



# The Channel Deepening Project





VICTORIA

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Victorian  
Auditor-General

# The Channel Deepening Project

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Ordered to be printed

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VICTORIAN  
GOVERNMENT PRINTER  
May 2009



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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 performance report on *The Channel Deepening Project*.

Yours faithfully



D D R PEARSON  
*Auditor-General*

6 May 2009



# Foreword

The government has committed to grow the economy, to protect the environment, and to give Victorians the opportunity to have their concerns heard and addressed. Government decisions should be informed by a good grasp of community views, and a clear understanding of economic, social and environmental impacts.

The channel deepening project in Port Phillip Bay was risky. Community views were diverse and stakeholder groups played an important role in communicating the strength of feeling about both the project's economic necessity and its environmental risks.

The Port of Melbourne Corporation did eventually assure the government about both the project's economic benefits and the effective management of the environmental risks. But this was achieved only after the corporation prepared a Supplementary Environment Effects Statement, to address the gaps revealed in the original Environment Effects Statement.

Addressing these gaps added to the development time and costs, but this improved the project's design and assured the government and the community about the management of environmental risks. To date, the project has been implemented as intended and the environmental plan has been effective.

This project required careful, thoughtful engagement between the community, the corporation and the government. The government responded effectively to strongly held community concerns about potential effects on Port Phillip Bay and the corporation in turn provided government with high quality advice to inform its decisions.

This responsible engagement sets a good example for how large, complex and high risk projects with widespread community impacts can and should be managed in the future.



D D R PEARSON  
*Auditor-General*

6 May 2009





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# 1 Audit summary

## 1.1 Introduction

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The Port of Melbourne is critical to the economic wellbeing of Victoria. It handles more shipping containers than any other Australian port and is the key entry and departure point for Victorian imports and exports. The port is linked to the open sea by shipping channels running through Port Phillip Bay. These provide a passage for vessels with a draught of up to 11.6 metres at all tides.

The importance of Port Phillip Bay goes beyond its role as a passageway for cargo vessels. Many Victorians, rely on the bay for their livelihoods, either from fishing or commercial tourism. Victorians value the bay environment as a place for leisure and recreation, and for its rich variety of plants and animals. The public interest in safeguarding the bay environment emerged as a key issue during the development of the channel deepening project (CDP).

The Port of Melbourne Corporation (the corporation) was established to promote sustainable trade growth by providing effective port services and managing sea channels for vessels to access these services. The corporation is responsible for the CDP to allow larger ships, with up to a 14-metre draught, to use the port at all tides.

The CDP is a high priority for the corporation because it expects the container trade to more than treble by 2035, with a trend towards using larger, more efficient vessels. The failure to provide additional channel depth is expected to force shipping companies to work around this constraint and increase the costs of shipping cargo through Melbourne.

Government policy is to grow the state's economy while protecting the environment for future generations. The CDP was strongly supported subject to environmental and other requirements being satisfied. To safeguard the environment, the government required the corporation to prepare an Environment Effects Statement under the *Environment Effects Act 1978*.

The corporation started preparing this statement in mid-2002 and secured the required approvals in February 2008. The project started immediately and is planned for completion by the end of December 2009, within a total approved budget of \$969 million.

The audit assessed how effectively the corporation developed and, to date, has implemented, the CDP, by examining:

- the business case used to inform the decision to proceed
- the contracting arrangements used to procure the CDP works
- management of the environmental risks to date
- progress compared to the planned time frame and budget to date.

## 1.2 Conclusion

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### 1.2.1 Project development

By early 2008, the corporation had developed an effective CDP that included:

- a robust business case, complying with better practice guidelines and providing government with the type and quality of information it needed to endorse the project
- an Environmental Management Plan that addressed the requirements of the environmental assessment process and was endorsed by ministers under the state and Commonwealth environmental legislation
- contracting arrangements, where the corporation followed sound processes in determining how works should be procured and the contractual terms.

It is recommended that the corporation documents the lessons learnt from the channel deepening alliance, improves its contract manual and adds two additional measures to confirm the project's benefits.

While ultimately effective, the development process was not without its challenges and problems. In February 2005 the independent panel appointed to consider the Environment Effects Statement recommended that the CDP should not proceed without revision.

The panel found that the risk analysis, project design, the plan for managing the environmental impacts and communication with the community required substantial revision. In some of these areas the corporation had not been able to complete its work within the deadline for submissions. The panel also found the project needed better cross-departmental support and recommended the formation of a high-level taskforce.

In March 2005 the Minister for Planning agreed with the panel's conclusion and required the corporation to prepare a Supplementary Environment Effects Statement.

Two and a half years later in October 2007, a second independent panel found that the project could now proceed on an environmentally acceptable basis and the Minister for Planning accepted this assessment. The corporation had strengthened its approach to risk management and the government had provided a greater level of practical support through the establishment of a project taskforce.

There are lessons for the management of large, complex and high-risk projects, directly affecting wide sections of the community, to reduce avoidable costs. First, the proponent should complete the work required to be able to assure the government and the community that it has effective plans for managing the project risks. Second, projects of this nature require the coordinated support of government departments and agencies during their development.

On both counts, the project fell short in mid-2005. However, the subsequent assessment process worked to address these shortcomings, albeit at some financial and reputational cost.

### 1.2.2 Project implementation

Between February 2008 and February 2009, the corporation had been effective in implementing the CDP as planned.

To date, the arrangements for reporting on and responding to environmental incidents have been effective.

The CDP is on track for completion by the end of December 2009 deadline and is within the budget of \$969 million.

## 1.3 Recommendations

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The corporation should:

- improve the contract manual during its planned review of procurement processes (**Recommendation 5.1**)
  - document the lessons learnt from the channel deepening alliance in an executive completion report (**Recommendation 5.2**)
  - complement its proposed measures of success by showing how larger vessels have made use of the additional depth provided by the project and these measures should include:
    - the maximum draught of vessels using the port
    - the actual draught of vessels on entry and when leaving the port (**Recommendation 7.1**).
-



# 2 Audit Act 1994 section 16 — submissions and comments

## 2.1 Introduction

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In accordance with section 16(3) of the *Audit Act 1994* a copy of this report, or relevant extracts from the report, was provided to the Port of Melbourne Corporation, the Department of Transport and the Department of Sustainability and Environment with a request for comments or submissions.

The comments and submissions provided are not subject to audit nor the evidentiary standards required to reach an audit conclusion. Responsibility for their accuracy, fairness and balance rests solely with the agency head.

## 2.2 Submissions and comments received

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### ***RESPONSE by the Chairman, Port of Melbourne Corporation***

*The Port of Melbourne Corporation (PoMC) Board considered the report at its meeting on 20 April. PoMC welcomes the proposed Audit report and would like to compliment the audit team on the thorough approach and demeanour displayed during the course of the audit.*

*The conclusions of the proposed report reinforce how the assessment process and the oversight and governance by the PoMC Board addressed the project shortcomings pre mid-2005. PoMC supports this particular component of the conclusion and agrees that the coordinated support of government agencies during the planning and development phase was an essential and successful initiative.*

*PoMC accepts the audit recommendations, specifically:*

*Recommendation 5.1—Improve the contract manual during its planned review of procurement processes.*

*Accepted—PoMC is in the process of developing a scope and commissioning a consultant to review and update the Contract Manual which forms part of the procurement process. This review will be completed by April 2010.*

**RESPONSE by the Chairman, Port of Melbourne Corporation – continued**

*Recommendation 5.2—Document the lessons learnt from the channel deepening alliance in an executive completion report.*

*Accepted—PoMC will document the lessons learnt from the channel deepening in an executive completion report. The report will be completed by July 2010.*

*Recommendation 7.1—Complement its proposed measures of success by showing how larger vessels have made use of the additional depth provided by the project and these measures should include:*

- *the maximum draught of vessels using the port*
- *the actual draught of vessels on entry and when leaving the port.*

*Accepted—PoMC will complement existing reporting to government with:*

- *the maximum draught of vessels using the port*
- *the actual draught of vessels on entry and when leaving the port. Currently this information is not collected by PoMC. Therefore, this reporting will be based on information requests to vessel masters on arrival to and departure from the Port of Melbourne. The reported information will be in an aggregated form.*

*This reporting will commence following scheduled completion of the project, which is 31 December 2009.*

**RESPONSE by the Secretary, Department of Transport**

*The Department acknowledges the Victorian Auditor-General's Office audit of The Channel Deepening Project and notes the recommendations for consideration by the Port of Melbourne Corporation.*

**RESPONSE by the Secretary, Department of Sustainability and Environment**

*I am satisfied that this report reflects the Port of Melbourne Corporation's performance up to February 2009 in meeting its obligations under environmental approvals for which I am responsible.*

*I do not have any formal comments to make in relation to the audit recommendations.*



# 3 Background

## 3.1 The Port of Melbourne

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### 3.1.1 The port's role and location

#### The port's role in the Australian sea trade

Australia's geographical position has created a strong dependence on sea trade to access the international markets needed to sustain economic growth. The latest figures available from the Bureau of Infrastructure Transport and Regional Development show that in 2006–07, 734 million tonnes of goods with a combined value of \$275 billion, passed through Australian ports. Shipping containers carried goods valued at \$175 billion per annum or two-thirds of the total.

Melbourne is Australia's busiest container port accounting for 36 per cent of Australia's container trade in 2007–08. It is the key departure and entry point for Victorian imports and exports and also a vital trade hub for industries in New South Wales, South Australia and Tasmania.

