

Environment Effects Act 1978

Planning and Environment Act 1987

Inquiry and Advisory Committee Report

West Gate Tunnel Project

23 October 2017

Environment Effects Act 1978

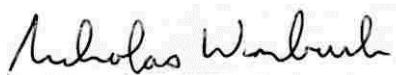
Inquiry Report pursuant to section 9(1)

Planning and Environment Act 1987

Advisory Committee Report pursuant to section 151

West Gate Tunnel Project

23 October 2017



Nick Wimbush, Chair



Mandy Elliott, Deputy Chair



William O'Neil, Deputy Chair



Jenny Donovan, Member



Kate Partenio, Member

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List of Abbreviations

AADT	Annual Average Daily Traffic Volume
AAQ NEPM	Ambient Air Quality NEPM
AAWDT	Annual Average Week day Traffic Volume
AQIA	Air Quality Impact Assessment
ASC NEPM	Assessment Site Contamination NEPM
AWDT	Average Weekly Daily Traffic
AWM	Air Quality Management
BAGs	Biodiversity Assessment Guidelines
BIA	Business Impact Assessment
CCEP	Communication and Community Engagement Plan
CEMP	Construction Environment Management Plan
CBD	Central Business District
CHMP	Cultural Heritage Management Plan
CIPP	Community Involvement and Participation Plan
CLC	Community Liaison Committee
CNVMP	Construction Noise and Vibration Management Plan
CO	Carbon Monoxide

CoM	City of Melbourne
dB	Decibel – measurement of noise
dBA	Expression of the relative loudness of sound in air as perceived by the human ear
DDO	Design and Development Overlay
DELWP	Department of Environment, Land, Water and Planning
DPO	Development Plan Overlay
DOS	Degree of saturation
EE Act	<i>Environment Effects Act 1978</i>
EES	Environment Effects Statement
EMF	Environment Management Framework
EMP	Environment Management Plan
EMS	Environmental Management Strategy
EPA	Environment Protection Authority
EP Act	<i>Environment Protection Act 1970</i>
EPB	Earth Pressure Balance
EPR	Environmental Performance Requirement(s)
ESCAPE	European Study of Cohorts for Air Pollution Effects
EVC	Ecological Vegetation Class
FCAC	Footscray Community Arts Centre
HBCC	Hobsons Bay City Council
HCV	Heavy Commercial Vehicles
HIA	Health Impact Assessment
HO	Heritage Overlay
IAC	Inquiry and Advisory Committee
IMP	Impact Management Plan
IMPA	Inner Melbourne Planning Alliance
IREA	Independent Reviewer and Environmental Auditor
LOS	Level of Service
L _{A10}	Noise level exceeded for 10% of a specified time period
L _{Aeq}	Equal to the average noise over a specified period
LCVs	Light Commercial Vehicles

LPPF	Local Planning Policy Framework
LVIA	Landscape and Visual Impact Assessment
Mapbook	The mapbook which forms part of the EES
MCC	Maribyrnong City Council
MLTV	Medium Long Term Viability
MMRP	Melbourne Metro Rail Project
MTAG	Maribyrnong Truck Action Group
MTPF	<i>Major Transport Projects Facilitation Act 2009</i>
NO ₂	Nitrogen Dioxide
PAHs	Polycyclic Aromatic Hydrocarbons
PAO	Public Acquisition Overlay
P&E Act	<i>Planning and Environment Act 1987</i>
PEM	Protocol for Environmental Management
PIW	Prescribed Industrial Waste
PM _{2.5}	Particulate Matter with an equivalent aerodynamic diameter of 2.5 microns or less
PM ₁₀	Particulate Matter with an equivalent aerodynamic diameter of 10 microns or less
PN	Project Note
PPV	Peak Particle Velocity (vibration)
PSA	Planning Scheme Amendment
PTV	Public Transport Victoria
RACV	Royal Automobile Club Victoria
Scoping Directions	The scoping direction for the Project published by the Minister for Planning.
SEPP	State Environment Protection Policy
SEPP (AAQ)	State Environment Protection Policy (Ambient Air Quality)
SEPP (AQM)	State Environment Protection Policy (Air Quality Management)
SEPP N-1	State Environment Protection Policy No. 1 (Control of Noise from Industry, Commerce and Trade)
SEPP (PMCL)	State Environment Protection Policy (Prevention and Management of Contaminated Land)
SEPP (WoV)	State Environment Protection Policy (Waters of Victoria)

SIA	Social Impact Assessment
SIDRA	Signalised Intersection Design and Research Aid
SPPF	State Planning Policy Framework
SSKRG	Spotswood South Kingsville Residents Group Inc.
SUZ	Special Use Zone
TBM	Tunnel Boring Machine
The Project	The West Gate Tunnel Project
TIA	Traffic Impact Assessment
TI Act	<i>Transport Integration Act 2010</i>
TN	Technical Note
USEPA	United States Environment Protection Agency
VHT	Vehicle hours travelled
VITM	Victorian Integrated Transport Model
VKT	Vehicle kilometres travelled
VLC	Veitch Lister Consulting
VOC	volatile organic compounds
Vpd	Vehicles per day
VPP	Victoria Planning Provisions
Vicroads TNRP	VicRoads Traffic Noise Reduction Policy
WAA	Works Approval Application
WHO	World Health Organisation

Executive summary and recommendations

(i) Background

The West Gate Tunnel Project (the Project), formerly known as the Western Distributor, is a major road infrastructure project west of the Melbourne CBD. The Proponent for the Project is the Western Distributor Authority (WDA).

The Project has a number of elements, including: the upgrade and widening of the West Gate Freeway; widening of the Princes Freeway between the Western Ring Road and Kororoit Creek Road; new off ramps to Hyde Street north of the West Gate Freeway and on ramps in the vicinity of Simcock Avenue; two tunnels from the West Gate Freeway emerging near the Maribyrnong River and connecting with the Port of Melbourne and the arterial and local traffic network via bridges over the River; relocation of major service infrastructure; and upgrades to the pedestrian and cycling network.

The Project has been developed to address the following critical transport challenges in the inner west, being:

- Inadequate transport capacity on the M1 corridor
- Over reliance on the West Gate Bridge
- Inadequate port and freight connections to cater for predicted growth
- Reduced amenity in the inner west due to heavy vehicle movements
- A mismatch between land use and transport, with increasing population in the west in future needing to travel from the west to access jobs in the central city.

The Project was determined to require an Environment Effects Statement (EES) in late 2015; a declaration that was amended on 17 May 2017 to respond to the more detailed design then available.

A draft Planning Scheme Amendment (PSA) was developed and exhibited with the EES for Hobsons Bay, Maribyrnong, Melbourne, the Port of Melbourne, Brimbank and Wyndham. The effect of the PSA will be to include an incorporated document in those planning schemes to allow for the Project use and development and provide a statutory basis for the Project Environmental Management Framework (EMF). The PSA also amends clause 61.01 to make the Minister for Planning the Responsible Authority for the administration and enforcement of the incorporated document, and introduces a new Design and Development Overlay (DDO) schedule to protect tunnel and portal infrastructure. The tunnel ventilation component of the Project requires works approval under the *Environment Protection Act 1970* (EP Act), with the Works Approval Application (WAA) being exhibited with the EES.

(ii) The Inquiry and Advisory Committee

The Inquiry and Advisory Committee (IAC) was appointed by the Minister for Planning on 21 May 2017. Terms of Reference for the IAC were signed on 25 May 2017 (included in Appendix A).

The tasks of the Inquiry in the Terms of Reference are, in summary, to:

- Review the EES, technical appendices, WAA and submissions.
- Conduct a hearing process into the Project focused on key issues.

- Consider and investigate:
 - the magnitude, likelihood and significance of adverse and beneficial environmental effects
 - the adequacy of the proposed EMF, including the proposed environmental performance requirements (EPR) and environmental management measures
 - the adequacy of the impact assessment and whether the proposed EPR are capable of being met
 - feasible modifications to the design of the Project within or reasonably proximate to the Project boundary that could offer demonstrably overall superior outcomes.
- Report on the above to the Minister for Planning including specific recommendations for conditions and EPR.

The tasks of the Advisory Committee, are in summary to:

- Review the draft PSA and submissions.
- Conduct a joint Hearing process with the Inquiry above.
- Report to the Minister for Planning on the adequacy of the proposed planning controls and whether they are appropriate to facilitate the use and development of the Project.

The EES, draft PSA and WAA were exhibited from May to July 2017 and 504 submissions were received. The IAC conducted Hearings from 14 August 2017 to 19 September 2017 in Footscray and Melbourne. This report is the IAC's final task in accordance with its appointment and Terms of Reference.

(iii) Overall findings

On balance, considering the adverse and beneficial environmental effects overall, the IAC considers the environmental effects of the Project can be managed to an acceptable level and the Project approvals should be granted.

This conclusion is subject to a number of important conditions outlined in the recommendations in this Executive Summary including:

- Design revisions based on State Government commitments during the Hearing relating to Millers Road, additional noise mitigation, additional truck bans and toll point removal.
- Design revisions related to the city end of the Project and particularly the alignment and elevation of the Wurundjeri Way extension and Dynon Road link
- Mitigation of impacts on Millers Road and planning for a future alternative truck route to Millers Road.
- The application of significant mitigation measures through EPR
- Effective Project implementation including environmental management of construction impacts.

The design review at the city end of the Project may involve significant investigation and analysis. Given the overall Project timing the IAC considers this element could be done as a separate Project approval if necessary by splitting the Planning Scheme Amendment to avoid any change to the overall Project timetable.

(iv) Key Issues

The IAC comments on some of the key issues below.

Legislative and policy context

- The Project has strong high-level policy support in the recently released metropolitan strategy Plan Melbourne 2017-2050.
- Many submitters were critical of the Project when reviewed against the objectives of the *Transport Integration Act 2010* (TI Act); in particular that the Project does not significantly address public transport matters.
- Many submissions were concerned at the lack of a Transport Plan, required by the TI Act.
- The WDA submitted that there are a number of Government programs and projects addressing public transport including the Melbourne Metro Rail Project, Level Crossing removals and others; and that the Project should be seen as complementary to these and other future public transport initiatives rather than in place of them.
- The IAC shares the concern regarding the lack of a Transport Plan, but overall is satisfied that the Project is responsive to the objectives of the TI Act.

Traffic capacity, connectivity and traffic management

- The Veitch Leitch Consulting (VLC) modelling used to inform the business case and EES attracted significant attention during the Hearing. While the IAC is aware that modelling has inherent limitations as to accuracy, there may be some benefit in comparing the VLC outputs for the Project with the Victorian Government Victorian Integrated Transport Model.
- The IAC is satisfied that in relation to heavy vehicle traffic the proposed Port access is reasonable; including the Maribyrnong River Crossing and MacKenzie Street ramps.
- The Project should have some success in reducing heavy vehicles in key areas of the inner west, but some areas such as Millers Road in Brooklyn are likely to experience a significant deterioration in traffic conditions, with resulting negative environmental impacts over time without further action.
- In the IAC's view a number of further detailed studies will be needed including: an assessment of impacts associated with provision of the city connections; port connections at specific intersections; and for Miller's Road to both confirm predictions in the EES and provide the basis for detailed local area traffic planning.
- Any traffic mitigation works identified as being required from the above further work should be implemented and funded by the Project.

Built environment

- The Project has generally chosen a superior alignment which avoids residential areas, minimises impacts on urban renewal areas (other than E-Gate), and provides a safe and functional crossing of the Maribyrnong River that provides direct freight access to the Port of Melbourne.
- The Project is likely to impose significant constraints on the urban renewal area at E-Gate primarily through the elevated Wurundjeri Way extension. The IAC

considers it would be a missed opportunity if the design and development of the Project and the E-Gate precinct is not better integrated at an early stage. This is an area where the IAC considers a '*demonstrably superior outcome*' should be possible.

- The IAC considers it appropriate to review and refine the Project design at the city end to ensure the urban renewal opportunities associated with the future development of the E-Gate precinct, and future integration with North and West Melbourne, are maximised to the greatest extent practicable.

Health, amenity and environmental quality

- The IAC notes that the Project is generally being undertaken in an area subject to existing high levels of traffic noise.
- The general Project objective for daytime noise levels and noise levels during construction are appropriate subject to the levels being monitored for compliance.
- There will be areas such as Francis Street and Somerville Road which can be expected to have an improved traffic noise environment over time due to the reduction in heavy vehicles; other areas such as adjacent to the West Gate Freeway should also see noise reductions due to the increased height and extent of noise walls.
- There will be other areas that may have increased noise impacts such as Millers Road due to predicted increases in heavy vehicle traffic; commitments have been made to provide some noise protection for dwellings fronting that road, but those commitments are not expected to limit noise to the levels otherwise being proposed elsewhere as part of the Project.
- Noise impacts on the amenity of open space in some areas is already significant and will remain so. New areas of open space in some instances will be subject to significant traffic noise. The IAC has recommended the establishment of a specific noise level standard for open space, where it can be practicably achieved.
- The IAC recommends a specific night time noise limit; and does not accept that the Project daytime objective noise level could achieve the same result, noting the 24 hour operations at the Port.
- Construction noise can be managed to an acceptable level via the application of appropriate controls in the Construction Noise and Vibration Management Plan (CNVMP).
- There was considerable discussion in the Hearing about the need for VicRoads to finalise and release its revised traffic noise reduction policy.
- The IAC notes there is significant concern in submissions about air quality.
- The health evidence that there is no safe level of exposure for particulates was essentially not contested. This is an emerging area of policy and the State is encouraged to monitor the evidence to ensure Victoria is at the forefront of legislation and policy.
- Parts of the Project area already have poor air quality, and the IAC considers that the Project should aim to contribute to an improvement in that situation. Through the EPR the IAC has recommended that pollution control equipment be installed on the tunnel ventilation system.

- Some areas such as Francis Street and Somerville Road and areas adjacent to the West Gate Freeway east of the western tunnel portals are expected to have improvements in air quality due to a reduction in heavy vehicles.
- Other areas such as Millers Road in Brooklyn, are expected to have a deterioration in air quality due to the Project, albeit a marginal deterioration.
- The IAC notes the long-term trend in improving air quality and accepts that over time this trend should improve in relation to traffic emissions due to improving combustion efficiencies and a move to a low carbon economy.
- While this trend is likely to continue, there are a number of specific mitigation measures, including tunnel filtration, that the IAC considers should be utilised in Project implementation.

Landscape, visual, and recreational values

- While the Project has strong urban design cues in areas such as the tunnel portals and the Maribyrnong River crossing, the IAC considers there are opportunities to refine these designs and improve urban design outcomes in other Project areas.
- The IAC notes that there was significant opposition to the bridge structures over the Maribyrnong River on visual impacts, urban design and recreational grounds and that an alternative ideally would be developed. However, the IAC is not convinced overall on the material before it that an alternative was presented that would achieve a *'demonstrably superior outcome'*.
- The contribution of additional open space through Project design is welcomed, but the IAC notes this is often located in areas where a reasonable level of amenity will be difficult to achieve due to traffic noise, air pollution and isolation from the communities they are intended to serve. The detailed design of these areas should be *'fit for purpose'* to maximise their use within those amenity constraints.
- The loss of mature vegetation will have significant medium term impacts. The extensive revegetation and landscaping proposed must be undertaken to minimise the duration and extent of the adverse impacts and maximise benefits (amenity, air quality, microclimatic mitigation etc.) including consideration of planting in advance of other works, species and size selection and location of planting.

Social, business, land use, public safety and infrastructure

- The IAC notes the submissions from Hyde Street residents south of Francis Street and considers, based on amenity and other impacts, there is a strong case for their voluntary acquisition.
- The IAC is concerned that some of the impacts on the community will be borne by more vulnerable communities with a lower socio-economic profile and poor environmental quality. The IAC considers the Project has significant opportunities during implementation to make a net improvement in these areas beyond traffic and the IAC, supported by evidence, has recommended the development of a Community Involvement and Participation Plan to maximise these improvements.
- The IAC is satisfied that business impact mitigation can be effectively achieved through the implementation of the EPR.

Other issues

- There are other issues where the IAC is satisfied the environmental effects can be addressed through the application of environmental management controls including cultural heritage, surface water and groundwater, ground movement, biodiversity, solid waste and contamination.

(v) Consolidated recommendations

The IAC concludes that subject to the recommendations in this report, the environmental effects of the West Gate Tunnel Project can be managed to an acceptable level. The IAC recommends:

- 1. Adopt Amendment GC65 to the Melbourne, Maribyrnong, Port of Melbourne, Brimbank, Hobsons Bay and Wyndham Planning Schemes subject to:**
 - a) Revising the Project design as announced by the State Government including:**
 - i. Three additional noise walls on Crofts Reserve, Mclvor Reserve and Stony Creek**
 - ii. Truck bans on Blackshaws Road and Hudsons Road**
 - iii. Removal of the proposed toll point on the West Gate Freeway west of Millers Road**
 - iv. A range of mitigating measures for properties fronting Millers Road north of the West Gate Freeway including double glazing, insulation, fencing and air conditioning**
 - b) Reviewing and refining the Project design at the city end to achieve:**
 - i. A more responsive and high quality urban design outcome which is guided by, and is responsive to, the Project design principles**
 - ii. The lowering of the Wurundjeri Way extension, to at grade where possible, and modification of the Dynon Road link cross section to:**
 - a. Ensure the urban renewal opportunities for the development of the E-Gate precinct, and its land use integration with North and West Melbourne, are maximised to the greatest extent possible**
 - b. Actively facilitate the provision of an active transport link across E-Gate between North Melbourne Station and Waterfront City**
 - c. Minimise traffic impacts from the city connections**
 - d. Actively facilitate potential future intersection and interchange upgrades, particularly where levels of service are constrained**
 - c) Extending the Project boundary to include Millers Road between the West Gate Freeway and Geelong Road**
 - d) Applying the Incorporated Document in Appendix E of this report**
 - e) Applying the Environmental Performance Requirements in Appendix F of this report**

2. **Include the Environmental Performance Requirements in any Project Agreement between the State and 'Project Co'.**
3. **The Environment Protection Authority consider the recommendations and Environmental Performance Requirements in this report when determining the Works Approval Application.**

Transport capacity, connectivity and traffic management

4. **Undertake a corridor study along Millers Road between the West Gate Freeway and Geelong Road to determine traffic and transport management works required to cater for the projected traffic volumes in 2031, including consideration of the safety, accessibility and amenity of the abutting local residential community, and undertake works as part, and at the cost of, the Project.**
5. **Undertake further investigations of the traffic impacts on North Melbourne, West Melbourne and Docklands and undertake mitigation works as part, and at the cost of, the Project if required.**
6. **Undertake additional traffic modelling, and implement works, to facilitate safe and efficient access by freight vehicles, including over-dimensional vehicles, travelling via Sims Street and MacKenzie Road to and from Footscray Road. The assessment should include consideration of the impacts of including the City Access Charge on the MacKenzie Road off-ramp.**

Health, amenity and environmental quality

7. **Incorporate in the Project design, capacity for the future provision of noise protection measures, at source, where the alignment is adjacent to existing and future urban renewal areas.**
8. **Undertake additional air quality surface road modelling including exhaust and non-exhaust emissions for roads likely to experience a significant increase in traffic including Millers Road, and Williamstown Road. The results should be used as appropriate to inform mitigation responses. The mitigation response should also include Hyde Street if the recommendation to acquire properties on that street is not accepted.**
9. **Develop and fund a specific air quality mitigation response for roads likely to experience a significant increase in traffic including Millers Road, and Williamstown Road. The mitigation response should also include Hyde Street if the recommendation to acquire properties on that street is not accepted.**
10. **Develop and fund a 'smoky vehicle enforcement program' within the Project area to identify smoky vehicles for enforcement/rectification action.**

Landscape, visual and recreational values

11. **Consult with local and other relevant authorities to explore the potential for further urban design and landscape improvements outside the Project area where these may achieve improved outcomes.**

12. Review the design of the ramps on either side of proposed Maribyrnong Bridge to minimise visual bulk and incorporate transparent panels on bridge parapets.
13. Fund a masterplan for a linear reserve along the Moonee Ponds Creek between Dynon Road and Footscray Road including the proposed open space west of the Creek. The plan should be prepared by the relevant land manager in consultation with the City of Melbourne, Melbourne Water, and other relevant authorities, the Friends of Moonee Ponds Creek and the Moonee Ponds Creek Co-ordination Committee.

Social, business, land use, public safety and infrastructure

14. Develop and implement a Community Involvement and Participation Plan to mitigate social impacts particularly on communities which will experience cumulative negative impacts, and to provide 'legacy' beneficial environment effects.
15. Voluntarily acquire the residential properties located on the west side of Hyde Street, south of Francis Street and opposite the Yarraville Oil Terminal promptly following the granting of necessary Project approvals.

(vi) Further recommendations on issues raised in submissions

The IAC makes the following further recommendations on other issues raised in submissions:

16. The State retain control of the City Access Charge amount to ensure that the traffic management aims of that charge can be met.
17. The State retain the authority to waive general tolls when operational plans for network redundancy are put in place to divert West Gate Bridge traffic onto tolled roads.
18. Investigate alternative mechanisms for truck ban monitoring beyond physical surveillance by VicRoads.
19. The Environment Protection Authority continue to monitor emerging trends in air quality and health impacts research to ensure air quality standards are best practice.
20. VicRoads advance the development and release of a revised Traffic Noise Reduction Policy to ensure Victoria maintains a best practice approach to traffic noise mitigation.
21. Planning should commence for the 'northern corridor' as proposed in the Eddington Report as a complementary link to the West Gate Freeway and the West Gate Tunnel Project.

PART A: BACKGROUND

1 Introduction

1.1 The Inquiry and Advisory Committee

The Minister for Planning appointed an Inquiry and Advisory Committee (the IAC) on 21 May 2017, pursuant to section 9(1) of the *Environment Effects Act 1978* (EE Act) and section 151 of the *Planning and Environment Act 1987* (P&E Act) to consider and report on the West Gate Tunnel Project (the Project).

The Minister for Planning signed the Terms of Reference for the IAC on 26 May 2017 (included in Appendix A).

The IAC comprised:

- Mr Nick Wimbush (Chair)
- Ms Mandy Elliott (Co-Deputy Chair)
- Mr William O’Neil (Co-Deputy Chair)
- Ms Jenny Donovan
- Ms Kate Partenio.

Paragraph 24 of the Terms of Reference notes the IAC may seek advice from experts where it considers this is necessary. The IAC retained the services of:

- Ms Lyn Denison – air quality and health
- Mr Stephen Hancock – hydrogeology and tunnelling
- Mr Douglas Munro – acoustics and vibration.

In accordance with paragraph 25 of the Terms of Reference, the IAC retained the services of Ms Juliet Forsyth of Counsel.

In addition to the assistance of experts and Counsel, the IAC would not have been able to successfully complete its task without the support of the Planning Panels Victoria office; and particularly Senior Project Officer Greta Grivas, Project Officer Emily To, Hearings Officer (for the first three weeks) Alyssa Pashalidis and Assistant Director Harry Matheas.

1.2 Terms of Reference and Role of the IAC

The IAC had two separate but related roles in considering the Project.

In overview, the ‘Inquiry’ role under the EE Act was to review the EES and technical appendices, together with the Works Approval Application (WAA) under the *Environment Protection Act 1970* (EP Act), conduct a public hearing and consider the public submissions received. Clause 13(e) of the Terms of Reference notes the Inquiry was to consider and where relevant investigate and provide a Report on:

- *the magnitude, likelihood and significance of adverse and beneficial environmental effects;*
- *the adequacy of the proposed environmental management framework, including the proposed environmental performance requirements and environmental management, measures contained in the EES, with reference to applicable legislation and policy;*

- *the adequacy of WAA No. S0100269, with reference to applicable legislation and policy;*
- *the adequacy of the impact assessment and whether the proposed environmental performance requirements are capable of being met;*
- *feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes;*
- *all submissions made to the Inquiry in relation to any of the matters set out in paragraphs 13(e)(i) to (v) above;*
- *any matter reasonably incidental to the matters set out in paragraphs 13(e)(i) to (v) above.*

Clause 13(g). of the Terms of Reference notes the IAC's report should include:

- *consideration of adverse and beneficial environmental effects;*
- *any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes;*
- *conditions that should be imposed on any approval given for the Project under Victorian law;*
- *any recommendations to strengthen the environmental management framework;*
- *any recommendations regarding specific environmental performance requirements that would be appropriate to achieve acceptable environmental outcomes consistent with applicable legislation and policy.*

The Advisory Committee component of the IAC's role as set out in clause 14 of the Terms of Reference, is to review the draft Planning Scheme Amendments (PSA) and submissions received, conduct a public hearing jointly with the 'Inquiry' hearing and in accordance with clause 13(h):

Provide a report to the Minister containing the Advisory Committee's advice as to whether the planning controls proposed by the draft PSA are an appropriate means by which to facilitate the use and development of the Project, and any recommendations it might have in relation to the statutory planning framework to be established for the Project.

1.3 Exhibition

The EES and draft planning scheme amendments were placed on public exhibition between 29 May and 10 July 2017.

The IAC held a public information briefing¹ on 16 June 2017 at the Footscray Community Arts Centre (FCAC) in Moreland Street Footscray. At the briefing the WDA² provided the IAC with

¹ In accordance with clause 13(b) of the Terms of Reference.

² The WDA is the Proponent for the EES assessment. The State's future delivery partner for the Project is known generically as 'Project Co.'

an overview of the Project components and EES. The information session was attended by approximately 50 representatives from Councils, government agencies, community groups and individuals.

1.4 Submissions

A total of 504 submissions were received from:³

- Local councils (City of Melbourne, Maribyrnong City Council, Hobsons Bay City Council, City of Port Phillip, Moreland City Council, City of Yarra)
- Government agencies and/or departments (including EPA, VicRoads and Department of Health)
- Interest groups, community organisations, local clubs
- Cultural, health and education establishments
- Commercial/business operations
- Owners corporations
- Individuals.

Of the 504 submissions received, approximately 460 were opposed to the Project and the balance either supporting or neutral. An overview of submissions is provided below.

Policy issues

Many submissions questioned the policy and legislative support for the Project. Groups such as the Inner Melbourne Planning Alliance (IMPA) and Victoria Transport Action Group (VTAG) were opposed to building more freeways and roads, preferring investment in public transport.

Inconsistency with the *Transport Integration Act 2010* (TI Act) and the lack of a Victorian Transport Plan was raised in many submissions.

Traffic and transport

Traffic and transport was the focus of a large number of submissions. Issues included concerns about the Project achieving adequate transport network function, including displacement of trucks from Maribyrnong to Hobsons Bay, and increased pressure on the CBD, North Melbourne, West Melbourne and Docklands with increased traffic and truck numbers. Concerns were raised by several submitters about traffic changes in locations such as Millers Road as a result of increased truck numbers.

Issues were raised such as from Hobsons Bay City Council about the tolling structure, stating that tolls should be removed or added to encourage trucks and other traffic to use the West Gate Freeway and tunnels rather than local roads. While supporting submissions stated that the Project will help alleviate congestion, comments were made that “rat running” would still occur with traffic, in particular trucks using local roads to avoid paying tolls. Requests were made for additional truck bans to be considered in locations such as Millers Road, Hudson Road, Williamstown Road, Blackshaws Road, Mason Street, Simcock Avenue, New Street, Kororoit Creek Road, The Avenue and Francis Street. Concern was expressed that

³ A complete list of submitters is in Appendix B.

particular locations such as Millers Road, Spotswood and Brooklyn would become a “*dumping ground*” for traffic in the inner west. The Spotswood South Kingsville Residents Group submitted that “*We are the collateral damage being borne for the overall net benefit argument...*”.

At the Hearing, transport modelling and predictions were discussed and challenged, including that the extent of modelling is too limited and excludes traffic changes in surrounding suburbs. Several submissions stated that the modelling has not properly allowed for induced demand and that the modelling it relies on assumed truck bans that had at the time not been committed to, such as Hudson Road and Blackshaws Road. Some submissions stated that the modelling has not properly allowed for traffic from changing land use, particularly future development areas such as the Bradmill site and Precinct 15.

Land use, social, business and cultural

Land use planning issues noted that the Project has unacceptable impacts on a number of residential communities and that it is not compatible with urban renewal areas including E-Gate, Arden Macaulay and Precinct 15.

Some raised concerns in relation to the impact on their businesses such as disruption to business access during construction, concerns about business acquisition, and direct or indirect impact on business viability.

Social issues were raised from submitters in areas such as Spotswood, Seddon, Brooklyn and Altona North, that included impacts on social clubs and recreation facilities, concerns about impacts on community facilities and open spaces, and general impact on amenity. Submissions expressed concern that the cumulative social impacts on some communities are significant and have not been adequately mitigated.

A number of submissions raised issues concerning the effect of the Project on sites of cultural heritage significance.

Noise and vibration

Several submitters commented on potential noise impacts in residential areas from increased traffic on local roads. Comments were made about the approach to noise mitigation, including on residential streets such as New Street, Geelong Road and Millers Road; and along the West Gate Freeway. It was stated that current noise levels in these areas would be exacerbated. Issues raised included adequacy of adopted Project objectives, including daytime and night-time noise limits, and concerns about approach to mitigating construction noise. Other noise issues included concerns about noise impacts from elevated sections of the road, including on and off-ramps (particularly Hyde Street ramps), and from new elevated roads in Docklands and West Melbourne.

Several submissions noted potential noise impacts on public open space (including approach to noise mitigation); in particular noise at the new three-hectare park near the southern portal and Donald McLean Reserve. Noise modelling methodology was challenged.

Air quality

A number of residents, in particular from Brooklyn, Spotswood, Altona North, South Kingsville and Yarraville expressed concern with existing air quality and pollution, and stated

that additional emissions would make conditions significantly worse for residents. Specific impacts were raised for Emma McLean Kindergarten and Donald McLean Reserve. Other issues included air quality modelling approach and data, adequacy of air quality monitoring standards, and adequacy of the response to exceedances of intervention levels. Issues were raised regarding the design and performance of ventilation structures and air quality impacts from same.

Air quality monitoring and mitigation, and impacts on human health from poor air quality were raised by many submitters and groups, including the Maribyrnong Truck Action Group (MTAG).

Urban design

Urban design issues were raised by submitters such as Kensington Association including concern about the design of bridges and elevated structures, and the design of elements such as noise barriers, and concerns about the Maribyrnong River Crossing. As one stated, *“The impacts from enhanced port access shifted to open-space users, property owners, the river and the wider community”*. Other issues raised included the adequacy of the urban design vision and principles, landscaping, open space and request for additional, or changes to, the proposed shared use paths. Raised structures presenting visual intrusions, overshadowing, and blocking views of the city in a number of locations was noted in several submissions. Protectors of Public Lands Inc. stated, *“...much of the public open space that is foreshadowed will be poor quality... crowded into remnant space adjoining heavy traffic and overshadowed by massive concrete infrastructure”*.

Concerns were raised about design of the pedestrian and cycling network, including the proposed Footscray Road viaduct and Veloway. Impacts of tree removal was raised in a number of submissions, and the National Trust of Australia stated *“Despite the... proposed tree replacement and offset, the significant loss of trees at this scale, especially trees of 30-50 years cannot be underestimated”*.

Other issues

Submissions highlighted the impacts on fauna and flora, particularly in relation to Moonee Ponds Creek, Stony Creek Reserve, Kororoit Creek and the Maribyrnong River. Concerns were raised in relation to general impacts on Stony Creek, the loss of native vegetation, and in relation to the loss of planted trees and canopy cover.

Greenhouse gas emissions from construction and operations was raised as an issue in several submissions.

Construction traffic impacts were raised in many submissions including the traffic and amenity impacts of haulage routes and transport of spoil, and potentially contaminated spoil. Some submitters raised issues with potential changes to groundwater, which could lead to subsidence issues causing damage to properties and changes to groundwater flows.

Matters the IAC should not consider

The WDA noted in its Part A submission matters that it considered outside the assessment scope and the IAC’s Terms of Reference including:

- *Broad policy discussion about public expenditure on road infrastructure, or about the merits of entertaining market-led proposals;*
- *Consideration of alternative solutions to meet the Project objectives; or*
- *Consideration of alternatives outside the Project boundary.*⁴

1.5 Hearings

1.5.1 Hearings

A Directions Hearing was held at the Footscray Community Arts Centre (FCAC) on 19 July 2017, following which the IAC issued written directions.

Hearings for the Project were held for 27 days over six weeks, from 14 August to 19 September 2017. Hearings were held at the FCAC for 25 days, with the last two days being held at Anzac House in Collins Street. Those who represented the various parties, presented and gave evidence to the IAC are shown in Appendix C.

1.5.2 Procedural matters

There were a number of procedural matters to be addressed by the IAC, some of which include:

Request for documents

The City of Melbourne (CoM) requested the IAC direct the production of certain documents related to the peer review of the strategic traffic modelling. Following written and oral submissions the IAC declined the request and gave written reasons.⁵

Concurrent sessions

The Terms of Reference⁶ provided limited discretion, bound by quorum and fairness consideration, for the IAC to conduct concurrent sessions. Concurrent sessions were held on 15 September 2017 to hear from a range of individual submitters.

Request for confidentiality

VicRoads requested part of their submission be heard in a closed confidential session due to issues around security for parts of the Project area. The IAC acceded to the request and the issues raised have been considered and accepted in principle in the IAC's findings.

Use of Project Notes and Technical Notes

The CoM opposed the WDA's introduction of material into the Hearing via the use of 'Project Notes'⁷ (PN) and expressed concerns: that in many instances authors of the notes are unidentified; the notes were circulated late in the proceedings limiting the time available to consider it and that the merits of the information contained in the notes were not able to be tested via cross examination. The CoM introduced 'Technical Notes' (TN) in a similar

⁴ WDA Part A submission paragraph 89.

⁵ Document 185.

⁶ At clause 18 (d) and (e).

⁷ Even though the approach was agreed in principle at the Directions Hearing.

manner. The IAC noted concerns raised by the CoM and advised that the Project Notes and TN will be afforded similar weight in the IAC deliberations.

1.6 Site inspections

An accompanied inspection of the Project area was undertaken on 1 August 2017, which included the IAC, the WDA, and representatives from Councils, agencies and community groups. The inspection was a full day bus tour looking at the key components of the Project such as elevated structures, river crossings, construction compounds, portal locations and major transport routes.

The IAC members undertook a number of unaccompanied inspections of the Project areas and other relevant areas before, during and after the Hearings.

1.7 The IAC's approach to the task

The IAC has undertaken the assessment of the environment effects of the Project giving due weight to:

- The evaluation objectives from the Scoping Guidelines and as presented in the EES⁸; used to frame discussion in issues Chapters
- The Terms of Reference
- Relevant legislation and policy.

The report is structured around an outline of the Project, identification of key legislation and key policies, the consideration of the environmental effects by issue (Chapters 4 to 16), discussion of Project implementation via the Project tools and the Environmental Management Framework (EMF), followed by an integrated assessment at Chapter 19 of the overall environmental effects.

1.8 Project boundary

The Project Boundary for the Project is defined in the EES Map Book, Sheets 1 to 31, and as an attachment to the Incorporated Document, a key element of statutory approval. In the issues Chapters of this report the IAC makes a number of recommendations that if accepted, would require changes to the Project Boundary.

The IAC, in making such recommendations, is cognisant of the requirements in the Terms of Reference that *"feasible modifications to the design of the Project"* must be *"within or reasonably proximate to the Project Boundary..."*

Some of the recommended changes are design changes, other, such as mitigation proposals for Millers Road for example, are not changes to the design of the Project as such, but may require land to be included in the Project Boundary to facilitate implementation of mitigation. The IAC has not specifically detailed where it considers the Project Boundary might need to change, but the general areas of interest for consideration include:

- Millers Road north of the Freeway to Geelong Road (traffic mitigation works, noise and air quality mitigation)

⁸ EES Volume 1, Table 4-1.

- Geelong Road (air quality mitigation)
- Williamstown Road (noise and air quality mitigation)
- Hyde Street (property acquisition)
- City connections area generally (including the vicinity of E-Gate and CityLink, potential including existing railway infrastructure and rail stabling yards)
- North and West Melbourne (traffic mitigation works).

2 The Project

2.1 Project rationale

The Project seeks to address the following critical transport challenges:⁹

- Inadequate transport capacity on the M1 corridor
- Over-reliance on the West Gate Bridge
- Inadequate port and freight connections to cater for growth
- Reduced amenity in the inner west
- Mismatch between land use and transport.

To meet these challenges the Project seeks to fulfil the following specific objectives:¹⁰

- *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*
- *Reduced 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*
- *Improve freight access to the Port of Melbourne and greater Melbourne*
 - *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*
- *Improve community amenity on local streets in the inner west*
 - *To reduce freight on local streets*
 - *To improve safety on local streets.*

The benefits from the Project that should result are articulated in the EES¹¹ including:

- Reducing reliance on the M1 corridor by diverting 8,000 trucks a day from the West Gate Bridge
- Improving capacity across the Maribyrnong and Yarra Rivers
- Relieving pressure on existing river crossings
- Improving the resilience of the M1 Corridor
- Reducing peak period travel times

⁹ EES Volume 1, pES-5.

¹⁰ EES Volume 1, p1-2.

¹¹ From EES Volume 1, pES-11.

- Enable the removal of significant numbers of heavy vehicles from inner west streets
- Reducing bus journey times
- Providing a CBD bypass (via the Wurundjeri Way extension)
- Relieving congestion.

Specific freight-related transport benefits are said to include:

- Proving direct, unimpeded freeway access to the Port of Melbourne
- Improving travel times from the west to the Port of Melbourne.

2.2 Project inception

The Project was first proposed by Transurban in March 2015. In December 2015, the Victorian Government released the Business Case and announced it would proceed with the Project and was progressing Transurban's proposal.

In 2016 and early 2017, the Victorian Government conducted a competitive tender process for the design and construction of the Project informed by the Reference Design. The successful tenderer, CPB John Holland Joint Venture, provided the response which has been the subject of the EES.

The WDA noted that the assessment of the Project is significantly different to the recent East West Link and Melbourne Metro Rail Projects (MMRP) in that a specific project design rather than a reference project is available. The benefits of this include:¹²

- *There is a high level of certainty as to the alignment of the Project...;*
- *There is a well well-developed urban design concept for the Project;*
- *The impacts of the Project can be readily assessed by the various technical experts without speculation or opinion as to ultimate design or alignment;*
- *The statutory approval mechanisms including the EPRs can be framed in the context of a highly resolved set of base plans; and*
- *The EPRs and plans can be explicitly referenced in the planning approval governing the Project's development implementation.*

2.3 Project description

The general Project area is shown in Figure 1. The Project has the following components.

¹² WDA Part A Submission, paragraph 13.



Figure 1 West Gate Tunnel Project¹³

(i) West Gate Freeway

This includes the following:

- Upgrade and widening between the M80 Ring Road interchange and Williamstown Road, providing two additional lanes in each direction to increase the capacity to six lanes in each direction.
- The six lanes will be configured as two sets of three lanes in each direction:
 - The outer three lanes will provide access at all existing connections to the West Gate Freeway and link to the tunnels under Yarraville.
 - The inner three lanes will provide express lanes between the M80 Ring Road and the West Gate Bridge. Elevated ramps will provide a new connection between the West Gate Freeway and Hyde Street.

(ii) Tunnels

This includes the following:

- Two tunnels (one inbound with a length of 4 kilometres, one outbound with a length of 2.8 kilometres) under Yarraville catering for three lanes of traffic in each direction.
- The tunnels will extend from two southern portals located on the West Gate Freeway west of Williamstown Road (entrance) and west of the Newport freight rail line (exit) to a northern portal (entrance/exit) east of Whitehall Street, north of Somerville Road and west of the Maribyrnong River in Footscray.
- A tunnel ventilation structure will be located at each exit portal.

¹³ Figure 1-1 from EES Volume 1, p1-6.

(iii) Port, CityLink and city connections

This includes the following:

- A crossing of the Maribyrnong River near Footscray Road.
- Connections to the east and west sides of the Port of Melbourne via MacKenzie Road and Appleton Dock Road.
- Inbound connections will be provided to CityLink, along with connections to Footscray Road, Dynon Road and a widened Wurundjeri Way extended through to Dynon Road.

(iv) Other Project components

This includes the following:

- Princes Freeway widening between the M80 Ring Road interchange and Kororoit Creek Road.
- The relocation of nine high voltage electricity transmission towers near the West Gate Freeway and realignment of the North Yarra Main Sewer in Yarraville.
- Over 14 kilometres of new and upgraded walking and cycling paths, completing a continuous link from Werribee to central Melbourne. Upgrades include the Federation Trail, replacement pedestrian bridges near 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 a pedestrian bridge adjacent to Dynon Road bridge.
- The enabling of 24-hour truck bans in the inner west, removing up to 9,300 trucks from residential streets including Francis Street and Somerville Road.

The creation of almost nine hectares of new open space in Hobsons Bay, Maribyrnong and Melbourne, and improvements to existing open space.

(v) Modifications announced by the State Government during the Hearing

During the Hearing announcements were made by the State Government regarding changes to the Project that it had agreed *“in response to issues and concerns raised by the community”*. The announced Project changes include:

25 August 2017¹⁴

- Three additional noise walls to be built along the West Gate Freeway:
 - Crofts Reserve (Altona North)
 - Mclvor Reserve (Yarraville)
 - Stony Creek Reserve (Yarraville)
- The operator will be required to maintain reduced noise levels throughout the term of the contract and for twenty years after the opening of the Project.

¹⁴ Press Release ‘Only the best for the west with the best noise walls in Melbourne’.

29 August 2017¹⁵

- Two more truck bans (24 hours / 7 days a week) will be applied to local roads when the West Gate Tunnel opens:
 - Blackshaws Road (full length from Melbourne Road to Grieve Parade) in Altona North
 - Hudsons Road (Between Booker Street and Melbourne Road) in Spotswood.

The Press Releases further stated:

Further incentives will also be provided for the transport and logistics industry to use the West Gate Tunnel.

To improve freight productivity and reduce costs, the tunnel operator will be required to set discounted shuttle rates and cap maximum daily tolls for trucks making multiple trips through the tunnel, as well as night time discounts.

Shuttle rates, trip capping, night time discounts and truck bans will provide incentives for industry to use the new, faster, more efficient route for trucks travelling to the Port of Melbourne.

Trucks with a local origin or destination in the area will be exempt from the truck bans.

14 September 2017¹⁶

The Press Releases stated:

As part of the contract, the toll road operator will be required to include only one truck toll point instead of two on the West Gate Freeway, reducing the number of trucks using Millers Road.

The Government has also committed to working with Millers Road residents on noise reduction measures to make their homes quieter.

The updates could include options like double glazing, insulation, fencing and air conditioning, and would be done in consultation with owners of properties that front Millers Road between the West Gate Freeway and Geelong Road.

In response to the content and status of the media announcements, the WDA advised that the changes announced reflect commitments by the State Government, and accordingly, the IAC should have regard to them.

The IAC accepts that the proposed modifications will provide positive effects and has included them in the recommendations.

¹⁵ Press Release 'West Gate Tunnel Project to deliver more 24/7 truck bans'.

¹⁶ Press Release – "Fewer trucks and less noise with West Gate Tunnel".

3 Legislative and Policy Context

The Project is being developed and assessed within a complex legislative and policy environment.

3.1 Legislative context

An overview diagram of key statutory approvals is shown in Figure 2. The Project is not a controlled action under the Commonwealth environment legislation.

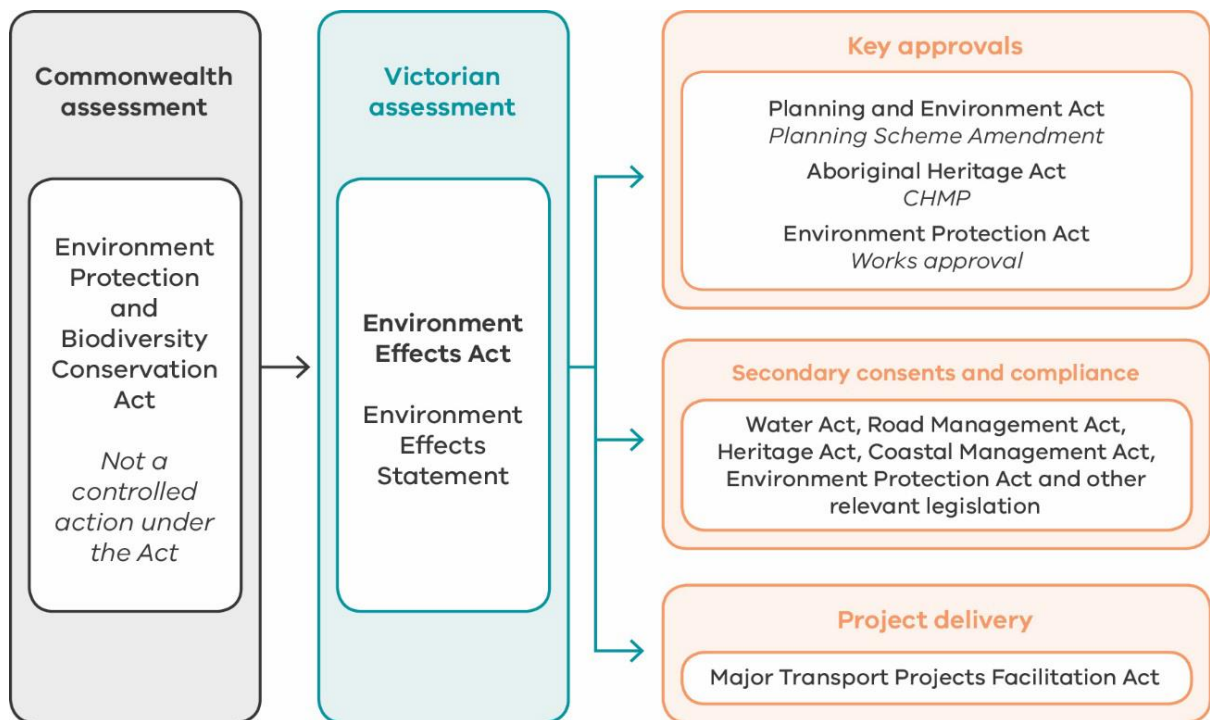


Figure 2 Key Project approvals¹⁷

3.1.1 Assessment and approvals

(i) Environmental assessment

The EE Act provides for the integrated assessment of works that have the potential for significant environmental effects. The Inquiry was appointed under section 9 of the EE Act and this report will inform the Minister for Planning’s Assessment of the Project.

¹⁷ Figure 1-4 from EES Volume 1, p1-16.

(ii) Project approvals

The key statutory approvals required for the Project are as follows, with a range of other specific approvals likely to be required for different elements of the Project.¹⁸

Planning Scheme Amendment

A draft Planning Scheme Amendment (PSA) under the P&E Act was exhibited with the EES. The Amendment¹⁹ to the Melbourne, Port of Melbourne, Wyndham, Brimbank, Hobsons Bay and Maribyrnong Planning Schemes will introduce a site specific control under clause 52.03 for the Project and introduce an Incorporated Document that removes the need for planning permits where development is consistent with the Incorporated Document. The Amendment also introduces the Design and Development Overlay (DDO) over the tunnels in the Hobsons Bay and Maribyrnong Planning Schemes to protect them from works on the surface. Chapter 18 provides greater detail of the elements of the PSA and reviews submissions in relation to them.

Cultural Heritage Management Plan

A Cultural Heritage Management Plan (CHMP) is required under the *Aboriginal Heritage Act 2006*²⁰. The IAC understands a CHMP was approved on 6 September 2017.

Works Approval

A Works Approval is required in accordance with the *Environment Protection Act 1970* (EP Act) and the *Environment Protection (Scheduled Premises) Regulations 2007* for the construction and installation of the road tunnel ventilation systems, which are required as part of the Project. A license for emissions will be required in due course.

A Works Approval Application (WAA No. S0100269) was exhibited in accordance with section 20AA of the EP Act.

The material in the WAA is largely that used in the EES in relation to air quality and noise. Because of this the IAC has not undertaken a separate analysis of the WAA. The commentary and recommendations in the relevant Chapters apply to the environment effects assessment and the WAA.

3.1.2 Project implementation

The *Major Transport Projects Facilitation Act 2009* (MTPF Act) facilitates the assessment and delivery of major transport projects in Victoria. Projects may be declared under this Act for assessment or delivery powers (or both). The Project has been declared under the MTPF Act for the purpose of Project delivery.²¹

¹⁸ See EES Volume 1, Section 1.9.3, p1-17.

¹⁹ Draft Amendment GC65, in Attachment IV to the EES.

²⁰ The CHMP was approved on 6 September 2017.

²¹ This is explained in more detail in the WDA Part A Submission, Document 10, paragraphs 71-74.

3.1.3 Transport Integration Act

The consistency of the Project with the *Transport Integration Act 2010* (TI Act) attracted significant submissions at the Hearing.

The TI Act establishes a framework for an integrated and sustainable transport system in Victoria. While not a specific statutory approval requirement, the TI Act requires transport and interface bodies to consider the transport system objectives²² and decision-making principles²³ when making decisions relevant to the transport system. The Project should be consistent with the transport system objectives contained in the TI Act and it must be considered in the draft PSA.²⁴

(i) Evidence and submissions

The WDA's position can primarily be found in a detailed assessment against the TI Act in the EES,²⁵ the draft Explanatory Report for the Amendment²⁶ and further articulated in its Part A Submission.²⁷

Mr Kiriakidis in evidence for the WDA prepared a table comparing the TI Act objectives with Project elements which he said "*reveals a high level of alignment with [TI Act] objectives*".²⁸

The CoM prepared their own version of the same table²⁹ which it submitted demonstrated that the Project does not meet the objectives of the TI Act.

A number of submitters criticised the Project on the basis that the State does not have a Transport Plan³⁰ as required under section 63 of the TI Act, and this implies a level of 'illegality' for the Project.

The WDA submitted that while there is not one overall transport plan for the State, there are many plans including public transport plans, that as a whole contribute to an overall transport plan. The WDA noted that other recent projects such as MMRP and Regional Rail were not prevented due to the lack of a Transport Plan.

Other submitters criticised the Project against the TI Act as it is said to entrench private car dependent travel at the expense of public transport, and the city and west need more mass transit public transport, not more roads.

²² Social and economic inclusion, economic prosperity, environmental sustainability, efficiency, coordination and reliability, integration of transport and land use, safety health and wellbeing.

²³ Integrated decision making, triple bottom line assessment, equity, transport user perspective, the precautionary principle, stakeholder engagement and community participation and transparency.

²⁴ This is required in Ministerial Direction 11 under the P&E Act, Strategic Assessment of Amendments, Clause 3(i).

²⁵ EES Volume 1, Section 9.4, p9-20.

²⁶ Appendix A to Attachment IV of the EES.

²⁷ Document 10, paragraphs 75-80.

²⁸ Expert witness statement Mr Kiriakidis, pp50-52.

²⁹ Document 78.

³⁰ The IAC understands the 2008 Plan was withdrawn some years ago and has not been replaced.

The WDA argued that the Project is “*unashamedly a road project*”, and the provision of public transport in the region is being met by other projects including MMRP and Regional Rail and it should not be expected that any one project would meet all elements of the TI Act.

(ii) Discussion and conclusion

The legislation is quite clear that there is a requirement under the TI Act for the State to have a Transport Plan.³¹

Without such a plan, it is difficult to put this Project, and other major transport projects, into a logical context for the community to understand the transport system that is desired. Such a plan would be useful in understanding how this and other projects sit within the bigger transport picture to provide a clear vision for Victoria’s transport future. It would also give greater confidence to the community that while a single project may not meet all of the transport objectives, there are other strategies in place to do so.

That being said, the IAC is aware that the State Government has been rolling out the Regional Rail Project, along with the MMRP that adds transport capacity to the western region. These projects are of a comparable city shaping scale as the Project and the IAC accepts that these are relevant considerations in assessing this Project against the legislation.

It is clear from the exhibited material and submissions that the WDA has considered the TI Act in some detail, even if submitters do not accept their conclusions. To the IAC, many of the submissions around this topic are clearly seeking a totally different project, one that is primarily public transport focused. Whatever the merits of these views, the role of the IAC is to assess the environmental effects of this Project.

The IAC concludes that while there can be debate about the extent to which the Project meets the objectives and principles of the TI Act, it is satisfied that they have been considered to an adequate degree. There are many elements of the Project highlighted in the assessment that go to meeting the objectives of the TI Act. There is nothing before the IAC that suggests there is a fundamental flaw in the assessment against the TI Act that should lead to a recommendation that the Project not be supported.

3.2 High level policy context

In addition to State and local planning policy in the relevant planning schemes (see Chapter 5). The WDA highlighted a number of high level policies relevant to the Project.

3.2.1 The Eddington Report

The Eddington Report was released in 2008 following an investigation into an East West Link Needs Assessment. The report made a number of high level findings used to support this

³¹ Under section 63(1) a plan *must* be prepared for the Minister.

Project and the former East-West Link (Eastern Section) proposal in 2014. The WDA submitted some of the key findings in the Eddington Report relevant to this Project are:³²

- The need for an alternative to the West Gate Bridge
- Transport issues in the west are more pressing due to population growth
- Freight movement needs are growing quickly
- Truck movements in the inner west need to be addressed
- Gaps in the east-west cycling network need to be addressed.

The Eddington Report identified two western corridor options, one generally aligning with the Project, and the other to the north generally following the alignment of Sunshine Road from Footscray and linking with the Western Ring Road.

The WDA submitted that the most urgent needs identified by Eddington were the alternative to the West Gate Bridge and improving the residential amenity of the inner west by removing heavy vehicles from key areas.

3.2.2 Plan Melbourne

The State's metropolitan strategy, Plan Melbourne 2017-2050, was released in March 2017 and is the primary blueprint for city wide growth and development. The Project is identified in general terms on maps; particularly on Map 17 where it is identified as 'committed infrastructure'.³³

The WDA drew the IAC's attention to many Directions in Plan Melbourne it said support the development of the Project and its aims in terms of freight movements, improving residential amenity in the inner west and improving arterial road connections. Plan Melbourne and the Project's responsiveness to it is further addressed in Chapter 5.2.

3.2.3 Port and freight planning

The WDA submitted that Infrastructure Victoria in its *Advice on Victoria's Future Port Capacity* recognise that the Port of Melbourne will be the State's only container port until Bay West is developed in perhaps 30-40 years time; and that between now and then the Port is likely to grow substantially in terms of throughput with consequent need to improve freight movements.

The IAC accepts the Project enjoys significant strategic support from the State Policy framework.

³² Document 10, paragraph 43 onwards.

³³ Document 10, paragraph 51.

PART B: ENVIRONMENTAL EFFECTS OF THE PROJECT

4 Traffic and Transport

Traffic and Transport impacts are addressed in the EES in Volume 2 West Gate Freeway Chapter 11, Volume 2 Tunnels Chapter 18, Volume 4 Port, CityLink and City Connections Chapter 25, and in Technical Report A Transport Part 1 and Part 2.

The evaluation objective for traffic and transport in Table 4-1 of the EES is:

Transport capacity, connectivity and traffic management – To increase transport capacity and improve connectivity to and from the west of Melbourne and, in particular, to increase freight movement via the freeway network instead of local and arterial roads, while adequately managing effects of the works on the existing broader and local transport networks, including road, public transport, cycling and pedestrian transport networks.

The IAC notes that traffic and transport impact on the potential to meet other evaluation objectives, in particular those relating to health, amenity and environmental quality and social, business, land use, public safety and infrastructure.

The following evidence was called in relation to traffic and transport impacts:

- WDA – Tim Veitch of Veitch Lister Consulting, and John Kiriakidis of GTA Consultants
- CoM – Stephen Hunt of Ratio Consultants, Eric Keys of Eric Keys and Associates, and Marco Lucioni of Cardno
- Maribyrnong City Council (MCC) – Russell Symons of Ratio Consultants
- Hobsons Bay City Council (HBCC) – Andrew O’Brien of O’Brien Traffic
- Ashe Morgan – Chris Butler of Cardno, and Justin Madden of Arup [Paul Simpson, Justin Madden, Paul Stanley, Amy Child, Mike Colman]
- Dr Patrick Love - Dr John Stone of The University of Melbourne and Mr Douglas Harley.

Six conclaves relating to traffic and transport matters were held as set out in Table 1.

Table 1 Traffic and Transport Conclaves

Document Number	Attendees	Date
D50	Russell Symons, John Kiriakidis, Agnelo Duarte of VicRoads	14 August 2018
D51	Steve Hunt, John Kiriakidis, Agnelo Duarte	14 August 2018
D59	Chris Butler John Kiriakidis, Agnelo Duarte	14 August 2018
D60	Marco Lucioni, John Kiriakidis, Agnelo Duarte	14 August 2018
D61	John Stone, Eric Keys, John Kiriakidis, Agnelo Duarte	15 August 2018
D62	Time Veitch, Eric Keys	18 August 2018

Many submissions raised issues relating to traffic and transport³⁴, ranging from high level strategic issues to detailed road safety issues at individual locations, public transport and active travel.

4.1 Key issues

The Committee considers that key traffic and transport issues relate to:

- Meeting Project Transport Objectives
- Adequacy of the strategic transport modelling
- Provision of the city connections
- Provision of Port connections
- Impact on Millers Road, Brooklyn
- Bicycle and pedestrian facilities
- Construction traffic impacts
- Tolls
- Other issues.

4.2 Meeting Project Transport Objectives

The Project Transport Objective has four themes:

- To increase transport capacity
- To improve connectivity to and from the west
- To increase freight movement via the freeway network instead of local and arterial roads
- To adequately manage effects of the works on the existing broader and local transport networks (road, public transport, cycling and pedestrian networks).

The ability of the Project to meet the first three themes is discussed under this key issue, while the ability to manage the effects of the works is discussed under other key issues.

4.2.1 Evidence and submissions

(i) WDA

The WDA submitted that the Project, by way of widening of the West Gate Freeway and the provision of a new bridge over the Maribyrnong River, increased transport capacity over the Maribyrnong and Yarra Rivers and improved network resiliency. The direct link across to West Melbourne and Swanson Dock from the West Gate Freeway improves connectivity to and from the west. In addition, the provision of new and improved shared paths and cycle ways, including the completion of missing links for the Federation Trail and the proposed Veloway, improve connectivity for pedestrians and cyclists.

The EES included a performance measure for the Project of providing a level of service (LOS) D for all freeway segments and a LOS of D or a degree of saturation (DOS) of 0.9 or better for all intersections.³⁵ Mr Kiriakidis gave evidence that where these performance measures

³⁴ Refer Document 21, Issues 185-230, pp51-66.

³⁵ Technical Report A Part A section 7.5.2.

were not met it was acceptable, given that the 'No Project Case' typically operated under a similar level of service. He had been advised by GHD that an exemption to the targets had been granted, but he was not aware who had granted the exemption. Examples highlighted by Mr Kiriakidis³⁶ include: West Gate Tunnel entrance and midblock, Williamstown Road merge, Hyde Street diverge, MacKenzie Road on-ramp merge at the northern portal entry, Dynon Road on-ramp merge, Dynon Road off-ramp and Footscray Road diverge, Williamstown Road interchange, Hyde Street/Francis Street intersection and Dudley Street/Wurundjeri Way intersection.

When considering the capacity of the Project, WDA submitted that it was appropriate to consider the Project against a 'No Project Case' at the same time period, in this case 2031 being roughly 10 years post opening, in accordance with EES assessment guidelines.

The EES indicated that the objective to increase freight movement via the freeway network instead of local and arterial roads was met given that 9,300 trucks per day would be removed from residential inner west streets, allowing for an increase of 1,500 in daily trucks on Williamstown Road, between Francis Street and Geelong Road. This net reduction is to be achieved by applying full-time truck bans on sections of Moore Street, Francis Street, Somerville Road and Buckley Street and the removal of the Moore Street truck curfew exemption. During the Hearing the State Government committed³⁷ to adding full-time truck bans on sections of Blackshaws Road and Hudson Road, reflecting the strategic modelling assumptions.

During the Hearing, WDA acknowledged that this reduction in trucks on inner west residential streets did not take account of an increase of 7,000 trucks per day on Millers Road between Geelong Road and the West Gate Freeway (which is residential on its western side). PN1 provided a sensitivity test removing the proposed toll point on the freeway to the west of Millers Road. This had the effect of limiting the increase of trucks on Millers Road to 4,000 trucks per day. It also increases the volume of trucks on Williamstown Road by 250 trucks per day. The removal of the toll point west of Millers Road was announced as part of the Project during the Hearing³⁸.

At the request of the IAC, WDA submitted PN62 containing an assessment of the change in truck vehicle kilometres travelled in the Project area with the Project, against the 2031 No Project Case. PN62 advised that the Project will result in 58,100 additional truck kilometres travelled on the freeway network, while there would be a reduction of 18,700 and 3,600 truck vehicle kilometres travelled on the arterial and local roads, respectively. Mr Kiriakidis agreed that this was an appropriate analytic metric for the Project objective³⁹ and that the data in PN62 shows that the Project will meet the objective of increasing freight movements via the freeway network in lieu of other roads.

³⁶ Document 75.

³⁷ Refer PN66 advising of Minister for Roads media announcement, 28 August, 2017.

³⁸ Media Release by the Hon. Luke Donnellan MP, Thursday, 14 September, 2017.

³⁹ Document 284.

Mr Kiriakidis gave evidence, that while the Project sought to retain a third lane in the tunnel for network resiliency purposes, the microsimulation modelling had used the third lane southbound from the tunnel invert to provide sufficient capacity at the merge point beyond the tunnel exit. He recommended a review of the southern outbound portal interactivity with the Millers Road exit ramp and potential for weaving⁴⁰, and that the Paramount Road connection option be further explored.

The WDA submitted that city connections to the Project were needed to meet the Project objectives and the multiple city connections helped to spread the traffic in a 'delta' approach. The EES contained an assessment of four options for city connections, including a no connection option. The no connection option was found to not reduce reliance on the West Gate Bridge and would provide a poor level of service for traffic using the M1 corridor to access areas north and west of the central city. PN60 provided traffic volumes associated with each option and included a fifth option, requested by CoM, with no connection to Dynon Road. The microsimulation indicated capacity problems along CityLink and Footscray Road with Option 5, and resulted in a very high increase in traffic on Dudley Street.

Mr Kiriakidis gave evidence that the transport objective did not have a specific requirement to increase public transport capacity or performance, rather the objective was for overall transport capacity with a specific objective for freight. This Project, he noted, was only one of a raft of transport projects in Melbourne. The WDA made reference to the Regional Rail Link, Melbourne Metro and Level Crossing Removal Projects as examples of public transport projects.

(ii) VicRoads

VicRoads submitted that significant weight should be placed on its support for the Project, which is considered to contain works that are *"important in ensuring the ongoing safe and efficient operation of the freeway network, movement of people and goods, and to ensure the achievement of VicRoads' obligations under the Transport Integration Act"*⁴¹. VicRoads strongly supported the removal of the toll point west of Millers Road to incentivise the use of the West Gate Freeway and reduce the forecast truck volume on Millers Road.

VicRoads invited the IAC to recommend exploring alternative mechanisms for truck ban monitoring beyond physical surveillance by VicRoads.

VicRoads did not support the inclusion of additional freeway ramps at Grieve Parade or Dohertys Road, as requested by HBCC, nor the completion of a road connection from Paramount Road in Tottenham to the West Gate Freeway as sought by MCC. Ramps at these locations were considered by VicRoads to be unfeasible due to weaving issues on the Freeway and outside the scope of the Project, among other reasons.

VicRoads submitted that the provision of high occupancy vehicle, transit or bus lanes on the West Gate Freeway within the Project boundary is not feasible nor warranted as a part of this Project, with the exception of the included priority lanes for trucks and buses on the

⁴⁰ Document 74.

⁴¹ Document 111.

eastbound on-ramps at the Millers Road and Grieve Parade interchanges. Elsewhere, due to space limitations, priority lanes would be likely to negatively impact on the operation of the West Gate Freeway corridor. VicRoads noted studies have shown that ride sharing programs resulted in little benefit to the overall traffic flow or congestion.

VicRoads submitted that it did not support a reduction of traffic lanes on Footscray Road as suggested by Mr Hunt, as the existing capacity is required for future growth and network resilience.

(iii) Hobsons Bay City Council (HBCC)

HBCC sought the inclusion of freeway ramps at Grieve Parade and Dohertys Road to improve access to the Altona and Brooklyn industrial areas to and from the west and to relieve pressure on Millers Road. The feasibility of these ramps was supported by evidence from Mr O'Brien.

Mr O'Brien recommended transit lanes on the freeway and or ramps to assist public transport and encourage ride sharing.

(iv) Maribyrnong City Council (MCC)

MCC sought the inclusion of a new connection to the freeway between Millers Road and Williamstown Road, referred to as the Paramount Road connection. Mr Symons gave evidence that a Paramount Road connection would reduce the travel distance, compared to a Millers Road route by one kilometre and reduce travel times by around two minutes⁴². He noted that part of the required road reservation already has the public acquisition overlay applied.

At the transport conclave⁴³ it was agreed by Mr Symons and Mr Kiriakidis that a Paramount Road connection could be considered as part of broader context of managing freight in the Brooklyn/Tottenham area but it should not form part of this Project. Both considered that the Project should not preclude a future connection.

(v) City of Melbourne (CoM)

The CoM submitted the Project does not meet the Transport Objective as it does nothing to improve the capacity of public transport. Further the EES did not adequately demonstrate that the provision of city connections was needed to meet the Project objectives.

The CoM submitted that the EES failed to consider alternative options, even where Project elements, such as the Dudley Street/Wurundjeri Way intersection, failed to meet its own objectives or targets and performance was simply ignored⁴⁴. The CoM sought the enhancement of pedestrian movements along and across Dudley Street.

⁴² P11 of witness statement by Russell Symons.

⁴³ Document 50.

⁴⁴ Document 150 p7.

Mr Hunt gave evidence that the Footscray Road cross-section under the viaduct (Project) could be reduced.

(vi) Other submitters

The Hyde Street Residents Group⁴⁵ submitted that diverting truck traffic from Francis Street to Hyde Street does not meet the Project objective of removing trucks from residential streets and that the LOS of F for the Francis Street/Hyde Street intersection was not acceptable.

There were several submissions that sought the inclusion of transit lanes on the West Gate Freeway.

4.2.2 Discussion

There was general agreement that the Project meets the transport objectives of improving transport capacity, improving connectivity to and from the west and moving freight from residential streets. With regard to the latter, the truck kilometre travelled by road category clearly shows that there is an overall reduction in trucks on residential streets. However, there are still some residential frontage, principally Millers Road and Williamstown Road, that will have increased truck volume as a result of the Project. This is primarily due to the full-time truck bans proposed in Yarraville and Footscray. The effects of those increases will need to be carefully managed. It will be important to enforce the truck bans to realise the full benefits of the Project.

There is a specific residual risk not identified in the EES in relation to the diversion of trucks onto Millers Road from the inner west streets. While it may be possible to mitigate some of the impacts on the adjacent residential community, this road will have a physical and environmental capacity limit that have not been explored in the EES. Further work should be undertaken to understand the residual risk, mitigation measures and to ensure that a solution to managing medium to long term growth in truck traffic between the Brooklyn/Tottenham industrial area and the Port is developed.

In this regard, it is noted that the Business Case for the Project⁴⁶ includes a future Northern Corridor east-west link between the M80 and City Link, which may provide some relief in the long term.

Performance Targets

EPR TP1 contains a requirement to optimise design performance to *“minimise adverse impact on travel time”* and to *“maintain, and where practicable, enhance the existing traffic movements at interchanges”*.

In the EES Summary Report at page 15, it states that some of the key transport benefits include *“significantly reducing peak period travel times”* and *“Reducing bus journey times”*. The concept of reducing travel times is not reflected in EPR TP1.

⁴⁵ Submission 192.

⁴⁶ Document 68.

The EES contains LOS and DOS performance targets, yet accepted that these would not be met at a number of locations.

In making the decision that it was acceptable for some performance targets not be met, there was no assessment provided in the EES of any potential mitigation works to improve performance of the road network or any advice that such a decision was approved by the relevant road authorities. There was no evidence that the road authority may or may not seek to take action to improve performances, nor any assessment of whether the design of the Project may preclude future upgrades, or if there was any benefit in the Project seeking to actively facilitate, through its design⁴⁷, any future upgrades.

Unlike performance targets set for noise and air quality, there are no performance targets in the EPR for traffic performance.

This EES is not related to a new land use where it may be appropriate to require mitigation only for the additional impacts caused to the road network by the development and not hold the developer responsible for the road authorities' obligations to improve the arterial network. By contrast this Project is aimed at improvement of the road network itself to meet VicRoads' obligations under the TI Act. The EES (Volume 1 section 1.1) recognises the *"increasing pressure on Melbourne's transport network, particularly the already constrained connections to, from and through the city's west"* and that the *"Project is an important opportunity to deliver real improvements to Melbourne's transport performance in the heavily used M1 corridor and relieving pressure on the West Gate Bridge"*.

This Project, particularly by virtue of new bridges and other treatments, may make it difficult, or even potentially preclude future upgrades to intersections and freeway ramps and interchanges. For example, the proposed Wurundjeri Way extension overpass of Dudley Street has the potential to add a further constraint to widening Dudley Street as it utilises the full available road reservation within the Wurundjeri Way reserve to the south of Dudley Street. This is of particular concern given that this intersection is predicted to operate at a LOS of F with and without the Project, and the modelling has not fully considered the traffic impacts of the development of E-Gate, an urban renewal area identified in Plan Melbourne.

A 10-year period in the lifespan of a critical and large piece of infrastructure is very short. Providing a LOS D or a DOS of 0.9 would provide some spare capacity for further growth while balancing the impacts of cost and potential for other changes to road user behaviour that may occur over a longer time frame.

Additional connections to the West Gate Freeway

With respect to future freeway ramps at the Dohertys Road and Grieve Parade interchanges, such facilities may provide additional connectivity to the road network. The IAC considers based upon the evidence and submissions advanced, that the ramps are not required to meet the Project objectives.

⁴⁷ For example, by setting back bridge abutments to allow for future road widening.

With respect to a Paramount Road corridor connection, while this may have benefits, particularly in reducing truck traffic on Millers Road, it is clear that the location of the southern exit portal will preclude an at or above grade connection with the West Gate Freeway. It is clear from the lack of connectivity of the Public Acquisition Overlay (PAO) for the corridor to the freeway that VicRoads lack of support for such a connection is well established. In addition, it is clear there are other long-term plans to provide a connection from the Brooklyn/Tottenham area to the Port via other projects including the Northern Corridor.

City Connections and Footscray Road

The data and analysis in the EES and PN60 show that there is benefit in having city connections to the Project, in particular providing improved connectivity to and from the west. However, the management of the effects must be considered.

The IAC accepts VicRoads' submission that Footscray Road is strategic infrastructure that must be carefully managed to ensure it can accommodate future growth. The IAC notes that the EES does not show that the traffic volumes on Footscray Road will drop below current levels, rather the considered 'reduction' is from the 2031 No Project case. Accordingly, the Project does not in itself justify a reduction in traffic lanes on Footscray Road, and weight must be given to VicRoads' advice as the responsible road authority.

Transit Lanes

There is no evidence that special use lanes on the West Gate Freeway, other than at the Millers Road and Grieve Parade citybound on-ramps, would provide any operational benefit. The IAC accepts VicRoads' submission that they would likely have a negative effect on the Project objective to improve transport capacity.

4.2.3 Findings

The IAC finds that:

- The Project, with no toll point west of Millers Road, generally meets the Transport Objectives, subject to management of its effects. There is no justification to increase the scope of the Project to include additional ramp connections to the West Gate Freeway or to include special use lanes on the freeway.
- The provision of city connections assists in meeting the Project's Transport Objectives, subject to management of the effects.
- EPR T1 should include transport performance objectives that reflects the scoping aims and identified Project key benefits, but allow VicRoads to grant exemptions to the Transport Performance Objectives, in consultation with the relevant local council.
- Further work is required to understand and manage the residual risk on Millers Road north of the West Gate Freeway.
- The Footscray Road cross-section is a matter for VicRoads to manage.
- Alternative mechanisms for truck ban monitoring beyond physical surveillance by VicRoads should be explored to ensure compliance with the proposed truck bans.

4.3 Adequacy of the strategic transport modelling

Key concerns were expressed regarding the strategic transport modelling⁴⁸, centred around the consideration of induced demand and the use of a single distribution method, in comparison to a loop through distribution method, in the four step modelling process.

During the Hearing it emerged that while the EES did not contain a peer review of the strategic modelling, a peer review (the Allard Review) had been prepared for the Business Case. The IAC considered and denied a request from the CoM for the production of the Allard Review and other associated documents given their status as Cabinet documents or documents that could reveal the contents of Cabinet deliberations.⁴⁹

4.3.1 Evidence and submissions

(i) WDA

The WDA called Mr Veitch to give evidence and he was subject to significant cross-examination by the CoM, including on the final day of the Hearing.

Mr Veitch gave evidence that the strategic model was fit for purpose. He noted that the single distribution method for forecast modelling of traffic flows produces a more realistic result than a loop through distribution approach. The WDA tendered “Review of Travel Forecasting Methodologies – Draft Internal Working Document”⁵⁰ prepared by Veitch Lister Consulting in 2015, which provided a comparison of a 2031 forecast using the single distribution model and the full loop through distribution model. The single distribution model results in higher overall trip lengths than the alternative approach. Mr Veitch contended that this approach reflects that people may not change to a closer destination (shortening trip) to avoid congestion, but rather change their journey time (peak spreading) or mode, which was accounted for in the modelling for the EES. He noted that the existing conditions modelling uses the full loop through distribution approach, and that this model is calibrated against real data.

Mr Veitch advised that the State owned VITM model⁵¹ is a four-step model that uses the alternative loop through distribution approach. He agreed under questioning, that having two strategic models available in Victoria is of value. He said both can lead to a better understanding of models, the different limitations of each models and help highlight risks.

In respect to induced demand, Mr Veitch advised that the induced demand components not considered in the modelling are: change of departure time (which does not affect daily volumes); making more or fewer trips (which VicRoads and DEDJTR advised has minimal impact); and induced land use demand (which may have an impact of around 2 per cent)⁵². The strategic modelling is reported in the EES with a +/- 10 per cent band. A comparison of

⁴⁸ The Zenith model, owned by Veitch Lister Consulting

⁴⁹ See Document 185.

⁵⁰ Document 185.

⁵¹ Victorian Integrated Transport Model.

⁵² Document 66 p14.

four interstate modelling projects using the Zenith model indicates that the Zenith model produces results in the range of 10 per cent underestimate to 30 per cent overestimate.

(ii) VicRoads

VicRoads submitted that it is generally supportive of the modelling but had no role in the review or testing of it.

(iii) CoM

The CoM submitted that in accordance with the Minister's Order under section 3(1) of the EE Act dated 23 December 2015 the EES should have been accompanied by a peer review of the strategic modelling.⁵³

It was argued that transport modelling is "*technically or scientifically complex*". Further, the reliability of the strategic modelling could not be easily verified as it is a proprietary model and there exists a range of expert views as to the appropriate methodology. The CoM raised a number of concerns⁵⁴ with the strategic modelling, including: the lack of inclusion of public transport capacity which may result in an overestimate of public transport use and corresponding underestimate of traffic volumes; the lack of information on tolling assumptions; and the single distribution approach.

The evidence of Mr Keys supported these submissions by CoM.

Mr Keys considered that the margin of error for the strategic modelling, based on the data presented by Mr Veitch for other modelling projects, could be up to 30 per cent.

(iv) Other submitters

Several submitters raised concerns regarding the strategic modelling, particularly in relation to induced demand.

Dr Love called Mr Harley to give evidence in relation to the strategic modelling. Mr Harley advised that induced demand could be significant and should not be excluded, and noted that it has not been dealt with properly in the past. He noted that unlike the VITM model the Zenith model is difficult to scrutinize by a third party.

Mr Croft submitted that the Veitch Lister modelling for Brisbane Airport Link prior to opening had an error of 21-60 per cent and a later release of information after opening revised the error margin to 1 per cent.

4.3.2 Discussion

The EES relies heavily on the strategic transport modelling data for evaluating the impacts of the Project across almost all aspects, including: traffic, noise and vibration, greenhouse gas and air quality impacts.

⁵³ The IAC notes this requirement was not included in the revised orders of 14 May 2017.

⁵⁴ Document 156.

The EES contained the results of the Veitch Lister modelling but no peer review of that modelling. The peer reviewer for the EES, Mr Pelosi, did not review the strategic modelling and neither did the WDA's traffic witness.

The Business Case for the Project relied on traffic volume modelling data from the same Zenith model and a peer review (the Allard Review) was undertaken as a part of the Business Case. Following that peer review, the model underwent a number of changes to respond to the peer review but not the recommendation to increase the feedback loop in the modelling to include trip diversion.

The IAC considers that a peer review would have been of assistance. Alternatively, a comparison with outputs from the VITM model would have provided insight into the alignment of output from the strategic modelling. Notwithstanding, the IAC notes there is no evidence that the modelling has been underestimated by more than 10 per cent, even if some allowance was made for induced demands and a loop through distribution model was used. By contrast the evidence indicates that strategic models more often over-estimate traffic forecasts. This outcome was cited by submitters, and shown by Mr Veitch's own data for other Project forecasts.

The IAC notes that while it was not provided with the peer review, one had been done and some changes to the model resulted from that process. The existing conditions model had been calibrated in accordance with VicRoads' guidelines and a validation report is contained within the EES.

In respect to evaluating Project impacts, the IAC considers it to be of greater importance to rely on data that may have been overestimated than one that underestimates the impacts. It is noted that the air quality and noise impacts were assessed using the upper end of the traffic volume ranges given, which include a 10 per cent margin.

4.3.3 Findings

The IAC finds that:

- The strategic model is reasonably fit for purpose and accepts that the peer review undertaken as part of the Business Case informed improvements to the model.
- Provision of a peer review would have been of assistance (for future projects modelling reports should be accompanied by a peer review or a validation against an alternative model).

The IAC in making this finding, notes that models are just that and there are a myriad of factors that could influence the accuracy of forecasts that can be unknown, to even the most skilled forecaster at the time the forecast was made. This must be considered in all risk assessments that rely on modelling.

4.4 City connections

4.4.1 Evidence and submissions

(i) WDA

Options

The EES states that city access connections help to achieve the Project objective of reducing pressure on the West Gate Bridge and improving transport performance of the M1 corridor. Four options for city connections, including a no connection option are briefly discussed in the EES, with Option 4, the recommended option, used for analysis of impacts in the EES. The EES shows that with Option 4, traffic volumes when compared to the No Project Case will be reduced on city streets such as Dudley Street, King Street and Spencer Street, while there will be increases in traffic on streets in West Melbourne.

During the Hearing, WDA submitted PN43 and PN60 which contained additional traffic information in relation to the various city connection options. PN60 contained an assessment of a fifth option at the request of the CoM, which is similar to Option 4 but omits the connection to Dynon Road. PN60 included traffic volumes in North Melbourne and West Melbourne for each for option.

The WDA submitted that Option 1 (no city connections) has the effect of increasing traffic in the central city while decreasing use of Wurundjeri Way. Commuter traffic is channelled to the Footscray Road on-ramp to access the tunnel westbound competing with freight traffic, contrary to the Project objective of improving freight access to the port. Option 2 adds a connection to Footscray Road reducing the use of the ramps for port access. Traffic is increased substantially on Dudley Street and Footscray Road leading to unacceptable impacts. Option 3 included a Dynon Road connection and this lead to an unacceptable impact on Dynon Road, which lead to Option 4 adding in an extension of Wurundjeri Way to Dynon Road to provide a city bypass from the west. Option 5, removing the Dynon Road connection from Option 4, produces unacceptable impacts on Footscray Road and Dudley Street as well as a significant impact on La Trobe Street. Traffic volumes on Wurundjeri Way extension are much lower than in Option 4.

