North East Link Inquiry and Advisory Committee

Expert Witness Statement of Luis Willumsen

1. Introduction

1.1 I undertook a peer review of Appendix B “Transport Modelling for North East Link – Transport Modelling Summary Report” (Technical Report) to Technical Report A to the Environment Effects Statement (EES) for North East Link (Project). This peer review report is titled "North East Link Authority: Environmental Effect Statement (EES) for North East Link. Transport Model Peer Review Report" dated February 2019 (Peer Review Report).

1.2 I have been instructed by Clayton Utz on behalf of NELP to review the public submissions and give evidence on the Peer Review Report. I have also been asked to comment on the suitability of the responses to public submissions contained in the expert witness statement of Tim Veitch.

2. Qualifications and experience

2.1 Annexure A contains a statement setting out my qualifications and experience, and the other matters raised by Planning Panels Victoria's Guide to Expert Evidence. A copy of my curriculum vitae is provided as Annexure B.

3. Peer Review

3.1 The role that I had in preparing the Peer Review Report was as its sole author. In this review I considered the “Transport Modelling for North East Link – Transport Modelling Summary Report” (the Technical Report) produced by VLC and other supporting documentation detailed in my own Report.

3.2 I adopt the Peer Review Report, in combination with this statement, as my written expert evidence for the purposes of the North East Link Inquiry and Advisory Committee's inquiry into the environmental effects of the Project.

4 Further work since preparation of the Peer Review Report

4.1 Since the Peer Review Report was finalised, I have not undertaken any further work in relation to the matters addressed in the Peer Review Report relevant to the Project.

5. Submissions

Submissions received

5.1 I have read the public submissions to the EES, draft planning scheme amendment and works approval application and identified those that are relevant to the Technical Report or the Peer Review Report and my area of expertise. These include the following submissions:

PPV_ID's: 8, 10, 12, 22, 25, 37, 47, 59, 60, 61, 82, 114, 116, 136, 144, 177, 181, 201, 222, 223, 229, 236, 238, 254, 259, 260, 294, 298, 302, 303, 304, 309, 321, 339, 351, 357, 359, 362, 364, 378, 446, 459, 480, 498, 500, 514, 521, 523, 531, 569, 577, 588, 589, 596, 614, 636, 640, 646, 658, 667, 669, 670, 681, 691, 692, 704, 707, 716, 720, 723, 733, 736, 747, 759, 762, 775, 779, 797, 798, 808, 816, 824, 847 and 849.

5.2 I have also read the Expert Witness Statement of Tim Veitch and his responses to public submissions relevant to transport modelling prepared for the Project.

Response to issues raised

5.3 Set out below are my comments on the suitability of the responses to public submissions contained in the expert witness statement of Tim Veitch.

5.4 Mr. Veitch considers the issues raised by submissions under three broad categories: (1) Issues related to the robustness and realism of the modelling, (2) Issues related to future modelling assumptions, and (3) Issues related to the traffic and transport impacts of North East Link.

5.5 I concur with his grouping of issues in this way.

5.6 In respect of the robustness and realism of the modelling undertaken by VLC I agree with the responses provided by Tim Veitch in this respect. I do not address the factual errors in some submissions as these are correctly identified in Tim Veitch's Statement. I will focus here only on some specific points pertaining to the transport model specification and quality.

5.7 Tim Veitch is entirely correct, in my view, when defending the use of models, even if they cannot deliver entirely accurate forecasts, as there are too many elements of uncertainty in the future that cannot be eliminated. What is important is that those uncertainties are addressed in sensitivity tests and scenario analysis and that both have been incorporated in VLC's Technical Report. Moreover, the technical limitations of the Zenith model used here are clearly identified in that Report and they are consistent with the limitations of models applied in this type of context. I am satisfied that these tasks have been

undertaken to a good and robust international standard.

5.8 The modelling of travel times and delays has been undertaken to a standard consistent with the needs of the EES and in line with international best practice for a model that needs to cover an area as wide as that required for the North East Link. I agree with Tim Veitch assertion that introducing detailed modelling of junctions tends to make the model unstable and that this instability may obscure the identification of impacts. Overall, I believe the model represents travel times reasonably well.

5.9 Several submissions argued that "induced traffic" had not been modeled correctly or sufficiently. My view is that the two main sources of induced traffic, namely changes in destination and mode of travel, are appropriately modelled and reported in the Technical Report. Other sources of induced traffic are less critical and would have a minimal impact on daily traffic in the area of influence of the project. This treatment of induced demand is consistent with Australian and international best practice.

5.10 The treatment given to willingness to pay tolls to save time and improve driving conditions) is consistent with practice in countries with many toll roads, for example the US and Australia. This approach is adopted to provide a good representation of how drivers choose between tolled and untolled routes when maximum tolls are capped.

5.11 A critique to the approach to destination choice using a gravity model (submission 792) and equilibration (submission 136). Both of these submissions reflect, in my view, a limited understanding of the theory underpinning these models. The current state of practice adopts the gravity model as the best approximation to destination choice and most practitioners recognise its limitations. It effectively assumes that people will change jobs and/or homes (plus shop locations and other destinations) immediately in response to a change in accessibility provided by a new link. This instant response is clearly impossible in practice and therefore the models of destination choice must be adapted to become more realistic. The treatment that VLC's has given to this issue is consistent with this effort to improve realism and I concur with Tim Veitch in this respect.

5.12 Submission 357 and 849 argue that no consideration has been given to the potential of new technologies in particular Electric Vehicles, Mobility as a Service, Flying Cars and Connected and Automated Vehicles, to reduce congestion and thus remove the need for the project. The modelling and forecasting effort has indeed considered the potential impact of Connected and Automated Vehicles and Mobility as a Service using the best available information at the time and detailed simulations by the International Transport Forum in a city sharing characteristics with Melbourne. Electric vehicles will reduce local emissions but will offer no reduction to congestion. The idea that flying cars or similar futuristic vehicles will solve all congestion problems is highly speculative. Although

prototypes of these vehicles have existed for some time their eventual use will be restricted because of the needs of controlling airspace and their costs will make them only suitable for very high worth/high income individuals. Therefore it is reasonable to exclude them from any consideration related to the North East Link.

6. Summary of key issues, opinions and recommendations

6.1 I have thoroughly investigated and discussed the assumptions and approaches adopted by VLC in the transport and traffic modelling effort. The assumptions used in the model are, in my expert opinion, consistent with best practice in Australia and elsewhere in the developed world.

6.2 The model used by VLC is technically sound and its treatment of the different behavioural responses to changes in the network as significant as the North East Link are sound and technically robust.

6.3 The model and forecasts are supported by sufficient and well-designed sensitivity tests and scenario planning arrangements. These give additional confidence in the projections of impacts resulting from the implementation of the North East Link.

7. Environmental Performance Requirements

7.1 It is my view that the environmental performance requirements relevant to my area of expertise, being T1 and T5, are appropriate and will ensure that the environmental effects of the Project relevant to my area of expertise will be suitably managed to achieve acceptable outcomes.

7.2 As such, I do not recommend any changes to the environmental performance requirements for the Project.

8. Declaration

8.1 I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the North East Link Inquiry and Advisory Committee.

Signed Luis Willumsen

Date: 15 July 2019

Annexure A – Matters Raised by PPV Guide to Expert Evidence

a) Name and address of the expert:

Luis Guillermo Willumsen
82 William Court, 6 Hall Rd
London
NW8 9PB
United Kingdom

b) Expert qualifications, experience and area of expertise:

1. The author of this Statement, Luis Willumsen, as over 35 years of experience in transport planning, modelling and forecasting and he is well known in the industry. He is co-author of the book “Modelling Transport”, published by John Wiley and Sons and used throughout the industry and at universities as a key reference; the book is currently in its fourth edition. He is also the author of a book focusing on the task of forecasting demand and revenues for transport concessions: “Better Traffic and Revenue Forecasting”.

2. He was a lecturer and researcher from 1975 to 1989, first at the Institute for Transport Studies at Leeds University and then at the Transport Studies Group at University College London. During his academic career he produced over 30 technical and conference papers.

3. He was a Director of Steer Davies Gleave (now Steer) for 20 years from 1989 to 2009. In this capacity he lead numerous transport studies. Those most relevant to this assignment include:

    I. Toll road forecasting studies for toll roads and managed lanes in Argentina, Australia, Brazil, Canada, Chile, Ecuador, England, Honduras, India, Israel, Italy, Ireland, Mexico, Puerto Rico, Spain and the United States.

    II. Public Transport concession studies in Chile, France, India, Israel, Mexico and Spain.

    III. The development of major transport models and plans in: Argentina, Chile, Colombia, England, Ireland, Mexico, New Zealand and Spain.

4. He worked independently in his own company Willumsen Advisory services including the following assignments:

    I. Expert witness in a litigation case of a toll road in Australia.

    II. Peer reviewer of improvements to the Auckland Transport Model.

III. Leading the development of the Santiago Transport Master Plan.

IV. Traffic advisor and peer-reviewer of toll roads in Chile, Colombia, England, Mexico, Perú, Puerto Rico and the US.

V. Traffic advisor to improvements to the London Transport Models.

VI. Expert witness in a public transport arbitration case in Chile.

5. A more detailed account of Luis's experience is available as Annexure B.

c) Details of any other significant contributors to this statement (if any) and their expertise.

1. There were no other contributors to this statement.

d) All instructions that define the scope of this statement (original and supplementary and whether in writing or verbal):

1. I received a written letter of instruction from Clayton Utz on the 5th of June 2019. The letter is attached as Annexure C.

e) Details and qualifications of any person who carried out any tests or experiments upon which the expert relied in preparing this statement.