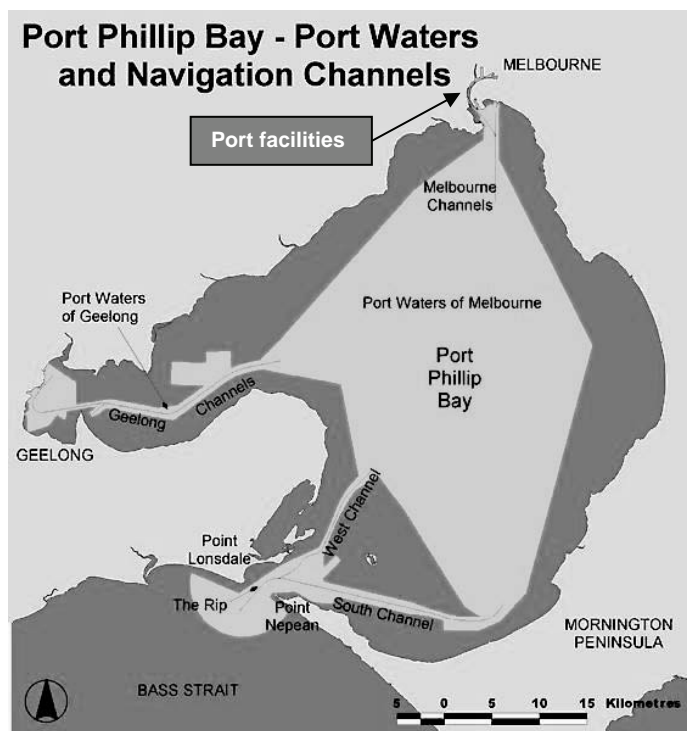
In 2007–08 the port handled 2.26 million containers. By comparison, Sydney (the next largest container port) has a throughput of 1.78 million containers. Over the ten-year period since 1997–98, Melbourne's container throughput has more than doubled from 1.05 to 2.26 million, with the expectation of equally strong, long-term growth.

#### The port's location and shipping channels

Figure 3A shows that the port's landside berth facilities are located at the northern end of Port Philip Bay. Cargo vessels access the port by sailing through the 3.2 kilometre-wide entrance at the southern end of the bay and using marked shipping channels to travel to the berths within the port complex.

In the past these channels have provided for a maximum draught, or how deep a ship sits in the water, of 11.6 metres at all tides or 12.1 metres with a high tide. In the September quarter 2008, 50 per cent of the container ships had a design draught when fully loaded of 11.6 metres or greater. The movements of these ships through the port would be constrained if they were used to their full capacity.

**Figure 3A**  
**Port of Melbourne and Port Phillip Bay**



Source: Port of Melbourne Corporation.

### 3.1.2 Government policy and the port

The *Growing Victoria Together* policy balances economic, social and environmental goals by aiming to:

- grow the economy to generate and retain high-quality jobs
- protect the environment for future generations
- provide improved access to high-quality health and education services
- create a safer, more caring society where opportunities are fairly shared.

The government has recognised the importance of increased trade to Victoria's economic growth. To promote and accommodate trade growth, Victoria's ports need to become more efficient and competitive by investing in upgraded infrastructure.

The government has committed to a strategy of maximising the use of existing port infrastructure before developing new facilities. This means:

- investing in the Port of Melbourne to maintain and strengthen its position as Australia's premier container port
- planning for the long-term development of the Port of Hastings to supplement the Port of Melbourne once it has reached capacity.

In this context, government supported channel deepening as a high priority investment. This support was conditional on the project satisfactorily fulfilling environmental assessment processes, the resolution of all technical issues and developing a sound financing strategy.

### 3.1.3 The Port of Melbourne Corporation (the corporation)

Amendments to the *Port Services Act 1995* established the corporation to manage the Port of Melbourne in an economically, socially and environmentally sustainable manner. Within this mandate the corporation should:

- provide port services that are accessible, cost-effective and integrated with other infrastructure
- establish and manage sea channels on a fair and reasonable basis
- facilitate the sustainable growth of trade through the Port of Melbourne.

The Act includes a requirement to dredge and maintain channels in the Port of Melbourne's waters and provides the legal authority to enter into contracts to do this. The corporation is responsible for the management and delivery of the project to deepen the shipping channels.

The corporation has identified the deepening of the shipping channels as a critical project in its long-term strategy and corporate planning documentation.

## 3.2 The channel deepening project (CDP)

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### 3.2.1 Key project drivers and outcomes

#### The importance of the port to Victoria's economy

The container trade in Australia has grown rapidly during the past two decades in line with world trade growth. Melbourne has maintained its position as Australia's busiest container port because of its favourable location and because it has upgraded its facilities to remain competitive with other Australian ports.

The project business case forecast that the Australian container trades would grow in line with the growth in world container trade at between 5 and 7 per cent per annum over the next 30 years. All the forecasts agreed that long-term growth of at least 5 per cent was likely.

The present global financial crisis has reduced world trade growth to around 4 per cent in 2008 and the early indications are that this has slowed container growth through the Port of Melbourne. However, after past economic downturns, for example in 2000 and 2001, trade growth has rebounded and resumed its longer-term growth trend. The sensitivity of the business case to a short-term fall in container growth is reviewed in Part 4.

Trade growth has been accompanied by an increase in the size of container vessels. This trend in vessel size is set to continue because larger vessels are more cost-effective.

### Maintaining the port's competitiveness

The current depth of the port's channels constrains the operations of larger vessels. As more large vessels are used to service Melbourne, shipping companies will be forced to work around these constraints. In the worst case this might lead to Melbourne losing cargo services as shipping companies choose to divert larger vessels to other Australian ports. However, given its favourable location, the more likely outcome is that shipping companies will continue to serve Melbourne and modify their operations by:

- adjusting the schedules of larger vessels so they enter and leave the Port of Melbourne with less cargo
- accepting some delay, as larger, heavily loaded ships have to wait for favourable tidal conditions
- making greater use of smaller vessels than would have been the case if the draught constraint had been lessened.

### Project outcomes

These operational limitations will impose additional costs on shipping companies that are then likely to pass on these costs to the importers and exporters who rely on the Port of Melbourne. Deepening the port's channels will allow shipping companies to make better use of large vessels through the additional channel depth the project provides. In turn this will reduce their costs and the charges on trade going through the port, compared with the situations where the channels had not been deepened.

## 3.2.2 Project scope

The final business case objectives for the project were to:

- provide competitive and efficient access to the port through innovative, high-quality facilities and services
- increase trade by delivering the project
- deliver the project on time, within budget and in compliance with environmental and other regulative standards.

The project involves works designed to accommodate ships with up to a 14-metre draught at all tides. Some vessels have a design draught that exceeds 14 metres and it's likely that a small proportion of vessels visiting the port over the next 25 years will be of this type. However, the project feasibility work determined that dredging to 14 metres would adequately meet the access needs of the shipping lines serving the port during this period.

The scope includes:

- the work to develop the project and secure legislative approvals
- dredging works to deepen the shipping channels in Port Phillip Bay
- transporting dredged material to one of two underwater storage sites
- upgrading shipping berths to accommodate larger vessels in deeper water
- upgrading, replacing and installing new navigational aids
- protecting utility tunnels, pipelines and cables affected by the dredging activity and the movement of larger cargo ships
- environmental monitoring and management.

The final business case in late 2007 estimated the project budget to be \$969 million.

This budget takes into account:

- the direct project costs
- costs for environmental safeguards and for augmenting bay monitoring programs
- a contingency allowance.

### 3.2.3 Key challenges and risks

#### The technical challenge of dredging the bay entrance

Finding an acceptable way to dredge the entrance to Port Phillip Bay was the key technical challenge for the project. In the past, blasting was used to dislodge the solid rock around the entrance. However, the corporation did not pursue the use of explosives as there are alternative methods, which are more feasible, have fewer environmental effects, are shorter in duration and are of less concern to the community.

This challenge and the need to find an acceptable innovative solution played a formative role in the CDP development. The corporation decided to enter an alliance agreement for the dredging works as the best way of accessing the expertise it needed. Proving the feasibility of the proposed solution meant that the corporation had to commission a trial dredge as part of the environmental assessment process.

#### Risks to the bay environment

The project development coincided with heightened community interest in the value of the environment and the need to protect it. Government policy reflected this concern by emphasising the need to protect and enhance the environment, while growing the state's economy.

Nevertheless, community groups and individuals raised concerns about the effect of dredging on the bay environment and expressed the fear that it might lead to long-term damage. The potential failure to understand and address these community concerns became a key risk for the project.

## 3.3 The project development pathway

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### 3.3.1 Overview of the project approval process

Under its governing legislation, the corporation board has powers to dredge the shipping channels in Port Phillip Bay and contract private companies to do this work. In doing this it must comply with:

- the Commonwealth and state legislation governing the management of the environment affected by the project
- the state legislation governing the oversight of statutory corporations by the Treasurer and the Minister for Roads and Ports.

In addition, the government exercised its discretionary powers to require an assessment of the project under the *Environment Effects Act 1978*. This meant the corporation had to examine 'the impacts channel deepening may have on Port Phillip Bay and surrounds, to ensure the social, environmental and economic issues are appropriately considered' and publish an Environment Effects Statement.

The corporation had to:

- address the requirements of the *Environment Effects Act 1978* and secure a positive recommendation from the Victorian Minister for Planning
- secure approvals under the relevant state and Commonwealth legislation including those Acts governing environmental management and protection
- obtain the approval of the government for the project to proceed after the business case had incorporated the costs of complying with the legislative approvals.

### 3.3.2 Time line of key events

Figure 3B shows the key project milestones. In March 2005, the Minister for Planning decided that the corporation should complete a Supplementary Environment Effects Statement. In October 2007, following this additional work, the Minister for Planning made an assessment that the project could proceed on an environmentally acceptable basis. Dredging commenced in February 2008.

**Figure 3B**  
**Project milestones**

Date	Milestone
<b>Early developments</b>	
1998	The Victorian Channels Authority commissions a feasibility study
December 2001	Government in-principle support for the project
<b>Environment Effects Statement</b>	
May 2002	Minister for Planning announces the need for this statement
July 2004	Corporation publishes the statement for public consultation
September 2004	Independent panel starts public hearings
February 2005	Independent panel submits its report to the Minister for Planning
<b>Supplementary Environment Effects Statement</b>	
March 2005	Minister for Planning decides that a supplementary statement is needed
August 2005	Trial dredging of the bay entrance starts
March 2007	Corporation publishes the supplementary statement for public exhibition
June 2007	Second Independent panel starts public hearings
October 2007	Second independent panel submits its report to the Minister for Planning
October 2007	Minister for Planning assesses the project as environmentally acceptable
<b>Legislative and government approvals</b>	
December 2007	Victorian Minister for Environment and Climate Change consents to the project under the <i>Coastal Management Act 1995</i>
December 2007	Victorian Government approves the project
December 2007	Commonwealth Minister for the Environment, Heritage and the Arts consents to the project under the <i>Environment Protection and Biodiversity Conservation Act 1999</i>
February 2008	Commonwealth Minister for the Environment, Heritage and the Arts approves the project's Environmental Management Plan
<b>Project implementation</b>	
February 2008	Dredging started
October 2009	Dredging scheduled for completion
December 2009	Deadline for project completion

Source: Victorian Auditor-General's Office, from *Parliamentary Inquiry into Port Philip Bay: Channel Deepening*.

