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Funding and Delivery of Two Freeway Upgrade Projects

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Victorian Auditor-General's Office

Auditing in the Public Interest

The Hon. Robert Smith MLC
President
Legislative Council
Parliament House
Melbourne

The Hon. Jenny Lindell MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my report on *Funding and Delivery of Two Freeway Upgrade Projects.*

Yours faithfully

DDR PEARSON
Auditor-General

5 December 2007

Foreword

As Melbourne's population continues to grow, community and industry demands upon the metropolitan freeway network are also growing.

In this report, we examine the funding and delivery of 2 freeway upgrades: the completed Tullamarine Calder Interchange (TCI) project; and the recently commenced M1 upgrade project. The State's contribution to these upgrades was funded through the encashment of concession notes held by the State under the CityLink toll road concession with the Transurban Group.

There was no evidence that the Department of Treasury and Finance considered in detail alternatives to fund the TCI project apart from the redemption of concession notes; while for the M1 upgrade project, we saw no evidence of a comparative financial analysis of the relative advantages and disadvantages of the various debt or encashment funding options put to the Government.

This lack of a comparative financial analysis precludes provision of assurance that the encashment approach was the most economic for funding the freeway upgrades.

However, given the decision to pursue the encashment approach to fund the freeway upgrades, we found that selling the concession notes back to Transurban for a negotiated price provided the best value-for-money outcome for the notes encashment transactions.

The TCI project was planned, designed and constructed under an alliance agreement between VicRoads and the private sector. This was the first major alliance project for Victoria.

The TCI project has been delivered on time and under budget, and was effectively managed. There are early indications it has improved traffic flows and reduced accidents. However, we did note a number of administrative lapses by VicRoads, which requires a continued focus on robust administrative and procurement systems and processes to increase the probability of successful outcomes for future projects.

For the M1 upgrade project, we found that the development of the business case and implementation of the chosen procurement strategy were satisfactory. However, we note that the projected economic benefits from the project are high, when compared with similar projects. We also noted that nearly all the economic benefits estimated for the project are derived from a complex traffic model, which is difficult to independently verify and certify.

VicRoads will need to pay close attention to ensuring that it is able to build upon its experience with the TCI project, and effectively manage the complex alliance arrangements it has entered into for the M1 upgrade project.

DDR PEARSON
Auditor-General

5 December 2007

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1 Executive summary

1.1 Introduction

This report includes the results of 3 audits related to the funding and delivery of 2 freeway upgrade projects in Melbourne. The audits examined:

- the financial arrangements made between the State and the Transurban Group in relation to the redemption of the CityLink concession notes
- the Tullamarine-Calder Interchange (TCI) project, which was completed in late 2007
- the M1 upgrade project, which recently commenced preliminary works.

1.1.1 Buy-back of CityLink concession notes

The audit of the buy-back of CityLink concession notes examined the financial implications for the State of the redemption of CityLink concession notes to fund infrastructure upgrades to the TCI and the M1, and assessed whether the redemption represented financial value for the State.

Overall, the audit found:

- that the benchmarking efforts provided the State with relevant and reliable evidence that better financial value-for-money was likely to be obtained through an encashment of the concession notes with Transurban, rather than through a transaction with a third party
- in relation to the TCI project, there was no evidence of detailed consideration of funding sources other than the encashment of concession notes. By contrast, a number of funding alternatives were considered and analysed in depth for the M1 upgrade project. However, in relation to the alternatives considered, including debt finance, the State did not draw comparative conclusions on the financial advantages and disadvantages of the options.

1.1.2 TCI project

The audit of the TCI project assessed whether the project has been effectively managed and is delivering the expected benefits to date.

Overall, the audit found that the TCI has been delivered on time and under budget, with initial indications that the TCI has achieved expected functionality.

However, we noted that the procurement strategy, procurement processes and management of the project would have benefited from:

- more analysis and documentation of procurement options
- compliance with procurement rules and processes
- documentation of decision-making processes.

1.1.3 M1 upgrade project

The audit of the M1 upgrade project assessed the effectiveness of the planning and procurement processes used by VicRoads to plan and implement this major road upgrade.

Overall, the audit found that the business needs were rigorously analysed and that the chosen procurement strategy should meet the business needs. The procurement process failed to implement the required independent probity oversight, but otherwise met relevant procurement requirements.

The expected benefits of the project are mainly based on a complex traffic model. The net present value of economic benefits expected to be realised from this project are high when compared with similar road-based projects.

1.2 Overall conclusions

1.2.1 Buy-back of CityLink concession notes

Consideration of alternative funding sources

In relation to the TCI project, we concluded that there was no evidence of detailed consideration of funding sources other than the encashment of concession notes. Consideration of budget funding was confined to an analysis of the impact of the existing budget allocation to VicRoads on the timing of the project.

By contrast, a number of funding alternatives were considered and analysed in depth for the M1 upgrade project. However, in relation to the alternatives considered, including debt finance, the State did not draw comparative conclusions on the advantages and disadvantages of the long-term financial implications of encashment compared with debt financing options, in the context of the overall State budget, other than the high-level impact of debt financing on the Gross State Product to net debt ratio.

Did the State receive good financial value?

The discount rates implicit in the transactions with Transurban to encash the concession notes were based on sound commercial pricing methodology, and the due diligence procedures undertaken by VicRoads to verify the key assumptions in the negotiation models were reasonable.

The benchmarking analysis undertaken by the State's advisor provided the State with relevant and reliable evidence that better financial value-for-money was likely to be obtained through an encashment of the concession notes with Transurban, rather than through a transaction with a third party.

The Department of Treasury and Finance (DTF) and VicRoads engaged suitably qualified personnel to negotiate the encashment transactions for both projects.

Risks relevant to the transaction

The State identified major risks relevant to the transactions and employed effective strategies to manage the risks that were identified. However, the State did not conduct a formal, documented risk assessment of the encashment transactions.

In addition, the State identified that there were risks to the State in holding the concession notes. Accordingly, it was concluded there were significant advantages in relation to risk mitigation to the State in encashing its interest in the concession notes, as part of the financing arrangements for the M1 upgrade project.

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF welcomes the Auditor-General's review of the concession notes transactions and notes the following positive findings:

- *A number of funding alternatives were considered and analysed in depth for the M1 project.*
- *The discount rates implicit in both transactions with Transurban were based on sound commercial/pricing methodology.*
- *The due diligence procedures undertaken to verify key assumptions in the financial models were reasonable.*
- *Benchmarking analysis provided relevant and reliable evidence that better value was likely to be obtained through a transaction with Transurban, rather than a third party.*
- *Suitably qualified personnel were engaged to negotiate the transactions.*
- *The State identified major risks relevant to the transactions and employed effective strategies to manage those risks.*
- *The State identified risks involved with holding the notes, and accordingly it was concluded that there were significant risk mitigation advantages in proceeding with an encashment transaction.*

The report states that the analysis of debt options was not sufficiently detailed, did not set out any information in relation to the alternatives beyond the next five years and did not consider how any debt financing may be repaid in the future. DTF considers that the analysis contemplated by the report was unnecessary, and notes that:

RESPONSE provided by Secretary, Department of Treasury and Finance - continued

- *Advice to Government in relation to the M1 project included a summary spreadsheet showing the impact on the operating statement, cash flows and net debt of a range of debt and encashment options, along with comments on the ongoing impact beyond the forward estimates period. Detailed supporting worksheets were prepared to produce the summary information.*
- *The pattern of the financial impacts of the various options was well established by presenting information in respect of the forward estimates period. Including information beyond this period would not have added to the analysis.*
- *The Treasury Corporation of Victoria was engaged to prepare detailed analysis of possible alternative debt financing strategies (for example a securitisation option).*
- *It was unnecessary to explicitly "consider how any debt financing might be repaid in the future" because:*
  - *it would have been repaid out of budget surpluses*
  - *the potential contribution of concession fees to such surpluses was considered as part of assessing the appropriate discount rate on the concession notes.*

In relation to the comment that the State did not conduct a formal, documented risk assessment of either encashment transaction, DTF notes that:

- *the concession notes transactions involved negotiations over a complex range of inter-related issues.*
- *as the various components of a potential transaction evolved, detailed analysis of the pros and cons of the various options and alternatives and associated risks was presented in formal advice to the Government and explored in verbal briefings.*

Accordingly, DTF considers that the level of formality and documentation was appropriate to the context. The suitability of the risk assessment process is supported by the finding that the State identified major risks relevant to the transactions and employed effective strategies to manage those risks.

In relation to the finding that, for the Tullamarine Calder Interchange, there was no evidence of detailed consideration of funding sources other than the encashment of concession notes, DTF notes that:

- *under the existing budget funding programs, the project could not have been delivered before 2010 and early delivery of the project via a notes transaction was viewed as a significant benefit*

RESPONSE provided by Secretary, Department of Treasury and Finance - continued

- *the value-for-money outcome for the State in pursuing a notes transaction is demonstrated by the positive findings noted above and subsequent findings in chapter 3 that the project had a clear business need, was delivered ahead of schedule and under budget and has led to improved average speeds and traffic flow and decreased casualty accidents.*

In relation to the finding that, for the M1 project, the State did not draw comparative conclusions on the advantages and disadvantages of the long-term financial implications of encashment compared to debt financing options, DTF notes that the analysis of the appropriate discount rate for the notes transaction was a tool used to examine this issue. Specifically:

- *the debt financing options would have involved the State borrowing at the rate applicable to government borrowings and retaining the risk associated with holding the notes. The purpose of analysing the appropriate discount rate was to quantify the risk associated with holding the notes.*
- *by analysing the difference between the cost of borrowing (as represented by the government borrowing rate) and the cost of encashment (as represented by the discount rate), the State drew comparative conclusions on the advantages and disadvantages of the long-term financial implications of encashment compared to debt financing options.*
- *the report finds that the discount rates implicit in the transactions were based on sound commercial pricing methodology, and benchmarking analysis was favourable to the State. This suggests that the price agreed was a reasonable reflection of the risks implicit in holding the notes.*

1.2.2 Tullamarine Calder Interchange project

Was analysis of the identified business need, and options to meet the need, sufficiently rigorous?

VicRoads conducted analysis of the identified business need prior to committing to the project

We concluded that the TCI project business case clearly specified the need for the project and that the expected outcomes addressed the identified project need.

We note, however, that analysis of the context of the need, particularly around some of the stakeholders, was limited.

We further conclude that the business case demonstrated strategic alignment with the Government’s objectives.

VicRoads developed and analysed options to meet the need

Based on our analysis of the TCI project business case, we conclude that:

- options to address the identified service need were developed and analysed
- costs and benefits for the preferred option were also analysed, however, the final assumptions and the way they were used in the model to derive expected economic benefits was not subject to independent checking.

Consistency of the business case

We conclude that the TCI project business case generally met the key principles of the current DTF guidance, however, we noted departures from better practice such as:

- lack of comparative analysis of risks, cost and benefits for all options
- incomplete stakeholder analysis for some stakeholders
- lack of independent verification of the assumptions used to develop the traffic model, which was used to derive the expected economic benefits from the project.

Was the adopted procurement strategy consistent with the identified business need, and did it follow the procurement rules?

Confirmation that the chosen procurement strategy would meet its business need and deliver expected outcomes

We concluded that although there is some evidence that various procurement options were considered in the development of the business case, there is no evidence of a comparative analysis or evaluation of other procurement options.

Due to this, we consider that it is not possible to compare any of the outcomes of the alliance procurement mechanism with outcomes that may have been achieved by an alternative delivery mechanism.

Based on this limited analysis of procurement options, decision-makers may not have been fully informed about the costs, benefits and risks associated with various procurement options when considering the business case.

VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations in tender documents

Based on our analysis of the Request for Proposal (RFP) for the TCI project, we concluded that:

- the RFP requirements were consistent with the procurement strategy
- the RFP identified the nature, scope, quality and quantity of goods and services sought, and the outcomes to be delivered
- the RFP adequately specified arrangements and responsibilities for monitoring and reporting of contractor performance
- the alliance key result areas (KRAs) and performance parameters were designed to meet the project objectives as identified in the business case.

Compliance of procurement approach with the relevant rules and guidelines

We identified a number of administrative and process lapses and concluded that the procurement approach did not fully comply with the project probity plan.

VicRoads did not fully and effectively implement a probity plan, particularly concerning confidentiality deeds, security of information and meeting minutes. This increased the risk of possible probity breaches.

However, audit found no evidence that probity was breached during the RFP process and negotiations for the TCI project.

Based on our observations from this project, VicRoads should ensure that its probity processes minimise probity risks in future commercial transactions.

Did VicRoads adequately manage the TCI project and achieve the expected outcomes?

The project was effectively managed

Based on our examination of the workings of the alliance management structures, the following project features were managed effectively:

- integration of the various parties in the alliance
- communications with stakeholders
- risk management
- project progress monitoring and review.

However, there should have been more documented evidence of management review and approval of the monitoring and progress reports to provide assurance that management processes were working as expected.

Budget versus actual expenditure was effectively monitored and dealt with by the alliance's cost and risk sharing arrangements

Based on our examination of the evidence related to cost and risk monitoring, we found that:

- actual costs were tracked against budgeted costs
- there were no contract variations (due to the alliance contract used)
- the project is expected to achieve an $11 million saving against the approved budget
- the performance pool mechanism is subject to independent oversight
- key remaining risks are being managed
- the Essendon Airport land transfer outcome has been negotiated and substantially progressed.

Functionality was achieved in accordance with VicRoads' approved design and quality standards

Although there is evidence that the TCI Alliance and VicRoads monitored quality during the construction project, no formal post-commissioning review has been planned or conducted to date.

Such a review should occur, to provide assurance that the interchange has achieved expected functionality in accordance with VicRoads' approved design and quality standards, and the State has received a quality asset that reflects the value of its investment.

Project milestones were achieved and delays investigated and resolved

Based on our observations on whether project milestones were achieved and delays investigated and resolved, we found that:

- there was an ongoing mechanism to track any constructions delays
- action was taken to rectify delays
- the project achieved its completion milestone within expectations.

VicRoads is tracking any actual benefits that have been delivered to date

Based on our review of whether VicRoads is tracking any actual benefits that have been delivered to date, we conclude that:

- VicRoads has collected data to show that average speed and traffic flow have improved
- there is initial data showing that incidents (particularity casualty crashes) have decreased in the interchange precinct
- post-completion key result areas (KRAs) are valued at $1.4 million of the identified $5 million performance pool
- the alliance parties will need to maintain a commitment to long-term, post-completion monitoring
- VicRoads should continue with efforts to formalise the monitoring exercise to test the accuracy of its modelling and expectations about economic benefit arising from the TCI project
- the project should undergo a "Gate 6 – Benefits Realisation" Gateway Review once the formal data capture exercise is completed and reliable data is available.

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF welcomes the audit review of the TCI project and would like to acknowledge the following positive findings:

- *There was a clear business need for the project and options to address that need were developed and analysed.*
- *The business case generally met the key principles of current DTF guidance.*
- *Various procurement options were considered in developing the business case.*

RESPONSE provided by Secretary, Department of Treasury and Finance - continued

- *The RFP documentation identified the nature, scope, quality and quantity of goods and services sought and the outcomes to be delivered, and adequately specified arrangements for monitoring and reporting of contractor performance.*
- *The report found no evidence that probity was breached during the RFP process and negotiations for the TCI project.*
- *Actual costs were tracked against budgeted costs, and the project is expected to achieve an $11 million saving against the approved budget.*
- *Action was taken to rectify identified delays, and the project achieved its completion milestone within expectations.*
- *VicRoads has collected data to show that average speeds and traffic flow have improved and casualty accidents have decreased in the interchange precinct.*

DTF notes the comments in the report on project alliancing. DTF will continue to monitor industry developments and ensure that lessons learned are captured in any future updates to the Project Alliancing Practitioners' Guide published by DTF.

RESPONSE provided by the Chief Executive Officer, VicRoads

VicRoads welcomes the positive findings of the review, in particular, that:

- *there was a clear business need established for the project and options to address that need were developed and analysed.*
- *the TCI project has been adequately managed and has been delivered ahead of program and under budget.*
- *data collected since completion of the project has shown that the project objectives of improving traffic flow and reducing crashes have been delivered.*

In regard to the procurement strategy, VicRoads would also like to note that the TCI project was the first major road project to be delivered in Victoria under an alliance form of procurement. As such, much of the procedures and good practice standards that have since been reflected in the DTF Project Alliancing Practitioners' Guide were developed through the experiences and learnings of the TCI project.

RESPONSE provided by the Chief Executive Officer, VicRoads - continued

Was the adopted procurement strategy consistent with the identified business need and did it follow the procurement rules?

As noted above, as the first alliance agreement entered into by VicRoads, and one of the first alliances in Victoria, the TCI project was breaking new ground in establishing appropriate procurement rules for this form of contract. For this reason, VicRoads adopted a higher degree of independent probity assurance than its normal business practices required, and the entire selection process was shadowed by DTF to assist in the development of best practice guidelines.

Section 3.5.5 deals with procedural issues relating to the adopted procurement approach and compliance with probity practices during the selection process. VicRoads acknowledges the conclusions reached by the reviewers while not necessarily agreeing with all of the points raised within the body of the report. In particular, there has been much discussion and debate during the review about the distinctions between probity auditors and probity advisors, and about the differences between tender submissions that contain sensitive commercial information and responses to RFPs that contain no commercial information.

Did VicRoads adequately manage the TCI project and achieve the expected outcomes?

VicRoads welcomes the positive findings in regard to the effective management of the TCI project, and the benefits it is delivering to the Victorian community.

In noting the discussion and conclusion relating to documenting evidence of management review and approval, it is VicRoads' view that, for an alliance arrangement within which decision-making must be unanimous, papers supplied for management meetings, and minutes recorded of those meetings, were an appropriate level of record. VicRoads normal business practices require a more detailed level of record in those circumstances where contractual disputes can arise.

Section 3.6.5 refers to the need for formal review of the project outcomes to give a greater level of assurance that the expected functionality and quality standards have been achieved. As reflected in VicRoads' response to recommendation 3.8 below, post-construction reviews of this nature are part of VicRoads normal business practices and comprehensive inspection and review is undertaken as part of the handover process to the VicRoads region that will be responsible for the ongoing operation of the road. In the case of the TCI project, this handover process was also supported by independent review during the design and construction process, and by an external evaluation panel established to validate the assessment of the alliance against key performance indicators.

Recommendation

- So that future business cases align with Department of Treasury and Finance better practice guidance, VicRoads should conduct the required stakeholder analysis and consultation specified for infrastructure projects. **(Recommendation 3.1)**.

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted. Future business cases will include stakeholder analysis and appropriate consultation as suggested in the DTF better practice guidelines. Within this context, it must be remembered that stakeholder consultation during the early planning stages of major projects must be handled sensitively and with due regard to the status of the project at each stage.

In regard to the TCI project, the business case was prepared and submitted in December 2004, 2 years before the DTF better practice guidelines were released. The business case did refer to the extensive review of a number of options developed over many years, and that these reviews clearly took account of impacts on stakeholders likely to be affected by each proposal.

Further, the audit report does acknowledge the significant consultation that had taken place in developing the TCI business case with those critical stakeholders that represented a significant risk to the project. Other more detailed stakeholder expectations would, quite normally, be dealt with during the design development and construction process.

Recommendation

- Prior to economic estimates being used in business cases put forward for the Government's decision-making on major roads projects, VicRoads should continue to ensure independent validation to confirm the reasonableness of the assumptions and inputs underlying cost and benefit estimates, as well as the rigour and accuracy of the modeling. (**Recommendation 3.2**)

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted.

Recommendation

- So that future business cases align with Department of Treasury and Finance better practice guidance, prior to confirming its preferred procurement approach, VicRoads should analyse other procurement options, to allow decision-makers to be sufficiently informed as to their costs, benefits and risk impacts. **(Recommendation 3.3)**

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted, again acknowledging that the DTF guidelines against which the audit criteria were assessed were released after the submission of the TCI business case.

The choice of an alliance procurement approach for the TCI upgrade was taken on the basis of an assessment of the exceptional project risks including, inter alia, the upcoming Commonwealth Games and the need for appropriate traffic management arrangements during the games, the large water main that runs under the freeway (and the need to deal with that during very restrictive time windows), and the adjacent airport and toll road.

VicRoads understood that a more traditional procurement methodology would carry more risk than its standard construction delivery methods and most likely lead to a high claims environment. The risk analysis supported some form of relationship contract rather than the traditional "hard dollar" contract. This decision was supported by the DTF Gateway Review undertaken at the time.

Recommendation

- The Victorian Government Purchasing Board should consider revising and amending its probity advice to:
  - ensure that a probity auditor's role is not confused with the role of a probity advisor in order to maintain clarity of the 2 distinct roles and strengthen accountabilities of the separate functions
  - provide sample templates on the acceptable form and content for probity audit reports. **(Recommendation 3.4)**

RESPONSE provided by Secretary, Department of Treasury and Finance

The current Policy for Conduct of Commercial Engagements published by the Victorian Government Purchasing Board (VGPB) allows discretion as to whether separate probity practitioners should be engaged to fulfil different roles, depending on an assessment of the complexity and process risks of a project. The current policy is considered industry standard and, therefore, appropriate. DTF will ensure that its guidelines relating to probity practitioners remain abreast of industry standards and contain appropriate and detailed guidance.

DTF notes that a sample template setting out the suggested form and content of a probity audit report already exists (Probity Template No.2, attached to the VGPB Good Practice Guidelines: Conduct of Commercial Engagements in Government, June 2006).

RESPONSE provided by the Chief Executive Officer, VicRoads

VicRoads welcomes the finding that there was no evidence of any breach of probity during either the RFP process or the negotiations for the TCI project.

