



*Major Transport Projects Facilitation Act 2009*

# **East West Link (Eastern Section) Project**

East West Link Assessment Committee:

Request for information under Section 57(4) of the Act.

**13 January 2014**

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# 1 Introduction

A Preliminary Hearing for the East West Link (Eastern Section) Project (the project) under the *Major Transport Projects Facilitation Act 2009* ('the Act') is scheduled for the 14 January 2014.

At this Hearing the Assessment Committee will make a number of procedural directions for the management of the main Hearing to commence in March 2014.

A Direction will also be made that the project proponent, the Linking Melbourne Authority (LMA), respond to a number of points of clarification and requests for information made by the Assessment Committee under Section 57(4) of the Act and Clause 2(4) of the project Terms of Reference.

These directions contain those requests for clarification and further information. The information sought is generally divided into:

- Copies of material to be provided (for example reports and plans); and
- Matters where clarification is sought.

Unless otherwise specified, fifteen hard copies and an electronic copy of the information should be provided.

Under Clause 2(4) of the Terms of Reference the LMA is expected to provide this information within 20 business days of the request, that is by Tuesday 11 February 2014.

The response will be made available on the Assessment Committee's website at:

<http://www.dpcd.vic.gov.au/planning/panelsandcommittees/current/east-west-link-eastern-section-project-assessment-committee>

***This information is sought for clarification and without prejudice to the Assessment Committee's final recommendations. Readers should not assume that the issues in this request for information are the only issues of interest to the Assessment Committee or that the Assessment Committee has particular concerns about these issues. The Committee reserves the right to seek further information as necessary throughout the Public Hearing process.***



**Kathy Mitchell**  
Assessment Committee Chair

## 2 Terms of Reference and assessment of scope

A number of submitters have raised issues or suggested project variations which may require modifications outside the project boundary. The LMA is requested to provide its opinion on the interpretation of the following:

1. Whether the Assessment Committee (AC) is constrained by the Terms of Reference dated 21 October 2013 (TOR) in terms of its powers, function and discretions under ss73(4&5) and 236(2) of the *Major Transport Projects Facilitation Act 2009* (the Act) in any way, and if so what way?
2. Having regard to Task 1(3)(b) of the TOR, is the "Figure 1 (dated 2 October 2013)" referred to therein the same as Figure 1 (dated 3 October 2013) entitled "Overview" in the CIS Mapbook that has been provided to the AC?
3. What does the term "project boundary" referred to in Task 1(3)(b) mean?
4. Is the ability of the AC to recommend conditions to any grant of an applicable approval under s73(3) of the Act constrained in any way, and if so what way to the area that is defined by the dotted blue line as the "proposed project boundary" within sheets 1-27 and the alignment concept contained in the CIS Mapbook (the proposed project boundary)?
5. Is the ability of the AC to consider the development (as opposed to the impact) of the declared project limited only to the area within the proposed project boundary?
6. If the answer to question 4 and/or 5 is yes, is the ability of the AC to consider further options under Part 3 Division 7 Subdivision 8 of the Act constrained in any and if so what manner, other than by the Subdivision provisions themselves?

## 3 The Reference Project

### 3.1 Consideration of alternatives

Section 2.5 of the Scoping Directions (May 2013, p5) states that “*Relevant alternatives should be described and assessed in the CIS...*” and that “*The CIS is to consider alternatives ... in an appropriate depth ...*”.

Section 4.1 of the CIS (Refer Chapter 4 Pages 5 and 6) provides a broad overview of the design options within the Alexandra Parade corridor Part A and for a possible future connection from Part A to the Port Area - Part B.

The LMA should advise:

7. What alternatives were considered (if any) and then discounted for inclusion in the Reference Project for the following project elements. An explanation of why any alternatives were discounted should be provided including:
  - a. The rationale for the major tunnel construction methods proposed;
  - b. The location and design for tunnel portals and ventilation outlets;
  - c. Interchange designs, particularly at the Hoddle Street Interchange, Elliot Avenue, Ross Straw Field, and connections from the existing road network to the project;
  - d. Locations for a viaduct adjoining CityLink and Moonee Ponds Creek for the section linking to the Port of Melbourne, in the context of the development of the Arden Precinct, as well as existing land uses (including public housing at Debneys Park Estate, and apartments in Bent Street) and waterway values; and
  - e. Location of temporary road alignments (i.e. for traffic diversions, laydown areas and site compounds to be used during construction).

