works are required.

### *Clayton*

Moderate residual ground movement impacts are predicted for a 220 metre section of Clayton road. Instrumentation and monitoring would be undertaken to monitor for potential damage and identify if any remedial works are required.

The impact of the proposed tunnel alignment and station entrances beneath the existing elevated Dandenong / Pakenham rail line was assessed. Potential ground movement impacts would be mitigated by additional measures to be confirmed during detailed design. Re-tamping of the track would be required as a remedial measure.

### *Monash*

A moderate residual ground movement impact is predicted to a 40 metre section of Normanby Road. Instrumentation and monitoring would be undertaken to monitor for potential damage to Normanby Road and identify if any remedial works are required.

# Groundwater

## Project wide construction effects

Localised drawdown of the groundwater table around the proposed station locations is expected as water seeps into excavations during construction, however the groundwater level is generally predicted to return to normal within two years once the station is excavated and fully sealed. The maximum duration of groundwater drawdown is predicted to be between 5 and 10 years. Minimisation of groundwater impacts has been considered during design development, through measures such as the use of diaphragm walls or secant pile walls which seal the station structure to minimise inflows during construction, and which have been proven to successfully mitigate impacts in tunnelling projects.

Localised groundwater drawdown associated with construction has the potential to decrease the availability of water in irrigation or investigation wells and for groundwater dependent ecosystems (GDEs). Groundwater drawdown could also cause the mobilisation of existing groundwater contamination or the activation of potential acid sulfate soil.

Prior to construction, a Groundwater Management Plan would be prepared detailing the groundwater management approaches required to avoid and minimise predicted impacts to groundwater levels. The plan would provide specific requirements to manage impacts on existing users and GDEs. Measures such as groundwater monitoring to detect contaminant movement, are proposed to guide development of local-scale mitigation measures to manage potential risks to human health and the environment.

Construction of the SRL stations at Clayton, Monash, Glen Waverley and Box Hill is not expected to have a significant impact on the existing groundwater environment. There are some localised potential contamination sources, however these are either directly adjacent to the site meaning there would be a low risk to the groundwater environment (as future use of the groundwater is unlikely and groundwater would not enter the station box), or at the very edge of the groundwater drawdown area, where the contamination is not expected to migrate significantly.

Overall, there would be minor impacts to groundwater in terms of drawdown, inflows, generation of acidic groundwater, movement of contamination and water quality. These impacts could be controlled or reduced by general best practice engineering design, construction methods and groundwater monitoring.

## Project wide operational effects

During operation, the SRL stations, tunnels and cross passages would all be effectively sealed to groundwater. There is potential for some seepage into the structures, however, the impact on migration of contaminated groundwater and groundwater drawdown would be less than the predicted seasonal variation, and is not expected to cause impacts to groundwater users, GDEs or existing contaminated groundwater. As predicted drawdown is within the natural seasonal variation there is a low potential for oxidation of potential acid sulfate soil.

Groundwater inflows during operation are not expected to require treatment and would be disposed of to sewer in accordance with the Groundwater Disposal Strategy.

## Tunnels

The tunnels would be constructed using TBMs which balance the ground pressures with a bentonite slurry mixture. Groundwater drawdown is predicted to be minimal, as the TBMs would install concrete panels immediately behind the excavation face to seal (or 'tank') the tunnels to prevent inflows, while excavation of the cross passages would use grouting to lower permeability and reduce inflows.

Cross passages would cause localised drawdown of groundwater until sealed, with water levels recovering after tanking at the end of construction works. Due to the short timeframe for these works (3 to 6 months ) this is not expected to cause a significant impact. Impacts of migration of contaminated groundwater from cross passage works along Clayton Road are expected to be minor due to the short duration of construction and the relatively poor existing groundwater condition at these locations.

Extracted groundwater would be disposed of in accordance with the Groundwater Disposal Strategy.

## Key above-ground sites

### *Cheltenham*

There are known groundwater contamination plumes associated with the former Highett Gas Works and the nearby former Lucas Battery site. Modelling indicated that, without additional mitigation, construction would impact on both plumes, causing contamination to migrate to previously uncontaminated locations and potentially impacting groundwater users. Additional mitigation, such as a groundwater recharge scheme, would be implemented to minimise potential contamination plume migration and groundwater drawdown.

### *Stabling Facility*

Known contamination plumes are also present near the Stabling Facility, related to landfill sites. Groundwater impacts would be localised to the eastern and western portal structures during construction, which if unmitigated, could lead to drawdown impacts. Mitigation of groundwater impacts has influenced Project design with diaphragm walls proposed to limit the migration of groundwater during construction, minimising groundwater inflows and reduces subsequent groundwater drawdown.

### *Burwood*

Potential GDEs of Gardiners Creek and Damper Creek could be impacted by groundwater drawdown without management. Drawdown impacts on GDEs would be managed through monitoring to detect baseflow conditions and measures such as a small recharge scheme or direct release of water into Gardiners Creek to ensure base flow conditions are maintained.

# Historical heritage

## Project wide construction effects

The ***Historical Heritage Impact Assessment*** focused on the potential for direct physical or visual impacts to heritage places from Project construction works. Largely, potential impacts to heritage places, objects and settings would be avoided, however, the Project would impact on heritage structures protected through Heritage Overlay planning controls at the SRL stations at Box Hill and Burwood.

Archaeological values would be addressed through the Archaeological Management Plan and any unexpected archaeological discoveries would be managed through the unexpected discoveries protocol.

The Project presents a unique opportunity to enhance understanding and appreciation of historical heritage at Project sites through the preparation of a heritage interpretation strategy for the Project. This strategy would explore historical heritage themes and site interpretation initiatives for temporary and permanent works, and align with the *Urban Design Strategy*.