1. No tests or experiments were carried out to prepare my statement.

f) Any questions falling outside my expertise.

1. The scope of my expertise in respect of the EES is limited to the peer review of the modelling and forecasting undertaken by VLC. This model covered the strategic level transport impacts of the North East Link. The following fall outside my area of expertise in this respect:

I. Detailed modelling of the local impact of the Project.

II. The suitability of any assumptions about travel demand growth in the State of Victoria and the Melbourne region.

g) Key assumptions made in preparing the Peer Review Report

1. In order to prepare my Peer Review I relied in documentation provided and detailed in my report and the assumption that the information contained therein could be relied upon.

2. I also had discussions over several days with the modelling team asking in-depth questions about features of the model not detailed in the reports. I have made the assumption that the responses to these queries could be relied upon.

3. I further suggested the addition of scenarios tests in respect of new technology and I have assumed that the results of these tests are of similar quality as the rest of the Technical Report.

h) Any departures from the finding or opinions expressed in the Peer Review Report and, if so, why.

1. None

i) Whether the Peer Review is incomplete or inaccurate in any respect.

1. To the best of knowledge and understand my Peer Review Report is complete and with no inaccuracies.

j) Details of any changed circumstances or assumptions since the Peer Review Report was prepared and whether these affect the opinions expressed in the Peer Review Report.

1. To the best of my knowledge and understanding there have been no change in circumstances or assumptions since the Peer Review was prepared that are relevant to my opinions and the EES case.

Annexure B – Curriculum Vitae of Luis Willumsen

Luis Willumsen

Luis has over 35 years of experience as a consultant, transport planner and researcher. He is an internationally recognised authority in Transport and Traffic modelling and forecasting. Based in Britain since 1975, he was a researcher and lecturer at Leeds University and then at University College London. He was a Board Director of Steer Davies Gleave having joined full-time in 1989 with a special responsibility for technical development. He left Steer Davies Gleave late 2009 to develop his own consultancy services. He is co-author of "Modelling Transport" published by Wiley and now in its fourth edition. He also published "Better Traffic and Revenue Forecasting", a book dealing with delivering demand and revenue projections for transport concessions. He is Director of the consultancy Willumsen Advisory Services and of Nommon-Kineo a big data analytics company. He is Visiting Professor in the Department of Civil, Environmental & Geomatic Engineering at University College London.

Qualifications
PhD Engineering
Leeds Uni., 1981

MSc Transport
Imperial College of Science & Technology, 1972

BSc Civil Engineering
Catholic Uni. of Chile, 1967

Visiting Professor,
University College London

Languages
English Fluent
Spanish Fluent
French Basic
Italian Basic
Portuguese Basic

Years of Experience
21 Consultancy
17 Academia

Publications

"Modelling Transport", Fourth Edition, with Prof J. de D. Ortúzar, John Wiley

"Better Traffic and Revenue Forecasting" Maida Vale Press

Over 50 technical papers and chapters of books on transport

Relevant Skills

Demand Modelling. Luis was one of the originators of mesoscopic modelling software SATURN and a number of improvements in demand modelling, with emphasis on robust specification and sensitivity to policy issues. He has also made contributions to the combination of aggregate and disaggregate demand modelling techniques and Stated Preference (SP) approaches. He has directed several large-scale transport modelling studies that deliver reliable results under strict time and budget constraints. He has also peer-reviewed many key transport studies to ensure sound modelling techniques are applied in a cost-effective way. He often acts as peer-reviewer for large modelling projects.

Private Finance of Transport Projects. Luis has applied his demand modelling and forecasting skills to over 50 traffic and revenue forecasting studies for private finance, including toll-roads, metros, rail, light rail and bus concessions. He has been technical auditor for several large modelling projects incorporating complex 'willingness to pay' and revenue projection issues including congestion charging. He has also directed traffic and revenue collection studies for Road Pricing, Open Road Tolling and Managed Lanes in urban areas. He has been an Expert Witness in litigation and arbitration cases involving revenue projections and risks analysis.

Mass Rapid Transit. Luis has significant experience directing studies for advanced Bus Rapid Transit and Metro schemes in both developed and emerging countries. He directed the BRT study designing the TransMilenio system in Bogotá, the most successful project of this nature. He offers special skills in balancing the design and demand estimation requirements with local conditions, the role of incumbent operators and the political process leading to implementation. He has directed several studies dealing with airport access issues in the UK, France, Spain, Chile, India, and the Middle East.

Information Technology in Transport. As a researcher Luis contributed to computer-assisted techniques for the design of roundabouts, bus priority schemes and the application of video image processing to traffic data collection and incident detection. He is involved in the use of new passive sensors to collect traffic data and is a partner in Nommon Kineo Mobility Analytics, a company generating Origin Destination matrices and other movement information from a fusion of anonymised data sources.

Projects Summary

	Project	Client	Year/Location	Role
Transport Modelling	Review and Advice on modelling issues	Transport for London	2010-2011-2014-2016	Specialist Advisor
	Santiago Transport Master Plan	Ministry of Transport and Telecommunications	2012-2013, Chile	Key Advisor
	Sheffield City Region Modelling	Sheffield City Region	2013	Auditor, Key Advisor
	Makkah Metro Demand Forecasting	Makkah Municipality & Albalad Alameen	2010-2011 Saudi Arabia	Modelling Team Leader
	Auckland Transportation Model System	Auckland Transport, New Zealand	2006-2008, 2016, New Zealand	Auditor Technical Director
	Abu Dhabi Surface Transport Masterplan Model	Abu Dhabi Department of Transport	2008-2009, UAE	Modelling Team Leader
	Dublin Transport Model Review and updates	Dublin Transport Office	2008-2009, Ireland	Project Director
Information Transport Technology in Transport	Design & Feasibility of Congestion Charging in Bogotá	Secretaría de Movilidad de Bogotá	2013-2014 Colombia	Project Director
	Production of Origin Destination matrices from mobile phone and smart card data.	Several public and private sector clients. Through Nommon-Kineo Analytics	2015-2019 Spain, Chile	Project Director
	The Business Case for Congestion Charging in Edinburgh	Transport Initiative Edinburgh	2002, UK	Project Director
	Design & Feasibility of Congestion Charging in Santiago	Ministry of Public Works & Transport	2006, Chile	Project Director
Private Finance for Transport Projects	Transantiago Concession Arbitration Case at ICSID	Government of Chile	2018-2019	Expert Witness
	Bid Support for the AVO2 toll road concession	Consortium Iridium – Salini Impregilo	2016-2017, Chile	Lenders and Modelling Advisor
	Traffic and Revenue Projections toll roads in Lima	Graña y Montero – VINCI Concessions	2015-2016, Perú	Peer Reviewer and Advisor
	Litigation case regarding inaccurate toll road forecasts; Brisbane, Australia	Baker & Mckenzie	2014-2016 Australia	Expert Witness
	Bid support for SH 288 Managed Lanes in Houston	OHL, C&M Associates	2014, USA	Peer Reviewer and Advisor
	Price elasticity and pricing for urban toll roads in Mexico City	OHL	2014-2015, Mexico	Main Modelling Advisor
	Improvements to Traffic and Revenue Projection Methodologies in Australia	GHD y BITRE (Australian Government)	2013-2014 Australia	Main Advisor
	PR22 Dynamic Toll (HOT) Lane and BRT services	Puerto Rico Highways and Transportations Authority	2012	Leading Modelling Advisor
	Traffic & Revenue Projections FARAC I & II Toll Roads Mexico	Bidding Consortium Goldman Sachs, ICA, Globalvias	2007-2009, Mexico	Project Director
	Traffic & Revenue Projections for six free-flow Santiago Toll Roads	Different Bidding Consortia & Banks	1999-2005, Chile	Project Director

Projects Summary

	Traffic and Revenue Projections for the Western Sydney Orbital	Transfield/Bouygues Consortium	2002, Australia	Project Director
Mass Rapid Transit	Guanajuato Express Train Project (PPP)	State of Guanajuato	2010-2011 Mexico	Leader Demand Forecasting
	Patronage & Revenue Projections for the Lyon Airport Fast Link	Veolia - VINCI	2007, France	Project Director
	Patronage & Revenue Advice for four Metro Concessions in India	Reliance Energy	2006-2008, India	Project Director
	High-speed Rail Demand Forecasting in Portugal	RAVE (Rede Ferroviaria de Alta Velocidade)	2006, Portugal	Project Director
	Operational Design of the TransMilenio System	TransMilenio	1999, Bogotá, Colombia	Project Director

Selected Projects

Transport Modelling

Auckland Transportation Models

Client	Auckland Regional Council, Auckland Transport
Year/Location	2006-2008 and 2016-2017, New Zealand
Position Held	Peer Reviewer and now Technical Director

He was peer reviewer of the development and implementation of a new Transport Model (ATM2). He successfully helped to steer the effort to a state-of-the-art and cost-effective transport model for the region. He is now acting as Technical Director of the 2017 model refresh. Improvements to the models are sought to provide better responses of interest to new policy options.

Santiago Transport Master Plan

Client	Ministry of Transport and Telecommunications
Year/Location	2012-2013, Santiago, Chile
Position Held	Key Advisor

He acted as the sole external advisor to the development of a Transport Master Plan for Santiago covering the period 2013-2025. The work was undertaken in-house at the Ministry and involved the updating of an existing model and an extensive programme of consultation and involvement of all relevant authorities. He devised a methodology for the initial selection of two alternative Plans, their evaluation and subsequent development of a Final Master Plan together with the supporting information, economic and financial analysis. The Plan contains useful features to ensure its continuity and regular updating as conditions change. Luis continues to support this effort during 2013.

