west gate tunnel project

Environment Effects Statement

SUMMARY REPORT

WESTERN DISTRIBUTOR AUTHORITY

VICTORIA State Government

Summary report

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West Gate Tunnel Project

The West Gate Tunnel Project is a major new freeway project designed to relieve traffic pressure on the Monash/CityLink/West Gate Freeway (the M1 corridor – the main connecting route between Melbourne's east and west), reduce the city's reliance on the West Gate Bridge, provide a direct freight link to the Port of Melbourne and remove significant volumes of trucks from residential areas in the inner west.

The project would provide twin tunnels under Yarraville in Melbourne's inner west and an elevated motorway connecting the West Gate Freeway with the Port of Melbourne, CityLink and the western edge of the central city, delivering an alternative river crossing to the West Gate Bridge.

The West Gate Tunnel Project has three components.

- The **West Gate Freeway component** would include upgrade and widening works between the M80 Ring Road interchange and Williamstown Road, providing two additional lanes in each direction to generally increase capacity to six through lanes in each direction (and auxiliary lanes as required). The six lanes would be configured as two sets of three lanes in each direction. The outer three lanes would provide access at all existing connections to the West Gate Freeway and link to the tunnels under Yarraville. The inner three lanes would provide express lanes between the M80 Ring Road and the West Gate Bridge. Elevated ramps would provide a new connection between the West Gate Freeway and Hyde Street.
- The **tunnels component** would include two tunnels – one inbound, one outbound – under Yarraville catering for three lanes of traffic in each direction. The tunnels would extend from two separate southern portals (entrances/exits) located along the West Gate Freeway to the west of Williamstown Road and to the west of the Newport Freight Railway Line to a northern portal located east of the intersection of Whitehall Street and Harris Street, to the west of the Maribyrnong River in Footscray. The outbound tunnel would have a length of approximately 4.0 kilometres and the inbound tunnel approximately 2.8 kilometres. A tunnel ventilation structure would be located at each exit portal.

- The **port, CityLink and city connections component** would include a bridge crossing of the Maribyrnong River, connections to the Port of Melbourne, an elevated road along Footscray Road and connections to CityLink and the central city. Connections would be provided to both sides of the Port of Melbourne via MacKenzie Road and Appleton Dock Road. Inbound and outbound connections would be provided to CityLink, along with connections to Footscray Road, Dynon Road and a widened Wurundjeri Way extended through to Dynon Road.

Widening works would be undertaken on the Princes Freeway between the M80 Ring Road interchange and Kororoit Creek Road, including providing an additional westbound lane on the Princes Freeway. The project would also require the localised relocation of nine high voltage electricity transmission towers within the vicinity of the West Gate Freeway and the realignment of the North Yarra Main Sewer through Yarraville.

Over 14 kilometres of new and upgraded walking and cycling paths would be delivered by the project, creating a continuous link from Werribee to central Melbourne, providing new and safer connections and offering people in the city's west more travel choices. Upgrades would include the Federation Trail, replacing existing pedestrian bridges in the vicinity of Wembley Avenue and Rosala Avenue, a new veloway over Footscray Road, and new pedestrian bridges over Williamstown Road, Stony Creek, Whitehall Street, Moonee Ponds Creek, Footscray Road, the new Footscray Road connection to the east of CityLink, and new pedestrian bridge adjacent to Dynon Road bridge.

The project would enable the Victorian Government to **extend 24-hour truck bans in the inner west**, removing up to 9,300 trucks from residential streets.

The urban design concept for the project provides for the creation of **almost nine hectares of new community open space**, including new public park areas in the cities of Hobsons Bay, Maribyrnong and Melbourne, and significant improvements to existing public open space.

The main features and components of the West Gate Tunnel Project are shown in Figure 1.

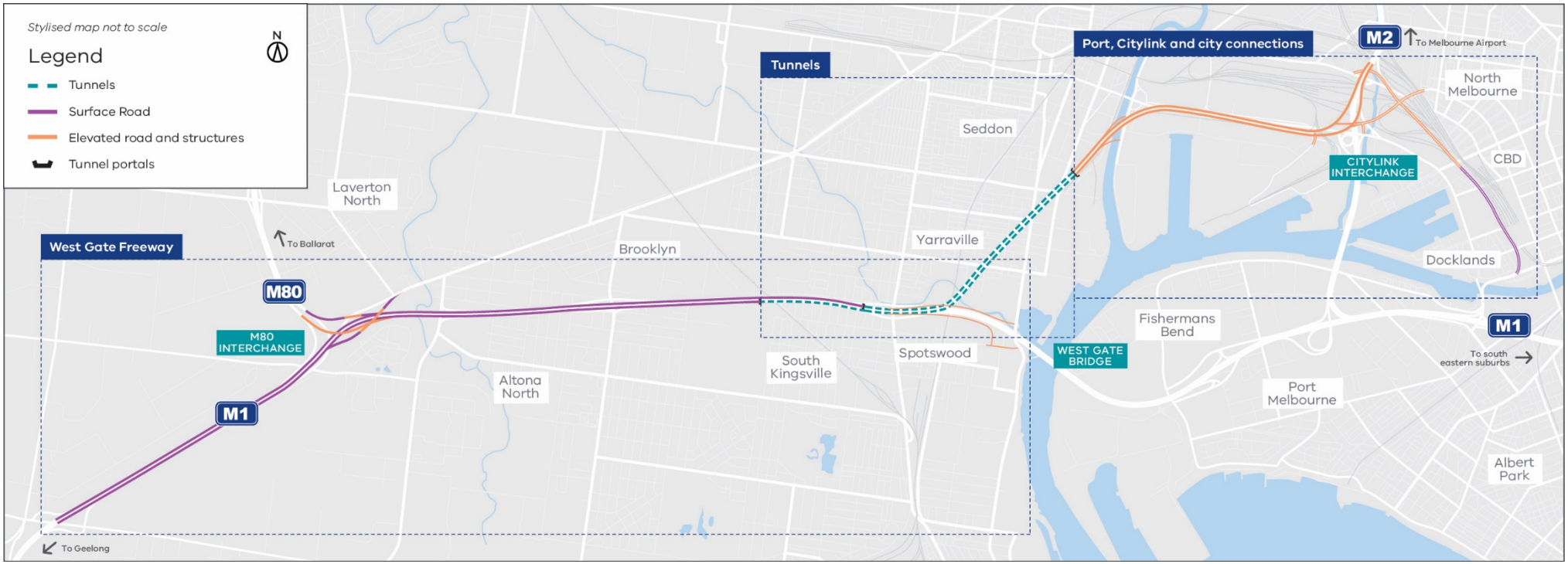
The West Gate Tunnel Environment Effects Statement (EES)

The West Gate Tunnel Project is set within a highly urbanised area that includes long-established and diverse neighbourhoods and communities, as well as shopping and commercial centres, industrial areas, parks and reserves, and community and recreational facilities. This urbanised setting influences the nature and extent of the impacts likely to be generated by the project.

The EES for the West Gate Tunnel Project provides a comprehensive assessment of the potential environmental impacts associated with the construction and operation of the project. It details the risk-based approach adopted to identify and assess the potential impacts of the project, develop a transparent and accountable Environment Management Framework (EMF) for the project and identify Environmental Performance Requirements (EPRs) to avoid, minimise, offset or manage potential adverse impacts.

The EES has concluded that the adoption of the EMF and EPRs would enable the West Gate Tunnel Project to achieve its project objectives, while minimising environmental impacts. This would also ensure that the project delivers significant transport, economic, social and business benefits not only for the inner west and the wider western region, but also for Melbourne and Victoria.

Figure 1 West Gate Tunnel Project



Footscray Road and the Port of Melbourne, looking east

Why Melbourne needs the West Gate Tunnel Project

Melbourne is now the nation's fastest growing capital city, heading for a population of more than seven million by 2051 and potentially overtaking Sydney as Australia's biggest city within 40 years. The growing pains are already acute in the city's west, which continues to be one of the fastest growing regions of Melbourne due to a combination of land use change, urban renewal in the inner suburbs and residential development of the outer suburbs.

Alongside this unprecedented population growth, the Victorian economy is shifting away from its traditional manufacturing base to one formed around services. These developments are reshaping Melbourne, changing where people want to live, where jobs and businesses are based, and where centres of economic and industrial activity are located across the city.

As industries in the services sector – such as healthcare, education and financial, professional and technical services – continue to grow, an expanded central Melbourne is becoming Victoria's main generator of high value jobs and a highly desirable investment, business and residential destination. At the same time, specialist manufacturing and related industries are moving to outer areas of Melbourne in the west, north and south-east, attracted by large parcels of available land with good access to the major road network.

In the city's west, revitalised suburbs are growing strongly, attracting new residents and businesses as the region takes advantage of its proximity to the central city and available land to create a more diverse and dynamic economic base.

These shifts in population and economic activity are placing pressure on Melbourne's transport network, particularly the already constrained connections to, from and through the city's west.

Melbourne's role as a national import and export logistics hub is also contributing to strong growth in the movement of goods around the city and the state. In particular, container trade through the Port of Melbourne is forecast to grow steeply, reaching eight million standard containers a year by 2035 – 3.5 times the current level. The growing freight task is generating an increasing demand for the movement of goods on the city's freeways, changing preferred access routes to and from the Port of Melbourne and leading to additional heavy freight traffic moving from the port through the inner west.

Recent initiatives planned or underway (such as the M80 Ring Road upgrade, the Regional Rail Link, the Metro Tunnel project, the removal of 50 metropolitan level crossings and upgrades to major suburban arterial roads) are improving cross-city connectivity. However, further improvements are needed to secure new economic and employment opportunities, move goods more efficiently and reliably to domestic and international markets, and support urban renewal and residential and commercial development in the central city and the west.

The West Gate Tunnel Project seeks to address five critical transport challenges:

- Inadequate transport capacity on the M1 corridor – The M1 corridor links Melbourne's western suburbs to the central city, south-east Melbourne and beyond. It also provides an important freight link to the Port of Melbourne from key industrial areas in Melbourne's and Victoria's west. Traffic volumes along the M1 have increased steadily over the last decade and the West Gate Freeway corridor now carries up to 200,000 vehicles each day between the M80 Ring Road and Williamstown Road. There is a high level of congestion on the corridor, traffic queues often extend well beyond the freeway along feed-in roads and travel speeds are less than optimal for a freeway standard link (regularly falling below 30 km/hour during the morning peak period). Already under pressure, the M1 corridor does not have sufficient capacity to cater for the future significant growth in travel demand forecast in the corridor over the coming decades.
- Over-reliance on the West Gate Bridge – The West Gate Freeway is Melbourne's key east-west route, carrying more than 60 per cent of all trips across the Maribyrnong River and Yarra River. By 2031, between 240,000 and 250,000 vehicles will use the West Gate Bridge each weekday. This heavy reliance on the bridge makes the Victorian and Melbourne economies vulnerable to incidents and disruptions on the bridge, a susceptibility that is exacerbated by the shortage of viable alternate river crossings. These crossings – via Footscray Road, Dynon Road and Ballarat Road – have also experienced strong growth in traffic volumes and are expected to exceed capacity in 2031.
- Inadequate port and freight connections to cater for growth – The M1 corridor is Melbourne's most important land freight route, playing a critical role in accommodating freight movements to and from the Port of Melbourne, across Melbourne to various industrial and freight precincts, to and from regional Victoria, and interstate. With the freight task forecast to triple by 2050, an additional 9,000 trucks per day are expected to use the West Gate Freeway and the West Gate Bridge by 2031 and truck volumes are forecast to grow on unsuitable roads in the inner west. The lack of direct access to the port for High Productivity Freight Vehicles (HPFVs) – large-truck-and-trailer combinations – also means a higher overall number of truck trips. Providing reliable and timely freight access on a 24/7 basis to the Port of Melbourne and key freight and industrial nodes is critical to managing the growth in freight.
- Reduced amenity in the inner west – The absence of an efficient freeway connection between the west and the Port of Melbourne, combined with growth in port-related freight, means that increasing numbers of trucks pass through residential areas in the inner west. Up to one third of all vehicles through the inner west are trucks and some arterial roads through residential areas – such as Francis Street, Somerville Road, Buckley Street and Moore Street – now carry high volumes of trucks each day. The use of local roads in the inner west by heavy commercial vehicles has been a longstanding issue for local residents, who are concerned about their safety and loss of amenity from noise and air pollution, as well as the potential negative impacts on land values and restrictions on future land uses.

- Mismatch between land use and transport – Pressures on the city's transport networks are being exacerbated by the mismatch between population and jobs growth within Melbourne. While half of Melbourne's population growth to 2050 will be in the west and north, only 30 per cent of jobs growth will be in these areas. By 2046, an estimated extra 283,000 people will be living in Melbourne's west, but only an additional 93,000 jobs will be created in the region. Over the same period, the central Melbourne sub-region is expected to experience a similar increase in population to the west (267,000), but jobs will grow by up to 480,000. This will make it harder for workers to find jobs locally and mean that more people will need to travel from the west and north to access jobs in the central city.

If the transport network cannot address these issues, Melbourne and Victoria will be affected in a number of ways:

- Access to jobs, services and important economic centres will be reduced, undermining Melbourne's reputation for liveability and making it harder to attract new businesses, investors and skilled workers
- The misalignment between the city's transport networks and growing job catchments will constrain the mobility of the labour force, reducing Melbourne's economic prosperity and productivity
- A continuing decline in travel times and reliability on the freight network will increase costs for businesses, with potentially significant repercussions for their productivity and participation in national and global supply chains
- Restrictions on the amount of freight that can be moved in and out of the Port of Melbourne will diminish the port's productivity and efficiency, reduce the competitiveness of Victorian exports and undermine Melbourne's position as Australia's premier freight and logistics hub
- Amenity in residential areas in the inner west will continue to decline, making these places less attractive locations to live or operate a business, and potentially having negative impacts on plans for urban renewal and residential growth in the west.

Looking ahead without the project

By 2031, without the project operating:

- Road network performance in Melbourne's west will deteriorate significantly. Average speeds will be around 10 per cent slower in the AM and PM peak periods, reflecting widespread congestion and delays
- Travel times between the west and the Port of Melbourne or the inner north will be much longer: for example, a trip from Werribee or Melton to the inner north will be at least 20 minutes slower than it is today
- Projected demand will be well above capacity on the key section of the West Gate Freeway between the M80 Ring Road and the eastern end of the West Gate Bridge, with this section operating under heavily congested conditions for most of the day
- There will be high levels of congestion at Footscray Road's intersections with Appleton Dock Road, Wurundjeri Way and Dudley Street, potentially affecting the Port of Melbourne's operations. CityLink will also be operating with high levels of congestion in both peak periods between Racecourse Road and the Bolte Bridge
- Truck volumes are forecast to increase by up to 9,000 a day on the West Gate Freeway and West Gate Bridge. Truck numbers will continue to grow on inner west roads, with large increases expected on Francis Street and Buckley Street
- More trucks will be accessing North Melbourne via Dynon Road and travelling from the port to the West Gate Freeway via Wurundjeri Way
- Increasing truck movements, including HPFVs to the port and around Melbourne and Victoria amidst growing neighbourhoods will affect the goodwill of the Port of Melbourne within the community risking the ongoing ability for Victoria to support competitive exports and imports.

Developing the West Gate Tunnel Project

Background to the project

The West Gate Tunnel Project was first proposed in March 2015. The proposal was made pursuant to the Victorian Government's *Market-Led Proposals Guideline*[*]. Transurban's proposal led to discussions with the Victorian Government and key stakeholders, the preparation of a Business Case by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR) to test the merits of the project and extensive joint development work undertaken by Transurban and DEDJTR. This work culminated in the preparation of a Reference Design for the project.

The Victorian Government is evaluating Transurban's proposal in accordance with its *Market-led Proposals Guideline* to ensure that it addresses government priorities, provides benefits to the community and delivers value to Victorians. The evaluation has included a strategic assessment of the merits of the proposal, which determined that it would deliver a high level of benefit in providing an alternative to the West Gate Bridge and supporting the productivity and performance of the M1 corridor. The proposal also aligns with previous investigations by successive Victorian Governments aimed at improving Melbourne's cross-city connectivity, the capacity of the M1 corridor and the efficiency of freight movements to and from the Port of Melbourne. These investigations extend back to the 2008 East West Link Needs Assessment led by Sir Rod Eddington, which put forward a case for investment in major rail and road capacity linking Melbourne's east and west and noted the severe consequences of failing to address poor cross-city connectivity.

In December 2015, the Victorian Government released the Business Case, announced that it would proceed with the West Gate Tunnel Project and would enter into exclusive negotiations with Transurban. As the assessment of Transurban's proposal under the *Market-led Proposals Guideline* is ongoing – and will continue until the Government and Transurban formalise their partnership agreement – this EES refers to the State's future delivery partner for the West Gate Tunnel Project as 'Project Co'.

The Minister for Planning then declared the proposed project works to be 'public works' under the *Environment Effects Act 1978*, triggering the requirement for the preparation of an EES. The project works were re-declared in May 2017 with the new project name and works as confirmed in the selected tender design.

Project responsibilities

Department of Economic Development, Jobs, Transport and Resources (DEDJTR) is the proponent for the project. DEDJTR is the Victorian government department that brings together the key functions that drive economic development and jobs growth in Victoria, including planning and overseeing Victoria's transport system and delivering transport infrastructure projects.

Western Distributor Authority (WDA) is the administrative office responsible for managing the development and delivery of the project. WDA is the proponent for the West Gate Tunnel EES, acting on behalf of the Secretary of DEDJTR. WDA is also managing the delivery of two other interrelated projects: the Monash Freeway Upgrade and Webb Dock Access improvements.

[*] The *Market-led Proposal Guideline* is the process followed by the Victorian Government to assess proposals from the private sector for delivering a project or service. The guideline can be viewed at the Victorian Department of Treasury and Finance (DTF) website: www.dtf.vic.gov.au.

Throughout late 2016 and early 2017, the Victorian Government conducted a competitive tender process for the design and construction of the project informed by a Reference Design. This process resulted in the selection of CPB John Holland Joint Venture to design and construct the project, subject to the successful completion of the EES process and the issue of key project approvals by the responsible statutory authorities. This EES has assessed the design and construction approach proposed by CPB John Holland Joint Venture.

Project Co would have ultimate responsibility to WDA for delivering the West Gate Tunnel Project. This would include ensuring that the design and construction contractors (and any other contractors working on the project) fulfil their obligations and that all environmental requirements applying to the design, construction and operation of the project are met.