## Project wide operational effects

There would be no risks to heritage buildings from the operation of the Project, including from operational vibration.

## Tunnels

While there is potential for indirect impacts to heritage buildings and places from the effects of vibration and ground movement induced by tunnel construction, these effects are minimal due to the depth of the tunnels.

No state listed heritage places above the tunnel alignment have been identified as having the potential to be impacted by vibration induced by tunnel construction.

A potential heritage place, the Kingston Centre (HO53), has the potential to be affected by ground movement associated with tunnel construction taking place below. Impacts to potentially affected structures would be mitigated through construction planning, pre-construction surveys and monitoring during construction works. Cross passage works at the Kingston Centre are sufficiently removed from heritage buildings, associated landscape settings and mature trees to avoid impacts to heritage values.

## Key above-ground sites

### *Stabling Facility*

There are two Heritage Overlay places associated with the Stabling Facility however there would be no physical impacts to these locally significant heritage places from the Project. Impacts to the heritage settings of these places would be temporary and avoided through detailed design and construction planning.

### *Clayton*

Impacts to one Victorian Heritage Register place (Clayton Railway Station) and two Heritage Overlay places in the Clayton Study Area would be avoided as only minor utility works are proposed.

### *Burwood*

The removal of remnant heritage structures of the former Burwood Skyline Drive-In Cinema represents a loss of heritage value but one that is localised and of limited scale. SRLA would work with the City of Whitehorse to develop a new interpretation strategy to bring this interesting part of the municipality's history to life.

### *Box Hill*

Following modification to early Project construction plans, the former Railway Hotel (HO92) would be retained and measures are proposed for external repair and active conservation works to the Hotel as part of the Project. The former Colonial Gas Association building (HO91) and three contributory buildings in the Box Hill Commercial Precinct (HO244) west of the hotel would be demolished which would diminish the heritage values of the HO244 Precinct. The remaining buildings in the HO244 Precinct east of Station Street, including HO93 (958-964 Whitehorse Road) would remain unaffected and the heritage values of the HO244 Precinct, although diminished would be retained in large part.

Impacts to monuments and structures in the Whitehorse Medians would be avoided or minimised by their temporary relocation during construction works and appropriate reinstatement. In the Box Hill Gardens mature trees would be protected where possible and a landscape reinstatement plan would be developed to reinstate the valued character of the gardens.


*An early view of the former Railway Hotel at Box Hill (Source: Box Hill Historical Society)*

# Human health

## Project wide effects

As well as increased employment opportunities provided during the Project's construction, the greatest benefit to community wellbeing would be once the Project is operational. Wellbeing benefits would come about through improved accessibility and active transport opportunities (walking and cycling), reduced travel times, opportunities for greater public transport and better access to jobs, services and community. The Project would also improve pedestrian and cycle safety and create feelings of safe access which would directly improve community health and wellbeing.

A ***Human Health Impact Assessment*** of other studies was undertaken for the Project, to specifically consider potential impacts on community health and wellbeing due to Project-related effects. This integrated assessment addressed potential human health impacts related to air quality, noise and vibration, contaminated land, surface water, electromagnetic interference (EMI), business and retail, traffic and transport, visual effects on landscape and green space, community connectivity, social networks and access to services and facilities.

With implementation of mitigation measures, it was found that changes to air quality and the visual landscape, and impacts from noise and vibration, contaminated land, surface water and EMI would have negligible impacts on human health.

Business and retail may experience disruption during construction or from displacement due to land acquisitions, as well as access and amenity impacts. The acquisition of properties and relocation of households due to the Project may disrupt social networks and affect health and wellbeing due to increased stress and anxiety. Many of the households identified for acquisition have noted their plans to move in the short to medium term, irrespective of the Project, which would minimise the impacts of displacement. SRLA is committed to working closely with affected landowners, occupiers and businesses and equitably support residents and businesses in accordance with the Business and Residential Relocation Support Guidelines.

Construction activities may affect local traffic flow, access to local areas, changes in active transport routes and changes in safety for road users, pedestrians and cyclists. Where these impacts are managed or mitigated and the proposed EPRs are implemented, impacts on community health and wellbeing would be low.

Community connectivity may be affected during construction through changes to neighbourhood character and community access, potentially increasing stress and anxiety for some members of the community. Where the Project's construction impacts are managed through implementation of mitigation measures in accordance with EPRs, the impact on community connectivity and access would be minimal, with negligible impacts on community health.

Construction of the Project would result in a temporary impact to public green spaces which may impact the health and wellbeing of the community. Once the Project is complete, impacted green space areas would be managed in accordance with the *Public Open Space Framework* , and a tree replacement program would be implemented to double the amount of tree canopy cover removed during construction. While a permanent loss of green space would occur in some locations, with the implementation of the EPRs these impacts would be minor and have negligible long-term impacts on community health.

# Land use planning

## Project wide effects

Much of the Project would be in underground tunnels, which significantly reduces potential impacts on surface land uses.

The new stations would be constructed at key activity centres, employment, health and education areas, bringing people closer to jobs and services. This integrated transport and land use project would deliver on several key State transport and land use objectives and policies, including the objectives of the *Transport Integration Act 2010*, metropolitan strategy *Plan Melbourne 2017-2050* and the *Plan Melbourne Addendum 2019*.

While the Project design minimises the amount of private land acquisition required, there would be impacts from acquisition on individual landowners, households, tenants and businesses at all locations. The permanent land use changes at the new stations, stabling and emergency support facilities would include the acquisition of 312 commercial, residential and public properties, and a loss of some open space at Sir William Fry Reserve in Cheltenham, Sinnott Street at Burwood and parts of the proposed future public open space, Chain of Parks in Heatherton.