Sheffield City Region Modelling Advice

Client	Sheffield City Region, SYPTE, UK
Year/Location	2012-2013, South Yorkshire, UK
Position Held	Senior Technical Advisor

Luis is acting as the main independent advisor in the development of an advanced Land Use and Transport Interaction modelling system for use in assessing a wide range of interventions in the Sheffield City region. The combined system includes a conventional transport model interacting with a model of land use and the local economy. The model system is being used to set priorities for a wide range of candidate interventions, from transport schemes to flood protection, site preparation and affordable housing. The main output from the model system is the Gross Value Added by each of these schemes.

Transport for London Modelling

Client	Transport for London, UK
Year/Location	2010-2011, and 2014 London, UK
Position Held	Specialist Advisor

Luis has been acting as a specialist advisor on modelling issues to Transport for London and its different divisions. He took part on a major peer review of Regional Models for London and is supporting the development, re-calibration and enhancement of the RAILPLAN public transport modelling suite with particular focus on modelling responses to crowding. He is currently advising on the next steps for a

Selected Projects

Pan-London detailed model ONE to support short-term traffic management decisions.

Client **Makkah Municipality & Albalad Alameen**

Year/Location 2010-2011, Saudi Arabia

Position Held Leader of the Transport Modelling Team

Luis directed the development of a major multi-modal transport model for the city of Makkah to support the design of a Mass Transit System to serve the normal demand and also the exceptional conditions during Hajj and Ramadan. Makkah is experiencing very significant growth in both population and religious visitors but has very little public transport provision. This requires a robust demand forecasting model able to treat future mode changes and the accommodation of very significant peaks, unique in the world.

Modelling and Data Collection Advisory Services National Planning Department

Client

Year/Location 2011, Colombia

Position Held Specialist Advisor

He provided specialist advice on the design and implementation of a major Mobility Survey for Bogotá including Home and Intercept Surveys as well as Level of Service observations on all modes. He also provided advisory services for the integration and calibration/validation of a single multi-modal model for the city of Bogotá.

Abu Dhabi Master Plan

Client **Abu Dhabi Department of Transport**

Year/Location 2008-2009, United Arab Emirates

Position Held Leader of the Transport Modelling Team

Luis directed the development of a major multi-modal transport model for the Abu Dhabi Emirate and its use in developing a Masterplan to 2030. The model has a particular focus on mode and destination choice as the Emirate will experience significant growth in population and trips to 2030.

Auckland Transportation Model Peer Review

Client Auckland Regional Council

Year/Location 2006-2008, New Zealand

Position Held Peer Reviewer

He is acting as peer reviewer of the development and implementation of a new Transport Model (ATM2). He successfully helped to steer the effort to a state-of-the-art and cost-effective transport model for the region.

Review and update of Dublin Multi-Modal Transport Model

Client Dublin Transportation Office

Year/Location 2008-2009, Ireland

Selected Projects

Position Held Project Director

He directed a comprehensive review of the existing transport model for Dublin and produced a set of recommendations for its improvement in order to tackle key policy and investment issues in the region. These recommendations were accepted and he then led the re-calibration of the AM peak and off-peak models in 2009.

Review of Multi-Modal Transport Modelling Techniques

Client Highways Agency, Department for Transport

Year/Location 2006, UK

Position Held Project Director

He directed this review of modelling techniques that is resulting in the recommendation to apply improved methods in future multi-modal transport studies in the UK.

Traffic & Revenue Forecasting Methodology for Mexican Toll Roads

Client Secretaria de Comunicaciones y Transportes

Year/Location 2005, México

Position Held Project Director

Directed the review of techniques for traffic and revenue studies for the Mexican Government in support of the specification for new toll road concessions. Sources of data and modelling errors were identified and a Manual of Best Practice was developed for Mexico. This is now in use for future toll road studies in the region.

Modelling Advice

Client PR Highways & Transportation Authority (PRHTA)

Year/Location 1996-2006, Puerto Rico

Position Held Principal Modelling Advisor

He has been advising the PRHTA on all transport modelling issues for over 10 years. His advice covers toll roads, micro-simulation tools, mode shift to public transport, extensions to mass transit, etc. Many of the projects modelled in this way have successfully been implemented in Puerto Rico. He has also run training courses on demand modelling for PRHTA staff and local consultants.

Business Location & Transport

Client Department for Transport (DfT)

Year/Location 2004, UK

Position Held Project Director

Luis directed this study on the influence of transport improvement on business location and employment re-generation. The research sought to develop the most appropriate model to represent this interaction. An advanced Dynamic Urban Model was developed and tested on two specific case studies. This has now been successfully used in local studies in the UK.

Modelling Transport Demand for the Marseille Region

Client Réseau Ferré de France, RFF

Year/Location 2000-2001, France

Position Held Project Director

He directed this study to assess improvements to suburban services along three main rail corridors in the Marseille Region. A multi-modal transport model was developed on the EMME/2 platform. Stated Preference surveys were undertaken to obtain accurate indicators of the willingness to pay for improved services. The study has been used to design rail service improvements.

Dublin Transport Model Update and Review

Client Dublin Transportation Office (DTO)

Year/Location 1998 and 2008, Ireland

Position Held Project Director

He directed this major upgrade of the Dublin Model System originally developed some years previously by Steer Davies Gleave. The introduction of advanced behavioural responses and enhanced model structures was one of the key elements of this study and the upgrade was implemented on budget and on time for the DTO. Later in 2008 he again directed a peer review and design of improvements to the modelling system.

Private Finance for Transport Projects

Traffic and Revenue projections for AVO2

Client Consortium Iridium– Salini Impregilo

Year/Location 2016-2017, Santiago, Chile

Position Held Peer Reviewer and Modelling Advisor

Acted as Auditor and peer-reviewer of the calibration and validation of the meso-scopic traffic model used in support of a bid for the Américo Vespucio Oriente 2 (final section, AVO2) Open Road toll road concession. This is a 5.2 km section, entirely in tunnel, that completes the main tolled ring road in Santiago. The model included 5 levels of Willingness to Pay Tolls (Values of Time) for private cars, plus two for occupied Uber/taxis (common in Santiago) and one for unoccupied Uber/taxis. Additional future scenarios were specified to take into account the impact of Connected and Autonomous Vehicles on the tolled and untolled facilities. Their impact on capacities and Values of Time were included in these. Sensitivity tests were undertaken in respect of variations on these scenarios and possible public transport improvements and metro extensions. As advisor and auditor of the traffic and revenue projections for that concession it also specified and prepared independent Lender's case projections.

Traffic & Revenue Forecasting for toll roads in Lima

Client VINCI Concessions & Graña y Montero

Year/Location 2015-2016, Perú

Position Held Peer Reviewer and Main Modelling Advisor

He acted as peer reviewer in the update of traffic and revenue projections for the Via Expresa Sur and Javier Prado Concession in Lima. As such he supervised the development and application of a city-wide traffic and revenue forecasting model for three different time periods and multiple user classes; he supported the production of revenue forecasts for 30 plus years. Via Expresa Sur will be a mixed tolling (cash and ETC) facility connecting two major arteries in Lima. Javier Prado will be a 20 km long Open Road Tolling facility in Perú's capital.

Selected Projects

Expert Witness in a toll road litigation case in Australia

Client: Baker & McKenzie

Year/Location: 2014-2016, Australia

Position Held: Expert Witness

He was and independent expert witness in multi-billion dollars litigation cases against a traffic consultant in Brisbane Australia. Luis investigated the traffic models used by the consultant and the reasons behind the overestimation of future traffic and revenue in the tolled facility. He presented his evidence in an extensive report dealing both with technical errors, imperfect assumptions and the impact of the 2007-2008 financial crisis on general traffic growth. He also participated in a two week “conclave” instructed by the judge where the evidence of the experts of all parties were discussed. The two cases were settled out of Court.

Patronage & Revenue Forecasting for rail link to Airport

Client: Globalvía Concessions

Year/Location: 2016, Florida, USA

Position Held: Due Diligence Peer Reviewer

Luis reviewed and advised in respect of patronage and revenue forecasts prepared by an international consultant for a project connecting Orlando Airport with a tourist and conference area via a new fixed track link. Although the patronage projections were technically sound his report highlighted the threats of Mobility as a Service and future Autonomous Vehicles to the continued growth in public transport use to and from the Airport.

Price elasticities and dynamic pricing for Mexico City toll roads

Client: OHL

Year/Location: 2014-2015, Mexico

Position Held: Lead Modelling Advisor

He undertook a study of demand elasticities to price on four Mexico City toll roads taking advantage of the detailed anonymised database of electronic transactions. The proportion of occasional drivers was, as in other electronic toll roads, very high and this influenced the elasticities found. These findings have been used by the client to support toll updates.

Traffic and Revenue projections for the SH 288 Managed Lanes

Client: OHL Concesiones

Year/Location: 2014, Texas, USA

Position Held: Lead Modelling Advisor

This was work in support of a bid for the concession of the SH 288 Managed Lanes South of Houston. The performance of Managed Lanes are particularly difficult to forecast as the time savings they offer compared with travelling on General Purpose Lanes depends on the toll and this, in turn, is freely set so as to optimise revenue and level of services. This interaction between price and time savings makes it necessary to model a number of time periods with different levels of demand. A meso-scopic model was used to get more accurate representation of the dynamics of traffic and delay. Data from an existing Managed Lane West of Houston was used to get a better estimate of willingness to pay to save time. As the concession extended up to 2066 an allowance was made for the impact of future Autonomous Vehicles and traffic and revenue projections developed to that horizon.