Further, modifications to the Reference Project design were suggested in submissions. The LMA should:

8. Provide a response to proposed design modifications, including but not limited to:
  - a. City of Melbourne’s suggested use of the existing CityLink viaduct for the East West Link and other modifications proposed in section 2.1 of its submission;
  - b. City of Melbourne’s suggested options outlined in section 2.2 of its submission to reduce the impacts of the Western Portal on Royal Park and West Parkville including the:
    - i. Wetland Option
    - ii. Earth mound Option
    - iii. Alternative Ramp Alignment Option
  - c. City of Melbourne’s options to reduce the impacts of the Elliot Avenue portal on Royal Park as outlined in section 2.3 of its submission;
  - d. City of Moonee Valley’s proposed transport impact mitigation measures contained in section 3.1 of its submission;

- e. City of Moonee Valley's Open Space Design Interventions and Mitigation Requirements documented in Appendix A of its submission; and
- f. City of Yarra's suggested diverging diamond intersection between Hoddle Street and the East West Link (submission p42).

The CIS suggests the tunnels may be nearly at capacity in 2031 (V/C ratio of 0.7-0.9 (Vol 2, Chap 7. p35)) in the AM peak. LMA should advise whether:

- 9. Alternative tunnel or link designs were considered that could provide greater capacity over a longer transport planning time horizon.

### **3.2 Impact on transport policy and projects**

The Victorian Government is considering a range of passenger and freight transport projects including the East West Link. An indication of these can be seen in Chapter 3 of *Plan Melbourne*.

The LMA should advise:

- 10. How proposed road and rail projects that might interact with the East West Link – Eastern Section have been considered in the CIS and, and if so, how the Reference Project ensures that these can be accommodated. Specifically, information is sought on the following:
  - a. What steps have been taken for project integration as required under the *Transport Integration Act 2010* (Vol. 2, Ch. 8, Section 18.3, (p2) of CIS); and
  - b. How and where the Reference Project interacts with the following projects and ensures there are not significant constraints on their design and construction:
    - i. Melbourne Metro Rail Project
    - ii. Doncaster Rail Link

### **3.3 Project definition**

The LMA should provide:

- 11. Detailed plans and diagrams of the Reference Project showing:
  - a. Elevations at portals and relevant interchanges in AHD;
  - b. Tunnel grades and vertical and horizontal alignments of the Reference Project tunnels at A1 or A0 scale including tunnel separation and the location of major utility services;
  - c. Road surface grades;
  - d. CityLink from chainage 30000 to 29600 to clearly indicate how the Racecourse Road off ramp and the ramp to the tunnel (i.e. Western portal) interact with each other;
  - e. Vertical alignments of the route from chainage 4900 to chainage 3300;
  - f. Actual cross sections, as distinct from typical cross sections, at chainages 4800, 4600, 4500 and 4300; and
  - g. For the Ormond Road off ramp, LMA should provide information on the vertical alignment of the ramp, relevant actual cross sections and confirm whether a noise wall is proposed.

## 4 Traffic and transport

### 4.1 Background reports

The LMA should provide:

12. The following:

- a. A description of all traffic analysis and/or studies undertaken by or on behalf of the LMA or other organizations (and whom) to assess the impacts of the East West Link throughout the metropolitan area;
- b. The authors, titles and dates of all such analysis or studies; and
- c. The organization that is able to produce the analysis or study.

### 4.2 Traffic predictions - project

In order to compare the traffic predictions in the Eddington Report with those in the CIS the LMA should provide:

13. A like for like comparison of the Eddington Report (figure 71, p131), with Chapter 7 of the CIS figure 7-7, p11 including a composite plan showing traffic distribution to the same zones based upon both the Eddington Report and GHD (Veitch Lister Consulting) findings. The plan should include four zones suggested by the Assessment Committee as follows, with a common eastern boundary of Merri Creek/Epping railway line/Hoddle Street/Punt Road.

#### Zone 1

North boundary — Glenlyon Road /Ascot Vale Road/Maribyrnong Road

West boundary – Maribyrnong River

South boundary - Alexandra Parade and Western Extension/Elliot Avenue/Racecourse Road/Smithfield Road

#### Zone 2

North boundary - as per south boundary of Zone 1

South boundary - Victoria Parade/Victoria Street/Dynon Road

West boundary - as per Zone 1

#### Zone 3

North boundary - as per south boundary in Zone 2

South boundary - Yarra River/Maribyrnong River

East and west boundaries - as per Zone 2

#### Zone 4

North boundary - as per south boundary of Zone 3

South boundary - Fitzroy Street/Port Phillip Bay

East and west boundaries - as above per Zone 2

Page 13 of Chapter 7 of the CIS refers to 'Microsimulation modelling'. Microsimulation modelling is also mentioned on page 16 of the GHD Technical Appendix E as being used for identifying local impacts. The LMA should provide:

14. Confirmation of the data used by GHD in its assessment of interchange levels of service and a copy of the results of any Microsimulation modelling done for the project.

