

# VAGO

Victorian Auditor-General's Office



## Protecting Victoria's Coastal Assets

March 2018

Independent assurance report to Parliament  
2017–18: 14





# Protecting Victoria's Coastal Assets

**Independent assurance report to Parliament**

Ordered to be published

VICTORIAN GOVERNMENT PRINTER

March 2018

PP no 379, Session 2014–18

This report is printed on Monza Recycled paper. Monza Recycled is certified Carbon Neutral by The Carbon Reduction Institute (CRI) in accordance with the global Greenhouse Gas Protocol and ISO 14040 framework. The Lifecycle Analysis for Monza Recycled is cradle to grave including Scopes 1, 2 and 3. It has FSC Mix Certification combined with 55% recycled content.

ISBN 978 1 925678 13 0



The Hon Bruce Atkinson MLC  
President  
Legislative Council  
Parliament House  
Melbourne

The Hon Colin Brooks MP  
Speaker  
Legislative Assembly  
Parliament House  
Melbourne

Dear Presiding Officers

Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my report  
*Protecting Victoria's Coastal Assets*.

Yours faithfully

A handwritten signature in black ink, appearing to read "Andrew Greaves", is written over a faint, light blue circular stamp. The signature is fluid and cursive.

Andrew Greaves  
*Auditor-General*

29 March 2018



# Contents

Audit overview .....	7
Conclusion .....	8
Findings.....	9
Recommendations.....	19
Responses to recommendations .....	20
1 Audit context .....	21
1.1 Victoria’s coastal assets .....	21
1.2 <i>Asset Management Accountability Framework</i> .....	22
1.3 Managing risks to coastal assets .....	23
1.4 Governance and oversight.....	26
1.5 Reform of public land management.....	29
1.6 Why this audit is important.....	31
1.7 What this audit examined and how .....	31
1.8 Report structure .....	32
2 Local management of coastal assets.....	33
2.1 Conclusion .....	33
2.2 Coastal assets and their management .....	34
2.3 Managing risks to coastal assets .....	42
2.4 Agency performance in managing assets .....	49
3 Managing future risks to coastal assets .....	53
3.1 Conclusion .....	54
3.2 Identified future risks .....	54
3.3 Responding to future risks.....	60
3.4 Focus for future action .....	68
4 Funding asset protection.....	69
4.1 Conclusion .....	69
4.2 Asset funding.....	70
4.3 Transparency of expenditure to protect coastal assets .....	76
5 Statewide management and oversight .....	79
5.1 Conclusion .....	79
5.2 Resourcing reforms .....	79
5.3 Governance and oversight of the coast.....	80
Appendix A. <i>Audit Act 1994</i> section 16—submissions and comments .....	87
Appendix B. Audited agency roles and responsibilities for asset management.....	109

## Acronyms

AMAF	Asset Management Accountability Framework
CoM	Committee of management
DEDJTR	Department of Economic Development, Jobs, Transport and Resources
DELWP	Department of Environment, Land, Water and Planning
DEPI	Department of Environment and Primary Industries
DSE	Department of Sustainability and Environment
EGSC	East Gippsland Shire Council
GORCC	Great Ocean Road Coast Committee
GP	Gippsland Ports
ISO 31000	AS/NZS ISO 31000:2009 <i>Risk management—Principles and guidelines</i>
LCHA	Local coastal hazard assessment
MPSC	Mornington Peninsula Shire Council
NCCARF	National Climate Change Adaptation Research Facility
PV	Parks Victoria
VAGO	Victorian Auditor-General's Office
VCC	Victorian Coastal Council



# Audit overview

Many Victorians live, work and play close to the coast. It is home to over one million people—19 per cent of the state’s population—and four out of five Victorians visit the coast every year to enjoy a wide variety of recreational pursuits.

The coast is also the destination for a growing domestic, national and international tourist market, with nature-based tourism one of Victoria’s key growth industries and a major contributor to our economy. In 2015–16, tourism along the Great Ocean Road and the Mornington Peninsula reportedly generated \$795 million and \$700 million respectively.

**Coastal inundation** is the temporary or permanent flooding of low-lying areas caused by high sea level events, with or without the impacts of rainfall in coastal catchments.

Built and natural coastal assets provide valuable services and add value to the environment, the economy and the community. When natural and built structures, such as sea walls, beaches and dunes are intact, they protect against coastal inundation and erosion hazards. This protection is important for land and water based coastal assets including critical infrastructure, such as telecommunications, drainage and sewerage networks.

Managing and, where needed, safeguarding these protective structures is as important as managing and protecting the water and land based coastal assets they shield. While protecting our coastal assets is important now, it will become even more so with the predicted effects of climate change and population growth.

In Victoria, 96 per cent of the coast is public land overseen by the Department of Environment, Land, Water and Planning (DELWP):

- Parks Victoria (PV) manages approximately 70 per cent, the majority of which requires a high level of conservation protection.
- Councils, local port managers and committees of management (CoM) manage a further 20 per cent reserved for recreation and conservation purposes.
- DELWP directly manages the remaining 6 per cent, which is not reserved for a particular purpose.

We audited seven agencies that represent coastal managers of different types and sizes. All have responsibilities for managing significant coastal assets and coastline areas at risk of inundation and erosion. The agencies were:

- DELWP
- PV
- Mornington Peninsula Shire Council (MPSC)
- East Gippsland Shire Council (EGSC)
- Gippsland Ports (GP)
- Great Ocean Road Coast Committee (GORCC)
- VicRoads.

We focused on how well these agencies are managing and safeguarding their coastal assets, including:

- coastal protection structures—natural and built
- maritime assets—including jetties, piers, wharves and boat ramps
- access assets—including stairs and boardwalks
- natural assets—including beaches, biodiversity, cliffs, coastal parks, sand dunes, coastal plants and animals.

Good asset management starts with agencies knowing the number, type and condition of their assets and understanding the hazards and risks facing them. Agencies can use this knowledge to prioritise asset works, to make the best use of available funding. It also requires skilled and adequately resourced managers.

---

## Conclusion

A common theme in many of our audits that examine infrastructure is that agencies generally are not managing their assets as well as they need to. This is the case for Victoria's coastal assets—agencies are not managing their assets adequately to protect them from current and future hazards.

There is a real risk, in the near future, of Victorians losing valued assets and infrastructure along the coast. This is partly because not all agencies have complete knowledge of all the assets for which they are accountable, or of the assets' age and condition. Targeting of scarce funding also does not properly consider risks, and significant unfunded maintenance backlogs remain unaddressed.

Compounding this, poorly integrated planning and fragmented responsibility for coastal assets across agencies of various sizes and capabilities works against a cohesive and strategic perspective. Such a perspective is necessary for managing the inundation and erosion risks caused by climate change and the pressures of increased population growth now and in the future.

There is a strong case for more top-down management that takes a statewide view of our coastal assets, hazards and risks. While such an approach requires investment in a consolidated asset inventory, it would make it possible to eliminate the inconsistency in management approaches and practices across agencies. It would also promote integrated thinking and serve to better target funding to protect our most valuable built and natural assets.

---

## Findings

Each of the seven audited agencies is engaging in some good on-ground local work to manage and protect coastal assets from current coastal inundation and erosion risks. This work ranges from repairing beach access stairs after storms and rebuilding eroded beaches, to protecting dune vegetation and nesting shorebirds.

However, overall natural and built assets on Victoria's coastline are not being adequately protected. The audited agencies' ability to do this strategically and cost-effectively is limited by weaknesses in their coastal asset management practices and a number of governance and management barriers:

- Coastal assets are not a focus for larger agencies, because they make up only a small subset of agencies' overall asset portfolios.
- The limited knowledge about existing coastal processes, such as wave behaviour and sand movement, and uncertainty about the likely impact of future climate change reduce agencies' ability and confidence to act.
- The need to focus on the safety risks that failing coastal assets may pose diverts agencies' attention or leaves little time for them to consider other risks.
- The lack of a risk management culture means staff consider and respond to risks informally during their daily activities but do not systematically assess risks or document their response activities.

Additional barriers at the state level affecting the management and protection of coastal assets include:

- poor oversight by DELWP across all public coastal areas contributing to overly complex planning and management arrangements
- the skills and capacities of coastal managers not aligning with what is needed to manage and protect assets
- constraints on funding, how revenue is generated, and where and when it can be spent
- the lack of a statewide perspective on what areas are at greatest risk from coastal hazards, as well as on what assets are currently being protected or need to be protected
- the lack of effective guidance and support provided by DELWP to its coastal managers to be effective risk-based asset managers.

## Asset management

We assessed the agencies' asset management approaches and practices against key elements of the Department of Treasury and Finance's *Asset Management Accountability Framework* (AMAF), including its March 2017 Implementation Guidance.

### Asset management practices

Across the audited agencies, a 'fix on fail' approach prevails. Management decisions focus on the assets in poorest condition without considering other important aspects, such as the service the asset provides, its level of use and the risks it faces from hazards, such as coastal inundation and erosion.

Only PV (for its maritime assets), GP and MPSC systematically plan, deliver and regularly review their maintenance programs, making good use of available asset information. The other agencies primarily focus on the assets in worst condition, or simply follow the previous year's maintenance activities. This means the agencies do not use routine maintenance effectively to optimise asset life and keep coastal assets functioning as needed and for longer.

Agencies record different aspects of asset information in different databases and spreadsheets. These systems are not all linked, so they cannot readily use all the information they have to guide their asset management activities. They also make little use of their systems to interrogate the data or use it to inform their asset management practices and decisions.

In the larger agencies we audited, we identified some common reasons for poorer management of coastal assets:

- Coastal assets receive less attention or are not included in the agency's standard asset management practices because other more critical assets have higher priority. Further, assets in inland areas outnumber those in the narrower coastal areas.
- Asset management is not the main focus of the agency's work.
- Agencies rely on staff experience and knowledge instead of applying robust systems and processes to maintain and protect their assets.

Across the audited agencies, funding restrictions and shortfalls limit their ability to manage their assets effectively. For the smaller agencies—GORCC and GP—staff capacity and funding limit opportunities to improve asset management systems and practices.

A number of improvements are underway. DELWP and PV are developing new asset management systems and electronic field tools to improve the management, quality and consistency of the data they collect. MPSC is also developing a new asset information system. VicRoads and PV have reviewed their asset practices and are working to meet AMAF requirements.

## Asset knowledge

There are thousands of built coastal assets across the state, including coastal protection structures, but there is no comprehensive statewide register that records them. Only two of the audited agencies—MPSC and VicRoads—have identified and listed all of their assets.

There is also no inventory of the assets that coastal protection structures are intended to protect. These natural and built assets and critical infrastructure include houses, lifesaving clubs, and sewerage, drainage and telecommunication networks.

No one agency or system collects asset condition information across the entire Victorian coast. Agencies use different asset information systems to store data, which limits their ability to share information and compile a statewide dataset.

## Asset condition

Many of Victoria's coastal assets are approaching the end of their life or are deteriorating.

There is limited information on the condition of coastal assets across the state. Based on the data that the agencies could provide, between 20 and 30 per cent of coastal assets are in poor condition, and between 30 and 50 per cent are estimated to have less than 10 years' useful life remaining.

None of the audited agencies have complete and robust information on the condition of all their coastal assets, although they generally have good knowledge of which are failing. This information gap occurs because they either do not collect condition information on all assets, or their collection methods are not regular, comprehensive and consistent. The agencies rely strongly on visual inspections. With the exception of PV and MPSC, they do not complement these programs with periodic technical and underwater inspections. These are only done on the assets in poorest condition. Technical inspections are expensive but without them agencies cannot proactively identify potential performance failures for some types of assets.

## Risk management

We assessed agencies' risk management practices against the international risk management standard AS/NZS ISO 31000:2009 *Risk management—Principles and guidelines* (ISO 31000). This standard provides the foundation for the state government's risk management guidance and DELWP's 2012 *Victorian Coastal Hazard Guide*.

### Current risks to assets

The audited agencies do not have a good understanding of the current risks to their coastal assets from coastal inundation and erosion.

We identified a fundamental disconnect between the agencies' asset and risk management practices. While all agencies assess risks to individual assets before they undergo major works, only three of the seven have assessed relative risks across their asset portfolios to target their asset management activities and funding.

The agencies' assessments reveal relatively few assets at high risk from coastal inundation and erosion, but the accuracy of these results is uncertain due to the high variability in the quality of the agencies' risk assessment processes.

Limited understanding of risks also stems from critical gaps in coastal hazard knowledge and asset information, which is integral to coastal asset risk assessments. While DELWP and its predecessors have significantly improved coastal hazard data at the statewide level over the last decade, gaps remain, particularly in information specific to local areas, and how multiple and successive hazards may affect an asset over time.

## Risk assessment practices

The quality of the agencies' risk assessments varies, both within each agency and between agencies. This hinders effective statewide prioritisation of funds to treat the highest-risk assets. The assessments vary because agencies:

- do not comprehensively or consistently apply the risk assessment process described in ISO 31000 and the Victorian Managed Insurance Authority's 2016 *Victorian Government Risk Management Framework Practice Guide*
- do not generally use the range of available information to support their assessments, such as information about coastal inundation and erosion hazards, visitor use and levels of service required.

We identified four key reasons for the lack of a strong risk-based approach to agencies' asset management and funding activities:

- Several agencies have a weak risk management culture and capability, or use informal practices for risk assessment, which may result in staff applying agency risk frameworks or approaches inconsistently.
- Except for DELWP and PV, agencies lack staff with the necessary skills and experience in coastal hazard identification and risk assessment.
- DELWP's limited oversight of CoMs' risk assessment and management processes means DELWP does not know whether the committees are regularly and effectively assessing risks to coastal assets.
- DELWP's risk-based guidance is not tailored to the range of capacities and skills of CoMs.

MPSC, GP and GORCC are working on their corporate approach to risk management and plan to apply these improvements to their coastal asset management practices.

## Risk-based funding decisions

The audited agencies are not effectively targeting funding and works to protect coastal assets at the greatest risk. Instead, funding decisions are mainly based on asset failure, poor condition or the need to renew assets as they near end of life. Agencies seldom, or inconsistently, document how work priorities and funding decisions relate to the service the asset provides, its value and need, or the level of risk associated with the asset.

Only PV and VicRoads consider risk when prioritising their investment in major works. However, even these agencies fund works for some lower-risk assets ahead of all identified high-risk assets.

DELWP is developing a risk-based decision-making framework to improve the way it prioritises works on coastal protection assets.

## Responding to future risks

Climate change will affect the nature and potential impact of coastal hazards in the future. In particular, rising sea levels and increased storm intensity are predicted to expand and intensify inundation and erosion of coastal assets. Victoria's *Climate Change Act 2017* and *Victoria's Climate Change Adaptation Plan 2017–2020* (the Adaptation Plan), establish the need for agencies to support and deliver actions that will mitigate or adapt to climate change hazards. These are actions designed to make communities' built and natural environments resilient to the predicted impacts of climate change.

While the practices for managing current risks need prompt attention, agencies also need to consider the long lead times required to plan and deliver appropriate responses to future climate change risks.

### Knowledge of climate change risks

There is an incomplete understanding of future climate change risks to Victoria's coastal assets.