The WDA submitted that a “delta” approach to providing city connections helps to spread the impacts and achieves the CoM’s aspiration of reducing traffic in the CBD.

E-Gate and Docklands Impacts

The WDA submitted that elevation of the Wurundjeri Way extension was necessary to allow a grade separation of the extension with the Dynon Road link, and to account for the rail stabling yards below the extension. The WDA advised that it remains in discussions with various agencies over whether the rail stabling yards can be relocated to enable design refinements including the location, height and grade of the extension.

The WDA submitted that the Project does not preclude a future shared use link between E-Gate and West Melbourne Station across the Wurundjeri Way extension.

PN15 provided additional intersection analysis data at key intersections including queue lengths and arrival flows for the Project scenario. Among other things this data includes a

small allowance of development on the E-Gate site, with the AM peak assuming 10 vehicles per hour exiting the E-Gate site at the existing signalised intersection of Footscray Road/Waterfront Way, and 30 vehicles per hour exiting in the PM peak. By contrast, some 290 and 210 vehicles per hour exit Waterfront Way in the AM and PM peak hours respectively. In addition, a further 90 vehicles and 240 vehicles exit Pearl River Road in the AM and PM peak hours respectively.

Mr Kiriakidis gave evidence that the data in PN15 showed no build-out of E-Gate and that the traffic capacity was limited at the Dudley Street/Footscray Road intersection. He agreed that vehicular access onto Wurundjeri Way may be precluded by the design but could be explored.

Mr Kiriakidis recommended that the Dudley Street/Wurundjeri Way intersection be reviewed.

In respect to a future right turn at Pearl River Road from Footscray Road, WDA submitted that the Project does not preclude it, noting its provision was a matter for VicRoads. Mr Kiriakidis said that a right turn into Pearl River Road had the potential to over-queue to the west, obstructing traffic on Footscray Road but he had not seen any analysis of the turn. He acknowledged that the provision of a right turn is indicated in the 2003 Outline Development Plan for Waterfront City⁵⁵ (an incorporated document in the Melbourne Planning Scheme) but the age of that Plan does not diminish its weight.

West Melbourne and North Melbourne Impacts

The EES notes that east-west traffic movements will increase up to 2,500 vehicles per day on roads including Arden Street and Victoria Street and up to 1,500 vehicles per day on Queensberry Street. These increases are likely to affect tram routes 19 and 59⁵⁶. The EES suggests that potential intersection delays to trams may occur due to increased traffic volumes and this could be offset by improvements to tram detection and priority.⁵⁷

In respect to traffic impacts in West Melbourne, Mr Kiriakidis gave evidence that the modelled traffic flows were consistent with that envisaged during the approval of the Arden Macaulay and City North Structure Plans (Amendments C190 and C196), with the exception of Victoria Street east of Curzon Street and Royal Parade north of Grattan Street. He did not recommend further modelling in North and West Melbourne.

In response to a request from the IAC for data and analysis to support the claim that there is sufficient spare network capacity in North Melbourne to accommodate the increase in traffic, WDA submitted PN47 containing traffic volume profile graphs for streets in North and West Melbourne. The WDA submitted that these graphs showed that there is sufficient spare capacity off peak to accommodate the forecast growth.

⁵⁵ Document 84.

⁵⁶ EES Technical Report Part A p355.

⁵⁷ EES Technical Report Part A p384.

Mr Kiriakidis gave evidence under cross-examination that he had not looked at PN47 in great detail and was unable to explain the basis of the profiles for the Project scenario where they varied significantly from existing locations such as Gatehouse Street and Victoria Street⁵⁸.

(ii) VicRoads

VicRoads supports the city connections including a connection to Dynon Road. It submitted the Project is unlikely to have material impacts on tram movements in North and West Melbourne, with the possible exception of increased wait times at the Peel Street/Dudley Street roundabout.

VicRoads supports the lowering of Wurundjeri Way extension adjacent to E-Gate, subject to resolution of the rail stabling yards and maintaining the capacity and function of the extension.

VicRoads submitted that the IAC should not make any recommendation requiring further consideration of, or supporting, a right turn lane into Pearl River Road. It submitted the provision of the right turn lane may reduce capacity on Footscray Road or require the widening of the bridge over the Moonee Ponds Creek. However, VicRoads acknowledged that a right turn lane may be considered in the future.

(iii) CoM

Options

The CoM submitted that the Eddington Report supported cross-city connectivity, not additional car access to the Central Business District (CBD).

The CoM submitted that the city connection alternative options have not been properly analysed. It noted that Mr Kiriakidis' evidence did not address the assessment of the alternative options and that PN60 was not presented until after Mr Kiriakidis completed his evidence and had been cross-examined. The EES, Council submitted, contained at best a summary of an assessment of the alternative options and failed to disclose any specific evidence, and failed to consider an Option 5 (no Dynon Road connection).

The CoM submitted that it could not be said that the No City option would not reduce reliance on the West Gate Bridge as this would assume no traffic uses the tunnel; and that the cost in respect to impacts of Option 4 outweighs any minor traffic benefits.

The CoM tendered a series of TN in response to PN47 and PN60. The TN advised that the short microsimulation animation clips accompanying PN60 made it difficult to provide detailed analysis and comments. TN5 (Traffic Network Capacity in North Melbourne) stated that the Option 4 case did not adequately consider that North Melbourne would be oversaturated for more than 12 hours a day.⁵⁹ Further, in TN11, that PN60 failed to

⁵⁸ See PN47, Figures 5, 6, 19 and 20.

⁵⁹ Document 153.

consider any traffic management improvements that could be implemented to address capacity constraints in Option 5⁶⁰.

E-Gate and Docklands Impacts

The CoM submitted that the EES should have considered the impact on the future development of E-Gate, noting that Plan Melbourne states that Major Urban Renewal areas (including E-Gate) *“should offer high levels of amenity and connectivity to integrate into surrounding neighbourhoods”*⁶¹.

Mr Hunt gave evidence that the extension of Wurundjeri Way had positive benefits on traffic movements, reducing traffic on King and Spencer Streets, and that the widening of the existing section of Wurundjeri Way was warranted.

Mr Lucioni gave evidence that the performance of the intersections of Wurundjeri Way with Flinders Street and Dudley Street in the Project case were not adequately addressed.

West Melbourne and North Melbourne Impacts

The CoM submitted that the EES failed to consider the impacts of traffic increases in West and North Melbourne, noting the CoM’s calculation that the screenline across Victoria, Queensberry, Grattan and Gatehouse Streets would operate over capacity for more than 12 hours a day with the Project. The CoM noted that PN47 does not adequately assess traffic impacts or provide any meaningful analysis of capacity.

The CoM submitted TN6⁶² in response to Mr Kiriakidis evidence in relation to the Amendment C190 and C196 Integrated Transport Access Reviews. The TN advised that those reviews assumed that local traffic would displace non-local traffic and that traffic management would be implemented to restrict the intrusion of external through traffic. It stated, by contrast, the Project significantly increases the demand for non-local traffic through the area. The C190 and C196 Integrated Transport Access Reviews stated that strategic modelling outputs need to be post-processed to assess impacts on local roads and such action in the case of the Amendments produced significant differences between the strategic modelling and the refined outputs. However, this EES did not refine the modelling outputs for North Melbourne with any local analysis or microsimulation. Accordingly, the CoM does not accept that the comparison with Amendments C190 and C196 provides justification for the lack of local impact analysis in North Melbourne and West Melbourne.

Mr Hunt recommended that the Dynon Road connection be downgraded to a two-lane link or deleted to reduce impacts on North and West Melbourne. He gave evidence that the connectivity between the inner areas and the west would be best served by improvements to public transport and that the impacts on the local areas are likely to be understated.

⁶⁰ Document 315.

⁶¹ Document 150 paragraph 217.

⁶² Document 154.

Mr Lucioni gave evidence that the EES may have understated the impact on the intersection of Dynon Road/Dryburgh Street as his analysis and observations indicated longer queue lengths than modelled in the EES.

In support of the above, the CoM suggested several changes to EPR TP1 regarding optimising the design of the Project, including: a requirement to maintain and where practicable reduce travel times; ensuring signal timing in North and West Melbourne was not altered at the disadvantage of public transport and active travel modes; and minimising the loss of parking to the satisfaction of the relevant local council.

(iv) Other Submitters

Numerous submitters expressed concern regarding increased traffic in North and West Melbourne⁶³ in that key east-west streets will operate at capacity for up to 12 hours per day, thus reducing connectivity for local residents. Further the impacts on these suburbs had not been assessed in the EES.

The majority (between 54 and 65 per cent) of citybound morning peak vehicles using the Footscray Road elevated section of the Project would access the central city, some 2900 to 3500 vehicles per hour. This brings unsustainable traffic volumes to the economic heart of the State and the world leading biosciences and hospital precinct. This traffic creates conflict with all north/south movements including public and active transport. The increased congestion for east/west trips has the potential to add to travel times and negate the short term and minor travel time benefits stated by the Project.⁶⁴

Yarra Trams expressed concern regarding the potential impact on trams travelling north-south if additional green time was to be allocated to east-west traffic and sought an EPR to ensure trams would not be adversely impacted.

Docklands Community Association and other Dockland residents expressed concern regarding the potential for extra traffic to infiltrate Docklands, including Dudley Street, Wurundjeri Way and Harbour Esplanade. Western Connection suggested an alternative to the Project within Docklands for road and cycle links and expressed concerns that the need for future rail expansion had not been investigated.

Significant concern was raised by submitters, including Ashe Morgan regarding the impact of the elevated Wurundjeri Way extension on pedestrian and cyclist connectivity between West Melbourne, E-Gate and Docklands. Mr Madden gave evidence regarding the strategic justification of the active transport link and that the height of the Wurundjeri Way extension would add a new constraint to its provision. He recommended that the road be lowered to minimise the impact on a future active transport link across the new road and that consideration be given to a 'short term' link connecting between Docklands and West Melbourne Station as a part of the Project.

⁶³ For example submission numbers 114, 115, 116 and 121.

⁶⁴ Submission 114, and others.

4.4.2 Discussion

Options

The EES did not contain a detailed assessment of the alternative options for the city connections. The WDA produced PN43 and PN60 during the Hearing in relation to the assessment of the alternative options including an Option 5 without Dynon Road connection.

PN43 provided some basic AM Peak hour volume capacity ratios at four locations under various Base Case and Project Case scenarios for the original three options with city connection: Footscray Road between Western Link and Waterfront Way; Dynon Road between Western Link and Dryburgh Street; and Dudley Street both east and west of Wurundjeri Way. The data shows that over the three city connection options, Option 4 with the three connection performs the best, with traffic reduced on Footscray Road and Dudley Street west of Wurundjeri Way, unchanged on Dudley Street east of Wurundjeri Way and increased on Dynon Road, compared to the Base Case.

Of concern is that the data shows that in all scenarios and options of the four sites, only Dudley Street west of Wurundjeri Way is expected to operate with a volume/capacity ratio of less than 1.0.

In PN60 no attempt appears to have been made to assess what changes to the Project could make any of the alternatives work better, except for some minor signal phasing changes to maintain performance objectives on Footscray Road at the expense of capacity on CityLink.

E-Gate and Docklands Impacts

This major infrastructure project is aimed at improving future capacity and connectivity and reducing the reliance on the West Gate Bridge. Nothing in the Project Objectives indicate that the time limit for such objectives is 2031. While the IAC notes that a ten-year horizon is a standard time frame for assessing environmental effects, the Project has a much longer lifespan and will introduce new constraints on the ability to undertake further upgrades to infrastructure, particularly by virtue of new bridge infrastructure and complex intersections, significantly adding to costs of future upgrades.

The EES contains no consideration of the traffic impacts on the future development in Docklands or on the E-Gate site. The IAC notes that the Project should improve connectivity to this precinct from the west through reduced travel times.

The Melbourne Planning Scheme Development Plan Overlay (DP07) includes an approved development plan for Waterfront City, opposite the E-Gate site, which includes reference to a future right turn lane on Footscray Road into Pearl River Road. This plan has similar status in the Melbourne Planning Scheme to the plan for the closure of Coode Road in the Port of Melbourne Planning Scheme. The EES made no reference to this future provision or how the future development of that site may be impacted by the new constraints of the Project on the provision for that right turn lane. VicRoads' submission made it clear that the Project would influence its consideration of an application for a right turn lane into Pearl River Road. Ashe Morgan provided no quantitative evidence that the right turn lane was essential to the full development of Waterfront City, but provided qualitative reasons why a right turn lane would benefit Waterfront City.

E-Gate is listed in Plan Melbourne as a future major urban renewal site and traffic generated by its development could undermine some of the benefits of the Project, or conversely the Project could undermine some of the potential for the E-Gate site. The Wurundjeri Way extension provides a constraint as its elevation adjacent to North Melbourne Station impacts on a future pedestrian cycle link. It constrains future upgrades of the Dudley Street/Wurundjeri Way intersection through the occupation of almost all of the spare reservation to the south of Dudley Street and by the location of piers within the intersection.

While the WDA submitted that the Project would “*not preclude*” development of E-Gate or Waterfront City, the IAC considers that a better test may have been to consider how the Project may ‘impact on’ or even ‘actively facilitate’ these known future planning projects. For example, a design which allows for attractive active transport links to North Melbourne and the CBD and future access onto the Wurundjeri Way extension from E-Gate may ‘actively facilitate’ an access strategy that reduces reliance on the intersection of Dudley Street/Wurundjeri Way, which the EES shows will operate at a LOS of F with or without the Project. Another consideration may be if the Project jeopardises a right turn lane at Pearl River Road due to increased cost, would that impact on the capacity at the Waterfront Drive intersection for future E-Gate and Waterfront City traffic.

West Melbourne and North Melbourne Impacts

The EES contained no capacity assessment for streets in North and West Melbourne. At the request of the IAC it produced PN47 showing existing and future traffic profiles in the area. PN56 was produced at the request of the IAC to show which roads had been post-processed (including the spreading of the peak).

The streets within North and West Melbourne listed in PN56 as being post-processed are: parts of Dudley Street, Dynon Road, Queensberry Street, Spencer Street and Victoria Street.

The WDA tendered ‘VicRoads Transport Modelling Guidelines Volume 2 Strategic Modelling’⁶⁵. At page 36 of that document it indicates as a guide that transfer of trips from the peak to the inter-peak or off-peak should not be more than 5 per cent of the total peak period. The EES states that the peak spreading shifts peak traffic evenly either side of the peak⁶⁶.

PN47 contains profiles for the post-processed sections of Queensberry Street and Victoria Street, yet both of these streets still show peak volumes. Both show peaks above existing conditions and on Victoria Street the re-distribution is not even, but pushed to create a new peak at 7pm. The profile for Gatehouse Street (not listed as post-processed) shows a significant new peak west bound at 6am. The figure for two-way traffic on Gatehouse Street shows a new PM peak at 7pm some 30 per cent above the existing peak at 6pm. Given the residential nature of Gatehouse Street and presence of existing traffic calming devices to discourage traffic, this data is questionable and concerning.

⁶⁵ Document 233.

⁶⁶ EES Technical Report A Part 2 Appendix F Section 5.2.

In respect to Queensberry Street, between Swanston Street and Elizabeth Street, PN47 notes that it currently has a relatively flat profile during the day. In 2031 with the Project, the peak is shown at over 30 per cent above the existing peak with no explanation of how that increase will occur. The CoM advised⁶⁷ that as a part of the construction traffic management plan for the MMRP, parking along this section of Queensberry Street will be removed to increase capacity while Grattan Street is closed, but the parking is expected to be reinstated once Grattan Street is re-opened. Furthermore, any such assumption does not affect the CoM's capacity assessment which is based on the two-lane section of Queensberry Street west of Elizabeth Street.

On the evidence, it appears that the Project along with development of the Arden Macaulay and City North Precincts will result in saturation of through traffic movements through North and West Melbourne for much of the day. How this is to be accommodated and the resulting pressure that this may bring to bear for a new east-west bypass route through North Melbourne is not assessed in the EES.

To accommodate the increase in traffic it is unclear whether there will be a need to transfer green time along public transport routes such as Elizabeth Street to east-west routes and hence impact public transport and other vehicles. There are no EPR that provide any guidance or control as these areas are outside the Project boundary.

4.4.3 Findings

The IAC finds that:

- The three City Connections work together to best achieve the Project Objectives of improving traffic capacity on the M1 corridor and improving connectivity to and from the west.
- Further work is required during Project design to fully assess and understand the traffic impacts of the Project on North Melbourne, West Melbourne, E-Gate and Waterfront City, taking into account the access requirements of full development of Waterfront City and E-Gate.
- Any traffic mitigation works identified as being required from the above further work should be implemented and funded by the Project.
- The EPR should be amended to include a requirement to minimise public transport impacts in North Melbourne in consultation with the public transport authority.

4.5 Port Connections

4.5.1 Evidence and submissions

(i) WDA

The WDA submitted that the Port Connections have been configured to provide convenient, efficient and safe access to the Port of Melbourne by container traffic.

⁶⁷ Document 153.

It submitted that the closure of Coode Road is referenced in the Port of Melbourne Planning Scheme (clause 21.03) and the *Port Development Strategy 2035 Vision*, and the proposed closure of Coode Road prompted the recent strengthening works on Footscray Road.

PN25 (as amended by PN67) provided capacity analysis at the Sims Street/Footscray Road intersection and showed that the intersection would operate in the Project Case with a LOS of C, although the Sims Street approach in the AM peak would have a LOS of F with a 328 metre 95th percentile queue. The WDA submitted that this queue was acceptable as while it would extend into MacKenzie Road it would not impact the operation of the MacKenzie Road ramps.

The EES notes that over-dimensional vehicles will not be permitted in the tunnel due to height clearance restrictions and such port related freight vehicles will be diverted via Hyde Street to Footscray Road. To access Swanson Dock West, the EES states that due to height clearance restrictions on MacKenzie Road a new set of signals will be installed on Footscray Road at the southern Sims Street loop and operate only for over-dimensional vehicles⁶⁸.

PN38 provided intersection volumes along Footscray Road, at its intersections with Sims Street, Dock Link Road and Appleton Dock Road, in 2015 and for the 2031 Project Case.

The WDA submitted that recent government announcement regarding a Port Rail Shuttle does not influence the transport modelling assumptions in the Project and is not an alternative to the Project.⁶⁹ However, it acknowledged that future transport project will be required beyond this Project to service freight needs into the future.

The WDA submitted that the alternative options put forward by Mr Lucioni or Mr Symons for access to Swanson Dock West via ramps at Sims Street or Dock Link Road were not feasible or practical, noting safety and weaving issues at the merge on the service road at the ramp exit, potential need for property acquisition and potential reduction in capacity on Footscray Road. The WDA tendered concept plans in the fifth week of the Hearing prepared by Transurban for ramps at Dock Link Road and analysis indicating the intersection Dock Link Road and Footscray Road would operate at a LOS of F in the PM peak.⁷⁰

Mr Kiriakidis did not support Mr Symons' option for ramps at Dock Link Road due to merging issues on the service road, noting under cross-examination he had not seen any design plans for such ramps.

Mr Kiriakidis when asked by the IAC whether the 3-minute delay for freight traffic exiting Appleton Dock Road was reasonable, he advised that consideration could be given to modifications of the green time at the Footscray Road intersection to reduce delays.

⁶⁸ EES Technical Report A Part 1 p348.

⁶⁹ EES Technical Report A Part 2 Appendix I states the assumption was made that the Port Rail Shuttle would have an implementation date around 2031 and was therefore included in the strategic modelling for 2046.

⁷⁰ Document 283.

(ii) VicRoads

VicRoads submitted⁷¹ that the intersection of the Sims Street loop and Footscray Road should be signalised to facilitate safe and efficient egress of freight traffic from MacKenzie Road and Sims Street.

VicRoads submitted that the MacKenzie Road ramps should be retained as proposed.

(iii) CoM

Mr Symons gave evidence that alternatives to the MacKenzie Road ramps could include utilising an upgraded Appleton Dock Road and ramps or ramps at Dock Link Road. He suggested that the construction of the MacKenzie Road ramps could be deferred until a need was clearly evident.

Mr Symons agreed with the WDA that none of the alternatives were superior to the MacKenzie Road ramps.

(iv) MCC

The MCC submitted that the Port of Melbourne Planning Scheme, while showing the closure of Coode Road, did not show that a new access across the Maribyrnong River was required to facilitate the road closure and that nothing in the Port of Melbourne's plans indicated freeway access directly into the port was required. The MCC submitted that the Port of Melbourne's draft 2016 Capital Improvement Program refers to the construction of a new East West Road along with the closure of Coode Road.

Mr Lucioni gave evidence of that a potential alternative to the MacKenzie Road ramps could be utilising loop ramps on the MacKenzie Road side of the river to provide a better amenity outcome on the west side of the river.

Mr Hunt raised a concern regarding the potential for traffic to use the MacKenzie Road ramps to access Kensington and the broader road network, via Sims Street. PN48 was produced by the WDA in response to this issue indicating that traffic volumes in Kensington were predicted in the strategic model to increase by less than 5 per cent.

(v) Other Submitters

Container Transport Alliance Australia submitted that the MacKenzie Road ramps provided excellent access to the west. However, in relation to the port traffic heading west it expressed concern with the queuing at Sims Street shown in PN25, noting a significant proportion of port traffic heads east.

In relation to the closure of Coode Road, it noted that DP World plans to extend its operation across the road.

Container Transport Alliance Australia submitted that the mixing of cars and freight traffic on the MacKenzie Road ramps is not desirable, and noted the potential for city bound traffic to

⁷¹ Submission 473.

exit at this ramp in lieu of other city connections to avoid the AM city access charge proposed on the city connections.

4.5.2 Discussion

There is clear planning evidence of a proposed future expansion of Swanson Dock which would require the closure of Coode Road. At the time of incorporation into the Port of Melbourne Planning Scheme it was assumed that port access would be served by the existing Footscray Road access points, however upgraded.

Since that time this Project has been developed to meet two port related objectives. These are to improve freight access to the port and to reduce freight traffic on inner west streets. These are best met by the provision of ramps connecting to the Project at MacKenzie Road.

The IAC has not been provided with any alternatives to the MacKenzie Road ramps that it considers are feasible.

In relation to the Sims Street/Footscray Road intersections the IAC firstly notes that the Map Book does not show any plans to signalise the southern intersection of Sims Street and Footscray Road to cater for over-dimensional freight traffic. The IAC considers that further work is required to assess the requirements to upgrade these intersections to provide for safe and efficient movement of freight vehicles exiting Swanson Dock West and to accommodate over-dimensional vehicles entering and exiting Swanson Dock West. This work should be undertaken prior to the completion of the design to ensure that a suitable alternative access strategy is developed prior to the closure of Coode Road.

In relation to car traffic on the MacKenzie Road ramps, the IAC notes that the microsimulation modelling assumed cars would utilise these ramps. The IAC is not aware if the city access charge was applied to the off-ramp. While the Appleton Dock off-ramp will not include a left turn onto Footscray Road to limit its use as a city access, traffic can access Footscray Road from the MacKenzie Road ramps via Sims Street. PN58 shows more cars than trucks travelling north along MacKenzie Road from the ramps and turning right into Sims Street from MacKenzie Road in both the AM and PM Project Scenario. PN15 shows that the volume of traffic exiting Sims Street north onto Footscray Road in the AM peak is similar to the volume of traffic entering Footscray Road from the Project's Footscray Road ramp. It is higher than the volume of traffic entering Appleton Dock Road from the Project. In the PM peak the volume using Sims Street north to access Footscray Road is approximately half of that using the Footscray Road exit. This data indicates that some toll aversion may occur and this should be investigated to reduce impacts on Sims Street.

Any change to the city accesses could make the use of these ramps more attractive for traffic travelling to the north and northwest of the city.

4.5.3 Findings

The IAC finds that:

- The assumption that Coode Road will be closed to meet the demand of future port growth is reasonable.
- No suitable alternatives have been provided to the IAC that will meet the freight access requirements to Swanson Dock from the MacKenzie Road Ramps.

- Further work is required to ensure that the freight traffic is efficiently and safely managed at the Sims Street/Footscray Road intersections.
- The Sims Street/Footscray Road assessment should be undertaken jointly with the City Access Options review to allow consideration of minimising toll avoidance using the MacKenzie Road off-ramp and any impacts on the broader road network.

4.6 Millers Road, Brooklyn

4.6.1 Evidence and submissions

(i) WDA

The EES predicted that daily traffic volumes on Millers Road, north of the West Gate Freeway would increase from 26,500 to 33,500 in 2031 without the Project and to 38,000 with the Project. Daily truck volumes would increase from 4,100 to 6,500 in 2031 without the Project and to 13,500 with the Project. PN1 indicated that the removal of one of the two proposed toll points on the West Gate Freeway (being the toll point west of Millers Road) would reduce the 2031 Project scenario truck volumes to 10,500. The toll point west of Millers Road was not part of the Business Case for the Project and its removal from the Project was announced by the Government on 14 September 2017.

The increase in trucks on Millers Road with the Project are primarily due to the removal of the Moore Street truck curfew extension and the proposed 24-hour truck bans on inner west streets, including Francis Street, that currently form freight routes to the port.

The daily traffic volumes for Millers Road north of the West Gate Freeway along with volumes on Francis Street are shown in Figure 3.

The EES did not assess the impact of increased traffic on Millers Road beyond the freeway interchange.

PN16 was produced at the request of the IAC and provided intersection capacity analysis for the intersections of Millers Road/Geelong Road and Millers Road/Cypress Avenue in 2031. The data showed that for Millers Road/Geelong Road, the intersection would operate at a LOS of F in both the Project and No Project case.

The WDA submitted that PN16 shows that at the Millers Road/Geelong Road intersection there is a marginal improvement in performance in the 2031 Project case compared to the No Project case. The EPR TP2 provides for the ability to monitor and respond to intersection performance in the future.

At the intersection of Millers Road/Cypress Avenue, analysis for the 2031 Project case shows the intersection will operate with a DOS > 0.9, with an average delay to exit Cypress Avenue of over 3.5 minutes.

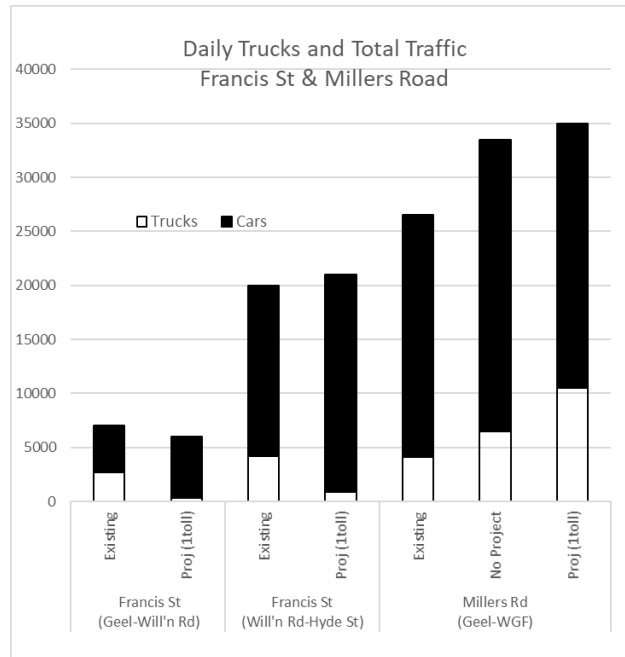


Figure 3 Daily Traffic Volumes on Millers Road and Francis Street⁷².

In response to calls for truck bans on Millers Road, WDA submitted that:

Millers Road is part of the principal freight network and provides a critical north-south connection between industry and the West Gate Freeway via a full diamond interchange. ... While it will carry additional truck traffic in the 2031 Project case, this is desirable, as those trucks are being directed onto the freeway network and off residential streets.

The WDA submitted that the Government announcement to remove a toll point on the West Gate Freeway “will have the greatest impact on mitigating the environmental effects of the Project on Millers Road.”

Mr Kiriakidis gave evidence that the redistribution of truck traffic from residential streets in Yarraville to Millers Road was appropriate, as the function of Millers Road was to provide direct access to the freeway network. He argued the amenity function there was less important.

Mr Kiriakidis supported the removal of the toll point and agreed under questioning that a safety review should be undertaken of Millers Road north of the West Gate Freeway in response to the increased truck numbers and delay exiting side roads by local residents.

⁷² 2031 Project scenario with single toll point on the West Gate Freeway, EES Technical Report Part B, Appendix C and PN1.

(ii) VicRoads

VicRoads is in the process of determining upgrade works for the intersection of Millers Road/Geelong Road. It submitted that Millers Road was an important freight access route to the West Gate Freeway and truck bans would not be supported, noting Millers Road:

*is designated under the SmartRoads framework as a priority bus route, a priority bicycle route, a traffic route and part of the principal freight network, which has a very high level of strategic significance in terms of traffic movements and a much lower function in terms of place*⁷³.

VicRoads supported the removal of toll point 1 to reduce trucks on Millers Road.

VicRoads agreed in-principle with the HBCC submission that the intersections of Millers Road/Cypress Avenue, Millers Road/Primula Avenue, as well as Grieve Parade/Geelong Road, Francis Street/Geelong Road and Francis Street/McDonald Road could be reviewed as a part of the Project, to address impacts associated with the Project, and not due to urban renewal projects.

(iii) HBCC

The HBCC submitted that shifting truck traffic from several residential streets in Yarraville to Millers Road which has residential on one side, does not achieve the Project objectives. It called for a truck ban or curfew on Millers Road. It noted that Millers Road already had more trucks than on Francis Street and that the removal of the toll point while supported did not address the impacts. It submitted that the trucks should be diverted to the Paramount Road corridor and Grieve Parade and a local area traffic study and management plan ought to be funded by the Project for Millers Road between Geelong Road and Blackshaws Road.

Mr O'Brien gave evidence that the microsimulation modelling should have extended more than 100 metres along Millers Road, noting that it did not account for effects at nearby signals, such as queuing at the Altona Gate Shopping Centre entry. Queuing to enter the freeway from the northern approach on Millers Road appeared in the modelling to impact on the Federation Trail crossing and side streets. He noted that the modelling did not adhere to the 'one intersection' extent noted in the EES and that it should have extended to critical intersections.

He recommended that the intersections of Primula Avenue/Millers Road and Cypress Avenue (or other local street)/Millers Avenue be signalised and a corridor study be undertaken along Millers Road. He recommended a second left turn lane on the north approach onto the freeway.

(iv) Other Submitters

Chalmers Industries⁷⁴ expressed concern that trucks would need to 'back pedal' to get to Millers Road and that future pressure by residents could force trucks further afield to Grieve

⁷³ Document 111.

⁷⁴ Submission 321.

Parade. Container Transport Alliance Australia submitted that Millers Road should be upgraded to a High Productivity Freight Vehicle Route.

Several community groups and Brooklyn residents expressed concern with the shifting of trucks from residential streets in Yarraville to another residential street. The Brooklyn residents expressed existing concerns with the safety and difficulty of right turns on and off Millers Road and that the increased truck traffic will exacerbate this.

4.6.2 Discussion

The Project will clearly shift truck traffic from a number of residential streets in the inner west to Millers Road which is residential on one side⁷⁵. Millers Road, being a four-lane divided arterial road with a 30-metre reservation, is clearly more suited to freight traffic than the narrower four lane single carriageway existing freight routes being used in the inner west. The question is how much traffic is reasonable and whether the impacts can be managed. This was not assessed or listed as a risk in the EES.

As Figure 3 shows, the truck volumes on Millers Road are already above that of Francis Street and will increase to 10,500 trucks per day (30 per cent trucks) with the Project and a single toll point. By comparison, the EES shows that Footscray Road outside the port under existing conditions carries in the order of 39,000 vehicles per day with 8,000 trucks per day (21 per cent)⁷⁶. Footscray Road outside the port is an 8-lane divided road plus service roads.

The evidence produced during the Hearing indicates that there will be unacceptable traffic impacts on Millers Road that will need to be managed from a transport performance perspective⁷⁷. There are some opportunities to do this that could be explored, including signalising intersections to improve residential accessibility, widening the median to improve safety of right turns and potentially relocating the on-road bicycle route to reduce one of the competing uses for space on the road.

Notwithstanding this, there will be pressure in the medium term to develop an alternate route to Millers Road for freight traffic and the IAC notes that the Business Case included a northern corridor route for that purpose.

In respect to the potential for queueing on Millers Road south of the freeway to impact on the operation of the freeway and not having been included in the modelling for the EES, the IAC notes that an inclusion of performance objectives in the EPR could be expected to result in the need to review this risk.

4.6.3 Findings

The IAC finds that:

- A corridor study should be undertaken as part of the Project by the WDA and VicRoads in consultation with HBCC, along Millers Road from Geelong Road to the West Gate Freeway to ensure that the traffic safety and accessibility of local

⁷⁵ HBCC submitted, and the IAC accepts, that Millers Road is also in the 'inner west'.

⁷⁶ EES Technical Report A Part 2 Appendix C.

⁷⁷ And from an amenity perspective, which is addressed in Chapters 7 and 8.

residents can be managed. The scope of the Project should be expanded to include all identified works from that study.

- Planning should commence for an alternate freight route to reduce reliance on Millers Road beyond 2031.

4.7 Bicycle and Pedestrian Facilities

4.7.1 Evidence and submissions

(i) WDA

The WDA submitted that the active transport infrastructure proposed is a positive feature of the Project improving safety and connectivity for pedestrians and cyclists. It noted that the Veloway had yet to proceed to detailed design, and submitted PN58 which indicated that CCTV coverage would address lack of passive surveillance and that the width met *“VicRoads Design Guidance for strategically important cycling corridors”*.

Mr Kiriakidis made several recommendations regarding shared use paths and the Veloway⁷⁸:

- Upgrade shared use path connections south and north of the Millers Road interchange
- Review intersection of shared use path connections adjacent to Newport freight railway line to avoid promotion of high speed entry and exit movements
- Review width of existing Stony Creek pedestrian bridge
- Review shared use path connections to Williamstown Road and Melbourne Road with other existing facilities
- Provide details on the proposed Stony Creek shared use path bridge
- Review angle of the shared use path connecting the new elevated Federation Trail to the freeway underpass between Williamstown Road and the Werribee Railway Line
- Manage the connection between the Maribyrnong River Trail and Shepherd Bridge Veloway connection to minimise conflict
- Consider widening the Veloway from four to five metres
- Incorporate personal safety measures within the Veloway system
- Align the Footscray Road shared use path bridge with the future West Melbourne Station E-Gate path.

Mr Kiriakidis advised that a *“grade-separated crossing of Hyde Street would provide the safest and most direct link to the Coastal Trail, and there would be efficiencies in providing this connection as part of the project works”*.⁷⁹

⁷⁸ Document 74.

⁷⁹ Mr Kiriakidis’ witness statement p148.

(ii) VicRoads

VicRoads submitted that it had no objection to Mr Kiriakidis' recommendation that the Veloway have a five metre width and suggested that the design of the Veloway accord with the 'Acceptable' limits set out in AustRoads Guide to Road Design Part 6A.⁸⁰

In respect to warrants for grade separation at Millers Road and Hyde Street, VicRoads advised that grade separation is typically applied when pedestrian and cyclist volumes exceed 250 per hour but that other considerations may influence the decision such as the impact on network operation of at-grade crossings.

(iii) CoM

The CoM expressed concerns regarding the safety of the Veloway, including the alignment over the Footscray Road ramps and lack of consideration of its impact on the recently announced Docklands Primary School.

Mr Lucioni gave evidence that a five metre width for the Veloway would meet Austroads standards, having consideration to the grades and potential for cyclists to overtake and dismount. He noted that the EES identified several locations where excessive grades would be present.

(iv) HBCC

The HBCC submitted that the Federation Trail should be grade separated at Millers Road and Hyde Street to improve connectivity and link to the Hobsons Bay Coastal Trail.

Mr O'Brien supported grade separation of shared use paths. He recommended the extension of the path along the east side of Millers Road under the freeway to Beevers Street.

4.7.2 Other Submitters

There were several submissions regarding the safety and connectivity of shared user paths and the Veloway, as well as deviations during construction.

Melbourne Water⁸¹ expressed concerns regarding the alignment of shared user paths and temporary deviations during construction and wished to be consulted during the design and construction of the Project.

Bicycle Network⁸² expressed their support for the Veloway, noting it was "*conceptual*", "*exciting*" and "*world leading*", and the shared path components of the Project. They agreed under questioning that heavy vehicles posed a significant risk to cyclists and grade separation could improve safety. Bicycle Network advised that they have been consulted with during the Project development and expect this to continue to occur.

⁸⁰ Document 226.

⁸¹ Submission 441.

⁸² Submission 444.

The Hobsons Bay Bicycle User Group⁸³ expressed concern regarding truck traffic on Hyde Street and from the Hyde Street ramps conflicting with on-road cyclists.

4.7.3 Discussion

There was general support for the provision of pedestrian and cyclist facilities within the Project. Most of the impacts relate to detail and design issues, and these are covered largely by EPR TP1 and TP6. An inclusion of a requirement to consult with the relevant local council will ensure that design issues can be explored.

TP1 Optimise Design Performance includes: *“Maintain, and where practicable, enhance pedestrian movements, bicycle connectivity, and shared use paths”*.

TP6 Design Standards requires new shared paths to be designed in accordance with relevant standards and that the designs be subject to road safety audits.

TP1 calls up consultation with relevant road authorities, however TP1 and TP6 do not offer an opportunity for consultation with Melbourne Water or the Bicycle Network. Consultation with both of these bodies could better inform the designs.

In respect to the width of the Veloway, the experts have recommended that it be widened to five metres to provide operational benefits and to allow for growth in traffic. The design of the Veloway is such that it could not be modified in the future and accordingly it is recommended that a high level of design be provided. To avoid ambiguity, it is considered reasonable to modify the Project to require a minimum five metre clear internal width on the Veloway and to require consultation with relevant stakeholders over the design, noting that the Veloway is an innovative concept.

In respect to grade separation of the Federation Trail at Millers Road and Hyde Street, the IAC notes that grade separation has been included at Yarraville Gardens across Whitehall Street. The EES indicates that the future daily total traffic and daily truck volume projections at that location are similar to that at Hyde Street, while at Millers Road the total traffic volume is almost double and the truck volume triple that at Whitehall Street. The EES gives no guidance on pedestrian and cyclists' numbers at any location nor advice as to why one location was selected for grade separation and not others.

The provision of grade separation of the Federation Trail at Millers Road and Hyde Street should be considered further under EPR TP1 and TP6 to ensure that safe and well-connected paths are provided across these roads. The Millers Road crossing review should form part of a Millers Road corridor study.

It is considered reasonable that the Project be modified to include an extension of the shared path along the east side of Millers Road from the freeway off-ramp to Beevers Street to improve connectivity.

⁸³ Submission 446.

4.7.4 Findings

The IAC finds that:

- The Project should be modified to provide clear internal width of 5 metres on the Veloway.
- The Project should be modified to include an extension of the shared path along the east side of Millers Road from the freeway off-ramp to Beevers Street.
- EPR T1 and EPR T6 are appropriate to address other connectivity and detailed design issues relating to the Federation Trail and Veloway, subject to an inclusion of a requirement to consult with local councils, Melbourne Water and Bicycle Victoria over the detailed design of that aspect of the Project.

4.8 Construction Traffic Impacts

4.8.1 Submissions

(i) WDA

The WDA submitted that construction traffic management is dealt with in EPR TP2, TP3, TP4, TP7 and TP9. It submitted PN18 and PN19 to confirm that the majority of the construction truck traffic generated by the Southern Tunnel Portal Compound at the northern end of New Street would enter and exit via the freeway. The use of New Street would be predominately cars with light commercial vehicles and truck use of this route minimised.

(ii) HBCC

HBCC expressed concern regarding the use of Hall and New Streets to access construction compounds due to impacts on residents and the Emma McLean Kindergarten. It submitted that EPR T3 should be modified to require the use of local roads to be avoided where possible to minimise amenity impacts and where that could not be achieved, a 6pm to 7am curfew should be applied.

HBCC sought consideration of alternative routes to the respective compounds.

(iii) Other submitters

Several submitters expressed concern regarding construction traffic impacts on the Emma McLean Kindergarten and New Street, as well as on Williamstown Road. Concerns were raised regarding the potential for construction traffic shortcutting through residential streets.

4.8.2 Discussion

The provision of night time curfews is an issue relating to noise and is discussed in Chapter 8.

The use of a freeway access to the Southern Tunnel Portal Compound will help to minimise truck traffic on New Street. Inclusion of this commitment regarding the provision of freeway access to cater for the majority of the truck traffic to the southern portal compound in EPR TP3 would provide greater certainty over the planned outcome.

EPR TP2 includes monitoring of traffic volumes during construction and implementation of local traffic management works in consultation with the local council. This will assist in

managing construction impacts and it is considered appropriate to take a responsive approach to issues as they emerge to ensure that treatments are appropriately targeted.

4.8.3 Findings

The IAC finds that:

- EPR TP3 should be modified to include a requirement to minimise construction traffic on New Street by the provision of access to the Southern Tunnel Portal Compound from the freeway or alternative route approved by the road authority.
- With the above exception the Transport EPR provide reasonable management of construction traffic, subject to noise limits being met.

4.9 Tolls

4.9.1 Evidence and submissions

Several submissions raised concerns with tolls, making requests for time of day and toll capping to maximise the efficient use of the road network.

VicRoads submitted in response to a question from the IAC that it would support consideration of using variable tolls to align network traffic and transport management objectives with economic and tolling revenue outcomes in certain circumstances. This includes during closure of lanes on the M1 or in the tunnel⁸⁴, noting that this is ultimately a matter for the WDA as it would affect the contractual arrangements between the various parties implementing the Project.

During the Hearing the Government announced that:

To improve freight productivity and reduce costs, the tunnel operator will be required to set discounted shuttle rates and cap maximum daily tolls for trucks making multiple trips through the tunnel, as well as night time discounts.

Shuttle rates, trip capping, night time discounts and truck bans will provide incentives for industry to use the new, faster, more efficient route for trucks travelling to the Port of Melbourne.⁸⁵

4.9.2 Discussion

The City Access Charge is a toll that is set for transport planning purposes to discourage the use of the Project to travel into the city. It is reasonable that the State retain control of this charge to ensure that it meets its aim.

The EES states that for network redundancy in the event of incidents on the West Gate Freeway network traffic may be diverted into the West Gate Tunnel. The diversion of traffic from a non-tolled route to a tolled route may have significant adverse effects, encouraging traffic to leave the freeway network. To further compound matters the diversion into the Tunnel could see motorists attracting a further charge on the Bolte Bridge to complete the

⁸⁴ Document 226.

⁸⁵ Media Release 28 August 2017.

link to the West Gate Freeway. The EES contained no modelling for the network redundancy scenarios outlined in the EES.⁸⁶

The IAC notes that concerns were raised regarding toll fines, an issue outside the scope of the IAC.

4.9.3 Findings

The IAC finds that:

- The State should retain the ability to adjust the City Access Charge to ensure transport planning objectives are met.
- The State should ensure that tolls can be waived when operational plans for network redundancy are put in place diverting traffic from the West Gate Bridge onto tolled road to minimise impacts on the broader network.

4.10 Other issues

There were several submissions relating to traffic management during operation. These included requests for truck bans on various roads and specific traffic management controls. As noted earlier in this report, during the Hearing the Government announced permanent truck bans on Blackshaws Road and Hudson Street reflecting assumptions made in the transport modelling.

EPR TP2 includes monitoring of traffic volumes in selected streets in consultation with the relevant local council before, during and for two years post construction and implementation of local area traffic management works. This EPR is considered appropriate to deal with off-site issues beyond those discussed above.

4.11 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects

The Project will have beneficial environmental effects for inner west communities due to the proposed full time truck bans being introduced on Moore Street, Buckley Street, Somerville Road, Francis Street, Hudsons Street and Blackshaws Road, by reducing truck traffic volumes on those streets, improving safety and accessibility.

The Project will have beneficial environmental effects for the wider community, including a reduced number of traffic accidents, improved traffic flows along the M1 corridor, reduced reliance on the West Gate Bridge and increased resiliency of the M1 corridor, by providing new capacity across the Maribyrnong River and expanded capacity on the West Gate Freeway.

The Project will have negative environmental effects on some local communities where truck flows are projected to increase along residential streets, including Millers Road north of the West Gate Freeway, Williamstown Road north of Francis Street and Hyde Street south of

⁸⁶ Technical Report A, Chapter 7.6, p318.

Francis Street. The negative transport effects include safety and accessibility. The EES did not assess the residual risk of these off-reservation effects nor identify mitigation strategies. The residual risk on Millers Road and Hyde Street is considered to be high and mitigation is considered necessary prior to commencement of operation. A longer term strategy should be developed to deal with transport risks relating to Millers Road beyond 2031.

The Project will have negative environmental effects on local communities in North and West Melbourne and in Docklands due to increased traffic. The impact on these and future urban renewal areas, including E-Gate, has not been adequately assessed and further work, is necessary to understand and mitigate or reduce adverse impacts. This work should consider the access requirements required to meet the development potential of E-Gate and Waterfront City.

During construction, the Project will have adverse environmental effects on local communities through which construction traffic will travel, particularly to the construction compounds on the south side of the West Gate Freeway. These effects can be reasonably managed by a construction traffic management plan.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

The Project boundary should be expanded to include Millers Road between the West Gate Freeway and Geelong Road as it is an integral piece of the road network critical to the success of the Project's objective to reduce freight traffic on inner west streets. Works are required on Millers Road to reduce residual risks and to mitigate impacts prior to operation.

The height of Wurundjeri Way extension should be lowered to, among other reasons, actively facilitate a future active transport link between North Melbourne Station and Docklands across the E-Gate site.

The Project needs to include additional works to ensure that safe and efficient access is provided for movements between MacKenzie Road and West Swanson Dock and Footscray Road, prior to the closure of Coode Road. Further investigations, in consultation with VicRoads is required to determine the extent of the work. These works may require an extension of the Project boundary around the Sims Street/Footscray Road intersection and consideration to including a City Access Charge for vehicles using the MacKenzie Road off-ramp.

(iii) Conditions and Environmental Management Framework

The IAC makes the following comments.

- The Transport EPR should be modified as shown in Appendix F.

4.12 Recommendations

The IAC has recommended that investigations into design refinement be undertaken, particularly at the city end of the Project to improve traffic and transport outcomes and improve the environment effects of the Project. Identified required mitigation works in North Melbourne, West Melbourne and Docklands arising from the further investigations

are recommended by the IAC to be provided as part, and at the cost of, the Project. The IAC has also recommended that the Project boundary be extended to include Millers Road, Brooklyn, between the West Gate Freeway and Geelong Road and traffic management works be investigated and implemented along that corridor. The IAC recommends a significant number of refinements to the Transport EPR for the Project as shown in Appendix F.

5 Land Use and Infrastructure

Issues relating to Land Use and Infrastructure are addressed in the EES in Chapter 14.1 (West Gate Freeway), Chapter 21.1 (Tunnels) and Chapter 28.1 (Port, CityLink, and City Connections). Supporting documentation includes Technical Report K, 'Land use planning', prepared by AECOM (May 2017).

The evaluation objectives of relevance to the assessment of land use and infrastructure in Table 4-1 of the EES include:

Built environment – *To protect and enhance the function and character of the evolving urban environment including built form and public realm within the immediate and broader context of the project works.*

Social, business, land use, public safety and infrastructure – *To minimise adverse effects on the social fabric of the community, including with regard to community cohesion, access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.*

Landscape, visual and recreational values – *To minimise adverse effects on landscape, visual amenity and recreational and open space values and to maximise the enhancement of these values where opportunities exist.*

The following evidence was called on land use planning:

- WDA called Michael Barlow of Urbis on strategic implications of the road project and the impacts on certain urban renewal areas and sites. His evidence did not address the Footscray Activity Centre or the Maribyrnong River corridor.
- MCC called David Barnes of Hansen Partnership to provide strategic planning evidence on the impact of the northern portal and river crossings on the Maribyrnong River and nearby open space.
- Victorian Transport Action Group (VTAG) called Dr Ian Woodcock of RMIT University to provide urban planning evidence.

The IAC notes that the CoM did not call land use planning evidence in support of its submissions.

On 8 August 2017 a joint town planner's conference was held between Mr Barnes and Mr Barlow.⁸⁷ Dr Woodcock was unable to attend due to ill health.

Numerous submissions made reference to a range of land use and planning impacts.

EPR LPP1 to LPP5 specifically deal with land use impacts.

⁸⁷ Document 15 is the written outcome of the meeting.

5.1 Key issues

The IAC considers that key land use issues relate to the Project's impact on existing or planned land uses and the adequacy of proposed land use mitigation measures, that relate to:

- Strategic support for the Project and consistency with State Planning Policy
- Effects on Brooklyn residential community
- Effects on Precinct 15 Urban Renewal Site, North Altona
- Effects on Hyde Street properties
- Effects on Maribyrnong River and environs associated with river crossings and location of the northern portal
- Effects on E-Gate urban renewal area and future links to North Melbourne Train Station
- Effects on Arden-Macaulay, Dynon and Docklands urban renewal areas.

5.2 Strategic Support and Consistency with State Planning Policy

5.2.1 Evidence and submissions

Mr Barlow gave evidence⁸⁸ that from a strategic land use assessment perspective, the Project will achieve a number of important outcomes including improving employment linkages to the CBD from the west; support the operation and expansion of the Port; providing an alternative to the West Gate Bridge and improve amenity in the inner west by removing trucks.

The CoM questioned Mr Barlow on the *Land Use Impact Assessment's* discussion of strategic policy and the State Planning Policy Framework (SPPF) that found that the Project will have a 'Residual Impact Rating' of 'High' on the E-Gate Precinct.⁸⁹ Mr Barlow said he was unaware of how the assessment was undertaken and that he had not peer reviewed the risk assessment.

Dr Woodcock's evidence was critical of the Project, and how it has transformed and replaced the Western Distributor initiative. Specifically, he was critical that the Project will operate as a funnel from the west for commuter vehicles rather than removing trucks.

His evidence was that the Project is inconsistent with many policies, will undo significant investment in urban design and compromise long term urban renewal projects.

Dr Woodcock⁹⁰ noted there is no Victorian Transport Plan as required by the TIA and therefore the assessment of the Project is difficult in urban planning terms.⁹¹

Dr Woodcock's presentation⁹² provided the opinion that instead of addressing congestion and improving access to the north and the central city, the Project "*will shift the congestion from the West to the inner city and destroy the character and liveability of those areas*".

⁸⁸ Expert witness statement, paragraph 73.

⁸⁹ Technical Report K, Section 7.3.4, PDF p146 of 328.

⁹⁰ Expert witness statement by Mr Barlow, p3.

⁹¹ The TI Act is addressed in Chapter 3 of this report.

In relation to the overarching strategic land use benefits of the Project, the WDA submitted⁹³:

The Project will:

- a) Improve linkages between the western region and the central city;*
- b) Provide an alternative crossing of the Yarra and Maribyrnong Rivers;*
- c) Facilitate removal of truck traffic from residential streets in the inner west; and*
- d) Improve access to the Port of Melbourne for freight vehicles and support its ongoing operation.*

There is strong strategic support for the Project on the basis, in particular, of:

- a) Significant population growth in metropolitan Melbourne;*
- b) Significant population growth in the western region without commensurate employment growth;*
- c) The expansion of the central city; and*
- d) The role and importance of the Port of Melbourne*

In relation to Land Use, the closing submission of the WDA⁹⁴ sought that the IAC finds the land use impacts of the Project are acceptable.

The CoM⁹⁵ acknowledged that some aspects of the Project could claim to have strategic policy support. These were said to include improvement to transport capacity on the M1, the alternative river crossing, improved port freight access, removal of trucks from residential streets and improved cross city connections.

The submission stated that there are other aspects that have little or no policy support including:

- The city connections and direct freeway connection to the CBD
- Facilitation of an increase in private car trips to the CBD.

Several group and individual submitters consider that the Project will not achieve its objectives. Professor London, Mr Procter and several submitters noted the Project would make it more difficult for the city to fulfil its strategic aspirations to retain and enhance its liveability.

⁹² Document 279.

⁹³ Document 29, paragraphs 1 and 2.

⁹⁴ Document 319, paragraph 214.

⁹⁵ Document 150, paragraphs 128 and 129.

5.2.2 Discussion

The draft Explanatory Report for the proposed amendments⁹⁶ notes that the Project supports the objectives of planning in Victoria as set out in Section 4 of the P&E Act.

Specifically, it states the following objectives are particularly relevant:⁹⁷

- *to provide for the fair, orderly, economic and sustainable use, and development of land.*
- *to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria.*
- *to protect public utilities and other assets and enable the orderly provision and coordination of public utilities and other facilities for the benefit of the community.*
- *to balance the present and future interests of all Victorians.*

The Explanatory Report notes that the amendments will facilitate the delivery of an alternative route to the West Gate Bridge, improve connections to the Port of Melbourne and in doing so, will support one of Melbourne's fastest growing regions and employment corridors to the west of Melbourne.

The following Project outcomes are identified in the Explanatory Report as examples of how it supports the objectives of planning in Victoria:

- *Utilising existing infrastructure to provide for the fair, orderly, economic and sustainable use of land*
- *Improving the living and working environment for all Victorians and visitors to Victoria by reducing the number of freight and truck movements on local roads*
- *Providing an asset which supports the interests of existing and future Victorians by easing traffic congestion and improving access to key employment precincts*
- *Making neighbourhoods safer, less polluted and more attractive places to live and invest*
- *By diverting more than 8,000 trucks per day away from the West Gate Bridge and local inner west roads and remove up to 9,300 trucks off local streets in the inner west*
- *Including reducing truck volumes by 84 to 94 per cent along Francis Street, by 77% on Buckley Street, by 87% on Moore Street and by 84 to 91 per cent along Somerville Road*
- *Creating more opportunities for cycling and walking, and urban renewal.*

The IAC generally accepts the above strategic planning benefits of the Project, noting that these claims ignore the increase in trucks on Millers Road, as discussed in Chapter 4.

⁹⁶ EES Attachment IV, Appendix A.

⁹⁷ Objectives a, c, e, g respectively.

It is clear that State Government policies, including Plan Melbourne (2017 – 2050) reinforce the strategic need for the Project, especially where the focus is on recognising that the Port of Melbourne will remain Melbourne’s primary port, that growth in population and freight movements will impact the current freeway system and that investment in the M1 corridor is required given its key role in Victoria’s infrastructure landscape.

Further, the IAC is satisfied that the Project is recognised by Plan Melbourne as a project that will contribute to an integrated transport system connecting people to jobs and services. It is identified as an initiative that will improve the efficiency of the motorway network by providing an alternative route to the West Gate Bridge and improved connections to the Port of Melbourne which will play a vital role in the Victorian economy and ensure Victoria remains Australia's freight and logistics capital.

In relation to the Project’s responsiveness to other aspects of the SPPF, the IAC generally accepts the assessment provided in the EES⁹⁸ that indicates it supports or implements significant objectives articulated in the following:

- Clause 11 – Metropolitan Strategy
- Clause 12 – Environmental and Landscape Values
- Clause 13 – Environmental Risks
- Clause 15 – Built Environment and Heritage
- Clause 17 – Economic Development
- Clause 18 – Transport
- Clause 19 – Infrastructure

While noting the above elements where there is strong policy support, the IAC accepts that the Project creates land use tensions, conflicts and impacts and as a result variously challenge elements of established planning policy. The key elements of concern are further addressed.

5.2.3 Findings

The IAC finds:

- That the Project enjoys significant planning policy support from various elements of the SPPF and in particular its responsiveness to the directions articulated in Plan Melbourne 2017 – 2050.

5.3 Effect on the Brooklyn residential community

5.3.1 Evidence and submissions

In relation to the effects on the Brooklyn residential community, Mr Barlow gave evidence⁹⁹ that:

It is considered that the additional truck traffic, even at the lower figure of 4,000 truck movements, is likely to have an adverse impact on the Brooklyn

⁹⁸ EES Attachment IV, PDF pp 45-50.

⁹⁹ Expert witness report, paragraph 88 and Appendix C, PDF p46.

neighbourhood. The highest impact will be on the 36 residential properties abutting Millers Road (which include several multi-unit developments).

He went on to say that mitigation might include acoustic treatment of dwellings and the creation of a controlled intersection for residents to access Millers Road.

In response to cross examination from HBCC concerning the significant and cumulative nature of the impacts on residents within the Brooklyn neighbourhood, Mr Barlow's evidence was that the Project's impacts need to be managed and cumulative impacts considered.

In response to further questions from HBCC concerning other possible responses to reduce amenity impacts for residents living on Millers Road, Mr Barlow's evidence was that:

I agree that change of toll points, and /or introduction of a truck ban on Millers Road thereby moving truck traffic to Grieve Parade could have a positive influence, but there are also physical opportunities.

If such measures are required they should be provided as part of the project.

I agree that if noise could be reduced demonstratively it would be a better outcome but I don't know the solution.

VicRoads' submission¹⁰⁰ listed a number of modifications and further investigations which they "invite the IAC to recommend" including:

- (a) a reduction in the number of tolling points by removing the toll point on the West Gate Freeway between Grieve Parade and Millers Road;*
- (b) a further study (if the IAC considers it appropriate) of intersections on Millers Road to determine if upgrades are necessary, provided that the study and any action taken in reliance on it are limited to enhancing the existing and proposed function of Millers Road and are treated as part of the Project and the responsibility of the WDA and/or the relevant proponent;*

VicRoads commented on the approach to noise mitigation on Millers Road, which is addressed in Chapter 8.

HBCC is particularly concerned regarding the following negative impacts.¹⁰¹

- Traffic impacts on Millers Road, including accessibility for local residents
- Impacts on pedestrians and bicyclists using the Federation Trail and seeking to cross Millers Road
- Noticeably higher noise levels post-construction of the Project for residents on Millers Road north of the West Gate Freeway
- Additional diesel emissions.

In response, HBCC recommended a number of mitigation actions including.¹⁰²

¹⁰⁰ Document 111, paragraph 7.

¹⁰¹ Document 13, paragraph 48.

- Removal of the proposed tolling point on the M1 between Grieve Parade and Millers Road (as announced by the Government on the 14 September 2017)
- Remove the tolling point between Grieve Parade and Melbourne Road
- Introduce a truck ban on Millers Road (and Mason Street, Kororoit Creek Road - east of Millers Road and High Street) to ameliorate the impacts of trucks diverting to these roads which will result in the diversion of trucks to Grieve Parade via Geelong Road
- Provide a Paramount Road extension in the longer term
- If a truck ban on Millers Road is not adopted, “*at the very least*” introduce night-time and weekend truck curfews, and introduction of measures to monitor toll avoidance
- Introduce a service road and vegetative buffer on the west side of the Millers Road
- The WDA to fund a local area traffic study and management plan
- Include a signalised pedestrian crossing at West Gate Freeway interchange and at least one signalised intersection north of the Federation Trail to provide safe, controlled and convenient access to Millers Road for the Brooklyn residential community
- Develop and implement a landscape and tree planting plan in consultation with Council for the Millers Road interchange, along Federation Trail and in Millers Road between the West Gate Freeway and Geelong Road.

In addition to the above suggested modifications, a list of potential mitigation measures that emerged during the Hearing was documented by Counsel for the IAC, which includes the following:¹⁰³

- The provision of solid front fences with landscape (creepers)
- Additional landscape in front of and/or behind the fences (in private yards)
- The provision of acoustic protection in a form that also provides air quality benefits such as mechanical ventilation
- Removal and re-routing of the bicycle lane to a convenient and safe location
- Further landscaping of the verge between the road and the footpath in consultation with Council and VicRoads
- Upgraded access e.g. signalized intersections as determined by a corridor study to provide reasonable levels of access
- A program of ambient air quality monitoring including measurement of PM₁₀ and PM_{2.5} at an appropriate location on Millers Road¹⁰⁴
- Inclusion of a new EPR requiring the contractor to establish a Community Involvement and Participation Plan that assists building social interaction, connectedness and cohesiveness throughout the construction period which could

¹⁰² Document 196, paragraphs 116 and 123.

¹⁰³ Document 251.

¹⁰⁴ This action was supported by the air quality experts.

include running community events, festivals, sponsorships of local sporting clubs, and the establishment of community supports grants. A community grant program should operate during construction of the Project to fund community support activities and small capital works targeting community, sporting and recreation facilities as defined in the social impact assessment.¹⁰⁵

Numerous individual submissions and a community group submission from the Brooklyn Residents Action Group Inc.¹⁰⁶ opposed the Project due to the negative impacts on the function of Millers Road and the cumulative negative impacts resulting from increased truck and vehicle traffic.

5.3.2 Discussion

The residents of Brooklyn generally, and those that occupy the residential properties on Millers Road specifically, will be significantly impacted by the Project through loss of amenity due to increased car and truck traffic. The negative impacts include, but are not necessarily limited to:

- Increased day and night time noise from truck and vehicle traffic
- Increased exposure to air pollution
- Reduced local connectivity and accessibility via the local road network
- Decreased pedestrian and bicycle safety and amenity.

The cumulative impact on residents will be significant. The EES acknowledges the impacts are significant and has rated the 'Residual Impact' of the Project as 'High' on this community, that is, after the implementation of mitigation measures contained in the exhibited version of the EES.

The IAC notes that Millers Road is a declared arterial road and it currently carries a significant volume of traffic, both vehicles and trucks. The existing residential amenity for properties with frontage on western side of Millers Road (and residential properties further to the west) is significantly compromised due to current levels of traffic on Millers Road and due to the direct abuttal of the significant industrial and commercial estate that fronts the eastern side of the road. A number of negative amenity impacts exist at present. The Project will not alleviate existing amenity impacts, but rather compound them.

It is important to note that even without the Project, the amenity conditions on Millers Road are likely to deteriorate with predicted increased traffic, particularly heavy vehicles.

The State Government's announcement¹⁰⁷ to remove the proposed toll point west of Millers Road is predicted to reduce by approximately 3,000 the number of 'additional' trucks using Millers Road on a daily basis (predicted 'additional' trucks reduced from 7,000 per day to 4,000 per day). This modification to the Project was widely supported by parties to the Hearing and is supported by the IAC.

¹⁰⁵ This action was agreed by Social expert Dr Mandke.

¹⁰⁶ Submission 289.

¹⁰⁷ Media Release dated 14 September 2017 from Minister for Roads and Road Safety, and Minister for Ports.

The media announcement noted that the State would work with residents on Millers Road on noise reduction measures such as double glazing, insulation, fencing and air conditioning.

The commitment to these additional mitigation treatments was broadly welcomed by parties during the Hearing. The IAC supports the State Government's commitment to removing the toll point west of Millers Road and its commitment to working with Millers Road residents to implement additional mitigation outcomes.

The IAC has considered the merits of the additional mitigation responses advanced by HBCC and documented by Counsel to the IAC in the thematic Chapters of this report.

5.3.3 Findings

The IAC finds that:

- The Project will significantly negatively impact on Brooklyn residents, and in particular the occupiers of homes fronting the western side of Millers Road.
- A number of additional impact mitigation measures have been committed to by the State Government to further reduce the anticipated impacts. The IAC supports these actions and considers they are essential to mitigate the Project's environment effects.
- Post project implementation, additional mitigation measures may be needed.

5.4 Effect on Precinct 15 Urban Renewal Site, North Altona

5.4.1 Evidence and submissions

Precinct 15 is a 66 hectare redevelopment area subject of Amendment C88 to the Hobsons Bay Planning Scheme. The West Gate Freeway forms the northern boundary of the Precinct.

In relation to the effects on Precinct 15 Urban Renewal Site at North Altona, Mr Barlow gave evidence¹⁰⁸ that:

The future operation of the Project will cause additional noise impacts on the northern part of the site - an increase of 1dB(A) to 71dB(A) – (see Volume 2, p.13-43 and 13-48). Consideration could be given to the most effective means to address the increased noise impact. This could include:

- *Acoustic attenuation to the residential and community buildings to be constructed on the site within the noise affected area.*
- *The provision of more extensive acoustic barriers adjacent to the freeway.*

HBCC submitted¹⁰⁹ that it is concerned with the amenity impacts of the Project on the proposed open space that is to be developed by WDA following the use of the land during construction. Council considers that the functionality of the area will be compromised by adverse noise, air quality and visual impacts, particularly given that as exhibited, the Project does propose to construct an acoustic wall for the length of the open space.

¹⁰⁸ Expert witness report, paragraph 84 and Appendix C, PDF p44.

¹⁰⁹ Document 13, paragraph 56.

HBCC further submitted¹¹⁰ that unless the acoustic wall extends adjacent to the full length of the open space, the provision of the open space should not be considered a benefit of the Project.

5.4.2 Discussion and conclusions

The IAC accepts the submissions by HBCC, and the town planning evidence of Mr Barlow, that the functionality, useability and attractiveness of the proposed provision of Open Space in Precinct 15 will be compromised unless additional noise amelioration works are undertaken such as the extension of the acoustic barrier. The IAC notes the extension of the acoustic barrier will have beneficial outcomes for the future residents of Precinct 15 and users of the proposed open space by creating a visual screen and a 'barrier' from car and truck emissions.

The IAC recommends the extension of the acoustic barrier in Chapter 7.

Matters concerning the use of Hall Street for construction traffic were addressed in Chapter 5.

5.4.3 Findings

The IAC finds:

- The effects of the Project on the future use and development proposed for Precinct 15 are acceptable, subject to the extension of the acoustic barrier on the south side of the Freeway.

5.5 Effect on Hyde Street Residential Properties

5.5.1 Evidence and submissions

VicRoads stated that it remained amenable to considering purchase of residential properties located on the west side of Hyde Street, south of Francis Street opposite the Yarraville Oil Terminal, and submitted¹¹¹:

Although the Project does not require the acquisition of the affected properties, VicRoads has been in discussions with affected residents following requests for their land to be purchased. VicRoads remains amenable to considering the purchase of these properties on hardship grounds on a case-by-case basis, given the unique nature of their circumstances. VicRoads' discussions with the affected residents remain ongoing.

The Hyde Street Residents Group¹¹² submitted that while they don't oppose the Project, they are significantly affected by it. They considered their houses should be acquired as this outcome is the only reasonable response given the significant impact the Project will have during both construction and operation as a result of additional truck traffic, including all the

¹¹⁰ Document 196, paragraph 165.

¹¹¹ Document 111, paragraph 117.

¹¹² Submission 192 and Document 130.

diverted “*most dangerous*” placarded load trucks not permitted in the tunnel, further reducing their safety.

The WDA acknowledged¹¹³ that VicRoads is involved in discussions with the Hyde Street residents regarding the potential voluntary acquisition of their land but submitted it is a matter for VicRoads.

5.5.2 Discussion

The IAC accepts the submissions advanced by the Hyde Street Residents Group that the impact of the Project during construction and operation are likely to be so significant that the environment effects need to be avoided. The IAC considers that the only practical and reasonable means to avoid the significant impact arising from increased truck traffic, primarily placarded loads, is for the properties to be voluntarily acquired as the residents have requested. The IAC considers there is a direct nexus between the Project and the resultant impacts on these properties such that they will no longer be suitable for residential occupation. The IAC notes that there is an existing PAO over the front of the residential properties to facilitate potential future road widening. The IAC considers acquisition should occur promptly following the granting of Project approvals, and prior to construction commencing.

The IAC has not turned its mind to the specifics of who is the appropriate body or authority for acquisition.

5.5.3 Findings

The IAC finds:

- The environmental effects of the Project on residential properties that are located on the west side of Hyde Street, south of Francis Street and opposite the Yarraville Oil Terminal, to be unacceptable and should be voluntarily acquired.

5.6 Effects on Maribyrnong River in Footscray

5.6.1 Evidence and submissions

Mr Barlow noted in the minutes of the conclave statement that his evidence addressed the strategic implications of the road project and the impacts on certain urban renewal areas and sites, but did not include the Footscray Activity Centre or Maribyrnong River corridor in his assessment.

Mr Barnes gave evidence¹¹⁴ that he supports Council’s position of not constructing the MacKenzie Road ramps to the Port and considering port access options east of the river, and reviewing the northern design portals. His statement¹¹⁵ noted:

¹¹³ Document 319.

¹¹⁴ Expert witness statement, paragraph 8.

¹¹⁵ Expert witness statement, paragraph 9.

I have formed the view that insufficient weight has been given in the design of the project, to protecting and enhancing the Maribyrnong River corridor, as required by State and local planning policy.

It is my opinion that too much weight has been given to policies regarding port access in the design of the project, at the expense of policies regarding the protection and enhancement of the river.

In his evidence, Mr Barnes acknowledged that there was strong planning policy support for the ongoing operation and development of the Port of Melbourne, including the provision of access to it. He stated that his primary concern was that bridge structures over the Maribyrnong River foreclose on the 'very long term' potential to transform the river frontage and that their construction will negate the long-term potential to integrate the Port land (particularly on the western bank of the river) with the Footscray Activity Centre. He said¹¹⁶:

Existing zonings and planning policies identify the land directly affected by the river crossings, for industrial and port related uses. However, in my opinion, a real likelihood exists that should port and related uses further rationalise, significant longer term urban renewal opportunities will emerge, especially along the western bank of the Maribyrnong River, south of Shepherd Bridge.

The WDA submitted¹¹⁷ that:

Great weight should be given to the strategic importance of the Port of Melbourne to the State, and its roles as the principle container port in the State of Victoria until at least 2055.

Less weight should be given to the landscape amenity of the Maribyrnong River corridor, particularly south of Shepherd Bridge, where it is highly influenced by the Port to the east and industrial land to the west.

Further, the WDA submitted¹¹⁸ that the configuration of the bridge and ramps has been driven largely by engineering, traffic engineering and land use considerations, with the overarching aim of meeting Project objectives relating to freight access to the Port.

MCC reiterated¹¹⁹ its primary submission that the MacKenzie Road ramps should be deleted from the Project and the Northern Portal be re-located east of the Maribyrnong River. This outcome is sought to avoid adverse impacts to the Yarraville Gardens, the Maribyrnong River and to minimise visual bulk. Alternatively, they sought replacement of the MacKenzie Road Ramps with ramps at Dock Link Road. Should the ramps and portal stay as proposed MCC submitted that funding should be provided for measures to offset adverse impacts to the public realm along the banks of the Maribyrnong River.

¹¹⁶ Expert witness statement, paragraph 20.

¹¹⁷ Document 29, paragraphs 3 and 4.

¹¹⁸ Document 319, paragraph 357.

¹¹⁹ Document 287, paragraphs 2.9 and 2.10.

VicRoads submitted¹²⁰ that it supports the provision and location of the ramps in their proposed location, as alternative options put forward would cause significant network issues.

5.6.2 Discussion

The planning evidence of Mr Barnes regarding the impacts of the Project on the Maribyrnong River was tested extensively at the Hearing.

In response to questions put in cross examination from the WDA, Mr Barnes stated that he was *“not aware of the detail of the Port of Melbourne Planning Scheme”*. He agreed with Mr Morris that *“the zoning and planning policies in the Port of Melbourne Planning Scheme are relevant considerations”*. He stated that he was *“not aware that both banks of the Maribyrnong River are within a Port Zone and that ‘Road’ is as-of-right in the zone”*.

In response to further questions from the WDA, Mr Barnes conceded that the ramps have a direct function to serve the Port and that for the next 30 - 50 years the weight of strategic planning policy favours the provision of port access over any possible very long-term opportunity to transform the port for a possible alternate use. Mr Barnes accepted that Bay West is a proposed second Port for Melbourne, as opposed to an alternate Port, and that the operator of the Port of Melbourne has recently entered into a 50-year lease with the State Government. Mr Barnes accepted that *“to maximise the functioning of the Port it is important that it be served by high quality road infrastructure such as the proposed urban freeway”*.

The IAC questioned his opinion that the road and ramp structures over the Maribyrnong River will foreclose on future integration opportunities with the Footscray CBD. Mr Barnes conceded that he was not aware of any local or state planning policy or strategy that propose the future integration of the land currently zoned Industrial 1 or Special Use Zone (SUZ3) east of Moreland and Whitehall Streets either in the short or very long term.

The IAC highlighted the following *Strategies* and *Implementation Measures* from clause 22.04 of the Port of Melbourne Planning Scheme to Mr Barnes:

Strategies

- *Encourage increased international container terminal trade at Swanson Dock.*
- *Work with the relevant agencies to discourage non-port land use and encourage port uses with priority given to those with the ability to facilitate trade growth, to offer appropriate port related activities and to provide high quality, innovative port services.*
- *Ensure that appropriate mechanisms are in place to protect the operation of the Port and ensure that potential conflicts with surrounding land uses are managed.*

¹²⁰ Document 111, paragraph 102.

Implementation Measures

- *Undertake a review of non-port land uses and as appropriate facilitate their transition to port and port related use.*
- *Work in consultation with surrounding municipalities to ensure that there is appropriate industrial land available for port cargo related activities in near port locations.*
- *Encourage where practical the development of inland container depots at strategic locations around Melbourne linked to port terminals by either rail or heavy vehicle routes, or both.*
- *Encourage the development and implementation of appropriate planning mechanisms to protect the ongoing development and operation of the Port.*
- *Encourage the development and implementation of the Port Development Plan and the Port Environs Plan and pursue appropriate planning scheme amendments to include this strategic work in the Port of Melbourne Planning Scheme. (IAC Emphasis)*

Mr Barnes acknowledged that the above policies are relevant considerations and do not provide policy support for the future transition of the land use from Port related activity in the short, or very long term.

Several extracts from the Land Use Planning Technical Report were put to Mr Barnes by the IAC. Mr Barnes stated that he agreed with the following 'key findings':¹²¹

The loss of some industrial buildings due to construction of tunnel access ramps and bridge crossings of the Maribyrnong River on industrial land north of Youell Street would result in changes to built form. This aside, most land outside the permanent infrastructure footprint would remain suitable for industrial, waterfront and port related uses following the completion of construction.

It is anticipated that a second crossing of the Maribyrnong River, south of Shepherd Bridge, would reduce amenity (visual and noise) in this location during operation. While properties in this location may experience a reduction in visual and acoustic amenity they would remain functional from a land use perspective.

The Special Use Zone applicable in this location seeks to ensure that the use and development of land does not compromise the long term protection and expansion of port operations, with the integrated development of offices and manufacturing industries and associated commercial and industrial uses encouraged. Therefore the overall impact would be low as this part of Footscray has limited potential for changes in land use beyond existing

¹²¹ Technical Report K, PDF p10 of 328.

industrial and commercial activities due to its location adjacent to the port and the Coode Island Major Hazard Facility.

The IAC requested Mr Barnes to review *Figure 7 – Urban renewal areas and key strategic policy areas* from Technical Report K¹²² which is reproduced below.

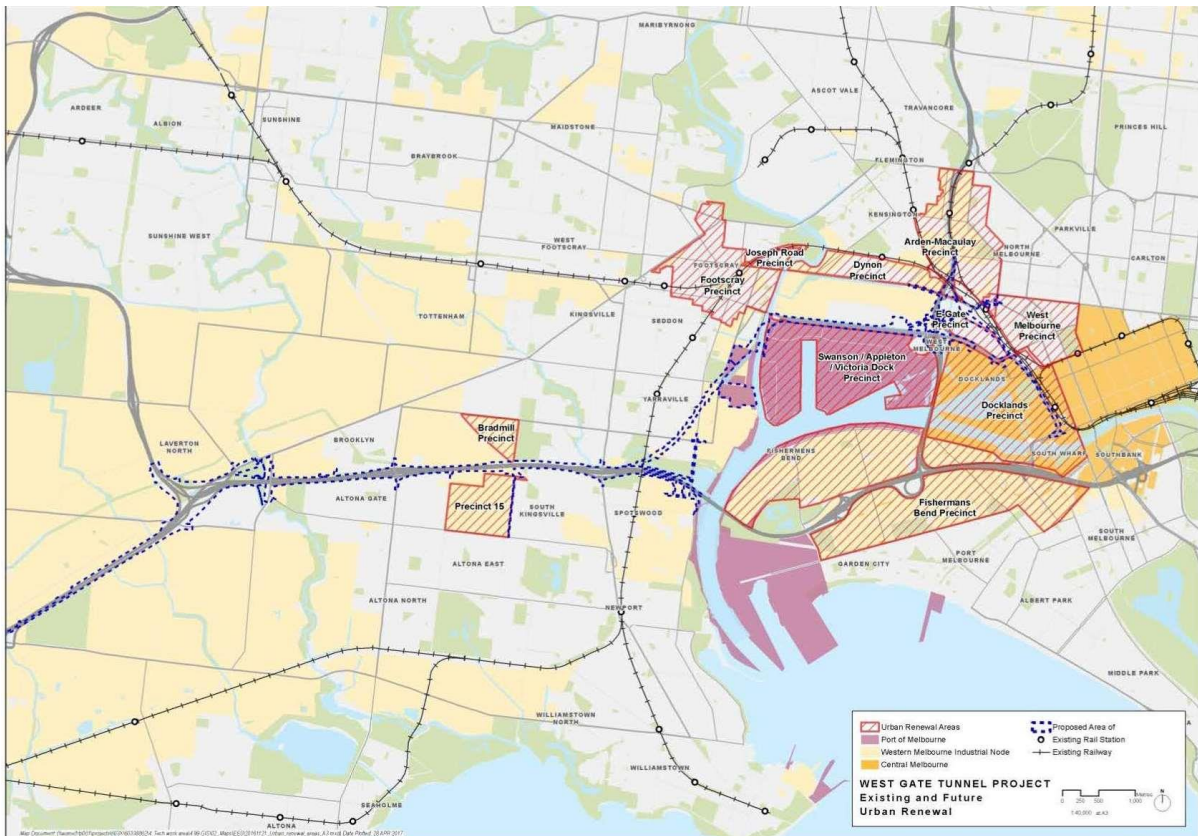


Figure 4 Urban Renewal and Key Policy Areas

Mr Barnes agreed that the plan accurately portrays the location and extent of urban renewal areas identified in planning policy. He agreed with the proposition put by the IAC that the alignment of the Project as reflected on the Plan, and in particular the location of the crossing of the Maribyrnong River, has been responsive in minimising impacts on the designated urban renewal areas. He accepted that impacts have been minimised by the alignment following the existing M1 corridor to the West Gate Bridge and then via tunnelling under Yarraville.

For the reasons discussed by Mr Barnes, and his concessions on various matters, the IAC is satisfied that there is significant planning policy support for the facilitation of safe and direct access to the Port via the proposed MacKenzie Street ramps.

¹²² PDF p52 of 328.

5.6.3 Findings

The IAC finds:

- The environmental effects associated with the proposed freeway and access ramp crossings of the Maribyrnong River are acceptable from a land use planning perspective and are an appropriate means to facilitate safe and direct freight access to the Port of Melbourne.

5.7 Effects on E-Gate Urban Renewal Area

5.7.1 Evidence and submissions

There were a number of issues explored during the Hearing regarding the impact of the Project on the future development of E-Gate. In particular its impact on the future integration of E-Gate with North and West Melbourne, and on the creation of viable linkages from Waterfront city to the North Melbourne Railway Station.

The IAC notes that Mr Barnes's town planning evidence did not address the effects of the Project on E-Gate.

Mr Barlow provided the following summary on E-Gate in his presentation slides¹²³.