The LMA should:

15. Clarify in which areas of the CIS strategic modelling results were used and where Microsimulation data was used.

The LMA should provide:

16. A summary of traffic projections versus actual volumes post opening of recent major road projects including Peninsula Link, EastLink and CityLink.

Tables 7, 9 and 11 in the GHD Traffic Impact Assessment quote heavy vehicle volumes for the entire Metropolitan road network. The LMA should provide:

17. Predictions of daily and peak hour truck volumes on interchange ramps and tunnels including estimates of B-double and B-triple volumes.

On page 12, Chapter 7 of the CIS it states that the east-west corridor has a high off-peak demand (between 6pm and 7am). The LMA should advise:

18. Why 6pm to 7am for off-peak is used rather than the typical 7pm to 7am off-peak period.

The LMA should advise:

19. Whether the Reference Project has been designed to, or could, accommodate dedicated high-occupancy vehicle lanes, and if so how and or where?

The LMA should provide or identify:

20. The traffic modelling inputs into noise and air quality assessments for 2021 and 2031.

### **4.3 Traffic predictions – eastern end**

The LMA should provide:

21. A Table showing 2011 daily and peak hour traffic volumes and projected 2021/2031 daily and peak hour volumes eastbound and westbound at am and pm peak hours for (as relevant):
  - a. the Eastern Freeway at Yarra Bend Road;
  - b. the Eastern Freeway off ramp to Hoddle St;
  - c. the Eastern Freeway eastbound on ramp;
  - d. the tunnel west of Hoddle Street and Alexandra Parade at Wellington Street; and
  - e. north and south bound volumes on Hoddle Street north of the Eastern Freeway off ramp and at Johnston Street.

The *GHD East West Link-Eastern Section Traffic Modelling Report October 2013* quotes average delays and queue lengths for the proposed Hoddle Street Interchange with 2031 traffic volumes. The LMA should provide:

22. The same average delay and queue length data for the current Hoddle Street Interchange based upon 2011 traffic volumes and 95<sup>th</sup> percentile queue length data for both 2011 and 2031.

Table 23, page 65 of the GHD report indicates that Alexandra Parade carried 80,000 vpd, two way in 2011. The LMA should advise:

23. The proportion of these vehicles that are anticipated to be diverted to the tunnel.

Table 23 shows that Eastern Freeway traffic volumes are anticipated to increase by 40-50 percent by 2031 with East West Link (due to an additional six lanes added to the project). Sheet 15 of the Mapbook shows five traffic lanes in each direction on the Eastern Freeway east of Yarra Bend Road and six lanes in each direction west of Yarra Bend Road. East of Trennery Crescent a total of 13 lanes are shown on 3 carriageways. The LMA should:

24. Explain the “additional six lanes” quoted in Table 23 of the GHD Report and the source of the 54,000 to 67,500 vpd additional movements on the Eastern Freeway.
25. Advise what the implications would be, if any, of not widening the Eastern Freeway.

The GHD traffic report (Section 9.3.4, p77) suggests that traffic volumes along Alexandra Parade should reduce by between 20 and 30 percent due to East West Link and this will enable improved north-south movements.

The *GHD Traffic Impact Assessment Report* (Table 25, p83) indicates that Alexandra Parade daily volumes post 2026 will vary from 76,400 vehicles to 79,100 vehicles depending upon population outcomes. The LMA should clarify:

26. Whether the east west traffic volumes on Alexandra Parade post 2026 will be similar to present volumes (as measured in 2011).
27. What percentage of the forecast Alexandra Parade traffic volumes, east of Brunswick Street, travels to/from east of Hoddle Street, by direction.
28. Why the traffic volumes on the Hoddle Street exit ramp from the Eastern Freeway are forecast to decrease by 3,000 vpd (GHD Report p71).

Table 7-4 (Chapter 7, p32) indicates that Wellington Street traffic volumes will decrease by 10-15 percent by 2031 with the East West Link operating. The LMA should advise:

29. As no change is forecast in Hoddle Street traffic volumes in 2031 post the East West link why will Wellington Street volumes decrease?

