

General Purpose Standing Committee No. 3

Rail infrastructure project costing in New South Wales

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Terms of reference

These terms of reference were referred to the Committee by House on 5 August 2011.

1. That General Purpose Standing Committee No 3 inquire into and report on rail infrastructure project costing in New South Wales and in particular:
 - (a) methodologies used by the Transport Construction Authority, NSW Treasury and other government agencies to cost rail projects,
 - (b) ‘concept estimates’ for rail project costs,
 - (c) the differences between rail and road project costs methodologies,
 - (d) cost estimate methodologies applied in other Australian states, by the Australian Rail Track Corporation and internationally
 - (e) tendering processes, and
 - (f) any other related matter.
2. That the Committee report by Friday 9 March 2012.¹

¹ *LC Minutes* No. 28 (5/08/2011) Item 4, 311; *LC Minutes* No. 62 (16/02/2012) Item 6, 695.

Committee membership

The Hon Natasha Maclaren-Jones MLC	Liberal Party	<i>(Chair)</i>
The Hon Niall Blair MLC	The Nationals	<i>(Deputy Chair)</i>
The Hon John Ajaka MLC	Liberal Party	
The Hon Cate Faehrmann MLC	The Greens	
The Hon Paul Green MLC	Christian Democratic Party	
The Hon Penny Sharpe MLC	Australian Labor Party	
The Hon Mick Veitch MLC	Australian Labor Party	

Table of contents

	Chair's foreword	ix
	Summary of findings and recommendations	x
Chapter 1	Introduction	1
	Terms of reference	1
	Conduct of the Inquiry	1
	Submissions	1
	Public hearings	1
	Report structure	1
Chapter 2	Project cost estimation	3
	Greenfield and brownfield construction	3
	The challenges of project cost estimation	3
	The best practice standard	5
	Specific Attribute 1 - Project scope definition	5
	Specific Attribute 2 - Estimate structure and presentation format	6
	Specific Attribute 3 – Estimate preparation	8
	Specific Attribute 4 – Review and approval	9
	Specific Attribute 5 – Change management	9
	Costing methodology used in NSW	10
	The involvement of Treasury	10
	Transport for NSW business model	11
Chapter 3	Estimating risk	13
	Probabilistic versus deterministic contingency methodology	13
	A national comparison of probabilistic and deterministic approaches	14
Chapter 4	Are we paying too much for rail infrastructure?	17
	The difficulty of accessing cost data	17
	Does it cost more to build rail in NSW?	19
	The Ernst & Young benchmarking study	19
	The road results	20
	The rail results	20
	The need for consistent data	22

	Contributors to the high cost of rail	23
	Inadequate infrastructure planning	24
	A project pipeline	26
	Changing user objectives	26
	An overinflated scope of works?	27
	Changing standards	29
	An over reliance on consultants	29
	The proper allocation of risk	31
	The use of P90 as a cost estimate	32
	Do cost estimates drive the final cost of a project?	33
	Safety	35
	Insurance	35
	Conclusion	36
Chapter 5	Tendering	37
	Transport for NSW procurement policy	37
	The packaging strategy	37
	The contracting strategy	37
	Registration of interest and hurdle criteria	38
	The invitation to tender	39
	Competitiveness	39
	The size of the project	39
	Hurdle criteria	40
	Concentration of ownership of construction companies	42
	The cost of tendering	43
Appendix 1	Submissions	45
Appendix 2	Witnesses	46
Appendix 3	Tabled documents	48
Appendix 4	Answers to questions on notice	49
Appendix 5	Minutes	50
Appendix 6	Dissenting report	61

Figures

Figure 1	Components of a project cost estimate	6
Figure 2	Probabilistic cost curve	8
Figure 3	Rail – total construction cost per track kilometre (\$m)	21
Figure 4	Main contributors to the high cost of rail construction in Australia, in particular NSW	24

Tables

Table 1	Comparisons of contingency methodology in road and rail projects across Australia	15
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Chair's foreword

Estimating the cost of transport infrastructure is a complex task. The time frame to plan and build major transport infrastructure can span ten years or more, and projected budgets can sometimes amount to billions of dollars. Worldwide, infrastructure proponents are grappling with the issue of how to reliably estimate the cost of major projects.

In 2008 the Australian Government sponsored the development of an industry best practice cost estimating standard for estimating the cost of transport infrastructure, which has since been implemented across most jurisdictions, including NSW. Whilst the merits of the Standard were debated by witnesses, including the best method to estimate contingent risks on a project and the appropriate level of risk, the Committee supports the implementation of the Standard.

In 2010 Transport for NSW commissioned a benchmark road and rail cost data report. The Committee supports this initiative and recommends that another benchmark report is commissioned and published in four years time. To facilitate this, the Committee also recommends that the Department promote the use of consistent cost categories in its projects so that project costings can be easily compared and benchmarked.

Whilst there was a strong perception among some Inquiry participants that the cost of rail projects in NSW is significantly higher than other jurisdictions in Australia, this view is not supported by the available quantitative data, which suggests that it costs slightly more to build new rail infrastructure in NSW compared to elsewhere. Nevertheless, building rail infrastructure is an expensive exercise and governments should strive to contain costs where possible. However, the Committee would not like to see any diminution of Transport for NSW's excellent safety record in an effort to reduce costs.

In relation to tendering of infrastructure projects, some Inquiry participants expressed concern about the level of competition. These concerns were largely focussed around three areas: the large size of infrastructure projects, which limits the number of companies able to bid for them; onerous hurdle criteria that companies must pass before being invited to tender for a project; and the concentration of ownership of construction companies. Accordingly, the Committee has made a recommendation to address these issues, which will lead to a competitive tendering process, which will ensure value for money to NSW taxpayers.

On behalf of the Committee I would like to thank all those who participated in the Inquiry, including those who made submissions and gave evidence at the public hearings.

I would like to thank my fellow Committee members for their work and contribution. On their behalf, I would also like to thank the Committee secretariat Beverly Duffy, Stewart Smith and Lynn Race, who provided invaluable support during this inquiry.



Hon Natasha Maclaren-Jones MLC
Committee Chair

Summary of findings and recommendations

- Finding 1** **36**
It costs slightly more to build new railway infrastructure in New South Wales compared with other jurisdictions in Australia.
- Recommendation 1** **16**
That Transport for NSW undertake further research on the performance of actual versus budgeted outcomes under both probabilistic and deterministic contingency estimation approaches for major road and rail infrastructure, with a view to standardising approaches and producing more accurate cost estimates.
- Recommendation 2** **18**
That during the lifecycle of a transport infrastructure project, Transport for NSW publish the reasons for any significant changes in the project budget.
- Recommendation 3** **22**
That Transport for NSW promote the use of a consistent Work Breakdown Structure, both within NSW and in other jurisdictions, for the purposes of comparison, review and benchmarking of transport infrastructure costs.
- Recommendation 4** **23**
That Transport for NSW promote greater consistency in the capture and allocation of corporate overhead costs to projects, both within New South Wales and in other jurisdictions, for the purposes of comparison, review and benchmarking of transport infrastructure costs.
- Recommendation 5** **23**
That Transport for NSW investigate the higher corporate costs, rail client administrative costs and 'other costs' incurred for rail projects in New South Wales, as defined in the Ernst & Young report. Further, that Transport for NSW make public any findings and recommendations from this investigation.
- Recommendation 6** **23**
That Transport for NSW commission and publish another transport infrastructure project benchmark report in four years time.
- Recommendation 7** **31**
That Transport for NSW examine increasing its in-house expertise to reduce its over reliance on consultants.
- Recommendation 8** **32**
That Transport for NSW establish guidelines for effective risk allocation and procurement models, that support the allocation of risk where it is most effectively managed.
- Recommendation 9** **40**
That Transport for NSW review its tendering strategies to ensure that infrastructure projects are broken down into appropriate sized packages to increase competition between tenderers and lower barriers to provide opportunities for local businesses.

Chapter 1 Introduction

This chapter provides an overview of the inquiry process and a brief outline of the report structure.

Terms of reference

- 1.1 The Inquiry terms of reference were referred by the House on 5 August 2011 and require the Committee to report on rail infrastructure project costing in NSW. The terms of reference can be found on page iv. The House agreed to extend the reporting date to 9 March 2012 on the 16 February 2012.

Conduct of the Inquiry

Submissions

- 1.2 The Committee called for submissions through advertisements in the *Sydney Morning Herald* and *The Daily Telegraph* on 17 August 2011. The Committee also sought submissions by writing directly to organisations with a likely interest in the Inquiry, including government agencies, consultants and university academics. The closing date for submissions was Wednesday 28 September 2011.
- 1.3 The Committee received a total of 23 submissions, including four supplementary submissions. A list of all submissions is provided in **Appendix 1**.

Public hearings

- 1.4 The Committee held two public hearings at Parliament House on 21 November and 6 December 2011. A list of hearing witnesses is reproduced in **Appendix 2**. A list of documents tabled during the hearings is available in **Appendix 3**. Also available is a list of witnesses who provided answers to questions taken on notice during hearings in **Appendix 4**. The transcripts of the hearings are available on the Committee's website and the minutes of the proceedings of all Committee meetings relating to the inquiry are included in **Appendix 5**.
- 1.5 The Committee extends its thanks and appreciation to those who participated and contributed to this Inquiry either by making a submission, giving evidence or attending the public hearings.

Report structure

- 1.6 The report is comprised of five chapters.
- 1.7 **Chapter 2** describes project cost estimation methodology, and outlines the Best Practice Standard for cost estimation. The implementation of this Standard in NSW is briefly discussed.

- 1.8 One component of the Standard is how to estimate contingent risks in a project cost estimate. **Chapter 3** discusses issues raised by Inquiry participants in relation to using probabilistic or deterministic contingent risk estimation techniques.
- 1.9 **Chapter 4** presents benchmark information on the cost of building road and rail projects in NSW and other Australian jurisdictions. The chapter concludes with a review of factors that contribute to a high cost of rail, both for Australia generally and also specifically for NSW.
- 1.10 Tendering processes are discussed in **Chapter 5**.

Chapter 2 Project cost estimation

The construction of major transport infrastructure is a complex exercise, involving multidisciplinary teams, a construction lifespan of many years and budgets of hundreds of millions of dollars or more. As this chapter demonstrates, there are many variables that must be taken into account when estimating the cost of a project.

Accurate cost estimation is a critical element of transport infrastructure. If a proponent under-estimates the cost, they may not have enough money to finish the project, completion may have to be delayed or funds may have to be taken from other budget areas; conversely, over-estimating the cost of a project may reduce the ability of other programs or projects to be funded, or result in a project not being constructed at all.

The Chapter opens with a short section on key definitions and the challenges of cost estimation. The Australian Government's best practice standard for cost estimating road and rail projects is outlined. The Chapter concludes with an explanation of how Transport for NSW undertakes its project costing.

Greenfield and brownfield construction

- 2.1** One of the key factors affecting the cost of a transport infrastructure project is whether the construction site is a 'greenfield' or 'brownfield' site. A greenfield site refers to those projects which are constructed away from existing operating infrastructure. In the case of rail projects, a new rail line in a new corridor is substantially greenfields construction. Examples include the South West Rail Link, or the Alice Springs to Darwin Link.
- 2.2** Greenfield construction projects are not significantly affected by real or potential constraints from existing operational infrastructure except at the connection or crossing points.²
- 2.3** In contrast, the term brownfields applies to those projects which are constructed within or alongside operating infrastructure, such that the construction sequence, methods and access within the worksite are significantly constrained in some way. For rail projects, the operator's objectives may include the continuity of rail operations throughout the construction program. Brownfield construction requires significant additional design, construction and management resources from both the contractor and the client organisations than greenfield construction. Examples include the Kingsgrove to Revesby quadruplication, the Richmond Line duplication and the Southern Sydney Freight Line.³

The challenges of project cost estimation

- 2.4** Estimating the cost of major infrastructure projects is a complex task. Mr Chris Lock, Deputy Director General, Transport for NSW, acknowledged that project costing is inherently uncertain because it is about predicting the future.⁴

² Submission 13, Evans and Peck, p 5.

³ Submission 13, Evans and Peck, p 5.

⁴ Mr Chris Lock, Deputy Director General, Transport for NSW, Evidence, 21 November 2011, p 3.

2.5 Mr Wielinga, Director General, Transport for NSW, noted that there are many variables that must be taken into account when estimating the cost of a project, ranging from site and technical investigations to the state of the contracting market, weather and foreign exchange rates:

...when you are standing at day one and you are trying to put a price on a project you then ask yourself, "What do I need to be confident about the price on that project?"

...You need prior knowledge of the conditions that will apply many years down the track when the project is being delivered. What will be the state of the contracting market at that time? What will inflation be? What will your labour supply be like? What are the specific cost increases in raw materials that you will have to deal with at that time? What are the specific cost increases in manufactured components at that time? What are the land prices going to be? Foreign exchange rates, weather conditions, design standards. ... When we say that doing estimating is inherently uncertain it is that because it is difficult to predict the future.⁵

2.6 Mr Lock, and other witnesses before the Committee, made reference to the work of Professor Bent Flyvbjerg, Professor of Major Programme Management at Oxford University. In his book *Megaprojects and Risk, An Anatomy of Ambition*, Flyvbjerg noted a 'calamitous history of cost overrun' in major infrastructure projects worldwide. He observed that the difference between actual and estimated investment cost is often 50 to 100 per cent, and for many projects cost overruns end up threatening project viability. Flyvbjerg writes:

A main cause of overruns is a lack of realism in initial cost estimates. The length and cost of delays are underestimated, contingencies are set too low, changes in project specifications and designs are not sufficiently taken into account, changes in exchange rates between currencies are underestimated or ignored, so is geological risk, and quantity and price changes are undervalued as are expropriation costs and safety and environmental demands.⁶

2.7 In contrast, Mr Peter Martinovich, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia, explained to the Committee how transport infrastructure projects in Western Australia define the scope of their work in detail, to 'eliminate as much risk as possible'. Mr Martinovich told the Committee:

Recently when we went to tender, with a public cost of \$607 million in our term dollars for a project to sink a railway and a bus way, the cost of tender price that came in for the railway works was not 90 per cent of what was estimated, it was more up around the 99 per cent.

I think one of the reasons why that tender price came in so close was an appreciation by the contractor of the amount of work that had been done in preparing the final cost estimate which was a very highly defined scope of work, and I take great satisfaction that I think we have been given that respect.⁷

⁵ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 21 November 2011, p 7.

⁶ Flyvbjerg, B. et al, *Megaprojects and Risk. An Anatomy of Ambition*. Cambridge University Press, 2003, p 12.

⁷ Mr Peter Martinovich, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia, Evidence, 6 December 2011, p 42.

- 2.8 In recognition of the challenges of cost estimating major projects, and to ensure that the Australian government received funding requests that were backed by reliable cost estimates, in 2008 the then Federal Department of Infrastructure, Transport, Regional Development and Local Government engaged the consultancy firm, Evans and Peck, to develop a best practice standard. The Standard was designed to provide a blueprint for estimating the costs of road and rail projects for which Australian Government funding was being sought. The next section reviews this Standard.

The best practice standard

- 2.9 The *Best Practice Cost Estimation for Publicly Funded Road and Rail Construction* (the Standard) was published in 2008.⁸ An updated Proof version for Jurisdictional Training was released in May 2011, and was expected to be formally published towards the end of 2011. This report relies on the Proof Version, as provided to the Committee by Evans and Peck.
- 2.10 The Best Practice Standard outlines the principles for best practice cost estimation. It is not a formal ‘standard’ in the context of ‘Standards Australia’ but rather a document providing principles based guidance. The Standard has been adopted by most Australian jurisdictions.
- 2.11 The Standard is structured around a series of attributes, both ‘general’ and ‘specific’. General attributes include being easy to use, comprehensive, logical, precise and informative. The Standard’s five specific attributes are explained below.

Specific Attribute 1 - Project scope definition

- 2.12 The most important factor in developing a reliable cost estimate is the ability to define the project scope. The scope determines what is, and what is not, included in the project, and hence the cost estimate. The Standard notes that all the best cost estimating in the world will not produce a reliable cost estimate if the project scope is poorly defined.
- 2.13 Project scope has several components, the first of which is project objectives. Once the objective is defined (for example: a link between corridors; or a corridor capacity improvement), the performance criteria and functionality requirements can be established. Performance requirements may include vehicle or train path carrying capacity, speed limits or sustainability criteria.
- 2.14 Important elements of the project scope include definition, context and constraints. This sets out the key parameters and constraints under which the project will be delivered, which in turn affects the direct and indirect costs of a project. The physical scope of a project should document what works are required, both permanent and temporary. It should also include concept or preliminary design drawings and information such as: nature of work (eg interchange/junction); extent and limits of work; assumptions made in design of key features; interfaces such as property or with existing infrastructure; and services or utilities.

⁸ This section is a summary of the document: Australian Government, Department of Infrastructure and Transport, *Best Practice Cost Estimation Standard for Publicly Funded Road and Rail Construction*. Prepared by Evans and Peck Pty Ltd, May 2011.