Developing the project design

The comprehensive process undertaken to develop the preferred project scope for the West Gate Tunnel Project has included:

- Identifying high level project objectives to meet Melbourne's needs and provide a framework for developing the project (listed on the next page)
- Assessments of corridor alignment options and different strategic intervention options (as well as road options), which confirmed that a new western road connection along a southern corridor (that includes a crossing of the Maribyrnong River) offers the highest level of benefit in addressing the current transport challenges facing Melbourne while not precluding future transport initiatives
- Developing an indicative project design to inform the design and construction procurement process, including identifying, evaluating and refining design options and engineering solutions, resolving constructability issues and considering risks, benefits and impacts
- Preparation of a Business Case by DEDJTR, which found that the project has merit and would bring significant value to Melbourne, Victoria and Australia
- Consultation with approvals agencies, local authorities, other key stakeholders and communities potentially affected by the project
- Further refinements and enhancements undertaken by CPB John Holland Joint Venture to develop the project design assessed in this EES.

Integrating with other projects and investments

In developing the West Gate Tunnel Project, the Victorian Government has been careful to ensure that the project would not preclude – and could potentially complement – other strategic interventions that could be developed alongside, integrated with or facilitated by the new road connection. This could include improvements to bus routes and infrastructure in the inner west, future port-rail shuttles to the proposed Western Intermodal Terminal or the extension of tram routes to Footscray.

Importantly, the new road connection would have the potential to integrate successfully with a broader package of initiatives to deliver a more efficient inner west transport network.

The project would also not preclude other previously identified western road connections along alternative corridors (such as WestLink) from proceeding in the future. The Business Case for the project noted that the demand catchment for the M1 corridor is likely to require major investment in other western road corridors in the longer term.

At all stages of the project's development, a core principle was to avoid the acquisition of residences, either for permanent structures or for construction purposes. The project has also been designed to minimise impacts on public open space, sensitive ecological areas and community and recreational facilities.

Consultation with and feedback from stakeholders and the broader community has been a feature of the development for the West Gate Tunnel Project since it was first proposed in early 2015.

The consultation and engagement covers five phases aligned to key project milestones. The three phases contributing to the project development were:

- Phase One – Engagement on the initial design submitted to the Victorian Government under the Market-Led Proposal Guidelines (April 2015 to February 2016)
- Phase Two – Engagement on the Concept Design including input on potential options for some elements of the project to form part of the Reference design (March 2016 to July 2016)
- Phase Three – Engagement on the Reference Design to inform development of impact assessments and the tender process (July 2016 to early 2017).

This program helped to refine the project design at key stages, and confirmed broad support for objectives such as improving travel times and access to work, freeing-up traffic movements on and around the West Gate Freeway, providing a second river crossing and addressing truck impacts in residential areas in the inner west.

Consultation activities included print and online material such as fact sheets, discussion papers and newsletters; interactive website; social media; media; community events; consultation sessions; pop-up stands in nearby communities; dedicated community email and phone line; door knocks; surveys; conversions and letters to business and property owners affected; meetings with community groups and industry groups; engagement with government agencies and local councils including through a formal Technical Reference Group.

Community Liaison Group

The Victorian Government established an independently chaired Community Liaison Group (CLG) to provide ongoing community feedback as the project progresses.

This group includes representatives from a cross section of the community, including local government, regional business groups, community groups and local residents. Members were selected through a formal recruitment process based on their location, community networks and linkages, knowledge of local issues and their capacity to communicate what's important to their community.

The CLG has met monthly since in April 2016.

Project objectives

The West Gate Tunnel Project aims to make a significant contribution to meeting some of Melbourne's most critical traffic, growth and liveability needs. The high-level objectives established for the project are to:

1 Improve transport performance in the M1 corridor

- To support the increased travel demand generated by future population and economic growth trends
- To enhance connectivity between economic clusters
- To enhance safety along the M1 corridor
- To enhance access to jobs and services.

2 Reduce reliance on the West Gate Bridge

- To improve network resilience and redundancy
- To mitigate strategic risks to the State and national economies
- To improve travel reliability.

3 Improve freight access to the Port of Melbourne and greater Melbourne

- To improve reliability of access to the Port of Melbourne and on the freight network
- To support the travel demands arising from the future freight task
- To enhance state and national competitiveness through freight productivity improvements.

4 Improve community amenity on local streets in the inner west

- To reduce freight on local streets
- To improve safety on local streets.

Views of the West Gate Tunnel Project (clockwise from top left): pedestrian bridge over Williamstown Road ramp ; shared use path at eastern end of Footscray Road, bridge over the Maribyrnong River, entrance to northern portal

Planning for the project

The West Gate Tunnel Project is being assessed under the *Environment Effects Act 1978*, which provides for the assessment of proposed projects in Victoria that could have a significant effect on the environment.

Requirement for an EES

On 23 December 2015, the Minister for Planning determined that the project proponent must prepare an EES to inform the Minister's assessment of the environmental effects of the project. The Minister's reasons for this determination included that the project is "a large-scale road infrastructure project, set in an intensively developed area" with works having "the potential for significant environmental effects". The Minister determined that an EES process "will provide a robust, transparent and integrated framework through which the potential environmental effects can be rigorously assessed" and "the effectiveness of proposed measures to avoid, minimise, manage and offset environmental effects and related risks can be evaluated".

On 17 May 2017, the project works were re-declared with the new project name and works as confirmed in the selected design.

Technical Reference Group

A Technical Reference Group (TRG) convened by the Department of Environment, Land, Water and Planning (DELWP) has provided advice to WDA in preparing the EES.

The TRG included representatives from local government (including Hobsons Bay City Council, Maribyrnong City Council and City of Melbourne), relevant State government departments and regulating agencies (including DELWP and EPA Victoria), and the Port of Melbourne. The TRG met regularly from early 2016 through to the public exhibition of the EES in mid-2017.

The TRG provided advice on a range of matters associated with the EES and commented on the EES main report, attachments and technical reports as they were prepared.

In April 2016, the Minister published Scoping Requirements to guide the preparation of the EES. These requirements identify specific matters to be investigated, the approach to be adopted in assessing risks and impacts, and evaluation objectives that set the desired outcomes to be achieved in relation to the potential environmental effects of the project.

The EES process

The EES process is designed to be rigorous and transparent, with opportunities provided for input from stakeholders and the wider community.

An EES is not an approval process in itself. Rather, the EES tests the project's ability to meet relevant regulatory requirements. It gives decision-makers (including Ministers, local councils and other statutory authorities) the information they need to make decisions about whether statutory approvals for the project should be granted and, if so, what conditions should apply.

The EES evaluates the environmental effects of the project elements (as presented in the project design) – including the location and type of temporary and permanent structures, proposed construction methodologies and operational requirements – and the extent to which these effects could be managed and mitigated.

The West Gate Tunnel Project EES includes environmental impact assessments undertaken by 17 technical specialists to ensure that the EES addresses the Scoping Requirements set by the Minister for Planning.

Environmental Performance Requirements

The West Gate Tunnel Project would be delivered in accordance with a set of EPRs that prescribe the environmental objectives, outcomes or limits the project must achieve during its detailed design, construction and operation. These requirements – which have been informed by the management and mitigation measures identified by the technical specialists – are designed to ensure that measures are adopted in the delivery of the project to avoid, manage or reduce environmental impacts by defining the outcomes to be achieved, rather than specifying a particular approach to be taken.

The EPRs include requirements to comply with regulations, policies and guidelines set by government and statutory authorities; achieve recognised thresholds and levels; adopt industry best-practice or well-tested construction approaches and methods; and/or adhere to a specific project commitment to achieve a particular objective.

A full list of the EPRs for the project is provided in EES Chapter 8 *Environmental Management Framework*. These EPRs would be incorporated into the Project Agreement for the West Gate Tunnel Project.

Assessing the project's impacts

Each specialist investigation conducted for the EES followed five main phases:

- Existing conditions – Specialists used desktop and field-based investigations to identify existing environmental assets, values and uses in the vicinity of the project. Particular regard was given to identifying sensitive receptors, including those that are protected by legislation and policy, are important to the local community and/or are likely to be susceptible to impacts as a result of the project. Risk and impact assessments for the project were undertaken with reference to these existing conditions.
- Consultation – The findings of engagement and consultation with communities and stakeholders (including input from government agencies, local councils, the TRG and the CLG) were considered by the specialists to identify the *key issues* of concern to local communities and stakeholders.

Specialist investigations undertaken for the West Gate Tunnel EES

Transport
Contaminated soil and spoil management
Groundwater
Ground movement
Surface water
Ecology
Air quality
Noise and vibration (surface)
Vibration and regenerated noise (tunnel)
Human health
Land use planning
Social
Business
Landscape and visual
Aboriginal cultural heritage
Historical heritage
Greenhouse gas

- Risk assessment – A risk reflects the likelihood of an adverse event occurring and the potential consequences of the event. *Key risks* (pathways with the potential to lead to significant impacts on the environment or local communities) were carried forward for more detailed impact assessment. The risk assessment also helped to screen *key issues* for further consideration in the impact assessment.
- Impact assessment – An impact reflects the outcome of an event in relation to sensitive assets, values and uses. In this phase, the specialists assessed the impacts associated with *key risks* and *key issues*. Specialists applied their own methods (defined by relevant legislation, policies, standards and guidelines and their professional judgement and experience) to assess the magnitude of these *key impacts*, taking into consideration management and mitigation measures where appropriate. The impact assessment also identified potential benefits associated with the project.
- Environmental Performance Requirements – The specialists identified EPRs that could be adopted during design, construction and operation of the project to ensure acceptable environmental outcomes. The effectiveness of the EPR was determined by its expected ability to reduce the likelihood of an event occurring or reduce the consequence to affected receptors.

Potential environmental impacts that span more than one specialist area were identified and assessed, and consideration was also given to potential cumulative effects.

The impact assessments undertaken for the EES indicate that the comprehensive development undertaken for the project led to a Reference Design – and subsequently to a project design – that largely avoids major adverse impacts and would deliver substantial benefits to Melbourne and Victoria.

The combination of the project's design considerations and adoption of the EPRs has resulted in the majority of risks associated with the West Gate Tunnel Project being reduced to residual levels of low or medium. There would be opportunities to reduce the project's impacts even further during the detailed design phase.

Construction methodology

The EPRs would require construction works and activities to be conducted in accordance with relevant legislation and standards, including EPA Victoria and VicRoads guidelines and State Environment Protection Policies (SEPPs). The EPRs would also require the use of well-tested best practice construction techniques that are standard for major construction projects, including plans for managing construction traffic and noise, groundwater, contaminated soil and surface runoff. Prior to commencing construction, Project Co would prepare a Construction Environmental Management Plan (CEMP) in accordance with the EPRs.

All construction work sites and compounds would be reinstated post-construction.

The anticipated benefits of the project and the key impacts associated with each project component are summarised in the following sections. These key impacts are described in greater detail in Volumes 2, 3 and 4 of the EES. A full list of all project risks, showing the initial and residual risk rating of each risk pathway, is provided in EES Attachment II *Environment risk report*.

Gateway to the West Gate Tunnel Project at the M80 Ring Road interchange

Benefits delivered by the project

The West Gate Tunnel Project would deliver substantial benefits to Melbourne and Victoria. As well as the benefits arising directly from the project, it would also create opportunities for further benefits through actions enabled by the project.

Transport capacity and connectivity

The West Gate Tunnel Project would deliver a significant step-up in connectivity to and from Melbourne's west, which would have positive flow-on impacts across Melbourne and Victoria. The project would improve the reliability, resilience and efficiency of the M1 corridor west of the Yarra River by reducing over-reliance on the West Gate Bridge, providing a freeway standard connection to the Port of Melbourne for freight vehicles and connecting two major components of the city's freeway network: the West Gate Freeway and CityLink.

Key transport connectivity benefits delivered by the project include:

- **Reducing Melbourne's reliance on the M1 corridor** by offering an alternative to the West Gate Bridge, with more than 8,000 trucks diverted away from the bridge each day (including an alternative for trucks carrying dangerous goods
- **Improving capacity across the Maribyrnong and Yarra Rivers**, with an additional four through lanes of freeway standard capacity increasing inbound (west to east) peak hour capacity by around 20 per cent
- **Relieving pressure on all four existing river crossings**, with decreases in traffic volumes expected on the West Gate Bridge, Shepherd Bridge, Hopetoun Bridge and Lynchs Bridge
- **Improving the resilience of the M1 corridor** by physically separating traffic by destination along the West Gate Freeway, meaning that an incident in one carriageway will not impact the operation of the other carriageway

- **Significantly reducing peak period travel times** across the city's primary western road corridor, with savings of between eight and 15 minutes for inbound trips between the Princes Freeway/M80 interchange and the central city in the AM peak period and between eight and 20 minutes for the reverse trip in the PM peak period
- **Enabling the removal of up to 9,300 trucks from local roads in the inner west** each day, protecting residential areas from the impact of the forecast steep growth in the metropolitan freight task
- **Reducing bus journey times** for the majority of bus routes operating within the vicinity of the project, with deceases of up to four minutes expected on a number of routes
- **Providing a CBD bypass** (through the Wurundjeri Way extension) that would remove through traffic from streets in the CBD grid, including Spencer Street and King Street
- **Relieving congestion** and reducing the high costs of congestion on businesses and the economy.

Specific freight-related transport benefits include:

- **Providing direct, unimpeded freeway access to the Port of Melbourne** for freight vehicles and for six million standard containers per year (one third of national containerised trade)
- **Improving travel times from the west to the Port of Melbourne**, with inbound trips from the Princes Freeway to Appleton Dock expected to be up to 13 minutes faster during the AM peak period and up to 12 minutes faster during the PM peak period
- **Providing an alternative for over-height and dangerous goods vehicles** to access the Port of Melbourne and other locations north of the CBD.

Walking and cycling connections

The West Gate Tunnel project would deliver over 14 kilometres of new and upgraded walking and cycling links to create a continuous shared use connection from Werribee to central Melbourne. The project includes:

- New paths across the West Gate Freeway, improving safety and access for pedestrians and cyclists including replacement pedestrian overbridges and improvements under the freeway at Millers Road and Williamstown Road
- Completion of the Kororoit Creek shared path Stage 1 upgrade (Geelong Road to Grieve Parade)
- The extension of the Federation Trail (which currently does not connect through Yarraville) and providing new connections to New Street (at South Kingsville) and a new crossing of Stony Creek to link with the northern side of the Hyde Street Reserve and the Bay West Trail on the eastern side of Hyde Street including grade separation at Williamstown Road
- A shared use path near the Newport Freight Railway Line, connecting the Bradmill and Precinct 15 urban renewal sites
- A new connection from the Federation Trail to Hyde Street Reserve and Spotswood Railway Station, connecting the neighbourhoods of Yarraville and Spotswood
- A new bridge over Whitehall Street connecting to the Maribyrnong River waterfront and taking cyclists off busy Whitehall Street
- A new 2.5 kilometre elevated 'veloway' on Footscray Road, giving cyclists a safe express route to and from the central city and supporting the growing number of Melbournians riding to work each day (with the existing path remaining in place as an alternative route featuring new landscaping)

- A new shared use path and bridge over Moonee Ponds Creek, replacing an existing rail bridge connecting to the Moonee Ponds Creek Capital City Trail
- Improvements to walking and cycling paths between the inner west and the central city, including a new grade separated bridge south of Dynon Road, a new crossing over Footscray Road on a grade separated structure to join the existing Capital City Trail, and a new pedestrian bridge adjacent to the Dynon Road bridge.

These improvements would enhance walking and cycling connectivity in the west, provide safer connections to the central city and contribute to better health and wellbeing in local communities.

Extended truck bans in the inner west

The project's twin tunnels under Yarraville would enable removal of the majority of container trucks currently using Francis Street and Somerville Road, while the Hyde Street ramps would enable the removal of tanker trucks from Francis Street.

Changes to existing truck curfews would be enabled by the project and would commence at the project opening:

Trucks along Francis Street, Yarraville

- Full-time truck bans on Francis Street (from Robert Street to Hyde Street) and Somerville Road (from Geelong Road to Whitehall Street)
- Full time truck bans on Buckley Street (from Geelong Road to Whitehall Street) and Moore Street (from Hopkins Street to Ballarat Road)
- Existing truck curfews would be removed on Hyde Street south of Francis Street and Whitehall Street south of Somerville Road
- Existing truck curfews would remain on sections of Hyde Street, Hudsons Road and Douglas Parade.

These bans would allow local truck movements (within VicRoads requirements), but restrict through traffic movements. Existing truck curfews would be removed on Hyde Street south of Francis Street and Whitehall Street south of Somerville Road. The EES assesses the impacts of the West Gate Tunnel project with all new bans and curfews in place when the project commences operation.

Traffic management measures may need to be installed on Blackshaws Road between Grieve Parade and Melbourne Road and Hudsons Road between Melbourne Road and Booker Street to reduce the likelihood of trucks using this route to avoid the tolls on the West Gate Freeway, should post opening traffic volume measurement show that this is occurring. Traffic volumes would be measured pre and post opening of the West Gate Tunnel Project in order to provide a suitable basis to determine whether any action is necessary on these local roads. For the purposes of the transport modelling for the EES, it has been assumed that these measures would be in place.

While the project by itself cannot remove all trucks from roads in the inner west, the dual effect of the project redistributing truck traffic away from inner west roads and additional truck curfews would result in a significant net reduction of 9,300 trucks travelling along roads in the inner west. Approximately 4,750 trucks would be removed from Francis Street and 1,250 from Somerville Road. Truck volumes along Buckley Street would reduce by around 3,000 and there would be 1,500 fewer trucks travelling along Moore Street and 300 fewer trucks using Hudsons Road.

These truck management measures and substantial reductions in truck volumes would contribute to the project achieving one of its objectives: improving community amenity on local streets in the inner west.

New pedestrian and cycling bridge over Footscray Road

Business benefits

The West Gate Tunnel Project would deliver direct benefits for business users of the M1 corridor by improving the connectivity, reliability and efficiency of the corridor.

Many businesses within the vicinity of the project are freight intensive and highly reliant on efficient transport links to supply chains, other freight precincts and export gateways. By reducing congestion, increasing the resilience of the road network and extending the network for HPFVs, the project would benefit many businesses based in Melbourne's west – as well as businesses moving goods through the west from other parts of the city and regional Victoria.