While it is noted that recommendation 3.4 relates to actions to be taken by the VGPB, it is VicRoads' position, nevertheless, that it would be an inefficient use of public funds to require that the roles of probity advisor and probity auditor necessarily be separated as recommended.

It is VicRoads' understanding that auditing standards do not prevent auditors from providing observations, comments and advice to their clients. Rather, auditing standards allow for, and promote action by the probity auditor throughout the process, not just at the end. If input is reserved until the end of the process then this does not provide any opportunity to improve or correct issues.

In fact, the current Policy for Conduct of Commercial Engagements published by VGPB allows discretion as to whether separate probity practitioners should be engaged to fulfil different roles, depending on an assessment of the complexity and process risks of a project.

Recommendation

- For future projects worth more than $10 million, VicRoads should comply with government policy and implement approved probity plans which accord with the VGPB Probity Best Practice Advice. **(Recommendation 3.5)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF notes that the VGPB guidance is not directly applicable to VicRoads, as it applies to the procurement of goods and services, not to construction procurement which is subject to the Project Development and Construction Management Act 1994 and is regulated by the Building Commission.

DTF understands that the relevant Building Commission probity plan template is similar to the VGPB material, and that VicRoads voluntarily stays abreast of VGPB guidance on industry best practice.

RESPONSE provided by the Chief Executive Officer, VicRoads

Further to the response to recommendation 3.4, while VicRoads continues to follow closely VGPB guidance on industry best practice, it is noted that it does so on a voluntary basis as the VGPB guidelines relate to the supply of goods and services, not to the construction industry.

Construction is covered by the Project Construction and Development Management Act, 1994 and the probity plan produced for construction by the Building Commission differs only very slightly from the probity plan that VicRoads requires as part of its normal business practices for projects over $10 million. Further, VicRoads has a separate, independent purchasing unit to supervise probity during the tender and procurement process.

Recommendation

- VicRoads should ensure that future alliance procurement processes address the following procurement issues which were identified in the TCI Alliance:
  - documenting all changes to core documents (including probity plans) and communicating those changes to tenderers
  - documenting agendas and minutes of evaluation panel meetings
  - gaining formal probity sign-off that processes and documents meet agreed criteria (as documented in the probity plan)
  - implementing a detailed procurement documents security policy so that:
    - the movement of documents is recorded and controlled
    - commercially sensitive or tender-related information should be stored in secure conditions with access limited to authorised persons
  - if required in a probity plan, anyone with access to tender-related information should sign a confidentiality agreement, and ensure that only authorised staff with a direct “need to know” should be privy to tender-related commercially sensitive information
  - improving existing probity processes to ensure that documents relating to conflicts of interest or confidentiality are accounted for and any issues are included at the commencement of all meetings
  - ensuring all tenderers are compliant with Request for Proposal (RFP) requirements
  - requiring Expression of Interest (EOI) and RFP tenderers to declare any known conflicts of interest as part of the bid process. (**Recommendation 3.6**)

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted.

Recommendation

- VicRoads should develop a corporate governance and project management protocol that specifies minimum standards of documentation of management meetings and the basis of decision-making. This protocol should achieve an appropriate corporate record and audit trail so that an external party would be able to understand the basis of management actions and decisions. **(Recommendation 3.7)**

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted for alliance projects.

Recommendation

- VicRoads should conduct a formal post-commissioning construction quality review of the TCI project to provide assurance that:
  - the interchange has achieved expected functionality in accordance with VicRoads' design and quality standards
  - the State has received a quality asset that reflects the value of its investment. (**Recommendation 3.8**)

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted. As advised to the Victorian Auditor General's Office, post-construction reviews, including the development of detailed handover reports and maintenance and operations manuals, are part of VicRoads normal business practices.

Recommendation

- VicRoads should:
  - continue to formalise its monitoring exercise to test the accuracy of modelling and expectations about economic benefits arising from the TCI project.
  - proceed to a "Gate 6 – Benefits Realisation" Gateway Review once the formal data capture exercise is completed and reliable data is available, to compare the project's actual benefits with its business case estimates. (**Recommendation 3.9**)

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted.

1.2.3 M1 upgrade project

Was analysis of the options to meet the identified business need sufficiently rigorous?

VicRoads conducted rigorous analysis of the identified business need prior to committing to the project

VicRoads conducted a rigorous analysis of the identified business need which argued for the M1 project in terms of the need to alleviate traffic congestion along the M1 corridor.

Relieving this congestion was argued to have a range of economic benefits, in terms of direct benefits to road users, and broader economic benefits.

VicRoads developed and analysed options to meet the business need

Based on our analysis of the M1 business case, we found that:

- high-level and specific options were developed, and analysed in detail
- costs and benefits were modelled for all options
- most of the expected benefits are the outcomes of a complex traffic model, which is not readily understandable to an external reviewer or clearly evidence-based
- the net present value of benefits related to the package of options that was accepted by the Government is $14.462 billion, or equivalent to a benefit-cost ratio of 16 to 1. This is high compared with similar road-based projects.

Consistency of the business case with DTF guidance

Based on our review of the M1 business case, we found a detailed body of work which aligned to the DTF guidance in its structure and focus of analysis.

We also conclude that the assessment of the options was comprehensive. However, we note that nearly all the expected project benefits are derived from a traffic model.

We, therefore, conclude that the M1 business case would have been improved if the source and basis of the assumptions used to develop the traffic model were transparently identified and independently reviewed, prior to submission to the Government.

Was the adopted procurement strategy consistent with the identified business need?

Confirmation that the chosen procurement strategy would meet its business need and deliver expected outcomes

Based on our analysis of the procurement options considered for the M1 upgrade project, we found:

- the M1 upgrade project was sub-divided into relevant sections for procurement and construction

- insufficient documentary evidence exists regarding a comparative analysis of procurement options such as the consideration of the procurement risk associated with each option (with the exception of the Glenferrie Road to Warrigal Road section of work). This is of particular relevance given the large dollar value of the procurements, and the particular risks we have noted relating to the use of alliancing as a procurement option
- careful analysis of a procurement strategy for the Freeway Management System (FMS) component of the project is critical, due to the importance of effectively procuring this technology to achieve the expected project outcomes
- our analysis confirms that the choice of alliance or design and construct contracting for various sections of work is supported by DTF guidance
- there is a need for VicRoads to ensure active, ongoing attention to the development of the skills required for managing alliance contracts if the risks associated with this method of procurement are to be appropriately managed. Failure to do so may render VicRoads' capacity to successfully deliver these critical projects vulnerable to the loss of a number of key staff.

VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations in tender documents

VicRoads' expectations regarding the objectives of the project, the services being procured, and of the procurement process were clearly identified in the Request for Proposal/Tender (RFP/T) documentation for all sections of work.

The expectations stated in the RFP/Ts for all sections of work were consistent with the business need identified in the business case and reflected in VicRoads' documentation.

For the West Gate and Monash Alliance RFPs, we found:

- VicRoads had clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the RFPs for both the sections of work
- more detailed information regarding VicRoads' expectations of the procurement processes were provided in the West Gate Freeway and Southern Link to Warrigal Road RFPs compared with the other procurements. This was appropriate given the use of alliancing as the procurement approach
- information requested was consistent with demonstrating the respondents' capabilities with respect to successful delivery of the projects. The content of the RFPs was consistent with DTF guidance.

We further conclude that for the Warrigal Road to Jacksons Road and Jacksons Road to Heatherton Road/South Gippsland Highway sections of work, VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the RFTs.

For the FMS, we found that VicRoads had clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the call for expressions of interest for the provision of technical services and contract management advice.

Did the procurement approach comply with the relevant rules and guidelines?

Based on our analysis of the evidence relating to the procurement approach for the West Gate and Monash freeway sections of the M1 upgrade, we found that the West Gate Alliance and Monash Alliance procurements complied with VicRoads' internal procurement requirements and with DTF's *Project Alliancing Practitioners' Guide*[1].

An external consultant was engaged to provide probity advice and also act as probity auditor for the conduct, evaluation and awarding of the alliance contract. This was similar to the approach adopted for the TCI project.

We found sufficient documentary evidence that the procurement approach for the Warrigal Road to Jacksons Road section of the M1 upgrade (design and construct contract) was compliant with VicRoads' internal procurement requirements.

However, due to VicRoads failing to implement independent oversight of probity, as described in DTF's *Project Tendering Guideline*, the process was not considered compliant with DTF/VGPB guidance. On the FMS RFT, we found that at the time of the audit, it was compliant with relevant rules and guidance.

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF welcomes the audit review of the M1 project and would like to acknowledge the following positive findings:

- *VicRoads conducted a rigorous analysis of the identified business need.*
- *High level and specific options were developed and analysed in detail.*
- *The audit review of the M1 business case found a detailed body of work which aligned to the DTF guidance.*
- *The project was sub divided into relevant sections for procurement and construction.*
- *The audit analysis confirmed that the choice of alliance or design and construct contracting for various sections of the work is supported by DTF guidance.*
- *VicRoads' expectations regarding the services being procured were clearly identified in the RFPs and RFT documentation for all sections of work.*

[1] <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/asset-management---project-support-project-alliancing>.

RESPONSE provided by Secretary, Department of Treasury and Finance - continued

- *The West Gate Alliance and Monash Alliance procurements complied with VicRoads' internal procurement requirements and with DTF's Project Alliancing Practitioners' Guide.*
- *The design and construct contract for the Warrigal Road to Jacksons Road section was compliant with VicRoads' internal procurement requirements.*

DTF notes the recommendations made and in relation to recommendation 4.3, refers to the response to recommendation 3.4.

RESPONSE by the Chief Executive Officer, VicRoads

VicRoads welcomes the positive findings of the review and in particular that the analysis of the business case, and the procurement practices followed in the establishment of the West Gate and Monash alliances and the design and construct contract east of Warrigal Road, closely complied with the DTF better practice guidance released since the commencement of the TCI project.

Although not specifically reflected in any of the recommendations, VicRoads also acknowledges the review comments on the transparency of the source and assumptions used to develop the traffic models that underpin most of the economic analysis used in the support of road projects. Action will be taken to ensure that the outputs from these models can be readily traced back to the source for independent review.

Recommendation

- VicRoads should use independent validation to confirm the reasonableness of the assumptions and inputs underlying cost and benefit estimates, as well as the rigour and accuracy of the modelling. This should occur prior to these economic estimates informing business cases put to the Government for decision. **(Recommendation 4.1)**

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted.

Recommendation

- So that future business cases align with DTF better practice guidance, prior to confirming its preferred procurement approach, VicRoads should analyse other procurement options, to allow decision-makers to be sufficiently informed as to their costs, benefits and risk impacts. **(Recommendation 4.2)**

RESPONSE provided by the Chief Executive Officer, VicRoads

The recommendation is accepted.

Recommendation

- The VGPB should consider revising and amending its probity advice to ensure that a probity auditor's role is not confused with the role of a probity advisor in order to maintain clarity of the 2 distinct roles and strengthen accountabilities of the separate functions. **(Recommendation 4.3)**

RESPONSE provided by Secretary, Department of Treasury and Finance

DTF notes the recommendations made and in relation to recommendation 4.3, refers to the response to recommendation 3.4.

RESPONSE provided by the Chief Executive Officer, VicRoads

See response to recommendation 3.4.

Recommendation

- For future projects worth more than $10 million, VicRoads should comply with government policy and implement approved probity plans which accord with the VGPB Probity Best Practice Advice. **(Recommendation 4.4)**

RESPONSE provided by the Chief Executive Officer, VicRoads

See response to recommendation 3.5.

1.3 General information about the audits

The audits were performed in accordance with the Australian auditing standards, and included such tests and procedures considered necessary.

The cost of the audits was $455 000. This cost includes staff time, contractor and specialist fees, overheads and printing.

2 Buy-back of CityLink concession notes

At a glance

Background

The State and the Transurban Group (Transurban) are parties to a concession deed under the *Melbourne City Link Act 1995.* Under the concession deed, Transurban, as the concession holder, is required to design, build, finance, operate, levy tolls and maintain CityLink for a period of 34 years ending on 14 January 2034 ("the Concession Period"). At the end of the concession period, CityLink will be transferred to the State.

In June 2005, the State and Transurban agreed to encash[1] a number of the concession notes for $151 million and to use the proceeds to fund the upgrade of the Tullamarine Calder Interchange (TCI) and to share extra revenue associated with the road works. Under a Deed of Assignment dated 9 June 2005, the State received $100.8 million on 1 July 2005 and a further $50.2 million on 1 July 2006. In exchange for these payments, the State transferred back to Transurban concession notes it held with a face value of $305.3 million.

In May 2006, the State announced a second agreement with Transurban where it agreed to encash its remaining interest in the concession notes, and to use the proceeds to partly fund the $737 million cost of the State's upgrade of the West Gate and Monash freeways (also known as the "M1 upgrade project"), with the total cost of the upgrade estimated at $903 million. As part of this deal, Transurban also agreed to upgrade the Southern Link section of CityLink (which is located in the middle of the freeway corridor) at an estimated cost of $166 million. Extra revenue generated by the road works will be shared between the State and Transurban.

Key findings

- In relation to the TCI project, there was no evidence of detailed consideration of funding sources other than the encashment of concession notes. Consideration of budget funding was confined to an analysis of the impact of the existing budget allocation to VicRoads on the timing of the project.

[1] To convert an asset into cash.

At a glance - *continued*

Key findings - *continued*

- By contrast, a number of funding alternatives were considered and analysed in depth for the M1 upgrade project. However, in relation to the alternatives considered, including debt finance, the State did not draw comparative conclusions on the advantages and disadvantages of the long-term financial implications of encashment compared with debt financing options, in the context of the overall State budget, other than the high-level impact of the debt financing on the Gross State Product to net debt ratio. The discount rates implicit in the transactions with Transurban to encash the concession notes were based on sound commercial pricing methodology.
- The due diligence procedures undertaken by VicRoads to verify the key assumptions in the negotiation models were reasonable.
- The benchmarking analysis undertaken by the State's advisor provided the State with relevant and reliable evidence that better financial value-for-money was likely to be obtained through an encashment of the concession notes with Transurban, rather than through a transaction with a third party.
- The Department of Treasury and Finance and VicRoads engaged suitably qualified personnel to negotiate the encashment transactions for both projects.
- The State identified major risks relevant to the transactions and employed effective strategies to manage the risks that were identified. However, the State did not conduct a formal, documented risk assessment of either encashment transaction.
- In addition, the State identified that there were risks to the State in holding the concession notes. Accordingly, it was concluded there were significant advantages in relation to risk mitigation to the State in encashing its interest in the concession notes, as part of the financing arrangements for the M1 upgrade project.

2.1 Background

Melbourne CityLink is a privately funded toll road that connects 3 of the city's major freeways (the Tullamarine, West Gate and Monash), linking Melbourne Airport, major port facilities, the industrial centres south-east and west of the city and by-passing the central business district.

The State and Transurban are parties to a concession deed pursuant to the *Melbourne City Link Act 1995.* Under the concession deed, Transurban, as the concession holder, is required to design, build, finance, operate, levy tolls and maintain Melbourne CityLink for a period of 34 years ending on 14 January 2034 ("the Concession Period"). At the end of the concession period, CityLink is to be transferred to the State.

During the concession period, Transurban is required to make concession fee payments to the State in consideration for the State granting the concession. The concession fees payable by Transurban are outlined in Figure 2A.

Figure 2A
Concession fees ($m)

Period	Annual concession fee
4 March 1996 – 13 January 2025	95.6
14 January 2025 – 13 January 2034	45.2
14 January 2034 – End of concession period	1.0

Source: Victorian Auditor-General's Office analysis.

The concession fees are payable in equal instalments semi-annually on the last business day of June and December.

2.1.2 Concession notes as a security

The relevant provisions of the concession deed specify that, while any project debt is owing by Transurban, fee payments to be made by Transurban to the State are not due until sufficient funds are available – specifically, when the following conditions are satisfied:

- the cumulative real/post-inflation rate of return on equity is 10 per cent per year or more
- the total dollar amount of concession notes redeemed in any financial year does not exceed 30 per cent of the distributable cash flow of the preceding financial year.

As a result, instead of paying concession fees in cash, Transurban issues concession notes to the State every 6 months. The concession notes represent an asset to the State and a liability of Transurban. The concession notes are non-interest bearing (zero coupon), non-negotiable, but are transferable.

Financial projections made at the commencement of the CityLink project indicated that redemption of the concession notes would not commence until 2013. However, under the concession deed, if the conditions set out above are not satisfied, it is possible that the concession notes payable could still be outstanding at the end of the concession period in 2034 and would, therefore, be payable in a lump sum.

2.1.3 The concession note transactions

The Tullamarine Calder Interchange project

In June 2005, the State and Transurban agreed to encash[2] a number of the concession notes for $151 million and to use the proceeds to fund the upgrade of the Tullamarine Calder Interchange (TCI).

Under a Deed of Assignment dated 9 June 2005, the State received $100.8 million on 1 July 2005 and a further $50.2 million on 1 July 2006. In exchange for these payments, the State transferred to Transurban concession notes it held with a face value of $305.3 million. The State and Transurban also agreed to share extra revenue associated with the works, including $11 million paid up-front to the State.

Under the Deed of Assignment, the concession notes were encashed as set out in Figure 2B.

Figure 2B
Proceeds of concession notes (TCI project)

Tranche	Concession note number	Date of payment	Face value ($'000)	Proceeds ($'000)
Tranche 1	1 – 17	1 July 2005	194 654	100 818
Tranche 2	18 – 40	1 July 2006	110 600	50 168
Total			**305 254**	**150 986**

Source: Deed of Assignment, 9 June 2005.

The M1 upgrade project

In May 2006, the State announced a second agreement with Transurban where it agreed to encash its remaining interest in the concession notes, and to use the proceeds to partly fund the $737 million cost of the State's upgrade of the M1 (the total cost of the upgrade was estimated at $903 million).

Transurban also agreed to upgrade the Southern Link section of CityLink (which is located in the middle of the M1 freeway corridor) at an estimated cost of $166 million. Extra revenue generated by the road works was also agreed to be shared between the State and Transurban.

[2] To convert an asset into cash.

Under the terms of the M1 Corridor Deed of Assignment, Transurban will pay the State $614.3 million over 5 years from 30 June 2006 for the State's interest in all existing concession notes as well as concession notes that were to be issued up to January 2034. The face value of the concession notes assigned was $2.884 billion. The State retained its entitlement to additional concession fees[3].

Figure 2C sets out the details of the proceeds payable.

Figure 2C
Proceeds of concession notes (M1 upgrade project)

Tranche	Concession note number	Date of payment	Face value ($'000)	Proceeds ($'000)
Tranche 1	41–147	30 June 2007	510 800	181 691
Tranche 2	148–346	30 June 2008	946 000	222 461
Tranche 3	347–542	30 June 2009	938 200	148 307
Tranche 4	543–649	30 June 2010	489 396	61 795
Total			**2 884 396**	**614 254**

Source: M1 Corridor – Deed of Assignment, 25 July 2006.

2.2 About the audit

2.2.1 Audit objective

The objective of the audit was to:

- examine the financial implications for the State of the redemption of CityLink concession notes to fund infrastructure upgrades to the Tullamarine Calder Interchange and the M1 freeway
- assess whether the redemption represented financial value for the State.

To address these objectives, we considered the:

- basis of the decision to proceed with the encashment as the appropriate financing method for the upgrade projects
- financial model and determination of the discount rates applied to the future redemption profile of the concession notes
- results of benchmarking comparisons
- risk and reporting processes.

[3] Additional concession fees are paid where actual financial performance of CityLink exceeds the original prospectus forecasts.

The audit did not examine other aspects of the CityLink arrangement. An analysis of the CityLink project, including the original concession notes arrangements, was undertaken by our Office in 1995-96 and included in the *Report on Ministerial Portfolios, May 1996*. Subsequent audit reports on the State's finances have also commented on the concession notes arrangements between the State and Transurban (most recently in the 2006-07 report).

2.2.2 Audit scope

This audit focused on the financial arrangements made between the State and Transurban in relation to the redemption of the CityLink concession notes.

The scope included the basis of the decision to proceed with the redemption (as the appropriate financing method), the financial model to determine the discount rates, risk and reporting processes, and the results of benchmarking comparisons.

2.2.3 Acknowledgements

We acknowledge the cooperation and assistance provided by staff at the Department of Treasury and Finance and VicRoads during the conduct of the audit.

2.3 Overall conclusion

2.3.1 Consideration of alternative funding sources

In relation to the TCI project there was no evidence of any detailed consideration of funding sources other than the encashment of concession notes. Consideration of budget funding was confined to analysis of impact of the existing budget allocation to VicRoads on the timing of the project.

By contrast a number of funding alternatives were considered and analysed in depth for the M1 upgrade project. However, in relation to the alternatives considered, including debt finance, the State did not draw comparative conclusions on the advantages and disadvantages of the long-term financial implications of encashment compared with debt financing options, in the context of the overall State budget, other than the high level impact of the debt financing on the Gross State Product to net debt ratio.

A key driver of the encashment decision was the desire to minimise risks of a decline in value of the concession notes over time. Accordingly, it was concluded that there were significant advantages in relation to risk mitigation to the State in encashing its interest in the concession notes.

2.3.2 Did the transaction represent good financial value?

The discount rates implicit in the transactions with Transurban to encash the concession notes were based on sound commercial pricing methodology.

The benchmarking analysis undertaken by the State's advisor, through its market sounding exercise, was a reasonable method to assess whether better financial value would be obtained by an encashment of the concession notes with Transurban or a sale of the concession notes to a third party. The benchmarking results provided the State with relevant and reliable evidence that better financial value-for-money was likely to be obtained through an encashment of the concession notes with Transurban, than through a transaction with a third party.

