

Project Outline

MELBOURNE METRO RAIL PROJECT

July 2015



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1. Purpose

The Victorian Government has committed to transforming Melbourne’s metropolitan rail network through the integrated delivery of major infrastructure projects. The Melbourne Metro Rail Project (MMRP) together with the delivery of High Capacity Metro Trains, the introduction of High Capacity Signalling and the removal of 50 of the most dangerous level crossings on the metropolitan rail network will lead to a rejuvenated rail network that will safeguard and enhance Melbourne’s status as one of the world’s most liveable cities.

In early 2015, the Victorian Government announced it would deliver MMRP. A city-shaping project, MMRP is one of the largest public transport infrastructure projects in Australia’s history, and will lead to increased capacity, reliability and efficiency on Melbourne’s busiest rail lines servicing the city’s growth areas.

The Melbourne Metro Rail Authority (MMRA), an Administrative Office in relation to the Department of Economic Development, Jobs, Transport and Resources (DEDJTR), is responsible for the delivery of MMRP on behalf of the Victorian Government.

This Project Outline provides information about MMRP to inform the Minister for Planning in his consideration of whether to declare MMRP as ‘public works’ under Section 3 of the *Environment Effects Act 1978* (EE Act).

MMRA has undertaken a preliminary screening analysis of the potential environmental, social and economic effects of MMRP. The outcomes of this analysis are presented in Part 3 of this Project Outline. The cumulative effect of these potential effects indicates the construction of MMRP is capable of having a significant effect on the environment, and that preparation of an Environment Effects Statement (EES) under the EE Act may be warranted.

The authorised representative for MMRA is:

Name of the Proponent	Melbourne Metro Rail Authority
Authorised person for proponent:	Evan Tattersall
Position:	Chief Executive Officer
Postal Address:	Level 13, 121 Exhibition Street, Melbourne
Phone number:	03 9027 5700



2. Project Description

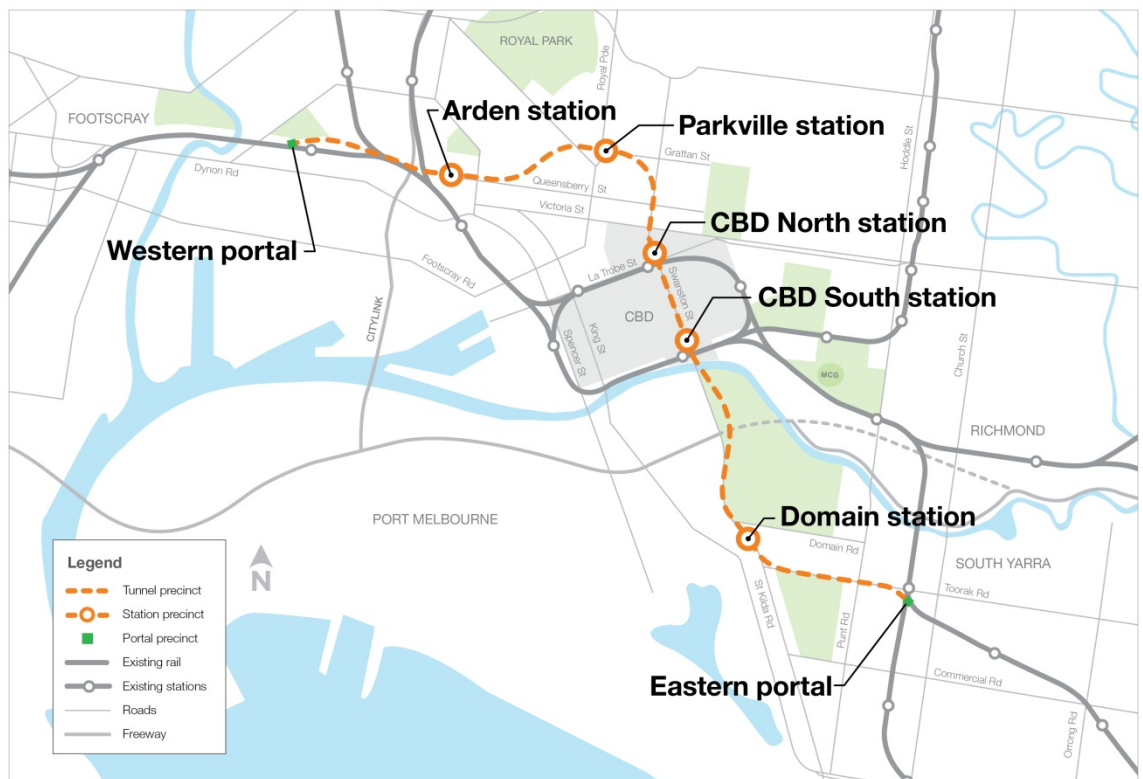
2.1 Description

The infrastructure to be constructed as part of MMRP broadly comprises:

- two nine-kilometre rail tunnels from South Kensington to South Yarra, travelling underneath Swanston Street in Melbourne's Central Business District (CBD), connecting the Sunbury and Cranbourne/Pakenham railway lines. The tunnels will be used by electric trains.
- new underground stations at Arden, Parkville, CBD North, CBD South and Domain. CBD North and CBD South will feature direct interchange with the existing Melbourne Central and Flinders Street stations respectively.
- train/tram interchanges at Parkville and Domain stations.
- rail tunnel entrances at South Kensington and South Yarra.

Figure 1 is a schematic plan of MMRP.

Figure 1 : Melbourne Metro Rail Project schematic



2.2 Context

MMRP traverses the heart of Melbourne's CBD, passing through the inner suburbs of Kensington, North Melbourne, Parkville and Carlton, from South Kensington in Melbourne's west through to South Yarra in Melbourne's south east. This region is highly urbanised and incorporates a wide range of industrial, residential, retail, commercial and recreational land uses, including significant areas of open space.

This region is the focus of Melbourne's public transport and arterial road networks and is serviced by trains, trams and buses. All metropolitan train lines converge in Melbourne's CBD, which includes Flinders Street and Melbourne Central stations. Both stations are located along Swanston Street as part of the City Loop. The tram network provides coverage across most of inner Melbourne. Ten routes are concentrated on the St Kilda Road/Swanston Street corridor which is the 'spine' of Melbourne's tram network, with trams operating at intervals of less than one minute in each direction during the peak hour. This corridor is currently operating close to capacity.¹

Melbourne's CBD is built on the historic Hoddle grid which has been expanded to include the mixed use suburbs of Docklands and Southbank. It is Victoria's leading economic and cultural centre and contains State significant social, community and civic facilities that support its Capital City function. To the north and east of the CBD, the established areas of Parkville, Carlton and East Melbourne are characterised by heritage dwellings and major research, health, bio-tech and educational institutions. To the west, North Melbourne, South Kensington and Kensington have predominantly small scale residential uses and significant amounts of industrial activity. To the south, St Kilda Road combines a high density commercial and residential spine with major open spaces. East from St Kilda Road, Toorak Road in South Yarra is a busy retail strip with emerging medium - high density residential development.