Other business benefits compared to the scenario without the project include:

- Improving travel times and reliability for businesses, leading to lower transport and operating costs, an increase in the speed and reliability of business-to-business connections and better access to customers and suppliers
- Improving freight efficiency due to quicker and more direct access to the Port of Melbourne, the more cost-effective delivery of freight (including greater use of HPFVs) and the ability to store containers in less costly locations.
- Providing improved transport connectivity to support planned, mixed-use urban renewal precincts that would create new commercial opportunities
- Improving travel options for employees of businesses based in areas adjacent to the project, potentially leading to a greater workforce available to businesses
- Reducing travel times between the central city and rapidly growing municipalities such as the cities of Wyndham and Melton, and regional centres such as Ballarat and Geelong, potentially opening up new markets for businesses
- Increased trade during construction for some businesses (such as cafes, petrol stations and restaurants) as a result of the project's large on-site workforce.

These benefits would contribute to higher levels of productivity for businesses, as well as boosting the competitiveness of some businesses, particularly those moving goods to and from the port by road.

Regional benefits

The West Gate Tunnel Project would transform trips between western regional areas and Melbourne, making journeys easier, safer, quicker and more reliable. Strong transport links are important to support growth in Ballarat, Geelong and the Wyndham area, and to boost productivity for commuters, industry, businesses and tourism. Benefits would come from:

- Better connections to Melbourne – to support the travel needs of growing regional populations, boost jobs and economic development
- Reliable travel – so trips take about the same time, every time
- A faster trip – without the project, travel times will worsen from these areas
- A safer road – with an improved design and new technology to reduce crashes
- Journey choices – providing a vital alternative to the West Gate Bridge and information to help choose the best route
- Less congestion – with the tunnel taking traffic off the West Gate Bridge and other parallel congested routes.

Social, community and amenity benefits

The West Gate Tunnel Project would deliver a significant social benefit to the wider community as it would increase the capacity and connectivity of the metropolitan transport network to cater for the anticipated growth in travel demand across Melbourne. In particular, the project would improve access to jobs, education and services for people living in the city's west, contributing to the reinvigoration of the western Melbourne economy.

One of the main benefits offered by the project is the reduction of around 9,300 trucks per day from residential roads in the inner west. By redistributing the growing number of heavy vehicles away from these roads, these residential areas would be safer, quieter and less polluted, making them more attractive places to live. Removing this traffic would also:

- Relieve congestion on inner western streets, allowing for improvements in noise levels and air quality
- Improve access to local services and facilities, such as parks, shops, schools and recreational facilities
- Create more opportunities for walking and cycling connections
- Help to make local commercial precincts more appealing destinations for customers, as well as for new businesses
- Support urban renewal projects that would assist in creating more compact, accessible communities.

Many residents alongside the project corridor would benefit from the improved noise environment offered by the design of the project, which has enabled the introduction of project-specific noise objectives. Residential dwellings adjacent to and facing the freeway would be protected by road noise levels at or below 63dBA – a level that is well below the noise protection generally provided in a standard approach to a freeway upgrade. For many residents, particularly those along the West Gate Freeway, this would result in reduced noise levels. It would also provide long-term protection from increased traffic noise for locations close to the freeway.

Additional social, community and amenity benefits would be associated with the creation of new parkland, improvements to existing public open spaces and the project's extensive landscaping and tree planting program.

The project is also expected to deliver significant employment benefits, creating approximately 6,000 jobs across its design construction and operation phases.

Urban renewal and the West Gate Tunnel Project

The project corridor contains areas identified for redevelopment, urban renewal or potential future development. While there is uncertainty about these areas, planning for the West Gate Tunnel Project has sought to minimise impacts on them and to keep open options for suitable planning and design responses where these areas would interface with project infrastructure.

Precinct 15 in Altona North and the Bradmill site in Yarraville would be enhanced with a new park nearby and improved pedestrian and cycling paths connecting across the freeway corridor and linking to the Federation Trail. This improved amenity would make the sites more attractive to prospective residents and businesses. The option of a road connection between the two sites would be kept open. The acquisition of small sections of land from the northern and southern borders of these two sites respectively would not restrict access to them or limit their overall potential for future redevelopment.

The north-west corner of the proposed E-Gate urban renewal precinct on the western edge of the central city would be occupied temporarily during construction and a smaller area of less than 1.5 hectares (from the 20-hectare site) would be acquired permanently to accommodate the Dynon Road and Wurundjeri Way connections. This would reduce the land available for development within the precinct, but the rest of the site would remain intact as a sizeable and consolidated development area. The new park and shared use bridge on the west bank of Moonee Ponds Creek would present an opportunity to establish a future connection with the E-Gate site, as well as providing an attractive open space for future residents. The long-term development horizon for the E-Gate site would allow proponents to respond to the West Gate Tunnel Project's infrastructure through the master planning process that would occur after completion of the project.

Road widening works along Wurundjeri Way have been designed to ensure that the land available for, and the overall function of, the Digital Harbour precinct within Docklands would not be affected, including the potential school site.

The project design has also ensured that future walking and cycling connections to Docklands, West Melbourne and other urban renewal areas would not be precluded.

More broadly, improvements in accessibility and local amenity would support the strategic land use outcomes that are anticipated by the *Plan Melbourne* Metropolitan Planning Strategy. The West Gate Tunnel Project is included in the refreshed 2017-2050 strategy.

Melbourne's inner north and central city

The project would deliver specific benefits to Melbourne's inner north and the western part of the central city, including:

- Providing greater connectivity between the inner north, central city and the western suburbs (and to regional centres and areas beyond)
- Providing road users with a southern bypass of the central city via the Wurundjeri Way extension
- Enabling traffic on Dynon Road to divert to the south of the central city, reducing peak hour pressure on Spencer Street and King Street
- Potentially creating opportunities to implement improvements for those using buses, such as introducing on road priority on parts of the network to improve service levels in the inner north, including bus services to Docklands and the central city
- Potentially creating opportunities to improve walking and cycling connections between West Melbourne, the E-Gate urban renewal site and Docklands by providing key shared use path connections on the Dynon Road bridge, over the Moonee Ponds Creek (Capital City Trail) and across Footscray Road linking these key precincts and development sites
- Improving shared use paths including a new shared use bridge over Footscray Road at the Moonee Ponds Creek Trail removing a busy, signalised intersection from a popular cycling route into the central city
- Potentially improving connectivity and accessibility for two of Melbourne's biggest urban renewal projects: the E-Gate and Arden-Macaulay precincts by preserving access options into these sites and providing more and effective and efficient transport connections to the greater transport network.

A positive community legacy

The West Gate Tunnel Project aims to create a positive community legacy for the fast growing inner west area of metropolitan Melbourne. The project's urban design concept acknowledges the importance of public open space areas to communities in the inner west and proposes to create around an additional nine hectares of new parkland, including:

- A new 3.0 hectare park between the West Gate Freeway and the Precinct 15 site (Altona North / South Kingsville), to the south of the westbound southern tunnel portal
- A new 1.7 hectare park north of the West Gate Bridge, south of Stony Creek and east of Williamstown railway line in Yarraville
- A new 2.8 hectare park and wetland in Whitehall Street, Footscray
- A new 1.4 hectare park on rehabilitated railway land on the western bank of Moonee Ponds Creek, with a new shared use bridge over the creek.

Landscaping and improvements would be undertaken:

- Around key West Gate Freeway interchanges
- Around GJ Hosken Reserve and WLJ Crofts Reserve
- To informal open space between The Avenue and Strong Street in Spotswood, and at Lynch Reserve in Brooklyn
- Along the western end of the Donald McLean Reserve
- Within Hyde Street Reserve along Stony Creek
- Along the Maribyrnong River waterfront from Lyons Street to south of Shepherd Bridge
- Along the existing Footscray Road shared use path.

Overall, the planting program proposed for the project would include around 4,000 advanced trees (up to 2.5 metres high), 13,500 tubestock trees and extensive understory vegetation.

Provision of new public open space and upgrades to existing open space would be a highly positive social benefit. This strong community legacy would provide long-term benefits for local communities and the users of these spaces and facilities.

New parkland created by the West Gate Tunnel project (top to bottom): new 3 ha park at Precinct 15; new 1.4 ha park at Moonee Ponds Creek; new 2.8 ha park at Whitehall Street

A high quality urban design

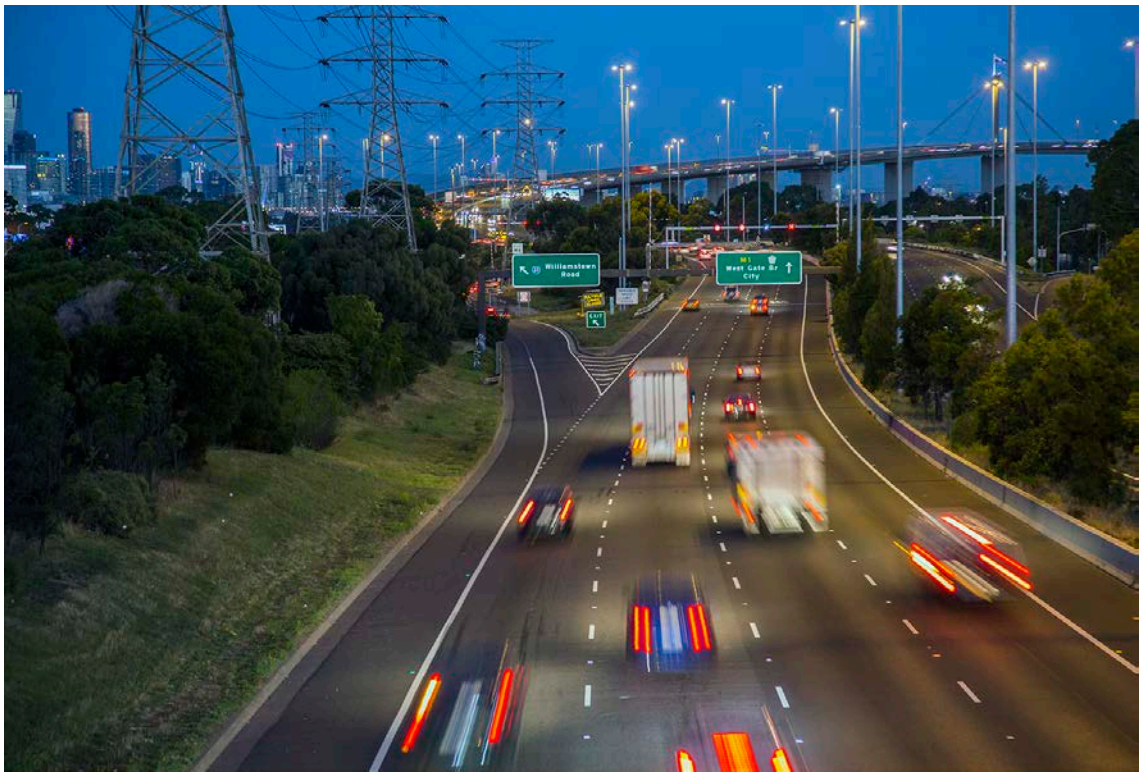
While the visual impacts of major new transport infrastructure cannot be avoided completely, they can be mitigated by high quality urban design. Project Co's urban design concept for the West Gate Tunnel Project sets out a coherent approach to architectural, landscape and infrastructure design across the project that reflects the western region's rich history and strong sense of community, and that fits into the existing environment.

Large scale structures have been designed as attractive, iconic features that reflect their local settings. Project structures, design motifs, patterns and surfaces would reference Aboriginal cultural elements (such as eel traps, woven baskets and canoe shapes), the maritime heritage associated with the Port of Melbourne and the waterways of the west (including nets, ropes and shipping containers) and regional geographic landmarks (such as the You Yangs and the Surf Coast).

Key design features include:

- A design for the tunnel portals and ventilation structures inspired by an 'eel trap' motif. The construction uses laminated timber to give an innovative perspective and drawing on the shapes of traditional Aboriginal canoes and modern boat hulls
- A design for the bridge across the Maribyrnong River with a net cladding reflecting the scales of eels and fish and a curved shape echoing an anchor rope. The glass reinforced panels for the cladding contrast with the charcoal coloured facades of the MacKenzie Road ramps
- Noise barrier design referencing the granite ridges of the You Yangs and the waves of the Surf Coast.

Examples of the urban design concept for the project (clockwise from top left): tunnel portal 'eel net' design; Maribyrnong River bridge 'eel skin' cladding; noise barrier



West Gate Freeway, Williamstown Road interchange

West Gate Freeway component

The West Gate Freeway component of the project is set in a highly urbanised area that includes long-established and diverse neighbourhoods and communities. The component would pass through a corridor of suburbs extending from Laverton North, Altona North and Brooklyn in the west through South Kingsville and Spotswood at the eastern end of the West Gate Freeway. The existing freeway is a primary corridor for road traffic to access central Melbourne from the west.

Land uses within the component include medium to heavy industrial development around the M80 interchange and the suburbs of Laverton North and Brooklyn; low to medium density residential development in suburbs such as Altona North, South Kingsville and Yarraville; and medium to high density industry with a focus on petroleum distribution terminals and port-related development at the eastern end of the component in Spotswood and Yarraville.

Open space is relatively scarce, making public open spaces and recreational areas highly valued community assets.

Project features

Key features of the West Gate Freeway component include:

- Widening the freeway to six through lanes in each direction (an additional two through lanes each way) and auxiliary lanes as required between Williamstown Road and M80 interchange
- Widening of Princes Freeway between M80 interchange and Kororoit Creek Road. This would include provision of an additional westbound lane on the Princes Freeway (from four lanes to five) to tie-in to the widened West Gate Freeway
- Reconfiguring and channelising (separating) lanes to provide for the express movement of traffic between the Princes Freeway/M80 Ring Road and the West Gate Bridge (with no opportunity to exit the freeway from these express lanes)
- Maintaining connectivity to all routes currently connected to the West Gate Freeway and upgrading existing interchanges with the M80 Ring Road, Grieve Parade, Millers Road and Williamstown Road
- Constructing new ramps to connect the West Gate Freeway to Hyde Street. These ramps would be used to divert placarded loads from the project tunnels and local roads and to provide direct access to industrial sites on Hyde Street adjacent to the Maribyrnong River
- Upgrading and strengthening bridges along the West Gate Freeway to accommodate HPFVs at higher mass limits
- Replacing two existing pedestrian overpasses in the vicinity of Rosala Avenue and Wembley Avenue with new structures that meet the access requirements of the *Disability Discrimination Act 1992*
- Completing the Federation Trail and upgrading the Kororoit Creek Trail
- Upgrading existing noise barriers along the freeway and installing additional barriers to achieve the project-specific noise objectives
- Installing a freeway management system and ramp metering to monitor and manage the flow of traffic and minimise the risk of congested traffic conditions
- Replacing or relocating nine high voltage transmission towers between the M80 Ring Road interchange and Hyde Street
- New public open space and landscaping of existing open space areas as outlined above in the section on social, community and amenity benefits.

‘Satellite’ construction compounds would be established at locations along the component corridor to allow local access to work sites and minimise traffic disruption along the freeway and surrounding road network. These compounds would require the temporary occupation of sections of the West Gate Freeway and Geelong Road road reserves, as well as sections of GJ Hosken Reserve in Altona North, the Westgate Golf Course in Spotswood, McIvor Reserve carparking area, and Hyde Street Reserve in Yarraville.

Construction works in this component would extend over five years, commencing with the relocation of utilities and services in 2018. The component would be constructed in stages to minimise disruption to traffic using the West Gate Freeway.

Once operational, tolling would be implemented. The tolling structure is still under development but it may include West Gate Freeway tolled for heavy commercial vehicles via two tolling points: one proposed between Grieve Parade and Millers Road and the other proposed between Millers Road and Williamstown Road, with these points tolling trucks for either Hyde Street ramps or the tunnel. Light commercial vehicles and cars would be tolled as they access the tunnel or on the Hyde Street ramps.

A city access toll point would be located on the ramps to Dynon Road, Footscray Road and Wurundjeri Way and would apply for eastbound cars in the AM peak only. Final toll prices, and structure, are still subject to negotiations through the Department of Treasury and Finance's Market Led Proposal process.

Details of the project design, construction and operation for this component are provided in EES Chapter 5 *Project description*. Construction work sites and compounds are shown in the *EES Map Book*.

Key impacts

Construction: Key impacts identified for the West Gate Freeway component during the project's construction would be associated mainly with works required to widen and reconfigure the West Gate Freeway, build the new ramps connecting the freeway to Hyde Street and upgrade bridges and pedestrian overpasses along the freeway. Locating construction work sites and compounds within or adjacent to the existing road reserve means that amenity impacts (such as construction dust and noise) would be confined largely to areas close to the freeway.

Operation: The extensive project development process undertaken for the West Gate Tunnel Project means that adverse operational impacts have been minimised largely through the project design, which includes state-of-the-art noise attenuation, freeway management systems and urban design and engineering solutions. Locating permanent project structures such as ramps, bridges and overpasses predominantly within the road corridor also means that amenity and visual impacts have been limited to the immediate surrounding areas.

