



Glossary and Abbreviations

Glossary of key terms

Accessibility	The ability of people to reach desired goods, services, jobs and activities from a particular geographic location
Agglomeration	The ability of businesses to achieve higher productivity through economies of scale and scope. In urban economies, economies of agglomeration are the benefits that firms obtain by locating near each other or in areas that have a high density of economic activity.
Alignment	The proposed linear infrastructure route for Melbourne Metro as set out in the Concept Design. This includes the vertical and horizontal route.
Alternative design option	Potential alternative solutions to the project's design or route alignment within the proposed project boundary that have been assessed as part of the EES process.
AM peak period	Two-hour period between 7am and 9am
Amenity	Attractiveness or value of a geographic location
Arterial road	High capacity urban road that moves traffic from local roads to highways / freeways
Aurecon, Jacobs and Mott MacDonald Joint Venture	The contracted entity that is providing the Technical, Planning and Engagement Advisory Services for Melbourne Metro
Benefits	Benefits or improvements that can be attributed directly to some aspect of the project's design, construction and operation
Burnley Group	The Belgrave, Lilydale and Alamein Lines, operating via the Burnley Loop
Caulfield Group	The Cranbourne and Pakenham Lines and (dependent on the constitution of the Cross-City Group) the Frankston and Sandringham Lines
Cavern	Caverns are excavated using the heading and bench method. This is a sequential technique, whereby the upper section is excavated first, followed by the middle section (bench) and finally the invert. Roadheaders (which have a boom-mounted cutting head mounted on a crawler travelling track) are used as the primary excavation equipment.
CBD	The Central Business District of Melbourne, which is bordered by Spencer Street to the west, La Trobe Street to the north, Spring Street to the east and Flinders Street to the south
Central Melbourne	The area that includes the CBD, Fishermans Bend, Docklands, Southbank, St Kilda Road, Parkville and the Arden-Macaulay urban renewal precinct
City cordon	The stations immediately prior to the City Loop on the existing network: currently Richmond, North Melbourne and Jolimont. Once Melbourne Metro is operational, the Cranbourne/Pakenham Line cordon would be measured at Domain station and the Sunbury Line cordon at Parkville station.

Term	Definition
City Loop	Also known as the Melbourne Underground Rail Loop (MURL). Comprises four single track tunnels for each of the four metropolitan rail groups (Caulfield, Northern, Burnley and Clifton Hill). Trains operate in either direction through three underground stations: Parliament, Melbourne Central and Flagstaff. The tunnels connect to Flinders Street and Southern Cross Stations over the Flinders Street Viaduct to form the 'loop'.
Commissioning	Final project stage that involves full testing of a system or systems before bringing them into use
Concept Design	<p>A comprehensive design proposal for constructing and operating the proposed project, used for assessment purposes. The Concept Design is not the final, detailed design for the project. The design could be refined further within the approved Project Area (see below) by the parties who are contracted by the State to develop Melbourne Metro, provided the final design meets the approved project objectives and the recommended Environmental Performance Requirements.</p> <p>The Concept Design demonstrates a technically feasible way for the project to achieve the Victorian Government's objectives and meet the Environmental Performance Requirements for Melbourne Metro. It has negotiable and non-negotiable components. Non-negotiable items include station locations and station entrance locations.</p>
Connectivity	The ability to have several points of transport ingress or egress to a location. Good connectivity means having a number of options to get to a destination.
Construction contractor	The private party or parties engaged by the State to design, construct, operate and maintain the project
Construction Environmental Management Plan (CEMP)	A plan that sets out detailed processes and actions to meet the Environmental Performance Requirements. CEMPs are generally prepared for the construction and operation phases of a project.
Construction footprint	Includes areas required for the location of permeant structures and areas required for construction works and activities. The construction footprint is contained within the proposed project boundary.
Cross-City Group	Currently consists of the Werribee, Williamstown and Frankston Lines. Once Melbourne Metro is operational, this group would comprise the Werribee, Williamstown and Sandringham Lines. This group would operate via Flinders Street and Southern Cross Stations.
Cross passages	Transverse tunnels connecting main running tunnels
Crossover	Two turnouts arranged to connect two adjacent tracks
Cut and cover construction	A large cut and cover box is a common construction technique for underground railway stations. Cut and cover construction can be conducted through a top-down or bottom-up configuration.
Dandenong Group	The Pakenham and Cranbourne Lines, operating via the City Loop
Decline structure	The approach structure to the portal (tunnel entrance)
Design and Development Overlay (DDO)	An overlay to a local planning scheme to protect activities or structures from inappropriate or incompatible development. A new DDO would be applied to identify and protect the Melbourne Metro tunnels, stations and associated infrastructure from future development that could potentially affect its capacity to operate in the Melbourne, Port Phillip and Stonnington Planning Schemes.