Specific Attribute 2 - Estimate structure and presentation format

2.15 This part of the Standard outlines the component parts of a project cost estimate, which include the following:

- A base estimate comprising the sum of construction costs and client's costs
- A contingency allowance that is applied to the base estimate to reflect the required levels of confidence with the estimate
- Cash flow applied to the base estimate plus contingency based on the project program
- Escalation that is applied to the cash flow and which takes account of increased costs for the period from the base date of the estimate to the completion of construction.

2.16 This is shown graphically in Figure One below.

Figure 1 Components of a project cost estimate



Contingency for risk

2.17 The Standard notes that a key element of the cost estimate is the inclusion of a realistic contingency allowance. There are two basic questions that need to be answered in order to establish the contingency allowance: what is the risk profile of the project; and what level or probability of risk occurring should be allowed for in the contingency. The risk profile is based on an assessment of 'inherent' and 'contingent' risks.

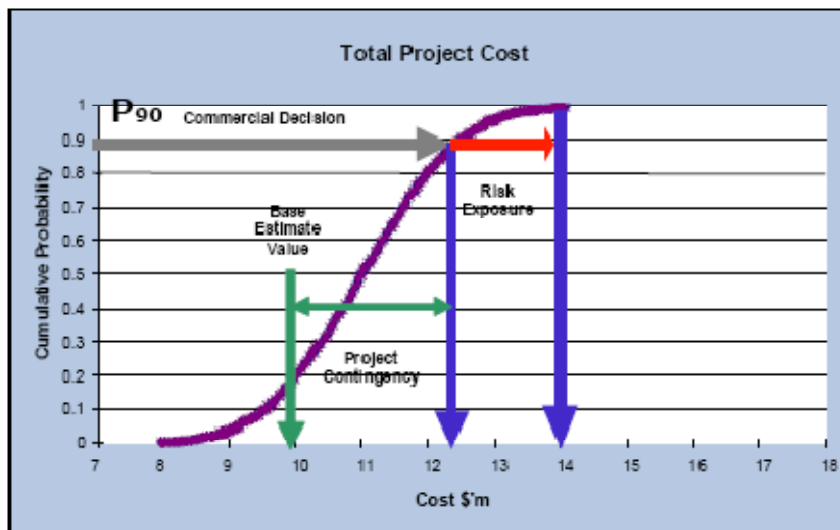
Inherent risks

- 2.18** Inherent risk relates to measured items, that is, those items specifically identified within the various components of the base estimate and which will definitely contribute to project cost, but where there remains uncertainty as to the accuracy or reliability of the amount in the base estimate. For example, a project manager is aware that sound barriers will need to be installed in sections along a railway line, but is unsure of the length required, or whether the barriers could be earth mounds, or made of timber or concrete construction. Inherent risks are often quantified by using a three point estimate: the lower bound estimate, the most likely, and the upper bound value. Inherent risk is applied to both measured items in direct costs and to measured items in indirect costs, such as margin and client's costs.

Contingent risks

- 2.19** Contingent risk relates to the risk attached to unmeasured items, that is, those items not listed in the base estimate because they are unknown or loosely identified and may not occur. Typically contingent risks include weather impact, industrial issues, geotechnical investigations and potential claims from contractors.
- 2.20** The contingency allowance should be estimated by one of the following two methods:
- A probabilistic method – identifying the cost components, determining the likely range of each component and undertaking a computer simulation process (eg a Monte Carlo or similar analysis) to generate a probability distribution of project costs; or
 - A deterministic method – this is achieved by manually applying a percentage to either individual cost elements or to the aggregate cost estimate.
- 2.21** Whilst the two methods are in use by road and rail agencies in Australia, the Standard recommends the use of the probabilistic method wherever possible. When contingency is calculated using the probabilistic method, the risk is represented graphically by an 'S' curve, as shown in Figure 2. The contingency allowance is expressed as a 'P' or probability value with typically P50 and P90 values being required by funding agencies. These terms are defined as follows:
- P50 represents the project cost with sufficient risk provisions to provide a 50 per cent level of confidence in the outcome, that is, that there is a 50 per cent likelihood that the project cost will not be exceeded
 - P90 represents the project cost with sufficient risk provisions to provide a 90 per cent level of confidence in the outcome, that is, that there is a 90 per cent likelihood that the project cost will not be exceeded. P90 represents a conservative position, one that has only a 10 per cent chance of being exceeded.
- 2.22** The Standard notes that strictly speaking, a true 'P' value can only be calculated through a probabilistic risk assessment, using a Monte Carlo or similar statistical sampling technique. However, an approximation to a P50 or a P90 value also can be estimated using a deterministic method.⁹

⁹ Evans and Peck Pty Ltd, *Best Practice Cost Estimation Standard for Publicly Funded Road and Rail Construction*. May 2011, p 16.

Figure 2 Probabilistic cost curve

Submission 13, Evans and Peck, Best Practice Cost Estimation Standard, p 16.

- 2.23** The Standard notes that to be competitive, contractors might typically bid for projects at lower P values such as P50, so that their contingency allowance is quite small compared to their base estimate. In contrast, owners prefer to have less commercial and/or political exposure in respect of capital budgets and often look for a P90 value.

Escalation

- 2.24** The fourth part of the cost estimate structure is cost escalation. An escalation allowance is necessary to provide adequate funds to cover cost increases in the construction sector during the life of the project. The Standard notes that determining the rate of escalation each year into the future is unlikely to be reliable. The history of escalation movement shows it to be cyclical and generally trending in line with the volume of work in the market at any one time. For projects that are planned to start several years after the date on which the estimation is conducted, the cumulative amount of escalation may be a significant percentage of the cost.

Total outturn cost

- 2.25** The total outturn cost is the sum of the base estimate plus contingency plus escalation, and expressed in P50 and P90 values.

Specific Attribute 3 – Estimate preparation

- 2.26** This attribute is directed at the elements of each estimate. The Standard notes that insufficient attention to the quality of the inputs and the approach in the preparation of estimates will lead to unreliable results. Important aspects to consider when dealing with estimate content include:

- Using standard terminology and breakdown in cost structure that enables comparisons to be made between projects
- The project scope definition and checklists

- Using experienced people to increase the estimate's reliability
- Undertaking a risk assessment and determining the appropriate contingency allowance
- Using benchmarking and cost databases to validate cost estimates.

Specific Attribute 4 – Review and approval

2.27 According to the Standard, every cost estimate should be rigorously reviewed by an appropriate person, and should encompass the following questions:

- Has the cost estimate captured all relevant scope?
- Does the scope meets the objectives of the project?
- Does the estimate reflect the construction methodology, staging, constraints, program etc?
- Has the estimate been prepared following the best practice standard?
- Has a risk register been prepared and does it form the basis of the quantitative risk assessment?
- Does the cash flow reflect the key dates?
- If the estimate has changed significantly from the previous stage, are the changes explainable?

Specific Attribute 5 – Change management

2.28 The Standard notes that historically, the base estimate for most projects increases as the project moves through the various phases of the project. Cost estimates change over time for a wide range of reasons, though not always for acceptable or legitimate reasons. Changes to estimate values are caused by scope changes, changes to assumptions, pricing adjustments, errors, program changes, contingencies, escalation and many other reasons. Evans and Peck identified that the way cost estimates increased during the phases between project funding milestones was poorly explained and that better explanations of estimate changes must be provided. The explanations should focus on 'why' the change has occurred rather than only 'what' the change was. Articulating why there has been a change enables managers to make more informed decisions as to whether or not the change is justifiable.

Committee comment

2.29 The Committee understands that estimating the cost of major infrastructure projects is challenging, largely because it is about predicting the future. The work of Flyvbjerg demonstrates that internationally, major infrastructure projects can be affected by significant cost overruns – partly because the cost was not estimated properly in the first place. Similar concerns about possible exaggerated and actual costs of rail projects in NSW have contributed to the establishment of the Committee's inquiry. With this background, the Committee acknowledges and supports the work undertaken in Australia to develop a best practice cost estimation method.

Costing methodology used in NSW

2.30 According to Mr Lock, Deputy Director General of Transport NSW, the Transport Projects Division uses the Best Practice Standard for its project cost estimation, and has done so 'for some period of time'.¹⁰

2.31 Mr Wielinga explained that the Roads and Traffic Authority and the Transport Projects Division of Transport for NSW (and its predecessors including the Transport Construction Authority) have used the same basic methodology to estimate the cost of their respective road or rail projects:

The methodologies are essentially the same but there are some differences. When you are building a rail project obviously you have a different schedule of work packages to what you have for a road project, but the essential methodologies are the same.¹¹

2.32 Once a government has committed funding to a major infrastructure project, the cost estimate is stated in the budget papers. Mr Lock explained that the cost estimate used to be reported in the budget papers in dollars of the day, without escalation. Since 2004/05, budget allocations for major projects have been reported as a total outturn cost, which includes the escalation factor.

The involvement of Treasury

2.33 In its submission, NSW Treasury explained that it does not undertake project costings, and does not directly involve itself in the costing process. However, Treasury does review advice received by government agencies, and provides detailed guidelines for the preparation of business cases for capital projects that government agencies must follow.¹² Projects must pass through a 'gateway' process at key stages along the different phases of a project lifecycle. Treasury works closely with Transport for NSW during this gateway process.

The Gateway review

2.34 At different stages of a major project, and when key decisions are required, projects need to pass through a Treasury gateway process.¹³ NSW Treasury explained that the gateway process 'gives the Government a level of assurance on whether a capital investment is warranted, whether the process for identifying options is robust, and if the agency can demonstrate it has the capability and capacity to manage and deliver the project'.¹⁴

¹⁰ Mr Chris Lock, Deputy Director General, Transport for NSW, Evidence, 21 November 2011, p 3.

¹¹ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 21 November 2011, p 8.

¹² Submission 20, NSW Treasury, p 1.

¹³ Mr Wielinga, Evidence, 21 November, 2011, p 7.

¹⁴ Mr Richard Timbs, Deputy Secretary, NSW Treasury, Answers to Questions on Notice, 6 December 2011.

- 2.35** Mr Wielinga explained that during the gateway process Treasury focuses on costs and benefits in its analysis, whilst the Department may bring in a wider perspective:

Treasury is very focused on... looking at the project benefits and costs and that particular ratio to make sure that there is an adequate return to the community in delivering a project.

...They tend to make sure that the project is financially and economically sound. We tend to get broader involved in some of the social and equity issues associated with a project, and through the community input, particularly in the project development phase when environmental impact assessments are being done.¹⁵

- 2.36** The gateway process is an internal government review mechanism, and as such the Committee received limited evidence about it. However, Mr Paul Forward, Principal, Evans and Peck, noted that he has had experience with the Victorian gateway review process, which Victorian government agencies consider to be a valuable exercise:

...in Victoria the process is seen as an independent process, there to assist the agency and whilst Treasury funds the process, they do not get involved ... it is seen as a very constructive process and people welcome the gateway reviews within the agencies. They are very open and they see the gateway review as actually helping the management of that particular project. It is seen in a very constructive light.¹⁶

- 2.37** In contrast, Mr Forward suggested that the gateway process is not seen in the same constructive light in NSW, but is considered a barrier to overcome before the project can proceed to the next level.¹⁷ In response to this anecdotal evidence, NSW Treasury replied that it had no record of receiving criticism of this nature. Treasury noted that the gateway team networks and exchanges information on gateway best practice through the Gateway National Forum, comprised of gateway teams from other Australian jurisdictions and New Zealand.¹⁸

Committee comment

- 2.38** The Committee believes that further investigation of gateway methodology in other States should be undertaken by NSW Treasury to further improve the process in NSW.
- 2.39** The Committee notes that the role of Treasury in the final cost estimate of rail projects can be confusing, and would benefit from greater transparency.

Transport for NSW business model

- 2.40** The Transport Projects Division of Transport for NSW uses private sector consultants and contractors to do the body of work that is required for a transport project, with peer and internal review being conducted by persons employed by the Department. The Department does not undertake any of the design or construction work itself.

¹⁵ Mr Wielinga, Evidence, 21 November 2011, p 7.

¹⁶ Mr Paul Forward, Principal, Evans and Peck, Evidence, 21 November 2011, pp 29 - 30.

¹⁷ Mr Paul Forward, Principal, Evans and Peck, Evidence, 21 November 2011, p 30.

¹⁸ NSW Treasury, Answers to Questions on Notice, 6 December 2011.

2.41 Transport for NSW has recently established a Cost Estimating Centre, with key activities including:

- Reviewing and benchmarking cost estimates
- Contingency modelling
- Reviewing and maintaining Cost/Work Breakdown Structures to support estimating methodologies and review Requests for Proposals, tender schedules, project scheduling, accounting systems, databases and external consultants' estimates
- Undertaking cost analyses, maintaining cost databases and cost data libraries
- Managing stakeholders engaged in cost estimating for TPD's projects.¹⁹

2.42 Transport for NSW undertakes internal benchmarking of costs and has established a library of project cost data. This is used to verify strategic estimates received from external consultants and to enable future high level strategic cost estimates to be developed.²⁰

¹⁹ Transport for NSW, Answers to supplementary questions on notice, 6 December 2011. Question 7.

²⁰ Transport for NSW, Answers to supplementary questions on notice, 6 December 2011. Question 7.

Chapter 3 Estimating risk

Whilst most Inquiry participants welcomed the introduction of the *Best Practice Cost Estimation for Publicly Funded Road and Rail Construction*, some expressed concern about aspects of it. This criticism was largely centred around using probabilistic cost curves to estimate the cost of a project rather than a deterministic approach. An independent review of costing practices used in Australia found wide variation in the understanding and implementation of this aspect of the Standard, and concluded that without further analysis, no conclusion could be reached as to whether the probabilistic method was better than the deterministic approach. This chapter focuses on the issue of using probabilistic or deterministic methods to estimate risk in an infrastructure project cost estimate.

Probabilistic versus deterministic contingency methodology

- 3.1** The Committee received some evidence criticising the Standard. For instance, Dr Goldberg, Formerly Honorary Associate, University of Sydney, argued that the Best Practice Standard produced a cost estimate based on ‘guess work’:

This [Best Practice] thing is not based on science. For example, they have got a cumulative probability distribution. I do not know how they got it. There is not a single statistical parameter in the entire book, except what they call probabilistic. They have a list of various things. Yes, they call it probabilistic. It is not probabilistic at all; it is guess work.²¹

- 3.2** The Standard advocates the use of a ‘probabilistic’ methodology to estimate contingent risk of the cost of transport infrastructure. However, several Inquiry participants argued that this approach is inferior to the empirical or deterministic approach. Mr Gavin Gatenby, Convenor, Eco Transit, argued in his evidence that the probabilistic method is unsound and anti-scientific.²²

- 3.3** Mr Martinovitch, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia, explained to the Committee that in the rail construction work the Authority undertook in Perth, the idea was not to come up with a cost for a project that was based on probabilities, it was a cost based on what they had to do to overcome the risk in a project.²³ He noted that the best cost estimate is achieved when you know exactly what works need to be done, which was the approach he and his team used in rail planning work in Perth:

...the best cost estimate you can do is to imagine something that has just been built and to tell someone to cost it. You might say that that is a ridiculous example because it would be easy to do because you know exactly what has to be done. That is what we tried to do in this case. As I said, you have to be very careful that you know exactly what is going to be built—as far as is humanly possible. Whatever effort it takes, you must do it. That was one example of where you do not start doing that sort of work until you are absolutely sure of the outcome.²⁴

²¹ Dr John Goldberg, Formerly Honorary Associate, Evidence, 21 November 2011, p 39.

²² Mr Gavin Gatenby, Convenor, Eco Transit, Evidence, 21 November 2011, p 44.

²³ Mr Peter Martinovitch, Evidence, 6 December 2011, p 45.

²⁴ Mr Peter Martinovitch, Evidence, 6 December 2011, p 45.

3.4 Mr Martinovitch noted that whilst this approach did not use the P90 methodology, it achieved the results that it demands.²⁵

3.5 Mr Wielinga, Director General, Transport for NSW, also noted that in regards to the probabilistic or deterministic cost estimation methods, two types of project managers have developed, which he colloquially referred to as 'old school' and 'new school'. He noted that whilst the two schools of thought use quite different methods, both approaches have merit:

It is not uncommon for older style project managers to not be totally enamoured with sophisticated risk assessment processes. Due to their knowledge and skill they are confident in their own ability to make those projections.

Both systems work. It depends on the experience of the project managers and the nature of the project, its level of complexity, the amount of arithmetic you have to do and a whole bunch of other things but both approaches do work, yes.²⁶

A national comparison of probabilistic and deterministic approaches

3.6 As explained further in Chapter 4, the consultancy firm Ernst & Young was commissioned by Transport for NSW to perform a cost benchmarking study of road and rail infrastructure projects across Australian jurisdictions. Part of its brief was to assess how different jurisdictions determine contingency cost estimates and cost escalation rates.