The Project has some inconsistencies with local planning provisions where change of land use to Transport Terminal at proposed SRL station sites is technically inconsistent. However, this reflects current planning controls that pre-date the incorporation of SRL into *Addendum 2019* and metropolitan planning policy. The use of these sites as train stations is appropriate having regard to the type and intensity of mixed-use development that is proposed to be achieved around the train stations, and is consistent with the strategic priorities of *Plan Melbourne*, in particular with respect to creating National Employment and Innovation Clusters, Metropolitan Activity Centres and Health and Education Precincts.

## Tunnels

Construction of the tunnels would not directly impact land uses within any of the local government areas, although construction of cross passages would generate some temporary impacts which may include visual amenity, air quality, airborne and ground-borne noise/vibration.

Once constructed, the tunnels are expected to have minimal or no land use planning and infrastructure impacts on the surrounding area, including on land directly above the alignment. The Project alignment has undergone a rigorous route selection process to ensure the Project footprint and impacts to land uses are minimised as far as practicable.

Development controls are proposed to be applied through a Specific Controls Overlay (as part of the Planning Scheme Amendment) to protect underground (tunnel) infrastructure from future development (for example proposed basements that may be too close to the tunnel or multi-storey development that may increase the load on the tunnel). The implementation of the Overlay would result in new planning permit triggers within the Overlay boundary for certain types of development that could potentially affect the Project.

## Key above-ground sites

### *Cheltenham*

Development of the SRL station land at the southern end of Sir William Fry Reserve would require a change of land use, relocation of community facilities (for example a skate park), and permanent loss of up to 4.3 hectares of public open space.

The Project includes some provision of open space, which would predominantly be in the form of a station plaza related to the new railway station, the return of some public open space to Sir William Fry Reserve post-construction, and planting and landscaping to the north of the station. The loss of open space would be mitigated in accordance with the SRLA *Public Open Space Framework* which has been prepared to pursue opportunities for new open space and improvements to the quality of existing open space.

### *Stabling Facility*

Current planning policy identifies the existing clean fill site proposed to be occupied by the Stabling Facility as a site within the proposed regional open space network known as the Chain of Parks. This is a proposed land use outcome which is supported by the Kingston Green Wedge Plan under the Kingston Planning Scheme, however, the timing and funding for delivery of the Chain of Parks concept is not yet confirmed.

While construction and operation of the Stabling Facility would reduce the area available to deliver the Chain of Parks concept, it would not affect delivery of the policy on other parcels of land identified for public open space. There are also opportunities to offset this impact by enhancing existing, and creating new, linkages around the Stabling Facility. This is acknowledged within the *Urban Design Strategy*, which includes a place-specific outcome of '*a stabling facility that is well-integrated with the surrounding area and responsive to the emerging 'green' character of the 'Chain of Parks'*. Furthermore, the *Public Open Space Framework* requires SRLA to work with the City of Kingston, DELWP and other stakeholders to identify alternatives that continue to meet the objectives of the Chain of Parks concept.

### *Burwood*

While most of the proposed SRL station would be sited on land currently used as utility infrastructure, the Project would require the acquisition of the residential properties on the western side of McComas Grove. This impact would be carefully managed to minimise the loss of amenity to remaining residents on the eastern side of McComas Grove. Place-specific outcomes in the *Urban Design Strategy* including streets and networks that '*are responsive to and well-integrated with the surrounding neighbourhood*' and improvements to the Gardiners Creek corridor and associated parklands would assist in mitigating impacts of the Project on surrounding residences.

The displacement of existing public open space at Sinnott Street Reserve would be managed in accordance with the *Public Open Space Framework*.

### *Box Hill*

The Project directly supports the *Plan Melbourne* vision for the Box Hill Metropolitan Activity Centre as providing '*a diverse range of jobs, activities and housing for regional catchments that are well served by public transport'*, and supports the Box Hill Metropolitan Activity Centre Integrated Transport Strategy.

The eastern end of Box Hill Gardens would be temporarily used for approximately 6 years, and would be reinstated after construction. This impact is a considerable land use change and would be managed in accordance with the *Public Open Space Framework*.

# Landscape and visual

## Project wide construction effects

As much of the Project is located underground in tunnels, the key landscape and visual amenity changes would be from construction activities and the new above-ground buildings and infrastructure.

In most areas where works occur above ground, impacts during construction are assumed to be high (but temporary) for residences and public open spaces with sight lines to construction areas. This is because there is limited ability to mitigate visual changes caused by Project construction sites.

These impacts would be managed with the implementation of the *Urban Design Strategy* that sets Project-wide requirements and benchmarks to manage temporary impacts of the Project during the construction phase, including requirements for hoarding, enclosures and barriers, early landscaping, wayfinding and connections around construction sites.

## Project wide operational effects

The proposed SRL stations and subsequent changes to public realm and landscape amenity would be guided by the *Urban Design Strategy*. The Project would be designed to respond to the existing and planned urban setting. For locations such as Clayton, Monash, Glen Waverley and Box Hill the changes proposed by the Project are not only consistent with, but set the foundation for further changes that have existing planning policy support.

## Tunnels

The visual impact of the tunnel works would be limited to surface construction works for cross passages. The temporary visual impact would be high, however the work would be confined to small areas and short duration (3 to 6 months). These sites would be rehabilitated and returned to their current setting, at which time there would be no visual impacts.

## Key above-ground sites

### *Cheltenham*

There would be visual impacts from the construction site for users of Sir William Fry Reserve, adjacent pedestrian paths, residential dwellings to the west of the existing Frankston rail line, and upper floors of the multi-level residential development to the north. These impacts would be reduced as far as practical through requirements for hoardings, retention of existing vegetation in areas external to the Project boundaries and implementation of the Environmental Management Framework.