Some of the audited agencies—DELWP, PV and VicRoads at a statewide level, and GORCC at a local level—have assessed future risks to their coastal assets, based on how climate change is predicted to impact existing coastal hazards. The other agencies consider climate change risks as part of individual asset and risk management activities, but they have not systematically assessed future risks across their asset portfolios.

In 2015 and 2017, DELWP's assessments of 17 significant types of coastal assets identified that many would be at high risk from coastal inundation and erosion hazards by 2040 and most by 2100.

DELWP's work raises significant concerns about Victoria's ability to adequately protect its coastal assets. None of the existing risk controls were considered likely to effectively mitigate these risks, and actions to address the risks have been slow and limited.

DELWP's 2017 assessment contained a more comprehensive spatial model and hazard information. DELWP plans to make the modelling and data available to coastal managers in 2018. It has also started a project to improve the comprehensiveness of its forecasting and climate change projections by collecting wave data.

### Agency actions to address climate change risks

Across the audited agencies, there are limited examples of strategic and systematic implementation of actions to respond to climate change. Further, agencies' actions to adapt assets for climate change are largely ad hoc.

All of the audited agencies, even those that have not systematically assessed climate change risks across all their coastal assets, demonstrate that they consider climate change risks. For example, these risks are considered when planning major upgrades for individual assets, renewal or replacement and through strategic and operational risk assessments.

None of the four audited agencies that assessed climate change risks across all their coastal assets have embedded the outcomes of these assessments into planning and management across their portfolios.

The audited agencies do not effectively stage or adapt their risk responses over time. This is primarily because they do not have the triggers and monitoring information needed to identify when to implement or revise their risk treatment approaches.

### The role of land use planning in managing future risks

While planning schemes have limited application for protecting developed areas from coastal hazards, they do regulate future coastal land use and development. In this way, they are a key tool for reducing communities' exposure to coastal hazards and mitigating the impacts of inundation and erosion.

Coastal councils have not used land use planning controls or planning scheme overlays consistently or to their full potential, to protect coastal assets from current hazards and the predicted impacts of rising sea levels as a result of climate change. Only three of the 19 coastal councils have controls in place, although MPSC has a planning scheme amendment underway to implement controls. Councils that we consulted during the audit cited difficulties in translating and implementing coastal planning policies and sea-level-rise benchmarks into land use and development decisions.

### Reasons for slow progress in responding to climate change

There are several common reasons for agencies' generally slow progress in responding to climate change:

- uncertainty about climate change impacts
- the relatively long time frames before impacts will be felt
- limited capability, capacity and funding to do the work within a standard council term
- an overriding need to focus on managing current coastal hazards.

In addition, liability for planning decisions, the time it takes to inform and engage communities in adaptation planning, and the need for stronger leadership at state and local levels, have also had a strong influence.

## Funding

Audited agencies' management of assets is hindered by:

- the amount and uncertainty of funding they receive
- limitations on how they can use this funding
- their inability to generate sufficient revenue to fund their asset management activities.



All agencies except MPSC advised us that funding for coastal assets is inadequate and that the significant gap between available funding and the costs of adequately maintaining high-value coastal assets is increasing.

Industry and agency reports show the annual maintenance investment benchmarks for port and maritime assets range from 2 to 7 per cent of the replacement value. None of the audited agencies invests this amount—the actual figure is closer to 1 per cent of asset value or less.

CoMs do not receive grants for routine asset maintenance and are required to be financially self-sustaining to maintain their assets. The amount of funding available to CoMs for asset maintenance varies significantly across committees and does not align with what is needed.

Further, revenue generated by the audited agencies is not aligned to what is needed to adequately manage and protect the assets they are responsible for.

Audited agencies have limited ability to raise adequate revenue to fund the coastal asset works needed. PV, GP, GORCC, councils and CoMs raise revenue through fees and charges. Their ability to do this relies on their commercial assets and associated fees. The number of these varies significantly in each agency's region. While they do a commendable job with limited resources, they are not able to effectively manage and protect the assets they are responsible for.

In addition, revenue and funding sources are often uncertain, subject to restrictions and unequally distributed. There are constraints on when and where the audited agencies can use the funds they receive, particularly for funding granted through DELWP's statewide coastal improvement program.

Agencies are not delivering all of their planned maintenance activities and major works due to these revenue and funding issues. They also focus on short-term fixes, for example, fencing off a dangerous asset, rather than long-term solutions such as repairing or removing the asset. Funding limitations largely keep the agencies in a cycle of reactive works rather than enabling them to balance this with preventative asset management, which would better optimise the life of coastal assets.

The resulting backlogs in maintenance and major works create an increasing financial liability for the state. In 2012, PV estimated this liability at \$336 million for its coastal maritime assets. These backlogs also increase the risk of compromised service delivery and public safety issues.

Without improved distribution and funding models for the protection and management of assets, this gap continues to grow due to ageing assets, climate change and population pressures.

## Performance in managing and protecting coastal assets

There is no statewide framework for measuring how agencies perform in managing and protecting coastal assets and reducing risks. Nor do the audited agencies individually measure, monitor and report well on how they are performing in protecting their coastal assets. Collectively, performance measures are lacking or do not assess how well coastal assets are performing in delivering their intended function or service.

**Beach re-nourishment** is a process by which sand, lost through natural coastal processes, including erosion, is manually replaced from other sources.

DELWP administers a range of statewide coastal improvement funds and programs to deliver works and activities to upgrade coastal protective structures and assets. These include erosion works, beach re-nourishment, and habitat and dune restoration.

DELWP regularly evaluates the delivery of its coastal asset improvement programs, but the other agencies generally only assess individual asset works rather than the overall effectiveness of their asset management.

DELWP's evaluations between 2012–13 and 2015–16 show its statewide coastal improvement programs generally deliver planned works within approved budgets and time frames. However, DELWP cannot measure whether these works achieved their aims because it does not measure and report on these programs' effectiveness and overall performance.

At a local level, the audited agencies are largely effective in treating individual assets that pose a public safety risk or that are failing.

The audited agencies do not have enough information at the local level to determine whether the total number of assets at a high risk is increasing or decreasing over time, or whether funds are being used for the assets at highest risk. At a statewide level, the works funded through one component of DELWP's coastal improvement program successfully reduced the risk ratings of the assets involved.

## Statewide oversight and guidance

DELWP is responsible for overseeing that public coastal land and its assets are effectively protected and managed, and for providing coastal managers with adequate guidance to enable this.

### Oversight

A lack of strong governance and oversight of public coastal land by DELWP and its predecessors has led to:

- fragmented and overly complex coastal management and planning arrangements
- the skills and capacities of coastal managers not being well aligned with responsibilities and asset risks
- a lack of clarity around roles and responsibilities for asset management and maintenance
- a lack of clarity and transparency around coastal funding and expenditure.

Many regional and local coastal plans are not up to date and there is no effective reporting on total funds generated or expended across the coast. DELWP, as a result, cannot provide assurance that revenue and funds are being effectively prioritised to manage high-value, high-risk assets.

These are longstanding issues that have been identified in previous departmental reviews and reports. Our audit found most of them continue to be barriers to the effective oversight and governance of public coastal land and its assets.

## Guidance

Coastal managers lack guidance from DELWP on how to protect their assets effectively from coastal hazards. There is a lack of:

- a statewide perspective on what areas and assets are at greatest risk from coastal hazards
- uniform knowledge across managers on what coastal assets are of regional and state significance
- fit-for-purpose guidance on how to effectively manage and protect assets according to risk.

CoMs advised us that DELWP's guidance and support had lessened over the last 12 months. There has been a lack of information sharing and a loss of DELWP technical advice to properly advise and support effective risk-based asset management. There has been no statewide perspective on what areas are at greatest risk and what assets are currently being protected or need to be protected.

While DELWP has undertaken a number of projects to improve information on coastal hazards and their potential impacts, as well as risk-based approaches to protecting coastal assets, it has not shared this information and guidance consistently with its coastal managers.

## Progressing reforms

In 2015 and 2016 government called for the review and reform of coastal and marine management and public land management respectively. These reviews identified longstanding governance and management issues that have hindered the effective management of public land and its assets, including the coast.

In 2015–16 and 2016–17, DELWP proposed a range of actions to better integrate coastal planning and management and improve coastal managers' knowledge, skills and capacity to address longstanding coastal governance and management issues. Government has funded or partially funded approximately half of these actions.

The Minister for Energy, Environment and Climate Change introduced a Bill and proposed transition plan (reform package) to Parliament in December 2017. This reform package outlines a range of legislative and non-legislative actions to reform marine and coastal management, including the development of a new marine and coastal Act, policy and strategy.

Government and DELWP intend this reform process to improve coastal and marine planning and management, to address a range of longstanding issues, and to better align and resource coastal manager capabilities with need and risk.

DELWP has developed a comprehensive 2018–19 business case to seek budget funds to resource the majority of the reform package actions—including those not funded in 2016–17—and to ensure ongoing funding for a range of critical coastal improvement programs and grants.

Actions in the proposed reform package will go part of the way to addressing the longstanding issues identified by internal and external department reviews.

Further work and resources are required to ensure DELWP delivers government's intended reforms including:

- improved DELWP oversight of all public coastal areas and its managers, including PV and coastal councils
- development of a management model that aligns the resources, skills and capacities of coastal managers with accountabilities, and current and future risks across the entire coast
- ongoing streamlining, integration and review of regional and local plans to reduce complexity, address planning gaps and issues, and improve the currency of outdated plans
- review of national and international coastal funding and cost-sharing models to develop a better practice funding model that allows distribution of revenue and funds in accordance with risk and need across the coast and its managers
- clarification of roles and responsibilities for coastal asset maintenance and management
- development and uptake of a risk-based approach to protect coastal assets, including implementation of fit-for-purpose risk-based guidelines for its coastal managers.

Victoria's valuable coastal assets will continue to be at significant risk without adequate and more effectively targeted funding. The timely implementation of reforms is needed, particularly as risks to our coastal assets grow due to climate change and population growth.

## Recommendations

We recommend that the Department of Environment, Land, Water and Planning:

1. improve its knowledge of coastal hazards and its oversight of coastal asset management across the state by:
  - compiling and maintaining a statewide inventory of state, regional and locally significant coastal assets on Crown land and their condition using consistent ratings (see Section 2.2)
  - supporting and overseeing committees of management to align their asset management practices with key elements of Victoria's *Asset Management Accountability Framework* and their risk management practices with AS/NZS ISO 31000:2009 *Risk management—Principles and guidelines* (see Sections 2.2 and 2.3)
  - addressing gaps in coastal hazard data and knowledge of risks to coastal assets across the state, and communicating this information and any tools developed to coastal managers to help them guide local risk-based asset management (see Section 2.3)
2. strengthen oversight of Victoria's coastal managers, by extending and adequately resourcing its oversight role to cover the management of all public coastal areas and:
  - clarifying the coastal asset management roles and responsibilities of the Department of Environment, Land, Water and Planning, and committees of management under the *Crown Land (Reserves) Act 1978*, the functions and the performance measures they will be held accountable for, and holding them accountable (see Section 5.3)
  - providing guidance to support coastal managers' decisions about where and when it is appropriate to use different climate change response options—protect, adapt, relocate or decide not to renew assets—and additional support on coastal hazard and risk assessment to those managers with limited capability and/or resources (see Sections 2.3 and 3.3)
3. develop a sustainable funding model to guide the effective resourcing of coastal managers, including:
  - developing a coast-wide understanding of the cost and skills required to manage and maintain significant coastal assets to the levels of service needed to support their function (see Section 5.3)
  - appointing the most appropriate skilled and resourced coastal manager under the *Crown Land (Reserves) Act 1978* based on this understanding (see Section 4.2)
  - implementing the coastal accounting framework once developed and requiring coastal committees of management to adhere to it (see Section 4.3).

We recommend that the Department of Environment, Land, Water and Planning, East Gippsland Shire Council, Gippsland Ports, Great Ocean Road Coast Committee, Mornington Peninsula Shire Council, Parks Victoria and VicRoads:

4. address the gaps in their asset management practices against Victoria's *Asset Management Accountability Framework* requirements and guidance and strategically target their asset funding, including, where relevant:
  - identifying all the assets they are responsible for (see Section 2.2)
  - using information on asset risks from coastal inundation and erosion hazards to help target their asset management priorities and funding decisions, in conjunction with other defined prioritisation criteria (see Sections 2.3 and 4.2)
5. assess the risks that coastal inundation and erosion hazards pose to coastal assets, using robust risk assessment practices that consistently apply AS/NZS ISO 31000:2009, including:
  - documenting the considerations, assessments, analysis and decisions that their assessments involve (see Section 2.3)
  - using available information to regularly review risks and monitor changes in risk ratings over time (see Section 2.3)
  - introducing triggers and monitoring information into their asset management and/or climate change activities as appropriate, to identify when to implement adaptation measures or revise their risk treatment approaches (see Section 3.3).

We recommend that the East Gippsland Shire Council, Gippsland Ports and Mornington Peninsula Shire Council:

6. assess climate change risks from coastal inundation and erosion hazards across their coastal asset portfolios (see Section 3.2).

---

## Responses to recommendations

We have consulted with DELWP, PV, MPSC, EGSC, GP, GORCC and VicRoads, and we considered their views when reaching our audit conclusions. As required by section 16(3) of the *Audit Act 1994*, we gave a draft copy of this report to those agencies and asked for their submissions or comments. We also provided a copy to the Department of Premier and Cabinet.

The following is a summary of those responses. The full responses are included in Appendix A.

The agencies welcomed the report's findings and accepted all recommendations to improve their management of coastal assets.

EGSC outlined its response to the recommendations and the remaining six agencies all provided an action plan for how they will implement the recommendations relevant to them.

# 1

## Audit context

### 1.1 Victoria's coastal assets

Most Victorians live, work and play close to the coast. It is home to over one million people—19 per cent of the state's population—and four out of five Victorians visit the coast every year to enjoy a wide variety of recreational pursuits. The coast is also the destination for a growing domestic, national and international tourist market.

In 2016, Tourism Australia, working closely with Tourism Victoria, launched its \$40 million global campaign focusing on one of Australia's key competitive advantages—our world-class aquatic and coastal experiences—to attract more international visitors. Its research showed that 70 per cent of overseas tourists visited the coast. In 2015–16, tourism along the Great Ocean Road and the Mornington Peninsula reportedly generated \$795 million and \$700 million for Victoria's economy respectively.

Natural and built assets on the coast can provide valuable protection for other coastal assets—such as jetties, boat ramps, coastal parks, stairs and viewing platforms—which provide important economic, recreational and environmental services and functions. There is also critical infrastructure along the coast—including telecommunications, drainage and sewerage networks, roads and housing—which requires protection. When intact, protective assets—including seawalls, groynes, beaches and mangroves—act as an effective barrier against coastal processes such as inundation and erosion.

These protective assets, while vitally important now, will be even more so in the future when the predicted effects of climate change exacerbate coastal hazards.

In 2011, the National Climate Change Adaptation Research Facility (NCCARF) estimated the total economic value of Victoria's coastal assets, including both natural and built assets, at \$18.3 billion annually. In 2013, the Victorian Coastal Council (VCC) estimated that it would cost \$24–\$56 million annually to replace the natural protection offered by coastal assets like beaches and dunes.

Figure 1A identifies the coastal assets that were the focus of this audit.