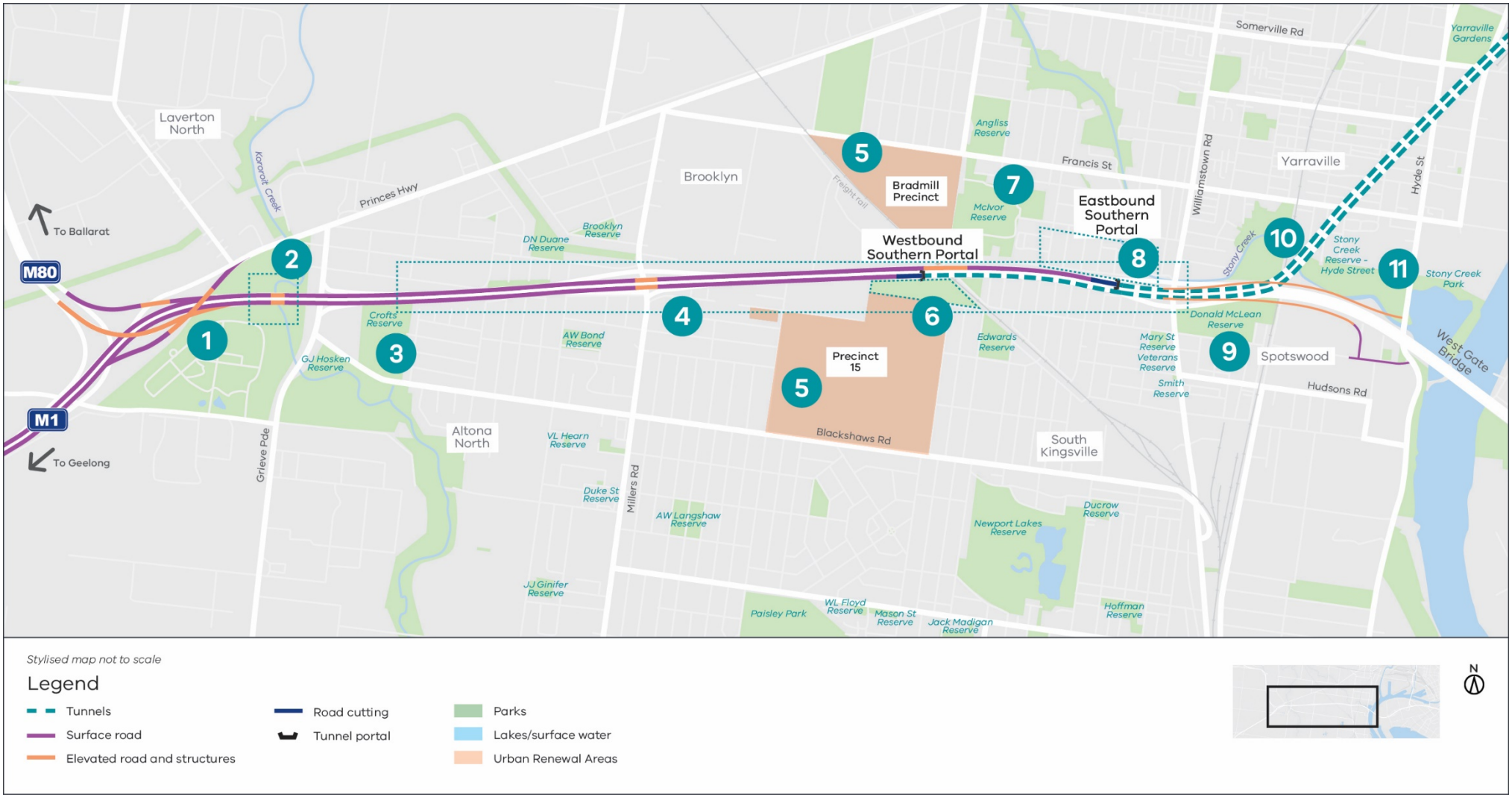
Key asset/place based impacts (and benefits) are summarised below and locations shown in Figure 2.

Altona Memorial Park ①	• Noise mitigation would ensure no exceedances of project noise levels in the chapel
Kororoit Creek ②	• Any impact on water quality in creek from construction minimised • 0.05 ha of remnant Riparian Woodland vegetation lost due to construction works on north-eastern bank • Upgraded shared use path along the Creek and landscaping of the reserve • Permanent piers in floodplain (no piers in waterway) • Potential disturbance of two Aboriginal cultural heritage site
WLJ Crofts Reserve ③	• Loss of strip of land along northern border (0.3% of total area)
Areas close to the freeway ④	• Construction noise impacts • New and replacement noise barriers • Changed views from new structures (including tunnel portal and ventilation structure) and ramps, new freeway light poles, changes to electricity towers, noise barriers in different locations, changes to embankments and removal of planted vegetation screening • Some industrial properties acquired • Landscaping improvements to Lynch Road Reserve, however 34% of reserve area will be permanently lost due to the project
Urban renewal sites ⑤	• Loss of small section of land in southern corner of Bradmill site • New open space at northern boundary of Precinct 15 site • Southern ventilation structure visible from Bradmill and Precinct 15 sites • New north-south shared use path between Bradmill and Precinct 15 sites • Option of road connection between the two sites not precluded • No restriction to potential for future redevelopment

New and upgraded public open space ⑥	• New 3 ha park adjacent to westbound southern portal • New landscaped open space at The Avenue
McIvor Reserve ⑦	• Temporary occupation of part of the car parking area for construction
Fogarty Avenue ⑧	• Major construction activities • Visual impacts from structures in close proximity • Federation Trail separated from the road
Donald McLean Reserve ⑨	• Screening used to minimise noise and visual impacts during construction • Potential impact on cricket nets (relocation provided if required) • Loss of small strip of land along north-east perimeter for Hyde Street on-ramp (1.3% of total area) • Changed views due to Hyde Street on-ramp being visible from the reserve • Noise barriers for attenuation of nearby residences also provide noise protection for users of the reserve
Westgate Golf Course ⑩	• Noise and visual impacts during construction • Temporary occupation of part of course for construction • Permanent loss of 0.9% of total area, with changes to the course required
Hyde Street Reserve ⑪	• Permanent piers in Stony Creek floodplain (no piers in waterway) • Visual impacts of Hyde Street off-ramp over south-eastern corner of reserve • New shared use path over Stony Creek • 0.47 ha of remnant Coastal Saltmarsh vegetation lost from the south bank of Stony Creek due to construction and overshadowing
Tree removal and replanting	• Around 2,480 planted trees and 22 scattered trees to be removed during construction • Approximately 14,900 replacement trees to be planted

Southern portal, looking east

Figure 2 Impacts to key assets/places for the West Gate Freeway component of the project



Traffic and transport

Construction works and activities would potentially disrupt traffic movements along the West Gate Freeway and the local road network surrounding the project. The West Gate Freeway upgrade works would be undertaken in sections to minimise disruption to road users and adjacent communities. Maintaining traffic capacity and performance along the freeway would be a critical consideration in this component. All lanes within the freeway would be kept open during peak periods and ongoing traffic monitoring would be undertaken to maintain near optimal freeway performance during any temporary lane narrowing or lane closures outside of these periods.

Current capacity (number of lanes) during peak periods would also be maintained along the Princes Freeway, M80 Ring Road, Williamstown Road, Millers Road and Grieve Parade.

Transportation of spoil, fill or construction materials would primarily occur on an identified route using the freeway or arterial road network. Spoil haulage vehicles would avoid using local roads.

Achieving the traffic and transport EPRs (see box at right) would provide safe, well managed and accessible construction work sites and compounds along the freeway alignment and minimise disruption to road users and local residents. As a result, there would be a low to medium residual risk of adverse traffic impacts due to construction works in this component.

The operation of the West Gate Tunnel Project would lead to a redistribution of traffic on Melbourne's road network. Transport modelling undertaken for the EES identified the following key changes to the network in this component in 2031:

- Significant decreases in traffic volumes (around 28,000 vehicles per day) on the West Gate Bridge including 8,000 less trucks, while traffic volumes would increase by up to 37,000 vehicles per day along the West Gate Freeway

Mitigating construction traffic impacts across the project

Across all project components, construction traffic would be managed in accordance with the EPRs to minimise traffic disruption and maintain connectivity for all transport modes.

A Traffic Management Liaison Group would be formed to identify and resolve potential traffic management issues before construction starts.

Project Co would be required to implement a Traffic Management Plan (TMP) supported by traffic volume data and traffic engineering assessments. The TMP would include measures to minimise disruption to the road network and other modes of transport.

Traffic management planning has and will continue to be undertaken, taking account of other major transport infrastructure projects such as Metro Rail, M80 upgrade and CityLink widening as required.

WDA is also engaged with DEDJTR Network Impact Management Plan, a cross-agency approach to managing cumulative impacts on the transport network.

The EPRs for the project would also require Project Co to:

- Restrict the number of local roads used by construction-related traffic and maintain, where practicable, current local area traffic management measures during construction
- Minimise disruption to public transport services, routes and infrastructure during construction
- Maintain and, where practicable, enhance pedestrian movements, cycling connectivity and shared use paths
- Implement a communications strategy to advise road users, nearby communities and the relevant road authorities of any changes to transport conditions
- Provide suitable parking arrangements to accommodate the construction workforce, including preventing construction-related parking on local roads
- Reduce pressure on the local road network by requiring haulage of spoil or construction materials to occur on the freeway or the local arterial road network
- Maintain access to properties, community facilities and businesses wherever possible, with appropriate plans put in place where access cannot be maintained.

- A reduction in heavy vehicle use of local inner west roads by up to 9,300 per day
- A reduction in congestion on the network, with key intersections operating with a better level of service, an improvement over the 2031 Base Case (no project)
- A reduction in truck traffic on Blackshaws Road between Millers Road and Melbourne Road if potential local area traffic management is implemented to manage forecast truck volumes (to be monitored post construction)
- Improved travel time reliability and faster trip times.

Aerial view over Lynch Reserve

Traffic volumes would potentially increase along Millers Road between Geelong Road and the West Gate Freeway due to redistribution as a result of proposed truck bans on Francis Street, Somerville Road, Buckley Street and Moore Street. An increase of trucks on Hyde Street and Douglas Parade between Simcock Avenue and Francis Street is also predicted due to direct connectivity of the Hyde Street ramps to the West Gate Freeway.

An increase on trucks on Blackshaws Road between Grieve Parade and Millers Road may occur as a result of toll avoidance from the Altona North industrial precinct.

The combination of direct access to the port, the operation of the ramps connecting the West Gate Freeway to Hyde Street and extended truck bans would encourage motorists to use the project for appropriate trips. Vehicles would be encouraged to use the new freeway and connections by a combination of:

- Optimising the design of the project to maintain existing traffic movements at interchanges
- Designing all freeway sections and intersections in accordance with applicable road design standards and to meet relevant road and transport authority's level of service requirements
- Providing real-time information to drivers using the West Gate Tunnel Project
- Monitoring of traffic performance along the freeway and at key intersections for up to two years after construction ends and undertaking local area traffic management works with local councils should adverse traffic impacts on local roads be identified.

Health and amenity

Rigorous noise, vibration and air quality standards and requirements would apply to the project to protect the health of residents and the amenity of open spaces and community facilities.

Construction activities would have the potential to generate dust, odours and emissions. These activities would be managed in accordance with EPA Victoria's *Guidelines for Major Construction Sites* and by implementing an Air Quality Management and Monitoring Plan during construction. The plan would include well-tested practices to manage dust, such as locating dust generating activities away from sensitive receptors, scheduling activities during favourable weather conditions, using screens and wind breaks, watering unsealed surfaces and revegetating areas of disturbed soil as soon as practicable. The adoption of these and other measures would maintain air quality to the required standards during the project's construction.

The redistribution of traffic during the project's operation (including changes to traffic distribution that is modelled to happen even without the project), is expected to result in increased traffic and additional vehicle emissions along the West Gate Freeway, Blackshaws Road, Williamstown Road and Millers Road. However, conservative air quality modelling undertaken for the EES has demonstrated that there would be minimal changes to air quality in this component and improvements at some locations. Overall, the applicable EPA Victoria and SEPP air quality standards for most pollutants would be met across the study area.
The exception would be particulate matter (PM) in some locations. While the project would make a negligible contribution to concentration levels of these pollutants, occasional exceedances would occur due to existing high background concentrations that would be close to or above the standard even without the project. These exceedances would occur no more than once a year at the worst affected receptors. At Blackshaws Road one additional exceedance of air quality standards is predicted compared to without the project.

Assessing impacts on community health and wellbeing

The West Gate Tunnel Project was subject to a comprehensive human health impact assessment. The assessment considered the overall health impact of potential changes to traffic conditions, air quality, noise and community assets. It also considered the potential health effects of cumulative changes at specific locations.

With the implementation of the EPRs – such as those requiring Project Co to meet noise and air quality limits, manage vibration from construction activities, restore areas used for construction purposes and maintain access to community facilities – all risks to human health associated with the project would be minimised and managed.

The assessment found that here are no areas identified in the local community where the combined impact from changes in noise and air quality would be considered to be significant or unacceptable. There are changes that occur as a result of the re-distribution of traffic associated with the project resulting in some areas experiencing increases in noise and air quality impacts, with a number of other areas experiencing decreases.

These changes have been evaluated and they would not result in measurable changes to the health of the community, regardless of the land use. As a result, even where sensitive receptors may be present, such as within childcare centres or aged care homes, there are no health impacts that would unfairly disadvantage these populations.

The nature of construction activities in a highly developed urban environment means that higher noise levels would be unavoidable at times, although these increases would occur against a background of existing high traffic noise levels adjacent to the West Gate Freeway. Noise impacts would be minimised through measures identified in the Construction Noise and Vibration Management Plan (CNVMP) and implemented as appropriate. Examples of measures could be temporary noise barriers, scheduling noisy construction work at less sensitive times, providing respite periods for particularly noisy activities and giving advance notice of planned noisy work to the local community.

Project-specific construction noise objectives would be set (incorporated in the EPRs) for residential dwellings, schools, community centres, recreational areas and other sensitive locations. Where places are adversely affected by noise levels above these objectives, further management actions would be taken in accordance with the CNVMP in consultation with property occupants, owners and managers.

Once the project starts operating, the primary noise effects would relate to traffic noise from vehicles using the upgraded freeway. The project-specific noise objectives include the requirement for the design to achieve a traffic noise level of 63dB(A) for residential and community buildings along the project corridor – well below the current VicRoads limit of up to 68dB(A) that would otherwise apply for a freeway upgrade. In this component, the noise objective would apply at sensitive land uses (residential and community buildings) adjacent to or with a direct line of sight to the West Gate Freeway corridor (to the west of the Williamstown rail line) and the Hyde Street ramps. In addition, noise protection would be provided to a local road standard for residential and community buildings along Grieve Parade, Millers Road, Williamstown Road/Melbourne Road, Hyde Street and Simcock Avenue within 100 metres of the freeway interchange. This would reduce existing noise levels at a number of locations (including some open spaces) and result in the vast majority of residents being better off with the operation of the West Gate Tunnel Project.

New and upgraded noise barriers would be provided for residential areas in close proximity to the freeway and specific noise mitigation may be required in some locations to achieve the 63dB(A) traffic noise objective.

Physical environment

A significant issue within this component would be the management of flooding risk, with project infrastructure in the floodplains of Kororoit Creek and Stony Creek having the potential to divert or obstruct flood flow paths and affect flood levels. While the likelihood of a large scale flood event during the project's construction would be very low, the potential impacts of such an event would be managed by requiring the maintenance of existing flood storage capacities, flow paths and drainage lines. New temporary and permanent structures would be designed to ensure they do not increase flood levels above the criteria specified by Melbourne Water. There would be no project infrastructure in the permanent waterways of Kororoit Creek or Stony Creek.

Impacts on water quality in Kororoit Creek or Stony Creek during construction or operation would be avoided or minimised. Good practice environmental management – including erosion and sediment controls, bunding (using retaining walls and similar structures), stormwater treatment systems and regular water quality audits – would be adopted at all construction work sites and compounds to minimise the potential for runoff to affect local waterways and drainage lines. These measures would be detailed in the CEMP to ensure that any water entering waterways complies with environmental standards and does not diminish water quality in the waterways.

The project would create new paved surfaces, leading to additional stormwater runoff and potentially an increase in the concentration of pollutants in runoff that could affect waterway health if discharged to the stormwater drainage system. Water Sensitive Road Design has been incorporated into the project with the objective of meeting EPA Victoria and VicRoads water quality targets for urban stormwater overall.

All construction projects involving excavation works have the potential to encounter groundwater. Seepage or inflow of groundwater into deep excavations – and the use of 'dewatering' measures to keep work areas dry and safe – can lower surrounding groundwater levels. This may alter the quality of groundwater and present risks to human health, ecosystems, buildings and structures.

As excavations for this component would generally only be open for a short duration, there is limited potential for drawdown of groundwater and resulting acidification. Potential impacts would be mitigated further by adopting construction methods that minimise changes to groundwater levels, implementing a CEMP containing measures to control groundwater drawdown, monitoring groundwater quality and levels, and implementing contingency measures should monitoring demonstrate this is necessary.

The impact assessment concluded that construction of the West Gate Freeway component would present a low residual risk to groundwater and associated environmental receptors, due to the limited nature and extent of excavations involved in construction of this component. Deep piles would be constructed using steel casing, which limits groundwater drawdown. In addition, procedures would be included in the CEMP to minimise the potential for acidification of groundwater during construction works.

Industrial use and historical infilling at sites in the West Gate Freeway component means there are a number of known and potential sources of contamination along the project alignment. Risks associated with construction activities disturbing contaminated soil would be managed through detailed site investigations, soil sampling and testing, and the adoption of standard construction controls that comply with environmental laws, regulations and guidelines. The CEMP developed for the project would incorporate measures to manage, store, transport and dispose of contaminated soil. The CEMP would also include an asbestos management strategy, which would document the presence of any potential residual asbestos in soils, outline procedures to be followed for the avoidance, management and removal of asbestos and establish protocols for informing management of asbestos-related health and safety risks during construction activities.

Replacing and protecting trees

Construction of the project would potentially require the removal of around 2,480 planted trees of varying types and ages within the West Gate Freeway component, mostly along the current freeway alignment.

This number would be reduced as much as possible through detailed design and pre-construction site assessments. The adoption of a Tree Management Plan would minimise impacts on individual large trees, identify trees to be retained and specify measures to protect these trees during construction.

Tree losses would be offset by Project Co's proposed tree replacement strategy, which would replace every tree removed during construction with at least three trees. In the West Gate Freeway component, this would involve the planting of around 2,350 advanced trees (up to 2.5 metres high) and 12,550 tubestock trees, along with significant understorey plantings.

A Landscaping Plan would be developed in consultation with Hobsons Bay and Maribyrnong City Councils and all sites disrupted by temporary works would be restored with appropriate vegetation and having regard to local tree replacement, street planting and urban forest strategies.

The highly urbanised landscape traversed by the West Gate Tunnel Project means that very few biodiversity values would be impacted by the project. The project has been designed to avoid impacts to remnant vegetation where possible, but some small areas of native vegetation would be removed during construction or lost due to overshadowing by new elevated structures. In this component, widening of the freeway and the ramps connecting the freeway to Hyde Street would result in the loss of up to 0.05 hectares of Riparian Woodland on the north-eastern bank of Kororoit Creek and 0.47 hectares of Coastal Saltmarsh from the south bank of Stony Creek. There would also be 22 scattered trees lost during construction in the West Gate Freeway component. The removal of this vegetation would not result in a significant loss of local habitat or affect threatened species.

During detailed design, consideration would be given to further reducing the extent of remnant vegetation clearing. The CEMP prepared by Project Co would include measures to protect vegetation during construction. Restoration of disturbed areas would replace the same or similar species as removed and enhance ecological values where possible. Unavoidable losses would be offset within the same water catchment or municipal area in accordance with the *Permitted clearing of native vegetation – Biodiversity assessment loss guidelines*.

Community

Construction activities and new permanent structures (including the southern portals and ventilation structure, ramps, bridges, pedestrian overpasses and noise barriers) would be predominately within the road corridor, limiting amenity impacts to the immediate surrounding areas.