### 3.3.3 Project governance

#### The role of the Port of Melbourne Corporation

The corporation is responsible for developing and delivering the project.

The project's governance arrangements up to May 2004 included:

- recruiting a project director to develop the project and the Environment Effects Statement using a small in-house team and external contractors
- the project director reporting on a day-to-day basis to the executive chair of the board and making regular reports to the full board.

From June 2004, the corporation started to revamp the project governance arrangements and apply additional resources to the project development by:

- using the corporation's executive committee from June 2004 to oversee key project issues as an internal steering committee
- forming an alliance executive team, within the corporation's project team in July 2004, to oversee the completion of alliance works as designed and in accordance with the environmental plan
- after an extensive executive search, ultimately appointing an in-house executive general manager reporting to the CEO and tasking a project team within the corporation with responsibility for all aspects of the project in August 2005.

Under the revamped model, the project reported through the corporation's executive general manager responsible for the project and the corporation's CEO to the board, as the body with ultimate responsibility for the project. The work covered by the alliance was managed by an Alliance Executive Team comprising the executive general manager and the corporation's CEO and two representatives from the non-owner alliance participant. These team members reported to their respective boards.

## The role of government departments and agencies

### *Department of Treasury and Finance and Department of Transport*

The Treasurer and the Minister for Roads and Ports have defined roles in relation to the corporation under the *Port Services Act 1995*. Both have the right to receive, review and amend the corporate plan setting out the corporation's objectives, business plan and financial position.

The Treasurer must approve any borrowings of the corporation pursuant to the *Borrowing and Investment Powers Act 1987*, as was the case with channel deepening. The Treasurer was also responsible for approving the financial viability of the project and this occurred in late 2007 following a review of the final business case.

The Department of Treasury and Finance is also responsible for coordinating Gateway reviews of major projects. These independent reviews examine projects at several stages during the project life cycle and provide constructive feedback to address emerging risks and issues. The corporation was subject to Gateway reviews in April 2004 and September 2007.

The Department of Transport, as the portfolio agency, provided assistance to the corporation, liaised with other departments on various issues and chaired and serviced the high-level project taskforce meetings. The department also submitted the corporation's business case to government.



### *Department of Sustainability and Environment*

At the time the Minister for Planning activated the provisions under the *Environment Effects Act 1978*, the Department of Sustainability and Environment was responsible for administering the assessment process. The department advised the corporation about the Act's requirements.

### *Departmental committees*

Up until the conclusion of the Environment Effects Statement, an advisory committee met with the corporation to discuss issues and provide advice on the process. The independent panel saw the need for better coordination across government. It recommended the formation of 'a high-level project management group representing government departments and agencies and the Port of Melbourne Corporation'.

The Minister for Planning agreed that the management of the project needed to be strengthened and this required better coordination across government to support the corporation in developing a robust proposal. The channel deepening taskforce was formed in response to this requirement. It had a much wider and more senior membership and leadership than the previous advisory committee.

The taskforce met monthly to:

- keep all government stakeholders up-to-date with the project progress and any emerging issues
- provide ministers with advice on the project issues, progress and key decisions
- provide to the project the support needed to reach a viable solution.

### *The Office of the Environmental Monitor*

The Minister for Planning's assessment recommended the appointment of an independent monitor. The Office of the Environmental Monitor was created in December 2007 and will operate until 31 December 2011. Its purpose is to provide an independent view of the environmental performance of the project to regulators and the Victorian community.

It is responsible for:

- monitoring and evaluating the environmental performance of the project, including the investigation of issues raised by stakeholders and the community
- reviewing the reports the corporation produces on the environmental management of the project
- advising the corporation and ministers, or their delegates, on these and any other matters referred to the environmental monitor by a relevant minister.

### *The Project Stakeholder Advisory Committee*

The corporation established this committee during the Supplementary Environment Effects Statement process to create a forum to discuss issues affecting a wider group of stakeholders and the community. The committee comprises 18 members drawn from the corporation, local government, environmental groups and industry associations.

## 3.4 Major issues surrounding the project

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The environmental assessment process ran from mid-2002 to late 2007 and provided the opportunity for the community to raise a wide range of concerns and issues. The parliamentary inquiry of 2008 provided a further opportunity to explore many of these issues.

### 3.4.1 Community concerns raised during the assessment process

The major areas of community concern centred on:

- the potential for the project to seriously damage the environment of Port Phillip Bay, with impacts on those relying on the bay for a livelihood or for leisure
- the need for the project and its viability in terms of the economic costs and benefits.

We examine these key areas of concern in the body of the report.

### 3.4.2 Parliamentary inquiry into channel deepening

#### Terms of reference

In February 2008 Parliament's Standing Committee on Finance and Public Administration established an inquiry to examine:

- the project business case
- the arrangements between the corporation and the dredging contractor.

The committee reviewed material in the public domain, requested public submissions, held public hearings and gained access to some of the contract documentation relating to the dredging contract. However, it did not gain access to the documented business case.

#### Findings

The committee published its final report in September 2008.

The report concluded under paragraph 122 'In examining the SEES (Supplementary Environment Effects Statement) benefit-cost analysis, the Committee has formed the view that the assumptions it relies upon are reasonable. However, the Committee also notes that many of the alternative assumptions suggested...could also have been used and would lower the NPV (net present value of the economic benefits) and BCR (benefit-to-cost ratio) results compared to the published estimates'.<sup>1</sup>

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<sup>1</sup> *Inquiry into Port Phillip Bay Channel Deepening, Final Report, September 2008, pp 47-48.*

In its final report the committee found that the alliance between the corporation and the dredging contractor 'was entered into prior to DTF (Treasury) publishing guidelines for alliancing. Nonetheless the CDP (channel deepening project) Alliance Agreement is broadly consistent with the current guidelines.'<sup>2</sup>

## 3.5 The audit

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The audit assessed the effectiveness of the corporation's development and implementation of the channel deepening project. To address this objective the audit examined:

- the business case used to inform the government's decision to proceed with the project
- the contracting arrangements used to procure the services needed to complete the project works
- the management of the project's environmental risks
- the implementation of the project once approved.

The audit focused on the activities of the corporation as the agency responsible for the project. The audit also examined the roles of the Department of Transport, as the department with portfolio responsibility, and the Department of Sustainability and Environment, in connection with the Victorian environmental approval and regulation of the environmental plan.

In completing the audit the team:

- reviewed the relevant legislation
- examined agencies' documentation and interviewed the staff who worked on the project
- reviewed the Cabinet documentation relating to the project.

The audit was performed in accordance with Australian Auditing Standards applicable to performance audits, and included tests and procedures to enable audit conclusions to be reached. The total cost of the audit was \$555 000. This cost includes staff time, overheads and printing.

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<sup>2</sup> Ibid, Finding 6.1, p60.



# 4 Developing the project business case

## At a glance

### Background

A business case should provide the information needed to make an informed decision on the merits of an investment proposal, whether it should proceed and how funding should be provided.

We examined the final version of the business case to determine whether it:

- conformed to better practice guidelines
- included an appropriate approach to the management of risk
- provided comprehensive and robust information on the project costs, benefits and economic return.

### Findings

- The final business case closely matched the structure and content prescribed in Investment Lifecycle Guidelines.
- The business case provided the type of information the government needed to decide whether, and in what form, the project should proceed.
- The Port of Melbourne Corporation (the corporation) addressed the adverse findings of the Environment Effects Statement panel by revamping its approach to the management of environmental risk.
- The information in the final business case represented adequate and reliable estimates of the project costs and benefits.
- The exclusion of some costs, which should have been included, did not significantly change the economic cost.
- Sensitivity testing, beyond what was in the final business case, verified that benefits were unlikely to fall to a point that threatened the viability of the economic case.
- The final business case reasonably estimated the project's economic return.
- The audit found that the benefit-to-cost ratio is unlikely to fall under 2.0 allowing for reasonable variation in input parameters.

## 4.1 Background

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A business case should provide the information needed to make an informed decision on:

- the merits of an investment proposal
- whether it should proceed
- how funding should be provided.

The Port of Melbourne Corporation (the corporation) developed several versions of the project business case between 2002 and late 2007. These documents were not made public. The corporation drew on information in these business cases to inform its submissions on the Environment Effects Statement and the Supplementary Environment Effects Statement.

The corporation finalised the business case following the conclusion of the environmental assessment process. The government endorsed the project based on this final business case.

The final version of the business case was examined to determine whether it:

- conformed to the better practice guidelines (Section 4.2)
- included an appropriate approach to the management of risk, and particularly the environmental risks, given the scale and complexity of the project (Section 4.3)
- provided comprehensive and robust information on the project costs, benefits and economic return and had addressed the criticisms raised during the environmental assessment process (Section 4.4).

## 4.2 Conforming to government's better practice guidelines

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### 4.2.1 The guidelines

The Department of Treasury and Finance updated the Victorian Government's *Investment Lifecycle Guidelines* in July 2008. These included guidance on the required structure and content of project business cases and on the type and quality of information needed to adequately inform decision-makers. The lifecycle guidelines replaced earlier advice that conveyed a similar approach but with less practical detail.

## 4.2.2 Comparing the final business case to the guidelines

The final business case closely matched the structure and content of the 2008 *Investment Lifecycle Guidelines*. The business case provided the type of information the government needed to decide whether, and in what form, the project should proceed.

Our review found that the final business case:

- described the service need, project objectives and a clear rationale for the project
- demonstrated a strong link between the project, government policy and the corporation's objectives
- provided evidence of wide-ranging stakeholder consultation
- followed a sound approach in deciding on a preferred option
- justified the project in terms of the quantifiable costs and benefits
- described the reasons for the recommended approach to procurement
- explained the approach to managing the risks
- demonstrated that the corporation could afford the project without calling on government funds.