3.7 The study analysed how road and rail agencies established contingency rates, classed either as deterministic or probabilistic methods. The results are presented in Table 1 below. It shows that across Australia, and since the Standard was introduced (which recommended the probabilistic approach), some agencies apply a probabilistic approach, some a deterministic approach, and some a mixture of both approaches. The report concluded that the understanding of risk assessment and the methods of determining contingency allowances varied significantly between agencies.²⁷

²⁵ Mr Peter Martinovitch, Evidence, 6 December 2011, p 45.

²⁶ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 6 December 2011, p 54.

²⁷ Ernst & Young, *Infrastructure – Project Cost Benchmarking Study*, NSW Department of Transport, 15 June 2011, p 64.

Table 1 Comparisons of contingency methodology in road and rail projects across Australia

Methodology	NSW	Qld	Vic	WA
Road	Deterministic and probabilistic	Probabilistic	Probabilistic	Deterministic
	<p>RTA Estimating Manual and Project Management Office database uses both deterministic and probabilistic (P90 & P50 levels).</p> <p>Independent estimator with familiarisation with current RTA projects including Alliances delivery as a check.</p>	<p>P90 probabilistic estimating methods, using @Risk for analysis and in accordance with TMR cost estimating manual.</p>	<p>VicRoads Scope, Cost and Time Control guidelines provide instructions for the calculation of contingency and escalation estimate.</p> <p>VicRoads now refers to contingency as additional scope risks. These factors are identified and costed through a series of workshops and risk management practices. The P90 modelling approach is used to develop the final estimate for the additional scope risks and is included as a separate line item in the total project cost.</p>	<p>Contingency risk estimates done using a P90 value.</p> <p>Contingency set using LOAF (Main Roads corporately set contingency)</p>
Rail	Deterministic and probabilistic	Not provided	Deterministic	Mix of both
	<p>The method is often determined by which is most appropriate at the time, dependent on extent of design and risk identification. The method might start at simple deterministic at early strategic estimate stage, then change to probabilistic or a mixture of both, as more detail emerges.</p> <p>Each line item in the estimate had a % allowance applied for contingency to cover uncertainty around the quantity and unit rate. This was determined by the estimator and was based on the level of uncertainty in available information on the item. TCA adopt a methodology to calculate contingency levels using @risk or similar and adopt a P90 confidence level when setting budgets.</p>		<p>Each line item in the estimate had a % allowance applied for Contingency to cover uncertainty around the quantity and unit rate. The % allowance was determined by the estimator and was based on the level of uncertainty in available information on the item.</p>	<p>Project contingency was a risk assessed allocation based on having a defined structure for the project elements. The project was divided into a series of work package elements. These provided a framework for the identification and analysis of risk. Risk was analysed by combining estimates of consequences and likelihood in the context of existing control measures.</p> <p>Deterministic and probabilistic techniques were used to assess risk.</p>

- 3.8** Ernst & Young subsequently recommended that Transport for NSW undertake further research on the performance of actual versus budgeted outcomes under both probabilistic and deterministic contingency estimation approaches. This could form the basis of selecting the most appropriate approach (either probabilistic, deterministic or a hybrid approach) based on actual project performance against the estimated contingency allowance, leading to a standardisation of the approach to determining contingency allowances.²⁸
- 3.9** Mr Renouf, Partner, Ernst & Young, told the Committee that in the absence of any analysis as recommended above, no conclusions can be drawn as to whether a deterministic or probabilistic cost estimation method is more effective:

In the absence of that analysis that really looked at the outcome achieved versus the method adopted there is not a conclusion that can be drawn. The best indicator is the relative performance of agencies in terms of actual cost versus estimated cost. That would give you the best indication of which approaches were most effective. ... estimation is in part an exercise in looking into the future and it is not an exact science. Certainly there are approaches that work better than others. Generally, as a principle you would expect that the more sophisticated the approach the greater the degree of accuracy.²⁹

Committee comment

- 3.10** The Committee acknowledges the debate over the relative merits of deterministic or probabilistic cost estimating methods. Whilst the Best Practice Standard recommends the probabilistic approach, some Inquiry participants suggested that the deterministic method was better.
- 3.11** The Committee acknowledges that cost estimating is an endeavour requiring considerable expertise and care. With the limited evidence it received, the Committee is not in a position to declare one method to be more accurate or superior than another. It is, however, in a position to support the comments by Ernst & Young, that Transport for NSW should undertake further research on the performance of actual versus budgeted outcomes under both probabilistic and deterministic contingency estimation approaches, leading to a standardisation of approaches and more accurate cost estimation.

Recommendation 1

That Transport for NSW undertake further research on the performance of actual versus budgeted outcomes under both probabilistic and deterministic contingency estimation approaches for major road and rail infrastructure, with a view to standardising approaches and producing more accurate cost estimates.

²⁸ Ernst & Young, *Infrastructure – Project Cost Benchmarking Study*, NSW Department of Transport, 15 June 2011, p 68.

²⁹ Mr Adrian Renouf, Partner, Ernst & Young, Evidence, 6 December 2011, p 12.

Chapter 4 **Are we paying too much for rail infrastructure?**

This chapter examines the question of whether it costs more to build rail infrastructure in NSW compared to other States in Australia or overseas.

The difficulty of accessing cost data

4.1 One of the key barriers to examining the comparative costs of rail infrastructure is the difficulty in accessing cost data. For instance, Mr Brian McCloy, Partner, Evans and Peck, was asked if he could identify a best practice rail project that was completed within its specified time frame and cost. He replied that he could not, noting that ‘We find this data is extremely tightly held by agencies, and if we ever do see it, it is under strict confidentiality.’³⁰

4.2 Mr Adrian Renouf, Partner, Ernst & Young, stated that there is a lack of cost data publicly available, and that it is tightly held by agencies:

It would be fair to say that that is driven by a lack of publicly available information, often because the costs associated with projects like these are held tightly by the agencies concerned, sometimes for reasons of confidentiality et cetera.³¹

4.3 Mr Gary Whiting, General Manager Suppliers, Australasian Railway Association, acknowledged that there is not as much transparency in relation to the final costs and how projects are costed in NSW compared to other states, ‘We have got anecdotal evidence. ... no, it is not transparent. It could be far better’.³²

4.4 Similarly, Mr John Terrey, Director, Terrey Civil and Rail, with over 40 years experience in the rail industry, believes that the high cost of rail projects in NSW has been partly fuelled by a lack of transparency and public accountability in regards to rail project cost:

The situation of high costs in delivery of rail projects may not have developed over recent years if there had been continuous public disclosure and breakdowns of expenditure in documents such as annual reports. I note that the 2010 Annual Report of TIDC (now TCA) provides no such breakdown of project costs, forecast costs and reasons for variations, even though the whole purpose of the organisation is to deliver a small number of significant projects. The report appears to have sacrificed real accountability for the trend towards public sector communications and spin.³³

4.5 The South West Rail Link provides an example of the opaqueness of the costing process. In evidence, Mr Lock, Deputy Director-General, Transport for NSW, told the Committee, ‘... we

³⁰ Mr Brian McCloy, Evans and Peck, Evidence, 21 November 2011, p 25.

³¹ Mr Adrian Renouf, Partner, Ernst & Young, Evidence, 6 December 2011, p 2.

³² Mr Gary Whiting, General Manager Suppliers, Australasian Railway Association, Evidence, 6 December 2011, p 27.

³³ Submission 22, Mr John Terrey, Director, Terrey Civil and Rail, p 2.

know the costs of the South West Rail Link now. It has been fully tendered; it is \$51 million a track kilometre.³⁴

- 4.6 Transport for NSW was asked to provide an explanation as to why the cost estimate of the South West Rail Link had increased from \$1.36 billion in 2008 to \$2.1 billion in 2010, an increase of 54%. In reply the Department provided a breakdown of the budget for the 2008 costing, but stated, 'In respect of the announcement in 2010, construction and tendering for the project is ongoing and therefore the breakdown of the budget is commercial in confidence.'³⁵ This contrasts with Mr Lock's evidence above that the project has been fully tendered, and hence he could provide a per track kilometre cost.
- 4.7 Mr Wielinga explained to the Committee that whilst some cost information is published, there are competing arguments about how much information should be released to the market. He noted that there are sound reasons why information is not released, including commercial in confidence reasons and providing a leading price to tenderers:

.... There is an element of damned if you do and damned if you do not in this area. When you release all the information you get accused of telling the market the price and tenderers tailor their project price to that price and if you do not provide the price you are accused of not being transparent. There are some policy issues that we need to work through to resolve that dilemma.³⁶

Committee comment

- 4.8 Inquiry participants raised two main issues. The first concerns difficulties with gaining access to project cost data, in particular the budget breakdown of infrastructure projects. The Committee believes that after a project has been fully tendered, a breakdown of the estimated cost of the project should be published, including a final outturn cost. This will provide a level of accountability at the conclusion of a project as to whether the project was managed efficiently and within budget.
- 4.9 The second issue concerns access to information to explain changes to a project budget, particularly as a project moves along the project lifecycle. The Best Practice Standard noted that the way cost estimates increased during the phases between project funding milestones is poorly explained by agencies and that better explanations of estimate changes must be provided. The explanations should focus on 'why' the change has occurred rather than only 'what' the change was. The Committee agrees with this suggestion.

Recommendation 2

That during the lifecycle of a transport infrastructure project, Transport for NSW publish the reasons for any significant changes in the project budget.

³⁴ Mr Chris Lock, Deputy Director General, Transport for NSW, Evidence, 21 November 2011, p 6.

³⁵ Transport for NSW, Answer to Supplementary Questions on Notice, Question 7, 21 November 2011.

³⁶ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 6 December 2011, p 57.

Does it cost more to build rail in NSW?

- 4.10** There was a diversity of opinion presented to the Committee on whether it costs more to build rail in NSW compared to other jurisdictions. For instance, Mr Gary Whiting, General Manager, Suppliers, Australasian Railway Association, explained that figures provided to the Association indicate that it costs about one to one and half per cent more to build rail infrastructure in Australia than internationally.³⁷ Mr Whiting stated that whilst the industry considered NSW to be a more expensive place to build new rail infrastructure, there was only anecdotal evidence to support this claim:

What we do not have is the evidence to say how much more is New South Wales as opposed to maybe Queensland or Victoria or even the Pilbara but everybody says it is more expensive, that is all we have got.³⁸

- 4.11** However, Mr Lock, Transport for NSW, rejected the assertion that it costs more to build rail in NSW:

I actually do not think New South Wales is any more expensive than any other State. There are circumstances in New South Wales around operating in a brownfield environment that may not apply in other States. There are circumstances around the general cost of living and so on in New South Wales compared to other States. But I do not think there is anything inherently different in a rail project in New South Wales compared to another State. For example, the cost of concrete or the cost of rail is pretty much the same wherever you are in Australia.³⁹

- 4.12** In support of his argument, Mr Lock presented a cost benchmarking study to the Committee, as outlined in the next section.

The Ernst & Young benchmarking study

- 4.13** In December 2010 the then NSW Department of Transport engaged Ernst & Young to undertake a cost benchmarking study to determine how NSW costs compare to those incurred in other jurisdictions.

- 4.14** The Ernst & Young study looked at the cost of building new road and rail projects in NSW, Western Australia, Victoria and Queensland over the last six years. The consultant sought cost information based on standard cost categories, referred to as a Work Breakdown Structure. Mr Renouf, Partner, Ernst & Young, noted that it was important to compare 'apples with apples' with regard to the benchmarking study.⁴⁰ This benchmarking study was the first of its kind in Australia, and had not been publicly released until provided to the Committee by Transport for NSW.

³⁷ Mr Gary Whiting, General Manager Suppliers, Australasian Railway Association, Evidence, 6 December 2011, p 25.

³⁸ Mr Gary Whiting, General Manager Suppliers, Australasian Railway Association, Evidence, 6 December 2011, p 25.

³⁹ Mr Chris Lock, Deputy Director General, Transport for NSW, Evidence, 6 December 2011, p 50.

⁴⁰ Mr Adrian Renouf, Partner, Ernst & Young, Evidence, 6 December 2011, p 2.

- 4.15** The authors of the report acknowledged its limitations, but also hoped that it would create a lasting industry benchmarking group:

I make it clear at the outset that there are limitations with work like this. The intent was that the study would be an initial exercise that would highlight differences between jurisdictions that would then allow those jurisdictions to understand why their jurisdictions were different and what drove the differences in cost within their agency. ... This was also an exercise to create a benchmarking group, which hopefully will continue.⁴¹

The road results

- 4.16** The total road construction cost in four jurisdictions ranged from \$2 million to \$9 million per lane kilometre. NSW had an average total road construction cost of \$5 million per lane kilometre, which was exactly the same as the average cost for the Rest of Australia.
- 4.17** To compare the performance of the participating agencies, the study looked at client costs as a percentage of total construction cost. Client costs include such expenses as: planning and environment; community consultation; design; project and program management; and allocation of head office overheads. The study notes that a large degree of the variance between client costs across the jurisdictions is due to design costs. For instance, for some projects the design is undertaken in-house by the client, and for others the design may have been contracted out. To allow a 'like for like' comparison, the study looked at the average client cost, excluding design cost as a percentage of total construction cost.
- 4.18** The result was that NSW has significantly lower client costs for road projects compared to the Rest of Australia. The average client cost (excluding design costs) as a percentage of total construction cost for NSW was seven per cent, where as the Rest of Australia average was 11 per cent.⁴²
- 4.19** Ernst & Young further analysed the main contributors to client costs. It found that NSW road projects incurred significant planning costs (28% of total client cost) compared to the Rest of Australia (5% of total client costs). The study noted that this may reflect the more complex planning/regulatory regime in NSW.⁴³
- 4.20** The study also noted that the Rest of Australia reported a corporate overhead cost of 17 per cent of total client cost. In contrast, NSW reported a corporate overhead cost of one per cent. The study noted that for NSW lower overhead costs may be allocated to specific projects, instead being met by the agency operational budget.

The rail results

- 4.21** The national average construction cost of rail was \$37 million per track kilometre, significantly more expensive than the average cost of new road of \$5 million per lane kilometre. The rail benchmark excluded track electrification, stabling and station projects to focus on projects

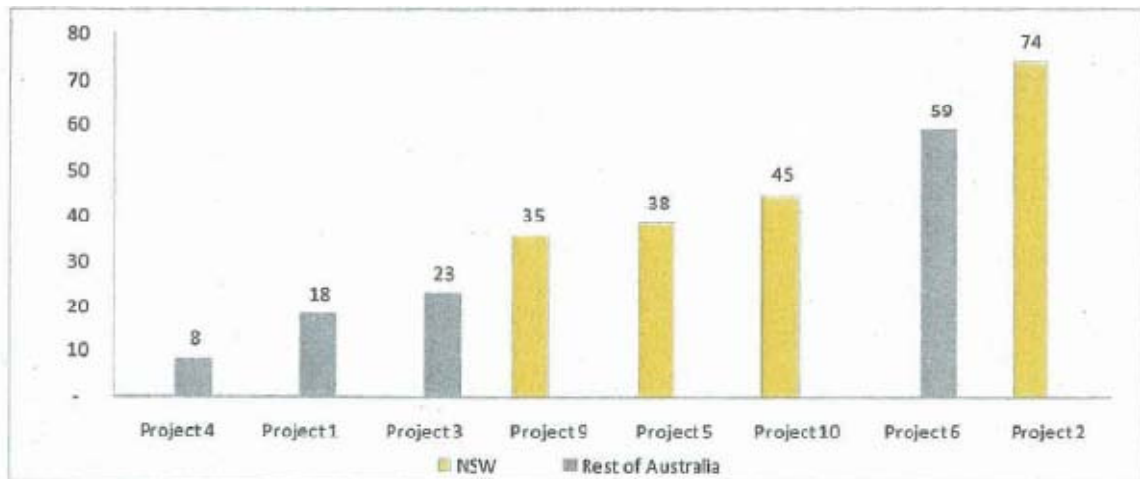
⁴¹ Mr Adrian Renouf, Partner, Ernst & Young, Evidence, 6 December 2011, p 2.

⁴² Ernst & Young, *Infrastructure – Project cost benchmarking study*, 15 June 2011, p 24.

⁴³ Ernst & Young, *Infrastructure – Project cost benchmarking study*, 15 June 2011, p 44.

involving the delivery of rail track. In the figure below, the total construction cost per track kilometre for rail projects is shown, and ranges from \$8 million to \$74 million. The total construction costs are inclusive of the client costs.