2.4 Consideration of alternative funding sources

2.4.1 Introduction

In examining whether alternative methods to fund the 2 projects were adequately considered prior to deciding on the redemption of the concession notes to partly fund the projects, we examined:

- the process/methodology used to identify and consider alternative financing arrangements and whether they were adequate to enable assessment of the advantages
- disadvantages of the possible alternatives against the redemption of the concession notes.

2.4.2 Tullamarine Calder Interchange project

The State identified 3 methods of financing the Tullamarine Calder Interchange (TCI) project:

- fund the project through the State budget
- encash a number of the concession notes to Transurban
- sale of the concession notes to a third party investor.

Under the State's existing funding programme allocated to VicRoads, the project would not have been delivered until 2010. Given these budget constraints, and the desire to deliver the project in late 2006, financing by encashment of the concession notes, was viewed by the State as a significant benefit in favour of an encashment transaction.

We found no evidence that the alternatives to finance the project through the State budget, including debt finance, were subject to a more detailed review by the State.

The option to finance the project through the sale of the concession notes to a party other than Transurban was considered in detail by the State. To evaluate whether better value-for-money would be obtained by encashing the concession notes through direct negotiations with Transurban or through a separate third party, the Department of Treasury and Finance (DTF) engaged an independent international investment banking organisation[4] (advisor). The advisor was not engaged to assess all possible financing options for the TCI project. This was assessed separately by the Government.

The State's decision to proceed with the encashment of the concession notes with Transurban was made after considering the advantages and disadvantages of a potential encashment of the concession notes with a third party.

VicRoads also sought independent advice and engaged a leading accounting firm (consultant) who undertook market soundings, based on a series of interviews with 5 major financial institutions.

Conclusion

The earlier delivery of the TCI project in 2006, by financing the project through the encashment of the concession notes, was viewed as a significant benefit in favour of an encashment transaction, compared with the 2010 delivery date under the existing funding program allocated to VicRoads. Accordingly, the analysis of funding alternatives was weighted towards options involving an encashment of the concession notes.

The alternative to fund the project through the State budget, including debt finance, was not subject to a detailed and documented analysis to determine the advantages and disadvantages of this financing alternative.

Detailed consideration was given to the potential sale of the concession notes to a third party and adequate analysis was undertaken by the State to enable a reasonable assessment of the advantages and disadvantages of this alternative.

2.4.3 M1 upgrade project

The State (via DTF and VicRoads) identified and then considered a number of financing alternatives. These were:

1. *Encash all concession notes currently held by the State and all concession notes receivable in the future (except for Additional Concession Fees) with Transurban and incorporate a revenue sharing agreement for the revenue uplift component as part of the redevelopment transaction.*

[4] N.M. Rothschild and Sons (Australia) Pty Ltd. Rothschild provides investment banking, corporate banking, private banking and corporate advisory services to government, corporations and individuals worldwide.

Under this option, the State would upgrade the M1 freeway corridor and Transurban would upgrade the Southern Link. This option was ultimately selected by the State after successful negotiation with Transurban.

2. *Finance the project through debt and incorporate a revenue uplift component as part of the redevelopment transaction.*

   Under this option, the State would upgrade the West Gate and Monash freeways and Transurban would upgrade the Southern Link. This option was not discussed with Transurban and would not have been available without further negotiation between the State and Transurban.

3. *Finance the project through debt only.*

   Under this option, the State would upgrade the West Gate and Monash freeways in isolation, and no agreement would be made with Transurban to upgrade the Southern Link.

4. *Finance the project through encashment of concession notes currently held by the State and fund the remainder of the project via debt, the Better Roads Victoria Trust Fund and other funding capacity.*

   Under this option, the State would upgrade the Monash and West Gate freeways independently of the Southern Link. This option was not discussed with Transurban and would not have been available without further negotiation between the State and Transurban.

5. *Enter into a transaction with a separate third party to encash the concession notes.*

   Under this option, the State would upgrade the West Gate and Monash freeways in isolation if no agreement was made with Transurban to upgrade the Southern Link. The upgrade of the West Gate and Monash freeways would be funded by the sale of the concession notes held by the State to a separate third party or parties.

Alternative 1 was considered the preferred alternative by the State, provided that suitable terms in relation to the encashment of the concession notes and revenue sharing could be reached with Transurban. The State ultimately entered into an agreement with Transurban on the basis that this alternative represented the best value-for-money.

We observed that other considerations behind the decision were:

- encashing the concession notes eliminates the risk of a decline in the value of the concession notes over time
- mitigation of risks associated with the State attempting to pursue a compensable enhancement claim[5] against Transurban, in the absence of a revenue sharing agreement
- maximisation of the benefits of traffic flow through the M1 corridor by entering into an agreement with Transurban to ensure the Southern Link upgrade works were undertaken.

Alternative 4 was considered the secondary alternative, should an agreement with Transurban not be reached on alternative 1. It was also noted that the State could pursue alternative 5 should Transurban not agree to suitable terms for the encashment of the concession notes.

Assessment of the alternatives

When assessing these alternatives, DTF considered the impact on the State's 5-year forward estimates. However, the analysis was not sufficiently detailed and did not draw conclusions as to the advantages and disadvantages of the financial impact on the State budget of each alternative. The analysis did not set out any information in relation to the alternatives beyond the next five years nor did it consider how any debt financing might be repaid in the future.

A key consideration with respect to financing the M1 project through debt financing was that this would have increased the ratio of net debt to Gross State Product.

Conclusion

The State identified, and considered, a range of alternative financing arrangements to fund the M1 upgrade project.

The State considered detailed financial analysis in relation to the alternatives of encashment with Transurban and the sale of the concession notes to a third party.

In considering the alternatives involving debt finance, the State did not draw conclusions on the advantages and disadvantages of the long-term financial implications of encashment compared with debt financing options, in the context of the overall State budget.

Notwithstanding, the State did consider the high level impact of the debt financing alternative on the Gross State Product to net debt ratio.

[5] The Concession Deed contains compensable enhancement provisions that enable the Victorian Government to claim 50 per cent of additional revenue derived by Transurban, net of additional expenses likely to be incurred in deriving that additional revenue, as a result of certain events that particularly benefit CityLink, including changes to the adjoining road network.

2.5 Did the State receive good financial value?

2.5.1 Introduction

For both projects, a discounted cash flow methodology was used to value the concession notes for the purposes of the encashment with Transurban. The methodology values the concession notes based on the net present value (NPV) of the forecast future cash flows arising from the future redemption of the concession notes.

The valuation under this methodology is primarily driven by 2 key factors:

- estimated redemption profile of the concession notes
- discount rate selected to derive the NPV of those cash flows.

To determine whether the State received good financial value, we examined whether:

- the methodology adopted to ascertain the discount rates was based on reasonable assumptions
- discounted cash flow calculations in the financial models were mathematically accurate
- rigorous benchmarking analysis was undertaken
- key individuals who negotiated and assessed the discount rates possessed the knowledge, skills and experience to ensure appropriate discount rates based on commercial terms were derived.

2.5.2 Tullamarine Calder Interchange project

The discount rate ultimately negotiated with Transurban for the encashment of the concession notes for the TCI project was 9.5 per cent.

Redemption profile of the concession notes

The redemption profile of the concession notes is sensitive to the underlying financial performance of the CityLink project, with the NPV of the concession notes increasing with earlier redemption and decreasing with later redemption.

In order to estimate the redemption profile, Transurban developed a financial model (the “negotiation model”), which sets out the forecast cash flows of the CityLink project over the concession period and estimates the redemption profile of the concession notes, having regard for the redemption benchmarks set out in the concession deed.

The negotiation model was based on a previous model (the “market model”) which was released to the market generally (primarily for the use of market analysts) by Transurban on 3 August 2004.

VicRoads undertook due diligence procedures on the negotiation model to assess the reliability of information and sensitivity of assumptions, to determine whether it provided a reasonable estimate of the future redemption profile of the concession notes.

VicRoads concluded:

- the amortisation profiles in the negotiation model maximises the NPV of the concession notes (given all other assumptions remain constant), within a materiality of 5 per cent
- replacing the deferred maintenance capital expenditure profile in the negotiation model with alternative profiles would not materially affect the NPV of the concession notes in the negotiation model
- the historical equity cash flow numbers used in the negotiation model were materially consistent to those reported by Transurban in their annual reports for the period 1996 to 2004.

VicRoads also performed reasonableness checks on key assumptions contained in the negotiation model. Assumptions were assessed for reasonableness by comparing base revenue and expense amounts with historical CityLink financial records and reference to the assumptions stated by Transurban in the market model.

We reviewed the due diligence undertaken by VicRoads and consider that these procedures were reasonable.

Traffic growth forecasts

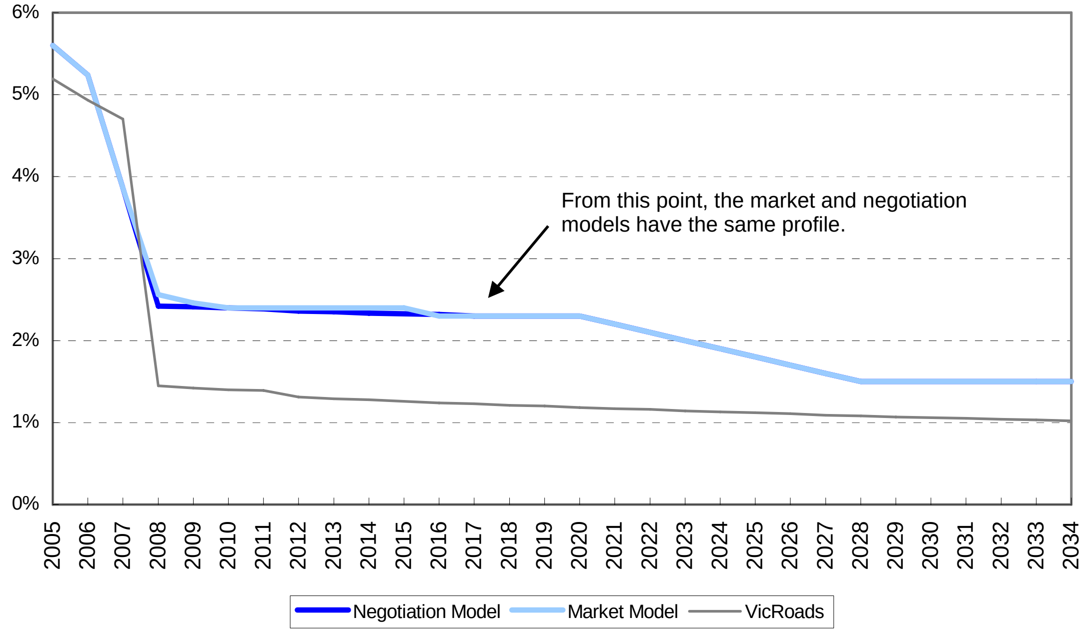
Forecast traffic growth rates are one of the major assumptions underpinning the projected cash flows in the negotiation model. All other assumptions being equal, higher traffic forecasts result in an increase in the NPV of the concession notes.

In examining the model assumptions, we identified that the traffic forecasts were marginally higher in the market model than in the negotiation model. The traffic growth rates were lowered by Transurban from the market model to the negotiation model to reflect an updated traffic growth forecast prepared by Transurban’s traffic modelling consultant.

VicRoads also engaged a traffic modelling consultant in relation to CityLink, who used a different traffic model to Transurban. This model produced lower forecast traffic growth over the concession period than the Transurban negotiation model.

Figure 2D sets out the traffic growth rates underpinning the negotiation model and the market model, compared to forecasts produced by VicRoads modelling consultants.

Figure 2D
Forecast traffic growth rates for CityLink



Source: VicRoads.

Our examination of the negotiation model and market model showed that the decrease in the traffic growth rates from the market model to the negotiation model had an immaterial impact on the value of concession notes to be encashed in the TCI transaction, reducing the value of the concession notes by 0.11 per cent.

Further, our calculations indicate that had the growth rates determined by VicRoads' consultants been incorporated into the negotiation model, the value of the encashed concession notes would have been reduced by approximately 4.3 per cent.

Discount rate selected to derive the NPV of the concession notes

The selection of an appropriate discount rate was a critical input in the valuation of the concession notes. The discount rate of 9.5 per cent implicit in the transaction was ultimately the outcome of negotiations between the State and Transurban.

The State's advisor provided advice on whether better value-for-money would be obtained by encashing the concession notes either through direct negotiation with Transurban or through a separate third party. In reviewing this option, the advisor made the following observations:

- if Transurban could acquire the concession notes at a discount rate greater than its cost of debt, this could represent value to Transurban. There would be little incentive for Transurban to acquire the concession notes at its cost of debt

- Transurban equity holders could benefit from Transurban acquiring the concession notes at Transurban's Weighted Average Cost of Capital (WACC), assuming Transurban's WACC is higher than its cost of debt. Transurban had previously indicated to the State that its WACC was approximately 9 per cent
- encashing the concession notes at a discount rate above the State's cost of debt would still represent value as the State recognises that the concession notes have risk
- encashing the concession notes via a transaction with Transurban at a discount rate less than those suggested by respondents to market soundings would result in the State achieving a result better than generally available in the market.

Market soundings

The advisor undertook market soundings with a cross-section of potential third party purchasers of the concession notes.

The indicative required discount rate range quoted by market sounding participants was higher than the transaction rate agreed between the State and Transurban. This range was relied upon by the State in determining that the transaction discount rate of 9.5 per cent was better than could likely be achieved with a third party in the market. The advisor found that:

- participants in the market sounding exercise generally viewed the concession notes as having at least some characteristics of an equity instrument and, therefore, potential alternative purchasers of the concession notes would likely require an equity risk premium to be applied to any discount rate
- the key factors taken into account by market sounding participants when pricing the concession notes were
  - the debt swap rate for the period prior to redemption
  - the BBB+ credit rating of Transurban at the time of the market sounding
  - an illiquidity premium applying to the concession notes as a security, due to the lack of a established market for 30-year, zero coupon bonds
  - a risk premium would be required for variable redemption dates, the zero coupon nature and long-dated tenor of the concession notes
- the market sounding participants also raised traffic growth assumptions and the effectiveness of the CityLink deed's ring fencing provisions[6] as issues that would require extensive due diligence.

Having considered the results of the market soundings, the advisor indicated to DTF that direct negotiations with Transurban would be likely to achieve more favourable views on traffic growth assumptions, the effectiveness of the ring fencing provisions and ultimately, the discount rate required to complete a transaction.

[6] "Ring fencing" refers to "financial Isolation" of the project from any impacts of all other activities that might be undertaken by the restructured Transurban Group.

The discount rate ultimately negotiated with Transurban for the encashment of the concession notes was 9.5 per cent, a rate favourable to the State when compared to the range quoted by market sounding participants.

Figure 2E sets out the NPV of the concession notes (as at 30 June 2005) encashed when a range of discount rates are applied to the redemption profile set out in the Negotiation Model.

Figure 2E
Discount rate sensitivity analysis

Discount rate (%)	NPV of notes encashed ($'000)
8.5	157 723
9.5	146 633
10.5	136 369
11.5	126 968

Source: Victorian Auditor-General's Office analysis.

The State used the advisor's advice as a benchmark for consideration of the 9.5 per cent discount rate used in the concession notes transaction with Transurban. On the basis of advice received from its advisor, the State considered that the 9.5 per cent discount rate was a strong and positive outcome and represented value-for-money, as the pricing on the concession notes transaction remained better than could likely be achieved with a third party in the market.

Conclusion

The discount rate of 9.5 per cent implicit in the transaction with Transurban to encash a number of the concession notes to finance the TCI project was based on sound commercial pricing methodology.

The benchmarking analysis undertaken by the State's advisor, through its market sounding exercise, was a reasonable method to assess whether better financial value would be obtained by an encashment of the concession notes with Transurban or a sale of the concession notes to a third party. The benchmarking results provided the State with relevant and reliable evidence that better financial value-for-money was likely to be obtained through an encashment of the concession notes with Transurban, than through a transaction with a third party.

2.5.3 M1 upgrade project

The final discount rate negotiated with Transurban for the encashment of the concession notes to partly fund the M1 upgrade project was effectively 9.27 per cent.

The redemption profile of the notes under the M1 negotiation model was a critical component in arriving at a valuation of the notes to be encashed as part of the M1 transaction.

As a starting point for negotiations, Transurban presented VicRoads with the “M1 Negotiation Model” in September 2005. The redemption profile as set out in the September 2005 M1 negotiation model valued the concession notes at $502 million, at a discount rate of 9.5 per cent, compared with an NPV of $542 million for the same concession notes, as implied by the negotiation model used in the TCI transaction. The decline in value of the concession notes was primarily due to revised Transurban forecasts and the inclusion of actual financial results for the 2005 financial year.

VicRoads conducted due diligence on the M1 negotiation model to provide assurance that the changes to the model reflected a reasonable estimate of the future redemption profile of the concession notes. The redemption profile of the concession notes as set out in the M1 negotiation model was the subject of negotiations between the State and Transurban from September 2005 to May 2006.

Through the due diligence process, VicRoads identified a number of issues requiring further investigation with Transurban. These issues were documented in an “issues register” maintained between the 2 parties. The issues raised formed part of the ongoing negotiations in relation to the concession notes transaction.

The major issues raised by VicRoads during the due diligence process were:

- lower forecast toll revenue in the M1 negotiation model as compared with the negotiation model used for the TCI transaction
- higher forecast costs, primarily customer service and IT costs, in the M1 negotiation model as compared with the negotiation model used for the TCI transaction
- the impact of lower actual cash distributions by the CityLink entities for the year ended 30 June 2005 of $112.7 million compared with the year ended 30 June 2004 of $125 million (lower actual cash distributions by the CityLink entities have the impact of reducing the NPV of the concession notes due to a deferral of the redemption cash flows)
- the exclusion from the M1 negotiation model of additional revenue associated with the State’s upgrade of the Monash and West Gate freeways.

Initial negotiations between VicRoads and Transurban resulted in a revised M1 negotiation model being issued by Transurban to VicRoads in October 2005. The revised M1 negotiation model included adjustments to increase toll revenue and decrease operating costs. The net impact of the Transurban adjustments on the NPV of the concession notes at a discount rate of 9.5 per cent was approximately $13 million, resulting in an NPV of $514 million.

In order to address the issue of lower than expected distributions, VicRoads engaged a private accounting firm to review Transurban’s compliance with the CityLink ring fencing provisions, and to provide some clarification as to whether lower than expected distributions were as a result of breaches of these provisions.

The review found no evidence of significant non-compliance with the relevant ring fencing provisions of the concession deed.

Following the resolution of the issues set out above, the remaining key factor in the negotiations between VicRoads and Transurban was the proposed treatment of the additional revenue forecast to be generated by the proposed works.

We noted that the revenue uplift to be incorporated in the M1 negotiation model was not agreed upon by VicRoads and Transurban. VicRoads undertook its own assessment of future revenues to be generated based on in-house traffic modelling.

VicRoads included this revenue uplift component in its own version of the M1 negotiation model resulting in an increase in forecast toll revenue to Transurban and consequently, an increase in the NPV of the concession notes.

We noted that Transurban did not agree to the VicRoads final version of the M1 negotiation model, but did ultimately agree to a redemption profile of the concession notes which included part of the State's forecast revenue uplift. This forecast was not as favourable as the State's best case scenario (revenue uplift from the entire works), however, it was more favourable than the worst case scenario (no inclusion of revenue uplift) that was modelled by VicRoads.

We have examined the final version of the VicRoads M1 negotiation model and consider as reasonable the key financial assumptions underpinning the model in supporting documentation supplied by VicRoads.

We also reviewed the due diligence process undertaken by VicRoads to verify key assumptions in the negotiation model prepared by Transurban and consider the process reasonable.

Discount rate selected to derive the NPV of the concession notes

Given that the State and Transurban could not agree on the M1 negotiation model, the negotiation of the encashment of the concession notes between the State and Transurban centred on the consideration to be paid by Transurban to the State for the encashment of the concession notes, rather than the discount rate to be applied to a specific, agreed upon concession note redemption profile.

At the conclusion of negotiations, the State calculated that the $614.3 million consideration to be paid by Transurban over 4 years (present value of $541.1 million in July 2006) implied a discount rate of 9.27 per cent on the redemption profile of the concession notes.

In assessing the discount rate to be applied to the concession notes, DTF's advisor provided advice to ensure that should the State dispose of its remaining interest in the concession notes, it did so on the best terms available in the market.

The DTF advisor identified an overall reasonable informed range for an appropriate discount rate to apply to the concession notes, having regard to appropriate cost of equity benchmarks.

The State executed the concession notes transaction at a discount rate of 9.27 per cent, which was within the range identified by the advisor.

Market soundings

DTF engaged the advisor to conduct benchmarking analysis in relation to the encashment transaction. On the advice of the advisor, which was based on the previous market sounding exercise, the State considered that the concession notes were viewed in the market as “quasi-equity” instruments and given these equity characteristics, the discount rate should reflect appropriate cost of equity benchmarks.

The advisor advised DTF that the appropriate reference points for the rate of return benchmarks for the concession notes included:

- Transurban’s estimated cost of equity
- cost of equity benchmarks derived from comparable toll road investments in Australia and overseas
- equity hurdle rates sought by toll road groups for investment in Australia and overseas
- comparison of the discount rate to be applied in the transaction with Transurban with the discount rates advised as a part of the financial advisor’s market sounding.

Transurban’s cost of equity benchmark was calculated using the following techniques:

- Capital Asset Pricing Model
- reference to share market analyst reports in relation to Transurban
- the cost of equity implied by Transurban’s share price at the time of the financial advisor’s analysis.

The benchmarks in relation to comparable toll roads and equity hurdle rates sought by toll road groups were sourced by DTF’s financial advisor.