- *Not a priority urban renewal area.*
- *The proposed locations of the road links are at the edge of the precinct thereby retaining the redevelopment opportunity for the long term.*
- *The proposed Dudley Street link will reduce the extent of 'frontage' of the E-Gate site to the Moonee Ponds Creek but will not prevent continued connectivity along the course of the creek bank.*
- *The Project will not prevent the establishment of an active transport link between North Melbourne and Docklands.*
- *The proposed road works associated with the Project are acceptable within the existing and future land use patterns for the E-Gate Urban Renewal Area.*
- *The Project will not prevent or unduly constrain the redevelopment of the E-Gate precinct.*

Mr Barlow's assessment of the Project impacts on the site¹²⁴ acknowledged that the road link to Dynon Road will occupy part of the north-western section of the site. He acknowledged that the associated on/off ramps linking to Wurundjeri Way and the link from Dynon Road to Wurundjeri Way will traverse the north-eastern edge of the site through to Dudley Street. The assessment notes that the proposed elevated road structures will rise approximately 21 metres above ground level (Dynon Road/Wurundjeri Way link) and approximately 11.5 metres (on/off ramps linking to Wurundjeri Way) above ground level near Dynon Road, and will ramp down to land in Wurundjeri Way south of Dudley Street.

¹²³ Document 31.

¹²⁴ Appendix D of his witness statement.

Mr Barlow's conclusions on the impact of the Project on E-Gate are as follows:¹²⁵

It is considered that the proposed structures and the future operations of the Project will have a number of impacts from a land use perspective, being:

- *A reduction in the 'frontage' of the E-Gate site to the Moonee Ponds Creek.*
- *The creation of a 'land-locked' parcel to the north of the Dynon Road link and adjacent to the Moonee Ponds Creek.*
- *A reduction in the area available for redevelopment by approx. 1.5 hectares leaving approx. 18.5 hectares available.*
- *The creation of a high physical structure at the northern edge of the site that will serve to create a new edge condition the future redevelopment of E-Gate will need to respond to and manage.*

Collectively, these impacts will introduce a changed context for the future development of the E-Gate site.

In relation to the proposed Dudley Road links impact on Moonee Ponds Creek, Mr Barlow's evidence was that the reduction of the frontage to the Creek and the creation of the land-locked parcel will potentially reduce the opportunity to integrate some or all of that land into a larger open space corridor associated with the Moonee Ponds Creek. He considered it desirable for the portion of land directly abutting the creek to be maintained as part of the Creek open space system to integrate with the long-term redevelopment of E-Gate. Mr Barlow noted that the ongoing management of the 'land-locked' parcel can be dealt with "by reallocating it to the adjacent rail corridor". Other Impacts on the Moonee Ponds Creek are discussed in Chapter 13.

In response to cross examination from Counsel for the IAC regarding access to the proposed park, Mr Barlow submitted short term access will be provided from Footscray Road and longer term a link from E-Gate is likely.

In relation to the northern edge of E-Gate Mr Barlow's evidence¹²⁶ was that:

The elevated structures to the north will create a highly visible structure and 'edge' to the E-Gate site and the existing rail corridor. The E-Gate site was always confronted with the need to manage a 'robust' northern edge condition given the operations of the rail corridor that include freight and night operations. It is acknowledged that the Project will introduce a stronger visual delineation between the E-Gate site and the adjoining transport functions.

The renewal of E-Gate site will need to respond to this condition.

In relation to how the edge condition could be managed or treated in future design, Mr Barlow's evidence noted there are a number of potential responses including:

¹²⁵ Appendix D of his witness statement.

¹²⁶ Appendix D of his witness statement.

- *The creation of multi-deck car park structures adjacent to the Project that serve to elevate the 'ground plane' of the E-Gate development above the height of the Project. This design approach has been adopted by developments in Southbank adjacent to the Westgate Freeway.*
- *Adopting design approaches that provide for an appropriate acoustic protection within buildings. Again this approach is already adopted in central city precincts, including Southbank.*

Regarding the provision of a future link across E-Gate Mr Barlow gave evidence¹²⁷ that the elevated roadways will introduce a further element to be crossed by any future link. He considered that there are a number of design responses available to the future developers of E-Gate including:

Incorporation of the link into one of the multi-deck car park or other structures that may be built on the northern edge of the E-Gate project.

Taking the link to the north-west of the rail overpass and under the elevated road ways on an independent structure. This could result in a longer link than would be achieved in a no Project circumstance.

Mr Barlow did not consider the Project will prevent the establishment of an active transport link between North Melbourne and Docklands.

The supplementary presentation slides from Dr Woodcock¹²⁸ concluded that *"the Wurundjeri Way extension and Dynon Road connection should be eliminated to protect the liveability of inner Melbourne"*.

The WDA submitted¹²⁹ that the Project will not preclude urban renewal adjacent to the Project alignment. It submitted that the degree to which development of an urban renewal area has been planned, and the likely timing of that development, are relevant factors in considering the Project's impacts on those areas.

The WDA acknowledged that there is a fundamental difference between it and the CoM about the extent to which the Project impacts upon the development potential of E-Gate. The WDA relied¹³⁰ on the evidence of Mr Barlow that the 'land take' resulting from the Project is 1.5 hectares of 20 hectares, which represents 7.5 per cent.

The WDA submitted that the with or without the Project scenario, development of E-Gate will always need to deal with at-grade and elevated infrastructure alongside its northern boundary given the commuter and freight rail network in that location, including the elevated Regional Rail Link.

In relation to E-Gate the submission of the WDA concluded:¹³¹

¹²⁷ Appendix D of his witness statement.

¹²⁸ Document 279.

¹²⁹ Document 29, paragraph 6.

¹³⁰ Document 319, paragraph 203.

¹³¹ Document 319, paragraph 208.

While the elevated Wurundjeri Way extension will impose design constraints on development of E-Gate, this should be balanced against the benefits of an extended Wurundjeri Way for the City of Melbourne, as assessed by Mr Hunt.

The CoM submitted¹³² that the Project's city connections and the E-Gate response "fail miserably" when measured against the evaluation objective for the built environment which reads:

To protect and enhance the function and character of the evolving urban environment including built form and public realm within the immediate and broader context of the project works. (emphasis added)

It submitted that reference to "evolving" recognises:

...that the objective must be applied with a view to the future, and how the urban environment of a particular area will evolve, and not simply as it is today and built form is only one aspect of this "evolving urban character".

In relation to the impact on E-Gate the CoM noted:

E-Gate is an "evolving urban environment". The evolution is yet to commence in earnest, but the vision and intent is clear. It is an area of significant potential and great importance to the future of the Melbourne metropolis.

The evidence as to the impact of the city connections as currently proposed on the built environment is essentially all one way.

The CoM noted the EES response to the Project's impact on E-Gate varies, as on the one hand it suggests:¹³³

Impacts on the future function and character of the built form and public realm in strategic development areas including E-Gate would be mitigated through recommended EPR as well as future strategic planning within the precincts.

Later it notes:¹³⁴

Due to the lack of detailed planning proposals for the precinct, it is not possible to provide a detailed commentary regarding the impact on future development potential.

The CoM submitted that in this instance, the WDA seems to have "changed its tune" in the Hearing:

Far from suggesting that impacts on the future development potential of E-Gate are unable to be determined, it is now suggested that it is clear that the impacts will be essentially benign, or at least easy to address.

¹³² Document 150, paragraphs 176-181.

¹³³ Technical Report K, pviii.

¹³⁴ Technical Report K, p129.

The CoM submitted that there is no excuse for the EES to have failed to consider the impact on the future development potential of E-Gate. The CoM considered it is a critical issue and while it may have been difficult to do, that does not mean it can be ignored. It also reiterated¹³⁵ that the IAC should proceed on the basis that a significant portion of E-Gate will be lost, and an even greater portion of E-Gate will be compromised by the Project.

The group submission by Melbourne City Western Connection¹³⁶ noted its key concerns related to the design of northern extension of Wurundjeri Way which will be located 100 metres from existing homes in West Melbourne:

We are especially concerned that the proposed 10 metre high, elevated freeway compromises existing and future connections between Docklands and West Melbourne, and the environment that would be the home of the future community at E-Gate.

The submission urged the IAC to “dismiss the current design, and consider transport and city planning solutions that would better suit the broader community”. The submission noted that the designs emerging from previous E-Gate tender process reflected putting parkland at the Moonee Ponds Creek end of the site, in addition to having a walkway up and over the Regional Rail Link connecting the North Melbourne Station across the site to Footscray Road. It submitted that this option will be foreclosed if the Project proceeds in its current form.

The submission articulated a number of alternate design responses for the E-Gate Precinct that they considered are responsive to the strategic significance of the site. It concluded by urging reconsideration of the design of the Project, and particularly how the Project uses land as it nears the CBD:

We believe there are better options that both provide better traffic outcomes but can also provide significantly more benefits for the broader community.

The submission on behalf of the Friends of Moonee Ponds Creek¹³⁷ noted:

There was acknowledgement by presenters at these IAC hearings that building Wurundjeri Way Extension at grade would be preferable.

It recommended that if an extension of Wurundjeri Way is approved, then it should be redesigned to join Dynon Road east of the E-Gate entry so as to preserve this part of the Creek’s open space.

Ashe Morgan¹³⁸ submitted that in view of the weight of planning policy support for a pedestrian connection from Waterfront City to North Melbourne Station, the IAC should, “at the very least”, ensure that the opportunity to create the North Melbourne / Dockland Link is not precluded by the preferred Project design. The submission concluded¹³⁹ that the IAC should recommend that the WDA should coordinate the concept design of the Wurundjeri

¹³⁵ Document 150, paragraph 231.
¹³⁶ Submission 442.
¹³⁷ Document 223, paragraph 25.
¹³⁸ Document 141, paragraph 54.
¹³⁹ At paragraph 57.

Way extension and the proposed North Melbourne / Docklands Link with relevant parties including the appropriate government agencies, taking into account the significant site constraints and pre-existing infrastructure.

A number of other submissions raised concern that the Project design is not responsive to the future development vision for E-Gate, and that the design inhibits effective linkages being created through the site.

5.7.2 Discussion

The EES Land Use Planning assessment¹⁴⁰ notes that in October 2014, Major Projects Victoria called for an Expression of Interest to develop the E-Gate site. It indicated that at the time, E-Gate was envisaged as a new integrated community on the edge of the CBD and Docklands that will provide for approximately 10,000 residents via the rejuvenation of the West Melbourne rail yards. The Expression of Interest was subsequently withdrawn by the State Government.

In relation to current plans for E-Gate the Technical assessment notes that detailed plans and proposals relating to E-Gate are not publicly available and the exact boundary of the precinct has not been determined.

The IAC accepts submissions advanced by the CoM¹⁴¹ that while the 'current plans' for E-Gate may not be in the public realm, E-Gate is *"an area of significant potential and great importance to the future of the Melbourne metropolis"*.

The IAC agrees with the Land Use Assessment's finding that the Project alignment will result in impacts to Moonee Ponds Creek and the E-Gate Precinct through the introduction of elevated infrastructure in locations where there are currently no other creek crossings.

In relation to the quantum of E-Gate land that will be lost to the Project, the IAC acknowledges the assessment of Mr Barlow that the land take from the area identified by him as E-Gate will be approximately 1.5 hectares. The IAC notes that there is railway land immediately to the north of the E-Gate site that extends to Dynon Road.

The IAC does not accept the CoM submission that the parcel of land proposed for urban renewal and redevelopment as E-Gate extends all the way to Dynon Road¹⁴². Having noted this, the IAC accepts the submission of the CoM that the current elevated Project design will significantly compromise the ability for this additional railway land to be effectively integrated with the future development of E-Gate. This is a concern to the IAC. The IAC accepts however that the majority of the E-Gate site will remain as a consolidated development precinct.

Of particular concern to the IAC is that the Project is being advanced in the absence of an agreed conceptual land use planning framework, let alone a detailed planning proposal for the urban renewal area.

¹⁴⁰ Technical Report K.

¹⁴¹ Document 150, paragraph 180

¹⁴² As depicted on slide 4 of Document 33.

The IAC considers the unresolved nature of E-Gate's planning framework represents a significant constraint that to date, has hindered the effective and integrated planning of the Project. The IAC is not suggesting that the Project or WDA is at fault for this situation, but rather, it is highlighting the challenge that the policy vacuum presents.

The IAC considers it very important to ensure the urban renewal opportunities associated with the future development of the E-Gate precinct, and the areas future integration with North and West Melbourne, are maximised to the greatest extent practicable and that the Project does not foreclose prematurely on opportunities that have yet had the opportunity to be fully explored.

In this regard, the IAC supports the submissions by the CoM and Melbourne City Western Connection that there is merit in reviewing the design (location and elevation) of the proposed Wurundjeri Way link now, to ensure that the Project is integrated with the future form of E-Gate and surrounding suburbs and infrastructure in a manner that respects and reflects its strategic location at the gateway to Melbourne.

The IAC notes the response from Mr Barlow in cross examination from Counsel assisting the IAC regarding his opinion if it would be a benefit to provide Wurundjeri Way at grade, rather than via an elevated ramp and roadway:

If it was at grade, access to E-Gate could be provided from it. Given three access points to E-Gate are proposed from Footscray Road I don't see the need for it being at grade, but it may be nice to have it. (IAC emphasis)

VicRoads submitted¹⁴³ that it conditionally supports lowering the Wurundjeri Way extension:

VicRoads supports the lowering of the Wurundjeri Way extension at the point that it is adjacent to E-Gate subject to the WDA addressing the issue of rail stabling and maintaining the proposed lane capacity and functionality of the Wurundjeri Way extension.

In response to a question from the IAC whether there was merit in further considering open space linkages across the E-Gate site, Mr Barlow said:

Further consideration should be given to the utilisation of open space in E-Gate and Footscray Road and opportunities to enhance linkages.

The IAC is unsure if this response was a recommendation by Mr Barlow for such a review to be undertaken now, or post development of the Project. The IAC considers there is merit in reviewing the provision of open space and linkages across E-Gate prior to the Project design being finalised.

The IAC notes the response to questions it put to WDA on the last day of the Hearing regarding the WDA's views on VicRoads position regarding lowering of the Wurundjeri Way extension. The WDA stated that rail stabling yards are a significant constraint and it is continuing discussions with the various rail authorities. If there is another option for the V/Line stabling yards, there may be an option to lower the extension. He noted that the

¹⁴³ Document 111, paragraph 153.

road would still need to be elevated, at least in part as there is a need for a flyover of Dynon Road. The WDA concluded that lowering of the link was “*still a matter the WDA wishes to explore, but it is still not aware if there is an alternate stabling yard option*”. The WDA observed that the stabling yards were not included in the E-Gate tender.

Mr Barlow, in responding to a question from Counsel assisting the IAC, supported EPR LPP4 (Pedestrian connections) subject to:

It should be reworded to clarify that the link should be active (bicycle and pedestrian) and that it should include reference to ‘providing access to the North Melbourne Station’ (rather than a direct link to the station).

5.7.3 Findings

The IAC finds:

- The Project as currently designed imposes significant constraints and negative environmental effects on the future urban development outcome for E-Gate and abutting rail yards primarily through the elevated design of the Wurundjeri Way extension and Dynon Road link.
- A more responsive mixed use planning outcome could and should be achieved which integrates the Project with the development of E-Gate to deliver demonstrably superior outcomes for both, noting that this is a task that cannot be achieved by the WDA alone, but will require broader State engagement, Local Government and Community engagement.
- The current design is sub-optimal in regard to the Wurundjeri Way extension and Dynon Road link and further design alternatives should be explored to improve the environmental, land use and amenity outcomes including resolving a viable rail stabling alternative.

5.8 Effects on other urban renewal areas

5.8.1 Evidence and submissions

In relation to the Arden-Macaulay Urban Renewal Area Mr Barlow gave evidence¹⁴⁴ that the future development of the Arden Central site is yet to be determined. He is satisfied that the development can be designed to protect future amenity from traffic noise through measures such as building acoustic attenuation and/or the provision of acoustic barriers on the southern boundary of the site. He concluded that the Project will not constrain or adversely influence the long-term redevelopment of the Arden-Macaulay Urban Renewal Area.

In relation to the Dynon Urban Renewal Area Mr Barlow gave evidence¹⁴⁵ that the proposed roadworks associated with the Project are acceptable within the existing and future land use patterns for the Dynon Road Rail Yards/Former Markets Site and Dynon Urban Renewal Area. He concluded that the Project will not constrain the Dynon Road Rail Yards/Former

¹⁴⁴ Appendix D of Witness Report.

¹⁴⁵ Appendix D of Witness Report.

Markets Site from being used or developed for industrial purposes or adversely influence the long-term redevelopment of the Dynon Urban Renewal Area.

Mr Barlow concluded that there are no direct land use or built form impacts that will effect North Melbourne and the Project will not constrain or adversely influence the ongoing development of the West Melbourne area.

Mr Barlow's conclusion on the impact of the Project on these urban renewal areas is that while there will be a number of impacts along the course of its route, they can be appropriately managed.

The WDA submitted that it relies on the opinion of Mr Barlow¹⁴⁶ for the acceptability of the land use impacts of the Project on these urban renewal areas. For the Dynon Precinct the WDA noted that the Melbourne Planning Scheme designates the area as a "*Potential Urban Renewal Area*" and that its development potential is unaffected by the Project.

The CoM submitted¹⁴⁷ that the traffic, noise, pollution and amenity impacts on the City's urban renewal areas will be significant, and that the EES inadequately assessed these impacts. The submission acknowledged¹⁴⁸ that the impacts could potentially be managed in traffic engineering terms, however the CoM were concerned that the environmental impacts cannot be managed to any material degree.

Other submissions were concerned that the Project is not compatible with urban renewal areas.

5.8.2 Discussion

The Land Use Impact Assessment¹⁴⁹ provides an overview of 'impact categories' considered in the assessment, including Land use impacts; Land acquisition; Built form impacts; and Strategic policy impacts. The IAC accepts that the assessment categories are very broad. For instance, the description of strategic policy impact states:

The impact assessment focused on a consideration of whether the project would have an impact on strategic policy (redevelopment precincts) where intended land use and development outcomes would be constrained by the following factors:

- *Changes to overall size of a property (through acquisition or severance/ loss of connectivity)*
- *Changes to level of access*
- *Restriction on the ability to provide the intended use.*

Determination of potential impact also considered the maturity of development proposal and associated ability for future site planning to respond to proposed infrastructure.

¹⁴⁶ In his witness statement, paragraph 125.

¹⁴⁷ Document 150, paragraphs 232-234.

¹⁴⁸ At paragraph 242.

¹⁴⁹ Technical Report K, p27.

The IAC accepts the findings of the EES, that when measured against these considerations, the land use impact of the Project on identified urban renewal areas, other than E-Gate, is acceptable. The IAC is satisfied that while some land within the City's urban renewal precincts will *"be lost to the Project"*, the land take will not jeopardise the ability to redevelop the identified urban renewal sites. The IAC accepts the submissions of WDA, and the evidence of Mr Barlow that while there will be amenity impacts on inner renewal suburbs including North and West Melbourne arising from increased traffic, the residential communities in these suburbs are not likely negatively impacted to such a degree that existing land uses will be compromised to an extent that will trigger land use transformation or urban blight. In forming this view, the IAC acknowledges the concerns expressed by the CoM. The IAC also notes that no land use planning evidence was advanced by the CoM on these matters.

Having noted the above, as highlighted in the previous Chapter of this report, the IAC considers it would be prudent to undertake additional traffic impact assessment during detailed Project design, and to implement the corresponding traffic mitigation works (at the cost of the Project) in order to reduce the impacts, and maximise the benefits for residents, of the provision of the new road linkages provided by the Project.

5.8.3 Findings

The IAC finds:

- The Project will impact on urban renewal areas.
- Other than for E-Gate, the land use impacts are acceptable and will not jeopardise the ability for the areas to be redeveloped.

5.9 Response to Terms of Reference

The IAC makes the following specific comments on the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects.

Adverse environmental effects:

- There will be a number of negative residual environmental effects on the Millers Road residents as a result of the Project. The IAC recommends ongoing monitoring of impacts post commencement of the Project, and the resourcing and implementation of a suite of mitigation responses.
- The environmental effects on residential properties that are located on the west side of Hyde Street, south of Francis Street and opposite the Yarraville Oil Terminal, are unacceptable. Accordingly, the IAC recommends that the properties be acquired.
- There are a number of adverse environmental effects associated with the current design of the Wurundjeri Way extension and Dynon Road link through E-Gate. The IAC considers that the current design is sub-optimal in regard to these links and that further design alternatives should be explored to improve the environmental, land use and amenity outcomes for the Project and E-Gate.

Beneficial or neutral environmental effects

- The Project enjoys significant planning policy support from various elements of the State Planning Policy Framework and in particular its responsiveness to the directions articulated in Plan Melbourne 2017 – 2050.
- The environmental effects on the future use and development proposed for Precinct 15 are acceptable, subject to the extension of the acoustic barrier on the south side of the Freeway for the full length of the proposed open space that fronts the Freeway.
- The environmental effects associated with the proposed freeway and access ramp crossings of the Maribyrnong River are acceptable from a land use planning perspective and are an appropriate means to facilitate safe and direct freight access to the Port of Melbourne.
- The environmental impacts on the City's urban renewal sites are acceptable and apart from E-Gate will not jeopardise the ability for the areas to be redeveloped.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

The IAC recommends that the design of the Wurundjeri Way and Dynon Road extensions through E-Gate be reviewed. Such review should consider land outside the current Project boundary as necessary.

(iii) Conditions and Environmental Management Framework

Subject to the design outcomes in relation to the Project near E-Gate, the IAC does not consider additional conditions should be imposed on any approval given for the Project under Victorian law; nor does it consider any recommendations are required to strengthen the EMF.

The IAC recommends that the exhibited EPR for Land Use (LPP1 – LPP4) should be replaced with those provided in Appendix F of this report.

5.10 Recommendations

The IAC makes a number of recommendations in relation to design changes at the city end, primarily related to the E-Gate, Dynon Road link and Wurundjeri Way extension. The IAC recommends the acquisition of the Hyde Street properties and changes to the EPR as shown in Appendix F.

6 Visual Impacts, Urban Design and Landscape

Visual Impacts, Urban Design and Landscape issues are primarily addressed in EES: Chapter 6 of Urban Design, Development and Urban Design Plans, Map Book and Technical Report N (Landscape and Visual Impact Assessment). Urban design issues are touched upon in Technical Report L (Social) and Technical Report J (Health).

The evaluation objectives for Visual Impacts, Urban Design and Landscape in Table 4-1 of the EES are:

Built environment – *To protect and enhance the function and character of the evolving urban environment including built form and public realm within the immediate and broader context of the works.*

Landscape, visual and recreational values – *To minimise adverse effects on landscape and visual amenity values and to maximise the enhancement of these values where opportunities exist.*

Social, business, land use, public safety and infrastructure – *To minimise adverse effects on the social fabric of the community, including with regard to community cohesion, access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.*

The following evidence was called in relation to Visual Impacts, Urban Design and Landscape:

Urban Design

- WDA - Roger Wood of Wood of Marsh Pty Ltd Architecture
- MCC - Kirsten Bauer of ASPECT Studios
- IMPA - Dr Ian Woodcock of RMIT
- CoM - Christopher Procter of Ethos Urban and Professor Geoffrey London of The University of Western Australia
- Ashe Morgan - Mr Justin Madden of Arup

Landscape

- WDA: - Deiter Lim of Tract Consultants Pty Ltd
- CoM: - Stephen Schutt of Hansen Partnership Pty Ltd
- MCC: - Kirsten Bauer of ASPECT Studios

An architecture urban design and landscape conclave was held on 10 August 2017. Mr Wood, Mr Lim, Professor London, Mr Procter, Ms Bauer, Dr Woodcock and Mr Madden attended the conclave. Consensus was not reached on all matters. Key issues and recommendations are summarised below:

- The Maribyrnong River crossing does not satisfactorily respond to the significance of the river and adjacent land use (Mr Wood dissenting). The conclave noted concern over the accessibility of public open space from Shephard Bridge to the MacKenzie Road on-ramp. In particular the conclave (other than Mr Wood) found the ramps and bridge are too low, compromising the river environment. The

conclave recommended extending the tunnel under the Maribyrnong River or removing the ramps.

- The development potential and future amenity of E-Gate would be compromised by the Project. The conclave recommended (Mr Wood dissenting) the removal of the Dynon Road link and consideration of alternatives for the Wurundjeri Way extension, such as locating it in a tunnel or at-grade in a boulevard.
- The development of E-Gate and Arden Macaulay should not be delayed by the Project (Mr Wood dissenting).
- Lack of clarity about ownership and management of proposed open space areas and the need for early resolution of this issue.
- Discrepancies regarding location of noise walls adjacent to all open spaces.

6.1 Key issues

The IAC considers that the key issues are:

- The design intent and its expression in the Project
- The weight placed on urban and landscape design in Project development
- The assessment of landscape and visual impacts
- The impacts on residential and neighbourhood amenity
- Impacts upon development potential of surrounding areas
- The qualities of the open spaces created and altered by the Project
- The distribution of adverse and beneficial effects.

6.2 Design intent and its expression in the Project

The design intent for the Project is outlined in Chapter 6 of the EES and is expressed through the concepts in the map book and design and development plans book. Together they set the design direction for the Project and establish how the designers will apply their skills. The IAC heard diverging views about whether this design intent and its expression was an appropriate response to the area.

6.2.1 Evidence and submissions

The WDA submitted the Project seeks to “celebrate its necessary structural components such as portals, river crossings and elevated interchanges”¹⁵⁰. The statement further adds “it uses landscaping variously to ameliorate visual impact, improve linkages and rehabilitate underused urban land, so as to make a positive contribution to amenity, microclimate and habitat values” and in this way creates “infrastructure that is beautiful to look at”. The EES states the urban design vision is to:¹⁵¹

...achieve urban design excellence through genuinely innovative and high quality design, responsive and effective urban integration, positive connections within the neighbourhoods through which it passes and a positive contribution for local communities and for greater Melbourne.

¹⁵⁰ Document 319, paragraph 344.

¹⁵¹ Volume 1, section 6.3.

Dr Woodcock in evidence challenged the degree to which these aspirations had been realised in the concept design. He drew the IAC's attention to the absence of evidence that relevant Aboriginal communities had been consulted on the design and warned that the design might be seen as a commodification and appropriation of Aboriginal culture. A number of submitters including the National Trust¹⁵² shared this view.

Ms Bauer expressed a similar concern¹⁵³ to Ms Rosen who suggested during questions from the IAC that good design can help achieve social benefits through celebrating local identity, however in her opinion there was no evidence the Project design achieves this.

Ms Bauer observed, *"Overall, the urban design concept is developed and stands at a high level appropriate for the context and site locations. It endeavours to create an overall narrative across the dispersed infrastructure elements and across diverse urban environments"*. About the portals, she observed that while it was clear the designers were seeking to create iconic large urban landmarks, she questioned the visual emphasis placed on them.

MCC¹⁵⁴ and others suggested too much emphasis has been placed on the portals and vents relative to other aspects of the design. Mr Hare¹⁵⁵ and others were concerned that the size and mass of the portals will dominate their surroundings. The National Trust¹⁵⁶ submitted that the northern vent and portal would detract from the heritage and landscape values of Yarraville Gardens.

Ms Bauer suggested the attention and cost of these features *"could be more importantly and usefully shifted to a significant extent to improving the public realm outcomes of the areas underneath and adjacent to the West Gate Tunnel Project"*¹⁵⁷. She suggested that the Project designs were ambiguous and lacking in the detail necessary to draw firm conclusions about the extent to which they fulfilled their design intent. The CoM¹⁵⁸ and the Whittens¹⁵⁹ also submitted that the designs as presented were inadequately resolved and provide little substantive basis upon which to evaluate their urban design impacts at different planning scales.

The Friends of Stony Creek¹⁶⁰ and LeadWest¹⁶¹ requested a greater involvement in the design, management and implementation of the landscape opportunities created by the Project.

¹⁵² Document 227.

¹⁵³ Expert witness statement, p51.

¹⁵⁴ Submission 158.

¹⁵⁵ Submission 354.

¹⁵⁶ Submission 442.

¹⁵⁷ Expert witness statement, p52.

¹⁵⁸ Submission 184.

¹⁵⁹ Submission 469.

¹⁶⁰ Submission 161.

¹⁶¹ Submission 434.

6.2.2 Discussion and conclusions

The IAC supports the intent to create landmarks for the west of the City that may help recast the image of the area, the commitment to creating a coherent design theme and the intention to realise changes as improvements.

However, the installation of large engineering structures and the loss of mature trees for the Project¹⁶², will unavoidably alter the visual composition of the places it passes through. The attendant increase in ‘hard’ components (walls, road surfaces, portals, gantries, lights) and diminished ‘soft’ components such as vegetation, will increase reliance on ‘borrowed landscape’¹⁶³ until the replacement vegetation matures.

The Project relies to a significant extent on design efforts placed into large, landmark infrastructure elements to justify its claim that it “*minimises adverse effects on landscape and visual amenity values and maximises the enhancement of these values where opportunities exist*”. Several experts acknowledged the high design standards embodied in these features. However, by presenting them as icons of the west and of good design this increases the imperative that the design resonates with the community and passers-by. If these significant interventions do not resonate then it seems likely that those people affected by the Project will not conclude that they represent enhancements. For these people the detrimental impacts of the Project are likely to remain unmitigated or inadequately mitigated.

The IAC shares the concern expressed by a number of experts and submitters that the level of design resolution in the EES means it is not possible to conclude with confidence that the design features adequately mitigate the visual impact. This is an area that will need further consideration during detailed design.

The IAC supports the intention to reveal and celebrate the area’s Aboriginal and European heritage. However, it notes that there are many other layers of meaning that have contributed to the area such as its geology and ecology. Revealing these as well may assist the users of the Project and the Federation Trail to better understand and appreciate the places they are passing through.

Considerable design skill has been invested in giving the Project a coherent and striking design character. In particular, the Project has sought to emphasise and celebrate iconic engineering and architectural structures.

The limited degree of resolution of the designs in the EES preclude a firm conclusion about whether the outcome will actually achieve the aspiration that “*it will be beautiful to look at*”.

The Project’s emphasis on celebrating the infrastructure by creating landmarks and in particular the portals/vents may mean that positive visual impact for one group (drivers) risks a corresponding loss for another group (local residents whose valued views are altered). The prevailing perception of the Project for some may be one of imposition.

¹⁶² Discussed in detail in Chapter 13.

¹⁶³ Executive Summary p6-6.

There is uncertainty as to the level of engagement with the Aboriginal community about the Aboriginal elements in the design theme which precludes a firm conclusion about whether the themes reflected in the design are representative and authentic. The IAC supports further consultation with the Aboriginal and broader community during detailed design, noting that there may be limited scope to significantly change the design at that time. The IAC considers the OVGA should also be involved in design review and finalisation.

6.2.3 Findings

The IAC finds:

- Further consultation should be undertaken with the Aboriginal and broader community and the OVGA of existing and emerging urban design concepts.

6.3 Weight given to urban and landscape design in Project development

The overall process by which the Project was developed is described in the EES¹⁶⁴. This establishes the context within which the urban and landscape design components were developed.

The IAC heard evidence and received a number of submissions about the relative emphasis on design during Project development compared to other aspects of the Project and the opportunities to mitigate impacts this has created or precluded.

6.3.1 Evidence and submissions

Mr Wood stated in his evidence¹⁶⁵ that he oversaw the urban design response to the design. He responded to questions from the CoM that he was satisfied with the reference design and it “*was 90% there*” when he provided his design advice. He noted¹⁶⁶ he was not involved in the development of the urban design vision but applied a pre-developed vision and reconciled it with a range of other factors. He stated the vision and plans contained in the EES “*will undergo further design development and resolution in the detailed design phase*”.

Under cross-examination from Counsel assisting the IAC, Mr Wood stated he had limited ability to influence the emerging design, but confirmed he had some influence. He nominated in particular the inclusion of the Veloway and he stated he was happy to support the Project, expressing the view that the “*design was good enough within the limitations of the project*”.

Dr Woodcock’s view was that the urban design was an artistic veneer on the engineering:

*The majority of effort that passes for urban design in the WGTP is associated with surface treatments and managing visual appearance. This is one layer of urban design, but visual appearance is the most superficial form of design consideration within this area of built environment thinking.*¹⁶⁷

¹⁶⁴ Volume 1, Chapter 3.

¹⁶⁵ Section 4.3.

¹⁶⁶ Expert witness statement, section 4.3.

¹⁶⁷ Document 209.

Professor London expressed the view that the detail considerations would not mitigate the detrimental impacts of the Project. He suggested urban and landscape design objectives should have been considered in the Project design phase, as they couldn't adequately be met in the detailed design phase.

In summarising their position, the CoM offered:

The active transport (and open space) elements of the Project are relatively minor, and presented as afterthoughts. ... in total they give the distinct impression of something attached awkwardly (and perhaps even reluctantly) onto the Project at a later stage of its 'design' ... They are a set of steak knives; which are being offered to sweeten the deal, and ... do not appear to be something that only the Project can deliver".¹⁶⁸

Ms Rosen suggested "that the design stage did not pay sufficient attention to the long term feasibility of the open spaces".

Other submitters¹⁶⁹ stressed the importance of the process achieving high quality design and the extent to which poor design qualities may stigmatise the area.

6.3.2 Discussion and conclusions

The IAC recognises that this is a road project and the Project objectives guide the weight attributed to the varying considerations. Further, the IAC acknowledges that within the scope available to the design team they have achieved a high standard of design. However, the IAC considers that the design effort that is demonstrated in the concepts contained in the EES may have been able to achieve more effective mitigation and more beneficial effects if it had been deployed earlier in a more fundamental way in the design process, including in the development of the design principles.

The IAC acknowledges the efforts made to improve the Project with landscaping. However, the Project occupies nearly all of the Project area, leaving little room for landscaping to mitigate the visual impact of the Project. Furthermore, in confining landscaping and the provision of open spaces to areas within the Project boundary this may have precluded the possibility of these measures (particularly open spaces) providing the optimal level of contribution to the surrounding communities.

The lack of resolution of the design solutions put forward in the EES diminishes the confidence that the design solution will have the optimal effects.

6.3.3 Findings

The IAC finds that:

- The size, mass and alignment of the Project could have benefitted from earlier input of urban design and landscape expertise.

¹⁶⁸ Document 150.

¹⁶⁹ S26, 142, 148, 158, 203, 378, 434 and others

- A high standard of design has been achieved within the scope provided to the design team. The scope has limited the ability to mitigate the adverse impacts of the Project and leaves design elements open to the criticism of being cosmetic.
- The restricted weight given to urban and landscape design has diminished the ability of the Project to meet the Built environment, landscape and visual evaluation objectives.
- The inability to consider design interventions outside the Project area may result in missed opportunities to ensure interventions are optimally located.
- The Project can better achieve its design ambition through refinements that will occur through detailed design and through the implementation of the EMF.
- Consultation should occur with local and other relevant authorities to explore urban design and landscape improvements outside the Project area where these may achieve improved outcomes.

6.4 Landscape and visual impacts assessments

The assessment of visual impacts is described in Technical Report N. They are relied upon to support the findings that the Project impacts are acceptable and frame the design challenges to mitigate impacts.

6.4.1 Evidence and submissions

The architecture, urban design and landscape conclave concluded that there were inadequacies in the methodology adopted for the Landscape and Visual Impact Assessment (LVIA).

The WDA did not call its visual impact assessment expert. Mr Schutt and Ms Bauer gave evidence that the LVIA was flawed. Mr Schutt stated *“it is my opinion that the manner in which the matrix approach has been constructed in Technical Appendix N is overly simplistic, by virtue of it only allowing for 3 levels of visual impact; High, Moderate and Low”*. He added this calibrates the analysis in such a way as to obscure particularly significant impacts. He noted that the analysis does not allow for ‘extreme’ scenarios to be identified and thus indicates a lower level of mitigation is suggested than would actually be the case¹⁷⁰.

In his evidence¹⁷¹ Mr Schutt agreed that visual impact is best assessed with photomontages as used in the LVIA. However, Mr Schutt stated that the photomontages relied upon to assess visual impact in the LVIA significantly under-represent the actual visual impact of the structures which will be experienced at those view locations.

Mr Schutt presented evidence to the IAC¹⁷² that there were many locations that the LVIA should have considered but didn’t¹⁷³. He noted assumptions upon which the 10 years tree growth photomontages were modelled were not made clear and appeared to make no

¹⁷⁰ Expert witness statement pp9-10.

¹⁷¹ On p41.

¹⁷² Document 133.

¹⁷³ On p11.

allowance for overshadowing¹⁷⁴. Under cross-examination, Mr Wood and Mr Lim emphasised the importance of the Landscape Plan in ensuring the landscape aspirations of the LVIA would be met. Mr Lim conceded that overshadowing would probably slow growth but maintained that the trees would still achieve their potential, albeit over a longer period.

They stated that in their view the maintenance contract for the landscaping should hand over the full number of plants as specified in the planting schedule. When asked how long the contract period should be to ensure the long-term survival of the landscape Mr Lim nominated a one year period. Mr Miller suggested a longer period of up to five years would be necessary to ensure that the landscaping could achieve an optimal outcome.

The National Trust¹⁷⁵ raised concerns about poor growing conditions, submitting that achieving optimal growing conditions required irrigation and soil preparation. This was reflected in the provisions of the CoM proposed EPR¹⁷⁶.

A number of submitters¹⁷⁷ consider that the LVIA undervalues Moonee Ponds Creek.

6.4.2 Discussion and conclusions

The Project relies heavily on landscaping to mitigate its visual impacts, however the author of the LVIA was not called to give evidence. Hence the weight the IAC should place on the LVIA cannot be established with confidence, but the evidence presented by Ms Bauer, Dr Woodcock and Mr Schutt is compelling in that the LVIA appears to dilute impacts and underestimate impacts at hot spots.

As a foundation document that the EES relies on for the conclusions it has drawn, the IAC assumes that if the EES has been based on a more thorough consideration of visual impacts it may have drawn different conclusions about environmental risks.

The IAC also notes that visual impacts are not merely aesthetic; they affect multiple aspects of people's quality of life. Other impacts include reduced opportunities to experience nature, reduced particulate filtration, diminished microclimatic mitigation and increased glare.

The reliance on landscaping to achieve Project goals increases the importance of the landscaping reaching maturity. The diverging views about the period for landscape maintenance by the WDA, and the concern about growing conditions lead the IAC to the view that the longer period of five years maintenance is appropriate.

6.4.3 Findings

The IAC finds:

- The lack of certainty around visual impacts means that it is difficult to draw conclusions about the Project's ability to mitigate those impacts through landscape response.

¹⁷⁴ On p39.

¹⁷⁵ Submission 442.

¹⁷⁶ Document 272.

¹⁷⁷ Submissions 344, 354 and 441.

- The heavy reliance on screening landscape increases the importance of the landscaping to thrive to ameliorate potential negative impacts.
- Any failure of landscaping would mean the adverse effects are effectively unmitigated and so the IAC has recommended a longer maintenance period (five years) accordingly.
- Uncertainty around the visual impact assessment also means the design review discussed earlier in this Chapter is critical.

6.5 Impacts on residential and neighbourhood amenity

The Project is located in a built up area in close proximity to dwellings, roads and open spaces. The relationship between the Project and the surrounding communities is described in EES Technical Report N Landscape and Visual, the Map book and Design and Development Plans and Report. The IAC heard evidence and submissions about the impacts of the Project on the quality of life of the people who lived near the freeway and the measures taken to protect and enhance this amenity.

6.5.1 Evidence and submissions

The WDA provided PN68 that identifies the proposed height and alignment of new noise walls. The EES states that the noise walls will be designed to be viewed at speed and offer greater visual interest on the residential side *“to ensure appropriateness to the local area and human scale”* and a *“simpler pattern on the freeway side”*¹⁷⁸.

Ms Bauer acknowledged in her evidence¹⁷⁹ that this was an appropriate design response, noting *“The use of two different pattern scales, one for the vehicles and the other for the residential landscape, is a quality outcome”*.

PN63 and PN68 addressed the issue of overshadowing of adjoining residential properties by noise walls on the south side of the West Gate Freeway. These revealed there would be significant overshadowing of these properties at 3pm on the winter solstice but little at 3pm at the spring equinox.

When asked by the IAC, Mr Wood stated that overshadowing could be managed by the use of transparent panels and would be no worse than existing *“wherever possible”*.

Substantial tree planting is proposed to mitigate Project impacts. Mr Miller confirmed that his report assumes all existing trees in the Project area would be lost. The EES states that in the freeway section most of the trees lost will be along the current freeway alignment¹⁸⁰ and this will increase reliance on the ‘borrowed landscape’ of the surrounding areas to provide amenity.

¹⁷⁸ Volume 1, Section 6.6.4.

¹⁷⁹ On p53.

¹⁸⁰ Volume 1 Executive Summary page ES 32.

Mr Lim provided evidence that the existing level of tree canopy would be replaced in 15-20 years as planted trees mature¹⁸¹. He submitted that five times more trees would be planted than those removed.

His evidence was that 4,000 advanced trees at up to 2.5 metres high and 13,500 tubestock would be planted. He added that *“The choice of location for tubestock trees is based on the extent of mass plantings of trees in large garden bed areas to screen and create habitat. This is generally where tube stock plantings are proposed as they are protected by the extent of the garden bed”*¹⁸². He noted that the smaller the installed tree size the faster and easier the plants’ adaptation is to the local environmental conditions leading to a greater longevity in the development of the tree canopy in the future.

He added, *“Where individual trees are proposed such as along major roadways or singularly in open lawn areas then larger semi advanced trees are proposed. This is because the larger trees are more visible within higher profile and higher trafficked areas as well as for maintenance staff so they do not become lost amidst longer grass and destroyed when areas are slashed or mown”*.

When asked by the IAC, Mr Lim stated that there would be no loss of trees in private open space. However, Mr Miller responded that there might be some loss of trees in private open space because of overshadowing. Mr Lim gave evidence that trees would still grow in shade but would require a higher level of care.

Mr Miller gave evidence¹⁸³ that increasing the quantum of advanced trees from the 22% proposed in the EES may reduce the time needed for significant canopy to form to 10-20 years, rather than the 15-20 suggested by Mr Lim. Many submitters¹⁸⁴ also shared this view. Mr Miller suggested in his expert evidence statement that impacts could be minimised if *“early works could include advanced planting in areas not-impacted by construction”* where this was possible.

Mr Schutt recommended¹⁸⁵ that the safety implications of places where movement options are limited such as pedestrian bridges, enclosed pathways and stairways should be assessed. This assessment should *“Develop solutions to reduce vulnerability, such as increasing visibility, lighting and adjacent activity at these places.”* Counsel assisting the IAC submitted a draft EPR that addressed this matter¹⁸⁶.

In relation to specific spaces Ms Rosen gave evidence¹⁸⁷ that the *“remnant VicTrack and VicRoads land parcels existing along the Freeway within the Project boundary i.e. Beevers Street and Hall Street Spotswood are poorly maintained resulting in vandalism, poor perception of safety and amenity”*.

¹⁸¹ PDF p5 of 12.

¹⁸² PDF p6 of 12.

¹⁸³ p21 Expert Evidence statement.

¹⁸⁴ S442 and others.

¹⁸⁵ Expert witness statement, p35.

¹⁸⁶ Document 328.

¹⁸⁷ Expert witness statement, p18.

The Whittens¹⁸⁸ stated concerns that the proposal neutralizes a number of opportunities to enhance the amenity of local and broader communities.

On another matter related to neighbourhood amenity and in response to a question from the IAC, Dr Wright in evidence stated that light spill could adversely affect human health but suggested that this could be managed by careful design.

Specific project elements such as the temporary acoustic sheds at portals, and particularly the southern portal, may also have an impact on local amenity.

6.5.2 Discussion and conclusions

The IAC acknowledges the investments in landscaping that will offer long-term increases in tree canopy and the commitment to improving active transport links which should have significant positive impacts on improving residential and neighbourhood amenity.

The IAC further acknowledges the submissions from a number of witnesses that the proposed noise walls are of a high standard of design and will improve the noise environment and amenity within nearby residential areas.

The IAC notes them to be higher and in many places nearer adjoining properties than existing noise walls. When coupled with the loss of trees that both screen the wall and provide canopy visible from a wider area the IAC considers this may bring significant adverse effects in the short to medium term. The IAC is concerned that the abruptness and simultaneous exposure to impacts in many aspects of the visual environment may amplify adverse impacts and erode the ability of homes and neighbourhoods to support the local communities wellbeing.

The IAC considers that although many of these impacts are temporary it will be many years (15-20 years) before the tree canopy is restored. This is a significant period for the community to experience diminished amenity with health, social and developmental impacts, recognising the particularly significant role that trees have in landscape, microclimate mitigation and ecological terms.

The IAC is concerned that the reliance on tube stock to mitigate the impact of the proposed infrastructure and the lack of certainty about the management of the proposed landscaping will increase the sense that the Project is visually intrusive and lengthen the period of impact.

The IAC partly accepts the evidence of the WDA that overshadowing will not be a major issue, recognising that residential lots will not be significantly overshadowed at the equinox (the conventional time of assessment) but will be for much of winter. The IAC is of the view that when considered with the loss of tree canopy from the 'borrowed landscape' of the freeway, changed micro-climatic conditions and the more prominent noise barriers, people living close to the barriers will suffer a significant reduction in the contribution that landscape can make to their lives.

¹⁸⁸ Submitter 469.

Thus, the IAC considers it is important to address the severity of these impacts and that the length of time before landscape can mitigate them should be minimised as far as possible.

Engaging the community in addressing these issues and assisting them in improving the contribution that their own gardens and shared spaces can make to their lives will assist in mitigating this impact. The IAC considers this engagement can also have significant positive social effects as explored in Chapter 15.2.

The IAC notes Mr Wood's assertion that it is possible to ensure that overshadowing of adjoining properties is no worse than existing through detailed design and the use of transparent panels.

The IAC notes Dr Wright's assertion that light spillage in operation may have adverse health impacts but these may be addressed through detailed design.

The IAC notes the size and high profile of the acoustic sheds at the portals and consider that although they are temporary their duration is such that they are likely to impact upon perceptions of a wider area and the visual amenity of nearby residents.

6.5.3 Findings

The IAC finds that:

- The proportion of advanced trees should be increased and tree reinstatement and offset planting should take into account the amenity, shade and heritage value of existing canopy trees to local residents.
- The proposed noise barriers, gantries and other overhead structures should not increase overshadowing of residential properties to the south of the freeway wherever possible.
- A planting and maintenance regime should be specified that creates the optimal growing conditions.
- Replacement of tree canopies should occur in the same visual catchment within which it is lost.
- Where possible planting should occur as early as possible as part of the construction works.
- Landscape advice should be provided to assist communities, families and individuals to maintain and enhance their amenity and locally improve air quality.

6.6 Impacts upon future urban development potential

The impact of the Project on surrounding urban renewal areas is explored in EES Volumes 1, 2 and 4, Map Book and Development and Design Books and Technical Report K.

The IAC heard evidence and submissions about the degree to which the Project would affect the connectedness, amenity and development potential of urban renewal areas. Land use impacts of the Project on urban renewal areas are addressed by the IAC in Chapter 5. This chapter focuses on the urban design elements.

6.6.1 Evidence and submissions

Professor London presented evidence that connecting the urban renewal areas of E-Gate, Dynon, and Arden Macaulay by high amenity active transport routes would contribute to achieving a number of desirable planning outcomes¹⁸⁹.

In outlining their aspiration for E-Gate, CoM stated it has long been identified as *“a critical piece to stitch together Docklands and the central city. Along with other anticipated major development, E-Gate has the potential to provide significant green space along the Moonee Ponds corridor, which will also be critical to the successful renewal of the E-Gate, Arden and Macaulay precincts”*.¹⁹⁰

However, it additionally expressed the view that the location of the proposed Wurundjeri Way extension above the Dynon Road link results in excessive height that adversely affects established areas and renewal areas.

In relation to the interface between the elevated Wurundjeri Way extension and E-Gate, WDA stated that this could be addressed by development that presented a ‘defensive’ edge to the Road¹⁹¹. The CoM opined that the impact of an elevated roadway through the E-Gate site on the amenity (including air quality, noise, visual and social) of a future mixed-use community (as established in Plan Melbourne) has not been adequately assessed¹⁹².

This view was shared by Mr Madden who noted in his evidence, *“the current WGTP proposal does not include the relevant infrastructure or provide any specific detail regarding how the link will interface with the Wurundjeri Road extension or be impacted with respect to construction programme and governance. As such the current WGTP proposals conflict with the future aspiration for connectivity between E-Gate, North Melbourne Railway Station and surrounding urban redevelopment areas.”*¹⁹³

In his expert evidence statement, Mr Procter surmised that a corridor of 45-55 metres is rendered undevelopable as a mixed-use community and instead becomes a buffer for E-Gate.

The Melbourne City Western Connection expressed concern the proposed extension of Wurundjeri Way that would be located *“only 100 metres from existing homes in West Melbourne”*. They noted that the proposed 10 metre high, elevated freeway would *“severely restrict future capacity to improve walking and cycling connections between Docklands, E-Gate and West Melbourne by creating a poorly designed barrier between our communities”*¹⁹⁴.

In response to questions from CoM Mr Wood conceded that from an urban design perspective it would be preferable to have the Wurundjeri Way extension at grade.

¹⁸⁹ Expert evidence, p8.

¹⁹⁰ Submission 184.

¹⁹¹ Cross examination of Mr London by WDA, day 12 of hearings.

¹⁹² Submission 184, page28.

¹⁹³ Page 28

¹⁹⁴ Submission 444.

In relation to the Dudley Street connection between the CBD and E-Gate, the Melbourne City Western Connection contended that the *“increased width of underpass at Dudley St will create an even less welcoming and safe environment for pedestrian access between West Melbourne and Docklands. The existing problems with this route are identified in the EES, yet this proposal will make this local link even more undesirable and unsafe”*.

They put forward an alternative concept that facilitates a green link, high amenity active transport connection between E-Gate and North Melbourne station over the railway line.

A number of submitters and experts also commented on the urban design impacts of the Project on the Precinct 15 renewal area.¹⁹⁵

6.6.2 Discussion and conclusions

In relation to Precinct 15 the IAC considers the provision of a shared use path between the precinct and the Bradmill Site to be a welcome contribution to the connectivity in the area, subject to responding to safety concerns. Additionally, a significant landscape buffer is an appropriate interface response between the emerging community and the freeway. However, the IAC consider that the value of this land as usable open space that would attract usage is questionable without noise attenuation and may need further evaluation to establish if this space would be qualitatively adequate to achieve positive social outcomes.

In relation to E-Gate, the IAC is of the view that reconciling an elevated Wurundjeri Way extension with good urban design outcomes presents significant challenges. It is possible to overcome each of these challenges individually but collectively they make the task of good urban renewal difficult.

In particular, the WDA commitment to ‘not precluding’ a link between North Melbourne and Docklands is not considered adequate. In its proposed height and alignment, creating a *Disability Discrimination Act* compliant link to North Melbourne will require an approximately 560 metre long footpath to accommodate the level difference between Footscray Road and Railway Place over the Wurundjeri Way extension. Thus, it is likely to require switchbacks or force pedestrians to take a convoluted route. It seems likely that the relative attractiveness of using such a link becomes marginal under such circumstances and although a link may physically exist, it would be uncompetitive against other journeys and modes of transport and so it would fail to serve the purpose it was designed for.

Furthermore, it is not clear how the land underneath the Wurundjeri Way extension would be used or how it will interface with its surroundings. The IAC is doubtful of the assertion that any development facing the Wurundjeri Way extension could present this side with a defensive edge of car parking, blank walls or similar. The IAC notes that this edge is the northern edge of E-Gate and this typically would be relied upon to facilitate good solar access, ventilation and be the best orientation for private open spaces. Thus the WDA’s suggestion that E-Gate effectively ‘turns its back’ on this edge up to seven stories is unlikely to be compatible with the internal amenity of the adjoining residences.

¹⁹⁵ Discussed further in Chapter 5.

The IAC considers that the need to cross such an elevated road either above or below it will create a quantitative and qualitative barrier that may serve to diminish the appeal and potentially stigmatise the whole area.

The IAC is further concerned that an elevated road may cause light spillage at night that will be detrimental to nearby residences in West Melbourne and E-Gate.

6.6.3 Findings

The IAC finds that:

- The elevated Wurundjeri Way extension will cause significant and possibly insurmountable problems to achieving good design outcomes in E Gate.
- The presence of streetlights may diminish the amenity of future residents of E-Gate and surrounding areas.
- The open space to the north of Precinct 15 can be a functional component to the development of that area, albeit with potentially limited open space value.

6.7 Open space and landscape design

The open space and landscape design approach to the Project is outlined in the EES¹⁹⁶. Concepts that apply this approach are outlined in the Map Book and the Design and Development Plan Book. Technical Report N identifies the visual impacts on new and existing open spaces. The Project will affect existing open spaces and create new ones in an area in which open space is deficient. The IAC heard extensive evidence and submissions about the extent that these open spaces could contribute to the quality of life of the communities impacted by the Project.

6.7.1 Evidence and submissions

The EES¹⁹⁷ nominates the creation of a number of parks and reserves as a key benefit of the Project in addition to the Federation Trail improvements and the Veloway.

In relation to the connectivity of these spaces, Ms Rosen noted the two existing pedestrian overpasses in the HBCC area are not suitable for those with disabilities and the *“shared use paths and pedestrian linkages under the WGF are affected by existing overshadowing, vandalism and dumping, detracting from real and perceived safety and amenity”*.¹⁹⁸

Mr Wood gave evidence that the design of the proposed pedestrian bridges represented improvements to the existing conditions in terms of safety and accessibility.¹⁹⁹

In relation to evidence about open space generally, Dr Mandke stated that the EES had not considered the appropriateness of the locations of the proposed open spaces. She recommended that during detailed design phase the Project consult with relevant Councils about the location, design, use, features, future ownership and management of proposed

¹⁹⁶ Volume 1, section 6.

¹⁹⁷ Including in Volume 1, section 6.6.2.

¹⁹⁸ Expert witness statement, p19.

¹⁹⁹ Document 37.

public open space delivered by the Project. Dr Mandke further recommended that this process also investigates pedestrian and cyclist links to and within the public open spaces.

Dr Mandke said that the appeal of open space was influenced by noise and air quality and that its location influences its potential ability to meet people's needs.

The WDA closing submission²⁰⁰ states the Project has been designed to minimise impacts on existing public open space.

HBCC²⁰¹ submitted that considerable resources will be needed to support so many trees in the establishment phase, and that this will be a lot more than is needed to maintain the existing mature trees.

Counsel assisting the IAC tabled the following draft EPR²⁰² in response to the submissions and evidence heard:

Detailed design of the new open space areas to be provided as part of the project (including undercrofts) that:

- i. is in accordance with the West Gate Tunnel Urban Design Principles and Urban Design Vision;*
- ii. identifies the future use of those areas maximising the social and environmental benefits of those spaces having regard to the needs of the local community; and*
- iii. provides appropriate levels of safety and amenity (eg visual and noise) having regard to those identified future uses.*

A safety audit by an experienced safety expert to assess the project against the Safer Design Guidelines for Victoria should be undertaken to inform the detailed design of the new open space to the west of Moonee Ponds Creek and publicly accessible undercroft spaces.

Mr O'Brien in evidence suggested "*all proposed new and upgraded active transport linkages should be delivered as early as possible to encourage travel behaviour change and ongoing local connectivity*".

Ms Rosen also noted that the potential for the open spaces envisaged by the Project to contribute to the wellbeing of the local communities will be compromised by a number of factors. These included the locations of the open spaces, their close proximity to the freeway and relative isolation from the communities they are intended to serve. She said they did little to address the shortage of public open space in the suburbs of Brooklyn and Altona North²⁰³. Ms Rosen further noted "*The additional open spaces do not form part of, or establish, a linear open space system that is well integrated with the regional shared use paths or linear open space networks that incorporate the Stony Creek and Kororoit Creek*".

²⁰⁰ Document 319, paragraph 71.

²⁰¹ Submission 378, p36.

²⁰² Document 328.

²⁰³ Document 178.

She added that the isolated locations of some of the open spaces meant that they “*could exacerbate the existing real and perceived safety and amenity issues such as litter, graffiti and vandalism along the Project boundary*”.

Mr Procter²⁰⁴ observed “*Some of the landscape proposed to be created by the Project appears inaccessible to people. Inaccessible landscape leftover between ramps and through-roads may have scenic value, viewed at 80km/hour for city and port connections and 60-70km/hour for local road connections, but does not substantively contribute to the amount of open space available for active or passive recreation*”.

(i) West Gate Freeway

For Altona Memorial Park, the LVIA²⁰⁵ suggests “*The highest sensitivity adjacent use is the Altona Memorial Park*”. The EES²⁰⁶ commits to ensuring there would be no exceedances of Project noise limits in the chapel in the Memorial Park. LeadWest²⁰⁷ suggested that this is insufficient, and that noise mitigation throughout the park could be enhanced through provision of assistance to the Greater Melbourne Cemeteries Trust to strengthen buffer plantings of trees, shrubs and understorey.

The EES²⁰⁸ notes at Kororoit Creek that the Project will deliver upgraded shared use path along the Creek and landscaping of the reserve.

At Crofts Reserve, the EES indicated this open space would not be protected by noise walls and would lose the canopy trees on its northern edge. The Altona North Cricket Club²⁰⁹ suggested “*The replanting program presents a real opportunity to vastly improve the landscape of the Reserve, not just the northern edge. Significant tree planting could and should be undertaken in appropriate locations throughout the whole Reserve*”.

For Lynch Road Reserve in Brooklyn, the EES²¹⁰ notes that 34% of the reserve will be permanently acquired and many of its mature trees will be removed.

For the proposed new open space to the north of Precinct 15, the IAC notes that the role of that open space is not identified in the EES. Mr Wood’s and Mr Lim’s evidence statements are silent on this matter other than an annotation that it is a “*landscape buffer*”²¹¹ on the Development and Urban Design Plans. In response to a question from the IAC, Mr Wood stated that its final use would be established in consultation with the HBCC.

In relation to Stony Creek Reserve, the Friends of Stony Creek submitted that the plans in the EES were inappropriate for the reserve’s existing and aspired ecological and social values. They requested a range of alterations to the plan including a bird hide, the

²⁰⁴ Expert witness statement, paragraph 28.

²⁰⁵ Section 5.3.2.

²⁰⁶ Volume 1, Executive Summary.

²⁰⁷ Submission 434.

²⁰⁸ Volume 1, Figure E-2.

²⁰⁹ Submission 123.

²¹⁰ Volume 1, Figure E-2.

²¹¹ Document 37, slide 15.

completion of a circular walking path, improved signage and facilities for visitors and improvements to habitat values.

(ii) Tunnels

For the Yarraville Gardens, the EES proposes the installation of a shared use bridge over Whitehall Street. This will require the removal of a number of trees, including two palm trees²¹². The National Trust²¹³ submitted that the removal of trees on Harris Street and the nearby presence of the portal would have a detrimental impact on the Gardens.

When asked about the new open space on Whitehall Street by the WDA, Ms Bauer acknowledged that this space and the shared path are likely to add to the range of open space opportunities in the area and increase their accessibility. City West Water²¹⁴ noted there is opportunity to explore with relevant Councils a stormwater harvesting project around this wetland for the irrigation of Yarraville Gardens.

(iii) Port, Citylink and City Connections

For the west bank of the Maribyrnong River, the Project proposes landscape enhancements underneath and around a main bridge and the two ramps that allow trucks to access MacKenzie Road and serve Swanson Dock. The IAC was assisted by the production of photomontages from a 3D model that enabled assessment of the undercroft areas created by the Project and the views of the proposed iconic bridge (Figures 5 and 6).

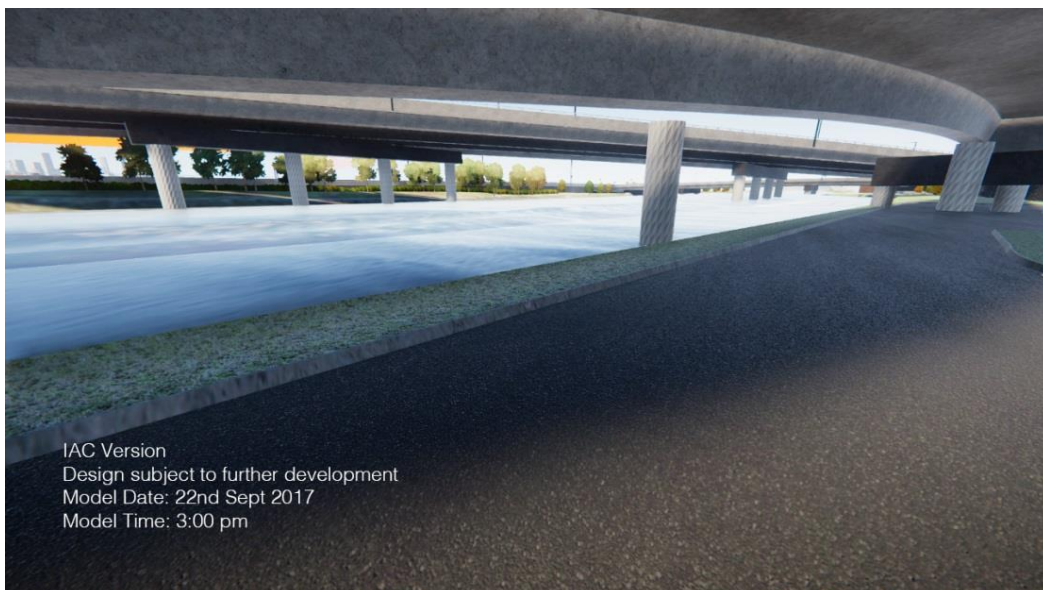


Figure 5 Photomontage of undercroft

²¹² Sheet 17 of 28, proposed landscape plans, Map Book.
²¹³ Submission 442.
²¹⁴ Submission 495.

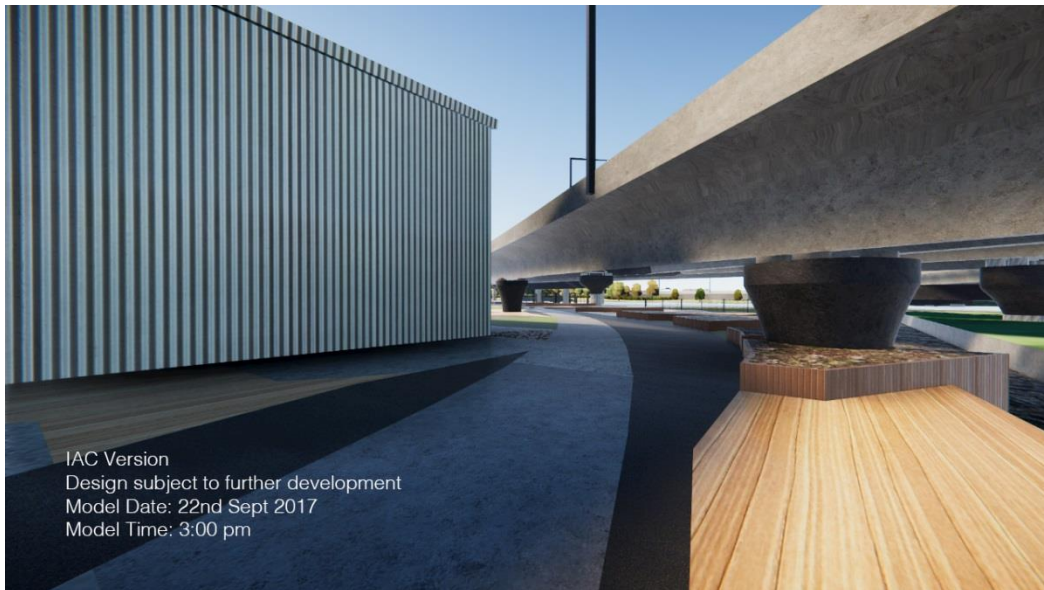


Figure 6 Photomontage of undercroft

Mr Wood notes the landscape design for this area seeks to enhance local amenity and contribute to realising MCCs aspirations for an active public realm along the Maribyrnong River²¹⁵. He added, the urban design concept for the three crossings of the Maribyrnong River:

...comprises a façade system of glass reinforced panels to encase the viaduct structures, featuring an intricate ‘eel skin’ pattern. This reflected the abstracted cultural references developed for the project and would contribute to local and regional identity as a major threshold point. The main bridge would be off-white with coloured highlights, in contrast to the MacKenzie Road ramps that are intended to be more recessive and would be clad in a charcoal coloured façade system.

Under questioning by Counsel assisting the IAC, Mr Wood conceded that these dark colours may contribute to a sense of the undercroft areas being darker, and concurred that ramps clad in a lighter colour would diminish this concern. The 3D model allowed consideration of the visual impacts of the parapets of the bridges and ramps by considering the structure without and with its parapets (Figures 7 and 8). The IAC notes verbal statements from the WDA confirming that these have not been designed as noise walls; however, they will ameliorate noise somewhat in the riverside environment.

²¹⁵ At p4.



Figure 7 Maribyrnong River crossing (without parapets)



Figure 8 Maribyrnong River crossing (with parapets)

The Planning Institute of Australia²¹⁶ submitted that the experience of the City Link viaducts along the Moonee Ponds Creek has shown that it is extremely difficult to create a pleasant recreational environment in such circumstances. This led them to suggest that this must not be repeated in other parts of inner Melbourne.

PN71 explained that the EES design differed from the reference design in that it created longer ramps to allow adequate clearance between the ramp and the Maribyrnong River surface. Ms Bauer contended this change resulted in a larger area of riverside being impacted, extending from 150 metres (as measured in the plan from the most southerly ramp crossing to the north ramp crossing) to approximately 275 metres. She concluded that although the riverside environment already has infrastructure elements throughout it, *“the large scale and form of the bridge system and its off ramps will significantly change the overall area’s character”*.

The IAC notes that the EES is silent on the use of the pocket of riverside land south of the southernmost ramp²¹⁷ after it is no longer required as a construction compound.

Ms Bauer stated in her evidence:²¹⁸

The bridge and off ramps over the Maribyrnong River form one of the most significant landscape and visual impacts of the West Gate Bridge Tunnel project. The lower bridge elements significantly impact on both views along and usage of the river. Views from the riverfront north of the Footscray Bridge (Shepherd Bridge) will be impeded by the bridge and ramps, and block views of the waterway to the south.

MCC submitted, *“The structure detracts heavily from the public realm”*, and added that the Maribyrnong River corridor:

... provides a vital link for the delivery of cultural life through festivals and community events and activities and is a destination of choice to a growing of number of creative industries, sporting organisations and world class festivals. These activities draw cultural tourists to the city and provide the local community the environment with which to engage with nature in an inner city environment. The precinct is a vital oasis within the urban setting.

Melbourne Water²¹⁹ submitted that the landscape and visual qualities of the Maribyrnong River (along with Moonee Ponds Creek) *“must be considered as an integral part of delivering life and liveability outcomes for the city”*.

A number of submitters²²⁰ suggested that the proposed undercroft area along the Maribyrnong River will have low levels of safety and amenity.

²¹⁶ Submission 190.

²¹⁷ Sheet 8 of 54, Urban Design Plans in attachment 2 to the Design and Development Plans.

²¹⁸ At p20.

²¹⁹ Submission 441.

²²⁰ Submission 469 and others.

Ms Bauer submitted²²¹ that the impact of the ramps may be diminished by use of a lighter, less bulky structure and incorporation of more transparent elements.

In relation to the east bank of the Maribyrnong River, the EES Map Book indicates that the MacKenzie Road ramps will require a raised MacKenzie Road to ensure appropriate grades are maintained²²². Ms Bauer raised concerns that this precluded the possibility of a footpath on this bank of the River.

In relation to Hyde Street Reserve, the Executive Summary of the EES²²³ states that extensive landscaping, improvements and tree planting would be undertaken²²⁴. Ms Bauer said this treatment gave inadequate regard to the area's riparian character and ecological values.

In relation to Donald McLean Reserve the EES states that extensive landscaping, improvements and tree planting would be undertaken²²⁵.

Ms Rosen suggests open space should be created at Simcock Avenue and that it be integrated with the Stony Creek Reserve, Scienceworks Museum and the Coastal Trail. This idea was shared with a number of submitters²²⁶.

In relation to Footscray Road, Mr Miller gave evidence that the Project aspired to create "*a series of bio-retention swales and treatment ponds along Footscray Road with the aim of turning a disused service road into connective habitat corridor between Moonee Ponds Creek and the Maribyrnong River. The design places the viaduct along Footscray Road in the centre of the road, enabling the retention of a greater number of existing trees to and allowing for additional canopy planting.*"²²⁷ Under questioning by the IAC, Mr Miller acknowledged the deliberate design intention to locate the shared use path along this habitat corridor to improve amenity for pedestrians and cyclists.

Mr Schutt gave evidence about the impact the elevated structure will have on Footscray Road's planned boulevard character²²⁸. Mr Schutt noted it will require the removal of trees in the median and to the north of Footscray Road, and will overshadow many trees to the south of Footscray Road²²⁹ (Figure 9). He further added under cross-examination that this may adversely impact upon the design ambition to create an ecological corridor on this alignment.

²²¹ At p23.

²²² Sheet 20 of 31 proposed operation plans, Map Book.

²²³ Executive Summary page ES 14.

²²⁴ Sheet 13 of 28 of the Map Book.

²²⁵ Sheet 12 of 28 Proposed Landscape Plans, Map Book.

²²⁶ HBCC, Lead West et al Submission 203.

²²⁷ P18, expert evidence statement.

²²⁸ section 5.4 of his expert evidence statement.

²²⁹ Document 169.



Figure 9 Overshadowing on Footscray Road

In relation to the Moonee Ponds Creek the EES notes the potential to create links to the wider footpath network²³⁰ and “*there would be high visual impacts on public open spaces and walking and cycling links along the Maribyrnong River and Moonee Ponds Creek from new bridges and elevated structures*”²³¹.

Professor London’s stated that the section of Moonee Ponds Creek that the Dynon Road connection is proposed to pass over is currently unencumbered, has ecological value and significant potential as open space and habitat. Professor London observed that, “*the western edge of E-Gate, which includes the two sides of the Moonee Ponds Creek bank, offers the potential of restoration of the Creek edges and the conversion of this area to green open and recreation space*”²³².

However, while he expressed the view that in its present condition achieving this aspiration would be difficult, the Project “*entrenches and exacerbates these difficult conditions with more elevated roads and the extension of Wurundjeri Way*”.

This view is reflected in the submission of CoM²³³ and others who assert the Project will diminish the Creek’s value and potential to integrate and contribute to surrounding urban renewal areas.

Dr Mandke gave evidence that visual and ecological impacts on the Moonee Ponds Creek may deter some recreational users from visiting that space, “*which may be a minor social impact*”. Ms Graham²³⁴ submitted that although the Creek was heavily modified it was still valued and requested the IAC to consider supporting the designation as a linear park to protect and enhance its natural values.

In relation to Moonee Ponds Creek proposed open space, the EES²³⁵ seeks to create a high amenity space to be enjoyed both as a place to pass through and be enjoyed for the passive recreation opportunities it offers. However, Mr Schutt contended that he interpreted this proposed open space as a means of mitigating impacts on the landscape of the Creek corridor and surrounds. In his view, this approach does not provide for any direct mitigation

²³⁰ Executive Summary, page ES 16.

²³¹ Executive Summary, page ES 21.

²³² Expert witness statement, p12.

²³³ Submission 184.

²³⁴ Submission 303.

²³⁵ Sheet 22 of 28 of the Map Book and the relevant images in the Design and Development Plans Book.

of the impacts on the Creek corridor, as it will not ameliorate those impacts. He pointed to a lack of detail about how this land is to be designed or managed or how ownership issues are to be addressed²³⁶. The CoM submission does not consider this open space “an appropriate mitigation for the ecological impact or loss of existing or future opportunities that result from the Project”²³⁷. The Friends of Moonee Ponds Creek submitted, “The siting of this off-set open space is on likely highly polluted soils, so its amenity as public open space is questioned. Noise levels from the many surrounding road structures will detrimentally impact on use of the open space for passive recreation”.²³⁸

The WDA responded to questions from the IAC to Mr Wood about safety and passive surveillance of the proposed open space on the Moonee Ponds Creek by stating this space will be activated and will benefit from passive surveillance from passing cyclists and pedestrians²³⁹. A number of submitters suggested that concerns relating to health and safety would detract from using the Veloway²⁴⁰.

Mr O’Brien suggested that the “The proposed upgrade of Federation Trail west of Millers Road to be a full reconstruction in concrete, including public lighting should be included along the upgraded and new alignment of the Trail”²⁴¹.

In relation to the Creeks and rivers, several submitters suggested a greater involvement of the relevant “Friends of” groups in design and ongoing management of these assets²⁴².

6.7.2 Discussion and conclusions

The IAC supports the WDA for incorporating improvements to the open space networks and the connections to these spaces, between them and to important needs-fulfilling destinations. In particular the IAC notes that the:

- New wetlands and boardwalk on Whitehall Street add to range of open spaces and recreational opportunities locally available
- New pedestrian/cycle link into Stony Creek Reserve will improve ease of access to this space
- The shared use path will make the new and existing open spaces more accessible
- Improvements to the Federation trail assists recreation and commuter active transport trips
- Proposed interpretive features will assist the understanding of the indigenous heritage of the area.

The IAC acknowledges Mr Wood, Mr Lim’s and Dr Mandke’s recommendation that the open spaces nominated by the WDA should be subject to detailed design in consultation with local Councils. However, the IAC is concerned that the location of these open spaces and their

²³⁶ p39 Expert Evidence Statement.

²³⁷ Submission 184.

²³⁸ Submission 17 p3.

²³⁹ paragraph 362 of the Part B submission, Document 319.

²⁴⁰ Hobsons Bay Bicycle User Group, RACV, Submission 243 et al.

²⁴¹ Expert Evidence Statement, p31.

²⁴² Submission 17 and others.

relationship with the freeway were not considered in greater depth in the Project design phase. The IAC shares Ms Rosen's concerns that spaces may fail to contribute to the community either because of inaccessibility or because of intrusive, noisy and often unpleasant surroundings. The IAC is concerned that the contribution that these open spaces can make to the surrounding community may be intrinsically compromised and even the high standard of detailed design that the Project team can bring to the task may not address these shortcomings.

The IAC notes the concerns raised about conflict points on the shared use path between cyclists and pedestrians and localised safety concerns and is of the view that these will represent a 'weak link in the chain' that will taint its attractiveness for potential users unless resolved.

In relation to the rivers and creeks generally, the IAC note that well organised community groups such as the "Friends of" groups offer a degree of understanding of their area and offer a level of local oversight that it is often superior to Councils and agencies. Furthermore, these grassroots groups can offer a degree of responsiveness and benefit from high levels of emotional capital invested by their members. As a result, they can offer resources and design insights that can help refine designs to local conditions and help these emerging designs find local support. The IAC encourages the WDA to consult with such organisations during detailed design and implementation of the Project.

(i) West Gate Freeway

At Altona Memorial Park, the IAC supports the commitment to ensuring there were no exceedances of Project noise in the chapel but are of the view that the use of the wider Park as a place for quiet contemplation could be compromised by the Project's increased noise levels.

For Crofts Reserve the IAC supports the amendment of the plan noted in PN61 to protect the Reserve with noise walls. The IAC notes the particular contribution made by the trees to be removed and finds that the loss of these trees is likely to diminish amenity.

At Lynch Road Reserve in Brooklyn the IAC notes the removal of many of its mature trees and the reduction in area will impact the quantity and quality of open space in an area it is already deficient in.

In relation to the open space in Precinct 15, the IAC considers that the utility of this space is likely to be compromised because of the extent to which it is dominated and overshadowed by the portal structure, its likely poor noise environment and the presence of an activated frontage on only one side. The IAC notes that Mr Wood's and Mr Lim's annotation of this space as "*landscape buffer*" is perhaps indicative of its likely optimal usage.

In relation to Hyde Street Reserve the IAC shares the concern that the proposed plans are at odds with aspirations to retain and enhance its ecological and social values. The IAC considers the suggestions made by the Friends of Stony Creek to be a more sensitive response to these qualities.

(ii) Tunnels

The IAC accepts that the northern portal and associated structures will be prominent from within the Yarraville Gardens and note that the shared use ramp for the pedestrian and cycle bridge across Whitehall Street will require the removal of prominent trees. However, the park already looks out over a strongly contrasting urban environment (including shipping containers) and the bridge is an important means of overcoming a significant barrier to active transport. The IAC further notes that it is often possible to relocate palms.

For the Whitehall Street open space, the IAC considers this space has the potential to contribute to the range and quality of open spaces available in the area.

(iii) Port, Citylink and City Connections

On the west bank of the Maribyrnong River, the IAC is concerned that the bridge and its ramps will have a significant impact on the riverside. The IAC concurs with the view that the main bridge has merit but this is compromised and partly obscured by the northern ramp from important viewpoints such as the Maribyrnong foreshore south of Shepherd Bridge (refer Figure 6). Collectively, the bridge and ramp structures will change the visual composition, diminishing the prominence that the river currently enjoys looking south from Shepherd Bridge and the nearby riverside promenade. The mass of the structure will also overwhelm the contribution made by views of the city skyline from the riverside south of the Napier Street railway bridge (refer Figure 5) and create a number of areas with highly constrained visual catchments and potential entrapment points (refer Figure 6). The IAC welcomes the concession of Mr Wood that the ramps may be lighter in colour to diminish the visual impact but is of the view that this alone would not adequately mitigate its intrusion or the extent to which it obscures the main bridge. The IAC considers that Ms Bauer's suggestion to minimise the bulk of the ramps and use transparent materials where possible may further assist in mitigating the negative impacts of the bridge and ramps. Further, the IAC notes that this area will need careful management to ensure it does not acquire a reputation as an unpleasant place where anti-social behaviour occurs.

In relation to the isolated area of open space south of the bridge and ramps structure, the IAC is concerned that this will become a stub of space, easily accessible but isolated. Left unaddressed, this is likely to attract anti-social behaviour and risks further stigmatising the area.

The IAC notes that the east bank of the Maribyrnong River is designated for the Port of Melbourne and it is unlikely that a pedestrian walkway or public access would be desirable or compatible.

In relation to Footscray Road boulevard, the IAC accepts that *“adopting an elevated structure above Footscray Road has minimised the need to acquire space to the north or south of the existing road”*²⁴³. The IAC notes that the existing Footscray Road is not a high amenity environment and is dominated by road surface and port activities. However, the

²⁴³ Volume 1, ES-43.

IAC considers the evidence of Mr Schutt that the trees offer something of a boulevard character, are still growing, and are likely to become more dominant in the streetscape should be given weight.

The presence of a significant structure with multiple lanes of traffic on top of a road of eight lanes is likely to create an unpleasant environment for walkers or cyclists on the adjacent shared use path. Furthermore, the IAC shares Mr Schutt's concern that the overshadowing caused by the elevated road structure is likely to stress the remaining landscaping to the south of Footscray Road and diminish the potential of future planting to provide amenity for active transport users or fulfil a potential ecological function as identified by Mr Miller.

In relation to Hyde Street Reserve, the IAC supports the decision to protect the reserve with noise walls as noted in PN61. The IAC further considers that the landscaping suggested in the EES within the reserve is likely to achieve a degree of aesthetic quality. However, these qualities do not reflect the area's riparian ecological and landscape qualities.