At most places, there would be relatively low visual impacts due to these locations generally being accustomed to the presence of major road infrastructure, the application of Project Co's urban design concept and the implementation of the project-wide Landscaping Plan.

Open spaces and community and recreational facilities close to construction work sites and compounds would be affected temporarily, and some areas and facilities would also experience permanent impacts as a result of land acquisition and landscape and visual impacts. The EPRs would require Project Co to minimise impacts on users of open space and community and recreational facilities, to restore all sites used for temporary construction purposes and to maximise opportunities for enhancing public amenity and spaces.

Specific key impacts would include:

- WLJ Crofts Reserve (Altona North) – A small strip of land along the northern border would be required permanently for the project. Hobsons Bay City Council would be consulted to identify how best to offset the loss of this public open space. The existing noise barrier would be replaced and extended and planted vegetation would be removed for freeway widening works. Visual impacts would be reduced by planting new vegetation screening along the northern boundary.
- The Federation Trail would need to be diverted at Millers Road during construction. The proposed diversion route would be lengthy and would be 1.3 kilometres longer than the existing route and could potentially reduce commuter use during this time. Social activities related to bicycle clubs and networks would be unlikely to be affected as alternative routes would be available.
- Donald McLean Reserve (Spotswood) – A small strip of land along the reserve's north-east perimeter (around 1.3 per cent of the total reserve area) would be acquired permanently for the Hyde Street on-ramp, which would be visible from the reserve. The cricket nets in the reserve may need to be moved and relocation would be provided if required. Potential visual and noise impacts during construction would be mitigated by noise barriers and screenings, and by retaining trees and vegetation where possible.
- West Gate Golf Course (Spotswood) – A small section of the course would be used as a construction compound and a smaller strip of land (less than one per cent of the total course area) would be acquired permanently. This is not expected to impact use of the golf course, although some alteration to the course could be required. Temporary visual and noise impacts during construction would be mitigated through the use of barriers and screening.
- Parts of GJ Hosken Reserve (Altona North), Lynch Road Reserve (Brooklyn), McIvor Reserve (Yarraville) and Hyde Street Reserve (Yarraville) would be occupied temporarily during construction. Around one third of Lynch Road Reserve would be acquired permanently for the project. A small strip of Hyde Street Reserve would also be acquired permanently, but new parkland would be created in this area south of Stony Creek.

The potential increase of trucks on Millers Road and Williamstown Road could impact on the residential area by affecting north-south and east-west connectivity, including travel times. The traffic increase could also affect cyclists' and pedestrians' feeling of safety due to increased numbers of heavy vehicles and an existing sensitivity about increasing traffic in the area.

Community concerns and social impacts associated with increased traffic on Millers Road Grieve Parade and Williamstown Road would be mitigated by comprehensive engagement with the community and stakeholders, including development of a Communications and Community Engagement Plan that sets out approaches for identifying and resolving community issues. Traffic monitoring would be undertaken on selected streets for up to two years after construction is complete and local area traffic management works would be considered and implemented in consultation with the relevant local councils as required.

Some residential streets and open spaces in close proximity to the freeway would have changed views due to the replacement of existing noise barriers with new and higher barriers, the removal of planted vegetation from the freeway reserve, new freeway light poles and the presence of the westbound southern portal and ventilation structure.

Twenty-one businesses would be affected directly by temporary occupation or permanent land acquisition for project works. Only one of these businesses would be fully acquired and the remainder would be partially acquired. Most of these businesses could continue to operate on their current sites. Early and ongoing engagement would be undertaken with these businesses to assist them to modify their operations, reconfigure their sites if needed or to identify suitable alternative sites and relocate. Compensation for parties with an interest in land required for the project would be provided in accordance with the *Land Acquisition and Compensation Act 1986*.

High quality urban design adopted across the project would ensure that permanent structures, including noise barriers (see box below), are attractive, well-designed features that reflect the character of the surrounding area. Potential adverse visual impacts would be mitigated by replanting and landscaping, with enhanced treatments undertaken where noise barriers interface with the community. Over time, these structures would integrate with their local settings, resulting in a low to moderate visual and landscape impact.

Heritage

Development and urbanisation in areas traversed by the West Gate Freeway component have resulted in widespread ground disturbance over many decades, meaning that there are limited locations of Aboriginal cultural heritage sensitivity. However, a small area with high archaeological potential lies adjacent to Kororoit Creek. Investigations conducted in this area as part of the preparation of the Cultural Heritage Management Plan (CHMP) for the project found two Aboriginal cultural heritage places: an artefact scatter and a low density artefact distribution. These places have been registered and specific conditions for protecting and managing them are contained in the CHMP.

Similarly, urban development along the component corridor (including the original construction of the West Gate Freeway) means that most land required for the project has low historical archaeological potential or historic heritage values. The key exception to this is the area around Stony Creek where three sites listed on the Victorian Heritage Inventory – a wharf, drawbridge and ballast quarries – may be disturbed due to construction of the northern Hyde Street ramp. While the impacts on these sites are expected to be minor, opportunities to avoid or further minimise impacts on them would be considered during detailed design. Where direct impacts cannot be avoided, the sites would be protected as far as practicable and researched and recorded in accordance with the project's Archaeological Management Plan and Heritage Victoria guidelines.

Noise barriers

The project-specific noise objectives set for the West Gate Tunnel Project would reduce noise levels for many residential and community buildings adjacent to the project alignment, as well as protecting these areas from higher noise levels into the future. The requirement for the design to achieve these objectives creates an opportunity to provide new and upgraded noise barriers that mitigate traffic noise and as a consequence protect private and community spaces behind the noise barriers. The urban design concept for the project proposes high quality, textured, precast, off-white concrete panels with coloured acrylic panels that incorporate pale blue and green sections.

The scale of the pattern on the barriers would be different on each side of the barriers, with a finer-grained pattern used on the community side. Transparent acrylic panels would be used to reduce the potential for overshadowing of private open spaces, to complement local views and to provide access to sunlight, particularly for residential areas adjacent to the freeway.

An example of noise barriers proposed for the project is shown below.

Looking over Footscray and Yarraville from Shepherd Bridge

Tunnels component

The tunnels component would extend from the West Gate Freeway at Spotswood (west of the Newport Freight Railway Line) through Yarraville to the western bank of the Maribyrnong River. This component is entirely underground, with the exception of the tunnel portals and infrastructure required to operate the tunnels, including the tunnel ventilation structures.

Land uses within the component are predominantly low to medium density residential development to the west of Hyde Street (spanning the suburbs of Yarraville and Spotswood) and predominantly medium to heavy industry to the east of Hyde Street (adjacent to the Yarra River and Maribyrnong River).

Recreational areas around the component include reserves, playing fields, areas of public open space and Yarraville Gardens. The tunnels would pass under Stony Creek, which provides an important riparian and open space connection within this heavily urbanised area.

Project features

Key features of the tunnels component include:

- Connecting the West Gate Freeway to the Port of Melbourne precinct and the western edge of the central city via twin tunnels under Yarraville, with a length of four kilometres (westbound) and 2.8 kilometres (eastbound) from portal to portal
- Cross passages between the tunnels around every 120 metres to meet safety and operational requirements

- Southern tunnel portals located at two separate locations along the West Gate Freeway. The eastbound portal would be sited 300 metres west of Williamstown Road, on the north side of the existing West Gate Freeway eastbound carriageway. The westbound portal would be located approximately 1.2 kilometres west of the inbound portal, on the south side of the existing West Gate Freeway westbound carriageway
- Both northern tunnel portals (eastbound and westbound) located 100 metres east of Whitehall Street, 330 metres north of Somerville Road, near the intersection of Harris Street
- Two ventilation structures: one located in close proximity to the southern westbound portal and one in close proximity to the northern portal. These ventilation structures would be approximately 45 metres high, enclosed with an architecturally clad exterior that varies from approximately 40 metres to 55 metres high
- Each tunnel catering for three lanes of traffic
- Realignment of the North Yarra Main Sewer to the east
- A tunnel management system to allow speed limits to be varied, as well as message signs to alert road users of incidents and enable effective responses to incidents
- Exclusion of over-dimensional vehicles and placard loads from the tunnels, including signage and alarm systems. Over-dimensional and placard loads would gain access to the Port of Melbourne via the new Hyde Street ramps.

The main construction compound for the tunnels component would be located adjacent to the northern portal, west of Whitehall Street at the junction with Somerville Road.

Construction activities in this component would be carried out for around four years, commencing with works to realign the North Yarra Main Sewer and portals construction in 2018. Tunnel boring activities would commence in mid-2019 and last for around one and a half to two years.

The tunnels would be constructed using two 15.6 metre diameter tunnel boring machines (TBMs) – one for each tunnel – and would be driven from north to south, from the northern portal. The TBMs would operate up to 24 hours a day, seven days a week. Using TBMs would limit disturbance of the surrounding ground.

Details of the project design, construction and operation for this component are provided in EES Chapter 5 *Project description*. Construction work sites and compounds are shown in the *EES Map Book*.

Key impacts

Tunnelling avoids the need for significant surface land acquisition and disturbance, resulting in limited social, business and community impacts in this component.

Construction: Construction-related impacts within this component would be associated mainly with works required to excavate the tunnels beneath Yarraville, construct the tunnel portals and ventilation structures, realign the North Yarra Main Sewer and haul the large volumes of spoil generated by the tunnel excavation.

Operation: Adverse operational impacts have been minimised through the project design and the identification of EPRs to mitigate traffic, air quality, noise and visual impacts.

Key place/asset based impacts are summarised below and shown in Figure 3. Impacts of the southern portal structures are discussed in the West Gate Freeway component above.

New and upgraded public open space ①	• New 1.7 ha area north of West Gate Bridge and east of Williamstown rail line, with new shared use path over Stony Creek • New 2.8 ha park and wetland at Whitehall Street
Stony Creek waterway ②	• Any impact on water quality in creek from construction minimised • Permanent piers in floodplain (no piers in waterway) • Groundwater dependent ecosystems assessed, monitored and protected
Yarraville Gardens and Hanmer Reserve ③	• No direct impacts to gardens (unless agreed with Maribyrnong City Council) • Noise protection and screening erected to minimise visual and noise impacts in north-east corner during construction • Groundwater dependent trees assessed, monitored and protected • New northern ventilation structure would be visible • New boardwalk and shared use path along Harris and Hyde streets between the gardens and the Maribyrnong River waterfront
Whitehall Street and Somerville Road intersection ④	• Changes to signal timing and some minor delays on approaches • Intersection would continue to operate within capacity during peak periods • New shared use path across Whitehall Street provides an alternative crossing for cyclists , connecting with a new public open space and the Maribyrnong River Trail
Northern portal area ⑤	• Major works site • Some industrial properties acquired • New permanent structures: tunnel portal, ventilation structure and cladding design (approximately 40-55 m high)
Haulage routes ⑥	• 1,200 truck movements per day during peak excavation period (2019) • Haulage route runs along Whitehall Street, Moreland Street and Footscray Road, using the new West Gate Distributor connection (upgrade of Moreland Street and Shepherd Bridge) • Spoil haulage to avoid local roads
Cotton Mills commercial complex ⑦	• Increased traffic along haulage route during construction using the new West Gate Distributor connection (upgrade of Moreland Street and Shepherd Bridge) • Increased traffic noise during operation • High visual impacts from elevated structures
Residential streets in Yarraville and Footscray ⑧	• Trucks removed from Francis Street (around 4,750 per day), Somerville Road (1,250), Buckley Street (3,000) and Moore Street (1,500)
Tree removal and replanting	• Around 120 planted trees to be removed (construction and operation) • Approximately 1,390 trees to be planted

Figure 3 Impacts on key places/assets for the tunnels component of the project

Traffic and transport

Tunnelling works would generate around 1,200 truck movements each day during peak excavation periods, anticipated to occur in 2019. To minimise disruption to local transport networks, truck movements along residential roads would be minimised and construction-related traffic would move between work sites and the freeway network as quickly as possible. The primary construction haulage route would run along Whitehall Street, Moreland Street and Footscray Road, using the newly constructed West Gate Distributor connection (upgrade to Moreland Street and Shepherd Bridge) to bypass residential properties near the intersection of Whitehall Street and Napier Street. Spoil haulage vehicles would avoid using local residential roads. Spoil will be managed and transported from the northern portal site.

The TMP prepared for the project would outline measures to minimise transport impacts associated with tunnelling activities, including giving advance notice to road users and the adjacent community about any changes in traffic conditions and maintaining walking, cycling and public transport routes where possible, with safe and suitable detours provided where temporary closures are needed. Project Co would be required to provide sufficient off-street parking for workers and construction vehicles, with no parking permitted on local streets or in public car parks.

Modelling undertaken for the EES showed that while there would be additional pressure on the busy Whitehall Street/Somerville Road intersection in Footscray, the intersection would continue to operate within capacity in both peak periods. Increased delays and queue lengths on approaches to this and other intersections are expected to be minimal. The performance of key intersections in the vicinity of the northern portals site and capacity on Shepherd Bridge would be monitored throughout the construction period.

Achieving the traffic and transport EPRs (see box on page 2) would provide safe, well managed and accessible construction work sites and compounds around the tunnel portals and minimise disruption to road users and local residents. As a result, there would be a low residual risk of adverse traffic impacts due to construction works in this component.

Best practice tunnel ventilation

Evidence from around the world shows that emissions from well-designed tunnel ventilation systems have no measurable effect on local or regional air quality.

The West Gate Tunnel Project tunnel ventilation system would be designed to best practice criteria for in-tunnel and ambient air quality.

The tunnel ventilation system would be required to achieve zero portal emissions, with all vehicle emissions being captured and emitted through a system that ejects pollutants higher into the atmosphere. Using this approach means that there would not be any significant degradation of air quality detectable around the operating tunnels.

Air quality modelling shows that emissions impacts would be well below the levels required by SEPPs. In addition, Project Co would be required to make provision for the retrofitting of pollution control equipment. Monitoring during operation would check compliance with SEPP.

These measures would provide a very high standard for a tunnel in Australia.

The operation of the West Gate Tunnel Project would lead to a redistribution of traffic on the road network. Transport modelling undertaken for the EES identified that with the proposed truck curfews in place, there would be a substantial reduction in daily truck volumes on inner west roads, including along Francis Street (around 4,750 trucks per day) Somerville Road (1,250 trucks), Buckley Street (3,000 trucks) and Moore Street (1,500 trucks). Truck volumes would increase on Hyde Street south of Francis Street as fuel tanker trips are redistributed to the local oil refineries.

There would be potential impacts to local traffic movements during tunnel closures for incidents, emergencies or maintenance activities. These risks would be reduced by implementing a tunnel closure management plan, engaging with industry to educate transport companies and drivers about vehicles and loads that would be restricted from using the tunnels, and developing an over-height vehicle detection plan and tunnel closure procedure.

Health and amenity

Construction activities would generate dust, odours and additional vehicle emissions. These impacts would be unavoidable, but they would be temporary and localised. Compliance with EPA Victoria's *Guidelines for Major Construction Sites*, the adoption of well-tested construction practices and ongoing air quality monitoring would mean that air quality would be unlikely to change substantially as a result of the project's construction activities. No significant impacts on nearby residents, open spaces and community facilities are anticipated.

Highly conservative air quality modelling shows that emissions from the ventilation system would be well below the levels required by the relevant standards for most pollutants. Air quality modelling of the emissions from roads and vent structures undertaken for the EES has also demonstrated that local air quality would generally improve within this component during operation, including along Buckley Street, Francis Street, Hyde Street, Whitehall Street and Williamstown Road.

The exceptions would be particulate matter (PM), where exceedances would occur up to two times a year at the worst affected receptors. For these receptors, the number of exceedances would generally be the same with or without the project, due to existing high background concentrations.

The construction of the tunnels, cross passages and portals would produce vibration and regenerated noise that would be perceptible at locations immediately above the tunnels and up to 50 metres on either side as the TBMs move along the tunnel alignment. The type of TBM proposed for the project is effective in minimising vibration levels and would also enable rapid advancement rates of around 10 metres per day, ensuring that the localised effects of tunnel boring would be of short duration: around three to nine days for each pass of the TBM, depending on the distance from the tunnel alignment.

Residential areas likely to experience the greatest impacts are located directly above the tunnel alignment between Stony Creek and Hyde Street, and at the southern end of Banool Avenue and Hughes Street. The EPRs would require Project Co to achieve target vibration levels consistent with Australian and international standards that have been designed to protect amenity, prevent damage to buildings and infrastructure, and be acceptable to most people. This approach has been adopted successfully by other large scale urban tunnelling projects.

The extent of the impacts would depend upon ground conditions and factors such as the time of day, particularly sensitive residents, the structural condition of a building and the nature of the activities undertaken at a particular site. Vibration is predicted to comply with the target levels set for the project in relation to structures and infrastructure. In the area of Banool Avenue and Hughes Street, vibration levels in the evenings may be higher for than the project targets for amenity. These impacts would be monitored continually during construction of the tunnels. Should the targets be exceeded, contingency measures would be taken immediately, such as reducing the operating hours for machinery. Where levels of disturbance remain above the targets set in the EPRs, short-term relocation (likely to be no more than a week) of the occupants of affected buildings would be considered.

There are no areas identified in the local community where the combined impact from changes in noise and air quality would be considered to be significant or unacceptable. There are changes that occur as a result of the re-distribution of traffic associated with the project resulting in some areas experiencing increases in noise and air quality impacts, with a number of other areas experiencing decreases.

These changes have been evaluated and they would not result in measurable changes to the health of the community, regardless of the land use. As a result, even where disadvantaged sensitive receptors may be present, such as within childcare centres or aged care homes, there are no health impacts that would unfairly disadvantage these populations.

As noted for the West Gate Freeway component (see box on page 2), the human health impact assessment conducted for the EES found that, following the implementation of the EPRs, impacts on health would be minimised.

Physical environment

Approximately 1.5 million cubic metres of spoil would be generated by the project in the tunnels component, the bulk of which would be from tunnelling and construction of the portals. Most of this spoil – approximately 85 per cent – would be non-hazardous fill material. As the quantity of spoil would exceed the amount of fill required for the project, excess spoil would be transferred from the northern portal work site to a nearby location via a fully enclosed conveyor, where it would be stored temporarily prior to being transported to suitable disposal facilities. Victoria's existing disposal facilities have adequate capacity for the quantity of spoil generated.