The new station buildings would be set back from the road edge allowing for establishment of landscaping. The *Urban Design Strategy* includes place-specific requirements for the SRL station including provision of an attractive and well activated interface that is welcoming and accessible. With the implementation of the strategy, the proposed changes are expected to improve the broader visual amenity of the area.

### *Stabling Facility*

Existing earth bunds on the site perimeters would be retained or increased in height to screen most views into the construction site from Kingston Linear Walk and the residential area to the west, Henry Street Reserve to the north and along Kingston Road to the south.

Requirements for landscaping, building design, lighting, fencing and vegetation in the *Urban Design Strategy*, combined with the proposed siting and set back of infrastructure, would avoid and minimise landscape and visual impacts.

### *Burwood*

The initial visual impacts resulting from construction and a temporary change to the site's leafy character would lessen over time. The *Urban Design Strategy* would improve the broader visual amenity through the establishment of open space and naturalisation of Gardiners Creek, provision of physical and visual links to surrounding parklands and improved pedestrian and cycle connections over Burwood Highway.

### *Box Hill*

Construction works would impact landscape and visual amenity due to their highly visible nature, scale and location within the Box Hill Gardens and Whitehorse Road. These would be reduced as far as practicable through measures in the *Urban Design Strategy* and *Environmental Management Framework*.

The *Urban Design Strategy* includes place-specific requirements for the SRL station including public realm improvements integrating Box Hill Central, Main Street and Market Street, extending over Whitehorse Road to evolve into a major boulevard and a generous linear park. With the implementation of the strategy, the proposed changes are expected to improve the broader visual amenity of the area.

# Social and community

## Project wide construction effects

Much of the Project would be located underground in tunnels, significantly mitigating potential impacts on the communities that live and work near the Project. Potential disruption to the community would be mostly limited to construction of the above-ground infrastructure at the six new SRL East stations, the Stabling Facility, and the Emergency Support Facility.

The ***Social and Community Impact Assessment*** included engagement with relevant local councils (Bayside, Kingston, Monash and Whitehorse), community groups and affected residents to identify the things people valued about their area and to understand potential social impacts of the Project. Property acquisition, loss of recreational infrastructure, reduction in open space and noise were identified as key potential impacts from Project construction.

Acquisition of 152 residential properties across the Project would potentially create stress and anxiety for affected households, and a loss of social connections particularly for those with established community connections and intangible connections with their properties. These impacts would be managed as far as is practicable by the *Business and Residential Relocation Support Guidelines*.

The Project would lead to some loss of recreational infrastructure in local areas, such as the Cheltenham Skate Park and shared paths and sporting facilities adjacent to the Djerring Trail in Clayton. Implementation of the *Public Open Space Framework*, would mitigate or offset impacts.

The Project construction would temporarily impact access or the amenity of open space, particularly at Cheltenham, Heatherton (Stabling Facility), Burwood and Box Hill Gardens. The Project would deliver increased public open space at Glen Waverley, Box Hill and Cheltenham, although it would reduce public open space available for passive recreation in some other areas.

Some dwellings and recreational facilities adjacent to the construction sites would temporarily experience construction noise affecting amenity of residents and discouraging the community from using these facilities. Construction noise impacts would be managed by noise and vibration EPRs and the *Residential Support Guidelines*.

## Project wide operational effects

The Project would generate long-term benefits for the communities in the catchment of the SRL stations at Cheltenham, Clayton, Monash, Glen Waverley, Burwood and Box Hill, facilitating improved community access, enhancing mobility and connectivity through walking and cycling networks, better integration of bus and rail services, reduced travel times and better access to community, retail and health facilities and employment opportunities. Enhanced accessibility would particularly benefit groups with limited access to other transport options including young people, the elderly, families with young children, low-income households, non-drivers or people without access to a private vehicle.

The Project would also increase transport options for existing and future public transport users to better enable them to adapt to any disruptions in service or congestion affecting the road network.

At the local level, each station also includes new and improved pedestrian and cycling paths, improved crossing points and cycling parking. These features would improve the accessibility of these areas for both pedestrians and cyclists.

## Tunnels

The construction method for the tunnels means that most direct impacts to social assets would be avoided. Surface level ground improvement works associated with the cross passages connecting the twin tunnels, would have a temporary impact on property access and connectivity to road closures, which could be managed through typical traffic management measures.

## Key above-ground sites

### *Cheltenham*

Construction would require the temporary occupation of Sir William Fry Reserve which would result in short-term impacts to amenity and access to surrounding areas, particularly for people walking to the reserve. SRLA would provide alternative spaces and amenities to support community events currently held in the reserve such as the Cheltenham Farmers Market. Once the Project was constructed, the area of the reserve would be reduced but the remaining reserve would be enhanced to achieve a similar level of amenity and provide more ways to access the area with enhanced walking and cycling networks and better integration of bus and rail services.

### *Stabling Facility*

During construction, people who currently enjoy a high level of amenity associated with the linear reserve would experience a reduction in amenity. The use of the site identified by Council for a regional sporting facility could be perceived by the community as diminishing recreational opportunities in the region if an alternative site cannot be found. In the longer term, construction of a shared path on the southern side of the Stabling Yard (along Kingston Road), providing a link for pedestrians around the Stabling Facility via the linear reserve, would provide a recreational connection around the site that could be used by local residents and users of the proposed Chain of Parks.

### *Burwood*

Although Sinnott Street Reserve and Burwood Skyline Drive-In Park would be permanently impacted, there would be no net loss of public open space because of the creation of alternative open space on the east bank of Gardiners Creek. Rehabilitation of this land and Gardiners Creek presents an opportunity to better tailor it to the active and passive recreation needs of the current and future community.