The IAC notes the gap between the end of the Federation Trail and the Hobsons Bay Coastal Trail near Hyde Street reserve and consider this gap to be '*the weak link in the chain*' that will act as a deterrent to usage because of perceived and actual risk. The IAC further considers the importance of this link will increase because of the other improvements to the Federation Trail to the west is likely to foster greater usage.

In relation to a potential Simcock Avenue open space, the IAC notes that there was little evidence presented to suggest that such an open space is a needed asset and it is outside the Project boundary. However, on face value such a space may be able to contribute to the open space and recreational values of the area.

In relation to the Veloway, the IAC acknowledges the WDA's commitment to making further design amendments at the detailed design stage to address health and safety concerns (PN58). This will be important to ensure adequate passive surveillance within Veloway among other reasons to encourage its use.

In relation to Moonee Ponds Creek proposed open space, the IAC supports the intention to rehabilitate this land. However, the IAC is concerned that the means by which ownership of this land is to be transferred and the space managed has not been determined and is of the view that the aspiration that this space becomes a high amenity space for passive recreation is not viable. The intrusion of the overhead road infrastructure, traffic noise and lack of reliable sources of passive surveillance make it unlikely to attract people to stay there for any length of time on the strength of its amenity.

The IAC considers that the view of the WDA that this space would enjoy adequate passive surveillance from passing cyclists is flawed. This may be the case in commuter peak times but at other times there may not be other cyclists to offer reassurance or raise the alarm, placing the lone cyclist or pedestrian in a position of vulnerability.

As noted Chapter 13 of this report, the Friends of Moonee Ponds Creek and individual submitters drew the IAC's attention to the high ecological and social value of the section of the Moonee Ponds Creek between Dynon Road and Footscray Road. The IAC considers that the creek corridor is valued as an open space asset and its integrity, landscape and ecological values are of particular importance and will be adversely impacted by this Project.

The IAC considers that the alignment of the Wurundjeri Way extension, where it crosses over Dynon Road and Moonee Ponds Creek, and the Dynon Road link will be particularly intrusive and risk overwhelming the creek as a significant feature in its own valley.

6.7.3 Findings

The IAC finds that:

- Further investigation of the potential to relocate the removed palms in Yarraville Gardens is required.
- The Maribyrnong River crossing will have a significant adverse landscape effect on the river and the design of the ramps across the river should seek to minimise visual bulk and incorporate transparent panels on ramp parapets.
- Further design consideration of the pocket of land to the south of the portal on the west bank of the Maribyrnong River is required to ensure it does not become associated with anti-social behaviour.
- The elevated structures of the Dynon Road link and Wurundjeri Way extension will have a significant adverse effect on the Moonee Ponds Creek and should be redesigned to minimise their impact on the landscape.
- The potential contribution that Moonee Ponds Creek can make to the amenity of surrounding communities is inadequately recognised in the EES and requires further consideration.
- The Moonee Ponds Creek corridor requires further protection and articulation of a design vision in order to better fulfil its potential.
- The design of the Veloway should be reviewed to maximise its utilisation at all times of the day.
- The proposed open space adjacent to Moonee Ponds Creek is unlikely to be suitable for passive open space due to a lack of passive surveillance opportunities and should be modified to adopt a more ecological, habitat emphasising character.
- Detailed design and management of creeks would be assisted by greater engagement with the relevant “Friends of” Groups.
- Landscaping should be provided along the edge of the Altona Memorial Park to offset adverse impacts by providing screening and an improved visual outlook.
- Consideration should be given to the provision of additional urban design and landscape improvements outside the Project area to offset impacts, in consultation with local councils and relevant authorities.

6.8 The distribution of adverse and beneficial effects

The IAC heard evidence that suggested that the cumulative impacts of the issues described above in this Chapter are distributed inequitably throughout the neighbourhoods the Project passes through, creating a geography of inequity in impact.

6.8.1 Evidence and submissions

The EES social technical report did not consider the location of open space within the broader corridor. Dr Mandke gave evidence that the location and context of the proposed open spaces was not considered in determining its value²⁴⁴ and she reiterated under cross-examination that if it had been considered she was of the view that she didn't think it would change her conclusions.

HBCC suggested in its closing submission²⁴⁵ that the IAC should not let the strategic importance of the Project or the benefits for some overwhelm consideration of those adversely impacted by it. It stated²⁴⁶ they are concerned *"that as exhibited, the Project would create disproportionate disbenefits, particularly for the Brooklyn community"*.

HBCC also stated²⁴⁷ *"In Council's submission, it would be an oversimplification and misapplication of the net community benefit concept for significant adverse impacts on a local community to be justified merely on the basis of broader benefits. It would also be a grave mistake."*

The Whittens²⁴⁸ stated the framework guiding the urban design of the West Gate Tunnel is very weak and encourages consequential trade-offs to take place.

In relation to the distribution of trees removed and planted, Mr Lim confirmed under cross-examination that the newly planted trees will be concentrated in open space areas, while the trees removed will come from along the entire length of the Project (apart from the tunnels component).

The National Trust²⁴⁹ noted the loss of amenity, shade and heritage value of existing canopy trees to local residents. It recommended that tree reinstatement and offset planting should take into account should *"therefore be undertaken to benefit such residents, rather than offset elsewhere in the project"*.

In his presentation²⁵⁰ Mr Keys observed the Project would improve amenity in the inner west but this would only be achieved by a loss of amenity in other places, particularly the CBD and North and West Melbourne where it would bring with it social and environmental impacts.

Dr Wright stated in her evidence that references she had relied on in her expert evidence statement (in particular De Vries et al 2003) had also found that experiencing a high level of environmental quality would benefit more disadvantaged sections of the community than it would more affluent sections of the community. She acknowledged it followed that the denial of such experiences would have a worse impact on these disadvantaged sections of the community than would be experienced by the better off.

²⁴⁴ At p4 of her evidence.
²⁴⁵ Document 196.
²⁴⁶ Paragraph 109.
²⁴⁷ Paragraph 110.
²⁴⁸ Submission 469.
²⁴⁹ Submission 422.
²⁵⁰ Document 134.

Ms Rosen noted²⁵¹ *“The Project has the potential to exacerbate the disproportionate harm experienced by communities currently experiencing disadvantage, poor social cohesion and compromised resilience. This has the potential to further stigmatise these communities and detract from their identity and character.”*

Associate Professor Irving, giving evidence on health impacts noted that vegetation can be an effective way of mitigating against the adverse effects of exposure to fine particulates. However, he added that their filtering effect was highly localised and this beneficial effect increased with the surface area of the vegetation.

The CoM submission stated that landscape and visual impacts of the infrastructure from Moonee Ponds Creek and Footscray Road have not been adequately assessed or mitigated.

Ms Araneda²⁵² and Mr Mueller²⁵³ suggested that the emphasis of design qualities favoured some areas but not others, nominating the Moonee Ponds Creek area in particular as an area lacking design attention.

In relation to West Melbourne, Melbourne City Western Connection noted *“The urban design proposal offers potential (and seemingly costly) solutions for all segments of this proposal (Westgate freeway, Tunnel entrances, Footscray Rd and Moonee Ponds Creek Crossing), except the Elevated Section of freeway within 100m of our neighbourhood”*²⁵⁴.

In response to submissions that these impacts were unfairly distributed, Dr Mandke concurred with the HBCC’s recommendation for two New EPR’s to enhance community cohesion and encourage local procurement to address these issues.

The National Trust²⁵⁵ suggested tree reinstatement and offset planting should be undertaken to benefit the residents of the areas within which trees would be removed, rather than offset elsewhere in the Project.

6.8.2 Discussion and conclusions

The IAC acknowledges the benefits that will be enjoyed in Yarraville where the reduction in truck traffic and improved pedestrian and cycle links to the city and proposed open space assets will assist the people who live there to enjoy a healthier, safer and improved quality of life.

The IAC recognises the efforts made by the WDA to ensure a high standard of landscape and urban design in the EES and note the support given to aspects of the Project by several expert witnesses.

However, many witnesses gave evidence that there remained adverse effects that will diminish amenity for some. The IAC is concerned that these impacts are distributed

²⁵¹ P50 of her evidence.

²⁵² Submission 354.

²⁵³ Submission 421.

²⁵⁴ Submission 444.

²⁵⁵ Submission 442.

inequitably, that the traces they leave in the physical environment and impressions of these places will reflect negatively on the areas the Project passes through.

The IAC notes that those living adjacent to the freeway will lose the amenity of skyline trees and open spaces, either temporarily or permanently. The IAC is aware that the suburbs of Altona North, Kingsville South and Brooklyn are poorly served by open space and the larger trees that contribute to a green skyline in surrounding streets are typically those trees that are likely to be removed as part of this Project. The IAC considers that for a resident of a property adjacent to the noise wall, the loss of one valued tree they can see is unlikely to be compensated for by a tree, even five trees, planted elsewhere.

The impact of this issue could be compounded because the removal of mature trees and replacement with smaller ones will diminish the filtering effect of vegetation on air quality; although it is acknowledged that many of these residential areas will get air quality benefits from increased height noise walls.

The IAC is concerned that at the time when the adverse effects of the Project are being felt the ability of the environment to ameliorate these effects by providing restorative experiences will be eroded.

The WDA acknowledges that the Project will have adverse impacts but posits that overall the beneficial effects outweigh the adverse ones. The IAC notes, and accepts, that the Project relies on the relative insensitivity of the uses in the port, CityLink and city connections component to absorb the high level of modification the Project will entail.

The Project relies in particular on major architectural features and landscape to justify meeting the Projects evaluation objectives. In relation to the architectural features, the EES acknowledges that some people will see these changes as detrimental to their quality of life; others will see it as beneficial. While it cannot be definitively established, it would seem that the experience of the journey for the road users is likely to be enhanced by passing these features whereas living near them may be less beneficial, given their mass, visual impact and their purpose as exhaust stacks for the tunnel.

The IAC is concerned that the distribution of design attention given to different aspects of the Project appears to be very uneven, noting in particular the absence of noise walls or refined treatment to the elevated structures through the Moonee Ponds Creek and North and West Melbourne areas.

The landscape will take between 15 and 20 years to achieve a similar or greater canopy than exists at present. For much of the freeway component the trees to be removed represent a high proportion of the taller trees in the wider area and thus their removal will have a disproportionate impact.

The IAC has some sympathy with the view that such a high profile Project will 'stamp' the area with a particular character and that the Project may underestimate these impacts and thus inadequately mitigate them.

6.8.3 Findings

The IAC finds:

- The Project is of a size and alignment that will inevitably impact the settings and qualities that people rely on to support their quality of life.
- The impacts that diminish people's quality of life are concentrated in some areas and the impacts that support people's ability to enjoy a good quality of life are concentrated in other areas. The distribution of beneficial and adverse effects is inequitable and it is critical that mitigation efforts are focused on those communities most affected.
- Improved outcomes could be achieved by:
 - Assisting communities to respond to changing opportunities to derive amenity from their dwellings and associated open space.
 - Minimising the length of time within which amenity is diminished.
 - Specifying the locations where there should be installation of advanced trees.
 - Requiring consideration of planting prior to construction works where feasible to do so.
 - Extending bespoke design treatments to other areas presently poorly considered, particularly along the city connections.
 - Developing and implementing a landscape plan, to offset adverse impacts, along Millers Road, Brooklyn.

6.9 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects.

Adverse environmental effects

- Significant loss of trees across the Project area with consequent short to medium term loss of amenity.
- Potential impacts on community amenity, particularly in areas such as Millers Road, Brooklyn and West and North Melbourne.
- Impacts on major landscape components such as the Maribyrnong River and Moonee Ponds Creek.
- Impacts on urban renewal areas which may compromise urban design possibilities in those areas.
- Distribution of adversely impacted areas may reinforce stigma and social exclusion.

Beneficial environmental effects

- Increased provision of open space, with some reservations about location and quality.
- In time, a significant increase in vegetation cover.
- Improved pedestrian and cycle linkages.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

The IAC considers that a number of elements of the Project should be reviewed to determine if urban design improvements are possible including:

- The Maribyrnong River crossing
- The Citylink and city connections
- The Moonee Ponds Creek Open Space.

Specific recommendations on these and other design responses are made by the IAC.

(iii) Conditions and Environmental Management Framework

The IAC has made a significant number of recommended changes to the EPRs in relation to Urban Design, Landscape and Open Space as shown in Appendix F.

6.10 Recommendations

The IAC has recommended a significant number of changes to the EPR as shown in Appendix F to address visual impacts, urban design and landscape issues. Design changes are also recommended, including a review of the ramps design across the Maribyrnong River, and a review of the Wurundjeri Way extension and Dynon Road link at the city end of the Project. Further exploration of urban design and landscape improvements outside the Project area is also recommended in consultation with local Council's and relevant stakeholders. The IAC considers these modifications will result in improved urban design and built form outcomes.

7 Noise and Vibration

Noise and vibration impacts are addressed in Chapter 13, 20 and 27 (Effects on Health and Amenity) of the EES, and in Technical Report H Noise and Vibration (Surface) and Technical Report I Vibration and Regenerated Noise (Tunnel).

The evaluation objective for noise and vibration in Table 4-1 of the EES is:

Health, amenity and environmental quality – *To minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the project.*

The following evidence was called in relation to noise and vibration impacts:

- WDA – Matthew Stead of Resonate Acoustics and John Heilig of Heilig and Partners
- CoM – Darren Tardio of Octave Acoustics
- HBCC – Shane Elkin of SLR Consulting Australia.

Two conclaves on surface noise and vibration were held on 7 August 2017 attended by:

- Mr Elkin, Mr Stead, and Mr Bert Zerbst of the EPA.
- Mr Tardio, Mr Stead and Mr Zerbst.

A joint conclave report²⁵⁶ set out their consideration of noise and vibration EPR NVP1, 2, 3, 4 & 11 plus a new EPR suggested by Mr Elkin. The suggested new EPR calls for reports by the independent auditor²⁵⁷ to be made public within 7 days.

The IAC was assisted by advice provided by a Committee appointed Technical Adviser, Mr Doug Munro. Mr Munro provided two written reports to the IAC.²⁵⁸

Numerous tabled documents and WDA Project Notes are relevant to noise and vibration and these will be addressed as necessary in this Chapter.

The EES states that compliance with noise and vibration targets specified in EPR along with careful programming of construction would manage impacts.

There is potential for regenerated noise and vibration associated with the construction of the tunnels affecting individual receptors for several days at a time. Construction activities would primarily occur during the day, but some activities including tunnelling and works on the West Gate Freeway, Footscray Road, Wurundjeri Way and CityLink would occur up to 24 hours per day. A Construction Noise and Vibration Management Plan (CNVMP) would be prepared to achieve noise and vibration targets and manage impacts and would incorporate communication processes.

Improved noise barriers along the West Gate Freeway would see an improved noise level for many residents following completion of works, with a residential noise objective of at or

²⁵⁶ Document 28.

²⁵⁷ Taken by the IAC to mean the Independent Reviewer and Environmental Auditor (IREA).

²⁵⁸ Document 18, Document 252.

below 63 dB(A)_{L10(18hr)} between 6am and midnight and a level at other sensitive receptors, such as community centres and kindergartens at or below 63 dB(A)_{L10(12hr)} between 6am and 6pm.

While the EES assessed noise impacts at urban renewal areas and at areas of public open space, it concluded that mitigation of noise in these areas was not required under VicRoads' Traffic Noise Reduction Policy.²⁵⁹

7.1 Key issues

The Project will provide some benefit to residents of the west in respect to noise, through the reduction in traffic on some inner west streets due to new truck bans and through the provision of new noise walls along the West Gate Freeway with a 63 dB(A)_{L10(18hr)} design limit.

The Project will however increase noise and vibration during construction and operation and appropriate mitigation measures are essential to offset impacts. The EPR sets out guidance on acceptable noise and vibration limits. There has been general consensus by the experts over the noise and vibration limits within the EPR, key issues and some minor issues with wording in the EPR notwithstanding.

The Committee considers the key issues relate to the scope and requirements specified in the proposed noise and vibration EPR as follows:

- NVP1A: Traffic noise limits
 - Night-time noise
 - Application of noise limits to future development
 - Assessment height at habitable buildings
- NVP1B: Traffic noise reductions at open space
- NVP1C: Operation noise limits
 - Maintenance period
- NVP1D: Traffic Noise reduction at Millers Road north of the West Gate Freeway
- NVP2: Traffic noise monitoring
- NVP3: Construction noise, vibration management, and monitoring
 - unavoidable works – EPA

The Committee notes that Mr Stead has relied primarily on VicRoads' Traffic Noise Reduction Policy (VicRoads' TNRP). There was significant discussion around the age of this policy at the Hearing and it was noted that a substantive review was commenced several years ago but not finalised. The Committee considers that it would be useful for VicRoads to complete a thorough review of the policy and in doing so consider the evidence and matters discussed in this report and in the Panel report for the East-West Link project. The Committee also considers that it is not bound by the current VicRoads' TNRP in determining what would be appropriate environmental performance requirements to manage the overall effects of the Project.

²⁵⁹ Document 88.

7.2 NPV1A: Traffic noise limits

7.2.1 Evidence and submissions

(i) Night-time noise

A number of submissions called for night-time noise protection.

Mr Munro recommended that an objective be set for night-time (10pm-7am) noise for Category A receptors of 58 dB(A) $L_{10(9hr)}$. This is 5 dB lower than the proposed daytime level. Correspondingly, Mr Munro recommends that the daytime noise objective of 63 dB(A) apply from 7am to 10pm, rather than 6am to midnight as proposed by the WDA in NVP1A.

Mr Stead gave evidence that VicRoads' Noise policy does not require a night-time noise limit. It is noted that no evidence was provided from other experts seeking a night-time noise limit.

Mr Elkin advised, under questioning by Counsel assisting the IAC, that he did not support a night time criteria as the daytime parameter typically works well. He also advised, however, that the NSW noise policy includes a night time limit.

Under questioning by Counsel assisting the IAC, Mr Stead agreed that SEPP-N1 has night-time criteria for 10pm to 7am. He also agreed that Mr Munro's suggestion of a 58 dB(A) L_{10} night-time noise reflected a daytime of 63 dB less 5 dB. Subtracting 3 dB provides roughly a 55 dB(A) L_{eq} and assuming a 10 dB difference between outdoor and indoor noise levels you achieve a 45 dB(A) L_{eqT} level equivalent with requirements under Australian Standards.

The EES advises that AS2107:2016 recommends living areas have a recommended internal noise level of 35-45 dB(A) L_{eqT} and sleeping areas have recommended internal noise level of 30-40 dB(A) L_{eqT} . The EES states:

*"It is noted that AS2107:2016 excludes road traffic noise impacts when applying the recommended internal noise level (Table 29). However, for the purposes of determining an acceptable internal noise levels adjacent to a Freeway the standard can be used as a guide for the desirable internal noise level."*²⁶⁰

Mr Stead gave evidence that he would expect (although he had done no actual calculations) that at night there would be a drop of around 3 dB(A) in noise level so a 63 dB(A) L_{10} daytime noise objective would achieve a 60 dB(A) night-time noise and a 2 dB(A) difference to Mr Munro's suggested night-time limit would not be discernible. He also advised that to achieve an additional 2 dB(A) reduction could result in the height of noise barriers increasing by 0.5 to 2 metres.

Dr Wright, author of Technical Report J – Human Health Impact Assessment, gave evidence that the health impact assessment assumed a 5dB(A) change between daytime and night-time noise levels based on advice from the noise experts²⁶¹.

²⁶⁰ EES Technical Report H, chapter 4.4.2.5.

²⁶¹ Expert evidence report by Dr Jackie Wright, p21.

Mr Tardio, under questioning by Counsel assisting the IAC, gave evidence that a night-time criteria was not recommended, noting that this is a community (adjacent to West Gate Freeway) that would have habituated to a noisy environment and some will see noise levels dropped by 5dB(A), which is a benefit to community without going to a new criteria.

In closing, the WDA submitted that there is a difference between the way noise is measured according to the VicRoads' guidelines at buildings compared to that by the World Health Organisation (WHO)²⁶². The WDA submitted that measurements undertaken using the VicRoads' methodology are approximately 3 dB(A)_{Leq} higher. On this basis, the WDA submitted that the WHO night-time noise guidance would be met by the proposed day time limit in NVP1A.

(ii) Application of noise limits to future development

NVP1A applies only to Category A and B buildings existing and capable of being occupied as of 2 April 2017. This is the date at which the Project was announced to the public.²⁶³

The CoM and HBCC questioned whether NVP1A should apply to development within urban renewal areas. CoM submitted that NVP1A should apply to all Category A and B buildings built within E-Gate during the operation of the freeway. HBCC submitted that NVP1A should apply to all Category A and B buildings existing and capable of being occupied at the time the Project is approved by the Minister.

Mr Tardio considers the timing cut off (2 April 2017) a planning matter but could refer to VicRoads' VICROADS' TNRP. Mr Stead also referred to VicRoads' VICROADS' TNRP.

VicRoads' TNRP refers to the following exceptions to its application:

- Non-conforming uses
- New buildings or subdivisions
- Buildings or subdivisions abutting any proposed road zone where the planning approval for the subdivision was obtained after the commencement of the exhibition period to set aside the land for a future road.

The WDA submitted that, while the proposed EPR differs from VicRoads' TNRP in that the EPR requires buildings to have been built rather than simply having obtained planning approval prior to the exhibition period, the public release of the Project, on 2 April 2017, occurred almost two years after the initial Western Distributor proposal was announced.

In respect to the urban renewal precincts, the WDA submitted that the Altona North Comprehensive Development Plan, June 2017, requires a permit application *"to include an acoustic assessment which assesses the impact of the Project and makes recommendations for attenuation measures to achieve specified noise limits."*²⁶⁴

²⁶² VicRoads' measures noise at a location one metre from the building which includes the impact of echoes, whereas the World Health Organisation measures 'free field' position.

²⁶³ Document 319, paragraph 244.

²⁶⁴ Document 319, paragraph 257. Exhibition of Amendment C88 to the Hobsons Bay Planning Scheme closed on 1 September 2017 and a Panel Hearing is set down for November 2017.

The WDA submitted that there is no reason why planning for E-Gate should not proceed with similar controls relating to noise and that while E-Gate is listed in the Melbourne Planning Scheme as a 'Proposed Urban Renewal Site' it has "*simply not been planned yet*" and therefore the Project cannot be expected to accommodate changes in circumstances. The IAC addresses land use planning issues concerning E-Gate in Chapter 5.7.

(iii) Assessment height at habitable buildings

EPR NVP1A refers to noise measurements at Category A and B buildings being taken at the lowest habitable level.

Mr Stead referred to VicRoads' TNRP and VicRoads' document titled: *Traffic Noise Measurement Requirements for Acoustic Consultants, September 2011*, which states that noise measurements should be undertaken at "*the most exposed window of a habitable room on the lowest habitable level of the building*"²⁶⁵.

This reflects the advice in Appendix C of the earlier VicRoads Road Design Note: RDN 06-01 July 2010: *VicRoads Interpretation and application of VicRoads Traffic Noise Reduction Policy 2005*²⁶⁶:

*The receptor point will be at the lowest habitable level of the building. This is due to ease of measurement, and because noise is generally louder at the lower level. Also the 63 dB(A) level is aimed at achieving acceptable outdoor levels, which generally occurs at ground level.*²⁶⁷

The CoM questioned Mr Stead over the Road Design Note's inclusion in Appendix F Flowchart for off reservation noise attenuation treatments statement that:

All levels of a multi-storey building are subject to attenuation under Australian Standards and the Policy.

Mr Tardio gave evidence that VicRoads' TNRP was drafted in 1989 when multi-storey buildings were uncommon along freeways and arterial roads and were generally considered to refer to single dwelling. CityLink was designed to meet noise limits at all levels of the Debneys Park estate towers in Flemington.

Mr Munro provided advice to the IAC recommending that the noise measurements should be taken at most traffic noise affected habitable level or all levels above the roadway. He noted that while the approach in VicRoads's guidelines may have been suitable in the past, the current location of multistorey buildings close to freeways and elevated roadways necessitates a change in approach²⁶⁸.

²⁶⁵ Document 89.

²⁶⁶ Document 90.

²⁶⁷ Document 90.

²⁶⁸ Document 18.

7.2.2 Discussion

The IAC notes that while VicRoads' TNRP does not contain a night-time noise limit, it does state that VicRoads will: *"implement appropriate traffic measures if necessary to ensure that night-time noise levels are not excessively high"*. This would indicate that guidance of a reasonable night-time noise limit would be of assistance in circumstances when a substantial drop in noise is not expected at night.

The IAC notes the advice from Mr Stead²⁶⁹ that the reduction of airborne noise at night from traffic on the West Gate Freeway is more likely to be around 3 dB(A) compared to day time as compared to the 5 dB(A) drop assumed in the Health Impact Assessment. Given that the drop is likely to be less than may be typical, and that the road will accommodate a significant volume of trucks at night and that no night-time noise assessment was provided in the EES, it is reasonable that a night-time limit be set in the EPR, at the very least as a safeguard mechanism.

The evidence from the noise experts indicates that a night-time limit of 58 dB(A)_{L10} would achieve the upper end of the recommended noise level of living rooms under Australian Standards, which is 5 dB(A) above the upper recommendation for sleeping areas.

While the World Health Organisation may have a guideline for daytime noise that is roughly equivalent to 65 dB(A), that is not the guideline adopted by VicRoads or by this Project. Furthermore, it appears based on Dr Wright's evidence that the EES was prepared under the assumption that a drop of 5 dB(A) would be experienced at night. Adopting a time frame for night-time noise measurements of 10pm to 7am is consistent with the night-time period used in SEPP-N1²⁷⁰ and the time periods used in EPR NVP4.

In respect to habitable levels of multi-storey developments, it appears sensible that noise be measured at all applicable levels or at the worst affected level, rather than simply at ground level, if one is to achieve internal noise levels for reasonable health outcomes.

In respect to the application cut-off date for NVP1A, the IAC notes that it is appropriate to include a date and that the date be one that has allowed for consideration of projects that had already been planned but not yet constructed. While the initial tender design was released in May 2015, the Project tender design was not released until April 2017 providing more certainty of the proposal. An indication of the effects of the Project were not provided until the release of the EES on 29 May 2017. In considering the difference between VicRoads' TNRP and the EPR in respect to timing, a two-year notice period should be reasonable to account for the variation in time between a planned development and one that is or capable of being occupied. To this aim, a cut of date coinciding with the release of the EES is considered reasonable.

In respect to the Urban Renewal Precincts, given that these precincts are strategically important and are being impacted by the Project, it is considered reasonable that while the Project may not be specifically responsible for achieving noise targets on those sites, that

²⁶⁹ Practice Note 26.

²⁷⁰ Document 91.

the Project be designed to actively facilitate adequate noise protection at source where it can be demonstrated to be cost effective.

7.2.3 Findings

The IAC finds that:

- A night-time noise limit should be set, at 58 dB(A) $L_{10(9hr)}$, measured between 10pm and 7am, providing a safeguard given the unusually high truck volumes at night on the West Gate Freeway.
- Eligibility for noise mitigation should be limited to buildings occupied or capable of being occupied at the date of release of the EES.
- Noise limits should apply to all habitable levels of Category A and B buildings.
- During the detail design phase of the Project, capacity should be provided to enable the future provision of noise protection measures at source, where the alignment is adjacent to existing or proposed urban renewal areas.

7.3 NVP1B: Traffic noise reductions at open space

7.3.1 Evidence and submissions

A number of submissions were received seeking noise protection at public open space, including the Donald McLean Reserve and the proposed new reserve at the northern end of Precinct 15 being created as a part of the Project.

Mr Stead noted that VicRoads' TNRP does not require protection of public open space. VicRoads' TNRP does allow for VicRoads to consult with Councils and local communities of the need for protection for small areas of passive open space.

During the Hearing the government announced the extension of noise walls along the West Gate Freeway to cover the entire boundary of Crofts Reserve and McIvor Reserve and 440 metres of noise walls along the Hyde Street off-ramp within Hyde Street Reserve²⁷¹. This announcement did not set noise limits to be achieved, nor did it cover all existing open space areas, such as West Gate Golf Club, or proposed new open spaces. The commitment was reflected, by the WDA, in the proposed EPR as NVP1B.

Mr Elkin gave evidence that public open space should be treated as noise sensitive in operation and during construction. Mr Munro recommended that during operation open space areas be considered Category B uses, with a noise limit of 63 dB(A) $L_{10(12hr)}$ 6am to 6pm. Mr Munro noted that this would not be achievable at the proposed open space located between the Moonee Ponds Creek, CityLink and Footscray Road.

CoM submitted that NVP1B should be amended to include Moonee Ponds Creek parklands, new parklands created by the Project and any parkland created within E-Gate during the operation of the freeway.

HBCC submitted that the noise limits for open space adjacent to the Project, existing and new, be set as follows:

²⁷¹ Project note 61.

- Passive open space: 63 dB(A) $L_{10(15hr)}$ 7am to 10pm
- Active open space: 68 dB(A) $L_{10(15hr)}$ 7am to 10pm.

EPR NVP4 includes a construction noise limits for both active recreation spaces of 65 dB(A) $L_{Aeq(15min)}$ and passive recreation spaces at 60 dB(A) $L_{Aeq(15min)}$.

7.3.2 Discussion

There is inconsistency in the noise EPR in dealing with Public Park and Recreation Zoned (PPRZ) land during construction and, by omission, in operation. Including open space areas along the West Gate Freeway from the western edge of Crofts Reserve to Hyde Street would resolve this inconsistency and assist in providing some benefit to users to offset other negative amenity effects identified in this report.

Inclusion of open space areas adjacent to the Moonee Ponds Creek near CityLink and areas to the west of Crofts Reserve is not considered appropriate as their locations abutting several major roads makes it difficult to achieve reasonable compliance.

7.3.3 Findings

The IAC finds that:

- Noise limits during operation should be provided for public open space, including new open space areas created by the Project, adjacent to the West Gate Freeway between the western edge of Crofts Reserve to Hyde Street.

7.4 NVP1C: Operation noise limits – Maintenance time period

7.4.1 Evidence and submissions

Several submissions sought for a maintenance period beyond 2031 for the noise mitigation measures, with suggested time frames including in perpetuity and for the life of the port.

Mr Munro advised the IAC that the EES states that the maintenance period for CityLink is for the length of the concession deed, and that the lifespan of noise walls is typically 45 years. On balance, having considered that a long timeframe that included traffic growth beyond that modelled could have implications on the design parameters, Mr Munro recommended a period of 20 years. This was adopted by the WDA.

CoM and MCC submitted that the maintenance period should be for the operation of the freeway.

Mr Tardio's written evidence suggested a maintenance period of 10 years with an upper threshold of 68 dB(A) for rectification during operation after that as per VicRoads TNRP, or alternatively limits apply for the life of any Deed.²⁷²

²⁷² Statement of evidence by Mr Tardio, page 9.

7.4.2 Discussion and findings

The IAC notes that after any maintenance period specified in the concession deed or elsewhere it will become the responsibility of VicRoads to maintain noise mitigation along the Project. For the purpose of the EPR, the IAC accepts the advice of Mr Munro.

It is noted that Friends of Moonee Ponds Creek have recommended the EPR include a ban on trucks using air brakes on the West Gate Freeway. While this sort of requirement can be included in a construction management plan it is not necessary to specify specific treatments where performance targets are set. It is also noted that the road authority can seek these conditions at any time.

7.5 NVP1D: Traffic Noise reduction at Millers Road north of the West Gate Freeway

7.5.1 Evidence and submissions

A number of submissions were made by residents in and around Millers Road, Brooklyn regarding the impacts of the Project on their environment, including noise. As discussed in Chapter 5, Millers Road is bearing the brunt of the impact of the truck bans diverting traffic from other inner west residential streets.

Mr Elkin recommended that an alternative route be considered for heavy traffic and if that was not possible that off-reservation treatments be provided to provide internal noise level consistent with AS2107 for residences along Millers Road, or alternatively treatments within the road reservation, noting that gaps for intersections make this less effective²⁷³.

It is noted the EES centres a significant part of its consideration on the difference in impact between a future with and without the Project. The objective to reduce traffic on inner west residential streets to improve amenity has been born not out of a consideration of traffic volumes in the future but from existing problems.

The EES notes that noise levels on Francis Street will reduce by 5 dBA as a result of the Project, in comparison to the 2031 no Project case; and currently Francis Street has a measured LA10_(18h) of 71 dB(A)²⁷⁴. HBCC submitted that the existing Millers Road noise level is in the order of 70 dB(A)²⁷⁵.

The EES did not report on Millers Road noise levels nor consider any impact on this street. Mr Stead submitted that VicRoads' TNRP does not apply to arterial roads.

PN72 was submitted by the WDA and included the results of modelling of 2016, 2021 and 2031 noise scenarios on Millers Road north of the West Gate Freeway. This note indicates that Millers Road noise levels will increase to 74 dB(A)L_{10(18hr)} with the Project (and only one toll point) in 2031, with the Project contributing to an increase of 1-2 dB(A) and an increase of around 3 dB(A) over existing levels.

²⁷³ Statement of evidence by Mr Elkin, paragraphs 129-131.

²⁷⁴ EES Technical Report H Table 72.

²⁷⁵ Document 196, paragraph 79.

PN72 notes that these are ‘free field’ values not influenced by reflections and a correction of +2.5 dB(A) should be added to reflect measurements at one metre from the building façade.

Taking the correction factor into account, this would indicate a predicted 2031 noise level on Millers Road of 76.5 dB(A) $L_{10(18hr)}$, which is well in excess of the Project’s EPR of 63 dB(A) in operation and VicRoads’ retrofit policy of 68 dB(A).

PN72 advised that typical noise mitigation measures could achieve reductions for Millers Road in the range of 3 to 10 dB.

VicRoads’ submitted that it would not oppose noise mitigation for Millers Road residents providing it was made clear that it was to be undertaken as a part of the Project and the responsibility of the WDA and/or the relevant proponent, and was not required by the VicRoads’ TNRP.²⁷⁶

Counsel assisting the IAC submitted that the IAC may wish to consider whether announcements made by the government on toll incentives would exacerbate noise at residential receptors on Millers Road at night-time²⁷⁷.

The WDA has proposed EPR NVP1D in response to the submission on the noise impact on Millers Road. The EPR calls for an acoustic report setting out the predicted noise levels for the 2031 without Project and 2031 Project scenarios and the difference between these scenarios. It also states that residents will be advised on options that could be implemented to achieve mitigation of the difference in noise levels.

7.5.2 Discussion

Firstly, it is noted that it has been submitted by the WDA that the removal of the proposed toll point on the freeway west of Millers Road is a mitigation strategy to minimise impacts on Millers Road. The IAC does not accept that the removal of the toll point is a relevant mitigation strategy, noting that the Business Case²⁷⁸ did not include the toll point and the toll point has been found to divert traffic away from the West Gate Freeway contrary to the transport objective. Rather, it is more appropriate to have consideration to the altered impact assessment, without the toll point, and if and or how impacts of that case should or can be mitigated.

The IAC notes that the health, amenity and environmental quality objective is to minimise impacts by the Project by noise increases and this would be measured relative to a no Project case. However, this Project was conceived to address, among other things, long standing concerns regarding noise on inner west residential streets. Shifting this problem to another inner west residential street is only partially addressing the Project aims and allowing the Millers Road residents and local community to suffer under noise levels in the order of 76.5 dB(A) is an unacceptable impact.

²⁷⁶ Document 111, paragraph 60.

²⁷⁷ Document 251, paragraph 54.

²⁷⁸ Document 68.

It is noted that the use of Millers Road as a 24-hour truck route is an integral component of the Project.

With noise levels in the order of 74 dB(A), assuming the No Project level is achieved by mitigation, the Brooklyn community will still be suffering under noise levels at or above those levels currently in Francis Street causing concern. At 74 dB(A) and assuming a 10 dB(A) reduction for internal noise (and 3 dB(A) reduction at night), the internal levels will be well above the Australian Standard levels of 30-40 for sleeping and 35-45 for living areas²⁷⁹.

The IAC considers that a more reasonable, and according to PN72 feasible, approach would be to seek to reduce noise impacts on the Brooklyn community to a level of 68 dB(A) by implementing mitigation measures to achieve an 8-10 dB(A) reduction.

It is noted that even with this level of mitigation there is a need to plan for a future diversion of truck traffic away from Millers Road beyond 2031 as discussed in Chapter 4.6.

Furthermore, noting that the health, amenity and environmental quality objective also applies to nearby residents and local communities, that the EPR should be extended to include residences alongside roads within 100 metres of Millers Road as is the case for properties near the freeway interchanges.

The IAC notes the State Government's commitment to working with Millers Road residents on implementing noise reduction measures "to make their homes quieter" including options "like double glazing, insulation, fencing and air conditioning".²⁸⁰

7.5.3 Findings

The IAC finds that:

- EPR NVP1D should be modified, consistent with the VicRoads TNRP, to include a target to limit noise to 68dB(A) along Millers Road and alongside roads within 100 metres of Millers Road, subject to agreement with individual home owners.

7.6 NVP2: Traffic noise monitoring

7.6.1 Evidence and submissions

Submissions were received regarding the need for a transparent traffic noise monitoring program. CoM called for the monitoring to be overseen by the Independent Reviewer and Environmental Auditor (IREA), with Mr Elkin recommending that the monitoring reports be made public within 7 days of being finalised. Spotswood and South Kingsville Residents Group called for regular reporting of noise monitoring to the Councils and community, while Friends of Moonee Ponds Creek called for the results of monitoring to be made public.²⁸¹

It is noted that NVP2 requires the monitoring to be done prior to the opening of the Freeway and during operation of the freeway to verify compliance. It also states that monitoring

²⁷⁹ EES Technical Report H, Table 34.

²⁸⁰ 14 September 2017 Press Release – "Fewer Trucks and Less Noise With West Gate Tunnel".

²⁸¹ The same request applies to air quality monitoring results.

must be done in accordance with VicRoads Traffic Noise Measurement Requirements for Acoustic Consultants, September 2011. The aim of this EPR is to verify that the mitigation treatments for operation meet the performance targets in NVP1A.

7.6.2 Discussion

It is noted that monitoring of noise due to construction activities is considered under the CNVMP in NVP4. Accordingly, the monitoring referred to in the EPR is purely to determine compliance in the built Project. The IAC does not consider that there is value in this monitoring being made public, with the exception of transparency, which is a Project wide consideration.

The IAC consider, however, that the EPR should be updated to reflect the findings regarding measurements at all habitable levels and for performance targets to be included in NVP1D.

7.6.3 Findings

The IAC finds that:

- NVP2 should be updated to require monitoring to be undertaken at the most exposed habitable window on the most impacted habitable level of Category A and B buildings and that it include monitoring to ensure that the performance targets proposed in NVP1D are met.

7.7 NVP3: Construction Noise and Vibration Management Plan

7.7.1 Submission

The EPA sought the inclusion of a definition for unavoidable works and response strategies consistent with EPA publication 1254 Noise Control Guidelines.

7.7.2 Discussion

This request is considered reasonable and will the assist IREA in determining compliance with the CNVMP.

7.7.3 Findings

The IAC finds that:

- NVP3 should be revised to include a definition of unavoidable works.

7.8 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects.

Adverse environmental impacts

The Project will have an adverse environmental effect on the noise levels of active and passive open space areas alongside the Project. Mitigation is recommended where feasible.

The Project may have an adverse environmental effect on future urban renewal areas and consideration should be given during the design to how the Project design could actively facilitate noise projection in the future.

Beneficial environmental impacts

The Project will have a beneficial environmental effect on residents adjacent to the West Gate Freeway through the introduction of new noise limits. The inclusion of night-time noise limits would complement the day-time limits and help to achieve internal noise levels closer to those acceptable under Australian Standard 2107:2016.

The Project will have a beneficial environmental effect on inner west residential streets where truck bans will be implemented, however, the Project will not improve conditions on Millers Road which is also a residential street, locking in conditions that are as high or higher than those experienced in the residential streets being benefitted by the Project, even with the proposed mitigation announced by the State during the Hearing. Additional mitigation is recommended.

During construction, the EPR will adequately manage any adverse environmental effects due to noise and this mitigation may bring forward some of the Project's benefits.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

The IAC considers that the Project should be modified as follows:

- Provision of noise protection along all open space areas adjacent to the West Gate Freeway between the western edge of Crofts Reserve and Hyde Street.
- Designing the Project to actively facilitate the provision of noise protection from the Project at existing and future urban renewal areas.
- Provision of noise mitigation along and within 100 metres of the section of Millers Road between the West Gate Freeway and Geelong Road to achieve a day-time noise limit of 68 dB(A).

(iii) Conditions and Environmental Management Framework

The IAC makes the following comments:

- The Noise and Vibration EPR should be amended as shown in Appendix F.

7.9 Recommendations

The IAC makes recommendations related to modifying the EPR as shown in Appendix F to mitigate noise impacts. It also recommends incorporating in the Project design, capacity for the future provision of noise protection measures at source, where the alignment is adjacent to existing and future urban renewal areas.

8 Air Quality and Greenhouse Gas

8.1 Air quality

Air quality is addressed in Volumes 2 (Chapter 13), 3 (Chapter 20) and 4 (Chapter 27) of the main EES report and Technical Report G, which included the Air Quality Impact Assessment Report (AQIA). Chapter 4 of Technical Report G sets out the legislation, policy and guidelines relevant to air quality. Particularly relevant instruments include:

- National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM)
- National Environment Protection (Air Toxics) Measure (Air Toxics NEPM)
- State Environment Protection Policy (Ambient Air Quality) (SEPP AAQ)
- State Environment Protection Policy (AQM) (SEPP AQM).

Air quality in relation to tunnel ventilation assessment is also included in the Works Approval Application; this information largely mirrors that in the EES.

The evaluation objective for air quality and health in Table 4-1 of the EES is:

***Health, amenity and environmental quality** – To minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the project.*

The following evidence was called in relation to air quality:

- WDA – Frank Fler, of Golder Associates
- HBCC – Graeme Starke, of SLR
- MCC – Iain Cowan, of ERM
- SSKRG – Dr Diane Keogh.

A conclave statement on air quality was tabled in the Hearing on 22 August 2017.²⁸² The conclave was attended by the experts above and Mr Paul Torre from the EPA.

The IAC was also assisted by a Committee appointed technical adviser, Dr Lyn Denison. Dr Denison provided three written reports to the IAC.²⁸³ Numerous documents and WDA Project Notes relevant to air quality were tabled during the Hearing.

Essentially the EES found that while Melbourne has generally very good air quality overall, parts of Melbourne's west have poor air quality, especially measured particulates due to a range of factors including industrial emissions, transport and traffic emissions and other region specific sources.

This poor air quality means that the applicable standards for air quality are sometimes exceeded already at background levels, especially for particulates. The EES concludes that the overall impact of the Project will be minimal on air quality.

²⁸² Document 70.

²⁸³ Document 2, Appendix D, Document 58, Document 263.

Air quality attracted a significant number of submissions from groups, individuals and represented parties and evidence was called to contest the findings of the AQIA.²⁸⁴ Submissions raised a large number of issues including existing poor air quality in areas of the Project, particular sensitive receptors, general health impacts of traffic emissions, the methodology in the AQIA, tunnel air quality and the need for treatment of those emissions, air quality standards, vehicle emission standards, air quality in the Veloway, air quality at open space areas, construction air quality impacts and monitoring and mitigation.

In this Chapter the IAC focuses on particulates; as these are the pollutants that were modelled in the EES to have exceedances due to the Project and were subject to significant submissions and evidence related to health. Other parameters will still need to be monitored and considered in Project implementation.²⁸⁵

The health effects of air quality and ultrafine particles are discussed in Chapter 9.

8.1.1 Key issues

The IAC has considered, the EES, submissions and evidence and considers that the key issues are:

- Elements of methodology
- Specific areas consideration:
 - Millers Road
 - Emma McLean Kindergarten
 - Open space areas
- Tunnel air quality
- Construction Air Quality
- Mitigation and Monitoring
- Other issues

8.1.2 Elements of methodology

There were a number of criticisms of the AQIA, and in particular the approach to modelling including background data sets, emissions factors and the consideration of non-exhaust emissions.

The WDA, and Mr Fler in evidence, noted that the air quality assessment is the most comprehensive ever done for a road Project in Victoria and significantly more advanced than those done for other recent Projects including the East West Link and the CityLink – Tullamarine widening.²⁸⁶ This basic assertion was not contested.

Some of the specific criticisms of the AQIA and modelling are considered below.

²⁸⁴ Submissions addressing these issues are identified in Document 21.

²⁸⁵ Including CO, NO₂, BTEX, 1,3 butadiene, formaldehyde and PAH.

²⁸⁶ See for example Document 95, slide 39.

(i) Background data

Evidence and submissions

Submissions were critical that background data for the modelling and AQIA was chosen from the Footscray Ambient Air Quality Monitoring Station (AAQMS) rather than using data from other stations such as in Brooklyn.²⁸⁷

Notably the experts on air quality did not significantly challenge the use of Footscray data.²⁸⁸ The rationale for this was best summarised in the evidence of Mr Starke called by Hobsons Bay City Council. He concluded that the Footscray background data was appropriate as other monitoring stations in the area were subject to specific influences such as existing roads (Brooklyn) or seabreezes (Altona North).²⁸⁹

Dr Denison suggested in her interim advice that although Footscray data may be appropriate for a large part of the Project area, modelling should also be undertaken using the Brooklyn data. Mr Fler's response was that the Brooklyn AAQMS has been sited to address a range of local emissions, including industrial emissions, and its broader use as background data would not be appropriate. He also noted in questioning at the Hearing that the Brooklyn monitoring station doesn't have the requisite time period of data or the full range of pollutants being monitored compared to Footscray.

Mr Fler also noted that the EPA did not express concern about the use of Footscray data and agreed to its use formally on 27 June 2017.²⁹⁰

Discussion and conclusion

In the Hearing there appeared to be a misapprehension that not using local background data was an attempt to somehow hide or downplay existing poor air quality in the Project area, and particularly areas such as Millers Road.

However, the IAC understands that it is important to get a general background level of data so that incremental changes from the Project can be assessed. If a 'worst case' data set or a 'best case' air quality data set was used it would likely skew the Project to understate or overstate respectively its impacts.

The localised air quality data will still be critical and will be used as an input to monitoring and mitigation strategies and actions for the Project as a whole and in local areas such as Millers Road.²⁹¹

Findings

The IAC finds:

- Based on the evidence the use of the Footscray data as background is accepted by the IAC.

²⁸⁷ Which records higher levels of some pollutants such as particulates.

²⁸⁸ Although Dr Keogh did question the time periods for data used.

²⁸⁹ Expert witness statement of Mr Starke, paragraph 16.

²⁹⁰ Document 151.

²⁹¹ See Document 49 for a summary of additional AAQM undertaken for the Project to date.

(ii) Emissions factors

Evidence and submissions

Dr Keogh in evidence for the SSKRG was critical of the emissions factors²⁹² used in the modelling. The discussion around this point is perhaps best described in the air quality conclave report.²⁹³

Essentially the criticism went to the fact that the modelling used PIARC²⁹⁴ emissions factors, which are derived factors and:

*A comprehensive review by the authors of the AQIA of the published literature would have identified suitable, real world emission factors for surface roads and tunnels...*²⁹⁵

Dr Keogh was also critical of the age of data used in the COPERT emission factors.²⁹⁶

Dr Cowan in his evidence for MCC suggested that COPERT should have been used for all modelling rather than PIARC and that a comparison of emission factors would be useful to establish differences. He also noted, a point that was agreed in the conclave, that the laboratory based test programs used to develop the emissions factors underestimate emissions in the real world.

Mr Fleeer's evidence in the Hearing was that the emission factors used, for exhaust and non-exhaust emissions, are well recognised; and that the choice of emission factors is a question of judgement to be employed by the modeller.

To illustrate this point Mr Fleeer showed comparisons in the emissions factors for PIARC and COPERT in his presentation; they are consistent in some factors but differ widely in others.²⁹⁷

Discussion and conclusion

The IAC has closely reviewed the EES and expert evidence around emissions factors. It is clear that the choice of emissions factors requires professional judgement, and others might have made different choices with different modelling results, but the IAC is satisfied that the approach taken is reasonable and provides an appropriate indication of likely environmental effects.

Weaknesses in emissions factors, for example underestimates based on laboratory results compared to real world emissions, are in the IAC's view balanced out by the recognition of this and the inclusion of emissions factors for 2031 which do not recognise likely improvements in vehicle emission performance.

²⁹² The model inputs for rates and breakdown of the combustion products of internal combustion engines.

²⁹³ Document 70, section 4.0.

²⁹⁴ PIARC is the World Roads Association.

²⁹⁵ Expert witness statement, Dr Keogh, paragraph 5.

²⁹⁶ COPERT is an Australian specific inventory model for road transport emissions.

²⁹⁷ Document 95, slides 47 and 48.

Monitoring will be critical to ensure the predicted levels are not exceeded and that general air quality trends over time can be tracked. As discussed later in this Chapter mitigation is needed in some areas in the short term.

Findings

The IAC finds:

- The emissions factors used in the AQIA are appropriate for the task.

(iii) Non-exhaust emissions

Evidence and submissions

Dr Denison and Dr Keogh were critical of the modelling not including vehicle non-exhaust emissions.²⁹⁸ In the conclave, Mr Fleer noted that non-exhaust emissions were included in the ventilation system modelling and that sensitivity testing of surface road modelling for Francis Street and the West Gate Freeway had been undertaken post EES; this was subsequently tabled in the Hearing.²⁹⁹

Mr Fleer's advice was that the non-exhaust emissions had not been included in modelling for surface roads as the main intent was to compare the without Project and Project scenarios to determine the magnitude of change, if any.

The sensitivity testing was undertaken using the AUSROADS model with combined exhaust and non-exhaust emissions sources as described in Document 100. It concluded, in part:

Predicted PM₁₀ and PM_{2.5} concentrations increase by similar amounts for the base and project cases across both years modelled.

Dr Denison observed that the incremental increases on the West Gate Freeway were higher for the Project compared to without Project scenarios; resulting in an increased health risk³⁰⁰. She also suggested that the trend in this data is clear; increased traffic will lead to increased particulate levels and the greater the increase in traffic the greater the increase in pollutant levels. She suggested that particular roads subject to increases such, for example, Millers Road and Geelong Road, should be modelled with included non-exhaust emissions and re-entrained road dust.³⁰¹

Discussion and conclusions

The IAC accepts that the magnitude of the changes in the sensitivity testing³⁰² for non-exhaust emissions are similar, but notes that some streets such as Millers Road are predicted to get a very significant increase in heavy vehicle total numbers. It would be prudent to model roads where there are likely to be significant traffic increases to both ensure that significant or orders of magnitude changes in non-exhaust emissions for Project compared to

²⁹⁸ Primarily tyre wear and brake wear products.

²⁹⁹ Document 100.

³⁰⁰ This is best understood by a close review of Table 2 in Document 100.

³⁰¹ Document 263, section 3.

³⁰² Increases on the West Gate Freeway and 'decreased decreases' in particulates modelled on Francis Street.

Non-Project cases are not likely to occur, and to help target mitigation measures that might be able to be achieved.

Findings

The IAC finds:

- Additional modelling should be undertaken on roads where a significant increase in traffic is predicted using combined exhaust and non-exhaust emissions.
- The results of such modelling should be used to help inform near road or other mitigation measures.

8.1.3 Specific areas consideration

A number of specific areas attracted submissions in relation to air quality. The major ones were:

- Millers Road, Brooklyn
- Emma McLean Kindergarten, South Kingsville
- Open space areas.

(i) Millers Road and Brooklyn Residential Community

Evidence and submissions

Millers Road attracted a significant number of submissions from both groups and local residents; primarily as it appears to be disproportionately affected by the Project and is one of the roads predicted to get significant traffic increases, and consequently increased amenity, health and safety impacts.

The EES considered surface road emissions as they affect Millers Road³⁰³ in Technical Report G at page 187. Millers Road north of the West Gate Freeway has residential properties on the western side.

Tables 81 and 82 in the EES show the relatively small incremental changes due to the Project over and above generally high background levels for particulates. This is primarily due to the fact that Millers Road will carry substantial traffic, and a very high relative portion of heavy vehicle traffic as discussed in Chapter 4, in future both with the Project and without.

The overall impact on Millers Road from increased traffic led in the Hearing for it to receive considerable attention. The concessions made by the WDA on behalf of the State related to removing of a toll point are discussed in detail in Chapter 4 and are not repeated here.

It is important to note that those concessions, primarily directed to noise, have the potential to also mitigate air quality effects.

³⁰³ Millers Road North of the freeway is likely to receive the greatest air quality and noise impact due to increased heavy vehicle traffic.

The EPA in its closing submission suggested that:³⁰⁴

- Further targeted air quality investigations should be undertaken on streets such as Millers Road that are likely to be subject to significant traffic increases.
- Other mitigation measures be considered such as:
 - Vegetated barriers
 - A smoky vehicle enforcement program on Millers Road (and for the tunnels)
 - The investigation of a low emission truck zone.

Discussion and conclusions

There was general agreement in the Hearing that Millers Road is one area that is likely to suffer increasing impacts over time due to the increase in heavy vehicle traffic on a road that already carries significant freight.

This agreement was recognised in the Hearing by the WDA informing the IAC that the State will be offering a range of ameliorative measures to residents of that road.

Air quality on Millers Road and in the Brooklyn Residential Community more broadly was discussed at length in the Hearing; it is generally accepted that the suburb has poor air quality related to a range of uses, even though some advances have been made in recent times.

The issue for the Project is that while it may only be adding a small increment to a decline in air quality, it seems to the IAC that this approach is not fair or reasonable in an area which already carries a significant burden.

The IAC has already recommended that additional local air quality modelling be undertaken for roads expected to receive a significant increase in traffic.

In addition, the IAC considers several of the suggestions of the EPA have merit and recommends accordingly.

Findings

The IAC finds:

- Air quality mitigation should be provided on roads likely to experience a significant increase in traffic, Millers Road, Geelong Road and Williamstown Road.
- A 'smoky vehicle' enforcement program would assist in mitigating air quality impacts.

(ii) Emma McLean Kindergarten

Evidence and submissions

A number of submitters were concerned about air quality impacts on the Emma McLean Kindergarten. The Kindergarten itself made a submission and then presented at the Hearing.³⁰⁵ The Kindergarten requested a number of mitigation measures aimed at noise

³⁰⁴ Document 306.

³⁰⁵ Submission 399 and Document 264.

and air quality primarily related to the proximity of the new Hyde Street on-ramps and the construction traffic likely to use Hall Street to the east across the railway.

Due to the proximity of the existing West Gate Freeway, the air quality in the area is already negatively influenced by surface road emissions. For example, the Ambient Air Quality Monitoring Data Comparison prepared by Golder Associates for the Project suggest that particulates (PM₁₀) are higher at Donald McLean Reserve than the data from the Footscray monitoring station used as background data in the modelling.³⁰⁶

In response the WDA produced Project Note 73, with technical input from Golder Associates. The Project Note included model outputs for the No Project and Project scenarios for 2022 and 2031 at a receptor 60 metres closer to the on-ramp than the Kindergarten; which itself is located approximately 190 metres south of the proposed on-ramp.

The modelling predicts that the Project will result in a 'slight improvement' over the base case. This is due to the reduction in heavy vehicles on this part of the Freeway that are instead using the tunnel. There is however still a small increase predicted in the annual average for both PM₁₀ and PM_{2.5} for both scenarios.

Discussion and conclusions

The sensitivity of children to air quality impacts itself is not in the IAC's view in dispute; and is discussed in more detail in Chapter 9.

The IAC notes that Project Note 73 has modelled a receptor closer to the Freeway and new on-ramps than the Kindergarten.

The IAC understands the decline in pollutant levels with distance from roads is well established.³⁰⁷ The predicted smaller increase attributable to the Project and the distance from the new on-ramps gives the IAC some comfort that the air quality impacts on the Kindergarten should be reasonable. The IAC also notes that the surrounds of the Kindergarten are well vegetated; vegetation being agreed to have some impact on improving air quality and reducing the dispersion of pollutants.

In the noise section of this report the IAC has recommend a noise wall be provided between the freeway and the open space to the north of the kindergarten. This is likely to have air quality benefits in reducing the dispersion of pollutants.

Hall Street, a proposed construction route, is approximately 40-50 metres east of the Kindergarten across the rail line. Depending on the type of construction vehicles the effects of construction traffic on air quality should be able to be managed through road improvement³⁰⁸ and covered loads. The IAC is satisfied that the proposed AQP6 can address

³⁰⁶ Document 49. Average PM₁₀ concentrations of 24.5µg/m³ at the Reserve compared to 18.5 µg/m³ in Footscray. PM_{2.5} data also appears to support this finding but the data quality is not suitable at this point to make a firm conclusion. It should also be noted that the Reserve AAQMS is closer to the Freeway than the Kindergarten.

³⁰⁷ See for example EPA Publication 1025, p9.

³⁰⁸ Hall Street is currently sealed but to a poor standard.

construction air quality impacts on the Kindergarten and it should certainly be identified as a sensitive receptor in the AAQ NEMP.

Temporary noise walls for construction vehicles could also be installed along Hall Street if necessary. The IAC is satisfied that these issues can be managed through the CNVMP and the noise targets in the EPR such as NVP4.³⁰⁹

Mitigation and monitoring is addressed specifically later in this Chapter.

Findings

The IAC finds:

- The air quality impacts on the Emma McLean Kindergarten can be managed to an acceptable level.

(iii) Open Space Areas

Evidence and submissions

A number of submissions were concerned about the impact of air quality on open space areas; both for potential health impacts and impacts on the amenity and useability of open space.

Submitters suggested that active open space adjacent to roadways may expose people to unacceptable levels of pollutants due to increased respiration rates during sports or other activities.

The new open space areas including west of Moonee Ponds Creek, near the northern portal exit and on the northern edge of Precinct 15 could be expected to receive pollutant emissions from roads, both existing roads and due to the Project.

Mr Fler in his evidence relied on the modelling undertaken for the EES, which he noted considered public open space within the model both at the general model grid level and discrete receptors including open space³¹⁰. His views on the overall modelling results and Project impacts are discussed in Chapter 8.1.2 above.

Mr Lim, for the WDA, in response to questioning noted that there are no specific amenity standards for open space.

Discussion and conclusion

As discussed elsewhere in this report, the IAC has concerns regarding the potential 'quality' of the open space being delivered as part of the Project. These concerns relate primarily to the location and design of open space, but also the amenity impacts of noise and air quality.

In the previous Chapter the IAC notes the use of noise walls, vegetation barriers and improvements in air quality as distance from roads increases should all contribute to managing the environmental effects of air quality. These measures are likewise

³⁰⁹ Which now includes specific reference to Kindergartens.

³¹⁰ See Technical Report G, page 36-37.

recommended for consideration in the design and management of the Project and new open space areas.

Findings

The IAC finds:

- Air quality in open space areas can be managed at an acceptable level subject to the mitigation measures.

8.1.4 Tunnel air quality

(i) Evidence and submissions

The west bound and east/north bound tunnels will each have a ventilation structure at their exit. Tunnel ventilation is necessary to ensure in-tunnel air quality is satisfactory for tunnel users; the result being that pollutants in the tunnel need to be expelled outside the tunnel and impacts outside the tunnel need to be assessed and mitigated as necessary.

The EES modelled the emissions from the ventilation structures for 2022 and 2032 and concluded that there would be limited additional particulate exceedances of SEPP (AQM) criteria noting already high background levels in the area.

Mr Flear in his presentation at the Hearing summarised it as:³¹¹

- For PM₁₀ - Eight additional exceedances in 2022 and 11 in 2031 against 130 exceedances due to background levels alone.³¹²
- For PM_{2.5} – no exceedances in 2022 and 2031 for a constant background and one additional exceedance with a time varying PM_{2.5} background using 2015/2016 data over seven exceedances due to background data alone.³¹³

Mr Flear's evidence was that the particulate exceedances that occur are generally close to the ventilation structures in mostly non-residential areas. Other pollutants modelled including CO, NO₂, BTEX, 1,3 butadiene, formaldehyde and PAHs were within design criteria for the two modelled scenarios.

Four sensitivity analyses were undertaken.³¹⁴ The results of these showed that while the Project contribution of ground level contributions could increase significantly; the relative impact on ground levels concentrations is minor due to the high background levels.

Many submitters and the evidence of Dr Keogh, Professor Anderson and Associate Professor Irving called for tunnel filtration to be installed at the time of construction, rather than just allowing for it in future as per the proposed EPR. MTAG, in particular, was critical of the approach to reviewing tunnel filtration systems and submitted that the EES downplayed the potential role such systems could play.³¹⁵

³¹¹ Document 95.

³¹² Using the worst case meteorological year of 2009.

³¹³ Document 95.

³¹⁴ Described in Section 6.4.2 of the AQIA, Technical Report G.

³¹⁵ Submission 458, Document 258.

Dr Denison in her interim report³¹⁶ also noted that the most recent international material on tunnel ventilation and filtration did not appear to have been addressed. Mr Fler reiterated that the best way to control emissions from surface roads and tunnels is through better emissions standards.³¹⁷

Dr Denison and Mr Starke also drew attention to the pattern of exceedances close to and around the tunnel ventilation structures at ground level. Dr Denison suggested that normal plume dispersion is not occurring and this may be a cause for concern if pollutants are not being diluted.

Dr Cowan, in his evidence for Maribyrnong noted the modelling outputs suggested that the tunnel ventilation system would not be a significant contributor to ground level pollution levels compared to road sources.³¹⁸

The WDA's position, articulated in evidence by Mr Fler, is that the impact of tunnel emissions on ambient air quality is negligible and such filtration systems would be very expensive relative to their effect on overall air quality.

The EPA in submissions supported the need for the ability to retrofit emission control equipment on tunnel ventilation systems, but did not recommend the installation of such equipment at this time.

In the conclave, the issue of tunnel emissions impacting on elevated structures was raised, particularly in relation to Precinct 15 development in Hobsons Bay. Golder Associates undertook additional modelling of 'flagpole receptors' at different heights using PM_{2.5} to assess the issue. The results suggested that the addition of flagpole receptors produced the same results as without elevated receptors. That is, the predicted maximum concentration occurs at the ground level receptors.³¹⁹

A number of submitters also raised the issue of in-tunnel air quality for users (motorists). The in-tunnel limits and ventilation stack emission limits will be set through the EPA License for the tunnel ventilation system.³²⁰ The in-tunnel concentration limits were provided in the EES for CO, and the EES suggests NSW standards will be applied for NO₂. The in-tunnel concentrations can largely be controlled through increasing or decreasing ventilation flow rates.

(ii) Discussion and conclusions

It is clear from the EES and evidence that emissions from the tunnel ventilation structures contribute only a small part of the Project emissions; the significant majority coming from direct surface road emissions. In addition, it is clear from the modelling that the combined

³¹⁶ Document 58.

³¹⁷ Document 151.

³¹⁸ Dr Cowan provided a statement and contributed to the air quality conclave but was not called to give evidence.

³¹⁹ Document 98.

³²⁰ EES Technical Report G, page 106. CO limits are also included in AQP3.

impacts of tunnel ventilation and surface road emissions are relatively minor relative to background concentrations in the area.³²¹

The IAC considers however that the Project needs to be more sensitive to its context. The poor air quality in the broader area was noted by many submitters.³²² Given the poor subregional air quality, the IAC believes there is a case to be made that the Project should take every opportunity to improve air quality.

The IAC notes the submissions that there are other ways to advance air quality in the area, such as controls on the design and use of wood heaters for example. The IAC also notes that there have been successes in recent years such as the sealing of roads in the Brooklyn Industrial Area. The focus for the IAC however is what this Project can do to make a difference to air quality.

The IAC discussed additional mitigation measures for air quality later in the Chapter. Specific to the tunnel however the IAC considers pollution control equipment should be fitted at construction, rather than just provided for.

The IAC accepts that the cost for air quality improvement may not be as economically efficient as other measures, such as design and controls on the use of wood heaters for example; but those such approaches and programs are not before us, whereas, the tunnel design is.

The IAC is satisfied that there are effective technologies to achieve pollutant emission levels from the tunnel ventilation stacks that help improve air quality in the west, even if marginally. The IAC notes the Assessment Committee for the East West Link recommended pollution control equipment be fitted to tunnel ventilation stacks if a nominated air quality threshold was exceeded, although this approach was not accepted in the final approval. The air quality in the Project area is already acknowledged to be poor, and the IAC considers this alone requires a different response from the Project.

(iii) Findings

The IAC finds:

- The in-tunnel air quality is capable of being managed to an acceptable level through design, the EPR and the provisions of the EPA License.
- While tunnel ventilation emissions are relatively insignificant in relation to background air quality in the area, the installation of pollution control equipment in the tunnel ventilation system is one feasible specific, practical measure that can be taken to modify the Project.
- This approach is justified given the existing poor air quality in the Project area.

³²¹ See for example the combined impacts tables in Appendix G, p223 onwards.

³²² See HBCC submission Document 196 at para 86 referencing an Environmental Justice report for example.

8.1.5 Mitigation and Monitoring

(i) Evidence and submissions

Dr Denison in her interim advice identified the lack of air quality mitigation measures, particularly for surface roads, as a significant omission in the EES.³²³ There were considerable submissions and evidence from regulatory agencies, groups and individuals on possible mitigation and monitoring measures for air quality. Some of the potential mitigation strategies and actions have been discussed in the preceding Chapters and include:

- Buildings modifications (ventilation)
- Noise walls
- Vegetative screening
- Combination of the above elements
- Speed limits
- Smoky vehicle enforcement program
- Low emission truck zone.

Improving vehicle emissions standards was also suggested and this issue is discussed further below.

The EPA noted in their concluding comments:

It is apparent that there can be no one solution to address the pollution effects of the WGTP generally, but particularly in respect of Millers Road, so a coordinated and location specific approach of mitigation measures must be implemented to keep exposures to population at or below accepted national standards.

*As reasonably stated by Professor Anderson, all strategies that reduce pollution levels at a local level should be investigated.*³²⁴

Monitoring of the effects of the Project on air quality was also the subject of many submissions. Areas such as Brooklyn, Spotswood, South Kingsville and others attracted individual and group submissions, generally call for air quality to be monitored to provide information back to the community to:

- Determine if the Project impacts are as anticipated, or better or worse
- Provide input to decision making around additional mitigation that might be required.

The exhibited EPR (AQP4) called for an ambient air monitoring program during construction and for five years of operation; with the results to be made publicly available. The EPA in its closing remarks suggested a 'co-design' air quality monitoring program to understand and address local impacts and local impact mitigation.³²⁵ In the 'without prejudice' EPR discussion they recommended a new AQP7 to address this issue.

³²³ Document 58, p14.

³²⁴ Document 306, paragraphs 38-39.

³²⁵ Document 306, paragraph 25 onwards.

In her interim advice Dr Denison noted that while the assessment of air quality has been done against the relevant policy framework, there is no actual standard specified in the EPR against which monitoring data can be assessed. She recommended that the AAQ Standards in the NEPM would be the appropriate levels against which to monitor to protect human health.³²⁶

(ii) Discussion and conclusions

The IAC notes that the removal of a West Gate Freeway Toll point will have some mitigating effects on air quality in local areas.

The IAC reiterates that one of the five key challenges the Project is trying to address is the issue of amenity in the inner west, part of which relates to air quality.³²⁷ Mr Fler in evidence noted that although there will be increases in particulate pollutants on some roads, notably Millers Road, Geelong Road and parts of the West Gate Freeway, overall there will be a net community benefit due to improvements in air quality on other roads with long standing air quality issues such as Francis Street, amongst others.³²⁸

While there was much criticism of the methodology, the standards applied and other aspects of the AQIA, some of which have been explored in this Chapter, the IAC considers that at the whole Project level the AQIA contains a thorough and detailed analysis of the probable environmental effects of air quality.

In the IAC's view, perhaps with the exception of Dr Keogh, the experts at the Hearing who addressed air quality matters were challenging the EES and Mr Fler's evidence on the margins, rather than at the centre.

The IAC acknowledges however, that some of these issues at the margins, may have a significant effect on predicted air quality impacts from the Project. Thus, monitoring to provide assurance that the EES predictions were correct, beyond the model validation already undertaken, is of central importance and this was not disputed in principle by any party to the Hearing.

The EPR AQP4 provides for a general AAQ monitoring program which is appropriate. The IAC recommends that the timeframe for monitoring is appropriate, five years, as supported by the conclave; with permanent monitoring stations established where modelling and monitoring suggests exceedances are likely.

The IAC also generally supports the EPA suggested AQP7 for monitoring in a co-design process. The IAC however considers this should be made explicit to those roads where a deterioration in air quality is predicted from the Project. The comments on standards for monitoring are noted by the IAC, and it seems logical that the monitoring program have defined standards which can be used as triggers for additional mitigation.

³²⁶ Document 58 p14.

³²⁷ EES Summary Report p5.

³²⁸ See for example extracts from EES in Document 95, slide 21.

In some areas, the IAC considers mitigation should be considered from the outset beyond the 'incidental' air quality mitigation to be delivered by, for example, increased sound barriers.

The rationale for this approach is based primarily on the SEPP (AQM).³²⁹ This instrument has its second policy objective at 6(b):

...drive continuous improvement in air quality and achieve the cleanest air possible having regard to the social and economic development of Victoria.
(IAC emphasis).

The SEPP (AQM) was discussed at length in the Hearing, but at its simplest reading the IAC considers that it is difficult to read down the above policy aim to conclude that some areas of the Project, and often those already suffering poor air quality, should have their air quality worsened as a result of the Project, even if marginally.

There does appear to be potential mitigation measures for surface road emissions that need not be technologically demanding or prohibitively expensive such as those identified in Chapter 9.1.5(i) above that if designed into the Project rather than retrofitted would be even more cost effective.

(iii) Findings

The IAC finds:

- Based on the evidence, at the Project level there is unlikely to be a significant overall deterioration in air quality when assessed against current standards.
- Some roadside locations are predicted to have improved air quality due to the relocation of some heavy vehicle traffic to other locations.
- Where air quality is predicted to deteriorate due to the Project including Millers Road and Geelong Road and parts of the West Gate Freeway, further detailed investigations and location specific mitigation strategies should be developed to ensure air quality is improved.
- The timeframe for monitoring should be five years; with permanent monitoring stations established at areas where modelling and monitoring suggests exceedances are likely.

8.1.6 Other issues

(i) Construction air quality

The impacts of construction on air quality were addressed in Chapter 11 of Technical Report G. The likely impacts are to come from:

- Dust emissions from vehicle travel and work areas
- Odour from specific operations such as sewer relocation
- Combustion products from heavy machinery and heavy vehicles.

³²⁹ Document 176.

The air quality conclave report also noted that if there are temporary ventilation structures used during construction consideration should be given to modelling these as well.³³⁰

Many submissions commented on the air quality impacts of construction including residents of North and West Melbourne who related difficult experiences with construction of the Regional Rail Project.

The main avenue for managing construction air quality impacts is through the effective management of construction activities through the Construction Environmental Management Plan. Mr Stark for HBCC noted that the proposed AQP6 and management measures in the EES³³¹ are appropriate to manage construction air quality subject to further work as the detailed construction program is developed.

(ii) Findings

The IAC finds:

- Subject to the application of the EPR in Appendix F, the IAC is satisfied that construction air quality impacts can be adequately managed through the development and application of the Construction Environmental Management Plan.

(iii) Air quality standards

The specific health impacts related to air quality are discussed in Chapter 9. A number of submissions suggested that air quality standards, and especially those related to ultrafine particulates, do not align with available medical research.

The IAC notes that standards often lag research and this is not a new situation. However, the IAC is not in a position to arbitrarily establish new standards; its role is to assess the environment effects of the Project within the existing legislative and policy context. The IAC notes the position of the EPA that it *"...is aware of the emerging science and emerging concerns around ultrafine particles."*³³²

Findings

The IAC finds that:

- It is not the role of the Project, or indeed the IAC, to set new air quality standards against which the Project should be assessed.
- The standards chosen are appropriate for the task of Project assessment of environment effects.
- Given the state of the science in relation to fine and ultrafine particulates, it would be appropriate for the State, through the EPA, to continue to monitor emerging medical research and modify the air quality standards as necessary to maintain a best practice approach.

³³⁰ Document 70, Section 2.0, paragraph 1.

³³¹ Technical Report G, pp245-247.

³³² Document 34, paragraph 43.

(iv) Air quality impacts on the Veloway

The impact of reduced or poor air quality on cyclists using the Veloway in the Hearing was raised. This is said to stem from the nature of the Veloway being underslung between two multi-lane roadways and above the existing Footscray Road, all of which will carry significant heavy vehicle traffic.

A specific assessment of this issue was undertaken in the additional modelling for elevated structures³³³, albeit without reference to the particular ‘enclosed’ design of the Veloway. This modelling suggested the maximum concentrations of pollutants will be at ground level rather than at the elevated structure. In his presentation Associate Professor Irving pointed the IAC to research from Ottawa and London that suggests the air pollution impacts on cyclists can be significant but there is still a net health benefit from cycling.³³⁴

Findings

The IAC finds:

- It is unclear whether the Veloway design will result in particular air quality impacts on cyclists, as opposed to the general impacts of on-road or roadside cycling.
- The IAC considers it would be prudent, if practicable, to assess the air quality likely in the Veloway and modify the design to improve ventilation if necessary.

(v) Vehicle emission standards

A number of submissions raised the issue of improved vehicle emissions standards. Mr Flear in his evidence for the WDA noted that vehicle emissions standards are set by the Australian Government, and that the Government is currently considering whether to apply new standards for light and heavy vehicles.³³⁵

The IAC accepts that the Project has no control over vehicle emission standards, but improved vehicle emission standards over time, and the probable move to increased use of electric vehicles over time, should result in reduced per vehicle exhaust emissions.

Finding

The IAC finds:

- Improved vehicle emissions standards over time are highly desirable but are not part of the Project assessment.

8.2 Greenhouse Gas

Greenhouse gas (GHG) impacts are addressed in Technical Report Q of the EES. There was no specific draft evaluation objective in the Scoping Requirements relating to GHG.

In addition to written submissions expert evidence in relation to greenhouse gas was provided by:

³³³ See Document 98.

³³⁴ Document 181, slide 16.

³³⁵ Expert evidence, Frank Flear, p5.

- WDA – Will Symons from AECOM
- IMPA - Professor Peter Graham from Swinburne University.

Relevant legislation, Policies and Guidelines are listed in the EES Volume 1 Chapter 4-5. The Project must demonstrate compliance with the *Environment Protection Act 1970* (Vic) including SEPP (Air Quality Management).

The broader legislative framework is set out in detail in the EES.³³⁶

8.2.1 Key issues

The IAC considers that the two key issues discussed in the EES in regards to greenhouse gas were:

- the level of emissions expected both during the construction
- the operation of the Project, and the proposed abatement techniques.

8.2.2 Evidence and submissions

The submissions raised the following issues:

- Inadequacies of the methodology and assessment of operational greenhouse gas emissions
- Concerns about the levels of greenhouse gas emissions from construction
- Inadequate assessment against the requirements of the TI Act.

At the Hearings, Professor Graham acknowledged that the methodologies used to conduct the GHG assessment of the WGTP are consistent with international standards for scope of emissions. However, he considered that the choice of baseline calculation methodology was not adequately explained.

Professor Graham considered that GHG accounting for projects should:

- Include an assessment of changes to GHG emissions directly caused by Project activities relative to a base-line scenario (primary effects), and
- Identify significant unintended or consequential changes in GHG emissions caused by Project activity (secondary effects).

He further noted that reducing petroleum dependency and improving access to transport services would also reduce GHG emissions.

WDA stated in its Part B submission that Professor Graham's issues with Mr Symons' scope of the assessment did not show that this would make a material difference to the GHG calculations in relation to the Project.

Mr Symons stated that the impact assessment undertaken by AECOM included estimating emissions from construction and operational phases. Emissions from vehicle traffic was estimated based on the Zenith Transport Model Economic Assessment Model (Veitch Lister Consulting). He noted that separate traffic modelling was not undertaken in relation to the greenhouse gas assessment. Data was available at three scales: Victoria-wide, the metropolitan road network and selected roads affected by the Project. Mr Symons stated

³³⁶ Technical Report Q, p26 onwards.

that it was chosen to assess the impact at the metropolitan Melbourne scale as it provided a broad scale that showed potential for changes in traffic routes related to the Project.

Mr Symons noted that the risk assessment process outlined in the GHG was used to prioritise the impacts that were to be the focus of the impact assessment. Mr Symons stated that whilst the thresholds used to determine the consequence ratings are subjective, *"...the outcome of the risk assessment process was that operational emissions from vehicle traffic were included in the assessment"*³³⁷.

Mr Symons noted that a challenge exists in assessing a global scale issue using a method (i.e. the EES process) that is designed to assess impacts at a local (up to state level) scale.

Mr Symons stated that in relation to the estimated increase in vehicle traffic emissions, the use of the word marginal was to indicate the size of the increase was small in relation to the 'no project' scenario. As a number of assumptions are included in the modelling process, it is possible that the estimated increase was included within the margin of error of the modelling.

He stated that while there is not an EPR that specifically addresses vehicle traffic greenhouse gas emissions, EPR GGP1 requires the design to minimise, to the extent practicable, greenhouse gas emissions arising from construction, operation and maintenance of the Project. GGP2 covers the material and energy consumption related ISCA credits and this requires consideration of the whole Project lifecycle (including operation).

WDA stated that in relation to offsetting, the proposed additional tree plantings are not accounted for as part of the GHG assessment which could be said to add a level of conservatism to the impact assessment.

Mr Symons noted that an assessment of the Project against the *Transport Integration Act 2010* was not part of the scope of the greenhouse gas assessment.³³⁸ Assessing the Project compared to alternative public transport based projects was also beyond the scope of the assessment.

EPA stated at the Hearings³³⁹ that its proposed changes to GGP1 and GGP2 reflect the overall Project and tunnel ventilation system are to achieve an 'excellent' rating on the Infrastructure Sustainability Council of Australia's infrastructure sustainability rating framework.

EPA further stated that it seeks to ensure that the innovations and application of the ISCA framework are paramount in the detailed design phase. It wishes to ensure that best practice and sustainability and energy saving measures are not overlooked or dismissed due to any retrofitting constraints.

EPA further advised that they will be assessing compliance with the *Protocol for Environmental Management – Greenhouse Gas Emissions and Energy Efficiency in Industry* in

³³⁷ Will Symons expert report p3.

³³⁸ Although the TI Act includes objectives related to GHG emissions in s10.

³³⁹ Document 306, p8.

respect of the tunnel ventilation system, which Mr Symons indicated would be incorporated into the detailed design.

EPA considered that WDA should consider energy savings through construction and excavation methods that reduce diesel and water use. They should also quantify carbon reductions brought by offset planting. They noted that while Mr Symons considered offset planting would not achieve significant carbon reductions, there is no apparent investigation of this measure.

8.2.3 Discussion and conclusions

The IAC considers the approach in-principle adopted in the EES in relation to GHG to be reasonable and the overall effect of the GHG emissions to be acceptable when compared to the no-project scenario. While building and operating a large infrastructure project such as this will inherently increase GHG emissions, the IAC is satisfied that in the work done to date and through the use of the EPR the increase in emissions can be kept to a reasonable level.

While no emissions increase or even an emissions decrease would be preferable, the IAC accepts that it is not a reasonable starting point for such a Project. The IAC also notes that while overall emissions from the road transport network across Melbourne will increase marginally with the Project, the GHG emissions intensity will decrease slightly.

The IAC also notes that other factors such as the increase in tree planting with the Project and a probable move to low emissions vehicles are other factors that should improve the overall net GHG emissions from the Project over time.