**Figure 1A**  
**Natural and built coastal asset categories**

Asset category		Asset type
Built assets	Protective assets	Sea walls
		Groynes
		Rock revetments
	Maritime assets	Piers and jetties
		Local ports
		Water access points—including boat ramps, slipways and rowing launches
		Safety navigation aids
	Access assets	Stairs
		Boardwalks
		Viewing platforms
Natural assets	Protective assets	Beaches
		Mangroves
		Wetlands
		Salt marshes
		Sea grasses
		Coastal dune systems
	Ecosystem assets	Cliffs
		Coastal parks and reserves
		Significant flora and fauna
		Biodiversity
		Beaches

Source: VAGO based on data supplied by audited agencies.

## 1.2 Asset Management Accountability Framework

The AMAF governs asset management in Victoria. It requires a risk-based whole-of-life-cycle approach to asset management, including maintenance and the eventual removal or replacement of an asset. It details mandatory asset management and information requirements, as well as general guidance for agencies responsible for managing both built and natural assets. The AMAF is supported by Implementation Guidance released in 2017, which provides a benchmark for better practice asset management, including examples for agencies with smaller, narrower asset portfolios as well as for those with large, complex portfolios.

We assessed the audited agencies' practices against the key steps in the AMAF guidance.



### 1.3 Managing risks to coastal assets

#### What coastal assets are at risk?

The 2012 *Victorian Coastal Hazard Guide* defines coastal hazards as natural coastal processes—such as tides, currents, winds, waves and rainfall—that are likely to have an adverse effect on life, property or aspects of the natural environment.

Coastal assets are at increasing risk from coastal hazards, including inundation and erosion. NCCARF predicts these impacts will worsen and accelerate due to climate change. In 2011, NCCARF estimated that sea levels in Victoria will rise by 0.8 metres by 2100, significantly increasing impacts on coastal assets, as outlined in Figure 1B.

**Figure 1B**  
**Assets at risk of inundation based on a 0.8-metre sea level rise by 2100**

Asset	Quantity	Value
<b>Built assets</b>		
Residential buildings	31 000–48 000	\$6.5 to \$10.3 billion
Commercial buildings	Up to 2 000	\$12 million
Roads	527 km	\$9.8 million
Railways	125 km	\$500 million
Government-owned public facilities	87	Not known
Maritime assets	Not known	\$220 million
Coastal protection structures	Over 1 000	\$700 million
<b>Natural assets</b>		
Public land	586 km	Not known
National and state coastal parks	15	Not known
Vegetation	48 720 hectares supporting 95 ecological vegetation classes	Not known
Mangroves	6 300 hectares	Not known
Wildlife reserves	14	Not known
Nature conservation reserves	9	Not known
Flora and fauna reserves	4	Not known
Rare or threatened species	880	Not known

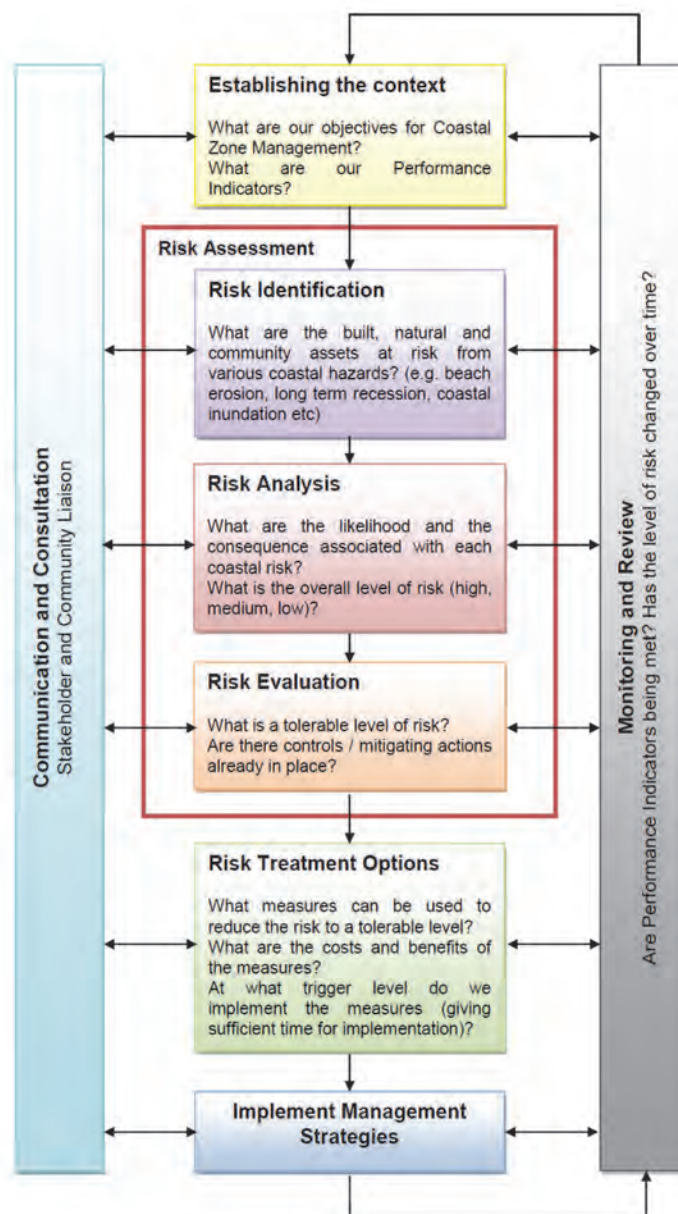
*Note:* This table does not include costs associated with impacts on maritime assets and loss of revenue for other activities that rely on coastal assets.

*Source:* Built asset figures taken from 2011 NCCARF data and 2016 PV data. Natural asset figures taken from 2012 Department of Sustainability and Environment (DSE) data, 2013 VCC data and 2016 Victorian National Parks Association data.

## Assessing risks

The 2016 *Victorian Government Risk Management Framework* sets minimum standards for public sector risk management—including managing risks to assets—in accordance with ISO 31000, as shown in Figure 1C. While only departments and public sector bodies covered by the *Financial Management Act 1994* are required to comply with this framework, it provides a suitable benchmark for all public sector agencies.

**Figure 1C**  
Key steps to assess risk under ISO 31000



Source: NCCARF, 2011, based on ISO 31000.

**Design life** is the length of time an asset is predicted to keep functioning, based on its design.

## Information needed to support risk assessment

To assess risks accurately, agencies need robust asset information, including:

- the number and types of assets
- asset value, design life and condition
- the service or function that the asset provides
- data about usage or visitation
- what assets and or infrastructure require protection.

Agencies also need information about hazards and knowledge of variations in shoreline characteristics and coastal processes at state, regional and local levels.

NCCARF recommends that the states and their agencies systematically assess coastal hazards, starting at the national scale and working through progressive levels of detail to the regional and local level. Information gathered using this process can inform risk assessments.

## Responding to coastal asset risks

Once agencies collect information on the current state of assets and risks facing them, they can evaluate potential risk treatments to identify the most effective and cost-efficient response. These treatments may include:

- protecting assets—maintaining the existing coastal environment and infrastructure, which includes the use of coastal protection structures
- adapting/accommodating assets—managing potential impacts of coastal inundation and erosion through adaptive measures, such as raising floor levels in buildings
- retreating—deliberately removing or relocating high-value community and commercial built coastal assets and built coastal protection structures from expected areas of impact, and allowing nature to take its course
- doing nothing—allowing nature to take its course and accepting the cost.

Implementation of these risk treatments may be supported by:

- actions in coastal plans
- land use planning controls—incorporating planning policies and tools into state and local planning frameworks to address coastal hazards
- approvals for the use and development of coastal Crown land
- asset management practices, including capital works, replacement, renewal, restoration and maintenance works
- building coastal managers' capacity and capability through education, training, guidance and grants.

Some of these treatments aim to reduce the likelihood of impacts occurring—such as constructing or maintaining seawalls that prevent inundation—while others, like land use planning and building controls, focus on mitigating the consequences.

---

## 1.4 Governance and oversight

### Legislative framework

Four primary Acts provide the legislative framework for the management and protection of assets on public lands in Victoria, including coastal areas:

- The *Crown Land (Reserves) Act 1978* identifies coastal Crown land reserves and their purpose (generally conservation and recreation) and establishes CoMs to manage these areas on behalf of the Crown.
- The *National Parks Act 1975* establishes a system to protect coastal areas of high conservation value, including the development of management plans.
- The *Land Act 1958* provides legislative and governance arrangements for unreserved Crown land.
- The *Forests Act 1958* provides legislative and governance arrangements for the management of forests on Crown land.

A range of overlapping Acts that address specific public land management categories and issues support these primary Acts. Three further overlapping Acts influence coastal planning and management:

- The *Coastal Management Act 1995* provides the framework for protecting Victoria's coastal assets on Crown land. This Act establishes the VCC and three regional coastal boards and requires the development of a hierarchy of coastal strategies and plans.
- The *Planning and Environment Act 1987* develops the state's planning system, which governs land use and development across the coast. All planning and land use decisions under this Act must consider the *Victorian Coastal Strategy*. Decisions must take into account a projected sea level rise of 0.2 metres by 2040 in established areas, and 0.8 metres by 2100 in undeveloped coastal areas.
- The *Port Services Act 1995* provides for the local port manager to develop and maintain port facilities, including wharves, jetties, slipways, breakwaters, moorings, buildings and vehicle parks.

### Coastal policy and plans

A number of different coastal plans may apply to coastal areas, depending on the area's legislative status.

The *Victorian Coastal Strategy*, established under the *Coastal Management Act 1995*, provides the overarching strategic framework for the planning, management, and protection of coastal assets on Crown land. It establishes a hierarchy of principles, supported by policy objectives and strategic actions, to maintain and protect coastal assets. It has a strong focus on managing population growth pressures and hazards resulting from climate change.

Coastal plans developed by regional coastal boards are the key tools used to implement the principles and objectives of the *Victorian Coastal Strategy* across coastal Crown land. These can be either broad regional coastal plans or specific area or issue plans, known as coastal action plans.

Coastal management plans set out the local coastal management requirements and actions based on strategic directions in regional coastal plans and coastal action plans. CoMs develop coastal management plans and each must contain a three-year business plan detailing proposed works. The Minister for Energy, Environment and Climate Change is required to approve these plans. In 2017, DELWP released guidelines for the development of these plans.

Assets within coastal areas protected under the *National Parks Act 1975* are the responsibility of PV. PV develops a hierarchy of management plans at the landscape, regional and local levels for coastal areas requiring a higher degree of protection.

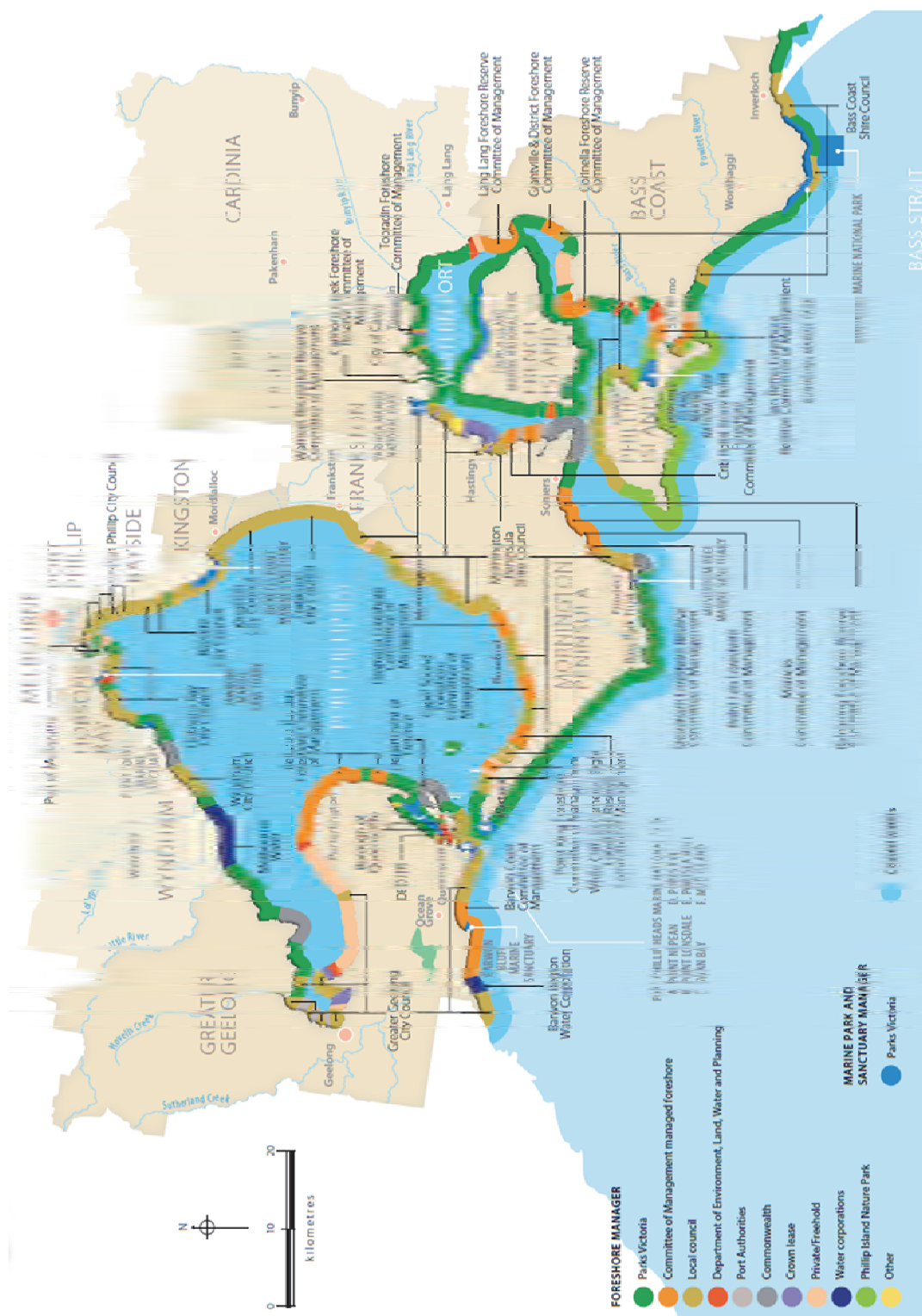
## Coastal management arrangements

There are at least 63 entities responsible for managing and protecting Victoria's coastal assets. Along some areas of the coast, multiple coastal managers form a patchwork of relatively small areas of responsibility, particularly around the Port Phillip Bay and Western Port coastline—the central region—as shown in Figure 1D.

More than two-thirds of public coastal land is national park, coastal park, marine national park or marine sanctuary. PV maintains and protects the natural and built assets in these protected areas under the *National Parks Act 1975*. Assets in these areas include high-value natural coastal ecosystems, access assets—such as boardwalks, viewing platforms, stairs and tracks—and maritime assets. Local port managers, including PV and GP, manage maritime assets.

Most of the remaining public coastal land above the high-water mark is Crown land under the *Crown Land (Reserves) Act 1978*. DELWP delegates the management of most of this land to CoMs. The Minister for Energy, Environment and Climate Change appoints agencies or individuals to committees under the *Crown Land (Reserves) Act 1978*. A coastal CoM may be a local council, PV, a local port manager, large skilled committees or smaller volunteer committees.

**Figure 1D**



Source: DELWP.