#### **4.4 Traffic predictions – western end**

The freeway to freeway ramps between the tunnel and CityLink, northbound to Tullamarine and southbound towards Port of Melbourne, as shown on Sheets 5 and 6, provide a freeway standard connection that is now only available via the arterial road network. The LMA should provide:

30. An indication of the current demand for these movements, by direction during the peak hours and daily.

The LMA should provide:

31. A Table showing projected 2021 and 2031 daily and peak hour traffic volumes at:
- a. The tunnel portal defining traffic movements by direction to and from CityLink;
  - b. On the exit ramp from the tunnel at chainage 29000 showing separate volumes to CityLink and the new elevated structure;
  - c. On the new elevated structure at chainage 29600 showing volumes from CityLink and the new structure;
  - d. Entry and exit ramp movements by direction at the Elliot Avenue Interchange; and
  - e. The Ormond Road off ramp.

The LMA should advise:

32. On page 25 of GHD Appendix B, the average queue length at the Ormond Road off ramp in the pm peak period is quoted as 57m. What is the 95th percentile queue length for the same time period?
33. The current peak hour and daily demand for traffic movements between the 'catchment' of the Elliot Avenue ramps and the Eastern Freeway/Hoddle Street.

The CIS Summary Report page 37 states *"The viaduct section (Part B) is forecast to carry between 10,000 and 20,000 vehicles per day. Once the full East West link is completed, this connection would carry around 60,000 vehicles per day."*

Page 3 of the CIS Summary Report describes the East West Link (Western Section) as a 10 kilometre freeway standard road link connecting to the M80 Ring Road, including a new east-west river crossing. The LMA should advise:

34. Whether the projected daily volumes for the elevated roadway shown on Sheets 6 and 18 to 22 is 10,000 to 20,000 vpd without the western section of the route.
35. The status of the western section of the route as shown on Figure 1 in the CIS Summary Report, and whether work been undertaken to define the alignment and whether there is a timetable for construction.

## 5 Planning and design

### 5.1 Design opportunities

The *East West Link Project Incorporated Document, Sept 2013* (Refer Technical Appendix A, Applicable Approvals) states that “*The use and development and the ancillary activities specified in clause 4.0 must be generally in accordance with the Urban Design Principles in Table 1 of the Document*”. Table 1 contains the Urban Design Principles contained in the *Urban Design Framework, 19 September 2013* (Refer Technical Appendix C) but does not contain any design opportunities identified for the six precincts. The LMA should advise:

36. The consideration given to the “*East West Link Project Incorporated Document*”, or another proposed approval, being more specific regarding the realization of precinct specific design opportunities.

There are several documents listed in Appendix F, Part 3.4 to the CIS. The LMA should advise:

37. How the Reference Project is consistent with the listed documents.

### 5.2 Tunnel protection

The LMA should advise:

38. How the proposed planning controls (DDO) protect the tunnels and other future development in the vicinity.

## 6 Landscape and visual

### 6.1 Urban design

The Urban Design Principles (Technical Appendix 'C') are within a document that shows the Reference Project. The LMA should confirm:

39. The stage in the project development process that the Urban Design Principles were introduced.

The interchange at Hoddle Street is described as an Eastern Gateway. The LMA should advise:

40. The design rationale for a 'gateway' at this location and the elements of the Reference Project that contribute to the gateway.

The LMA should provide:

41. A summary of the how the Reference Project responds to the 12 Principles of the Governments Urban Design Charter for Victoria.

### 6.2 Project conceptualisation

The LMA should provide:

42. A three-dimensional physical model of the western project area around the CityLink interchange covering:
  - a. to the west: beyond the western portals;
  - b. to the south: Robertson Street/Mark Street; and
  - c. to the north: end of Map Sheet 5.

The model should show, at least:

- topography and existing land features (roads, rail, parklands);
- 'Melbourne Gateway' (yellow 'cheesestick', red sticks, sound tube);
- key buildings, including the closest two of the Debney Park towers, Debney Park community centre, Evo apartments, the Bent Street apartment building, the 25 storey building at the southern end of Mt Alexander Road;
- project boundary;
- proposed new roads coloured as in the Map Book; and
- other features to assist in understanding this part of the Reference Project.

### 6.3 Overshadowing

The LMA should provide:

43. An assessment of potential overshadowing of residential areas and open space from proposed above ground structures, and advice on key areas of impact.

### 6.4 Light spill

The *Environmental Management Framework* contains (at L1 and L2) performance requirements for light spill. The LMA should advise:

44. Whether there are criteria that could be included for light spill (for sleep disturbance for example) and if so, what measures could be employed to ensure these are met.