8.2.4 Findings

The IAC finds that:

- the Project addressed GHG emissions from the construction and operation of the Project to an acceptable level subject to the application of GGP1 and GGP2.

8.3 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference.

(i) Consideration of adverse and beneficial environmental effects.

Adverse environmental effects

- Marginal deterioration in air quality predicted in some limited locations, including residential streets.
- The Project will result in an overall increase in GHG emissions. In noting this, implementation of EPR GGP1 and GGP2 are responsive mitigation actions to manage greenhouse gas emissions.

Beneficial environmental effects

- Specific air quality improvements on key residential roads in the inner west, notably Francis Street due to the reduction in heavy vehicles.
- Overall the Project is predicted to have minimal overall impact on air quality in the Project area.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

Some elements of Project design have been changed through the Hearing process including additional noise walls and the removal of a toll point on the West Gate Freeway which will have air quality benefits in some areas.

The IAC has also recommended the inclusion of pollution control equipment for tunnel ventilation systems. Based on material before the IAC this is feasible and within the Project boundary. Taking the dispersed pollution generated by vehicles and treating the point source of pollution at the ventilation stacks is in the IAC's view a demonstrably superior outcome that is appropriate in the context of existing poor air quality in the area.

On Millers Road³⁴⁰ and in tunnels, the IAC considers a smoky vehicles enforcement program should be developed and implemented to target the worst polluting heavy vehicles.

(iii) Conditions and Environmental Management Framework

The IAC has made a number of recommendations that go to improving the air quality EPR for the Project as shown in Appendix F. These include improvements to mitigation and monitoring.

The IAC considers the application of GGP1 and GGP2 in Appendix F appropriate for greenhouse gas emissions.

8.4 Recommendations

The IAC has recommended additional air quality modelling on some surface roads, the installation of tunnel pollution control equipment (via an EPR) and other monitoring and mitigation strategies through the EPR. The IAC has also recommended the State ensure it continues to maintain best practice in terms of air quality standards.

³⁴⁰ Recognising it is not within the current Project boundary.

9 Health

Impacts on human health are addressed in Volume 2 (Chapter 13), 3 (Chapter 20) and 4 (Chapter 27) of the main EES report and Technical Report J, which is the Human Health Impact Assessment (HIA).

The evaluation objective for health in Table 4-1 of the EES is:

***Health, amenity and environmental quality** – To minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the project.*

The following evidence was called in relation to human health:

- WDA – Dr Jackie Wright, Environmental Risk Sciences Pty Ltd
- HBCC – Associate Professor Louis Irving, Department of Respiratory and Sleep Medicine, Royal Melbourne Hospital
- Lung Health Research Centre (LHRC) – Professor Gary Anderson, Lung Health Research Centre, University of Melbourne.

A conclave on health impacts was convened and was attended by the experts above and Dr Victor Kabay from the EPA.³⁴¹

The IAC was assisted by a Committee appointed technical adviser, Dr Lyn Denison. Dr Denison provided three written reports to the IAC.³⁴² Numerous tabled documents and WDA Project Notes are relevant to health impacts and these will be addressed as necessary in this Chapter.

Key health impacts considered in accordance with the Project evaluation objectives included ambient air quality, in-tunnel air quality, noise and vibration and social impacts. The HIA in the EES concluded that provided identified mitigation and management measures are implemented, the health impacts of the Project are low and acceptable.

Health impacts attracted submissions from groups, individuals and represented parties and evidence was called to contest the findings of the HIA as identified above.³⁴³ Submissions on health were primarily concerned with the health impacts of air quality but also raised other issues such as the HIA methodology, urban heat island effect, child safety around trucks, impacts on vulnerable members of the community (particularly the young and the aged) and health impacts during construction.

9.1 Key issues

The technical issues behind many of the potential health impacts such as noise and air quality are addressed by the IAC in the specific issue Chapters. This Chapter considers the

³⁴¹ Document 71 is the statement from the health impact conclave.

³⁴² Document 2, Appendix C, Document 58, Document 262.

³⁴³ Submissions addressing these issues are identified in Document 21.

overall approach to health risk assessment and specific health risks. In that context the IAC considers that key issues relate to:

- Methodology and results
- Health and ultrafine particulates
- Deterrents to healthy behaviours.

9.2 Methodology and results

9.2.1 Evidence and submissions

The WDA submitted that the very presence of a HIA is unusual and is a ‘feature of the EES’.³⁴⁴ Dr Kabay from the EPA in relation to methodology at the conclave noted a similar point:

*I consider the methodologies adopted in the health impact assessment to be in line with best practice assessment and management. In fact this level of assessment greatly exceeds the scope and level of detail that is often associated with similar developments.*³⁴⁵

There were a number of items of disagreement³⁴⁶ in the health conclave including:

- Conclusions that there are no significant risks to health
- Need to include mitigation to reduce emissions to the ‘maximum extent achievable by technology’
- The inclusion of low birth weight as a health endpoint in the HIA
- Disagreement on the effect of uncertainties on the outcome of the assessment
- Need for measurement of local air quality and health outcomes before and after the Project
- The need for a more comprehensive literature review on the effect of exposure to particulates.

In her final advice to the IAC, Dr Denison was critical of the approach to risk in the HIA, noting that there appeared to be a number of areas where the health risk from noise is predicted to exceed the acceptability established in the EES (1×10^{-4}); and thus requiring a particular mitigation and/or management response.³⁴⁷

In response to Dr Denison’s original report, Dr Wright provided a written response that outlined her views on the matters raised.³⁴⁸ In general she did not accept the criticisms and articulated her views as to why her approach in the HIA was reasonable and should be preferred.

In her witness statement Dr Wright also provided a comprehensive response to issues raised in submissions.

³⁴⁴ The IAC notes that while health, particularly related to air quality, was considered at length during the East-West Link Assessment, an HIA was not undertaken in that case.

³⁴⁵ Document 71, paragraph 2(a)(iv).

³⁴⁶ Noting there were also areas of agreement, some of which are discussed in the next chapter.

³⁴⁷ Document 262, Section 1.

³⁴⁸ Document 179.

9.2.2 Discussion and conclusions

Having reviewed the HIA, the substantial number of submissions and evidence in relation to the assessment of Health, the IAC observes that it is of substantial benefit to the assessment process that the HIA has been undertaken.

While there is disagreement amongst some of the experts as to the methodology employed and some of the judgements used by Dr Wright, the IAC does not consider the testing of the HIA has exposed any fundamental flaws in her approach. Others undertaking the same task may have used different inputs and even have achieved different results, but the IAC is satisfied that the results obtained are reasonable and defensible.

Importantly, Dr Wright's findings of generally acceptable health outcomes are based on the HIA itself including the mitigation measures proposed in EPR, for example in relation to noise. The implementation of these EPR is thus critical to her overall findings.

Other experts, including the IAC's own expert Dr Denison, emphasised the importance of additional mitigation measures, whether for air quality or noise. The IAC generally accepts that there is a need for additional mitigation, particularly in some targeted areas likely to be subject to significant impacts such as Millers Road. This additional mitigation is considered in the relevant issue Chapters.

The IAC notes the criticism of some experts and submitters that there are no specific health EPR. The IAC has not considered what such EPR's might look like and none were suggested by parties. The IAC notes that it would be extraordinarily difficult to apply specific quantitative health benchmarks, for example, to try and measure the impact of the Project *specifically* on the affected communities given the dense, mixed land use, heavily trafficked area that exists.

Broad community health indicators should certainly be collected (and are), but the IAC considers the effort in this area (EPR) should be directed at the mitigation of the critical health impacts (particularly noise and air quality) rather than trying to establish particular health performance EPR.

9.2.3 Findings

The IAC finds:

- The HIA undertaken for the Project is reasonable and provides an acceptable base from which to consider the health effects of the Project.
- Subject to mitigation measures and EPR put forward in the EES and the additional mitigation (particularly for air quality and noise) recommended by the IAC, the IAC considers the health effects of the Project can be managed to an acceptable level.

9.3 Health and ultrafine particulates

9.3.1 Evidence and submissions

It is important to note that there was little disagreement amongst the experts about the potential health impacts of air pollution. The conclave agreed:

There is no safe level of exposure or safe lower limit of exposure for many of the air pollutants, including particulate matter (PM₁₀, PM_{2.5}) and NO₂.³⁴⁹

And:

Agree pollutants including particulates cause lung cancer and adverse cardiovascular health effects, damage respiratory health, and increase mortality.³⁵⁰

In essence, the finer the particulate fraction, the more deeply it penetrates into the respiratory system.³⁵¹

The health impacts of air pollution were addressed in many submissions and in the evidence put forward by health experts. Professor Anderson's expert witness statement provides a useful summary of the pollutant pathways into the body and the potential effects upon it. In relation to particulates he noted:

These reactive particles [of PM_{2.5}] cause macrophages to become activated which triggers local systemic inflammatory reactions that in turn are directly linked to the pathogenesis and/or worsening of numerous serious and fatal human diseases. These diseases include lung cancer, asthma, chest infections, COPD, cardiovascular disease, metabolic disorders and probably some diseases of the brain.³⁵²

Dr Denison in her advice to the IAC also gave an extensive overview of recent thinking in relation to airborne pollutants and suggested that the EES and HIA does not adequately reflect recent research in this area.³⁵³

In his evidence on air quality, Mr Fleer noted that:

- There is no background data on ultrafine particles but they are a sub fraction of PM_{2.5} which is monitored
- There are no AAQ standards he is aware of for PM₁ or PM_{0.1}
- The WHO recognises the link between ultrafine particles and health but at the present time offers no guidance as to acceptable concentrations
- There is no recognised standard method for measuring ultrafine particles in ambient air.³⁵⁴

9.3.2 Discussion and conclusions

The IAC discusses the question of the appropriate standards to apply to air quality in the air quality Chapter. The IAC accepts there is a clear emerging consensus on the health impacts

³⁴⁹ Document 71, paragraph 1(b).

³⁵⁰ Document 71, paragraph 1(c).

³⁵¹ An illustration of this was provided in Dr Keogh's presentation, Document 212, slide 5.

³⁵² Expert witness statement, Professor Anderson, Part A. Dr Keogh also in the attachment to her evidence (page 38) listed relevant research in this area.

³⁵³ Document 58, pp 27-33.

³⁵⁴ Document 95, slide 56.

of ultrafine particles, but less agreement as to what a response might look like in a regulatory sense.

As discussed in the air quality Chapter, the IAC concludes that the WDA has undertaken an assessment against the relevant standards now in place. The IAC does not consider it is in the position either in technical terms or in the legislative and policy context, to attempt to set a new or different standard for ultrafine particles.

The EPA noted in their closing comments the concern around this issue. If standards for ultrafine particles are developed it will need to be done within the context of the national framework (the NEPM) and with due consideration given to the technical ability to monitor and mitigate such particulates.

The IAC notes that the Project, and road transport generally, is only one of a number of sources of particulates, including ultrafine fractions. The WDA at different times referred to wood heaters, household activities such as cooking and bushfires as significant contributors.

Any standard setting around this issue will need to consider the wider implications for society and the feasibility of mitigation measures. The IAC has recommended additional mitigation around air quality; this should also have some effect on ultrafine particle mitigation.

9.3.3 Findings

The IAC finds:

- The health experts generally agree the health impacts of ultrafine particles are concerning and there is no safe exposure limit.
- In the absence of a properly developed regulatory standard the IAC is not in a position to recommend that the Project specifically monitor or attempt to mitigate such ultrafine particulates.

9.4 Deterrents to healthy behaviours

9.4.1 Evidence and submissions

The EES suggested changes to public spaces may lead to semi-permanent and permanent changes in propensity to walk, cycle and visit open spaces because of temporary changes in the streets and open spaces³⁵⁵. When asked a question by the IAC, Dr Wright agreed with the proposition that experience of nature and access to open space can have restorative effects that can help mitigate the cumulative effects of existing and future stressors. She further concurred that these restorative effects can be significant but were likely to be diminished because of the loss of trees and amenity during construction and before the proposed landscape matures.

9.4.2 Discussion and conclusions

The IAC consider these factors are likely to diminish the resilience of the community and erode the capacity of their surroundings to provide focal points for incidental social interactions and support desirable health outcomes.

9.4.3 Findings

The IAC find that in order to mitigate against this erosion of the protective qualities of social inclusion the Project should seek to support a range of other means to build social capital as noted in the social chapter of this report.

9.5 Response to Terms of Reference and recommendations

The IAC does not make any specific comments on health effects in relation to the Term of Reference in this Chapter or make specific recommendations. Comments are included in the Chapters on air quality, noise and vibrations and social effects respectively and broader changes to the EPR which impact on health are included in Appendix F. The IAC considers there are a number of mitigation elements that can and should be implemented to minimise effects on health.

10 Cultural Heritage

Issues relating to Heritage are addressed in the EES in Chapter 15 (Westgate Freeway), Chapter 22 (Tunnels) and Chapter 29 (Port, CityLink, and City Connections). Each Chapter comprises two parts, aboriginal cultural heritage and historical heritage. Supporting documentation includes Technical Report O, *'Aboriginal Cultural Heritage Assessment'*, prepared by Andrew Long and Associates (May 2017) and Technical Report P, *'Historical Heritage'*, prepared by Lovell Chen (May 2017).

The evaluation objective for cultural heritage in Table 4-1 of the EES is:

Cultural Heritage – to avoid or minimise adverse effects on Aboriginal and historical cultural heritage values.

The following evidence was filed by the WDA in relation to potential effects on heritage:

- Ricky Feldman of Andrew Long and Associates
- Kate Gray of Lovell Chen

No other party to the Hearing called expert evidence in relation to cultural heritage matters.

Neither the IAC, nor any party to the Hearing, sought to cross examine Mr Feldman. Accordingly, he was not called, and his statement was taken as read.

Ms Gray appeared in order to address a limited number of questions from the IAC concerning her opinions and recommendations in response to submissions.

10.1 Key issues

Matters concerning cultural heritage impact were relatively confined and largely not contested during the Hearing. The Committee considers that key issues relate to:

- the adequacy of the Aboriginal Cultural Heritage Assessment and consultation with representative Aboriginal groups
- the adequacy of assessment of impacts on historical cultural heritage structures and places.

10.2 Aboriginal Cultural Heritage Assessment

10.2.1 Evidence and submissions

The evidence statement of Mr Feldman provides an overview of submissions concerning the Project's impact on Aboriginal Cultural Heritage. He notes that nine submissions were received. The IAC considers the key issues are:

- Concern with the adequacy of characterisation of Aboriginal heritage values in the Project area
- Concerns about disturbance to two registered Aboriginal heritage places
- Concerns about possible impacts to sensitive areas including waterways
- Request for inclusion of the Kororoit Creek area in the heritage interpretation strategy for the Project.

The presentation by the National Trust³⁵⁶ and others³⁵⁷ noted concern regarding the extent of engagement with Traditional Owner Groups in local areas, particularly with regard to use of design motifs that reference Aboriginal cultural heritage. They suggested that it would be appropriate to engage '*Indigenous Architecture and Design Victoria (Aboriginal Corporation)*' to provide expert advice regarding the design of the Project. They also suggested modifying EPR CHP7, to specify that Traditional Owner Groups be consulted and meaningfully engaged in the development of the interpretation strategy. The IAC notes that the above matters were not raised by the National Trust in their original submission³⁵⁸ and hence were not reviewed by Mr Feldman.

10.2.2 Discussion

The Aboriginal Cultural Heritage Assessment documents the formal process of stakeholder consultation that was undertaken. It included numerous meeting with Aboriginal Victoria and the following Traditional Owner Groups/Registered Aboriginal Party applicants:

- Wurundjeri Tribe Land and Compensation Cultural Heritage Council
- Bunurong Land Council Aboriginal Corporation
- Boon Wurrung Foundation.

The meetings amongst other things considered existing condition results, predictive model output, cultural values assessment, future opportunities, Cultural Heritage Management Plan (CHMP) standard assessment, and cultural values assessment. The EES notes³⁵⁹ that further consultation with Traditional Owners will be undertaken during detailed design and development to ensure the Project is culturally authentic, sensitive and appropriate. The IAC welcomes this commitment.

The IAC further notes that Aboriginal Victoria and Heritage Victoria were on the Technical Reference Group.³⁶⁰ Among other things, the TRG had input into the EES Scoping Requirements, they reviewed the design and adequacy of technical studies for the EES and they reviewed the adequacy of draft EES documentation.

An additional opportunity for local input into the Aboriginal Cultural Heritage Assessment was provided by the Community Liaison Group which included Council and community group representatives.

The IAC notes that the preparation of a standard and complex assessment as part of the CHMP for the activity area included a program of subsurface investigation in order to identify the nature, extent and significance of Aboriginal cultural heritage in accordance with regulations under the *Aboriginal Heritage Act 2006*. Testing areas for the complex assessment were preferentially selected based on identification of areas with higher archaeological sensitivity and lower disturbance resulting from the preparation of site predictive models and discussions with relevant stakeholder groups.

³⁵⁶ Document 227.

³⁵⁷ Evidence statements of Ms Rosen, Ms Bauer & Mr Woodcock.

³⁵⁸ Submission 442.

³⁵⁹ Volume 1, Section 6.6.1, p6-8.

³⁶⁰ An agency based group that provides advice on relevant policy and legislation.

The IAC accepts the evidence of Mr Feldman that the design avoids direct physical impacts on registered Aboriginal cultural heritage places and given the high level of disturbance within the Project boundary, it is unlikely that significant harm to previously unidentified heritage places will occur.

The assessment found that the Project can be undertaken in a way that minimises harm to one of the Aboriginal cultural heritage places that is present in the activity area –*the Kororoit Creek, Brooklyn 1 (7822-4067)* by limiting the depth of permitted ground disturbing works in this location to a maximum of 300 millimetres beneath the current ground surface. However, the activity cannot be undertaken in a way that minimises harm to the low density artefact distribution that is present in the activity area - *Kororoit Creek, Brooklyn LDAD 1 (7822-4068)*.

The IAC understands the CHMP was approved on 6 September 2017. The approved CHMP provides the process to manage potential harm to Aboriginal cultural heritage identified during construction activities, through detailed management conditions and contingency plans. EPR CHP1 requires compliance with and implementation of the CHMP approved under the *Aboriginal Heritage Act 2006*.

The IAC supports the inclusion of the Kororoit Creek area in the scope of the Heritage interpretation strategy as advanced by EPR CHP5. This outcome was supported by the WDA and parties to the Hearing that participated in the EPR review on the last day of the Hearing. Mandating in the EPR that representative Aboriginal Groups be consulted as part of the interpretation strategy process is not considered necessary. The CHMP requires the Sponsor or Sponsor's delegate to consult with the relevant Traditional Owner Groups/Registered Aboriginal Party during development of signage and/or interpretation.

Based on the material before it, the IAC is satisfied that the Aboriginal Cultural Heritage Assessment appropriately identified and characterised Aboriginal heritage values in the Project area and that appropriate consultation with representative Aboriginal organisations has and will continue to occur. From a cultural heritage perspective, the IAC does not consider it necessary for the Project design to be further reviewed by '*Indigenous Architecture and Design Victoria (Aboriginal Corporation)*' as suggested by the National Trust.

10.3 Historical cultural heritage structures and places assessment

10.3.1 Evidence and submissions

The evidence statement of Ms Gray provides an overview of submissions concerning the Project's impact on historical cultural heritage structures and places and the adequacy of the Historical Heritage Assessment. A total of 12 submissions were reviewed. The IAC considers the key issues are:

- Concern with the methodology of the Historical Heritage Assessment and concern that it did not adequately consider local Council policies
- Concern with increased traffic through Heritage Overlay areas and concerns that vibration and ground disturbance will impact on heritage buildings
- Concern regarding the Project's impact on specific heritage places, buildings or sites including:

- Bluestone bridge over Kororoit Creek (HHRO4)
- Bradmill boiler house (HHRO5)
- Melbourne Glass Bottle Works (HO46, part)
- Yarraville Gardens (HHR09)
- Shipwrecks (HHR12 and HHR13)
- Heritage places along the Footscray riverfront and the historic character of the riverfront itself (HHR18, HHR20, HHR24, and HHR25)
- Moonee Ponds Creek (HHR21)
- South Dynon Railway Turntables (HHR26).

10.3.2 Discussion

(i) Adequacy of methodology and consideration of local policies and strategies

Concerns were expressed, to varying degrees, in the written submissions by the CoM³⁶¹, HBCC³⁶² and Lead West³⁶³ that the Historical Heritage Assessment did not adequately consider and respond to a number of adopted local policies and strategies. Of particular concern to the CoM was the lack of reference to the *City of Melbourne Heritage Strategy (2013)*. In response, Ms Gray acknowledged that this Strategy was in fact reviewed as part of the Heritage Assessment but was left out of the list of references in error. She noted that the Strategy was a high-level strategic document, not a heritage assessment. The IAC notes the implementation plan within the Strategy identifies a number of areas within the Project boundary as priority areas to be reviewed including Docklands and North/West Melbourne. The IAC accepts the evidence of Ms Gray that some of the areas where works are proposed as part of the Project have not been subject of municipal heritage assessment and are not identified in the priority list of areas to be reviewed.

The IAC notes the methodology adopted and implemented in the existing conditions review.³⁶⁴ The IAC considers the approach adopted to be adequate and responsive to the EES scoping requirements which are tailored to the consideration of the Project, including the identification of potentially affected places, the avoidance or mitigation of potential adverse impacts and assessment of effects of the Project on identified or potential places of significance. As a result of the initial assessment a number of additional places of potential significance were identified, triggering follow up fieldwork and further impact assessment. These additional areas included, but were not limited to, the Port Phillip Monument on the east side of the Maribyrnong River, the South Dynon rail turntables and the lower reaches of the Moonee Ponds Creek.

Neither the CoM nor HBCC pursued their stated concerns regarding the assessment methodology with Ms Gray.

³⁶¹ Submission 184.

³⁶² Submission 378.

³⁶³ Submission 434.

³⁶⁴ Technical Report P, Section 3.2.

(ii) Increased traffic through Heritage Overlay areas and concerns regarding vibration and ground disturbance

The IAC accepts the evidence of Ms Gray that “an increase in road traffic (including increased truck movements) through a HO precinct in itself would not have an impact on the identified heritage values of that area”.

The potential impacts of vibration and ground disturbance were assessed in the EES³⁶⁵. The Historical Heritage Assessment referenced these technical assessments³⁶⁶ and a number of EPR have been developed in response to manage risks related to construction vibration and ground movement. In respect of potential vibration and ground disturbance impacts on heritage sites and places, the IAC considers that the EES has adequately assessed and responded with appropriate protection and mitigation measures.

The IAC notes EPR CHP4 is a specific requirement for vibration monitoring of heritage sites. As a result of the without prejudice discussion on the wording of the EPR, the IAC recommends³⁶⁷ that CHP4 be modified to reference ‘places’ as well as sites, and that vibration monitoring occurs during ‘demolition and excavation’ as well as during construction.

(iii) Impact on specific heritage places, buildings or sites

The IAC has reviewed the submissions on the Project’s impact on specific heritage places, buildings or sites or that have proposed additional or modified mitigation measures to enhance protection of the sites. The IAC has also considered the responses to those submissions as documented by Ms Gray in her evidence statement³⁶⁸. The IAC response to each place or site is addressed in turn.

Kororoit Creek

As noted in Section 10.2.2, the IAC agrees with submitters that it would be appropriate to include explicit reference to Kororoit Creek in the proposed Heritage interpretation strategy called up by EPR CHP7. The WDA’s proposed modification to CHP7 is supported.

Bradmill boiler house

The IAC accepts the findings of the Historical Heritage Assessment that no recommendations are required to mitigate the impact of the tunnel portals and ventilation structure on the Bradmill boiler house from a heritage perspective. The IAC agrees with Ms Gray that while the boiler house would no longer be the tallest structure in the surrounding area, it would still be a local landmark.

³⁶⁵ Technical Reports D, H and I.

³⁶⁶ Sections 5.4.6, 6.4.4 & 7.4.12.

³⁶⁷ Refer Appendix F.

³⁶⁸ At sections 3.0, 4.0, and 5.0.

Melbourne glass bottle works

The IAC accepts that the site was appropriately assessed in the Historical Heritage Assessment and that the Project will not have an unacceptable impact on the amenities building. Further, the IAC understands that access to the site will be maintained.

Yarraville Gardens

A number of submissions raised concern with regard to the proposed works within the Yarraville Gardens including but not limited to the design and location of the proposed Harris Street shared use path.

The IAC is satisfied that the Gardens were appropriately assessed in the Historical Heritage Assessment and that the Project EPR will appropriately mitigate potential heritage impacts. The following EPR are particularly relevant:

- CHP2 (Design and construction to minimise impacts on heritage)
- EP1 (Minimise vegetation removal and disturbance)
- EP6 (Landscape Plan).

As noted in the evidence statement of Ms Gray, implementation of EPR CHP2 will require consultation with the MCC during the detailed design phase to allow for the minimisation of impacts on heritage values in the Yarraville Gardens as identified in the *Yarraville Gardens Precinct Conservation Plan*. The IAC agrees. In relation to this, the IAC accepts submissions that EPR EP6 (Landscaping Plan) should be modified to include the '*City of Maribyrnong Yarraville Gardens Conservation Plan*' as one of the local strategies to which the Plan must have regard. This is reflected in Appendix F.

The IAC accepts that the northern portal and associated structures will be prominent from within the Yarraville Gardens. The IAC agrees with the evidence of Ms Gray that there is not considered to be a heritage issue arising from the proximity of the new structures having regard to the historical and existing industrial interface and visual presence of the container storage use opposite the Gardens.

Shipwrecks

The IAC considers that the potential for impacts on registered or unknown shipwrecks has been appropriately addressed in the Historical Heritage Assessment³⁶⁹ and that EPR CHP8 sets out appropriate management requirements and is consistent with the *Heritage Act 1995*. The wording of CHP8 was uncontested.

Heritage places along the Footscray riverfront and the historic character of the riverfront itself

A number of submissions expressed concern about the impact of the Project on the historical character of the Maribyrnong River waterfront. A number also expressed concern about impacts on specific sites including the Barnet Glass Rubber Factory (HO78) and

³⁶⁹ Section 7.4.2.

Mowling's Soap and Candle Works (H0178). These, and a number of other sites, were assessed in the Historical Heritage Assessment³⁷⁰.

The majority of concerns related to the visual impact of the bridge and associated ramps. The IAC is satisfied with findings of the Historical Heritage Assessment in relation to the limited impact of the Project on the historical values of these sites and that the following EPR are an appropriate response to minimise and mitigate impacts:

- EPR CHP7 - Heritage Interpretation strategy
- EPR CHP9 - Maribyrnong River front (Footscray).

Moonee Ponds Creek

The IAC is satisfied the Historical Heritage Assessment³⁷¹ provided a detailed assessment of the impact of the Project on the heritage values of the Moonee Ponds Creek and Infrastructure Precinct (HO1092) and land to the south of Dynon Road located outside the existing HO. In relation to concerns regarding the impact of the Project on Saltwater Lagoon, the IAC accepts the evidence of Ms Gray that this area was greatly modified in the nineteenth and twentieth centuries as dredging and land reclamation works were undertaken, and as a result it would be difficult to interpret any aspect of the form and nature of the Lagoon in the present creek environs.

South Dynon railway turntables

Two submissions suggested that the railway turntables at South Dynon should be retained. The Historical Heritage Assessment³⁷² noted that the turntables are of local historical significance despite not currently being subject to heritage controls. The evidence statement of Ms Gray states:

The turntables have been identified as of local historical significance as uncommon surviving examples of such structures in the metropolitan area and as associated with the long history of rail activities in this area. In reviewing the impact assessment again for the purposes of this evidence statement, my view is that the primary consideration from a heritage perspective should be the retention of one or both turntables in situ. The positioning of the pier on the edge of the southern turntable would compromise its presentation but on review, my view is that this is to be preferred over dismantling and salvage at this time. This is particularly where a future location for reinstatement is not known. If possible the northern turntable should also be retained in situ, accepting some physical impacts associated with the Works.

In response to questions from the IAC, Ms Gray confirmed that her primary recommendation is that the railway turntables (HHR26) should be retained in situ. The IAC agrees and

³⁷⁰ At section 7.4.

³⁷¹ Refer Section 7.4.6.

³⁷² Refer Section 7.4.11.

recommends that EPR CHP11 be reworded to make avoiding impacts on the turntables a first order priority. The revised wording advanced by the CoM is supported.

10.4 Findings

The IAC finds:

- The likely impacts of the Project on cultural heritage have been adequately assessed in the EES.
- In relation to avoiding and minimising impact on sites of Aboriginal cultural significance, the IAC accepts that EPR CHP1 is appropriately worded to require compliance with and implementation of the CHMP that has been prepared for the Project.
- The IAC is satisfied that the Project's likely impact on historical heritage sites and places will be appropriately avoided and minimised through refinements that will occur through detail design and through the implementation of EPR and the controls provided by the EMF.
- EPR CHP4 should be modified to reference '*places*' as well as sites, and that vibration monitoring occurs during 'demolition and excavation' as well as during construction.
- EPR EP6 (Landscaping Plan) should be modified to include the 'City of Maribyrnong Yarraville Gardens Conservation Plan' as one of the local strategies which the Plan must have regard.
- EPR CHP11 should be reworded to make explicit that the Project should as a first order priority avoid impacts to the turntables.

10.5 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) **Consideration of adverse and beneficial environmental effects.**

The IAC considers that having reviewed the submissions and evidence in relation to cultural and historical heritage, the following can be concluded in relation to the Project:

- The IAC is satisfied that the likely effects on Aboriginal Cultural Heritage and Historical Heritage are acceptable and can be minimised through detailed Project design and implementation of the Project EPR.

(ii) **Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.**

The IAC does not consider specific design modifications are required in response to consideration of Cultural heritage matters. Having noted this, the IAC considers that the detailed design of the Project would desirably accommodate the retention of South Dynon Railway Turntables (HHR26) in situ, accepting some physical impacts may occur associated with the works.

(iii) Conditions and Environmental Management Framework

No additional approval conditions for the Project or changes to the EMF have been identified by the IAC in response to cultural heritage impacts.

A number of modifications to the Cultural Heritage EPR are proposed by the IAC to improve the environmental outcomes of the Project. The IAC proposed EPR are presented in Appendix F and have been determined following the IACs review of submissions, evidence and suggested modifications as discussed on the last day of the Hearing.

10.6 Recommendations

The IAC recommends changes to the EPR to address the above findings in Appendix F.

11 Groundwater and Ground Movement

Groundwater impacts are addressed in Chapters 12.2, 19.2 and 26.2 of the EES, and in Technical Report C Impact Assessment Groundwater.

Ground Movement impacts are addressed in Chapters 12.3, 19.3 and 26.3 of the EES, and in Technical Report D Impact Assessment Ground Movement.

The draft evaluation objective of the Scoping Requirements in relation to ground movement is:

Land stability – *To avoid or minimise adverse effects on land and riverbed or bank geomorphic stability from project activities, including tunnel construction and crossings of the Maribyrnong River, Kororoit Creek, Stony Creek and Moonee Ponds Creek.*

The draft evaluation objective of the Scoping Requirements in relation to groundwater is:

Hydrology and Water Quality - *To avoid or minimise adverse effects on surface water and groundwater quality and hydrology in particular resulting from the disturbance of contaminated or acid-forming materials, and to maintain functions and values of floodplain environments.*

The following evidence was called in relation to ground movement impacts:

- WDA - Trevor O'Shannessy of Golder Associates Pty Ltd.

The following evidence was called in relation to groundwater impacts:

- WDA – Jonathan Medd of Golder Associates Pty Ltd.

Matters of ground movement and groundwater were largely uncontested. No other party called expert evidence regarding these matters.

The IAC was also assisted by a Committee appointed Technical Adviser, Mr Stephen Hancock. Mr Hancock provided two written reports to the IAC addressing ground movement and ground water issues.³⁷³

11.1 Key issues

The Committee considers that key issues relate to:

- Ground Movement
- Tunnelling and construction methodology
- Groundwater contamination.

³⁷³ Document 17, Document 188.

11.2 Ground Movement

11.2.1 Evidence and submissions

The EES found that proper implementation of control measures would likely result in low to medium impacts on ground movement, and where zones of medium impact have been identified, they are limited in area and do not extend to residential areas.

The EES identified the greatest potential for ground movement impacts are associated with portal excavations and construction of the tunnels in two areas near the northern and eastbound southern portal tunnels.

Submissions were concerned that there may be ground surface subsidence due to drawdown of the water table and ground movements associated with the Project affecting buildings and sensitive infrastructure.

Mr O'Shannessy's evidence was that there should be minimal ground movement because of the existing geology and construction methodology, however there could be some variability so he advised that close monitoring is required. He gave evidence³⁷⁴ that the largest potential surface settlement due to tunnelling was predicted to occur near the northern portal industrial zone with perhaps movement of 60-70mm. The predicted ground movement risk reduces as the tunnel deepens. Due to the geology (basalt), the ground movement risk is reduced in the residential areas. Mr O'Shannessy's evidence is that the EPR GMP1-6 cover this issue adequately.

When asked questions from the CoM about the risks associated with tunnelling under the Maribyrnong River, Mr O'Shannessy stated that tunnelling under the Maribyrnong would involve significantly higher geotechnical risks than the current route proposed.

Mr O'Shannessy said that the use of an Earth Pressure Balance (EPB) Tunnel Boring Machine (TBM) would reduce the extent of ground water inflow and ground movement. The use of this machine controls soil in-rush and over excavation and potential groundwater leakage.

Mr Hancock advised the IAC that the Golder Associates work was comprehensive, extensive and rigorous. Many of the issues raised in the reports he had prepared had been addressed by the end of the Hearings and Mr Hancock's final report reflects this.

11.3 Tunnels and construction methodology

11.3.1 Evidence and submissions

The geological conditions within the tunnel component of the Project are a mix of strong 'newer' basalt rock, variable 'tertiary' sediments and weathered 'older' basalt. Mr O'Shannessy's evidence to the IAC³⁷⁵, put simply, is that the geology is sediments sandwiched between two ancient volcanic flows and the TBM proposed will cope adequately with the geological conditions.

³⁷⁴ Document 43, slide 28.

³⁷⁵ Evidence statement and presentation slides (Document 43).

The key risks involved in the construction and operation of the engineering features of the Project relate to the geotechnical properties of the natural formations subject to stresses relating to road, bridge, tunnel and embankment construction; and the degree to which these stresses translate or directly impact upon anthropogenic structures and buildings (domestic, public and heritage) and infrastructure (drains, sewers, pipelines, power conduits) built on and or within them.

PN27 and PN33 provided the IAC with detail regarding construction activities and construction management. The use of EPB TBM will reduce the potential impacts associated with tunnel construction. The tunnel spoil will be conveyed to the northern portal spoil stockpile site, which will be bunded and covered within sheds. The spoil, once categorised, will be moved off site via trucks.

Mr Hancock's final report advised the IAC that the risk associated with the tunnel progressing is *“dependent upon the EPB TBM being operated as proposed in closed mode to counteract the hydrostatic pressure differential which apply across the cutting face and the unsealed segment of the tunnel perimeter as it proceeds”*. Mr Hancock further advised that he is confident that *“the use of the EPB TBM under the management of a comprehensive and diligently applied GMP and CEMP will effectively achieve the tunnel construction outcome sought”*.

When asked whether there should be an EPR stating what TBM is to be used for the Project, Mr O'Shannessy said that the risk profile would be the same if a Hydro-slurry TBM was used, but that the risk profile would differ for other machines. He acknowledged that it may be appropriate to have an EPR that required one of those two types of machines to be used in construction.

11.4 Groundwater changes and contamination

11.4.1 Evidence and submissions

Issues identified in submissions include:

- Potential contamination of groundwater through mobilisation of contaminants
- Changes in groundwater levels 'drawdown'
- Changes to groundwater level or quality.

Mr Medd's evidence is that issues are really only associated with construction of the tunnel. For example, the potential for groundwater seepage into excavations that may cause changes in groundwater levels ('drawdown') because works are beneath the water table.

EPA submitted that further site-specific data be collected on groundwater quality, levels and flow to better inform the risk assessment and the development of mitigation measures. The EPA also considered it necessary that a new EPR be developed in consultation with the EPA to address the management, treatment and disposal of polyfluorinated alkyl substances (PFAS) contaminated groundwater and land³⁷⁶.

³⁷⁶ Document 14.

Mr Hancock suggested that it is inevitable that excavations for the Project will impact upon the shallow groundwater regimes, whether it be the road tunnels, the dive and portal structures associated with entry and exit engineering, the necessary realignment of the North Yarra Main Sewer, the drilling of bored piles for the bridges and overhead structures, or the construction of earth embankments. This is because the water table (upper level of saturation within the underlying geological sequence) is frequently at quite shallow depths below the surface. Indeed, groundwater is at the surface near features such as the Stony Creek Backwash Swamp, at Moonee Ponds Creek and along Kororoit Creek to the west.

Mr Hancock also stated that the EES documents present a rigorous evaluation of the hydrogeology of the Project area and of sufficient contiguous land surrounding the Project.

PN33 states that the EPB TBM is proposed to be operated in closed mode using either paste or air throughout most of the tunneling, and further, that:

EES Volume 1, Chapter 5.7.5, provides an outline of the construction activities associated with the tunnel element of the Project. The proposed controls to prevent groundwater inflows and ground instability are covered in Chapter 19.2 and 19.3. As noted, the primary method of controlling groundwater inflows and providing ground stability during construction of the tunnels is through use of EPB TBMs.

PN33 states any risks will be mitigated based on the monitoring of ground water inflows to water level stabilizing bores. This monitoring will be included amongst other issues in the Groundwater Management Plan (GMP) being prepared as part of the CEMP. This is reflected in EPR GWP1.

Mr Medd agreed that the impact assessment does not assess the disposal of water from the Project. Mr Medd said that disposal to sewer is proposed and feasible and that treatment and approvals would be dealt with during detailed design³⁷⁷.

11.5 Discussion and findings

The IAC is satisfied that the Project's likely impacts on groundwater and ground movement can be appropriately managed with the appropriate engineering methods presented in the EES and at the Hearings. The EPR have been revised to include recommendations by the WDA experts, as well as matters raised by the EPA and Mr Hancock.

The IAC takes comfort in the final advice of its technical expert, which states:

Risks associated with contaminated groundwater inflows, the initiation of acid groundwater generation by dewatering, excessive groundwater extraction and groundwater beneficial use degradation are agreed as being low to non-existent. This is because the speed of tunnel penetration and tunnel line sealing as presented, when taken with ground pressure balancing, should render inflows small and locally short lived, especially as the bulk of the

³⁷⁷ Document 45, slide 23.

*hydraulic testing indicates the formations to have limited hydraulic conductivity.*³⁷⁸

11.6 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects.

The IAC considers the risk of potential adverse environmental effects of the Project on groundwater and ground movement have been reduced to an acceptably low level.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

No specific modification to the design of the Project, as amended by PN27 and PN33, are suggested in relation to groundwater and ground movement.

(iii) Conditions and Environmental Management Framework

The EPR have been revised to reflect matters raised during the Hearings and by Mr Hancock. EPR GWP1 should require that the groundwater sub-management plan be developed in consultation with EPA Victoria.

11.7 Recommendations

The IAC recommends the EPR be amended as shown in Appendix F to ensure that risk to groundwater and from ground movements are effectively managed during project implementation.

³⁷⁸ Document 188, paragraph 48.

12 Surface Water

Impacts on surface water is addressed in Volume 2 (Chapter 12), 3 (Chapter 19) and 4 (Chapter 26) of the main EES report and Technical Report E, which is the Surface Water Assessment.

The evaluation objectives for surface water in Table 4-1 of the EES are:

Land stability – to avoid or minimise adverse effects on land and riverbed or bank geomorphic stability from project activities including tunnel construction, and crossings of the Maribyrnong River, Kororoit Creek, Stony Creek and Moonee Ponds Creek.

Hydrology and water quality – to avoid or minimise adverse effects on surface water and groundwater quality and hydrology in particular resulting from the disturbance of contaminated or acid-forming materials, and to maintain functions and values of floodplain environments.

The following evidence was called in relation to surface water:

- WDA – Melanie Collett, of AECOM

A number of EPR relevant to surface water were included in Chapter 8 of Volume 1 of the EES. The EES concluded that with the application of the EPR risks in most cases have been reduced to a low residual level.

Risks remaining at a medium level following the application of the EPR were:

Construction

- Risk of flood events during tunnel construction inundating machinery and releasing fuel into the environment.
- Risk of discharging contaminated groundwater to surface water during tunnelling.

Operation

- Spills from contaminants on carriageways (fuels, oils or other contaminants).
- Inundation from a flood event during tunnel operation.

Submissions raising impacts on surface water are identified in the WDA response to submissions.³⁷⁹ Issues raised by submitters fell generally the following main areas:

- Concerns about in-stream works such as widening or pier construction
- Concerns about impacts on surface water quality through construction and operation
- Concerns about predicted impacts on hydrology and flooding
- Issues relating to Water Sensitive Urban Design (WSUD).

These are addressed below.

³⁷⁹ Document 21.

12.1 Issues

12.1.1 Evidence and submissions

(i) In stream works

A number of submissions questioned the need for in-stream works, and particularly bridge piers in the Maribyrnong River, Moonee Ponds Creek and Kororoit Creek. For example Melbourne Water submitted that it “...*would not like to see pylons in waterways unless there is no alternative*”.³⁸⁰

The placing of piers in the Maribyrnong River for the bridge crossing results in minor river widening to maintain flood capacity. This concerned a number of submitters.

The submissions opposed the piers on many grounds including visual impact, effect on flooding and the management of flood debris.

Some submitters, and particularly the Kororoit Institute³⁸¹, raised concerns in relation to the navigable clearance under the new Maribyrnong River crossing, including the MacKenzie Road ramps.

(ii) Surface water quality

Submissions raised a number of issues in relation to impacts of the Project on surface water quality. Expressed concerns included potential impacts from construction runoff (sediment and contaminated spoil); management of runoff from road surfaces during operation; and prevention of spills of chemicals and oils and litter contaminating waterways during construction and operation.

(iii) Hydrology and flooding

Submissions raised the risk of increased flooding at both the broader regional level and also potential local flooding impacts as a result of the Project. For example, the CoM submitted that there had not been an adequate assessment of whether the Project will maintain existing flood storage capacity during construction and operation, and thus increase the risk of flooding.

Some submissions also suggested that the impacts of climate change including increased rainfall intensity and sea level rise, have not been adequately accounted for in Project planning.

(iv) Water Sensitive Urban Design

WSUD and rainwater harvesting were raised by a number of submitters as issues that should be considered in Project design.

³⁸⁰ Submission 441, p1.

³⁸¹ Documents 241 and 291.

(v) WDA response

In her written evidence for the WDA and verbally at the Hearing, Ms Collett outlined the response to the submissions; essentially submitting that the scope of EPR will satisfactorily address concerns by:

- Providing the relevant policy or standard guidance, for example SWP2 bringing up the Best Practice Environmental Management Guidelines for Stormwater
- Ensure appropriate design inputs, for example SWP11 requiring that flood risk not be increased through Project construction and operation
- Identifying key authorities or regulators who must be consulted or give approval for designs or works, for example SWP10 requiring consultation with Melbourne Water and design to their satisfaction.

Ms Collett's evidence was that the approach to surface water management in the Project had already 'designed in' important elements such as the wetland for water treatment near the northern portal and gross pollutant traps.

In response to the navigation clearance submission, the WDA submitted that the design clearance, 3.15 metres at high tide plus a 0.8 metre 'buffer' for climate change, was provided by Melbourne Water and they have planned for it accordingly.

12.2 Discussion and conclusions

The IAC considers that the EES appropriately identified the surface water risks from the Project; many of which are normal challenges associated with a large construction Project. Provided they are managed well during detailed design and construction then the long term environmental effects on surface water quality should be minimal.

The IAC is satisfied that the current design incorporates a number of elements that will result in stormwater quality improvements, for example, integrating stormwater treatment in stormwater management systems such as the retention ponds near the northern portal. The IAC considers further WSUD elements can and will be incorporated through detailed design and implementation and such is required by EPR SWP2 – Water sensitive road design.

The IAC is satisfied on the material before it that subject to detailed design and approvals and effective management, the impact on flood levels and flooding will be able to be managed to an acceptable level. In this regard, the IAC accepts that EPR SWP11 – Flood levels, flows and velocities is adequately scoped.

The IAC shares the concerns of many submitters about the predominance of pier and bridge structures in waterways. These are undesirable for many reasons both practical and aesthetic; but the IAC concludes, and discusses elsewhere in this report, that on balance the environmental effects can be reduced to an acceptable level.

12.3 Findings

The IAC finds:

- Subject to the implementation of the EPR in Appendix F of this report the effects of the Project on surface water resources can be managed to an acceptable level.

12.4 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference.

(i) Consideration of adverse and beneficial environmental effects.

Adverse environmental effects

- Risk of poor water quality outcomes if Project construction is not managed effectively.
- The need to widen the Maribyrnong River and the placement of many structures in waterways across the Project area.

Beneficial environmental effects

- Potential to improve overall surface water quality and quantity outcomes through the use of treatment and reuse in Project construction and operation such as wetlands, pollutant traps and other WSUD infrastructure.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

The IAC does not recommend any specific modifications in relation to surface water.

(iii) Conditions and Environmental Management Framework

A number of submitters made recommendations to improve the EPR; for example the Friends of Moonee Ponds Creek recommended various improvements to consultation.

The IAC has accepted these changes and made a number of other minor but significant suggestions to improve the operation of the Project in relation to surface water. These are shown in Appendix F.

12.5 Recommendations

The IAC has recommended the EPR as shown in Appendix F be adopted to manage any effects on surface water.

13 Biodiversity

Ecology and arboriculture impacts are addressed in Chapter 12.5, 19.5 and 26.5 of the EES, and in Technical Report F Ecology.

The evaluation objective for biodiversity in Table 4-1 of the EES is:

***Biodiversity** – to avoid or minimise adverse effects on native terrestrial, aquatic and inter-tidal flora and fauna, and address opportunities for offsetting potential losses consistent with the relevant policy.*

The following evidence was called in relation to ecological impacts:

- Mr Cameron Miller, of AECOM

No other party to the Hearing called expert evidence in relation to ecological or arboricultural matters and the evidence was largely uncontested. Landscape architecture and design of open space evidence (including where trees are to be replanted) was called and is discussed in Chapter 6.

13.1 Key issues

As noted in the EES, the Project is set within a highly urbanised area, comprising a mostly industrial and residential landscape. Historical modifications have left small patches of remnant vegetation and planted vegetation existing as roadside landscaping vegetation, parklands and scattered trees.

The IAC considers that key issues relate to:

- Ecological impacts and native vegetation removal
- Impacts to Stony Creek and environs
- Impacts to Moonee Ponds Creek and environs
- Planted vegetation, tree removal and replacement.

13.2 Ecological impacts and native vegetation removal

13.2.1 Evidence and submissions

Although set in an urbanised landscape, the remnant vegetation was observed to support some common fauna species and the EES notes that some listed threatened species are likely to use this vegetation as a foraging resource but not for roosting or nesting³⁸².

There is a total of 0.66 hectares (0.27 Habitat hectares) of native vegetation and 22 scattered trees (River Red Gums within the West Gate freeway component) to be removed as part of the construction of the Project. Native vegetation to be removed consists of Brackish Wetland (EVC 656) within Moonee Ponds Creek and Coastal Saltmarsh (EVC 9) and Mangrove Shrubland (EVC 140) within Stony Creek environs. Within the study area, the assessment in the EES also noted 0.05 hectares of endangered Riparian Woodland (EVC 641), which is restricted to the riparian zone of Kororoit Creek north of the West Gate Freeway

³⁸² EES Volume 2, p12-43.

overpass. The EES notes the potential for piers installed on the banks of Stony Creek and Kororoit Creek, to support new road structures, to impact on flows and water quality, which in turn may impact on in-stream vegetation (including the endangered Riparian Woodland (EVC 641)).

The patches of Coastal Saltmarsh exist as a linear strip up to 50 metres wide immediately lining the Stony Creek where frequent tidal influence has encouraged the regeneration of this community. A single patch of Mangrove Shrubland was found during the field survey lining the Stony Creek Backwash. Coastal Saltmarsh provides foraging and high tide roosting habitat for various waterbirds and waders and may be suitable for some small mammals³⁸³.

In accordance with the *Permitted clearing of native vegetation – Biodiversity Assessment Guidelines (2013)*, the general offset amount (general biodiversity equivalence units) is 0.141 general units. In Mr Miller's evidence statement³⁸⁴ he states that the Project has no specific offset requirements, however the EES³⁸⁵ suggests a further Biodiversity Impact and Offset Report (BIOR) that details offset requirements would be prepared and that offsets would be sought through a registered third party broker. Native vegetation offsets are reflected in EPR EP7 and clauses 5.8 and 5.9 of the Incorporated Document.

Noise and light

Fauna can be impacted by noise, light and vibration produced by construction activities. Light pollution can affect the behaviour of terrestrial fauna, in particular owls and frogs. The EES suggests such species are *considered resilient within urban environments and capable of withstanding anthropogenic disturbance*³⁸⁶. Mr Miller's evidence³⁸⁷ is that if it is considered necessary by the IAC, then an EPR for light spillage impacts during operation of the Project 'ought to address the design of lighting structures to minimise light spillage impacts into known fauna habitats associated with Kororoit Creek, Stony Creek, the Maribyrnong River and Moonee Ponds Creek'.

Groundwater drawdown

There is potential that excavation of the southern portals could impact planted vegetation due to lowering of groundwater. Ms Nina Earl³⁸⁸ and Ms Deborah Salins³⁸⁹ (representing Rex Industrial Pty Ltd) raised the issue of subsidence and groundwater drawdown and for the potential for groundwater drawdown impacts on vegetation and on their property.

Shading

Elevated structures would be erected over areas of in-stream vegetation and would limit light available for vegetation located below these roadways, which could result in

³⁸³ Technical Report F, p52.
³⁸⁴ At p15.
³⁸⁵ Technical Report F, p62.
³⁸⁶ EES Volume 2, p12-59.
³⁸⁷ At p25.
³⁸⁸ Submissions 29.
³⁸⁹ Submissions 182.

degradation of vegetation³⁹⁰. Melbourne Water³⁹¹ and others raised concerns with the elevated structures causing shading impacts on aquatic ecology. The evidence of Mr Miller is that, although there will be shade impacts from the Project, there are a variety of plants that could survive in shaded areas.

13.2.2 Discussion

The ecological assessment undertaken in the EES was not contested. Overall, in regard to ecological impacts, the IAC agrees with Mr Miller that *'for the bulk of the Project area, there is low ecological values with the creeks having some values'*. Notwithstanding, there are some areas of native vegetation associated with creek environments that should be avoided where possible and where avoidance is not possible, an offset plan will be prepared (if required). The IAC is satisfied that EPR EP7 and clauses 5.8 and 5.9 in the Incorporated Document adequately covers native vegetation mitigation and offsets.

In regards to noise, light and groundwater drawdown, the EES and revised EPR adequately address these matters.

13.3 Impacts to Stony Creek, Moonee Ponds Creek and environs

13.3.1 Evidence and submissions

The Friends of Stony Creek³⁹² stated that the landscape plan presented in the EES is not consistent with the Stony Creek Master Plan, which has been prepared in consultation with the community over the past 15 years.

Other issues raised in submissions³⁹³ regarding Stony Creek and environs relate to the removal and impacts on existing Coastal Saltmarsh vegetation (EVC 9) and other native vegetation and the provision of better connections between Stony Creek and Hyde Street Reserve.

The IAC asked Mr Miller if the proposed Landscape Plan for the Stony Creek area is consistent with the Stony Creek Master Plan as his evidence suggested it was not. Mr Miller stated that the landscaping plan, as pointed out by the Friends of Stony Creek, needs to be consistent with the Stony Creek Master Plan and he agreed that Melbourne Water, and other relevant authorities, be consulted in regard to all the proposed landscape plans that are in the vicinity of creeks.

The issues raised in submissions³⁹⁴ regarding Moonee Ponds Creek and environs include impacts to creek environs including removal of native vegetation, the impacts of additional infrastructure within the waterway, runoff and erosion issues, shadowing of vegetation and impacts for the future of the Moonee Ponds Creek linear reserve.

³⁹⁰ EES Volume 2, p12-62.

³⁹¹ Submission 441.

³⁹² Submission 161.

³⁹³ Including submissions 167, 228, 342, 427, 442, 474.

³⁹⁴ Including submissions 17, 116, 167, 184, 208, 263 278, 303, 311, 312 327, 345, 356 425.

The Friends of Moonee Ponds Creek³⁹⁵ submitted that the section of the Creek between Dynon Road and Footscray Road (historically known as Railway Canal) is the best open space along the lower Moonee Ponds Creek and has been earmarked in a number of strategic documents for future open space to serve urban renewal areas. They submitted:

The detrimental impacts of the viaducts and pylons on the Creek corridor will not only be physical, but also visual, and with noise and air emissions that will further downgrade the amenity as a high quality section of public open space along the Creek. Loss of Wetland vegetation and bank widening as part of the project will add to the loss of future biodiversity and habitat enhancement. The impacts will significantly compromise the objective to enhance the lower Creek corridor as part of a 'Moonee Ponds Creek Parklands.

The Kensington Association³⁹⁶ state that “*damage to the Moonee Ponds Creek will be extensive and cannot be mitigated*” and that “*open space and vegetation offsets are grossly inadequate and will not mitigate the impact or loss of existing and future opportunities for the renewal of the Moonee Ponds Creek*”.

The Kensington Association, Friends of Moonee Ponds Creek and the CoM referred to the creation of a larger continuous reserve with in-stream and riparian habitat values rather than patches along the creek. The CoM suggested that many strategic planning documents have recognised the importance of the Moonee Ponds Creek as a recreation space and parkland corridor³⁹⁷ including the CoM’s Open Space Strategy (2012) that includes “*improved open space corridor along Moonee Ponds Creek including environmental values and linear recreational use as a proposed additional major open space and recognises the importance of the Creek for the Docklands community, future Arden Macaulay community and as a connection to Royal Park to the north*”³⁹⁸.

The IAC asked Mr Miller about the vegetation species that may be selected for landscaping treatments/plans along waterways. In particular he was asked about whether it is suitable for planting of EVC 53 (Swamp Scrub) and EVC 656 (Brackish Wetland) along the Moonee Ponds Creek (and Dynon Road ramps) and whether shading may be an issue for such EVCs. Mr Miller responded that some species are better suited to shaded environments than others.

13.3.2 Discussion

In regard to Stony Creek, the IAC agrees with Mr Miller and the Friends of Stony Creek and notes that the WDA made changes to the EPR to reflect the discussions about consistency with the Stony Creek Master Plan at the Hearings.

The IAC does not consider the Moonee Ponds Creek a pristine ecological environment, however does acknowledge the sense of place that this section of the Moonee Ponds Creek

³⁹⁵ Submission 17.

³⁹⁶ Submission 344, p1.

³⁹⁷ See Document 57.

³⁹⁸ See Document 57.

brings to the community and particular groups, and that just because there are already a number of elevated structures in this location, does not necessarily mean that more will not have impacts.

The IAC has considered the submission of the CoM, the Friends of the Moonee Ponds Creek, the Moonee Ponds Creek Management Committee and individual submitters that value the section of the Moonee Ponds Creek between Dynon Road and Footscray Road. The IAC accepts that this section has been noted in a number of planning documents supporting a larger integrated linear reserve for future urban renewal communities to enjoy, while also providing some protection of the creek environment.

For this reason, and because the IAC has doubts about the proposed open space proposed by the WDA on the west bank of the Moonee Ponds Creek (see Chapter 6) to act as usable open space, the IAC recommends that WDA, CoM, Melbourne Water, and other relevant authorities, in consultation with the Friends of Moonee Ponds Creek and the Moonee Ponds Creek Management Committee, prepare a masterplan for a larger linear reserve along the section of the Moonee Ponds Creek between Dynon Road and Footscray Road. The IAC believe this would lead to a larger, more useful and attractive open space for this area of the Moonee Ponds Creek that would better serve existing and emerging communities.

13.4 Planted Vegetation, Tree Removal and Replacement

The EES (and Mr Millers evidence) suggests that there will be tree removal of a total of 3,347 for the Project. Many are Medium Long Term Viability (MLTV) trees. The proposed tree replacement program within the landscape plans and EPR EP6 suggests a Tree replacement ratio of 3:1. In relation to replacement trees, individual and group submissions (including relevant local Councils), questioned where will they be planted, what species will be used, what canopy heights will be achieved and what ongoing maintenance responsibilities arrangement will be implemented. Some of these issues have been discussed in detail in the Urban Design and Landscape Chapter of this report (Chapter 6).

Existing planted vegetation includes street trees, shrubs and understory species planted in urban landscapes which may include both native and exotic species. Although not protected under legislation, the EES recognised that planted vegetation provides various benefits to communities and the environment. Amenity and landscape values of planted vegetation are discussed further in Chapter 7.

The EES³⁹⁹ states that

In total around 917,500 plants would be planted as part of the project, including more than 17,500 trees. There would also be a new construction of a four-hectare wetland at the northern portal to the tunnel and revegetation of the eastern bank of the Maribyrnong River...

The overall species composition ... for the project is based on a diverse selection of local and endemic plants. Five major groups of plant species

³⁹⁹ Technical Report F, p3.

would be used in the plantings: street trees to match existing trees (for example *Eucalyptus tricarpa* or *Corymbia maculate*), exotic tree species, riparian species (for example *Melaleuca ericifolia*, *Eucalyptus camaldulensis*, *Casuarina cunninghamiana* and *Acacia retinodes*), native species for the street and parkland (for example *Corymbia maculate*, *Eucalyptus cinerea*, *Eucalyptus leucoxylon*, *Eucalyptus tricarpa*, *Eucalyptus cladocalyx* and *Acacia melanoxylon*) and small trees and large shrubs known as batter and screen planting (for example *Banksia marginate*, *Acacia pycnantha*, *Callistemon salignus*, *leptospermum lanigerum*, *leptospermum continentale* and *Melaleuca lanceolata*). This species palette is consistent with promoting ecological values of the area.

The proposed tree replacement species was not contested during the Hearings. In response to a question from the IAC, Mr Miller stated that for replanting in low-lying areas subject to salt inundation, the species palette may need to be amended to better suit these areas.

The WDA propose a number of additional open space areas as part of the offset for the Project which equates to approximately 8.9 hectares. Mr Miller provided a summary of how many trees and where they would be planted these in his slides⁴⁰⁰.

Table 2 Proposed open space

Project Component	Additional public open space	Area (m ²)
Westgate Freeway	Land between Westgate Freeway west of Newport Rail line, Altona North / South Kingsville	30,000
Tunnels	Land North of West Gate Bridge, south of Stony Creek, Yarraville (expansion of Stony Creek Reserve)	17,000
	Land east of Whitehall Street and south of Youell Street, Yarraville	28,000
Port, CityLink and City Connections	Land north of Footscray Road and west of Moonee Ponds Creek, West Melbourne	14,000
Totals		89,000m ²

⁴⁰⁰ Document 46.

Table 3 Trees proposed to be planted

Trees to be planted			
Project Component	Indicative Advanced Trees	Indicative tube-stock	Total No. of trees
Westgate Freeway	2350	12550	14900
Tunnels	690	700	1390
Port, CityLink and City Connections	960	250	1210
Totals	4000	13500	17500

HBCC asked Mr Lim⁴⁰¹ about the need to formalise the tree replacement ratio at 5:1, since that is what is actually proposed. Mr Lim replied, *‘yes, if it’s required to be mandated as a specification’*. Mr Lim also conceded that planting should be undertaken as early as possible and that amendments could be made to EPR EP6 to reflect this. He also stated that *‘12 months is more than adequate for maintenance of establishment’*.

The IAC questioned Mr Miller regarding what he thought would be an appropriate management and maintenance regime once the Project commenced and trees were planted. Mr Miller advised the IAC that ongoing maintenance should occur for a minimum of two years, but suggested a longer timeframe of five years was more appropriate which is normally used for native vegetation offsets.

In closing⁴⁰², the WDA acknowledged that the Project could result in a net reduction of trees in the Melbourne municipal area and also noted that Mr Miller identified areas within the City of Melbourne where replacement planting could take place such as along Moonee Ponds Creek. The WDA also referred to the trees to be removed along Footscray Road and that these *‘seem to provide little in the way of ecological services, given that they are surrounded by roads and other heavily modified areas and not part of any broader open space area. There is little in the way of habitat or canopy along Footscray Road, particularly in the median strip’*⁴⁰³. As noted in Mr Miller’s⁴⁰⁴ and Mr Schutt’s⁴⁰⁵ evidence, the creation of a series of bio-retention swales and treatment ponds along Footscray Road with the aim of turning a disused service road into a connective habitat corridor between Moonee Ponds Creek and the Maribyrnong River is proposed. The design places the viaduct along Footscray Road in the centre of the road, enabling the retention of a greater number of existing trees and allowing for additional canopy planting. However, Mr Schutt contended that the proposed structure would overshadow the remaining trees and compromise the corridors future potential to serve as an ecological corridor.

401 Landscape architect expert for the WDA.
 402 Document 319.
 403 Document 319, paragraph 383.
 404 At p18.
 405 Document 133.

13.4.1 Discussion

As noted in the EES⁴⁰⁶, planted vegetation within the urban context is recognised to provide habitat for a range of native fauna species as well as other benefits such as urban cooling and urban amenity value. Mr Miller also noted in his evidence that planted vegetation provides habitat for a range of native fauna species as well as other benefits such as ecosystem services, for example, urban cooling and carbon sequestration, and provides social benefit and urban amenity.

The IAC considers that removing 3,347 trees for the Project is substantial, and although the Project is within an urbanised landscape, in some areas the removal of planted vegetation will be quite noticeable. As noted in the EES, many are MLTV trees.

The IAC agrees with the evidence of Mr Lim that the actual planting ratio of 5:1 could be specified in the EPR and considers that this would be of benefit. The IAC also agrees with Mr Miller that 12 months is not an adequate timeframe for ensuring trees that are planted as part of the key offset of this Project only be maintained by the WDA/Project Co. for 12 months and concludes that a longer timeframe is appropriate. The IAC has made changes to EPR EP6 to reflect these issues as well as further edits to ensure tree planting occurs early in the construction timeframe.

13.5 Findings

The IAC generally agrees with Mr Miller that for the bulk of the Project area, there are low ecological values, except for the Creeks having some ecological values. The IAC finds:

- Overall, the Project will have a minimal impact on existing native vegetation and the ecological values of Stony Creek, Moonee Ponds Creek and Kororoit Creek.
- There are areas within these Creek environs however that will be directly impacted by the Project infrastructure and all measures should be put in place to avoid, where possible, the removal of native vegetation, particularly the endangered Riparian Woodland (EVC 641) which is restricted to the riparian zone of Kororoit Creek north of the West Gate Freeway overpass.
- Notwithstanding, EPR EP1-7 have been revised to provide strengthened protection of existing native vegetation and corridor linkages that have been identified in existing strategic documents.
- In regard to tree and planted vegetation removal and replacement, the IAC considers that the removal of substantial numbers of medium to large trees within the Project boundary will be quite noticeable to the surrounding communities and that WDA may not have acknowledged this extent, for example along Footscray Road. For this reason, replacement planting, at a ratio of 5:1, should occur as soon as possible and close to where it is removed and this is reflected in revised EPR EP6. Further analysis of the adequacy of open space proposals is found in Chapter 7.

⁴⁰⁶ Technical Report F, p3.

- The IAC agrees with the City of Melbourne, Hobsons Bay Council and others that ongoing management and maintenance is required for longer than 12 months and has made changes to the EPR to ensure this occurs.
- A masterplan should be prepared for the linear park along Moonee Ponds Creek within the extent of the Project to guide works.

13.6 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects.

The IAC has made changes to the EPR to reflect the evidence of Mr Lim that a more appropriate tree replacement ratio is 5:1, instead of 3:1 and the evidence of Mr Miller that an ongoing maintenance and management regime for trees be maintained by the WDA for a longer timeframe. The IAC has determined that this should be five years, instead of 12 months. The IAC has made this recommendation on the basis that the key social positive outcome of the Project presented by the WDA to the IAC (and to the community) is the provision of new open space reserves.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

The IAC recommends below that WDA, CoM, Melbourne Water, and other relevant authorities, in consultation with the Friends of Moonee Ponds Creek and the Moonee Ponds Creek Management Committee, prepare a masterplan for a larger linear reserve along the section of the Moonee Ponds Creek between Dynon Road and Footscray Road. This is proposed in a number of strategic planning documents to enable a larger, more useful and attractive open space for this area of the Moonee Ponds Creek. Further discussion on the adequacy of open space is found in Chapter 7.

(iii) Conditions and Environmental Management Framework

The IAC has made changes to the EPR to reflect the above discussion regarding tree replacement ratio's and ongoing maintenance.

13.7 Recommendations

The IAC recommends the preparation of a masterplan for the Moonee Ponds Creek funded by the Project and the implementation of the EPR as shown in Appendix F.

14 Solid Waste and Contamination

Solid Waste and Contamination impacts are addressed in Chapters 12.1, 19.1 and 26.1 of the EES, and in Technical Report B, Parts 1 and 2, Contaminated Soil and Spoil Management.

The draft evaluation objective in relation to waste management is:

***Waste Management** - To manage excavated spoil and other waste streams generated by the project in accordance with the waste hierarchy and relevant best practice principles.*

The following evidence was called in relation to solid waste and contamination:

- WDA – Andrew Kalitsis of Golder Associates Pty Ltd.

The IAC also received three pieces of written advice from its Technical Advisor, Stephen Hancock⁴⁰⁷ that have been considered as part of the IAC's deliberations.

Solid waste and potential contamination (including classification of waste and contaminated spoil) was largely uncontested at the Hearing.

For context, the Project is being constructed over a wide variety of geological strata which are well known within the context of civil engineering works around Melbourne⁴⁰⁸. In addition, past land uses have created anthropogenic features such as quarries, pits and embankments which have been variously filled as landfills compacted only to the extent of self-weight compaction or consolidation, or to engineering standards demanded for use as industrial land or public open space.⁴⁰⁹

14.1 Key issues

The IAC considers that key issues relate to:

- Management, re-use and disposal of spoil, including contaminated spoil
- Contamination of food site near northern portal.

14.2 Management, re-use and disposal of spoil

14.2.1 Evidence and submissions

A number of submissions⁴¹⁰ raised issues in regard to the management, re-use and disposal of contaminated spoil. The issue of management includes the haulage routes proposed for spoil and whether there is adequate landfill capacity to take the spoil from both the Melbourne Metro Rail Project (MMRP) and the WGT Project.

There will be a substantial amount of spoil from the construction of the Project (approximately 2.1 million cubic metres, which is slightly above the level estimated to be

⁴⁰⁷ Documents 17, 188 and 290.

⁴⁰⁸ For example Peck et al 1992, Engineering Geology of Melbourne, Balkema, Rotterdam.

⁴⁰⁹ Technical Reports D-E, Figures 9-1 and 39-41.

⁴¹⁰ Refer Document 21, Issues 33-36, p14.

generated by the MMRP⁴¹¹). This matter was not disputed, however the reuse of spoil (where appropriate) was raised by the EPA and Mr Hancock during the Hearings.

EPA's submission notes that the regulatory requirements for managing contaminated soils are complex. It will require more information than currently available in the EES documentation to consider whether options for reuse and/or treatment of contaminated spoil will achieve acceptable environmental outcomes. When asked about this issue, Mr Kalitsis stated that the Project will not be able to reuse the entire 2 million cubic metres of spoil. The Project however, should look for opportunities to reuse spoil where impacts on the environment (for example waterways) will not occur and only after consultation with the EPA.

Mr Kalitsis confirmed that the spoil would be assessed as it came out and stockpiled at Whitehall Street within a bunded, enclosed shed. Mr Kalitsis agreed there is high level policy to maximise the re-use of spoil in accordance with the EPA waste hierarchy and that disposal to landfill is an option of last resort under that policy. PN 59 identifies some opportunities for reuse of excavated material within the Project boundary, for example permanent landscaping features along the West Gate Freeway and/or contained within elevated structures. EPA submitted that the Contaminated Soil and Spoil Management Plan required by EPR CSP2 should be to its satisfaction.

The IAC asked the WDA whether there is adequate capacity in existing landfills for the spoil from both the MMRP and this Project. Ms Kalitsis gave evidence that there is likely to be sufficient capacity to dispose of spoil from both the MMRP and this Project. Document 40, prepared by Mr Kalitsis, provided further assessment that there is built and approved capacity across the landfill and waste treatment sector to accept the estimated volumes of spoil likely to be generated from both projects.

In regard to spoil haulage routes and main construction laydown areas, Mr Kalitsis suggested that spoil transport will be via Footscray Road to Citylink for the northern portals; for the southern portals spoil transport will be via the West Gate Freeway; and final disposal of spoil will be in accordance with legislation and EPR.⁴¹²

PN35⁴¹³ states that the most significant activity will be tunnel spoil removal via the northern portal to an adjacent land parcel abutting Somerville Road. In particular, it states:

Trucks will be loaded and egress to Whitehall Street before travelling along the Moreland – Footscray – CityLink and West Gate Freeway route/s. Lower truck volumes (particularly heavier weights) may also use Wurrundjeri Way – Charles Grimes Bridge – Montague Street to access the arterial road network or West Gate Freeway.

PN36 identifies that the EES⁴¹⁴ estimates 600 truck trips (1,200 movements) per day between the WGTP northern portal and spoil disposal site.

⁴¹¹ Technical Report B, Part 1, p109.

⁴¹² Document 43, slide 13.

⁴¹³ Referring to Technical Report A, Part 1, Figure 226 on p375.

Mr Hancock' final report states that

The project can be expected to be constructible and operable much as presented in the EES Documents without unacceptable risks in environmental terms on groundwater, ground movement or in creating or aggravating existing contamination risks.

Mr Hancock prepared an addendum to his final advice⁴¹⁵ that refers to the Earth Pressure Balance Tunnel Boring Machine being operated in closed mode using 'paste' for most of the tunnelling. Mr Hancock presumes the paste will be water and suspended solids but over the period of construction of the tunnel this paste will potentially become contaminated. Mr Hancock advised that paste needs to be considered as part of the spoil referred to in EPR CSP1 and CSP2. The WDA in closing⁴¹⁶ agreed with Mr Hancock's suggested change.

14.3 Contamination of food site near northern portal

14.3.1 Evidence and submissions

Submissions such as that from Clamms Seafood and the Owners Corporation from 107-109 Whitehall Street raised issues with the potential for contamination to occur on existing food premises/businesses within close vicinity of the northern portal. The concerns related to potential impacts posed by dust (including contaminated dust) generated during construction activities. The EES did not identify the presence of contamination that would require measures beyond controls typically applied in major projects of this type. Mr Kalitsis' evidence⁴¹⁷ states:

The EPR relevant to management of dust require the construction activities to be carried out in a manner that does not cause pollution of the environment (CSP1) and identify how the works are carried out and the control measures to prevent pollution from occurring (CPS2 and AQP6). Pollution of the environment includes consideration of potential impacts of airborne dust (including that associated with contaminated spoil).

Written submissions raised potential impacts on food businesses next to the northern portal. Mr Kalitsis responded to this issue⁴¹⁸ as follows:

- Soil contamination issues are well defined at the former Whitehall Street sites
- Measures to control dust emissions have been identified (EPR CSP1, CSP2, AQP6)
- Readily available measures including fully enclosed conveyors and fully enclosed spoil sheds will be used
- Activities would be carried out in accordance with CEMP, WEMPs and AQM&MP and reviewed and approved by the IREA.

⁴¹⁴ Technical Report A, Part 1, Chapter 8.6, p374.

⁴¹⁵ Document 290.

⁴¹⁶ Document 319, paragraph 374.

⁴¹⁷ At p3.

⁴¹⁸ Document 44, slide 14.

Mr Kalitsis agreed that it would be appropriate to include in the EPR a requirement that the covered sheds be fully enclosed.

14.4 Discussion

Many of the issues raised in submissions and through questions of the EPA, the IAC, Counsel assisting the IAC and the IAC's technical advisor Mr Hancock have been resolved. The relevant CSP EPR, in particular CSP2, have been revised to reflect discussions and the evidence of Mr Kalitsis. This includes spoil to be enclosed in sheds, application of the EPA waste hierarchy, and the need to identify options for spoil reuse in accordance with the EP Act.

The IAC agrees with the WDA that *'while a number of technical issues were raised by IAC and Mr Hancock in the initial Request for Information, dated 18th July 2017, WDA has addressed these through evidence and Project Notes'*⁴¹⁹. The IAC agrees with Mr Hancock regarding the need for 'paste' to be included in spoil and this is reflected in the revised EPR.

Potential odour from contaminated spoil was also raised as an issue and EPR CSP4 has been amended in the WDA's final version to reflect these concerns, which the IAC agrees with.

The IAC agrees with the EPA that the Contaminated Soil and Spoil Management Plan referred to in CSP2 must be to the satisfaction of the EPA and this is reflected in the revised EPR at Appendix F. Inclusion of the approval of the IREA has also been added by the IAC as this provides a level of comfort that many of the issues raised by Mr Hancock for detailed design will be adequately addressed within this Plan prior to construction.

14.5 Findings and conclusions

The IAC find that:

- the Project can be constructed in a manner that has low risks of disturbing existing contamination and causing contamination of the surrounding environment.
- the revised EPR that set out the requirement for complying with the waste hierarchy and for enclosed sheds to be built around the spoil will ensure a low and acceptable risk to the receiving environment.
- Due to the amount of spoil to be removed, the IAC has strengthened EPR CSP2 to allow for the Contaminated Soil and Spoil Management Plan to be to the satisfaction of the EPA and approved by the IREA.
- The CEMP will require all waste associated with construction of the Project to be managed, reused or appropriately disposed of.

⁴¹⁹ Document 319, paragraph 371.

14.6 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects.

With careful management and monitoring, the potential environmental effects of the management, re-use and disposal of contaminated soil and spoil management can be satisfactorily controlled, subject to the implication of EPR, as amended by the IAC. Any feasible modifications to the design of the Project within or reasonably proximate to the Project boundary that could offer demonstrably overall superior outcomes.

The use of the Earth Pressure Balance Tunnel Boring Machine would reduce potential environmental impacts of construction.

(ii) Conditions and Environmental Management Framework

The IAC had made changes to the EPR to reflect the above discussion.

14.7 Recommendations

The IAC has recommended making changes to the EPR to address the above findings.

15 Social Impacts

Social Impact are addressed in the EES in Chapter 14.2 (Westgate Freeway), Chapter 21.2 (Tunnels) and Chapter 28.2 (Port, CityLink, and City Connections). Supporting documentation includes Technical Report L, 'Social Impact Assessment' (SIA), prepared by GHD (May 2017).

The evaluation objective for social impacts in Table 4-1 of the EES is:

***Social, business, land use, public safety and infrastructure** – To minimise adverse effects on the social fabric of the community, including with regard to community cohesion, access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.*

The following evidence was called on social impacts:

- WDA – Dr Pallavi Mandke of GHD
- HBCC – Bonnie Rosen of Symplan.

Professor London of the University of Western Australia, Mr Procter of Ethos and Ms Bauer of Aspect Studios also gave evidence on some of the social aspects of urban design. As exhibited, EPR SP1 to SP3 deal with matters relating to social impacts mitigation. The WDA have proposed a new EPR (SP4 – Social and local procurement) in Version 6 of the EPR to respond to the evidence of Dr Mandke.

15.1 Key issues

The Committee considers that key issues relate to:

- The merits of investing in a Community Involvement and Participation Plan (CIPP)
- The merits of a 'Social and local procurement' initiative.

The IAC notes that there were a number of issues raised in submissions and evidence that concern effects of the Project on the social fabric of the community. Many of these social effects and impacts have directly and indirectly been addressed in the IAC's consideration of other thematic issues such as land use, visual impact and urban design, noise, and health. In relation to the significance of such impacts, both social expert witnesses acknowledged that they rely on the technical input of others. Accordingly, this Chapter should not be read in isolation.

Both witnesses acknowledged that there will be community and social benefits as a result of constructing the West Gate Tunnel Project, primarily due to: the provision of new public open spaces; the removal of truck traffic from some residential streets; increased vegetation in some areas due to replanting; and provision of new pedestrian and cyclist connections. They acknowledged the findings of the SIA that it is likely that community benefits could be realised because of reduced vehicle travel times, improved access to employment and improved connectivity for active transport. Importantly, both witnesses agreed that the implementation of the Project will result in a 'Net Positive' social impact.

It was common ground between the witnesses that some communities will experience significant residual impacts and that mitigation efforts must be focused where cumulative

negative impacts are greatest. Given the consensus between the expert witnesses on these issues the above matters are not further explored in this report.

The IAC notes there was a significant alignment of submissions concerning social impacts and open space (see Chapter 6).

15.2 Community Involvement and Participation Plan

15.2.1 Evidence and submissions

Dr Mandke noted in evidence that she was a technical reviewer and co-author of the SIA. A number of additional mitigation measures were identified by Dr Mandke in her evidence, and through her presentation to the IAC that were not contained in the SIA, nor included in the EPR. One such measure relates to actions that could be considered to improve community cohesion.

Dr Mandke gave evidence⁴²⁰ that the IAC should consider recommending a new EPR to require the contractor to establish a ‘*Community Involvement and Participation Plan that assists building social interaction, connectedness and cohesiveness throughout the construction period.*’ Dr Mandke provided the following summary of possible elements to be included in such a plan, as recommended by submitters:

...running community events, festivals, sponsorships of local sporting clubs, and the establishment of community support grants. A community grants program should operate during construction of the Project to fund community support activities and small capital works targeting community, sporting and recreation facilities as defined in the social impact assessment.

The final slide⁴²¹ of Dr Mandke’s presentation elaborated on the above recommendation that more could be done to build social interaction, community cohesiveness and community involvement in the Project, where she concluded:

It is recommended that - in addition to the EPR and the EMP that will be developed to mitigate and manage project impacts - the Project is delivered in a socially responsible manner and considers appropriate and reasonable ways to assist building social interaction, connectedness and cohesiveness throughout the construction period which could include community partnership programs, community support grants, education training and awareness programs with particular focus on impacted communities / specific groups / vulnerable groups within the projects social study.” (IAC emphasis)

Ms Rosen gave evidence that she supported the intent of Dr Mandke’s suggested additional response. She agreed that the initiative would assist in mitigating the impacts of the Project on effected communities and would make a positive contribution to building community resilience. Ms Rosen’s suggested mitigation measure⁴²² in this regard included:

⁴²⁰ Expert witness report, p7.

⁴²¹ Document 103, slide 19.

⁴²² Expert witness report, action 39, p60.

Investigate opportunities to establish a legacy program or grants fund for use by communities experiencing existing and future impacts associated with the Project. (IAC emphasis)

The WDA did not make specific submissions in relation to the merits of including an EPR to address the above issues.

HBCC submitted⁴²³ that it supported the development and implementation of a CIPP and that the Brooklyn Community should be a central focus of the plan due to the cumulative negative impacts that the community is likely to experience as a result of the Project. In support of this position it recommended inclusion of a new EPR as follows:

SP5 - Community Opportunities

Identify opportunities through the CCEP and CLG to increase the skills and resilience of the adjacent communities by:

- Facilitating local procurement where possible;*
- Providing local skills training opportunities; and*
- Organising or supporting community events and festivals.*

Establish a community grant program to operate during the construction of the Project to fund community events, and capital works for community sporting and recreation groups or facilities.