Selected Projects

Improvements to methodologies to produce traffic and revenue forecasts for Australian toll roads

Client: GHD & BITRE

Year/Location: 2013-2014, Australia

Position Held: Main Advisor

A small number of urban toll roads have generated less demand and revenue than originally expected. This project sought to identify the reason behind this failure and suggest areas from improvement in the techniques used. A separate project identified issues with the tendering process that may encourage optimism bias. He played a key role in identifying areas for improvement and specifying the research and methodological changes to achieve them. These improvements are now under consideration and funding is sought to implement the research programme.

Traffic & Revenue Forecasting for toll road Laguna Verde – Gutiérrez Zamora

Client: ICA

Year/Location: 2014, México

Position Held: Peer Reviewer

He acted as peer reviewer in the preparation of a bid for the Laguna Verde – Gutierrez Zamora toll road, part of the Cardel-Poza Rica corridor in the State of Veracruz.

Traffic & Revenue Forecasting for Mersey Gateway bid

Client: Consortium Iridium, Galliford Try and Hochtief

Year/Location: 2013, UK

Position Held: Peer Reviewer

He acted as peer reviewer in the preparation of a bid for the Mersey Gateway bridge near Liverpool. The project is a north-south transport link that provides a new crossing of the River Mersey to relieve the Silver Jubilee bridge of existing congestion A meso-scopic model in SATURN was developed to estimate the impacts of different tolling strategies. Advice was given on how to improve the model and confirm results.

PR 22 Dynamic Toll Lanes (DTL) and BRT services

Client: Puerto Rico Highways and Transportation Authority

Year/Location: 2012, Puerto Rico

Position Held: Leading Modelling Advisor

The PR 22 DTL is a facility combining HOT lane characteristics with a high quality Bus Rapid Transit service from a Park & Ride facility to a Tren Urbano (metro) terminal in Bayamón, San Juan. It includes a reversible pair of lanes used by the BRT system and cars paying their toll electronically. The toll level is dynamically changed at 5 minute intervals. His role is to lead the estimation of demand and revenue for the BRT and DTL elements of the facility. He also advices on the selection of an appropriate algorithm to set the toll level in real time.

Selected Projects

Traffic & Revenue Forecasting for FARAC 1 & 2 Concessions in Mexico

Client: Goldman Sachs and ICA

Year/Location: 2007 & 2008, México

Position Held: Project Director

He led the preparation of traffic and revenue projections in support of a bid for four toll road concessions in Mexico, the FARAC 1 package. Following the success of this bid, he directed similar work for the FARAC 2 package (later on split into two) as well. The work involved extensive data collection, the preparation of an extensive network model with 14 user classes to represent accurately willingness-to-pay issues. An advanced growth model was also developed with consideration of when the elasticities of demand to GDP would start stabilising in this 30-year concession. Presentations were made to banks, rating agencies, monoline insurers and other stakeholders.

Traffic & Revenue Projections for Santiago Toll Roads

Client: Five Different Consortia Bidding & Implementing the Toll Roads

Year/Location: 1999-2006, Chile

Position Held: Project Director

He directed six original traffic and revenue projections for the same number of new urban toll road concessions in Santiago. All of them are free-flow electronic toll collection facilities. These introduce a raft of new issues compared to cash toll roads including: leakage, enforcement, development of sound databases, willingness to pay when payment and use are separated over time, etc. Advanced traffic models were developed for the whole city and enhanced with new data for each study. All of the concessions have now reached financial close (in Chile and the USA) supported by these studies and our presentations. Total finance secured so far exceeds US$2 billion. They have been in successful operation since 2005. Our projections have proved to be very reliable and helpful to equity, financiers and monoline insurers who wrapped some of the transactions.

Traffic & Revenue Projections for Western Sydney Orbital (WSO)

Client: Transfield/Bouygues Consortium

Year/Location: 2002, Australia

Position Held: Project Director

Luis directed this study in support of a bid by for the WSO, a 39km free-flow electronic toll collection road that completes an orbital system around Sydney. A model of the whole of Sydney was prepared, focused on the Western area, in EMME/2. The model included 12 different user classes and specific arrangements to model a toll cap at A$5. The work was presented to financial institutions and their auditors.

Traffic & Revenue Projections for T. Moscoso Bridge

Client: Autopistas de Puerto Rico (Dragados Main Shareholder)

Year/Location: 1997 & 2003, Puerto Rico

Position Held: Project Director

He directed this study in support of the successful re-financing of the facility. The bridge had been in operation since 1996 but had recently experienced a loss in

traffic as a result of toll rate increases and improvements in the alternative routes. The future revenue stream depended, therefore, on a good understanding of traffic growth drivers (in this case income growth and tourism), willingness to pay for a shorter ride and the impact on the alternative routes of future improvements. A detailed traffic model with multiple user classes was developed in Emme/2 to analyse these effects. Traffic and revenue projections were produced up to 2026 for scrutiny by financial institutions and rating agencies. The projections were updated in 2003 for a new round of secondary finance.

The Fraser Gateway Tolled Facilities

Client	Greater Vancouver Transportation Authority
Year/Location	2003-2004, Canada
Position Held	Specialist Advisor Luis provided specialist advice on toll collection methods, their reliability and specific demand modelling issues for this package of tolled facilities to be introduced in the Vancouver Metropolitan area of British Columbia. The redistribution of traffic resulting from a major new bridge across the Fraser River was one of the key modelling issues tackled in this project. The first elements of this package have already reached financial close.

Traffic & Revenue Projections for Interurban Toll Roads

Client	Several Bidding Consortia & Banks
Year/Location	1995-to date, Chile & Other Countries
Position Held	Project Director He directed studies supporting bids and financial close in more than eight interurban toll roads in Chile. These studies resulted in primary and secondary finance of over US$ 5 billion. The reliability of studies directed by Luis has been proven by real traffic outturns in Chile, Argentina, Brazil, Ecuador, Colombia, México, Spain, Ireland, the UK, Portugal and South Africa.

Information Technology in Transport

Trip matrices from mobile phone data for a toll road

Client	CINTRA
Year/Location	2015-2016, Spain
Position Held	Project Director He is directing this project to exploit anonymised mobile phone data to deliver trip matrices for different times of a “neutral” day and special dates for an existing toll road in Southern Spain. The final objective is to investigate the potential market for the road and the potential to improve revenues by attracting marginal users by means of intelligent pricing strategies. This potential market is easier to identify using the wider potential catchment area provided by mobile phone data, in contrast with the more local information from roadside interviews. This project is undertaken through Kineo Mobility Analytics in Spain and had to deal with the different nature of mobile phone data, its location accuracy, the presence of shorter trips never intercepted in RSIs and the allocation of trips to matrices at the right time. A detailed model of the facility has been developed in collaboration with the client to ensure the usability of the data. This has not been a trivial effort and a good deal has been learnt from the experience.

Selected Projects

Congestion Charging in Bogotá

Client	BOGOTÁ D.C. – Secretaria Distrital de Movilidad
Year/Location	2013-2014, Colombia
Position Held	Project Director He is directing this study of a system to charge vehicles in the most congested areas of Bogotá. The project involves modelling of different configurations for such a system and an assessment of the legal, financial and technical implications of a project of this nature.

Congestion Charging Study for Santiago

Client	Ministry of Public Works & Transportation
Year/Location	2006, Chile
Position Held	Project Director He directed this study into the feasibility of introducing Congestion Charging in Santiago de Chile. The city suffers from high levels of congestion and air pollution. It has recently implemented a system of free-flow electronic urban toll roads and it may be possible to extend and use the same technology for congestion charging. All issues concerning the feasibility of this idea, from demand forecasting to political acceptability and communications strategy were considered in this study. Advanced design tools were developed, supported by a sound multi-modal model of the transport system in the city.

Research into the Use of personal GPS units for Travel Surveys

Client	Department for Transport
Year/Location	2002, UK
Position Held	Project Director He directed this research into the use of personal and portable GPS loggers to collect travel information over three days. This information can be used to complement travel diaries and gather data on underreporting of trips. The research was implemented in London, a very demanding environment for GPS, and the main focus was on public transport rather than car trips. Results were very encouraging as a complement and partial replacement for conventional surveys.

Business Case for Congestion Charging in Edinburgh

Client	Transport Initiative Edinburgh
Year/Location	2002, UK
Position Held	Project Director Luis directed a review of the modelling system developed to study the impact of a possible congestion-charging scheme in Edinburgh. He produced a simplified version of the same to gain additional confidence in the results in order to build a business case for the scheme. The original model used, employed a simplified road network but a rich set of behavioural responses and a Land Use Transport interaction sub-model. The results produced were, however, very variable hence the need for a better grounded simplified model to support the decision-making process. This was delivered successfully on time.

Selected Projects

Procurement of Electronic Toll Collection for Puerto Rico

Client	Puerto Rico Highways & Transportation Authority
Year/Location	2001-2002, Puerto Rico
Position Held	Project Director He acted in a supervisory role on this major exercise in specifying a new electronic toll collection system for the Island. During the, in initial stages a few toll lanes were implemented rolling out the programme to cover eventually the whole system. Issues of enforcement technology and legislation, technology reliability, Customer Service Centre and Clearinghouse Services were part of this assignment.

Advanced Traffic Control Study for Asunción

Client	UK Dept. for International Development & Municipality of Asunción
Year/Location	1994, Paraguay
Position Held	Project Director He directed this assessment of the traffic control needs of Asunción and designed a strategy for its modernisation. The study considered the current state of traffic signals in Asunción and the need to replace them with a modern system; this included consideration of the scope for advanced technology like SCOOT, the development of appropriate specifications for purchase and installation, and the development of a gradual strategy for improvement. Terms of Reference for immediate procurement of improved systems were prepared and used. The system was tendered and later on successfully implemented.

