

PROJECT FINANCE ADVISORY

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SERVICES

**DEPARTMENT OF INFRASTRUCTURE - EAST-WEST LINK NEEDS ASSESSMENT**

**PHASE 1 REPORT - COMMERCIAL AND FINANCIAL**

 **ERNST & YOUNG**

***Quality In Everything We Do***

**PROJECT FINANCE ADVISORY**GPO Box 67  
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27 March 2008

**Private & Confidential**

Mr John Matthews  
East-West Link Needs Assessment  
Department of Infrastructure  
Level 12  
121 Exhibition Street  
Melbourne VIC 3000

Dear John

**East-West Link Needs Assessment Specialist Services – Commercial & Financial**

We refer to the Agreement for Professional Services with the Department of Infrastructure (“DOI”) dated 30 April 2007 and associated letters dated 2 May 2007 (the “Agreement”), through which Ernst & Young Transaction Advisory Services Limited has been engaged to provide advice in relation to proposed arrangements for the provision of commercial and financial advisory services in relation to the East-West Link Needs Assessment (EWLNA) (the “Project”).

The following sets out the basis of our confirmation of work (“Confirmation”) in relation to the scope of work.

***Purpose of this Confirmation and restrictions on its use***

This Confirmation in relation to the work undertaken in relation to the Project may only be relied upon pursuant to the terms referred to in the Agreement. Any commercial decisions taken by DOI are not within the scope of our duty of care and in making such decisions you should take into account the limitations of the scope of our work and other factors, commercial and otherwise, of which you should be aware of from sources other than our work.

Ernst & Young Transaction Advisory Services Limited disclaims all liability to any party other than DOI for all costs, loss, damage and liability that the third party may suffer or incur arising from or relating to or in any way connected with the provision of the deliverables to the third party without our prior written consent. If others choose to rely in any way on the Confirmation they do so entirely at their own risk.

***Our scope***

Our scope is set out in the Project Brief which is appended to the Agreement being that the following reports will be provided by the Contractor. The deliverable in that Project Brief to which this report relates is the Phase 1 Preliminary Commercial and Financial Issues Report.

***Confirmation***

We confirm that we have provided advice within our scope pursuant to the Agreement in relation to the preparation of the Phase 1 Commercial and Financial Issues Report.

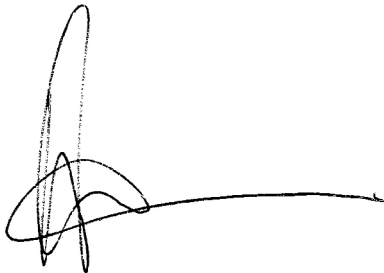
***Status***

A draft version of the Phase 1 report has been provided to the EWLNA study team for review and comment. These comments have been discussed and incorporated as appropriate and the report finalised.

Please contact me on (02) 9248 4245 should you wish to discuss the confirmation of our work or any related matters.

Yours sincerely

Ernst & Young Transaction Advisory Services Limited

A handwritten signature in black ink, consisting of a large, stylized initial 'D' followed by a horizontal line extending to the right.

David Larocca  
Director & Representative

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# Executive Summary

The commercial and financial issues identified in this preliminary report seek to address the funding issues term of reference of the EWLNA study.

This report sets out the various elements of the funding equation that drive the commercial and financial considerations of any EWLNA outcomes:

## ■ Revenue sources:

- The direct charges which may form the revenue that accompany the transport development covers the range of user payments from public transport, road and rail freight as well as non-project specific charging such as congestion charging
- Commercial opportunities, typically associated with real estate, also form another area of revenue that can be associated with transport development. A couple of the key areas identified include transport orientated development (TOD) and wider residential development opportunities
- Revenue identification and examination is a critical part of assessing EWLNA outcomes as this may materially impact the net funding position. The net funding position then has a flow-on impact on the potential optimal delivery model(s) and ultimate funding quantum that may be required

## ■ Funding the shortfall:

- Depending upon the likely quantum of any project(s) identified as part of the EWLNA study, they are likely to be subject to the guidelines for procurement such as AusLink and *Partnerships Victoria*. Where other government related funding options may also feature as funding outcomes for the EWLNA study, steps for engaging with the prospect of non-compulsory social taxation or a federal taxation regime probably require early consideration

## ■ Possible delivery models:

- Currently, the project scope is unknown and so a decision on the optimal delivery model is premature. However, it is clear that the selection of an optimal delivery model will be influenced by several factors, including project objectives, risk allocation, funding method(s) selected, requirement of price and time certainty, and size and staging of the project
- There are a range of potential delivery models that might be appropriate for the delivery of any EWLNA identified outcomes. The selection of an appropriate model or models must be driven by the project characteristics and objectives

## ■ Market issues:

- There are a range of market issues that need to be considered in the commercial and financial assessment of identified EWLNA project outcomes that have been set out in this section including the current construction market and infrastructure pipeline, risk allocation / commercial principles and financing structures
- The trends in all of these areas tends to suggest that a successful management of any EWLNA identified projects going forward requires early market engagement and a careful

selection of a delivery model or combination of delivery models that best accommodates the various market issues while providing a value for money outcome through a robust competitive bidding process.

# Background & Purpose

## Scope & Purpose

Ernst & Young has been engaged by the Department of Infrastructure (“DOI”) to provide commercial and financial advice in relation to the East-West Link Needs Assessment (“EWLNA”) (the “Project”). The EWLNA study, led by Sir Rod Eddington, seeks to determine the next steps to address the growing demand for personal, commercial and freight transport across Melbourne. The assessment will investigate and make recommendations to the Government on a wide range of options to meet future demand.

The purpose of this preliminary commercial and financial report is to set out the key commercial and financial issues in the delivery of any project(s) that may be identified as part of the EWLNA study and their potential impact on any potential solution(s) identified. The key aspects covered include:

- Identification of potential funding sources, private and public
- Advice on developments in the infrastructure funding market for procurement of relevant projects.

This report sets out the various elements of the funding equation:

- Revenue sources
- Funding any shortfall that may arise
- Possible delivery models
- Market issues that may impact delivery.

## Study Area

The indicative geographic scope of the study will extend from the Western Ring Road at the Deer Park Bypass to the east of Hoddle Street at the Eastern Freeway as shown in the picture below.



Source: EWLNA Study Overview

One of the Victorian Government's key policies, *Growing Victoria Together*, reflects the need for ongoing investment in public transport and roads to create efficient and sustainable transport systems to connect Victorian communities. Key targets of this policy include increasing:

- Public transport use in Melbourne as a proportion of trips taken by motorised means from 11 per cent in 2002 to 20 percent by 2020
- The proportion of freight transported to and from ports by rail from 10 percent to 30 per cent by 2010.

There are a number of government policies, State and Federal, which are focused on improving transport across Melbourne and Victoria overall including:

- *Growing Victoria Together*
- *Meeting Our Transport Challenges*
- *Melbourne 2030 – Planning for Sustainable Growth*
- *Linking Melbourne – Metropolitan Transport Plan*
- *Victorian Ports Strategic Framework*
- AusLink (Federal).

The EWLNA Study Overview states six specific terms of reference that will be inquired into and reported on by Sir Rob Eddington. The commercial and financial analysis may impact each of the six terms of reference, but its primary term of reference is in relation to funding issues, including sequencing of projects according to public and private funding capacity, and the capacity of the construction industry to deliver.

## Project Context

There are a range of transport modes, and combinations thereof, which may be part of the outcomes of this study. These modes may include a combination of dedicated and shared thoroughfares relating to:

- Public transport – light rail, heavy rail, buses
- Freight transport – rail, truck, other
- Roads – tunnels, bridges, roads, other.

As part of considering any solution(s) which may be identified as part of this study, the project characteristics are likely to drive the nature of the funding requirements: scope; size; risk; sequencing; and planning. The scope of the project is a key influence over the nature of funding required in terms of what is required to be provided – eg. construction, maintenance, operation and so forth. Some elements of the modes identified are more costly than others by virtue of the physical delivery required (eg. tunnel versus road) which in turn drives the size and cost of the project. The timing of its delivery (sequencing), risk profile and planning considerations are also drivers of the funding requirement.

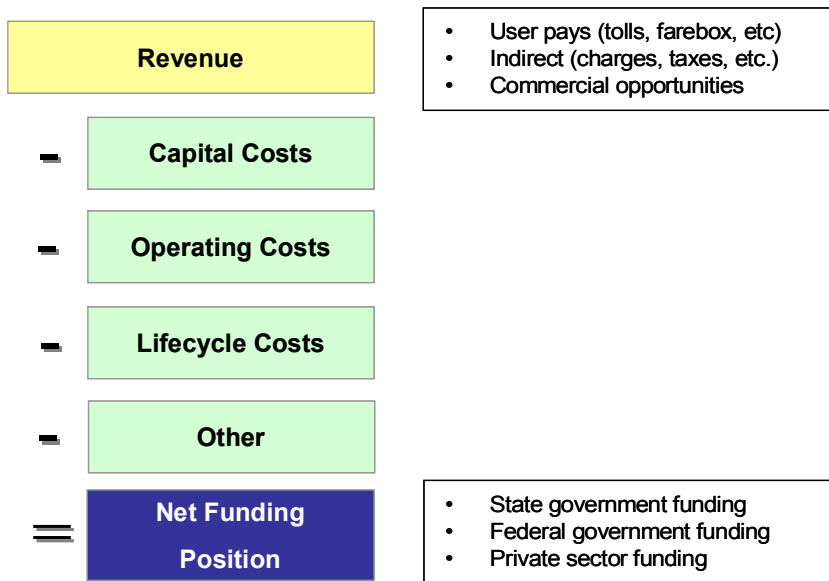
These aspects will have an impact on cost and affordability, public and private funding capacity, and market interest and appetite.



## The Funding Equation

To frame the nature of any funding requires an examination of the net present value (NPV) of the difference between project revenues and project costs:

- Project Revenues - user pays such as tolls, farebox revenue (direct) or wider network fees/charges (indirect) and commercial development opportunities
- Project Costs - construction costs, operational and maintenance expenditure (including whole of life costs), planning and development costs and regulatory and other charges.



Notwithstanding the net funding position, the appropriate delivery model decision also needs to be driven by the overall project objectives which are likely to encompass a range of policy and financial factors. The staging of a solution into individual projects is likely to have a significant effect on the revenue / cost balance as well as the delivery risk profile.

# Revenue Sources

## Introduction

As we noted previously, the absolute cost of a transport project is not the key limiting factor in assessing financial feasibility; it is the funding gap (the difference between the costs and the revenue) in present value terms that is the primary measure. We also wish to emphasise that by “revenue”, this excludes all government subsidies or other funding and refers solely to the net commercial cash flow potential of a new project. Availability payments made as part of a public private partnership (PPP) are not “revenue” for this definition - they are simply a mechanism for governments to provide funding on an efficient basis. We discuss the range of delivery methods that can be used by governments to supply its share of the funding gap in a subsequent chapter of this report.

In summary, there are two main revenue opportunities that accompany major transport developments:

- Direct charges for the use of the transport resources
- Subsidiary property developments accompanying the development of core transport infrastructure.

A key part of the EWLNA study is a rigorous study of the transport patterns through and into the study area, and the rationale for these journeys. This information will be used, in part, to project the time and cost savings that new initiatives may produce and then estimate the potential economic revenue that an initiative could generate if priced on a rational theoretical basis. This data forms an important background to the consideration of the quantum of user charge revenue that can realistically be raised from the study area.

Current trends in the assessment and generation of revenue by both methods are discussed below.

## Direct Usage Revenue

### Strategic Issues

The imposition of user charges on a significant transport asset has ramifications far beyond the simple result of raising cash to repay the funding allocated to the project. The relative cross-elasticity of user demand for different transport modes when confronted with differentially priced options will produce complex interaction effects across a system. Given the potential in Melbourne for claims to arise under pre-existing transport project contracts, it is essential that the EWLNA study adopt, where possible, a “whole of network” approach in considering user charge scenarios to apply to particular sub-projects.