### *Box Hill*

The Project would temporarily occupy the eastern extent of Box Hill Gardens and occupy and reconfigure the Whitehorse Road Linear Reserve. However, these public open space areas would be reinstated once construction was complete and provide opportunity to improve the functional capability of remaining public open space for the community. There is precedent for the temporary loss of parkland during the construction of large projects in Victoria and this would be managed by SRLA in accordance with the *Public Open Space Framework*.

# Surface water

## Project wide construction effects

The Project would be constructed within the catchments of seven key creeks - Gardiners Creek, Scotchmans Creek, Damper Creek, Mordialloc Creek, Elster Creek, Mile Creek, and Koonung Creek. These creeks are in residential or industrial areas which are, for the most part, highly modified. With the exception of the SRL Station at Burwood which would be constructed adjacent to Gardiners Creek, the Project is located significant distances from these waterways. The tunnels would pass beneath Damper Creek and Gardiners Creek.

The potential for the Project to affect flooding and flow regimes, including under climate change scenarios, has been assessed at each of the sites. Adverse impacts can be mitigated by implementing measures ranging from earthen bunds, site grading or swales or more substantial measures such as detention basins.

Surface water runoff including potentially contaminated surface water, leaks and spills would be controlled during the Project's construction with measures to reduce the volume of runoff from the site. Avoidance and mitigation measures such as liquid storage and handling, including bunding and controls to prevent off-site migration of liquid, can be used to prevent an accidental release from entering the stormwater network.

Implementation of water sensitive urban design measures can be used to capture and control the quality and quantity of stormwater discharged from the Project.

Residual impacts on water quality and flow regime in waterways during Project construction are expected to be negligible with the application of mitigation measures.

## Project wide operational effects

The tunnels and station entrances have been designed to accommodate flood events. However flood warning and emergency management plans and systems would be implemented during the operation of the Project to provide sufficient lead time to manage the infrastructure and safety for potential evacuation during major or rare flood events.

Rainfall runoff from impervious surfaces associated with above-ground infrastructure can be managed by various techniques including water harvesting, infiltration, and/or treatment.

## Tunnels

Much of the Project would be located underground in tunnels, which significantly mitigates potential water quality impacts on surface waters, but requires assessment of the impact of floodwaters on the Project. A flood immunity risk assessment would be undertaken during the Project's detailed design to confirm the appropriate level of flood immunity at tunnel portals, emergency evacuation routes and at station entrances.

The tunnel alignment is close to Gardiners Creek and construction may cause drawdown and reduced flow in the creek. Mitigation measures have been developed to preserve creek flow and the aquatic and riparian ecosystems at Gardiners Creek.

## Key above-ground sites

### *Cheltenham*

Modelled flood impacts during the Project's operation showed moderate adverse impacts along the eastern precinct boundary at Nepean Highway and the western boundary at the Bay Road underpass. These impacts could be effectively mitigated by constructing underground storage tanks for floodwaters at the eastern end of the Nepean Highway road reserve, and the western end within the site boundaries, resulting in a reduction of flood levels compared with existing conditions along Nepean Highway, Bay Road, Southland Shopping Centre, and in residential properties.

### *Stabling Facility*

Flood impacts at the Stabling Facility may be caused by the removal of existing ponds which temporarily store and treat site runoff, and retain flood waters entering the site from Heatherton Sands and Henry Street. A flood basin and other mitigation works have been included in the Initial Works to offset the loss of the flood storage capacity provided by the pond. These works would be partially removed during the operation phase of the Stabling Facility, including removal of the flood basin to make way for the permanent water treatment and storm water management facilities.

### *Burwood*

SRLA has committed to naturalising a section of Gardiners Creek adjacent to the SRL Station at Burwood, returning it to a more natural creek. Gardiners Creek has been recognised in the Yarra Strategic Plan as a place of significance as the only existing inner-city Yarra River tributary, and naturalising a section of the creek would provide water quality and ecological benefits for the creek.

Naturalisation of Gardiners Creek would result in slightly increased flood levels along Gardiners Creek, upstream of Burwood Highway. The predicted increase would not affect houses or other buildings, but some private open space would be impacted. SRLA would continue to work with Melbourne Water and Whitehorse City Council to minimise flood level increases related to the creek naturalisation works.

Specific management measures would be in place during the naturalisation works for Gardiners Creek, to minimise disturbance to the bed and banks and manage potential impacts on water quality.

# Traffic and transport

## Project wide construction effects

Project construction would have some impacts on public transport customers, pedestrians and cyclists (active transport), and general traffic. These impacts would be managed through Transport Management Plans prepared with input from the proposed Transport Management Liaison Group. These plans would include measures for maintaining transport capacity, and a requirement to undertake monitoring so that contingency responses can be implemented.

Traffic would be generated by workers commuting to construction sites and transportation of construction materials to and spoil from construction sites. Proposed specified haulage routes would provide construction-related traffic with efficient access to freeway and arterial road networks and between construction sites, minimising impacts on local traffic and roads wherever possible. Parking facilities for the workforce would be provided at each Project construction site where possible. At some locations, not all workforce parking would be able to be accommodated on site and SRLA would continue to engage with relevant authorities to determine suitable parking locations.

The location of proposed road closures and diversions would be specified in Transport Management Plans, and all closures and diversions would be undertaken to minimise impacts to transport users and the surrounding area, while allowing sufficient space for safe construction. Construction staging would be scheduled so that multiple roads were not closed at the same time to allow for traffic detours around construction areas.