Mass Rapid Transit

Tren Expreso de Guanajuato

Client	State of Guanajuato.
Year/Location	2010-2011, 2013, Mexico
Position Held	Leader Demand Forecasting and Specialist Advisor Luis is leading the Demand Forecasting stream of this project to design, build and operate a new passenger rail service in the state of Guanajuato. The project has evolved into the construction of freight rail by-passes to four main cities in the corridor, the introduction of a new passenger rail service and major urban regeneration around the new stations in the centres of the cities to be served. Funding is being secured to implement this new project.

Amman BRT Project

Client	Greater Amman Municipality.
Year/Location	2009, Jordan
Position Held	Peer Reviewer Luis provided specialist advice in respect of demand modelling and design aspects of this very important system of BRT and LRT services for Amman. Adapting existing models to the requirements of BRT patronage forecasting was a key component of his contribution. In the same vein, adapting classic BRT design features to the constraints and conditions of Amman was also part of his duties.

Selected Projects

Patronage & Revenue Projections for Metros in India

Client	Reliance Energy Limited.
Year/Location	2007-2008, India
Position Held	Project Director Luis has directed three major demand modelling studies to provide patronage and revenue projections for three metro lines in Hyderabad, an extension of the Delhi Metro to the Airport, and Line 2 of the Mumbai Metro. In each case, a new multi-modal demand model has been developed, validated and used to estimate patronage and revenue collections in support of respective bids for these concessions.

Capacity Research for TransMilenio System in Bogotá

Client	TransMilenio S.A.
Year/Location	2007, Colombia
Position Held	Project Director Luis directed this study of the current capacity constraints of the TransMilenio system that in some locations was reaching saturation. The project investigated how to increase the capacity and performance of these bottlenecks as the system grew in coverage and scope. Recommendations were given on design, bus procurement and operational aspects.

Patronage & Revenue Study for Lyon Airport Rail Link

Client	Veolia-Vinci
Year/Location	2006-2007, France
Position Held	Project Director Luis directed this study to produce traffic and revenue projections in support of a bid for the fast tram-train link from Lyon to its International Airport. We undertook several surveys, including Stated Preference ones, as well as an analysis of the future of air traffic through the airport, with different levels of success in attracting low-cost carriers to set up a base at Lyon Airport. The bid was successful and we subsequently supported financial close.

Contribution to the Bus Rapid Transit Planning Guide

Client	ITDP
Year/Location	2005-2006, and 2010, US
Position Held	Technical Contributor Contribution to sections of the (now published) BRT Planning Guide under contract to ITDP. The main area covered was survey design, demand estimation but contributed also to improvements in other chapters of the Guide. Updated the guide in relevant sections during 2010.

Fare, Patronage & Revenue study for MERVAL

Client	Metro Regional de Valparaiso (MERVAL, Valparaiso Regional Metro)
Year/Location	2004-2005, Chile
Position Held	Project Director

Selected Projects

Luis directed this study to optimise fare and patronage levels for a major enhancement of the Valparaíso suburban rail service MERVAL. The new system became a Regional Metro service combining surface and underground sections, new signalling and stations. The study required the design and implementation of a detailed and highly segmented demand model coupled with supply and financial model to establish optimal fare structures and levels. Our recommendations, with minor adjustments, have been successfully implemented and the new system is up and running.

High-Speed Rail in Portugal

Client	Rede Ferroviaria de Alta Velocidade, RAVE
Year/Location	2006, Portugal
Position Held	Project Director Luis directed a major demand modelling effort for the Portuguese Government to develop consistent traffic and revenue forecasts for different section of a High-Speed Rail Network in Portugal. Main sections include Lisbon-Porto and Lisbon-Madrid. Data from several existing models was used, with new data collection, to develop a single and consistent model system to produce these new forecasts. These have been taken forward for implementation of the scheme.

Patronage & Revenue Projections for Transantiago Concessions

Client	Asociación Gremial Metropolitana de Transporte Público
Year/Location	2004, Chile
Position Held	Project Director He directed this project in support for the bid for half of the business units tendered in December 2004. The study supported the bids of companies set up by members of the Metropolitan Association of Bus Operators. The work required high-level negotiations with the government sponsors, technical and bid studies, financial modelling and bidding strategy. The companies were awarded the target concessions they selected and they currently operate them. Despite the difficulties with the scheme designed by the government we continue to provide advice, training and support to these new operations.

Feasibility Study for Mass Transit in Almaty

Client	Municipality of Almaty
Year/Location	2004, Kazakhstan
Position Held	Project Director Luis directed this project to provide an initial estimate of patronage and revenue projections for a Mass Rapid Transit system for the largest city in Kazakhstan. The study produced suggestion for upgrading two tram-lines to LRT standard and the introduction of Bus and Trolley-bus Rapid Transit Technologies in other corridors. The study also produced suggestions for improving junction design and traffic control systems in Almaty.

Operational Design of TransMilenio in Bogotá

Client	Municipality of Bogotá, TransMilenio
Year/Location	1999-2006, Colombia
Position Held	Project Director

He directed this key study for the operational design of a system of seven Bus Rapid Transit corridors in Bogotá and was later involved in its successful implementation. The TransMilenio system offers a high performance/high quality public transport system at a fraction of the cost of a Metro and has become an example of successful design and implementation to many cities worldwide. The study involved the development of an EMME/2 model, extensive data collection and the careful design of a system of segregated bus lanes, bus stations and interchange terminals. Passengers pay on entry to the stations and board buses through all floors at level from high platforms. TransMilenio is perceived as the most successful Bus Rapid Transit implementation in the world.

Feasibility Study of the Extension of the Caracas Metro to Los Teques

Client	Metro de Caracas
Year/Location	1999, Venezuela
Position Held	Project Director

He directed this feasibility study for a 10Km extension of the Caracas Metro to Los Teques in the Andes Mirandinos. In order to do this, extensive data collection, including Stated Preference surveys, was undertaken in the region to ascertain willingness to pay for the extended service. An extensive multi-modal model was developed on an Emme platform. A relatively novel feature of this model was the simultaneous equilibration between mode choice and assignment. The study considered the economic and financial feasibility of the project and its possible implementation through a Public Private Partnership. The feasibility study was used and the system started operating, as planned, in 2006.

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Annexure C Instructions

CLAYTON UTZ

Confidential

Email

5 June 2019

Luis Willumsen
Director
Willumsen Advisory Services
Luis@luiswillumsen.com

Dear Dr Willumsen

North East Link Project: Traffic modelling

We act for the North East Link Project (**NELP**) in relation to the North East Link (**Project**).

An Environment Effects Statement (**EES**), draft planning scheme amendment (**PSA**) and EPA works approval application (**WAA**) has been prepared for the Project, and is currently on exhibition and open for public comment until 7 June 2019.

The Minister for Planning has appointed the North East Link Inquiry and Advisory Committee (**IAC**) to conduct an inquiry into the environmental effects of the Project and to review and provide advice on the draft PSA and WAA, pursuant to terms of reference dated 11 April 2019 **enclosed**.

A directions hearing has been listed for **Friday 21 June 2019** and the main hearing is scheduled to commence on **Thursday 25 July 2019** for approximately 6 weeks.

In addition, the Project is being separately assessed by the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* by way of a public environment report (**PER**). The draft PER is on exhibition until 30 May 2019.

We confirm that you are the author of the peer review report titled 'North East Link Authority: Environmental Effect Statement (EES) for North East Link - Transport Model Peer Review Report' (**Peer Review Report**).

The purpose of this letter is to formally instruct you to prepare an expert witness statement and to give evidence before the IAC relevant to your area of expertise.

Scope of Work

You are requested to undertake the following work:

1. Review the EES relevant to your area of expertise including Appendix B to Technical Report A to EES, Chapters 1 to 9 and 27 of the EES and the Map Book.

2. Review the public submissions relevant to your area of expertise.

3. Review the expert witness statement of Tim Veitch responding to issues raised in the public submissions relevant to transport modelling.

4. Prepare an expert witness statement that:

   (a) addresses the Peer Review Report and the environmental effects of the Project relevant to your area of expertise;

(b) comments on the expert witness statement of Tim Veitch and the suitability of responses to public submissions;

(c) addresses any other matter that you consider relevant to your area of expertise.

5. Prepare a short (no more than 30 minutes) PowerPoint presentation for presenting before the IAC.

6. If required by the IAC, participate in an expert conclave in accordance with the IAC's directions.

7. Attend the hearing to give evidence before the IAC.

Please find enclosed Planning Panels Victoria's Guide to Expert Evidence dated April 2019. Please review and comply with this guide when preparing your expert witness statement and giving evidence before the IAC.

To provide consistency of format for the IAC, you are encouraged to use the **enclosed** template in the preparation of your expert witness statement.

Documents

Please find a brief of documents **enclosed**.

The EES and associated documents, including the documents referred to above, can be accessed on the Project website at http://northeastlink.vic.gov.au

You should have been given access to the public submissions by NELP, via Sharepoint. If you have not, please immediately let us know.

Timing

Based on the current hearing timetable, we would be pleased to receive your draft expert witness statement and PowerPoint presentation by **3 July 2019** on the assumption that we provide you with the expert witness statement of Tim Veitch by 28 June 2019.

Fee proposal

Would you please provide a fee proposal to undertake the works as per the instructions set out above as soon as possible. Please send your fee proposal to Sallyanne Everett and William Bartley of our office via email to severett@claytonutz.com or wbartley@claytonutz.com.