Figure 3 Rail – total construction cost per track kilometre (\$m)



- 4.22** As can be seen in Figure 3, the NSW projects (project numbers 9, 5, 10 and 2) ranged in cost between \$35 million and \$74 million per track kilometre.
- 4.23** The study noted that the rail projects included in the analysis involved a range of project types, from relatively simple to extremely complex. Therefore the projects are not directly comparable. For instance, Project 4 has a much lower cost per track kilometre cost than the other projects included in the rail analysis. This may be as a result of it being a combination of greenfield and brownfield construction and the significantly longer length of the project compared to the other rail projects. Project 2, the most expensive, involved the delivery of a complex brownfields project within a live rail corridor which also included a significant tunnelling component.
- 4.24** The average total construction cost per track kilometre for rail projects for NSW projects was \$48 million, compared to \$27 million for the Rest of Australia.
- 4.25** However, the study noted that the NSW average cost is pushed up by one project that involved the delivery of the complex brownfields/tunnelling project referred to above (project 2). If this project is removed the NSW average becomes \$39 million per track kilometre.
- 4.26** It should also be noted that the Rest of Australia average cost is significantly lowered by one project (Project 4 with a cost of \$8 million per kilometre – less than half the price of the next cheapest project). If this project was removed the average price for the Rest of Australia increases to \$33 million per track kilometre, 15 per cent less than the adjusted NSW average of \$39 million per track kilometre.
- 4.27** The average rail client cost, excluding design costs, as a percentage of total construction cost for NSW was 14 per cent, two per cent less than the Rest of Australia average of 16 per cent. In an analysis of client costs, the Rest of Australia reported a corporate overhead cost of 13 per cent of total client cost, 11 per cent less than the NSW corporate overhead cost of 24 per cent of total client cost.

The need for consistent data

- 4.28** In their work Ernst & Young noted significant differences in the cost categories, (the Work Breakdown Structure), used by different government agencies. It hence recommended that Transport for NSW promote the use of a Work Breakdown Structure that provides a consistent hierarchy of detail in cost estimates for the purposes of comparison, review and benchmarking, which will facilitate meaningful benchmarking between agencies.
- 4.29** Ernst & Young also found significant variation in the way that agencies capture and allocate corporate overheads to projects, and recommended greater consistency in the way that this was done.
- 4.30** Most Inquiry participants welcomed the attempt to benchmark costs across jurisdictions. Mr Renouf, Ernst & Young, suggested that a similar benchmarking exercise could be undertaken every three or four years, and that an important thing for agencies to do was to refine their own internal data and benchmarks.⁴⁴

Committee comment

- 4.31** The Committee acknowledges the difficulties in comparing the cost of building road and rail infrastructure across Australia. According to the Ernst & Young study, and notwithstanding the report limitations, it costs slightly more to build rail in NSW than elsewhere in Australia.
- 4.32** The Committee commends the initiative of Transport for NSW to engage an independent consultant to conduct Australia's first benchmarking study of road and rail costs. The Committee understands that this is just the first step in a challenging process to fully understand how different jurisdictions perform in the costing and delivery of major transport infrastructure.
- 4.33** It is evident to the Committee that to ensure a meaningful benchmark comparison between agencies can be made, agencies must use a consistent Work Breakdown Structure. Hence we agree with the recommendation made by Ernst & Young in paragraph 4.28, and recommend that Transport for NSW promote the use of a consistent Work Breakdown Structure, both within NSW and with other jurisdictions, to facilitate comparison, review and benchmarking of transport infrastructure costs.

Recommendation 3

That Transport for NSW promote the use of a consistent Work Breakdown Structure, both within NSW and in other jurisdictions, for the purposes of comparison, review and benchmarking of transport infrastructure costs.

- 4.34** The Committee notes the comments of Ernst & Young about the variation in the way agencies capture and allocate corporate overhead expenses to specific projects, and recommends greater consistency in the application of these costs.

⁴⁴ Mr Renouf, Partner, Ernst & Young, Evidence, 6 December 2011, p 9.

Recommendation 4

That Transport for NSW promote greater consistency in the capture and allocation of corporate overhead costs to projects, both within New South Wales and in other jurisdictions, for the purposes of comparison, review and benchmarking of transport infrastructure costs.

Recommendation 5

That Transport for NSW investigate the higher corporate costs, rail client administrative costs and 'other costs' incurred for rail projects in New South Wales, as defined in the Ernst & Young report. Further, that Transport for NSW make public any findings and recommendations from this investigation.

- 4.35** The Committee believes that there is considerable merit in pursuing national benchmarking studies, as it can highlight strengths of an infrastructure provider and provide opportunities for sharing information between jurisdictions. For this reason, we recommend that Transport for NSW support the further development of national benchmarking of transport infrastructure costs, by commissioning and publishing another transport infrastructure project benchmark report in four years time.
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Recommendation 6

That Transport for NSW commission and publish another transport infrastructure project benchmark report in four years time.

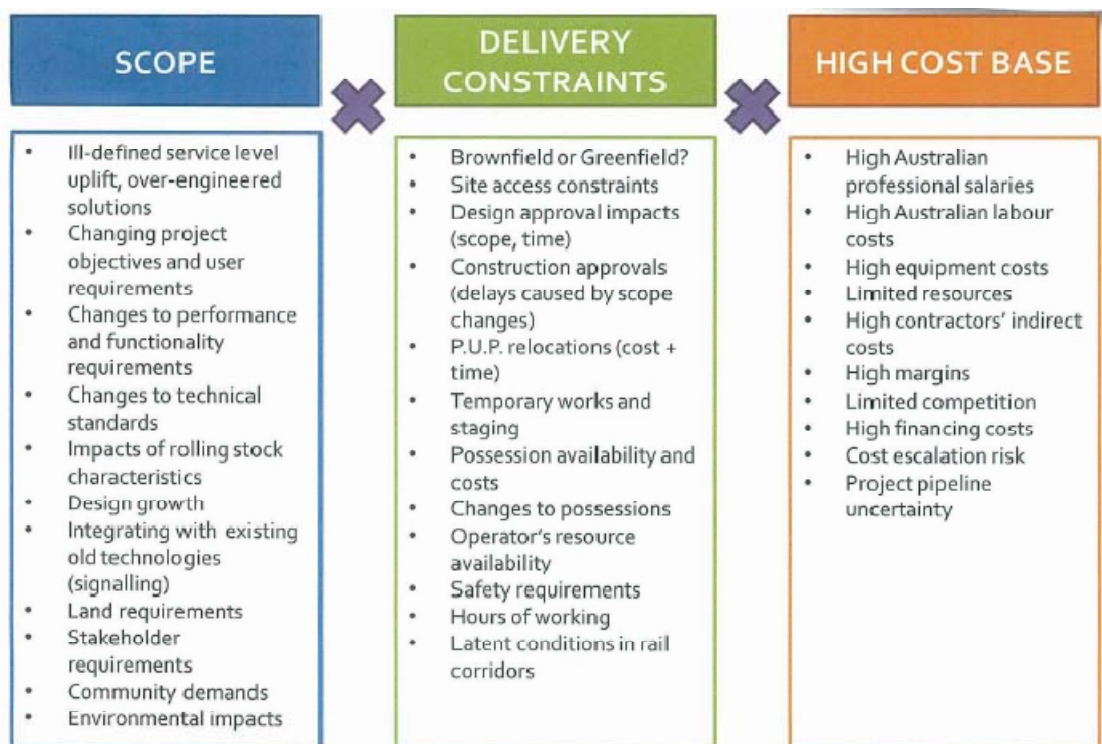
Contributors to the high cost of rail

- 4.36** Whether or not rail is comparatively more expensive to build in NSW, no one would disagree that building rail infrastructure is an expensive exercise.
- 4.37** In its submission Evans and Peck observed that the real objective of the Inquiry is to get more and better rail services. It considered that there is considerable potential to do so, and that the focus of the Inquiry should be about addressing the high costs of building rail. Mr Trueman, Principal, Evans and Peck noted, 'There are similar issues faced with urban rail projects everywhere in the developed world, although in our view the costs are higher here ...'.⁴⁵

⁴⁵ Mr Peter Trueman, Principal, Evans and Peck, Evidence, 21 November 2011, p 19.

4.38 According to Evans and Peck, rail construction in Australia is expensive due to the compounding of three main factors: scope; delivery constraints; and a high cost base. These, and their related areas, are shown in Figure 4. Mr McCloy, Principal, Evans and Peck, explained that whilst some of the issues applied across Australia, some were specific to NSW, and that costs could be reduced if attention was focussed on those three identified areas.⁴⁶

Figure 4 Main contributors to the high cost of rail construction in Australia, in particular NSW



Evans and Peck, Tabled document, 21 November 2011.

4.39 The following section looks at some of the issues that stakeholders have identified as being of particular relevance to the cost of rail in NSW.

Inadequate infrastructure planning

4.40 Many Inquiry participants argued that rail infrastructure needs a long term vision and master plan.⁴⁷ Mr Bob Miller, Jacana Consulting, noted the efficient and effective planning of public infrastructure by state agencies is central to the role of government, and is a major determinant of final project costs. However, Mr Miller argued that integrated land use and transport planning in NSW has usually been quite limited.⁴⁸

⁴⁶ Mr Brian McCloy, Principal, Evans and Peck, Evidence, 21 November 2011, p 20.

⁴⁷ See for example, Submission 6, Dr Rolf Bergmaier, Binary Consultants, p 1.

⁴⁸ Submission 9, Mr Bob Miller, Jacana Consulting, p 3.

4.41 Mr Miller emphasised to the Committee the importance of long term planning, including corridor identification:

If you do not do the long-term planning ...and if we do not have a coherent, integrated land use transport planning system that is in place and is working, ...we will never achieve effective costing for rail infrastructure. ... It starts at the front-end. If we do not lock in that front-end planning, investigation, corridor identification and so on, then we may as well go home because you will never achieve substantial improvements. That is one of the reasons that we have got the cost structures, for delivering infrastructure at the moment.⁴⁹

4.42 Professor Philip Laird, University of Wollongong, argued that a lack of long term planning, and an associated lack of reserving surface transport corridors, has meant that new transport infrastructure has to be located in tunnels. This has significantly increased the cost of providing transport infrastructure.⁵⁰

4.43 Professor Laird argued that transport planning in NSW has been either poor, delayed, or non-existent.⁵¹ He recommended that the State needs to plan for 'corridor catch-up', not only for Sydney but also for the interstate main rail lines.⁵²

4.44 In regard to infrastructure planning, reference was made to Infrastructure NSW, a government body established in mid 2011. Mr Roberts, Deputy Secretary, Economic, Environment and Services, NSW Treasury, explained that Infrastructure NSW will be responsible for developing a 20 year State Infrastructure Strategy, 'which will be a strategic document setting out the Government's strategic aims across all transport modes.'⁵³ Each year, Infrastructure NSW will also publish a five year State Infrastructure Plan, which will identify priority infrastructure projects to be delivered annually. Mr Roberts noted that because Infrastructure NSW has only recently been established, allocation of responsibilities for infrastructure planning between agencies such as Treasury, Transport for NSW and Department of Planning and Infrastructure NSW are still being finalised.⁵⁴

Committee comment

4.45 The Committee notes that clearly established allocation of responsibilities of transport planning between Treasury, Transport for NSW and Department of Planning and Infrastructure NSW are essential to improved transport planning and therefore costing of transport planning in the State.

⁴⁹ Mr Bob Miller, Evidence, 21 November 2011, p 32.

⁵⁰ Professor Philip Laird, Evidence, 6 December 2011, p 15.

⁵¹ Submission 2, Professor Philip Laird, University of Wollongong, p 7.

⁵² Professor Philip Laird, Evidence, 6 December 2011, p 17.

⁵³ Mr Roberts, Deputy Secretary, Economic, Environment and Services, NSW Treasury, Evidence, 6 December 2011, p 32.

⁵⁴ Mr Roberts, Deputy Secretary, Economic, Environment and Services, NSW Treasury, Evidence, 6 December 2011, pp 34-35.

A project pipeline

- 4.46** Inquiry participants suggested that one contributor to the high cost of rail in NSW is the lack of certainty regarding future infrastructure projects. As Mr Nye from the Australasian Railway Association observed, there has been a change of railway infrastructure plans every few years in NSW.⁵⁵ His colleague, Mr Whiting, explained that other jurisdictions provide for a 'project pipeline' more effectively, and this can reduce overall costs because stakeholders have predictability about upcoming projects.⁵⁶ Referring to the cancelled Sydney Metro project, the Association submitted: 'The failure to proceed with this major project and other rail infrastructure projects causes a lack of confidence in announced plans and ultimately make it very difficult to keep specialist expertise available to service key rail projects.'⁵⁷
- 4.47** Mr Whiting also noted that currently there is about \$36 billion in rail infrastructure projects at various stages of development across Australia, including privately funded projects. Contractors have to decide which ones to tender for, and that 'past sins' in NSW in relation to projects not eventuating may be reflected in the tender price for current NSW projects.⁵⁸

Changing user objectives

- 4.48** Mr McCloy, Principal, Evans and Peck, argued that one of the main drivers of high costs in NSW are changing project objectives and user requirements. He explained that these are often unclear at the start of a project, and agencies often take a long time to agree to what they are. The result is that tenderers tend to build in considerable latitude in the pricing of these projects.⁵⁹
- 4.49** Similarly, Transport for NSW observed that a project cost can increase significantly due to major changes to the scope of a project made at a very late stage. It provided the example of the decision to tunnel the Chatswood to Epping rail link under the Lane Cove River rather than an initially planned bridge over the river.⁶⁰ Professor Philip Laird of the University of Wollongong also used this case as an example of the problems of changing the scope of a project, and described it as 'Possibly the most extreme pre-approval cost inflator for a major NSW rail project...'.⁶¹ Professor Laird noted that this decision added complexity, cost and delays to the project, which was followed in 2003 by a decision to only construct the line from Epping to Chatswood.⁶²

⁵⁵ Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association, Evidence, 6 December 2011, p 21.

⁵⁶ Mr Gary Whiting, General Manager Suppliers, Australasian Railway Association, Evidence, 6 December 2011, pp 26 - 27.

⁵⁷ Submission 12, Australasian Railway Association, p 7.

⁵⁸ Mr Gary Whiting, General Manager Suppliers, Australasian Railway Association, Evidence, 6 December 2011, p 27.

⁵⁹ Mr Brian McCloy, Principal, Evans and Peck, Evidence, 21 November 2011, p 25.

⁶⁰ Transport for NSW, Submission 21, p 5.

⁶¹ Professor Philip Laird, University of Wollongong, Submission 2, p 2.

⁶² Professor Philip Laird, University of Wollongong, Submission 2, p 2.

- 4.50** Mr Peter Martinovich, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia, explained that in the development of the New MetroRail project in Perth, a highly defined scope and responsibilities led to the tendered price being almost exactly the same as the estimated project cost:

The cost was based on a very high definition of scope, understanding exactly what had to be built and then costing it. ...I think one of the reasons why that tender price came in so close was an appreciation by the contractor of the amount of work that had been done in preparing the final cost estimate which was a very highly defined scope of work, and I take great satisfaction that I think we have been given that respect.⁶³

- 4.51** Some Inquiry participants also expressed a concern that governments announce new infrastructure projects and their proposed budget too early, before a project scope is fully defined and objectives clearly identified. Mr Lock, Transport for NSW, noted that one of the things that can go wrong in the costings process is that project announcements can be made too early when the detail has not been done or government priorities change. He provided an example of the South West Rail Link, with multiple changes to the scope and timing of the project.⁶⁴

- 4.52** Mr Les Wielinga, Director General, Transport for NSW, agreed that governments need to consider the timing of announcing major infrastructure projects, and that more upfront work is required before a project is announced:

I think we need to give some serious consideration in the future to the time and the level of information we have before we put a firm price and a delivery schedule on projects. We need to resist the temptation to jump out there on day one and say, "We're going to build this. It is going to cost this and it is going to take this long", without the benefit of any community consultation or environmental assessment and those sorts of things. It is time we looked seriously at the right time to put a price on a project.⁶⁵

Committee comment

- 4.53** It is clear to the Committee that a highly defined project scope and clearly articulated and confirmed user objectives are essential before a project is put to tender. The Committee received some evidence that this is an area where Transport for NSW should focus on in the future.

An overinflated scope of works?

- 4.54** Several contributors to the Inquiry argued that one reason for the high cost of building rail infrastructure in NSW is the over inflated scope of works. For instance, Mr Nye, Australasian

⁶³ Mr Peter Martinovich, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia, Evidence, 6 December 2011, p 42.

⁶⁴ Mr Chris Lock, Transport for NSW, Evidence, 21 November 2011, p 5.

⁶⁵ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 6 December 2011, p 56.