A more detailed appraisal of those elements of the business case that attracted most criticism during the assessment process follows. These criticisms were:

- the management of the project's risks, particularly risks relating to the bay environment
- the economic rationale for the project, including the analysis of costs and benefits.

## 4.3 Managing the project's risks

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### 4.3.1 Introduction

The government supported the project because of its economic significance but recognised the importance of properly managing the environmental impacts. In the 2004 document —*Victoria Leading the Way*— the government stated that it would streamline the assessment process so that the project could be completed by 2007.

This was to be achieved by streamlining the administrative procedures so that approvals could be granted in the first quarter of 2005, soon after the assessment of the Environment Effects Statement. This timing would allow the corporation to complete the project works by the end of 2007.

## 4.3.2 Risk management at the time of the Environment Effects Statement

Both the Gateway review in April 2004 and the Environment Effects Statement panel report in February 2005, found that the management of the project risks needed to be improved.

### Gateway review findings

The Gateway review in April 2004 also found that the approach to risk management needed to be strengthened. The corporation needed to:

- identify the full set of project risks
- further develop plans to manage the project risks
- improve its stakeholder management to address their environmental concerns
- revise its organisational structure to eliminate overlaps in responsibilities in relation to risk management.

### Environment Effects Statement panel findings

The independent panel recommended 'that the project should not proceed to approval or the commencement of works until...the detailed recommendations have been thoroughly considered'.<sup>1</sup> The panel found that the environmental risk analysis 'is not methodologically sound, lacks integration and requires further development'.<sup>2</sup>

Specifically, the corporation needed to:

- carry out, or complete, further investigations to better understand the project's environmental impacts
- refine the project design to better manage the environmental risks
- document the proven means by which it would achieve the requirements of its own Environmental Management Plan
- improve communication and liaison with community groups concerned about the impact of the project on the bay environment.

The panel also found that the project needed more effective government support and recommended the formation of a cross-departmental channel deepening project taskforce.

In March 2005 the Minister for Planning required the corporation to prepare a Supplementary Environment Effects Statement to address these recommendations.

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<sup>1</sup> Panel report summary p12.

<sup>2</sup> Panel report summary p11.



### 4.3.3 The corporation's improved risk management

The corporation addressed these findings by revamping its approach to the management of project risks.

The findings of the independent panel for the Supplementary Environment Effects Statement and the revised risk-management approach recorded in the final business case confirmed that the corporation had addressed these issues.

In terms of the risk-management framework, the corporation had:

- engaged risk-management experts to oversee the entire risk-analysis process and improve integration of risk assessments across all project aspects
- created a comprehensive risk register and programmed regular reviews of this register
- designed an organisational structure to clearly allocate responsibility for managing risks
- introduced regular reporting on risk management to the corporation's board and the audit and risk committee.

In addressing the recommendations of the first panel, the corporation had:

- identified and quantified a wider range of potential environmental impacts
- refined the project design and completed a trial dredge to confirm that the dredging technology was suitable for the project and that dredging could be done in an environmentally acceptable manner
- verified the models for predicting environmental effects from dredging
- amended the environmental plan to describe how it would monitor performance and achieve the plan's requirements
- improved the mechanisms used to consult and communicate with stakeholders.

Government departments contributed to this outcome by providing better support and guidance to the corporation through the project taskforce during the development of the Supplementary Environmental Effects Statement. The work of the project taskforce showed the importance of cross-departmental support for a large, complex project with far-reaching impacts.

The corporation's development of the project for the Environment Effects Statement had not been sufficient to provide government and the community with assurance that the environmental impacts had been understood and adequately planned for.

## 4.4 Economic rationale for the project

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### 4.4.1 Overview of the cost-benefit analysis

#### Key concepts of a cost-benefit analysis

A cost-benefit analysis informs the decision to commit resources to an investment. It estimates the stream of monetary costs and benefits over the life of an investment and compares these to the situation where it does not proceed (the 'base' situation). The analysis only includes those impacts that can be reliably valued in monetary terms.

It converts the monetary impacts occurring over time to a single cost and benefit estimate using a discount rate. This is referred to as a 'present value' and allows for the fact that a given dollar sum is worth more to someone now than if it is withheld until some point in the future. The key outputs of the analysis are the:

- present value of costs
- present value of benefits
- net present value (the difference between the costs and benefits)
- benefit-to-cost ratio (benefits divided by costs).

This section of the report refers to the 'project budget' and the 'economic cost of the project'. The project budget is the total estimated cost of the project, including past expenditure and the future cost to complete.

The economic cost is used in the cost-benefit analysis and differs from the project budget as:

- it includes an estimate of the impacts borne by other parties as a result of the project, where these impacts could be reliably quantified and then valued in monetary terms
- it excludes sunk costs. These are historic costs incurred before the decision, where the outputs have no alternative use. Section 4.4.3 examines the validity of excluding these costs for the project
- it discounts future costs to represent a single present value of the costs.

#### The economic return of the project

The estimate of the economic return, as shown by the benefit-to-cost ratio, has been refined over time and Figure 4A shows the estimates presented in:

- February 2007, as part of the Supplementary Environment Effects Statement
- December 2007, within the final business case
- June 2008, as a submission to the parliamentary inquiry.

**Figure 4A**  
**Estimates of the project budget and economic return (\$ millions)**

Description	Project budget	Economic cost	Economic benefit	Benefit to cost ratio
Supplementary statement	\$763	\$590	\$1 936	3.3
Final business case	\$969	\$708	\$1 936	2.7
Parliamentary inquiry	\$969	\$754	\$1 936	2.6

Source: Supplementary Environment Effects Statement, channel deepening project final business case and parliamentary inquiry into the Port Phillip Bay channel deepening.

Figure 4A shows that, based on these estimates, the project is clearly viable with the economic benefit exceeding the project costs by a factor greater than 2.5.

#### *Differences between the supplementary statement and the final business case*

The benefit-to-cost ratio fell from 3.3 for the Supplementary Environment Effects Statement to 2.7 in the final business case as the economic cost increased from \$590 million to \$708 million. The cost increased because of:

- changes in the cost of dredging as fuel and currency exchange rate assumptions were updated
- increases to the scope of works, including environmental measures required under the ministers' assessments
- additional risk and contingency provisions as the risk analysis was finetuned.

#### *Differences between the final business case and the inquiry*

The benefit-to-cost ratio fell further from 2.7 to 2.6 when comparing the final business case to the figures provided to the parliamentary inquiry. This occurred because the economic cost increased from \$708 million to \$754 million. The final business case approximated the change in economic costs following the legislative approvals by using a sensitivity test developed for the Supplementary Environment Effects Statement. This test assumed a 20 per cent increase in the economic cost.

By the time of the parliamentary inquiry, the corporation had re-run the analysis using a more detailed assessment of the cost implications of the project approval conditions. The more refined estimate of the economic cost was \$754 million.

This change had a small downward impact on the benefit-to-cost ratio.

## 4.4.2 Concerns about the cost-benefit analysis

The following sections examine the concerns raised during the project development about the validity of the cost-benefit analysis. These concerns included questioning:

- the comprehensiveness and reliability of the economic cost estimate
- the comprehensiveness and reliability of the economic benefit estimate
- the assumptions used to calculate the economic return estimate.

### 4.4.3 Economic cost estimates

#### Comprehensiveness

The audit found that the information in the final business case adequately represented the project costs.

The total project budget in the final business case of \$969 million comprised:

- \$639 million for the capital works defined within the project scope
- \$119 million for project development and the environmental assessment process
- \$74 million for monitoring programs and stakeholder communications actions within the Environmental Management Plan and general project management
- \$137 million of contingency allowance as part of the corporation's approach to managing the project risks.

The final business case identified the \$165 million of costs incurred up to December 2007 as sunk costs. It included these in the published project budget but excluded them from the economic cost.

Several submissions during the assessment process stated that the business case had underestimated the project's economic costs by excluding:

- sunk costs
- the additional costs of maintaining deeper channels in the future
- the cost of the landside investment required to deal with larger ships (for example, by re-equipping with larger cranes).

The audit found that overall the costing was robust, with relatively insignificant exceptions that had an immaterial impact on the economic cost. The sunk costs and the costs of improving landside capacity were correctly excluded. Although the costs of maintenance dredging were incorrectly excluded, these were small relative to the total economic cost. The business case also included provisions for legal costs incurred by the corporation as part of the project's contingency. The following paragraphs provide the basis for these findings.

#### *Sunk costs*

The business case correctly excluded the sunk costs from the economic analysis. The Victorian Government's guidelines recommend the exclusion of costs from a cost-benefit analysis where the outputs from past project expenditure have no alternative use. Up to the decision to proceed, the economic case should compare the costs to complete the project from that date forward with the stream of future benefits arising from that expenditure. The business case correctly followed this guidance.

Sunk costs at the time of the final business case submission included the costs of \$165 million up to December 2007 associated with:

- preparation of the Environment Effects Statements
- project management and monitoring
- establishing the dredging alliance

- preparation work for the construction phase
- the trial dredge program.

### *Maintenance dredging costs*

An economic appraisal should compare the costs and benefits of a project over the life of an investment (in this case 25 years) with a base case where the project does not go ahead.

The corporation did not include additional maintenance dredging costs in the economic appraisal and should have done so. However, the likely magnitude of these costs meant their inclusion would have no material impact on the economic return.

The final business case reported that the corporation spent approximately \$10 million to \$15 million on major maintenance dredging every five years and expected to spend \$1.5 million per year on minor, routine maintenance. The Environment Effects Statement panel report included an estimate of the additional material needing to be removed from deepened channels through maintenance dredging.

The audit estimated the additional costs by applying historic maintenance costs to the increase in the maintenance dredging task. The additional, discounted costs of maintenance dredging compared to a situation where the channels remain unchanged are of the order of \$5 million. This represents less than one per cent of the project's economic cost.

### *Landside capacity costs*

The economic cost properly included works to modify and strengthen shipping berths to accommodate larger ships berthing in deeper water. The economic cost did not include an allowance for investing in other equipment, for example, larger cranes to efficiently handle larger ships.

The audit found that the exclusion of these costs was justified because stevedoring companies are already investing in larger cranes and better equipment because these provide efficiency gains for both smaller and larger container vessels. In Melbourne, one company made the decision to invest in larger cranes before the channel deepening project was approved.