The former industrial nature of the area means there are a number of known and potential sources of contamination in close proximity to the proposed project works. The potential impacts of encountering contamination during earthworks and excavations would be managed by standard construction controls that comply with environmental laws and regulations (including EPA Victoria and WorkSafe Victoria guidelines) and reflect best practice for sorting, handling, transporting and disposing of spoil. Project Co would conduct further investigations to inform the detailed design of the project, the final selection of construction methodologies and site-specific controls or management measures to be incorporated in the CEMP.

The CEMP would identify suitably licensed facilities for the disposal of potentially contaminated soil and include procedures for managing dust, stormwater run-off and odours during the excavation, stockpiling and transportation of contaminated material. Investigations conducted for the EES indicate that contaminated soil and materials could be managed, with a medium to low risk of impact to the environment or public health following the implementation of the EPRs.

Replacing and protecting trees

Construction of the project would potentially require the removal of around 115 planted trees with around five additional trees lost due to operation within the tunnels component.

A Tree Management Plan would be prepared to minimise impacts on individual large trees and specify protection measures to protect trees during construction.

Project Co's proposed tree replacement strategy in this component provides for 690 advanced trees, 700 tubestock trees and significant understorey plantings.

Plantings would focus on the creation of the new Whitehall Street Reserve and around the westbound southern portal.

Tunnelling would intercept groundwater, which would require extraction and disposal. Potential groundwater impacts would be managed by using proven engineering solutions and tunnelling excavation methods to monitor, reuse and dispose of groundwater inflows. The tunnels would be excavated using earth pressure balance TBMs, which are designed to maintain the pressure of the earth around the tunnel excavation, minimising the risk of groundwater disruption. Project Co would be required to manage groundwater in compliance with EPA Victoria guidelines and the relevant regulations and policies. Specific controls would be adopted to monitor groundwater levels, flow directions and potential contamination at the tunnel portals, and to protect groundwater ecosystems in the vicinity of the northern and southern portals. Once construction is completed, the tunnel would be fully sealed (tanked) and there would be no impacts on groundwater levels or flows during the project's operation.

The diversion of a portion of the North Yarra Main Sewer may alter the flow paths of potentially contaminated groundwater in the northern part of the tunnel alignment, although any change in flow direction would take many years to occur and would be unlikely to significantly alter the extent of existing contamination. A precautionary monitoring program would be undertaken in this area, with contingency measures put in place should adverse impacts be identified.

The potential impact of a major flood during construction of the tunnels and portals, and the realignment of the North Yarra Main Sewer, has been carefully considered in the development of the project. While there is a relatively low likelihood of a significant flood event occurring during the construction period, this risk would be managed by measures such as bunding (using retaining walls and similar structures) around work sites and the identification and adoption of contingency measures in the event of anticipated heavy rainfall.

Protecting the operating tunnels from inundation during a major flood event has been a core design requirement. While the likelihood of such an event is rare, the tunnel portals would be constructed above and/or protected from a probable maximum flood event (taking into account future climate change considerations), flood warning systems would be installed on the approaches to the tunnels and a flood emergency management plan would be developed.

The risk that polluted runoff from construction work sites could enter waterways and drainage systems would be managed by adopting standard, good practice management measures such as sediment controls, bunding, stormwater treatment systems, regular site audits and ongoing monitoring.

As with the other project components, stormwater from the operating tunnel surfaces would be collected and treated to prevent impacts on surface water quality. Additional capacity would be provided in the tunnel drainage systems to capture and contain major spills should they occur. With these measures in place, the risk of any impacts on water quality in Stony Creek, the Maribyrnong River would be minimised.

Ground movement is an expected outcome on any tunnelling project and proven engineering solutions would be adopted to minimise movement. Where structures could be affected – most likely in a small industrial and commercial area around the northern portals and potentially in a small industrial area near the eastbound southern portal – the worst impacts to structures would be minor damage that would be readily repairable. Project Co would undertake further geotechnical investigations to determine ground movement thresholds for buildings, infrastructure and utilities, and identify engineering responses to keep below these thresholds. Pre-construction condition surveys would be conducted and any damage to buildings, utilities or infrastructure as a result of construction activities would be rectified or the owners would be compensated. Following these actions, ground movement would be unlikely to occur and the potential for impacts on buildings, land, infrastructure or utilities would be low.

Community

The main impacts on community and recreation facilities and open space during construction would be the potential impact on use of recreational and sporting activities at Yarraville Gardens and Hanmer Reserve in Yarraville due to construction noise. Temporary noise barriers along the Whitehall Street construction work site would reduce these impacts.

As noted above, some residents in properties above or in close proximity to the tunnel alignment may be affected by vibration and regenerated noise during the tunnel excavations. Some residents may choose to relocate temporarily to avoid these impacts. The residual social risk is considered to be low as relocation would be short term (no more than one week expected).

The project has a strong focus on minimising adverse effects to business functionality and viability. During construction, disruptions to businesses operating within the tunnels component would occur through changes to traffic conditions potentially impacting access and related productivity. Impacts from construction works such as dust may also affect the amenity of customer experience or business operation. In addition to the EPRs identified for traffic and amenity impacts, specific EPRs would require Project Co to minimise impacts on access to local businesses, to protect commercial property during construction and to screen construction sites adjoining commercial properties. Access to commercial premises in the vicinity of the northern portal, including the Cotton Mills complex and businesses on Youell Street, would be available throughout the construction phase. No businesses within this component would be affected by property acquisition.

A Business Involvement Plan would be prepared to consult with individual businesses about the progress of construction activities, appropriate mitigation measures, changed traffic conditions and other matters of concern to them.

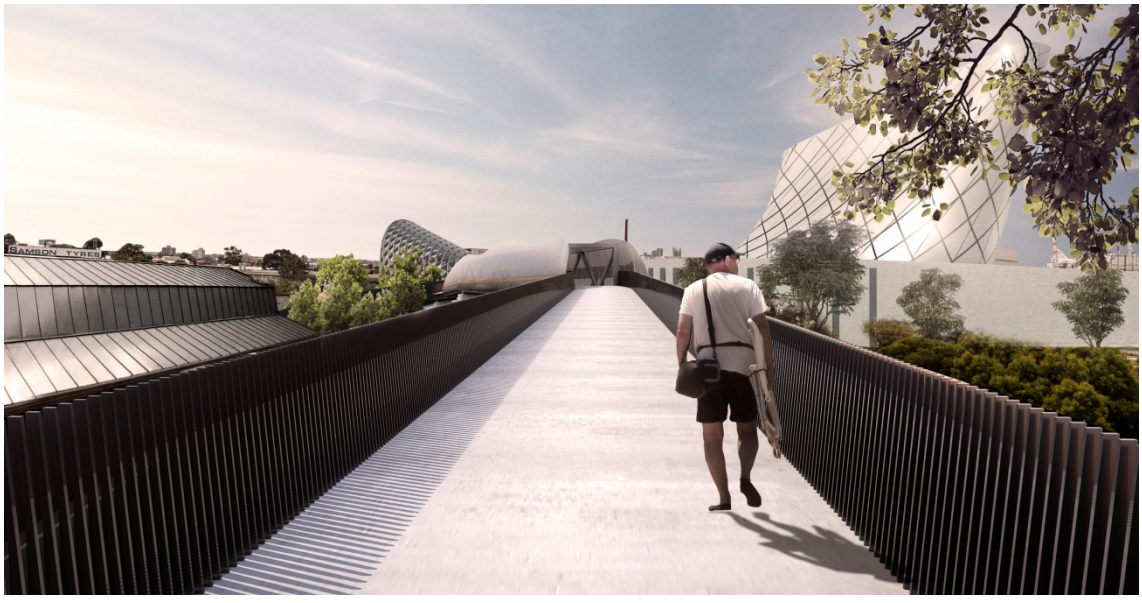
Regular and ongoing engagement with affected residents, businesses and community groups (as set out in the project's Communications and Community Engagement Plan) and the establishment of a complaints management system would assist in identifying and resolving community concerns, mitigating community impacts and evaluating the effectiveness of mitigation measures.

During operation, the removal of around 9,300 trucks per day from residential roads in the inner west would have positive community effects. These residential areas would be safer, quieter and less polluted, making them more attractive places to live. Fewer heavy vehicles moving through the inner west would also help to make local commercial precincts more appealing destinations for patrons of retail, food, lifestyle and hospitality businesses. The appearance of the area around the northern portals would change due to the demolition of existing industrial properties, the conversion of land to open space and the addition of permanent project structures. These changes would not adversely affect land uses in the area, but they would add new features to the local landscape and skyline, which would be visible from the immediately surrounding area.

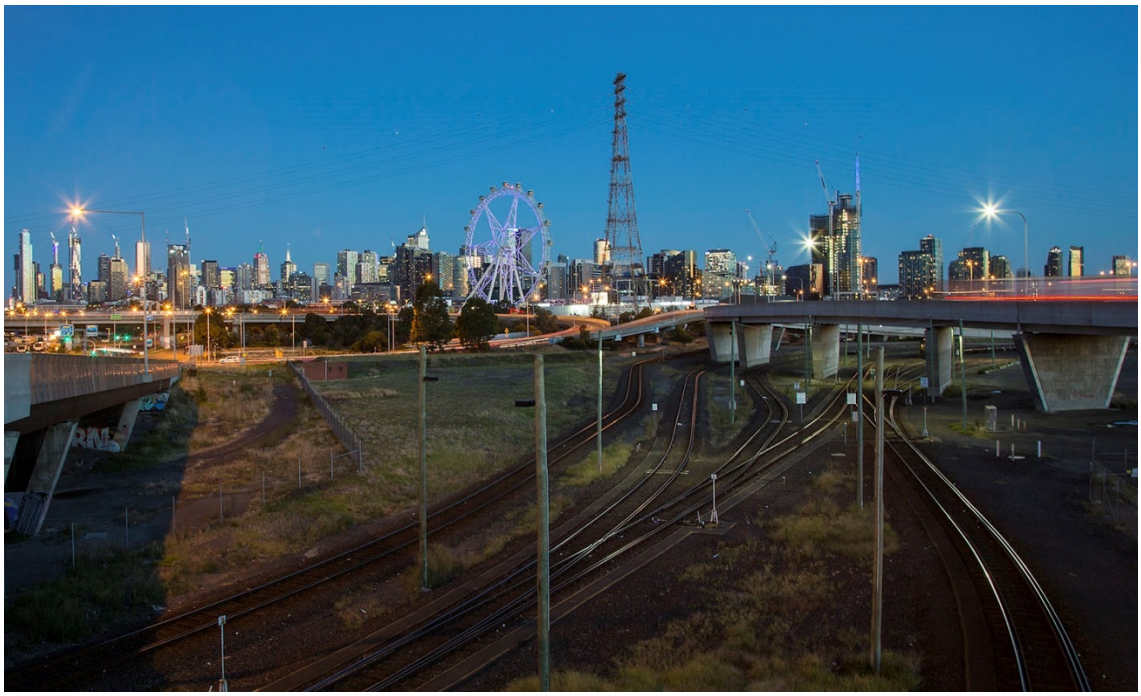
The new northern portal and ventilation structure would be seen from Yarraville Gardens, Hanmer Reserve and some residences (for example, in Moreland Street). The urban design concept adopted for the project would ensure that these structures are high quality features that integrate with their local settings, resulting in a moderate visual impact over time. Extensive landscaping and planting, including the creation of the new park and wetland in Whitehall Street, would also mitigate potential adverse visual impacts.

Heritage

As most of the project would be in tunnel through this area, there would be low potential for impacts on heritage values. Only one heritage place listed on the Victorian Heritage Inventory, Commonwealth Fertilisers Wharves and Associated Land, has the potential to be impacted through an adjacent area being used as a construction compound. In addition, works in the vicinity of the Yarraville Gardens Heritage Overlay site (as a result of groundwater drawdown and siting of the shared use path) would be addressed through the measures adopted by the project to manage and mitigate changes to groundwater and minimise impacts on heritage. Works in the vicinity of the Gardens are in the road reserve outside of the Heritage Overlay but in an area that is part of the Gardens area. While specific activities in these locations would be determined in the detailed design phase, it is unlikely these would disturb the Commonwealth Fertilisers Wharves and Associated Land site or heritage values of the Yarraville Gardens. If required, measures would be taken to manage and minimise impacts on these sites. The Archaeological Management Plan prepared for the project would set out procedures and potential measures to manage impacts.



Pedestrian bridge over Whitehall Street and northern portal



Current view looking east to the central city from the Dynon railyards

Port, CityLink and city connections component

The port, CityLink and city connections component extends from the northern tunnel portals in Footscray in the west to West Melbourne, North Melbourne, Docklands and Melbourne central city in the east. The component is set largely in a highly urbanised area. While there are some areas of residential and mixed use, the component setting has been heavily influenced by industries along the Yarra and Maribyrnong rivers, the Port of Melbourne, the development of roads, railway lines and railyard facilities to the west of Melbourne, and large scale industrial development.

There are few community facilities located in proximity to the component and the closest residential areas are in Yarraville (at the western end of the component) and West Melbourne (at the eastern end). The railyards north of Footscray Road towards the eastern end of the component provide important depot facilities and connections for regional and metropolitan public transport, as well as freight transport from the port.

The Maribyrnong River and Moonee Ponds Creek corridors are important and valued areas of open space, providing opportunities for various recreational and community uses and offering leisure activities on the water itself. These river corridors contain various ecological habitats and host the majority of biodiversity within the vicinity of this component.

A number of heritage assets and sensitive Aboriginal heritage places are located within the vicinity of the component. Heritage assets and values are generally noted as symbols of the urbanisation and industrialisation of Melbourne as a major economic centre or as examples of period architecture.

Project features

Key features of the port, CityLink and city connections component include:

- A new bridge over the Maribyrnong River
- Direct access from the West Gate Tunnel Project to the Port of Melbourne via MacKenzie Road (for West Swanson Dock) and Appleton Dock Road (for East Swanson Dock, Victoria Dock and Appleton Dock), with access to MacKenzie Road via dedicated (on and off) bridges over the Maribyrnong River
- Twin elevated road structures dedicated to traffic using the West Gate Tunnel Project above Footscray Road between the Maribyrnong River and the intersection of Footscray Road and Appleton Dock Road
- New connections between the Footscray Road twin elevated road structures and CityLink, Dynon Road and the existing Footscray Road
- Extension of Wurundjeri Way to the west, connecting into Dynon Road to the east of Moonee Ponds Creek, providing a bypass of the CBD area
- Widening of Wurundjeri Way by one lane in each direction between Dudley Street and Flinders Street
- Extension of and improvements to the existing heavily used shared use path along Footscray Road. This would include the addition of a new four-metre wide 'veloway' suspended between the elevated structures above Footscray Road, upgrading the existing path along Footscray Road, and connecting the existing path to a new path being developed at Shepherd Bridge
- A new shared use path along the western side of Yarraville Gardens/Hanmer Reserve and the southern side of Harris Street, connecting to new bridge over Whitehall Street
- New pedestrian and cycling bridges over Footscray Road at the Moonee Ponds Creek Trail, at the Dynon Road bridge, a new grade separated bridge south of Dynon Road, and new bridge over Moonee Ponds creek replacing an existing rail bridge
- New public open space and landscaping at Moonee Ponds Creek.

The main construction compound for the component would be located at the former Melbourne Wholesale Market site, north of Footscray Road. This would be complemented by another compound located within E-Gate, north of Dudley Street and east of Footscray Road.

Construction activities in this component would extend for almost four years, commencing with site clearance works in 2018. Construction of the Maribyrnong River bridge would commence in late 2018 and be completed by early to mid-2021.

Details of the project design, construction and operation for this component are provided in EES Chapter 5 *Project description*. Construction work sites and compounds are shown in the *EES Map Book*.

Key impacts

Adopting an elevated structure in the centre of Footscray Road has minimised the need to acquire space to the north or south of the existing road, minimised impacts on existing businesses and maintained potential future development options along this corridor.

Construction: Construction-related impacts would be associated with works required for new above ground structures: the main bridge over the Maribyrnong River and dedicated bridges providing access to the Port of Melbourne, the elevated road above Footscray Road and the various elements forming the new city connections. Locating work sites and compounds within the existing road reserve and designated transport use zones means that amenity impacts (such as construction dust and noise) would be confined largely to areas adjacent to the project.

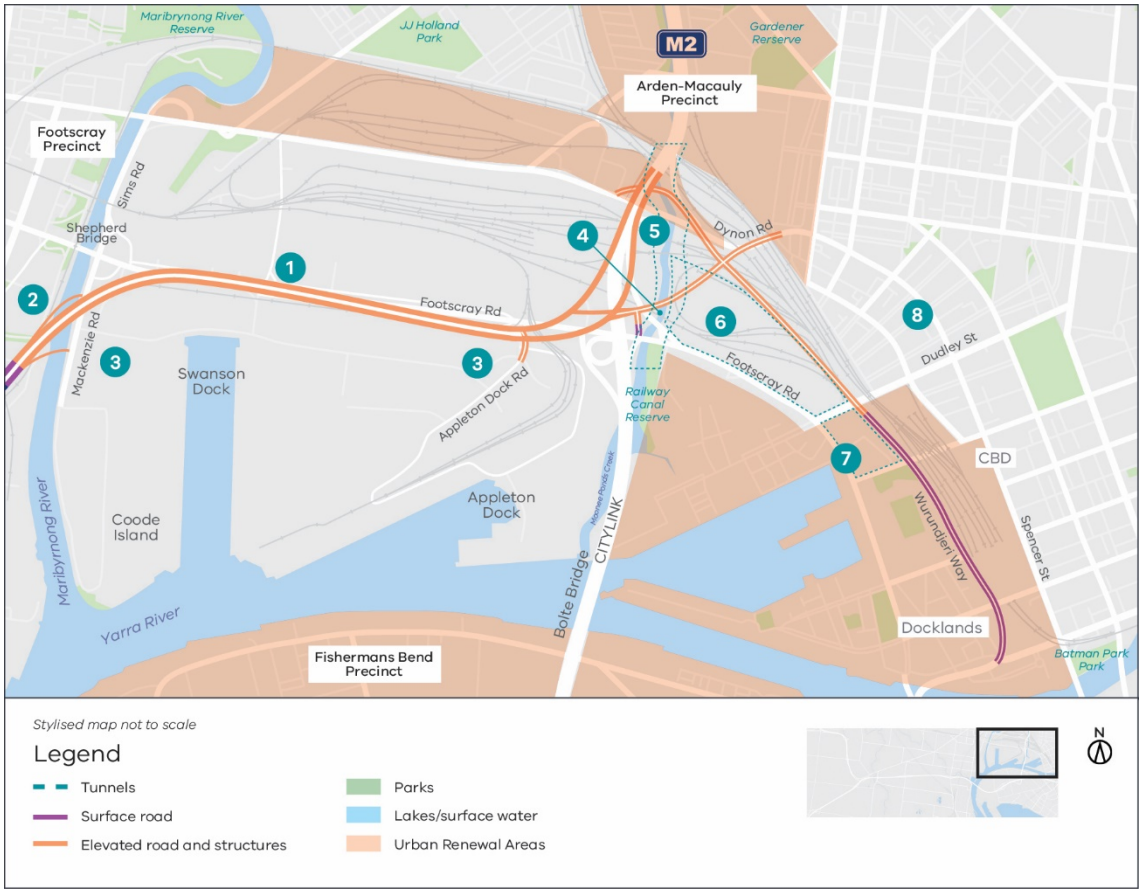
Operation: Adverse operational impacts have been minimised through the project design. Key impacts would be associated with the changes in the distribution of traffic, potential increased traffic noise and the visual impacts of new permanent structures located on the western bank of the Maribyrnong River, above the Maribyrnong River and Moonee Ponds Creek, and along Footscray Road. The project has also been designed to avoid conflicts with planned urban renewal and future development in the area.