Railway Association, described that 'in world terms' the new Waratah trains, soon to enter service in Sydney, are 'seen as the Hummer of passenger vehicles'.⁶⁶

- 4.55** Mr Gatenby, Convenor, Eco-Transit, also observed that politicians prefer to announce big budget projects rather than smaller cost effective projects, and that there may be an element of 'gold plating':

... unfortunately with politicians in New South Wales, there has been a tendency to want to be able to say, "I delivered the \$2.1 billion or \$3.5 billion, or whatever, project." It is much more exciting to talk of projects in the big round billions than it is to say, "I delivered a relatively inexpensive, cost-effective small addition to the rail network in Sydney's south-west." That is something of a factor. I think there may be something of a factor in gold-plating, which is often referred to.⁶⁷

- 4.56** In his submission, Mr Colin Butcher argued that an overinflated scope of works is a contributing reason to the high cost of building rail in NSW, and that there 'seems to be little rigorous review of the need for some of the grandiose features of some projects'.⁶⁸

- 4.57** Similarly, Mr Peter Egan made reference to a United Kingdom review on the high cost of light rail.⁶⁹ The report noted that there is a tendency to 'over-design' because promoters lack internal expertise to select designs which minimize lifecycle costs, or are unable to withstand pressure from consultants and politicians for prestige projects. Mr Egan noted that similar arguments could be made for NSW, and gave an example of new wiring at Wynyard Station:

The findings of the attached paper, especially in regard to over design, surely apply to the NSW network. I note in Wynyard Station that the overhead electric wire system is to be replaced with new wires. However, two catenary wires and two power transfer wires are replacing one wire of each type. It appears the two power transfer wires are hung from the one catenary wire. As these wires are very thick copper wires, the duplication must be very expensive. I would love to see the explanation for this duplication. The UK report recommends that "promoters study the 'no-frills' tram project in Besançon, France." - This committee should follow suit.⁷⁰

- 4.58** Evans and Peck also argued that one of the main contributors to the high cost of rail construction in Australia, and in particular in NSW, was over-engineered solutions. To reduce costs, Mr Peter Trueman, Principal, Evans and Peck, told the Committee:

First and foremost, reduce and control scope. ...In particular, a lowest capital investment solution project should be used, that is, the project should be de-scoped.⁷¹

⁶⁶ Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association, Evidence, 6 December 2011, p 29

⁶⁷ Mr Gavin Gatenby, Convenor, Eco Transit, Evidence, 21 November 2011, p 49.

⁶⁸ Mr Colin Butcher, Submission 11, p 1.

⁶⁹ UK Department for Transport, *Greenlight for light rail*. September 2011. See: <http://assets.dft.gov.uk/publications/light-rail/green-light-for-light-rail.pdf>. Accessed 2 February 2012.

⁷⁰ Mr Peter Egan, Supplementary Submission No 8a, p 1.

⁷¹ Mr Peter Trueman, Principal, Evans and Peck, Evidence, 21 November 2011, p 20.

- 4.59 Mr Trueman also referred to the recently completed Richmond line duplication as an example of ‘an extremely comprehensively scoped engineering solution to the duplication of a railway and that has a huge impact on cost.’⁷²

Committee comment

- 4.60 The Committee understands the desire of the Transport Projects Division to deliver world class transport facilities. However, the balance of evidence presented to the Committee suggests that there is an element of ‘gold plating’ of new infrastructure, and that costs could be reduced by ‘de-scoping’.

Changing standards

- 4.61 Engineers design roads and rail to meet certain technical standards, such as sight lines for curves for road or signalling standards for rail projects. However, some Inquiry participants expressed concerns about standards changing mid-way through a project and the impact this has on costs, particularly for rail projects. In contrast, Mr McCloy noted that standards for road projects are fixed once a contract is let:

Changes to the technical standards is something which can affect us all the way through the [rail] project. In roads, I understand at a commitment time for the project to be constructed, that is the end of the standards changes, whereas in rail the standards changes can occur at any time during delivery, and that could have a massive impact on costs.⁷³

- 4.62 Mr Trueman, Evans and Peck, also noted that ‘There is a real problem with ongoing shifting changes to standards in rail projects, particularly in Sydney.’⁷⁴ This means that engineering design work which was designed to meet one standard has to be redone to meet the ‘new’ standard. Mr Trueman noted that doing things repeatedly has an impact not only on direct costs but also on indirect costs.⁷⁵

Committee comment

- 4.63 The committee notes that changing standards applicable to a project after the commencement of a project has cost implications.

An over reliance on consultants

- 4.64 One issue raised by some Inquiry participants was an over reliance on consultants to prepare cost estimates, project design and project management. As reported in Chapter 2, the Transport Projects Division contracts out detailed project design and cost estimating work to the private sector. Mr Lock, Deputy Director General, Transport for NSW, explained that it would not be economic for the government to maintain full time engineering designers or cost engineers to do full scale project costing work because the volume of work available is not

⁷² Mr Trueman, Evans and Peck, Evidence, 21 November 2011, p 26.

⁷³ Mr Brian McCloy, Principal, Evans and Peck, Evidence, 21 November 2011, pp 25 - 26.

⁷⁴ Mr Peter Trueman, Principal, Evans and Peck, Evidence, 21 November 2011, p 27.

⁷⁵ Mr Peter Trueman, Principal, Evans and Peck, Evidence, 21 November 2011, p 27.

sufficient for them to be kept gainfully employed. In addition, the private sector can bring in experience from around Australia.⁷⁶ However, concerns presented to the Committee included that the Department has an over reliance on external consultants, which has resulted in inflated costs and reduced the Department's skill base.

4.65 Professor Philip Laird from the University of Wollongong noted that up until around 1993 there was good in-house technical expertise in RailCorp. However, since then, government agencies have been downsizing. Professor Laird noted that governments can downsize technical expertise too much, and when that happens 'you are no longer an informed buyer'.⁷⁷

4.66 Mr Gatenby, Convenor, Eco-Transit, argued that skills have been lost from the system, and that the default option is to 'always pay for the services of engineering consultants at astronomical rates':

At the moment we have this question that, because we do not know what to think and because we cannot design anything in the government ourselves, we hire a consultant to tell us what consultant we need to get to design the project, and then the first layer of consultants just do the concept plan or a feasibility study, and then you get to the next level, and so on.⁷⁸

4.67 Mr Gatenby subsequently recommended that Transport for NSW retain sufficient expertise to plan and design projects to a very high level, and then put projects out to tender.⁷⁹

4.68 The Australasian Railway Association also commented on the over reliance on consultants. The perceived view is that the clients have lost some ability to control outcomes, with an associated impact on cost and efficiency.⁸⁰ Mr Nye, Chief Executive Officer of the Association, was asked about the 'informed purchaser', that is, a client who has the expertise in-house to provide a detailed scope of a project. Mr Nye responded that 'Victoria and Queensland do it better than most. Victoria has put a lot of effort into it with its current process and its track record is certainly better than New South Wales's'.⁸¹ The Association recommended that NSW recruit experienced commercial project managers at the most senior level.⁸²

4.69 Transport for NSW provided information to the Committee about the skills of senior management within the Transport Projects Division. Mr Wielinga, Director General, Transport for NSW, explained that there are a number of key areas in the Department where there is a significant shortage of skills, knowledge and experience, including the number of engineers and transport planners.⁸³

⁷⁶ Mr Chris Lock, Transport for NSW, Evidence, 21 November 2011, p 9.

⁷⁷ Professor Philip Laird, Evidence, 6 December 2011, p 16.

⁷⁸ Mr Gavin Gatenby, Convenor, Eco-Transit, Evidence, 21 November 2011, p 49.

⁷⁹ Mr Gavin Gatenby, Convenor, Eco-Transit, Evidence, 21 November 2011, p 49.

⁸⁰ Submission 12, Australasian Railway Association, p 6.

⁸¹ Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association, Evidence, 6 December 2011, p 28.

⁸² Submission 12, Australasian Railway Association, p 16.

⁸³ Mr Wielinga, Evidence, 6 December 2011, p 56.

Committee comment

- 4.70** The Committee understands and acknowledges the arguments put forward by Mr Lock that the volume of railway design and project costing is not sufficient to keep specialist design or cost engineers gainfully employed. However, we are concerned that the Department may have lost too much of its skills base, and is therefore over reliant on consultants.

Recommendation 7

That Transport for NSW examine increasing its in-house expertise to reduce its over reliance on consultants.

The proper allocation of risk

- 4.71** As noted in Chapter 2, the construction of a major infrastructure project is complex and can carry significant risk of delay and cost overrun. In the development of tender documents the allocation of risk between project owner and contractor can have a significant impact on the final tendered price. Mr Trueman, Evans and Peck, observed that appropriate risk allocation will provide better competition and lower cost.⁸⁴
- 4.72** Similarly, Mr Whiting, General Manager Suppliers, Australasian Railway Association, explained that the allocation of risk can impact tender price, and that previously mistakes have been made in NSW:

It is the same with risk. If you try to push the risk onto the contractor at a particular point in time when it is really best managed by the client or the client interface or the operational unit, those issues change your costs. Our evidence is that some of these decision-making processes in the past have been mistakes, for want of a better word.⁸⁵

There have been examples where project tender documents have come out and they are asking people to tender and undertake certain risk allocations that are just not within their control.⁸⁶

- 4.73** To help overcome these issues the Australasian Railway Association recommended establishing guidelines for effective risk allocation and procurement models that support the management of risk where it is most effectively managed.⁸⁷

Committee comment

- 4.74** The Committee received only limited evidence on the allocation of risk in tender documents. Nevertheless, we are concerned that leading players in the industry have voiced concerns

⁸⁴ Mr Trueman, Evans and Peck, Evidence, 21 November 2011, p 20.

⁸⁵ Mr Gary Whiting, General Manager Suppliers, Evidence, 6 December 2012, p 23.

⁸⁶ Mr Gary Whiting, General Manager Suppliers, Evidence, 6 December 2012, p 25.

⁸⁷ Submission 12, Australasian Railway Association, p 16.

about inappropriate risk allocation. The Committee agrees with the suggestion made by the Australasian Railway Association, to develop guidelines for effective risk allocation.

Recommendation 8

That Transport for NSW establish guidelines for effective risk allocation and procurement models, that support the allocation of risk where it is most effectively managed.

The use of P90 as a cost estimate

4.75 As discussed in chapter 2, P90 is the cost estimate figure that provides for a 90 per cent likelihood that the project cost will not be exceeded. Some Inquiry participants criticised the use of this probability figure, arguing that advances in engineering and construction have reduced the risks of building infrastructure, and that it increases costs.

4.76 For example, Mr Gatenby, Convenor, Eco-Transit, noted that whilst technology has improved our ability to build infrastructure, the P90 approach effectively states that everything is more risky now than compared to when the foundations of the rail network were being laid:

To endorse P90 is to endorse a view of the world that says that in spite of all the advances in engineering, technique, and our understandings of geology, hydrology, materials and project management, indeed now our capacity to find buried services or to know where they are from the historic record, all those advances that have taken place over the past many decades, in spite of all that, everything is more risky and uncertain than it was when this State built such examples of engineering excellence as the CBD rail loop.⁸⁸

4.77 Mr Lejins, Director, Transport and Planning Branch, NSW Treasury, explained that the P90 figure is used to decide budget allocations because, unlike the P50 approach, it protects the budget if there is a major cost overrun:

[P90] ...It is the cost you use during the planning processes to ensure that you have allocated sufficient funding to be able to deliver the project and you do not leave your budget at risk if there is a major cost overrun.... The risk is if you go with a P50, which is an average cost estimate, and you go to the market you may get a contract price higher than the P50.⁸⁹

4.78 Treasury noted that using the P90 approach is supported by the Auditor General, who in June 2011 recommended that Treasury should consider the wider application of the P90 approach across the public sector in relation to managing risk in major and high risk construction projects.⁹⁰

⁸⁸ Mr Gavin Gatenby, Convenor, Eco Transit, Evidence, 21 November 2011, p 45.

⁸⁹ Mr Ziggi Lejins, Director, Treasury and Planning Branch, Evidence, 6 December 2011, p 37.

⁹⁰ The Audit Office of NSW, *Performance Audit, Government expenditure and transport planning in relation to implementing Barangaroo*. June 2011, p 19.

- 4.79 In its submission Evans and Peck argue that whilst the P90 figure should be used for the financial provisioning of a project, it is important that the project is managed within the expected level of costs – the P50 figure. Mr McCloy, Principal, Evans and Peck, noted:

... good budget management would target something lower than that, for example, P50. In our latest standard we have swung some more emphasis on the P50 result; not to talk about what appears to be high contingencies but to focus more on the likely outcome.⁹¹

Committee comment

- 4.80 The Committee notes that major infrastructure projects may cost several hundred million to billions of dollars. It is prudent for the Government to make allowances for contingencies and cost over-runs in its budgetary allocation. The Committee therefore supports and understands the reasons for the use of P90 as an estimate of project cost. However, the Committee believes that agencies should strive to deliver a project at the P50 cost level. The Committee therefore supports the revision and peer review of the Evans and Peck Best Practice document to ensure the methodology for determining cost estimation for projects is best practice.

Do cost estimates drive the final cost of a project?

- 4.81 Some Inquiry participants suggested that preliminary project cost estimates, which include high contingencies, drive up the final cost of a project. However, industry and governmental professionals disputed this, and argued that: project cost estimation is a separate process to procurement; and that cost estimates reflect the price of a project, not drive the costs.
- 4.82 Mr Gatenby, Convenor, Eco-transit, argued that the P90 figure creates a self fulfilling prophecy of high costs, that insulates contractors from all risks and guarantees profits:

... P90, on the other hand, guarantees to put capital costs on an escalator. It is in fact a self-fulfilling prophecy by always factoring in massive contingencies and then, as we have seen, contingencies on top of contingencies, and then broadcasting the estimate, as of course will happen in a parliamentary democracy, media release are issued saying, "The Government will deliver the \$1.36 billion South West Rail Link".

By doing that we are guaranteeing that the final cost of the job will include those contingencies, and this is no doubt gratifying to contractors because it insulates them from all risk and guarantees windfall profits.⁹²

- 4.83 Mr Peter Martinovich, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia, talked about the danger of an ill-defined project scope leading to high contingencies, which subsequently gets known in the market and becomes the baseline for the tendering process:

...The only way you can guarantee to your patron—be that the Government or whoever—that they are going to get a cost that will not be exceeded is to give them a very high initial cost and ask whether they are prepared to wear that. My concern is

⁹¹ Mr Brian McCloy, Evans and Peck, Evidence, 21 November 2011, p 23.

⁹² Mr Gatenby, Convenor, Eco-Transit, Evidence, 21 November 2011, p 45.

that if that cost gets out into the general community and is accepted as realistic then it becomes the baseline for the tendering process.⁹³

- 4.84** In contrast, Mr Lejins, Director, Transport and Planning Branch, NSW Treasury, stated that the cost estimation process, including calculation of such things as the P90 values, is completely separate from the project procurement phase:

When you procure the project you do not put up a sign saying this is the estimate and if you equal the estimate or do better you get the contract. The procurement should go through a separate independent contestable process. Whether that process reveals what you thought was the estimate as right or wrong or whether it is consistent is ultimately a matter for that market test.⁹⁴

- 4.85** Mr Lejins also noted that agencies do not tell prospective tenderers what the P90 values are:

...That would be the kind of information held by the agency and should not be communicated to prospective tenderers. To do that might create a self fulfilling position. Even that is not assured because if you have a competitive market each of the people, if they are keen for the job, are going to take their own view as to what they think they can deliver it for and your opinion as to what it may or may not cost is not going to be relevant.⁹⁵

- 4.86** Mr McCloy, Principal, Evans and Peck, also noted that costing estimates are treated with the strictest confidence by agencies, and that detailed project estimate information is not available to the construction market.⁹⁶

- 4.87** Mr Peter Trueman, Principal, Evans and Peck, observed that cost estimates should not be driving the cost of a project, but reflect it. Good project management should strive for lower costs, and whilst there needs to be a provision for the worst case scenario, this should not prevent people from targeting lower costs:

... the cost estimates prepared should not be driving the cost; they should be used to reflect the cost. ...There needs to be provision for worst case and that does not prevent people from targeting lower costs by removing some of that contingency and driving for a lower cost for the same solution.⁹⁷

- 4.88** Mr McCloy, Evans and Peck, also explained to the Committee that whilst a preliminary project cost estimate may include high contingencies, by the time a project goes to tender, the range of these contingencies will have been reduced. Mr McCloy noted that subsequent high costs are more likely to be from scope creep:

The other point that you said about the early high contingency going to tender, the period between those early high contingencies and at the time we go to tender is

⁹³ Mr Peter Martinovich, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia, Evidence, 6 December 2011, p 45.

⁹⁴ Mr Ziggi Lejins, Director, Transport and Planning Branch, NSW Treasury, Evidence, 6 December 2011, p 37.

⁹⁵ Mr Ziggi Lejins, Director, Transport and Planning Branch, NSW Treasury, Evidence, 6 December 2011, p 38.

⁹⁶ Mr Brian McCloy, Principal, Evans and Peck, Evidence, 21 November 2011, p 22.

⁹⁷ Mr Peter Trueman, Principal, Evans and Peck, Evidence, 21 November 2011, p 23.

possibly 18 months, two years. By the time we have got to tender those ranges have come down considerably, and it is through all the reasons that happen on projects. There is a scope creep...⁹⁸

- 4.89** Mr Trueman, Evans and Peck, also argued that companies competing for construction work are focused on what price their competitors are bidding on, rather than on how much money the Government may have to contribute to the project:

... the competitors should be, and in our experience would be, focused on what the other parties will put in their bids, not how much money the Government might have to splash around.⁹⁹

Committee comment

- 4.90** The Committee is concerned that publicly announcing the P90 cost estimate could serve as a price guide to tenderers in their bids and reduce the incentive to be cost-competitive and deliver value for money.