### *Legal costs*

The costs of defending the legal challenges to the project were small, relative to the project cost and have been partly included in the economic cost.

The corporation and Department of Transport incurred direct legal costs resulting from legal challenges to the project. The total cost of defending these challenges was small in relation to the project cost and was less than \$1 million.

## Reliability

The final business case provided a reliable estimate of the project budget and economic cost (the latter being the present value of the stream of costs included in the project budget less the sunk costs).

Based on analysis of the progress of the project against its budget, the project is on track for completion within the approved budget of \$969 million. The economic cost is therefore unlikely to change in a way that would undermine the economic case for the project.

## 4.4.4 Economic benefit and disbenefit estimates

### Comprehensiveness

The audit found that the business case included valuations of the project's benefits and disbenefits that could be reliably estimated.

In terms of the breakdown of benefits, approximately:

- \$1 661 million, or 86 per cent, came from savings in container shipping costs
- \$272 million, or 14 per cent, were attributable to savings from using larger grain, oil and petroleum vessels
- \$3 million, or less than 0.2 per cent, came from lower greenhouse gas emissions.

The business case included estimates of the project disbenefits to bay users, where these could be reliably valued, equivalent to less than 1 per cent of the total project benefits. These costs:

- included a valuation of the impacts on recreational diving, commercial fishing and delays to ship movements during construction
- excluded a valuation of the impacts on tourism and recreation activities, operation of the Newport Power Station, and the reduction in value of the bay as a system.

Several submissions during the assessment process stated that the business case overestimated the project benefits by not including:

- the full value of the likely losses suffered by businesses dependent on the quality of the bay environment
- the road congestion impacts of moving additional trade through the port
- a monetary estimate of the impact of dredging on the value of the bay as a system.

### *Impact on bay dependent businesses*

The Supplementary Environment Effects Statement estimated the costs imposed by dredging between 2008 and 2011 on the commercial fishing and recreational diving industries to be \$1.5 million and \$4.1 million respectively. The business case assumed there would be no longer-term impacts on these businesses.

On November 13 2008, in the business support package to boost bay performance, the Minister for Roads and Ports announced a \$9.2 million funding package for 'boating infrastructure improvements, beach nourishment, tourism marketing and small business education'. Of this total, \$3 million was directed to bay tourism marketing and financial assistance and advice for businesses, i.e. less than the original \$4.1 million estimate.

The audit found that the corporation followed a methodical approach to estimating these impacts. While these losses are subject to a margin of error, they are unlikely to vary to an extent that will affect the viability of the business case.

### *Road congestion impacts*

The estimated increase in the annual container trade over a 25-year period from two to seven million containers, will see a significant increase in associated landside transport movements. The business case assumed that the volume of trade would be the same for the project and the base case. Under this assumption, road and rail traffic will not increase compared to the situation where the channels were not deepened.

### *Impact on recreational users and the value of the bay as a system*

The economic analysis excluded some potential impacts where their costs were either, negligible, or where there was insufficient data to confidently estimate those costs. Public submissions contested the exclusion of the impacts on tourism; however, the Department of Transport's 2008 cost-benefit analysis guidelines treat tourism effects as 'distributional' or secondary impacts, which should be excluded from such analyses to avoid the double counting of effects.

### *Reliability*

The audit found that the business case provided a reasonable estimate of the project benefits.

Most of the project benefits depend on the realisation of lower shipping costs after the completion of the channel deepening. Estimating these benefits involves making assumptions and forecasts about what will happen to trade growth, vessel size and cargo loads over the next 25 years.

We examined the reliability of these estimates by determining whether:

- assumptions and forecasts were based on a sound analysis of the available information and set within the range of expected input values
- sensitivity testing established that the magnitude of the economic benefit was resilient to changes in key assumptions.

### *Assumptions and forecasts underpinning the project benefits*

The size of the benefits from reduced shipping costs depends on:

- trade growth, assumed to grow according to its long-term historic trend before slowing down before the end of the evaluation period
- vessel size distribution, based on an analysis of historic growth and shipping industry interviews on ship building and cascading plans
- load compared to capacity, assumed to remain, on average, consistent with past performance
- vessel capital and operating costs, based on the analysis of data on these costs by vessel size
- shipping operational adjustments if the channel is not deepened, including the land-bridging of a small amount of cargo to work around the operational constraints.

The audit found that the benefits were based on an analysis of the relevant information and that the forecasts fell within the range of values used in other forecasts. Even though the estimates are reasonable, forecasting over such a long period (25 years) has obvious inherent risks.

### *Sensitivity testing*

The audit found that the economic benefits clearly exceeded the economic costs even when more pessimistic assumptions were used.

The final business case was limited in the scope of its sensitivity testing of the project benefits. It covered changes from varying the fuel price and foreign exchange rate between the Australian and US dollars. The business case did not illustrate the impact of varying assumptions driving the critical shipping efficiency benefits. These factors included varying assumptions about:

- trade growth
- vessel utilisation (loads as a percentage of capacity)
- the size distribution of future vessels visiting Melbourne.

The audit carried out additional sensitivity tests to determine the impact of changing the assumptions on trade growth, vessel utilisation and vessel size on the project's economic return. Figure 4B reports the results of these and the sensitivity tests included in the business case.



**Figure 4B**  
**Project benefit sensitivity testing results**

Model variable	Sensitivity test	Economic benefit	Benefit-to-cost ratio (c)
Starting case	Analysis presented to parliamentary inquiry	1 936	2.6
Exchange rate (a)	From \$A1=\$US0.7 to \$A1=\$US0.8	1 760	2.3
Fuel price (a)	From \$US250 to \$US200 per tonne	1 912	2.5
Container growth 1 (b)	Minus 1 per cent 2008 to 2035	1 674	2.2
Container growth 2 (b)	Reduce to 0 per cent 2009–2010	1 729	2.3
Vessel distribution 1 (b)	Average growth in vessel size–10 per cent	1 475	2.0

(a) Exchange rate and fuel price estimates from final business case, table 10

(b) Other sensitivities calculated by VAGO

(c) Benefit-cost ratios determined using the final revised project cost of \$754 million.

Source: Final business case and Victorian Auditor-General's Office.

The sensitivity tests had the following impacts on the benefit-cost ratio of 2.6:

- container growth annual reduction—a reduction of 0.4 to 2.2 when growth is assumed to be 1 per cent lower in each year across a 27-year period. This is a very pessimistic assumption because the business case already assumed a tapering of growth from its historic trend
- container growth in a recession—a reduction of 0.3 to 2.3 with 5.3 per cent growth in 2008 and zero growth in 2009 and 2010, simulating the impacts of a recession
- exchange rate—a reduction of 0.3 to 2.3 when the value of the Australian dollar changes from \$US0.7 to \$US0.8. By the middle of 2008 the exchange rate had risen from its long-term average of \$US0.7 to a high of \$US0.95 but has since fallen to below this long-term average
- vessel size distribution—a reduction of 0.6 to 2.0. Given that the starting case assumed an extrapolation of historic growth and then a tapering of this trend, this represents an extreme downside case.

None of the tests reduce the benefit-to-cost ratio below 2.0.

## 4.4.5 Economic return estimate

The audit found that the final business case provided a reliable estimate of the project's economic return.

The business case presented the results of the cost-benefit analysis used to assess the economic return of the project and reported a benefit-to-cost ratio of 2.7, with an economic benefit of \$1.94 billion and an economic cost of \$708 million.

The total estimated project costs increased between the SEES approval and final business case submission in December 2007, attributed to the cost impacts of the Minister for Planning's assessment, movements in fuel prices and foreign currency, and additional environmental monitoring tasks. During the parliamentary inquiry, the analysis was repeated using increased present value costs of \$754.1 million, resulting in a reduction of the benefit-to-cost ratio to 2.57.

### Choice of discount rate

A key criticism of the calculation of the economic return involved the choice of discount rate. The audit found that the use of a 6 per cent real discount rate and a downside sensitivity test, using an 8 per cent discount was an acceptable approach.

Treasury's published discount rate for Partnerships Victoria projects was 6 per cent for water, transport and energy projects when the economic return was estimated for the Environment Effects Statement. Treasury updated Partnerships Victoria's rate to 6.5 per cent in January 2005 but the subsequent estimates of the economic return continued to use a 6 per cent discount rate.

This real discount rate comprises:

- a component to account for the cost of borrowing for the Victorian Government, which moves with interest rate levels
- a component to reflect the risk of the specific type of investment.

Submissions to the assessment process argued that the discount rate was too low because it did not:

- reflect the high-risk profile of the project
- take account of the rise in interest rates
- achieve the commercial returns on capital required from corporation investments.

The development of the project addressed some specific and complex risks, including finding an acceptable way of dredging the bay entrance and managing the environmental impacts on the bay. Developing a more complete risk management approach needed additional time and money. This additional investment reduced the risk profile of the project by proving a method for dredging the entrance and for monitoring and managing the project's environmental impacts.

Treasury's published discount rate did not move with the increase in base rates in 2008. However, base rates have since fallen to record low levels and the risk-free component of the discount rate is probably an overestimate compared to current rates. This lends further support to the use of a 6 per cent discount rate as a reasonable average.

Submissions claimed that the discount rate should be set to a much higher level to achieve the required financial return on capital. The purpose of the discount rate in the cost-benefit analysis is to measure the net benefit of the project to society, not the financial benefits to the corporation. A 6 per cent rate is in line with the rate used for other social cost-benefit analyses for projects in the public sector.

### Reliability of the estimate

The business case sensitivity tested the impact of lower and higher project costs and showed that the economic return was resilient in the face of these changes. Sensitivity tests conducted by the corporation and the audit team did not show a significant reduction of the benefits.

The audit found that the benefit-to-cost ratio is likely to be well in excess of 1 and is unlikely to fall under 2 allowing for the reasonable variation in input parameters.





# 5 Project procurement

## At a glance

### Background

The scale and complexity of the channel deepening project and the diverse range of works required for its successful completion presented the Port of Melbourne Corporation (the corporation) with a procurement challenge. The audit examined the dredging alliance and a selection of three other contracts to assess whether the corporation had:

- complied with the relevant contracting standards and guidelines
- demonstrated that the contracts provided value for money.