The role of a CoM is to ‘manage, improve, maintain and control’ Crown land reserves for the purposes for which they are reserved under the *Crown Land (Reserves) Act 1978*. Assets managed by CoMs include both land-based and water-based natural and built coastal assets.

DELWP classifies large skilled and smaller volunteer CoMs into two categories depending on their annual financial return:

- CoMs that generate more than \$1 million in revenue annually are classified as ‘category 1’—there are currently five across the coast<sup>1</sup>
- CoMs that generate less than \$1 million annually are classified as ‘category 2’—there are currently 19 across the coast.

Some small areas of public Crown land are ‘unreserved’ and fall under the control of the *Land Act 1958*. DELWP manages these areas directly.

### DELWP’s role

DELWP is responsible for overseeing the management of Crown land on behalf of the Minister for Energy, Environment and Climate Change. In this role, it oversees the performance of coastal protection assets on Crown land—including groynes, seawalls, rock revetments and beaches—for both their community and amenity value and their role in protecting other coastal assets and infrastructure. DELWP also oversees the performance of CoMs, to which the Minister for Energy, Environment and Climate Change delegates much of the day-to-day management of Crown land. In this role, DELWP:

- recommends appointments to CoMs for ministerial approval
- produces guidelines that outline CoMs’ responsibilities and provides support to implement them
- supports the development of coastal management plans by CoMs and recommends their approval by the Minister for Energy, Environment and Climate Change
- requires CoMs to submit annual financial returns.

## 1.5 Reform of public land management

Reviews since the mid-2000s have called for the overhaul of the legislative framework for managing public land—which includes 96 per cent of coastal areas—to simplify, update and better integrate its planning and management.

Multiple reviews by DELWP, ministerial advisory committees and others have identified issues specific to the effective management and protection of coastal assets. These include:

- outdated legislation
- overly complex governance and management arrangements
- poor accountability and implementation of actions identified in coastal strategies and plans
- poorly resourced and skilled coastal managers

---

<sup>1</sup> One of the category 1 CoMs is a trust, which we did not include in this audit.

- unclear roles and responsibilities for managing coastal assets
- lack of transparency of generated coastal revenue and expenditure, including how revenue expenditure is prioritised to address risks to coastal assets
- the absence of a uniform system to support decision-making to manage the many competing priorities and demands across the coast
- poor collation and storage of coastal knowledge.

Between 2015 and 2016, the Victorian Government instigated a range of reviews into public land management, including coastal areas. In 2015, the government committed to a package of reforms including a new legislative framework, policy reforms and improved coastal and marine management arrangements. Figure 1E outlines the drivers that underpin the government's proposed reforms.

**Figure 1E**  
**Drivers of the Victorian Government's proposed coastal reforms**



Source: DELWP, *Marine and Coastal Act Consultation Paper*, 2016.

In 2016, government asked the Victorian Environment Assessment Council to review public land management, including coastal areas. It made 30 recommendations, all of which government accepted, in full, in part or in principle, in 2017. In particular, it agreed to develop a new public land Act within five years to replace the current *Land Act 1958*, *Crown Land (Reserves) Act 1978* and *Forests Act 1958*.



---

## 1.6 Why this audit is important

Victoria's coastline is one of the state's major assets. The coast and its built and natural assets are under increasing pressure from population growth and climate change.

Threats to natural and built assets affect the commercial, recreational and environmental services they directly provide or support. It has been estimated that, in Victoria, a 0.8-metre sea level rise by 2100 will put \$18.3 billion worth of coastal infrastructure and assets at risk of inundation and erosion. The costs of these impacts on ecosystem services provided by natural assets have not been quantified, but would be significant.

Given the value of Victoria's coastal assets and the significant threats they face from current and future coastal hazards, it is important that they are adequately protected.

The government, through DELWP, is currently implementing a range of reforms to improve the legislative framework, governance, planning and management arrangements for the coast. This audit helps to assess and further inform these reforms.

---

## 1.7 What this audit examined and how

This audit aimed to determine whether natural and built assets on Victoria's coastline are adequately protected against inundation and erosion. We focused on:

- coastal protection structures
  - built structures—such as seawalls, groynes, breakwaters and rock revetments
  - natural structures—including beaches, dunes, mangroves and reefs
- maritime assets—water-based assets with a commercial, recreational or access function, such as wharves, jetties, piers and boat ramps
- access assets—land-based assets that support access and recreation, such as stairs and boardwalks
- natural assets—including beaches, public land, biodiversity, cliffs and coastal parks.

We examined the adequacy of individual agencies' asset and risk management approaches, funding for assets at risk and statewide coordination of coastal asset protection.

We audited seven agencies responsible for protecting coastal assets—DELWP, PV, MPSC, EGSC, GP, GORCC and VicRoads. These agencies are of varying sizes and manage a range of significant coastal assets, coastline areas and risks. A summary of their responsibilities for coastal asset protection, funding and expenditure, as well as our expectations for their asset and risk management practices, is included in Appendix B.

We conducted our audit in accordance with section 15 of the *Audit Act 1994* and ASAE 3500 *Performance Engagements*. We complied with the independence and other relevant ethical requirements related to assurance engagements. The cost of this audit was \$640 000.

---

## 1.8 Report structure

The remainder of this report is structured as follows:

- Part 2 discusses how agencies manage coastal assets in their local areas and current risks posed by coastal inundation and erosion
- Part 3 discusses how agencies manage future risks to coastal assets that may result from climate change
- Part 4 examines funding and how it is prioritised
- Part 5 discusses statewide oversight and support for the protection of coastal assets.

# 2

## Local management of coastal assets

Asset management aims to optimise the life span of assets and the services that they provide, for minimum cost. Risk management is an integral part of good asset management. It helps asset managers to identify high-value assets and prioritise and manage threats to them.

In this part of the report, we analyse agencies' knowledge of their coastal assets and how they prioritise, manage and protect them.

---

### 2.1 Conclusion

While there is evidence of good on-ground work to manage failing assets that pose a public safety risk, key weaknesses exist in the way the audited agencies identify, assess and manage their coastal assets. In addition to these weaknesses, agencies do not use a risk-based approach to target their efforts and resources to high-value, high-risk assets.

This means they are not effectively protecting assets from coastal hazards. Agencies are not balancing their response to damaged and failing assets with strategic maintenance to optimise the life of their assets.

Fundamental gaps in asset and coastal hazard information, and a reliance on staff experience and knowledge rather than good asset management systems, further limit agencies' ability to be effective risk-based asset managers.

Two of the seven audited agencies have a better approach to managing their coastal assets than the others, but they could still improve their systems or make better use of them. The other five agencies lack practices that are fundamental to good asset management and are not making the best use of the systems they have.

Common weaknesses include:

- an incomplete inventory of coastal assets and the other infrastructure and values that are being protected by coastal protection assets
- poor asset condition information
- an inability to share information about assets between agencies and statewide
- an overriding 'fix on fail' approach at the expense of preventative routine maintenance to keep assets functioning as needed, for longer.

Funding and resource constraints influence the audited agencies' ability to rectify a number of these problems.

## 2.2 Coastal assets and their management

### Asset management approaches

We assessed agencies' asset management approaches and practices against key elements of the Department of Treasury and Finance's AMAF and its Implementation Guidance.

Figure 2A lists the critical elements from the AMAF that we assessed as necessary for effective asset management, and the extent to which the audited agencies have them in place for their coastal assets. Most agencies have key elements of a good framework and practices, but there are also many gaps.

**Figure 2A**

**Alignment of agency asset management frameworks and coastal asset management practices with key elements of the AMAF guidance**

Asset management element	DELWP	PV	MPSC	EGSC	GP	GORCC	VicRoads
<b>Asset management framework elements</b>							
Asset strategy	X	✓	✓	✓	X	X	n/a <sup>(a)</sup>
Asset plans (e.g., five-year plan)	X	✓	✓	X	✓	X	✓
Operational plans (e.g., one-year plan)	X	✓	✓	X	✓	X	✓
Asset register	●	✓	✓	✓	✓	✓	✓
Information management system	X	✓	✓	✓	●	X	✓
<b>Asset management practices</b>							
Defined levels of service	X	✓	●	X	●	X	X
Disposal process	X	✓	✓	X	X	X	✓
Major event (storm, flood) triggers inspection	X	✓	X	X	✓	✓	✓
Trigger for expert assessment	✓	✓	X	X	X	X	✓

Key: ✓ yes; X no; ● partly.

(a) Transport for Victoria is responsible for developing the asset strategy VicRoads will use.

Source: VAGO.

We identified some common reasons for agencies' weak coastal asset management:

- coastal assets are not a key focus for agencies with a broad range of responsibilities and assets
- agencies' limited knowledge about existing coastal processes and their uncertainty about the impact of future climate change reduce their ability or confidence to act
- agencies lack guidance about how to identify high-value coastal assets—those of local, regional or state significance
- some agencies do not recognise the need to manage assets strategically and, for some that do, it is not supported or driven across their operations.

As smaller agencies, GP and GORCC have fewer assets overall, allowing them to more easily identify and manage their coastal assets, even though their systems and documentation are limited. In contrast, the larger agencies have many inland assets as well, which means they give less attention to the proportionally small number of coastal assets that they are responsible for.

The two audited councils—EGSC and MPSC—have a broad asset base, and their management priorities focus on assets such as roads and bridges. The councils advised us that they use a more mature asset management approach for their major asset classes, but their approach for managing coastal assets did not demonstrate the same maturity—because coastal assets are not a priority based on the funding and staff resources available. EGSC also advised that it has to prioritise its asset management effort because it has low revenue relative to the size of its asset portfolio.

## Knowledge of assets and their condition

The asset inventories that individual agencies keep do not record all coastal assets in Victoria. Only two of the audited agencies have reviewed their asset inventories to make sure they have identified all of their coastal assets. None of the agencies consistently collects all of the information needed to manage their assets effectively.

## Built assets

There are thousands of built coastal assets across the state but no comprehensive central or interoperable register of them. There are several issues among the audited agencies:

- VicRoads and MPSC are the only agencies that have undertaken a 'stocktake' of the built assets within their management areas.
- MPSC's 2015 stocktake identified over 1 200 built assets not recorded in either its own asset information system or DELWP's. Many of these were minor assets—such as fences and bollards—but they also included boat ramps, seawalls and jetties. MPSC recorded these on its asset register in 2015, where it has noted that the responsibility for them is 'to be advised', pending resolution of responsibilities with DELWP.
- DELWP has recently identified other built coastal protection assets that it has not recorded previously around the open coast, as its focus has been on the main bays and town areas.

Figure 2B gives examples of the quantity and type of built assets within the audited agencies' portfolios.

**Figure 2B**  
**Examples of coastal assets managed by the audited agencies**

Agency	Asset type	Quantity	Age range	Proportion in poor condition
DELWP	Seawalls, groynes and other protection assets	Over 1 000	1920s to present 33% with less than 10 years remaining in its useful life	Not known
PV	Piers, jetties, boat ramps and associated structures	193	1957 to present 53% with less than 10 years remaining in its useful life	22%
MPSC	Seawalls, groynes, jetties, boat ramps	54	1940 to present	22%
EGSC	Seawalls and marinas	81	Not known	30%
GP	Wharves, jetties, boat harbours	97	1937 to present	Not known

*Note:* Agencies may identify assets in different ways—for example, one agency might count a jetty and the landing platform attached to it as one asset, while another agency might count it as two assets.

*Source:* VAGO based on agency data.

No audited agency keeps information on the coastal infrastructure or natural values protected by its groynes, seawalls, rock revetments, beaches or dune systems. This information is critical to determine the need for a coastal protection structure and the level of service it should deliver—important parts of risk-based asset management and prioritising works and funding.

DELWP is developing a new asset inspection tool that will enable it to capture this type of information, but other audited agencies are not doing this and are unaware of DELWP's tool.

Other important asset information that agencies are not recording consistently includes asset condition, usage or visitation data, design life and expected remaining life, and life cycle cost.

### Natural assets

Agencies with responsibility for protecting both built and natural assets have a stronger focus on their built assets. All the audited agencies, except VicRoads, have done some work to value their natural coastal assets, however information about these assets is sparse.

We identified a number of reasons for this unbalanced focus:

- Accounting systems for natural assets are not as mature as those for built assets, and government asset guidelines are less explicit, making it difficult for agencies to comprehensively value these assets.
- Built assets are more readily managed through established corporate asset systems.
- In many cases, built assets pose greater safety risks to the public, with the exception of unstable cliffs.

DELWP and PV engaged consultants in 2011 and 2013 to improve their valuation of natural assets and develop an accounting framework. Recommendations arising from this work have not progressed. The agencies cite limited funding and other priorities as the cause for this.

PV manages approximately 70 per cent of Victoria's public coastal land. The *National Parks Act 1975* protects most of this land, as the ecosystems in these areas have high conservation values. PV collects information on natural assets and data on visitors and their experiences in its parks, but it is yet to do this for the majority of coastal areas. Its new approach to planning for its parks including coastal areas aims to improve information collection on natural assets across the state. To date, its ability to apply this planning approach to coastal areas has been limited by a lack of resources.

As a result, information on natural coastal assets is either lacking or outdated. PV does not routinely collect new data across the coast, instead collecting it only for priority areas or issues, because of staffing and funding constraints.

## Asset condition

Information on asset condition helps agencies understand:

- an asset's remaining useful life
- its ability to provide the services required
- the nature or extent of the risks associated with it
- its maintenance and renewal needs.

The audited agencies could not provide comprehensive information on the condition of their coastal assets, and there is no oversight of information collected on asset condition across the agencies and the coast. Available information suggests 22 to 30 per cent of assets are in poor condition, as shown in Figure 2B, but the accuracy of this estimate is questionable.

With the exception of PV and MPSC, the audited agencies usually only conduct comprehensive technical inspections on assets that are failing or are in poor condition. Funding is a barrier to the more widespread use of technical inspections by the audited agencies due to their high cost. This means while they cannot be done as frequently as required, they need to be carefully targeted at high-value, high-risk assets. Such detailed inspections are needed to meet the AMAF requirements for particular assets.

Standard inspections, when undertaken, are often basic visual checks and only collect information on asset condition, rather than on an asset's performance in providing the required level of service or protection. Agencies do not routinely assess the impacts of coastal processes and hazards on assets. Without this information, agencies cannot accurately track asset condition over time to determine when maintenance, renewal or replacement works are required, which could prevent deterioration of the asset—and for protective structures, of any assets they are shielding. Figure 2C highlights the risks of not assessing condition adequately and regularly.

Many staff from the audited agencies lack appropriate training to undertake more complex and technical asset assessments, and some agencies' guidance to support consistent inspections is limited.

There is little evidence of audited agencies using standardised condition ratings or descriptions of asset condition. GP and GORCC use different condition rating systems for assets and do not use standardised condition descriptions.

PV, MPSC, VicRoads and GP have established processes to identify, inspect, monitor, assess and record information on the condition and status of their built coastal assets. Only PV has documentation to show that it regularly applies these processes to coastal assets.

DELWP and PV are developing electronic field tools to improve the quality and consistency of their asset inspections and the data they collect. DELWP is also developing new guidance for its staff to ensure a consistent standard of visual inspections and reduce assessor subjectivity. This guidance has been validated against standard coastal engineering principles and practice.