Some minor manageable impacts to public transport, pedestrians and cyclists are expected from construction-related road closures and diversions. In some locations diversion of bus routes would be required, and there would be minor delays at times to existing bus services. Some bus and tram stops will be moved slightly to facilitate construction activities and facilitate user safety, Pedestrian and cycle path users would be diverted around construction sites and there may be some interruption to movement at construction traffic access points. Measures would be implemented to minimise truck conflicts with bicycles and pedestrians and provide a safe site access with good sightlines for all road users past the construction site access points.

Overall, the road network would be able to accommodate the changed traffic conditions during construction and the residual impacts to public transport, pedestrians and cyclists are predicted to be minor and manageable.

## Project wide operational effects

During operation, the Project would generate substantial benefits to the traffic and transport network by increasing overall public transport capacity, accessibility and connectivity of Melbourne. The Project is expected to reduce congestion on the metropolitan arterial road network through providing attractive sustainable transport alternatives to private vehicle use.

The new SRL stations would support the integration of public transport services provided by buses, trains and trams, as well as upgraded walking and cycling infrastructure. All SRL stations would be supported by significant increases in cycle parking and safe cycling links in the station environs.

## Key above-ground sites

### *Cheltenham*

Impacts to major roads (Nepean Highway and Bay Road) are expected to be localised for the duration of construction, and minor overall. Public transport services would not be impacted by construction activities and impacts on bus routes and journey times during construction are expected to be minor. Minimal disruption is expected from construction vehicle movements over the day.

Once operating the new station and bus interchange would significantly improve access by public transport to the Cheltenham area. The existing Southland railway station would be connected to the new station via a pedestrian and cycle bridge and improved cycle paths and 400 new cycle parks at the SRL station would provide facilities for connected cycle trips. There would be some local trips along Bay Road, Karen Street and sections of the Nepean Highway that are predicted to be re-routed through the network, particularly to Park Road and Highett Street and some of the local east-west roads. Analysis demonstrates the network can readily accommodate these trips.

### *Stabling Facility*

Permanent closure of a section of Old Dandenong Road will require rerouting of road traffic, rerouting of 631 bus service and removal of the bus stops on Clarinda Road and Old Dandenong Road. Local and network impacts from the closure will result in a minor increase in travel time of 1-2 minutes at peak times. Additional traffic generated as a result of the construction site would have a negligible effect on traffic. There would be some localised diversions in the vicinity of the site for traffic and bus services but construction works would be managed so that access to properties was maintained.

The overall impacts to general traffic, public and active transport by the operation of the Stabling Facility are considered negligible with minimal staff required on site to maintain and operate the facility.

### *Clayton*

Temporary Clayton Road lane closures would be required during construction, and impacts would be managed by site specific traffic controls. Carinish Road would be permanently closed under the rail viaduct, and temporary closure of a portion of the northbound lane of Clayton Road would take place at the beginning of the construction phase. Public transport services would not be impacted by construction activities, and impacts on bus routes and journey times during construction are expected to be minor. The level of construction vehicle movements is expected to cause minimal impacts to general traffic over the day.

Once operational, SRL services at Clayton would be one of the busiest interchange stations, providing metropolitan and regional rail services, and upgraded walking and cycling connections. Buses travelling northbound on Clayton Road would reduce travel times by almost three minutes in the afternoon peak due to reduced traffic volumes associated with the closure of Carinish Road. The closure of Carinish Road will result in some re-routing of trips throughout the network and while this will improve travel times on Clayton Road, it will result in increased traffic volumes on Haughton Road and Madeleine Road. Analysis demonstrates the network can absorb these trips. While travel times and intersection delays will either remain or substantially improve once the Project commences, others will experience delays, in particular the eastern approach of the Carinish/Clayton Road intersection and the western approach to the Clayton Road/Dunstan Street intersection.

## Traffic and transport continued

### *Monash*

Construction vehicle movements are expected to cause minor delays (approximately 30 seconds) on Normanby Road and Howleys Road, and slightly longer bus travel times for some routes. Impacts on walking and cycling would be minor and limited to where pedestrians and cyclist movements conflict with construction vehicles access to and from the worksite.

The new station and bus interchange would significantly improve public transport provision bringing rail services to Monash and the university campus for the first time. The new bus interchange would complement the existing bus interchange within Monash University and provide improved access for movement of people to and from the university. Provision of 700 new cycle parks at the SRL station and within the surrounding public realm would facilitate cycle trips.

The proposed surface transport changes brought about by the SRL station would cause significant decreases in traffic volumes on Normanby Road and Howleys Road. Much of this traffic would be diverted to arterial roads on the network, particularly Blackburn Road and Wellington Road. Analysis demonstrates the network can accommodate the re-routed trips with modest changes to intersection performance.

### *Glen Waverley*

Construction impacts would be minor and localised for the duration of construction. A portion of Coleman Parade, and Glendale Street will be permanently closed and Montclair Avenue would be temporarily closed for the duration of the main construction works. The local road network would readily accommodate these changes with only minor delays forecast for other streets. Diversions of bus route 737 via Springvale Road would result in a 3–4-minute journey extension. Walking and cycling access adjacent to the worksite boundary would be put in place, while retaining access to the existing Glen Waverley railway station. Construction vehicle movements are expected to cause minimal disruption to the local road network.

The local street network would be upgraded to provide access to the SRL Station, prioritising walking, cycling and public transport access while maintaining access to the Glen Waverley Activity Centre. Permanent closure of Coleman Parade would create a safe and attractive plaza significantly improving integration of transport services with the surrounding land use, allowing for unimpeded access for people interchanging between rail services. The rerouted traffic can be accommodated with modest reductions in travel times, with the intersections on Springvale Road with Coleman Parade and Kingsway, and the western approach of the Kingsway/Coleman Parade intersection the most affected.

Approximately 300 parking spaces would be removed and SRLA is working with the City of Monash to resolve legacy parking impacts within the precinct.