Term	Definition
Draft evaluation objectives	Evaluation objectives included within the Scoping Requirements (see below) that set out the key matters to be investigated for the EES
Dwell time	The length of time a train is stopped at the platform with doors open
Early works	Works undertaken prior to the main construction contract commencing
Eastern portal	Term used to describe the section between the tie-in to the Dandenong Line and the service facility/TBM retrieval box in the South Yarra area
Enabling works	Works undertaken before completion of the EES process to enable the delivery of the Melbourne Metro in a timely manner and to minimise disruption to businesses, residents and visitors to the Melbourne CBD. These works do not form part of the declared 'public works' under the <i>Environment Effects Act 1978</i> .
Emergency access shaft	A vertical opening to grant access to the tunnels for emergency services personnel. Shafts are spaced at appropriate intervals to meet safety requirements.
Environment Effects Statement (EES)	A statement prepared under Victoria's <i>Environment Effects Act 1978</i> that assesses projects with the potential to have a significant effect on the environment. On 3 September 2015, the Minister for Planning determined that the works proposed to be undertaken for Melbourne Metro could reasonably be considered to be capable of having a significant effect on the environment and that the MMRA, as the project proponent, must prepare an EES to allow the Minister to assess the environmental effects of the works.
Environmental Management Framework (EMF)	Documents that include verifiable commitments on how environmental impacts would be managed, minimised or avoided during construction and operation of the project. The framework provides the basis for placing clear obligations on the constructor(s) delivering the project.
Environmental Management System (EMS)	A document prepared by the contractor(s) that provides an overview of environmental management during the construction and operation phases of the project. The EMS is an overarching document from which the more specific EMPs are developed. The EMS ensures that commitments for environmental protection and management (as set out in the EES and required by approvals) are met.
Environmental Performance Requirements (EPRs)	A set of environmental outcomes the project must achieve during its design, construction and operation. The project would be delivered in accordance with performance requirements developed through the EES assessment process. This performance-based approach aims to achieve acceptable outcomes for the community and environment, while allowing for a delivery model with sufficient flexibility to encourage innovation by the private sector.
Gross Domestic Product	The market value of all final goods and services produced nationally in Australia in a given period
Gross State Product	The market value of all final goods and services produced within a state or territory in a given period
Gross Value Added	Measure of the value of goods and services produced in an area, industry or sector of the economy
High Capacity Metro Train	Trains that are longer, can carry more passengers and are designed to minimise boarding and alighting times

Term	Definition
Immersed tube tunnel	A tunnel construction method commonly used for crossing a body of shallow water. A trench is dredged and prefabricated steel or concrete elements floated to the tunnel site and sunk into place inside the trench. Water is then pumped out from inside the elements. The elements are then linked together and sealed to form a watertight tunnel.
Infrastructure	Basic facilities and networks needed for the functioning of a local community or broader society
Inner suburbs/ inner urban	Areas of metropolitan Melbourne within about seven to 10 kilometres of the CBD
Interchange	A location where passengers can change to an alternative route or mode of transport
Load	Number of passengers travelling on a tram or train, often measured over a rolling hour or over the AM peak period
Load breach	For existing rolling stock, where there is more than a rolling average of 798 people on board
Melbourne Metro Rail Authority	An Administrative Office within the Department of Economic Development, Jobs, Transport and Resources, which is responsible for the delivery of Melbourne Metro on behalf of the Victorian Government
Melbourne Metro Rail Project	The project being assessed in the EES, which includes: <ul style="list-style-type: none"> • Twin nine-kilometre rail tunnels from Kensington to South Yarra • Rail tunnel portals (entrances) at Kensington and South Yarra • New underground stations at Arden, Parkville, CBD North, CBD South and Domain • Train/tram interchange at Domain station • A turnback at West Footscray.
Metro Trains Melbourne	Franchise operator of the suburban railway network in Melbourne. MTM is a joint venture between the Hong Kong-based MTR Corporation, John Holland Group and UGL Rail
Mitigation measure	Measure that would manage, minimise or avoid an identified environmental impact and enable the Environmental Performance Requirement set for the project to be met
Northern Group	The Craigieburn, Upfield and Sunbury Lines, operating via the City Loop
Opportunities	Opportunities or improvements that arise indirectly as a result of the project and that do not fall within the scope of the project. These opportunities could be created through action taken by the public or private sectors.
<i>Plan Melbourne</i>	The Victorian Government's metropolitan planning strategy for Melbourne's growth to 2050. A refreshed plan is proposed for release in 2016.
Planning Scheme Amendment (PSA)	A change to a local planning scheme to achieve a desirable outcome or to support a new project or policy direction. Melbourne Metro would require a Planning Scheme Amendment to the Melbourne, Port Phillip, Stonnington and Maribyrnong Planning Schemes.
Portal	The entrance to a tunnel
PM peak period	Two-hour period between 4.30pm and 6.30pm