Safety

- 4.91** Workplace safety is of paramount importance to all industries, and particularly so in a transport construction environment with a mix of people and heavy machinery. Mr Lock, Transport for NSW, noted that the Department has an ‘absolutely fantastic safety record’, and whilst it does not come without some cost, it is value for money and safety is an important part of everything that happens in Transport for NSW.¹⁰⁰
- 4.92** Transport for NSW listed seven key achievements in relation to safety performance for 2010/11. For instance, the Department had a rolling 12 month average lost time injury frequency rate of 1.8, compared to a national industry average of 11.¹⁰¹ Transport for NSW has a safety policy and a safety management plan, which sets benchmarks, standards, processes and forms. Construction tenders are required as a minimum to comply with this safety management system, and will be subject to audit by Transport for NSW. There is also another component to safety in regard to infrastructure design. Infrastructure has to be safe to build, safe to use and maintain, and safe to demolish at the end of its life.¹⁰²

Insurance

- 4.93** The Committee received one submission regarding insurance from Mr John Dick, Account Director, Miller and Associates, insurance brokers. Historically, consultants and contractors have purchased their own individual company specific professional indemnity insurance coverage. Mr Dick noted that Miller and Associates have developed a professional indemnity policy to cover all the professional consultants and contractors involved in the design and

⁹⁸ Mr Brian McCloy, Principal, Evans and Peck, Evidence, 21 November 2011, p 23.

⁹⁹ Mr Peter Trueman, Principal, Evans and Peck, Evidence, 21 November 2011, p 23.

¹⁰⁰ Mr Lock, Transport for NSW, Evidence, 21 November 2011, p 6.

¹⁰¹ Transport for NSW, Tabled Document, *Presentation - Inquiry into rail infrastructure project costing in NSW*, p 47, 21 November 2011.

¹⁰² Mr Lock, Transport for NSW, Evidence, 21 November 2011, p 10.

construction of a large infrastructure project, negating the need for individual companies to purchase their own. As an example, Mr Dick noted that Miller and Associates developed a unique Professional Indemnity Policy for the \$2.1 billion Gateway Duplication Project in Brisbane. Mr Dick argued that this insurance product collectively saved the contractors at least \$5 million compared to the normal practice of each consultant obtaining their own insurance.¹⁰³

- 4.94** Mr Dick also suggested that whilst current practice is for the successful tenderer of a project to be responsible for insurance coverage, it may be beneficial to separate insurance coverage from the construction tender, so that insurance is separately tendered by the government. Mr Dick explained that ‘as the construction company uses the insurance company that they have an established relationship with to provide the policy’, separately tendering for insurance may provide cost savings.¹⁰⁴

Conclusion

Committee comment

- 4.95** While there was a strong perception among some participants that the cost of rail projects in NSW is significantly higher than other jurisdictions in Australia, this view is not supported by the available quantitative data. The benchmark study undertaken by Ernst & Young in 2011 suggests that it costs slightly more to build rail infrastructure in NSW compared with other Australian states, but that this may be explained by the small sample size and variation in project types.
- 4.96** However, this is not to suggest that we should not try to find ways to reduce costs of our rail projects, and to continue to monitor our costs compared to those of other jurisdictions.

Finding 1

It costs slightly more to build new railway infrastructure in New South Wales compared with other jurisdictions in Australia.

¹⁰³ Submission 23, Miller and Associates, Mr John Dick, Account Director, p 1.

¹⁰⁴ Submission 23, Miller and Associates, Mr John Dick, Account Director, p 2.

Chapter 5 Tendering

The private sector has played a significant role in the delivery of transport infrastructure in NSW. This chapter reviews tendering processes used by Transport for NSW, and whether these processes inhibit competition.

Transport for NSW procurement policy

- 5.1** Procurement processes for the Transport Projects Division of Transport for NSW are set out in its Corporate Management System, which has three components: Procurement Policy; Procurement Plan; and Delivery Strategy Guideline.
- 5.2** The Procurement Policy is the umbrella document which sets out the high level principles guiding the Department's procurement, whilst the Delivery Strategy Guideline provides guidance to the project teams on selecting the appropriate means for delivery of a project. The Guideline has two elements, the packaging strategy and the contracting strategy. These two strategies are the core of what is generally known as 'tendering'.

The packaging strategy

- 5.3** The packaging strategy defines how an infrastructure project will be broken up into separate contract or works 'packages' for delivery, having regard to such factors as:
- The availability of design resources, both internal and external
 - The critical components of certain design elements, for example signaling
 - The timeframe for the project, which may require an early start to construction
 - The state of the contracting market, influencing the maximum size of contract packages which can be tendered.¹⁰⁵
- 5.4** As an example of implementing a packaging strategy, Mr Lock, Transport for NSW, explained that the South West Rail Link had many packaged components, split into both greenfield and brownfield projects.¹⁰⁶

The contracting strategy

- 5.5** The contracting strategy defines how each package will be delivered, typically from the following options:
- Alliance
 - Construct only
 - Design, construct and maintain

¹⁰⁵ Transport for NSW, Submission 21, p 14.

¹⁰⁶ Mr Chris Lock, Transport for NSW, Evidence, 21 November 2011, pp 4 - 5.

- Design, develop and construct
- Design, novate and construct
- Early contractor involvement
- Managing contractor
- Public private partnership
- Target cost contracting.

5.6 Each of these different types of contracting strategies may be appropriate for different situations. Large projects may involve a number of contract packages as well as different types of contracts. For example, the Epping to Chatswood Rail Link included 12 work packages with six different types of contract.¹⁰⁷

Registration of interest and hurdle criteria

5.7 For most contracts, the Transport Projects Division of Transport for NSW will advertise for registration of interest by companies wishing to tender for the contract. The registrations of interest are evaluated against pre-defined 'hurdle' criteria to select a shortlist of contractors to be invited to tender. Hurdle criteria are a tool to assist governments to maintain a competitive tendering process whilst ensuring an efficient industry. For instance, it is a waste of resources for a company to go to the expense of tendering for a project that does not have the expertise to carry it out. The evaluation criteria are heavily focused on capability and experience. For example, on the South West Rail Link Glenfield to Leppington design and construct contract, applicants were required to have:

- Current pre-qualification with the Roads and Traffic Authority for road works and bridge works
- Recent or current experience in at least one multidiscipline rail project with a rail systems component of at least \$50 million
- Successful procurement and management of building works of individual project value of at least \$30 million
- A safety management system
- An environmental management system
- A quality management system

5.8 Applicants that pass the hurdle criteria are then assessed, scored and ranked against further evaluation criteria, which typically include the applicants':

- Organisation including its capability
- Experience and current work load
- Environmental, community and safety performance

¹⁰⁷ Submission 21, Transport for NSW, p 15.

- Demonstrated understanding of the critical issues and factors relevant to successful design, delivery, commissioning and operational readiness of the works
- Proposed project team, team structure and experience, core competencies and capabilities of the applicant's key personnel.¹⁰⁸

The invitation to tender

- 5.9** For major contracts, the Transport Projects Division will invite tenders from typically two or three organisations which have passed the hurdle criteria as outlined above. By this stage, the Division will have already assessed each tenderer as capable of carrying out the proposed work, and hence the final tender evaluation will assign a high weighting to the tender price – typically 75 to 80 per cent of the total tender score. A successful tenderer is then selected to complete the project.¹⁰⁹

Competitiveness

- 5.10** Some Inquiry participants expressed concern about the level of competition in the tendering process. Concerns were largely focused around three areas: the large size of infrastructure projects; onerous 'registration of interest' hurdle criteria; and the high level of industry consolidation. These areas are explored below.

The size of the project

- 5.11** When deciding whether or not to 'register an interest' in a tender process, Mr David Larocca, Partner, Ernst & Young, noted that the key threshold issue for construction companies is the size and scope of the project, and whether the company has the skill and financial capacity to deliver it.¹¹⁰ Hence the 'packaging strategy' used by Transport for NSW can have a significant influence on the number of construction groups able to tender for a project. In general, the larger the project, the fewer the number of companies able to bid for it.
- 5.12** Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association, explained that projects are often so big that only the major companies have the resources to go through the tender process. Mr Nye indicated that many projects could be split up into smaller work packages.¹¹¹ As an example, a new \$3.4 billion rail project underway in Victoria, which if tendered in its entirety would only have attracted tenders from two contractors. However, the project was split into smaller packages with the result that around 12 companies are now involved in the project.¹¹²

¹⁰⁸ Submission 21, Transport for NSW, p 15.

¹⁰⁹ Submission 21, Transport for NSW, p 15.

¹¹⁰ Mr David Larocca, Partner, Ernst & Young, Evidence, 6 December 2011, p 10.

¹¹¹ Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association, Evidence, 6 December 2011, p 22.

¹¹² Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association, Evidence, 6 December 2011, p 27.

- 5.13** Mr Paul Forward, Principal, Evans and Peck, recounted that 20 or 30 years ago, agencies broke up construction projects into smaller packages. The project often took a lot longer to construct, as agencies waited for one project to be completed before handing it on to the next contractor. More recently, the philosophy is to group the projects into a bundle and get the contractor to manage the larger project. However, Mr Forward warned that projects are now getting so large and complex that some contractors are having difficulty taking that risk on board financially. He concluded that the government needs to be careful that projects do not become so big that there is very little competition for them.¹¹³
- 5.14** Mr Wielinga explained that in an attempt to encourage greater competition in the industry Transport for NSW is inviting industry input about the delivery model for the larger infrastructure projects, and whether these projects should be packaged into several smaller units.¹¹⁴

Committee comment

- 5.15** Whilst the Committee received only limited evidence on this issue we understand that there are concerns within the industry about the large size of rail projects going to tender, which limits the number of companies able to compete for them. The Committee acknowledges that Transport for NSW is in discussions with industry about this issue. We recommend that Transport for NSW review its tendering strategies to ensure that projects are broken down into appropriate sized packages to increase competition between tenderers and lower barriers to provide opportunities for local businesses.

Recommendation 9

That Transport for NSW review its tendering strategies to ensure that infrastructure projects are broken down into appropriate sized packages to increase competition between tenderers and lower barriers to provide opportunities for local businesses.

Hurdle criteria

- 5.16** Contrasting views were presented to the Committee regarding the impact of pre-qualification and hurdle criteria on competition in the tender process. It was suggested that pre-hurdle criteria, such as including a requirement that a company must have had some experience of rail project work in NSW, were too onerous
- 5.17** For example, one submission author noted that the barriers to entry into the NSW rail construction market are quite high in comparison to other markets.¹¹⁵ Similarly, the Australasian Railway Association noted that NSW clients have a limited track record of letting new entrants into the market, and that this may have had an impact on value for money.¹¹⁶

¹¹³ Mr Paul Forward, Principal, Evans and Peck, Evidence, 21 November 2011, pp 28 - 29.

¹¹⁴ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 21 November 2011, p 16.

¹¹⁵ Submission 5, Partially confidential, p 2.

¹¹⁶ Submission 12, Australasian Railway Association, p 6.

- 5.18** Mr Lock, Transport for NSW, explained that whilst it used to be the case that a company required prior work experience in NSW to be able to tender for a project, this requirement is much less the case now. However, people employed by a company need to have experience with the NSW rail system:

On big projects such as the South West Rail Link, for example, which has been awarded, we did not require New South Wales experience from potential tenderers. Nonetheless, it is necessary for people to be able to demonstrate that, somewhere within their team, they have human beings who understand the New South Wales railway system. But it is not a company requirement that they be experienced in New South Wales.¹¹⁷

- 5.19** Arguments to support the pre-qualification criteria were largely based around the need to maintain an efficient tendering process. Mr Peter Trueman, Principal, Evans and Peck, argued that the pre-qualification criteria do not act as an impediment to competition in the tendering process:

You want to have an efficient industry and making sure that only parties that have the technical and financial capacity and capability bid for a job so that their time and effort is not wasted and those costs are not added to their cost base...¹¹⁸

- 5.20** Mr Lock explained that requiring appropriate hurdle criteria in the pre-qualification process ensures the best value for money is achieved for the project, and that the 'height of the hurdle' will vary depending upon the size and complexity of the project:

I think it ensures that we get best value for money when taking the project as whole. We will put hurdle criteria onto prequalification processes that are appropriate for the level of the project that is being done. If it is a small project we will have relatively low criteria with the intention of ensuring that that work is done by the most appropriate contractor for the project being delivered. As we go up the scale through to larger projects we require better systems, better quality assurance and better safety management systems in place, and we require a level of experience from our construction contractors. So the benchmark hurdles will go up.¹¹⁹

- 5.21** Mr Larocca agreed that governments are looking to maximise competition in the tendering process, and that pre-qualification criteria are helpful:

There is a balance. Generally speaking governments, including New South Wales, are looking to maximise competition. The Government, being the client, needs to make sure it gets what it wants and in some cases that means setting out in the prequalification documents the minimum criteria. For example, if there is a tender for a \$5 billion project there is no point putting a contractor on the list that has a track record of delivering \$2 million projects. There is a line that needs to be drawn somewhere.¹²⁰

- 5.22** Mr Adrian Renouf, Partner, Ernst & Young, explained that prequalification criteria are also intended to reduce the cost of business for bidders, and that there are benefits for industry in

¹¹⁷ Mr Chris Lock, Transport for NSW, Evidence, 21 November 2011, p 11.

¹¹⁸ Mr Peter Trueman, Evans and Peck, Evidence, 21 November 2011, p 24.

¹¹⁹ Mr Chris Lock, Deputy Director General, Transport for NSW, Evidence, 21 November 2011, p 11.

¹²⁰ Mr David Larocca, Partner, Ernst & Young, Evidence, 6 December 2011, p 10.

having them. He concluded that it is a matter of what the hurdles are and whether those hurdles are appropriate or not.¹²¹ Mr Renouf acknowledged that the NSW Government is no different from other governments in Australia and elsewhere, who seek to strike an effective balance between competition and an efficient industry:

I do not think from my own experience the approaches used in New South Wales are remarkably different to any other jurisdiction.¹²²

- 5.23** Mr Wielinga argued that for very large projects the problem is not the pre-qualification requirements, but the consolidation in the industry, as explained further in the next section.¹²³

Concentration of ownership of construction companies

- 5.24** Several contributors to the inquiry noted that Australia is a small market with limited transport infrastructure projects, and that this affects the level of competition in the industry. One submission noted that the NSW rail market is dominated by two construction groups, and that increased competition into the NSW rail market could help lower costs.¹²⁴ These two construction groups, Leighton Holdings and Lend Lease, between them own five major 'tier 1' contractors.¹²⁵

- 5.25** To help overcome any limitations on competition created by this concentration of ownership, Transport for NSW told the Committee it has taken several steps. For example, when short listing three or less tenderers for a price competitive construction contract, it will not include more than two related party tenderers. Transport for NSW also requires related party tenderers to execute deeds undertaking to provide separation of tender teams, including at the holding company board level. These separation processes are subject to audit by internal and external probity auditors.¹²⁶

- 5.26** Mr Wielinga explained that Transport for NSW is trying to help develop the small and medium size companies in Australia, which often jointly bid with overseas firms to tender for work:

Many of the larger companies that come from overseas tend to buddy up with an Australian firm because they understand the occupational health and safety regime and the industrial relations regime that apply in this country and that is valuable stuff to bring on board. So we are trying to encourage the growth of those companies.¹²⁷

¹²¹ Mr Adrian Renouf, Partner, Ernst & Young, Evidence, 6 December 2011, p 10.

¹²² Mr Adrian Renouf, Partner, Ernst & Young, Evidence, 6 December 2011, p 6.

¹²³ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 21 November 2011, p 11.

¹²⁴ Submission 5, Partially confidential, p 2.

¹²⁵ Submission 21, Transport for NSW, p 15.

¹²⁶ Submission 21, Transport for NSW, p 15.

¹²⁷ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 21 November 2011, p 16.

- 5.27** Mr Wielinga also explained that Transport for NSW is conducting more industry briefings and providing a longer lead time on projects to encourage greater tendering competition:

The second thing we are doing now with these larger projects is more industry briefings and longer lead times into setting up and getting the projects going. We are inviting input about the model for delivering the larger projects whether it is in packages or one big package, those sorts of things.... We keep encouraging them to get involved.¹²⁸

- 5.28** Mr Lock noted that Transport for NSW is trying to create a business climate attractive to construction companies in an attempt to increase competition:

We are trying to make New South Wales a place where people want to come and do business, where there is a pipeline of projects. The Transport Plan is working towards that and the work that Infrastructure NSW is doing is working towards that place. We are trying to make this a place where the private sector can make a buck, not an unreasonable buck but can make a buck, where there is certainty of delivery and it is a place where competition is free but people are not expected to waste money on things that they have not got a chance of winning.¹²⁹

- 5.29** Mr Trueman, Evans and Peck, noted that whilst for the larger infrastructure projects there is a limited number of competitors, there is increasing interest in Australian projects from overseas construction companies, especially European companies, and that already some of them have gained rail construction work.¹³⁰

Committee comment

- 5.30** The Committee notes that the concentration of ownership of construction companies may reduce competition and acknowledges the ongoing actions of Transport for NSW to address this issue.