### *Emergency Support Facility*

Impacts from the construction and operation have a lower impact than the current site use.

### *Burwood*

Construction works are not expected to result in any significant impacts to general traffic movement on the local and wider network. Bus and tram services travel times and reliability at peak times would experience a minor impact due to construction vehicles accessing the site.

The SRL station would provide rail access to this precinct for the first time and new bus interchange services directly into the precinct area. A new tram stop on Burwood Highway would provide direct access to the SRL Station and bus interchange.

The new signalisations of Burwood Highway with Sinnott Street and McComas Grove will increase travel times on Burwood Highway, and result in modest re-routing of traffic from the Burwood Highway and Highbury Road. The analysis demonstrates the network can accommodate these changes, although increased traffic volumes and travel times are anticipated. Dwell time at intersections in the vicinity of the station generally increase, especially in the afternoon peak.

A new pedestrian overpass would safely connect people with the SRL station plaza and surrounding Bennetswood Reserve and Deakin University, removing the need for people to cross on Burwood Road. New and upgraded cycle paths would connect people to and through the area with new signalised crossings for pedestrians and cyclists to cross Burwood Highway and connect with Gardiners Creek.

### *Box Hill*

The construction of the SRL station would not have any significant impact on the existing Box Hill railway station and rail corridor. Permanent relocation of the existing 109 tram terminus to the other side of the Market Street pedestrian crossing on Whitehorse Road would have negligible impact on passenger access to tram services.

Whitehorse Road would be reduced from three to two lanes in each direction near the construction site, reducing vehicle capacity and resulting in 10 per cent of Whitehorse Road traffic being diverted onto parallel routes (such as Canterbury Road) during peak times, and some minor delays in travel times (up to one minute) for bus services accessing the bus interchange.

Pedestrian facilities adjacent to the worksite boundary may experience minor diversions (such as facilities being available on only one side of the road) due to the number of heavy vehicles accessing the site.

The new SRL station would greatly improve access to and from Box Hill and suburbs to the south. An SRL station entrance would be provided on Market Street enabling interchange between the SRL station and other public transport modes. Changes to bus routes and stops, improvements to the tram terminus along with the re-alignment of Whitehorse Road, would improve passenger interchange walking times and enable tram passengers to access the Main Street/Market Street SRL entrance and existing Box Hill railway station without crossing any traffic lanes.

The permanent reduction of Whitehorse Road to two lanes in each direction from Station Street to Elgar Road will enable enhanced placemaking for cyclists, pedestrians and public transport users. The reduction may prompt traffic to re-route and some additional minor delays on Whitehorse Road and Station Street would be expected during peak times. There may be speed deteriorations and local congestion on some roads within the Box Hill precinct, affecting travel times. New pedestrian and cycle connections along Whitehorse Road improve access throughout the station environs and the broader Activity Centre, providing a connection with the surrounding neighbourhood area and strategic cycle network.

There would be some permanent reduction in car parking spaces within the precinct. Further investigations would be undertaken to establish if alternative locations would be required.

# Vibration and ground-borne noise

## Project wide construction effects

Most residences and businesses along the Project alignment would not be affected by vibration and ground-borne noise during construction of the above-ground infrastructure.

Construction works at above-ground locations would typically only occur during the day (Normal Working Hours) to prevent interfering with people's evening and night time amenity. Vibration-inducing equipment such as hydraulic hammers and vibratory rollers would be limited as far as reasonably practicable and use would typically be restricted to short periods over several days to a few weeks. At a small number of locations, evening and/or night time guidelines would be exceeded if night works were unavoidable. However, impacts on the amenity of residents would be short-term, as vibration and ground-borne noise intensive equipment would only be used intermittently.

If evening and/or night works were verified as unavoidable by the Independent Environmental Auditor, residential amenity and disturbance to work environments would be managed by implementing a Communications and Stakeholder Management Plan and Construction Noise and Vibration Management Plan, along with the protocols for exceptional cases in the Business and Residential Support Guidelines.

Predictive modelling identified that, with the implementation of management measures, damage to structures (including heritage buildings) and underground utilities, and impacts to sensitive equipment from vibration generated during construction of the Project would be avoided.

## Project wide operational effects

Operational phase ground-borne noise and vibration impacts would be avoided by using vibration-isolating track-form, which when installed minimises vibration caused by train movements and would avoid any adverse impacts to properties above the twin tunnels.

## Tunnels

Underground tunnelling works with the TBMs would generally occur 24 hours a day, 7 days a week. Ten properties located between the SRL stations at Glen Waverley and Burwood, where the tunnel is located closer to the surface, may experience ground-borne noise levels exceeding the night-time guideline target for a period of up to five days while the TBMs pass underneath. Management of these works would be undertaken in accordance with the SRLA's Business and Residential Support Guidelines.

The TBMs would pass underneath or close to a number of highly sensitive receivers including the Monash and Deakin University campuses, health facilities, CSIRO Clayton and the Australian Synchrotron site. No construction stage vibration and ground-borne noise impacts were predicted to these facilities.

Vibration and ground-borne noise impacts of underground cross passage construction would be minimised by scheduling works during normal working hours, although short term and intermittent impacts are predicted at some properties in proximity to the alignment if works are undertaken in the evening or night. These would be managed in line with a Communications and Stakeholder Management Plan, a Construction Noise and Vibration Management Plan and Business and Residential Support Guidelines.

Surface-based ground improvement works associated with construction of the cross passages within the Kingston local government area would not generate adverse vibration and ground-borne noise impacts.