The relatively flat terrain of this region includes two waterways - the Moonee Ponds Creek and Yarra River. The ecological condition of these waterways and the overall ecological state of the environment in this region is generally poor due to urban development. Key open spaces in the region include JJ Holland Park in South Kensington, University Square and Lincoln Square in Carlton, the State Library forecourt, City Square, Federation Square and the Yarra River precinct in the CBD,

¹ PTV 2013, Yarra Trams Load Standards Survey Report, May 2013



the Alexandra Gardens, Queen Victoria Gardens and Shrine of Remembrance Reserve in the Domain Parklands and Fawkner Park and South Yarra Siding Reserve.

MMRP is being delivered in the context of a sophisticated and complex public transport network. During the assessment and delivery period for MMRP, it is anticipated there will be multiple changes to the network through separate projects and through renewal and maintenance works. Public Transport Victoria (PTV) as the system authority is responsible for developing plans for the public transport network and facilitating expansions and improvements to the tram and rail network.

2.3 Project Benefits

MMRP, together with changes to the rail network referred to above, will enable a significant increase in the capacity and reliability of the rail network. These will collectively deliver significant strategic benefits for Melbourne and the wider transport network including the following:

- increasing the capacity and reliability of Melbourne's busiest train lines.
- allowing for 20,000 more passengers to use the metropolitan rail network in the peak hour.
- improving access to public transport by building five new inner city stations.
- employing more than 3,500 people during peak construction.
- improving access to employment, education and opportunity for people living in Melbourne's growth areas.
- easing congestion on the busy St Kilda Road/Swanston Street tram corridor.
- reducing road congestion.
- paving the way for future expansion of Melbourne's public transport network.



2.4 Project Rationale

2.4.1 Strategic Context

Public transport patronage has grown as a result of Victoria's population boom and an increase in employment in the inner city area, combined with higher petrol and parking costs and recognition of the environmental benefits of public transport. Over the past decade, public transport patronage has grown at an average of 3.9% per annum including unprecedented growth averaging 6.6% per annum between 2004 and 2008.²

Metropolitan rail patronage has been growing strongly from a low point of 88.9 million trips per year in 1980/81 to 232 million trips in 2013/14.³ This growth has resulted in Melbourne's rail network carrying the highest number of passengers in its history and underpins an overall increase in the use of public transport. Patronage is forecast to further increase over the next two decades with weekday (daily) patronage more than doubling from 1.8 million to 3.8 million.⁴

In 2007, the Victorian Government commissioned an investigation into the need for improved transport connections linking Melbourne's east and west. In 2008, Sir Rod Eddington's East West Link Needs Assessment recommended that planning commence on the staged construction of a new rail tunnel linking the western and south-eastern suburbs to accommodate the growth in demand for public transport. Since then there has been significant project development work undertaken in relation to the construction of a metro rail tunnel, culminating in the Victorian Government's commitment to deliver MMRP.

The Network Development Plan – Metropolitan Rail (NDP-MR) has been developed by PTV to identify an optimal sequence of upgrades of the entire metropolitan rail network to address congestion, respond to the patronage demand generated by population growth, improve reliability, enhance accessibility and improve the city's productivity. The MMRP forms a key part of the NDP-MR.

Planning for the rail network has demonstrated the need for a metro-style train system to enable frequent train services day and night that meets the needs of a busy and vibrant international city. Metro-style systems, around the world, are designed to run higher frequency and higher capacity trains using dedicated tracks independent of

² Metropolitan Public Transport Demand Forecast Report (2012)

³ Public Transport Victoria's Annual Report 2013-14

⁴ ibid



other routes. The focus is on creating a system that supports simple commuter-friendly timetables, frequent services and consistent stopping patterns.

2.4.2 Project need

MMRP is a key part of the most significant overhaul of Melbourne's rail network since the opening of the City Loop in the 1980s. Together with other rail improvements and upgrades as well as the delivery of High Capacity Metro Trains, the introduction of High Capacity Signalling and the removal of 50 of the most dangerous level crossings on the metropolitan rail network, MMRP will enable major improvements in capacity, reliability and frequency of services.

The key factors driving the need for the expansion of Melbourne's rail network are:

- population growth and housing
- industry and employment
- future transport demand.

Population growth and housing

In recent years, metropolitan Melbourne has experienced significant population growth, a trend which is expected to continue. Victoria in Future 2014 (VIF) reports that Melbourne's population is projected to increase from 4.5 million in 2013 to 6 million by 2031 and to 7.8 million by 2051. ABS data indicates the population of Greater Melbourne is expected to grow by about 4% per annum from 2011 to 2031, having experienced annual growth of 4.3% between 2007 and 2012.

The absorption of an additional 2 million people in less than 20 years is unprecedented for Victoria, resulting in the need for an additional 1.6 million new dwellings.⁵ Approximately half of Melbourne's future population growth is expected to occur in the western, northern and south-eastern growth areas, with the largest increase expected in the west.

Industry and employment

Inner Melbourne comprises the CBD, the municipalities of Melbourne, Port Phillip, Stonnington, Yarra, the Parkville education, health and research precinct, St Kilda Road commercial office precinct and the East Melbourne and Docklands sports and entertainment precincts. In 2012, the CBD received approximately 844,000 workers

⁵ Plan Melbourne 2014



and visitors each weekday and this number is projected to increase to more than 1 million by 2030.⁶

A consequence of the overall rapid population and employment growth is that current transport capacity will not be able to meet forecast demand. This will reduce people's ability to access inner Melbourne's major employment areas, services and education precincts and limit employers' access to the pool of appropriately skilled employees.

MMRP will assist in servicing CBD fringe areas and growth nodes with new stations at Arden, Parkville and Domain directly linking those areas to the CBD stations under Swanston Street which connect with Melbourne Central and Flinders Street stations. In some cases, it is expected the new stations will be an important catalyst for increased residential and commercial development.

Future transport demand

PTV forecasts⁷ that passengers on metropolitan trains entering the city in the AM Peak will continue to grow by an average of 3.8% per annum to 2021, and by an average of 3.2% per annum between 2021 and 2031. Patronage growth is the highest on the railway lines servicing the western, northern and south eastern growth areas. In some cases, demand on these lines has already exceeded capacity and led to significant strain on the network⁸.

Patronage growth has been driven by strong population and employment growth in the CBD, inner Melbourne and the growth corridors, as well as the higher costs associated with private car travel, increasing road congestion and parking constraints, and changing market and lifestyle preferences affecting mode choice⁹.

The metropolitan rail network is currently grouped into the following four geographical areas:

- | | |
|--------------|---|
| Northern | incorporating Werribee, Williamstown, Sunbury, Craigieburn and Upfield lines in the north and west. |
| Clifton Hill | incorporating Hurstbridge and South Morang lines in the north-east. |
| Burnley | incorporating Lilydale, Belgrave, Alamein and Glen Waverley lines in the east. |
| Caulfield | incorporating Pakenham, Cranbourne, Frankston and Sandringham lines in the south-east. |

⁶ City Of Melbourne's Daily Population Estimates and Forecasts December 2013

⁷ Metropolitan Public Transport Demand Forecast Report (August 2012)

⁸ PTV Network Development Plan 2012

⁹ PTV Metropolitan Public Transport Demand Forecast Report 2012



MMRP together with other current major public transport projects, rail improvements and upgrades to the metropolitan rail network will create capacity for new peak services on the Werribee, Upfield, Craigieburn, Sunbury, Cranbourne, Pakenham, Sandringham and Frankston lines. These projects will also enable future electrification and service extensions.