The cost of tendering

- 5.31** Some Inquiry participants expressed concerns about the cost of tendering for major projects in NSW. Transport for NSW noted that a maximum of three tenders are invited in relation to design and construct projects. Mr Lock explained that this is because ‘design and construct contracts are immensely expensive to tender for the tenderers, particularly the large projects.’¹³¹

¹²⁸ Mr Les Wielinga, Director General, Transport for NSW, Evidence, 21 November 2011, p 16.

¹²⁹ Mr Chris Lock, Deputy Director General, Transport for NSW, Evidence, 21 November 2011, p 16.

¹³⁰ Mr Peter Trueman, Evans and Peck, Evidence, 21 November 2011, p 24.

¹³¹ Mr Chris Lock, Transport for NSW, Evidence, 21 November 2011, p 15.

- 5.32** The Australasian Railway Association submitted that the cost of bidding for rail projects is very high in NSW compared to other states, and that industry needs to recoup this expense.¹³² According to its Chief Executive Officer, Mr Nye, overseas companies express disbelief at the high costs of tendering in Australia. Mr Nye concluded that these high costs lead to ‘wasted money because that tendering money then goes into a corporate overhead and comes back to the customer at another project date’.¹³³

¹³² Submission 12, Australasian Railway Association, p 6.

¹³³ Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association, Evidence, 6 December 2011, p 25.

Appendix 1 Submissions

No	Author
1	Clr Ron MacPherson
2	Prof Philip Laird (University of Wollongong)
3	Dr John Goldberg (Formerly Hon. Assoc. University of Sydney)
4	EcoTransit Sydney
5	Name suppressed
6	Binary Consultants Pty Ltd
7	Busways Group Pty Ltd
8	Mr Peter Egan
8a	Mr Peter Egan
8b	Mr Peter Egan
9	Jacana Consulting
9a	Jacana Consulting
10	Lachlan Regional Transport Committee Inc
11	Mr Colin Butcher
12	Australasian Railway Association
13	Evans & Peck Pty Ltd
14	Mr Bob Masters
15	Name suppressed
16	Confidential
17	Peter Martinovich
18	TOOT Trains on our Tracks
19	Advanced Transportation Systems
19a	Advanced Transportation Systems
20	The Treasury NSW
21	Transport for NSW
22	Terrey Civil and Rail Pty Ltd
23	Miller and Associates Insurance Broking Pty Ltd

Appendix 2 Witnesses

Date	Name	Position and Organisation
Monday 21 November 2011 Macquarie Room, Parliament House	Mr Les Wielinga	Director General, NSW Government, Transport for NSW
	Mr Chris Lock	Deputy Director General, NSW Government, Transport for NSW
	Mr Rob Mason	Chief Executive Rail Corp, NSW Government, Transport for NSW
	Mr Peter Duncan	Chief Executive, Roads and Maritime Services, NSW Government, Transport for NSW
	Mr Peter Trueman	Principal and NSW Branch Manager, Evans and Peck
	Mr Paul Forward	Principal, Evans and Peck
	Mr Brian McCloy	Principal and Practice Leader - Cost Engineering, Evans and Peck
	Mr Bob Miller	Director, Jacana Consulting
	Dr John Goldberg	Formerly Hon. Associate University of Sydney
	Mr Gavin Gatenby	Convenor, Eco Transit Sydney
Tuesday 6 December 2011 Macquarie Room, Parliament House	Mr Adrian Renouf	Partner, Ernst & Young
	Mr David Larocca	Partner, Ernst & Young
	Prof Philip Laird	Transport Economist, University of Wollongong
	Mr Bryan Nye	Chief Executive Officer, Australasian Railway Association
	Mr Garry Whiting	General Manager, Suppliers, Australasian Railway Association
	Mr Matt Roberts	Deputy Secretary, NSW Treasury
	Mr Ziggi Lejins	Director, Transport and Planning Branch, NSW Treasury
	Mr Peter Martinovich,	Executive Director Infrastructure Planning and Land Services, Public Transport Authority of Western Australia

Mr Les Wielinga

Director General, NSW
Government, Transport for NSW

Mr Chris Lock

Deputy Director General, NSW
Government Transport for NSW

Appendix 3 Tabled documents

Monday 21 November 2011

Public Hearing, Macquarie Room, Parliament House

1. Document, 'Main Contributors to the high costs of Rail construction in Australia, in particular NSW' tendered by *Mr Peter Trueman, Principal and NSW Branch Manager, Evans and Peck.*
2. Document, 'Infrastructure – Project Cost Benchmarking Study', tendered by *Mr Chris Lock, Deputy Director General, NSW Government Transport for NSW.*
3. Copy of PowerPoint presentation, 'Inquiry into Rail Infrastructure Project Costing in NSW', tendered by *Mr Chris Lock, Deputy Director General, NSW Government Transport for NSW.*
4. Copy of PowerPoint presentation, 'Rail Infrastructure Project Costing from strategic planning to commissioning', tendered by *Mr Bob Miller, Director, Jacana Consulting.*

Tuesday 6 December 2011

Public Hearing, Macquarie Room, Parliament House

1. Copy of PowerPoint presentation, 'NSW Inquiry – Rail Infrastructure Cost' tendered by *Mr Bryan Nye, Australasian Railway Association.*

Appendix 4 Answers to questions on notice

The Committee received answers to questions on notice from:

Australasian Railway Association Inc.

Eco Transit Sydney

Dr John L Goldberg

Transport for New South Wales

NSW Treasury

Appendix 5 Minutes

Minutes No. 2

Tuesday 9 August 2011

General Purpose Standing Committee No. 3

Members Lounge, Parliament House, Sydney, at 1.00pm

1. Members present

Mrs Maclaren-Jones (*Chair*)

Mr Blair (*Deputy Chair*)

Mr Ajaka

Ms Faehrmann

Ms Sharpe

Mr Veitch

2. Confirmation of previous minutes

Resolved, on the motion of Mr Ajaka: That draft Minutes No. 1 be confirmed.

3. Correspondence

###

4. Inquiry into rail infrastructure project costings

The Chair tabled the following terms of reference for an inquiry into rail infrastructure project costings in New South Wales, referred by the House on 5 August 2011:

‘That General Purpose Standing Committee No 3 inquire into and report on rail infrastructure project costing in New South Wales and in particular:

- (a) methodologies used by the Transport Construction Authority, NSW Treasury and other government agencies to cost rail projects,
- (b) ‘concept estimates’ for rail project costs,
- (c) the differences between rail and road project costs methodologies,
- (d) cost estimate methodologies applied in other Australian states, by the Australian Rail Track Corporation and internationally
- (e) tendering processes, and
- (f) any other related matter.

That the Committee report by Friday 11 November 2011.’

Resolved, on the motion of Ms Faehrmann: That the Committee seek the leave of the House to extend the reporting date to 29 February 2012.

Resolved, on the motion of Mr Blair:

- that the closing date for submissions be 21 September 2011
- that the Inquiry and call for submissions be advertised in the Sydney Morning Herald and Daily Telegraph in the week commencing 15 August 2011, and
- that the Chair issue a media release announcing the establishment of the Inquiry.

Resolved, on the motion of Mr Ajaka:

- that the secretariat circulate a proposed list of stakeholders to committee members by 5pm Wednesday 10 August 2011
- that members send any additions or amendments to the proposed stakeholder list to the secretariat by 5pm Friday 12 August 2011, and
- that the Committee write to the stakeholders on the list to inform them of the Inquiry and invite them to make a submission.

Resolved, on the motion of Mr Veitch: That the Committee hold public hearings on 21 November and on two consecutive days in the week beginning 5 December 2011.

5. Next meeting

The Committee adjourned at 1.14pm *sine die*.

Teresa McMichael

Clerk to the Committee

Minutes No. 3

Thursday 20 October 2011

General Purpose Standing Committee No. 3

Members Lounge, Parliament House, Sydney, at 1.03pm

1. Members present

Mrs Maclaren-Jones (*Chair*)

Mr Blair (*Deputy Chair*)

Mr Ajaka

Ms Faehrmann

Ms Sharpe

Mr Veitch

Mr Green

2. Confirmation of previous minutes

Resolved, on the motion of Mr Ajaka: That draft Minutes No. 2 be confirmed.

3. Correspondence

###

4. ###

5. Inquiry into rail infrastructure project costing in NSW

5.1 Publication of submissions

Resolved, on the motion of Mr Ajaka: That the Committee authorise the publication of Submission No.s: 1, 2, 4, 6 – 14, 17 - 19.

Resolved, on the motion of Ms Faehrmann: That the Committee authorise the publication of Submission No.s 5 and 15, with the exception of the name and other identifying details of the author which are to remain confidential.

Resolved, on the motion of Mr Veitch: That Submission No. 16 remain confidential.

5.2 Publication of submission number 3

Resolved, on the motion of Mr Veitch: That the Committee defer the publication of Submission No. 3 until it has received advice from the Clerk on referral of matters contained in the submission to the relevant authorities.

5.3 Witness list

Resolved, on the motion of Mr Veitch: That the Committee invite the following witnesses to its hearings on 21 November 2011 and 6 December 2011:

- Australasian Railway Association
- NSW Government – Department of Transport
- Evans and Peck
- Peter Martinovich (via video link to Perth)
- Mr Bob Miller (Jacana Consultants)
- Author of submission 5 (in camera evidence)

- EcoTransit
- Prof Philip Laird
- Dr John Goldberg
- NSW Government – Department of Transport

6. Next Meeting

The Committee adjourned at 1.45pm until Tuesday 25 October, Budget Estimates 2011-2012, (*Regional Infrastructure and Services, 9am, Macquarie Room.*)

Beverly Duffy

Clerk to the Committee

Minutes No. 10

Friday 11 November 2011

General Purpose Standing Committee No. 3

Members Lounge, Parliament House, Sydney, at 1.10pm

1. Members present

Mrs Maclaren-Jones (*Chair*)

Mr Blair (*Deputy Chair*)

Mr Ajaka

Ms Faehrmann

Ms Sharpe

2. Apologies

Mr Green

Mr Veitch

3. Confirmation of previous minutes

Resolved, on the motion of Mr Ajaka: That draft Minutes No.s 3-9 be confirmed.

4. Correspondence

The Committee noted the following items of correspondence received:

- 9 November 2011 – From the Clerk of the Parliaments, David Blunt, to the Committee regarding submission No. 3 (*previously circulated*).

5. Inquiry into the costing of rail infrastructure projects

5.1 Publication of inquiry submissions

Resolved, on the motion of Ms Faehrmann: That the Committee authorise the publication of submissions to the Inquiry into the costing of rail infrastructure projects subject to the Committee Clerk checking for confidentiality, adverse mention and other issues. Submissions identified as containing confidentiality, adverse mention or other issues will then be considered by the Committee.

5.2 Submission No. 3 and Clerk's advice

Resolved, on the motion of Mr Ajaka: That the Committee write to Dr John Goldberg and invite him to refer relevant matters addressed in his submission to the relevant agencies.

Resolved on the motion of Ms Sharpe: That the Committee authorise the publication of Submission No. 3 subject to the omission of adverse mentions identified by the Secretariat.

Resolved on the motion of Ms Faehrmann: That Dr Goldberg be invited to give his evidence in public subject to Dr Goldberg being advised to avoid adverse mention in his evidence.

6. Adjournment

The Committee adjourned at 1:17pm, until 8:50am, Monday 21 November 2011, Macquarie Room.

Beverly Duffy

Clerk to the Committee

Minutes No. 11

Monday 21 November 2011

General Purpose Standing Committee No. 3

Macquarie Room, Parliament House, Sydney, at 8.50am

1. Members present

Mrs Maclaren-Jones (*Chair*)

Mr Blair (*Deputy Chair*)

Mr Ajaka

Ms Faehrmann

Ms Sharpe

Mr Veitch

Mr Green

2. Confirmation of previous minutes

Resolved, on the motion of Ms Faehrmann: That draft Minutes No.10 be confirmed.

3. Correspondence

The Committee noted the following items of correspondence sent:

- 18 November 2011 – Letter from the Chair to Dr John Goldberg acknowledging the allegations of corrupt and unlawful conduct contained in his submission and advising him to contact the relevant agencies as appropriate.

4. Inquiry into the costing of rail infrastructure projects**4.1 Reserve hearing date 7 December**

Resolved, on the motion of Mr Veitch: That the Committee not proceed with the reserve hearing date scheduled for 7 December 2011.

4.2 Submissions

Resolved, on the motion of Ms Sharpe: That the Committee notes that Submissions No.s 20 (NSW Department of Transport), 21 (NSW Treasury) and Supplementary Submission No. 9(a) (Jacana Consulting) were published by the committee clerk under authorisation of an earlier resolution.

4.3 Questions on notice

Resolved on the motion of Mr Ajaka:

- That supplementary questions from members be submitted to the Secretariat within 2 days of the conclusion of the hearing.
- That witnesses be requested to return answers to questions on notice and/or supplementary questions from members within 21 days of the date on which questions are forwarded to witnesses by the committee clerk.

4.4 Public hearing

Witnesses, the public and media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witnesses were sworn and examined:

- Mr Les Wielinga, Director General, Transport for NSW
- Mr Chris Lock, Deputy Director General, Transport for NSW
- Mr Rob Mason, Chief Executive, Rail Corp
- Mr Peter Duncan, Chief Executive, Roads and Maritime Services.

Mr Wielinga tendered the following documents:

- 'Infrastructure – Project Cost Benchmarking Study'

- ‘Inquiry into Rail Infrastructure Project Costing in NSW’.

Resolved on the motion of Ms Sharpe: That the Government’s opening presentation be published.

The evidence concluded and the witnesses withdrew.

The following witnesses were sworn and examined:

- Mr Peter Trueman, Principal and NSW Branch Manager, Evans and Peck
- Mr Paul Forward, Principal, Evans and Peck
- Mr Brian McCloy, Principal and Practice-Leader Cost-Engineering, Evans and Peck.

Mr Trueman tendered the following document:

- ‘Main Contributors to the High Costs of Rail Construction in Australia, in Particular NSW’.

The evidence concluded and the witnesses withdrew.

The following witness was sworn and examined:

- Mr Bob Miller, Director, Jacana Consulting.

Mr Miller tendered the following document:

- ‘Rail Infrastructure Project Costing: From Strategic Planning to Commissioning’.

Resolved on the motion of Ms Faehrmann: That the Committee proceed to take evidence from Mr Bob Miller *in camera*.

The public and the media withdrew.

The Committee proceeded to take *in camera* evidence.

Persons present other than the Committee: Beverly Duffy, Stewart Smith, Miriam Cullen and Hansard Reporters.

Resolved on the motion of Mr Blair: That the hearing resume in public.

The public and the media were readmitted.

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Dr John Goldberg, Former Honorary Associate, University of Sydney.

Dr Goldberg tendered the following document:

- Email correspondence between Dr Goldberg and Ian Martin.

The evidence concluded and the witness withdrew.

The following witness was sworn and examined:

- Mr Gavin Gatenby, Convenor, EcoTransit.

The evidence concluded and the witness withdrew.

The public hearing concluded at 3.46 pm. The public and the media withdrew.

5. **Deliberative meeting**

Resolved on the motion of Mr Ajaka: That the Committee accept and publish the following documents tendered during the public hearing:

- ‘Infrastructure – Project Cost Benchmarking Study’ tendered by Mr Wielinga
- ‘Inquiry into Rail Infrastructure Project Costing in NSW’ tendered by Mr Weilinga.
- ‘Main Contributors to the High Costs of Rail Construction in Australia, in Particular NSW’ tendered by Mr Trueman.
- ‘Rail Infrastructure Project Costing: From Strategic Planning to Commissioning’ tendered by Bob Miller.

Resolved on the motion of Mr Blair: That the Committee publish the evidence relating to networking and peer reviews discussed during Mr Miller's *in camera* hearing, subject to sending the transcript to Mr Miller for his concurrence.

Resolved on the motion of Ms Faehrmann: That Mr Ziggi Lejins, Transport Advisor in NSW Treasury, be invited to give evidence at the Committee's hearing on 6 November 2011 for a one hour period prior to witnesses from Transport for NSW.

6. Adjournment

The Committee adjourned at 3:55pm, until 5.45 pm Thursday 24 November 2011, Members Lounge.

Beverly Duffy

Clerk to the Committee

Minutes No. 12

Thursday 24 November 2011

General Purpose Standing Committee No. 3

Macquarie Room, Parliament House, Sydney, at 5.43pm

1. Members present

Mrs Maclaren-Jones (*Chair*)

Mr Blair (*Deputy Chair*)

Mr Ajaka

Ms Faehrmann

Ms Sharpe

Mr Veitch

Mr Green

2. Confirmation of previous minutes

Resolved, on the motion of Mr Green: That draft Minutes No.11 be confirmed.

3.

4. Inquiry into the costing of rail infrastructure projects

4.1 Additional witness - hearing on 6 December 2011

Resolved, on the motion of Ms Faehrmann: That a representative of Ernst and Young be invited to give evidence at the Committee's hearing on 6 December 2011 for a minimum of one and a half hours.

5. Adjournment

The Committee adjourned at 5.50pm, until Tuesday 6 December 2011 (Public hearing – rail costing inquiry).