### Findings

- The corporation's contracting policy and processes were sound and consistent with the required standards.
- The corporation had correctly applied its contracting policy to the alliance agreement and to the three other contracts reviewed.
- There was some variation in the conduct of procurement processes and areas where the contract manual should be improved.
- The audit found sufficient evidence to demonstrate the appropriateness of project alliancing for the procurement of the dredging component of the project.
- The three non-alliance contracts examined were delivered within processes that promoted a value for money outcome.
- The principles and processes the corporation used to secure an alliance partner were close to those documented in Treasury's alliance guidelines.
- The coverage and detail of the documents recording the process followed in securing an alliance partner should be improved.

### Key recommendations

The corporation should:

- improve the contract manual during its planned review of procurement processes (**Recommendation 5.1**)
- document the lessons learnt from the channel deepening alliance in an executive completion report (**Recommendation 5.2**).

## 5.1 Background

The scale and complexity of the channel deepening project (CDP) and the diverse range of works required for its successful completion presented the Port of Melbourne Corporation (the corporation) with a procurement challenge. The corporation had to match the best form of procurement to each work type, while complying with contracting guidelines and demonstrating that this route represented value for money.

The most critical part of the project—the dredging of deeper channels and the protection of underwater utilities—took the form of an alliance agreement. This contract accounts for around half of the total estimated project expenditure.

Figure 5A sets out the key aspects of an alliance agreement.

**Figure 5A**  
**Key aspects of an alliance agreement**

A project alliance is a commercial/legal framework between a department, agency or government-backed enterprise as ‘owner participant’ and one or more private sector ‘service providers’ or ‘non-owner participants’ for delivering capital works projects, characterised by:

- collective sharing of (nearly) all project risks
- no fault, no blame and no dispute between the alliance participants
- payment of non-owner participants for their services under a ‘3-limb’ compensation model comprising:
  - reimbursement of project costs on a 100 per cent open book basis
  - a fee to cover corporate overheads and normal profits
  - a gain share/pain share regime where the rewards of outstanding performance and the pain of poor performance are shared equitably among all alliance participants.
- unanimous principle-based decision-making on all key project issues
- an integrated project team selected on the basis of best person for each position.

Source: Department of Treasury and Finance, *Project Alliances Practitioners’ Guide*, p2.

The corporation entered into other arrangements to cover the remaining capital works and the development, monitoring and communication of the project.

The audit focused on examining the alliance agreement but complemented this analysis by reviewing a selection of the remaining contracts, including:

- the consultancy to assist the corporation in assembling the supplementary environment effects statement
- the construction contract to upgrade shipping berths
- the contract to provide external communications.

These contracts were examined to determine whether the corporation had:

- complied with the relevant contracting standards and guidelines
- demonstrated that the contracts provided value for money.

## 5.2 Complying with contracting guidelines

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### 5.2.1 The corporation's procurement policy

The corporation's procurement policy and processes were sound and consistent with the required standards.

While the corporation, as a statutory authority, is not subject to the Victorian Government Purchasing Board (VGPB) policies, its policy and processes were consistent with the VGPB policies. Specifically the corporation's procurement policy:

- included as an objective the requirement to obtain value for money
- clearly established thresholds for quotes and tender processes
- was linked to delegation levels
- included an exemption process
- established minimum documentation requirements.

### 5.2.2 Applying the procurement policy

The audit found that the corporation had correctly applied its procurement policy to the alliance agreement and to the three other contracts reviewed.

The processes applied to find an alliance partner to deepen the port's shipping channels were examined. A review of the procurement documentation and interviews with corporation personnel showed that the corporation had:

- appointed a probity advisor to advise the corporation during the process
- selected a panel that included representatives with an understanding of the industry, government and the technical aspects of the project
- assembled independent and specialist technical advice to inform the panel
- set clear selection criteria and weightings to determine the short-listed tenderers
- applied the selection criteria to short list two of the six initial tenderers
- conducted workshops and due diligence testing to determine which of the final two companies it should appoint as the alliance partner.

Examination of a further three contracts also confirmed that the corporation had applied its procurement policy.

### 5.2.3 Improving the corporation's contract manual

The audit found some variation in the way the corporation conducted elements of its procurement processes. Following this observation the corporation provided access to its online contract tracking system and a contract management manual.

The review of the manual identified the following areas for improvement:

- several of the manual references were out of date and need to be updated
- the provision of extra information to tenderers in response to questions is not addressed
- no reference is made to managing potential conflicts of interest of panel members

- the term 'superintendent' is defined as a role for a corporation employee that demands independence, but does not explain how the inevitable conflict within this description will be managed.

The corporation will review its contract manual in the coming year and we recommend that the review addresses these issues.

## 5.3 Demonstrating value for money

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### 5.3.1 Choosing the procurement form

In the Department of Treasury and Finance's (Treasury's) *Practitioners' Guide to Strategic Procurement*, value for money involves achieving the government's service objectives at good market prices on a whole-of-life basis. These objectives included the delivery of services of the required type and quality and the acceptable management of project risks.

For many projects, value for money is best served through a process where competing companies bid against each other to deliver well-defined services, while being clear about how the project risks will be managed. The commissioning agency can compare prices, approaches and deliverables and decide which bid provides value for money.

This type of competition works where:

- there is genuine competition, with many, capable bidders who are willing to compete with each other
- the management of significant risks can be resolved during the bidding process.

There are situations where agencies may have good reason for choosing an alternative procurement route. This situation may apply where the best way of completing a project is unknown and resolving this issue requires a significant investment. In this case, competitive, fixed-price bids will include a large allowance to cover the risk that the proposed approach might fail.

Under these circumstances, choosing a partner with whom to develop the best solution may be a better option. In going down this route, an agency needs to put in place processes that substitute for the competitive tension of fixed-price, competitive bidding.

#### Criteria for assessing value for money

Treasury's *Project Alliancing Practitioners' Guide* documents a good practice approach to alliance contracting. While the guide postdates the alliance contract, the final business case stated that the alliance was consistent with the guidelines. The dredging procurement process was analysed against the guide's recommended procedures.

In examining the procurement audit examined whether the corporation had:

- demonstrated the appropriateness of this type of procurement to the dredging component of the project



- put in place the processes recommended in the guide to deliver value for money from this type of procurement.

### 5.3.2 Demonstrating that an alliance was appropriate

The nature of the dredging risks and the structure of the worldwide dredging industry made some form of alliance the most likely procurement route.

The practitioners' guide that postdated the dredging procurement described a three-step process to the alliancing decision:

- step 1: 'primary tests' to demonstrate the appropriateness of alliancing
- step 2: a comparative analysis of alternative procurement methods, including different alliancing options
- step 3: supplementary analysis where project alliancing is preferred but not by a clear margin.

#### The appropriateness of alliancing for the channel dredging

There was sufficient evidence to demonstrate the appropriateness of project alliancing for the procurement of the dredging component of the project.

The technical challenges of dredging the entrance to Port Phillip Bay without the use of explosives influenced the corporation's thinking about the procurement options for the channel dredging. The documentation reviewed made it clear that there was great uncertainty around a viable solution and the need for research and innovation.

The corporation engaged with all six major dredging companies across the world. The industry is small and very competitive. Each company is very protective of its intellectual property. The documents reviewed indicated that the companies were unlikely to commit to the necessary research if they were not guaranteed the dredging work that followed.

These factors meant some form of alliance was the preferred procurement route.

However, there was no documented analysis of the procurement options. While the arguments for an alliance are compelling this analysis should have shown the basis for the decision and shown what alliancing variants the corporation had considered.

### 5.3.3 Securing an alliance agreement

The audit found that principles and processes the corporation used to secure an alliance partner followed closely those documented in Treasury's alliance guidelines.

Audit identified positive aspects of the alliance procurement and also some areas for improvement.

#### Procurement positives

The procurement process included the following positive attributes:

- a structured and methodical selection process with clear selection criteria

- a staged selection process to determine the best dredging partner, including:
  - initial expressions of interest from six firms
  - detailed workshops with the two best tenderers to determine the deal structure and maintain some competitive tension
- a risk and reward structure that conformed to the principles within Treasury's guidelines and provided incentives to deliver the project on time and within budget while attaining key environmental and stakeholder goals
- once down to a preferred partner the corporation applied processes to:
  - validate cost, profit and overhead estimates
  - rigorously verify expenditure.

## Areas for improvement

### *Record keeping*

The coverage and detail of the documents recording the process followed in securing an alliance partner while adequate lacked completeness. For example, the corporation could not provide documents:

- explaining how the corporation determined the selection criteria weightings for the alliance procurement
- showing an analysis of the procurement options before the decision to proceed with an alliance agreement
- describing the negotiations that led to the final deal structure and commercial position.

The corporation maintained a degree of competitive tension up to the selection of the preferred partner. However, the documentation was not sufficient to demonstrate how the alliance partners reached the final, negotiated outcome. For example, the 'pain gain' regime shifted as a result of the negotiations but only the start point and the final resolution were documented.

### *Completing a procurement evaluation report*

Treasury's guidelines require the progressive development of a value for money report, reconciling actual and planned costs and documenting innovations, problems, risks and opportunities. The regular alliance reports provided the corporation with this information.

The guidelines also suggest that the alliance document an executive completion report as a discretionary item once the project has been completed. This report is in addition to a final value for money report and should take a wider view of the project and:

- demonstrate how the delivery approach improved performance and helped to exploit opportunities and avoid risks
- identify areas for improvement and accompanying recommendations.

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## **Recommendations**

The corporation should:

- 5.1 improve the contract manual during its planned review of procurement processes
  - 5.2 document the lessons learnt from the channel deepening alliance in an executive completion report.
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# 6 Monitoring and managing environmental risks

## At a glance

### Background

The public interest in safeguarding the bay environment emerged as a key issue during the environmental assessment process. The Victorian Government gave in-principle support for the project, provided that it satisfied the environmental and other requirements.

The audit examined the management of the environmental risks by asking whether the Port of Melbourne Corporation (the corporation) had:

- included the conditions from the ministerial approvals in a revised plan to manage the environmental impacts
- addressed the requirements of the plan since dredging started in early 2008
- adequately responded to the environmental incidents since the project start.