The other key issue to consider in structuring transport asset user charges is their use in abating longer term social and environmental stresses. A number of innovative user charge mechanisms have been trialled including:

- Encouraging use of public transport by differential taxation of private vehicle travel
- Accurately pricing the environmental and road maintenance costs of road heavy freight movements

- Rewarding efficient use of private vehicles via discount tolls for car pooling
- Differential tolling based on time of day to reduce congestion.

The wide scope of the EWLNA study may bring some or all of these options into play in both managing the interaction of the new projects with existing transport infrastructure and optimising the revenue potential of various project mixes. More detailed consideration of such user charge mechanisms have been considered by a number of forums, including the Victorian Competition & Efficiency Commission (“VCEC”). VCEC produced a report in March 2007 entitled “Making the Right Choices: Options for Managing Transport Congestion”, which considered a number of transport demand initiatives such as road use charging; Appendix 1 sets out a summary.

### Road Pricing

The NSW and Victorian public have shown a broad acceptance of a user pays approach to the provision of road assets, particularly where significant travel time savings are created. Consequently, private sector financiers and investors have, over time, been prepared to accept, and now have a preference for, patronage risk on road PPP transactions.

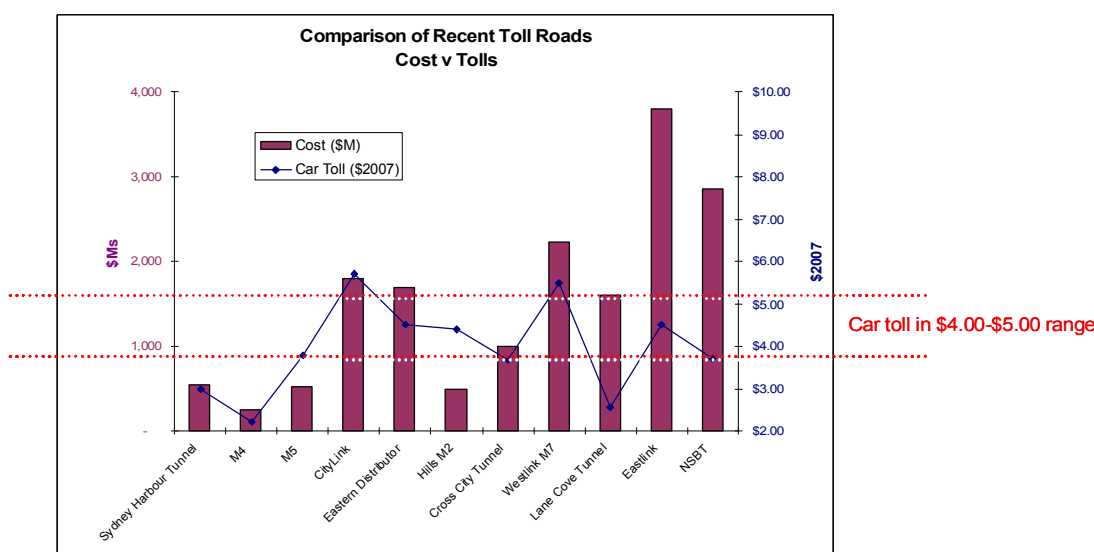
If any EWLNA road projects identified produce significant transport efficiencies, we might expect sections to be capable of producing proportionate revenue if implemented as general toll roads. We note that there are limits to the real toll level derivable from the substantial data available on the resistance level of commuters to various toll levels. Setting an optimal flat toll is becoming a reasonably scientific process.

We note that Moody’s ratings agency in a recent paper on rating toll roads discriminated between various journey type as to their capacity to generate sustainable tolling revenue, the hierarchy they proposed was (in order of best to worst):

- Commuter trips
- Commercial/freight
- Tourism
- Local personal traffic.

This adds an extra dimension to the scope of estimating the level of revenue for any toll road project, that it is necessary to estimate the purpose, and current number of roads journeys before reliable estimates of the price elasticity of toll charges can be produced.

We note that recent toll roads provide an indication of the maximum toll level governments believe will be acceptable to commuters (\$4 - \$5 in 2007 dollars). Tolls set in this range imply that larger road projects may require significant government funding contributions. The following graph demonstrates the funding balance in recent projects compared to the level of tolls proposed.



[Source: Compiled by Ernst & Young based on available information]

In summary, general road tolling is likely to provide significant revenue where potential east-west projects provide material transport efficiencies to commuter traffic. However, given the rapid inflation in costs and project size in the Australian market, tolling is no longer the “silver bullet” that guarantees government funding will not be required for major road developments.

There has also been considerable overseas experimentation in designing tolling models aimed at achieving more than just raising funding. We note that there is not enough data on how effectively these methods achieve their aims, and to what demographic and geographic conditions they are best suited. We believe that consideration of these provides an important opportunity to advance the debate on rational transport pricing mechanisms, but note that considerable political debate will be required.

Some of the alternative road pricing options that have been adopted in other markets are shown below:

Payment Mechanism	Description	Examples
<b>Truck only tolling (TOT)</b>	Electronic toll collection system that applies only to commercial vehicles, sometimes in dedicated lanes.	There are several variations of truck tolling systems already implemented and further projects being considered across Europe (including Switzerland, Austria and Germany) and the US.  As an example Germany launched a country wide electronic truck distance based tolling system in January 2005 called Toll Collect.
<b>Congestion charging</b> <i>(non project specific)</i>	Road users pay a congestion fee to enter specific zones and times within an urban road network. The system relies upon a variety of technologies including number plate recognition.  The system is designed to reduce traffic flow in heavily congested areas to ensure road networks operate effectively.	In 2003, London introduced a congestion charge. Transport for London has confirmed the effectiveness of this initiative reporting a 30 percent reduction in congestion within the zone.

Payment Mechanism	Description	Examples
<b>High Occupancy Toll Lanes (HOT Lanes)</b>	This approach has been adopted in the US and provides separate highway lanes that allow free or reduced cost access to vehicles that meet passenger occupancy requirements, and charge a toll for other vehicles that do not.	This mechanism has been adopted in the US. A number of new PPP projects in Virginia and Georgia are being undertaken on the basis of HOT Lanes.
<b>Distance Tolling</b>	The level of toll charged is based on the distance travelled on road. This is measured by tracking the entry and exit points of a vehicle and setting distance based tolls for all the various combination of entry and exit points.	Part of the tolling solution on Eastlink and the M7 in Sydney's West

### Public Transport

The metropolitan Victorian network currently operates on a multi-modal ticketing system, across two zones, which operates bus, train and tram services. The train and tram networks are currently operated under franchise arrangements and bus services are run by private operators. Operators across all three modes receive revenue from their share of the farebox ticket revenue and agreed service payments from the State.

In the first round of passenger rail franchising (1999), giving operators the opportunity to potentially introduce their own ticketing on their part of their network was considered – there were initially two train operators. However, this did not eventuate and the operators continued to utilise the existing ticketing system.

Melbourne commuters have utilised a multi-modal ticketing system since 1981 and there may not be much ability to charge a fare that is not integrated into the existing ticketing regime. Therefore, as part of considering and assessing any new additions or changes to the network as part of the EWLNA study, any additional farebox revenue is likely to be from incremental increased usage across the network that contributes to the existing farebox pool rather than a completely new stream of revenue because of the multi-modal nature of the network.

Any additions or re-configuration to the network for which additional or differential charging may be proposed would need to be capable of implementation, integration, collection and reporting in collaboration with the existing system. The benefits to the travelling public therefore need to be compelling to support and successfully implement any fundamental changes to ticketing.

Having said that, Melbourne is set to introduce a new smartcard ticketing system, Myki, which is designed to change the way in which commuters pay for their travel. Over time and into the future, this may allow a change to the multi-modal ticketing system to a different charging system which is based on a range of parameters such as time, duration, distance and so forth or is potentially demand driven (eg. peak versus non-peak travel).

In the two rounds of public transport franchising that have taken place, the private operators still retain some farebox revenue risk. However, the basis for farebox revenue allocation that was re-negotiated after the withdrawal of National Express in 2002 now has an agreed fixed proportion allocation between the modes; this is less volatile than during the initial franchise arrangements that were reliant on quarterly customer surveys. This tends to lead to the view that any EWLNA study outcomes requiring major public transport initiatives are unlikely to be able to support full demand

transfer to the private sector, but there is still likely to be some appetite for farebox revenue risk together with franchise payments from the State.

### Rail Freight Charges

The capacity to generate user-pays revenue from shorter term rail freight projects within the study area is limited by the wider network issues that currently drive poor reliability and availability. The following table shows typical performance of key freight transport modes on the Melbourne/Brisbane route.

	Road	Sea	Linehaul rail	Door-to-door rail
<b>Typical transit time</b>	14 hours	1.5 days	22 hours	28 hours
<b>Typical reliability</b>	95 %	90 %	55 %	55 %
<b>Typical availability</b>	99 %	10 %	40 %	40 %
<b>Typical capacity</b>	20-40 tonnes	20-40,000 tonnes	1,500 tonnes	1,500 tonnes
<b>Relative price</b>	+/- 10% door-to-door rail	30-50 % below door-to-door rail	30 % below road	+/- 10% with road

Source: Shipping industry expert, the ARA Report compiled by Port Jackson Partners and the ACIL Tasman freight survey.

Material performance improvements are unlikely until the planned North South Rail Corridor and current Australian Rail Track Corporation Ltd's (ARTC) improvements are completed.

Unfortunately, the timetable for the North South Rail Corridor project is such that the major benefits are unlikely to be realised within 10-15 years and given the reasonable cross elasticity between road and rail freight modes any additional charging regime on Melbourne Port rail freight may both force further rail freight onto road and reduce the comparative efficiency of Melbourne as a key freight destination.

## Commercial Opportunities

Altering a geographical area's access to transport has long been recognised as a significant driver in unlocking and enhancing the value of property in that area. It is thus logical to consider opportunities for an improved East-West Link to capture the value created as a mechanism for defraying the cost of the development. This is essentially the same process used in setting developer contributions to fund core infrastructure projects required to permit the release of new residential land. There are two main approaches to capturing transport value generation:

- Direct development accompanying the construction of project assets, ie. Transport Orientated Development
- Sharing in the increase in value of residential land triggered by wider transport development.

### Transport Orientated Development (TOD)

This involves taking an integrated approach to the development of key transport assets and assessing at each stage the potential for accompanying private involvement. For example, the recent PPP for the redevelopment of Chatswood station included the development rights above the low level station infrastructure. Bidders were expected to clearly show the value generated by their development plans, and the proportion of this value being allocated to the PPP to reduce state payments. The Southern Cross Station Redevelopment also had elements of this mechanism, with the winning consortium prepared to make direct payments for certain development rights. Naturally this type of

development works best where a project requires significant property redevelopment, which for transport projects largely apply to public transport developments where construction of new stations provides the opportunity.

The key to optimising the government's return from this approach is to take a holistic view of planning a public transport route and assessing proposed station locations from the property value perspective as well as transport functionality. This approach is currently the core of continuing Brisbane busway developments, with all proposed station location land packages assessed for the highest and best use for commercial development as well as reviewing acquisition of surrounding land packages that would enhance the value of the development rights.

Recent experience for public transport projects indicates where the private sector is unable to influence the performance of the network, the transfer of patronage risk is unlikely to achieve value for money.

### **Wider Residential Development - Land Sale/Developer Contributions**

As mentioned above, obtaining value from land sales and sharing in development gains can also be a way by which to reduce any net funding balance. Improved land transport access can substantially increase both residential and industrial activity in the surrounding region. For example, the soon to be open Eastlink has seen an increase in the value of land, development and economic activity along the Mitcham-Frankston corridor.

There have also been instances where the State, although not necessarily related to a land transport, has demonstrated a willingness to participate in profit sharing with the private sector – eg. Commonwealth Games Athletes Village. Given that any EWLNA outcomes are likely to pass through central locations of Melbourne, optimising any gains from complementary residential development and other commercial opportunities (eg. retail) is also a consideration.

Developer contributions to infrastructure which may form part of any development are also another means by which value can be obtained. Guidelines exist in Victoria for such contribution plans and are currently administered through the Department of Sustainability & Environment (DSE). Under these guidelines, the infrastructure to which developer contributions may cover includes a range of State and local government-provided infrastructure including roads, stormwater management systems, open space and community facilities.