Key asset/place based impacts are summarised below and shown in Figure 4.

Businesses along alignment ①	• Partial acquisition or displacement of eighteen business properties around the northern portal, Footscray Road and port area • Possible access restrictions during construction
Maribyrnong River waterfront ②	• Any impact on water quality in the Maribyrnong River during construction minimised • Sixteen new permanent piers in the river (eight piers for the main bridge and four piers each for the on- and off-ramps to MacKenzie Road) • Bank widening at discrete sections. Navigation clearances maintained • High visual impact of bridges on users of shared use path and waterfront area • Landscaping from Lyons Street to Shepherd Bridge, with hard paved areas potentially used for active recreation • New shared use path connecting the Maribyrnong River waterfront to Yarraville Gardens
Port of Melbourne ③	• Access provided to both sides of the port • Direct freeway access for HPFVs and containerised transport
New and upgraded public open space ④	• New 1.4 ha parkland on rehabilitated railway land, with new shared use bridge over Moonee Ponds Creek
Moonee Ponds Creek ⑤	• Any impact on water quality in Moonee Ponds Creek during construction minimised • 0.14 ha of remnant Brackish Wetland vegetation lost from the east and west banks during construction • Up to 14 permanent piers in creek • Bank widening at discrete sections
E-Gate urban renewal precinct ⑥	• North-west corner occupied temporarily during construction • Permanent loss of less than 1.5 ha (of the 20-hectare site) for ramps • Large and consolidated development site remains available for future redevelopment • New park and shared use connections on north-western perimeter

Digital Harbour ⑦	• Road widening potentially affects access options along north-eastern boundary • Overall function of the precinct not affected, including the potential school site
West Melbourne ⑧	• Construction noise for a small number of residences
Tree removal and replanting	• Around 740 planted trees to be removed during construction • Approximately 1,210 trees to be planted

Figure 4 Impacts on key places/assets for the port, CityLink and city connections component of the project



Traffic and transport

The area surrounding this component includes a number of heavily used roads, rail lines and cycle paths. The main traffic and transport impacts during the project's construction phase would be associated with temporary lane closures on Footscray Road during off peak periods and additional construction vehicles impeding the movement of traffic (including cars, freight vehicles, public transport services and cyclists) along Footscray Road and arterial and local roads.

Project Co would be required to prepare and implement a construction TMP that would cover all construction activities with the potential to impact vehicle, pedestrian, bicycle and public transport movements. The plan would outline methods to minimise disruption to all transport modes and maintain traffic throughout the construction phase.

As a principal access point to the central city from the west, Footscray Road carries a significant volume of traffic, especially on weekdays. Maintaining traffic performance along Footscray Road would be a critical consideration for the project. Lane closures would only occur outside of peak periods and would be undertaken in such a way as to not compromise the performance of Footscray Road and take into consideration major events (including events at Etihad Stadium). Haulage of materials or components would use roads operated by VicRoads, CityLink and the Port of Melbourne. Traffic performance along Footscray Road and at key intersections within the vicinity of construction works would be monitored to assess the impacts of construction activities on traffic flow and ensure prompt responses to issues should they arise. The shared use paths along Footscray Road and Moonee Ponds Creek carry a large number of cyclists every day.

These routes would be maintained where possible and suitable, safe detours provided where temporary closures are needed to carry out construction works. Sufficient off-street parking would be provided for workers and construction vehicles, with no parking permitted on local streets.

These impacts would be managed and mitigated as outlined for the West Gate Freeway component, with additional measures taken to ensure 24-hour access to the Port of Melbourne, maintain general traffic access at all times along Footscray Road and Dynon Road, and provide sufficient navigational width for river traffic during construction of the bridge and elevated structures over the Maribyrnong River.

Achieving the traffic and transport EPRs (see box on page 2) would provide safe, well managed and accessible construction work sites and compounds around the port, CityLink and city connections component and minimise traffic disruption to road users, public transport services and cyclists. As a result, there would be a low residual risk of adverse traffic impacts due to construction works in this component.

The operation of the West Gate Tunnel Project would lead to a redistribution of traffic on the road network. No new lanes are created for access into the city on Footscray Road and Dynon Road.

Transport modelling undertaken for the EES identified the following key changes to the network in this component:

- A decrease in traffic volumes on Dudley Street of around 1,500 vehicles a day, as traffic now has a more direct connection to the inner north via the ramp to Dynon Road
- Decreases in traffic volumes along King Street and Spencer Street
- An increase of around 9,000 vehicles per day (21 per cent) on Dynon Road between CityLink and Dryburgh Street due to the new ramps connecting to Dynon Road. This traffic would have otherwise travelled along Spencer Street, King Street and Dudley Street. Most of this predicted increase (around 7,000 vehicles) would occur outside the peak periods when there is spare capacity to accommodate the change
- East-west movements in North Melbourne are forecast to increase by up to 3,000 vehicles a day on roads including Arden Street and Victoria Street, while traffic on Queensberry Street is forecast to increase by 1,500 vehicles a day. Small increases in traffic volumes on the North and West Melbourne road networks of around 100 vehicles an hour outside peak periods. The network has sufficient spare capacity to accommodate this increase and it would not cause significant delays to tram services.

A redistribution of traffic on the local and arterial road network may occur at times if there are temporary lane or freeway closures due to incidents or maintenance activity. The adverse effects of this would typically be short-lived and the Freeway Management System would advise motorists of delays and changed traffic conditions. Should the tunnel be closed completely, traffic would likely seek to access or depart from the central Melbourne area using currently available routes. In this scenario, traffic seeking to bypass the central city would also have access to the Wurundjeri Way extension.

Health and amenity

As for the other project components, increases in dust, odours and vehicle emissions would be unavoidable close to construction activities. These impacts would be managed and mitigated by meeting rigorous standards and requirements, complying with EPA Victoria's *Guidelines for Major Construction Sites* and implementing an Air Quality Management and Monitoring Plan. Conservative air quality modelling undertaken for the EES demonstrated that the project's operation would result in improved air quality along Footscray Road and Dynon Road. Generally, the applicable air quality standards for most pollutants would be met. The exception would be particulate matter (PM), which is predicted to exceed the standard even without the project. With the project, there would be no exceedances at the most affected receptors even under a worst case traffic scenario.

A monitoring program would be implemented to measure air quality changes from the project and EPA Victoria would be consulted about appropriate actions to take if any unexpected exceedances occur.

The nature of construction activities and the proximity of surrounding receptors would mean that impacts from elevated construction noise would be unavoidable at certain times, including at residential locations in West Melbourne and Docklands in close proximity to the Wurundjeri Way extension works. Vibration may also be perceptible at some locations, particularly residential properties within 100 metres of the Wurundjeri Way works in West Melbourne (near Dryburgh Street) and Docklands (near McCrae Street).

The project would endeavour to limit noise increases through practices such as scheduling of noisy activities at less sensitive times, programming of respite periods, careful selection of plant and equipment and installing temporary noise barriers. Noise and vibration modelling would be updated before construction commences to inform the Construction Noise and Vibration Management Plan and advance notice of construction activities would be given to potentially affected households and businesses. Management actions would be considered should these or other sensitive areas be adversely affected by noise or vibration that exceeds the project's construction noise limits and vibration objectives. Project Co would also be required to establish a complaints management system to record and resolve complaints about construction noise and vibration.

As discussed for the West Gate Freeway component, the project-specific noise objectives include a requirement for the design to achieve a noise level of 63dB(A) for residential and community buildings along the project freeway. This requirement would apply at residential and community buildings adjacent to new freeway structures (including the Dynon Road ramps and the elevated Wurundjeri Way extension). In addition, noise protection would be provided to a local road standard for residential and community buildings along Dynon Road within 100 metres of the freeway interchange. Traffic noise levels are predicted to be below the project-specific objectives in this component. This is due to the project design incorporating improved noise mitigation, such as low noise road surfaces for sections of the Wurundjeri Way extension.

There are no areas identified in the local community where the combined impact from changes in noise and air quality would be considered to be significant or unacceptable. There are changes that occur as a result of the re-distribution of traffic associated with the project resulting in some areas experiencing increases in noise and air quality impacts, with a number of other areas experiencing decreases.

These changes have been evaluated and they would not result in measurable changes to the health of the community, regardless of the land use. As a result, even where disadvantaged sensitive receptors may be present, such as within childcare centres or aged care homes, there are no health impacts that would unfairly disadvantage these populations.

As noted for the other project components, the human health impact assessment conducted for the EES found that, following the implementation of the EPRs – such as those requiring Project Co to meet noise and air quality limits, manage vibration from construction activities, restore areas used for construction purposes and maintain access to community facilities – all risks to human health associated with the project would be minimised.

Physical environment

The proximity of the component to industrial and railyard sites means that contaminated soil and groundwater could be encountered during construction works. Investigations undertaken for the EES indicate that these risks would be managed through the implementation of the EPRs, with potential risks reduced to medium to low through measures adopted in the CEMP including the adoption of well-tested construction methods to manage contamination and acid sulphate soils, and minimise changes to groundwater levels and quality.

Project infrastructure in this component would include structures developed on deep piled footing systems and others on embankments and fill. There may be differences in the long-term ground settlement rates between structures built on piled and non-piled foundations on Coode Island Silt, with potential impacts on road infrastructure that include increased maintenance or remedial engineering. These risks would be addressed through the identification and adoption of appropriate engineering solutions as part of the project's detailed design.

CityLink connection, looking east

The risk that polluted runoff from construction work sites and compounds could enter waterways and drainage systems would be managed by adopting standard, good practice management measures such as sediment controls, bunding (using retaining walls or similar treatments), stormwater treatment systems, regular site audits and ongoing monitoring of construction areas. With these measures in place, the risk of any impacts on water quality in the Maribyrnong River or Moonee Ponds Creek as a result of construction activities in this component would be minimised.

As noted for the West Gate Freeway component, Water Sensitive Road Design has been incorporated into the project design to achieve EPA Victoria and VicRoads water quality targets for urban stormwater overall.

Flooding risk during construction would be managed by requiring the maintenance of existing flood storage capacities, flow paths and drainage lines. Melbourne Water would be consulted for any construction works within the floodplain.

Construction of the bridges and elevated structures would require some reshaping of discrete sections of the banks along these waterways. Measures would be adopted in the CEMP (to the satisfaction of Melbourne Water and in consultation with the relevant local councils) to maintain riverbank stability, minimise the potential for instream erosion, sediment plumes and exposure to contaminated material and provide sufficient access for maintenance activities. Any potential impacts are expected to be short term. Operational flood risks as a result of the project are expected to be low. Risks associated with impacts on flow paths (and the associated increased flood risks) due to the permanent structures required, would be minimised by meeting Melbourne Water requirements at the detailed design stage.

The highly urbanised, developed and disturbed nature of the area surrounding this component means that very few biodiversity values would be impacted. Elevated structures providing access to CityLink, Dynon Road and Footscray Road would result in clearance of around 0.14 hectares of remnant Brackish Wetland vegetation on the east and west banks of Moonee Ponds Creek. During detailed design, consideration would be given to further reducing the extent of remnant vegetation clearing. The CEMP prepared by Project Co would include measures to protect vegetation during construction and disturbed areas would be restored using the same or similar species as removed. Unavoidable impacts would be offset consistent with the *Permitted clearing of native vegetation – Biodiversity assessment guidelines*.

Piers installed in the Maribyrnong River and Moonee Ponds Creek – and bank widening works along these waterways – may impact water flows and hydrology, which could in turn impact aquatic and inter-tidal flora and fauna. To address these risks, the EPRs would require structures to be designed and constructed to minimise impacts on riparian and aquatic habitats in the Maribyrnong River and Moonee Ponds Creek. Consideration would also be given to staging construction to avoid impacts.

Replacing and protecting trees

The alignment of the elevated structure into the centre of the Footscray Road corridor would enable some existing trees to be retained (primarily larger trees along the northern side). However, construction of the project would potentially require the removal of around 740 trees within the port, CityLink and city connections component, largely along the Footscray Road corridor.

A Tree Management Plan would minimise impacts on individual large trees and specify protection measures to protect trees during construction.

Project Co's proposed tree replacement strategy in this component provides for 960 advanced trees, 250 tubestock trees and significant understorey plantings.

A Landscaping Plan would be developed in consultation with Maribyrnong and Melbourne City Councils. Plantings would focus on the new park adjacent to Moonee Ponds Creek and landscaping along Footscray Road. All sites disrupted by temporary works would be restored with appropriate vegetation and having regard to local tree replacement, street planting and urban forest strategies.

Community

Continued access to community and recreation facilities and public open space during construction would be managed through the TMP and CEMP, and in consultation with local councils and community groups. Access may be restricted temporarily to and through waterfront recreational areas and shared use paths along Moonee Ponds Creek due to the construction of overhead bridges. Temporary alternative routes would be provided for users of the Moonee Ponds Creek Trail and the Footscray Road shared use path.

Increased noise levels could temporarily disrupt community enjoyment of Grimes Reserve, Tannery Reserve, the Maribyrnong River waterfront in Yarraville and Footscray and Moonee Ponds Creek Trail. Railway Place and Miller Street Reserve in West Melbourne would be affected by the temporary occupation of a small area (70 m² or three per cent of the total open space). Project Co would be required to minimise impacts on users of the reserve.

During construction of the Maribyrnong River bridge, navigation clearance requirements would be maintained and sufficient width provided for river traffic and a clear navigation channel along the river. This would keep the river open to recreational water-based activities.

Improved community connectivity

The project would improve pedestrian and cycling connectivity through the port, CityLink and city connections area. The popular shared use route along Footscray Road would be grade separated, with a new 'veloway' suspended between the two elevated structures along the centre of the road. This central veloway would be four metres wide to accommodate faster moving cyclists and accommodate the growing number of people commuting to work from the west by bicycle.

The existing path south of the road would remain in place as an alternative/additional route, enhanced by landscaping and new plantings of large native trees.

Pedestrian and cycling access to the central city would be improved from the inner west, West Melbourne and Docklands, and along Moonee Ponds Creek.

The shared use bridge across Footscray Road would remove a dangerous crossing and provide a safe new gateway to the central city.

The project has a strong focus on minimising adverse effects to business functionality and viability. During construction, disruptions to businesses operating within the component would be minimised as much as possible. Impacts would occur through changes to traffic conditions potentially impacting access and related productivity. Impacts from construction works such as dust may also affect the amenity of customer experience or business operation. In addition to the EPRs identified for traffic and amenity impacts, specific EPRs would require Project Co to minimise impacts on access to local businesses, to protect commercial property during construction and to screen construction sites adjoining commercial properties. A Business Involvement Plan would be prepared to consult with individual businesses about the progress of construction activities, appropriate mitigation measures, changed traffic conditions and other matters of concern to them.

Eighteen businesses would be affected directly by temporary occupation or permanent land acquisition for project works. Most of these businesses could continue to operate on their current sites, Early and ongoing engagement would be undertaken with these businesses to assist them to modify their operations, reconfigure their sites if needed or to identify suitable alternative sits and relocate. Compensation for parties with an interest in land required for the project would be provided in accordance with the *Land Acquisition and Compensation Act 1986*.

There would be high visual impacts from the project's elevated structures in this component, including the bridges over the Maribyrnong River, the elevated road along Footscray Road and the elevated connections across Moonee Ponds Creek. The industrial character of the area, the presence of existing elevated structures and the backdrop of port and rail infrastructure would ameliorate these impacts. The use of high quality urban design, extensive landscaping and vegetation would assist in integrating these structures with the urban environment over time.

Nevertheless, visual impacts would be unavoidable at some locations as large scale structures would exist where they did not before. The greatest impacts are expected for the owners of commercial premises fronting Maribyrnong Street, residents near to Railway Place in West Melbourne and users of the walking and cycling paths along Maribyrnong Street, Shepherd Bridge and Footscray Road.

Project Co would be required to minimise landscape and visual impacts on open spaces and shared use paths. Open space areas, shared use paths and community and recreation facilities along the Maribyrnong River and Moonee Ponds Creek would continue to be accessible and retain their functions and uses with the new infrastructure in place. Adverse impacts on these areas would be mitigated by new parkland on the western bank of Moonee Ponds Creek, revegetation and tree planting along the river and creek, and landscaping of spaces beneath bridges and elevated structures. Opportunities would be explored in consultation with Maribyrnong City Council and City of Melbourne to make active use of hard paved areas beneath elevated structures and design for these areas as safe welcoming places.

The project would not preclude the development of planned urban renewal sites within or adjacent to this component (see box on page 2).

Maribyrnong River bridge, open space area

Heritage

Development and urbanisation in the area surrounding the port, CityLink and city connections component have resulted in widespread ground disturbance over many decades, meaning that no registered Aboriginal cultural heritage places are located within the component. However, the potential for discovery of unrecorded items and/or sites of Aboriginal cultural heritage remains. The CHMP being prepared alongside the EES would be implemented during construction to manage the disturbance of Aboriginal cultural heritage discovered during project works.

A number of historical heritage places are in the vicinity of this component and the project may have the potential to impact eight places listed on the Victorian Heritage Register, 11 places listed on the Victorian Heritage Inventory, five places subject to a Heritage Overlay and three unlisted heritage places. These places are generally remnants of historical industrial and maritime activities around the Maribyrnong River (such as wharves, factories, building footings, drains and shipwrecks), waste disposal and rail activity around Moonee Ponds Creek (including the West Melbourne Rubbish Tip and the South Dynon railway turntables) and the development of Melbourne's major roads at the city connections end of the component (where archaeological deposits could potentially be impacted).