Beverly Duffy

Clerk to the Committee

Minutes No. 13

Tuesday 6 December 2011

General Purpose Standing Committee No. 3

Macquarie Room, Parliament House, Sydney, at 8.57 am

1. Members present

Mrs Maclaren-Jones (*Chair*)

Mr Blair (*Deputy Chair*)

Mr Ajaka

Ms Faehrmann

Ms Sharpe

Ms Fazio (Veitch)

Mr Green

2. Substitutions

Ms Fazio for Mr Veitch.

3. Confirmation of previous minutes

Resolved, on the motion of Mr Ajaka: That draft Minutes No.12 be confirmed.

4. Inquiry into rail infrastructure project costing in NSW**5.1 Correspondence**

The Committee noted the following items of correspondence received: (*Previously circulated*)

- 5 December 2011 – From Michelle Bryant Legal Counsel Ernst & Young to the Principal Council Officer re confidential aspects of their report *Infrastructure – Project Cost Benchmarking Study* that Mr Adrian Renouf and Mr Larocca are not able to discuss whilst giving evidence before the Committee.

5.2 Submissions

Resolved, on the motion of Ms Sharpe: That the Committee notes that Submission Nos. 22 (Terry Civil and Rail), No. 23 (Miller and Associates Insurance) and Supplementary Submission No. 12 (Australasian Railway Association) are published by the committee clerk under authorisation of an earlier resolution.

4.1 Questions on notice

Resolved on the motion of Mr Ajaka:

- That witnesses be requested to return answers to questions on notice and/or supplementary questions from members within 42 days of the date on which questions are forwarded to witnesses by the committee clerk.
- That supplementary questions from members be submitted to the Secretariat within 2 days of the conclusion of the hearing.

4.2 Public hearing

Witnesses, the public and media were admitted.

The Chair made an opening statement regarding the broadcasting of proceedings and other matters.

The following witnesses were sworn and examined:

- Mr Adrian Renouf, Partner, Ernst & Young
- Mr David Larocca, Partner, Ernst & Young

The evidence concluded and the witnesses withdrew.

The following witness was sworn and examined:

- Professor Philip Laird, Transport Economist, University of Wollongong

The evidence concluded and the witness withdrew.

The following witnesses were sworn and examined:

- Mr Bryan Nye, Chief Executive Officer, Australasian Railway Association
- Mr Gary Whiting, General Manager Suppliers, Australasian Railway Association

The evidence concluded and the witnesses withdrew.

Ms Fazio joined the hearing at 12.15 pm.

The following witnesses were sworn and examined:

- Mr Matt Roberts, Deputy Secretary, NSW Treasury
- Mr Ziggi Lejins, Director, Transport and Planning Branch, NSW Treasury

The evidence concluded and the witnesses withdrew.

The following witness was sworn and examined via teleconference:

- Mr Peter Martinovich, Executive Director, Infrastructure Planning and Land Services, Public Transport Authority of Western Australia

The evidence concluded and the witness withdrew.

The following witnesses were examined on their former oath:

- Mr Les Wielinga, Director General, NSW Government Transport for NSW
- Mr Chris Lock, Deputy Director General, NSW Government Transport for NSW

The evidence concluded and the witnesses withdrew.

The public hearing concluded at 4:35 pm. The public and the media withdrew.

5. ###

6. **Adjournment**

The Committee adjourned at 5.20 pm *sine die*.

Beverly Duffy

Clerk to the Committee

Draft Minutes No. 14

Friday 2 March 2012

General Purpose Standing Committee No. 3

Room 1153, Parliament House, Sydney at 9.34 am

1. **Members present**

Mrs Maclaren-Jones (*Chair*)

Mr Ajaka

Mr Blair

Ms Faehrmann

Mr Green

Mr Secord (Mr Veitch)

Ms Sharpe

2. **Substitutions**

The Chair advised that the Hon Walt Secord MLC would be substituting for the Hon Mick Veitch MLC for the meeting.

3. **Confirmation of previous minutes**

Resolved, on the motion of Mr Green: That draft Minutes No. 13 be confirmed.

4. **Inquiry into rail infrastructure project costing in NSW**

4.1 Publication of submissions

The Committee noted that Submission Nos. 8a and 8b (Mr Peter Egan) and supplementary Submission No. 19a (Advanced Transportation Systems) were published by the Committee Clerk under the authorisation of an earlier resolution.

4.2 Questions on notice

The Committee noted that answers to questions on notice and supplementary questions from the following organisations were published by the committee clerk under the authorisation of an earlier resolution:

- Transport for NSW, answer to question 1 on notice – 21 November 2011,
- Transport for NSW, answers to questions on notice, question 2 onwards – 21 November 2011,
- Dr John Goldberg, answers to questions on notice – 21 November 2011,
- EcoTransit Sydney, answers to questions on notice – 21 November 2011,
- Transport for NSW, answers to supplementary question 1 on notice – 6 December 2011,
- Transport for NSW, answers to supplementary questions on notice, question 2 onwards – 6 December 2011,
- NSW Treasury, answers to questions on notice – 6 December 2011,
- Australasian Railway Association Inc, answers to questions on notice – 6 December 2011.

4.3 Chair's draft report

The Chair submitted her draft report entitled Rail infrastructure project costing in New South Wales which, having been previously circulated, was taken as being read.

Chapter 1 read.

Resolved, on the motion of Mr Ajaka: That Chapter 1 be adopted.

Chapter 2 read.

Resolved, on the motion of Ms Faehrmann: That paragraph 2.1 be amended by omitting the words 'the Perth to Mandurah Link' in the final sentence.

Resolved, on the motion of Ms Faehrmann: That following paragraph 2.6, a paragraph be inserted to read: 'In contrast, Mr Peter Martinovich explained to the Committee how transport infrastructure projects in Western Australia define the scope of their work in detail, to 'eliminate as much risk as possible'. Mr Martinovich told the Committee:

"Recently when we went to tender, with a public cost of \$607 million in our term dollars for a project to sink a railway and a bus way, the cost of tender price that came in for the railway works was not 90 per cent of what was estimated, it was more up around the 99 per cent. I think one of the reasons why that tender price came in so close was an appreciation by the contractor of the amount of work that had been done in preparing the final cost estimate which was a very highly defined scope of work, and I take great satisfaction that I think we have been given that respect."

Resolved, on the motion of Ms Faehrmann: That paragraph 2.32 be amended by inserting the words 'In its submission' at the beginning of the first sentence.

Resolved, on the motion of Ms Sharpe: That following paragraph 2.36 a Committee Comment be inserted to read: 'The Committee believes that further investigation of gateway methodology in other States should be undertaken by NSW Treasury to further improve the process in NSW.'

Resolved, on the motion of Ms Faehrmann: That following paragraph 2.36 a Committee Comment be inserted to read: 'The Committee notes that the role of Treasury in the final cost estimate of rail projects can be confusing, and would benefit from greater transparency.'

Resolved, on the motion of Mr Blair: That Chapter 2 be adopted.

Chapter 3 read.

Resolved, on the motion of Ms Sharpe: That paragraph 3.2 be amended by omitting the words 'For instance' in the third sentence, and inserting the words 'in his evidence' after the word 'argued', and omitting the quote from Mr Gatenby that reads:

"You have heard a lot today about contingency and risk, optimism, bias and the recently imposed P90 standard. I put it to the Committee that the move to so-called probabilistic rather than deterministic or, as the Roads and Traffic Authority used to say empirical methods of cost estimation, is in fact unsound and indeed anti-scientific."

Resolved, on the motion of Mr Green: That Chapter 3 be adopted.

Chapter 4 read.

Ms Faehrmann moved: That following Recommendation 2 a new recommendation be inserted to read: 'That during the lifecycle of a transport infrastructure project Transport for NSW publish a breakdown of the estimated cost of the project including the final outturn cost.'

Question put.

The Committee divided.

Ayes: Ms Faehrmann.

Noes: Mr Ajaka, Mr Blair, Mr Green, Mrs Maclaren-Jones, Mr Secord, Ms Sharpe.

Question resolved in the negative.

Resolved, on the motion of Ms Sharpe: That paragraph 4.26 be amended by omitting the word 'slightly' from the last sentence and inserting instead '15 per cent'.

Resolved, on the motion of Mr Blair: That paragraph 4.27 be amended by omitting the word 'slightly' from the first sentence and inserting instead 'two per cent' and omitting the word 'significantly' from the last sentence and inserting instead '11 per cent'.

Resolved, on the motion of Ms Sharpe: That paragraph 4.32 be amended by omitting the word 'demonstrated' and inserting 'of' after the word 'initiative', and amending the word 'engaging' to 'engage' in the first sentence.

Resolved, on the motion of Ms Faehrmann: That following Recommendation 4 a new recommendation be inserted to read: 'That Transport for NSW investigates the higher corporate costs, rail client administrative costs and 'other costs' incurred for rail projects in New South Wales, as defined in the Ernst & Young report. Further, that Transport for NSW makes public any findings and recommendations from this investigation.'

Resolved, on the motion of Ms Sharpe: That following paragraph 4.44 a Committee Comment be inserted to read: 'The Committee notes that clearly established allocation of responsibilities of transport planning between Treasury, Transport for NSW, Department of Planning and Infrastructure and Infrastructure NSW are essential to improved transport planning and therefore costing of transport planning in the State.'

Resolved, on the motion of Ms Faehrmann: That following paragraph 4.61 a Committee Comment be inserted to read: 'The committee notes that changing standards applicable to a project after the commencement of a project has cost implications.'

Resolved, on the motion of Ms Faehrmann: That following paragraph 4.68 a recommendation be inserted to read: 'That Transport for NSW examine increasing its in house expertise to reduce its over reliance on consultants.'

Mr Ajaka moved: That paragraph 4.78 be amended by inserting the words 'and understands the reasons for' after the word 'support' in the third sentence.

Question put.

The Committee divided.

Ayes: Mr Ajaka, Mr Blair, Mr Green, Mrs Maclaren-Jones, Mr Secord, Ms Sharpe.

Noes: Ms Faehrmann.

Question resolved in the affirmative.

Ms Faehrmann moved: That paragraph 4.78 be amended by omitting the last two sentences.

Question put.

The Committee divided.

Ayes: Ms Faehrmann.

Noes: Mr Ajaka, Mr Blair, Mr Green, Mrs Maclaren-Jones, Mr Secord, Ms Sharpe.

Question resolved in the negative.

Resolved, on the motion of Ms Faehrmann: That paragraph 4.78 be amended by inserting a sentence at the end of the paragraph to read: 'The Committee therefore supports the revision and peer review of the Evans and Peck Best Practice document to ensure the methodology for determining cost estimation for projects is best practice.'

Resolved, on the motion of Ms Faehrmann: That following paragraph 4.87 a Committee Comment be inserted to read: 'The committee is concerned that publicly announcing the P90 cost estimate could serve as a price guide to tenderers in their bids and reduce the incentive to be cost-competitive and deliver value for money.'

Ms Faehrmann moved: That following paragraph 4.93 Finding 1 be amended by omitting the word 'slightly'.

Question put.

The Committee divided.

Ayes: Ms Faehrmann.

Noes: Mr Ajaka, Mr Blair, Mr Green, Mrs Maclaren-Jones, Mr Secord, Ms Sharpe.

Question resolved in the negative.

Resolved, on the motion of Mr Green: That Chapter 4 be adopted.

Chapter 5 read.

Resolved, on the motion of Ms Sharpe: That paragraph 5.15 be amended by omitting the words 'ensure maximum competition between tenderers' and inserting instead 'increase competition between tenderers and lower barriers to provide opportunities for local businesses.'

Resolved, on the motion of Ms Sharpe: That Recommendation 7 be amended by inserting the words 'and lower barriers to provide opportunities for local businesses' at the end of the sentence.

Resolved, on the motion of Ms Fachrmann: That following paragraph 5.29 a Committee Comment be inserted to read: 'The Committee notes that the concentration of ownership of construction companies may reduce competition and acknowledges the ongoing actions of Transport for NSW to address this issue.'

Resolved, on the motion of Mr Green: That Chapter 5 be adopted.

Resolved, on the motion of Mr Green: That the draft report, as amended, be the report of the Committee and presented to the House, together with transcripts of evidence, submissions, tabled documents, minutes of proceedings, answers to questions on notice and correspondence relating to the inquiry (except for documents kept confidential by resolution of the committee), in accordance with Standing Order 230.

Resolved, on the motion of Mr Ajaka: That any dissenting reports be provided to the Secretariat by 1.00 pm Tuesday 6 March 2012.

The Chair advised of her intention to table the report on Thursday, 8 March 2012.

5. Adjournment

The Committee adjourned at 11.30 am *sine die*.

Stewart Smith

Clerk to the Committee

Appendix 6 Dissenting report

General Purpose Standing Committee No. 3

Rail infrastructure project costing in New South Wales

BY CATE FAEHRMANN MLC,

Overview

This inquiry found that rail projects cost significantly more to build in NSW than they do in the Rest of Australia (RoA). By conservative calculations, the Committee heard that this can amount to some 15% of a project's cost, an amount which is very significant in economic terms.

Not nearly enough detailed and relevant information was provided to the Committee to adequately investigate the complex issues before it. The private sector appeared reluctant to participate. However, from the evidence provided, it became obvious there is no one reason why rail projects in NSW are more expensive, but many myriad and compelling ones.

It is imperative that these reasons are fully investigated and solutions found that improve outcomes in the future for the people of NSW, for their environment and for the economy as a whole.

Recommendation: It is recommended that during the lifecycle of a transport infrastructure project Transport for NSW publish a breakdown of the estimated cost of the project including the final outturn cost.

The taxpayers of NSW should be able to assess whether they are getting value for money from infrastructure projects commissioned by their government. A breakdown of costs at some point during the lifecycle of a project should therefore be made publically available.

The inaccessibility of information, such as for detailed costings of individual rail projects, was a point of frustration during the Inquiry. The Committee was unable to compare rail infrastructure projects in any meaningful way, having to rely on workings provided by the private sector. Given that one reason that rail infrastructure in NSW costs so much could be that the private sector is charging too much, it was problematic that the Committee could not undertake its own detailed analysis into the costs of recent rail projects in NSW.

Recommendation: The use of the P90 methodology in allowing for contingencies and cost over-runs is not supported as it contributes to over-inflated rail costings.

According to the Australasian Railways Association (ARA) there is a lack of skilled cost estimators in Australia. Furthermore, evidence showed that the method of calculating contingency risk varied across Australia. What became evident during the hearing was that the method of calculating contingency risk was fraught. Despite this, there has been a gradual introduction of a standard as published by Evans and Peck using the probabilistic method to determine contingency costs resulting in governments favouring the P90 method.

This method, along with government placing the vast majority of risk on the contractors, has resulted in highly inflated cost estimations being presented and used in announcements about forthcoming projects. This P90 figure is then widely known prior to the tendering process.

It seems that actual costs paid by government are now following these very high P90 contingency cost estimates. Mr Peter Martinovich from Western Australia (p 46 Hearing Day 2) spoke of how reducing the scope of a project during the project to save money did not actually work as the "contractors found another way of getting that money anyway".

It would be of value to the taxpayer if a recent project which had serious cost blow outs was forensically examined by independent experts to determine why and recommendations made to help prevent cost blowouts in the future.

Finding 1: It costs more to build new railway infrastructure in NSW compared with other jurisdictions in Australia.

The committee agreed that, via a conservative analysis of projects that the Ernst and Young report included in its calculations, the cost of new rail infrastructure projects in NSW is some 15% higher than in the rest of Australia. In broad economic terms this can be considered to be a very significant increase from RoA costs – even a 5% variation is considered significant in economic terms.

When one is looking at billion dollar projects then this 15% inflation is alarming. In the case of the SW rail link which in 2008 was estimated to cost \$1.365b, 15% of that amounts to more than \$200 million dollars. It is frustrating that we still do not know what the final estimated cost of this project is, as the more recent 2010 cost estimation is deemed to be commercial in confidence [see answer to supplementary QoN No. 7]. Even if \$200m is correct, it is a substantial amount of tax-payers money that could be put to better use building other public and active transport infrastructure. For example, for \$276m, according to calculations by former a NSW Auditor General, the government could buy out the airport line entirely, slash fares on that route and substantially decongest the roads around the airport. Imagine if 15% of the most recently announced cost of the North West Rail Link were able to be spent elsewhere.

Various witnesses, and the Ernst and Young report, despite the limitations of its study, have shown a number of areas where NSW costs exceed those of other jurisdictions in Australia and that there are deficiencies.

Conclusions

The Committee has done excellent work with the limited time and information available to inquire into the reasons for higher costs of rail projects in NSW compared to the Rest of Australia. However, the lack of detailed and relevant information provided by government and the private sector, including consultants, has resulted in more questions being raised than have been answered.

Therefore, a more thorough investigation in to why rail projects in NSW cost significantly more than the rest of Australia is needed; as is the need to obtain in-depth factual information from which lessons may be learned and guidance for the future provided, to ensure that NSW no longer pays too much.



Cate Faehrmann MLC