As part of reviewing overall commercial opportunities, they may feature as part of the package of funding of any road and public transport infrastructure needs.

## **Summary**

In summary, the direct charges which may form the revenue that accompany the transport development covers the range of user payments from public transport, road and rail freight as well as non-project specific charging such as congestion charging.

Commercial opportunities, typically associated with real estate, also form another area of revenue that can be associated with transport development. A couple of the key areas identified include transport orientated development and wider residential development opportunities.

Revenue identification and examination is a critical part of assessing EWLNA outcomes as this may materially impact the net funding position. The net funding position then has a flow-on impact on the potential optimal delivery model(s) and ultimate funding quantum that may be required.

## Funding the Shortfall

Any outcomes from the EWLNA study may include projects which are of a substantial size given the nature of land transport infrastructure. If the projects are large in quantum, then it is more likely than not that any potential revenue generated may not be sufficient. Recent experience for large scale toll road developments (the most favourable transport projects from a revenue basis) shows that revenue is not sufficient to produce a viable private project without a government contribution.

In this context, the Federal and Victorian governments have a vital role in supplying a funding package that is sufficient to provide an effective solution to the key transport issues the EWLNA study identifies. Consequently, a substantial role for local government given the scale of the funding required is unlikely.

### Federal Government Funding - AusLink

The Federal Government recognised that it has an important role to play in sponsoring significant state based transport projects with the release of the 2004 AusLink white paper. This document spelt out the general requirements that projects need to meet to be considered for funding and requested market feedback on the key priorities. The Federal Government's position was that a project appropriate for funding under a targeted program was one that:

- Improves national and interregional connectivity for people, communities, regions and industry
- Improves national, interregional and international logistics
- Enhances national, interregional and international trade
- Enhances health, safety and security
- Is consistent with the obligation to current and future generations to sustain the environment
- Is consistent with viable, long-term economic and social outcomes
- Is linked effectively to the broader transport network.

Guidelines were developed for the assessment of projects that involved an initial strategic review which assessed:

- Is the project consistent with the AusLink national objectives and the strategic directions of the National Land Transport Plan?
- Are the project objectives consistent with objectives established for the relevant corridor?
- Are there major risks or constraints on the project which raise serious doubts about its feasibility?
- Is the project sufficiently well-defined and is sufficient information available to enable assessment?
- To what extent is the project dependent on, or likely to be affected by, other projects or investments?
- Are there alternative solutions that should be considered?



- Is the project too small to warrant detailed assessment? In such cases, a rapid benefit-cost analysis will suffice.

If a project passes this analysis, a detailed cost/benefit study is performed in concert with the relevant state government(s). This process sets the level and timing of AusLink funding.

In the Australian Government's 2007-08 Budget, it announced that it will invest an additional \$22.3 billion on Australia's land transport system from 2009-10 to 2013-14. The new funding will be available under AusLink 2, the second stage of the AusLink program.

Administered Programme	AusLink 2 2009-10 to 2013-14 \$ million
AusLink Investment Programme	16,783.0
AusLink Black Spot Programme	297.5
AusLink Strategic Regional Programme	300.0
AusLink Roads to Recovery Programme	1,750.0
<b>Total AusLink Administered</b>	<b>19,130.5</b>
Supplementary funding for SA local roads	29.5
Untied Local Road Grants	3,130.4
<b>TOTAL LAND TRANSPORT INFRASTRUCTURE FUNDING</b>	<b>22,290.5</b>

In respect of road transport options, the AusLink process requires consideration of a privately financed model, which is likely to include user tolling, to be assessed for any project in excess of \$500 million. In addition, for any project for which private funding is to be sought in parallel with AusLink funding, there are detailed requirements in respect of the procurement approach and the timing of AusLink payments. These requirements generally mean that the Federal Government is unlikely to provide periodic funding under a shadow toll or availability payment model.

Our experience of the AusLink evaluation process is that it is reasonably consistent with the current state government approaches used in assessing major transport projects. Clearly, the most efficient process is for the Victorian and Federal Government to co-operate on a joint evaluation process for any proposed EWLNA projects seeking funding from AusLink. This type of process naturally has a higher administrative overhead than a standard Victorian Government assessment.

## State Government Funding

As part of *Meeting Our Transport Challenges*, the State announced in May 2006 an investment plan of \$10.5 billion over 10 years to improve transport infrastructure and services. The most recent State budget (May 2007) is forecasting surpluses in the order of an average of \$424 million over the

following three years. The State also projected infrastructure investment over 2008 – 2011 of over \$10 billion allocated to a range of sectors, including transport.

Assessment and delivery of major infrastructure in Victoria is guided by the *Gateway Initiative* and *Partnerships Victoria*.

The *Gateway Initiative* is a general government-wide project to improve selection, management and investment delivery for the State of Victoria. The *Gateway* review process involves a structured review at six key decision points of a project's life. The most relevant "gates" to consider at this early stage of the EWLNA study are the first three gates being:

- Gate 1 – Strategic assessment
- Gate 2 – Business case
- Gate 3 – Procurement strategy.

The EWLNA study is likely to inform, if not actually form, the basis for Gate 1 of any identified outcomes. Assuming the EWLNA study comprises the strategic assessment required, the next stage of the investment decision, irrespective of whether State funding is required, will need to be subject to the development of a more detailed Business Case (Gate 2). The Business Case is likely to make preliminary recommendations of the appropriate procurement model(s) that may apply to the identified project(s). As part of the Business Case process, market interest is generally tested and procurement under both traditional and *Partnerships Victoria* models are considered; any EWLNA project(s) are likely to be above the minimum *Partnerships Victoria* thresholds for consideration. In the scenario where the project is greater than \$500m, the AusLink process is likely to tie in with any *Partnerships Victoria* procurement options.

Our experience of procurement in Victoria is that examination of unique project characteristics is the most appropriate way to determine which procurement model(s) are appropriate, rather examining the procurement models themselves. In this way, factors such as key risks, size, services, staging and so forth can be considered in the context of delivery.

In Gate 3 (procurement), the process might include further analysis and confirmation of work undertaken to identify the procurement model. This may result in different models for different parts of a project, subject to the value for money assessment. For example, smaller early enabling works with a fixed scope might be better delivered by a traditional Design & Construct model, whereas the difficult geographic solution portion of the same project may be better delivered under a more flexible approach such as alliancing.

Another factor that is important to consider in the State funding equation is that the State currently has a AAA credit rating from both Standard & Poors and Moody's, which is predicated on a strong balance sheet with low debt levels, prudent financial management, sound economic base, solid growth prospects and strong liquidity position. Given the typically "lumpy" nature of transport projects, there may be a potential requirement for increased borrowing for which the State may or may not have appetite for.

## Other Government Related Funding Options

There are other government related funding options which may also form part of addressing any funding gap.

One of these options could include a form of non-compulsory social taxation such as a state-run lottery to raise funds. However, this form of fund raising may have a net impact on other revenue raised by the government from other forms of lottery and gaming as well as possible negative social effects and would need a more thorough socio-economic analysis.

Another possibility is for infrastructure funding raised by the private sector that has been structured with financial characteristics which are attractive for certain classes of investors which may be assisted by government initiatives. For example, the infrastructure bonds issued by Transurban in relation to the CityLink project utilised a Federal tax concession scheme to assist infrastructure development projects. These bonds essentially allowed the approved issuer to swap tax losses for lower interest costs. This specific tax concession scheme is no longer operating. However, given the amount of infrastructure required on a national basis, there may be other tax-related or federal government schemes which may be applicable in the future.

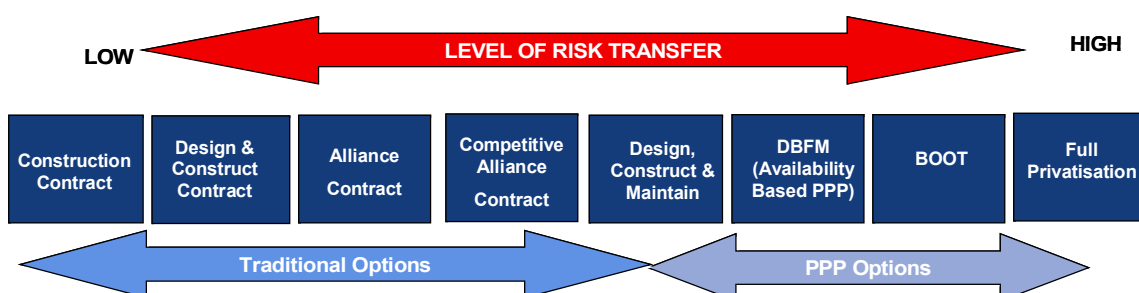
## Summary

Depending upon the likely quantum of any project(s) identified as part of the EWLNA study, they are likely to be subject to the guidelines for procurement such as AusLink and *Partnerships Victoria*. Where other government related funding options may also feature as funding outcomes for the EWLNA study, steps for engaging with the prospect of non-compulsory social taxation or a federal taxation regime probably require early consideration.

# Possible Delivery Models

## Overview

This section examines a range of delivery models that may be viable procurement options for the Project. The suitability of the various delivery models outlined in this section will depend upon the Government's required level of risk transfer and specifically the desire or otherwise to transfer demand risk. The diagram below sets out the delivery models that will be analysed and demonstrates the change in the level of risk transferred to the private sector.



The following provides a high level overview of each model and provides examples of where these models have been used either within Australia or internationally. Further details on each delivery model can be found in Appendix 2.

It is important to remember as part of considering a range of procurement models that the optimal procurement model's fundamental characteristics will enable the government to meet the project objectives. Such objectives may involve a range of social, economic, policy and financial outcomes.

## Overview of 'Traditional' Delivery Models

### Construct and Design & Construct (D&C) Contracts

Under the traditional project delivery model (design then construct or design and construct) the government engages a contractor for the construction, or design and construction, of infrastructure for a fixed price.

In this model, the identified risks are fully allocated in the contract documentation. Typically, a large proportion of the risks are allocated to, and priced by, the contractor. Under a traditional project delivery model, ownership of land remains with the government, with the Contractor having a contractual right of access rights to undertake the works. However, recent project delivery methods have tended to avoid this approach on the basis that inappropriate allocation of risks to the contractor may lead to:

- Inadequate consideration of which party is best able to manage each risk identified
- An adversarial and hostile project environment
- A higher ultimate price being paid by the government.

Although not currently a very common procurement option, there is at least one current major road project using the D&C Model being the Logan Motorway / Ipswich Motorway Interchange, in Queensland.

### **Design, Construct and Maintain (DCM)**

DCM is an extension of the D&C strategy described above, whereby the inclusion of maintenance within the contract provides the potential to deliver better whole of life outcomes through greater consideration of longer term maintenance issues. The private sector is awarded a contract to design, construct and maintain the road. The government finances the road and owns and operates the asset, typically for a period of 10 -15 years. The issues associated with D&C also apply to DC&M.

This approach has been adopted in Australia for toll roads, including the Gateway Bridge in Queensland.

### **Alliance & Competitive Alliance Contract**

#### ***Alliance***

An Alliance contract is an agreement between two or more entities that undertake to work co-operatively, on the basis of sharing project risk and reward. Alliance contracting involves an open-book costing arrangement which allows risks that cannot be readily quantified to be managed in a transparent manner. Alliance contracting is based on a shared decision-making process and does not involve a competitive tendering process based on cost, although there is often a great deal of time invested in selecting the party to undertake an alliance with. The aim of alliance contracting is to deliver cost and quality benefits more effectively by eliminating the adversarial relationships common in more traditional contracts.

Other key features include:

- Performance obligations are shared and collective rather than individual
- Removes the ability of contractors to use incorrect design specifications as a recourse for claims
- The alliance agreement is structured to foster a culture that focuses on delivering outcomes which are best for project through a single integrated team.

Alliance contracting may be a more expensive procurement process than a standard Schedule of Rates or a lump-sum D&C contract. Procuring agencies often agree, at the outset, to contribute to the cost of the Alliance proponent's costs up to the agreement of the Total Cost estimate (TCE), sometimes also referred to as the Target Outturn Cost (TOC).

In practice, the contractor's downside risk is capped at the profit margin. Therefore the project sponsor takes a disproportionate share of the risk.