2.5 Project Components

2.5.1 Rail and Tunnel Alignment

MMRP consists of the construction of two parallel nine kilometre rail tunnels from South Kensington in the west to South Yarra in the south east. The tunnels will connect the Sunbury and Pakenham/Cranbourne lines. MMRP also involves the construction of five new railway stations at Arden, Parkville, CBD North, CBD South and Domain, significantly increasing inner city station capacity, and opening the Parkville and Domain precincts to the rail network for the first time.

There will be rail improvements, upgrades and the relocation of rail infrastructure that will precede or follow the delivery of MMRP. These activities are distinct from MMRP as described in this Part, subject to separate regulatory and planning assessment and approval processes, and are not included in this Project Outline.

MMRP has been divided into 8 precincts as follows:

Precinct 1	Tunnels
Precinct 2	Western Portal (South Kensington)
Precinct 3	Arden station
Precinct 4	Parkville station
Precinct 5	CBD North station
Precinct 6	CBD South station
Precinct 7	Domain station
Precinct 8	Eastern Portal (South Yarra)



Temporary and permanent land occupation will be required for the delivery of MMRP. This will include the acquisition of interests at surface level and underground strata. The potential to develop above the stations may also be possible in some localities. MMRP will also involve drainage and flood mitigation works as required.

Emergency access shafts will be required for safety purposes in a number of locations. The spacing and location of each access point will respond to the National Fire Protection Agency guidelines. Locations currently being considered include Fawkner Park and the Domain parklands.

Tunnel boring machines will be used to construct most of the tunnel length. It is anticipated the section between CBD North station and CBD South station may be constructed using a mine boring technique.

The following section describes the MMRP alignment and station locations, noting that development of the concept design is ongoing.

2.5.2 Western Portal to Arden station [Precinct 2]

The existing Sunbury line tracks are proposed to be realigned to form an at-grade junction with the MMRP tunnel tracks, allowing services along the existing Sunbury line tracks to enter the underground section. Connectivity to the existing track will be maintained.

2.5.3 Arden station [Precinct 3]

Arden station is proposed to be located east of CityLink. The track alignment through Arden station is constrained by CityLink infrastructure. The station has the potential to anchor the proposed Arden – Macaulay urban renewal area.

The area around Arden is characterised by a mix of land uses including light and heavy industrial as well as residential. It also includes low lying land that may require drainage and flood mitigation measures.

2.5.4 Arden station to Parkville station [Precinct 1]

The proposed tunnel alignment seeks to minimise travel times between these stations while keeping the alignment under the existing road reserve as much as possible.

2.5.5 Parkville station [Precinct 4]

The station is proposed to be located in the Grattan Street road reserve, near the intersection of Royal Parade.



The area around Parkville station is dominated by State significant health and education uses, including The University of Melbourne, Royal Melbourne Hospital, Royal Women's Hospital, the Victorian Comprehensive Cancer Centre (VCCC) and other research and educational facilities. Many of these land uses feature high-density development, while the residential area of Parkville to the north retains its heritage character and lower-density development. Royal Parade and Flemington Road are major historic boulevards that define the city structure north of the CBD.

2.5.6 Parkville station to CBD North station [Precinct 1]

The proposed tunnel alignment aligns to the south to travel under the Swanston Street road reserve, including passing under Lincoln Square.

2.5.7 CBD North station [Precinct 5]

CBD North station is proposed to be located under the Swanston Street road reserve, generally between Franklin Street and La Trobe Street.

The area around CBD North station is characterised by a range of land uses including RMIT, the State Library, Melbourne Central and the existing City Loop railway station. The area is intensely developed and includes a range of modern and heritage buildings.

2.5.8 CBD North station to CBD South station [Precinct 1]

The proposed tunnel alignment runs under the Swanston Street road reserve. Swanston Street is the civic 'spine' of Melbourne and provides an intensely-used tram corridor.

2.5.9 CBD South station [Precinct 6]

CBD South station is proposed to be located within the Swanston Street road reserve generally between Collins Street and Flinders Street. CBD South station is located on a slight grade to minimise the gradient between CBD South station and the crossing of the Yarra River.

The area around CBD South station is characterised by a range of built forms and uses including St Paul's Cathedral, the City Square, the Westin Hotel, Melbourne Town Hall, Flinders Street Station and existing low to medium scale buildings used for a variety of commercial and retail uses.

2.5.10 CBD South station to Domain station [Precinct 1]

From CBD South station, the proposed tunnel alignment continues under the Yarra River. The alignment passes underneath Queen Victoria Gardens before entering under the St Kilda Road road-reserve to approach Domain station.



2.5.11 Domain station [Precinct 7]

Domain station is proposed to be located underneath the road reserve of St Kilda Road and Albert Road. The alignment allows for Domain station to be positioned clear of properties to the east and west of the station respectively, and to maintain some (albeit reduced) road network functionality along St Kilda Road during staged construction of the station.

The area around Domain station is characterised by the Shrine of Remembrance and its associated parklands, Melbourne Grammar School, the South African Soldiers Monument and medium to high scale buildings used for a variety of commercial and residential uses.

2.5.12 Domain station to Eastern Portal [Precinct 8]

Beyond Domain station, the proposed alignment generally remains under the road reserve. The alignment passes under Fawkner Park and then enters and remains under the Toorak Road road-reserve until the approach to the Eastern Portal, where it then ties into the existing Cranbourne-Pakenham line tracks west of Chapel Street.

At the tie-in to the Cranbourne-Pakenham line, operational flexibility will be maintained allowing freight and regional services to travel along existing at grade tracks towards the CBD via Richmond station whilst Cranbourne/Pakenham line services access the underground alignment.

2.5.13 Stations and Surrounds

Stations are the 'front doors' to passenger rail transport and will contribute significantly to commuters' first impressions of the new and improved network. Station designs will recognise that stations are significant public buildings and will be developed with a level of civic quality that is representative of Melbourne as a modern, international city with a strong connection to its history and place.

MMRP stations will have a significant and positive effect on their localities, and provide a high-quality public realm that facilitates street life and surface-level activity to the greatest benefit to the city and the travelling public.

The stations are in areas of established urban character which in some locations will experience changes in land-use, built form and increased density in line with State and local planning policies. The identity and integration of the stations into their local precincts will reinforce existing community identity (past and present) and a more pedestrian-focused activity.



MMRP stations will be a hybrid of building and civil structures. The stations will comprise retaining wall elements, roof elements, internal floors and base slab elements. Internal building elements will include light steel framed platforms and light framed roof areas above street level and stairs. Where it is possible for development to occur above the station, foundations will be designed to accommodate potential additional vertical and lateral loading from a future over site development.

2.5.14 Enabling works

If an EES is required for MMRP, some works and activities ('enabling works') will need to be undertaken before completion of the EES process to enable the delivery of MMRP in a timely manner and to minimise disruption to businesses, residents and visitors to the Melbourne CBD. As a consequence, it is proposed these works do not form part of the declared 'public works.' These enabling works and activities fall into two classes.

Design and investigation activities

The first class consists of activities and works associated with designing MMRP and assessing its impacts, such as geotechnical and environmental investigations, site surveys, and establishing the location of existing utilities and services. These works are required to inform the assessment process for the MMRP.