### Findings

- The corporation had included the approval conditions into the project design and the plan to manage the project's environmental impacts.
- To date, the corporation has delivered the project according to the plan's:
  - project delivery standards
  - training, contractor management, communications and management review processes.
- To date, the arrangements for reporting on, and responding to, environmental incidents have been effective.

## 6.1 Background

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The importance of Port Phillip Bay goes beyond its role as a passageway for cargo vessels entering and leaving the Port of Melbourne. Many Victorians rely on the bay for their livelihoods, either from fishing or commercial tourism. Victorians value the bay environment as a place for leisure and recreation, and for its rich variety of plants and animals.

The public interest in safeguarding the bay environment emerged as a key issue during the environmental assessment process. The government supported the project subject to it meeting the required environmental approvals.

The five-year environmental assessment process culminated in October 2007, with the Minister for Planning's assessment determining that the project could proceed on an environmentally acceptable basis. The minister reflected the panel's conclusions by recommending some further amendments to the project.

Subsequently the Minister for Environment and Climate Change and the Commonwealth Minister for Environment Heritage and the Arts approved the project. These approvals were subject to conditions including amendment of the Environmental Management Plan.

The audit examined the management of the environmental risks by asking whether the corporation had:

- complied with the conditions from the ministerial approvals
- addressed the approval requirements since dredging started in early 2008
- adequately responded to the environmental incidents that have happened since the project start.

## 6.2 Complying with the ministerial approvals

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### 6.2.1 The approval conditions

The state and Commonwealth ministers approved the project subject to a number of conditions. Delivery of the project in accordance with the Environmental Management Plan (environmental plan) was a key approval condition for both ministers. Further conditions included:

- changes to finetune the environmental plan, such as the inclusion of an appendix showing how it would address matters of national environmental significance
- additional processes for consultation in the event that the corporation amended the plan
- additional funding for further environmental monitoring and recovery programs.

The audit reviewed the approved version of the plan and examined other documentary evidence to confirm that the corporation had incorporated the ministerial conditions.

## 6.2.2 The corporation's response to these conditions

The audit found that the corporation had included the approval conditions into the project design and the plan to manage the project's environmental impacts.

It was confirmed that the corporation had:

- amended the plan and designed processes to implement these amendments
- formed consultation processes to be activated if the Environmental Management Plan had to be amended
- provided funding for additional environmental monitoring and recovery programs.

## 6.3 Addressing the environmental plan

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### 6.3.1 Plan implementation and compliance monitoring

#### Implementation and monitoring

The plan is a critical part of the corporation's system for managing the environmental risks of the project. In terms of composition it includes:

- a core set of 58 project environmental controls that prescribe when, where and how the project works should be delivered
- management processes supporting the successful delivery of the standards, including training, management of contractors, communications and internal management reviews.

The corporation is responsible for implementing the plan, monitoring the project's impacts and publishing a quarterly report on its performance against the plan.

#### Independent review and audit

The government established the Office of the Environmental Monitor (the environmental monitor) to provide an independent view on the project's environmental performance. The environmental monitor's role is to scrutinise environmental management reports, evaluate environmental management performance, including matters raised by stakeholders, and advise the corporation and relevant ministers on the project's compliance with the Environmental Management Plan. The environmental monitor's term runs to 31 December 2011.

The environmental monitor determines compliance by:

- examining the data from the programs set up to monitor to the bay environment
- investigating issues raised by the public, including data on the bay
- reviewing the corporation's reports
- commissioning independent audits and expert advice
- conducting investigations.

## Auditing the environmental plan

As a starting point, a comprehensive list of the plan's requirements was identified and documented. To determine whether the corporation had addressed the project delivery standards and followed the supporting management processes the audit reviewed:

- the corporation's internal documentation about the plan's processes and procedures
- the quarterly reports produced by the corporation and the environmental monitor
- the findings of the monitor's independent audits covering the environmental plan, the dredging of the entrance to Port Phillip Bay and the corporation's annual report
- the environmental incidents associated with the project and whether, to date, these outcomes verified that the management system had worked as intended.

### 6.3.2 Compliance with the plan's delivery standards

The audit found that, to date, the corporation has delivered the project according to the plan's project delivery standards.

The corporation's and environmental monitor's quarterly reporting between February and October 2008 showed that overall the corporation had delivered the project in line with the standards. The one exception was the partial non-compliance with the dredging clean-up requirements at the bay entrance on one occasion.

The environmental monitor published the results of its audit on the Environmental Management Plan in December 2008. We verified that the approach to the audit of the 58 controls was sound by examining the audit documentation and interviewing staff at the office of the environmental monitor responsible for overseeing the audit.

The monitor's audit concluded that 'there was a high level of compliance with the requirements, and the non-compliance identified was of a minor nature and not likely to give rise to a serious, adverse environmental effect'.<sup>1</sup> The monitor's audit also found:

- that the corporation's response to the identified non-compliance demonstrated the effectiveness of the monitoring and response processes
- five controls where the corporation could not demonstrate compliance because the project had not advanced to the stage where these requirements had been activated.

The environmental monitor published its first annual review of the project in April 2009, covering the period from when dredging started in February 2008 to 31 March 2009.

The executive summary stated that:

- 'with the completion of the first year of the operational stage of the project, the office was satisfied the project complied with the rules set by the *Environmental Management Plan*'

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<sup>1</sup> Office of the Environmental Monitor (2009), Annual review no.1 – March 2009, reporting period: 8 February 2008 to 31 March 2009.



- 'with the completion of the first of four years of bay wide monitoring for the project, the office was satisfied that the bay's good health as a whole remained consistent with that seen over the previous decade'.

### 6.3.3 Compliance with the management processes

#### Environmental Management Plan's management processes

These processes are separate from the plan's 58 delivery controls. The environmental monitor's independent audits did not cover these management processes. This audit however examined the corporation's records and verified that adequate processes had been designed and implemented to meet these requirements.

#### Overall finding

The corporation had delivered the project according to the training, contractor management, communications and management review processes prescribed in the plan.

#### *Training*

It is critical that the people working on the project are aware of their environmental management responsibilities and this is why the plan included training requirements.

Audit found that the corporation had delivered training courses to inform project team members of their responsibilities and to equip them for their specific roles. These courses included:

- a mandatory induction course for all staff explaining the nature and importance of the environmental requirements
- specialist training on specific areas important to environmental management, such as the identification of heritage sites and whale and dolphin spotting and protection.

#### *Contractor management*

The channel deepening project involves the completion of a range of works by several contracting firms. The most valuable and sensitive contract is the alliance agreement for the dredging works. All contractors are required to prepare a construction environmental management plan. This should describe how they will address the parts of the plan relevant to their work component.

The construction environmental management plans for the alliance and for the contract to construct navigational aids were examined as part of the audit and found to adequately address the environmental management planning requirements.

### *Communications*

The environmental plan sets out requirements for communicating with groups external to the project. Given the level of public interest it is essential that communications on environmental issues are regular, timely, clear and accurate. Specifically the corporation must establish and keep to communications protocols so that external parties are aware of environmental incidents and changes to the project.

Audit found that the corporation had established and applied communications processes in accordance with the environmental plan. The corporation had:

- provided daily updates of project activity through the project website
- established and regularly convened two stakeholder groups
- published regular newsletters
- held regular information sessions
- scheduled weekly media conferences
- published notices to mariners about project activities that might affect shipping operations.

### *Management review*

An effective environmental management system requires the timely and thorough review of operations and the ability to quickly respond to potential risks. The environmental plan prescribed processes designed to promote proactive risk management. The audit examined the corporation's management review processes and compared them to the plan's requirements.

Audit found that management review processes have been applied according to the requirements of the environmental plan. The corporation has convened regular management review meetings to monitor environmental outcomes. It also convened two additional meetings to review emerging environmental issues. The matters arising from these meetings were made public and addressed in subsequent meetings.

## 6.4 Assessing the response to environmental incidents

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### 6.4.1 Background

The evidence indicates that, as at early 2009, the corporation had complied with the requirements of the environmental plan, with the exception of a single, partial non-compliance. However, processes complied with are of little value if the outcomes are poor. In this section, the outcomes of environmental management practices are considered through a review of the environmental incidents up to early 2009.

The plan commits to timely and clear reporting on environmental incidents and hazards. Environmental incidents are defined as events that have caused, or have the potential to cause environmental damage.

## 6.4.2 Overall finding

To date, the arrangements for detecting, reporting on and responding to environmental incidents have been effective.

## 6.4.3 Specific incident findings

The corporation has provided notification of 15 environmental incidents occurring between February 2008 and 10 February 2009. These incidents comprised:

- one partial non-compliance with the dredging clean up requirements at the entrance to Port Phillip Bay
- a single discharge of between 800 and 900 litres of hydraulic fluid from the Queen of the Netherlands
- the death of a seal during an environmental monitoring exercise conducted by the Department of Primary Industries
- the identification of an environmental hazard during land-based project works at Yarraville
- the environmental limit for turbidity being exceeded over a 24-hour period because of storms affecting the bay
- ten small diesel and hydraulic fluid spills into Port Phillip Bay or Yarra River.

### Partial non-compliance with dredging clean-up requirements

Project delivery control 42 applies to the clean-up requirements when dredging the entrance to Port Phillip Bay. For this incident the clean up should have been run for 18 hours and should have covered 90 per cent of the dredged area.

The time line of the incident was as follows:

- on 20 July 2008 the Queen of the Netherlands' systems determined that the clean-up activities of the preceding 18 hours had met the environmental plan requirements
- on 23 July the alliance project's office-based quality controls flagged the possibility that the clean up had not covered 90 per cent of the affected area due to computer error in the assessment equipment
- on 30 July, having verified this finding, the corporation notified the regulator, the environmental monitor and relevant agencies of this non-compliance
- on 31 July a further clean-up met the required standard.

The corporation subsequently improved the clean-up procedures by:

- requiring office-based verification of a successful clean-up before starting the next dredging operation
- providing additional training in the use of the vessel-based systems used to verify the clean-up coverage.

In summary, the corporation met its obligations by detecting the problem, completing the required notifications, addressing the non-compliance and introducing system changes to mitigate the risks of future non-compliance.