Single party alliances are suited to projects where project scope and risks are unable to be clearly defined in a project brief and, where construction is likely to be affected by scope changes often influenced by external third-party stakeholders.

#### ***Competitive Alliance***

The Competitive Alliance strategy is a variant on the single alliance methodology. A Competitive Alliance process maintains the many benefits of the traditional alliance project delivery strategy, but also provides for the commercial elements of the agreement to be set in a competitive price context.

This enables the Target Cost Estimate (TCE) and risk/reward arrangements to be commercially based and better aligns with government tendering protocols.

Competitive Alliancing may be a more expensive contracting process where procuring agencies agree to fund the alliance proponent's cost during the phase between the initial registration of interest and the agreement to the TCE. By doing this, the Alliance proponents are effectively "funded" and value engineering and innovation effort can be applied in a competitive context, which the client expects will drive the project target cost estimate lower for the same functionality.

The competitive alliance process is best suited to situations where project functionality can be defined in a project brief, similar to D&C and DCM, but where the construction stage is likely to be affected by external third-party stakeholders. Setting up a competitive alliance is very resource-intensive for the principal and, like D&C/DCMs, ties up proponents for several months during the bid phase.

### ***Use to Date***

Although the earliest examples of alliances in Australia date back to the mid-1990s, the momentum for alliancing as a means of delivering infrastructure projects did not really take hold until Sydney Water adopted an alliance for the North Side Storage Tunnel and the Federal Government opted for an alliancing model for the National Museum in the very late 1990s.

Since then, the Queensland government has probably demonstrated the greatest commitment of any public sector to alliancing. The Port of Brisbane Motorway, the Norman River Bridge are two of several of the notable examples of successful alliancing projects in Queensland within the last five years. Many others are in process – for example, final stage of the Inner Northern Busway, Boggo Road Busway, Tarong Coal Transport Project, SEQIP Rail Program Alliance and the Centenary Highway Upgrade – and are projects worth in excess of \$2 billion which are currently being delivered through project alliances.

In Victoria, there have been fewer examples of alliances compared to Queensland. However, in recent times there have been projects delivered under the alliance model including the Middleborough Road grade separation and Eildon Dam Improvement. There are also a number of other projects which have been contracted or currently being procured including the Tullamarine Calder Interchange, Channel Deepening, Gippsland Water Factory and the Monash-Westgate upgrade.

Victoria has also released a practitioner's guide to the *Project Alliancing Framework* in May 2006.

## **Overview of 'PPP' Delivery Models**

### **Availability Model – No User Charges**

Under this model, the government essentially provides an availability payment for the provision of the infrastructure which is often associated with social infrastructure projects. An issue to be considered is the Federal Government appetite for funding availability type transport projects via AusLink.

The Availability model is often associated with the delivery of social infrastructure projects in Australia (e.g. Southbank TAFE, NSW Schools). In this model, the government accepts operating risk and the private sector accepts asset availability risk. This model has been used internationally to deliver non-tolled transport infrastructure projects.

This option involves the transfer of the majority of design, construction, commissioning, maintenance and funding risks to the private sector. The private sector is paid by government to ensure that the Project is properly maintained and available for use for the life of an agreed concession period. Payment is entirely dependent on availability and the principle of ‘no availability, no payment’ typically applies.

### **Availability Model – User Charges**

This model is a variation of the availability model above that has been adapted for use on roads; Ernst & Young structured a version of this mechanism for the Norwegian road program.

The Norwegian road program’s payment mechanism is unique - while motorists pay real tolls to use the road, the payment regime as far as the Concessionaire is concerned is 100% de-linked from real traffic or toll risk. Its revenues come directly from the government in the form of an availability or service based payment, with around 80% of this being availability-based and the remaining 20% being performance-based in terms of reaching certain specified standards in the maintenance and operation.

Additionally, on top of this notional 100% payout figure, there is the possibility of small bonus payments based on the road’s safety record in comparison to other Norwegian roads and also to compensate for extra wear on the road if heavy vehicle traffic exceeds forecasts.

A key driver in the selection of an availability based payment mechanism for the Norwegian road program was the limited potential traffic volumes and the remote location of several of the potential road projects, which led to the conclusion that it would not be viable to pass real traffic risk to the private sector without a major upfront government contribution.

### **Delivery Models with Demand Risk Transfer**

#### ***Build Own Operate Transfer (BOOT)***

Under a BOOT model, the private sector would construct the Project and own and operate it for a set period of time, earning revenues from the Project for this period, at the end of this period the ownership is transferred back to the Government. This model is appropriate where there is an ability to transfer traffic risk to the private sector, and has been commonly used for numerous Australian toll road projects, such as the North South Bypass Tunnel (Queensland), Eastlink (Vic) and the M7 in NSW.

#### ***Privatisation (Build Own Operate) (BOO)***

Under a BOO model the ownership of the project remains with the private sector throughout its life and is therefore in effect a privatisation of the asset. This has not typically been used in Australian transport projects, but has been seen in the UK.

## **Impact of Mixed Mode Projects**

The development of mixed mode projects in Australia has not been common to date, due to the complexities of incorporating different payment mechanisms for different modes. However, a recent example of a mixed mode project in Australia is the Airport Link/Northern Busway Project in Brisbane. This project combines two distinct delivery models, a BOOT model for the Airport Link section and fixed price D&C contract for the Northern Busway element. As this project is still in the procurement phase it is too early to determine what, if any, risk this may present.

## Sequencing / Staged Delivery Implications

A staged delivery may have some appeal due to the financial and physical demand on resources that the delivery of a single large project may have. The potential staged delivery of any identified project(s) will impact on the selection of the optimal delivery model.

If a staged delivery is required, the key issues that require further analysis are:

- Funding / affordability constraints
- Staging within a PPP project itself (eg. the Bonnyrigg social housing PPP in NSW) versus separation into separate projects (eg. North South Bypass Tunnel (“NSBT”) / Airport Link)
- Overall size of the project
- Market capacity
- Appetite, and therefore competition, for delivery of the asset(s).

Certain delivery models are better suited to managing uncertainty and change. For example, alliances are suited to projects where project scope and risks are unable to be clearly defined in a project brief and where construction is likely to be affected by scope changes and/or complex staging arrangements. On the other hand, a PPP type model is less flexible by comparison, but may offer greater value for money where project scope can be well defined and performance can be identified, measured and enforced.

However, if the staged delivery resulted in several independent projects then a PPP style model may be viable. Nevertheless, interface, integration and timing risk would still have to be assessed when evaluating models for staged delivery.

## Assessment Process

Currently, the project scope is unknown and so a decision on an optimal delivery model is premature. However, it is clear that the selection of an optimal delivery model will be influenced by several factors, including:

- Project objectives: The overall project objectives might be considered the overarching drivers of the delivery model as this impacts all of the other factors set out below
- Risk allocation: The allocation of risk between the government and the proponent is a key driver of what type of delivery model(s) can best provide the balance between the risk profile and cost
- Funding method selected: The determination of the source of revenue for the project will naturally influence whether and, therefore, which private sector delivery model is optimal
- Requirement of price certainty: If the Government requires price certainty, then the private sector or PPP delivery models will become more attractive
- Timing certainty: If the completion of the Project is time critical
- Level of risk transfer required: Each delivery model offers a varying degree of risk transfer, therefore the optimum delivery model will depend on the level of risk transfer that the Government requires and can be effectively transferred to the private sector



- Size and staging of the project: As mentioned above, interface, integration and timing risk need to be carefully considered.

## **Summary**

There are a range of potential delivery models that might be appropriate for the delivery of any EWLNA identified outcomes. The selection of an appropriate model or models must be driven by the project characteristics and objectives.

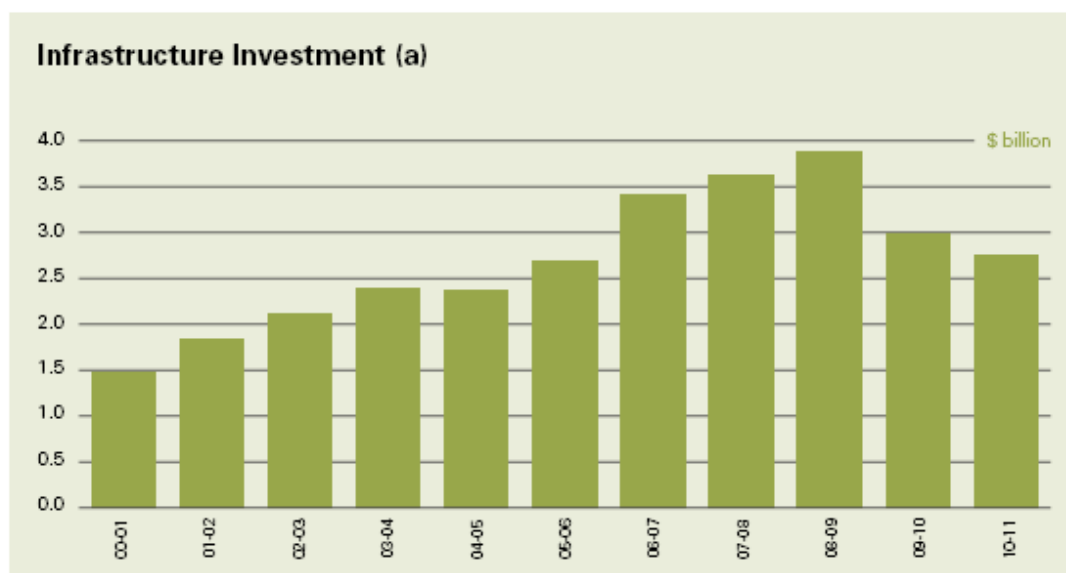
## Market Issues

### Current Infrastructure Pipeline

#### Government

There has been a number of major federal, state and territory infrastructure plans and projects being announced over the past two years. The following discussion focuses on the three eastern seaboard states - Victoria, New South Wales and Queensland - but we also note that there are major infrastructure programs in other states such as South Australia and Western Australia and in the federal arena (eg. AusLink and AusLink 2, further study on the North-South rail link between Melbourne and Brisbane).

In Victoria, as mentioned previously, the government set out in the most recent State Budget that infrastructure spending is set to increase over 2008 – 2012. The State has also recently announced major investment in water infrastructure over the next four years including a \$3.1 billion desalination plant to be completed by 2011.

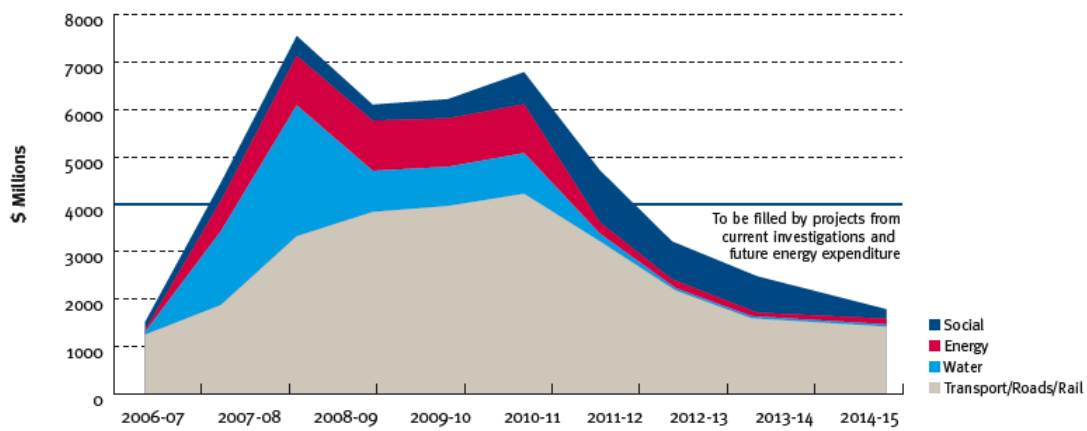


(a) The 2005-06 net investment figure excludes \$600 million return of surplus TAC capital

Source: Victorian Budget Overview, May 2007, page 10

In Queensland, the government released the South East Queensland Infrastructure Plan and Program (SEQIPP) in June 2005 that sets out a 20 year major infrastructure development program from 2006 - 2026. The May 2007 update of the SEQIPP identified \$82 billion of infrastructure spend to 2026. The more immediate pipeline of activity over 2007 – 2015 is set out in the graph below.