If you think that you will exceed your fee proposal during the course of undertaking your work, please immediately let us know and provide us with a revised fee proposal for approval by our client. Please also ensure that approval has been obtained for that variation before rendering any account.

Communications

All communications should be through Clayton Utz in the first instance. Please contact Sallyanne Everett or William Bartley if you require any further information or clarification.

Should you have any queries in relation to this matter, or require any further information or additional instructions, please do not hesitate to let us know.

Yours sincerely

Sallyanne Everett, Partner
+61 3 9286 6965
severett@claytonutz.com

William Bartley, Senior Associate
+61 3 9286 6580
wbartley@claytonutz.com

Our ref 965/21054

Enclosures

#	Document index
1.	Key dates and activities
2.	Template for expert witness statement
3.	IAC terms of reference, dated 11 April 2019
4.	Planning Panels Victoria's Guide to Expert Evidence, dated April 2019

NELP: Key Dates and Activities for Luis Willumsen

No.	Activity	Date
1.	EES Exhibition	**10 April to 7 June 2019**
2.	IAC Directions Hearing	Friday 21 June 2019
3.	Receipt of instructions to assist with the preparation of responses to IAC RFIs (as necessary).	On or about Monday 24 June 2019
4.	Main Hearing	Thursday 25 July to Friday 6 September 2019
5.	Receipt of formal instructions to prepare expert witness report, power point presentation and attend the hearing to give evidence	On or about 17 May 2019
6.	Access to public submissions database	By 10 May 2019
7.	Date for provision of draft expert witness report and power point presentation	**3 July 2019**
8.	Date expert witness report and power point presentation to be finalised	**8 July 2019**
9.	Anticipated date for receipt of expert reports of other parties (subject to IAC directions)	**11 July 2019**
10.	Possible expert witness conclaves	**week of 15 July 2019**
11.	Commencement of hearing	Thursday 25 July 2019
12.	Likely anticipated date / days for giving evidence before the IAC	**Early in the week of 29 July 2019**
13.	Additional attendance at IAC hearing	**TBA**

Note: The above program is subject to the directions of the IAC to issue on or about 21 June 2019

North East Link Inquiry and Advisory Committee

Expert Witness Statement of [insert name of expert]

State words to the following effect:

1. Introduction

1.1 [**insert name of firm or I, as appropriate**] undertook a peer review of Appendix B (**Technical Report**) to Technical Report A to the Environment Effects Statement (**EES**) for North East Link (**Project**). This peer review report is titled "*[insert]*" dated [insert] (**Peer Review Report**).

1.2 I have been instructed by Clayton Utz on behalf of NELP to review the public submissions and give evidence on the Peer Review Report. I have also been asked to comment on the suitability of the responses to public submissions contained in the expert witness statement of Tim Veitch.

2. Qualifications and experience

2.1 Annexure A contains a statement setting out my qualifications and experience, and the other matters raised by Planning Panels Victoria's Guide to Expert Evidence. A copy of my curriculum vitae is provided as Annexure B.

3. Peer Review

3.1 The role that I had in preparing the Peer Review Report was [**insert**]. [**Insert as appropriate** "Other significant contributors to the Peer Review Report and their expertise is set out as follows:

(a) [insert]

3.2 I adopt the Peer Review Report, in combination with this statement, as my written expert evidence for the purposes of the North East Link Inquiry and Advisory Committee's inquiry into the environmental effects of the Project.

4. Further work since preparation of the Peer Review Report

Please select one of the following 3 options. Please read them carefully and decide which one is appropriate and delete the remaining 2 options.

Option One

4.1 Since the Peer Review Report was finalised, I have not undertaken any further work in relation to the matters addressed in the Peer Review Report relevant to the Project.

Option Two

4.2 Since the Peer Review Report was finalised, I have undertaken further work in relation to [**specify**]. A summary of my findings in relation to this further work is [**insert**].

4.3 However, this further work has not caused me to materially change my opinions as expressed in the Peer Review Report.

Option Three

4.4 Since the Peer Review Report was finalised, I have undertaken further work in relation to [**specify**]. A summary of my findings in relation to this further work is [**insert**].

4.5 This has caused me to change my opinion as expressed in the Peer Review Report in the following manner:

Original Opinion	Changed Opinion	Reason

5. Submissions

Submissions received

5.1 I have read the public submissions to the EES, draft planning scheme amendment and works approval application and identified those that are relevant to the Technical Report or the Peer Review Report and my area of expertise. These include the following submissions:

[insert the submission numbers that you have identified as being relevant to the Technical Report, Peer Review Report and your area of expertise]

5.2 I have also read the expert witness statement of Tim Veitch and the responses to public submissions relevant to transport modelling prepared for the Project.

Response to issues raised

5.3 Set out below are my comments on the suitability of the responses to public submissions contained in the expert witness statement of Tim Veitch.

[Set out your comments on the response to issues raised in the written submissions]

6. Environmental Performance Requirements

Please select one of the following 2 options. Please read them carefully and decide which one is appropriate and delete the remaining option.

Option One

6.1 It is my view that the environmental performance requirements relevant to my area of expertise, being [**specify all relevant EPRs**], are appropriate and will ensure that the environmental effects of the Project relevant to my area of expertise will be suitably managed to achieve acceptable outcomes.

6.2 As such, I do not recommend any changes to the environmental performance requirements for the Project.

Option Two

6.3 I have reviewed the environmental performance requirements relevant to my area of expertise, being [**specify all relevant EPRs**], in light of the public submissions and response to public submissions contained in the expert witness statement of Tim Veitch, and recommend the following changes:

(a) [specify change]

(b) etc

6.4 Subject to these changes, it is my view that the environmental performance requirements are appropriate and will ensure that the environmental effects of the Project relevant to my area of expertise will be acceptably managed.

7. Declaration

7.1 I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the North East Link Inquiry and Advisory Committee.

.....

Signed

Date: [insert]

Annexure A - Matters Raised by PPV Guide to Expert Evidence

(a) The name and address of the expert

(insert)

(b) The expert's qualifications, experience and area of expertise

(insert, briefly summarise and attach CV as Annexure B)

(c) Details of any other significant contributors to this statement (if any) and their expertise

(insert and briefly summarise)

(d) All instructions that define the scope of this statement (original and supplementary and whether in writing or verbal)

(insert)

(e) Details and qualifications of any person who carried out any tests or experiments upon which the expert relied in preparing this statement

(insert)

(f) Any questions falling outside the expert's expertise

(insert)

(g) Key assumptions made in preparing the Peer Review Report

(insert)

(h) Any departures from the findings or opinions expressed in the Peer Review Report and, if so, why

(insert)

(i) Whether the Peer Review Report is incomplete or inaccurate in any respect

(insert)

(j) Details of any changed circumstances or assumptions since the Peer Review Report was prepared and whether these affect the opinions expressed in the Peer Review Report

(insert)

Annexure B - CV

Terms of Reference

North East Link Project – Inquiry and Advisory Committee

The North East Link Inquiry and Advisory Committee (the IAC) is appointed to inquire into, and report on, the North East Link Project (Project) in accordance with these terms of reference.

The IAC is appointed pursuant to both:

- **section 9(1) of the *Environment Effects Act 1978* (EE Act) as an inquiry; and**
- **part 7, section 151 of the *Planning and Environment Act 1987* (P&E Act) as an advisory committee.**

The IAC will also provide advice that can be used to inform the Environment Protection Authority's consideration of the works approval application (WAA) prepared by the proponent for the Project.

Role of the IAC

1. The IAC is appointed by the Minister for Planning under section 9(1) of the EE Act to hold an inquiry into the environmental effects of the Project. The IAC is to:
    a. review and consider the environment effects statement (EES) and public submissions received in relation to the environmental effects of the project;
    b. consider and report on the potential environmental effects of the project, having regard to the evaluation objectives in the EES scoping requirements;
    c. identify any measures it considers necessary to avoid, mitigate or manage the environmental effects of the project; and
    d. provide advice to the Environment Protection Authority that can be used to inform its consideration of the WAA.
2. The IAC is appointed as an advisory committee under section 151 of the P&E Act to:
    a. review the draft planning scheme amendment (draft PSA), which has been prepared to facilitate the Project, along with any public submissions received in relation to the draft PSA;
    b. provide a report to the Minister for Planning as to whether the draft PSA contains provisions and controls that are appropriate for the Project; and
    c. recommend any changes to the draft PSA that it considers necessary.

IAC members

3. The IAC members should have the following skills:
    a. road transport modelling, road design and traffic management;
    b. social impact;
    c. urban design and visual impact; and
    d. statutory planning.
4. The IAC may seek additional specialist expert advice to assist it in undertaking its role.
5. The IAC will comprise an appointed chair (IAC Chair), a deputy chair and other members.

Background

Project outline

6. The Project proposes to connect Melbourne's freeway network between the M80 Ring Road and the Eastern Freeway, which will be upgraded and include a new busway. In summary, the Project proposes the following sections of works:
    a. M80 Ring Road to Lower Plenty Road – a mixture of above, below and at surface road sections, a ventilation facility near Blamey Road, and new road interchanges at the M80 Ring Road, Grimshaw Street and Lower Plenty Road.
    b. Tunnels – twin tunnels under residential areas, the Banyule Flats and the Yarra River to south of Manningham Road.
    c. Bridge Street to Eastern Freeway – a cut and cover tunnel and a mined tunnel, with the southern tunnel portal and associated ventilation facility located south of the Veneto Club. This section would also include new interchanges at Manningham Road and the Eastern Freeway.
    d. Eastern Freeway – widening of the Eastern Freeway, from around Hoddle Street in the west through to Springvale Road in the east to accommodate future traffic volumes, the provision of new dedicated bus lanes for the Doncaster Busway and other associated works.
    e. Ancillary and temporary works to support construction of the Project.
7. The proponent is the State of Victoria acting through the Major Transport Infrastructure Authority (MTIA), which is an administrative office within the Department of Transport. The North East Link Project (NELP) is the division within MTIA that is responsible for developing and delivering the Project.
8. The proponent is responsible for preparing technical studies, consulting with the public and stakeholders and preparing an EES.