**Figure 2C**

**Case study: Lakes Entrance training walls and seawalls**

Access from the Gippsland Lakes to Bass Strait at Lakes Entrance was established in 1872 by constructing ‘training’ walls. Seawalls were also built around this time to help protect the coastal township area. There has been little major work on the training walls since they were last extended in 1934, or on the seawalls.



Lakes Entrance has significant local, regional and state value for residents and visitors. It is also home to Victoria's largest commercial fishing fleet. The entrance training walls—and associated dredging—are vital to maintaining the area's commercial operations and its cultural and heritage value.

GP is responsible for the training walls and it regularly conducts land-based visual inspections and undertakes minor maintenance. DELWP also periodically assesses the condition of the training walls. However, the training walls have not had any underwater technical inspections in the last decade. DELWP is

also responsible for most of the seawalls but it has not maintained or replaced them and, prior to 2016, it had not conducted detailed technical inspections of them.

DELWP's 2011 visual inspection of the training walls identified that the concrete head wall was deteriorating while, in other areas, the rock protection had slipped, exposing the old timber structure.

DELWP rated these issues as a medium priority and estimated that works to address them would cost \$460 000, but it has not planned any works to date. GP's 2017–18 business plan noted continuing concern about the condition of the training walls, concluding that a partial wall failure could occur at any time.



*Left: Lakes Entrance training wall, showing the rock protection failing.*

*Below: A hole in the path reveals a void behind the seawall where the bank has been eroded by water entering through gaps in the mortar. The wall's foundations have been undermined and the adjacent stormwater system (in the foreground) has failed.*



DELWP's 2016 seawall inspection program identified several sections of wall in poor condition and the need for \$6.6 million worth of emergency stabilisation works at a number of sites, along with \$40–60 million in the long term to rebuild key walls. EGSC has estimated that replacing the three highest-priority seawall sections will cost \$14–25 million.

Thorough, periodic technical inspections of the training walls and seawalls would have identified the deteriorating condition of these assets earlier, enabling more timely works to extend the assets' life and reducing the cost of works needed in the longer term.

Source: VAGO, with pictures provided by DELWP.

## Asset services

Each asset provides a service or function, such as protection, community use and environmental or social value. Understanding an asset's level of service and function is important for determining its value and its priority for protection. For example, a boat ramp may not have high use, but if there are no other suitably sheltered spots for launching a boat within several kilometres, the level of service required from that ramp may be higher than for ramps in other locations where there are a number of them. Defining levels of service helps agencies to better target their resources to conduct inspections, maintenance and major works.

Only PV and MPSC adequately define the level of service required or expected from their built and natural coastal assets.

## Asset information management systems

We found significant issues with coastal asset data storage, use and sharing across the audited agencies. These issues in data storage:

- impair the state's and agencies' ability to compare and assess assets and their relative condition across the coast to target funding to those of highest value and at highest risk
- result in gaps in asset identification and maintenance responsibilities
- duplicate effort
- impede integrated and consistent management of assets across the Victorian coast.

The AMAF guidelines recommend agencies store asset information in an information management system to ensure the information is collated, structured, reliable and easily accessed. It should be fit for purpose—that is, appropriate to the nature and scale of the agency's responsibilities and assets.

Except for DELWP and GORCC, the audited agencies have information systems to manage their coastal asset data, although they each use different systems. While these systems are largely fit for purpose, they do not address key elements of the AMAF. Information is often stored across a number of databases or spreadsheets that are not linked and searchable, and agencies do not use them to interrogate the data or use the collected information to inform their asset management practices and decisions.

DELWP has introduced two asset information systems in recent years, but these were poorly implemented and not well used, as neither was fit for purpose or user friendly.

PV, DELWP and MPSC are in the process of introducing new asset information systems, which they advise will incorporate their coastal assets. DELWP anticipates that its proposed new asset information management system, due to be implemented in 2018, will be interoperable with some local government asset systems, which will go part way to addressing this issue.

## Asset maintenance and disposal

**Asset maintenance** is minor works needed to address risks to assets associated with normal ageing, weathering, damage or emergency response repairs.

We examined the audited agencies' asset maintenance activities and decisions made at the end of an asset's life cycle.

Appropriate maintenance can sustain or extend an asset's useful life, as well as:

- reducing long-term life cycle costs
- improving asset performance and service
- enabling targeted, timely and cost-effective prevention and early treatment of risks
- improving public perception of the asset's service and safety standards.

Asset maintenance decisions should consider factors such as service delivery needs, strategic objectives and budget constraints, not just asset condition.

None of the agencies has a wholly effective approach to maintaining coastal assets, although PV, GP and MPSC systematically plan, deliver and review their maintenance programs for some coastal asset types, using available information.

The other agencies primarily focus their maintenance work on the assets in worst condition, or simply repeat the previous year's maintenance activities. The lack of a risk-based approach leads agencies to focus on fixing assets once they are failing. This means agencies' maintenance programs are neither proactive nor long term and further illustrates the lack of a whole-of-life-cycle approach to asset management.

These reactive maintenance practices stem in part from the public safety risks that ageing built assets often pose, with many coastal assets beyond their design life. Agencies' limited asset maintenance budgets do not adequately cover all asset maintenance works. For example, PV costed its maritime asset maintenance backlog program at over \$5 million for each of the last three years. However, there is a significant gap between available funding and the amount required to maintain priority coastal assets—see Part 4 for further discussion.

As a consequence, new assets are not adequately maintained once built, potentially reducing their design life and adding to the large asset maintenance backlog.

**Asset disposal** refers to the way an asset is managed at the end of its life cycle. It can include renewing, replacing, decommissioning, retiring or selling an asset.

Most of the audited agencies provided evidence that they plan the renewal and replacement of their assets well before their economic life ends. However, only PV's, VicRoads' and MPSC's asset plans consider a broad suite of disposal options appropriate for their assets and service needs, and only PV and VicRoads periodically retire assets. For example, PV closed Brooks Jetty, Elwood, following storm damage because its information showed other jetties close by provided sufficient levels of service for the region.

The remaining audited agencies' planning for asset renewal assumes the asset will be replaced at the end of its life. They do not document the factors they consider, such as whether the asset is still meeting a need, whether the need could be met using other assets or in other ways, or how exposed the asset is to coastal hazards and risks.

When combined with the previously identified gaps in asset information, these weaknesses make it difficult for the audited agencies to make sound decisions about how to prioritise and manage their assets to get the best value from them in the mid to longer term using scarce resources.

Delaying asset maintenance, renewal and replacement across an asset portfolio ultimately leads to increases in renewal and replacement costs in the future, as illustrated by Figure 2D.

#### Figure 2D

##### Case study: Works at White Cliffs, Black Rock

In 2008, the former DSE assessed White Cliffs at Black Rock as a 'very high priority' for works, due to cliff and beach erosion. Eventually the beach was closed because it posed an unacceptable public safety risk.

At the time, the cost of reconstructing the rock revetment to protect the beach and cliff and re-nourishing the beach so it could be reopened to the public was estimated at \$250 000. DSE only undertook minor emergency works due to limited available funding.

In 2013–14, storm damage caused further unacceptable risk to public safety, and DSE's additional works to the rock revetment and beach cost \$520 000—more than twice the original estimate for works that may have prevented further damage to the assets by the storm.

Source: VAGO.

## 2.3 Managing risks to coastal assets

Risk management is an integral part of good asset management. In coastal areas, risk assessment is used to identify, prioritise and manage risks—including from inundation and erosion hazards—that may impact high-value assets, and then target resources to protect these assets.

The 2016 *Victorian Government Risk Management Framework* requires agencies to apply ISO 31000 to their asset management practices. DSE's 2012 *Victorian Coastal Hazard Guide* is also based on ISO 31000.

DELWP's 2015 *Committees of Management Responsibilities and Good Practice Guidelines* state that CoMs should undertake a risk management process to manage specific risks they identify within their management area, including risks to assets. CoMs must also review this assessment annually to identify new risks or determine if anything has changed to affect the rating of existing risks. CoMs should document the process used and the decisions made in a risk management plan.

A robust, risk-based asset management approach is critical for targeting the limited funds available for coastal asset management to high-value assets at the highest risk. The audited agencies have adopted poor or inconsistent risk assessment practices and, as a result, it is not clear if coastal spending is directed towards high-value, high-risk assets, or just focused on those that are failing, irrespective of their level of service, their value and their need.

We identified a fundamental disconnect between the agencies' asset and risk management practices, despite the fact that state guidance clearly identifies the need to manage risks to assets. Across all agencies, corporate risk management approaches are not strongly embedded into coastal asset management planning and operations. With the exception of PV, the agencies' asset management approaches are not systematically based on risk. There is scope for all agencies to improve their approaches significantly through relatively small investments.

## Identifying coastal assets at risk

Across Victoria's coast, assets identified as being at high risk from coastal hazards include:

- four of DELWP's 35 maritime assets in the Barwon South West region, including a seawall and stormwater protection assets
- nineteen out of 222 maritime assets that PV assessed, including components of several jetties, at risk from storm surge
- nine sections of the Great Ocean Road, identified by VicRoads as having high geotechnical risks.

Though the number of coastal assets rated at high risk is currently small, weaknesses in the audited agencies' risk assessment practices mean these ratings and numbers are uncertain. Significant gaps in local risk assessments across the coast, poor use of available coastal hazard information and unreliable risk ratings contribute to this.

The relatively low number of built assets with high risk ratings is surprising given:

- the large number of assets on the coast
- the level of visitation and use
- the closure of a number of beach areas, boat ramps and access stairs
- modelling indicating the increasing potential for inundation and erosion in many areas
- assets being, in many cases, past their expected design life.

DELWP's 2017 \$4 million four-year coastal monitoring program aims to generate data to better identify and understand hazards and risks to coastal assets and the effectiveness of protection works to minimise these risks. To support this, and better identify and cost assets at high risk, DELWP:

- conducted a more detailed statewide risk assessment
- drafted a new decision support system
- is developing a coastal asset information management system and internal risk assessment guidelines.

## Risk assessment practices

The audited agencies' risk assessments do not comprehensively or consistently apply the risk assessment process steps described in the ISO 31000 and the Victorian Managed Insurance Authority's 2016 *Victorian Government Risk Management Framework Practice Guide*, as shown in Figure 2E.

**Figure 2E**

**Agencies' application of key risk assessment steps from ISO 31000 and the Victorian Managed Insurance Authority's 2016 *Victorian Government Risk Management Framework Practice Guide***

Risk assessment step	DELWP	PV	MPSC	EGSC	GP	GORCC	VicRoads
Risk context	✓	~	~	⦿	~	~	~
Data sources	~	~	~	✓	~	✓	✓
Assumptions	✓	~	~	~	✗	~	⦿
Uncertainty	✗	~	✗	~	✗	~	~
Risk description	~	✓	~	~	~	✗	~
Risk analysis	✓	✓	✓	~	⦿	⦿	~
Risk tolerance	~	~	~	✗	~	~	~
Risks prioritised for treatment	✓	✓	✗	✗	✗	✗	~
Treatment options evaluated	~	✓	⦿	~	~	⦿	⦿

Key: ✓ yes; ✗ no; ⦿ partly; ~ varies—step was applied or documented in some assessments, but not in others.

Source: VAGO.

The audited agencies conduct relatively few risk assessments to identify risks to their coastal assets, and they do not regularly assess risks to all their coastal assets, as DELWP's guidelines require, with the exception of PV. Instead, they focus on individual assets or certain classes of assets, such as coastal protection structures. The quality of these assessments is inconsistent within and across agencies, and they rely on poor quality information about coastal hazards and assets.

These weaknesses:

- reduce the reliability of the number and rating of risks identified
- make it difficult to compare risks across agencies
- limit agencies' ability to effectively prioritise coastal assets for funding and works based on risk, as the AMAF requires
- hinder effective statewide targeting of funds to treat the highest-risk assets.



We identified a number of reasons for the variability in agencies' risk assessment processes.

- Some agencies have a weak risk management culture or capability, or they rely on informal risk assessment practices, which result in staff applying agency risk frameworks or approaches inconsistently.
- The audited agencies have limited capacity or capability to scope, undertake and fund coastal hazard risk assessments, which are complex and technical.
- DELWP's limited oversight of CoMs' risk assessment and management processes means it does not know whether the committees are regularly assessing risks to coastal assets.
- DELWP's risk-based guidance is not tailored to the range of capacities and skills of CoMs.

Five of the audited agencies are working to improve their risk assessment and asset management processes. MPSC is implementing an organisation-wide plan to improve its risk management practices and culture. GP has developed a new risk framework, and GORCC is developing one as well. VicRoads and PV are in the process of improving their asset management practices to meet the mandatory requirements and comply with AMAF in their annual reports, which is being introduced for the 2017–18 financial year.

## Hazard information required for risk assessments

Agencies need complete and robust information about coastal processes and hazards to inform their assessment of current and future risks to coastal assets. Collecting data at regional and local levels enables agencies to identify and prioritise vulnerable areas and assets.

The audited agencies advised us they do not use the available hazard information extensively or consistently because the data is unreliable, not sufficiently detailed or incomplete. The data is also difficult to access and it is not well collated or centrally stored. We also found cases where agency staff completing the risk assessments had not been aware of the hazard information available or did not have the skills to use it.

PV is now incorporating inundation data across all its coastal asset risk assessments.

The former DSE was one of the first state agencies across Australia to work towards the systematic collection of coastal hazard data.

DSE and its successors, including DELWP, have made significant advances in collecting coastal hazard data at the regional level over the last decade. Under the Future Coasts program, from 2008 to 2012, this included developing a digital elevation model of the coastline that allows the extent of inundation to be modelled and mapped. It also included developing the Victorian coastal inundation dataset and maps that model sea level rise and storm surge scenarios over time, for 2009, 2040, 2070 and 2100.

Also under the Future Coasts program, the former DSE funded four pilot local coastal hazard assessments (LCHA) to gather regional and local coastal hazard information on inundation and erosion from sea level, storm surge and flooding scenarios for four areas most vulnerable to coastal inundation.

The Future Coasts program ceased in 2012 before completion, following changes to government climate change policy and loss of key staff. This limited planned further data collection and modelling.

As a result, gaps in regional and, particularly, local hazard information remain. There has been limited long-term monitoring of coastal processes, and a lack of clarity and accountability for collecting this information. Two further LCHA are underway, but coastal managers have only made limited use of the information that the LCHA pilots produced to inform local risk assessments and land use decisions.

DELWP anticipates that data collected through its \$100 000 coastal climate change spatial modelling project, which started in 2017, will add significant information on the cumulative impacts of coastal hazards at both regional and local levels. However, its accuracy will depend on the level of information available on assets and coastal hazards, in which there are currently significant gaps.

## Risk-based funding decisions

Coastal asset works are generally expensive, and there are many assets already in poor and failing condition across the coast. To determine whether to maintain or dispose of an asset, agencies must assess a number of factors, including asset age and condition, the asset's social, economic and environmental value, its local, regional or state significance, the service it provides, and the number and type of assets surrounding it. To maximise the use of available funding, agencies must prioritise works for managing high-value, high-risk coastal assets.

Audited agencies' works do not always target the protection of high-value, high-risk coastal assets because they base decisions mainly on asset failure, poor condition or renewing assets according to estimated design life. They seldom, or inconsistently, document how priority and funding decisions relate to the service and value the asset provides and, therefore, its significance and need.