## Key above-ground sites

Vibration and ground-borne noise from construction works is predicted to meet amenity-based guideline levels during Normal Working Hours, which is when most construction activities would occur. The following short-term impacts are predicted if evening or night works for site establishment, ground support and station box excavation were independently verified by the Independent Environmental Auditor as being unavoidable.

### *Cheltenham*

Short term perceptible vibration impacts or noticeable ground-borne noise from site are predicted at approximately 10 residential and less than five commercial properties.

### *Stabling Facility*

Short term perceptible vibration impacts or noticeable ground-borne noise from pile driving and use of a vibratory roller are predicted for up to 50 residential and 20 commercial properties.

### *Clayton*

Short term perceptible vibration impacts or noticeable ground-borne noise are predicted at up to 15 residential properties and 15 commercial properties.

### *Monash*

Short term noticeable ground-borne noise is predicted at two commercial properties on Howleys Road.

### *Glen Waverley*

Short term noticeable ground-borne noise is predicted at fewer than five commercial properties.

### *Emergency Support Facility*

Short term perceptible vibration impacts or noticeable ground-borne are predicted at up to 15 residential properties.

### *Burwood*

Short term perceptible vibration impacts or noticeable ground-borne noise are predicted for up to 20 residential properties.

### *Box Hill*

Short term perceptible vibration impacts or noticeable ground-borne noise are predicted at up to 15 residential and 15 commercial properties.


# Community and stakeholder engagement

SRLA recognises the important role that community and stakeholders play in the planning and design for the Project.

Since the formal announcement of Suburban Rail Loop in August 2018, the SRLA has been engaging with stakeholders and the community, providing information and having conversations about the future of Melbourne's rail network.

The engagement program was designed to reflect the city and state-shaping nature of the Project, drawing on the ideas, expertise and opinions of the community and stakeholders to inform the development and delivery of the rail infrastructure.

Due to ongoing COVID-19 restrictions during 2020 and 2021, online tools have been the primary method of engaging with local communities in SRL East areas, with supporting face-to-face engagement where possible.

Feedback received from the community and stakeholders throughout the engagement process directly informed a range of outcomes for the Project, including identifying areas of community concern or interest so these could be considered in EES assessments and shape the design and construction methodology, ahead of major works getting underway.

Key changes made to respond to community and stakeholder feedback include:

- **Station locations:** Undertaking an iterative options assessment process for the six underground SRL East stations, using feedback from councils and universities to help determine their locations.
- **Integrated transport:** Listening to community and stakeholder feedback to incorporate overpasses at Cheltenham and Burwood and working to improve integrated and active transport connections across all station precincts.
- **Green infrastructure:** Understanding the value of connections to natural environs and ensuring the Project enhances and preserves parklands in Heatherton and Burwood and can link more people with broader open spaces.

# Next steps

## Viewing the EES

The EES will be on public exhibition for 30 business days from 5 November 2021 to 16 December 2021. During this time, members of the public can view the EES and make written submissions.

SRL East EES is a fully digital EES with all documentation available for reading and interacting via the website srleastees.vic.gov.au. The website contains information on how to navigate through the digital EES.

To obtain support or a free printed copy of the EES Summary Report, contact SRLA on 1800 105 105, email SLRA at contact@srla.vic.gov.au or use the online contact form at suburbanrailloop.vic.gov.au.

## Making a submission

Submissions on the EES must be made in writing and received by 11.59pm on 16 December 2021 by Planning Panels Victoria.

- Online submissions are preferred and can be lodged via an online form at www.engage.vic.gov.au/SRL-east-iac to Planning Panels Victoria.
- If you are unable to make a submission online and need to submit a hardcopy, you must call the DELWP Customer Service Centre on 136 186 (select option 6) to request a hardcopy submission coversheet for privacy reasons. Each hardcopy submission must be accompanied by a coversheet issued by Planning Panels Victoria.

To be considered, submissions must relate to the information and topics covered in the SRL East EES and be within the scope of the terms of reference for the Public Inquiry which are available at bigbuild.vic.gov.au/projects/suburban-rail-loop.

There is no minimum or maximum length for submissions, and all submissions will be considered equally.

All submissions must include the name and address of the person making the submission. Petitions and pro-forma responses will be treated as a single submission and only the first name from a petition or pro-forma submission will be registered and contacted.

Submissions will be treated as public documents and will be published on the Engage Victoria website. Do not include personal information in the body of your submission (such as your address or phone number, or photographs of people, particularly children).

For assistance with the online submission form or other matters related to making a submission, contact the DELWP Customer Service Centre on 136 186.

## Finalising the EES process

Under the *Environment Effects Act 1978*, the Minister for Planning will appoint an independent Inquiry and Advisory Committee to consider the environmental effects of the Project outlined in the EES, the draft Planning Scheme Amendment and public submissions.

The Inquiry and Advisory Committee will review the EES, draft Planning Scheme Amendment and public submissions, and will consider the environmental effects of the Project in accordance with Terms of Reference issued by the Minister for Planning.

The inquiry process will include a public hearing, at which SRLA and submitters can make presentations. The committee will provide a report to the Minister for Planning.

Once the Minister publishes his assessment, other relevant statutory decision-makers will consider the Minister's assessment in granting approvals for the Project. Approval decisions following the EES process are anticipated in mid-2022.

**ISBN 978-0-646-84820-4**

**For more information contact Suburban Rail Loop Authority: 1800 105 105**

## More information

To find out more about Suburban Rail Loop:

**W** suburbanrailloop.vic.gov.au
**E** contact@srla.vic.gov.au
**P** 1800 105 105 (24 hours a day, 7 days a week)
Suburban Rail Loop Authority
PO Box 4509, Melbourne, VIC 3001

SUBURBAN RAIL LOOP AUTHORITY

VICTORIA'S BIG BUILD

VICTORIA State Government

Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.