Further consideration would be given during the project's detailed design phase to avoiding or minimising impacts on these places. The Archaeological Management Plan prepared for the project would set out measures to manage any disturbance of these places (and any unknown archaeological sites and values) and require the investigation and recording of places in consultation with Heritage Victoria where impacts cannot be avoided.

Salvage and storage of items would be undertaken where necessary (for example, where impacts cannot be avoided on the South Dynon rail turntables) and on-site histories and heritage interpretation strategies would be used to ensure that heritage values are not lost.

Project-wide impacts

Land requirements

Locating construction works and structures largely within the existing road reserve means that commercial property acquisition requirements for the West Gate Tunnel Project have been kept to a minimum. No residences would need to be acquired for the project.

A total of 65 properties would be impacted by permanent land acquisition, 61 of which only require partial acquisition and four would require acquisition of the whole property. Thirty four of these properties are occupied by 39 commercial leasehold interests that would be affected. At the time of preparing the EES, seven of these leasehold interests would need to be relocated. The other 32 would be able to continue to operate on the remaining land not required for the project, although they could be affected by some aspects of construction (such as changed amenity or access).

A further 20 properties would need to be occupied temporarily. This includes one commercial property, being a part of the Port of Melbourne. The other properties include Crown land, council freehold, VicRoads freehold and other public authority (government-owned) freehold.

Compensation for parties with an interest in land required for the project would be provided in accordance with the *Land Acquisition and Compensation Act 1986*.

In addition to surface property acquisition, underground strata would be acquired where the tunnels pass under properties. The land at surface level is not required in this type of acquisition.

Business impacts

The project has a strong focus on minimising adverse effects to business functionality and viability. During construction, disruptions to businesses may be caused by increased traffic congestion, changes to access, amenity impacts (such as construction dust and noise) and reduced parking availability for employees and customers. In addition to the EPRs identified for traffic and amenity impacts, specific EPRs would require Project Co to minimise impacts on access to local businesses, to protect commercial property during construction and to screen construction sites adjoining commercial properties.

A Business Involvement Plan would be developed to consult with affected individual businesses. Businesses would be updated on the progress of construction activities, potential impacts, mitigation measures, changed traffic conditions and other matters of concern to them. This would be especially important for businesses in freight transport and logistics, which have time sensitive supply chains. Consultation would be undertaken with the Port of Melbourne and freight and logistics firms to manage impacts on port-related traffic, operations and access.

As noted above, most businesses affected by the project's land requirements could continue to operate on their current sites. The project would endeavour to provide sufficient notice to enable businesses to modify their operations or reconfigure their sites in response to partial acquisition or temporary occupation or to identify suitable alternative sites and relocate if required.

During operation, changes to traffic patterns and the introduction of tolls and truck curfews may benefit some businesses and negatively impact others. Consultation with local businesses identified concerns that the introduction of tolls could cause a competitive disadvantage for some firms. However, these disadvantages would be counteracted for many other businesses by faster, more reliable travel times and better access to the Port of Melbourne.

Greenhouse gas emissions

GHG emissions from the four-year construction phase of the project are estimated to be 457 kilotonnes CO_2-e (or around 114.3 kilotonnes CO_2-e annually), equivalent to 0.10 per cent of Victoria's total 2014 GHG emissions. The majority of these emissions (71 per cent) relate to the manufacture of construction materials.

Annual GHG emissions from the operational phase of the project are estimated to be 18.9 kilotonnes CO_2-e, of which the majority (89 per cent) relate to electricity consumption associated with the operation of tunnel pumps, lighting and ventilation.

Project Co has identified sustainable practices that would be integrated into the project's design, construction and operation to minimise GHG emissions. These would include the use of hybrid-diesel generators and solar powered lighting during construction, re-use of all reusable road base for the West Gate Freeway upgrade and the use of 'eco mixes' to achieve a 30 per cent reduction in overall Portland cement use. Other initiatives – such as the use of lower embodied energy materials – would be investigated further during detailed design.

The Victorian Government has committed to having at least 25 per cent of the state's electricity come from Victorian-built renewable generation by 2020, and 40 per cent by 2025. Achieving these targets would further reduce the project's operational GHG emissions.

There would be a marginal increase (0.23 per cent) in vehicle emissions across the metropolitan Melbourne road network in 2031 with the project operating, compared to a scenario where the project is not built. Anticipated improvements in motor vehicle fuel efficiency would reduce GHG emissions under both the 'with project' and 'without project' future scenarios. Overall, the GHG intensity of the metropolitan Melbourne road network (kg CO_2-e per vehicle kilometre travelled) is estimated to reduce marginally (by 0.31 per cent) with the project operating in 2031.

A sustainable project

The project is committed to creating an important new asset for Melbourne that achieves excellence in sustainable practices and is resilient to anticipated climate hazards. Sustainability principles have been integrated into all aspects of the project's design and specific measures have been identified to improve sustainability outcomes, including:

- Integrating resource and energy efficiency into the project's design, and adopting sustainable construction methods, to minimise the use of energy and water, reduce waste and minimise greenhouse gas emissions
- Incorporating life cycle costs into project design and delivery to reduce operation and maintenance costs of the asset to the broader community over the longer term
- Meeting minimum local content requirements under the Victorian Industry Participation Policy, providing an incentive to source materials locally
- Requiring project infrastructure to be designed to withstand anticipated climate hazards and to continue to operate under future climate conditions (and assessing climate change risks as part of this EES).

The project would achieve an Infrastructure Sustainability Council of Australia (ISCA) rating of 'excellent' for the design and a rating of 'excellent' for the as built construction.

Managing impacts

The West Gate Tunnel Project would be designed, constructed, operated and maintained in accordance with an EMF, exhibited as Chapter 8 *Environmental Management Framework* of this EES. The development of the EMF has been guided by the EES Scoping Requirements and relevant legislation, policy and guidelines, and informed by the environmental risk and impact assessment prepared by technical specialists for the EES. It also takes into account feedback provided by regulators and other stakeholders during the EES process.

The EMF is a transparent and integrated governance framework for managing the environmental impacts of the West Gate Tunnel Project. It includes the EPRs for the project and outlines clear roles and responsibilities for achieving the EPRs and ensuring compliance with all relevant environmental laws, approvals, approval conditions and environmental management plans and procedures.

The EMF specifies the environmental management system to be adopted during construction and operation, and the processes to be followed in the preparation, review, approval and implementation of environmental management plans and procedures. The EMF also provides for the regular review and updating of environmental management plans and procedures as well as independent auditing and reporting of compliance.

If the West Gate Tunnel Project obtains approval and proceeds:

- Delivery of the project would be required to comply with the EMF and EPRs
- The Environmental Management Strategy (prepared in accordance with the EMF and EPRs) would have regulatory status as part of the planning scheme amendments required for the project
- The Western Distributor Authority would incorporate the relevant EPRs as specific requirements in the contractual arrangements for the delivery and operation of the project.

Project Co would be required to prepare and implement a project-wide Environmental Management Strategy (EMS), CEMP and an Operations Environmental Management Plan (OEMP), as well as separate Worksite Environmental Management Plans for the management of discrete issues, components or stages of the works.

These plans would set out in detail how Project Co will meet – as a minimum – all relevant environmental laws, project approvals, approval conditions, the EMF and the EPRs during the project's construction and operation. They would also be required to include appropriate contingency measures to address unexpected adverse impacts.

An independent reviewer/environmental auditor appointed jointly by the Western Distributor Authority and Project Co would audit these plans. The Minister for Planning would approve the EMS. The CEMP and OEMP would be evaluated and approved by the Western Distributor Authority. Project Co would appoint a dedicated Environmental Representative with authority and responsibility for ensuring that any issues identified in the environmental audits are addressed adequately.

Compliance with the EPRs would be assured through the Westgate Tunnel Project Development and Urban Design Plans having regulatory status as a condition of the Incorporated Document prepared under the planning scheme amendment for the West Gate Tunnel Project. Other compliance mechanisms include regular reporting by Project Co to the Western Distributor Authority and the independent reviewer; regular audits by the independent reviewer and monitoring by statutory authorities.

Detailed design phase

As the West Gate Tunnel Project progresses, further detailed work would be carried out to ensure that the project design achieves the EPRs, reflects the results of updated technical investigations and considers opportunities to further mitigate adverse impacts.

During this detailed design phase, further work would be conducted by Project Co to refine the design of various project elements, including the tunnel ventilation system, the tunnel and portal drainage systems, lighting systems and infrastructure, the stormwater treatment system, waste management and minimisation systems, and landscaping.

The EPRs would specifically require Project Co to consider ways to improve the project design to:

- Minimise the permanent footprint of the project to reduce adverse effects on parks, reserves and community and recreational facilities in proximity to the project's construction area
- Protect access to businesses and commercial properties, and minimise disruption to businesses from the temporary occupation of land
- Minimise impacts on historic cultural heritage
- Minimise impacts on native vegetation and mature trees, and riparian and aquatic habitats
- Reduce disruption to public and council land due to temporary occupation
- Respond to the West Gate Tunnel Project's urban design vision and principles, minimise landscape and visual impacts, and maximise opportunities to enhance public amenity and open space
- Integrate sustainable practices to minimise GHG emissions and reduce energy consumption.

Further investigations would be undertaken to inform the project's detailed design, including updated noise and vibration modelling, arboriculture assessments (to maximise tree retention), further investigation of potential areas of soil or groundwater contamination and modelling of works in floodplains and waterways to maintain existing levels of flood protection to the satisfaction of Melbourne Water.

The EPRs would require Project Co to consult with local councils (and other key stakeholders) on a number of matters during the detailed design phase, including the approach to minimising impacts on the users of recreational facilities, protecting heritage structures and places, and managing impacts on specific urban renewal sites. Councils would also be consulted in the preparation of the project-wide Landscaping Plan and in further refinements to Project Co's urban design concept.

Maribyrnong River bridge and MacKenzie Road off-ramp, looking south

Engaging with the community

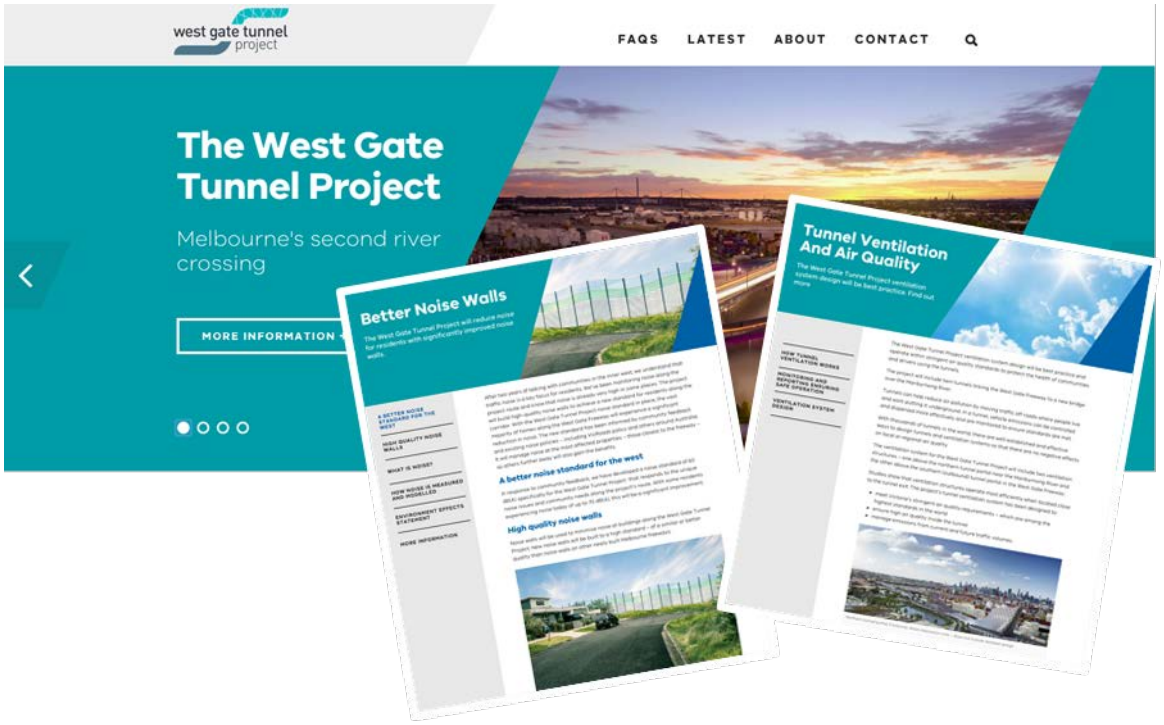
Engagement and consultation with the community and key stakeholders is an important feature of the West Gate Tunnel Project and is critical to ensuring that the design, development and delivery of the project reflects community expectations and meets the needs of commuters, businesses and other users of Melbourne's transport network.

A comprehensive program to engage stakeholders and the community has assisted in the development of the project and supported the preparation of this EES. Feedback from stakeholders and the community has played an important part in shaping the project. This feedback has been important in determining certain elements of the project design such as the length of the tunnels, the location of the Hyde Street ramps, informing the Government's consideration of inner west truck curfews, setting project-specific noise objectives, guiding a high quality urban design, integrating new open space and walking/cycling connections, and developing the emission design requirements for the tunnel ventilation system.

Preparation of the EES includes a comprehensive strategy to inform the public and consult with individuals and groups potentially affected by the project. This strategy incorporates formal opportunities for public input as part of the EES process, as well as consultation prior to and during the EES investigations to assist in the development of a sound EES.

A wide range of activities and tools has been used to provide the best opportunities for stakeholders and the community to be involved in the project's development and the EES process. These include an interactive website and social media, fact sheets and newsletters, face-to-face meetings and briefings, pop-up stands, consultation sessions and community events. A CLG was established in April 2016 to seek community feedback as the project progresses (see box on page 2).

The engagement program would continue through the project delivery phase to keep the community informed about the progress of the project, seek input into the project's detailed design and respond to community concerns during construction and operation.



West Gate Tunnel Project website material

Specific EPRs have been identified that would require Project Co to:

- Develop and implement a Communications and Community Engagement Plan that sets out approaches for identifying and resolving community issues, mitigating community impacts and evaluating the effectiveness of mitigation measures
- Develop and implement a Business Involvement Plan to consult with affected individual businesses on the progress of construction activities, potential impacts, mitigation measures, changed traffic conditions and other matters of concern to them
- Establish a complaints management system for the project
- Implement mitigation and management measures in consultation with the appropriate stakeholders where the operation of community, private recreation and council facilities would be directly impacted by the project
- Participate in the Community Liaison Group established by the Victorian Government to facilitate community and stakeholder involvement in the project
- Establish a Traffic Management Liaison Group to exchange information and discuss issues association with construction traffic management plans.

Concluding the EES process

The EES will be on public exhibition for 30 business days from late May to early July. During this time, members of the public can inspect the EES and make written submissions about matters presented in the EES. Comments can also be made on the proposed planning scheme amendment and Works Approval application (provided in Attachments IV and V of the EES respectively).

At the end of the public exhibition period, an independent inquiry will consider the effects of the West Gate Tunnel Project, having regard to the EES, the proposed planning scheme amendments, the Works Approval application and public submissions. The inquiry is expected to conduct formal public hearings from August to September 2017 at which the Western Distributor Authority and people who have made submissions can make presentations.

Following receipt of the inquiry's report, the Minister will prepare an assessment of the environmental effects of the proposed project. The EES process concludes with the Project Minister (the Minister for Roads and Road Safety) considering the Planning Minister's assessment. The final step in the planning process is the approval of the planning scheme amendments under the *Planning and Environment Act 1987* by the Minister for Planning and Works Approval by EPA Victoria under the *Environment Protection Act 1970*. Works will also have to comply with the Cultural Heritage Management Plan prepared alongside the EES.

During the public exhibition period, the full EES is available for public inspection, free of charge, during office hours at the following places:

City of Melbourne

State Library of Victoria 328 Swanston Street, Melbourne	Library at the Dock 107 Victoria Harbour Promenade, Docklands	City Library 253 Flinders Lane, Melbourne	Melbourne Town Hall – Administration Building 120 Swanston Street, Melbourne	North Melbourne Library 66 Errol Street, North Melbourne

City of Maribyrnong		City of Hobsons Bay		
Municipal Offices 61 Napier Street, Footscray	Yarraville Library 32 Wembley Avenue, Yarraville	Municipal Offices 115 Civic Parade, Altona	Altona North Community Library Millers Road & McArthurs Rd, Altona North	Newport Library 13 Mason Street, Newport

City of Brimbank	City of Wyndham	City of Greater Geelong	City of Ballarat
Municipal Offices 301 Hampshire Road, Sunshine	Municipal Offices 45 Princes Highway, Werribee	Municipal Offices 100 Brougham Street, Geelong	Municipal Offices 25 Armstrong Street South, Ballarat

The draft planning scheme amendment can also be inspected free of charge at the Department of Environment, Land, Water and Planning website at www.delwp.vic.gov.au/public-inspection.

Free copies of the EES Summary Report, and DVD or USB containing all the EES documentation are available at the exhibition locations or directly from WDA.

Hard copies can be purchased from WDA:

- EES Main Report – $50 per volume
- Map book – $100
- Technical appendices (specialist impact assessments) – $75 per report
- Development and urban design plans – $100
- EES attachments (Works Approval application and draft planning scheme amendment) – $50 each

Making a submission

Submissions on the West Gate Tunnel Project EES must be made in writing and received by **5.00pm on Monday 10 July 2017**.

Online submissions are preferred. This can be done via the Department of Environment Land Water and Planning website www.planning.vic.gov.au/west-gate-tunnel-project-hearing.

For a hard copy submission to be considered it must be accompanied by a coversheet available only by calling the Department of Environment, Land, Water and Planning on 136 186. Each written submission must have a separate cover sheet and they cannot be copied.

All submissions must state the name and address of the person making the submission. Where a submission is made by two or more persons, it must state the name and address of the person who will represent these persons in any formal public hearing and be their contact person. Anonymous submissions are not considered. Submissions will be treated as public documents.

For more information about the EES submission process or Panel Inquiry, contact the Department of Environment, Land, Water and Planning:

Phone 136 186.

For more information about the EPA Works Approval application process, contact the EPA:

Phone 1300 372 842.

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For more information contact Western Distributor Authority on 1800 817 617.

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