Except for EGSC, all audited agencies have a process for prioritising major coastal asset works. However, no agency consistently considers risks to assets and the services they provide in prioritising these works. Of the three agencies that had assessed risks to assets, none included all their high-risk assets in their work priorities. All had prioritised some assets that were rated only moderate or low risk or that had not been rated at all—see Figure 2F.

**Figure 2F**  
**Coastal asset works priorities and asset risk ratings**

Agency	Asset works priorities	Risk rating of assets included in works priorities
DELWP	7—across one region over two years from 2016–17	0 of 2 assets rated high risk 7 assets with no risk rating
PV	52—in a 10-year capital works program from 2016–17	20 of 22 assets rated high risk 2 assets rated low risk 23 assets rated as no risk 7 assets not rated or with an unclear rating
VicRoads	17—across two coastal regions in 2016–17	11 of 36 assets rated high risk 3 assets rated medium risk 3 assets with no risk rating or unlisted

Source: VAGO based on agency data.

Agency staff advised that other factors—such as community concerns, the need to focus on failing assets, available budget versus cost of works, opportunities for co-funding arrangements and political priorities—also influence which assets they prioritise for works. Only VicRoads and MPSC transparently document their prioritisation criteria.

While it is reasonable that agencies consider other factors in addition to risk to inform their funding priorities, agencies are not documenting these considerations and, therefore, funding decisions are not transparent.

For example, no risk assessments were initially undertaken in 2008 and 2013 before a range of costly works were undertaken by the former DSE at Portsea foreshore. Reasons why these works were prioritised before other works identified across the state were not transparently documented.

In 2008, the former DSE identified failing seawalls at Craigie and Eastern beaches. It assessed these as high risk but did not prioritise works on them. Instead, over the next eight years, it funded works for lower-risk and non-priority assets, such as Portsea foreshore, as shown in Figure 2G.

**Figure 2G**  
**Priority rankings of funded and unfunded DELWP works, 2008–17**

Asset	Priority	Funded	Cost
Rye beach	High	✓	\$200 000
Gippsland silt jetties and rock revetments	High	✓	Unknown
Brighton New Street beach	Medium	✓	\$1 million
Cowes East timber groynes	Medium	✓	\$30 000
San Remo beach retaining wall	Medium	✓	\$350 000
Portsea foreshore	Not prioritised	✓	Approximately \$9 million over 7 years
Craigie beach seawall, Mornington	High	Not funded, minor works only	
Eastern beach seawall, Geelong	High	Not funded, minor works only	
Fisherman's beach	High	Not funded, minor works only	

Source: VAGO.

DELWP's processes for prioritising its statewide coastal improvement program funding are not as strategic or targeted as it intended. Its process identifies the need to address risks to coastal assets but, in practice, its funding decisions are not strongly informed by an understanding of risks. It recently scoped the development of a risk-based decision-making framework to improve the way it prioritises works on coastal protection assets based on risk.

DELWP's prioritisation is further weakened because it does not have an understanding of the coastal managers' maintenance costs for built or natural assets across the coast, nor of the funding required to treat all current high-value, high-risk assets. It also does not have an understanding of the revenue generated and spent on coastal assets across the coast.

---

## 2.4 Agency performance in managing assets

There are a number of ways of measuring the effectiveness of the audited agencies' asset management activities, including:

- tracking factors such as individual asset risk ratings, condition and incidents over time
- assessing results from works, such as their impact in improving public access to the coast
- formal performance measures and targets.

However, the audited agencies do not measure and monitor their performance in managing and protecting assets well.

### Performance measures and monitoring

The State Budget Papers include performance measures related to DELWP's and PV's coastal management responsibilities. In Budget Paper 3 for 2017–18:

- DELWP's performance measures are the number of coastal protection infrastructure projects delivered—the current target is six per year—and the number of participants in Coastcare (coastal environment volunteer activities)
- PV's performance measure is the proportion of its significant built assets on the bays and in parks, rated as being in average to excellent condition.

In 2016–17, PV met the targets for this measure and an additional one, for percentage of assets with more than five years' life expectancy, which is no longer measured. However, it advised us that these targets do not accurately reflect the state of its asset base as:

- they do not capture trends in the assets rated as being in poor to very poor condition
- different components of each asset can be in different condition, complicating accurate condition ratings
- the percentage of assets in a particular condition does not reflect the replacement value from a financial or liability perspective.

DELWP's 2016–17 measures included the proportion of bay foreshore protection assets rated as being in good to very good condition and the number of activities undertaken by Coastcare Victoria participants. However, DELWP did not report on these measures because they were changed. Previous results for the protection assets measure were unreliable as DELWP did not have the information needed and had been using outdated and incomplete condition information to report against it. It has now removed this measure. DELWP met its Coastcare target in previous years.

DELWP's 2017–18 measures are both new, so no results are available yet. However, the focus on the number of projects and participants will not provide useful information on the condition, risks or effective management of the protection assets.

Collectively, the current Budget Paper measures do not assess how well coastal assets deliver their intended service or protect significant infrastructure and natural and cultural values. For example, built protection structures such as seawalls and groynes can disrupt coastal processes and harm other assets and the environment nearby. Many of these built structures continue to be renewed, replaced or introduced along the coast, without understanding their performance and impacts. International research suggests better practice engineering is often to use 'soft' or natural protection measures where possible, for example through restoring beaches and mangroves.

While the first principle of the *Victorian Coastal Strategy* is to protect significant environmental and cultural values, Victoria does not have the measures and monitoring needed to know whether this principle is being upheld. Nor do the measures assess how successfully DELWP and PV are managing the risks to their coastal assets.

The other audited agencies also lack the measures and monitoring needed to assess their performance in managing and protecting their coastal assets, including whether the total number of high risk assets is increasing or decreasing over time. This reduces their ability to:

- take an adaptive management approach and modify or improve their risk management approaches over time
- improve the prioritisation and cost-effectiveness of their risk management
- report on the effectiveness of their programs and actions.

This lack of information represents a significant gap.

## Outcomes of projects and programs

DELWP regularly evaluates the delivery of its coastal asset improvement and beach re-nourishment programs, but the other audited agencies generally only assess their works on individual assets, rather than the overall effectiveness of their asset management program and practices. Poor asset data and limited monitoring after works have been completed weaken the quality of agencies' assessments.

### DELWP's evaluation of its coastal improvement program

DELWP's evaluation of its coastal improvement program shows that, between 2012–13 and 2015–16, the four individual components of this program all generally delivered their stated works within approved budgets and time frames. However, as DELWP does not measure and report on the effectiveness of these works in meeting their aims, the evaluation could not assess the program's overall performance and success.

The program evaluation found a number of limitations in the way DELWP delivered the program, such as the lack of monitoring and relevant performance measures, as well as difficulty in tracking spending and administrative costs for some program components and funding streams.

### DELWP's evaluation of its beach re-nourishment program

DELWP regularly evaluates the success of its beach re-nourishment program. These evaluations have all found that DELWP and its predecessors have effectively and efficiently re-nourished beaches, significantly improving beach condition. They concluded that this program is vitally important and, without it, beaches around Port Phillip Bay would disappear, with adverse impacts on the assets they are protecting.

DELWP's 2011 cost–benefit analysis of the program showed it was also a cost-effective method of protecting beaches.

DELWP re-nourishes some beaches more regularly than others, but it does not have the monitoring data needed to show why this occurs. This makes it difficult to assess the overall effectiveness of beach re-nourishment over the projected life-span of five to 10 years.

The most recent beach re-nourishment evaluations, undertaken by technical consultants in 2011 and 2014, recommended that DELWP regularly monitor re-nourished beaches to better understand the processes driving long-term sand movement. This would allow DELWP to improve and better prioritise its beach re-nourishment practices. To date, DELWP has not done this. It received \$200 000 for this purpose in the 2013–14 Budget, but it redirected this funding to fix failing coastal assets. DELWP now proposes to incorporate this monitoring into its \$4 million coastal monitoring program for 2017–20.

Figure 2H provides a case study of beach re-nourishment at Mount Martha North beach, which illustrates a number of these issues.

**Figure 2H**

**Case study: Re-nourishment at Mount Martha North beach**

Mount Martha North beach has experienced significant erosion and sand loss since the early 2000s. Natural cyclic processes do not replace beach sand. The beach was re-nourished in 2010. Continued sand loss has exposed the supports under many of the beach's 90 bathing boxes, and dozens of the boxes have been lost or damaged through this erosion. The cliffs behind the bathing boxes are also no longer stable due to erosion.

After a severe storm in 2012, which resulted in the loss or damage of many of the bathing boxes, the former DSE stopped approving applications to rebuild bathing boxes due to the coastal erosion processes making the area unstable. Ministerial intervention reversed this decision, and bathing box licensees received approvals to rebuild. Since then, numerous asset protection works have occurred, such as the erection of a small rock wall, and licensees have renovated, repainted and restumped their bathing boxes.



Bathing boxes continue to be lost in storms, and there has been continued substantial damage to the cliff face.

In September 2017, DELWP closed Mt Martha North beach. DELWP has now commissioned a study to examine coastal processes and hazards in the area, to determine the most cost-effective design for minimising risks to natural and built assets from coastal hazards. In December 2017, the Minister for Energy, Environment and Climate Change announced \$880 000 for a 140-metre rock revetment to protect the cliff. A further 60 metres of revetment may also be needed.



Source: VAGO based on agency data, with photos provided by MPSC.

# 3

## Managing future risks to coastal assets

Climate change will change the nature and potential impact of coastal hazards in the future, with rising sea levels and increased storm intensity expanding and intensifying inundation and erosion.

As early as 1992, the Port of Melbourne Authority recognised the need to start responding to climate change, identifying several coastal regions that were vulnerable to significant climate change impacts.

Victoria's *Climate Change Act 2017* and the Adaptation Plan, released in 2017, establish the framework for supporting and delivering climate change adaptation. Adaptation planning processes are underway across the state by government agencies, businesses, local government and communities.

While coastal managers' current asset and risk management practices require prompt attention now, the long lead times required to plan and deliver appropriate responses to climate change mean that the audited agencies need to be looking to the future as well.

In this part of the report, we examine how the audited agencies identify and manage the future risks to coastal assets resulting from climate change.

---

### 3.1 Conclusion

While the audited agencies are not managing their coastal assets as well as they could to respond to today's risks, they are also struggling—to different degrees—to meet the future challenges that climate change presents.

DELWP, PV, VicRoads, EGSC and GORCC are making progress toward better understanding and managing the future coastal hazards and risks exacerbated by climate change. Specific actions to protect, adapt or move assets in response to future risks have been limited, although in many cases agencies have determined that no action is warranted yet.

There are several reasons for the slow progress to date—the absence of strong statewide leadership, a lack of guidance to agencies and engagement with the community on climate change adaptation, and agencies focusing on current risks. The long lead time needed for action on climate change means that urgent action is needed. It often takes several years to inform and engage communities, to identify equitable and time-appropriate adaptation actions, and to develop the relevant policies and tools. Without urgent action some towns, suburbs and other coastal areas will not be prepared for significant climate change impacts, which may be felt as soon as 2030.

---

### 3.2 Identified future risks

Modelling by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and DELWP indicates that increased coastal inundation and erosion from rising sea levels and increased storm intensity will have widespread impacts across the coast in the medium to long term, particularly for natural assets but also for built assets.

Some of the audited agencies—DELWP, PV and VicRoads at a statewide level, and GORCC at the local level—have assessed future risks to their coastal assets based on predicted climate change impacts. The risk assessment practices underpinning these are as variable as those discussed in Part 2.

The other audited agencies consider climate change risks as part of individual asset and risk management activities but have not systematically assessed future risks across their asset portfolios.

Both EGSC and MPSC have identified the need to first progress their local coastal hazard assessments into risk assessments. EGSC has also identified that it requires the outcomes from its current climate change adaptation planning process for the Lakes Entrance town and community to inform adaptation planning for its coastal assets.

GP believes that it does not yet need to assess climate change risks across its asset portfolio, even though its assets include some long-lived structures that are at the end of their design life.

None of the agencies have applied the Australian standard for climate change risk assessment and adaptation, AS 5334:2013 *Climate change adaptation for settlements and infrastructure—A risk based approach*. However, the state Adaptation Plan states that, by 2019, DELWP will help councils apply robust processes, such as those identified in this standard, to land use planning decisions.



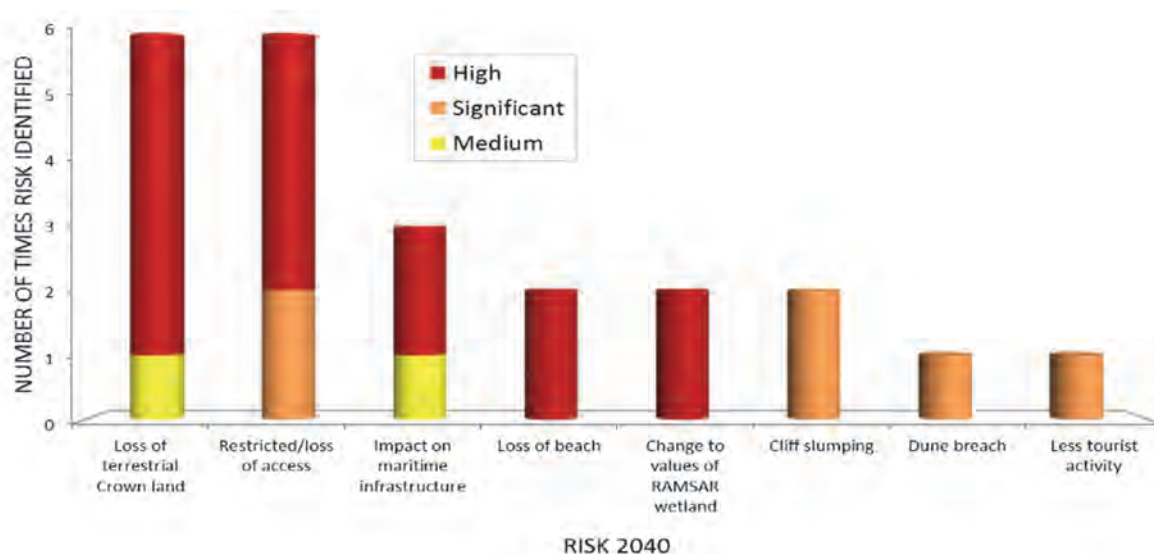
## DELWP

In 2015 and 2017, DELWP conducted statewide assessments of future risks posed by coastal inundation and erosion hazards in 2040 and 2100 respectively, for 17 coastal assets or asset groups identified as significant. These included parks, wetlands, commercial ports, boating precincts, heritage assets, activity centres, significant landscapes and open space.

The 2015 assessment identified 24 risks to the 17 selected assets—including eight high or significant risks, as shown in Figure 3A. The majority of the 17 assets (91 per cent) were rated as being at high risk from coastal flooding or erosion using predicted 2040 conditions, even when existing mitigation controls were taken into account.

The effectiveness of existing controls for mitigating risks in 2040 was rated poor or absent—the lowest rating categories—for 18 of the 24 risks.

**Figure 3A**  
**Highest-rated risks to significant coastal assets across the state in 2040**



Source: DELWP, *Coastal Climate Change Risk Assessments*, 2015.