Having conducted the analysis set out above, the financial advisor identified an overall reasonable informed range for an appropriate discount rate to apply to the concession notes, as well as a target range for negotiations.

In addition to the cost of equity benchmarks, the State also considered previous advice indicating that market participants would likely require an encashment discount rate higher than Transurban. The market sounding exercise was not repeated for the M1 transaction as the market was already aware that the State had entered into an encashment transaction with Transurban in relation to the TCI project and further market soundings would be unlikely to provide additional guidance.

The State concluded that a discount rate of 9.27 per cent was within the reasonable informed range and the target range as advised by the financial advisor and represented a better outcome than the State independently pursuing the M1 project.

Experience of key individuals undertaking negotiations

We reviewed the qualifications and experience of key individuals who conducted the negotiations with Transurban. DTF and VicRoads engaged suitably qualified personnel to negotiate the encashment transactions for both projects.

Conclusion

The discount rate of 9.27 per cent implicit in the transaction with Transurban to encash its remaining entitlement to the concession notes was based on sound commercial pricing methodology, in particular, in comparison with the discount rate that would be likely to be achieved in a sale of the concession notes to a third party.

The due diligence procedures undertaken by VicRoads were reasonable.

The cost of equity benchmarking analysis considered by the State and reference to the previous market sounding exercise, were appropriate benchmarks upon which to compare the transaction discount rate of 9.27 per cent with the potential discount rate a third party investor may require.

2.6 Risks relevant to the transaction

2.6.1 Introduction

To assess whether risks associated with the transactions were adequately managed, we examined whether:

- relevant risks were identified
- effective strategies were developed to manage the major risks identified.

2.6.2 Risk identification and management

A formal risk assessment process was not undertaken by the State in relation to either transaction.

While a formal risk assessment process was not undertaken, the State, via DTF and VicRoads, considered the following risks associated with the encashment transactions as part of its decision-making processes:

- risks of undertaking a transaction with Transurban
- risks of not entering into a transaction to encash the concession notes and, therefore, being exposed to the risks of holding the concession notes over the concession period.

Risks associated with undertaking the encashment transaction with Transurban

The following risks were assessed:

- risk of entering into a transaction with Transurban that did not meet the value-for-money criteria

- risk that the redemption profile as set out in the M1 negotiation model on which the value of the concession notes was dependent, did not represent a reasonable estimate of the actual future redemption profile of the concession notes.

In order to manage the risks of entering into a transaction with Transurban that did not meet the value-for-money criteria, DTF engaged the advisor to provide advice on whether better value-for-money would be obtained by encashing the concession notes directly with Transurban or through a separate third party.

To manage the risk that the negotiation model redemption profile did not represent a reasonable estimate of the actual future redemption profile of the concession notes, the State engaged an advisor to perform agreed upon procedures, including a review of the mathematical accuracy of the negotiation model and a sensitivity analysis to changes in the model to specific assumptions for the TCI transaction. All issues raised during the due diligence were resolved to the satisfaction of VicRoads.

The State also considered that if it was to undertake the TCI project without an up-front agreement of revenue sharing arrangements with Transurban, the State could issue a compensable enhancement claim to Transurban in order to recover its share of the revenue uplift resulting from the upgrade. The State considered the risks involved with establishing such a compensable enhancement claim such as Transurban pursing strategies that could potentially frustrate such a claim.

In order to manage the risk that the forecast redemption profile of the concession notes did not represent a reasonable estimate of the actual future redemption profile, VicRoads conducted due diligence on the M1 negotiation model.

Risks associated with holding the concession notes for the life of the concession period

In addition to identifying risks associated with an encashment transaction, the State also considered the risks implicit in holding the concession notes until redemption.

The State considered the primary risk associated with holding the concession notes for the concession period was that the redemption profile of the concession notes is dependant on the financial performance of CityLink.

To the extent that CityLink financial performance does not meet the forecast internal rate of return set out in the M1 negotiation model, the concession notes could potentially lose value as the redemption of the concession notes is deferred. Further, DTF received advice from the advisor in 2005 that there were a number of further risks for the State resulting from its interest in the concession notes.

Specifically, the risks identified focused on the adequacy of the ring fencing provisions created to provide the State with protection against erosion in the value of the concession notes over the concession period and the ability of Transurban to employ strategies to defer the redemption of the concession notes and, consequently, reduce the value of the concession notes over the concession period.

The advice included the following points:

- the existing CityLink ring fencing provisions may not provide the State with 100 per cent protection on the current value of the concession notes
- there are a number of strategies that Transurban could attempt in order to defer payment of the concession notes
- in the future, Transurban’s corporate structure is likely to become more complicated with significant additional investments likely to be undertaken. As the structure becomes more complicated, the effectiveness of the ring fencing arrangements will become even more difficult to determine
- effective policing of the ring fencing arrangements in the future could be an increasingly difficult exercise.

The advisor undertook a preliminary high level assessment of the potential financial impact to the State of the key ring fencing risks identified and advised the State on the potential impact of the exposure on the present value of the State’s entitlement to the redemption of the concession notes.

The advisor advised that the State could take the following actions to mitigate, or partially mitigate, the risk of erosion of the value of the concession notes:

- a legal review of the redemption triggers
- active management of the CityLink relationship
- the appointment of independent directors to City Link
- implementation of a new operating and maintenance agreement
- entering into a transaction to encash the concession notes.

As part of an assessment of the ring fence issue, VicRoads engaged an accounting firm to perform an independent review on Transurban’s compliance with the CityLink ring fencing provisions. The review found no evidence of significant non-compliance.

In addition to the risks associated with the ring fencing provisions, the State considered that there were significant risks to alternatives that involved the State upgrading the Monash and West Gate freeways independently of any Transurban upgrade of the Southern Link.

The risks included the ability of the State to successfully pursue a compensable enhancement claim with Transurban to share in 50 per cent of any revenue uplift from improved traffic flows on CityLink as a result of the works undertaken by the State. Specifically, the State received independent legal advice that outlined the risks to the State in pursuing a compensable enhancement claim.

Conclusion

The State did not conduct a formal, documented risk assessment of either encashment transaction. This notwithstanding, the State did identify the major risks relevant to the transaction and employed effective strategies to manage the risks that were identified.

In addition, the State identified that there were risks for the State by holding the concession notes. Accordingly, it was concluded that there were significant advantages in relation to risk mitigation to the State in encashing its interest in the concession notes, as part of the financing arrangements for the M1 upgrade project.

3 The Tullamarine Calder Interchange project

At a glance

Background

The $150 million upgrade to the Tullamarine Calder Interchange (TCI) was launched in January 2005 and was scheduled for full completion by December 2007. In the business case for the project, VicRoads described the interchange as “one of the worst bottlenecks and accident black spot sites in Victoria”.

Key findings

- The interchange has been delivered on time, and under budget by $11 million.
- VicRoads adequately managed the TCI project alliance, however, there is a requirement to improve governance practices, particularly in regard to documenting decision-making processes.
- A monitoring regime to assess whether the project will achieve expected outcomes has been implemented.
- Initial monitoring indicates that the interchange has achieved expected functionality, and is delivering some initial benefits, particularly time savings and reduced crashes.
- Analysis of the identified business need, and options to meet the need was sufficiently rigorous, however, there were some departures from better practice.
- The adopted procurement strategy was consistent with the identified business need; however, there is no evidence of a comparative analysis or evaluation of other procurement options against the preferred option of pursuing an alliance contract.
- We observed a number of administrative breaches and lapses in regard to the procurement rules and processes, however, we found no evidence that probity was breached during the Request for Proposal (RFP) process and negotiations for the TCI project.

At a glance *- continued*

Key recommendations

3.1 So that future business cases align with Department of Treasury and Finance (DTF) better practice guidance, VicRoads should conduct the required stakeholder analysis and consultation specified for infrastructure projects.

3.2 Prior to economic estimates being used in business cases put forward for Government's decision-making on major roads projects, VicRoads should continue to ensure independent validation to confirm the reasonableness of the assumptions and inputs underlying cost and benefit estimates, as well as the rigour and accuracy of the modelling.

3.3 So that future business cases align with DTF better practice guidance, prior to confirming its preferred procurement approach, VicRoads should analyse other procurement options, to allow decision-makers to be sufficiently informed as to their costs, benefits and risk impacts.

3.4 The Victorian Government Purchasing Board (VGPB) should consider revising and amending its probity advice to:

- ensure that a probity auditor's role is not confused with the role of a probity advisor in order to maintain clarity of the 2 distinct roles and strengthen accountabilities of the separate functions
- provide sample templates on the acceptable form and content for probity audit reports.

3.5 For future projects worth more than $10 million, VicRoads should comply with government policy and implement approved probity plans which accord with the VGPB Probity Best Practice Advice.

3.6 VicRoads should ensure that future alliance procurement processes address the following procurement issues which were identified in the TCI Alliance:

- documenting all changes to core documents (including probity plans) and communicating those changes to tenderers
- documenting agendas and minutes of evaluation panel meetings
- gaining formal probity sign-off that processes and documents meet agreed criteria (as documented in the probity plan)
- implementing a detailed procurement documents security policy so that:
  - the movement of documents is recorded and controlled
  - commercially sensitive or tender-related information should be stored in secure conditions with access limited to authorised persons
- if required in a probity plan, anyone with access to tender-related information should sign a confidentiality agreement, and ensure that only authorised staff with a direct "need to know" should be privy to tender-related commercially sensitive information

At a glance - *continued*

Key recommendations - *continued*

- improving existing probity processes to ensure that documents relating to conflicts of interest or confidentiality are accounted for and any issues are included at the commencement of all meetings
- ensuring all tenderers are compliant with Request for Proposal (RFP) requirements
- requiring Expression of Interest and RFP tenderers to declare any known conflicts of interest as part of the bid process.

3.7 VicRoads should develop a corporate governance and project management protocol that specifies minimum standards of documentation of management meetings and the basis of decision-making. This protocol should achieve an appropriate corporate record and audit trail so that an external party would be able to understand the basis of management actions and decisions.

3.8 VicRoads should conduct a formal post-commissioning construction quality review of the TCI project to provide assurance that:

- the interchange has achieved expected functionality in accordance with VicRoads' design and quality standards
- the State has received a quality asset that reflects the value of its investment.

3.9 VicRoads should:

- continue to formalise its monitoring exercise to test the accuracy of modelling and expectations about economic benefits arising from the TCI project.
- proceed to a "Gate 6 – Benefits Realisation" Gateway Review once the formal data capture exercise is completed and reliable data is available, to compare the project's actual benefits with its business case estimates.

3.1 Background

The $150 million upgrade to the Tullamarine Calder Interchange (TCI) was launched in January 2005 and was scheduled for full completion by December 2007.

Some 176 000 vehicles (including 13 000 freight vehicles) use the interchange each day. In the 5 years prior to construction commencing there were 150 casualty crashes. In peak periods, traffic congestion could lead to queues up to 2 kilometres long.

In the business case for the project, the interchange was described as one of the worst bottlenecks and accident black spot sites in Victoria.

The key elements of the TCI project concept design included:

- new inbound and outbound freeway lanes
- separate freeway entry and exit ramps
- a new bridge to separate Tullamarine and Calder inbound freeway traffic
- improved road curves around Essendon Airport
- new noise fencing for adjacent residential properties.

The key features of the new interchange as identified on the TCI project website[1] are:

- safer and easier merging between the Tullamarine and Calder freeways
- elimination of weaving manoeuvres through fast-moving freeway traffic
- less traffic on local roads due to a reduction in drivers diverting off the freeway to avoid crashes and traffic congestion
- improved noise protection for adjacent residents.

The business case identifies the key benefits from the project to be:

- a reduction in congestion and travel time during peak hours by up to ten minutes between the Melbourne central business district and Melbourne Airport
- improved road safety and fewer casualty crashes
- economic benefits of $508 million.

The Government also announced that the State and the Transurban Group[2] would equally share any increase in revenue on the CityLink toll road that resulted from the upgrade.

3.1.1 Alliance contract delivery mechanism

The TCI project is being planned, designed, and constructed under an Alliance agreement between:

- VicRoads (owner)
- Baulderstone Hornibrook (builder)
- Parsons Brinckerhoff (designer).

[1] <www.tullacalder.com.au>.

[2] Operator and concessionaire for the CityLink toll road <www.transurban.com.au>.

The TCI project was the first major alliance contract signed by the Victorian Government. The Department of Treasury and Finance's (DTF's) recently released *Project Alliancing Practitioners' Guide*[3] was informed by the processes and experiences pioneered by VicRoads in the TCI project.

Project alliancing is a form of cooperative (or relationship) contracting.

Cooperative contracting arrangements aim to avoid the adversarial environment of traditional contract arrangements. Cooperative contracting arrangements are generally considered for projects that are more complex, are fast-tracked, have ill defined risks or many unknowns.

Project alliancing is a relatively new type of cooperative contracting arrangement where the owner, designer and constructor are bound by a single agreement. Typically, an "alliance" organisation is formed between the parties (i.e. the designer, the constructor and the owner) to deliver the project, so that the obligations of delivery are collective between the alliance "partners".

Non-owner partners are: reimbursed for direct costs and site overheads; paid a fee to cover corporate overheads and profit; and share in either extra costs or savings depending on the project outcome.

A project alliance board is established and consists of representatives from all parties. Once the alliance agreement is in place, all decisions are taken on a "best for project" basis.

The alliance model aligns the designers, constructors and the owner, and provides each party with an incentive to save money and produce the best outcomes at every stage of the process.

3.1.2 Funding for the project

The project is being funded through the early redemption of concession notes[4] held by the State under the CityLink toll road concession arrangement with Transurban.

In June 2005, a deed of assignment was signed by the Government and Transurban for the redeemed concession notes. At the same time, a separate deed was signed for the interchange redevelopment.

The Government redeemed notes with a face value of $305 million for $151 million (net present value) in July 2005 and July 2006.

These funding arrangements were the subject of a separate audit (reported in Part 2 of this report) that also considered the redemption of concession notes associated with the M1 upgrade project.

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[3] Department of Treasury and Finance, 2006, *Project Alliancing Practitioners' Guide*, State of Victoria, Melbourne.

[4] Concession notes are non-interest bearing promissory notes which are discussed in detail in Part 2 of this report.

An aerial view of the TCI project at the commencement of works in May 2006.

3.2 About this audit

3.2.1 Audit objective

The rationale for this audit was to examine the processes used by the State to undertake a major road infrastructure project using an alliance arrangement.

The overall objective of the audit was to assess whether the TCI project has been effectively managed and is delivering the expected benefits to date.

The audit assessed the following:

- the rigour of analysis of project delivery options within the business case
- the alignment of the procurement strategy with the business need
- the extent of compliance with relevant requirements and guidelines over the procurement
- the effectiveness of project management and governance by VicRoads
- the extent to which the State's objectives and the project's expected benefits have been delivered, or can be expected to be delivered.

3.2.2 Audit scope

This audit focused on VicRoads' role in the project and included examination of:

- the business case for the upgrade of the interchange
- the key management systems and resources
- the procurement process and associated decisions made by VicRoads.

3.2.3 Acknowledgements

We acknowledge the cooperation and assistance provided by VicRoads' staff during the conduct of the audit.

3.3 Overall conclusion

3.3.1 Was analysis of the identified business need, and options to meet the need, sufficiently rigorous?

VicRoads conducted analysis of the identified business need prior to committing to the project

We conclude that the TCI project business case clearly specified the need for the project and that the expected outcomes addressed the identified project need.

We note, however, that analysis of the context of the need, particularly around some of the stakeholders, was limited.

We further conclude that the business case demonstrated strategic alignment with the Government's objectives.

VicRoads developed and analysed options to meet the need

Based on our analysis of the TCI project business case, we conclude that:

- options to address the identified service need were developed and analysed
- costs and benefits for the preferred option were also analysed, however, the final assumptions and the way they were used in the model to derive expected economic benefits was not subject to independent checking.

Consistency of the business case

We conclude that the TCI project business case generally met the key principles of the current DTF guidance, however, we noted departures from better practice such as:

- lack of comparative analysis of risks, cost and benefits for all options
- incomplete stakeholder analysis for some stakeholders
- lack of independent verification of the assumptions used to develop the traffic model, which was used to derive the expected economic benefits from the project.

3.3.2 Was the adopted procurement strategy consistent with the identified business need, and did it follow the procurement rules?

Confirmation that the chosen procurement strategy would meet its business need and deliver expected outcomes

We concluded that although there is some evidence that various procurement options were considered in the development of the business case, there is no evidence of a comparative analysis or evaluation of other procurement options.

Due to this, we consider that it is not possible to compare any of the outcomes of the alliance procurement mechanism with outcomes that may have been achieved by an alternative delivery mechanism.

Based on this limited analysis of procurement options, decision-makers may not have been fully informed about the costs, benefits and risks associated with various procurement options when considering the business case.

VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations in tender documents

Based on our analysis of the Request for Proposal (RFP) for the TCI project, we concluded that:

- the RFP requirements were consistent with the procurement strategy
- the RFP identified the nature, scope, quality and quantity of goods and services sought, and the outcomes to be delivered
- the RFP adequately specified arrangements and responsibilities for monitoring and reporting of contractor performance
- the alliance key result areas (KRAs) and performance parameters were designed to meet the project objectives as identified in the business case.

Compliance of procurement approach complied with the relevant rules and guidelines

We identified a number of administrative and process lapses and concluded that the procurement approach did not fully comply with the project probity plan.

VicRoads did not fully and effectively implement a probity plan, particularly concerning confidentiality deeds, security of information and meeting minutes. This increased the risk of possible probity breaches.

However, Audit found no evidence that probity was breached during the RFP process and negotiations for the TCI project.

Based on our observations from this project, VicRoads should ensure that its probity processes minimise probity risks in future commercial transactions.

3.3.3 Did VicRoads adequately manage the TCI project and achieve the expected outcomes?

The project was effectively managed

Based on our examination of the workings of the alliance management structures, the following project features were managed effectively:

- integration of the various parties in the alliance
- communications with stakeholders
- risk management
- project progress monitoring and review.

However, there should have been more documented evidence of management review and approval of the monitoring and progress reports to provide assurance that management processes were working as expected.

Budget versus actual expenditure was effectively monitored and dealt with by the alliance's cost and risk sharing arrangements

Based on our examination of the evidence related to cost and risk monitoring, we found that:

- actual costs were tracked against budgeted costs
- there were no contract variations (due to the alliance contract used)
- the project is expected to achieve an $11 million saving against the approved budget
- the performance pool mechanism is subject to independent oversight
- key remaining risks are being managed
- the Essendon Airport land transfer outcome has been negotiated and substantially progressed.

Functionality was achieved in accordance with VicRoads' approved design and quality standards

Although there is evidence that the TCI Alliance and VicRoads monitored quality during the construction project, no formal post-commissioning review has been planned or conducted to date.

Such a review should occur, to provide assurance that the interchange has achieved expected functionality in accordance with VicRoads' approved design and quality standards, and the State has received a quality asset that reflects the value of its investment.

Project milestones were achieved and delays investigated and resolved

Based on our observations on whether project milestones were achieved and delays investigated and resolved, we found that:

- there was an ongoing mechanism to track any constructions delays
- action was taken to rectify delays
- the project achieved its completion milestone within expectations.

VicRoads is tracking any actual benefits that have been delivered to date

Based on our review of whether VicRoads is tracking any actual benefits that have been delivered to date, we conclude that:

- VicRoads has collected data to show that average speed and traffic flow have improved
- there is initial data showing that incidents (particularity casualty crashes) have decreased in the interchange precinct
- post-completion KRAs are valued at $1.4 million of the identified $5 million performance pool
- the alliance parties will need to maintain a commitment to long-term, post-completion monitoring
- VicRoads should continue with efforts to formalise the monitoring exercise to test the accuracy of its modelling and expectations about economic benefit arising from the TCI project
- the project should undergo a “Gate 6 – Benefits Realisation” Gateway Review once the formal data capture exercise is completed and reliable data is available.

3.4 Was analysis of the identified business need, and options to meet the need, sufficiently rigorous?

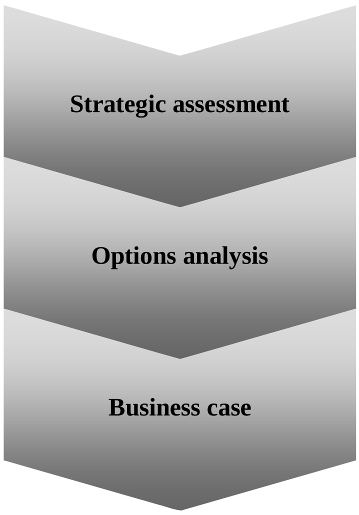
3.4.1 Introduction

The development of a business case for major infrastructure projects is a critical step in the asset investment life cycle. A business case should be built upon a strategic assessment to determine the service need, and a rigorous analysis of the options available to address that need.

In Victoria, business cases are required to be prepared and submitted in support of all asset or capital proposals costing $5 million or more[5].

Better practice guidance has been issued by the Department of Treasury and Finance (DTF) on the development of business cases under its Gateway Initiative[6]. That guidance material[7], first promulgated in December 2006, provides best practice benchmarks for agencies involved in asset investment decisions.

Figure 3A
Business case development stages



Source: Department of Treasury and Finance, *Business Case Development Guidelines*, December 2006.

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[5] This requirement applies to the general government sector (i.e. departments and statutory authorities).

[6] According to the Gateway Review Process (GRP) website <http://www.gatewayreview.dtf.vic.gov.au>, the GRP is part of the Victorian Government's Gateway Initiative to improve infrastructure and Information Communication Technology project development and delivery across government. The aim of the GRP is to help government departments and agencies ensure that their investment is well spent, meets business and the Government's strategic objectives, and achieves value-for-money outcomes.

[7] Department of Treasury and Finance, *Business Case Development Guidelines*, December 2006.