Activities to minimise disruption to the community

The second class consists of works and activities relating to utilities and services, tram infrastructure and rail infrastructure, which are essential prerequisites to the commencement of construction of the MMRP. These works and activities are comparable, in scope and scale, to renewal and maintenance works and activities that are commonplace in Melbourne and other urbanised areas, and as such would not have a significant effect on the environment. Undertaking these works and activities as enabling works provides an opportunity to limit the disruption to the community, including commuters and businesses, at the commencement of construction of the MMRP. These works and activities will be undertaken in existing road and rail reserves and comprise:

- relocation of and adjustment to utilities and services, including high voltage power services and associated infrastructure;
- relocation and adjustment to rail and tram tracks and associated infrastructure; and
- ancillary works and activities necessary to undertake the enabling works.

Prior to the commencement of any of these activities MMRA will seek any required planning, heritage, utility or road management-related consents. Where required,



MMRA has identified it will need to seek the following approvals to facilitate enabling works:

- planning permits granted under the *Planning and Environment Act 1987*, as required by the relevant planning schemes; and/or
- consents granted under the *Road Management Act 2004*, from local councils or VicRoads depending on the location and nature of the enabling works to be undertaken; and/or
- heritage related permits sought from local councils or Heritage Victoria as appropriate.

The conditions contained in any consents or permits granted to MMRA will be documented in an environmental management plan (EMP). MMRA will require the EMP to be complied with at all times. MMRA will seek any approvals in consultation with the appropriate Victorian agencies and transport network operators to ensure the enabling works are undertaken in a coordinated manner that minimises potential disruption to the community.



2.6 Project Schedule and Delivery

Indicative timings for MMRP are:

2015 – 2016

- Site investigations
- Complete MMRP Reference Design development
- Community consultation
- Planning and environmental assessment
- Preparation of the Business Case
- Possible enabling works before major construction

2017

- Finalise planning and environmental approvals
- Procurement for major construction contract
- Further enabling works before major construction

2018

- Award major construction contract
- Start major construction works



2.7 Relevant Legislation

2.7.1 Commonwealth legislation

A referral will be submitted to the Commonwealth Department of Environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) for a determination of whether or not MMRP is a 'controlled action' that requires assessment and approval under the EPBC Act.

The Victorian EES process has been accredited as being a suitable form of assessment under the assessment bilateral agreement between the Victorian and Commonwealth Governments. Consequently, if MMRP requires an EES and is determined to be a 'controlled action' under the EPBC Act, the EES process can be used to assess MMRP's impacts on Matters of National Environmental Significance (MNES).

2.7.2 State Approvals

It is envisaged that a Planning Scheme Amendment will be required to allow for the use and development of land for MMRP-related purposes under the *Planning and Environment Act 1987* and the relevant planning schemes.

In addition, the delivery of MMRP is anticipated to require approvals/consents in accordance with the following Acts:

- *Aboriginal Heritage Act 2006*
- *Crown Land (Reserves) Act 1978*
- *Environment Protection Act 1970*
- *Flora and Fauna Guarantee Act 1988*
- *Heritage Act 1995*
- *Road Management Act 2004*
- *Water Act 1989*



3. Preliminary Issue Identification and Response

3.1 Approach to issue identification

Using the methodology described below, MMRA has identified potential environmental, social and economic effects of MMRP in the context of:

- The potential environmental, social and economic aspects and impacts of MMRP, as described in Part 2.5.
- Relevant legislation, policy and guidelines that apply to MMRP.
- Previous reports and available information such as the City of Melbourne's Open Source databases.
- Preliminary discussions with government stakeholders such as the City of Melbourne, City of Port Phillip, City of Stonnington, Heritage Victoria and VicRoads.
- Preliminary scoping of assessments prepared by experienced technical specialists.

The objective of the analysis was to:

- Systematically identify the key potential environmental, social and economic effects associated with MMRP.
- Identify the potential scale, extent and magnitude of those effects.
- Describe the potential mitigation controls to mitigate those effects.
- Propose an assessment response for each effect, and establish which issues are priorities for further investigation.
- Identify those issues to be assessed and approved through the approvals process.

A suite of framework documents to enable the development of plans to manage the potential effects of MMRP would be developed for the planning and approvals process.

3.2 Priority of investigation

The scale of the potential effects have been categorised by their extent/magnitude, duration of change and the values of each asset. The scales are defined as follows:

Table 3.1 : Issues and associated scales

Issue	Scale
Extent/Magnitude	Immediate locality Precinct CBD Wide Melbourne Region
Duration	Less than 1 year 1 – 2 years 2 – 5 years In excess of 5 years / Permanent
Value of asset/resource	High Significance – it is a matter of critical importance where specific measures need to be developed Medium Significance – it is a matter of relative importance where standard measures could be suitable Low Significance – it is a matter which does not need to be addressed immediately and standard measures can be used

Each potential effect was then screened to establish the extent of risk and further investigation required for each effect.

The screening process adopted the hierarchy in Table 3.2 to prioritise investigations.

Table 3.2 : Hierarchy for prioritisation of issues for investigation

Priority for Investigation	Scale of Impact
A	Potential for environmental, social and economic impacts/effects that are either permanent or have a duration in excess of 5 years and may be an issue for design, as well as for shorter time periods or where potential impacts/effects are very significant or where the value of the asset/resource is high. Standard management measures may not be suitable for these impacts/effects, and the objective is to avoid these impacts through project design where feasible. Otherwise, investigation is required to confirm that appropriate management measures can be incorporated into Environment and other Management Frameworks to achieve compliance with policy and regulatory requirements.

Priority for Investigation	Scale of Impact
B	Potential for environmental, social and economic impacts/effects over a time frame of 2 – 5 years, though encompasses longer time periods or permanency where impacts/effects may be managed by standard or routine management measures or where the value of the asset / resource is of medium significance. Standard management measures could be suitable, but attempts will be made to avoid these impacts/effects through project design where feasible. Otherwise, investigation is required to confirm that standard management measures are appropriate and can be incorporated into Environment and other Management Frameworks to achieve compliance with policy and regulatory requirements.
C	Potential environmental, social and economic impacts/effects up to 2 years, which are routinely managed on large projects. Standard management measures are suitable and can be incorporated into Environment and other Management Frameworks to achieve compliance with policy and regulatory requirements.

3.3 Methodology

Table 3.3 provides an overview of how a planning scheme control for MMRP could regulate and compel the mitigation of impacts/effects described in Table 3.4. It is envisaged that robust governance arrangements would underpin the preparation and deployment of these mitigation measures.