DELWP also mapped the most vulnerable coastal areas using the eight highest risks. This mapping estimated that, by 2040, a significant majority of Victoria's coastline and assets would be at high risk from coastal inundation and erosion, as shown in Figure 3B.

**Figure 3B**



**Source:** DELWP, Coastal Climate Change Risk Assessments – Volume 1, 2015.

While this work improved the state's and DELWP's understanding of future risks to coastal assets, it raises significant concerns about Victoria's ability to adequately protect its coastal assets. It makes clear that none of the existing risk controls will effectively mitigate future coastal hazard risks.

The 2015 assessment canvassed options to mitigate the risks, but DELWP has made little progress in addressing these options and changing its existing risk controls. This means the state is in danger of not adequately discharging its duty of care for managing coastal Crown land assets and ensuring safe community access to, and use of, the coast.

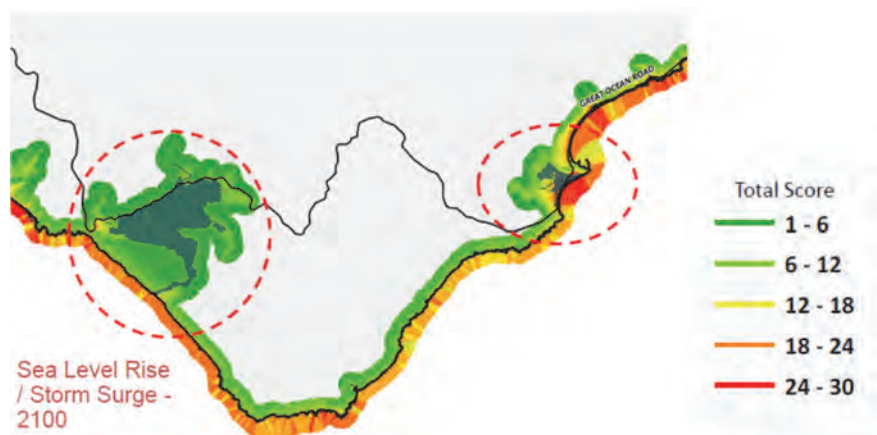
In 2017, DELWP conducted a further statewide coastal climate change risk assessment using spatial modelling to assess risks to 2100. This risk assessment used improved data and modelling compared to the 2015 assessment, as it:

- modelled coastal inundation and erosion hazards, including cumulative hazards
- included the geological structure of the coastline—for example, sandy versus rocky coasts
- mapped existing natural and built coastal protection assets—as these can moderate the extent to which coastal hazards impact other assets.

The 2017 assessment used the same set of significant state assets used in the 2015 assessment. Risks are not ranked as they were in 2015, as the modelling did not assess the effectiveness of controls to mitigate the risks to coastal assets.

The new assessment shows high vulnerability to rising sea levels and storm surge by 2100 for most assets along the coast. Figure 3C shows this modelling for part of the Great Ocean Road.

**Figure 3C**  
**Predicted vulnerability to rising sea levels and increased storm surge by 2100 for the Apollo Bay region of the Great Ocean Road**



*Note:* The black line is the coastline. The green areas are predicted to experience limited erosion as a result of sea level rise and increased storm surge by 2100. The red areas show where erosion is likely to be highest. The areas circled by the red dotted line show the areas predicted to be flooded by the sea.

*Source:* Modelling by Spatial Vision, provided by DELWP.

The use of a more comprehensive spatial model and hazard information provides an opportunity for DELWP to improve its assessment of the likelihood and consequences of coastal inundation and erosion risks. The model ensures risks can be revised as new or updated data becomes available. DELWP already targets treatments to manage bushfire and inland flooding risks using this approach.

DELWP plans to make the model and the information it generates available on its website. This model could be used as the standard risk assessment process for coastal managers to identify and assess risks to their assets. It is, therefore, critical that DELWP addresses the gaps in data identified in Part 2, to better inform the model and maximise its use and the information it generates. DELWP has started a project to gather new wave data to improve local sea level rise forecasting and climate change projections to address these gaps.

## PV

In 2010, PV conducted a strategic, high-level assessment of climate change risks for 2030 and 2070, to help it prioritise risks across its built and natural assets. It used this assessment to understand the scope of potential climate change impacts and identify initial priorities for adaptation and research in areas where impacts were highly uncertain.

Coastal parks were one of the four park categories assessed as likely to be at highest risk by 2030. All coastal parks are likely to be affected, particularly through rising sea levels and increased storms and storm surges. These risks rise to very high by 2070 across natural and built assets in coastal parks.

In 2012, PV assessed climate change risks in 2100 for its piers and jetties. It found that rising sea levels would significantly affect the majority of its 51 structures by 2100, with sea levels predicted to rise above 46 per cent of structures with low landings (known as 'overtopping'), preventing access. More than a third of the 51 structures would be overtopped within their remaining design life.

## VicRoads

VicRoads assessed climate change risks across the state's arterial road network in 2015. It rated risks related to sea level rise as extreme across almost all asset types—for example, road surface, road structure and bridges—except roadside vegetation. It identified impacts from rising sea levels on coastal roads as its single greatest climate change risk.

The assessment predicted the most widespread impacts would be in the east of the state, as illustrated in Figure 3D. In particular, significant lengths of the Princes Highway in Gippsland could be affected by a 0.82-metre rise in sea level.

The assessment used the conservative modelling approach VicRoads had available at the time and future dynamic modelling is likely to show reduced impacts.

**Figure 3D**

**Kilometres of main road predicted by VicRoads to be affected by rising sea levels**

Region	Kilometres of road affected by sea level rise		
	0.2-metre rise scenario	0.47-metre rise scenario	0.82-metre rise scenario
<b>Estimated sea level rise impacts</b>			
Eastern	0.0	2.5	6.8
Metro south east	0.2	0.5	1.2
Metro north west	0.0	0.0	2.1
South western	1.0	1.8	3.7
<b>Total</b>	<b>1.2 (5 roads)</b>	<b>4.8 (12 roads)</b>	<b>13.8 (26 roads)</b>
<b>Estimated storm surge impacts</b>			
Eastern	17.3	31.2	44.9
Metro south east	1.3	4.4	11.2
Metro north west	0.5	3.2	19.8
South western	3.9	6.7	13.6
<b>Total</b>	<b>23.0 (30 roads)</b>	<b>45.5 (42 roads)</b>	<b>89.5 (62 roads)</b>

Source: VicRoads, 2015, based on the Victorian coastal inundation dataset.

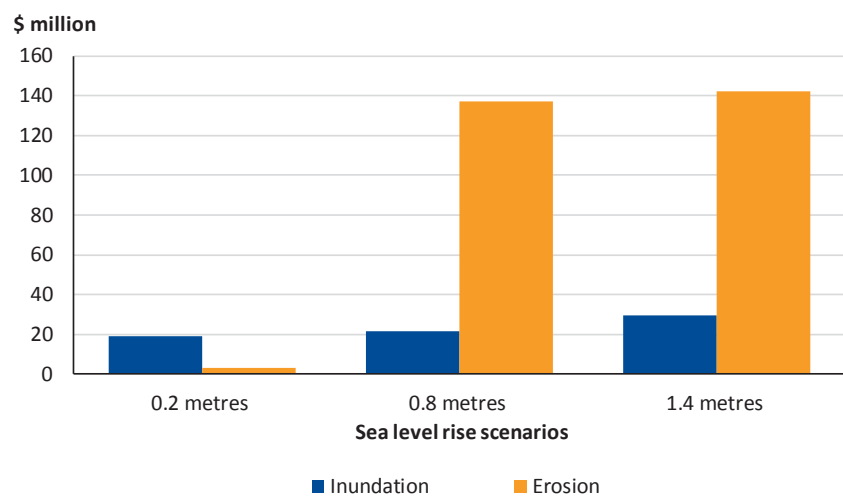
## GORCC

In 2012, GORCC assessed how climate change would affect its area of responsibility, to understand how vulnerable its built and natural assets would be under three sea level rise scenarios.

This assessment found that a significant proportion of its assets would be vulnerable to damage from inundation and erosion if sea levels rose by 0.8 metres, as shown in Figure 3E.

**Figure 3E**

**Value of GORCC built assets vulnerable to sea level rise and erosion**



Source: VAGO based on GORCC data.

GORCC found that under a 0.8 metre sea level rise scenario predicted by 2100:

- 82 per cent of its built assets, worth around \$137 million, are at risk from the coastline permanently receding inland
- 13 kilometres of the Great Ocean Road and over 30 kilometres of other roads would be exposed to coastal erosion
- 700 hectares of native vegetation would be subject to erosion and 380 hectares inundated.

---

### 3.3 Responding to future risks

The strategic and systematic implementation of actions to respond to climate change has been limited or lacking, and agencies' actions to adapt assets are largely ad hoc and reactive.

#### Actions to manage risks to assets

##### Implementing actions from climate change risk assessments

The four agencies that assessed climate change risks—DELWP, PV, VicRoads and GORCC—also identified initial actions needed to respond to those risks, although they have made limited progress in delivering them.

DELWP implemented some of the recommendations from its 2015 pilot risk assessment, however, the majority remain unaddressed, including:

- using the results to inform its coastal risk management funding priorities and support future coastal funding bids
- investigating the feasibility, costs and benefits of the risk mitigation strategies identified in the assessment
- using policy tools and emerging legislation to clarify accountabilities for coastal climate change issues, particularly for adaptation planning, emergency management, asset maintenance and construction.

DELWP's progress in developing or implementing the six main risk mitigation strategies identified in 2015 has been variable.

PV's response to its climate change risk assessment has two streams:

- actively dealing with extreme weather events when they occur—fire, flood, storms and drought
- working with DELWP and others on long-term research and adaptation to address slow-onset impacts such as sea level rise, warming and permanent shifts in rainfall.

PV has made limited progress in implementing these responses. PV advised us that, as its funding for treating natural assets is only secure for 12 months, it focuses on funding the many natural assets currently in poor condition from existing hazards—including endangerment and extinction threats to species.

VicRoads drafted an adaptation action plan in 2015 to manage the climate change risks it had identified for its roads—some of the longest-lived of the coastal assets we examined, enduring up to 100 years. The actions included introducing triggers or processes needed to prepare for and manage the risks, for example, building sea level rise projections into its prioritisation and costing activities for major or new works. However, it is not yet applying these systematically.

GORCC's climate change assessment recommended it implement a number of actions as part of its forward planning process, including:

- developing long-term and flexible adaptation pathways for each asset class and type to manage risks resulting from a 0.8 metre rise in sea levels
- developing trigger points to implement risk treatment pathways
- applying economic and other assessment tools to evaluate alternative treatment pathways and establish cases for investment
- developing detailed treatment action plans for each asset class and synthesising these into an overall adaptation strategy for the Surf Coast region.

GORCC used the climate change assessment to inform its 2012 coastal management plan. It has not yet implemented these recommendations, but it advised us that it will consider them as it develops its new five-year coastal management plan in the coming months. It cited the following reasons for this delay:

- change of committee staff and priorities
- the capacity and capability of GORCC staff to undertake this work
- the lack of certainty around the degree of impacts and their timing.

### Planning to deliver individual asset works

Whether or not they have systematically assessed climate change risks across all their coastal assets, all of the audited agencies can demonstrate they consider climate change risks to individual assets in some way. For example, they consider climate change when planning major asset upgrades, renewal or replacement and through strategic or operational risk assessments.

For asset replacement, this involves considering whether the asset's existing location and design will remain suitable for the duration of the replacement's life and takes into account climate change. Figure 3F provides two examples of this approach in practice.

**Figure 3F**

**Case study: Adapting individual assets for climate change**

**Point Cook wetlands**

Point Cook Coastal Park lies between one of Australia's fastest-growing urban development corridors and the Point Cook Marine Park. It is home to Ramsar-listed wetlands (recognised as significant and requiring protection) and has Indigenous and non-Indigenous cultural value. Each year, 20 000 people visit the park. PV anticipates that rising sea levels will most likely permanently inundate the wetlands by 2030 and that there is a high risk that Crown land will also be lost.

It has identified the need to develop long-term directions for this park, to engage the local community to understand the existing values of the park, and to create a shared vision for how risks—including climate change and increasing population—could be managed.

PV is collaborating with DELWP to initiate work to:

- develop contemporary coastal modelling data for Port Phillip
- engage the community about the existing park values and what the modelling means for future opportunities and challenges.

**Loch Sport mooring jetty**

When GP upgraded the Loch Sport mooring jetty, it considered whether it needed to provide greater protection to maintain a safe harbour in the future and whether a floating pontoon would be needed to accommodate rising sea levels.

It determined the long-lived breakwater needed to be designed so it could be raised over time but that the shorter-lived jetty did not.

Source: VAGO.

For most of the asset works we reviewed, agencies had determined that, due to the asset's short design life relative to the predicted timing of climate change impacts, adaptation measures were not yet needed.

## Trigger-based approaches

DSE's 2012 *Victorian Coastal Hazard Guide* advises that coastal managers need to identify and monitor triggers or decision points that will alert them when they need to start factoring climate change impacts into their asset management. Triggers and responses are identified as part of the planning process, to ensure there is sufficient time to plan, finance and engage stakeholders in the process. The aim is to prevent maladaptation—unsuccessful or premature adaptation to climate change when there is still uncertainty about the timing or extent of impacts.

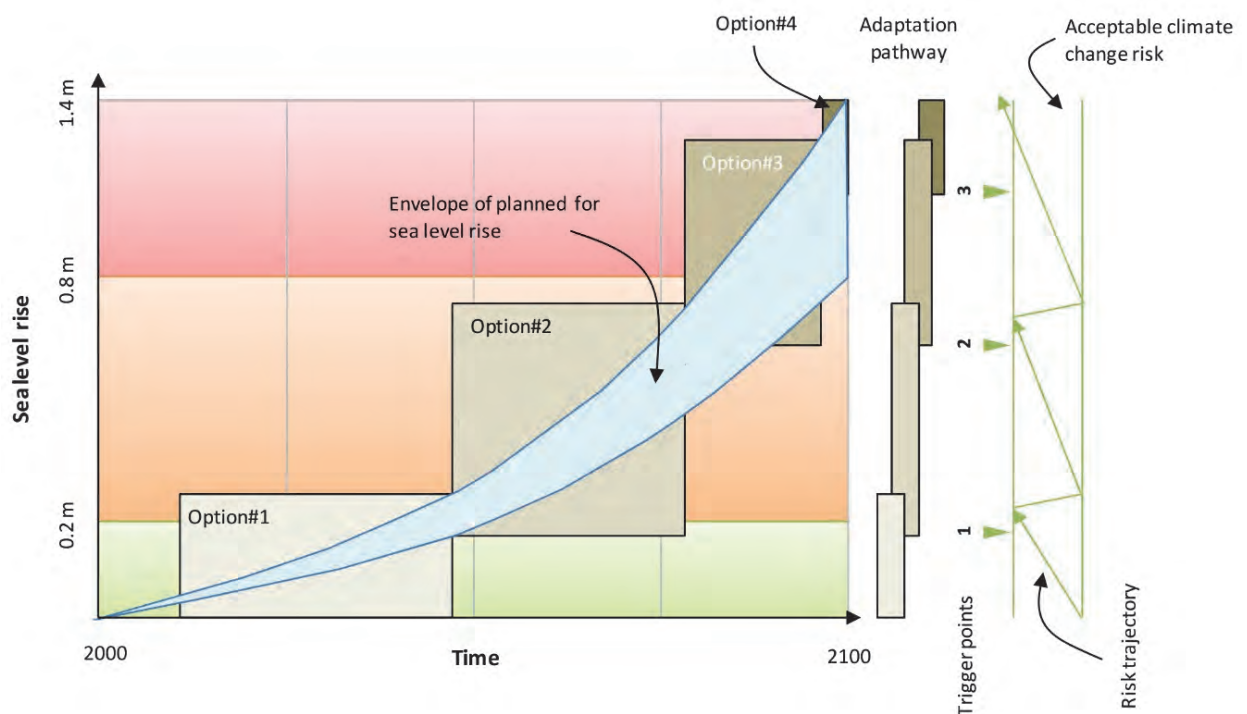


Triggers can include sea level rise figures or the extent of coastal erosion or recession. For example, the trigger for a jetty could be the rise in sea level that is expected to make it inaccessible, or how often the landing area becomes inaccessible during high tides. Factors such as the jetty's use and the level of service required from it need to be considered. For example, a jetty being inaccessible once a month could be unacceptable for a commercial jetty but acceptable for a recreational one.