Many individual and group submissions stated that the social impacts of the Project are significant, and that the mitigation measures fail to adequately minimise or offset the negative impacts. Approximately 40 submissions⁴²⁴ raised concerns with the Project's impacts on community facilities, sporting clubs, and recreational facilities. A similar number raised concerns regarding loss of community connectivity as a result of the Project.

15.2.2 Discussion

The social impact evaluation objective places emphasis on minimising adverse effects on:

- the social fabric of the community
- community cohesion
- access to community services and facilities.

Within this context the IAC finds it compelling that Dr Mandke conceded in her evidence that the Project can and should do more to off-set the impact of the Project, a view that was shared by Ms Rosen.

The IAC notes that aspects of the Project such as the temporary reduction in amenity of open spaces and increased deterrents to active transport from construction traffic⁴²⁵ may adversely impact social cohesion and increase social isolation and vulnerability.

⁴²³ Document 196, paragraph 125.

⁴²⁴ Document 21.

⁴²⁵ Appendix L p145.

Based on the evidence before it, the IAC supports the recommendations of both social impact experts that there is merit in the Project investing further in order to build community cohesion within effected communities.

Counsel assisting the IAC sought clarification from Dr Mandke that her recommended CIPP initiative, including the provision of community grants and the like, represents an additional and separate initiative to EPR SP2 – the proposed ‘Communication and Community Engagement Plan (CCEP)’. Dr Mandke confirmed that she considers it should be treated as a separate EPR and it should be established prior to commencement of construction. Further she gave evidence that it should target areas identified as being particularly disadvantaged as a result of the Project. The IAC agrees.

In relation to the above, Dr Mandke gave evidence that it is appropriate to channel more resources and effort to communities that will be affected by a wide range of impacts. She noted in her presentation:⁴²⁶

Risks that need further consideration

Residual risks with a rating of medium or high need further mitigation / management considerations, which should be developed as part of the EMP in consultation with Council and affects(sic) stakeholders

In response to the IAC’s questioning, Dr Mandke conceded that the above recommendation was not referenced in the SIA nor was it reflected in her evidence statement. She agreed there is merit in the EPR and EMP being modified to specifically reference the need to develop mitigation and management responses for medium and high social impact residual risks.

Dr Mandke confirmed that the SIA concluded that there will likely be ‘High’ or ‘Major’ residual social impacts on the residential communities in proximity to Millers Road and Williamstown Road. She confirmed that this rating was assigned due in part to the cumulative impacts of the Project on these communities. Areas of ‘Medium’ or ‘Moderate’ residual risks identified in the SIA include Hyde Street, and those communities will be affected by construction traffic⁴²⁷. The IAC accepts the evidence of Dr Mandke in this regard and notes that Ms Rosen acknowledged these areas of disadvantage.

The IAC considers that in implementing the CIPP, there will be a significant opportunity to achieve the ‘social legacy’ outcomes envisaged and advocated for by HBCC through the evidence of Ms Rosen, through encouraging local community empowerment and participation. In addition to the tasks identified and supported by Dr Mandke (“*running community events, festivals, sponsorships of local sporting clubs, and the establishment of community supports program to fund community support activities and small capital works targeting community, sporting and recreation facilities as defined in the social impact assessment*”) the IAC considers additional ‘Community led’ initiatives that should be considered in response to suggestions raised in submissions, include:

⁴²⁶ Document 103, slide 18.

⁴²⁷ SIA, p148.

- Community involvement in the design and installation of public art opportunities on the 'screening structures' during construction
- Funding and support for 'Friends of ...' groups to manage the creeks and open spaces effected
- Funding for the finalisation of the Moonee Ponds Creek Master Plan
- Provision of advice to local property owners about how they might respond to changed circumstances (higher walls, overshadowing, etc) when landscaping their private open spaces or shared spaces
- Help for communities to 'adopt' open spaces created by the Project
- Re-use or recycling of felled timber, screens or other temporary measures created by the Project
- Funding a demonstration garden showing the aesthetic potential of landscaping appropriate for near the freeway, considering issues such as overshadowing and using vegetation for particulate filtration.

In forming its view on this issue, the IAC notes the evidence that the cumulative impacts on some communities will be significant. In this regard the IAC notes that the submission of the WDA⁴²⁸ urged the IAC, when assessing social effects, to focus on "*how adverse social effects can be mitigated to make them acceptable*" rather than to focus on whether or to what extent there will be a change from the existing circumstances. The IAC considers that the development and implementation of a generous and wide ranging CIPP will potentially provide a number of enduring social legacies that will assist in making the adverse social effects more acceptable to the affected communities.

15.2.3 Findings

The IAC finds:

- For the reasons advanced and agreed by both Social Impact expert witnesses, an additional Social EPR should be included to assist building social interaction, connectedness and cohesiveness of effected communities throughout the construction period of the Project. The IAC suggested wording of the EPR is as follows:

SP5 - Community Involvement and Participation Plan (CIPP)

Develop and implement a CIPP in consultation with Council's and representatives of communities affected negatively by the impacts of the Project in order to improve community connectedness and cohesiveness. Social legacy outcomes and tasks that could be considered for funding under the CIPP include: community partnership programs; community support grants; running of community events and festivals; sponsorships of local sporting clubs and amenity groups; small capital works targeting community, sporting and recreation facilities; a wide range of other 'community led' initiatives.

⁴²⁸ Document 319, paragraph 392.

The above finding is reflected in the IAC amendment EPR contained in Appendix F.

15.3 Social and local procurement initiative

15.3.1 Evidence and submissions

In response to her review of submissions, Dr Mandke gave evidence that she supported the inclusion of a local procurement initiative in the EPR that sought “*to encourage local procurement where possible and provide local employment and skills training opportunities, especially for communities in Western Melbourne and support pathways to employment and jobs growth for local industry*”.

Ms Lawlor, in providing evidence for the WDA, agreed that it would not be unreasonable for the EPR to be modified to encourage local procurement, and that it would potentially provide additional business and social benefits.

Ms Rosen agreed with the proposal, and recommended⁴²⁹ the following action to assist in building community resilience:

Investigate opportunities to increase the skills and resilience of the community of the City of Hobsons Bay through increased employment opportunities and securing of local supply contracts.

The WDA⁴³⁰ drafted a new EPR SP4 to respond to Dr Mandke’s recommendation regarding social and local procurement.

15.3.2 Discussion

No party to the Hearing opposed the inclusion of the proposed EPR SP4 as drafted by the WDA. The IAC supports the inclusion of this new EPR and considers its implementation has the potential to realise both social and business benefits, and assist in fostering of community resilience.

15.3.3 Findings

The IAC finds:

- Inclusion of EPR SP4 as drafted by the WDA is supported. This finding is reflected in the IAC’s recommended EPR contained in Appendix F of this report.

15.4 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

⁴²⁹ Expert evidence p60.

⁴³⁰ Document 319, paragraph 408

(i) Consideration of adverse and beneficial environmental effects.

Adverse environmental effects:

- There will be communities that will have high residual negative social impacts as a result of the Project. The IAC has recommended additional EPR to assist in the mitigation of the impacts.

Beneficial environmental effects

- The IAC accepts the finding of the SIA that the Project will result in a 'Net Positive' social impact.
- The key beneficial social effects from the Project relate to the provision of new public open spaces; the removal of truck traffic from some residential streets; increased vegetation in some areas due to replanting; and provision of new pedestrian and cyclist connections.
- Community benefits are likely to be realised from reduced vehicle travel times, improved access to employment and improved connectivity for active transport.
- The IAC is satisfied that subject to adoption and implementation of the revised suite of Social EPR, the likely social effects of the Project are acceptable and can be minimised.

(ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.

The IAC does not consider specific design modifications are required in response to consideration of social impacts.

(iii) Conditions and Environmental Management Framework

No additional approval conditions for the Project, nor any changes to the EMF, have been identified by the IAC as being required in specific response its consideration of social impacts.

A number of modifications to the Social EPR are proposed by the IAC to improve the social and environmental outcomes of the Project. The IAC's proposed EPR are presented in Appendix F and have been determined following the review of submissions, evidence and suggested modifications as discussed on the last day of the Hearing.

15.5 Recommendations

The IAC has recommended changes to the EPR as shown in Appendix F, and considers the development and implementation of a Community Involvement and Participation Plan to be a critical mitigation element for the Project.

16 Business Impacts

Issues relating to Business Impacts are addressed in the EES in Chapter 14.3 (Westgate Freeway), Chapter 21.3 (Tunnels) and Chapter 28.3 (Port, CityLink, and City Connections). Supporting documentation includes Technical Report M, Business Impact Assessment (BIA), prepared by AECOM (May 2017).

The evaluation objective for business impacts in Table 4-1 of the EES is:

***Social, business, land use, public safety and infrastructure** – To minimise adverse effects on the social fabric of the community, including with regard to community cohesion, access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.*

Ms Natalie Lawlor from the WDA provided a witness statement that gave an overview of the impact of the Project on businesses affected by land acquisition. The statement provided an overview of consultation with affected business owners and a summary of the land acquisition process. Ms Lawlor appeared at the Hearing to address a limited number of questions from the IAC.

Business impact submissions focused primarily on business specific impacts, as opposed to broader business or economic effects. The IAC accepts that there are a number of wider business and economic benefits that will occur as a result of the Project. They include, but are not limited to:

- Transport productivity gains for many businesses, noting that such gains will be offset for some due to increases in truck kilometres being travelled and the cost of additional tolls
- Development of new connections to Hyde Street from the Freeway will improve access to the industrial areas on the west bank of the Maribyrnong River
- Improved connections between the West Gate Freeway and the Port of Melbourne, CityLink and city connections is expected to improve productivity for many businesses in the area, particularly transport and port related businesses with time sensitive supply chains
- Enhanced connectivity will occur between economic clusters in the western suburbs
- Enhanced access to jobs and services.

Although these benefits have not been quantified to any great extent in the EES, the IAC considers them likely to be tangible and significant economic and business benefits. The matters are not further explored in the report as they are largely, but not unanimously, accepted.

EPR BP1 to BP9 specifically deal with matters relating to business and property impact mitigation.

16.1 Key issues

The Committee considers that key issues relate to:

- Land acquisition impacts and proposed mitigation

- Adequacy of other business impact mitigation measures.

16.2 Land acquisition impacts and proposed mitigation

16.2.1 Submissions and evidence

The WDA advised⁴³¹ that 65 properties are affected by permanent land acquisition, including 39 leasehold interests occupied by businesses. The IAC was informed that the 65 properties impacted include both full and partial land acquisitions. It is understood that less than 10 businesses will require total relocation as a result of the Project.

The BIA⁴³² concluded that for the scale of the Project, the overall impact on businesses during construction is relatively minor. The BIA further found that business impacts from land acquisition have been minimised by aligning the majority of the Project within road reserves, vacant public land or underground.

Ms Lawlor advised that many of the partial acquisitions of private land and creation of easements are required for the construction of roadworks or associated Project infrastructure, such as for drainage infrastructure or relocation of power lines.

In a number of instances common property will be acquired. This outcome will impact businesses on the same site to differing extents. The WDA acknowledge that provision of adequate temporary access to businesses during the construction phase and reinstatement of permanent access post construction will be critical obligations of the Project.

The WDA submitted that while land acquisition to some properties has been unavoidable, there has been considerable consultation with land and business owners to minimise the impact on businesses. This has included consultation during concept design phase, following the release of the reference design and after release of the Project design in the EES.

Ms Lawlor advised that all affected businesses have been contacted and the majority have accepted offers to meet with WDA representatives in order to gain better understanding of the Project and potential issues arising. The WDA advised that this consultation is ongoing and that there are two specific Business and Property EPR that will assist those affected by land acquisition, namely BP5 - Business Involvement Plan; and BP9 – Business acquisition process.

Approximately 20 submitters⁴³³ raised land acquisition concerns, including a number that made presentations to the IAC including (for example):

- Splashdown⁴³⁴
- In relation to 107-108 Whitehall Street:
- Owners Corporation⁴³⁵
- Rex Industrial (and others)⁴³⁶

⁴³¹ Through the witness statement of Ms Lawlor.

⁴³² Technical Report M, pvii.

⁴³³ Document 21, p6 & p7.

⁴³⁴ Submission 333.

⁴³⁵ Submission 389.

- Jucon Holdings⁴³⁷
- Murray Case Photography.⁴³⁸

Submitters concerns can be summarised as:

- Concerns about the business acquisition process and direct or indirect impact on business viability through acquisition
- Concerns about disruption to business access during construction and concerns about temporary and permanent access, and loss of car parking due to the purchase of common property.

16.2.2 Discussion

(i) Concerns about acquisition process and impacts

BP9 – Business Acquisition Process is a specific EPR relating to land acquisition, which reads:

Minimise disruption to businesses to the extent practicable from the acquisition of interests in land, and work with businesses and land owners to endeavour to reach agreement on terms for possession of the land.

In response to submitter concerns⁴³⁹ the WDA acknowledged that the acquisition process is prescribed and that Project Co. will work diligently with affected land owners to minimise business impacts. Specifically, it advised:

Any land acquisition and associated compensation would be undertaken in accordance with the Major Transport Project Facilitation Act 2009 and Land Acquisition and Compensation Act 1986. Affected owners would be engaged with individually on the scope of acquisition and compensation.

The IAC notes the additional evidence provided by Ms Lawlor on the acquisition process, including that a statutory offer of compensation will be made to the party with an interest in the land acquired that will include: market valuation of the interest in land acquired (freehold and leasehold); loss attributed to severance; and loss attributed to disturbance (this may include costs to relocate or reconfigure the business or property or business loss incurred as a result of the acquisition). This IAC accepts this overview reflects legislative requirements and processes.

The IAC endorses Ms Lawlor's conclusion that discussions have been had, and will continue, with businesses that will require total relocation. She noted that if appropriate, consultants will be engaged prior to commencement of acquisition to provide advice to WDA regarding the costs to relocate the business to enable a timely offer of compensation to be made to the business. This will ensure that the business is in a position to commence negotiations

⁴³⁶ Submission 182.

⁴³⁷ Submission 234.

⁴³⁸ Submission 264.

⁴³⁹ Hearing Doc 323 response to Submissions 333, 264,182 & 234.

with the WDA regarding the relocation of their operation in a timely manner and that the most appropriate offer may be made to the business owner. The IAC accepts the merits of this approach and accepts the wording and intent of EPR BP9.

The IAC does not make specific findings in relation to the submissions concerning Splashdown Properties⁴⁴⁰. It notes that the WDA has stated⁴⁴¹ that EPR BP1 requires the protection of third party property and infrastructure⁴⁴² during construction and operation and that the owners will continue to be engaged regarding the scope of acquisition and compensation. IAC accepts these undertakings are reasonable and responsive.

(ii) Concerns about business disruption

In respect of the approximate 20 submitters⁴⁴³ who raised concerns regarding disruption to business through construction, the IAC notes the overarching response from the WDA⁴⁴⁴ as follows:

It is a requirement of EPR BP2 that access to and amenity for potentially affected businesses and commercial facilities is protected, with an impacts to the level of access, amenity or function minimised to the extent necessary to carry out the works. In addition, businesses would also be provided with adequate notification of potential impacts and temporary access arrangements.

Businesses and other stakeholders will be engaged prior to, and during construction on the preparation and implementation of a Business Involvement Plan under EPR BP5 to minimise and mitigate impacts on businesses. Any damage caused to property as a result of the project must be appropriately remedied in accordance with EPR BP1.

The IAC supports the proposed modification to BP2 (that was advanced by the CoM and is supported by the WDA) to include that: *“Potentially affected business and commercial facilities must be provided with adequate notification of potential impacts and temporary access arrangements”*.

The IAC does not make specific findings in relation to the submissions concerning 107-109 Whitehall Street. It notes that the WDA has stated⁴⁴⁵ its commitment to work with Owners Corporation and individual businesses on issues that have been raised and that detailed design will require identification of an equitable solution.

The WDA noted that EPR TP3 contains requirements to minimise disruption to vehicle, pedestrian and cycle movements during design and construction, including the implementation of a Traffic Management Plan in consultation with local authorities.

⁴⁴⁰ Submission 333.

⁴⁴¹ Document 323, p1.

⁴⁴² Splashdown has a particularly critical effluent discharge point on Buchanan Road.

⁴⁴³ Document 21, Issue 21, p6.

⁴⁴⁴ Document 323.

⁴⁴⁵ Document 323, p1.

The IAC considers that the above EPR will be effective in minimising business disruption and accepts WDA's undertakings to continue to work with individual submitters to minimise impacts and identify equitable solutions.

16.3 Other business impact mitigation measures

16.3.1 Submissions

The WDA noted the conclusion in the BIA⁴⁴⁶ that impacts to an individual business would depend on a number of factors, including its size, industry, location, operating model and key activities conducted on-site. The assessment observed that many businesses are likely to benefit during both the construction and operation phases of the Project through increased passing trade and an improved freight and logistics network. However, a proportionally small number of businesses are likely to experience adverse impacts due to decreased access or property acquisition. In order to mitigate or reduce the adverse business impacts and to ensure the impacts are in line with legislative requirements, risk pathways and business and property mitigation EPR were developed.

The WDA submitted⁴⁴⁷ that in response to submissions, the business and property EPR have been refined and they now provide a suitable framework for future management of impacts on businesses.

The other business issues and concerns raised by submitters include:

- Concerns about communication with affected businesses
- Concerns about noise, contamination, pollution and dust on business operations.

16.3.2 Discussion

(i) Concerns about communication with affected businesses

A number of submissions⁴⁴⁸ expressed concerns regarding the adequacy of previous and proposed communication with businesses.

BP5 requires the preparation and implementation of a Business Involvement Plan as part of the Communications and Community Engagement Plan (EPR SP2). In relation to the functioning of this EPR the WDA noted⁴⁴⁹:

Businesses and other stakeholders would be engaged prior to, and during construction on the preparation and implementation of a Business Involvement Plan under EPR BP5 to minimise and mitigate impacts on businesses. The plan would form part of a wider Communications and Community Engagement Plan required by EPR SP2 to set the framework for communication for the project, including an enquiry management process with provision for a 24-hour telephone service.

⁴⁴⁶ Technical Report M, Pvii.

⁴⁴⁷ Document 319, paragraph 411.

⁴⁴⁸ Submissions 264, 360, 378, 389 & 392.

⁴⁴⁹ Document 323, p1.

The WDA's proposed revision to BP5 has been amended to require consultation with affected businesses and trader associations. The IAC supports the revision and accepts that the scope of the Business Involvement Plan is adequate.

(ii) Noise, contamination, pollution and dust on business operations

A number of submissions⁴⁵⁰ expressed concerns about noise disruptions, loss of amenity, pollution from increased traffic, and concerns about the risk of contamination to products from contaminated spoil and dust.

In relation to concerns regarding contamination and dust raised by Clamms Seafood⁴⁵¹, the WDA submitted⁴⁵² that there are a range of responses that will be undertaken including enclosed spoil management, sealing of carparks to minimise dust, and compliance with relevant construction guidelines and management plans.

The IAC considers that the above response is reflective of the response to other submitter's similar concerns and the controls to be put in place are appropriate. The IAC is satisfied that the Business Involvement Plan (BP5) will be effective in facilitating resolution of business impacts.

16.4 Findings

The IAC finds:

- The likely business impacts are acceptable
- The Business and Property EPR are well considered and should assist in minimising impacts on business.

16.5 Response to Terms of Reference

The IAC makes the following specific comments in relation to the Terms of Reference:

(i) Consideration of adverse and beneficial environmental effects.

Adverse environmental effects:

- Business dislocation and disruption due to whole or partial land acquisition
- Business disruption due to construction.

Beneficial environmental effect:

- Transport productivity gains for some businesses
- Improved access to and from the Port of Melbourne for many businesses
- Enhanced business connectivity, particularly in the western suburbs
- Access to jobs and services will be enhanced, particularly for residents in the western suburbs.

⁴⁵⁰ Submission 78, 189, 443, 466 & 450.

⁴⁵¹ Submission 78.

⁴⁵² Document 323, p2.

- (ii) Any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes.**

The IAC does not consider specific design modifications are required in response to consideration of business impacts.

- (iii) Conditions and Environmental Management Framework**

No additional approval conditions for the Project, nor any changes to the EMF, have been identified by the IAC as required in response to business impacts.

A number of modifications to the Business EPR are proposed by the IAC to improve the environmental outcomes of the Project. The IAC's proposed EPR are presented in Appendix F and have been determined following the IACs review of submissions, evidence and suggested modifications as discussed on the last day of the Hearing.

16.6 Recommendations

The IAC recommends changes to the business impact EPR in Appendix F.

PART C: PROJECT IMPLEMENTATION

17 Environmental Management

The Environmental Management Framework (EMF) including the exhibited EPR is addressed in Chapter 8 of Volume 1 of the EES Main Document.

The draft evaluation objective in the EES Scoping Requirements in relation to the EMF is:

***Environmental Management Framework** - To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the project, in order to achieve acceptable environmental outcomes.*

EPR Environmental Management (EMP) numbers 1 to 4 specifically dealt with matters relating to the EMF.

17.1 What is the EMF for the Project?

The EMF provides a transparent and integrated governance framework to manage environmental impacts as described in the EES for the design, construction and operational phases of the Project. The EMF includes EPR that define the Project-wide environmental outcomes that must be achieved during design, construction and operation of the Project (regardless of the detailed design solutions adopted). The EPR for the Project are in the 'West Gate Tunnel Project Development and Urban Design Plans' referenced at clause 5.1 of the Incorporated Document. The Incorporated Document sets out planning controls for the Project under each relevant planning scheme.

The key environmental management documentation relevant to implementation of the EMF begins with environmental legislation and policy, the final EPR, key approvals, the Project Agreement, the Environmental Management Strategy (EMS), additional project approvals and a suite of plans and procedures relevant to either or both the design and construction or the operation and maintenance phases of the Project. Details of roles and responsibilities of the various plans, including the role of the Independent Reviewer and Environmental Auditor (IREA) is shown in Figure 8.1 of the EES (page 8-4) and is presented below.

The EMS, required as a condition (clause 5.2) of the Incorporated Document titled 'West Gate Tunnel Project', must be consistent with the EMF presented as Figure 10.

The EMS is to be prepared to the satisfaction of the Minister for Planning. Project Co. must prepare the EMS that provides an overarching framework addressing environmental requirements including relevant environmental laws, project approvals, approval conditions, the EPR and the technical requirements of the Project Agreement in relation to environmental management. The EMS needs to incorporate an Environmental Management System that is AS/NZS ISO 14001 compliant.

The detail of certain clauses of the Incorporated Document attracted some submissions and commentary, but it was generally endorsed as the key planning tool to deliver the Project, a position which the IAC accepts.

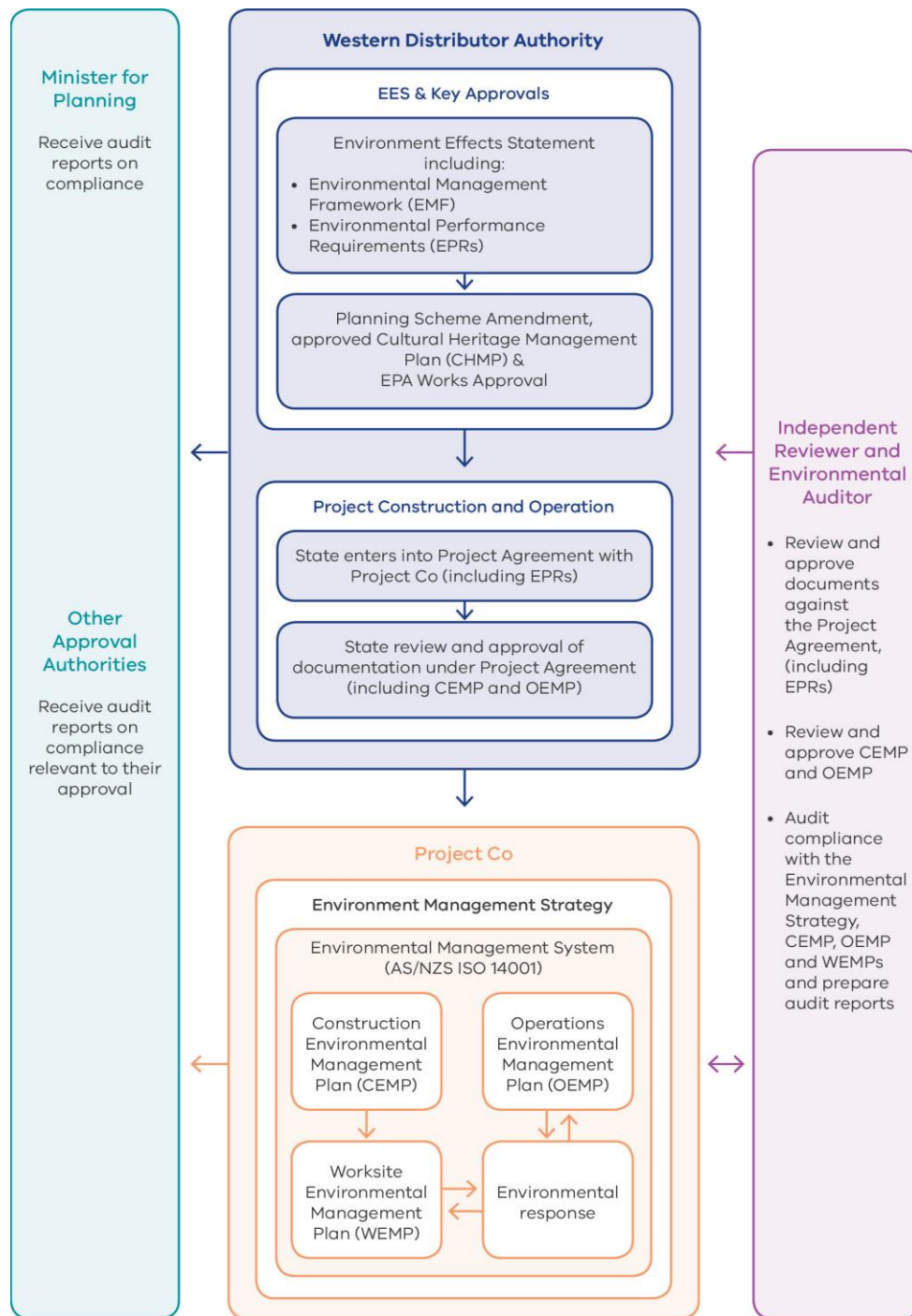


Figure 10 Governance Framework for the EMF⁴⁵³

The WDA, Councils and some submitters, such as IMPA and Friends of Moonee Ponds Creek, provided the IAC with revised versions of the EPR for consideration. The IAC has considered these revised EPR as well as the associated issues raised during the Hearing when providing its recommended version of the EPR in Appendix F.

⁴⁵³ EES Volume 1, Figure 8-1.

17.2 Key issues

The EMF itself was not in contention, nor was the proposed EMS at clause 5.2 of the Incorporated Document.

The key issues relate to how the EMF and associated EPR as exhibited in the EES are translated in the Incorporated Document and whether the Incorporated Document requires amendments to include further elements of the EMF, such as strengthened reference to the EPR.

The EPR are a critical element of the EMF and of successful Project compliance with applicable environmental legislation, policy and standards and for the delivery of the Project. There was some attention throughout the Hearing process on refinement of aspects of the EPR as discussed in the preceding Chapters of this report, in particular noise, air and traffic EPR.

The IAC considers the key issues with the EPR are:

- Whether, or how far, the EPR should be referenced within the Incorporated Document
- The scope of the EPR and whether they address the full range of issues likely to be encountered in Project design, construction and implementation
- How the EPR, and plans called up through the EPR, should be implemented during Project delivery.

17.2.1 Referencing of EPR in the Incorporated Document

The following versions of the EPR were tabled at the Hearing:

- Version 1 of the EPR tabled on Day 1⁴⁵⁴
- Version 2 (noise and vibration EPR) on Day 2⁴⁵⁵
- Version 3 of the EPR⁴⁵⁶ tabled by WDA on Day 10
- Version 4⁴⁵⁷ (Noise and vibration EPR) on Day 16
- Version 5⁴⁵⁸ (noise and vibration EPR) on Day 21
- WDA's final Version 6⁴⁵⁹ was tabled on Day 26.

The WDA's Version 6 included all of its previously accepted changes to the EPR, as well as any further changes as a result of consideration of submissions received during the Hearing.

The WDA stated in its opening submissions⁴⁶⁰ that the intention is the EPR be referred to within the Incorporated Document under the EMS but not included within the Incorporated Document. WDA suggest *"this applies the logic that the EPR should be capable of*

⁴⁵⁴ Document 42.
⁴⁵⁵ Document 54.
⁴⁵⁶ Document 107.
⁴⁵⁷ Document 175.
⁴⁵⁸ Document 205.
⁴⁵⁹ Document 322.
⁴⁶⁰ Document 10, p45.

amendment with the approval of the Minister without the need to amend the Planning Scheme”.

The CoM, although urging the IAC to recommend a supplementary EES for a number of reasons it put forward, stated in its closing submission that the EPR ought be explicitly referenced in the Incorporated Document so that there is more transparency and accountability.

Although a contentious issue at both the MMRP and East West Link Assessment Committee Hearings, no other parties made substantial submission on this issue.

17.2.2 Scope of the EPR

Although the matters identified in the EPR were generally agreed, submissions were largely around the detail of particular EPR, including what had been agreed at the various expert conclaves. HBCC, CoM and MCC identified a number of additions to existing EPR as well as edits that were suited to their own Council circumstances (the identification of certain roads is an example). The details on these matters are discussed in the assessment Chapters of this report and recommendations made as appropriate regarding specific EPR.

17.2.3 Should the EPR be prescriptive?

The WDA⁴⁶¹ stated *“there are no set rules that govern what must or must not be included in EPR. Inevitably, a judgement is required as to the level of detail and information required in association with the particular project”*. The WDA suggested that the EPR are performance-based, *“in some cases more specific requirements have been included to reflect the stage of the design development. In other cases, more flexibility is required in how the outcome will be achieved as the detailed design process continues ...”*⁴⁶².

Submissions from Councils and other parties suggested changes that in some areas were quite detailed and prescriptive.

17.2.4 How will EPR be implemented?

Submissions from Councils and others raised concerns about how the Project would be implemented and how the various plans, including the Development Plans within the Incorporated Document, would be managed both for construction and the Project operation, specifically regarding compliance with the various plans called up within the EPR. The IAC sought clarification from the WDA how the EPR and various plans will be implemented throughout the Project, including who is responsible for approval of such plans.

Clarification of the role of the IREA was sought from the WDA.

Mr Barlow suggested⁴⁶³ that although he considered that the various plans do not necessarily need to be directly approved by the Minister for Planning:

⁴⁶¹ Document 322.

⁴⁶² Document 10, paragraph 144.

⁴⁶³ Document 194.

...each Plan should be formally approved to achieve certainty in the process for all parties. To this end, I consider that the Independent Reviewer and Environmental Auditor should have the responsibility of confirming compliance by and approving the:

- Construction Noise and Vibration Management Plan*
- Air Quality Management and Monitoring Plan*
- Communications and Community Engagement Plan*
- Landscaping Plan.*

Counsel assisting the IAC advised⁴⁶⁴ that the IAC would need to consider, in relation to plans called up by the EPR, whether the particular plan should be approved by the Minister for Planning, another statutory body such as the EPA, the IREA (although not a statutory body itself) or whether it is appropriate that the plan simply be prepared by the contractor and not approved by anyone. Counsel assisting the IAC proposed *“approval by the Minister for Planning, after receiving advice from the IREA, will (at least in theory) subject the Plan to the highest degree of scrutiny”*.

17.3 Discussion

17.3.1 Scope of the EPR

The IAC understands that the EMS at clauses 5.2 to 5.9 of the Incorporated Document sets out the requirement for the EMS, including approval of the EMS by the Minister for Planning. At clause 5.2.1, the EMS must respond to the EPR and at clause 5.2.2 the EMS must set out the process and timing for development of the Construction Environmental Management Plan (CEMP), Work Site Environmental Management Plan (WSEMP) and other plans called for in the EPR. The IAC notes that the Minister for Planning does not approve these other Plans, but has made changes to the EPR and the Incorporated Document to ensure audit reports of compliance with the EMS, CEMP, Operational Environmental Management Plan (OEMP) and WSEMPs from the IREA are provided to the Minister for Planning on a six-monthly basis (or as required). EPR EMP1 and EMP3 have been amended to reflect these governance arrangements including that audit reports be made publicly available. The wording of the Incorporated Document is addressed in Chapter 18.

The IAC does not agree with the CoM that the EPR should be explicitly contained within the Incorporated Document itself but does agree with Counsel assisting the IAC that more accountability is required for approval of key plans called for under the EPR, rather than leaving approval directly with the WDA or Project Co.

The IAC received useful submissions about further amendments to the EPR. Similar to the MMRP Inquiry and Advisory Committee, many recommendations for change to the EPR had their origins in individual circumstance and were focussed on achieving a particular individual or community group benefit. The IAC prefers to stay at a higher level with EPR that are targeted, have clarity of language so they are simply expressed and focussed, are clear in their purpose and intent (including whether they are mandatory or discretionary)

⁴⁶⁴ Document 328, paragraphs 8 to 10.

and which state objectives and outcomes. Notwithstanding, where more prescription is required (for example noise and air emission standards), the IAC has included these.

Generally, the IAC considers that the revised EPR at Appendix F identify and address an appropriate range of issues and management measures that might be expected for a major transport project such as this Project in an urbanised environment.

17.3.2 How will EPR be implemented?

Implementing the construction and operational stages of the Project through effective adherence to a set of EPR is not without its difficulties as discussed in the previous sections. As mentioned above, there is a long list of various plans and actions that need to be prepared, reviewed, audited and approved prior to construction commencing including a range of stakeholder consultations. Some of these Plans also relate to operation of the Project and ongoing monitoring, management and maintenance.

Although the EPR are not proposed to be included in the Incorporated Document per se, the IAC's concerns with implementation and enforcement are somewhat alleviated through the role of the IREA, which includes six monthly audit reports regarding compliance with the EMS, EPR and various plans to the Minister for Planning. The IAC agrees with Councils and the Friends of Moonee Ponds Creek that such audit reports be made available to the public. The IAC has made changes to the EPR (EMP1 and EMP3) to reflect these governance arrangements.

The IAC also notes submissions from the WDA that the EPR will form part of the Project Agreement between the State and Project Co.

The IAC sees merit in having the IREA approve various plans, for example the EMPs in EPR EMP2, rather than the Minister for Planning, given that the IREA will have specialist expertise in the wide range of matters that will require detailed consideration.

Counsel assisting the IAC noted in submissions that:

- The IREA is not a statutory body; and
- Requiring a plan to be "*to the satisfaction of*" the Minister for Planning provides a decision making framework and also a dispute resolution mechanism in VCAT under the *Planning and Environment Act 1987* should the plan not be approved.

The IAC was not taken to the statutory basis for specifying the IREA as the approving body. Further, the IAC is not aware of any statutory mechanism for resolving disputes if the IREA is specified as the "approving authority" and the IREA does not approve the plans for whatever reason. In those circumstances, the IAC recommends that the Minister consider whether there is a sufficient statutory basis for nominating the IREA as the approving body and also consider including a default mechanism to allow for dispute resolution (e.g. requiring that the relevant plans must be approved by the Minister for Planning failing approval by the IREA).

17.4 Response to Terms of Reference

(i) Conditions and Environmental Management Framework

The IAC has strengthened the EPR and the governance arrangements by including public reporting of IREA audits, more consultation within the EPR with regulatory and relevant authorities and Councils as well as providing more certainty as to how EPR will be implemented. The IAC has also made amendments to the EPR to allow for some plans called up under EPR to be approved by the IREA (see commentary on this issue above) and audit reports to the Minister to reflect this.

17.5 Conclusion and findings

The IAC concludes that generally the EMS, which includes the EMF and EPR, is a sound and robust framework for managing the environmental effects of the Project during its construction and operational stages. The Minister for Planning must approve the EMS and the IAC is comfortable that clauses 5.2 – 5.9 within the Incorporated Document (subject to IAC's changes at Appendix E) provide the transparency and certainty for managing environmental effects that the EMS in the EES proposes. Strengthening the role of the IREA also provides the IAC with a level of certainty that various plans called up under the EPR will have some transparency.

The IAC finds that the WDA has responded to some requests for changes to the EPR during the course of the Hearings and should be commended for doing so. Where the IAC differs in opinion to requests made by others to the EPR, this is shown in the IAC version of the EPR at Appendix F and the IAC recommends that the Minister for Planning adopt the IAC version.

17.6 Recommendations

The IAC has made recommendations to include the EPR as shown in Appendix F and to ensure the EPR are included in contractual arrangements with Project Co.

18 Planning Scheme Amendments

The Advisory Committee part of the IAC's role as specified in the Terms of Reference is to provide advice as to whether the planning controls proposed by the draft Planning Scheme Amendment (PSA) are an appropriate means by which to facilitate the use and development of the Project, and any recommendations in relation to the statutory planning framework to be established for the Project.

The Project is proposed to be facilitated through PSA GC65 which affects the planning schemes of Brimbank, Hobsons Bay, Maribyrnong, Melbourne, the Port of Melbourne and Wyndham. A draft of the PSA was exhibited with the EES⁴⁶⁵. It seeks to make the following amendments to the affected planning schemes:

- Amend the Schedule to clause 52.03 'Specific sites and Exclusions' and clause 81.01 'Incorporated Documents' to insert a new incorporated document for the Project.
- Amend the Schedule to clause 61.01 'Administration and Enforcement' to make the Minister for Planning the Responsible Authority for the administration and enforcement of the incorporated document for the Project.
- Introduce a new Schedule to clause 43.02, DDO to protect the structural integrity of the Project tunnels and southern portals and require the referral of applications under local provisions. This includes amending or inserting new Planning Scheme Maps.
- Amend the Schedule to clause 66.04 'Schedule to clause 66 [Referral and Notice Provisions]' to update the referral authority for permit applications triggers under the new schedule.

The exhibited draft amendment package included:

- A draft Explanatory Report⁴⁶⁶ addressing Ministerial Direction 11 *Strategic Assessment of Amendments* and providing a comprehensive strategic evaluation of the proposed planning scheme amendment and the outcome it produces.
- The standard suite of planning scheme amendment templates⁴⁶⁷ required to submit a planning scheme amendment to the Minister for Planning and a copy of the draft Incorporated Document affecting the entire Project area, and the DDO drafted to protect the tunnel infrastructure (affecting the Hobsons Bay and Maribyrnong Planning Schemes).

The above documentation was accompanied by an analysis of the Project components and the planning permit triggers for each planning scheme⁴⁶⁸ and background technical analysis as part of the draft DDO.⁴⁶⁹

⁴⁶⁵ EES, Attachment IV.

⁴⁶⁶ Appendix A, EES - Attachment IV.

⁴⁶⁷ Appendix B, EES – Attachment IV.

⁴⁶⁸ Appendix C, EES – Attachment IV.

⁴⁶⁹ Appendix D, EES – Attachment IV.

18.1 Key issues

The IAC's assessment of land use impacts in its 'Inquiry' role⁴⁷⁰ found that the Project enjoys significant planning policy support from various elements of the SPPF and in particular its responsiveness to the directions articulated in Plan Melbourne 2017 – 2050. In forming this view, the IAC had regard to the content of the exhibited GC65 PSA and accompanying draft Explanatory Report.

No party to the Hearing materially challenged the suite of controls proposed in Amendment GC65, including the use of an Incorporated Document as a planning control to permit the use and development of land for the Project. Having noted the above, the key issue in relation to the draft PSA is:

- Drafting of specific clauses of the Incorporated Document, including whether provisions relating to amendments and approval of the EMS and Development and Urban Design Plans.

The IAC has utilised the WDA's final version of the Incorporated Document⁴⁷¹ with tracked changes accepted, as the template for its recommended inclusions and deletions. It is provided in Appendix E.

18.1.1 Evidence and submissions

WDA provided justification for the planning instruments selected to facilitate the development of the Project in its Part A submission. WDA submitted that:

Unlike other major transport projects that undergo an EES based on a concept or reference design, the development and urban design plans for the Project are known, incorporated in the EES and are being assessed by the EES. There is thus no need (subject to the outcomes of the EES assessment process) to have development and urban design plans prepared and approved by the Minister for Planning as a secondary consent under the Incorporated Document. The Incorporated Document provides, in clause 5.1, for the development and urban design plans to be approved by the Minister for Planning at the time of making the planning scheme amendment. This approach reflects the high level of design detail developed for the Project following a competitive tender process.

In response to a question asked by the IAC, the WDA argued that the urban design plans are detailed and developed unlike the concept plans presented in the MMRP, therefore a formal re-exhibition process would not be appropriate should the plans require amendment. The Incorporated Document allows the WDA to request amendments to the plans and EPR provided the request is accompanied by a statement from the WDA explaining the proposed changes. The Minister for Planning must approve any such amendments.⁴⁷²

⁴⁷⁰ Refer Chapter 6, Part A of this Report.

⁴⁷¹ Document 333.

⁴⁷² Document 10, paragraphs 165-166.

WDA called Michael Barlow to give evidence in strategic planning. In his evidence, Mr Barlow investigated the form of planning controls required to implement the Project and provided his support for the proposed planning controls. In summary, he gave evidence that:

- The use of a GC Amendment is appropriate as the Project affects a number of municipalities and *“is not readily capable of being disaggregated into components that are aligned with municipal or planning control boundaries.”*
- The Incorporated Document would be a concise document which enables a single reference point, ensures consistency and enables changes to plans to be made through substitution within the package of plans.
- The Minister for Planning as Responsible Authority creates a single point of approval.
- The DDO enables ongoing protection of the tunnels and specifically delineates the area of interest on the planning scheme map and highlights the existence of the tunnels. It also provides specific guidance as to what form of development requires consideration and approval and what is exempt.

In their original submission⁴⁷³, MCC requested that the IAC recommend that the proposed DDO13 be refined but this was not pursued in later requests for changes to the Amendment.

HBCC broadly supported the use of the Incorporated Document to facilitate development of the Project. It submitted that:

The Incorporated Document that forms part of the Planning Scheme Amendment and the conditions in the Environmental Management Framework should be strengthened and tightened to ensure that delivery of the Project to the highest standards is ensured.

Based on the exhibited version of the Incorporated Document, MCC and CoM submitted tracked changes versions of the Incorporated Document for the IAC’s consideration.

The changes suggested by MCC included:

- removal of Project inclusion of elevated road and road infrastructure over the Maribyrnong River
- change of road connection from MacKenzie Road to Dock Link Road
- recommendation of an approval process similar to that contained in clauses 4.6.4 to 4.6.8 in the Incorporated Document for the MMRPO in substitution for clause 5.6
- minor changes to ancillary activities
- minor changes to conditions regarding development and urban design plans, environmental management strategy and the EPR
- removal of native vegetation as preparatory works.

⁴⁷³ Submission 158, Schedule 1, paragraph 3.2.

In its written submission, MCC requested that the IAC remove the proponent's ability to rely on secondary consent mechanisms to make changes to the Project that have not been considered by the IAC or have been subject to consultation. Further, it stated:

It is necessary to ensure that the Incorporated Document and the EPR do not confer inappropriate discretions on Project Co, and there is a clear involvement for the responsible authority, the independent auditor and relevant public authorities such as Melbourne Water and the EPA as plans and management documents are further refined.

The changes suggested by CoM⁴⁷⁴ included:

- Additional detailed Development and Urban Design Plans condition requirements, including referrals to the OVGA and other relevant government authorities, consultation process and approval process for preparing and amending plans
- Additional detailed Environmental Management 'Framework' conditions relating to consultation and compliance
- Minor changes to native vegetation, preparatory works and availability of documents conditions
- New conditions relating to Tolling.

In its written submission, CoM stated that it had 'significant concerns' about the proposed Incorporated Document, and in particular, were concerned that the Amendment proposes to exempt the Project from other planning considerations.

It does not provide for the inclusion of the Environmental Performance Requirements (EPR) or a transparent structure for the governance of the Project, including changes which could be made to the EPR and detailed project plans... The Planning Scheme Amendment must be re-written to require greater consultation with Councils and other affected stakeholders.

In its final submission tabled at the Hearing, CoM stated that embedding the Project in multiple schemes removes the Project from municipal oversight. Despite not being the first time this mechanism has been used, CoM argued that the significance of the Project warrants proper consideration and justification of the proposed planning tools. It stated:

In principle, embedding a specific project in the Scheme is no different to including a specific planning policy. Policies are not included in Schemes without clear strategic support, and evidence that they would promote planning outcomes that achieve a net community benefit... What is necessary is not that the Project be done quickly, but that it be done properly...A small delay to ensure the preparation and consideration of a comprehensive EES which allows for an informed decision, is the only appropriate approach.

⁴⁷⁴ Document 256.

18.2 Discussion

The IAC has considered submissions and proposed edits to the Incorporated Document advanced during the Hearing. The IAC's proposed version of the Incorporated Document is provided in Appendix E to this report. Key issues and elements are discussed below.

(i) Description of Project

The IAC considers it appropriate to specifically provide reference to Toll gantries in the Project description to provide transparency regarding their inclusion as a key element of the Project.

(ii) Development and Urban Design Plans Conditions

The IAC does not support referencing of the exhibited 'Development and Urban Design Plans' in the Incorporated Document as provided for via the 'May 2017' reference to the Plans at clause 5.1. The IAC has recommended a number of Project elements be revised prior to issuing the Project approvals. Such review should include consultation with Council's and appropriate authorities. Accordingly, the IAC considers it would be premature to reference the exhibited plans, via their reference to 'May 2017' in the Incorporated Document.

The IAC does not consider the detail proposed by the CoM in its recommended clause 5.2 to guide and facilitate future modifications to the plans is warranted. The IAC considers sufficient and practicable flexibility should be provided to enable modifications to the Plans and that Council's and other relevant stakeholders should be appropriately consulted. The IAC considers this can be facilitated by inclusion of a requirement in the proposed clause 5.7.2 that the WDA must document the nature and form of consultation undertaken.

The IAC considers that there is an appropriate role for the IREA in the review of Development and Urban Design Plans and that the Minister should have the benefit of the reviewer's advice. The IAC accepts the advice of Counsel assisting⁴⁷⁵ that the requirement that amendments to Design Plan and the raft of other Plans "are subject to the satisfaction of the Minister for Planning" provides an appropriate dispute resolution mechanism in VCAT under the *Planning and Environment Act 1987*.

(iii) Environmental Management Strategy Conditions

The IAC considers it very important that the EMS is made publicly available and is independently and regularly reviewed. Further, the IAC considers it appropriate for the Minister to have the benefit of the IREA opinion to inform his or her consideration in determining whether the EMS, and any amendment to it, should be approved. Conditions have been added to give effect to these findings.

The IAC notes that the CoM also sought the public availability of the approved Development and Urban Design Plans, the EPR and EMF. The IAC supports the submission of the CoM in

⁴⁷⁵ Document 328, paragraph 10, p3.

this regard. The IAC considers that the proposed requirement to have the EMS made public available on relevant websites will achieve this outcome as the EPR and Plans are key elements of the EMS.

The IAC notes that the WDA included a provision in its last version of the Incorporated Document⁴⁷⁶ to provide staged preparation and approval of the EMS. The IAC considers this appropriate, subject to the IREA having a review role.

(iv) Preparatory Works prior to approval of EMS

The IAC supports minor modifications to the wording of the preparatory works condition. It does not consider the CoM suggested further modifications⁴⁷⁷ regarding form of Ministerial consideration and approval are required.

(v) Inclusion of Tolling Provision

CoM suggested inclusion of a number of proposed conditions in relation to tolling which provide the Minister for Planning with powers to issue directions to change toll fees in relation to the Project. The IAC has considered these conditions and does not support the inclusion of Tolling conditions in the Incorporated Document.

(vi) MCC changes to DDO

The MCC request to change the extent of, and the exemptions to, the DDO are reasonable and the IAC has recommended these be considered during Amendment finalisation.

18.3 Findings and Conclusions

The IAC finds:

- The planning controls proposed by draft GC65 Planning Scheme Amendment are an appropriate means by which to facilitate the use and development of the Project.
- A number of consequential changes will need to be made to the exhibited draft CG65 Planning Scheme Amendment documentation to reflect the recommendations contained in this report.
- A number of changes are required to the Incorporated Document, as shown in Appendix E.
- No changes to the statutory planning framework for the Project are required.

⁴⁷⁶ Document 333, Clause 5.3.

⁴⁷⁷ Document 333, suggested tracked changes to Clause 5.5.1.

PART D: INTEGRATED ASSESSMENT

19 Integrated Assessment

19.1 Introduction

This part of the report provides the IAC's integrated assessment of the Project and its summary of responses to the matters raised in the Terms of Reference.

The IAC's Terms of Reference, at clause 13(g) include that the following relevant matters are included in its report:

- i. consideration of adverse and beneficial environmental effects;*
- ii. any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes;*
- iii. conditions that should be imposed on any approval given for the Project under Victorian law;*
- iv. any recommendations to strengthen the environmental management framework; and*
- v. any recommendations regarding specific environmental performance requirements that would be appropriate to achieve acceptable environmental outcomes consistent with applicable legislation and policy.*

19.2 Discussion

The EES framework, EMF, draft evaluation objectives and risk assessment process are discussed in Chapter 17 and relevant technical Chapters in Part B of this report.

Overall, the IAC considers the evaluation objectives adopted by WDA in the EES to be satisfactory and do not require further refinement or the need for additional objectives.

The risk assessment approach, based upon AS/NZS/ISO 31000:2009 Risk Management is sound and is similar to that undertaken for other EES projects in Victoria, including the MMRP. The structure of the EMF and use of EPR to capture environmental performance outcomes are appropriate to minimise environmental, economic and social impacts.

The IAC is satisfied these have been adequately tested by the EES Project design such that, subject to design refinements in some areas, the Project can be delivered meeting outcomes set by the EPR, EPA Works Approval and the Incorporated Document.

Table 4 summarises the IAC's findings and provides an integrated assessment with regard to the evaluation objectives being met for the Project. In the integrated assessment, where the IAC refers to the Incorporated Document and EPR, it is intended to refer to these documents as amended by the IAC in Appendices E and F.

Table 4: Integrated Assessment

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
<p>Transport capacity, connectivity and traffic management</p> <p><i>To increase transport capacity and improve connectivity to and from the west of Melbourne and, in particular, to increase freight movement via the freeway network instead of local and arterial roads, while adequately managing effects of the works on the existing broader and local transport networks, including road, public transport, cycling and pedestrian transport networks.</i></p> <p><i>EPR TP1 – TP9</i></p>	<p>The Committee accepts the evidence put forward by WDA that the Project, by way of widening of the West Gate Freeway and the provision of a tunnel and of a new bridge over the Maribyrnong River, will lead to increased transport capacity over the Maribyrnong and Yarra Rivers and improved network resiliency. The direct link across to West Melbourne and Swanson Dock from the West Gate Freeway improves connectivity to and from the west. In addition, the provision of new and improved shared paths and cycleways, including the completion of missing links for the Federation Trail and the proposed Veloway, improve connectivity for pedestrians and cyclists.</p> <p>There was general agreement that the Project meets the transport objectives of improving transport capacity, improving connectivity to and from the west and moving freight from residential streets. With regard to the latter, the truck kilometre travelled by road category clearly shows that there is an overall reduction in trucks on residential streets. However, there are still some residential streets, principally Millers Road and Williamstown Road, that will have an increased truck volume as a result of this Project.</p> <p>While it may be possible to mitigate some of the impacts on the adjacent residential community, Millers road will have a capacity limit, both physical and environmental, that has not been explored in the EES. Further work should be done to understand the residual risk and to ensure that a solution to managing medium to long term growth in truck traffic between the Brooklyn/Tottenham industrial area and the Port is developed. This further work includes:</p> <ul style="list-style-type: none"> - A corridor study should be undertaken as part of the Project by the WDA and VicRoads in consultation with Hobsons Bay City Council, along Millers Road from Geelong Road to the West Gate Freeway to determine traffic and transport management works required to cater for the projected traffic volumes in 2031, including consideration of the safety, accessibility and amenity of the abutting local residential community. - Planning should be commenced to determine an alternate freight route to reduce reliance on Millers Road beyond 2031. <p>Further work is required to fully assess and understand the traffic impacts of the Project on North Melbourne, West</p>

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
	<p>Melbourne, E-Gate and Waterfront City, taking into account the access requirements of a full development of Waterfront City and E-Gate.</p> <p>Additional traffic modelling needs to be undertaken to facilitate safe and efficient access by freight vehicles, including over-dimensional vehicles, travelling via Sims Street and MacKenzie Road to and from Footscray Road. This further assessment should include consideration of the impacts of including the City Access Charge on the MacKenzie Road off-ramp.</p> <p>Any traffic mitigation works identified as being required from the above further work, should be implemented as part, and at the cost of, the Project.</p> <p>Overall it is considered that the revised EPR are sufficient to manage the environmental effects of the works on the broader transport network, subject to further assessments required referred to above.</p> <p><i>Chapter 4</i></p>
<p>Built environment – <i>To protect and enhance the function and character of the evolving urban environment including built form and public realm within the immediate and broader context of the project works.</i></p>	<p>The Project enjoys significant planning policy support from various elements of the State Planning Policy Framework and in particular its responsiveness to the directions articulated in Plan Melbourne 2017 – 2050.</p> <p>The IAC is satisfied that the West Gate Tunnel Project is recognised by Plan Melbourne as a project that will contribute to an integrated transport system connecting people to jobs and services.</p> <p>The IAC finds that the Project generally has chosen a superior alignment which avoids residential areas, minimises impacts on urban renewal areas (other than E-Gate), and provides a safe and functional crossing of the Maribyrnong River that provides direct freight access to the Port of Melbourne.</p> <p>Considerable design skill has been invested in giving the Project a coherent and striking design character. In particular, the Project has sought to emphasise and celebrate iconic engineering and architectural structures. However, there are areas where the Project can better achieve its design and public open space ambition through refinements that will occur through detail design and through the implementation of EPR and the controls provided by the EMF.</p> <p>There are a number of adverse environmental effects associated with the current design of the Wurundjeri Way and Dynon Road extensions through E-Gate. The IAC considers that the current design is sub-optimal in regard</p>
<p><i>EPR LPP1 – LPP5</i></p>	

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
<p>Health, amenity and environmental quality – <i>To minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the project.</i></p>	<p>to these links. The IAC considers it appropriate to review and refine the Project design at the city end to ensure the urban renewal opportunities associated with the future development of the E-Gate precinct, and its future integration with North and West Melbourne, are maximised to the greatest extent practicable. The IAC considers this design review may involve significant investigation and analysis. Given the overall Project timing the IAC considers this element could be done as a separate Project approval if necessary by splitting the Planning Scheme Amendment to avoid any change to the overall Project timetable.</p> <p><i>Chapter 5 and 6</i></p>
<p><i>EPR AQP1 – AQP8; GGP1-GGP2; NVP1A – NVP13</i></p>	<p>The IAC acknowledges that some of the communities of Melbourne’s inner west are already disadvantaged when it comes to air quality, noise and amenity. Brooklyn in particular is noted to be one of the areas with poor air quality.</p> <p>The impact of the Project during construction on communities for all three components of the Project, as well as road users, cannot be underestimated. There will be significant disruption to daily life through much of the construction program and it will affect people in different ways. It cannot be avoided but it should be able to be mitigated – to a degree. The IAC also notes that in some areas of inner Melbourne, these construction impacts are exacerbated by the Melbourne Metro Rail Project also being constructed at a similar time, adding construction trucks/vehicles and disruption to local communities within these construction areas.</p> <p>The IAC accepts the Project, once operational, will produce significant benefits to the state economy and to residents, and businesses in regards to traffic and transport objectives. However for some areas, noise, air quality and other amenity impacts will be increased.</p> <p>The IAC considers it appropriate to include tunnel filtration to minimise air quality impacts and has included an EPR accordingly. The IAC also considers that additional air quality surface road modelling including exhaust and non-exhaust emissions for roads likely to experience a significant increase in traffic, including Millers Road, and Williamstown Road, should occur.</p> <p>The IAC has included noise standards in the EPR, including for night time and for open space areas. The inclusion of night-time noise limits would complement the day-time</p>

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
	<p>limits and help to achieve internal noise levels closer to those acceptable under Australian Standard 2107:2016.</p> <p>The IAC also recommend to include design capacity for the future provision of noise protection measures, at source, where the alignment is adjacent to existing and future urban renewal areas.</p> <p>With the implementation of the above actions, the IAC considers the Project will have a beneficial environmental effect on residents adjacent to the West Gate Freeway.</p> <p>Overall, the IAC finds that in the context of the Project benefits, impacts during the construction stage upon the community will be acceptable and the suite of controls and strengthened stakeholder engagement through revised EPR and the Incorporated Document are appropriate to implement the Project.</p> <p><i>Chapters 7, 8, and 9</i></p>
<p>Landscape, visual and recreational values – <i>To minimise adverse effects on landscape, visual amenity and recreational and open space values and to maximise the enhancement of these values where opportunities exist.</i></p> <p><i>EPR EP6; LVP1 – LVP5</i></p>	<p>The IAC recognises that the Project incorporates improvements to the open space networks and the connections to these spaces, between them and to important needs-fulfilling destinations.</p> <p>In particular the IAC note:</p> <ul style="list-style-type: none"> - New wetlands and boardwalk on Whitehall Street add to range of open spaces and recreational opportunities locally available - New pedestrian/cycle link into Stony Creek Reserve will improve ease of access to this space - The shared use path will make the new and existing open spaces more accessible - Improvements to Federation Trail assists recreation and commuter active transport trips - Proposed interpretive features will assist the understanding of the indigenous heritage of the area. <p>The IAC notes however that the elevated structures will have some negative landscape impacts on the Maribyrnong River and Moonee Ponds Creek. For this reason, the IAC has recommended design of the Maribyrnong Bridge be reviewed to minimise bulk and incorporate transparent panels on bridge parapets. The Moonee Ponds Creek requires further protection and the articulation of a design vision in order to better fulfil its potential.</p> <p>The IAC also has concerns in relation to the quality of proposed open space and the loss of vegetation for the Project. The IAC considers the impacts on some areas</p>

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
	<p>could be significant until proposed landscaping and revegetation matures. The IAC has recommended significant changes to the EPR aimed at mitigating impacts and improving outcomes in terms of open space and amenity, including the potential for further urban design and landscape improvements outside of the Project area. Further detailed design development of the Veloway is required to also minimise a number of issues including dawn and dusk glare.</p> <p><i>Chapter 6</i></p>
<p>Land stability – <i>To avoid or minimise adverse effects on land and river bed or bank geomorphic stability from project activities, including tunnel construction and crossings of the Maribyrnong River, Kororoit Creek, Stony Creek and Moonee Ponds Creek.</i></p> <p><i>EPR GMP1 – GMP6</i></p>	<p>The IAC is satisfied that the use of an Earth Pressure Balance (EPB) Tunnel Boring Machine (TBM) would reduce the extent of ground water inflow and ground movement. The IAC accepts the evidence of Mr O’Shannessy that the use of this machine controls soil in-rush and over excavation and potential groundwater leakage.</p> <p><i>Chapter 11</i></p>
<p>Cultural Heritage – <i>To avoid or minimise adverse effects on Aboriginal and historical cultural heritage values.</i></p> <p><i>EPR CHP1 – CHP12</i></p>	<p><u>Historic</u></p> <p>The IAC is satisfied that the Project’s likely impact on historical heritage sites and places will be appropriately avoided and minimised through refinements that will occur through detail design and through the implementation of EPR and the controls provided by the EMF.</p> <p><u>Aboriginal cultural heritage</u></p> <p>The Committee is satisfied the CHMP process under the <i>Aboriginal Heritage Act 2006</i> will ensure this objective is met and notes approval of the CHMP on 6 September 2017.</p> <p><i>Chapter 10</i></p>
<p>Hydrology and water quality – <i>To avoid or minimise adverse effects on surface water and groundwater quality and hydrology in particular resulting from the disturbance of contaminated or acid-forming materials, and to maintain functions and values of floodplain environments.</i></p> <p><i>EPR GWP1 – GWP7; SWP1 – SWP15</i></p>	<p>The IAC accepts the evidence that proper implementation of control measures would likely result in low to medium impacts on ground movement, and where zones of medium impact have been identified, they are limited in area and do not extend to residential areas.</p> <p>Risks associated with contaminated groundwater inflows, the initiation of acid groundwater generation by dewatering, excessive groundwater extraction and groundwater beneficial use degradation are agreed as being low to non-existent.</p> <p>The IAC considers that the EES appropriately identified the surface water risks from the Project; many of which are</p>

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
	<p>normal challenges associated with a large construction Project. Provided they are managed well during detailed design and construction then the long term environmental effects on surface water quality should be minimal.</p> <p>The IAC is satisfied on the material before it that subject to detailed design and approvals and effective management, the impact on flood levels and flooding will be able to be managed to an acceptable level. In this regard, the IAC accepts that EPR SWP11 – Flood levels, flows and velocities is adequately scoped.</p> <p>The IAC shares the concerns of many submitters about the predominance of pier and bridge structures in waterways. These are undesirable for many reasons both practical and aesthetic; but the IAC concludes that on balance the environmental effects can be reduced to an acceptable level.</p> <p><i>Chapter 11 and 12</i></p>
<p>Waste management – <i>To manage excavated spoil and other waste streams generated by the project in accordance with the waste hierarchy and relevant best practice principles.</i></p> <p><i>EPR CSP1 – CSP4; WPP1</i></p>	<p>The Project will require approximately 2 million cubic metres (in-situ volume) of excavated spoil to be removed and disposed to suitable off-site facilities over the course of the construction period. Due to the amount of spoil to be removed, the IAC has strengthened EPR CSP2 to allow for the Contaminated Soil and Spoil Management Plan to be to the satisfaction of the EPA and approved by the IREA.</p> <p>The IAC finds that Project can be constructed in a manner that has low risks of disturbing existing contamination and causing contamination of the surrounding environment.</p> <p>The revised EPR that set out the requirement for complying with the waste hierarchy and for enclosed sheds to be built around the spoil will ensure a low and acceptable risk to the receiving environment.</p> <p><i>Chapter 14</i></p>
<p>Social, business, land use, public safety and infrastructure – <i>To minimise adverse effects on the social fabric of the community, including with regard to community cohesion, access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.</i></p> <p><i>EPR SP1 – SP5; BP1 – BP9</i></p>	<p>In response to the social impact evidence led by the WDA, which was supported by the evidence by the HBCC, the IAC agrees that there is significant merit in including an additional EPR to require Project Co. to develop and implement a ‘Community Involvement Participation Initiative’. The IAC considers there will be a significant opportunity for this initiative to achieve the ‘social legacy’ outcomes envisaged and advocated for by HBCC by encouraging local community empowerment and participation.</p> <p>The IAC concludes that the cumulative impacts on some</p>

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
<p>Biodiversity – <i>To avoid or minimise adverse effects on native terrestrial, aquatic and inter-tidal flora and fauna, and address opportunities for offsetting potential losses consistent with the relevant policy.</i></p> <p><i>EPR EP1 – EP7; LVP2 - LVP4</i></p>	<p>communities will be significant. The IAC considers that the development and implementation of a generous and wide-ranging Community Involvement and Participation Plan will assist in making the adverse social effects more acceptable to the effected communities.</p> <p>In regard to business impacts, the IAC is satisfied that the Business EPR will be effective in business impact mitigation.</p> <p><i>Chapter 6, 15 and 16</i></p> <p>The IAC generally accepts the evidence that for the bulk of the Project area, there are low ecological values, except for the Creek and riverine environments which have some ecological values. Overall, the Project will have a minimal impact on existing native vegetation and the ecological values of Stony Creek, Moonee Ponds Creek and Kororoit Creek.</p> <p>There are areas within these Creek environs however that will be directly impacted by the Project infrastructure and all measures should be put in place to avoid, where possible, the removal of native vegetation. Notwithstanding, EPR EP1-7 have been revised to provide strengthened protection of existing native vegetation, corridor linkages that have been identified in existing strategic documents as well as improvements to the ongoing tree replacement management regime.</p> <p>The IAC considers that the removal of substantial numbers of medium to large trees within the Project boundary will be quite noticeable to the surrounding communities and that WDA may not have acknowledged this extent, for example along the West Gate Freeway and Footscray Road. For this reason, replacement planting should occur as soon as possible and this is reflected in revised EPR EP6.</p> <p>The Committee finds that in the context of the urban environment, the proposed EPR are acceptable to manage the potential biodiversity impacts.</p> <p><i>Chapter 6 and 13</i></p>
<p>Environmental Management Framework – <i>To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the project, in order to achieve acceptable environmental outcomes.</i></p>	<p>The EMF and EPR are critical in determining how the Project can be delivered within an acceptable environmental framework. Subject to the amendments recommended in this report, the IAC considers the EMF and EPR will achieve acceptable environmental outcomes.</p> <p>The IAC considers the EPR are sufficiently linked via the EMS in clause 5.2 of the IAC version Incorporated Document. The role of the IREA is also critical to the</p>

Draft evaluation objective and Relevant EPR	IAC’s integrated assessment and relevant Chapters of this report
<i>EPR EMP1 – EMP4</i>	successful implementation of the Project. The Incorporated Document and the EPR ensure key documents will be available on the Project website. <i>Chapter 17</i>

19.3 Overall findings

On balance, considering the adverse and beneficial environmental effects overall, the IAC considers the environmental effects of the Project can be managed to an acceptable level and the Project approvals should be granted.

This conclusion is subject to a number of important conditions outlined in the recommendations in this report including:

- Design revisions based on State Government commitments during the Hearing relating to Millers Road, additional noise mitigation, additional truck bans and toll point removal
- Design revisions related to the city end of the Project and particularly the alignment and elevation of the Wurundjeri Way extension and Dynon Road link
- Mitigation of impacts on Millers Road and planning for a future alternative truck route to Millers Road
- The application of significant mitigation measures through EPR
- Effective Project implementation including environmental management of construction impacts
- Other detailed issue specific recommendations.

The design review at the city end of the Project may involve significant investigation and analysis. Given the overall Project timing the IAC considers this element could be done as a separate Project approval if necessary by splitting the Planning Scheme Amendment to avoid any change to the overall Project timetable.

The IAC considers the design changes recommended by the IAC for the Project fall within the definition in the Terms of Reference of *‘feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes’*

Appendix A Terms of Reference

Terms of Reference

West Gate Tunnel Project – Inquiry and Advisory Committee

An Inquiry appointed pursuant to section 9(1) of the *Environment Effects Act 1978* and an Advisory Committee pursuant to section 151 of the *Planning and Environment Act 1987* to consider and report on the West Gate Tunnel Project, in accordance with these terms of reference.

The Inquiry and Advisory Committee is to be known as the West Gate Tunnel Project Inquiry and Advisory Committee (IAC).

1. Background

1. The West Gate Tunnel Project (the Project) comprises the following elements:
 - a. The upgrade and widening of the existing West Gate Freeway by two lanes in each direction to generally provide overall capacity of six 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, collector-distributor carriageways, elevated ramps, structures and surface road connections including new connections to Hyde Street with the westbound freeway on ramp located to the south of the West Gate Bridge via a section of Simcock Avenue and the eastbound freeway off ramp located immediately north of the West Gate Bridge;
 - b. Two bored tunnels catering for three traffic lanes in both directions, with:
 - i. the eastbound tunnel having a length of approximately 2.8 kilometres commencing from the southern portal approximately 300 metres to the west of Williamstown Road and extending to the northern portal located east of the intersection of Whitehall Street and Harris Street;
 - ii. the westbound tunnel having a length of approximately 4 kilometres commencing from the northern portal located east of the intersection of Whitehall Street and Harris Street and extending to the southern portal located approximately 250 metres to the west of the Newport railway line on the south side of the existing West Gate Freeway; and
 - iii. the eastbound tunnel ventilation structure located approximately 60 metres east of Whitehall Street and 250 metres north of Somerville Road, and the westbound tunnel ventilation structure located in the widened West Gate Freeway approximately 150 metres west of the Newport railway line;
 - c. Bridges across the Maribyrnong River including a central carriageway connecting the tunnels with twin viaducts above Footscray Road and separate on and off ramps to the Port of Melbourne via Mackenzie Road, new off-ramp to Appleton Dock Road and outbound on-ramp from Footscray Road to the viaduct, twin viaducts above Footscray Road and connections to CityLink, Dynon Road and an extension of Wurundjeri Way to Dynon Road and widening to Flinders Street;
 - d. Relocation of major services infrastructure including relocation of high voltage electricity lines and the North Yarra Main Sewer;
 - e. Improvements to the shared pedestrian and bicycle network;
 - f. Upgrades to pedestrian infrastructure and links including replacing existing pedestrian bridges in the vicinity of Wembley Avenue and Rosala Avenue, a new veloway over Footscray Road and new pedestrian bridges over Whitehall Street, Moonee Ponds Creek, Footscray Road and the new Footscray Road connection to the east of CityLink; and

- g. Creation of new public open space areas of approximately 9 hectares.

These elements are more particularly shown within the project boundary for the Project on the plans referred to in Appendix A.

2. The Project, which was formally known as the Western Distributor Project, was declared to be ‘public works’ under section 3(1) of the *Environment Effects Act 1978* (Vic) (EE Act) by order of the Minister for Planning on 23 December 2015. As a consequence, an Environment Effects Statement must be prepared in respect of the Project (EES).
3. Following the completion of a competitive tender process, on 2 April 2017 the State announced the selection of CPB John Holland Joint Venture to design and construct the Project. The declaration of “public works” under the EE Act was subsequently amended by order of the Minister for Planning on 17 May 2017 to describe more specifically the design as selected, so as to facilitate the more effective, targeted and efficient assessment of the environmental effects of the Project (the Order).
4. The Order specifies the procedures and requirements that are to apply to the EES. These include (but are not limited to):
 - a. The preparation of scoping requirements in respect of the EES (which were published in April 2016);
 - b. The appointment of an inter-agency Technical Reference Group in respect of the Project (which occurred in January 2016);
 - c. The public exhibition of the EES for a period of 30 days (which is anticipated to commence on or around 29 May 2017); and
 - d. The appointment of an inquiry to consider the environmental effects of the Project (which, pursuant to these terms of reference, is required to conduct a public hearing commencing on or around 14 August 2017).
5. The proponent for the Project is the Western Distributor Authority (WDA), an administrative office within the Department of Economic Development, Jobs, Transport and Resources. The WDA is tasked with the development and delivery of the Project on behalf of the State of Victoria. Part of the WDA’s responsibilities is to prepare the EES, including all necessary technical studies, and to undertake stakeholder consultation.
6. A draft planning scheme amendment has been prepared by WDA in respect of the Project (draft PSA) in accordance with the *Planning and Environment Act 1987* (Vic) (PE Act). The draft PSA, which will be exhibited with the EES, affects the Hobsons Bay, Maribyrnong, Melbourne, Port of Melbourne, Brimbank and Wyndham Planning Schemes. The draft PSA would facilitate the use and development of the Project and will implement measures necessary to protect the operation and structural integrity of the Project.
7. A works approval application has been prepared in accordance with the provisions of the *Environment Protection Act 1970* (Vic) (EP Act) in respect of the proposed tunnel ventilation systems (WAA). Notice of the works approval application will be advertised jointly with the EES, in accordance with section 20AA of the EP Act.
8. Consistent with the terms of the Order, an Inquiry will be appointed under section 9(1) of the EE Act to consider the environmental effects of the Project. The Inquiry will also consider submissions made in respect of the works approval application.
9. The Inquiry members will also be appointed as an Advisory Committee under section 151 of the PE Act to consider aspects of the draft PSA.
10. The IAC is to include experience in:
 - a. the planning framework;

- b. the environmental management framework;
- c. social cohesion and community;
- d. urban design; and
- e. traffic.

11. These terms of reference:

- a. identify the tasks of the IAC acting in its capacity as an Inquiry under the EE Act and as an Advisory Committee under the PE Act;
- b. provide directions concerning the conduct of the public hearing to be conducted by the IAC; and
- c. address other miscellaneous matters concerning the operation of the IAC.

2. Tasks of the Inquiry

12. The purpose of the Inquiry is to inquire into and provide an integrated assessment of the environmental effects of the construction and operation of the Project.

13. The Inquiry is to undertake the following:

- a. Review and consider:
 - i. the EES and technical appendices, together with WAA No. S0100269; and
 - ii. all public submissions received as part of the exhibition process relevant to the Project.
- b. Convene an early public information session during the exhibition of the EES and WAA at which the proponent must describe the Project and outline in broad terms the content of the EES and WAA.
- c. Conduct a Directions Hearing on or as near as possible to 19 July 2017 to:
 - i. identify key issues, relevant to these terms of reference, that the Inquiry intends to examine;
 - ii. identify submitters, agencies and associated experts that seek to appear before it at the public hearing (both in its capacity as an Inquiry under the EE Act and an Advisory Committee under the PE Act);
 - iii. provide directions to submitters concerning the conduct of the public hearing and any procedural steps prior to the commencement of the public hearing; and
 - iv. finalise a timetable for proceedings.
- d. Conduct a public hearing commencing on or as near as possible to 14 August 2017.
- e. Consider and, where relevant, investigate in relation to the Project:
 - i. the magnitude, likelihood and significance of adverse and beneficial environmental effects;
 - ii. the adequacy of the proposed environmental management framework, including the proposed environmental performance requirements and environmental management measures contained in the EES, with reference to applicable legislation and policy;
 - iii. the adequacy of WAA No. S0100269, with reference to applicable legislation and policy;
 - iv. the adequacy of the impact assessment and whether the proposed environmental performance requirements are capable of being met;
 - v. feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes;

Terms of Reference | West Gate Tunnel Project – Inquiry and Advisory Committee

- vi. all submissions made to the Inquiry in relation to any of the matters set out in paragraphs 13(e)(i) to (v) above; and
 - vii. any matter reasonably incidental to the matters set out in paragraphs 13(e)(i) to (v) above.
- f. Conduct the hearing as provided for by these terms of reference.
- g. Provide a report to the Minister containing a description of the proceedings conducted by the IAC (including a list of those making a submission or consulted), and the IAC's findings and recommendations in relation to its investigations and considerations referred to above. The report should include, but not necessarily be limited to, the following specific matters in relation to the Project:
- i. consideration of adverse and beneficial environmental effects;
 - ii. any feasible modifications to the design of the Project within or reasonably proximate to the project boundary that could offer demonstrably overall superior outcomes;
 - iii. conditions that should be imposed on any approval given for the Project under Victorian law;
 - iv. any recommendations to strengthen the environmental management framework; and
 - v. any recommendations regarding specific environmental performance requirements that would be appropriate to achieve acceptable environmental outcomes consistent with applicable legislation and policy.
- h. The IAC is to submit its report to the Minister by 23 October 2017, unless an extension is agreed to by the Minister.

3. Tasks of the Advisory Committee

14. The Advisory Committee is to undertake the following.
- a. Review:
 - i. the draft PSA; and
 - ii. public submissions received in relation to the planning controls proposed by the draft PSA.
 - b. Conduct a hearing to hear from the WDA, and any other submitters who wish to be heard, concerning the appropriateness of the planning controls specified in the draft PSA having regard to these terms of reference. The hearing is to be conducted jointly with the Inquiry hearing in relation to the EES.
 - c. Provide a report to the Minister containing the Advisory Committee's advice as to whether the planning controls proposed by the draft PSA are an appropriate means by which to facilitate the use and development of the Project, and any recommendations it might have in relation to the statutory planning framework to be established for the Project. The IAC is to submit its report to the Minister jointly with its report under paragraph 1313(h) of these terms of reference.

4. Conduct of Hearings

15. The hearings are to be conducted in an open, orderly and equitable manner, as provided for by these terms of reference, with a minimum of formality and without the necessity for legal representation.
16. The hearings are to be conducted in public unless a submission is confidential in nature and the IAC is of the opinion that the hearing should be closed to the public in relation to such that submission.

Terms of Reference | West Gate Tunnel Project – Inquiry and Advisory Committee

17. The Inquiry process will be an investigative rather than an adversarial process. The Inquiry process aims to be exploratory and constructive.
18. In conducting hearings, the IAC may at its discretion:
 - a. limit the time of submitters appearing before it;
 - b. limit the time for presentation of evidence by witnesses;
 - c. strictly control cross examination of witnesses, including by prohibition of cross examination in appropriate circumstances;
 - d. meet with a quorum of at least two members present, including the IAC Chair or Deputy Chair; and
 - e. conduct concurrent hearings on matters as determined by the IAC where the quorum is achieved and where, in the opinion of the IAC, no submitter who wishes to participate in the hearing is likely to be unfairly prejudiced by concurrent hearings.
19. The IAC will make an audio recording of any hearing sessions publicly available as soon as practicable after the conclusion of the sessions.

5. Miscellaneous

Submissions

20. Submissions to the IAC are public documents unless otherwise directed by the IAC.
21. Submissions to the IAC will be retained for five years from the appointment of the IAC, or longer if otherwise directed by the IAC.

Fees and Costs of Inquiry and Advisory Committee

22. The members of the IAC will receive the same fees and allowances as a Senior Panel Chair appointed under Division 1 of Part 8 of the *Planning and Environment Act 1987*.
23. All costs of the IAC, including expert advice, technical administration and legal support, venue hire, accommodation, recording proceedings and other costs will be met by the WDA.

Technical, Legal and Administrative Support

24. The IAC may seek advice from experts where it considers this is necessary.
25. The IAC may retain legal counsel to assist it.
26. Planning Panels Victoria is to provide administrative support to the IAC.
27. The IAC may engage additional technical and administrative support as required.