Table 3.3 : Preliminary Mitigation Methods

Proposed mitigation method	Description
Environment Management Framework (EMF)	<p>The EMF will provide an integrated and accountable framework for managing environmental effects during project construction.</p> <p>It will set out the governance structures to ensure that construction of MMRP minimises adverse impacts and that approval conditions and legislative obligations (e.g. State Environment Protection Polices) are complied with.</p> <p>It will include specific requirements for Environmental Management Plans to address, among other things:</p> <ul style="list-style-type: none"> • air quality, noise and vibration, surface water, groundwater and contamination, including acid sulfate soils • occupation and reinstatement of public space affected by construction • avoiding and/or mitigating impacts to trees, and if required, replacing trees • enabling business continuity during construction where feasible. • providing a hoarding strategy/plan e.g. opportunities for public art. • managing impacts/continuity of operation during construction for sensitive land uses e.g. universities

Proposed mitigation method	Description
	<p>and hospitals.</p> <p>Multiple plans may be required for specific locations as the construction approach is progressively developed and refined during the project.</p>
Urban Design Strategy (UDS)	<p>The UDS will identify the strategically significant elements of each affected part of the city and provide high level principles for land use, public domain, built form and connectivity for the corridor as a whole and for each precinct. Key constraints will be identified and a standard of good urban design will be set using principal project requirements and benchmarks.</p> <p>The UDS will help to embed the MMRP vision and objectives by building upon the existing strengths of each precinct and ensuring that interventions result in a high quality public domain. The detail will be delivered through precinct specific plans.</p> <p>The UDS will also seek to identify current and future land use and development opportunities that are outside the scope of the MMRP, but may be influenced or impacted by the project.</p>
Development Plan (DP)	<p>Development Plans will:</p> <ul style="list-style-type: none"> • identify land to be acquired • detail the layout of infrastructure, such as stations • provide architectural, urban design and landscape plans • respond to the MMRP's Urban Design Strategy <p>Each Development Plan will provide a layout plan for a specific area demonstrating a design response that can address the impacts and requirements and respond to the identified issues / impacts in a specific location.</p>
Traffic and Pedestrian Management Framework (TPMF)	<p>A TPMF will outline the process for the development of a Traffic and Pedestrian Management Plans in consultation with VicRoads, Councils, PTV, Yarra Trams and the MMRA, as required, prior to the commencement of any construction activities for the MMRP.</p> <p>Multiple plans may be required for specific locations as the construction approach is progressively developed and refined during the project.</p>

An integrated approach will be adopted throughout the impact assessment. This approach will involve the outcomes of specialist studies being shared progressively to inform related studies and the development of the project design. The Assessment Response in Table 3.4 provides a summary of how key issues will be investigated through specialist assessment. Further details of the key activities to be undertaken are provided in Part 3.5.



Table 3.4 : Preliminary issues/effects identification

Theme	Key issue/effects	Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation	
		Extent	Duration	Value of asset / Resource				
1. Land Use and Community								
1.1 Land Use Planning	1.1.1	Complete or partial permanent acquisition of buildings and other potential sites.	Immediate locality	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the local impacts arising from the complete or partial acquisition of buildings and land through the land use, heritage, social and socio-economic impact assessments. Key areas for assessment are the potential for impacts within the vicinity of the proposed CBD North and South Stations and the Western and Eastern Portal. 	EMF	A
	1.1.2	Temporary occupation, excavation and subsequent rehabilitation of public open space and other land for construction purposes.	Immediate locality	Less than 1 year to 2 - 5 years	Medium to High	<ul style="list-style-type: none"> Assessment of the impact of temporary occupation and subsequent rehabilitation of public open space through land use, heritage, landscape and visual and socio-economic impact assessments. 	EMF, UDS	B
	1.1.3	Permanent loss of public open space and consequences of loss of that public open space.	Immediate Locality	Permanent	High	<ul style="list-style-type: none"> Assessment of the impact of project infrastructure through the land use, heritage, landscape and visual, social and socio-economic impact assessments. 	UDS	A



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
	1.1.5	Potential use of public open space for associated Project infrastructure.	Immediate Locality	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the impact to public open space for intervention shafts through the land use, heritage, landscape and visual, social and socio- economic impact assessments. 	EMF, UDS	A
1.2 Economics and Business	1.2.1	Potential impacts to businesses in the CBD and inner Melbourne arising from the Project during construction and operation.	Melbourne Region	Less than 1 year to Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the socio-economic impacts along the project alignment during construction and operation as part of the land use, social and socio- economic impact assessments. 	EMF	A
	1.2.2	Potential displacement of businesses due to acquisition of commercial properties.	Immediate Locality	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts to local businesses and communities arising from the acquisition of commercial properties through the socio-economic impact assessment. Key areas of investigation include impacts on businesses and economic activity within areas such as the Swanston Street corridor. 	EMF	A
	1.2.3	Changed traffic, bicycle and pedestrian routes potentially affect business visibility/patronage.	Immediate Locality	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts on businesses through the socio-economic impact assessment. 	EMF, TPMF	A



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
						<ul style="list-style-type: none"> Assessment of the potential impacts of traffic and transport changes, particularly around the proposed stations through the traffic and transport impact assessment. This will include identification of and assessment of criteria that could be applied to minimise the impacts of changes to traffic and pedestrian traffic to business viability and patronage. 		
	1.2.4	Changed traffic, bicycle and pedestrian flows potentially affect business visibility/patronage during construction.	Immediate Locality	Less than 1 year	Low To Medium	<ul style="list-style-type: none"> Assessment of the potential for construction activities to impact and businesses within and adjacent to the project alignment through the socio-economic impact assessment. Assessment of the potential impacts of traffic and transport changes, particularly around the proposed stations through the traffic and transport impact assessment. This will include identification of and assessment of criteria that could be applied during construction to minimise 	EMF, TMPF	B



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
						the impacts of changes to traffic and pedestrian traffic to business viability and patronage.		
	1.2.5	Potential impacts from the occupation of commercial sites within the Project alignment for construction purposes.	CBD Wide	Less than 1 year in some instances, 2-5 years in others.	High	<ul style="list-style-type: none"> Assessment of the potential impacts from occupation of key commercial sites within the Project alignment including impacts on adjacent sites through the socio-economic impact assessment. 	EMF	A
1.3 Social and Community	1.3.1	Potential impact on traffic movement for local communities during Project construction.	Immediate Locality	Less than 1 year in some instances, 2-5 years in others.	Low to Medium	<ul style="list-style-type: none"> Assessment of the potential impacts on local traffic movements arising from construction activities through the traffic and transport impact assessment. 	TPMF	B
	1.3.2	Potential impact on traffic movement for local communities during operation.	Immediate Locality	Permanent	Low to Medium	<p>Assessment of the potential impacts on local traffic movements arising from operation through the social impact assessment and traffic and transport impact assessment.</p> <ul style="list-style-type: none"> Impacts to be assessed include potential loss of traffic lanes arising from the construction of stations and infrastructure. 	TPMF	B



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
	1.3.3	Potential loss of community facilities during Project construction.	Melbourne Region	Less than 1 year in some instances, 2-5 years in others.	High	<ul style="list-style-type: none"> Assessment of the potential impacts to community facilities arising from construction through the social impact assessment. At this time, significant community facilities are located across the project alignment. 	EMF	A
	1.3.4	Potential changes in amenity around station boxes and project infrastructure.	Immediate Locality	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential permanent changes in amenity around station boxes and project infrastructure arising from operation through the social impact assessment. 	EMF	A
	1.3.5	Temporary impacts on pedestrian and bike paths.	CBD Wide	Less than 1 year in some instances, 2-5 years in others.	Low to Medium	<ul style="list-style-type: none"> Assessment of the potential temporary impacts to pedestrian and bike paths arising from construction through the social impact assessment and traffic and transport impact assessment. Assessment of bicycle routes that could be impacted by construction activities through the social impact assessment and traffic and transport impact assessment. 	TPMF	B