## 7 Air quality

### 7.1 Tunnel ventilation

LMA should provide:

45. Information on what other tunnel ventilation systems and discharge stack locations for the East West Link might be considered other than that presented in the CIS, including an analysis of:
  - a. features;
  - b. feasibility;
  - c. external visual impacts;
  - d. external noise; and
  - e. air quality.

LMA should advise:

46. Whether appropriate planning controls have been drafted to protect the dispersion performance of the ventilation stacks (e.g. overlay height controls for surrounding buildings).

### 7.2 Clifton Hill Primary School and Alexandra Parade

The *Air Quality Assessment* appears to provide little information on the impact of the emissions on the school, except for a statement that the SEPP (AQM) requirements are met at all sensitive receptors. The LMA should provide:

47. Contour plots and time series plots of PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>2</sub> for the emissions from the ventilation stack at the eastern end showing the impact (if any) on the Clifton Hill Primary School.

The Reference Project proposes the establishment of a sidetrack east bound that will divert traffic off the existing Alexandra Parade during construction of the tunnel. No air quality assessment of the potential impacts of this temporary road appears to have been included in the CIS. The LMA should provide:

48. An assessment of the emissions from traffic using the temporary road running parallel to Alexandra Parade on local residents and the Clifton Hill Primary School. This should include PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>2</sub>. This should include any measures that can be implemented to reduce potential impacts on sensitive receptors.

### 7.3 Ormond Road exit

The CIS (pages 83-84 Air Quality Assessment Technical Report) states that up to 15,000 vehicles per hour are predicted to use the Ormond Road exit during the afternoon peak. The LMA should provide:

49. An assessment of the emissions from traffic predicted to use the Ormond Road exit on the residents of Ormond Road. This should include PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>2</sub> and extend to the intersection of Mount Alexander Road.

## 7.4 Elevated receptors

The air quality modelling presented in the CIS for surface roads appears to have only been conducted for NO<sub>2</sub> with the assumption that if the criteria for NO<sub>2</sub> are met then other pollutant criteria will also be met. The LMA should provide:

50. Contour plots for PM<sub>10</sub> and PM<sub>2.5</sub> for surface roads including the impact on elevated receptors in particular the Debney Park Estate and the Evo Apartments. Time series plots should also be included for the most affected receptors.

## 7.5 Road gradient effects on air quality

Page 111 of the *Air Quality Assessment Report Technical Report* states that all near road modelling has been done assuming zero gradient. The LMA should provide:

51. An assessment of the impact of the inclusion of grade for the relevant roads for PM<sub>2.5</sub>, PM<sub>10</sub> and NO<sub>2</sub>. The assessment should include consideration of the Hoddle St interchange and the CityLink and Port connections and the impact on existing elevated receptors.

## 7.6 Emission factors

The Air Quality Assessment uses the PIARC emission factors for PM<sub>10</sub> and the NPI emission factors for PM<sub>2.5</sub>. The PIARC emission factors use a surrogate (opacity as a measure of visibility) rather than mass based emission factors for PM<sub>10</sub>. The LMA should provide:

52. The implications of using the PIARC emission factors, which is a surrogate for PM<sub>10</sub> emissions, on the predicted PM<sub>10</sub> concentrations from vehicles on East West Link.
53. The implications of not including particle emissions from passenger vehicles in the modelling of PM<sub>10</sub>.
54. Information on how the opacity factors in m<sup>2</sup>/h have been converted to a mass emission rate to use in the modelling of PM<sub>10</sub>.
55. An assessment on the use of alternative emission factors, eg., NPI or EPA emission factors on the predicted PM<sub>10</sub> concentrations.

## 7.7 In-tunnel and background air quality

The EPA submission on the CIS includes copies of the licences for both the CityLink and EastLink tunnels. The licences include in-tunnel limits for CO which are more stringent than the PIARC limits. The LMA should provide:

56. An assessment of whether the Reference Design for the project tunnels would be able to meet the standards applied to the CityLink and EastLink tunnels if they were applied to this project.

The Air Quality Assessment has used background air monitoring data from Alphington which is considered to be representative of general community exposure in that area. The LMA should clarify:

57. Whether more locally relevant data was available.
58. Why data from Alphington is considered to be representative of the Clifton Hill/Alexandra Parade area.

## **7.8 Western end**

The LMA should provide:

59. An assessment, including contour plots, of the impact of increased traffic using the Elliot Ave off-ramp, western portal ventilation stack emissions and increased traffic flows on the Royal Children's Hospital Precinct and the Zoo.