The guidelines recommend that a business case develops progressively over 3 stages:

- *strategic assessment*: to confirm strategic fit and service need
- *options analysis*: with indicative assumptions about the way forward
- *formalised business case*: to validate and confirm assumptions with detailed evaluation of costs, benefits, risks and opportunities.

After many years of considering concepts to improve the function and flow of the interchange, VicRoads finalised a business case for the proposed upgrade in November 2004.

The business case was reviewed by the Department of Infrastructure's Project Review Committee (PRC) in early February 2005. This review assessed the detail and substance supporting the business case and whether it was relevant to the project objectives. After its endorsement, the PRC forwarded the business case to the Department of Premier and Cabinet for consideration by the Government.

3.4.2 Criteria we used

To assess whether VicRoads' analysis of the options to meet the identified business needs in relation to these major roads projects was sufficiently rigorous, considering the proposed projects' value and risk, we applied the following criteria:

- VicRoads conducted analysis of the identified business need prior to committing to the project
- VicRoads developed and analysed options to meet the identified business need
- the business case development was consistent with DTF's better practice approach.

Although the DTF better practice guidance was released after the development of the business cases for the TCI and M1 upgrade projects, we used the guidance in an objective rather than prescriptive manner, to analyse these business cases for consistency, rather than compliance, with current better practice.

3.4.3 Analysis of the identified business need prior to committing to the project

During our analysis of whether VicRoads conducted analysis of the identified business need prior to committing to the project, we expected to see:

- demonstration that VicRoads understood what the need was, and the context of the need
- confirmation of the strategic alignment between the identified need and government objectives.

Understanding the need and the context

We reviewed the approved TCI project business case and observed that it contained:

- a clear description of the need for the project
- traffic data supporting the strategic importance of the interchange within Melbourne's freeway network
- casualty statistics for traffic crashes in the interchange precinct for the last 5 years
- economic analysis of the project's estimated cost and benefits.

We observed that the business need was clearly specified and that the expected outcomes of improved traffic flow and reduced crashes addressed the identified project need.

A project has the potential to impact a range of stakeholders in a various ways. It is essential to identify the key stakeholders at the outset and determine the potential impacts (both positive and negative) and how these may be managed.

The stakeholders identified in the business case were:

- State, Commonwealth and local governments
- Transurban and CityLink
- Essendon Airport Pty Ltd
- public transport organisations
- land owners
- business organisations
- road users, including the freight industry
- service utilities.

The business case identified the stakeholders, however, based on our observations, their individual expectations and needs, and potential impacts, were not well-documented.

We note that the requirement to identify stakeholder expectations (and plans to meet those expectations) was allocated to the TCI Alliance after it had been formed.

In our view, some of the stakeholder expectations and needs were not sufficiently analysed and documented at the business case stage. We consider that it is better practice to conduct this work prior to finalising the business case in order to minimise the cost implications of potential stakeholder expectations.

Further, the lack of a full understanding of stakeholder expectations prior to transferring management of the project to the TCI Alliance meant that VicRoads could have been exposed to unexpected and, therefore, unbudgeted, stakeholder management costs.

Recommendation

3.1 So that future business cases align with DTF better practice guidance, VicRoads should conduct the required stakeholder analysis and consultation specified for infrastructure projects.

Confirmation of strategic alignment

The TCI project business case contained a description of the proposed project's alignment with government objectives such as:

- Melbourne 2030
- arrive alive!
- *Linking Melbourne*: Metropolitan Transport Plan.

The then Premier publicly announced that the Government would proceed with the project on 27 January 2005[8]. On the same day, Transurban informed the Australian Stock Exchange[9] of the $150 million concession note redemption agreement with the State, and advised that those funds would be directed to the TCI project.

Did VicRoads conduct analysis of the identified business need prior to committing to the project?

We conclude that the TCI project business case clearly specified the need for the project and that the expected outcomes addressed the identified project need.

However, the analysis of the context of the need, particularly around some of the stakeholders, was limited.

We also found that the business case demonstrated strategic alignment with the Government's objectives.

3.4.4 Did VicRoads develop and analyse options to meet the identified business need?

The business case contained a summary of options for the interchange developed by VicRoads, which is shown in Figure 3B.

[8] <http://www.dpc.vic.gov.au/domino/Web_Notes/newmedia.nsf/b0222c68d27626e2ca256c8c001a3d2d/415778a4c6c63c51ca256f9600814811!OpenDocument>

[9] <http://www.transurban.com.au/transurban_online/tu_nav_black.nsf/v/4EC27659B323333BCA25707400306697/$file/tulla%20calder%20deal%20-%20jan%2005.pdf>

Figure 3B
Summary of options in VicRoads' business case

Option	Details
Do nothing	Leave the interchange in its current configuration.
Option 1 (the escarpment route)	This option would skirt the northern and eastern boundaries of the airport. It had been investigated in detail in the past but had been abandoned by the Government on the basis of its social impact, technical difficulty and cost.
Option 2	This option follows the existing freeway corridor, but would require significant land acquisition from the airport which would severely impact airport runways, buildings and other infrastructure. It had the potential to be developed into an 8- lane freeway.
Option 3 (the preferred proposal)	This option significantly minimised the impact on the airport, and maximised the use of existing infrastructure. It was developed from the other 2 options in consultation with the CityLink and Essendon Airport operators.

Source: Victorian Auditor-General's Office analysis of VicRoads' documents.

We observed that these options were representative of the main viable options to improve the interchange.

Costs, benefits and risks

The costs, benefits and risks associated with the various options to address the project needs are well-documented in the business case.

Figure 3C sets out the estimated costs and benefits (2004 discounted values) modelled in the business case for the preferred option.

Figure 3C
Economic costs and benefits evaluation

Expected economic costs and benefits	
Cost	$137 million in capital costs.
Benefits	$508 million comprised of: • $25 million – vehicle operating costs savings • $460 million – travel time savings • $23 million – savings from avoided or reduced crashes.

Source: Victorian Auditor-General's Office analysis of VicRoads' documents.

VicRoads engaged a consultant to validate the model used to generate the above economic cost and benefits. The model included in the consultant's report estimated total economic benefits of $384.2 million, compared with the $508.8 million estimated in VicRoads' business case.

The business case traffic model was developed by VicRoads from the consultant's traffic model. Several inputs were amended to reflect updated Austroads project evaluation inputs[10] (which were not used in the consultant's model).

Internal VicRoads correspondence noted the following factors which drove the decision to make various changes to the model:

- most of the benefits from the project are expected to accrue from travel time savings which are highly dependent on how changes in operating speed or travel time are modelled, as well as unit travel time values
- unit travel time values in particular needed to be amended to reflect a weighted value of private and business car travel (the consultant's values only considered private car travel, which are significantly lower than business car travel) and an allowance for the freight carried by vehicles in addition to driver wages also had to be considered
- the basis for estimating these costs are set out in Austroads publications that Austroads members have agreed to use to ensure consistency in evaluations submitted for funding consideration. These unit values have been adopted by the Department of Infrastructure.

Notwithstanding this explanation, we noted that after the above model changes there was no additional independent validation of the revised input assumptions, nor of the mathematical accuracy of the model used to derive the $508 million in expected economic benefits.

Did VicRoads develop and analyse options to meet the business need?

Based on our analysis of the TCI project business case, we conclude that:

- options to address the identified service need were developed and analysed
- costs and benefits for the preferred option were also analysed, however, the final assumptions used in the model to derive these benefits were not subject to independent checking.

Recommendation

3.2 Prior to economic estimates being used in business cases put forward for Government decision-making on major roads projects, VicRoads should continue to ensure independent validation to confirm the reasonableness of the assumptions and inputs underlying cost and benefit estimates, as well as the rigour and accuracy of the modelling.

[10] Particularly the Austroads publication AP-R241/04 *Economic Evaluation of Road Investment Proposals: Unit Values for Road User Costs at June 2002*.

3.4.5 Was the business case consistent with DTF's better practice approach?

The Victorian Government, through DTF, has developed *Business Case Development Guidelines*[11] as its key source of better practice guidance for the development of business cases for major asset and project proposals.

The principles espoused in this guidance require a business case to:

- substantiate the preferred option and demonstrate how it meets government and departmental service delivery needs better than other alternatives, taking into account future scenarios and assumptions
- apply a disciplined approach to collecting relevant information and analysing the proposal, including identifying the source and basis of the assumptions used and developing acquisition and risk management plans
- communicate clearly the key issues and recommendations to aid executive decision-making and ensure that stakeholders are aware of financial impacts arising from factors such as compressed timelines and/or changes to scope.

We observed that the TCI project business case generally met the key principles of the current DTF guidance, as it contained a brief analysis of alternatives and substantiation of the preferred project option, as well as a clear recommendation to the Government.

However, we have noted earlier in this part of the report a number of departures from better practice, such as:

- incomplete stakeholder analysis
- lack of verification of the assumptions underlying development of the traffic model, which was used to derive the expected economic benefits from the project.

The project underwent a combined Gateway Review[12] for Gate 2 (Business Case) and Gate 3 (Procurement Strategy). A number of recommendations arose from the Gateway Review, with all of them agreed by management, and their responses and actions formally documented.

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[11] The *Business Case Development Guidelines* can be found at <http://www.dtf.vic.gov.au/CA25713E0002EF43/WebObj/GatewayBusinessCaseDevelopmentGuidelines/$File/Gateway%20Business%20Case%20Development%20Guidelines.pdf>

[12] According to DTF's website, "Gateway Reviews … provide support to departments in the development and implementation of asset investment projects and programs … Gateway Reviews are best practice reviews that provide targeted feedback at key decision points during a project's life cycle". <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/gateway-reviews-and-best-practice-guidance>.

Was the business case consistent with DTF's better practice approach?

We concluded that the TCI project business case substantially met the key principles of the current DTF guidance, however, we noted departures from better practice such as:

- lack of comparative analysis of risks, cost and benefits for all options
- incomplete stakeholder analysis for some stakeholders
- lack of independent verification of the assumptions used to develop the traffic model, which was used to derive the expected economic benefits from the project.

3.5 Was the adopted procurement strategy consistent with the identified business need, and did it follow the procurement rules?

3.5.1 Introduction

The TCI project has been delivered through an alliance contract which was approved by Government in early 2005.

The criteria used for this part of the audit drew heavily on guidance material from the Gateway Review Process[13], which provides support to Victorian Government departments in the development and implementation of asset investment projects.

The Victorian Government's *Project Alliancing Practitioner's Guide*[14], which sets out a framework for selecting and establishing project alliances and articulates the Government's preferred position on key alliancing issues, was also used to inform our development of criteria for this part of the audit.

These materials were utilised because they were developed specifically to assist Victorian Government departments and agencies in the management of major procurements, including the planning of the procurement process.

The large dollar value of the major procurements that constitute the TCI project also heightens the expectation that all aspects of the procurement planning and execution will be handled in a manner that reflects government policy.

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13 <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/gateway-reviews-and-best-practice-guidance>.

14 <http://www.dtf.vic.gov.au/CA2571E0002EF43/pages/asset-management---project-support-project-alliancing>.

3.5.2 Criteria we used

So that we could assess whether the adopted procurement strategy was consistent with the identified business need, and if it followed the procurement rules, we sought assurance on whether:

- VicRoads had confirmed that the chosen procurement strategy would meet its business need and would deliver expected outcomes, prior to issuing a RFP/T
- VicRoads had clearly identified the project's nature, scope, deliverables, KRAs and other expectations in tender documents
- the procurement approach had complied with relevant internal (VicRoads) and external (DTF/VGPB) procurement rules and guidelines.

3.5.3 Did VicRoads confirm whether the chosen procurement strategy would meet its business need and would deliver expected outcomes?

In addition to an analysis of the costs and benefits, we expected that VicRoads would have evaluated and tested procurement options to confirm that the chosen procurement strategy would meet its business need and would deliver expected outcomes.

Such an analysis would have allowed VicRoads to understand the comparative risks, costs and benefits of various procurement options before proceeding to tender.

During the development of the business case for the TCI project, VicRoads had decided that an alliance would be its preferred procurement option and had canvassed their preference for an alliance in a briefing note to the minister on 2 August 2004. VicRoads proposed that an alliance arrangement would be the preferred delivery method given the inherent risks associated with the project, particularly in relation to project timelines, potential traffic disruption and impact on other stakeholders.

VicRoads also believed that an alliance would provide the best opportunity for early delivery of the interchange, and commissioned a consultant who prepared, in October 2004, a detailed implementation plan for an alliance contract.

We only observed qualitative commentary relating to other potential procurement options (including a *Partnerships Victoria* approach and a traditional design and construct contract) in the business case.

There was no comparative evaluation of potential procurement options in the approved TCI project business case or other documents. VicRoads prepared an economic evaluation for an alliance contract, but there was no evidence of an equivalent evaluation of the other potential procurement options.

Nevertheless, once the Government endorsed the business case in December 2004, an alliance, therefore, became the preferred procurement and delivery option.

The alliance procurement option was incorporated into the project RFP which was forwarded to 10 pre-qualified major construction companies in February 2005.

Did VicRoads confirm that the chosen procurement strategy would meet its business need and deliver expected outcomes?

Although there is some evidence that various procurement options were considered in the development of the business case, there is no evidence of a comparative analysis or evaluation of other procurement options.

Due to this, we consider that it is not possible to compare any of the outcomes of the alliance procurement mechanism with outcomes that may have been achieved through an alternative delivery mechanism.

Based on this lack of analysis of procurement options, decision-makers could not have been fully informed about the costs, benefits and risks associated with procurement options when considering the business case.

Recommendation

3.3 So that future business cases align with DTF better practice guidance, prior to confirming its preferred procurement approach, VicRoads should analyse other procurement options, to allow decision-makers to be sufficiently informed as to their costs, benefits and risk impacts.

3.5.4 Did VicRoads clearly identify the project's nature, scope, deliverables, key result areas and other expectations in tender documents?

Request for proposal

VicRoads released an RFP to selected pre-qualified contractors for the TCI project in early February 2005.

The RFP requirements were consistent with the procurement strategy by identifying the nature, scope, quality and quantity of goods and services sought, and the outcomes to be delivered.

The RFP also adequately specified arrangements and responsibilities for monitoring and reporting of contractor performance, with the alliance KRAs and performance parameters designed to address the project outcomes identified in the business case.

Did VicRoads clearly identify the project's nature, scope, deliverables, key result areas and other expectations in tender documents?

Based on our analysis of the RFP for the TCI project we accept that:

- the RFP requirements were consistent with the procurement strategy
- the RFP identified the nature, scope, quality and quantity of goods and services sought and the outcomes to be delivered
- the RFP adequately specified arrangements and responsibilities for monitoring and reporting of contractor performance.
- the alliance KRAs and performance parameters were designed to meet the project objectives as identified in the business case.

3.5.5 Did the procurement approach comply with the relevant procurement rules and guidelines?

To ensure that all public sector agencies conduct all their commercial transactions with appropriate probity, the VGPB has produced 2 policy documents: *Probity Best Practice Advice*[15] and the *Conduct of Commercial Engagements in Government*[16] policy.

All government agencies must adhere to the policy for commercial transactions. Figure 3D shows the policy's key requirements.

Figure 3D
VGPB probity key requirements

Requirement	Description
Development of a probity plan	Departments intending to let a tender worth more than $10 million are to develop a probity plan before the tender process starts.
Fairness and impartiality	Potential suppliers are treated equally and must have the same opportunity to access information and advice.
Use of a competitive process	A competitive process should be used at all times.
Consistency and transparency of process	Tenderers are evaluated in a systematic manner against explicit predetermined evaluation criteria.
Security and confidentiality	The processes used to receive and manage supplier information ensure the security and confidentiality of intellectual property and proprietary information.
Identification and resolution of conflicts of interest	Any person involved in the tender process is to declare and address any actual or perceived conflict of interest before undertaking any quote or tender evaluation.

Source: Victorian Government Purchasing Board.

[15] *Probity Best Practice Advice* can be found at <http://www.vgpb.vic.gov.au/CA256C450016850B/WebObj/Probitybestpracticeadvice/$File/Probity+best+practice+advice.doc>.

[16] VGPB policy for *Conduct of Commercial Engagements in Government* <http://www.vgpb.vic.gov.au/CA256C450016850B/0/4F2B6418F0020F51CA2570820079B16C?OpenDocument>.

Development of a probity plan

For all tenders likely to exceed $10 million in value, it is government policy that the project team should prepare a probity plan which is at least as rigorous as that contained in the VGPB *Probity Best Practice Advice*. Figure 3E shows the VGPB's minimum requirements for a plan[17].

Figure 3E
VGPB probity plan requirements

Requirement	Description
Description of the project	The project is described.
Key conduct requirements	Key requirements for conduct are identified.
Decision-making process	The decision-making process is mapped.
Key project milestones	The details of the key project milestones.
Probity tasks and steps	A step-by-step overview of tasks to be completed.
Conflict of interest	A process for managing conflict of interest is described.
Confidentiality	A process for managing confidentiality is described.
Security of information	A process for securing information is described.
Data room	The use of a data room is described (optional).
Communication with bidders	A process for communicating with bidders is described.
Staff guidelines	Guidelines for managing relationships with tenderers.
Record keeping	A database for recording core documents is described.
Dealing with queries	Process for dealing with probity problems and queries.
Probity plan breaches	Process for the management of a breach to the requirements of the probity plan.

Source: Victorian Government Purchasing Board.

VicRoads developed a probity plan for the project. However, the proposed probity plan was undated and there was no evidence that it had been approved by an appropriate VicRoads responsible officer.

Role of probity practitioners

The VGPB policy for *Conduct of Commercial Engagements in Government* states that the objective of appointing a probity auditor is so that the auditor can provide a level of independent assurance about the conduct of a tender process, particularly its openness and fairness to all concerned parties. The probity audit conducted by the probity auditor needs to be consistent with the VGPB’s probity framework.

The distinction between the services provided by a probity auditor and a probity advisor has been documented in the VGPB policy for *Conduct of Commercial Engagements in Government*.

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[17] The VGPB template probity plan can be found at <http://www.vgpb.vic.gov.au/CA256C450016850B/WebObj/ProbityPlan/$File/Probity%20Plan.doc>.

In particular, the probity advisor is not to:

- sign-off that the project has met probity requirements
- witness tender opening
- undertake activities or tasks that are the responsibility of a probity auditor.

VicRoads engaged an independent probity auditor for the TCI project under terms of reference consistent with those prescribed by the VGPB. A probity advisor was not engaged for the project.

The probity auditor was nominated as an “advisor” on the evaluation team and the commercial advisory panel for the RFP, and some invoices from the probity auditor described “probity advisor” services.

We are concerned that the nomination of the probity auditor as an advisor on the evaluation team and commercial advisory panel as well as the reference to “probity advisor” on invoices, clouded the distinction of the role that the probity auditor was meant to fulfil.

In a major tender, the role of a probity advisor is to establish and manage the probity approach, while the role of a probity auditor is to independently review the nature and conduct of the probity approach. While combining the roles may benefit an agency through cost savings and efficiencies, having a separate probity auditor role provides a higher level of assurance about the standard of tender probity. Combining the roles serves to confuse accountabilities and may weaken public confidence in the probity of a tender.

DTF’s *Gateway Project Tendering Guidelines*[18] recommends the appointment of a probity advisor and/or auditor, but does not clearly specify that different practitioners should carry out these roles.

Similarly, the VGPB’s Policy for *Conduct of Commercial Engagements* refers to the option of engaging a designated probity advisor, and “where the procurement process is very large and/or involves highly complex risks, the responsible departmental officer may consider it necessary to engage more than one probity practitioner to either ensure an adequate breadth of probity experience or to undertake different roles”.

These guidelines and policies are not emphatic on the separation of roles of probity advisor and auditor, however, other similar guidance, such as the *Partnerships Victoria Practitioner Guide*[19] indicates the need for appointment of an independent probity auditor.

[18] <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/gateway-reviews-lifecycle-guidance-material>.

[19] <http://www.partnerships.vic.gov.au/CA25708500035EB6/0/6223D96175BAEF08CA2570C0001966C3?OpenDocument>.

Probity report

The probity report issued by the probity auditor refers to compliance with the probity plan for the TCI project (which was not dated or approved). The report does not include an audit opinion, nor is there any reference to the fact that probity audit services were provided.

The probity report was satisfactory from a compliance viewpoint, but silent in respect to “audit”, notwithstanding that the VGPB requirements in terms of audit level assurance are unclear.

The form and content of future probity audit reports should be consistent with the terms of engagement and, in particular, they should make reference to the fact that probity audit services were conducted as part of the opinion.

Fairness and impartiality

During the tendering process, VicRoads responded to questions of clarification from a respondent. The responses to the questions were more aligned to the clarification of items in the RFP, except for a question which related to a “right of way” proposal.

VicRoads omitted to formally communicate this clarification to all responding tenderers. While we consider that this lapse would not have altered the outcome of the evaluation, it is important that VicRoads ensure in future procurement exercises that all tenderers receive the same information, except where it impinges on commercial-in-confidence requirements.

VicRoads had no formal process in place to record conversations with tenderers during the period when the RFP was in the market.

We sighted some rough notes with dates on conversations and a letter confirming verbal advice and the RFP documented an authorised contact officer, which was strictly observed during the process. However, VicRoads did not have a process in place to ensure that all communications were recorded.

Protocols need to be established in advance of any communication with tenderers to ensure that a consistent approach is adopted on the Government side. Procedures need to be established to ensure written and verbal communications with tenderers are signed-off at an appropriately senior level within the project team.

Consistency and transparency of process

VicRoads did not possess formally documented evidence of when evaluation panel meetings were held. There were no agenda papers or meeting minutes. There was also no evidence that ongoing potential conflicts had been assessed at evaluation panel meetings.