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
	1.3.6	Potential displacement of residents from acquisition of properties or changes in access during construction.	Localised Impact	Permanent	High	<ul style="list-style-type: none"> Assessment of the potential for impacts to permanent residents arising from the potential acquisition of a small number of properties and changes in access during construction through the social impact assessment. The design process will seek to minimise the need to acquire land. 	EMF	A
	1.3.7	Potential displacement of residents from acquisition of properties or changes in access arising from MMRP operation	Localised Impact	Permanent	High	<ul style="list-style-type: none"> Assessment of the potential for impacts to residents arising from the potential acquisition of properties and changes in access arising from Project operation through the social impact assessment. The design process will seek to minimise the need to acquire land. 	EMF	A
	1.3.8	Temporary loss of public open space during construction.	CBD wide	Less than 1 year in some instances, 2-5 years in others.	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts to public open space during construction through the social impact assessment. 	EMF	B
	1.3.9	Potential for localised disruption and changes to public events during	CBD wide	Less than 1 year in some instances, 2-5 years in	Medium to High	<ul style="list-style-type: none"> Assessment of the potential disruption of public events and the associated 	EMF	B



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
		construction.		others.		economic impacts of the disruption during construction as part of the socio-economic and social impact assessment.		
	1.3.10	Potential temporary effects on places with particular cultural, recreational or aesthetic values during construction.	Localised impact	Less than 1 year in some instances, 2-5 years in others.	Medium to High	<ul style="list-style-type: none"> Assessment of the potential disruption of effects on places with particular cultural, recreational or aesthetic values, particularly places or features of significance as part of the social impact assessment. 	EMF	B
1.4 Visual, Landscape and Urban Form	1.4.1	Potential permanent impacts where there are above ground structures associated with stations and ventilation stacks and the removal of vegetation.	Localised impact	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts that the above ground infrastructure may have for urban form, landscape and visual amenity during operation around the station precincts and ventilation stacks through the preparation of the landscape and visual impact assessment. 	UDS, EMF	B
	1.4.2	Potential temporary impacts of construction activities and compounds.	Precinct	Less than 1 year in some instances, 2-5	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts that construction activities may have on landscape and visual amenity values through the landscape and visual impact assessment. 	UDS, EMF	B



Theme	Key issue/effects	Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation	
		Extent	Duration	Value of asset / Resource				
2. Cultural Assets								
2.1 European heritage	2.1.1	Potential impacts of vibration from construction on heritage structures above or adjacent to the tunnels and station sites.	CBD wide	More than 5 years	Medium to High	<ul style="list-style-type: none"> Assessment of the potential vibration impacts to sites listed on the Victorian Heritage Register and Victorian Heritage Inventory and buildings within Heritage Overlays through the vibration and the cultural heritage impact assessments. Assessment to confirm whether there are unlisted heritage structures above or adjacent to the tunnels and station sites. 	EMF	A
	2.1.2	Potential impacts of vibration from operation on heritage structures above or adjacent to the tunnels and station sites.	CBD wide	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential vibration impacts to sites listed on the Victorian Heritage Register and Victorian Heritage Inventory and buildings within Heritage Overlays through the vibration and the cultural heritage impact assessments. Assessments to confirm whether there are unlisted heritage structures above or adjacent to the tunnels and station sites. 	EMF	A
	2.1.3	Potential impacts of construction and	Localised Impact	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts on known and unknown sites of European 	EMF	B



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
		operation on known and unknown sites of European heritage and archaeological sites.				heritage through the cultural heritage impact assessment.		
2.2 Aboriginal heritage	2.2.1	Potential impacts of construction and operation on known and unknown sites of Aboriginal heritage.	CBD wide	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of potential impacts on known and unknown sites of Aboriginal heritage arising from construction activities and operation through the Aboriginal cultural heritage impact assessment. 	EMF, CHMP	B
3. Amenity								
3.1 Noise and vibration	3.1.1	Potential amenity impacts created by noise from construction.	Localised Impact	Less than 1 year in some instances, 2-5 years in others.	Medium to High	<ul style="list-style-type: none"> Assessment of the potential construction noise to ensure compliance with the with EPA Publication 1254: Noise Control Guidelines is achievable. 	EMF	B
	3.1.2	Potential amenity impacts arising from train movements and rail infrastructure along the MMRP alignment.	Localised Impact	Permanent	Low to Medium	<ul style="list-style-type: none"> Assessment of the potential impacts to amenity arising from train movements through the noise impact assessment to ensure compliance the Passenger Rail Infrastructure Noise Policy (April 2013). 	EMF	A
	3.1.3	Potential vibration from train.	Localised Impact	Permanent	Low to Medium	<ul style="list-style-type: none"> Assessment of the potential impacts arising from operation by rail as part of the vibration impact assessment to ensure compliance with Australian 	EMF	B



Theme	Key issue/effects	Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation	
		Extent	Duration	Value of asset / Resource				
					Standards AS 2670.2 - Vibration.			
	3.1.4	Potential vibration during construction.	Localised Impact	Less than 1 year in some instances, 2-5 years in others	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts during construction arising from vibration as part of the vibration impact assessment to ensure with Australian Standards AS 2670.2 – Vibration. 	EMF	B
3.2 Air Quality	3.2.1	Potential temporary impact of dust and other emissions from the tunnel, station and portal construction, including from traffic movements, construction and spoil management.	Localised Impact	Less than 1 year in some instances, 2-5 years in others.	Low to Medium	<ul style="list-style-type: none"> Assessment of the potential air quality impacts generated by the tunnel, station and portal construction through the air quality impact assessment to ensure compliance with State Environment Protection Policies for Ambient Air Quality and Air Quality Management and compliance with EPA Environmental Guideline for Major Construction Sites. 	EMF	B
	3.2.2	Potential emissions from ventilation shafts and other infrastructure associated with tunnels and stations.	Localised Impact	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts of locating ventilation and other associated infrastructure within public open space through the land use and social impact assessments. Assessment of the potential air quality impacts generated by the ventilation shafts and other 	EMF	A



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
						infrastructure associated with tunnels and stations through the air quality impact assessment to ensure compliance with State Environment Protection Policies for Ambient Air Quality and Air Quality Management and compliance with EPA Environmental Guidelines for Major Construction Sites.		
	3.2.3	Potential odour from the excavation of spoil from tunnelling and excavation for construction.	Localised Impact	Less than 1 year in some instances, 2-5 years in others.	Low to Medium	<ul style="list-style-type: none"> Assessment of the potential for odour impacts arising from the excavation activities during construction through the air quality impact assessment to ensure compliance with the EPA Guidelines for Major Construction Sites. 	EMF	B
4. Earth Conditions								
4.1 Hydrology	4.1.1	Potential impacts of flooding and overland flows.	Localised Impact	Permanent	High	<ul style="list-style-type: none"> Assessment of the potential short and long term impacts arising from construction and operation of the MMRP on floodplains and storm water management through the hydrological impact assessment. 	EMF	A
	4.1.2	Potential impacts on water quality during	Localised Impact	2-5 years	Medium	<ul style="list-style-type: none"> Assessment of the potential impacts to water quality arising from construction as 	EMF	B