## 8 Noise and vibration

### 8.1 Vibration and regenerated noise

The *Tunnel Vibration & Regenerated Noise Assessment* report states:

*Where compliance could not be achieved with the proposed excavation methods mitigation measures would be used, such as reducing the size of the equipment or changing the operating characteristics, if this is technically viable. (Technical Appendix K, Section 12, p.57)*

The LMA should advise:

60. Where the criteria are exceeded, the technical options available to decrease those levels when quantitatively measured. Explain how technical viability would be determined.

The *Tunnel Vibration & Regenerated Noise Assessment* report provides information on anticipated levels of vibration and regenerated noise from various tunnel construction methods in isolation. The LMA should advise:

61. Whether cumulative or sequential impacts have been or should be considered such as exposure to a number of vibration sources through the life of the project.

The LMA should advise:

62. How it proposes that the following regenerated noise and vibration matters would be assessed:
  - a. monitoring of vibration at surface structures including regenerated noise in occupied buildings;
  - b. monitoring of vibration at buried assets;
  - c. pre-construction, during construction and post-construction condition assessment of structures;
  - d. decision making on implementing contingency measures to reduce vibration; and
  - e. decision making on rectification of vibration damaged assets;
63. The standards that should apply to protect the welfare of animals at the Melbourne Zoo?

### 8.2 Other project experience

The *Tunnel Vibration & Regenerated Noise Assessment* describes vibration and regenerated noise that might result from various approaches to excavation and tunnelling (road header, tunnel boring machine, hydraulic hammer, blasting). It advises that there is uncertainty in modelling vibration since that depends on local geological conditions and the techniques used. The LMA should advise:

64. How experiences in recent major civil construction projects (e.g. CityLink, EastLink) has informed possible construction techniques and vibration modelling estimates for the East West Link – Eastern Section project including:
  - a. what excavation and, if applicable, tunnelling methods were adopted;
  - b. how were vibration and regenerated noise monitored and managed; and

- c. if the monitoring provided validation of vibration modelling.

### **8.3 Noise modelling**

The LMA should provide:

- 65. The source of the noise data used for the operational noise assessments including demonstrating how the vehicle type, speed, and road grade dependency was derived.
- 66. A flow chart of the noise model that indicates the major elements, including the input requirements, leading to the derivation of noise contours both at ground level and at building façades. This information is to explain the basic steps in determining the characteristics, such as height, extent and acoustic properties, of a sound barrier and how the noise protection provided by that is estimated.
- 67. Information on the sensitivity of the noise model output to changes in input data. This should include, but need not be limited to, traffic volumes and compositions (including the heavy vehicle component), road grades, speeds and variations on those, and road surface.
- 68. Evidence from a small number of examples of validation of the noise model drawn from other major road projects. This should compare predicted noise exposures with after commissioning measurements. Where the post commissioning traffic volume and composition has differed from that used in the assessment, the modelled results should be provided with that change made to the model input. The validation evidence should include situations where no noise barrier was proposed or constructed and situations where a noise barrier was provided on the basis of the noise assessment.

### **8.4 Construction noise**

The LMA should advise:

- 69. How it is proposed that the following construction noise matters would be assessed:
  - a. monitoring of noise at sensitive receptors before and during construction of East West Link – Eastern Section;
  - b. decision making on unacceptable construction noise and times; and
  - c. actions to reduce noise as needed.

### **8.5 Operational noise**

The LMA should advise:

- 70. How it is proposed that the following operational noise matters would be assessed:
  - a. monitoring of noise at sensitive receptors post commissioning of East West Link – Eastern Section; and
  - b. decision making on mitigation measures that may be required for noise exceedance.

The LMA should provide:

- 71. The following documents:

- a. A technical note discussing the geological history of the area, GHD 2013 dated 10 June 2013;
- b. Suskind, D.E. (2000), Vibrations from blasting, International Society of Explosive Engineers DIN450.2 (1975);
- c. The German National Standard DIN 4150-2, "Structural vibration - Human exposure to vibration in buildings" (English version); and
- d. Memo from Melbourne Water (Ned Powell) to Brian O'Driscoll dated 12 March, 2013 discussing the East West Link NYM.