Some VicRoads records of key events were present in the project files and informal minutes and notes were taken for some meetings prior to the formation of the evaluation panel. There was also some evidence of various papers arising from evaluation panel meetings.

Notwithstanding the above documentation, we were unable to form a view on:
- who attended evaluation panel meetings
- when these were held
- what was discussed and agreed.

The available documentation was insufficient for us to conclude that meetings followed probity guidelines in terms of decision-making processes, or whether tenderers were evaluated in a systematic manner against explicit predetermined evaluation criteria.

The absence of meeting minutes also precludes an independent assessment as to whether potential conflicts of interest were adequately assessed during evaluation panel meetings.

Use of a competitive process

The RFP required all tenderers (who had a “parent” or “ultimate holding company”) to complete a probity deed (attached to the RFP). One tenderer failed to comply with this requirement.

On this occasion, the outcome of non-compliance did not have an adverse effect on the process, as the tenderer in question was unsuccessful. However, this meant that VicRoads did not ensure that all tenderers fully complied with tender process and rules. Proposals that fail to comply with mandatory requirements should have been regarded as non-conforming, and should have been considered for disqualification from further steps in the tender process.

Security and confidentiality

The probity plan included requirements regarding the security of information and states that a dedicated procedure will be developed to deal with this. There was no evidence that this procedure was developed.

Notwithstanding any assurances that VicRoads provides on the disclosure of sensitive information, tenderers need assurance that the information they provide does not leak out to competitors or pass into the public domain. A lack of bidder confidence on security could deter tenderers from bidding or reduce the detail and volume of information provided in support of bids - neither of which would be in VicRoads’ interests.

The incorrect release of information could cause a tender process to be aborted, so that the process could be recommenced in a manner affording equity to all parties.

Confidentiality and disclosure

Government policy expresses a commitment to openness and transparency in all its dealings, including commercial tendering activity.

Nonetheless, a stronger measure of confidentiality may be required during a tendering process in order to protect both the competitive position of individual bidders and the commercial interests of the Government, subject to the provisions of the *Freedom of Information Act 1982*.

Public servants are under a general obligation of confidentiality (due to their code of conduct), however, other people involved in a tender process are not, and must be asked to give an undertaking to protect the confidentiality of the information they obtain in the course of a tendering process.

Notwithstanding this general obligation, the TCI project probity plan prescribed a requirement that all team members (including advisors and consultants) sign a confidentiality deed. There is no evidence that this occurred.

Conflicts of interest

An important feature of a well-managed tendering process is consistency in the development and application of RFP criteria. The rules governing the conduct of the tender process should be documented in the RFP which should be provided to tenderers at the beginning of the process.

Based on the VGPB guidelines, the rules should at least cover:

- any restrictions or conflicts of interest on the eligibility of parties to bid
- the scope, content and format required of conforming bids
- other procedures governing the provision of information to bidders including a confidentiality arrangement.

If bid evaluation criteria are poorly defined or inconsistently applied, the market will not have confidence in a process, and bidders will find it hard to understand and meet the Government's requirements.

VicRoads did not require prospective tenderers to complete a conflict of interest declaration or statement as part of the RFP process.

Did the procurement approach comply with the relevant rules and guidelines?

We identified a number of administrative and process lapses and conclude that the procurement approach did not fully comply with the project probity plan.

VicRoads did not fully and effectively implement a probity plan, particularly concerning confidentiality deeds, security of information and meeting minutes. This increased the risk of possible probity breaches.

Audit found no evidence that probity was breached during the RFP process and negotiations for the TCI project.

Based on our observations from this project, VicRoads should ensure its probity processes minimise probity risks in future commercial transactions.

Recommendations

3.4 The VGPB should consider revising and amending its probity advice to:

- ensure that a probity auditor’s role is not confused with the role of a probity advisor in order to maintain clarity of the 2 distinct roles and strengthen accountabilities of the separate functions.
- provide sample templates on the acceptable form and content for probity audit reports.

3.5 That for future projects worth more than $10 million, VicRoads should comply with government policy and implement approved probity plans which accord with the VGPB Probity Best Practice Advice.

3.6 VicRoads should ensure that future alliance procurement processes address the following procurement issues which were identified in the TCI Alliance project:

- documenting all changes to core documents (including probity plans) and communicating those changes to tenderers
- documenting agendas and minutes of evaluation panel meetings
- gaining formal probity sign-off that processes and documents meet agreed criteria (as documented in the probity plan)
- implementing a detailed procurement documents security policy so that:
  - the movement of documents is recorded and controlled
  - commercially sensitive or tender-related information should be stored in secure conditions with access limited to authorised persons
- if required in a probity plan, anyone with access to tender-related information should sign a confidentiality agreement, and ensure that only authorised staff with a direct “need to know” should be privy to tender-related commercially sensitive information
- improving existing probity processes to ensure that documents relating to conflicts of interest or confidentiality are accounted for and any issues are included at the commencement of all meetings
- ensuring all tenderers are compliant with Request for Proposal (RFP) requirements
- requiring EOI and RFP tenderers to declare any known conflicts of interest as part of the bid process.

3.6 Did VicRoads adequately manage the TCI project and achieve the expected outcomes?

3.6.1 Introduction

The Government's Gateway Review Process has identified that adequate and robust project management systems and processes are central factors for project success.

Because the TCI project used an alliance project procurement approach, non-traditional project governance and management approaches were also adopted.

We examined the project governance and management systems put in place by VicRoads for the TCI project to assess whether these systems have enabled the project to achieve its expected outcomes.

We also examined whether VicRoads implemented a monitoring regime to measure the project's expected outcomes.

3.6.2 Criteria we used

To assess whether the TCI project had been effectively managed by VicRoads and delivered the expected benefits identified in the business case, we examined whether:

- the project was effectively managed
- the budget versus actual expenditure issues were effectively monitored and dealt with by the TCI Alliance's cost and risk sharing arrangements
- the interchange functionality was achieved in accordance with approved design and quality standards
- project milestones were achieved and any delays investigated and resolved
- VicRoads is tracking the actual benefits that have been delivered to-date, against the benefits identified in the project business case.

An aerial view of the new interchange after completion.

3.6.3 Was the project effectively managed?

TCI Alliance management structure

The alliance management structure set up by VicRoads consisted of an Alliance Leadership Team (ALT), an Alliance Management Team (AMT) and a Wider Project Team (WPT).

The ALT was collectively accountable to the chief executive of VicRoads for the delivery of the alliance obligations and commitments. Figure 3F sets out the alliance leadership and management structure.

Figure 3F
TCI Alliance leadership and management structure

Team	Tasks
ALT	• Create alliance vision, principles and objectives. • Set policy and delegations. • Appoint members of the AMT on best person for the job basis. • Empower the AMT to perform the obligations under the alliance agreement. • Promote commitments, principles and objectives for the whole alliance team.
AMT (headed by the Alliance Project Manager)	• Deliver project objectives. • Day-to-day management. • Provide leadership to the WPT. • Appoint members of the WPT on best person for the job basis. • Attempt to resolve all issues.
WPT	• Deliver project objectives. • Single project organisational structure. • No duplication of roles or systems.

Source: Victorian Auditor-General's Office analysis of VicRoads' documentation.

A Gateway Review conducted in May 2005 noted some "exemplar" practices occurring within the "pure alliance" structure developed for the project.

The leadership and project management structure put in place enabled VicRoads (as the owner of the project) to have a cooperative relationship with the alliance partners and interact on aspects of the project at the most appropriate level (ALT, AMT or WPT).

The AMT also documented communication strategies for various project stakeholders, including:

- Melbourne Water
- Director of Public Transport
- Yarra Trams
- Essendon Airport Pty Ltd
- local residents.

A risk and opportunities register was maintained by the AMT, and for any construction issues arising, work improvement notices[20] were documented and approved.

This was an effective works monitoring process, which resulted in more than 300 work improvement notices being raised by the TCI Alliance team during the course of the project.

A sample of the detailed project progress reports indicated that sections of the reports were directly aligned with the KRAs detailed in the alliance agreement.

The progress reports included sufficient details of the metrics used to measure progress, however, we consider that there was insufficient documented evidence of appropriate debate and consideration of the reports in the minutes of the ALT and AMT meetings.

Better practice corporate governance and project management requires a documented audit trail of the detail of issues considered when management are making decisions. Appropriately documented minutes of meetings would allow for the basis of decisions to be understandable to an external party, particularly if any disputes or issues arose from these decisions.

Notwithstanding the positive aspects of the alliance management structure that we observed, we consider that there should have been more evidence of management review and approval of these progress reports, to provide assurance that management processes were working as expected.

Was the project effectively managed?

Based on our observations of the workings of the TCI Alliance management structures, we concluded that aspects of the project were managed effectively, particularly in the areas of:

- integration of the various parties in the alliance
- communications with stakeholders
- risk management
- project progress monitoring and review.

[20] Work improvement notices are internal memos documented by the TCI Alliance team to outline construction changes and the reasons causing the change. The work improvement notices also evidenced approval of any construction changes for the project.

However, we found that that there should have been more documented evidence of management review and approval of the monitoring and progress reports, to provide assurance that management processes were working as expected.

Recommendation

3.7 Vic Roads should develop a corporate governance and project management protocol that specifies minimum standards of documentation of management meetings and the basis of decision-making. This protocol should achieve an appropriate corporate record and audit trail so that an external party would be able to understand the basis of management actions and decisions.

3.6.4 Has budget versus actual expenditure been effectively monitored and dealt with by the alliance's cost and risk sharing arrangements?

Alliance cost and risk sharing arrangements

We reviewed a sample of progress reports to see whether the costs incurred were monitored against the planned Target Outturn Cost (TOC) approved budget expenditure.

Evidence showed that at monthly financial review meetings, budgeted cost lines were reported and discussed. Any movement of budgets or reallocations were tracked, as were all actual costs against budgeted costs.

Payments and claims

We sighted various review reports by a major accounting firm to assess compliance with the compensation arrangements, as stated in the alliance agreement, for project costs incurred by alliance participants.

Payments were approved in accordance with defined delegation limits, however, the decisions and discussions held within the ALT and AMT meetings were insufficiently documented to form an independent understanding of the proceedings.

The meeting minutes were a series of actions and decisions and did not necessarily evidence how all the decisions were determined. We expected to see a more detailed audit trail of what decisions were made and why, as these types of records can become vitally important if there are any disputes or issues arising from a management decision.

Project cost outcome

As at 31 August 2007, the project had achieved the following key financial outcomes:

- the project's TOC (approved) budget of approximately $127 million is forecast to have incurred final expenditure of approximately $116 million, or in effect a saving of $11 million
- the project achieved practical completion (as defined in the alliance agreement) on 2 July 2007 and was 93 per cent finalised as at the end of August 2007
- there is a total performance pool of $5 million, with recommendations made that partial "gain-share" payouts be made to the non-owner alliance parties, based on achievement of the project completion milestone
- residual performance share payments are contingent on future monitoring outcomes.

Cost variations

One of the key principals of alliance contracts is that there are no contract variations or claims made by non-owner parties. This meant that there was no requirement for processes to evaluate and negotiate contract variation payments.

An independent external review team, which included participants from the University of Melbourne, Transurban and VicRoads (with no previous involvement in the project) also continue to review achievement of the alliance KRAs and provide comments and scores relative to project performance.

Management of project risks

The project maintained a detailed risk and opportunity register, which was able to be viewed by all the key TCI Alliance members.

Before the TCI Alliance was formed, a risk assessment workshop was held with relevant participants to identify all possible risks. A risk register was created from the risks identified during this workshop.

Each month, progress reports included a section on the total number of risks and opportunities. The reports detailed how many risks were mitigated and how many were still unrealised. Dollar values were linked to all risks and reported.

There were also a number of risk workshops held to update and reassess the risks throughout the project.

Essendon Airport land outcome

One of the key stakeholder risks identified by the alliance related to the financial arrangements for transfer of land from Essendon Airport to the project.

The approved business case presented a design option to minimise the impact on the airport land. This option was developed in conjunction with CityLink and Essendon Airport, and the alliance was responsible for managing this ongoing issue.

The Essendon Airport land is owned by the Commonwealth and is leased to Essendon Airport. Essendon Airport agreed to sub-let the land to VicRoads during construction. This avoids the need to finalise a lengthy sale process prior to commencement of the project, and also ensures that any land acquired from the Commonwealth was only ultimately used by the new interchange.

The land under the control of Essendon Airport continues to operate under lease arrangements with various renewals being enacted as required.

Based on our inspection of available documents, we are satisfied that:

- final boundaries for the land parcels are substantially complete and discussions between parties on land transfers are progressing
- outstanding matters such as fencing and signage are being resolved by the affected parties.

VicRoads management informed us that once these processes are finalised, the land parcels would be converted to freehold and title transferred to VicRoads on behalf of the State.

Was budget versus actual expenditure effectively monitored and dealt with by the alliance's cost and risk sharing arrangements?

Based on our examination of the evidence related to cost and risk monitoring, we concluded that:

- actual costs were tracked against budgeted costs
- there were no contract variations (due to the alliance contract used)
- the project is expected to achieve an $11 million saving against the approved budget
- the performance pool mechanism is subject to independent oversight
- key remaining risks are being managed
- the Essendon Airport land transfer outcome has been negotiated and substantially progressed.

3.6.5 Was functionality achieved in accordance with VicRoads' approved design and quality standards?

The interchange has been delivered as expected

VicRoads commissioned a construction peer review by an independent party for the project. Although this peer review did not constitute a formal post-completion design or quality review, it gave VicRoads independent advice in regard to the quality-related KRAs measured by the Alliance.

Now that the interchange is substantially complete[21], its ongoing asset management will be transferred from the project alliance to the responsible VicRoads regional office. Various quality sign-offs and acceptances will need to be performed prior to the handover.

Was functionality achieved as per VicRoads' design and quality standards?

Although there is evidence that the alliance and VicRoads monitored quality during the construction project, at the time of this audit no formal post-commissioning review has been conducted.

We consider that VicRoads should conduct a formal completion review of the TCI project. This should provide a greater level of assurance about whether the interchange has achieved expected functionality as per VicRoads' approved design and quality standards, and whether the State has received a quality asset reflecting the value of its investment.

Recommendation

3.8 VicRoads should conduct a formal post-commissioning construction quality review of the Tullamarine Calder Interchange to provide assurance that:

- the interchange has achieved expected functionality in accordance with VicRoads' approved design and quality standards
- the State has received a quality asset that reflects the value of its investment.

3.6.6 Were project milestones achieved and delays investigated and resolved?

Construction monitored and delays investigated

The TCI Alliance had a progress monitoring process against construction targets/milestones in place, as well as mechanisms to investigate undue delays. We also noted that the project KRAs included a number of construction-related measures within the broader alliance objectives.

Each of these KRAs were tracked in detail in monthly progress reports, which also tracked progress against construction targets/milestones and actions taken to investigate undue delays, particularly through work improvement notices.

The project has achieved its completion milestone within expectations.

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[21] Apart from some residual work relating to the English St overpass, and removal of an aircraft hangar within Essendon Airport.

Were project milestones achieved and delays investigated and resolved?

Based on our observations on whether project milestones were achieved and delays investigated and resolved, we concluded that:

- there was an ongoing mechanism to track any constructions delays
- action was taken to rectify delays
- the project achieved its completion milestone within expectations.

3.6.7 Is VicRoads tracking any actual benefits that have been delivered to date?

Monitoring and evaluation regime has been implemented

The alliance contract for the TCI project contained detailed measures that will be used to evaluate the project benefits once it is completed. Traffic was measured prior to construction to provide a benchmark for assessment of new traffic flows and improved travel times.

Improvements in traffic flow and average speed

The interchange has road-embedded “traffic loops” to count traffic in each lane. We sighted management reports relating to output from this monitoring technology. These showed that the TCI can now accommodate 7 000 vehicles per hour at peak times (previously the average week day maximum flow was 5 000 to 5 500 at peak times).

Traffic speed data is also captured. Reports on this data to the AMT and ALT showed a large increase in speeds through TCI with average speed during the day through the TCI now consistently within the 80-100 kph band. This is compared with average speeds as low as 40 kph prior to construction, and 50 kph during partial operation of the interchange.

Data from the Skybus[22] operator has also been captured and analysed. The buses are regular users of the interchange and use GPS technology to track bus speed and location. This data shows regular improvement of travel time, once the bus moves into the new interchange area, including an observed reduction in overall trip times.

Initial results from incident management reports

The 3 most recent incident reports for the interchange show that the initial results support the business case expectations of reduced traffic crashes (particularly casualty crashes).

These incident reports are drawn from ongoing monitoring of incidents on the TCI, both during and after construction, by the CityLink operator (Transurban), which has a continuous presence on the interchange and is independent of the TCI Alliance.

[22] Skybus is the operator of the Airport-City express bus service <www.skybus.com.au>.

While the incident reports suggest an initial improvement in the number and extent of incidents on the TCI, we consider that it is not yet possible to directly link these results to any forecasted outcomes or projections, due to the short period of time that has elapsed since the interchange was opened to traffic.

Linking monitoring results to expected improvements

VicRoads informed us that a formal comparison of the collected traffic volumes and travel times, against the stated project economic benefits, are yet to be performed.

Outcomes from the project have been monitored regularly since opening, but due to the early post-completion phase of the project it is not yet possible to directly link these results to the forecast outcomes or projections in the business case.

The project alliance objectives and KRAs require this to be completed, meaning that a long-term monitoring regime will continue to exist in relation to the interchange.

We observed that post-completion KRAs are valued at 28 per cent of the total Alliance performance pool, equating to $1.4 million of the identified $5 million performance pool still to be assessed.

In order to assess achievement of the KRAs as outlined in the alliance agreement (such as a requirement for traffic speeds of “not less than 70 kph through TCI to 2011”), the TCI Alliance parties will need to maintain a commitment to long-term post-completion monitoring.

We sighted a VicRoads recommendation to the ALT that formal travel time data capture would be performed after February or March 2008 so that post-opening traffic has normalised (after the holiday season). This formal data capture exercise would then allow a more rigorous examination of actual outcomes compared with the expected benefits.

VicRoads should continue with its efforts to formalise its monitoring exercise to test the accuracy of its modelling and expectations about economic benefit arising from the TCI project.

VicRoads should also proceed to a “Gate 6 – Benefits Realisation” Gateway Review once the formal data capture exercise is completed and reliable data available, to compare the project’s actual benefits against business case estimates.

Did VicRoads track actual benefits that have been delivered to date?

Based on our review of whether Vic Roads is tracking any actual benefits that have been delivered to date, we concluded that:

- VicRoads has collected data to show that average speed and traffic flow have improved
- there is initial data showing that incident (particularity casualty accident) have decreased in the interchange precinct
- post-completion KRAs are valued at $1.4 million of the identified $5 million performance pool
- the TCI Alliance parties will need to maintain a commitment to long-term post-completion monitoring
- VicRoads should continue with efforts to formalise the monitoring exercise to test the accuracy of its modelling and expectations about economic benefit arising from the TCI project
- the project should undergo a “Gate 6 – Benefits Realisation” Gateway Review once the formal data capture exercise is completed and reliable data is available.

Recommendation

3.9 VicRoads should:

- continue to formalise its monitoring exercise to test the accuracy of modelling and expectations about economic benefits arising from the TCI project
- proceed to a “Gate 6 – Benefits Realisation” Gateway Review once the formal data capture exercise is completed and reliable data available, to compare the project’s actual benefits with its business case estimates.

4 The M1 upgrade project

At a glance

Background

The M1 (West Gate-CityLink-Monash) freeway corridor is the State's busiest road. It spans 75 kilometres from Werribee to Narre Warren, and currently carries in excess of 160 000 vehicles a day, including 20 000 trucks.

In May 2006, the Government announced a major upgrade to the M1, including strengthening of the West Gate Bridge. The project, expected to cost approximately $1 billion, commenced in early 2007 and is expected to be completed by 2011.

Key findings

- VicRoads conducted a rigorous analysis of the identified business need to alleviate traffic congestion along the M1 corridor.
- Although VicRoads developed and analysed options to meet the business need, all of the costs and benefits are outcomes of a complex traffic model, not readily understandable to an external reviewer or clearly evidence-based.
- The net present value of benefits related to the package of options that was accepted by the Government is $14.462 billion, or the equivalent of a benefit-cost ratio of 16 to 1. This is high compared with similar road-based projects.
- VicRoads confirmed that the chosen procurement strategy would meet its business need and deliver expected outcomes. However, there was limited documentary evidence of a comparative analysis of procurement options.
- If the risks associated with alliance contracting are to be appropriately managed, VicRoads needs to ensure active, ongoing attention to the development of the skills required to manage this method of procurement.
- The procurement approach for the West Gate and Monash alliances, as well as the design and construct sections of work, complied with the relevant rules and guidelines. However, we noted that VicRoads failed to implement independent oversight of probity, as expected in Department of Treasury and Finance/Victorian Government Purchasing Board (DTF/VGPB) guidance.

At a glance *- continued*

Key recommendations

4.1 VicRoads should use independent validation to confirm the reasonableness of the assumptions and inputs underlying cost and benefit estimates, as well as the rigour and accuracy of the modelling. This should occur prior to these economic estimates informing business cases put to the Government for decision.

4.2 So that future business cases align with DTF better practice guidance, prior to confirming its preferred procurement approach, VicRoads should analyse other procurement options, to allow decision-makers to be sufficiently informed as to their costs, benefits and risk impacts.

4.3 The VGPB should consider revising and amending its probity advice to ensure that a probity auditor's role is not confused with the role of a probity advisor in order to maintain clarity of the 2 distinct roles and strengthen accountabilities of the separate functions.

4.4 For future projects worth more than $10 million, VicRoads should comply with government policy and implement approved probity plans which accord with the VGPB Probity Best Practice Advice.