Term	Definition
Precinct	For assessment purposes, the proposed project boundary for Melbourne Metro has been divided into nine precincts based on the location of project components and required construction works, the potential impacts on local areas and the character of surrounding communities.
Project	The Melbourne Metro Rail Project
Project Area	The area declared under the <i>Major Transport Projects Facilitation Act 2009</i> within which all the project components would be contained
Project components	The specific pieces of infrastructure that would need to be built in each precinct to complete Melbourne Metro
Project objectives	High-level objectives set by MMRA to establish the broad strategic direction for designing and developing Melbourne Metro
Project proponent	The person or body who is carrying out or proposing to carry out any works that could be subject to the <i>Environment Effects Act 1978</i> . MMRA is the project proponent for Melbourne Metro.
Proposed Project boundary	The proposed project boundary encompasses all areas that would be used for Melbourne Metro's permanent structures and temporary construction areas, and provides the basis for the specialist assessments conducted for the EES. The proposed project boundary will inform the declaration of the 'Project Area' under the <i>Major Transport Projects Facilitation Act 2009</i> following consideration of the EES.
Public Transport Victoria	Statutory authority responsible for providing, coordinating and promoting public transport in Victoria
Reliability	Reliability is measured as the percentage of the timetable that is delivered. Non-delivery of services includes cancellations, trains that run short and trains that bypass the City or Altona Loops.
Retrieval shaft/site	Structure/working area used to retrieve the tunnel boring machine
Risk Register	A full list of all risks identified for the project
Roadheader	An excavating machine with a rotating head mounted on crawler tracks developed for cutting a wide range of medium to hard rocks in underground mining and tunnelling
Scoping Requirements	Requirements prepared to ensure that the EES: <ul style="list-style-type: none"> • Responds properly to the Order made by the Minister for Planning • Identifies what the environmental effects of the work will be • Explains how the environmental effects of the works would be managed across the different stages and aspects of the project • Provides sufficient and appropriate information to allow the Minister to assess the environmental effects of the works under the <i>Environmental Effects Act 1978</i>
Spoil	Rock and soil removed during the excavation of the tunnels and construction of the stations
State Environment Protection Policy	Victorian environmental policies that set guidelines to protect the environment and to measure, monitor and address environmental issues
Station box	A box-like underground structure for a Melbourne Metro underground station
Study area	The study area established for each specialist assessment undertaken for the EES. Generally, the study area is the same as the proposed project boundary. In some instances, a broader study area