## 9 Ground water and contamination

### 9.1 Groundwater and contamination reports

The LMA should provide:

72. The following documents:

- a. A geological plan or plans of the East West Tunnel alignment at A0 or A1 sheet size showing the inferred geology at the tunnel horizons;
- b. Geological sections of the respective East West Tunnel alignments at A0 or A1 sheet size showing the inferred geology and the groundwater level indicated at the location of all the geotechnical investigation drillholes;
- c. AECOM 2013 *Mitigation of Risks Posed by Contaminated Groundwater Whilst Under Alexandra Parade. Draft Options Review Draft Report* prepared for LMA. (Appendix M, Section 16 References, p. 134);
- d. GHD 2013c *East-West Link – Eastern Section Contaminated Land Assessment*, Report prepared for LMA. (Appendix M, Section 16 References, p. 135);
- e. Leonard, J., 2006, *Hydrogeology of the Melbourne Area*, Australian Geomechanics Journal, Vol. 41, No. 3. (Appendix M, Section 16 References, p. 135);
- f. SKM 2013a, East-West Link Hydrogeological Investigation – Draft Factual Report, in VicRoads, March 2013, *East-West Link Tunnel Project Interim Geotechnical Investigation Factual Report*, Technical Report GE094-13 prepared for LMA. (Appendix M, Section 16 References, p. 135);
- g. SKM 2013b *Deep Leads in the vicinity of the East-West Link*, Report prepared for LMA. (Appendix M, Section 16 References, p. 135); and
- h. The interpretative hydrogeological report by SKM, not available for review in the CIS (Appendix M, Section 4.3.1, p. 10 para 3).

### 9.2 Groundwater characterisation

LMA should advise:

73. Whether the representation of the depth to groundwater, as indicated by Figure 14-2, accounts for the topography (Vol.2, Ch. 14, Section 14.1.2, (p.4)).

### 9.3 Risk issues

The risk assessment process has been applied to many potential scenarios facing tunnel construction and subsequent operation with respect to groundwater and contamination issues. The LMA should provide advice on:

74. Whether resolution of these issues is required in Table 14-1 and Appendix M Section 6 (Table 8). Particular examples are:
- a. Vol. 2, Ch. 14, Section 14.2.1, (p. 9). (Compare Likelihood for GW003 and C001);
  - b. Vol. 2, Ch. 14, Section 14.2.1, (p. 9). (Compare impact of C001 with Consequence of “Minor”);

- c. Vol. 2, Ch. 14, Section 14.2.1, (p. 9). (Compare Likelihood of depressurization settlement assessment (“Very Unlikely”) with other Melbourne experience);
- d. Vol. 2, Ch. 14, Section 14.2.1, (p. 10). (Compare Consequence as “Insignificant” with Likelihood as “Likely”);
- e. Vol.2, Ch.14, Section 14.2.1, (pp. 10 & 11). (No mitigation measures);
- f. Vol. 2, Ch. 14, Section 14.2.1, (p. 11). (“High” Risk rating without mitigation measures);
- g. Vol. 2, Ch. 14, Section 14.2.1, (p. 11). (Likelihood given as “Unlikely” when other Melbourne experience has exhibited clogging of drainage systems).
- h. (Vol. 2, Ch. 14, Section 14.2.1, (p. 11)) (Risk No. GW016 mitigation measures);
- i. Appendix M, Section 6, pp. 54-62. (No improvement in Risk rating despite mitigation measures); and
- j. Appendix N, Section 6, pp. 20-28. (Table 8 C– particularly C005 and C010 - No improvement in Risk rating despite mitigation measures).

#### **9.4 Soil contamination**

The CIS states that there is potential for asbestos and BTEX contaminated soils to be removed during the excavation of the tunnels. The spoil will be removed and transported to landfill for disposal. The LMA should advise:

- 75. Whether the volume of potentially contaminated soil will require stockpiling prior to transport and disposal. If so, where is stockpiling likely to occur and what mitigation measures will be implemented to minimise community exposure to potentially contaminated soil?

#### **9.5 Performance requirements**

The Performance Requirements are contained in Chapter 17 of the CIS. Some of the Performance Requirements given do not reflect the Recommended performance requirements given in the specific chapters of the CIS and the Technical Appendices in their entirety. The LMA should advise:

- 76. In relation to performance requirements:
  - a. Whether the use of fluids for artificial recharge (GW2) can be explained in more detail. (Appendix M, Final performance requirements, Code GW2, p. iv Executive Summary);
  - b. Whether the groundwater impacts are mandatory or they are guidance to contractor/s and it would be up to them to determine the best approach subject to legislative and other requirements ((Appendix M, Final performance requirements, p. ix);
  - c. What other requirements are intended (Appendix M, Final performance requirements, Executive Summary p. ix para 2);
  - d. Whether the general statements given as the last paragraph of the Conclusions (Vol. 2, Ch. 14, Section 14.9, (p. 27)) will be stated more explicitly in the Performance Requirements;

- e. Whether intervention contingency measures should be indicated as part of Performance Requirement GW4 (Table 14-2, Vol.2, Ch. 14, Section 14.8, (p. 24)); and
- f. Whether the Performance requirements listed in Table 18 are binding (Appendix M, Section 7.5, pp. 79-83), or only those given in Chapter 17 (Vol. 2).