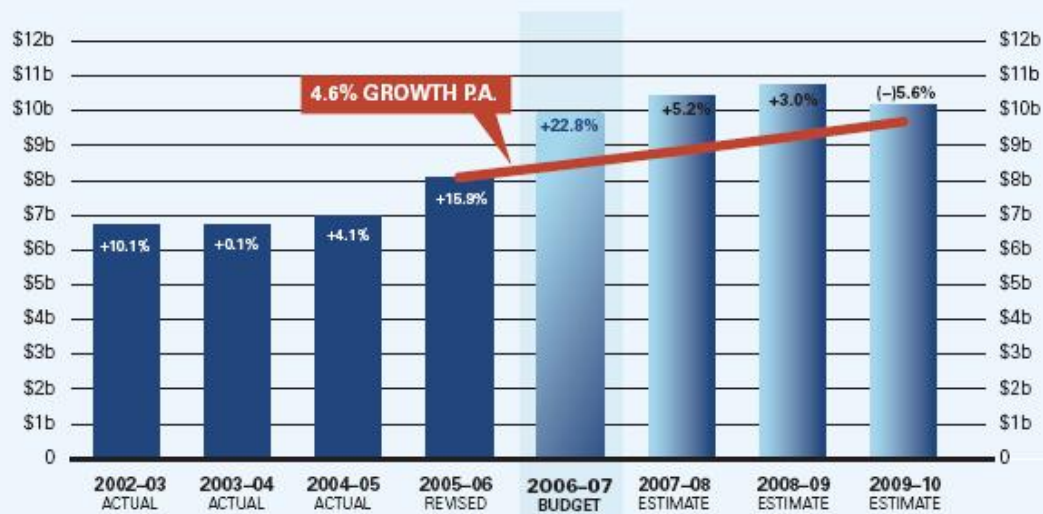
Figure 1: SEQ Infrastructure Plan activity 2007–2015



Source: SEQIPP 2007-2026, May 2007, page 14

In New South Wales, the State Infrastructure Strategy (SIS) was released in May 2006. Spending over the ten year period set out in the SIS is expected to be over \$110 billion, with an average of \$10 billion per annum. Approximately \$41.3 billion of spending has been earmarked for the first four years of the SIS.

FIGURE 1 CAPITAL EXPENDITURE TRENDS: ACTUALS AND ESTIMATES 2002-03 TO 2009-10



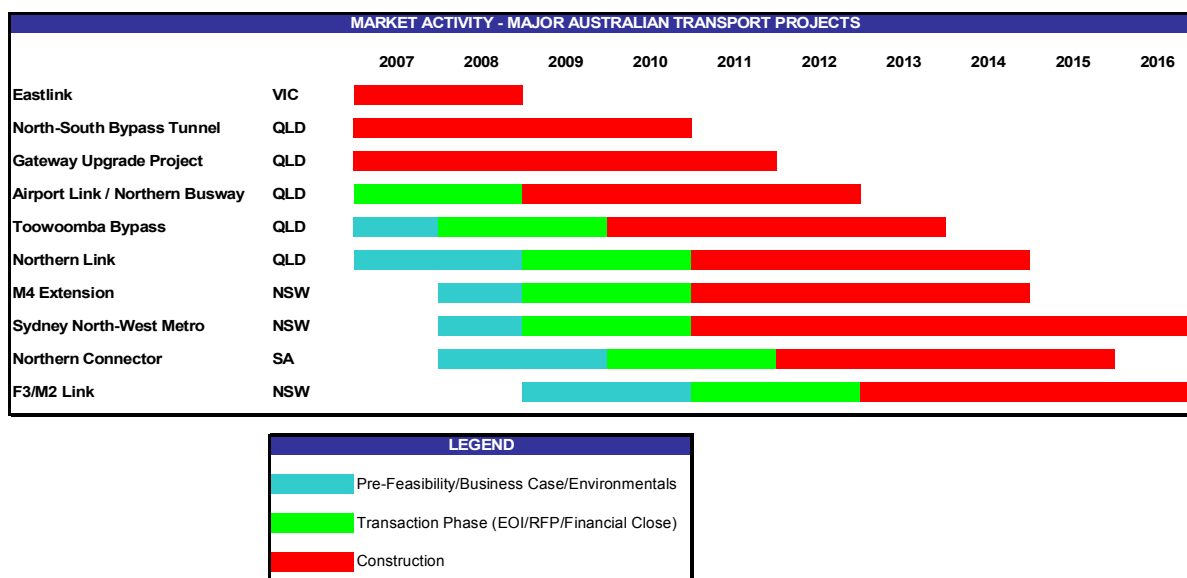
Source: SIS 2006-07 to 2015-16, page 4

As set out in the Victorian, New South Wales and Queensland budgets and plans, infrastructure spending over the next few years for these three states alone is in the region of \$70 billion +. This infrastructure spend is spread across different sectors such as health, education, transport, ports, utilities and so forth. However, this is likely to result in significant demand as mentioned previously.

**Major Toll Road Projects – Pipeline Activity**

Aside from the various state infrastructure plans, there is also activity in the toll road project space which is likely to impact specific road transport construction demand over the next few years. Given the specialist expertise and equipment that may be required as part of a road project such as

tunnelling, planning and capacity issues are an important consideration in the structuring and sequencing of any potential project(s) resulting from the EWLNA study.



Source: Prepared by Ernst & Young based on various state plans and project information

## Overview of Current Major Projects Market

The Australian construction market is currently experiencing significant demand due to the number of large infrastructure projects both in the market and planned in the next few years.

The high level of construction activity is likely to be reflected in increased levels of building price escalation (measured by the BPI), which will result in increased project costs. We therefore expect significant price pressure if the EWLNA study results in the identification of a set of large scale infrastructure solutions

In addition to the issues associated with the construction market as a whole outlined above, there are a limited number of companies that are capable of delivering privately funded projects of a size greater than \$500 million.

However, the strong pipeline of opportunities in the Australian market is starting to generate a level of attention from some key European players. Some recent indicators of this interest include:

- Bouygues has established a local office in Sydney and is competing on major infrastructure projects around Australia. The company was recently awarded the Hale Street Bridge contract in Brisbane
- Laing O'Rourke, through their acquisition of Barclay Mowlem, now has an Australian presence
- The Spanish contractor Grupo ACS submitted an expression of interest for the Airport Link / Northern Busway Project in Queensland
- The maturity of a strong secondary market with disposal and consolidation in key ownership stakes in the existing concessions. Transurban has been particularly active in the market with equity interests in the M2 and M7 and has recently purchased the Sydney Roads Group, which adds ownership of the M4, M5 and Eastern Distributor to their Australian portfolio.

The following table sets out the likely future international players in the Australian infrastructure market.

Company	Role	Australian experience
<b>Grupo ACS</b>	Builder and Owner/Operator	EastLink tolling system EOI for Airport Link/Northern Busway
<b>Cintra/Ferrovial</b>	Builder and Owner/Operator	Bid Lane Cove Tunnel SACL ownership
<b>Bouygues</b>	Builder	Sydney Airport Link Bid M7, Gateway, NSBT Preferred bidder for Hale St Bridge
<b>Laing O'Rourke</b>	Builder and Owner	Barclay Mowlem Bidding social PPPs
<b>Fluor</b>	Builder	Involvement in rail

Our experience with recent toll roads procurement is that an active market engagement process is an important factor in securing the maximum number of quality bidders for sizable projects. Key elements of this process are:

- Ensuring the project is developed and presented to the market in a manner that is attractive and that includes risk allocations that the market is able to accept (seeking unrealistic risk transfer is likely to inflate cost and lead to suboptimal value for money outcomes)
- Engagement of the market in an informed discussion so as to identify the hurdles to maximising competition. This will include a range of market sounding and roadshow exercises to contractors, operators, equity investors and financiers
- Providing certainty to the market as to the expectations of the Victorian Government and consistency of process
- Presenting to industry a process and documentation with which industry is familiar and builds upon projects completed to date
- Adopting competitive and probity measures to minimise the effect of the common ownership of a number of the key construction contractors
- Development and delivery of a procurement strategy that appreciates the cost and time required to develop a bid of this nature but ensures that the State has the best opportunity for gaining a value for money outcome. This may include the use of split bidding and other strategies to maintain effective competition.

## Risk Allocation / Commercial Principles

### Toll Roads

The Australian toll road PPP market has developed rapidly over the last 10 years with the NSW RTA and Brisbane City Council forcing the pace of evolution on risk allocation and procurement approaches for privately funded toll roads. The natural implication for any EWLNA toll road projects is that the Victorian Government can start from the current position and take advantage of the recent developments and short cut the production of the core commercial documents. The following table summarises the current allocation position.

Key Commercial Terms	Early Toll Road PPPs	Recent Toll Road PPPs
<b>Traffic risk</b>	Partially underwritten by Government	Fully transferred to private sector
<b>Toll escalation</b>	Greater of CPI and 4 percent p.a	Set by Government (CPI)
<b>Changes to transport network</b>	Compensation payable by Government	No compensation payable by Government
<b>Assumed refinancings</b>	Not on early deals	Assumed in bids
<b>Refinancing benefit share</b>	None	50 percent share to Government
<b>Upside sharing</b>	None or low-ranking benefit share	Revenue based mechanism
<b>Termination compensation</b>	None on Concessionaire default	None on Concessionaire default
<b>KPI regimes</b>	None	Standard mechanisms in place

### Rail

NSW has only one example of procuring significant core rail infrastructure via private finance techniques being the unsuccessful airport rail link. The difficulties this project faced has discouraged the NSW Government from further projects; the Parramatta – Chatswood expansion is being delivered traditionally. The issues that arose with respect to the airport link were:

- **Control** - The airport link was exclusively around the construction of the stations and track, the trains were to be operated by Cityrail from their existing stock. The private owners were therefore completely exposed to the performance of Cityrail in attracting patronage
- **Pricing** - To make the project feasible ticket prices needed to be at a level that if more than two people travelled it was still more attractive to use a taxi
- **Quality of Rolling Stock** - Because the train operation was Cityrail's responsibility, there were no specific train configurations allocated that provided the appropriate luggage storage, as well the airport link stations were part of an existing high patronage line, users had to catch standard old suburban trains sets.

The real lesson from this was the clear difficulty in integrating a smaller privately run section with the wider Cityrail network and thus it is unlikely the Government will enter into other rail transactions with the private sector taking any patronage risk. The Chatswood Station redevelopment is a clearer pointer to the approach likely to be taken for limited public transport infrastructure transactions.

The NSW Government has recently signed a \$2 billion PPP contract for the design, construction and maintenance of the next generation of suburban rolling stock. This model points to a possible combined approach for East West public transport projects where the actual infrastructure is procured traditionally, but the rolling stock supplied under a PPP.

In Victoria, the metropolitan train and tram businesses and V/Line Passenger were “privatised” through a franchising process completed in 1999. One of the operators, National Express, walked away from its franchise arrangements in 2002 and the State re-negotiated the current arrangements with the remaining two operators, Connex and Yarra Trams. These current arrangements expire in November 2008. Victoria is also in the process of procuring more tram rolling stock as well as accelerating delivery of more train rolling stock to meet increased demand on the public transport network.

The other major project rail infrastructure transactions which the State has undertaken include the Southern Cross Station Redevelopment, which is a PPP transaction that is in the operations phase, regional fast rail project and the recent re-acquisition of the regional rail network from Pacific National. There are also a number of other rail-related projects earmarked for delivery ranging from physical rail (eg. Dandenong triplification) through to station upgrades.