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
		construction.				<p>part of the hydrological impact assessment.</p> <ul style="list-style-type: none"> This assessment will include impacts on water quality within Moonee Ponds Creek and the Yarra River. 		
4.2 Groundwater and Contamination	4.2.1	Potential impact of works in areas which are contaminated as well as the associated removal and disposal of soil.	Localised Impact	2-5 years	Medium	<ul style="list-style-type: none"> Assess the potential for disturbing contaminated ground conditions as part of the contaminated land impact assessment. Identify strategies for characterising, storing, handling, treating and disposing of contaminated soil as part of the contaminated land impact assessment. Potential ground contamination that may be encountered by the project include potentially acid sulfate soils and any legacy contamination from industrial sources potentially within the rail corridor. 	EMF	A
	4.2.2	Potential impact of ongoing secondary compression of Coode Island Silt could impact construction and operation phases of project.	Localised Impact	Permanent	Medium to High	<ul style="list-style-type: none"> Assessment of the potential for construction and operation activities to disturb Coode Island silts through the hydrogeological impact assessment. 	EMF	A



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
	4.2.3	Potential impacts of groundwater levels on project infrastructure due to climate change and flood events.	Melbourne Region	Permanent	High	<ul style="list-style-type: none"> Assessment of the potential impacts to project infrastructure arising from climate change and flood events to ensure compliance with applicable policy through the hydrogeological impact assessment. 	EMF, UDS	A
	4.2.4	Potential impacts of groundwater drawdown associated with pre and post construction dewatering	Melbourne Region	Permanent	High	<ul style="list-style-type: none"> Assess the potential short and long term impacts of construction and operation on groundwater movement and identify mitigation measures through the groundwater impact assessment to ensure compliance with EPA Guidelines. Assessment includes associated impacts such as ground subsidence causing cracking of structures, including heritage buildings and trees within public open space and on streets. 	EMF	A
5. Ecology								
5.1 Arboriculture (trees)	5.1.1	Potential removal and/ or relocation of street trees for construction.	CBD wide	Permanent	High	<ul style="list-style-type: none"> Assessment of the impacts arising from the potential removal or relocation of street trees during project construction through the arboriculture impact assessment. 	EMF, UDS	A



Theme	Key issue/effects		Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation
			Extent	Duration	Value of asset / Resource			
5.2 Terrestrial flora and fauna and habitat	5.2.1	Potential removal of trees in locations where they provide habitat.	Localised Impact	Permanent	Low to Medium	<ul style="list-style-type: none"> Assessment of the potential impacts from construction and operation impact of the project on trees, including those outside but close to the areas proposed to be excavated through the ecological and arboriculture impact assessments. 	EMF	B
5.3 Aquatic Flora and fauna and habitat	5.3.1	Potential impact on listed fish species within the Yarra River including protected nationally listed species.	Localised Impact	Less than 1 year	High	<ul style="list-style-type: none"> Assessment of the potential impacts of construction on listed fish species in the Yarra River through the aquatic ecology impact assessment. 	EMF	C
6. Connectivity								
6.1 Traffic and Transport	6.1.1	Temporary traffic impacts due to construction vehicle movement during tunnel and station construction.	CBD wide	Less than 1 year in some instances, 2-5 years in others	Medium to High	<ul style="list-style-type: none"> Assessment of the potential impacts of temporary modifications to the existing transport network during construction through the transport and traffic impact assessment. 	TPMF	B
	6.1.2	Temporary disruption to tram, motor vehicle, bicycle and pedestrian traffic during station construction.	CBD wide	2-5 years	High	<ul style="list-style-type: none"> Assessment of the potential effects of construction and permanent road changes on the surface transport network for private and public transport and pedestrian movements through the transport and traffic impact assessment. 	TPMF	A



Theme	Key issue/effects	Scale of Issue			Assessment Response	Preliminary Mitigation Methods	Priority Investigation	
		Extent	Duration	Value of asset / Resource				
	6.1.3	Temporary disruption of street access to the health and education precinct in Parkville during construction.	Localised Impact	Less than 1 year in some instances, 2-5 years in others.	High	<ul style="list-style-type: none"> Assessment of the potential impacts of haulage routes for spoil, and associated intersection or tram works necessary as a result of any road or lane changes, as well as the development of preliminary traffic management plans for all modes including pedestrians, local and regional access and through movements during construction stages of the Project through the traffic and transport impact assessment. 	EMF, TPMF	A
	6.1.4	Temporary disruption to vehicle and pedestrian movement and access arising from Project construction.	Melbourne Region	Less than 1 year in some instances, 2-5 years in others	High	<ul style="list-style-type: none"> Assess temporary modifications to the existing transport network during construction and operation through the transport and traffic impact assessment. 	EMF, TPMF	A
7. Greenhouse Gas								
7.1 Greenhouse gas	7.1.1	Potential for increased greenhouse gas emissions arising from MMRP.	Melbourne Region	Permanent	High	<ul style="list-style-type: none"> Assessment of the potential greenhouse gas emission sources associated with MMRP. 	EMF	B



3.4 Summary

The analysis presented in this Project Outline demonstrates that MMRP is capable of having significant environmental, social and economic effects and that the most significant of these effects are likely to occur during the construction phase of MMRP.

The potential effects of MMRP have been identified and categorised thematically in Table 3.5 below. To address these effects, a comprehensive set of specialist studies covering the key effects will be undertaken. Specialist studies will inform the design of MMRP in order to avoid or reduce potential impacts and effects to an acceptable level. The scope of the specialist studies are separated into two key phases:

- Baseline studies – to understand the existing conditions and policy context (including any standards, planning controls or other existing obligations that may inform design and construction methods for MMRP); and
- Impact assessment studies – to understand the potential impacts of MMRP and to identify mitigation and management measures associated with the project's construction and operation.

The following specialist studies will be undertaken to address the environmental, social and economic issues identified through the preliminary potential issues screening for both the baseline studies and impact assessment:

Land Use and Community

- Land use and planning
- Economics and business
- Social and community
- Visual and landscape

Cultural Assets

- European heritage
- Aboriginal heritage

Amenity

- Noise and vibration
- Air quality

Earth Conditions

- Hydrology
- Groundwater and contamination

Ecology

- Arboriculture (trees)
- Terrestrial flora and fauna
- Aquatic flora and fauna

Connectivity

- Transport and traffic

Greenhouse Gas

- Greenhouse gas

Table 3.5 : Key issues

Theme	Key issues for impact assessment	
1. Land Use and Community		
1.1 Land use and planning	1.1.1	Complete or partial permanent acquisition of buildings and other potential sites.
	1.1.2	Temporary occupation, excavation and subsequent rehabilitation of public open space and other land for construction purposes.
	1.1.3	Permanent loss of public open space and consequent loss of that public open space.
	1.1.4	Temporary occupation, excavation and subsequent rehabilitation of public open space for construction purposes.
	1.1.5	Potential use of public open space for associated Project infrastructure.
1.2 Economics and business		
	1.2.1	Potential impacts to businesses in the CBD and inner Melbourne arising from the Project during construction and operation.
	1.2.2	Potential displacement of businesses due to acquisition of commercial properties.
	1.2.3	Changed traffic, bicycle and pedestrian routes potentially affect business visibility/patronage.
	1.2.4	Changed traffic, bicycle and pedestrian flows potentially affect business visibility/patronage during construction.
	1.2.5	Potential impacts from the occupation of commercial sites within the Project alignment for construction purposes.
1.3 Social and community		
	1.3.1	Potential impact on traffic movement for local communities during Project construction.
	1.3.2	Potential impact on traffic movement for local communities during operation.
	1.3.3	Potential loss of community facilities during Project construction.
	1.3.4	Potential changes in amenity around station boxes and project infrastructure.
	1.3.5	Temporary impacts on pedestrian and bike paths.
	1.3.6	Potential displacement of residents from acquisition of properties or changes in access during Project construction.
	1.3.7	Potential displacement of residents from acquisition of properties or changes in access arising from Project operation