## Discharge of hydraulic fluid from the Queen of the Netherlands

On 30 August 2008 the Queen of the Netherlands discharged between 800 and 900 litres of hydraulic fluid while operating just outside the entrance to Port Phillip Bay. In response to the incident the corporation:

- notified the regulator, the environmental monitor and other relevant agencies
- completed an investigation into the cause and impacts of the incident and found that:
  - an underwater hose had ruptured to cause the leak
  - the environmental impacts were likely to be small because the prevailing wind and ebb tide had rapidly dispersed the fluid, which was biodegradable and pushed it away from Port Phillip Bay.

The environmental monitor found that the corporation had acted in accordance with the environmental plan. The corporation is required to respond to these incidents in accordance with the *Victorian Marine Pollution Contingency Plan*. The corporation addressed its obligation in this instance.

## Death of a seal during environmental monitoring

The corporation reported that on 12 July 2008, two seals had become entangled in a trawl net used to monitor anchovy numbers in Port Phillip Bay. One seal died. A Department of Primary Industries' incident report recommended changes to the sampling methodology. The department adopted these changes in advance of the 2009 trawl.

## The identification of an environmental hazard at Yarraville

The corporation encountered contaminated material that became hazardous when it was excavated and exposed to the air. This happened on 10 November 2008 during works at Yarraville and the corporation notified the relevant agencies of the hazard and activated its emergency response procedures. The response prevented any damage or injury.

The corporation provided notification as required under the environmental plan and has acted in accordance with the relevant protocols.

## Environmental limit for turbidity exceeded over a 24-hour period

On 22–23 November 2008, the turbidity level at the mouth of the Yarra was found to have risen above the environmental limit. Within 24 hours the turbidity level fell back below the environmental limit. The corporation promptly notified the regulator, the environmental monitor and relevant agencies in accordance with the provisions of the environmental plan. At the time, the two major dredges were not operating in the bay and the two smaller vessels were dredging over two kilometres from the location of the measurement. The environmental monitor attributed the incident to the storms that had preceded the observation.

### Ten incidents with small diesel or hydraulic fluid discharges

The corporation notified the environmental monitor of 10 incidents in June, August, October, December 2008 and January 2009, when vessels leaked small amounts of diesel or hydraulic fluid into the Yarra or Port Phillip Bay.

The corporation is required to respond to these incidents in accordance with the *Victorian Marine Pollution Contingency Plan*. In all of these incidents the corporation addressed its obligations.

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# 7 Delivering the channel deepening project

## At a glance

### Background

A good plan translates into an effective project when actions are implemented as intended and achieve the required outcomes. This section examines whether the Port of Melbourne Corporation (the corporation) has:

- applied processes to adequately monitor the project implementation
- to date, delivered the project as scheduled and within the allocated budget
- developed adequate measures to demonstrate the realisation of the project's benefits after completion.

### Findings

- The corporation has applied adequate processes to monitor progress in terms of:
  - outputs, and particularly compliance with the environmental requirements
  - schedule
  - budget.
- The project is on track to finish within the approved time frame.
- The review of planned and actual expenditure found that the project is on track for completion within the approved budget of \$969 million.
- The corporation has defined adequate measures of success for most aspects of the project.

### Recommendation

- The corporation should complement its proposed measures of success by showing how larger vessels have made use of the additional depth provided by the project (**Recommendation 7.1**).

## 7.1 Background

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A good plan translates into an effective project when actions are implemented as intended and achieve the required outcomes. This section examines whether the corporation has:

- applied processes to adequately monitor the project implementation
- to date, delivered the project as scheduled and within the allocated budget
- developed adequate measures to demonstrate the realisation of the project's benefits after completion.

## 7.2 Project monitoring and reporting processes

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The audit found that the Port of Melbourne Corporation (the corporation) had applied adequate processes to monitor progress in terms of:

- outputs, and particularly compliance with the environmental requirements
- schedule
- budget.

### 7.2.1 Tracking progress against outputs

There is comprehensive and timely reporting within the corporation to its board, and to the environmental monitor and other stakeholders. The audit examined the corporation's internal records, reports to the board and reports to external parties.

An audit of the corporation's reporting mechanisms completed by external consultants also confirmed our findings on the adequacy of the corporation's monitoring and reporting processes.

Part 6 established that to date the corporation, except for one partial non-compliance, has delivered the project in accordance with the Environmental Management Plan.

### 7.2.2 Tracking progress against the schedule

The audit examined the corporation's scheduling processes and examined the reports produced to track progress. Key project milestones, including those relating to the Environmental Management Plan, were built in to the scheduling system so that scheduling decisions take account of these constraints.

The schedule is regularly reviewed and reported to senior management and the board. Any changes to the schedule are promptly communicated through the management structure to the corporation board.



### 7.2.3 Tracking progress against the budget

The audit found that the corporation had put in place adequate processes to track expenditure against the project budget.

Audit reviewed the corporation's financial management database and accessed the monthly financial reports presented to the board. The corporation's process governing verification and payment of project expenses was also reviewed.

## 7.3 Performance against schedule and budget

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### 7.3.1 Progress against schedule

The project is on track to complete within the approved time frame.

The deadline for project completion is 31 December 2009. The corporation maintains a project summary schedule describing progress against planned time lines. The schedule for 4 February 2009 expects project completion by the end of October 2009, more than two months ahead of the deadline, with contingency to 31 December 2009.

### 7.3.2 Expenditure against budget

The review of planned and actual expenditure found that the project is on track for completion within the approved budget of \$969 million.

For the expenditure under the alliance contract, the corporation has a dedicated financial system and personnel to reconcile actual expense with the direct cost estimate. The alliance produces a monthly report on the expenditure that is provided to the alliance executive team.

To date, cost savings mean the project is likely to be delivered within the approved budget of \$969 million.

## 7.4 Measuring the project benefits

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The corporation had defined adequate measures of success for most aspects of the project. However, these should be complemented by measures to show how larger vessels had made use of the additional channel depth provided by the project.

### 7.4.1 Project outputs, impacts and outcomes

The critical output of the project is the provision of all-tides access to the port for vessels with a draught up to 14 metres. This change is expected to result in the better utilisation of larger, more heavily loaded vessels deployed on the trade routes serving Melbourne and a reduction in the unit operational costs of shipping companies. This is the most direct, measurable impact of the project.

The expected outcomes of these operational efficiencies are:

- lower import and export costs as shipping lines pass some of the cost savings to their customers
- increased trade growth by making the port more competitive.

It is not possible to directly measure trade volumes or the costs of importing and exporting compared to the situation without deepened channels. The best that can be achieved is to track Melbourne’s costs and trade growth compared with its competitors as an indication of relative standing.

## 7.4.2 The corporation’s measures of success

Figure 7A describes how, based on the final business case, the corporation will measure the success of the project and the realisation of the project benefits.

**Figure 7A**  
**Measurements of the project’s success**

Project objective	Critical success factor	Measurement
To deliver the project on time, on budget and in compliance with regulative standards	14-metre all tides access to Swanson Dock by end of 2009	Depth of access to docks from surveys
	To meet or better the approved project budget	Independent audit of actual expenditure
	Compliance with legislation	Achievement of targets in the Environmental Management Plan
Provision of innovative and high-quality facilities and services	Environment created that optimises investment in port facilities and encourages private sector participation	Container crane rates compared to other major Australian ports
	Develop, influence and deliver long-term plans for port development, access and support services	Investment by private operators – rolling average
Increase trade and trade related business facilitation and expansion by delivering the project	Promote and market port facilities and services to existing and potential users.	Trade volume growth
	Enhance the port's competitive advantage and maintain the port's premier position	Charges per twenty tonne-equivalent-unit (TEU) compared with Sydney
	Facilitate trade growth and achieve required return on investment	Melbourne interface costs per TEU compared with Sydney

Source: VAGO based on the final business case.

In reviewing these measures the audit found that:

- they will help to assess the success of many aspects of the project, including the key project outputs
- the critical success factor on the development of long-term plans, does not have an accompanying measure
- they need to be supplemented with information showing how the additional channel depth has been used.

Measuring how shipping lines make use of the additional channel depth provides the most direct and relevant measure of the project's impact. The corporation already collects information on the size of the ships using the port and their design and actual draught. The audit recommends adding this as a critical success factor with accompanying measures.

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## **Recommendation**

The corporation should:

- 7.1 complement its proposed measures of success by showing how larger vessels have made use of the additional depth provided by the project and these measures should include:
- the maximum draught of vessels using the port
  - the actual draught of vessels on entry and when leaving the port.
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# Auditor-General's reports

## Reports tabled during 2008–09

Report title	Date tabled
Managing Complaints Against Ticket Inspectors (2008–09:1)	July 2008
Records Management Checklist: A Tool to Improve Records Management (2008–09:2)	July 2008
Investing Smarter in Public Sector ICT: Turning Principles into Practice (2008–09:3)	July 2008
Private Practice Arrangements in Health Services (2008–09:4)	October 2008
Working with Children Check (2008–09:5)	October 2008
CASES21 (2008–09:6)	October 2008
School Buildings: Planning, Maintenance and Renewal (2008–09:7)	November 2008
Managing Acute Patient Flows (2008–09:8)	November 2008
Biosecurity Incidents: Planning and Risk Management for Livestock Diseases (2008–09:9)	November 2008
Enforcement of Planning Permits (2008-09:10)	November 2008
Auditor-General's Report on the Annual Financial Report of the State of Victoria, 2007–08 (2008–09:11)	November 2008
Local Government: Results of the 2007–08 Audits (2008–09:12)	November 2008
Management of the Multi-Purpose Taxi Program (2008–09:13)	December 2008
Results of Audits for Entities with 30 June 2008 Balance Dates (2008–09:14)	December 2008
Preparedness to Respond to Terrorism Incidents: Essential services and critical infrastructure (2008–09:15)	January 2009
Literacy and Numeracy Achievement (2008–09:16)	February 2009
Administration of the <i>Flora and Fauna Guarantee Act 1988</i> (2008–09:17)	April 2009
Access to Public Hospitals: Measuring Performance (2008–09:18)	April 2009
Management of School Funds (2008–09:19)	May 2009
The New Royal Children's Hospital—a public private partnership (2008–09:20)	May 2009

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