Term	Definition
	was adopted to ensure that regional impacts are considered. The study area will inform the Project Area under the <i>Major Transport Project Facilitation Act 2009</i> following considerations of the EES.
TBM launch shaft/site	Structure/working area used for lowering in and launching the TBM
TBM retrieval box	A shaft of adequate dimensions to receive a TBM at the end of its drive and allow it to be dismantled and lifted to the surface
Technical Reference Group	Agency-based advisory group convened by the Department of Environment Land, Water and Planning to advise it and MMRA on aspects of the project
Tunnel boring machine (TBM)	A mechanically operated machine used to excavate a tunnel with a circular cross section through a variety of ground strata
Tunnel invert	Lowest point within the tunnel cross section
Tunnel ventilation system	A system to provide an acceptable environment in the tunnel in terms of both temperature and air quality and also to remove smoke in the event of a fire
Turnout	Track device which permits traffic to turnout from one track to another
Urban Design Strategy	A document that provides guidance on the design of the project's above ground structures. Adoption of the strategy would ensure high quality design applies across the project.
Urban renewal	The improvement or rehabilitation of urban areas. Urban renewal traditionally involves demolishing old or run-down buildings on brownfield sites in inner city areas to build new residential or commercial developments or large scale public works projects (such as convention centres, stadiums or freeways). Urban renewal can also build on an area's existing strengths to make better use of underutilised land located close to jobs, services and transport.
Utility Service Provider	A person, other than a public authority or municipal council, having responsibility under an Act for the generation, transmission, distribution or supply of electricity, gas, power, telecommunications, water supply, drainage or sewerage services
Ventilation shafts	Shafts used to control air quality during tunnel maintenance and in the event of an emergency
Victorian Integrated Transport Model	The four-step strategic traffic model developed by PTV, which is used for strategic modelling of transport projects located in metropolitan Melbourne
Victoria Planning Provisions (VPPs)	Specify matters that must be taken into account in considering any application to carry out works. The VPPs include a range of zones and overlays, which councils can select to include in their Planning Schemes.
VicTrack	Trading name of the Victorian Rail Track Corporation, a Victorian Government-owned enterprise, which owns all railway and tram lines, associated rail lands and other related rail-related infrastructure in Victoria
Wider network enhancements	Further improvements that could be undertaken following the completion of Melbourne Metro to enable further uplift in capacity across the rail network. Wider network enhancements are not within the scope of the EES as they would be developed at a later stage and are yet to be planned in detail. They are not essential to the operation or functionality of Melbourne Metro.

Term	Definition
Westbound track	Track heading towards Sunbury
Western portal	Term used to describe the section between the tie-in to the Sunbury Line and the service facility /TBM retrieval box in the Kensington area

Note: Technical terms are defined in the glossaries attached to the individual specialist impact assessments, which are attached as appendices to the EES main report.

Abbreviations

Abbreviation	
ABS	Australian Bureau of Statistics
ANZECC	Australian and New Zealand Environment & Conservation Council
ASS / ASR	Acid sulfate soil/acid sulfate rock
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
COAG	Council of Australian Governments
CoM	City of Melbourne
CoPP	City of Port Phillip
CoS	City of Stonnington
CPLU	Cranbourne / Pakenham Line Upgrade
DDA	<i>Disability Discrimination Act 1992 (C'th)</i>
DDO	Design and Development Overlay
DEDJTR	Department of Economic Development, Jobs, Transport and Resources (Victoria)
DELWP	Department of Environment Land, Water and Planning (Victoria)
DoE	Department of the Environment (Commonwealth)
DPC	Department of Premier and Cabinet (Victoria)
DTF	Department of Treasury and Finance (Victoria)
EES	Environment Effects Statement
EMF	Environmental Management Framework
EMP	Environmental Management Plan
EPA	Environment Protection Authority (Victoria)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (C'th)</i>
EWLNA	East West link Needs Assessment
GDP	Gross Domestic Product
GHG	Greenhouse gas
GSP	Gross State Product
GVA	Gross Value Added
HCMT	High Capacity Metro Train
HCS	High Capacity Signalling
IA	Infrastructure Australia
ICT	Information and communications technology
IS	Infrastructure Sustainability (IS) Rating Tool
ISCA	Infrastructure Sustainability Council of Australia
LGA	Local Government Area
LSIO	Land Subject to Inundation Overlay

Abbreviation	
Melbourne Metro	Melbourne Metro Rail Project
MMRA	Melbourne Metro Rail Authority
MTM	Metro Trains Melbourne
OH&S	Occupational Health and Safety
PPP	Public Private Partnership
PSA	Planning Scheme Amendment
PTV	Public Transport Victoria
RMIT	Royal Melbourne of Institute of Technology University
RRL	Regional Rail Link
SEPP	State Environment Protection Policy (Victoria)
TBM	Tunnel boring machine
TRG	Technical Reference Group
USP	Utility service provider
VHI	Victorian Heritage Inventory
VHR	Victorian Heritage Register
VCCC	Victorian Comprehensive Cancer Centre
VITM	Victorian Integrated Transport Model
VKT	Vehicle kilometres travelled
VPPs	Victoria Planning Provisions