The Victorian Government has used a range of procurement methods so far for the delivery of rail-related infrastructure ranging from alliancing through to PPP. However, unlike NSW, Victoria has not yet undertaken rolling stock procurement utilising a PPP. There are a range of observations from some of these procurements which bear consideration for the approach to any EWLNA outcomes:

- Southern Cross Station Redevelopment – From a procurement perspective, the PPP model was effective in transferring the risk for construction overruns to the private sector for which Leighton Holdings recorded substantial write-offs. One of the key difficulties of the process was managing a large number of stakeholders while live rail operations continued throughout the construction phase of the facility. Nevertheless, it does suggest PPPs can be successful in transferring risk to the private sector and suggests that this continues to be a potential model which could support the delivery of any EWLNA outcomes. However, risks surrounding operating in a multi-stakeholder “live” operating environment and the various interfaces are likely to be focused on more heavily by any potential bidders. The State will also need to consider what risks are best managed by itself and the private sector in this regard.
- Passenger Rail Franchising – As mentioned previously, one of the original franchise operators walked away from its operations. There were subsequent investigations into the failure of National Express, but one of the key issues was that “bidders made very ambitious forecasts about the patronage (and therefore revenue) growth and cost reductions possible in the new franchises... These high forecasts were partly a result of the buoyant growth rates in the UK rail industry at the time, and partly because of an intensely competitive bidding environment...”<sup>1</sup> The government is now currently considering its options in relation to the current arrangements with the existing operators. The franchising model in relation to public transport operations is well understood and evolved, but previous experience does indicate that the level of government support which is required to provide such services should not be under-estimated whether in private or public hands.

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<sup>1</sup> Department of Infrastructure, Public Transport Division, “Public Transport Partnerships – An Overview of Passenger Rail Franchising in Victoria”, March 2005

## Financing Structure

One area that will continue to drive value for PPP type transactions throughout Australia is the increasing interest from overseas debt and equity investors looking to diversify their infrastructure investment into an active and safe market.

This competition will continue to drive improvement in the terms of the debt and equity packages underwritten for PPP bids. Lead Arrangers for bids have had no difficulty in assembling banking consortia including 4 or more international banks and running them against 2 to 3 local banks to drive down margins and fees. Access to international debt capital markets has increased the opportunity to run bank versus bond competitions to further reduce the cost of debt.

Similar influences have been apparent in equity pricing, with a number of global entities setting up multi-region infrastructure investment funds and looking at the Australian market to supply seed assets for these funds.

The depth of the finance market is demonstrated in the bidding processes for the most recent toll road PPPs. EastLink and NSBT raised committed financing of over \$8 billion and \$6 billion respectively across the bidding consortia.

Developments to the bidding process include:

- Inclusion of future debt re-financing in the base case bids submitted to Government. This evolution has enabled bidders to assume and therefore 'lock-in' the benefits of future re-financings as part of their base bids and therefore reduce the project cost
- A credit-wrapped bond financing. This was adopted to fund the Lane Cove Tunnel and NSW rolling stock PPPs, the first in Australian history to adopt a capital markets financing during construction
- Initial Public Offerings (IPO) to raise equity at the bidding stage, as demonstrated by the creation of Transurban to deliver Citylink and more recently, ConnectEast and RiverCity Motorway to deliver the EastLink and NSBT projects respectively.

The sophistication of the financing packages is being matched by increasingly rigorous analysis approaches adopted by state treasuries to ensure that maximum value is squeezed out of the private structures. An example of this is the recent decision by the NSW Treasury to discriminate between swapped, floating rate and CPI debt instruments in PPP transactions on the basis that forcing consortia to take long term interest rate risk was actually counter to the State's interest rate management protocols. Floating rate debt is now the most favoured debt structure, and by stripping out third party swaps the NSW Government has increased the potential for value for money.



## Summary

There are a range of market issues that need to be considered in the commercial and financial assessment of identified EWLNA project outcomes that have been set out in this section including the current infrastructure and construction pipeline, risk allocation / commercial principles and financing structures.

The trends in all of these areas tends to suggest that a successful management of any EWLNA identified projects going forward requires early market engagement and a careful selection of a delivery model or combination of delivery models that best accommodates the various market issues while providing a value for money outcome through a robust competitive bidding process.

## Appendix 1 – VCEC report

The Victorian Competition & Efficiency Commission (“VCEC”) has prepared a report entitled “Making the Right Choices: Options for Managing Transport Congestion” (March 2007) which was designed to look into the effectiveness of policy instruments and institutional structures at the Government’s disposal to implement the objectives of the Metropolitan Transport Plan to inform the development and application of future Victorian Government decisions.

The VCEC report considered a number of initiatives across road, rail and freight to manage transport congestion in Melbourne. Measures considered include transport infrastructure expansion, transport infrastructure management such as road capacity enhancement, roads space allocation and vehicle priority and transport demand management.

Transport demand management initiatives considered that relate to revenue sources for direct user based charges as well as indirect charges to existing and future road usage include:

- Road use charging – targeted road use charging has the potential to change the cost of travel and influence users’ travel choices
- Cordon / Area charging – a charge levied as vehicles enter a certain area that reduces travel demand in congested areas such as the London style congestion levy
- Continuous road use charging – charges used for continuous road use such as schemes in Singapore, “pay as you go” schemes being trialled and satellite truck tolling in Germany
- Variable charges – road charges that vary with congestion levels or the time of day may assist in discouraging peak hour travel and in spreading peak demand
- High occupancy tolling (HOT) – road users paying to use faster flowing lanes where cars need to have higher occupancy (eg. 2+ people). Limited forms of high occupancy vehicle laneways currently operate in the CBD
- Parking, pricing and supply restrictions – changes to parking supply in congested areas to discourage travel to areas of high density
- Financial and taxation policies such as fuel taxes
- Service level and quality improvements to public transport including ‘inequitable’ fare structure encouraging users to drive to congested areas with lower fare zones.

## Appendix 2 – Delivery Models

### Traditional Delivery Models

#### Construct and Design & Construct (D&C) Contracts

Under the traditional project delivery model (design then construct or design and construct) the government engages a contractor for the construction, or design and construction, of infrastructure for a fixed price.

In this model, the identified risks are fully allocated in the contract documentation. Typically, a large proportion of the risks are allocated to, and priced by, the contractor. Under a traditional project delivery model, ownership of land remains with the government, with the Contractor having a contractual right of access rights to undertake the works. However, recent project delivery methods have tended to avoid this approach on the basis that inappropriate allocation of risks to the contractor may lead to:

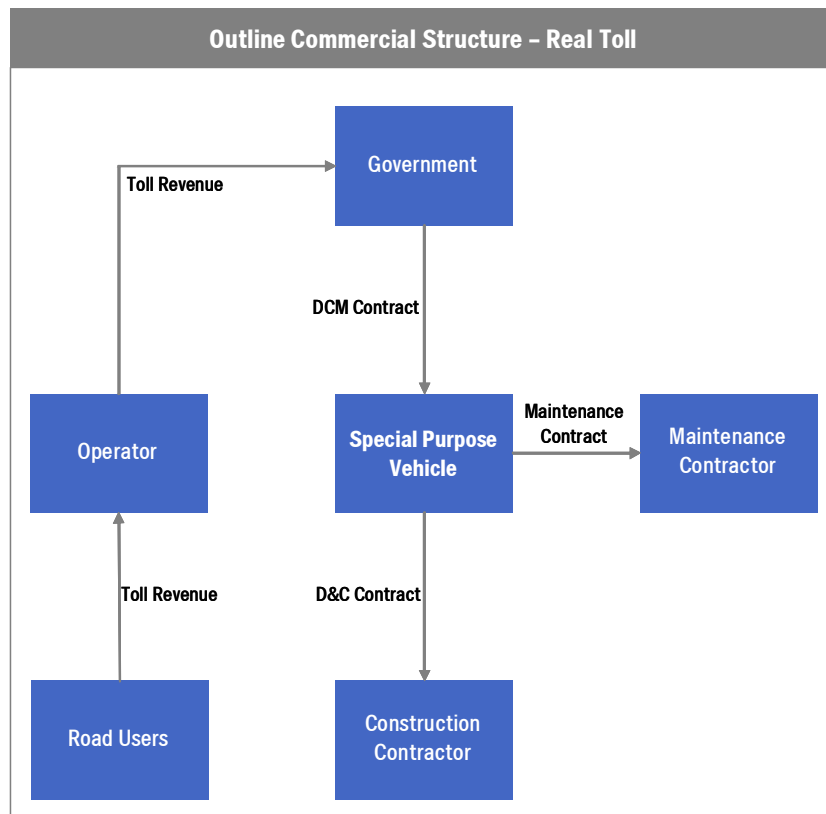
- Inadequate consideration of which party is best able to manage each risk identified
- An adversarial and hostile project environment
- A higher ultimate price being paid by the government.

Although not currently a very common procurement option, there is at least one current major road project using the D&C Model being the Logan Motorway / Ipswich Motorway Interchange, in Queensland.

#### Design, Construct and Maintain (DCM)

DCM is an extension of the D&C strategy described above, whereby the inclusion of maintenance within the contract provides the potential to deliver better whole of life outcomes through greater consideration of longer term maintenance issues. The private sector is awarded a contract to design, construct and maintain the road. The government finances the road and owns and operates the asset, typically for a period of 10 -15 years. The issues associated with D&C also apply to DC&M.

This approach has been adopted in Australia for toll roads, including the Gateway Bridge in Queensland. The private sector is awarded a contract to design, construct and maintain the road. The government finances the road and owns and operates the asset, typically for a period of 10 -15 years. The government retains the traffic risk and collects the toll revenue. A 'real toll' is imposed as road users directly pay for the use of the road asset, as illustrated below.

**Figure 1: Real Toll**

A key reason for implementing this model is to retain public ownership of the asset and to provide the government with the full flexibility to manage the road network.

### Alliance

A project alliance is where 'an owner and one or more service providers (designer, constructor, supplier etc) work as an integrated team to deliver a specific project under a contractual framework where the commercial interests are aligned with actual project outcomes'.

An alliance, at least in its purest form, includes a number of radical approaches to project delivery:

- The governance of the project is joint. Instead of decision making by an owner or superintendent, with consequent directions to a contractor, the alliance leadership team (or alliance board) provides joint leadership and can only make decisions on an unanimous basis
- The project is delivered by an integrated project team, not the contractor under the supervision of the superintendent and owner
- Although some isolated risks are retained by the owner, almost all project risks are collectively shared and managed by all parties
- The parties agree not to hold any single party responsible for an error, negligence or poor performance. There is a 'no blame' culture

- The compensation framework is based on the premise of 'all win / all lose' although non-owner participants will generally only share 'pain' to the extent of their margin (in other words, they enter the project knowing that the worst financial outcome is recovery of direct costs only).

Although the earliest examples of alliances in Australia date back to the mid-1990s, the momentum for alliancing as a means of delivering infrastructure projects did not really take hold until Sydney Water adopted an alliance for the North Side Storage Tunnel and the Federal Government opted for an alliancing model for the National Museum in the very late 1990s.

Since then, the Queensland government has probably demonstrated the greatest commitment of any public sector to alliancing. The Port of Brisbane Motorway, the Norman River Bridge several of the notable examples of successful alliancing projects in Queensland within the last five years. Many others are in process – for example, final stage of the Inner Northern Busway, Boggo Road Busway, Tarong Coal Transport Project, SEQIP Rail Program Alliance and the Centenary Highway Upgrade – and are projects worth in excess of \$2 billion which are currently being delivered through project alliances.

Many of these projects have demonstrated that alliancing works well in three key respects:

- It is likely to deliver projects earlier than other models
- It provides greater flexibility to respond to planning and design changes
- Once the Target Cost Estimate is agreed, it provides greater certainty in respect of final outturn cost than fixed price contracts.

On this last point, the key difference is that the prospect of a budget overrun will manifest itself when the TCE is being prepared, and not, as is often the case with fixed price contracts, towards the latter stages of the project.

Alliancing is certainly not the solution for all projects. It will continue to be constrained in its implementation as a project delivery model by at least three concerns

- Government proponents continue to be confronted by the need to tangibly demonstrate 'value for money' from a bid process which does not involve price competition
- The no blame liability framework continues to concern many owners, particularly because of the restricted availability of professional indemnity insurance
- Alliancing projects are still, by and large, unbankable for raising project finance because of a perceived lack of certainty of outturn costs.