EES assessment process

9. The Project has been declared pursuant to section 3(1) of the EE Act to be 'public works' for the purposes of that act by an order of the Minister for Planning published in the Government Gazette on 2 February 2018. Pursuant to section 4(1) of the EE Act, an EES must be prepared for public works, and submitted to the Minister for Planning, before those works can commence. Procedures and requirements specified in the order are provided in Attachment 1.
10. The EES has been prepared by the proponent in response to the EES scoping requirements issued by the Minister for Planning in June 2018.
11. The EES is to be placed on public exhibition from 10 April 2019 to 7 June 2019, together with the WAA, and draft PSA.

Commonwealth assessment process

12. Because of its potential impacts on matters of national environmental significance, the Project was determined to be a controlled action for the purposes of the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) on 13 April 2018. The relevant controlling provisions under the EPBC Act relate to listed threatened species and communities (sections 18 and 18A), listed migratory species (sections 20 and 20A) and environment on Commonwealth lands (sections 26 and 27A).
13. The EPBC Act assessment is to be undertaken through a public environment report. The public environment report is intended to be exhibited concurrently with the EES and will be assessed independently from the IAC by the Commonwealth Department of Environment and Energy. Any submissions on matters of national environmental significance are to be made to the Department of Environment and Energy and consequently, the IAC report is not required to, and should not,

address impacts on matters of national environmental significance as described in the public environment report.

Planning approval process

14. The IAC is to consider and provide advice on the draft PSA. The draft PSA proposes planning controls and provisions that will allow for, and facilitate, the use and development of the Project in accordance with an incorporated document which is proposed to be included in the Banyule, Boroondara, Manningham, Nillumbik, Whitehorse, Whittlesea and Yarra planning schemes.

15. The draft PSA proposes that the Project be exempt from any requirement to obtain a planning permit, subject to any conditions set out in the incorporated document. The incorporated document is also proposed to include a requirement for the development of a framework to manage environmental effects associated with both the construction and operational phases of the Project.

Works approval process

16. A WAA for the Project has been prepared in accordance with the provisions of the *Environment Protection Act 1970* (EP Act). The works approval application will be jointly advertised with the EES, in accordance with section 20AA of the EP Act.

17. Section 19B(3)(b) of the EP Act provides that: *if an application for a works approval is to be jointly advertised under section 20AA with a notice relating to the same proposal under the Environment Effects Act 1978… comments by any person or body interested in the application must be made as a submission on the environment effects statement or be included in any submission on the environment effects statement.* In addition, the Environment Protection Authority can no longer decide under section 19B(6) to hold a section 20B conference.

18. The IAC is to provide advice that can be used to inform the Environment Protection Authority's consideration of the WAA prepared by the proponent. The IAC may request any further information from the proponent that it considers necessary to assist it to provide that advice. The advice should recommend avoidance, mitigation or management measures that the IAC considers are necessary to ensure compliance with any relevant legislation and/or policy.

Other approvals

19. The Project requires a number of other statutory approvals and/or consents, as outlined in the EES, and which include:

    a. an approved Cultural Heritage Management Plan under the *Aboriginal Heritage Act 2006* to manage works in areas of cultural heritage sensitivity;

    b. a permit to remove listed flora and fauna under the *Flora and Fauna Guarantee Act 1988*;

    c. an authority to take or disturb wildlife under the *Wildlife Act 1975*;

    d. licences to construct a groundwater bore and subsequently extract groundwater, as well as consents for works on, over or under waterways under the *Water Act 1989*;

    e. consent for works on freeways and arterial roads declared under the *Road Management Act 2004*; and

    f. permits for impacts to places identified on the Victorian Heritage Register under the *Heritage Act 2017*.

Public Hearing

20. The IAC must hold a public hearing and may make other such enquiries as are relevant to undertaking its role.

21. When it conducts a public hearing, the IAC has all the powers of an advisory committee that are specified in section 152(2) of the P&E Act.

22. The IAC may inform itself in any way it sees fit, but must review and consider:
    a. the exhibited EES, draft PSA and WAA;
    b. all public submissions, and all submissions and evidence provided to the IAC by the proponent, state agencies, local councils and the public;
    c. any information provided by the proponent that responds to submissions; and
    d. any other relevant information that is provided to, or obtained by, the IAC.
23. Prior to the commencement of the public hearing, the IAC must hold a directions hearing in order to make any directions it considers necessary or appropriate as to the conduct, scope or scheduling of the public hearing.
24. The IAC must conduct its public hearing in accordance with the following principles:
    a. the public hearing will be conducted in an open, orderly and equitable manner, in accordance with the principles of natural justice, with a minimum of formality and without the necessity for legal representation; and
    b. the IAC process is to be exploratory and constructive with adversarial behaviour minimised with cross-examination strictly controlled by the IAC Chair.
25. The IAC may limit the time of parties appearing before it.
26. The IAC may, at its discretion, conduct concurrent public hearings as part of the public hearing where it considers it appropriate or efficient to do so, and where, in the opinion of the IAC, submitters participating in the hearing would not be unreasonably disadvantaged by those concurrent hearings.
27. The IAC Chair may direct that a submission or evidence is confidential in nature and the hearing be closed to the public for the purposes of receiving that submission or evidence.
28. The IAC may only conduct a public hearing (including any concurrent public hearing) when there is a quorum of at least two of its members present, one of whom must be the IAC Chair or deputy chair.
29. Recording of the hearing will be managed by Planning Panels Victoria, in accordance with any directions made by the IAC Chair. The audio recording of any hearing sessions will be made publicly available as soon as practicable after the conclusion of each day of the hearing, or otherwise as directed by the IAC Chair.
30. Any other audio or video recording of the hearing by any other person or organisation may only occur with the prior consent of, and strictly in accordance with, the directions of the IAC Chair.

Report

31. The IAC must produce a written report for the Minister for Planning containing the IAC's:
    a. findings with respect to the environmental effects of the Project;
    b. findings as to the capacity for the Project to achieve acceptable environmental outcomes having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;
    c. recommendations as to any feasible modifications to the alignment or design of the Project that would offer beneficial outcomes;
    d. recommendations and/or specific measures that it considers necessary and appropriate to prevent, mitigate or offset adverse environmental effects having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;

e. recommendations for any appropriate conditions that may be lawfully imposed on any approval for the Project, or changes that should be made to the draft PSA in order to ensure that the environmental effects of the Project are acceptable having regard to legislation, policy, best practice, and the principles and objectives of ecologically sustainable development;

f. recommendations for changes to the proposed urban design strategy;

g. recommendations as to the structure and content of the proposed environmental management framework;

h. recommendations as to any changes to the proposed environmental performance requirements; and

i. recommendations with respect to the structure and content of the draft PSA.

32. The report should include:

a. information and analysis in support of the IAC's findings and recommendations;

b. a description of the public hearing conducted by the IAC, and a list of those persons consulted with or heard by the IAC;

c. a list of all recommendations, including cross-references to relevant discussions in the report; and

d. a list of the documents tabled during the public hearing.

Submissions

33. All submissions on the EES, draft PSA and WAA are to be sent to, and managed by, Planning Panels Victoria in accordance with Planning Panels Victoria's guide to privacy. All written submissions or other supporting documentation should be published on Engage Victoria's website, unless submitters request that their submission not be publicly available, or where the IAC specifically directs that the submission or part of it is to remain confidential.

34. Electronic copies of submissions on the EES, draft PSA and WAA should be provided to the Department of Environment, Land, Water and Planning, Environment Protection Authority and Major Transport Infrastructure Authority.

35. Petitions will be treated as a single submission, and only the first name to appear on the first page of the submission should receive correspondence in relation to the IAC.

36. Any written material or evidence provided to the IAC during the public hearing should be published on Engage Victoria's website, unless the IAC specifically directs that the material is to remain confidential.

37. Planning Panels Victoria will notify submitters of the release of the Minister for Planning's assessment and IAC report.

38. Planning Panels Victoria will retain any written submissions and other documentation provided to the IAC for a period of five years after the time of the appointment of the IAC.

Timing

39. The IAC must begin its hearings no later than 35 business days from the final date of the exhibition period, or as otherwise agreed by the Minister for Planning.

40. The IAC is required to submit its report in writing to the Minister for Planning within 30 business days from its last hearing date.

Fees and Allowances

41. The members of the IAC will receive the same fees and allowances as a senior sessional panel member appointed under division 1 of part 8 of the P&E Act.
42. All costs of the IAC, including the costs of obtaining any expert advice, technical administration and legal support (including legal counsel if engaged), venue hire, accommodation, recording proceedings and other costs must be met by the MTIA.

Miscellaneous

43. The IAC may apply to the Minister for Planning to vary these terms of reference in writing, at any time prior to submission of its report.
44. The IAC may retain legal counsel to assist it in undertaking its role.
45. Planning Panels Victoria is to provide any necessary administrative support to the IAC.
46. The IAC may engage additional technical and administrative support as required.

Richard Wynne

Richard Wynne MP
Minister for Planning

Date: 11/4/19

The following information does not form part of the Terms of Reference

Project manager

47. For matters regarding the IAC process, please contact Greta Grivas of Planning Panels Victoria, by phone (03) 8392 5123 or email planning.panels@delwp.vic.gov.au

48. For matters regarding the EES process please contact the Impact Assessment Unit in Department of Environment Land Water and Planning (DELWP) by phone (03) 8392 5503 or email environment.assessment@delwp.vic.gov.au.