## 10 Social and business

### 10.1 Actions to minimise social impacts

The *Eastern Section Social Impact Assessment, October 2013* (the SIA) (Technical Appendix P) recommends one “*Final performance requirement for social impacts*” (C1):

*Develop and implement a community and business involvement plan to engage potentially affected stakeholders and advise them of progress of construction activities and operation, including significant milestones, changed traffic conditions and other matters which are of interest or concern to them, including:*

- *Municipalities*
- *Melbourne Zoo*
- *State Netball and Hockey Centre*
- *Urban Camp Melbourne*
- *Recreation, sporting and community groups*
- *Potentially affected residents*
- *Potentially affected businesses*
- *Other public facilities in proximity*

The LMA should advise:

77. Whether the SIA considered or evaluated options put forward by stakeholders during project development to modify the Reference Project in order to minimise potential social impacts during construction and operation. If so, what modifications were made?

### 10.2 Acquisition and property condition assessments

The LMA should advise:

78. In relation to acquisition and conditions assessments:

- a. Whether the proposals for property conditions assessment can accurately record property condition prior to construction and provide a sound basis for any required restitution; and
- b. Why other properties for example, but not limited to, University College and the former College Church in Royal Parade do not appear to be considered in Table 4-3.

### 10.3 Traffic and social impact

On p39 of the SIA it is stated that there will be partial closure and traffic diversion from Hoddle Street along Wellington Street during construction. Further it is stated that Gold Street will be closed during construction for safety reasons, with children from the Primary School redirected to Wellington Street along with pedestrians and cyclists. The LMA should provide:

79. Information on the expected duration of these diversions.

80. An assessment in terms of social impact (including safety) as well as noise, and air quality for the diversion along Wellington Street.

On p67 of the SIA it is stated that no assessment has been done for the Debney Park Estate even though this community is considered in the SIA as a particularly vulnerable group for the impact of the project and one that is potentially highly impacted. It is proposed that the SIA be referred to the contractor who builds the road to assess and manage the potential social impacts. The LMA should provide:

81. An assessment of the social impacts on the residents of the Debney Park Estate and mitigation measures that can be put in place to minimise these impacts.

On p67 of the SIA it is stated that the Upfield railway line will be closed (on p73 it says that it will be closed for a number of weeks). This is assessed as a moderate impact on public transport users. The Upfield line will be closed again for the construction of the Port Connection (p90) however no time frame for the closure is given. The LMA should provide:

82. An outline of the measures that will be put in place to minimise the impact of the closure of the Upfield Rail Line and alternative public transport options.

On p67 of the SIA it states that there are predicted high volumes of heavy construction vehicles on local roads including Manningham Street and Myrnong Crescent. No assessment of the air quality appears to have been done on these roads and it states that a safe truck route needs to be identified. The overall assessment is that the impact on local residents will be minor. The LMA should provide:

83. Information on the numbers of construction truck movements on these local roads and the hours that these might occur.
84. Information on any traffic management or other mitigation measures that will be put in place to minimise these impacts.
85. An assessment of the air quality impacts, in particular PM<sub>10</sub> and PM<sub>2.5</sub>, from these construction truck movements on local residents.

## **11 Environmental management framework**

### **11.1 Risk assessment process**

The Assessment Committee has requested information on the risk assessment for groundwater and tunnelling in an earlier chapter. In addition, the LMA should provide:

86. An overview of the risk assessment methodology and how it accords with relevant Australian Standards.

### **11.2 Performance requirements and suggested conditions**

A number of submitters, particularly Local Government, have suggested conditions and revised Performance Requirements that could be applied to the project. The LMA should:

87. Consider the proposed conditions and Performance Requirements as suggested by various submitters, seek to meet with those parties as necessary, and circulate a revised version that identifies areas of agreement and disagreement as appropriate, at the same time as the circulation of expert evidence.

### **11.3 Outline EMPs**

The LMA should advise whether:

88. The compliance requirements for the PPP availability model is available for consideration by the Assessment Committee (Vol. 2, Ch.17, Section 17.1, (p. 1)), given that it is understood that outline EMP's have been sought in the bidding process to demonstrate compliance with all aspects of the EMF.

### **11.4 Emergency management**

The LMA should provide advice on:

89. Emergency management design elements that may be required in the tunnel in the event of fire or other incidents.