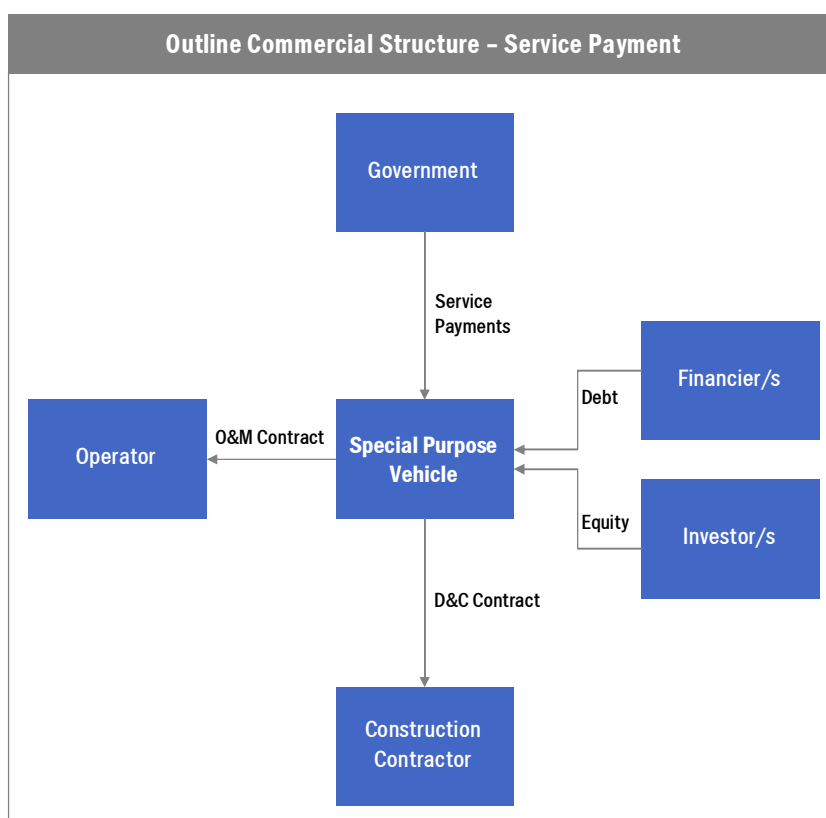
In Victoria, there have been fewer examples of alliances compared to Queensland. However, in recent times there have been projects delivered under the alliance model including the Middleborough Road grade separation and Eildon Dam Improvement. There are also a number of other projects which have been contracted or currently being procured including the Tullamarine Calder Interchange, Channel Deepening, Gippsland Water Factory and the Monash-Westgate upgrade.

## PPP Delivery Models

### Availability Model – No User Charges

The Availability Model is in broad terms similar to the delivery model used for social infrastructure projects in Australia, where government accepts demand risk and the private sector accepts asset availability risk. The private sector receives an availability or service payment from the government for making the asset available for the service to be delivered. This model can be used for both non-tolled (Figure 4) and tolled projects (Figure 5). Figure 2 outlines the key elements of the Availability Payment PPP Model:

**Figure 2: Availability Model**



This model involves the transfer of the majority of design, construction, commissioning, operation, maintenance and funding risks to the private sector. For a road project, the government retains traffic risk and the private sector is paid by the government on the basis of the road being available for service delivery. This means that proponents' bids (technical, financial and commercial) revolve mainly around pricing a whole-life solution to deliver the Output Specification. This model has been used internationally to deliver toll and non-toll road infrastructure projects.

The key features of this model are:

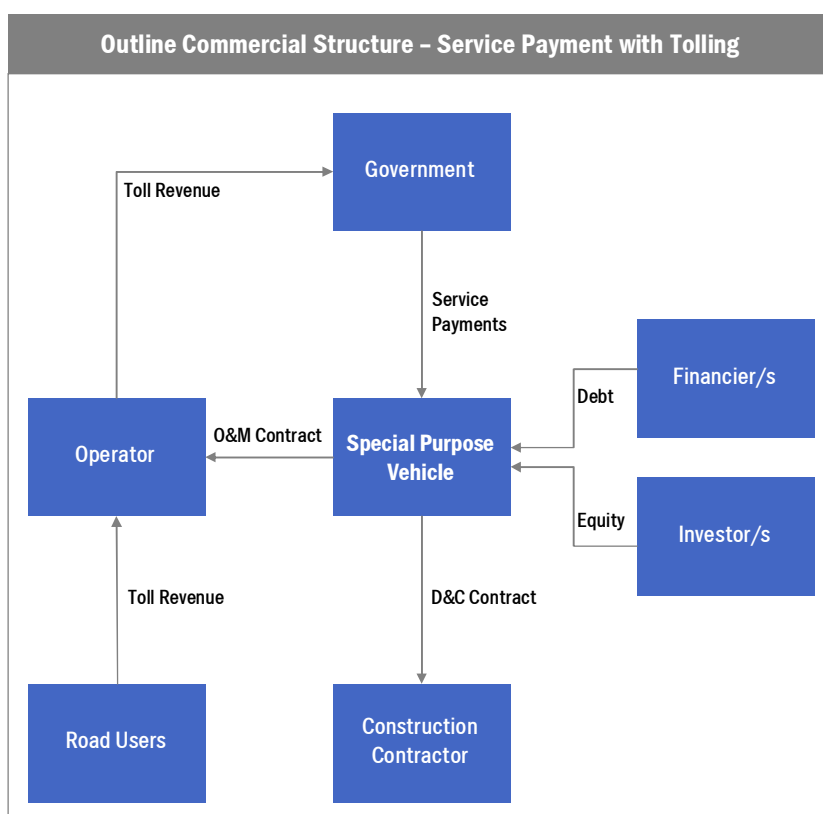
- The private sector is responsible for building, owning, operating and funding the infrastructure, including the e-tolling system under a typically long-term (construction plus 30 to 40 years) concession granted by the government.
- The private sector bids a service payment based on asset availability and service performance specified by the Output Specification. The proponent is required (and provided incentive by way

of deductions from the service payment) to maintain the infrastructure according to pre-determined performance standards and to achieve key performance indicators (e.g.: accident rates, traffic flow speeds, response to incidents etc).

- The proponent has incentives to deliver the asset as early as possible, as the service payments do not commence until operational commencement.
- The government retains the risk of demand for the asset.
- The service payment is fixed, providing budget certainty. The service payment is reduced where the proponent’s service delivery does not meet the requirements of the Output Specification.
- Private sector finance is at risk to ensure that performance standards are maintained throughout the life of the concession.
- The project is transferred to the government at the end of the concession period in an agreed hand back condition.

If a real toll is imposed on users of the road, the government collects the toll as illustrated below:

**Figure 3: Availability Model with Tolling**



Availability payment models with tolling also exhibit the following features:

- Traffic risk is retained by the government and the proponent collects the tolls on behalf of the government. The risk of installation, operation and maintenance of the e-tolling system can be transferred under the PPP contract to the proponent.
- Government maintains ownership of the revenue stream.

- Government retains control over the network through the retention of toll pricing. Retaining traffic risk will mean that the government will not be required to compensate the proponent in the event that the government decides to change tolling arrangements or network configuration. However, any resultant changes to traffic volumes are worn by the government by way of variant revenues.
- The traffic revenue upside and downside risk is borne by the government, which is in contrast to the recent toll road PPP projects undertaken in Australia.

In Australia, the service payment model has been adopted for the delivery of social infrastructure, however there is a lack of precedent for service payments with tolling in the major projects sector. An important consideration for this delivery model is the market acceptability of such an arrangement, which may impact the value for money derived from such an arrangement.

### Availability Model – User Charging

#### *Case Study of Availability Payment Model – Norwegian Roads Program*

In 2001, the Norwegian Public Roads Directorate with the assistance of Ernst & Young, launched a pathfinder PPP roads program that comprised of three projects. The program's objectives are to:

- Maximise value for money in procurement
- Minimise delays in the process using a specific Norwegian model rather than importing another system.

The Norwegian road program's payment mechanism is unique in the fact that while motorists pay real tolls to use the road, the payment regime as far as the Concessionaire is concerned is 100% de-linked from real traffic or toll risk. Its revenues come directly from the government in the form of an availability or service based payment, with around 80% of this being availability-based and the remaining 20% being performance-based in terms of reaching certain specified standards in the maintenance and operation.

Additionally, on top of this notional 100% payout figure, there is the possibility of small bonus payments based on the road's safety record in comparison to other Norwegian roads and also to compensate for extra wear on the road if heavy vehicle traffic exceeds forecasts.

A key driver in the selection of an availability based payment mechanism for the Norwegian road program was the limited potential traffic volumes and the remote location of several of the potential road projects, which led to the conclusion that it would not be viable to pass real traffic risk to the private sector without a major upfront government contribution.

The availability based payment mechanism ensured that the project was attractive to the European market, which was demonstrated by the project closing, in a then European record of 12 months. It also ensured that the key government objective of improved safety was achieved.

### Delivery Models With Demand Risk Transfer

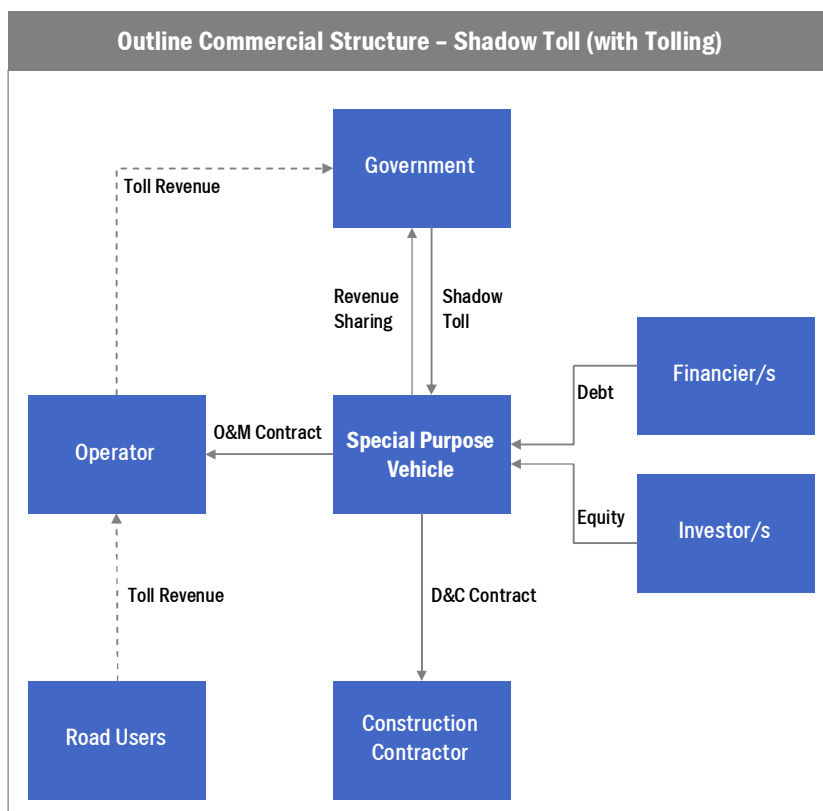
#### *Shadow Toll Model*

Shadow toll models were implemented on early PPP roads projects in the UK and Europe. The private sector income for a shadow tolling project is in the form of regular public sector payments based on traffic volume.

Figure 4 illustrates the key elements of the Shadow Toll Model:



**Figure 4: Shadow Toll with Tolling**



The key features of this model are:

- The flexible payment mechanism - By making payments to the private sector dependent on traffic volume, it provides an incentive to maximise the usage of the road as well as indirectly transferring traffic risk.
- Possible incorporation of non-traffic driven reward payments and penalties also enable the government to align the private sector’s objectives to that of the travelling public.
- It provides the option for the public sector to transfer traffic risk to the private sector without introducing direct user charges or real tolls and creating the associated traffic diversion effects.
- The tolls paid to the private sector are referred to as “shadow” tolls since the usage payment is made by the public sector rather than the road user.
- If a real toll is introduced for road users, adopting shadow tolls is a complex way of transferring traffic risk back to the private sector. This may be achieved more simply by allocating revenue risk to the proponent under other models such as a Build Own Operate Transfer (BOOT) Model. However, shadow tolls may provide an option for transferring traffic risk if a BOOT model is considered to have significant risk, such as political risk, and cannot be implemented.