4.1 Background

4.1.1 The M1 upgrade project

The M1 (West Gate-CityLink-Monash) freeway corridor is the State's busiest road. It spans 75 kilometres from Werribee to Narre Warren and currently carries in excess of 160 000 vehicles a day, including 20 000 trucks.

In May 2006, the Government announced a major upgrade to the M1, including strengthening of the West Gate Bridge.

Figure 4A
Extent of the M1 upgrade project coverage

Source: VicRoads.

Cost and benefits

The project commenced in early 2007 and is expected to be completed by 2011. It is funded as follows:

- $737 million for upgrade works for the Monash and West Gate freeways and $120 million to strengthen and reinforce the West Gate Bridge paid for by the State
- $166 million for the CityLink "Southern Link" revamp (funded by Transurban).

The benefits expected from the upgrade include:

- reduction in peak hour travel times
- improved reliability along the freeway
- reduction in crashes by 20 per cent.

When completed, VicRoads estimates the M1 upgrade will save the Victorian community $14.5 billion, by providing more efficient travel for passengers and freight.

Project delivery

The project is being delivered and managed over 3 geographic sections:

- West Gate Freeway (Yarraville to west of the CityLink tunnels)
- Southern Link (CityLink tunnels to east of Glenferrie Road)
- Monash Freeway (east of Glenferrie Road to the South Gippsland Freeway).

VicRoads is managing the works on the Monash and West Gate freeways while Transurban is responsible for work on the Southern Link section of CityLink.

The specific projects that form the M1 upgrade include:

- introducing a state-of-the-art freeway management system (FMS) that includes ramp metering and real time traffic information
- building an additional lane in each direction on the Monash Freeway and Southern Link between Heatherton Road and the CityLink tunnels
- widening the West Gate Freeway between the CityLink tunnels and the Bolte Bridge to separate weaving and merging movements
- provision for 5 lanes of traffic in the peak direction on the West Gate Bridge.

4.2 About this audit

4.2.1 Audit objective

The objective of the audit was to assess the effectiveness of the planning and procurement processes used by VicRoads to plan and implement a major road upgrade.

We made this assessment by examining:

- the analysis of options to meet the identified business need and the rigour applied, considering the value of, and the risk associated with, the project
- the adopted procurement strategy (such as pursuing a project alliance contract) and its consistency with the identified business need
- compliance of the procurement approach with relevant requirements and guidelines.

4.2.2 Audit scope

This audit focused on VicRoads' role in planning and delivering the M1 upgrade project.

The Government partly funded this project through early redemption of concession notes issued by Transurban to the State (discussed in Part 2 of this report). Concession notes are promissory notes paid by Transurban for the right to levy tolls on CityLink.

4.2.3 Acknowledgements

We acknowledge the cooperation and assistance provided by VicRoads' staff during the conduct of the audit.

4.3 Overall conclusion

4.3.1 Was analysis of the options to meet the identified business need sufficiently rigorous?

VicRoads conducted rigorous analysis of the identified business need prior to committing to the project

VicRoads conducted a rigorous analysis of the identified business need which argued for the M1 upgrade project in terms of the need to alleviate traffic congestion along the M1 corridor.

Relieving this congestion was argued to have a range of economic benefits, in terms of direct benefits to road users, and broader economic benefits.

VicRoads developed and analysed options to meet the business need

Based on our analysis of the M1 business case, we found that:

- high-level and specific options were developed, and analysed in detail
- costs and benefits were modelled for all options
- most of the expected benefits are the outcomes of a complex traffic model, which is not readily understandable to an external reviewer or clearly evidence-based
- the net present value of benefits related to the package of options that was accepted by the Government is $14.462 billion, or equivalent to a benefit cost ratio of 16 to 1. This ratio is high compared with similar road-based projects.

Consistency of the business case with DTF guidance

Based on our review of the M1 business case we found a detailed body of work which aligned to the Department of Treasury and Finance (DTF) guidance in its structure and focus of analysis.

We also conclude that the assessment of the options was comprehensive. However, we note that most of the expected project benefits are derived from a traffic model.

We, therefore, conclude that the M1 business case would have been improved if the source and basis of the assumptions used to develop the traffic model were transparently identified and independently reviewed, prior to submission to the Government.

4.3.2 Was the adopted procurement strategy consistent with the identified business need?

Confirmation that the chosen procurement strategy would meet its business need and deliver expected outcomes

Based on our analysis of the procurement options considered for the M1 upgrade project, we found:

- the M1 upgrade project was sub-divided into relevant sections for procurement and construction
- insufficient documentary evidence exists regarding a comparative analysis of procurement options such as the consideration of the procurement risk associated with each option (with the exception of the Glenferrie Road to Warrigal Road section of work). This is of particular relevance given the large dollar value of the procurements, and the particular risks we have noted relating to the use of alliancing as a procurement option
- careful analysis of a procurement strategy for the FMS component of the project is critical, due to the importance of effectively procuring this technology to achieve the expected project outcomes
- our analysis confirms that the choice of alliance or design and construct contracting for various sections of work is supported by DTF guidance
- there is a need for VicRoads to ensure active, ongoing attention to the development of the skills required for managing alliance contracts if the risks associated with this method of procurement are to be appropriately managed. Failure to do so may render VicRoads' capacity to successfully deliver these critical projects vulnerable to the loss of a number of key staff.

VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations in tender documents

VicRoads' expectations regarding the objectives of the project, the services being procured, and of the procurement process were clearly identified in the (Request for Proposal/Tender (RFP/T) documentation for all sections of work.

The expectations stated in the RFP/Ts for all sections of work were consistent with the business need identified in the business case and reflected in VicRoads' documentation.

For the West Gate Alliance and Monash Alliance RFPs we found:

- VicRoads had clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the RFPs for both the sections of work
- more detailed information regarding VicRoads' expectations of the procurement processes were provided in the West Gate Freeway and Southern Link to Warrigal Road RFPs compared with the other procurements. This was appropriate given the use of alliancing as the procurement approach
- information requested was consistent with demonstrating the respondents' capabilities with respect to successful delivery of the projects. The content of the RFPs was consistent with DTF guidance.

We further conclude that for the Warrigal Road to Jacksons Road and Jacksons Road to Heatherton Road/South Gippsland Highway sections of work, VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the RFTs.

For the FMS, we found that VicRoads had clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the call for expressions of interest for the provision of technical services and contract management advice.

4.3.3 Did the procurement approach comply with the relevant rules and guidelines?

Based on our analysis of the evidence relating to the procurement approach for the West Gate and Monash freeway sections of the M1 upgrade, we found that the West Gate Alliance and Monash Alliance procurements complied with VicRoads' internal procurement requirements and with DTF's *Project Alliancing Practitioners' Guide*[1].

An external consultant was engaged to provide probity advice and act as probity auditor for the conduct, evaluation and awarding of the alliance contract. This was similar to the approach adopted for the TCI project.

We also found sufficient documentary evidence that the procurement approach for the Warrigal Road to Jacksons Road section of the M1 upgrade (design and construct contract) was compliant with VicRoads' internal procurement requirements.

However, due to VicRoads failing to implement independent oversight of probity, as described in DTF's *Project Tendering Guideline*, the process was not considered compliant with DTF/VGPB guidance. On the freeway management system RFT, we found that at the time of the audit, it was compliant with relevant rules and guidance.

[1] <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/asset-management---project-support-project-alliancing>.

4.4 Was analysis of the options to meet the identified business need sufficiently rigorous?

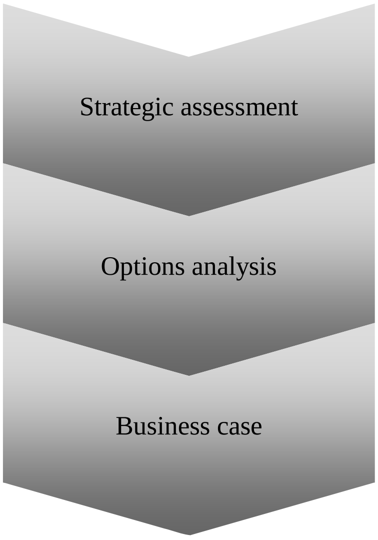
4.4.1 Introduction

The development of a business case for major infrastructure projects is a critical step in the asset investment life cycle. A business case should be built upon a strategic assessment to determine the service need; and a rigorous analysis of the options available to address that need.

In Victoria, business cases are required to be prepared and submitted in support of all asset or capital proposals costing $5 million or more[2].

Better practice guidance has been issued by the DTF on the development of business cases under its Gateway Initiative[3]. That guidance material[4], first promulgated in December 2006, provides best practice benchmarks for agencies involved in asset investment decisions.

Figure 4B
Business case development stages



Source: Department of Treasury and Finance, *Business Case Development Guidelines*, December 2006.

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2 This requirement applies to the general government sector (i.e. departments and statutory authorities).

3 According to the Gateway Review Process (GRP) website <http://www.gatewayreview.dtf.vic.gov.au>, the GRP is part of the Victorian Government's Gateway Initiative to improve infrastructure and Information Communication Technology project development and delivery across government. The aim of the GRP is to help government departments and agencies ensure that their investment is well spent, meets business and the Government's strategic objectives and achieves value-for-money outcomes.

4 Department of Treasury and Finance, *Business Case Development Guidelines*, December 2006.

The guidelines recommend that a business case develops progressively over three stages:

- *strategic assessment*: to confirm strategic fit and service need
- *options analysis*: with indicative assumptions about the way forward
- *formalised business case*: to validate and confirm assumptions with detailed evaluation of costs, benefits, risks and opportunities.

M1 upgrade project business case

The M1 upgrade project business case was developed by VicRoads, using consultants and public sector resources to support their work.

The business case argued that the M1 corridor improvements were needed to:

- support increases in Victorian exports to $30 billion each year by 2030
- remove traffic from residential areas
- maintain Melbourne's role as a freight hub
- connect growth areas to employment opportunities
- improve travel times and reliability of the corridor
- reduce crashes and improve driver safety.

The M1 upgrade project business case was submitted to the Department of Infrastructure's Project Review Committee in early 2006, and subsequently announced by the Government in May 2006[5].

4.4.2 Criteria we used

To assess whether VicRoads' analysis of the options to meet the identified business needs in relation to these major roads projects was sufficiently rigorous, considering the proposed projects' value and risk, we examined whether:

- VicRoads conducted analysis of the identified business need prior to committing to the project
- VicRoads developed and analysed options to meet the identified business need
- the business case development was consistent with DTF's better practice approach.

Although the DTF better practice guidance was released after the development of the business cases for the TCI and M1 projects, we used the guidance in an objective rather than prescriptive manner, to analyse these business cases for consistency, rather than compliance, with current better practice.

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[5] <http://www.dpc.vic.gov.au/domino/Web_Notes/newmedia.nsf/798c8b072d117a01ca256c8c0019bb01/f48441987c3ff727ca2571720006cddf!OpenDocument>.

4.4.3 Did VicRoads conduct analysis of the identified business need prior to committing to the project?

Introduction

During our analysis of whether VicRoads conducted analysis of the identified business need prior to committing to the project, we expected to see:

- demonstration that VicRoads understood what the need was, and the context of the need
- confirmation of strategic alignment between the identified need and government objectives.

Understanding the need and context

The strategic need for the project was clearly argued in the business case around 4 critical outcomes:

- safety – relating to the whole corridor, but especially peak period users and trucks
- reduced congestion – to benefit peak period users over the whole corridor
- metropolitan growth – to benefit users in rapidly developing outer south-western and south-eastern suburbs
- facilitating economic growth – by improving those sections of the M1 corridor that carry highest truck volumes and provide access to port areas.

The current problems with the freeway corridor were documented in the M1 business case as follows:

- congestion-related issues (i.e. peak traffic exceeds capacity leading to increased travel times and delays; increased crashes, especially side-swipes as vehicles try to change out of congested lanes; and extended peak periods lasting up to 3.5 hours)
- potential throughput on the freeway corridor constrained by the West Gate Bridge and several other bottlenecks caused by closely-spaced entry and exit ramps
- the worst service is provided when demand is highest.

We observed that the business case contained a market analysis and service levels, discussing market segments. It identified that the critical market for the freeway corridor is for peak-period travel (time of day when travel demand is constrained by capacity of transport system) which is important for both cars (time sensitive commuters) and trucks (time sensitive freight).

A survey by Austroads[6], quoted in the M1 business case, found that road users distinguish between *congestion* (increased journey times when travelling at the same time as others, for which there is a reasonable tolerance) and *delay* (unexpected delay due to, e.g. an accident, for which there is less tolerance).

Travel time reductions are argued to be especially important for high value travel (such as freight). Time delays and crashes along the corridor were documented in detail, linking to the identified need for the project.

Confirmation of strategic alignment

We observed that the business case discussed alignment with key government strategies including:

- *Growing Victoria Together*
- Melbourne 2030
- arrive alive! Victoria's Road Safety Strategy 2002-2007
- *Victoria: Leading the Way* (Economic Statement, April 2004)
- *Linking Melbourne* – Metropolitan Transport Plan.

Did VicRoads conduct analysis of the identified business need prior to committing to the project?

VicRoads conducted a rigorous analysis of the identified business need, which argued for the M1 project in terms of the need to alleviate traffic congestion along the M1 corridor.

Relieving this congestion was argued to have a range of economic benefits, in terms of direct benefits to road users, as well as broader economic benefits.

4.4.4 Did VicRoads develop and analyse options to meet the identified business need?

Introduction

We observed that the M1 business case developed 4 high-level strategic options to achieve the project outcomes:

- *low cost corridor option*: improvements are made over the whole route length by actively managing freeway access to improve travel times, vehicle throughput and safety
- *south-east metropolitan and economic growth options*: add lanes to Monash Freeway, or by adding another track to the rail system between Caulfield and Dandenong, or by providing high capacity bus services

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[6] Austroads is the association of Australian and New Zealand road transport and traffic authorities. Austroads members are the 6 Australian state and 2 territory road transport and traffic authorities, the Australian Department of Transport and Regional Services (DOTARS), the Australian Local Government Association (ALGA), and Transit New Zealand, <www.austroads.com.au>.

- *western metropolitan and economic growth options*: increase freight carrying capacity (economic growth) and lighter vehicles (metropolitan growth) in the central part of the corridor by providing a fifth lane on the West Gate Bridge for the peak direction, at the expense of one in the counter peak direction, plus capacity improvements on West Gate Bridge and Kings Way
- *maximise corridor benefits*: options to obtain highest benefits for economic development and urban growth in total corridor by adding lanes between the CityLink tunnels and Glenferrie Road (Southern Link) to complete a balanced east-west link.

Within the context of these 4 high level options, the business case analysed 11 specific design options:

Figure 4C
Detailed options to achieve M1 corridor outcomes

1	Ramp metering
2	Monash Freeway - Glenferrie Road to Heatherton Road (base case)
3	Monash Freeway - Glenferrie Road to Heatherton Road (base case) with Intelligent Transport Systems (ITS) support
4	Monash Freeway - Glenferrie Road to Heatherton Road (ultimate case) with ITS support
5	Monash Freeway - Glenferrie Road to Warrigal Road (base case) and Warrigal Road to Heatherton Road (Ultimate Case) with ITS support
6	Dandenong rail line
7	Bus lane on Princes Highway East
8	Contra flow and West Gate Bridge widening with ITS support
9	M3 Link from Eastern Freeway to Geelong Road
10	Port of Melbourne connection (constructed simultaneously with contra flow)
11	Southern Link widening with ITS support

Source: Victorian Auditor-General's Office analysis of VicRoads' business case.

These detailed options were linked into the general options as follows:

- low cost corridor option – option 1
- south-east metropolitan and economic growth options – options 2, 3, 4, 5, 6, 7
- western metropolitan and economic growth options – options 8, 9, 10
- options to maximise corridor benefits – option 11.

We observed that VicRoads conducted an extensive analysis of the various detailed options to meet the identified business need.

However, we observed that not all of the options were analysed with equal rigour, especially the 2 public transport options (6 and 7), and the potential M3 link[7] from the Eastern Freeway to Geelong Road. Analysis of option 6 (the Dandenong rail line) was conducted by DOI as a separate business case, which was relied upon by VicRoads.

Costs and benefits of the options

Based on our research, it is standard practice when conducting benefit studies of road projects to evaluate improvements in traffic flows which will result from the project.

These improvements are the source of the direct benefits to users of the road, which are framed in terms of reduced travel times, fewer crashes (and sometimes lower average costs per accident) and reduced vehicle operating costs[8]. In addition, road projects are often assessed in terms of their broader economic impact.

The business case developed by VicRoads for the M1 upgrade project provides an assessment of the options in the above terms and includes a benefit-cost analysis of the options.

The benefits are derived from DOI's Melbourne Integrated Transport Model (MITM), a traffic model which provides indicative travel time impacts of options across Melbourne. The model allows a "with" and "without" analysis of traffic flows for each option (apart from option 9, the "M3" or Eastern Freeway to Geelong Road option, for which no benefits were estimated).

It is possible that relatively small variations in the outputs of the traffic modelling can make relatively large differences to estimated economic benefits.

This issue was implicitly recognised by VicRoads by stating that the MITM model has been validated by:

- examining population and employment projections and 2001 Census regional work-travel demands against those in the model
- modelling of traffic volumes on specific links
- using a consultant to independently check the modelling, using their own model.

[7] The M3 option is being considered as part of the 'East-West needs Analysis' being conducted by the Department of Infrastructure. <http://www.doi.vic.gov.au/DOI/Internet/planningprojects.nsf/AllDocs/E195C22162760C83CA2571ED0080D1E5?OpenDocument>

[8] See, for example, Allen Consulting Group, *The Economic Impact of EastLink*, Report to the Southern and Eastern Integrated transport Authority, 21 August 2006.

To estimate the value of time savings, the modelling methodology is to:

- estimate the number of vehicles that travel along the corridor
- estimate the time saving that each option provides for an average trip
- multiply that time saving by the number of vehicles that travel along the road each year to obtain an aggregate time saving
- multiply the aggregate time saving by an estimate of the value of time ($ per hour) which is taken from Austroads *2005 Guide to Project Evaluation*[9].

This exercise is repeated over the life of the road, with future benefits discounted at a rate of 6 per cent per year[10].

The same exercise is repeated to estimate accident savings and vehicle operating cost savings. There are fewer, and less costly, crashes when traffic is freely flowing, and vehicle operating costs are likewise lower. The parameters which were used to quantify accident savings and vehicle operating cost savings, were also drawn from Austroads.

These derived benefits are very much dependent on the traffic modelling which projects how many vehicles travel on the road, how much of the road is used on average by each vehicle (determining the average length of a trip, in distance terms) and the time savings that will accrue from the project.

The benefits, in terms of reduced crashes, due to the proposed traffic management system, are further discussed in an appendix of the business case. The net present values of the benefits and costs of the options were evaluated as shown in Figure 4D.

[9] It is not clear from our analysis of the business case what estimate of the value of time was actually used by VicRoads. ACG (2006), in estimating the value of time for EastLink, following recent work by the Department of Finance and Administration, assumed that for non-work travel time, time is valued at 50 per cent of average hourly earnings for car drivers and 35 per cent of average hourly earnings for passengers; for work travel (private car), time is valued at average hourly earnings plus on-costs; and for commercial travel (light and heavy vehicles), time is value at average hourly earnings in the transport industry, plus on-costs.

[10] The business case assumes a project life of 30 years.

Figure 4D
Net present values of the benefits and costs of the M1 options

	M1 option	Costs ($m)	Benefits ($m)	Benefit-cost ratio
1	Ramp metering	63	1 519	24.1
2	Monash Freeway – Glenferrie Road to Heatherton Road (base case)	265	3 502	13.2
3	Monash Freeway – Glenferrie Road to Heatherton Road (base case) with Intelligent Transport Systems (ITS) support	317	4 490	14.2
4	Monash Freeway - Glenferrie Road to Heatherton Road (ultimate case) with ITS support	424	6 213	14.7
5	Monash Freeway - Glenferrie Road to Warrigal Road (base case) and Warrigal Road to Heatherton Road (ultimate Case) with ITS support	396	5 983	15.1
6	Dandenong rail line	614	1 230	2.0
7	Bus lane on Princes Highway East	3-12	n.a.	n.a.
8	West Gate Bridge contra flow and freeway widening with ITS support	423	2 096	5.0
9	M3 link from Eastern Freeway to Geelong Road	6 000 to 7 000	n.a.	n.a.
10	Port of Melbourne connection (constructed simultaneously with contra flow)	123	247	2.0
11	Southern Link widening with ITS support	142	394	2.8

Source: Victorian Auditor-General's Office analysis of VicRoads' business case.

We note that the above figure shows very high benefit-cost ratios for options 1-5. These appear to be the result of high estimated benefits which, in turn, are the result of high numbers of vehicles forecast to travel on the road.

Hence, the aggregate time saving, crash reduction and vehicle operating cost savings are also high estimates.

The various options were also scored by VicRoads, in terms of a broader range of evaluation criteria as follows:

- improve the efficiency of freeways by increasing throughput, reducing travel time and improving reliability during periods of high demand
- improve access to the freeway for priority road users (e.g. trucks, buses and high occupancy vehicles)
- provide high quality links to facilitate industry growth and stimulate investment, as well as support the expansion of the Port of Melbourne
- reduce the need for intrusion of freight in local neighbourhoods such as Yarraville, Maribyrnong and Port Melbourne

- provide infrastructure to support high standard public transport and freight movements
- improve safety
- integrate with broader road network and EastLink
- maintain smooth operation of adjoining arterial road system.

VicRoads recommended that options 1, 4, 8 and 11 be adopted but the Government decided on options 1, 2, 8 and 11. Option 4 has ITS (Intelligent Transport Systems) support for the Monash Freeway - Glenferrie Road to Heatherton Road section and additional road works, while option 2 does not.