Theme	Key issues for impact assessment	
	1.3.8	Temporary loss of public open space during construction.
	1.3.9	Potential for localised disruption and changes to public events during construction.
	1.3.10	Potential temporary effects on places with particular cultural, recreational or aesthetic values during construction.
1.4 Landscape and visual	1.4.1	Potential permanent impacts where there are above ground structures associated with stations and ventilation stacks and the removal of vegetation.
	1.4.2	Potential temporary impacts of construction activities and compounds.
2. Cultural Assets		
2.1 European heritage	2.1.1	Potential impacts of vibration from construction and operation on heritage structures above or adjacent to the tunnels and station sites.
	2.1.2	Potential impacts of vibration from operation on heritage structures above or adjacent to the tunnels and station sites.
	2.1.3	Potential impacts of construction and operation on known and unknown sites of European heritage and archaeological sites.
2.2 Aboriginal heritage	2.2.1	Potential impacts of construction and operation on known and unknown sites of Aboriginal heritage.
3. Amenity		
3.1 Noise and vibration	3.1.1	Potential amenity impacts created by operational noise from train movements and rail infrastructure.
	3.1.2	Potential amenity impacts created by noise from construction.
	3.1.3	Potential vibration from train.
	3.1.4	Potential vibration during construction.
3.2 Air quality	3.2.1	Potential temporary impact of dust and other emissions from the tunnel, station and portal construction, including from traffic movements, construction and spoil management.
	3.2.2	Potential emissions from ventilation shafts and other infrastructure associated with tunnels and stations.
	3.2.3	Potential odour from the excavation of spoil from tunnelling and excavation for construction.
4. Earth Conditions		
4.1 Hydrology	4.1.1	Potential impacts of flooding and overland flows.



Theme	Key issues for impact assessment	
4.2 Groundwater and contamination	4.1.2	Potential impacts on water quality during construction
	4.2.1	Potential impact of works in areas which are contaminated as well as the associated removal and disposal of soil.
	4.2.2	Potential impact of ongoing secondary compression of Coode Island Silt could impact construction and operation phases of project.
	4.2.3	Potential impacts of groundwater levels on project infrastructure due to climate change and flood events.
	4.2.4	Potential impacts of groundwater drawdown associated with pre and post construction dewatering
5. Ecology		
5.1 Arboricultural (trees)	5.1.1	Potential removal and/ or relocation of street trees for construction.
5.2 Terrestrial Flora and fauna and habitat	5.2.1	Potential removal of trees in locations where they provide habitat
5.3 Aquatic Flora and fauna and habitat	5.3.1	Potential impact on listed fish species within the Yarra River including protected nationally listed species.
6. Connectivity		
6.1 Traffic and transport	6.1.1	Temporary traffic impacts due to construction vehicle movement during tunnel and station construction.
	6.1.2	Temporary disruption to tram, motor vehicle, bicycle and pedestrian traffic during station construction.
	6.1.3	Temporary disruption of street access to the health and education precinct in Parkville during construction.
	6.1.4	Temporary disruption to vehicle and pedestrian movement and access across the Project area during construction.
	6.1.5	Temporary disruption to vehicle and pedestrian movement and access across the Project area during construction.
7. Greenhouse Gas		
7.1 Greenhouse gas	7.1.1	Potential for increased greenhouse gas emissions arising from MMRP.



4. Communication and Stakeholder Engagement

MMRA is committed to engaging with the community and stakeholders in an open, inclusive, accessible and timely way throughout the planning and delivery of MMRP.

Engagement is underway with regulatory stakeholders, utilities, transport operators, local councils, key institutions and community groups along the project corridor to inform the project design and development.

The MMRA acknowledges that a project of the scale and scope of MMRP, and the duration of construction activities in constrained residential and retail locations, underlines the importance of extensive consultation with directly and indirectly affected stakeholders. Based on this assessment, the following communications principles have been adopted for MMRP:

- direct communication (i.e. two-way channels such as face-to-face, direct mail/email/phone call) is the preferred means of communicating major issues to affected community members and stakeholders.
- communication is open, transparent, inclusive, accessible, accurate and consistent in its content, and is planned, coordinated and timely in its delivery, to both internal and external audiences.
- proactive communications planning and early engagement are integral parts of all project and operational planning processes.
- messages and delivery channels are tailored to the communication and information needs of their intended audiences.

MMRA is committed to a meaningful engagement and consultation strategy that identifies stakeholder issues and draws on their input to inform both the project design as well as the potential construction methodology to deliver it.

The stakeholder engagement program will also be integrated with the statutory public exhibition periods and other consultation requirements of the EE Act.

A range of communication channels have been established to provide information and updates and enable members of the public to contact MMRA, including a 1800 information line, online contact form, MMRP website and Twitter social media presence. In June 2015, a newsletter was distributed to 100,000 properties across the MMRP alignment, a series of 'pop-up' displays were held, project postcards were handed out at stations in the CBD, and letters and fact sheets were distributed to residents and businesses along the alignment to provide information about MMRP and localised planning and site investigations. Presentations have also been given to peak bodies and at industry conferences in recent months.



A program of engagement with key stakeholders, local residents, businesses and public transport users will commence in mid-2015 and will continue into 2016 to seek feedback on aspects of MMRP. Information will be provided in various ways including fact sheets, videos, animations, infographics and brochures, and engagement sought via a range of communications channels such as online engagement tools, face to face meetings, information sessions, pop-up displays, letter drops and surveys.

Engagement with the public as well as regulatory bodies and institutional stakeholders will continue during the formal assessment process.



5. Conclusion

MMRP is a transformational project that will deliver major long term benefits for Melbourne and Victoria. MMRP will nevertheless potentially have significant environmental, social and economic effects, particularly during its construction, through:

- Impacts on amenity through noise and air emissions during construction;
- Impacts on business and residents, particularly in the CBD but also areas to the north and south of the CBD, through closing or restricting vehicular, bicycle and pedestrian access;
- The potential displacement of businesses and residents from the acquisition of properties;
- The temporary and permanent use of public open space for MMRP-related purposes; and
- The potential development of buildings and places listed on the Victorian Heritage Register or covered by a Heritage Overlay in the relevant planning schemes.

MMRA submits that the potential effects of MMRP, when considered in their totality, could reasonably be considered to be capable of having a significant effect on the environment, including the 'cultural and economic aspects of human surroundings.'¹⁰ MMRA requests that the Minister for Planning declare MMRP, as described in Part 2.5 of this document, to be 'public works' under section 3(1) of the *Environment Effects Act 1978*.

¹⁰ *Ministerial guidelines for assessment of environmental effects under the Environment Effects Act 1978*, p.2.