Shadow tolls were originally conceived in the UK, when the levying of tolls was considered unpopular with the public. Shadow tolls were considered a transitory mechanism to move to direct user charges at some time in the future, however this has not occurred due to various policy reasons. The UK’s National Audit Office (NAO) has criticised the use of shadow tolls in its review of the

Design Build Financing Operate roads program<sup>2</sup>. This criticism is largely directed at the appropriateness of transferring volume risk to a private sector operator when it is unable to influence demand for the road through direct pricing and/or related marketing measures. In effect there is little a private operator can do to increase traffic usage under the shadow toll mechanism. The NAO has concluded that it is likely that the premium paid for transferring volume risk via a shadow toll mechanism outweighs the benefit.

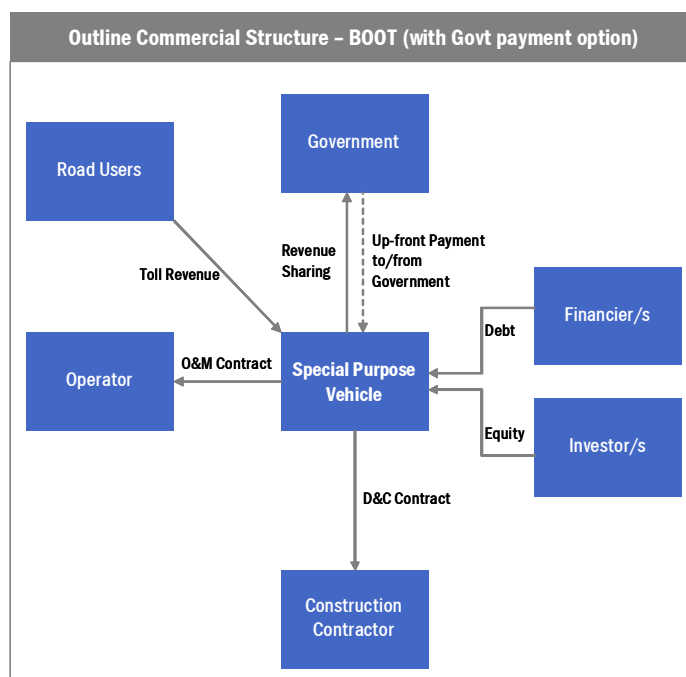
**Build Own Operate Transfer (BOOT) Model**

The BOOT model reflects the delivery model that has been used for most toll road PPP procurements both in Australia and internationally, where the private sector builds, owns and operates the asset, which it transfers to the government at the end of the concession period. This delivery model involves the transfer of the majority of construction, operation, maintenance and traffic risks to the private sector. Therefore, proponents’ bids (technical, financial and commercial) revolve mainly around assuming a view on future traffic flows. A real toll is levied on road users and collected by the private sector.

The key difference between the BOOT model and the shadow toll model with tolling is that much of the traffic risk is transferred to the private sector under a BOOT model, as the private sector directly recoups a portion or all of its costs through the collection of toll revenue from road users.

Figure 5 illustrates the structure of a BOOT Model:

**Figure 5: BOOT Model**



<sup>2</sup> Department of the Environment, Transport and the Regions: *The Private Finance Initiative: The First Four Design, Build and Operate Roads Contracts*, published 28/1/98 (refer [www.nao.org.uk](http://www.nao.org.uk))

Key features of this model are:

- The private sector is responsible for building, owning (including assuming traffic/revenue risk), operating and funding the infrastructure under a long-term (construction plus 30 to 40 years) concession granted by the Government.
- The private sector recoups part or all of its investment through the collection of toll revenues from road users. Any proposed shortfall to the private sector can be addressed in the Concession Agreement.
- The government retains the right to set the initial toll level and agree the escalation method.
- Compensation mechanisms would be agreed for any changes in tolls or network impacting on future traffic or revenue.
- Upside toll revenues are shared with the government. Consortia are invited to bid a percentage share of toll revenue which increases as traffic increases.
- The Project is transferred to the government at the end of the concession period in an agreed hand back condition.
- As the private sector is responsible for traffic risk, the Government may need to consider agreeing to limit network variations and/or provide compensation for any variations. However, it is worth noting that the private sector has over time accepted this risk. Recent Australian transactions have involved minimal or no undertakings that limit network changes from the relevant Government agency.
- The private sector is effectively incentivised to deliver the asset as quickly as possible. This is because the contractor is typically also an equity investor in the project vehicle and thus is driven by gaining access to toll revenues (and thus generating equity returns) as quickly as possible. Early completion bonuses are also a key method used to provide incentives to achieve early completion. Experience on other toll roads in Australia that have been delivered via this model support this view.

### ***BOOT Model Variations***

There are a number of variables that will ultimately determine the payment structure for a BOOT model offered to the private sector. These may involve:

- The toll level is restricted by a toll range determined by government. The appropriate cost of the toll can be determined by the economic value of the road to its users, usually measured by travel time savings. If such a toll value is adopted, the project could potentially be delivered without any government contribution. However, if the toll cannot be set at its economic value because this value is greater than the Government's acceptable toll limit or it has a negative impact on traffic volumes, the Government can determine a toll level or limit that it seeks to impose. In doing so, the private sector's ability to recoup its investment from toll revenues is restricted as the government toll range may restrict the toll price that the private sector is able to charge. This restriction may result in a degree of traffic risk being retained by the public sector.
- A contribution from the Government. If the government determines a toll range which restricts the private sector capacity to fully recoup its investment through toll revenue, the private sector tender will forecast a shortfall between the toll revenues expected and the cost of delivering the project. To address this shortfall, the private sector can seek a government contribution to address this funding gap. Government contributions can be provided as an upfront payment to

assist in decreasing the cost of construction and the construction risk for the private sector.

Payments can also be made over time once the project is operational, which decreases the private sector's revenue risk. It is also possible for a combination of upfront payments and payments over time to be provided by the government. The government may determine prior to the tender phase the method of contribution it is willing to provide and it may also seek the private sector to bid for a level of contribution as part of the tender process. The private sector tender will normally identify the preferred method of any government contribution.

- Payment to the Government. If the private sector tender forecasts a surplus between the toll revenue and the cost of delivery, a payment to the Government may be offered as part of the tender, or the Government may seek to have the toll level reduced.
- The concession term may vary. The Government may request that the private sector determines the length of the concession term appropriate for their tender.

A number of urban toll road PPPs in Australia have involved the private sector being confined to bidding the up-front payment to/from government, with the public sector defining toll levels and concession term.

### **Evolution of the Australian BOOT model**

The Australian toll-road market has evolved, to a large extent, based on project precedence. Governments have generally adopted a framework for each new project which is based on the most recent project to close in the market. This approach helps to build confidence in the market that the Government is not trying to revisit issues in relation to risk allocation and other commercial terms which have been accepted on other similar projects. This helps to keep bid costs to a minimum and hence makes the project more attractive to the bidding market.

Each project does tend to introduce new concepts and updated risk positions depending on the nature of each project so the market is continuing to evolve. For example, the early BOOT contracts (e.g. Eastern Distributor in Sydney) did not mention the issue of refinancing, therefore any benefit from refinancing went to the private sector. Over time governments have realised that there has been significant benefit from this which they have not been able to share in, therefore recent BOOT contracts have included a clause which requires that any refinancing benefit (other than those assumed in the bid) should be shared with government on a 50:50 basis.

As well as movements in risk position, a number of new concepts have developed as a result of the Government's changing objectives for toll-road projects. Many of these changes are as a result of experiences and feedback from other BOOT projects. An example of this is the introduction of Key Performance Regimes ("KPIs") to BOOT contracts. This concept was first developed on the Mitcham-Frankston Project in Victoria and was also included in the North-South Bypass Tunnel project in Queensland. This was introduced in recognition of the fact that the private sector is not directly provided incentive to offer appropriate levels of customer service as it does not materially affect their revenue stream (i.e. tolls). To ensure that the level of customer service was up to the standard required, a regime was introduced which provides a financial incentive for the private sector to meet the specified customer service levels.

### ***Domestic experience in Experiences on Recent Toll-road Projects***

Recent toll-road PPP competitions in other States have generated Value For Money outcomes for the Government. This has largely been driven by the private sector taking a more aggressive view on traffic forecasts combined with more innovative design solutions. Some specific project experiences include:

- Significant risks materialised for the Melbourne City Link BOOT toll-road concessionaire, during construction (tunnelling problems) and at the commencement of operations (problems with the electronic tolling billing systems). However, as these risks were allocated to the party best able to manage these risks (i.e. the private sector) there was no additional cost to the Government. Likewise, the private sector was provided incentive by having private finance at risk, to resolve the issues and deliver what is now generally accepted as being a successful asset
- The toll-road concessionaires for the M2 over estimated traffic revenue during the ramp-up phase of the contract. This resulted in lower than forecast revenues. This did not result in any cost to the Government. Again, the private sector was provided incentive by having private finance at risk to resolve the issues
- The Westlink M7 toll-road in Sydney opened eight months ahead of schedule in December 2005. This was driven by the opportunity to derive additional revenue from the toll-road during the extended operating period created by the early completion.

Although the experiences outlined above resulted in a positive Value For Money outcome for the Government there are other political issues which can arise where project outcomes are not well received by the users (i.e. the public). Sydney's Cross City tunnel opened in 2005 and has received a significant amount of negative publicity, mainly in relation to toll levels and changes to the surrounding road network designed to "funnel" traffic into the tunnel.

The toll-road has also achieved user levels significantly below the traffic levels forecast, although from a financial point of view, the Government is protected from this as demand risk was transferred to the private sector. The toll level, (due to the lack of perceived value) surface road closures and lack of transparency have been the subject of public criticism.

Following this public criticism in relation to the Cross-City Tunnel, The NSW Premier's Office released a report recommending changes to the way in which the Government procured toll-roads in the future ("Review of Future Provision of Motorways in NSW", known generally as "the Richmond Review<sup>3</sup>"). The Richmond Review recommended that NSW continue, in appropriate circumstances, to use PPPs to deliver motorway projects<sup>4</sup> and made some further recommendations in relation to the approach to project procurement and structuring. Key recommendations included:

- No longer applying the "no cost to the Government" approach previously taken in NSW
- Improving the opportunity for bidder innovation and competition by considering alternative toll levels and concession lengths as part of the tendering process
- Emphasis on Value for Money to road users in the structuring of projects
- Stopping the closure of surrounding roads to funnel traffic on to the toll-roads.

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<sup>3</sup> Review of Future Provision of Motorways in NSW, 2005

<sup>4</sup> Review of Future Provision of Motorways in NSW, 2005, page 7

The recommendations of the Richmond Review appear to have been generally accepted by State governments and the bidding market, therefore the Government should be cognisant of these recommendations when structuring any PPP procurement processes they decide to enter into.

### Differential Tolling

Consideration of other payment mechanisms that apply differential tolling may also be considered. This is a way of tolling users who gain the most in terms of travel time savings (i.e. freight/commercial vehicles) while allowing private users to use the road at reduced or zero tolls.

For example, a Truck Only Toll (TOT) is a mechanism that adopts an electronic toll collection system that applies only to commercial vehicles. Other variations of this mechanism can include dedicated commercial vehicle lanes on motorways. The authorities developing such schemes have noted the following potential benefits:

- Enhanced transport options through the provision of more reliable routes and journey times, especially during peak periods.
- Improved safety and efficiency in the road corridor. By encouraging commercial vehicles to use the TOT lanes, the mix of vehicles in remaining lanes becomes more uniform e.g. reduced risk of truck/car accidents and the improved safety benefits.
- Improved freight productivity. The efficiency of freight movement in and around major metropolitan areas will likely be even more of a concern to the business community in the future. TOT lanes can greatly improve commercial vehicle productivity by saving travel time and increasing trip reliability.
- Managed congestion levels for truck travel and improved general motorway lane congestion. By imposing tolls when demand levels reach capacity on TOT facilities, the level of congestion on TOT facilities is controlled. If a large number of trucks are removed from the general purpose lanes and the local road network, congestion levels will be reduced for other traffic as well.

There are several variations of truck tolling systems already implemented and further projects being considered across Europe (including Switzerland, Austria and Germany) and the US. As an example, Germany launched an electronic truck distance based tolling system in January 2005 called Toll Collect. Using Global Positioning System ('GPS') technology, the system charges per kilometre vary depending on number of axles and vehicle's emission category.