Richard Wynne MP
Minister for Planning

Date: 26/5/17

Appendix A – Other information and project boundary

Project Managers

1. For matters regarding the Inquiry process, please contact Greta Grivas of Planning Panels Victoria, on phone: (03) 8392 5121 or email planning.panels@delwp.vic.gov.au
2. For matters regarding the EES process, please contact the Impact Assessment Unit in Department of Environment Land Water and Planning (DELWP) on phone (03) 8392 5503 or email environment.assessment@delwp.vic.gov.au

Appendix B Submitters

No.	Submitter	No.	Submitter
1	Lucie Bradley	2	Andrew Sutherland
3	Kim Flack	4	Kristy Riley
5	Glenn Drew	6	Astrid McGinty
7	CC Containers	8	Tim Watts
9	Liam Bennett	10	Julian Hill
11	Sam Villella	12	Andrew Ryan
13	Bridget Bruzzaniti	14	Eliza Meeusen
15	Geoffrey William Mitchelmore OAM	16	Sarah Vernon
17	Friends of Moonee Ponds Creek Inc.	18	Brandon Nguyen
19	Rebecca Underwood	20	Ian Woodruff
21	Daniel Ellul	22	Kylie Northover
23	Evelyn Portek	24	Ben Dawson
25	Alyssa Smith	26	Darryl Wood
27	Lessa Thom	28	Kavitha Chandrashekeran
29	Nina Earl	30	Hugh Venables
31	Jean Christie	32	Kirsteen Macleod
33	Noel Wyndom	34	Sheridan Blunt
35	Jamie Crickmay	36	Robert Rich
37	Andrew Carrasco	38	Sheldon Gait
39	John Bowman	40	Jan Lacey
41	Bernard Abadie	42	Monica Yupangco Elloso
43	Graeme Hurst	44	Stephen Dixon
45	Beverley Joan Cowan	46	Marion Pino
47	Michael Mardel	48	Debie Morton
49	Anita Smith	50	Colin Victor Smith
51	Martin Siegrist	52	Anne Sheehan
53	Mimma Gentile-Villella	54	John Neve
55	Gourmet Pawprints	56	Dr Tracy Putoczki
57	Jamee Montebruno	58	Peter Geoffrey Wilson
59	Simon Doyle	60	Andrew Jay

61	Alan Bushell	62	Solway Elvie Nutting
63	Olexandra Vazhnenko	64	Gary Bateman
65	Felicity Harper	66	David Godbold
67	Nora van Waarden	68	Anthony Catania
69	Sunbury Residents Association	70	Andrew Bult
71	Peter McMahon	72	Adam Tate
73	Lisa Rodwell	74	Georgina Macdougall
75	Kathryn Reid	76	Billy Huynh
77	Peter Knight	78	Clamms Seafood Pty Ltd
79	Fergus Moffat	80	Errol Hunt
81	Ana Tuckeman	82	Emma Prime and Gregory Martin
83	Timothy Carl Patterson	84	Matthew Marasco
85	Federico Sevilla	86	Effie Angelopoulos
87	Margaret Fried	88	Miriam Teunen
89	Nicholas Simic	90	Emely Cash
91	Leah Mannion	92	Divina Osman
93	Shelley Willoughby	94	David Gorvett
95	Yarraville West Primary School	96	Deryn Rudd
97	Caithlin White	98	Michelle Maugueret
99	Peter Brammer	100	Pia Miranda
101	Luke Hanigan	102	Stephen Marovitch
103	Hui Gan	104	Ingrid Purnel
105	Tamara Saulwick	106	Ruth Patching
107	Quinn Knight	108	Sarah Vincenzini
109	Jonathan Oughtred	110	Filicia Pirritano
111	Alistair McLean	112	G21- Geelong Region Alliance
113	Bridget Macwhirter	114	Jane Good
115	Mark Perica	116	Nick Perica
117	Valerie Gerrand	118	Terence Edward Byrne
119	Sylvia Pastore	120	Lynne Michele Macdonald
121	Alice Coulson	122	David Griffiths
123	Altona North Cricket Club	124	Stephanie Lou, Mark Wylob and Andrea Wylob
125	Katherine Blaszak	126	Neva Simeoni

127	Kerry Flattley	128	Leonie Joy Swift
129	Margaret Jungwirth	130	Sheila Na Gig
131	David Sequeira	132	Anhtuan Nguyen
133	Daniel Whitworth	134	Anne Scott
135	Christine Loh	136	James Liddle
137	Terence Joseph Pearce	138	Neva Simeoni
139	Shae Hecimovic	140	Danuta Luber on behalf of Kazimiera Kieltyka
141	Graeme Bruce Light	142	Janet Hall
143	Kerrie Briggs	144	Paul Myers
145	Jane Leitinger	146	Charmian Gaud
147	Therese Fitzgerald	148	Nick Hutchin
149	Nicholas and Patrizia Hutchin	150	Shannon Smith
151	Kate Keast	152	Joan Lynn
153	Ben Hocking	154	Oceania Seafoods Pty Ltd
155	Carol Anne Baker	156	Cathryn Harold
157	Keryn Robinson	158	Maribyrnong City Council
159	Trust, DJC Property Developments Pty Ltd	160	Chantelle Augello
161	Friends of Stony Creek	162	John Chadderton
163	Inspirational Health and Fitness Pty Ltd	164	Rozanna Hanane
165	Catherine Devereux	166	Jennifer Comar
167	Meredith Leanne Henkel	168	Sandra Bonciani
169	Jennifer Williams	170	Chris Dunlevy
171	Emma Butler	172	Trirampage Pty Ltd
173	David Smith	174	Sarah-Jane Flahery
175	Cathy Robinson	176	Bus Association in Victoria
177	Mario Xerri	178	Samantha Bamford
179	Jennifer and William Cook	180	Foodbank Victoria Ltd
181	Craig Miller	182	Andis Salins, Debbie Salins, Rex Industrial P/L, Rex Industrial Services P/L, Salins Equity P/L, Related Entities, Staff and Beneficiaries of Associated Entities
183	Caroline Kennon	184	City of Melbourne

185	Digital Harbour (Holdings) Pty Ltd	186	Christopher Wheelhouse
187	Regina Godfredson	188	Jeff Godredson
189	Impact Investment Group	190	Planning Institute of Australia (Vic)
191	Lance Lessels	192	Hyde Street Residents' Group
193	Mr Gavin E. O'Loughlin	194	Jaroslav Koptchak
195	Carmen Largaiolli	196	Carmen Largaiolli
197	Jacinta Bleaser	198	Rachel Wells
199	Helen Elleni Nikolioudakis	200	Patricia Anne Nolan
201	Tony Pantone	202	Nicky Papaioannou
203	Andrew Webster	204	Ferenc and Gyorgyi Marek
205	Filicia Pirritano	206	Kate Ritchie
207	Mary Henkel	208	Jane Poynter
209	Mark Duckworth	210	Julian Lambert
211	Sharron Howlett	212	David Cushion
213	Submitter name withheld on request	214	Julia Dardha
215	Meaghan Paul	216	Lucy-Anne Inglis
217	Christine Harris	218	Suzanne Murie
219	Salvatore Dilorenzo	220	Andrea Hennessey
221	Geoffrey Michael Rehmet	222	David Martin
223	Colin Long	224	Graham Francis McCallum
225	Kristy-Lee Riley	226	Frank Morabito
227	Angela Williams	228	Michelle Carsen
229	Kathleen and Mark McPherson	230	Ross Kingston
231	Jonathan Fryer	232	Transport for Melbourne
233	Ian Bird	234	Jucon Holdings Pty Ltd
235	Karen Alexander	236	Frederick Smart
237	Michael Hands	238	John Neve
239	Michael James Glover	240	Jacqui Keating
241	Linda Ioanna Kouvaras	242	Michael Rochelle
243	Steve Delovski	244	Geoffrey Newman-Morris
245	Elspeth Marianne Ferguson	246	Bopea Chet
247	David Anderson	248	Anne Philomena McPhee
249	Angela Bristow	250	Bret Fishley

251	Ko Sonnoy	252	George Thomson
253	Brian Mier	254	Beverley Joan Cowan
255	Anthony Duras	256	Yvette Casbolt
257	John Whittaker	258	Lewis Croft
259	Christine Morris	260	Brian Lindsay Park
261	Simon Beach	262	Lauren Mosso
263	The Parkville Association	264	Murray Case Photography Pty Ltd
265	Anne Sheehan	266	Fiona Cotter
267	Eva Gregorich	268	Dominique Hes
269	John Kodric	270	Jennie Bremner
271	Ian Onley	272	Mary Jo Kelly
273	Janis Ozolins	274	Richard Mataska
275	Daniel Thursby	276	John Handley
277	Allan Williams	278	Kate MacPherson
279	Vesna Sparkes	280	Michael Nolan
281	Rachel Burns and Raphael Fiorese	282	Marija Stajic
283	Sue Burgess	284	Stanko Stajic
285	Marija and Stanko Stajic	286	Laura Alison Craig
287	Don Stokes	288	Candice Turner and Aaron Sarget
289	Brooklyn Residents Action Group Inc.	290	Gudrun Schell
291	Ray Cowling	292	Simon Ellis and Paul Wood
293	Luke Sparkes	294	Richard John Petheram
295	Wendy Carey	296	Lawrence Wong
297	Ming Wong	298	Louise Murphy
299	Emma Janetzki	300	Chris Janetzki
301	Derek Collins	302	Aaron Parsons
303	Janet Graham	304	Glenn King
305	Clare Court Children's Service Inc.	306	Garry Patrick Lane
307	Kaylene O'Shea	308	Ilona Elmore
309	Thomas Gilmour	310	Hallie Hodder
311	Fiona Barker	312	Michael Ingram
313	Ronny Bellini	314	Patricia Bonciani
315	Charlie Glersch	316	Leon Joseph Calder

317	RACV	318	Rob Oke
319	Kay Schieren	320	V&A Perin Corporation Pty Ltd
321	Chalmers Industries	322	Mary-Jane Wyllie
323	Chi Lu	324	Leon David Betheras
325	Ross McNeilage	326	Spotswood South Kingsville Residents Group Incorporated
327	Kororoit Institute	328	Yarra Trams
329	Andrew Butt	330	Christopher Holt
331	Maggie Reeves	332	Institute for Health and Ageing, Australian Catholic University
333	Glenn & Jenny Preusker, Splashdown Properties Pty Ltd and related entities	334	Grace Guinto
335	Andy Hook	336	Daniel Crawford
337	Marion Sandra Mortimer	338	Elizabeth McKeag
339	Yarraville Soccer Club 'DOXA' Incorporated	340	Vanessa A Leevers
341	Kate Francis	342	Scott Ellerton
343	Flemington Association Inc.	344	Kensington Association
345	Ann Cremean	346	Clare Fidalgo
347	Peter McDonald	348	Natasha Lane
349	Rosaleen McKenna	350	Seddon Cricket Club
351	Michelle Bevan	352	Don't Destroy Millers Road
353	Natalie Mulford	354	Francisca Araneda
355	Jeffrey Hare	356	Kristopher David Coventry
357	Moreland City Council	358	Robert Hare
359	Katarzyna Dunlevy	360	Adam Gellie
361	Phillip Symons	362	James Murphy
363	Katrina Desfosses	364	Victorian Transport Action Group
365	Pam Dunlevy	366	Nick Pastalatzis
367	Container Transport Alliance Australia	368	Environment Protection Authority Victoria
369	Anthony Dunlevy	370	Tim Martin
371	Kathryn Shaw	372	Ryan and Karen Thistlethwaite
373	Susan Miller	374	Inner Melbourne Planning Alliance Inc.
375	Sean Cronin	376	Committee for Melbourne

377	Leslie John Kitchen	378	Hobsons Bay City Council
379	Kenneth R J Murton	380	Andrew Turner
381	Peter Anderson	382	Christina Hall
383	Brooke Crawford and Tim Lesich	384	Bernadette Thomas
385	Dr Duncan Rouch	386	CVCV Land Co. No 17 Pty Ltd
387	City of Port Phillip	388	City of Yarra
389	Owners Corporation 1 Plan Number 429674C	390	Wendy Everest
391	Kerryn Hill	392	Port of Melbourne Operations Pty Ltd
393	Benjamin Howard	394	Geoff Leach
395	Margaret Jacobs	396	Croft Infrastructure Designs Pty Ltd
397	Victorian School Building Authority	398	Sam Long
399	Emma McLean Kindergarten and Daycare	400	Cinzia Bonciani
401	Gail Makarewitsch	402	Dr Angela Munro
403	Joeline Hamilton	404	Aaron Mahoney
405	Colleen Hartland MP	406	Emily Wraight
407	Stuart Clark	408	Caroline Duffield
409	Dr Patrick Love	410	Robert Exley
411	Mirvac Victoria on behalf of the Precinct 15 Landowners Group	412	Caitlin Wood
413	Adam Bandt MP	414	Kindrid Studios
415	Ashe Morgan	416	Maila Katrin Stivens
417	Badge Kurdi	418	Amanda Kovacs and Tristan Hughes
419	Roslyn Kennedy	420	Pauline Maree Galvin
421	Gary Mueller	422	Senator Janet Rice
423	Terry Laidler	424	Wendy Dianne Cook
425	Protectors of Public Lands Inc. A0046357S	426	Metropolitan Transport Forum
427	Margaret Huddleston on behalf of Concerned Locals of Yarraville	428	Kumar Indravadan Marfatia
429	JJ Cleaning Australia Pty Ltd	430	Public Transport Users Association
431	Sharon Exley	432	Lung Health Research Centre, University of Melbourne

433	David Jacob Stosser	434	LeadWest
435	Docklands Community Association	436	Domenica Settle
437	Yarra Campaign For Action On Transport	438	Alexandra Lawlor
439	Yarraville Community Centre	440	Susan Dimopoulos
441	Melbourne Water Corporation	442	National Trust of Australia (Victoria)
443	Andrew Irwin	444	Melbourne City Western Connection
445	Mary Pszczolkowski	446	Hobsons Bay Bicycle User Group (HBBUG) and other On- Road Bicycle Riders
447	Shane Breen	448	Bridget O'Shea
449	Bicycle Network	450	Matt Thomson
451	Mary Masters	452	Caitlin Wood
453	Georgia Webster	454	Heather McLaren
455	Sophie Spanos	456	Western Melbourne Tourism
457	Ian Hundley	458	Maribyrnong Truck Action Group (MTAG) Inc.
459	Vivienne Gray	460	Anthony McKee
461	Tim Watts MP	462	Emily Wrigglesworth
463	Fredrik Johansson	464	Kieron James
465	Mike St Clair Miller	466	Neale Irwin
467	Jessica Marnich	468	Hobsons Bay Residents Association
469	Alison and James Whitten	470	Marisa Stephens
471	Ruth Skene	472	Bo Christensen
473	Roads Corporation (VicRoads)	474	Jodie Miles
475	Tammy Jones	476	Fiona Brindle
477	Department of Health and Human Services	478	Alexander Straub
479	John Oldfield	480	Peter Ficior
481	Marie Ficior	482	Elise Jay Ficior
483	Kristy Ann Ficior	484	John Ficior
485	Sevasti Ficior	486	Moreland Community for Active Transport
487	Effie Venetsanakos	488	Julian Bently

489	Robyn Aldrick	490	Darren Hill
491	Ana Djuric	492	Peter Vlachos
493	Helen Gopold	494	Heinz Gopold
495	City West Water	496	Lisa Grant
497	Thomas Patereskos	498	Rex Martin Atkins
499	David Latch	500	Matthew Simpson
501	I Mclvor	502	David John Davies
503	Jason Blackman	504	Environment Victoria

Appendix C Parties to the IAC Hearing

Submitter	Represented by
Minister for Planning	Susan Brennan SC with Barnaby Chessell
Western Distributor Authority (WDA)	<p>Stuart Morris QC and Chris Townshend QC, with Emily Porter and Rupert Watters, instructed by Clayton Utz, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Michael Barlow in strategic planning - Roger Wood in urban design - Deiter Lim in landscape - Kate Gray in historical heritage - Trevor O’Shannessy in ground movement - Andrew Kalitsis in contaminated spoil - Jonathan Medd in groundwater - Melanie Collett in surface water - Cameron Miller in ecology - Dr John Heilig in vibration and regeneration noise (tunnel) - Natalie Lawlor in business - Tim Veitch in transport modelling - John Kiriakidis in transport - Matthew Stead in resonate acoustics/airborne noise - Frank Fleer in air quality - Dr Jackie Wright in human health - Dr Pallavi Mandke in social - Will Symons in greenhouse gas
City of Melbourne	<p>Nicholas Tweedie SC with Peter O’Farrell instructed by Jane Hall and Sophie Westland of Ashurst, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Stephen Hunt in traffic engineering - Marco Lucioni in freeway design - Professor Geoffrey London in urban design - Steve Schutt in open space/landscape - Chris Procter in urban design - Eric Keys in strategic transport - Darren Tardio in noise
Hobsons Bay City Council	<p>Greg Tobin, Kate Norris and Tessa D’Abbs of Harwood Andrews, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Andrew O’Brien in traffic - Shane Elkin in acoustics

	<ul style="list-style-type: none"> - Graeme Starke in air quality - Bonnie Rosen in social impact - A/Professor Louis Irving in public health
Maribyrnong City Council	<p>Ragu Appudurai of Counsel instructed by Maddocks Lawyers, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - David Barnes in planning - Kirsten Bauer in urban design and landscape architecture - Russell Symons in traffic engineering
EPA Victoria	<p>Peter Van Eps of Counsel instructed by Mae Olmstead with the following EPA representatives in attendance at various stages of the Hearing:</p> <ul style="list-style-type: none"> - Bert Zebst (noise) - Paul Torre and/or Gavin Fisher (air quality) - Dr Victor Kabay (health)
Roads Corporation (VicRoads)	<p>Paul Connor QC with Roshan Chaile of Counsel instructed by Rory O'Connor of Norton Rose</p>
Ashe Morgan	<p>Chris Canavan QC instructed by Andrea Towson of Arnold Bloch Leibler, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Justin Madden in urban design - Chris Butler in traffic
Lung Health Research Centre, University of Melbourne	<p>Teresa Bisucci of Best Hooper Lawyers instructed by Clare Marie Walter, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Prof Gary Anderson in health impacts
Melbourne Water Corporation	Gerald FitzGibbon
Inner Melbourne Planning Alliance Inc.	<p>Gerry McLoughlin, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Dr Ian Woodcock in urban design - Professor Peter Graham in sustainability
Spotswood South Kingsville Residents Group Inc.	<p>Rosa McKenna, who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Dr Diane Keogh in air quality
Dr Patrick Love with Geoff Hjorth, Marlene Monahan and Jacob Holley	<p>Who called the following expert witnesses:</p> <ul style="list-style-type: none"> - Dr John Stone in transport planning - Doug Harley in network modelling and analysis
Colleen Hartland MP	
Port Phillip City Council	John Bartells
Friends of Moonee Ponds Creek Inc.	Kaye Oddie
Planning Institute of Australia (Vic)	Laura Murray
Bicycle Network	Garry Brennan

Christine Harris	
National Trust of Australia (Victoria)	Jessica Hood
CC Containers P/L	K&L Gates
Melbourne City Western Connection	Anthony McKee, Andrew Butt and Michael Richmond
Hyde Street Residents Group	Laura Meese
Parkville Association Inc.	Robert Krelle
Chalmers Industries	John Carew and Kane Harnden
Flemington Association Inc.	Russell Smith
Docklands Community Association	Roger Gardner
Maribyrnong Truck Action Group	Samantha McArthur and Martin Wurt
Jessica Marnich	
Kororoit Institute	Tony Smith
Kensington Association	Francisca Araneda and Michael Ingram
Francisca Araneda	
JJ Cleaning Australia Pty Ltd	Stuart Jones
Don't Destroy Millers Road	Chris Dunlevy and Alyson Protetto
Hobsons Bay Residents Association	Jason Price
Yarra Campaign for Action on Transport	Chris Star
Moreland Community for Action on Transport	Pauline Galvin
Friends of Stony Creek	Steven Wilson
Container Transport Alliance Australia	Gerard Langes, Neil Chambers and Robert Alfarano
Croft Infrastructure Designs Pty Ltd	Terry Fortescue Croft
Metropolitan Transport Forum	Cr Martin Zakharov
LeadWest	Craig Rowley
Brooklyn Residents Action Group Inc. (BRAG Inc.)	Egbert Boere and others
Public Transport Users Association	Tony Morton
Emma McLean Kindergarten and Daycare	Jessica Johnson and Grace Guinto
Western Melbourne Tourism	Richard Ponsford
Digital Harbour (Holdings) Pty Ltd	Russell Nisbet
Owners Corporation 1 Plan Number 429674C	Deborah Salins

Hobsons Bay Bicycle User Group (HBBUG) and other On-Road Bicycle Riders	Noel Charles Dyson
Glen and Jenny Preusker, Splashdown Properties Pty Ltd and related entities	Peta Olive of Aitken Partners
Impact Investment Group	Michael Dunn
Ian Woodruff	
Phillip Symons	
Murray Case Photography Pty Ltd	Murray John Case
Clamms Seafood Pty Ltd	Campbell Carson
Andis Salins, Debbie Salins, Rex Industrial P/L, Salins Equity P/L, Related Entities, Staff and Beneficiaries of Associated Entities	Deborah Ann Salins
Transport for Melbourne	Roger Taylor
Victorian Transport Action Group	Glenys Romanes, who called the following expert witnesses: - Dr Ian Woodcock in urban planning
Pauline Maree Galvin	
Terry Laidler	
Andrew Webster	
Janet Graham	
Chris Dunlevy	
Submitter 213	Chris Dunlevy
Emma Janetzki	
Kristy-Lee Riley	
Ian Hundley	
Ruth Skene	
Julian Hill	
Luke Hanigan	
Charmian Gaud	
Anthony McKee	
Meaghan Paul	Rosa McKenna
Alyson Protetto	
Hallie Hodder	
Senator Janet Rice	

Jacinta Bleaser

Colin Long

Trirampage Pty Ltd

John Clark

Jucon Holdings Pty Ltd

Godfrey Smith

Vesna and Luke Sparkes

Rachel Burns and Raphael Fiorese

Jessica Burns

Protectors of Public Lands Inc.
A00463575

Ernest Healy

Mary Jo Kelly

Georgia Webster

Alison and James Whitten

Ross Kingston

Appendix D Document list

No.	Date	Description	Presented by
1	16/6/17	Presentation to the IAC, 16 June 2017	Western Distributor Authority (WDA)
2	19/7/17	Preliminary matters and further information request 18 July 2017	Inquiry and Advisory Committee (IAC)
3	19/7/17	Letter from WDA to IAC dated 6 July 2017	WDA
4	14/8/17	Briefing Letter to IAC Advisers dated 29 June 2017	IAC
5	14/8/17	Letter from HBCC to WDA requesting microsimulation model dated 20 July 2017	Hobsons Bay City Council (HBCC)
6	14/8/17	Letter from WDA to IAC advising experts to be called dated 24 July 2017	WDA
7	14/8/17	Letter from WDA to HBCC (microsimulation model) dated 28 July 2017	WDA
8	14/8/17	Letter from WDA to HBCC (acoustic model) dated 28 July 2017	WDA
9	14/8/17	Letter from WDA to IAC (order of expert witnesses) dated 3 August 2017	WDA
10	14/8/17	WDA Part A Submission dated 7 August 2017	WDA
11	14/8/17	City of Melbourne opening submission	City of Melbourne (CoM)
12	14/8/17	Maribyrnong City Council opening submission	Maribyrnong City Council (MCC)
13	14/8/17	Hobsons Bay City Council opening submission	HBCC
14	14/8/17	EPA Presentation Day 1	Environment Protection Authority (EPA)
15	14/8/17	Conclave Report – Town Planning 8 August 2017	WDA
16	14/8/17	WGT Project Conclave Protocol FINAL	IAC
17	11/8/17	Response to Submissions and Evidence – Stephen Hancock	IAC
18	14/8/17	Response to Submissions and Evidence – Doug Munro	IAC
19	14/8/17	Letter from WDA to IAC (Preliminary Matters), dated 11 August 2017	WDA
20	14/8/17	Status update from WDA to IAC Preliminary Matters and Further information request, dated 14 August 2017	WDA

No.	Date	Description	Presented by
21	14/8/17	WDA Response to EES Submissions Table, dated 14 August 2017	WDA
22	14/8/17	WDA Response to Submitter Request for Information Table	WDA
23	14/8/17	Summary of 3D Real-time Interactive Model Status	WDA
24	14/8/17	Submission on behalf of the Minister of Planning	Susan Brennan SC on behalf of Minister for Planning
25	14/8/17	Opening Slide Presentation from WDA	WDA
26	14/8/17	Conclave Report – Joint Statement - Architecture, Urban Design and Landscape. 10 August 2017	WDA
27	15/8/17	Confidential Document	Roads Corporation
28	15/8/17	Conclave Report for Surface Noise and Vibration. 14 August 2017	WDA
29	15/8/17	Opening Remarks Planning	WDA
30	15/8/17	Ministerial Direction No. 14 Port Environs (part only), dated 17 May 2012	WDA
31	15/8/17	Strategic Planning Assessment Presentation to IAC by Mr Barlow, dated August 2017	WDA
32	15/8/17	Linkages between Docklands and North Melbourne	CoM
33	15/8/17	Current Layout CityLink, Dynon and Footscray Road	CoM
34	16/8/17	EPA opening submissions WGTP IAC, 14 August 2017	EPA
35	16/8/17	Email from WDA to IAC dated 15 August 2017 containing web links to the WGTP presentation video	WDA
36	16/8/17	Opening remarks Urban Design, landscape architecture and visual impact	WDA
37	16/8/17	Urban Design and Landscape presentation	WDA
38	16/8/17	Urban Forest Strategy Making a Great City Greener 2012-2032, City of Melbourne, page 40	CoM
39	16/8/17	Status update from WDA to IAC Preliminary Matters and Further information request, dated 16 August 2017	WDA
40	16/8/17	Technical Memorandum from Golder Associates to Clayton Utz regarding verification of landfill and spoil management, dated 16 August 2017	WDA
41	17/8/17	Opening Remarks Physical and Environmental Conditions	WDA

No.	Date	Description	Presented by
42	17/8/17	Environmental Performance Requirements (EPRs) Version 1 - 17 August 2017	WDA
43	17/8/17	Ground Movement Impact Assessment IAC Presentation by Mr O'Shannessy – 17 August 2017	WDA
44	17/8/17	Contaminated Soil and Spoil Management Impact Assessment IAC Presentation by Mr Kalitsis – 17 August 2017	WDA
45	17/8/17	Ground Water Impact Assessment IAC Presentation by Mr Medd – August 2017	WDA
46	17/8/17	Ecology Expert Witness Statement presentation to IAC by Mr Miller - August 2017	WDA
47	17/8/17	West Gate Tunnel Project Additional elevated freeways (schematic plan)	CoM
48	17/8/17	West Gate Tunnel Project Surface Water presentation by Ms Collett - August 17, 2017	WDA
49	17/8/17	West Gate Tunnel Project Ambient Air Quality Monitoring Data Comparison, Golder Associates, dated 14 August 2017	WDA
50	18/8/17	Traffic Conclave: Russell Symons, John Kiriakidis and Agnelo Duarte, dated 14 August 2017	WDA
51	18/8/17	Traffic Conclave: Steve Hunt, John Kiriakidis and Agnelo Duarte, dated 15 August 2017	WDA
52	18/8/17	Excerpt of EPRs for Melbourne Metro Rail Project	WDA
53	18/8/17	Review of Vibration and Regenerated Noise from Construction presentation by Dr Heilig, August 2017	WDA
54	18/8/17	EPRs Version 2 (Noise and Vibration) - 18 August 2017	WDA
55	18/8/17	Interim Addendum to West Gate Tunnel Project Transport Evidence Statement by Mr O'Brien, dated 18 August 2017	HBCC
56	18/8/17	Melbourne Metro Environmental Management Framework Table 7 - Environmental Performance Requirements	WDA
57	18/8/17	Status of Moonee Ponds Creek Master Plan, dated 18 August 2017	CoM
58	21/8/17	Response to Submissions and Evidence – Dr Lyn Denison, dated 19 August 2017	IAC
59	21/8/17	Traffic Conclave: Chris Butler, John Kiriakidis and Agnelo Duarte, dated 14 August 2017	WDA
60	21/8/17	Traffic Conclave: Marco Lucioni, John Kiriakidis and Agnelo Duarte, dated 14 August 2017	WDA

No.	Date	Description	Presented by
61	21/8/17	Traffic Conclave: John Stone, John Kiriakidis and Agnelo Duarte, dated 15 August 2017	WDA
62	21/8/17	Traffic Conclave: Tim Veitch and Eric Keys, dated 18 August 2017	WDA
63	21/8/17	WDA E-Gate slides	WDA
64	21/8/17	IAC Requests for Information, dated 20 August 2017	WDA
65	21/8/17	Opening Remarks - Traffic and transport	WDA
66	21/8/17	Veitch Transport Modelling IAC Presentation by Mr Tim Veitch – August 2017	WDA
67	21/8/17	Review of Travel Forecasting Methodologies – Draft Internal Working Document, September 2015 (Veitch Lister Consulting)	CoM
68	21/8/17	Western Distributor Business Case Nov 2015 (redacted)	WDA
69	22/8/17	Confidential document – VicRoads response to IAC questions	Roads Corporation
70	22/8/17	Conclave Report - Air Quality dated August 2017	WDA
71	22/8/17	Conclave Report - Health Impacts dated 11 August 2017	WDA
72	22/8/17	List of Information Request made by CoM, 22 August 2017	CoM
73	22/8/17	Interim Written Conclave Report, dated 21 August 2017	WDA
74	22/8/17	John Kiriakidis – list of recommendations	WDA
75	22/8/17	Transport presentation by John Kiriakidis, 22 August 2017	WDA
76	22/8/17	Clause 18 Transport (SPPF)	CoM
77	22/8/17	Infrastructure Victoria 30-year infrastructure strategy – Need 10	CoM
78	22/8/17	Alignment with Transport Integration Act (2010) (2 pages)	CoM
79	22/8/17	Table 7.8 Review of Alignment with Transport Integration Act (2010) Policy Objectives (Active Travel) (2 pages)	CoM
80	23/8/17	Container Park Maps (3)	WDA
81	23/8/17	Aecom Memorandum - Response to IMPA Inc. Questions on greenhouse gas emissions	WDA
82	23/8/17	Aecom Memorandum – Response to EPA Presentation (14 August)	WDA
83	23/8/17	USB	WDA
84	23/8/17	Waterfront City Outline Development Plan (15 Sept 2003) p15	Ashe Morgan

No.	Date	Description	Presented by
85	23/8/17	Footscray Road/Pearl River Road Intersection Conceptual Right Turn Treatment (Cardno)	Ashe Morgan
86	23/8/17	Opening Remarks - Noise	WDA
87	23/8/17	Surface Noise and Vibration presentation by Matthew Stead	WDA
88	23/8/17	VicRoads – Traffic Noise Reduction Policy Statement of Policy	CoM
89	23/8/17	VicRoads Traffic Noise Measurement Requirements for Acoustic Consultants 2011	CoM
90	23/8/17	RDN 06-01 July 2010 VicRoads Interpretation and application of VicRoads Traffic Noise Reduction Policy 2005	CoM
91	23/8/17	EPA Publication 1254 Noise Control Guidelines (Oct 2008)	CoM
92	24/8/17	WGTP Reference Design Rev C	WDA
93	24/8/17	Matthew Stead Recommendations, dated 24 August 2017	WDA
94	24/8/17	Traffic Noise Reduction Policy Discussion Paper August 2015, VicRoads	IAC
95	24/8/17	Air Quality Assessment Presentation by Mr Fleer	WDA
96	24/8/17	Corrections to Technical Report G - Air Quality Assessment Report	WDA
97	24/8/17	Expert conclave item 2 Ventilation Structures	WDA
98	24/8/17	Golders Associates Technical Memorandum: Assessment of Air Quality Impacts on Planned Multi-storey Buildings, dated 22 August	WDA
99	24/8/17	Exhaust and non-exhaust parameters tables	WDA
100	24/8/17	Golders Associates Technical Memorandum: Surface Road Modelling including Tyre and Brake Wear Particulate Matter, dated 22 August	WDA
101	24/8/17	Human Health Impact Assessment Presentation by Dr Wright	WDA
102	25/8/17	Opening Remarks – Social Impact	WDA
103	25/8/17	Social Impact Assessment Presentation by Dr Mandke	WDA
104	25/8/17	Submission on Transport Integration Act 2010 and “minimise”	WDA
105	25/8/17	Incorporated Document May 2017 - Draft prepared by WDA	WDA
106	25/8/17	EPRs Version 3 dated 24 August 2017	WDA
107	25/8/17	EPRs Version 3 dated 25 August 2017, with WDA comments on changes	WDA

No.	Date	Description	Presented by
108	25/8/17	IAC Preliminary Matters and Further Information Request – status update as at 25 August 2017	WDA
109	25/8/17	IAC Requests for Information status update dated 25 August 2015	WDA
110	25/8/17	Video clip of microsimulation for “Option 5” – city connections without Dynon Road connection	WDA
111	25/8/17	Vic Roads Submission, dated 25 August 2017	VicRoads
112	25/8/17	Austroads Guide to Traffic Management Part 6 2017 (part)	VicRoads
113	25/8/17	Indicative alignment of a Paramount Road corridor interchange with West Gate Freeway	VicRoads
114	25/8/17	Austroads Guide to Traffic Management Part 3 2017 (part)	VicRoads
115	25/8/17	Committee Directions in relation to production of documents relating to the peer review of the strategic transport modelling	IAC
116	28/8/17	Austroads Guide to Road Design Part 4C Interchanges 2015 (part)	VicRoads
117	28/8/17	Corrections to page 12 of evidence statement of Mr Hunt	CoM
118	28/8/17	Transport Impact Presentation by Mr Hunt, August 2017	CoM
119	28/8/17	Transport Impact Presentation by Mr Lucioni, 28 August 2017	CoM
120	28/8/17	Corrections to evidence statement of Mr Lucioni	CoM
121	28/8/17	Technical Note #1: Response to Project Note (PN) 43 – Dynon Road and Wurundjeri Way	CoM
122	28/8/17	Technical note #2: Response to PN60 – City Connection option analysis	CoM
123	28/8/17	Technical note #3: Response to PN40 – Traffic and transport microsimulation	CoM
124	29/8/17	City of Melbourne Open Space Strategy page 28	IAC
125	29/8/17	Letter to IAC from Mirvac on behalf of Precinct 5 Landowners Group, dated 29 August 2017	IAC
126	29/8/17	Urban Design Presentation by Mr Procter, 29 August 2017	CoM
127	29/8/17	Affidavit of Paul Malcolm Smith, dated 29/8/17	WDA
128	29/8/17	Submission on the Production of Documents on behalf of WDA, 29 August 2017	WDA
129	29/8/17	Folder of legal authorities (electronic only)	WDA
130	29/8/17	Video of Veloway fly through	WDA

No.	Date	Description	Presented by
131	29/8/17	Article from The Age newspaper 10 March 2011	WDA
132	29/8/17	Letter from Mr Schutt to Ashurst Australia dated 18 August 2017	CoM
133	29/8/17	Landscape and Open Space Presentation by Mr Schutt	CoM
134	30/8/17	Strategic Transport Review Presentation by Mr Keys	CoM
135	30/8/17	Noise and Vibration Presentation by Mr Tardio	CoM
136	30/8/17	Planning Scheme Particular Provisions Clause 58.04 Amenity Impacts, as amended 13/04/2017	WDA
137	30/8/17	Planning Practice Note 83 Noise, August 2017	WDA
138	30/8/17	Submission on behalf of the Minister for Planning in response to IAC directions dated 25 August 2017	Barnaby Chessell on behalf of Minister for Planning
139	30/8/17	Response to IAC question on Approval Process for Various Plans prepared by Urbis, dated 30 August 2017	WDA
140	31/8/17	Assessment of an Urban Stream Restoration Project by Cost-Benefit Analysis: the Case of Cheonggyecheon Stream in Seoul, South Korea, by Miyeon Lee and Insu Jung, published May 8, 2015	WDA
141	31/8/17	Outline of Submissions on behalf of Ashe Morgan	Ashe Morgan
142	31/8/17	Folder of material accompanying Ashe Morgan Submissions	Ashe Morgan
143	31/8/17	Waterfront City Outline Development, 15 September 2003	Ashe Morgan
144	31/8/17	Folder of legal cases concerning confidentiality immunity	WDA
145	31/8/17	Submission of CoM on the Production of Documents	CoM
146	31/8/17	CoM - List of Authorities	CoM
147	1/9/17	Transcript - Day 6 (part of) Part 1 – Mr Veitch Evidence in Chief	CoM
148	1/9/17	Transcript - Day 6 Part 3 – Cross Examination of Mr Veitch by Mr Tweedie	CoM
149	1/9/17	Submission by Counsel Assisting the IAC of the Production of Documents	IAC
150	1/9/17	CoM Submission - Final	CoM
151	1/9/17	Technical Memorandum: Air Quality Matters, Golders Associates, 31 August 2017	WDA
152	1/9/17	Tech Note #4 Growth in Vehicles vs Growth in Jobs in the City of Melbourne	CoM
153	1/9/17	Tech Note #5 Traffic Network Capacity in North Melbourne	CoM

No.	Date	Description	Presented by
154	1/9/17	Tech Note #6 Evidence of Mr Kiriakidis in relation to C190 and C196 Integrated Transport Access Reviews	CoM
155	1/9/17	Tech Note #7 Response to Project Note 60	CoM
156	1/9/17	Tech Note #8 Review of the Transport and Traffic Engineering Report	CoM
157	1/9/17	Tech Note #9 William McDougall Transcript and Submissions to the Senate Inquiry into Toll Roads	CoM
158	1/9/17	Eddington Report page 219	CoM
159	1/9/17	Image – Scale Comparison	CoM
160	1/9/17	Model Screenshots – City of Melbourne	CoM
161	1/9/17	Eddington Report page 122	CoM
162	1/9/17	Reply by WDA (to Document No. 145)	WDA
163	1/9/17	Comments on the Reply by WDA	CoM
164	4/9/17	Addendum #2 by Mr O’Brien, dated 2 September 2017	HBCC
165	4/9/17	East West Link (Eastern Project) Incorporated Document June 2014, pages 1-5	IAC – Counsel assisting
166	4/9/17	MMR Incorporated Document December 2016, excluding maps	IAC – Counsel assisting
167	4/9/17	SEPP Air Quality Extracts (2)	IAC – Counsel assisting
168	4/9/17	Slides used in the questioning of Prof London	IAC – Counsel assisting
169	4/9/17	Slides used in the questioning of Mr Schutt	IAC – Counsel assisting
170	4/9/17	Slides used in the questioning of Mr Tardio	IAC – Counsel assisting
171	4/9/17	Slides used in the questioning of Mr Stead	IAC – Counsel assisting
172	4/9/17	Slides used in the questioning of Mr Kiriakidis	IAC – Counsel assisting
173	4/9/17	Transport Presentation by Mr O’Brien	HBCC
174	4/9/17	Noise and Vibration Presentation by Mr Elkin	HBCC
175	4/9/17	EPR Noise and Vibration - Version 4, dated 4 September 2017	WDA
176	5/9/17	SEPP Air Quality Management, 21 December 2001	WDA
177	5/9/17	Air Quality Presentation by Graeme Starke, 30 August 2017	HBCC

No.	Date	Description	Presented by
178	5/9/17	Social Impact Presentation by Ms Rosen, August 2017	HBCC
179	5/9/17	Response to Dr Denison's Review of the Health Impact Assessment by Dr Wright, dated 5.9.17	WDA
180	5/9/17	Technical Memorandum on PM _{2.5} Standards by Golders Associates dated 21 June 2017	WDA
181	6/9/17	Health Impact Presentation by A/Prof Irving	HBCC
182	6/9/17	Submission on behalf of Lung Health Research Centre by Ms Bisucci, 6 September 2017	Lung Health Research Centre
183	6/9/17	Strategic Planning Presentation by Mr Barnes, 2 August 2017	MCC
184	7/9/17	Slides used in questioning of A/Prof Irving	WDA
185	7/9/17	IAC Decision on the Request for the Production of the Peer Review of the VLC Modelling and Associated Documents, 7 September	IAC
186	7/9/17	Urban Design, Landscape and Visual Impact Presentation by Kirsten Bauer, 7 August 2017	MCC
187	7/9/17	Maribyrnong Planning Scheme Clause 22.04	WDA
188	7/9/17	Stephen Hancock Expert Advice Final Report 4 September 2017	IAC
189	7/9/17	Document used in questioning Ms Bauer (electronic only)	IAC – Counsel assisting
190	7/9/17	Letter from Maddocks to Clayton Utz Requesting Further Information of Ramps at Dock Links Road dated 29 August 2017	MCC
191	7/9/17	Letter from Clayton Utz to Maddocks responding to Further Information Request – Ramps at Dock Links Road, dated 6 September 2017	MCC
192	7/9/17	Traffic Presentation by Mr R Symons	MCC
193	7/9/17	Port of Melbourne Planning Scheme Clause 21.03 Figure 3	WDA
194	8/9/17	Advice on Approval Process for Various Plans by Mr Barlow 8 September, 2017	WDA
195	8/9/17	Slides used in questioning of Ms Bauer (electronic only)	IAC – Counsel assisting
196	8/9/17	Submissions on behalf of HBCC, 8 September 2017	HBCC
197	8/9/17	Submissions on behalf of MCC (includes additional images electronic only), 8 September 2017	MCC
198	8/9/17	Greenhouse Gas Presentation by Mr W Symons	WDA

No.	Date	Description	Presented by
199	8/9/17	WDA X-examination slides - Ms Rosen	WDA
200	8/9/17	WDA X-examination slides - Mr Schutt	WDA
201	8/9/17	WDA X-examination slides – Ms Bauer	WDA
202	11/9/17	Final Revised Brooklyn Evolution Feb 2016 (electronic only)	HBCC
203	11/9/17	City of Melbourne Transport Strategy 2012(electronic only)	CoM
204	11/9/17	Attachment 8 – Yarraville Port Environs Local Planning Policy Issues Paper – 15 June 2010 (electronic only)	MCC
205	11/9/17	EPR Noise and Vibration - Version 5, dated 10 September 2017	WDA
206	11/9/17	Sustainability Presentation by Prof Graham, 11 September 2017	Inner Melbourne Planning Alliance Inc (IMPA)
207	11/9/17	IMPA Presentation	IMPA
208	11/9/17	Outline of Submissions on behalf of IMPA	IMPA
209	11/9/17	Witness statement amendments by Dr Woodcock, 11 September 2017	IMPA
210	11/9/17	Urban Design Presentation by Dr Woodcock	IMPA
211	11/9/17	Submission on behalf of Spotswood South Kingsville Residents Group Inc (SSKRG)	SSKRG
212	11/9/17	Air Quality Impact Presentation by Dr Keogh, Sept 2017	SSKRG
213	11/9/17	Submission and Accompanying Slides by Dr Love et al	Dr Love
214	11/9/17	Transport Planning Presentation by Dr Stone	Dr Love
215	11/9/17	Expert Witness Statement (amended) of Dr Stone	Dr Love
216	11/9/17	Presentation and Background Notes by Ms Hartland MP 11/9/17	Ms Hartland MP
217	11/9/17	Submission on behalf of City of Port Phillip	City of Port Phillip
218	11/9/17	IAC Requests for Information Status Update, dated 11 September 201	WDA
219	11/9/17	Email from Mr Lim to Clayton Utz regarding Impacts of Shading on Vegetation Arising from Noise Walls, dated 8 September, 2017	WDA
220	11/9/17	Austrroads Vehicle Classification System	WDA
221	11/9/17	Creating Community Open Spaces, April 2017	WDA
222	12/9/17	Melbourne Water Presentation 11 September 2017	Melbourne Water

No.	Date	Description	Presented by
223	12/9/17	Hearing Submission by Friends of Moonee Ponds Creek, 12 September 2017	Friends of Moonee Ponds Creek
224	12/9/17	Submission by Planning Institute of Australia	Planning Institute of Australia
225	12/9/17	Presentation by Ms C Harris	Ms C Harris
226	12/9/17	VicRoads Response to IAC Questions (electronic only)	VicRoads
227	12/9/17	National Trust of Australia (Victoria) Submission 12 September 2017	National Trust
228	12/9/17	Western Connection Oral Submission	Western Connection
229	12/9/17	Colleen Hartland MP Written Response to Question Without Notice (electronic only)	Ms Hartland
230	12/9/17	Hyde Street Residents' Presentation 12.09.2017	Hyde Street Residents' Group
231	12/9/17	Flemington Association Presentation 12 September 2017	Flemington Association
232	12/9/17	Email from WDA to IAC and HBCC responding to a Noise Report Query, 12 September 2017	WDA
233	12/9/17	VicRoads Transport Modelling Guidelines, Volume 2: Strategic Modelling, Version Draft 3, 26/4/2012	WDA
234	12/9/17	Zenith Recalibration- Technical Reference Group 2011 Meeting Invites	WDA
235	12/9/17	Presentation by Ms J Marnich, 12 September 2017	Ms J Marnich
236	13/9/17	Air Quality in and around Traffic Tunnels Final Report by the Australian Government National Health and Medical Research Council, 2008 (electronic only)	WDA
237	13/9/17	Initial Report on Air Quality by NSW Advisory Committee on Tunnel Air Quality, NSW Government, July 2014	WDA
238	13/9/17	TP08: Options for Treating Road Tunnel Emissions, by NSW Roads and Maritime Services, July 2014	WDA
239	13/9/17	List of Members of NSW Advisory Committee on Tunnel air Quality	WDA
240	13/9/17	E-Gate Planning, Development and Design Guidance for Respondents to the E-Gate EOI Process, Appendix B, October 2014, Major Projects Victoria	WDA
241	13/9/17	Supplementary Submission by Kororoit Institute, 13 September 2017	Kororoit Institute

No.	Date	Description	Presented by
242	13/9/17	Presentation by Kororoit Institute, 13 September 2017	Kororoit Institute
243	13/9/17	Bottleneck!, August 2017	Kororoit Institute
244	13/9/17	Submission: Westgate Tunnel Project – City End -	Kensington Association
245	13/9/17	Automated Wall Washing System	JJ Cleaning Australia
246	13/9/17	Group Submission from Don't Destroy Millers Rd	Don't Destroy Millers Rd
247	13/9/17	Submission by Yarra Campaign for Action on Transport	Yarra Campaign for Action on Transport
248	13/9/17	Submission by Moreland Community for Action on Transport	Moreland Community for Action on Transport
249	14/9/17	Presentation by the Kensington Association (electronic only)	Kensington Association
250	14/9/17	Appendix #1 - MPC - New Linear Park Concept - Land Ownership & Zoning (electronic only)	Kensington Association
251	14/9/17	Submissions of Counsel Assisting the IAC on the Impact of the WGT Project on Brooklyn	IAC – Counsel assisting
252	14/9/17	Doug Munro Expert Advice Final Report 13 September 2017 (electronic only)	IAC
253	14/9/17	Presentation by Friends of Stony Creek (electronic only)	Friends of Stony Creek
254	14/9/17	Alternative to Transurban's West Gate Tunnel Presentation	Croft Infrastructure Designs P/L
255	14/9/17	CoM - EPRs for Distribution - 13 Sep 2017 (WIP) (electronic only)	CoM
256	14/9/17	CoM - Amendments to Incorporated Document - 13 September 2017 (electronic only)	CoM
257	14/9/17	EPRs Version 5 EPA Victoria Track Change 130917 (electronic only)	EPA
258	14/9/17	Maribyrnong Truck Action Group (MTAG) presentation material (electronic only)	MTAG
259	14/9/17	Technical Memorandum from Golder Associates responding to IAC Request for Information on Trade Waste Agreements with Respect to Water Extraction, dated 13 September 2017	WDA

No.	Date	Description	Presented by
260	14/9/17	Brooklyn Photos (approx. date 2012)	Brooklyn Residents Action Group Inc
261	14/9/17	Public Transport Users Association (PTUA) presentation (electronic only)	PTUA
262	14/9/17	Dr Denison Expert Advice Health Final Report 12 September 2017 (electronic only)	IAC
263	14/9/17	Dr Denison Expert Advice Air Quality Final Report 13 September 2017 (electronic only)	IAC
264	14/9/17	Presentation by Emma McLean Kindergarten	Emma McLean Kindergarten
265	14/9/17	Melbourne's West tourism brochure	Western Melbourne Tourism
266	14/9/17	Presentation by the Owners Corporation PS 429674C – 107-109 Whitehall Street, Footscray	Owners Corporation PS 429674C
267	14/9/17	Submission by Hobsons Bay Bicycle User Group (HBBUG)	HBBUG
268	14/9/17	Submission of behalf of Impact Investment Group Owner of 90-96 Maribyrnong St, Footscray	Impact Investment Group
269	14/9/17	Presentation by Clamms Seafood, 14 September 2017	Clamms Seafood Pty Ltd
270	14/9/17	Submission by Murray Case Photography	Murray Case Photography
271	14/9/17	Report by Deborah Salins (182)	Salins Equity and Rex Industries
272	14/9/17	City of Melbourne - Final amendments to all EPRs - 14 September 2018.	CoM
273	14/9/17	IMPA Appendix E Recommended Environmental Performance -WGTP IMPA edit V2 140917	IMPA
274	14/9/17	Presentation by Transport for Melbourne	Transport for Melbourne
275	14/9/17	Spotswood South Kingsville Residents Group EPR Version 3, 24 August word version to share - JM edits	SSKRG
276	14/9/17	Letter from MCC dated 14 September 2014	MCC
277	14/9/17	MCC Incorporated Document Comments	MCC
278	14/9/17	MCC Schedule 1 Recommendations	MCC

No.	Date	Description	Presented by
279	14/9/17	Presentation by the Victoria Transport Action Group (VTAG)	VTAG
280	14/9/17	Submission by the Victoria Transport Action Group (VTAG)	VTAG
281	14/9/17	Presentation by Dr Woodcock	VTAG
282	14/9/17	Incorporated Document - Draft Prepared by WDA (clause 5.1 amended)	WDA
283	14/9/17	Amendment to Doc 191 to include plans by September 2015 Transurban	WDA
284	14/9/17	GTA Consultants' response to IAC Request for Information on Hawke Street Traffic Volumes and Project Freight Objective Metrics, dated 13 September 2017	WDA
285	14/9/17	Port Rail Shuttle Network Invitation for Expressions for Interest	WDA
286	14/9/17	Will Melbourne's Port Shuttle Work, by Charles Pauka, Government News, 22 Auguste 2017	WDA
287	15/9/17	Presentation by the Parkville Association (electronic only)	Parkville Association
288	15/9/17	Letter to the IAC from Dr Love dated 13 September 2017 (electronic only)	Dr Love
289	15/9/17	Follow-Up Questions and Answers by Douglas Harley (electronic only)	Dr Love
290	15/9/17	Final Report Addendum Note by IAC Technical Adviser Mr Hancock (electronic only)	IAC
291	15/9/17	Maribyrnong River Navigation Clearance (electronic only)	Kororoit Institute
292	15/9/17	Presentation Notes - Clamms Seafood Pty Ltd (refer Doc 269) (electronic only)	Clamms Seafood
293	15/9/17	Presentation by Mr Webster	Mr A Webster
294	15/9/17	Submission of Mr Dunlevy	Mr Dunlevy
295	15/9/17	Submission of Submitter 213	Mr Dunlevy
296	15/9/17	Presentation by Meaghan Paul	Ms McKenna
297	15/9/17	Presentation by Andrew Webster (electronic only)	Andrew Webster
298	15/9/17	Email from Michael Ingram dated 14/09/17	Mr Ingram
299	15/9/17	Attachment to email from Michael Ingram Dynon Road Connection over MP Ck - Misleading Image from WDA - Doc No160 Pt4 2nd image	Mr Ingram
300	15/9/17	Clarification on CityLink tolling period	Colleen Hartland MP
301	15/9/17	Submission by Mr Hundley, 15 September 2017	Mr Hundley

No.	Date	Description	Presented by
302	15/9/17	Submission by Mr McKee, September 15, 2017	Mr McKee
303	15/9/17	Presentation material by Charmian Gaud	Ms Gaud
304	15/9/17	EPA response 14 Sept 17 re air quality	EPA
305	15/9/17	EPA response contaminated soil reuse	EPA
306	15/9/17	EPA closing remarks	EPA
307	15/9/17	Friends of Moonee Ponds Creek EPRs Version 5 dated 10 September- FoMPC comments	Friends of Moonee Ponds Creek
308	15/9/17	Presentation by Ruth Skene	Ms Skene
309	15/9/17	Western Melbourne Tourism - Richard Ponsford Speaking Notes - September 14 EES Hearing	Western Melbourne Tourism
310	15/9/17	Western Melbourne Tourism FINAL Artwork Map Handout - Western Melbourne Tourism	Western Melbourne Tourism
311	15/9/17	Western Melbourne Tourism Research - Collation of TRA Data - 2017	Western Melbourne Tourism
312	15/9/17	HBCC EPR changes	HBCC
<i>B1-B5: Documents tabled at the Concurrent Session held in the Basement Theatre on 15/9/17</i>			
B1	15/9/17	Submission by Ms Bleeser	Ms Bleeser
B2	15/9/17	Submission by Mr G Smith for Jucon Holdings	Jucon Holdings Pty Ltd
B3	15/9/17	Submission by Mr Clarke for Trirampage	Trirampage Pty Ltd
B4	15/9/17	Submission by Dr Healy for Protectors of Public Lands Inc	Protectors of Public Lands Inc
B5	15/9/17	Presentation by A & J Whitten	A & J Whitten
313	18/9/17	Western Melbourne Tourism Email to IAC dated 15 September 2019	Western Melbourne Tourism
314	18/9/17	CoM Technical Note 10 - Further response to Project Note 60	CoM
315	18/9/17	CoM Technical Note 11 - Further response to Project Note 60	CoM
316	18/9/17	CoM Technical Note 12- Further response to Project Note 40	CoM

No.	Date	Description	Presented by
317	18/9/17	Project Note Index	WDA
318	18/9/17	Summary of Recommendations by Mr O'Brien	HBCC
319	18/9/17	WDA Part B – Closing Submission	WDA
320	18/9/17	WDA Part B – Closing Submission Presentation	WDA
321	18/9/17	Janet Graham revised submission Revision 1, 15.9.17 (electronic only)	Janet Graham
322	18/9/17	Proposed EPRs and Responses Folder	WDA
323	18/9/17	EES Submissions Further Responses	WDA
324	18/9/17	CTAA Notes from Appearance	Container Transport Alliance Australia (CTAA)
325	18/9/17	CTAA Supplementary Panel Presentation Slides	CTAA
326	18/9/17	Speaking notes of Rob Alfarano for Vantrans Container Transport	CTAA
327	19/9/17	Errata in Witness Statement and Possible Changes to Opinion in Witness Statement of Bonnie Rosen	HBCC
328	19/9/17	Submission by IAC Counsel Assisting	IAC
329	19/9/17	Consolidated Table of All Comments Received – EPR UF Series	WDA
330	19/9/17	Extract of Melbourne Metro Rail Project Inquiry and Advisory Committee Report, 21 November 2016, & Melbourne Metro Rail Project Incorporated Document May 2017	WDA
331	19/9/17	Veitch Lister Consulting Draft Model Capability Statement	WDA
332	19/9/17	Zenith Transport Model Technical Note 2 Model Design and Architecture, Veitch Lister Consulting, 15-04-2013	MCC
333	19/9/17	WGTP Incorporated Document Draft prepared by WDA 19/9/17	WDA
334	19/9/17	WDA Response to Mr O'Brien's recommendations	WDA
335	19/9/17	Mr G Smith for Jucon Holdings Speaking Notes	Jucon Holdings
336	19/9/17	Mr J Whitten 20170915 Hearing Presentation Notes	Mr Whitten
337	19/9/17	Ms M Kelly Objection to the West Gate Tunnel Project V2	Ms Kelly
338	19/9/17	Andis' Presentation Notes	Ms Salins
339	19/9/17	Ms Salins Presentation Notes – Submitter 182	Ms Salins
340	19/9/17	Ms Salins' Hearing Presentation Slides	Ms Salins
341	19/9/17	Ms Salins - Whitehall Video	Ms Salins

No.	Date	Description	Presented by
342	19/9/17	Mr P Symons presentation - Submitter 361	Mr P Symons
343	19/9/17	Maribyrnong City Council EPRs Version 5 dated 10 September-1 - Maribyrnong CC 140917 (003)	MCC

Appendix E IAC Recommended Incorporated Document

Panel Version of Documents

[Tracked Added](#)

~~[Tracked Deleted](#)~~

West Gate Tunnel Project

Incorporated Document

~~May 2017~~ ([Date to be inserted after the Development and Urban Design Plans and Project boundary have been modified in consultation with Council and relevant authorities in accordance with the findings and recommendation of the IAC's report](#)).

Incorporated document pursuant to section 6(2)(j) of the *Planning and Environment Act 1987*.

1.0 INTRODUCTION

This document is an incorporated document in the Melbourne, Port of Melbourne, Hobson Bay, Maribyrnong, Wyndham and Brimbank Planning Schemes (**Planning Schemes**) and is made pursuant to section 6(2)(j) of the *Planning and Environment Act 1987*.

This document gives effect to specific controls for the West Gate Tunnel Project (**Project**) pursuant to clause 52.03 of the Planning Schemes.

The controls in this Incorporated Document prevail over any contrary or inconsistent provision in the Planning Schemes.

2.0 PURPOSE

The purpose of this Incorporated Document is to permit the use and development of land described in clause 3.0 for the purposes of the Project.

3.0 LAND

This Incorporated Document applies to the land described as 'Land for the West Gate Tunnel Project' in Figure 1 of this document (**Project Land**). [\[IAC note: New plans are required to be prepared and included in the incorporated document, as Figure 1, that reflect any revisions to the Project boundary resulting from the IAC's recommendations\].](#)

4.0 CONTROL

Despite any provision to the contrary, or any inconsistent provision, in the Planning Schemes, no planning permit is required for, and no planning provision in the Planning Schemes operates to prohibit, restrict or regulate the use or development of the Project Land for the purposes of, or related to, constructing, maintaining or operating the Project.

The Project includes, but is not limited to:

- A freeway standard road connecting the West Gate Freeway to City Link, the Port of Melbourne and the western edge of the central area of Melbourne.
- Widening of the West Gate Freeway from the M80 interchange to the West Gate Bridge to provide for additional lanes in each direction, and widening of Princes Freeway between M80 interchange and Kororoit Creek Road.
- Elevated roads and road infrastructure, including over the Maribyrnong River, Footscray Road, Moonee Ponds Creek and connections to CityLink.
- Interchanges and grade separations associated with road connections.
- Road connections at Princes Freeway, M80/ Western Ring Road, Old Geelong Road, Grieve Parade, Millers Road, Williamstown Road, Hyde Street, Douglas Parade, Simcock Avenue, West Gate Bridge, City Link, Mackenzie Road, Dynon Road, Appleton Dock Road and Footscray Road, and the extension of Wurundjeri Way to Dynon Road with widening of Wurundjeri Way to Flinders Street.
- Twin road tunnels and associated infrastructure, including ventilation structures.
- A control centre and freeway maintenance facility.

- Utility installation and relocation and associated services, including relocation of the North Yarra Main Sewer, electricity transmission towers, lines, cables and associated sub-stations.
- Construction and relocation of rail infrastructure and associated services.
- Earthworks and related structures, kerbs, channels, water and soil transfer and treatment structures, facilities and works, water quality facilities, retaining walls, noise and screening barriers, cuttings, batters and fill associated with the Project.
- Any buildings or works or associated infrastructure or activities for the Project.
- [Toll gantries located at \(Insert accurate description\)](#)
- Ancillary activities to the use and development of the Project Land for the purposes of, or related to, the Project, including, but not limited to:
 - Developing and using lay down areas for construction purposes.
 - Constructing and using temporary site workshops and storage, administration and amenities buildings.
 - Removing, destroying and lopping trees and vegetation, including native vegetation.
 - Demolishing and removing buildings, fixtures, structures and infrastructure.
 - Restoration and reinstatement works.
 - Developing and using land for a shared use path and pedestrian overpasses.
 - Constructing or carrying out works for bridges, ramps, excavation, fences, temporary barriers, noise attenuation walls, stabilisation, creating bunds, mounds, landscaping, the salvage of artefacts, water treatment, water storage, flood mitigation and to alter drainage.
 - Creating or altering access to a road in a Road Zone Category 1 or land in a Public Acquisition Overlay if the purpose of acquisition is for a Category 1 road.
 - Storage and assembly of materials required for the Project.
 - Constructing and carrying out works to install, alter or relocate, drainage infrastructure, utility installations and services.
 - Roadworks and constructing and using temporary access roads, diversion roads and vehicle parking areas.
 - Displaying construction, directional and business identification signs.
 - Stockpiling of excavation material.
 - Subdividing and consolidating land in accordance with plan/s approved by the Minister for Planning.

This control is subject to the conditions in clause 5 of this Incorporated Document.

5.0 CONDITIONS

Development and Urban Design Plans

- 5.1 Development of the Project must be carried out generally in accordance with the document titled “*West Gate Tunnel Project Development and Urban Design Plans*” dated ~~May 2017~~ [\(date to be inserted after the Development and Urban Design Plans and Project boundary have been modified in consultation with Council and relevant authorities in accordance with the findings and recommendations of the IAC’s Report\)](#), including Attachments 1, 2 and 3, and in accordance with the Environmental Performance Requirements set out at Appendix A of the document (collectively referred to as West Gate Tunnel Project Development and Urban Design Plans and EPRs).

Environmental Management Strategy

- 5.2 Prior to the commencement of any buildings or works associated with the Project, an Environmental Management Strategy (EMS) for the Project must be approved by the Minister for Planning. The EMS must be prepared in consultation with Melbourne City Council, Hobsons Bay City Council, Wyndham City Council, Brimbank City Council and Maribyrnong City Council.

The EMS must:

- 5.2.1 respond to the Environmental Performance Requirements by outlining how they will be implemented;
- 5.2.2 set out the process and timing for development of the Construction Environmental Management Plan, Work Site Environmental Management Plans and other plans and procedures required by the Environmental Performance Requirements, including the process and timing for consultation with Councils, Roads Corporation, Melbourne Water and the Environment Protection Authority as relevant; ~~and~~
- 5.2.3 be prepared consistent with the Environmental Management Framework as contained in the Environment Effects Statement (EES) and the Environmental Performance Requirements, [and](#)
- [5.2.4 be reviewed by the IREA prior to submission to the Minister for Planning for approval.](#)
- 5.3 The EMS may be prepared and approved in stages (including separately for construction and operation).
- 5.4 [The EMS](#) may be amended from time to time to the satisfaction of the Minister for Planning.
- 5.5 The use and development of the Project Land must be carried out in accordance with the approved EMS.
- 5.6 [Audit of the EMS must be undertaken by the IREA on a six monthly basis \(or as required\) and provided to the Minister for Planning.](#)

Amendment to the West Gate Tunnel Project Development and Urban Design Plans and EPRs

- 5.7 The West Gate Tunnel Project Development and Urban Design Plans and EPRs may be amended to the satisfaction of the Minister for Planning.
- 5.8 An amendment to the West Gate Tunnel Project Development and Urban Design Plans and EPRs must be accompanied by the following information:
- 5.8.1 amended West Gate Tunnel Project Development and Urban Design Plans and EPRs; [and a statement from the IREA with their view on the proposed amendments](#)
- 5.8.2 a statement from Western Distributor Authority explaining and supporting the proposed changes, [including a description of the form and extent of consultation undertaken with Local Councils, relevant government agencies and other stakeholders concerning the proposed change, and their response.](#)
- 5.9 If the Minister for Planning approves an amendment to the West Gate Tunnel Project Development and Urban Design Plans and EPRs, the development must be carried out generally in accordance with the West Gate Tunnel Project Development and Urban Design Plans and EPRs, as amended.

Native vegetation

- 5.10 Details of the proposed removal, destruction or lopping of native vegetation necessary for the construction of the Project must be prepared in accordance with the Permitted clearing of native vegetation - Biodiversity assessment guidelines (Department of Environment and Primary Industries, September 2013), to the satisfaction of the Secretary to the Department of Environment, Land, Water & Planning (DELWP), except as otherwise agreed by the Secretary to DELWP.
- 5.11 Native vegetation offsets must be provided in accordance with the *Permitted clearing of native vegetation - Biodiversity assessment guidelines* (Department of Environment and Primary Industries, September 2013) except as otherwise agreed by the Secretary to DELWP.

Preparatory and Other Works

The following buildings and works may ~~commence~~ [be undertaken](#) before the EMS is approved:

- Preparatory works for the Project including, but not limited to:
- Works, including vegetation removal, that would not require a permit, ~~where, but for this incorporated document, a planning permit would not be required~~ under the provisions of the Planning Schemes, [that, but for this Incorporated Document, would apply to the Project land.](#)
- Investigating, testing and preparatory works to determine the suitability of land, and property condition surveys.
- Creation of construction access points and working platforms.

- Site establishment works, including temporary site fencing and hoarding, site offices, hardstands and laydown areas.
- Establishing temporary car parking sites.
- Construction, protection, modification, removal or relocation of existing utility services.
- Establishment of environment and traffic controls.
- Demolition to the minimum extent necessary to enable preparatory works.
- Salvaging and relocating of artefacts and other preparatory works required to be undertaken in accordance with the approved cultural heritage management plan prepared for the Project under the Aboriginal Heritage Act 2006.
- The removal, destruction or lopping of native vegetation to the minimum extent necessary to enable preparatory works, to the satisfaction of the Minister for Planning. Any native vegetation removal to enable preparatory works forms part of the total extent of native vegetation removal necessary for the construction of the Project and native vegetation offsets must be provided in accordance with the Permitted clearing of native vegetation - Biodiversity assessment guidelines (Department of Environment and Primary Industries, September 2013) except as otherwise agreed by the Secretary to DELWP.

Availability of EMS and Other Documents

5.12 The current version of the following documents must be available on a clearly identifiable ~~project~~ website ~~until commencement of operation~~ for at least five years after the commencement of operation of all components of the Project:

- the West Gate Tunnel Project Development and Urban Design Plans and EPRs
- the EMS approved under clause 5.2
- audit reports under clause 5.6.

6.0 EXPIRY

The controls in this document expire if any of the following circumstances apply:

- The development allowed by the controls is not started by 1 December 2020.
- The development allowed by the controls is not completed by 1 December 2026.
- The use allowed by the controls is not started by 1 December 2026.

The Minister for Planning may extend these periods if a request is made in writing before the expiry date or within three months afterwards.

Appendix F IAC Recommended Environmental Performance Requirements

Environmental Performance Requirements

EES Objective	Evaluation	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Environmental Management						
Environmental Management Framework – to provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the Project, in order to achieve acceptable environmental outcomes		AS/NZS ISO 14001: Environmental management systems – requirements with guidance for use for construction and operation Legislation and policy as identified in all EPRs	To control adverse effects and support beneficial environmental outcomes in the delivery of the project.	EMP1	Environmental Management Strategy Prepare an Environmental Management Strategy to provide an overarching framework to address Environmental Requirements including relevant environmental Laws, Key Approvals, Approval conditions, the Environmental Performance Requirements (EPRs). The Environmental Management Strategy covers the construction and operations phases of the Project and is to be prepared to the satisfaction of the Minister for Planning under the Incorporated Document applicable to the Project. The Environmental Management Strategy must incorporate an Environmental Management System that complies with AS/NZS ISO 14001: Environmental management systems – requirements with guidance for use for construction and operation. The approved EMS must be made publicly available.	All
				EMP2	Environmental Management Plans Prepare and implement a Construction Environmental Management Plan (CEMP), Worksite Environmental Management Plans (WEMPs), Operations Environmental Management Plan (OEMP) and other plans as required by the Environmental Performance Requirements (EPRs) in accordance with the Environmental Management Strategy. The development of the Environmental Management Strategy, the CEMP, the WEMPs and POEMP must include consultation with relevant councils, VicRoads, Melbourne Water, EPA Victoria and other authorities as relevant. These consultation processes must be described in the Environmental Management Strategy. The CEMP must be prepared in accordance with EPA Victoria Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996) and must be to the satisfaction of the IREA.	All
				EMP3	Environmental compliance Appoint an Independent Reviewer and Environmental Auditor to review and approve the CEMP and OEMP to ensure compliance with the Environmental Management Strategy and EPRs and to undertake environmental audits of compliance with the	Pre-construction, construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				approved Environmental Management Strategy, CEMP, WEMPs and OEMP. The IREA must produce six monthly audit reports to the Minister for Planning during construction for provision to the Minister of Planning and other approval authorities as appropriate. Audit reports must be made publicly available.	
			EMP4	<p>Complaints management system</p> <p>Prior to the commencement of works, other than preparatory works as referred to in the Incorporated Document), develop and implement a process for the recording, management, and resolution of complaints from affected stakeholders consistent with Australian Standard AS/NZS 10002:2014 Guidelines for Complaint Management in Organisations.</p> <p>The complaints management system must be consistent with the Communications and Community Engagement Plan required under EPR SP2.</p>	Pre-construction, construction
Air Quality					
<p>Health, amenity and environmental quality – to minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the Project.</p>	<p><i>Environment Protection Act 1970</i> State Environment Protection Policy (SEPP) – Ambient Air Quality SEPP – Air Quality Management (AQM)</p>	To manage Tunnel emissions to protect the beneficial uses of the air environment	AQP1	<p>Tunnel ventilation system design</p> <p>Design, and implement and maintain a tunnel ventilation system to meet the requirements of the SEPP (AQM) and in accordance with the requirements of the EPA Victoria Works Approval.</p>	Detailed design, operation
			AQP2	<p>Zero portal emissions</p> <p>Design and implement a tunnel ventilation system to achieve zero portal emissions.</p>	Detailed design, operation
		To ensure in-Tunnel air quality is safe for motorists and others using the Tunnel	AQP3	<p>In tunnel air quality</p> <p>Design and implement a tunnel ventilation system to introduce and remove air from the tunnels to meet in tunnel air quality requirements for carbon monoxide (CO) and best practice standards for NO₂ listed below including provision for the retrofitting of pollution control equipment. installation of tunnel ventilation pollution control equipment to reduce pollutant emission levels at the tunnel exhaust to the metropolitan background level; or another level agreed with the EPA.</p> <p>Achieve a longitudinal air velocity in the Tunnels not exceeding 10 metres/second.</p> <p>In tunnel air quality must meet the following CO standards:</p> <ul style="list-style-type: none"> • Maximum peak value of 150ppm • 15 min. average of 50ppm 	Detailed design, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> • 2-hour average of 25ppm. • In tunnel air quality standard for NO₂ of 0.5 ppm as a rolling 15-minute average. • Apply best practice Australian management techniques to minimise impact on health from in tunnel exposure to PM_{2.5} and PM₁₀. 	
		To protect beneficial uses of the air environment for the surface sections of West Gate Tunnel Project	AQP4	<p>Ambient air quality monitoring</p> <p>Develop and undertake an ambient air quality monitoring program in consultation with the EPA to measure the air quality impacts of West Gate Tunnel Project, including at least one year of monitoring before operation, and five years post opening of the Freeway Project, or such lesser period as agreed with EPA Victoria. Results of the monitoring are to be made publicly available on a website related to the Project, or through EPA Victoria’s Air Watch website on a quarterly basis.</p>	Construction, operation
			AQP5	<p>In-tunnel air quality and ventilation structure emissions compliance</p> <p>Monitor the in-tunnel air quality and ventilation structure emissions during operation of the ventilation system to demonstrate compliance with EPR AQP3, SEPP (Air Quality Management) and the EPA Victoria licence to the satisfaction of EPA Victoria. Report the monitoring results publicly on a quarterly basis for five years post opening of the Freeway Project or such lesser period as agreed with EPA Victoria.</p> <p>Take remedial action if Environmental Requirements are not met, in consultation with to the satisfaction of EPA Victoria.</p>	Operation
			AQP6	<p>Air quality during construction</p> <p>Manage construction activities in accordance with EPA Victoria Publication 480 Guidelines for Major Construction Sites, to maintain air quality to a standard which does not prejudice the health and amenity of nearby residents, open spaces and community facilities.</p> <p>Develop and implement an Air Quality Management and Monitoring Plan (AQMMP) as part of the CEMP including in respect of dust, odour, and construction vehicle emissions to minimise impacts during construction, including setting out requirements and methods for:</p> <ul style="list-style-type: none"> • Identifying sources and nature of airborne pollutants • Identifying the location of sensitive receptors • Monitoring 	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> Mitigation options to minimise impacts on local air quality Procedures for record keeping and reporting. 	
			AQP7	<p>Roadside air quality</p> <p><u>Implement a roadside monitoring program for PM_{2.5} that is designed in consultation with EPA and the community (program co-design). Results of the monitoring are to be made publicly available daily on an accessible website or through EPA's Air Watch website.</u></p>	Operation
			AQP8	<p>Roadside air quality mitigation strategy</p> <p><u>Develop and implement a roadside air quality mitigation strategy, to the satisfaction of the EPA, for specific locations that are shown to have deteriorating air quality as a result of the Project.</u></p>	Operation
Business					
<p>Social, business, land use, public safety and infrastructure – to minimise adverse effects on the social fabric of the community, including with regard to community cohesion, access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.</p>		<p>To minimise impacts on business and commercial facilities</p>	BP1	<p>Damage or impacts on third party property and infrastructure</p> <p>Through detailed design and construction, <u>and in consultation with relevant land owners and parties as necessary</u>, design and construct the works to minimise, to the extent practicable, impacts to, and interference with, third party property and infrastructure and to ensure that infrastructure and property is protected during construction and operation. Any damage caused to property or infrastructure as a result of the Project must be appropriately remedied in consultation with the property or asset owner.</p>	<p>Detailed design, construction</p>
			BP2	<p>Access and amenity for business and commercial facilities</p> <p>Access to, and amenity of, for potentially affected business and commercial facilities must be protected, where practicable, by responding to the Project urban design principles and vision and implementing the principles of Crime Prevention Through Environmental Design.</p> <p>Any reduction in the level of access, amenity or function of any business or commercial facility must be minimised to the <u>extent and duration</u> necessary to carry out the relevant construction related works. Potentially affected business and commercial facilities must be provided with adequate notification of potential impacts and temporary access arrangements. <u>Emergency access must be maintained at all times.</u></p> <p>All permanent access to business and commercial facilities affected by the works is to</p>	

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>be restored, or relocated as agreed with the relevant property owner, including associated landscaping and restoration works, and temporary access arrangements put in place for the duration of construction must be removed when construction has ceased.</p>	
			BP3	<p>Screening Screening must be erected at the boundary of construction sites that adjoin residential or commercial properties, consistent with the surrounding context, in consultation with the relevant local councils, affected property owners and occupiers.</p>	Construction
			BP4	<p>Impacts on operation of community, private recreation and council facilities and services Where the operation of community, private recreation and council facilities and services are is directly impacted by the Project, mitigation and management measures must be implemented in consultation with the appropriate stakeholders including the relevant local council to minimise these impacts to the extent practicable.</p>	All
		To minimise impacts on business through engagement during construction	BP5	<p>Business Involvement Plan As part of the Communications and Community Engagement Plan (see EPR SP2), develop and implement a Business Involvement Plan, in consultation with affected local Councils, affected businesses, relevant local trader association, and other affected stakeholders, in advance of works (other than preparatory works as referred to in the Incorporated Document) commencing. Councils and affected stakeholders (including affected businesses and relevant local trader association) are to be consulted on progress of construction activities, including significant milestones, potential impacts, mitigation measures, changed traffic and parking conditions, and other matters which are of interest or concern to them. The plan must also include but not be limited to:</p> <ul style="list-style-type: none"> • Identification of relevant stakeholders • Procedures to disseminate information regarding the construction schedule, construction progress, key milestones, changes in traffic and parking conditions and environmental management measures • Procedures to engage with stakeholders including affected businesses and relevant local trader associations, and through which affected businesses and relevant local trader associations can provide comment or feedback in relation to 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				environmental management or delivery of the Project <ul style="list-style-type: none"> Procedures that would be implemented to resolve any issues or disputes that may arise between parties relating to the environmental management or delivery of the Project Procedures to minimise impact on access to business and commercial premises during construction and to restore permanent access (refer BP2) . 	
		To minimise impacts on utility assets	BP6	Utility assets Through detailed design and construction, minimise impacts on utility assets, to the extent practicable, including but not limited to: <ul style="list-style-type: none"> Stormwater and sewer assets Electricity transmissions assets (overhead and underground lines) Gas and fuel pipelines Communications lines (e.g. fibre optic cables and VicRoads trunk fibre). To the extent relocations are required to facilitate the Project, protect and where required, modify utility assets to the satisfaction of asset owners.	Detailed design, construction
			BP7	Gas utilities Unless agreed otherwise with the asset owner, ensure that: <ul style="list-style-type: none"> No works are undertaken within 3.0 metres of any licensed transmission gas pipeline or underground regulating station Subject to the requirement below, clearances to all gas assets are as per the Conditions of Works as detailed in SP AusNet Technical Standards TS2607.1, TS2607.2 and TS2607.3, as amended or replaced from time to time Risk assessments and safety studies detailing the impact on gas network infrastructure are completed in accordance with AS2885, which is the Standards Australia standard for the design, construction, testing, operations and maintenance of gas and petroleum pipelines that operate at pressure in excess of 1050 kPa, as amended or replaced from time to time. 	Detailed design, construction
			BP8	Business disruption Minimise disruption to businesses to the extent practicable from temporary occupation of land.	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			BP9	Business acquisition process Minimise disruption to businesses to the extent practicable from the acquisition of interests in land, and work with business and land owners to endeavour to reach agreement on the terms for possession of the land.	Detailed design, construction
Cultural Heritage					
Cultural heritage – to avoid or minimise adverse effects on Aboriginal and historical cultural heritage values	<i>Aboriginal Heritage Act 2006</i>	To minimise impacts on sites of Aboriginal cultural significance	CHP1	Cultural Heritage Management Plan Comply with and implement the Cultural Heritage Management Plan (CHMP) approved under the <i>Aboriginal Heritage Act 2006</i> .	Detailed design, construction
	<i>Heritage Act 1995 2017</i>	To minimise impacts on both known (identified) and unidentified archaeological historic sites and values and To protect structural integrity of known historic sites and values and To record historical values of buildings, streetscapes or relocate/ reuse small structures if feasible that are disturbed by	CHP2	Design and construction to minimise impacts on heritage Undertake detailed design of the permanent and temporary works to minimise impacts where practicable, on historic cultural heritage in consultation with Heritage Victoria and relevant local councils. Prior to commencement of works that affect heritage structures, features or places, develop and implement in consultation with the relevant heritage authority: <ul style="list-style-type: none"> • Physical protection measures for heritage structures, features and places as appropriate • A methodology for any required dismantling, storage or reinstatement of heritage fabric (with reference to the ICOMOS Burra Charter 2013). 	Detailed design, pre-construction, construction
			CHP3	Archaeological Management Plan Develop an Archaeological Management Plan detailing measures to avoid, minimise, mitigate or manage disturbance of archaeological sites and values affected by the works. Undertake investigations in accordance with the Guidelines for Investigating Historical Archaeological Artefacts and Sites, Heritage Victoria 2014 and to the satisfaction of the Executive Director, Heritage Victoria. The Management Plan must include: <ul style="list-style-type: none"> • Requirements for background historical research, excavation methodology, research design, reporting and artefact management and analysis • The incorporation of strategies relating to the protection of sites of archaeological interest in relevant master plans 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		the works		<ul style="list-style-type: none"> Protocols for managing previously unidentified historical archaeological sites discovered during the works. 	
			CHP4	<p>Monitoring of heritage sites and places</p> <p>Undertake vibration monitoring during demolition, excavation and construction within an appropriate distance (as determined by a technical assessment) of heritage sites and places on the Victorian Heritage Register (VHR) at risk of impact and monitor their condition during and post construction for settlement and structural integrity disturbance as a result of the proposed works. Report the results to the Executive Director, Heritage Victoria and take remedial action, if required, to the satisfaction of the Executive Director, Heritage Victoria.</p> <p>(Also refer to GMP3 and NVP7)</p>	Construction
			CHP5	<p>Archival photographic records</p> <p>Prior to construction, undertake archival photographic recording (interior and exterior) of all heritage buildings, streetscapes or places disturbed by the works in accordance with Heritage Victoria’s specification for the archival photographic recording of heritage places.</p>	Pre-construction
			CHP6	<p>Port Phillip Monument</p> <p>Develop and implement an approach to maintain a link between the Port Phillip Monument and the Maribyrnong River, including establishing an appropriate setting in consultation with the City of Melbourne which allows for interpretation, either on the existing or an alternative site.</p>	Detailed design, construction
			CHP7	<p>Heritage interpretation strategy</p> <p>In consultation with the relevant local councils, develop and implement a heritage interpretation strategy for the Project which seeks to explore historical and Aboriginal cultural heritage themes. The strategy must include an audit of existing heritage interpretation. The strategy may include installation of signage regarding local heritage places and is to have a particular focus on the Kororoit Creek area, Footscray/Maribyrnong River area, and the Moonee Ponds Creek area.</p>	Pre-construction, construction
			CHP8	<p>Shipwrecks</p> <p>To confirm the presence of shipwrecks at the Maribyrnong River crossing, including the Hilaria (S331) which is thought to be located on the west bank of the river, undertake preliminary high-resolution sonar scan of river environs within the area to</p>	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>be affected by the works and targeted diving for sub-surface anomalies within the area affected by the works. Based on the results of investigations, as appropriate develop management measures in consultation with Heritage Victoria; these could include consideration in the detailed design and a detailed program of archaeological investigation.</p> <p>If the Edina (S199) is affected by works, record appropriately and relocate, if practicable, to a more secure location within the Maribyrnong riverine landscape or include as part of an interpretation strategy for display in the local area, to the satisfaction of Heritage Victoria.</p> <p>Engage a suitably qualified and experienced maritime archaeologist to undertake these tasks.</p>	
			CHP9	<p>Maribyrnong River front (Footscray)</p> <p>Where practicable in detailed design retain evidence of historical infrastructure and services in the vicinity of the Maribyrnong River front (Footscray), including rail tracks and the bluestone drain (Billy Button Creek). If removal is required, record in accordance with EPR CHP5. Apply the heritage interpretation strategy (CHP7) as appropriate.</p>	Detailed design
			CHP10	<p>Bluestone bridge</p> <p>Undertake any works at and/or in the immediate vicinity of the bluestone bridge over Kororoit Creek (HO259) in a manner which avoids to the extent practicable disturbing surviving evidence of early road surfacing, including to the approaches to the bridge.</p>	Construction
			CHP11	<p>Rail turntables</p> <p>Through detailed design, avoid impacts to the consideration must be given to minimising impacts on the rail turntables. Make every effort to maintain rail turntables in situ. If it is necessary to remove one of the rail turntables, develop to the extent practicable. If it is necessary to remove both of the rail turntables, develop and implement a methodology for the salvage and storage of one of the turntables to provide the opportunity for future reinstatement at an alternative site.</p>	Detailed design
			CHP12	<p>Flinders Street</p> <p>Undertake any works in the vicinity of the two VHR heritage places (No. 2 Goods Shed and the Flinders Street Retaining Wall) in a manner which avoids disturbance to the extent practicable.</p>	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Contaminated Soil & Spoil Management					
<p>Waste Management – to manage excavated spoil generated by the project in accordance with the waste hierarchy and relevant best practice principles</p>	<p>The Environment Protection Act 1970 Environment Protection (Industrial Waste Resources) Regulations 2009 SEPP – Prevention and Management of Contamination of Land</p>	<p>To protect the beneficial uses of land and minimise risk to human health and ecosystems from exposure to contaminated soils</p>	CSP1	<p>Contaminated soil requirements</p> <p>The CEMP must include processes and measures to manage contaminated soil (including paste) that comply with relevant standards, guidelines, statutory requirements and best practice including but not limited to:</p> <ul style="list-style-type: none"> • SEPP – Prevention and Management of Contaminated Land, 2002 • SEPP – Air Quality Management, 2001 (in respect of odour) • Environment Protection (Industrial Waste Resource) Regulations 2009 • Industrial Waste Management Policy (Waste Acid Sulphate Soils) 1999 • National Environment Protection (Assessment of Site Contamination) Measures 2013 • Environment Protection (Schedule Premises and Exemptions) Regulations 2007 • WorkSafe Occupational Health and Safety Regulations 2007 (Asbestos) • Relevant Industrial Waste Resource Guidelines. 	Construction
			CSP2	<p>Contaminated soil and spoil management</p> <p>The CEMP must include a sub-management plan that sets out the requirements and methods for contaminated soil and spoil management developed in consultation with to the satisfaction of EPA Victoria.</p> <p>This The contaminated soil and spoil management plan must include undertaking a detailed assessment prior to any excavation of potentially contaminated areas to identify location, types and extent of any contaminated land and properties within or adjacent to the Project boundary, and sensitive land uses affected by construction activity outside the Project boundary, and assessing the potential impact for human health, environmental risk and odour.</p> <p>This assessment must include but not be limited to consideration of the following:</p> <ul style="list-style-type: none"> • Potential contamination risks, including landfill gas migration at the former quarry locations and landfills in accordance with Landfill BEPM publication 788 • Potential contamination risks associated with any alteration of the 220kV power lines and any other utilities • Potential contamination risks associated with any works to the North Yarra Main 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>Sewer</p> <ul style="list-style-type: none"> • Potential contamination risks and waste classification of the sediments in the Maribyrnong River and Moonee Ponds Creek • Potential impacts posed by contamination sources adjacent to the northern portal area • Presence of soil contamination where excavations are proposed in the South Dynon rail yards • Potential contamination risks in locations where public open spaces are proposed. 	
				<p>The CEMP via the contaminated soil and spoil management plan must also include requirements and methods for:</p> <ul style="list-style-type: none"> • Characterising soil prior to disposal or reuse including PFAS chemicals • EPA waste classification to enable reuse, transport and temporary storage • Identifying, and where practicable adopting, options for the reuse of spoil in accordance with the Environment Protection Act 1970 waste management hierarchy • Identifying soil containing asbestos and if present, developing management strategies in accordance with the WorkSafe Regulations • Assessing geological formations with naturally enriched metals and applicable spoil management options and or off-site disposal to the satisfaction of EPA Victoria, in particular, tunnel spoil and the West Gate Freeway embankment material • Identifying suitably licensed facilities for the disposal or treatment of contaminated soil • Management of wastewater • Management of dust, potential stormwater run-off and seepage from stockpiled materials, including the enclosure of the spoil handling facility at the former pivot site near the northern portal • Assessing potential for accumulation of potentially harmful gases and vapours during tunnelling from soil and groundwater contamination zones • Undertaking a baseline site assessment of areas proposed for construction 	