Attachment 1

PROCEDURES AND REQUIREMENTS: North East Link Project

Under section 3(3) of the Environment Effects Act 1978

The following procedures and requirements are to apply to the environment effects statement (EES) for the Public Works:

(i) The EES is to document investigations of potential environmental effects of the Public Works, including the feasibility of design alternatives and relevant environmental mitigation and management measures, in particular for:

a. potential effects on biodiversity, including through loss, degradation or fragmentation of habitat or through other causes (e.g. shading, light, noise and vibration), as well as related ecological effects;

b. potential effects on beneficial uses of surface water and groundwaters due to changes in flows, water quality, hydrology connectivity, mobilisation of existing groundwater contamination, or dewatering arising during construction or operation;

c. potential for ground movement or other geophysical conditions including risks related to land and river bank or bed stability;

d. effects on cultural heritage values including Aboriginal cultural heritage;

e. potential effects on health and amenity during construction and operation due to changes in visual conditions, changes in land use, redistributed traffic and transport changes, air quality, traffic noise and vibration;

f. potential temporary and permanent effects on transport network and services, both for residents and businesses located in the vicinity of the proposed and related works and for the broader community;

g. potential for displacement or severance of commercial and residential properties;

h. potential for acid sulphate soils, other contaminated materials and the management of spoil throughout construction; and

i. other effects on land uses and the community, including recreational value of open space.

(ii) The matters to be investigated and documented in the EES will be set out more fully in scoping requirements. Draft scoping requirements will be exhibited for at least 15 business days for public comment, before final scoping requirements are endorsed by the Minister for Planning.

(iii) The North East Link Authority is also to prepare and submit to the Department of Environment, Land, Water and Planning (DELWP) a draft EES study program to inform the preparation of scoping requirements.

(iv) The North East Link Authority is to prepare a schedule for the completion of studies, and preparation and exhibition of the EES to facilitate the alignment of the North East Link Authority's and DELWP's timeframes, including for review of technical studies for the EES and the main EES documentation.

(v) The level of detail of investigation for the EES studies should be consistent with the approach set out in the scoping requirements and be adequate to inform an assessment of the significance and acceptability of the potential environmental effects of the proposed works, in the context of the Ministerial Guidelines.

(vi) DELWP will convene an inter-agency technical reference group (TRG) to advise DELWP and the North East Link Authority, as appropriate, during the preparation of the EES, the scoping requirements, the design and adequacy of the EES studies, and coordination with statutory approval processes.

(vii) The North East Link Authority is to prepare and implement an EES consultation plan for informing the public and consulting with stakeholders during the preparation of the EES, having regard to advice from DELWP and the TRG.

(viii) The North East Link Authority is to apply appropriate peer review and quality management procedures to enable the completion of EES studies to a satisfactory standard.

(ix) The EES is to be exhibited for a period of 30 business days for public comment, unless the exhibition period spans the Christmas–New Year period, in which case 40 business days will apply.

(x) An inquiry appointed pursuant to section 9(1) of the Environment Effects Act 1978 will be established to consider the environmental effects of the Public Works.

Expert Witnesses

April 2019

Introduction

An expert witness has specialised knowledge from training, study or experience. A Panel may rely on that specialised knowledge to form an opinion about an issue that is relevant to the Hearing. Generally more weight will be given to expert evidence that is independent.

This Guide applies to:

- instructing an expert witness preparing expert evidence
- the preparation of the expert's evidence
- the presentation of the evidence at the Hearing
- questioning ('cross examination') of an expert witness.

The Guide explains what happens when an expert witness is to be called at a Hearing. A Panel may make specific Directions that vary this Guide.

Parties calling an expert witness must make sure that the expert is made aware of this guide when they are retained.

Expert witness' duty to the Panel

An expert witness:

- has a paramount duty to the Panel
- has an overriding duty to assist the Panel on matters relevant to the expert's expertise
- is not an advocate for a party
- must not withhold material matters known to the witness even if it may be unfavourable to a particular party.

The expert witness statement

An expert witness preparing a written statement for a Hearing must do so in accordance with this Guide. The statement must include:

- the expert's name and address
- the expert's qualifications, experience and area of expertise
- details of any other significant contributors to the statement (if there are any), and their expertise
- all instructions that define the scope of the statement (original and supplementary and whether in writing or verbal)
- details and qualifications of any person who carried out any tests or experiments upon which the expert has relied in preparing the statement.

All experts must declare in their statements:

> *'I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Panel.'*

Sometimes, an expert witness may have prepared an earlier report or advice that informed the Planning Scheme Amendment or proposal under consideration by the Panel. In these circumstances, the expert should not provide a revised version of that report. Instead, the expert's witness statement should include:

- a clear reference to the earlier report(s)
- details of the expert's role in preparing or overseeing the earlier report(s)
- confirmation that the expert adopts the earlier report(s) and identifying:
  - any key assumptions made in preparing the earlier report(s)
  - any departure from findings or opinion expressed in the earlier report(s), and why
  - any questions falling outside the expert's expertise
  - whether the earlier report is incomplete or inaccurate in any respect
- details of any changed circumstances or assumptions since the earlier report(s) were prepared, and whether these affect the opinions expressed in the earlier report(s).

Where the expert was not involved in the preparation of earlier reports or advice that informed the Planning Scheme Amendment or proposal, the expert's statement should include:

- the facts, matters and assumptions on which the expert relies in preparing the statement
- reference to documents and materials the expert has used in preparing the statement
- a summary of the expert's opinion(s), including provisional opinions.

Where the expert materially changes their opinion

An expert witness who changes their opinion on a material matter after the circulation of evidence must communicate that change in writing to the Panel and all parties to the Hearing and explain why their opinion has changed.

Privacy

Expert witness reports are usually published on a website. They are also available to all parties to a proceeding. An expert witness statement should not refer to submitters by name. Where necessary, submitters should be referenced by submission number.

Expert witnesses should inform themselves of their obligations under the *Privacy and Data Protection Act 2014.* Personal information contained in submissions should be used in accordance with the principles in the Act.

For more information on Privacy refer to the separate **Guide to Privacy at Planning Panels Victoria.**

Form of statement

Expert witness statements must be provided in the following form.

All copies

Witness statements and any supporting information must:

- be prepared at A4 page size, unless otherwise directed
- use a black, 12 point font (Arial or Calibri preferred)
- have numbered paragraphs and pages.

Maps, images or plans must be at a high-definition resolution of at least 600 pixels per inch.

Electronic copies

An electronic version of a document must be less than 10MB in size and provided to:

- parties on the distribution list in accordance with the Panel's Direction
- the Panel in unlocked 'pdf' or Microsoft Word format
- the Planning Authority in a format suitable for uploading to its website.

Paper copies

Paper copies of evidence are generally not required. Where the Panel directs a paper copy, each document must be:

- two-hole punched
- stapled, not bound
- printed on both sides of each page.

Maps, images or plans may be printed at A3 and be folded within the report so they can be read without being removed.

Circulation of expert reports

Parties must confirm at the Directions Hearing any evidence they will be calling at the Public Hearing.

Expert reports must be circulated five working days before the Hearing starts or as directed by the Panel.

People not on the evidence circulation list can obtain electronic copies by contacting the Panel Co-ordinator on 8392 5115.

Directions relating to expert witnesses

The Panel may direct that expert witnesses address certain matters in their evidence, to enable all parties to gain a clear understanding of the basis of evidence to be presented. Examples include a response to specific questions asked by the Panel, or to explain the methodology, assumptions and inputs that contributed to the expert's assessment.

Expert meeting prior to the Hearing

The Panel may direct that expert witnesses in the same technical area meet before the Hearing and prepare a statement of agreed opinions and facts.

The expert meeting is for technical experts to discuss the issues without instructors, to identify (and if possible reduce) areas of disagreement in the Hearing. This ensures a more efficient and effective process. The Panel will provide specific directions for an expert meeting where required.

Evidence at the Hearing

Experts should identify any errors in their statement at the Hearing at the start of giving evidence. Witnesses should summarise key opinions in their evidence in no more than 30 minutes.

Experts can prepare a summary statement or presentation for the Hearing, but this must be drawn from the circulated evidence. Responses to other expert reports that constitute new material must be clearly identified.

Cross examination

An expert witness may be questioned by parties, advocates and the Panel. Questions put to expert witnesses must be relevant, directed to matters of fact or professional opinion, and must genuinely assist the Panel in understanding the issues. To ask questions of a witness, a party must be present for the whole of the evidence summary and questioning of the witness.

The Panel may regulate cross-examination to ensure an efficient hearing and that the cross examination remains relevant to the issues. The Panel may limit cross-examination that is not of benefit to the Panel.

Consequences of not complying with a Direction

The Panel has a broad range of powers to control Hearings under Division 2, Part 8 of the *Planning and Environment Act 1987*.

It is important to comply with Directions. The consequences of a failure to comply may be significant. For example, a Panel may refuse to allow an expert to present evidence at the Hearing.

Other witnesses

A range of other people with specialist expertise appear at Panels including:

- technical staff from agencies or Councils, who might make submissions in place of giving evidence
- lay witnesses who may have specialist knowledge. Past examples have included business owners, farmers and boat skippers.

These witnesses are generally not subject to cross examination but may be asked questions by the Panel or by other parties through the Chair.

Further information

Further information about Planning Panels Victoria can be found at:

https://www.planning.vic.gov.au/panels-and-committees/panels-and-committees