According to the business case, the NPV of benefits of the package of options that was chosen by the Government is $14.462 billion, with a benefit-cost ratio (BCR) of 16 to 1.

Based on advice we received, this projected economic outcome is very high by the standards of most projects[11]. We also note that the BCR is much larger than that found by summing the benefits and costs of the individual option components. The business case argues that this is because the interaction of a package of options is much more beneficial than each option considered in isolation.

Did VicRoads develop and analyse options to meet the business need?

Based on our analysis of the M1 business case, we found that:

- high-level and specific options were developed, and analysed in detail
- costs and benefits were modelled for all options
- all of the costs and benefits are outcomes of a complex traffic model, not readily understandable to an external reviewer or clearly evidence-based
- the net present value of benefits related to the package of options that was accepted by the Government is $14.462 billion, or equivalent to a benefit-cost ratio of 16 to 1. This is high compared with similar road-based projects.

Recommendation

4.1 VicRoads should use independent validation to confirm the reasonableness of the assumptions and inputs underlying cost and benefit estimates, as well as the rigour and accuracy of the modelling. This should occur prior to these economic estimates informing business cases put to the Government for decision.

[11] For example, Allen Consulting Group (2006) finds the benefit-cost ratio of EastLink to be between 2.32 and 4.85, with the latter figure including time savings on arterial roads.

4.4.5 Was the business case consistent with DTF's better practice approach?

Introduction

The Victorian Government, through DTF, has developed *Business Case Development Guidelines*[12] as its key source of better practice guidance for the development of business cases for major asset and project proposals.

The principles espoused in this guidance indicate that a business case should:

- substantiate the preferred option and demonstrate how it meets government and departmental service delivery needs better than other alternatives, taking into account future scenarios and assumptions
- apply a disciplined approach to collecting relevant information and analysing the proposal, including identifying the source and basis of the assumptions used and developing acquisition and risk management plans
- clearly communicate the key issues and recommendations to aid executive decision-making and ensure that stakeholders are aware of financial impacts arising from factors such as compressed timelines and/or changes to scope.

Analysis of consistency

We observed that the M1 business case was a lengthier and more detailed body of work compared with the TCI project business case. This was understandable given the broader scope and higher cost of the M1 project. We also observed that the business case more clearly aligned to the DTF guidance in its structure and focus of analysis.

The M1 business case, (i.e. the various options for building, extending and enhancing the road project and its components), was conducted along orthodox lines for road projects.

The usual set of benefits (savings on: travel time, crashes and vehicle operating costs) were estimated and compared with the costs of each option, in NPV terms. Broader economic benefits were also analysed.

We did note, however, that the estimation of benefits in the business case mainly relied on traffic modelling outputs, which are not transparent to an external reviewer. Traffic modelling of a large road network like Melbourne's is a very complex exercise, with traffic flows in each part of the network highly dependent on what is happening in the other parts of the network.

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[12] Found at <http://www.dtf.vic.gov.au/CA25713E0002EF43/WebObj/GatewayBusinessCaseDevelopmentGuidelines/$File/Gateway%20Business%20Case%20Development%20Guidelines.pdf>

It was not clear to us how the estimates of the length of the average trip (in distance), the time savings for the average trip, and indeed the number of vehicles that are likely to use M1, post-improvements, were made. Yet it is these estimates that drive the economic evaluation of the project.

This issue occurs with all road projects. If estimates of traffic flows prove to be incorrect (e.g. Sydney's Cross City Tunnel[13]) then the economic benefits of the project will not be fully realised. The problem is not that the forecasts may prove to be wrong (all forecasts are inherently uncertain) but that the fundamental driver of the forecasts is not transparent.

Was the business case consistent with DTF guidance?

Based on our review of the M1 business case, we found a detailed body of work which aligned to the DTF guidance in its structure and focus of analysis.

We also conclude that the assessment of the options was comprehensive. However, as with the TCI business case, we note that all the expected project benefits are derived from a traffic model.

Similar to our concerns with the TCI business case, we believe that the M1 business case would have been improved if the source and basis of the assumptions used to develop the traffic model were transparently identified.

Without this, decisions-makers were asked to rely on an estimation of economic benefit arising from the project which, in turn, totally relied on traffic modelling outputs, which are inherently uncertain and not transparent.

4.5 Was the adopted procurement strategy consistent with the identified business need?

4.5.1 Introduction

This section presents the findings from our analysis of whether the procurement strategy adopted was consistent with the identified business need and followed relevant procurement rules.

The M1 project is being delivered by a hybrid procurement containing both alliances and standard design and construct contracts.

The 3 alliances are:

- West Gate Alliance – responsible for delivery of works from Yarraville (near Williamstown Road) to the CityLink tunnel portals in South Melbourne

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[13] A detailed discussion and review of this project can be found at <http://www.audit.nsw.gov.au/publications/reports/performance/2006/cross_city_tunnel/cct-contents.html>.

- Southern Alliance (managed by Transurban) – delivering the section of works from the Burnley tunnel portals to Hawthorn (near Glenferrie Road)
- Monash Alliance – responsible for delivery of the works from Hawthorn (near Glenferrie Road) to Warrigal Road.

The 2 standard design and construct (DC) contracts are:

- DC1 – delivery of works from Warrigal Road to Jacksons Road
- DC2 – delivery of works from Jacksons Road to Heatherton Road/South Gippsland Freeway interchange.

There are also 2 separate works packages that are within the scope of the M1 project:

- Freeway Management System (FMS) – the technology component of the M1 project, which will include interactive speed and lane management systems, as well as "intelligent ramp metering" which is designed to smooth merging and road access throughout the freeway corridor. This package will "overlay" the road improvement works, and extend beyond the M1 construction boundaries to maximise the impact of the traffic management system across Melbourne's freeway network
- West Gate Bridge strengthening project – focusing on the structural integrity and future capacity of the bridge (we did not examine this element of the M1 project in this audit).

4.5.2 Criteria we used

The criteria used for this part of the audit drew heavily on guidance material from the Gateway Review Process[14], which provides support to Victorian Government departments in the development and implementation of asset investment projects.

The Victorian Government's *Project Alliancing Practitioner's Guide*[15]*,* which sets out a framework for selecting and establishing project alliances and articulates the Government's preferred position on key alliancing issues, was also used to inform our development of criteria for this part of the audit.

These approaches were adopted because they were developed specifically to assist Victorian Government departments and agencies in the management of major procurements, including the planning of the procurement process.

The large dollar value of the major procurements that constitute the M1 project also heightens the expectation that all aspects of the procurement planning and execution will be handled in a manner that reflects government policy.

14 <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/gateway-reviews-and-best-practice-guidance>.

15 <http://www.dtf.vic.gov.au/CA2571E0002EF43/pages/asset-management---project-support-project-alliancing>.

So that we could assess whether the adopted procurement strategy was consistent with the identified business need, and if it followed the procurement rules, we used the following criteria:

- VicRoads confirmed that the chosen procurement strategy would meet its business need and would deliver expected outcomes, prior to issuing an RFP/T
- VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations in tender documents.

4.5.3 Did VicRoads confirm that the chosen procurement strategy would meet its business need and deliver expected outcomes?

Introduction

In addition to an analysis of the costs and benefits, we expected that VicRoads would have evaluated and tested procurement options to confirm that the chosen procurement strategy would meet its business need and would deliver expected outcomes.

Such an analysis would have allowed VicRoads to understand the comparative risks, costs and benefits of various procurement options before proceeding to tender.

VicRoads developed a procurement strategy for the M1 project to address all sections of work. At the time of the audit a procurement strategy for the FMS was still being developed[16].

The procurement strategy adopted by VicRoads reflected a management decision to sub-divide the M1 project into distinct sections of works.

Consultant's report on procurement strategy

A report by a consultant on contract and delivery strategies for the project endorsed VicRoads' decision to sub-divide the M1 project. This endorsement noted the differing characteristics of the various project sections, including the risks and opportunities associated with project delivery.

The consultants did not identify a need to include the West Gate Bridge strengthening project as part of the M1 upgrade. However, a Gateway Review in June 2006 recommended that the management of the project to strengthen the West Gate Bridge should be brought into the overall governance and management framework of the M1 project. We note that this has now occurred.

[16] VicRoads is seeking external assistance to help determine the procurement strategy for the FMS section of work. Successful implementation of the FMS forms a key element in delivering the overall benefits of the M1 project, as identified in the business case, making the FMS a crucial procurement for the project.

The report also indicated the need for a high degree of integration and coordination between the sections of work that constitute the M1 project, including the Southern Link section under Transurban's control, to minimise disruption to the public as well as Transurban's toll income.

The consultant's report indicates that a more detailed weighting analysis would be required to further analyse procurement option decisions, but went on to recommend an alliance approach for the West Gate Freeway section, and traditional design and construct contracts for the Warrigal Road to Heatherton Road section of the Monash Freeway and the FMS.

VicRoads did not conduct further detailed analysis of procurement approaches for the West Gate Freeway, and Warrigal Road to Heatherton Road sections of the project, as VicRoads believed that the preliminary analysis regarding delivery strategies was conclusive.

Other analysis performed by the consultants on the Glenferrie Road to Warrigal Road section of work provided a comparison of the advantages and disadvantages associated with various delivery strategies, resulting in a recommendation that this section of work be delivered through an alliance contract.

Procurement strategy documentation that we examined shows that VicRoads considered the project risks associated with each section of the M1 project, although there was little consideration of the risks associated with the recommended procurement methods, with the exception of the Glenferrie Road to Warrigal Road section of work.

We did not sight any evidence to confirm that a comparative analysis of procurement methods against project objectives (as recommended in DTF's *Project Alliancing Practitioners' Guide*) was conducted other than for the Glenferrie Road to Warrigal Road section of work.

Notwithstanding the lack of a comparative analysis of procurement options, we note the following:

- based on our analysis of DTF's *Gateway Review Process Project Lifecycle Guidelines*, and *Procurement Strategy Guideline*, the nature of the West Gate Freeway and Southern Link to Warrigal Road sections of work is consistent with the characteristics identified as appropriate for project alliancing
- according to the same guidance, the Warrigal Road to Jacksons Road and Jacksons Road to Heatherton Road/South Gippsland Freeway sections of work are consistent with the characteristics identified as appropriate for design and construct contracts.

Alliancing issues raised by a Gateway Review

A Gateway Review undertaken in June 2006 identified VicRoads' limited experience with alliance contracting, and the resulting need to put in place a program of activities for key project team members to ensure that they have the required capabilities for their roles. This is of particular relevance given:

- the number of alliances VicRoads has entered into
- the different procurement skill-set required by an alliancing approach
- the time commitment required by senior management to effectively manage alliance contracts.

Project documentation reviewed showed that no action had been taken on this recommendation, nor had consideration been given to the risks associated with VicRoads managing numerous alliance contracts simultaneously, or of any actions taken to manage these risks.

Did VicRoads confirm that the chosen procurement strategy would meet its business need and deliver expected outcomes?

Based on our analysis of the procurement options considered for the M1 project:

- the M1 upgrade project was sub-divided into relevant sections for procurement and construction
- insufficient documentary evidence exists regarding a comparative analysis of procurement options such as the consideration of the procurement risk associated with each option (with the exception of the Glenferrie Road to Warrigal Road section of work). This is of particularly relevance given the large dollar value of the procurements, and the particular risks relating to the use of alliancing as a procurement option
- careful analysis of a procurement strategy for the FMS component of the project is critical, due to the importance of effectively procuring this technology to achieve the expected project outcomes
- our analysis confirms that the choice of alliance or design and contract for various sections of work is supported by DTF guidance
- if the risks associated with alliance contracting are to be appropriately managed, VicRoads needs to ensure active, ongoing attention to the development of the skills required to manage this method of procurement.

Recommendation

4.2 So that future business cases align with DTF better practice guidance, prior to confirming its preferred procurement approach, VicRoads should analyse other procurement options, to allow decision-makers to be sufficiently informed as to their costs, benefits and risk impacts.

4.5.4 Did VicRoads clearly identify the project's nature, scope, deliverables, key result areas and other expectations in tender documents?

Alliance RFPs

The RFPs for the West Gate Alliance and the Monash Alliance both described the nature of the M1 upgrade project, specifying the objectives of the M1 upgrade project in its entirety. Given the inter-dependencies between the sections of the M1 upgrade project in delivering the stated objectives, it was not feasible to separate objectives of the individual sections of work.

The nature of the work was addressed in the RFPs. The scope of work relevant to each section of the project was clearly explained. The project timelines, details of the alliance scope of work and key result areas were clearly articulated.

The alliance delivery method was explained in detail, and included:

- the proposed alliance structure
- draft proposed alliance agreements
- commercial framework
- estimated current works budgets.

Discussion on the development of the principles to underpin each of the alliances was included in the RFP documentation for both sections of work.

VicRoads clearly identified its contribution to each alliance in the RFP documentation. In the RFP for the West Gate Freeway section, the core competencies required by respondents were described, as were the competencies/skill areas that would be filled on a "best for project" basis.

The RFPs for the above sections of work clearly described VicRoads' expectation relating to the overall M1 project, the specific sections of work and the various procurement processes. The expectations described in the RFP documentation were consistent with one another, and with the business need identified in the business case.

For the alliance procurements, the VicRoads management and governance teams, including their accountability and purpose, were identified. The selection process was described in detail and evaluation criteria (mandatory criteria and selection criteria) identified. Significant guidance was provided regarding the structuring of submissions, including detailed description of the nature of information required and the form in which it should be provided.

Design and construct RFTs

The Request for Tender (RFT) documentation for both the Warrigal Road to Jacksons Road section and Jacksons Road to Heatherton Road/South Gippsland Freeway section utilised standard VicRoads tender documentation.

This was released to pre-qualified “DC4”[17] contractors, who are familiar with this documentation, procurement approach and associated expectations.

The tender documentation explained the nature of the respective sections of work, and the entire M1 upgrade project. The deliverables and key result areas were clearly explained, including the importance of coordinating construction with work being performed on other sections of the corridor.

For the design and construct tenders (Warrigal Road to Jacksons Road and Jacksons Road to Heatherton Road/South Gippsland Freeway), VicRoads used standard-form RFT documentation, with which the market is familiar. Documentation clearly identified VicRoads’ requirements, including expectations, conditions of the tender, relevant schedules, details of briefings, government purchasing policies and insurance requirements.

Freeway Management System

The call for expressions of interest (EOI) regarding the provision of technical services and contract management advice for an FMS clearly described the context of the M1 project.

The EOI used VicRoads’ standard approach and contract for the supply of services which covers the key requirements for the procurement of services. The nature and scope of the work required was described, as was the selection process.

VicRoads’ expectations regarding the services to be supplied and procurement processes were clearly explained in the documentation.

At the time of the audit, this tender process was still ongoing.

Did VicRoads clearly identify the project’s nature, scope, deliverables, key result areas and other expectations in tender documents?

VicRoads’ expectations regarding the objectives of the project, the services being procured, and of the procurement process were clearly identified in the RFP/Ts documentation for all sections of work.

The expectations stated in the RFP/Ts for all sections of work were consistent with the business need identified in the business case and reflected in VicRoads’ documentation.

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[17] DC4 contractors have been pre-assessed by VicRoads as capable of special and complex design and construct projects.

For the West Gate Alliance and Monash Alliance RFPs:

- VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the RFPs for both the sections of work
- more detailed information regarding VicRoads' expectations of the procurement processes were provided in the West Gate Freeway and Southern Link to Warrigal Road RFPs compared with the other procurements. This was appropriate given the use of alliancing as the procurement approach
- information requested was consistent with demonstrating the respondents' capabilities with respect to successful delivery of the projects. The content of the RFPs was consistent with DTF guidance.

For the Warrigal Road to Jacksons Road and Jacksons Road to Heatherton Road/South Gippsland Highway sections of work, VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the RFTs.

For the FMS, VicRoads clearly identified the project's nature, scope, deliverables, key result areas and other expectations for the private sector party in the call for EOIs for the provision of technical services and contract management advice.

4.6 Did the procurement approach comply with the relevant procurement rules and guidelines?

4.6.1 Introduction

To assist public sector agencies to conduct their commercial transactions with appropriate probity, the Victorian Government Purchasing Board (VGPB) has produced 2 policy documents: *Probity Best Practice Advice*[18] and the *Conduct of Commercial Engagements in Government*[19] policy.

Government agencies must adhere to the policy for commercial transactions. Figure 4E shows the policy's key requirements.

[18] *Probity Best Practice Advice* can be found at <http://www.vgpb.vic.gov.au/CA256C450016850B/WebObj/Probitybestpracticeadvice/$File/Probity+best+practice+advice.doc>.

[19] The VGPB policy for *Conduct of Commercial Engagements in Government* can be found at <http://www.vgpb.vic.gov.au/CA256C450016850B/0/4F2B6418F0020F51CA2570820079B16C?OpenDocument>.

Figure 4E
VGPB probity key requirements

Requirement	Description
Development of a probity plan	Departments intending to let a tender worth more than $10 million are to develop a probity plan before the tender process starts.
Fairness and impartiality	Potential suppliers are treated equally and must have the same opportunity to access information and advice.
Use of a competitive process	A competitive process should be used at all times.
Consistency and transparency of process	Tenderers are evaluated in a systematic manner against explicit predetermined evaluation criteria.
Security and confidentiality	The processes used to receive and manage supplier information ensure the security and confidentiality of intellectual property and proprietary information.
Identification and resolution of conflicts of interest	Any person involved in the tender process is to declare and address any actual or perceived conflict of interest before undertaking any quote or tender evaluation.

Source: Victorian Government Purchasing Board.

West Gate Alliance and Monash Alliance sections of work

The RFP documentation, evaluation of respondents, and probity files included:

- the probity plan
- tender correspondence log
- probity audit report
- approvals to appoint the preferred alliance respondent.

The procurement was clearly documented and followed, with the execution of each step in the process recorded, reflecting consistency with internal and external procurement requirements and guidelines.

However, we note that no respondent provided a signed probity deed, even though provision of such a deed was stated in the mandatory criteria.

Given that no respondent complied with this criterion, but all indicated a willingness to formalise an amended deed, the evaluation team decided that the process should progress. The probity auditor supported this position. For future procurements, VicRoads should understand why this occurred and identify ways to minimise the likelihood of its recurrence.

VicRoads used the same external probity practitioner to fulfil the roles of probity advisor and auditor for the M1 procurements, which raises the same concern we noted about confusion or roles for the TCI project.

In a major tender, the role of a probity advisor is to establish and manage the probity approach, while the role of a probity auditor is to independently review the nature and conduct of the probity approach. While combining the roles may benefit an agency through cost savings and efficiencies, having a separate probity auditor role provides a higher level of assurance about the standard of tender probity. Combining the roles serves to confuse accountabilities and may weaken public confidence in the probity of a tender.

Recommendation

4.3 The VGPB should consider revising and amending its probity advice to ensure that a probity auditor's role is not confused with the role of a probity advisor in order to maintain clarity of the 2 distinct roles and strengthen accountabilities of the separate functions.

Design and construct section - Warrigal Road to Jacksons Road

The RFT documentation was released to VicRoads pre-qualified contractors, and standard VicRoads tender and contractual documentation was used throughout the process.

The probity plan prepared shows that VicRoads did not foresee a need for an external probity auditor. This was based on a view that design and construct contracts are part of VicRoads' normal business, and that the process would be conducted in line with VicRoads' procurement toolkit and may be subject to an independent audit as part of the internal quality system.

This approach is clearly at odds with DTF's Project Tendering Guidelines[20] which specify the need to have independent probity oversight for projects exceeding $10 million.

Recommendation

4.4 For future projects worth more than $10 million, VicRoads should comply with government policy and implement approved probity plans which accord with the VGPB Probity Best Practice Advice.

Design and construct section - Jacksons Road to Heatherton Road/South Gippsland Freeway

At the time of audit fieldwork, this procurement had only progressed to the stage where expressions of interest had been called from pre-qualified DC 4 contractors, and the RFT released to those registering interest.

[20] <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/gateway-reviews-lifecycle-guidance-material> p. 8, Section 3.2 - Probity.

Freeway Management System

The procurement for the FMS is still in its very early stages, with the main procurement activity to date being a tender for technical and contract management services to assist with the development of the procurement strategy and related technical advice.

We reviewed the RFT documentation, which utilised the VicRoads standard format for supply of services. The procurement process was clearly documented and tenderers were pre-qualified through a short-listing process.

In line with internal and external guidelines, no probity plan was deemed necessary as the value was well below the $10 million threshold.

Two tenders were received, with only one conforming to the mandatory requirements.

4.6.2 Did the procurement approach comply with the relevant rules and guidelines?

Based on our analysis of the evidence relating to the procurement approach for the West Gate Freeway section of the M1 upgrade, the West Gate Alliance and Monash Alliance procurements were compliant with VicRoads' internal procurement requirements and with DTF's *Project Alliancing Practitioners' Guide*[21].

The same external consultant was engaged to provide probity advice and act as probity auditor for the conduct, evaluation and awarding of the alliance contract.

The need for separate probity advisors and auditors should be clarified in DTF and VicRoads' procurement policies and guidelines.

We also conclude that there is sufficient documentary evidence that the procurement approach for the Warrigal Road to Jacksons Road section of the M1 upgrade (design and construct contract) was compliant with VicRoads' internal procurement requirements.

However, we are concerned that, due to VicRoads failing to implement independent oversight of probity, as described in DTF's *Project Tendering Guideline*, the process was not compliant with DTF/VGPB guidance.

On the freeway management system RFT, we found that at this point in time, it was compliant with relevant rules and guidance.

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[21] <http://www.dtf.vic.gov.au/CA25713E0002EF43/pages/asset-management---project-support-project-alliancing>.

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