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				laydown prior to use <ul style="list-style-type: none"> • Management of any air pollutants released as a result of disturbance of contaminated land, in accordance with requirements of SEPP (AQM) • Minimising cut and cover construction techniques in areas containing asbestos contamination • Protection of the beneficial uses of land associated with current and planned future use. 	
			CSP3	Acid sulphate soil The CEMP must include requirements and methods for the management of waste acid sulphate soil material in accordance with EPA Victoria publication IWRG 2009, EPA Victoria Publication 655.1 Acid Sulfate Soil and Rock 2009, Victorian Best Practice Guidelines for Assessing and Managing Coastal Acid Sulfate Soil. This will include undertaking an acid sulphate soils risk identification process in accordance with the Victorian Coastal Acid Sulphate Soil Strategy, if soil and rock within the Project boundary are suspected to be acid sulphate soil and rock.	Pre-construction, construction
		To minimise odour from the excavation and transportation of contaminated material to protect local amenity	CSP4	Odour management The CEMP must include requirements and methods for odour management during the excavation, stockpiling and transportation of contaminated material including: <ul style="list-style-type: none"> • Identifying the areas of contamination that may pose an odour risk; • Monitoring of the excavated material for possible odour risk • Management measures to minimise odour. 	Construction
Ecology					
Biodiversity – to avoid or minimise adverse effects on native terrestrial, aquatic and intertidal flora and fauna, and address opportunities for	<i>Planning and Environment Act 1987</i> <i>Flora and Fauna Guarantee Act 1988</i> <i>Wildlife Act 1975</i>	To avoid where possible, and otherwise minimise adverse impacts on native vegetation and listed species	EP1	Minimise vegetation removal and disturbance Develop and implement measures to avoid, where practicable, and otherwise minimise to the extent practicable impacts on native vegetation and fauna habitat through detailed design and construction, including: <ul style="list-style-type: none"> • Minimising footprint and surface disturbance of temporary and permanent works and constrain works on or near the north and south side of the West Gate Freeway and Kororoit Creek intersection, Hyde Street Reserve, Yarraville 	Detailed design, pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
offsetting potential losses consistent with the relevant policy		and ecological communities		<p>Gardens, Stony Creek and Stony Creek Reserve, Maribyrnong River, Moonee Ponds Creek, Kororoit Creek, Dynon Road and areas of amenity planting including Footscray Road</p> <ul style="list-style-type: none"> • Minimising works in or near wetlands and EVC habitats (such as the Kororoit Creek Riparian Woodland, Stony Creek Coastal Saltmarsh, Moonee Ponds Creek Brackish Wetlands and Plains Grassy Woodland and Swamp Scrub patches along Dynon Road) • Minimising footprint and disturbance of potential foraging habitat for Swift Parrot, Powerful Owl and Grey-headed Flying Fox • Minimising the removal of mature trees, planted and remnant native trees and remnant vegetation, particularly large amenity trees (>30 cm DBH) and those within or connected to public reserves and parks • Arboricultural assessments to inform detailed design and maximise tree retention and long-term viability of amenity plantings in accordance with Australian Standard 4970-2009 Protection of Trees on Development Sites <p>Explore potential relocation of palm trees removed from Yarraville Gardens.</p> <p>A pre-construction site assessment must be carried out to confirm the area and number of trees and other vegetation proposed to be impacted. Area and number of trees and other vegetation actually removed is to be confirmed through a post-construction assessment.</p>	
			EP2	<p>Native Vegetation and Tree protection measures</p> <p>The CEMP must include a sub-management plan that sets out the requirements and methods for:</p> <ul style="list-style-type: none"> • Identification of areas of important flora and fauna habitat to be protected during construction • Fencing protected areas and no go zones to prevent access during construction. Fencing should be to a standard agreed with the relevant land manager • Pre-construction site assessment to confirm that vegetation and trees to be retained have been adequately protected from impact • Vegetation clearing controls and protection measures • Development and implementation of a Tree Protection Plan for protection of retained trees based on the recommendations of Australian Standard 4970-2009 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>Protection of Trees on Development Sites. The Tree Protection Plan must respond to the detailed design and construction methodology and identify all trees to be retained, their condition, significance, and measures to protect them from the impact of construction activities including identification of the tree protection zone</p> <ul style="list-style-type: none"> • Implementation of appropriate measures to manage the risk of the spread and introduction of weeds and pathogens during construction • Procedures if unexpected endangered ecological communities or threatened species are identified. 	
			EP3	<p>Reinstatement</p> <p>Areas affected by temporary works must be reinstated and appropriate vegetation selected for planting to tolerate the microclimate conditions including under new road structures, such as the elevated structure over Footscray Road, in consultation with the relevant council and the land manager.</p>	Construction
			EP4	<p>Fauna management measures</p> <p>The CEMP must include requirements and methods for:</p> <ul style="list-style-type: none"> • Undertaking pre-clearing surveys and inspections to confirm the on-site location of native fauna species • Relocating native fauna from pre-clearance survey areas as appropriate • Preparation of a translocation strategy for relocation of any significant fauna species including, where non-listed species are encountered; any individuals will be encouraged to leave the vegetation; and where nests are encountered, they will be relocated to a similar tree / habitat in close proximity • Reporting and actions to follow for management and offsetting purposes • The surveys and inspections to must be undertaken under the guidance of a suitably qualified ecologist, as well as any subsequent management or offset measures if required • Minimise lighting impacts in known fauna habitats • Incidental or unanticipated threatened flora and fauna finds to be reported immediately and any clearing works in the vicinity must be stopped until an evaluation of an appropriate response can be established. 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
		To manage interactions with aquatic fauna habitat in Kororoit Creek, Stony Creek Maribyrnong River and Moonee Ponds Creek	EP5	<p>Works on waterways</p> <p>Through detailed design and construction, design, locate and construct structures to minimise, to the extent practicable, short and long term impacts on riparian, riverbed and aquatic habitat in Kororoit Creek, Stony Creek, Maribyrnong River and Moonee Ponds Creek, in consultation with Melbourne Water and relevant authorities.</p>	Detailed design, construction
		To replace affected planted vegetation and where practicable improve ecological outcomes	EP6	<p>Landscaping Plan</p> <p>Prepare and implement the Landscaping Plan that includes replacement of affected planted vegetation to achieve a canopy of equal (or greater) size of healthy, mature examples of the species.</p> <p>The plan must ensure the reinstatement of soils is of sufficient quality and volumes to support the long-term viability of replacement plantings. Ensure ongoing supply of water to tree root zones, especially during their establishment stage. Employ water sensitive urban design principles (WSUD) where possible.</p> <p>The plan must achieve a minimum tree replacement ratio of 3:1 5:1 and replacement trees should be planted in areas determined in consultation with the relevant Councils and authorities. Tree reinstatement and offset planting should take into account the amenity, shade and heritage value of the canopy trees to be removed for local residents. Tree replacement to be undertaken to benefit such residents, rather than offset elsewhere in the Project.</p> <p>The plan must consider the contribution that vegetation and the planted replacement trees can make to the creation of habitat corridors and linkages.</p> <p>The plan must be reviewed by the IREA and developed in consultation with the relevant council and Melbourne Water (where appropriate) with regard to local policies, strategies and relevant existing vegetation enhancement initiatives including, as applicable:</p> <ul style="list-style-type: none"> • Greening the West Strategic Plan • City of Maribyrnong Street Planting Strategy • City of Maribyrnong Stony Creek Directions Plan 	Detailed design, pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> City of Maribyrnong Footscray River Edge Master Plan City of Hobsons Bay Donald McLean Reserve Master Plan City of Maribyrnong Yarraville Gardens Conservation Plan City of Melbourne Draft Urban Ecology and Biodiversity Strategy City of Melbourne’s Tree Retention and Removal policy, Urban Forest Strategy, and Nature in the City Strategy The relevant City of Melbourne Urban Forest Precinct Plan. <p>The Landscape Plan</p> <p>The re-establishment of trees must also consider the contribution that the replacement trees can make to the creation of habitat corridors and linkages where practicable.</p>	
			EP7	<p>Vegetation Offsets</p> <p>Native vegetation offsets must be provided in accordance with the Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines (Department of Environment and Primary Industries, September 2013), except as otherwise agreed by the Secretary to the Department of Environment, Land Water and Planning.</p>	Construction
Greenhouse gas emissions					
<p>Health, amenity and environmental quality – to minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction and operation of the Project.</p>	<p><i>Environment Protection Act 1970</i></p>	<p>To manage greenhouse gas emissions by targeting an ‘Excellent’ rating on the ISCA rating framework for Design and As Built</p>	GGP1	<p>Greenhouse gas emissions</p> <p>Integrate sustainable design practices into the design process to minimise, to the extent practicable, greenhouse gas emissions arising from construction, operations and maintenance of the West Gate Tunnel Project. Include mandatory actions under the Protocol for Environmental Management (Greenhouse Gas Emissions and Energy Efficiency in Industry) for selection of best practice energy usage for the Tunnel ventilation and lighting systems.</p>	Detailed design
			GGP2	<p>Emissions reduction</p> <p>In detailed design, consider the selection of materials and monitor energy and carbon during construction, to target reductions for GHG emission impacts of materials and energy consumption in accordance with Mat-1 (Level 2) and Ene-1 (Level 2) credits of the Infrastructure Sustainability (IS) rating tool (v1.2). Investigate opportunities to use green power sourced from renewable energy and bio diesel where practicable.</p> <p>Target Ene-1 (Level 2.7) credits of the Infrastructure Sustainability (IS) rating tool</p>	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				(v1.2), above the minimum Project requirement of Level 2.	
Ground Movement					
<p>Land stability – to avoid or minimise adverse effects on land and river bed or bank geomorphic stability from Project Activities, including Tunnel construction and crossings of the Maribyrnong River, Kororoit Creek, Stony Creek and Moonee Ponds Creek.</p>		<p>To minimise the likelihood of subsidence and lateral ground movement</p>	GMP1	<p>Geotechnical model and assessment</p> <p>Prepare a geotechnical model of representative geological and groundwater conditions prior to excavation and tunnelling in subject area(s) to identify geological structures and groundwater features. This model must include details of proposed excavations and tunnels, construction staging, and identify surface (including road and rail infrastructure) and sub-surface structures and infrastructure (including utilities) which could be impacted by the Project, including the specific attributes of those structures. This model must be used to assess the predicted settlement, ground movement, stress redistribution and horizontal strain profiles caused by excavation and tunnelling on adjacent property and infrastructure.</p> <p>Maintain the predictive model throughout the construction period and review against monitoring data (EPR GMP5), to regularly assess potential ground movement impacts.</p>	Pre-construction, construction
			GMP2	<p>Tunnel and portal drainage</p> <p>Through detailed design and construction, design tunnel and portal drainage and adopt construction methods which minimise adverse changes to groundwater levels during construction and operation to prevent or manage the effects of ground subsidence.</p> <p>In addition to the above, for the northern and southern portal areas design and implement engineering control measures to ensure dewatering does not result in adverse ground movement impact on property or infrastructure.</p>	Detailed design, construction
			GMP3	<p>Condition surveys and determination of settlement criteria for property and infrastructure</p> <p>Before works commence, and subject to receiving landowner consent on suitable terms, undertake condition surveys of property and infrastructure identified in the geotechnical model and assessment (EPR GMP1) as being at risk of damage by a suitably qualified professional. Post-construction condition surveys of those properties and infrastructure must be undertaken after construction of the Project is completed.</p> <p>The results of the condition surveys and the modelling undertaken under GMP1 must be used to determine appropriate settlement criteria for the relevant property and</p>	Pre-construction, construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>infrastructure.</p> <p>Where potential for ground movement impacts could occur, consult with affected stakeholders. Any damage caused to property or infrastructure as a result of the Project must be rectified or the landowner or asset owner compensated.</p> <p>Establish an independent mediation process for the assessment of claims for property and infrastructure damage to operate up to three years post opening of the Freeway.</p>	
			GMP4	<p>Settlement criteria for utilities</p> <p>Settlement criteria for individual utility structures and infrastructure must be determined in consultation with the relevant authorities prior to commencement of any construction potentially affecting the individual utility or infrastructure.</p>	Pre-construction
			GMP5	<p>Ground movement monitoring</p> <p>Develop and implement a pre-construction, construction and post-construction program to monitor subsidence and lateral movement during construction activities and during operation.</p> <p>Implement a baseline ground movement monitoring plan prior to commencement of construction, in locations where construction activities with the potential to cause ground movement will occur, to assess background fluctuations.</p>	Pre-construction, construction, operation
			GMP6	<p>Mitigation of ground movement impact</p> <p>Implement appropriate mitigation measures should the geotechnical model (EPR GMP1), predictive groundwater model (EPR GWP4), or subsequent monitoring program identify exceedances of criteria identified in EPR GMP3 and EPR GMP4.</p>	Construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Groundwater					
<p>Hydrology and water quality – to avoid or minimise adverse effects on surface water and groundwater quality and hydrology in particular resulting from the disturbance of contaminated or acid-forming materials, and to maintain functions and values of floodplain environments.</p>	<p>SEPP – Groundwaters of Victoria</p>	<p>To protect beneficial uses of groundwater</p>	GWP1	<p>Groundwater management measures</p> <p>Prepare and implement a CEMP and an OEMP including a sub-management plan which sets out the measures for management, monitoring, reuse and disposal of groundwater inflows during construction and operation that comply with relevant legislation and guidelines, including but not limited to:</p> <ul style="list-style-type: none"> • State Environment Protection Policy Groundwaters of Victoria 1997 (Vic) • State Environment Protection Policy Waters of Victoria 2003 (Vic) • State Environment Protection Policy Prevention and Management of Contaminated Land 2002 (Vic) • Water Industry Regulations 2006 (Vic). <p>The groundwater sub-management plan, developed in consultation with EPA Victoria, must include details of:</p> <ul style="list-style-type: none"> • Hydrogeological conceptual model • Baseline conditions • Beneficial uses • Monitoring plan • Management, mitigation and performance measures • Disposal of groundwater • Triggers for action • Reporting. 	Pre-construction, construction, operation
			GWP2	<p>Protection of groundwater quality</p> <p>The CEMP must include requirements and construction methods that maintain groundwater quality, for example:</p> <ul style="list-style-type: none"> • Use sealing products, caulking products, lubricating products and chemical grouts applied during tunnelling construction that do not diminish the groundwater quality • Use fluids for artificial recharge activities that do not diminish the groundwater quality 	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> • Ensure compatibility of construction material with groundwater quality to provide long term durability for infrastructure design life • Develop drainage infrastructure that provides for the propensity of dissolved constituents in groundwater to precipitate out of solution and create clogging and maintenance risks • Develop a plan to assess, remove and dispose of contaminated groundwater and impacted soils associated with pile and pile cap excavation and construction. 	
		To minimise changes to groundwater movements during construction and operation to manage potential impacts	GWP3	<p>Tunnel drainage design and construction methods</p> <p>Design long term tunnel drainage and adopt construction methods which minimise changes to groundwater levels during construction and operation to manage, mitigate and minimise:</p> <ul style="list-style-type: none"> • Mobilisation of contaminated groundwater • Dewatering and potential impacts of acid sulphate soils, including both unconsolidated sediments and lithified sedimentary rock • Protection of waterways and potential groundwater dependent ecosystems, including terrestrial ecosystems • Avoid any other adverse impacts of groundwater level changes such as subsidence. <p>Design contingency measures and/or controls as required to:</p> <ul style="list-style-type: none"> • Ensure maintenance of the base flow associated with a reduction or loss of groundwater discharge to Stony Creek or loss of water availability for terrestrial ecosystems. • Limit acidification should monitoring indicate a potential adverse impact to water levels or quality. <p>Design contingency measures and/or controls as required should movement of contamination be identified. Contingency measures to include consideration of:</p> <ul style="list-style-type: none"> • Improvements to barrier system and ground treatments at the portal to reduce inflows and drawdowns • Hydraulic control of the movement of the contaminated groundwater. <p>Implement engineering control measures and/or ground treatment to minimise to the extent practicable groundwater inflow during excavation, construction and operation of tunnels, cross passages and subsurface excavations.</p>	Detailed design, pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>Implement measures to limit groundwater inflow during construction to excavations and drawdown should monitoring indicate acidification is occurring.</p> <p>Develop and implement a plan to mitigate and manage potential future displacement of contaminated groundwater in the vicinity of the NYM sewer, in accordance with State Environment Protection Policy Groundwaters of Victoria 1997 (Vic) and State Environment Protection Policy Prevention and Management of Contaminated Land 2002 (Vic), including:</p> <ul style="list-style-type: none"> • Investigate the properties identified as potentially contaminated and likely to be influenced by the changed groundwater conditions • Assess the influence of changed conditions on potentially contaminated groundwater at these properties • Assess the risk posed to human health and the environment, including the potential for vapour intrusion to indoor air of buildings • Develop contingency measures to control any adverse risks 	
			GWP4	<p>Predictive groundwater model</p> <p>Develop and maintain a predictive groundwater model throughout the construction period to assess the potential impacts of dewatering during construction and develop potential contingency measures.</p>	Pre-construction, construction
			GWP5	<p>Groundwater monitoring</p> <p>Develop and implement a pre-construction, construction and post-construction groundwater monitoring program to calibrate the predictive model prior to commencement of construction and verify the model predictions post-construction, manage construction activities and monitor during operation that as a minimum:</p> <ul style="list-style-type: none"> • Establishes a baseline condition for groundwater (quality, level, flow and GDE health) prior to the commencement of construction • Can be used to identify (and manage) changes to groundwater (quality, level, flow and GDE health) during construction and operation activities. • Can be used to assess (and manage) the impact of construction on: <ul style="list-style-type: none"> • Groundwater beneficial uses (or users of surface water, groundwater and land) • Areas considered a high contamination risk 	Pre-construction, construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> • Groundwater Dependant Ecosystems (e.g. Stony Creek, Yarraville Gardens) • North Yarra Main Sewer • Acid Sulphate Soils • Compressible materials • Portal, tunnel, and cross passage construction • Can be used to determine the requirement for intervention, and assess the effectiveness of mitigation measures proposed or implemented to protect groundwater • Can be used to calibrate and verify a predictive numerical model developed as part of the Project • Groundwater sampling undertaken consistent with EPA Victoria Publications 668 (2006) Hydrogeological Assessment (Groundwater Quality) Guidelines and 669 (2000) Groundwater Sampling Guidelines. 	
			GWP6	<p>Interception of groundwater</p> <p>The CEMP must include requirements and methods for management of groundwater interception during construction, including:</p> <ul style="list-style-type: none"> • Identification, treatment, disposal and handling of contaminated seepage water and/or slurries including vapours in accordance with relevant legislation and guidelines • Assessment of barrier/damming effects • Subsidence management • Dewatering and potential impacts on acid sulphate soils, including both unconsolidated sediments and lithified sedimentary rock • Protection of waterways and potential groundwater dependent ecosystems including Yarraville Gardens • Contingency actions when interventions are required. 	Construction
		To minimise impact on existing groundwater users	GWP7	<p>Impacts on groundwater users</p> <p>Conduct a review and confirm the status of potential use of extraction bores within the estimated construction drawdown area. Develop and implement if required a plan to maintain water supply to identified groundwater users.</p>	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
Land Use					
<p>Built environment – to protect and enhance the function and character of the evolving urban environment including built form and public realm within the immediate and broader context of the works.</p>	<p>Planning and Environment Act 1987</p>	<p>To minimise impacts on existing and proposed future land use</p>	LPP1	<p>Minimise design footprint</p> <p>Through detailed design, minimise the permanent footprint of the Project to the extent practicable to reduce adverse impacts on potentially affected land uses in consultation with the relevant local Council, particularly:</p> <ul style="list-style-type: none"> • Parks • Reserves/ gardens • Waterways • Recreational and community facilities • Residential properties in proximity to the construction area • Commercial and industrial sites. 	Detailed design
			LPP2	<p>Recreation facilities</p> <p>Through detailed design and construction, minimise to the extent practicable any impacts on users of recreational facilities including Westgate Public Golf Course, Crofts Reserve, Hyde Street Reserve, Donald McLean Reserve, Moonee Ponds Creek (Capital City Trail), Railway Place, Yarraville Gardens, and Miller Street Reserve, and McIvor Reserve. Access to, and amenity and function of recreation facilities is to be maintained to the extent practicable in consultation with the land manager.</p>	Detailed design, construction
			LPP3	<p>Future development opportunities</p> <p>Do not preclude the possibility of a future road connection between Precinct 15 (Hobsons Bay Council) and Bradmill Precinct (Maribyrnong Council).</p> <p>Manage, to the extent practicable, the impacts on the Railway Place and Miller Street Reserve Concept Plan in consultation with City of Melbourne.</p> <p>In consultation with the relevant Council and authorities, minimise to the extent practicable, the impacts on urban renewal areas, identified in relevant planning schemes, and proposed open space areas.</p> <p>Manage, to the extent practicable, the impacts on future built form of 48–54 Digital Drive, Digital Harbour in consultation with the landowner/developer.</p>	Detailed design
			LPP4	<p>Pedestrian and bicycle connections</p> <p>Actively facilitate the possibility of a high amenity, accessible and convenient Do not</p>	Detailed design

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>preclude the of future pedestrian and bicycle connections between:</p> <ul style="list-style-type: none"> North and West Melbourne, E-Gate and Docklands to Moonee Ponds Creek (the Moonee Ponds Creek Trail / Capital City Trail) Digital Harbour and West Melbourne by upgrading pedestrian crossings at the intersection of Wurundjeri Way and Dudley Street. 	
			LPP5	<p>Public Land</p> <p>Through detailed design and construction reduce the disruption to the extent practicable, to current uses of public and council land resulting from temporary occupation.</p>	Detailed design, construction
Landscape and Visual					
<p>Landscape, visual and recreational values – to minimise adverse effects on landscape and visual amenity values and to maximise the enhancement of these values where opportunities exist</p>	<p><i>Planning and Environment Act 1987</i></p>	<p>To minimise impacts on the built environment and landscape, including public open space, and to maximise opportunities for enhancement for public amenity and safety</p>	LVP1	<p>Urban design approach</p> <p>Detailed design development must respond to the West Gate Tunnel Project urban design principles and vision. In doing so it must minimise, to the extent practicable, landscape and visual impacts, and maximise opportunities for enhancement of public amenity, open space and facilities, resulting from the Project, in consultation with relevant stakeholders, particularly in relation to:</p> <ul style="list-style-type: none"> Heritage values and assets Bridges and structures Existing roads, streets, cycle paths, trails and footpaths Existing landmark natural and urban elements across the Project, including CityLink Significant views from the public domain Existing vegetation including street trees and vegetation along waterways Open space including, Yarraville Gardens, Hyde Street Reserve, Donald McLean Reserve, Railway and Millers Street Reserve, and along Maribyrnong River and Moonee Ponds Creek Community and recreational assets including the, Yarraville Community Centre, Yarraville Gardens, Westgate Golf Club, Spotswood Cricket/ Football Oval, W.L.J. Crofts Reserve, shared paths along Kororoit Creek, Maribyrnong River, Stony Creek, and Moonee Ponds Creek, various bowls and tennis clubs in the vicinity of the Project 	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase	
				<ul style="list-style-type: none"> • Residential interfaces • Business interfaces • Crime Prevention Through Environmental Design, including effects on safe movements of pedestrians and cyclists; including within undercroft and open spaces areas • Detailed design to ensure landmark elements balance visual impact with minimal overshadowing • Detailed design to ensure there is no further overshadowing of residential properties to the south of the freeway as a result of the proposed noise walls. <p>Design of acoustic sheds, used during construction, to contribute to the image and identity of the area.</p>		
			LVP2	<p>Reinstatement following temporary works</p> <p>Avoid direct impacts on the Yarraville Gardens unless agreed by the City of Maribyrnong.</p> <p>Reinstate public open spaces, vegetation cover and facilities disturbed by temporary works to the reasonable satisfaction of the land manager.</p>	Detailed design, construction	
			To minimise the impact of light emissions	LVP3	<p>Light spillage</p> <p>Detailed design of the works must minimise light spillage to protect the amenity of adjacent land uses and any known significant native fauna habitat to the extent practicable.</p> <p>The CEMP must include requirements and methods to minimise light spillage, to the extent practicable, during construction to protect the amenity of adjacent surrounding neighbourhoods, parks and community facilities including urban environments, in consultation with relevant stakeholders.</p>	Detailed design, construction
			LVP4	<p>Vegetation screening</p> <p>As part of the Landscaping Plan (refer EPR EP6), implement vegetation screening for visually impacted public realm areas, community spaces, including residential areas, and public open spaces and the Altona Memorial Park. The plan must be prepared in consultation with the relevant Councils and include measures to ensure vegetation screening is used where practicable if Project infrastructure would be visible from residential areas and public open spaces.</p>	Construction	

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
			LVP5	Design review OVGA to review existing and future plans, having consideration to the relevant EPRs.	Detailed design

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase						
Noise and Vibration											
<p>Health, amenity and environmental quality – to minimise adverse air quality, noise and vibration effects on the health and amenity of nearby residents, local communities and road users during both construction of the works and operation of the West Gate Tunnel Project</p>		<p>To minimise traffic noise impacts of West Gate Tunnel Project and local roads</p>	<p>NVP1A</p>	<p>Traffic noise limits</p> <p>Design and construct the works to meet the following limits on traffic noise levels.</p> <table border="1"> <thead> <tr> <th>Aspect</th> <th>External Traffic Noise Levels</th> </tr> </thead> <tbody> <tr> <td> <p>External traffic noise levels</p> </td> <td> <p>a External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings facing the traffic noise, being those adjacent to or with a direct line of sight to the freeway*, must be no greater than:</p> <ul style="list-style-type: none"> i 63dB(A) L₁₀(18h15h) measured between 6am and midnight 7am and 10pm for Category A Buildings; ii <u>58dB(A) L₁₀(9h) measured between 10pm and 7am for Category A Buildings;</u> and iii 63dB(A) L₁₀(12h) measured between 6am and 6pm for Category B Buildings. and <p>b External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings which do not fall within paragraph (a) above and which are adjacent to an identified section of Local Road⁺, must be no greater than the predicted traffic noise level under a ‘no project’ scenario. The ‘no project’ scenario must also assume that the road traffic noise attributable to the West Gate Freeway (without the project) is:</p> <ul style="list-style-type: none"> • 63dB(A) L₁₀(18h15h) measured between 6am and midnight 7am and 10pm for Category A Buildings; and • 63dB(A) L₁₀(12h) measured between 6am and 6pm for the relevant Category B Buildings. </td> </tr> <tr> <td> <p>Applies at</p> </td> <td> <p>The noise criteria in paragraphs (a) and (b) above are to apply to the lowest habitable level of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of announcing the design on 2 April 2017.</p> </td> </tr> </tbody> </table>	Aspect	External Traffic Noise Levels	<p>External traffic noise levels</p>	<p>a External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings facing the traffic noise, being those adjacent to or with a direct line of sight to the freeway*, must be no greater than:</p> <ul style="list-style-type: none"> i 63dB(A) L₁₀(18h15h) measured between 6am and midnight 7am and 10pm for Category A Buildings; ii <u>58dB(A) L₁₀(9h) measured between 10pm and 7am for Category A Buildings;</u> and iii 63dB(A) L₁₀(12h) measured between 6am and 6pm for Category B Buildings. and <p>b External traffic noise levels from the freeway* and Local Roads⁺ at Category A Buildings and Category B Buildings which do not fall within paragraph (a) above and which are adjacent to an identified section of Local Road⁺, must be no greater than the predicted traffic noise level under a ‘no project’ scenario. The ‘no project’ scenario must also assume that the road traffic noise attributable to the West Gate Freeway (without the project) is:</p> <ul style="list-style-type: none"> • 63dB(A) L₁₀(18h15h) measured between 6am and midnight 7am and 10pm for Category A Buildings; and • 63dB(A) L₁₀(12h) measured between 6am and 6pm for the relevant Category B Buildings. 	<p>Applies at</p>	<p>The noise criteria in paragraphs (a) and (b) above are to apply to the lowest habitable level of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of announcing the design on 2 April 2017.</p>	<p>Detailed design, construction</p>
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<p>Applies at</p>	<p>The noise criteria in paragraphs (a) and (b) above are to apply to the lowest habitable level of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of announcing the design on 2 April 2017.</p>										

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>The noise criteria in paragraphs (a) and (b) above are to be measured one metre from the centre of the most exposed window of all habitable levels of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of release of the EES on 29 May 2017.</p> <p>In some cases off-site noise attenuation may be required to meet the noise criteria at any Category A or Category B Building. This may include implementation of noise attenuation measures in consultation with the owner of the relevant building to ensure that an equivalent internal level of attenuation is provided to the building.</p>	

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>* Freeway means the primary road connecting the West Gate Freeway (from the M80 interchange) with the Port of Melbourne, CityLink and the city to be constructed as a result of the Project and excludes:</p> <ul style="list-style-type: none"> • The sections of the West Gate Freeway east of the Williamstown rail line, but includes the Hyde Street ramps; and • The sections of the Project which comprise widening of arterial roads, but includes: <ul style="list-style-type: none"> • The Dynon Road eastbound exit ramp and Dynon Road westbound entry ramp to the western abutment of the existing Dynon Road bridge over the railway lines; and • The Wurundjeri Way Extension from Dynon Road to the point at which the elevated section of the road ties into Wurundjeri Way south of Dudley Street. <p>+ Local Road means</p> <ul style="list-style-type: none"> • The sections of Grieve Parade, Millers Road, Williamstown Road/Melbourne Road, Hyde Street, MacKenzie Road, Simcock Avenue and Dynon Road which extend 100 metres from the interchange of the relevant road with the Freeway; and • The sections of Footscray Road between the intersection of Footscray Road with the Footscray Road ramps and the Sims Street loop intersection with Footscray Road. <p>^ Category A Buildings and Category B Buildings means</p> <ul style="list-style-type: none"> • Category A Buildings: - Residential dwellings, aged persons homes, hospitals, motels, caravan parks and other buildings of a residential nature • Category B Buildings: - Schools, kindergartens, libraries and other noise-sensitive community buildings 	
			NVP1B	<p>Traffic noise reduction at open space</p> <p>Design and construct the works to meet the following limits on traffic noise levels for areas zoned for Public Parks and Recreation use, including new parks created by the Project, adjacent to the West Gate Freeway between the western extent of Crofts Reserve to Hyde Street.</p>	Detailed design, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> • Passive open space: 63dB(A)_{L_{10(15hr)}}, measured between 7am and 10pm • Active open space: 68dB(A)_{L_{10(15hr)}}, measured between 7am and 10pm. <p>In meeting the above noise limits for open space, as a minimum the following noise barriers must be included in the Project:</p> <p>Construct noise barriers to reduce noise levels at the following open space areas:</p> <ul style="list-style-type: none"> • Crofts Reserve: extend the 8.25 metre high barrier on the south of the freeway, to the west for approximately 85 metres • Mclvor Reserve: extend the 8.75 metre high barrier opposite Mclvor Reserve, on the north side of the freeway, to the west for approximately 150 metres • Hyde Street Reserve: a 4.5 metre high noise barrier along the Hyde Street off ramp and shared use path adjacent to the Hyde Street Reserve for approximately 440 metres 	
			NVP1C	<p>Operational noise limits</p> <p>Traffic noise mitigation measures must be maintained to ensure that the traffic noise levels in NVP1A and NVP1B are not exceeded for 20 years after opening of the freeway for the same sensitive receptors used at the time of the design.</p>	Operation
			NVP1D	<p>Traffic noise reduction at Millers Road north of West Gate Freeway</p> <p>Subject to the timely agreement of the relevant property owners prior to opening of the freeway, agreed noise mitigation measures must be implemented at the residential properties that front Millers Road between the West Gate Freeway and Geelong Road and along side roads off this section of Millers Road for 100 metres (to the extent NVP1A is not otherwise applicable to such properties). Relevant property owners are to be consulted and provided with:</p> <ul style="list-style-type: none"> • An acoustic report predicting traffic noise levels from Millers Road in 2031 both with the project and without the project and existing noise measurements in the area (with the difference in these being 'the predicted traffic noise increase') • Details of practicable internal noise reduction options such as fencing, double glazing and mechanical ventilation (or a combination of these) to achieve to the extent practicable an equivalent reduction to the predicted traffic noise increase for the relevant property to meet the following limits on traffic noise levels 	Pre-operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase						
				<ul style="list-style-type: none"> The process for documenting and implementing agreed noise mitigation measures. <table border="1"> <tr> <td><u>Aspect</u></td> <td><u>External Traffic Noise Levels</u></td> </tr> <tr> <td><u>External traffic noise levels</u></td> <td> a <u>External traffic noise levels from Millers Road and the freeway at Category A Buildings along Millers Road and within 100 metres of side roads off Millers Road being those adjacent to or with a direct line of sight to Millers Road must be no greater than:</u> <ul style="list-style-type: none"> i <u>68dB(A)_{L10(15h)} measured between 7am and 10pm; and</u> ii <u>65dB(A)_{L10(9h)} measured between 10pm and 7am.</u> </td> </tr> <tr> <td><u>Applies at</u></td> <td> <u>The noise criteria in paragraphs (a) and (b) above are to be measured one metre from the centre of the most exposed window of all habitable levels of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of release of the EES on 29 May 2017.</u> <u>Off-site noise attenuation may be required to meet the noise criteria at any Category A building. This may include implementation of noise attenuation measures in consultation with the owner of the relevant building to ensure that an equivalent internal level of attenuation is provided to the building.</u> </td> </tr> </table>	<u>Aspect</u>	<u>External Traffic Noise Levels</u>	<u>External traffic noise levels</u>	a <u>External traffic noise levels from Millers Road and the freeway at Category A Buildings along Millers Road and within 100 metres of side roads off Millers Road being those adjacent to or with a direct line of sight to Millers Road must be no greater than:</u> <ul style="list-style-type: none"> i <u>68dB(A)_{L10(15h)} measured between 7am and 10pm; and</u> ii <u>65dB(A)_{L10(9h)} measured between 10pm and 7am.</u> 	<u>Applies at</u>	<u>The noise criteria in paragraphs (a) and (b) above are to be measured one metre from the centre of the most exposed window of all habitable levels of Category A Buildings and Category B Buildings existing and occupied or capable of being occupied at the time of release of the EES on 29 May 2017.</u> <u>Off-site noise attenuation may be required to meet the noise criteria at any Category A building. This may include implementation of noise attenuation measures in consultation with the owner of the relevant building to ensure that an equivalent internal level of attenuation is provided to the building.</u>	
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			NVP1E	Construction of noise barriers Permanent noise attenuation must, where feasible, be installed in advance of adjacent works.	Construction						
			NVP2	Traffic noise monitoring Traffic noise must be measured prior to and upon opening of the Freeway and during operation of the freeway, in accordance with the VicRoads Traffic Noise Measurement Requirements for Acoustic Consultants – September 2011 <u>and at the most exposed window of the most exposed habitable level of multi-storey buildings</u> , to verify conformance with the external traffic noise performance requirements set out in NVP1A <u>and NVP1D</u> above.	Pre-operation Operation						

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				Remedial action must be taken as soon as practicable in the event that the measured traffic noise levels demonstrate that the external traffic noise performance requirements set out in NVP1A and NVP1D are not met. Monitoring results must be made publicly available.	
		Manage surface construction noise and vibration to protect amenity	NVP3	<p>Construction noise, vibration management, and monitoring</p> <p>Prepare and implement a Construction Noise and Vibration Management Plan (CNVMP) in accordance with the limits and methodologies outlined in the Noise and Vibration EPRs.</p> <p>The CNVMP must be informed by monitoring and modelling undertaken by a suitably qualified acoustic and vibration consultant prior to the construction works and include (but not be limited to) the following:</p> <p>A. Noise and vibration management levels</p> <ul style="list-style-type: none"> • The construction noise, vibration and regenerated noise targets as defined in EPRs NVP4, 6, 7, 8 • Updated noise and vibration modelling of the noise and vibration impacts <p>B. Noise and vibration mitigation measures</p> <ul style="list-style-type: none"> • Identification of sensitive receptors potentially impacted by the construction stage of the Project • Identification of the scheduling, duration, activities and equipment with the potential to generate airborne noise or surface vibration impacts at the identified sensitive receptors • Implementation of construction noise and vibration targets including management measures, where practicable to achieve these targets such as: <ul style="list-style-type: none"> • Scheduling • Measures to manage night works • Vehicle and traffic management related to any relevant traffic management plan prepared under EPR TP3 • Temporary structures to attenuate noise impacts at the tunnel portals if required to achieve Noise and Vibration EPRs. • Detail of practicable measures that will be adopted to manage noise and vibration impacts that exceed the targets or values set out in the EPRs and 	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>CNVMP including:</p> <ul style="list-style-type: none"> • Engagement and notification measures • Off-site measures (eg temporary relocation or respite offers) <p>C. Vibration</p> <ul style="list-style-type: none"> • Procedures for condition surveys to be undertaken, with the prior approval of the relevant property owner and/or occupier, for property, land, ground and infrastructure that is reasonably accessible and that may be affected by the project activities • Any alternative vibration guideline values identified under EPR NVP7 (refer Note 2 of NVP7). <p>D. Blasting</p> <ul style="list-style-type: none"> • If blasting is proposed, the values and management measures as defined in EPRs NVP 5, 12 and 13. <p>E. Monitoring</p> <ul style="list-style-type: none"> • Noise and vibration monitoring commitments (including real time monitoring in high risk areas) and response protocols for managing noise complaints and remedial action (with reference to procedures required by EPR EMP4) <p>F. Community consultation</p> <ul style="list-style-type: none"> • Details of the communication plan to be adopted throughout construction as part of SP2 including any specific measures related to particular locations or activities • Detail of the complaints management system for noise complaints, consistent with the requirements under EPR EMP4. <p>G. Unavoidable works</p> <ul style="list-style-type: none"> • A qualification rationale or list of planned works that constitute 'unavoidable works'; and response strategies best suited to mitigation of the impacts of those unavoidable works, consistent with EPA Publication 1254 – Noise Control Guidelines. 	
			NVP4	<p>Construction Noise Targets</p> <p>1. Sensitive areas (non-residential)</p> <p>For sensitive land uses (based on AS/NZS 2107:2016) implement management actions</p>	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase																		
				<p>if construction noise is predicted to or does exceed the internal and external noise levels below, and a noise sensitive receptor is adversely impacted.</p> <p>If construction exceeds the noise levels below:</p> <ul style="list-style-type: none"> • Consider the duration of construction noise • Consider the existing ambient noise levels • Consult with the owner or operator of the noise sensitive receptor • Consider any specific acoustic requirements of land uses listed below <p>To determine whether a noise sensitive receptor is adversely impacted.</p> <table border="1"> <thead> <tr> <th>Land use</th> <th>Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)</th> </tr> </thead> <tbody> <tr> <td>Classrooms in schools and other educational institutions including kindergartens</td> <td>Internal noise level 45 dB(A)</td> </tr> <tr> <td>Places of worship</td> <td>Internal noise level 45 dB(A)</td> </tr> <tr> <td>Active recreation areas characterised by sporting activities and activities which generate their own noise, making them less sensitive to external noise intrusion</td> <td>External noise level 65 dB(A)</td> </tr> <tr> <td>Passive recreation areas characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example reading, meditation</td> <td>External noise level 60 dB(A)</td> </tr> <tr> <td>Community centres</td> <td>Depends on the intended use of the centre. Refer to the recommended maximum internal levels in AS/NZS 2107:2016 for specific uses.</td> </tr> <tr> <td>Industrial premises</td> <td>External noise level 75 dB(A)</td> </tr> <tr> <td>Offices, retail outlets</td> <td>External noise level 70 dB(A)</td> </tr> <tr> <td>Other noise sensitive land uses as identified in AS/NZS 2107:2016</td> <td>Refer to the noise levels in AS/NZS 2107:2016 for specific uses.</td> </tr> </tbody> </table>	Land use	Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)	Classrooms in schools and other educational institutions including kindergartens	Internal noise level 45 dB(A)	Places of worship	Internal noise level 45 dB(A)	Active recreation areas characterised by sporting activities and activities which generate their own noise, making them less sensitive to external noise intrusion	External noise level 65 dB(A)	Passive recreation areas characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example reading, meditation	External noise level 60 dB(A)	Community centres	Depends on the intended use of the centre. Refer to the recommended maximum internal levels in AS/NZS 2107:2016 for specific uses.	Industrial premises	External noise level 75 dB(A)	Offices, retail outlets	External noise level 70 dB(A)	Other noise sensitive land uses as identified in AS/NZS 2107:2016	Refer to the noise levels in AS/NZS 2107:2016 for specific uses.	
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				<p>2. Residential dwellings</p> <p>For residential dwellings, implement management actions if construction noise is predicted to or does exceed the noise targets in EPA Victoria Publication 1254 or the daytime management levels specified for noise at residences during recommended standard hours in Part 4.1.1 of the NSW Interim Construction Noise Guidelines (ICNG) with the hours amended to correspond to the EPA Victoria Publication 1254 hours as shown in the table below.</p> <table border="1"> <thead> <tr> <th>Time of day</th> <th>Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)</th> </tr> </thead> <tbody> <tr> <td>7am–6pm Monday to Friday 7am–1pm Saturday</td> <td>Noise affected Background $LA_{90}+10dB$ Source: NSW ICNG Chapter 4.1.1 Table 2, page 12</td> </tr> <tr> <td>7am–6pm Monday to Friday 7am–1pm Saturday</td> <td>Highly noise affected 75 dB(A) Source: NSW ICNG Chapter 4.1.1 Table 2, page 12</td> </tr> <tr> <td>6pm–10pm Monday to Friday 1pm–10pm Saturday 7am–10pm Sunday and public holidays</td> <td>Noise level at any residential premises not to exceed background noise (L_{A90}) by: <ul style="list-style-type: none"> • 10 dB(A) or more for up to 18 months • 5 dB(A) or more after 18 months Source: EPA Publication 1254 Section 2 </td> </tr> <tr> <td>10pm–7am Monday to Sunday</td> <td>Noise inaudible within a habitable room of any residential premises Source: EPA Victoria Publication 1254 Section 2</td> </tr> </tbody> </table> <p><i>Notes</i></p> <p>1 The noise affected level represents the point above which there may be some community reaction to noise.</p> <p>2 The highly noise affected level represents the point above which there may be</p>	Time of day	Construction noise management level, L_{Aeq} (15 min) (applies when properties are in use)	7am–6pm Monday to Friday 7am–1pm Saturday	Noise affected Background $LA_{90}+10dB$ Source: NSW ICNG Chapter 4.1.1 Table 2, page 12	7am–6pm Monday to Friday 7am–1pm Saturday	Highly noise affected 75 dB(A) Source: NSW ICNG Chapter 4.1.1 Table 2, page 12	6pm–10pm Monday to Friday 1pm–10pm Saturday 7am–10pm Sunday and public holidays	Noise level at any residential premises not to exceed background noise (L_{A90}) by: <ul style="list-style-type: none"> • 10 dB(A) or more for up to 18 months • 5 dB(A) or more after 18 months Source: EPA Publication 1254 Section 2	10pm–7am Monday to Sunday	Noise inaudible within a habitable room of any residential premises Source: EPA Victoria Publication 1254 Section 2	
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				<p><i>strong community reaction to noise.</i></p> <p>3. <i>For the purpose of predictive modelling, the noise level for consideration of inaudibility should be based on background +0</i></p>																																					
			NVP5	<p>Blasting trials and assessment</p> <p>Where blasting is proposed, a series of initial trials at reduced scale must be conducted prior to production blasting to determine site-specific blast response characteristics and to define allowable blast sizes to meet air blast overpressure and ground vibration limits. If blasting is required, an assessment of the potential noise and vibration impacts, and a strategy to minimise and manage those impacts must be prepared, including preparation of an appropriate community information program.</p>	Construction																																				
		Manage construction vibration and regenerated noise impacts to protect amenity	NVP6	<p>Construction vibration targets (amenity)</p> <p>Implement management actions if the following guideline target levels for continuous vibration from construction activity to protect human comfort of occupied buildings (including heritage buildings) are not achieved (levels are calculated from the British Standard BS6472-1:2008).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="6" style="text-align: center;">Vibration Dose Values (m/s^{1.75})</th> </tr> <tr> <th colspan="2"></th> <th colspan="2" style="text-align: center;"><u>Day (7am to 10pm)</u></th> <th colspan="2" style="text-align: center;"><u>Night (10pm to 7am)</u></th> </tr> <tr> <th style="text-align: center;">Type of occupancy</th> <th style="text-align: center;">space</th> <th style="text-align: center;">Preferred Value</th> <th style="text-align: center;">Maximum Value</th> <th style="text-align: center;">Preferred Value</th> <th style="text-align: center;">Maximum Value</th> </tr> </thead> <tbody> <tr> <td>Residential</td> <td></td> <td style="text-align: center;">0.2</td> <td style="text-align: center;">0.4</td> <td style="text-align: center;">0.1</td> <td style="text-align: center;">0.2</td> </tr> <tr> <td>Offices, schools, educational institutions, places of worship</td> <td></td> <td style="text-align: center;">0.4</td> <td style="text-align: center;">0.8</td> <td style="text-align: center;">0.4</td> <td style="text-align: center;">0.8</td> </tr> <tr> <td>Workshops</td> <td></td> <td style="text-align: center;">0.8</td> <td style="text-align: center;">1.6</td> <td style="text-align: center;">0.8</td> <td style="text-align: center;">1.6</td> </tr> </tbody> </table> <p><i>Notes</i></p> <p>1 <i>The Guideline Targets are non-mandatory; they are goals that should be sought to be achieved through the application of practicable mitigation measures. If exceeded then management actions would be required</i></p> <p>2 <i>The VDVs may be converted to PPVs within a noise and vibration construction</i></p>	Vibration Dose Values (m/s^{1.75})								<u>Day (7am to 10pm)</u>		<u>Night (10pm to 7am)</u>		Type of occupancy	space	Preferred Value	Maximum Value	Preferred Value	Maximum Value	Residential		0.2	0.4	0.1	0.2	Offices, schools, educational institutions, places of worship		0.4	0.8	0.4	0.8	Workshops		0.8	1.6	0.8	1.6	Construction
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				<i>management plan.</i>																														
			NVP7	<p>Construction vibration targets (structures) Construction vibration targets for structures are summarised in the tables below. Guideline values for the vibration velocity to be used when evaluating the effects of short term vibration on structures.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5" style="text-align: center;"><u>Guideline values for velocity (mm/s)</u></th> </tr> <tr> <th rowspan="2" style="text-align: left;"><u>Type of structure</u></th> <th colspan="3" style="text-align: center;"><u>Vibration at the foundation at a frequency of</u></th> <th style="text-align: center;"><u>Vibration at horizontal plane of highest floor</u></th> </tr> <tr> <th style="text-align: center;">1 to 10 Hz</th> <th style="text-align: center;">10 to 50 Hz</th> <th style="text-align: center;">50 to 100 Hz*</th> <th style="text-align: center;">All frequencies</th> </tr> </thead> <tbody> <tr> <td>1. Buildings used for commercial purposes, industrial buildings, and buildings of similar design</td> <td style="text-align: center;">20</td> <td style="text-align: center;">20 to 40</td> <td style="text-align: center;">40 to 50</td> <td style="text-align: center;">40</td> </tr> <tr> <td>2. Dwellings and buildings of similar design and/or occupancy</td> <td style="text-align: center;">5</td> <td style="text-align: center;">5 to 15</td> <td style="text-align: center;">15 to 20</td> <td style="text-align: center;">15</td> </tr> <tr> <td>3. Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)</td> <td style="text-align: center;">3</td> <td style="text-align: center;">3 to 8</td> <td style="text-align: center;">8 to 10</td> <td style="text-align: center;">8</td> </tr> </tbody> </table> <p>*At frequencies > 100 Hz, the values given in this column may be used as a minimum</p> <p><i>Notes</i></p> <p>1 Vibration levels marginally exceeding those vibration levels in the table would not necessarily mean that damage would occur and further investigation would be required to determine if higher vibration levels can be accommodated without</p>	<u>Guideline values for velocity (mm/s)</u>					<u>Type of structure</u>	<u>Vibration at the foundation at a frequency of</u>			<u>Vibration at horizontal plane of highest floor</u>	1 to 10 Hz	10 to 50 Hz	50 to 100 Hz*	All frequencies	1. Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	2. Dwellings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	3. Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)	3	3 to 8	8 to 10	8	
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3. Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)	3	3 to 8	8 to 10	8																														

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase								
				<p><i>risk of damage.</i></p> <p>2 For civil engineering structures (e.g. with reinforced concrete constructions used as abutments or foundation pads) the values for Type 1 buildings may be increased by a factor of 2</p> <p>3 Short-term vibration is defined as vibration which does not occur often enough to cause structural fatigue and which does not produce resonance in the structure being evaluated.</p>									
				<p>Guideline values for the vibration velocity to be used when evaluating the effects of long term vibration on structures.</p> <table border="1"> <thead> <tr> <th>Type of structure</th> <th>Guideline values for velocity (mm/s) Vibration at horizontal plane of highest floor All frequencies</th> </tr> </thead> <tbody> <tr> <td>Buildings used for commercial purposes, industrial buildings, and buildings of similar design</td> <td>10</td> </tr> <tr> <td>Dwellings and buildings of similar design and/or occupancy</td> <td>5</td> </tr> <tr> <td>Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)</td> <td>2.5</td> </tr> </tbody> </table> <p>Notes:</p> <p>1 Vibration levels marginally exceeding those in the table would not necessarily mean that damage would occur and further investigation would be required to determine if higher vibration levels can be accommodated without risk of damage</p> <p>2 Targets in the above table may need to be adjusted where deemed necessary and/or appropriate to protect the structural integrity of structures based on a pre-construction condition survey and/or modelling</p> <p>3 Long-term vibration relates to events that may result in a resonant structural response.</p>	Type of structure	Guideline values for velocity (mm/s) Vibration at horizontal plane of highest floor All frequencies	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	10	Dwellings and buildings of similar design and/or occupancy	5	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 and are of intrinsic value (eg. Heritage buildings)	2.5	
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				Implement management actions if, due to construction activity, the DIN 4150.3 Guideline Targets for structural damage to buildings (for short-term vibration or long-term vibration) are not achieved.									
			NVP8	<p>Ground-borne (internal) noise targets</p> <p>Implement management actions as determined in consultation with potentially affected land owners to protect amenity at residences where the following ground borne noise guideline targets are exceeded during construction.</p> <table border="1"> <thead> <tr> <th>Time of Day</th> <th>Internal noise level measured at the centre of the most affected habitable room</th> </tr> </thead> <tbody> <tr> <td>Evening (6pm to 10pm)</td> <td>L_{Aeq} (15 minute) = 40dBA</td> </tr> <tr> <td>Night (10pm to 6am)</td> <td>L_{Aeq} (15 minute) = 35dBA</td> </tr> </tbody> </table> <p><i>Notes</i></p> <ol style="list-style-type: none"> <i>Levels are only applicable when ground borne noise levels are higher than airborne noise levels.</i> <i>Management actions include community consultation to determine acceptable level of disruption and provision of respite accommodation in some circumstances.</i> 	Time of Day	Internal noise level measured at the centre of the most affected habitable room	Evening (6pm to 10pm)	L _{Aeq} (15 minute) = 40dBA	Night (10pm to 6am)	L _{Aeq} (15 minute) = 35dBA	Construction		
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		To manage construction vibration to protect utility assets	NVP9	<p>Utility asset protection</p> <p>Prior to construction undertake condition assessments of above and below ground utility assets and establish construction vibration limits in consultation with asset owners to maintain asset integrity. Where construction vibration limits are not agreed with the asset owner, the guideline values in the table below apply.</p> <table border="1"> <thead> <tr> <th>Pipe Material</th> <th>Guideline values for velocity measured on the pipe</th> </tr> </thead> <tbody> <tr> <td>Steel (including welded pipes)</td> <td>100mm/s</td> </tr> <tr> <td>Clay, concrete, reinforced concrete, pre stressed concrete, metal (with or without flange)</td> <td>80 mm/s</td> </tr> <tr> <td>Masonry, plastic</td> <td>50 mm/s</td> </tr> </tbody> </table>	Pipe Material	Guideline values for velocity measured on the pipe	Steel (including welded pipes)	100mm/s	Clay, concrete, reinforced concrete, pre stressed concrete, metal (with or without flange)	80 mm/s	Masonry, plastic	50 mm/s	Pre-construction, construction
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				<p><i>Notes</i></p> <p>1 These values may be reduced by 50% when evaluating the effects of long-term vibration on buried pipework</p> <p>2 It is assumed pipes have been manufactured and laid using current technology.</p> <p>Monitor vibration limits during construction to demonstrate compliance with agreed vibration limits. Identify contingency measures to be implemented if limits are not met. Where necessary rectify any defects that are attributable to the Project.</p>							
	SEPP N-1 – Control of Noise from Commerce, Industry and Trade	To minimise noise impacts of the tunnel ventilation system	NVP10	<p>Tunnel ventilation system noise design</p> <p>Design and implement the tunnel ventilation system in accordance with the Works Approval and to achieve compliance with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1). Provide detailed design to the satisfaction of EPA Victoria prior to commencement of the works permitted by the Works Approval.</p>	Detailed design. Operation						
			NVP11	<p>Tunnel ventilation system noise monitoring</p> <p>Measure noise from the tunnel ventilation system on commencing road operation and monitor noise from the tunnel ventilation system annually for up to five years post opening of the Freeway, or as agreed with EPA Victoria, to verify compliance with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1). Identify and implement contingency measures if noise level targets are not met.</p>	Operation						
		Manage construction blasting impacts to protect amenity	NVP12	<p>Amenity – Blast Vibration</p> <p>Implement management actions if the following vibration values are not achieved. Blasting activities must comply with Australian Standard AS2187.2-2006, Explosives – Storage and use Part 2 – Use of explosives for all blasting.</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Type of blasting operations</th> <th>Peak component particle velocity (mm/s)</th> </tr> </thead> <tbody> <tr> <td>Sensitive site</td> <td>Operations lasting longer than 12 months or more than 20 blasts</td> <td>5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply</td> </tr> </tbody> </table>	Category	Type of blasting operations	Peak component particle velocity (mm/s)	Sensitive site	Operations lasting longer than 12 months or more than 20 blasts	5mm/s for 95% blasts per year 10mm/s maximum unless agreement is reached with the occupier that a higher limit may apply	Construction
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			NVP13	<p>Amenity – Blast Overpressure</p> <p>Implement management actions if the following overpressure values are not achieved. Blasting activities must comply with Australian Standard AS2187.2-2006, Explosives – Storage and use Part 2 – Use of explosives for all blasting.</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Type of blasting operations</th> <th>Peak Overpressure Value (dBL)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Sensitive Site</td> <td>Operations lasting longer than 12 months or more than 20 blasts</td> <td>115 dBL for 95% blasts per year. 120dBL maximum unless agreement with occupier that a higher limit may apply</td> </tr> <tr> <td>Operations lasting less than 12 months or less than 20 blasts</td> <td>120dBL for 95% blasts per year. 125 dBL maximum unless agreement with occupier that a higher limit may apply</td> </tr> <tr> <td>Occupied non-sensitive sites such as factories and</td> <td>All blasting</td> <td>125 dBL maximum value unless agreement is reached with occupier that a higher limit may apply. For sites</td> </tr> </tbody> </table>	Category	Type of blasting operations	Peak Overpressure Value (dBL)	Sensitive Site	Operations lasting longer than 12 months or more than 20 blasts	115 dBL for 95% blasts per year. 120dBL maximum unless agreement with occupier that a higher limit may apply	Operations lasting less than 12 months or less than 20 blasts	120dBL for 95% blasts per year. 125 dBL maximum unless agreement with occupier that a higher limit may apply	Occupied non-sensitive sites such as factories and	All blasting	125 dBL maximum value unless agreement is reached with occupier that a higher limit may apply. For sites	Construction
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				commercial premises containing equipment sensitive to vibration, the vibration should be kept below manufacturers specification or levels that can be shown to adversely affect the equipment operation <i>Note</i> 1 Sensitive site includes houses and low rise residential buildings, theatres, schools and other similar buildings occupied by people.	
Social					
Social, business, land use, public safety and infrastructure – to minimise adverse effects on the social fabric of the community in the project area, including with regard to community cohesion and access to community services and facilities, business functionality, changes to land use, public safety and access to infrastructure.	<i>Planning and Environment Act 1987</i>	To minimise impacts on social and community infrastructure	SP1	Urban design principles and vision Detailed design to protect and, where practicable, improve access to and amenity and safety for potentially affected residents, open space, social and community infrastructure and commercial facilities by responding to the urban design principles and vision and implementing the principles of Crime Prevention Through Environmental Design. Detailed design to specify the locations where installations of advanced trees are indicated to minimise impact of tree removal, in consultation with relevant local council. Detailed design to identify locations for planting prior to construction works where feasible to do so.	Detailed design
		To minimise impacts on the community through engagement during construction and operation	SP2	Communications and Community Engagement Plan (CCEP) Develop and implement a Communications and Community Engagement Plan in consultation with affected local councils to engage and consult the community and potentially affected stakeholders and discuss progress of construction activities and operation. The plan must include: <ul style="list-style-type: none"> • Community issues identification, management and resolution approach and procedures • Approach to stakeholder identification • Enquiry management and record keeping approach and procedures including making available a 24 hour telephone number, postal address, and an email address and publishing these on the project website • Approach to mitigating community impacts including dust, noise and light and 	Pre-construction, construction, operation

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>any relevant policies (e.g. relocations policy)</p> <ul style="list-style-type: none"> • Approach to changes to transport conditions for affected and potentially affected users, relevant stakeholders and relevant road authorities • How it will evaluate the effectiveness of community impact mitigation measures, including through noise and vibration monitoring • Incident and emergency communications, including notification methods and timeframes in the event of a major incident or overrun • Approach and processes to ensure that the workforce has appropriate community awareness and sensitivity • Any innovative communications tools and methods in the CCEP which would enhance the Project’s ability to effectively communicate with the community and stakeholders • Approach to notifying community, business, road user and other stakeholders affected by construction activities about impacts • Approach to making relevant project information available to the community • The role and function of the Community Liaison Group (CLG) as developed by the State. <p>The CCEP must address matters of interest or concern to the following stakeholders:</p> <ul style="list-style-type: none"> • Municipalities • Recreation, sporting and community groups • Potentially affected residents and property owners • Potentially affected business • Other public facilities in proximity • Religious and worship groups. 	
			SP3	<p>Community Liaison Group participation</p> <p>Participate in the Community Liaison Group (CLG) that has been established by the State to facilitate community and stakeholder involvement for the construction phase of the Project. Participation must include:</p> <ul style="list-style-type: none"> • Attendance at meetings • Regular reporting of design and construction activities • Timely provision of relevant information, including response to issues raised by 	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				the group <ul style="list-style-type: none"> Regular reporting and monitoring of community feedback, impacts and discussion of mitigation measures and their effectiveness. 	
			SP4	Social and local procurement Develop and implement a Workforce Development Plan and a Local Industry Development Plan to provide: <ul style="list-style-type: none"> Opportunities for graduates, non-engineering cadets and upskilling short courses for the project workforce Opportunities for young people such as scholarships, and structured workplace learning placements Opportunities for local businesses such as forums to inform local businesses about potential procurement opportunities. 	Pre-construction, construction
			SP5	Community Involvement and Participation Plan (CIPP) Develop and implement a CIPP in consultation with Council’s and representatives of communities affected negatively by the impacts of the Project in order to improve community connectedness and cohesiveness. Social legacy outcomes and tasks that could be considered for funding under the CIPP include: community partnership programs; community support grants; running of community events and festivals; sponsorships of local sporting clubs; small capital works targeting community, sporting and recreation facilities; a wide range of other ‘community led’ initiatives.	Pre-construction, construction and operation
Surface Water					
Hydrology and water quality – to avoid or minimise adverse effects on surface water and groundwater quality and hydrology in particular resulting from the	<i>Water Act 1989</i> SEPP – Waters of Victoria	To maintain or improve existing surface water quality during operation and construction	SWP1	Design of discharges and runoff Meet State Environment Protection Policy (Waters of Victoria) for discharge and runoff from the Project to Kororoit Creek, Stony Creek, Maribyrong River, Moonee Ponds Creek.	Detailed design
			SWP2	Water sensitive road design Integrate the stormwater treatment system into the design of the works in accordance with VicRoads Integrated Water Management Guidelines (June 2013) and the EPA Victoria Best Practice Environmental Management Guidelines for Urban Stormwater (2006).	Detailed design

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
disturbance of contaminated or acid-forming materials, and to maintain functions and values of floodplain environments.			SWP3	Tunnel waste water Any proposed discharge of tunnel waste water from the site must be approved by the relevant authority prior to discharges occurring.	Pre-construction
			SWP4	Water quality monitoring Develop and implement a baseline surface water monitoring program prior to commencement of construction to assess background water quality in all receiving waters. This should be developed in consultation with the EPA Victoria and Melbourne Water. The baseline surface water monitoring program is to be used to inform the surface water sub-management plan (SWP7)	Pre-construction
			SWP5	Spill containment design Design the capacity of the stormwater drainage system for all new roads and ramps to contain hazardous spills at or prior to every stormwater outlet, to the satisfaction of EPA Victoria, and develop procedures to be implemented in response to a hazardous spill.	Detailed design
			SWP6	Management of chemicals, fuels, and hazardous materials Minimise chemical and fuel storage on site and store hazardous materials and dangerous goods in accordance with the relevant guidelines and requirements. Comply with the Victorian WorkCover Authority and Australian Standard AS1940 Storage Handling of Flammable and Combustible Liquids and EPA Victoria publications 480 Environmental Guidelines for Major Construction Sites and 347 Bunding Guidelines Develop and implement management measures for dangerous substances, including: <ul style="list-style-type: none"> • Creating and maintaining a dangerous goods register • Disposing of any hazardous materials, including asbestos, in accordance with Industrial Waste Management Policies, regulation and relevant guidelines • Implementing requirements for the installation of bunds and precautions to reduce the risk of spills • Developing contingency and emergency response plans to handle fuel and chemical spills, including availability of on-site hydrocarbon spill kits. 	Construction
			SWP7	Surface Water Management during construction The CEMP must include a sub-management plan that sets out the Surface Water	Construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>Management requirements and methods for:</p> <ul style="list-style-type: none"> • Best practice sediment and erosion control and monitoring, in accordance with EPA Victoria publications 275 (1991), 480 (1996), and 960 (2004) • Management of potential surface water run-off impacts and any disturbance of contaminated bed soil associated with construction • Maintenance of existing flow paths, drainage lines and floodplain storage • Location and bunding of any contaminated material (including tunnel spoil and stockpiled soil) to the 1% AEP flood level and to the satisfaction of EPA Victoria and the relevant drainage authority • A flood emergency management plan including consideration of scheduling works • Bunding of the tunnel portals to an appropriate level during the construction phase. <p>The sub-management plan is to be informed by SWP4.</p>	
		To limit the use of potable water during construction and preserve natural reserves	SWP8	<p>Use of non-potable water</p> <p>Where available and practicable, of suitable quality, and meets health and safety requirements, stormwater, recycled water, groundwater inflow to tunnels or other water sources must be used in preference to potable water for construction activities, including concrete mixing and dust control.</p>	Construction
		To protect the bank stability of potentially impacted waterways	SWP9	<p>Bank stability</p> <p>Develop and implement appropriate measures to maintain bank stability of Kororoit Creek, Stony Creek, Maribyrnong River, Moonee Ponds Creek during construction to the satisfaction of Melbourne Water and in consultation with relevant local councils.</p>	Construction
			SWP10	<p>Waterway modifications</p> <p>Design and undertake modifications to all waterways in a way to mitigate the effects of changes to flow and minimise, to the extent practicable, the potential for erosion, sediment plumes and exposure of contaminated material during construction to the satisfaction of Melbourne Water and in consultation with relevant local councils.</p> <p>Maximise the visual and aesthetic amenity of the waterways having regard to relevant strategies, policies and plans for that waterway and in consultation with</p>	Detailed design, construction

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		To maintain existing levels of flood protection	SWP11	<p>Melbourne Water and relevant Councils.</p> <p>Flood levels, flows and velocities Permanent works and associated temporary construction works must not increase flood risk (considering flood levels, flows and velocities) associated with overland flow paths to the requirements and satisfaction of Melbourne Water and in consultation with any other relevant drainage authority.</p> <p>Undertake modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile to the requirements and satisfaction of Melbourne Water and in consultation with any other relevant drainage authority.</p> <p>Consider potential effects of climate change and sea level rise of 0.8m by 2100, with and without the works for both existing and proposed scenarios (for example future redevelopment in relation to Moonee Ponds Creek within the Arden – Macaulay Structure Plan area) in consultation with local councils</p> <p>Ensure that surface water from West Gate Tunnel Project does not encroach into underground SP AusNet electricity or gas assets.</p>	Detailed design, pre-construction, construction
		To maintain flood plain storage	SWP12	<p>Floodplain storage capacity Maintain existing floodplain storage capacity for overland flow paths potentially impacted by the Project in consultation with Melbourne Water and any other relevant drainage authority.</p>	Detailed design
		To protect people and assets from flood waters in the Tunnel	SWP13	<p>Tunnel portal flood risk Design tunnel portals to exclude surface flows from external catchments during the probable maximum flood.</p> <p>Develop and implement measures and plans to manage flood risk to the tunnel portals. Develop operation and maintenance plans for flood protection works.</p>	Detailed design, operation
		To maintain access to stormwater and other assets	SWP14	<p>Maintenance of Melbourne Water and other drainage assets Provide adequate clearances and access for ongoing maintenance of Melbourne Water and other drainage authority assets to the satisfaction of the relevant drainage authority.</p>	Detailed design
			SWP15	<p>North Yarra Main Sewer Design any proposed realignment to the North Yarra Main Sewer to the satisfaction of</p>	Detailed design

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				Melbourne Water.	
Transport					
Transport capacity and connectivity – to increase transport capacity and improve connectivity to and from the west of Melbourne and, in particular, to increase freight movement via the freeway network instead of local and arterial roads, while adequately managing effects of the works on the existing broader and local transport networks, including road, public transport, cycling and pedestrian transport networks	<i>Road Management Act 2004</i> <i>Planning and Environment Act 1987</i>	To improve road-based transport connectivity between the west of Melbourne, the Port of Melbourne and the CBD and the wider metropolitan region and the State, while maintaining the connectivity of the existing local transport routes	TP1	Optimise design performance Optimise the design of the works in consultation with appropriate road management authorities, public transport authorities , Melbourne Water and local councils as part of the detailed design process to: <ul style="list-style-type: none"> • Maintain and where practicable reduce Minimise adverse impact on travel times for all transport modes, including walking, and cycling and public transport • Maintain, and where practicable, enhance the existing traffic movements at interchanges • Design interchanges and intersections to achieve a level of service of D or degree of saturation of 0.9, or better, or as otherwise approved by the to meet relevant road and transport authority requirements • Maintain, and where practicable, enhance pedestrian movements, bicycle connectivity, and shared use paths • Actively facilitate the provision of a future shared use path link across the E-gate site between North Melbourne Railway Station and Waterfront City • Develop a strategy with Public Transport Victoria to minimise impacts on buses, trams and rail and, where practicable, enhance public transport facilities and services that cross or run parallel to the alignment of the Freeway Project or are in any way affected by traffic using the Project • Minimise loss of car parking in consultation with relevant local councils. 	Detailed design
			TP2	Traffic monitoring Undertake traffic monitoring in selected streets identified in consultation with the relevant Road Authority and local council pre-construction, at six monthly intervals during construction, and up to two years after construction is complete. Implement local area traffic management works in consultation with the local relevant councils. Develop and implement traffic performance management to monitor conditions along the West Gate Freeway during construction. Real time traffic information must be provided to drivers on the approach to the West Gate Freeway.	Pre-construction, construction, operation
		To minimise	TP3	Traffic Management Plans	Pre-construction,

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		<p>disruption to motor vehicle traffic, parking, bicycle and pedestrian movements during construction and</p> <p>To minimise disruption to public and commercial transport during construction</p>		<p>Develop and implement Traffic Management Plans with measures to minimise disruption, to the extent practicable, to motor vehicle traffic including on road public transport, parking, bicycle and pedestrian movements during construction in consultation with relevant road management authorities on all roads affected by the Project, including:</p> <ul style="list-style-type: none"> • Management of any temporary or partial closure of traffic and cycle lanes, including but not limited to, along: <ul style="list-style-type: none"> • Local and arterial roads, including provision for suitable routes for vehicles, cyclist and pedestrians to maintain connectivity for road and shared path users • CityLink traffic lanes and ramps • M1 and the M80 and Footscray Road • Hyde Street, Francis Street, Whitehall Street Management of any temporary diversion of pedestrian or cycle paths to provide a safe, well-sign posted alternative route and minimise impact on commuter travel times for cyclists as far as practicable • A strategy for maintaining the current capacity (number of lanes) during peak periods for works on the following key State roads – West Gate Freeway, Princes Freeway, M80, Footscray Road, Wurundjeri Way, Dudley Street, Williamstown Road, Millers Road, Grieve Parade, Melbourne Road, Douglas Parade and Hyde Street • Restrict the number of local roads to be used for construction-related transportation to minimise impacts on amenity, in consultation with the relevant road authorities • Measures to minimise construction traffic on New Street, including the provision of access to the Southern Portal Compound from the freeway or alternative routes approved by the road authority • Reinstate access to open space, community facilities, commercial premises and dwellings if disrupted, as soon as practicable • Provide suitable parking arrangements to accommodate the construction workforce while minimising traffic impacts on local and arterial roads, preventing construction-related parking on local and arterial roads or use of public car parks • Provide safe access points to laydown areas and site compounds 	<p>construction</p>

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> • Implement a communications strategy (as set out in the CCEP) to advise affected users, potentially affected users, relevant stakeholders and the relevant road authorities of any changes to transport conditions • Maintain, where practicable, current local area traffic management measures during construction or reinstate upon completion in consultation with the relevant local councils • Haulage of bulk material to and from the construction areas to within a two km range of the works must be via roads operated by VicRoads, CityLink or the Port Manager or, subject to obtaining prior agreement by the relevant road authority, other parts of the road network. <p>The Traffic Management Plan may include Worksite Traffic Management Plans (WTMP) for discrete components or stages of the works having the potential to impact on roads, shared used paths, pedestrian paths or public transport infrastructure.</p> <p>WTMP must address, as applicable:</p> <ul style="list-style-type: none"> • vehicle, bicycle and pedestrian movements; • public transport movements; • lane, road and public transport route closures; • major traffic control devices; • traffic signal operation; • vertical and horizontal alignment; • drainage; • barrier placement; • operating conditions including speed limits; • safety of the public and workers; • peak flows and road traffic capacity, including catering for special events; • signing and line marking; • lighting; • property access; • stakeholder communication and media advertising; 	

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<ul style="list-style-type: none"> • timing; • replacement public transport services; • Utility Infrastructure access; • any interface between the responsibilities and requirements of Project Co, its Subcontractors and any other Authority; and • incident management. <p>Draft WTMPs must be distributed to the State, VicRoads, the road safety auditor, any other relevant road authority for any affected Roads and, where the works affect public transport infrastructure, Public Transport interface parties for their comment.</p>	
			TP4	<p>Public transport</p> <p>Develop and implement measures to minimise to the extent practicable disruption during construction to all impacted railway lines, tram and bus routes in consultation with VicTrack, Yarra Trams and Metro Trains Melbourne and to the satisfaction of Public Transport Victoria.</p>	Pre-construction, construction
			TP5	<p>Rail operations</p> <p>Minimise disruption to the rail infrastructure and operations in consultation with the relevant rail infrastructure stakeholders.</p>	Detailed design, construction
		To minimise potential for accidents by managing road safety for all new road linkages	TP6	<p>Design standards</p> <p>Design new works (including shared use facilities) in accordance with applicable design standards and undertake independent road safety audits after each stage of detailed design and pre-opening and immediately following the opening of the Freeway works.</p> <p>Standards for the Veloway design must be prepared in consultation with VicRoads, the City of Melbourne and Bicycle Network and include a minimum clear width of 5.0 metres.</p>	Detailed design, construction
			TP7	<p>Traffic Management Liaison Group</p> <p>A Traffic Management Liaison Group (TMLG) must be established and convene prior to the commencement of any works that may impact on existing roads, paths or public transport infrastructure. The TMLG must include representatives from the State, VicRoads and Project Co. Other relevant agencies as nominated by the State may be included as required including relevant local councils.</p>	Pre-construction, construction

EES Evaluation Objective	Applicable Legislation and Policy	Performance Objective	EPR Code	Environmental Performance Requirement	Project Phase
				<p>The TMLG will be a forum for exchange of information and discussion of issues associated with Traffic Management Plans.</p> <p>The TMLG must be provided with the Traffic Management Plans, details as to timing of implementation, information about construction traffic monitoring conducted by Project Co, and other reports as relevant.</p> <p>The TMLG must meet at least monthly until the completion of construction.</p>	
			TP8	<p>River navigation</p> <p>Navigational channel of Maribyrnong River must not be impeded without approval of the relevant authority.</p>	Construction
			TP9	<p>Melbourne Metro Rail Authority interface</p> <p>Consult and coordinate with Melbourne Metro Rail Authority to manage and where possible minimise, cumulative impacts of construction vehicles.</p>	Construction
Waste Management					
<p>Waste management – to manage excavated spoil and other waste streams generated by the Project in accordance with the waste hierarchy and relevant best practice principles.</p>	<p><i>Environment Protection Act 1970</i></p>	<p>To manage all wastes from the construction and operation of the Project</p>	WMP1	<p>Waste management</p> <p>Develop and implement management measures for waste (excluding soils) minimisation during construction and operation in accordance with the <i>Environment Protection Act 1970</i> waste management hierarchy and management options, to address:</p> <ul style="list-style-type: none"> • Litter management • Construction and demolition wastes including, but not limited to, washing residues, slurries and contaminated water • Organic wastes • Inert solid wastes. 	<p>Detailed design, construction</p>