Once a trigger point is reached, agencies implement the responses they have identified, as described in Figure 3G.

**Figure 3G**

**Trigger-based options approach to help mitigate risks for different sea level rise scenarios**



Source: GORCC based on NZ Ministry for Environment, 2008.

Of the audited agencies, only EGSC has begun to develop triggers. It has started working with the Lakes Entrance community to identify what triggers will signal that climate change effects are reaching an intolerable level. The response options will include a mix of actions to protect, adapt or relocate assets.

Victoria's coastal councils are concerned about a lack of clarity around the state government's support for protecting or relocating assets in response to climate change impacts and where liability lies for such decisions. The state Adaptation Plan committed DELWP to leading a forum in 2017 to:

- discuss options for clarifying councils' liability for land-use planning decisions in the context of climate change
- develop standards to help councils demonstrate that they have met their obligations for managing climate change risks through land-use planning.

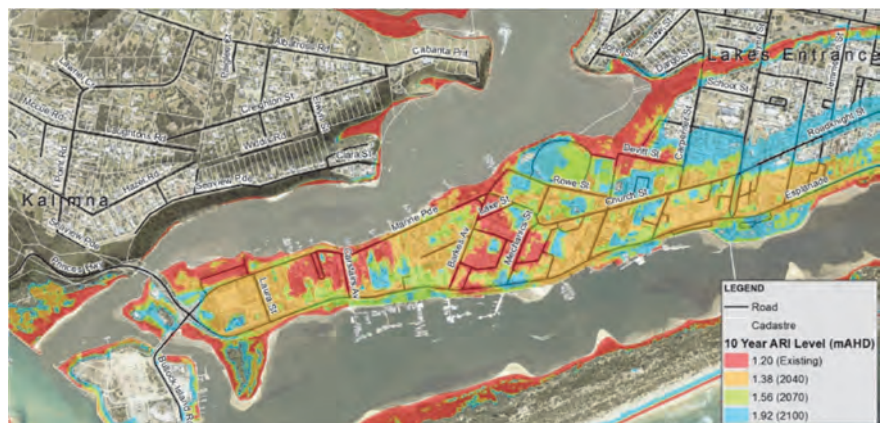
DELWP advised us that the forum will now be held in 2018.

## Community adaptation planning

Climate change adaptation aims to make communities' built and natural environments resilient to the predicted impacts of climate change. The Australian standard for climate change adaptation AS 5334:2013 *Climate change adaptation for settlements and infrastructure—A risk based approach* identifies education as a key tool for adaptation.

In Victoria, Lakes Entrance is one of the towns most vulnerable to sea level rise. In the short to medium term, projected sea level rise will more than double the area of the town inundated by a one-in-10-year flood, as shown in Figure 3H.

**Figure 3H**  
**Inundation modelling for Lakes Entrance based on projected sea level rise combined with the scale of flooding experienced on average once every 10 years**



Note: ARI = annual recurrence interval, with a 10-year ARI occurring on average once every 10 years.  
Source: EGSC.

Robust adaptation planning for individual communities can involve a long lead time. The case study in Figure 3I outlines EGSC's adaptation planning for Lakes Entrance over several years.

**Figure 3I**

**Case study: Climate change adaptation planning for Lakes Entrance**

Lakes Entrance is a coastal town with high social and economic value for the East Gippsland region. Along with residential development, it has a significant commercial area and fishing fleet. It is also prone to inundation during flooding events, for example, in a one-in-10-year flood, around 94 hectares of land and six kilometres of roads are subject to flooding.

State and local governments recognised the need to understand and plan for climate change risks to the town as far back as 1995. Since then, there has been a slow accumulation of information and EGSC has commenced developing an adaptation and growth strategy for the town. The strategy will identify triggers for action or for gathering further information.

**Adaptation planning timeline**

1995–2008	A series of 18 research projects on the risks climate change poses to the Gippsland coast are undertaken. (These projects were not designed to assess the risks climate change poses to coastal values or inform adaptation decisions.)
2009	The Victorian Civil and Administrative Tribunal refused a planning permit application because EGSC had not demonstrated how it had incorporated planning for a 0.8 metre rise in sea levels into the decision.
2010	<p>State government provides \$500 000 in funding to EGSC to help it plan immediate and long-term actions to respond to a 0.8 metre sea level rise.</p> <p>The then Minister for Planning applied interim controls to all land in the Lakes Entrance business district to ensure all development within the area would accommodate a sea level rise of more than 0.2 metres by 2040. These controls expired on 31 December 2011 and were replaced by the modified approach to the State Planning Policy for coastal inundation and erosion.</p> <p>The University of Melbourne commenced research into community capacity to understand and adapt to climate change.</p>
2012	EGSC started developing the Gippsland Lakes Inundation and Adaptation Management Plan but this was put on hold to include the results of DELWP's LCHA for the Gippsland Lakes.
2016	EGSC started work to develop a growth and adaptation strategy for Lakes Entrance, informed by the LCHA and community research, funded with \$400 000 from the \$500 000 provided in 2010.

Source: VAGO.

The long lead times involved mean it is important to start gathering information and engaging with the community early. For example, NCCARF has estimated that the time needed for planning and design can be as long as 25 years even for minor infrastructure, as shown in Figure 3J. The time frames that individual agencies and communities actually need will be influenced by their level of understanding about the risks and their risk tolerance.

**Figure 3J**

**NCCARF's estimates of the adaptation planning time frames needed for different assets and values**

Consideration	Applicable time frame (years)
Requiring imminent attention	Up to 15
Design of minor infrastructure (e.g. landscaping)	25
Generational changes	35
Design life of normal infrastructure (e.g. roads)	50
Design life for residential buildings	50–60
Major/critical infrastructure (e.g. hospitals, bridges)	100+
Residential subdivision	100+

*Source: Wainwright, D., and Verdon-Kidd, D., 2016: A local government framework for coastal risk assessment in Australia. NCCARF, Gold Coast.*

## Land use planning

Councils have not used land use planning controls consistently or to their full potential to protect assets from future climate change impacts, particularly rising sea levels.

The provisions in the state's planning system relevant to protecting coastal assets are contained in a range of planning policies and tools.

These policies establish benchmarks for sea level rise and were introduced into planning schemes in 2008 and 2012. The benchmarks act as a security level for the protection of future coastal assets. They guide decision-makers and coastal stakeholders about what sea level rises they should anticipate in their planning decisions for future coastal land use and development. The benchmarks do not apply to existing developments and use.

Almost a decade on, land use and development decisions continue to proceed without consistent reference to these benchmarks.

Currently, only three of 19 coastal councils—Bass Coast, Moyne and South Gippsland Shire Councils—apply the 'land subject to inundation' overlay across at least some coastal land identified as susceptible to coastal inundation within their municipality. Bass Coast did this initially using the statewide coastal inundation data and then updated it when LCHA information became available.

MPSC has a planning scheme amendment underway to apply the 'land subject to inundation' overlay across areas at risk of coastal inundation in the Western Port area of the municipality. Other councils use either a different range of overlays or no overlay, which do not require specific coastal hazard considerations.

Some councils we spoke to during the scoping and conduct of this audit considered that the LCHA information was not specific enough to determine the boundaries of where the overlay should apply, although MPSC, Bass Coast, Moyne and South Gippsland Shire Councils have been able to do this.

Without specific overlays, such as the 'land subject to inundation' overlay, that trigger consideration of coastal hazards, planners find it difficult to use coastal hazard risks as a key factor in their decision making about whether to approve a planning application for the future use and development of coastal areas.

Councils that we consulted also cited difficulties in translating and implementing coastal planning policies and sea level rise benchmarks into land use and development decisions.

### Common reasons for slow progress

Managing climate change is difficult for a number of reasons. Some of these reasons are due to different attitudes:

- There is some uncertainty about the nature, extent and timing of the effects of climate change. This can make decision-makers reluctant to invest in managing climate change impacts when there are already many competing priorities for funding.
- Many effects are not likely to be felt for 10 or more years, and current short funding cycles and government terms give little incentive to decision-makers to invest in long-term planning.
- Some people do not believe climate change is occurring or that communities will need to make changes to cope with it, yet community involvement and support is needed to identify appropriate and equitable adaptation actions.

Other reasons are specific to individual agencies:

- Agencies are focused on spending available funding to address assets that are currently in poor or failing condition, leaving little funding for assets facing risks in the future.
- Agencies' maintenance and capital works programs are generally planned 12 months ahead, meaning short-term priorities drive decision-making.
- Liability for land use planning decisions is uncertain.
- Agencies do not always have the skills or capacity to evaluate or implement costly treatments to address a number of complex and uncertain future risks. These include the need to remove townships, residential sub-divisions or other coastal infrastructure at risk of inundation, identified for areas such as between Golden Beach and The Honeysuckles in Wellington Shire or residential houses at Dutton Way, Moyne Shire.

---

### 3.4 Focus for future action

The *Climate Change Act 2017* commits the Victorian Government to ensuring that government decisions, policies, programs and processes appropriately address climate change where relevant. Government departments and agencies also need to do this when making decisions under legislation.

Victoria's Adaptation Plan, developed under the previous *Climate Change Act 2010*, recognises that adaptation is a shared responsibility, but does not assign accountability for delivering the plan to any ministers, departments or agencies, although it does assign responsibility for individual actions. The Minister for Energy, Environment and Climate Change is responsible for reporting on the implementation and effectiveness of each plan.

The *Climate Change Act 2017* provides a process to strengthen accountability for delivering adaptation actions. Ministers can be nominated to prepare adaptation action plans under the new Climate Change Strategy—which will replace the Adaptation Plan from 2020—that align with their portfolio responsibilities. They will be required to report on their implementation and effectiveness.

Given there has been slow progress on climate change adaptation, strong leadership from state and local governments and public sector agencies will be critical to driving and supporting education, research and actions needed to overcome the challenges that adaptation presents.

# 4

## Funding asset protection

The costs involved in protecting coastal assets include those incurred for designing, constructing, operating, maintaining, repairing and replacing assets. Coastal managers' capacity to protect coastal assets depends on their ability to generate revenue or obtain funding, and to target this to assets of highest value and at highest risk.

Coastal managers manage a large number of ageing and deteriorating assets that are subject to increasing coastal hazards. It is a significant challenge for agencies to best allocate their limited funds to protect their assets.

In this part of the report, we examine available funding and revenue sources, how funding is allocated to the audited agencies, and how they use it to protect and manage coastal assets.

---

### 4.1 Conclusion

Inadequate funding and ineffective targeting of available funding is preventing the audited agencies from practising good risk-based asset protection and management.

Coastal managers' varying abilities to generate revenue, the lack of long-term funding security and funding subject to restrictions mean the audited agencies have a short-term, reactive—rather than a preventative—approach to asset management and protection. This has led to inefficient investment and use of revenue mainly to target failing assets, to the detriment of long-term planning and preventative works to manage and protect high-value, high-risk assets.

Continuing with this approach will increase the state's already significant asset works liability as assets continue to age and fail, and population and climate change pressures increase. Delaying investment in maintaining assets also introduces higher whole-of-life costs because assets need to be intensively maintained or renewed to extend their useful lives.

A more sustainable funding model is needed that adequately resources coastal managers by aligning revenue with the costs of what is needed to effectively manage and protect coastal assets.

## 4.2 Asset funding

### Inadequate funding

All the audited agencies except MPSC advised that there is a significant gap between available funding and the costs required to adequately maintain and protect coastal assets. However, only PV and DELWP could provide us with evidence-based costs and figures to illustrate this gap, as outlined in Figure 4A. Three of DELWP's programs—beach re-nourishment, asset protection works and asset maintenance—have been identified by independent external reviews as critical to the protection of Victoria's iconic coast and beaches.

EGSC fully funds asset depreciation for its major asset classes through council cash and external grants. This does not include its coastal assets and it has historically underfunded their maintenance and replacement. This was partly because it had not identified all the seawalls it needed to, but also because of limited external funding opportunities.

The agencies advised that the funding gap is widening due to the number of ageing assets, whose condition is further deteriorating and at an increased rate, due to the increasing intensity and frequency of coastal hazard processes. This is coupled with evidence of higher levels of community use and demand for coastal assets.

Over time, funding shortfalls have created a deferred asset works liability, which presents a significant risk to the state through compromised service delivery and public safety. PV estimated this liability to be \$336 million for its coastal maritime assets in 2012, which cover 70 per cent of the coast.

**Figure 4A**  
**Gap between requested and available maintenance funding, for selected coastal asset works programs**

Program	Funding requested	Funding available	Funding gap
<b>DELWP</b>			
Beach cleaning 2013–14 to 2015–16	\$8 604 028	\$3 236 564	\$5 367 464
Beach re-nourishment 2016–17 to 2019–20	\$7 224 000	\$2 408 000	\$4 816 000
Protection asset works 2016–17 to 2019–20	\$20 000 000	\$15 000 000	\$5 000 000
<b>PV</b>			
Local ports maintenance for maritime assets <sup>(a)</sup>			
2015–16	\$4 179 000	\$145 800	\$4 033 200
2016–17	\$5 119 000	\$500 000	\$4 619 000
2017–18	\$5 300 000	\$100 000	\$5 200 000

(a) Funded by the Department of Economic Development, Jobs, Transport and Resources (DEDJTR).  
Source: VAGO based on agency data.



Industry and agency reports show that the annual maintenance investment benchmarks for the ports and maritime industries range from 2 to 7 per cent of the replacement value. None of the audited agencies invest this amount, with the average being less than 1 per cent of asset value, as shown in Figure 4B.

**Figure 4B**  
**Value of agencies' maritime assets compared to maintenance spending, 2016–17**

Agency	Asset value (\$ million)	Asset maintenance funding		Actual funding as a proportion of value
		Needed (\$ million)	Actual (\$ million)	
DELWP <sup>(a)</sup>	630.0	Not identified	5.00	<1%
PV <sup>(b)</sup>	252.0	4.4	0.50	<1%
MPSC	4.4	Not identified	0.05	1.1%
EGSC	16.9	Not identified	0.25	1.5%
GP	149.0	0.5	Not known <sup>(c)</sup>	Not known <sup>(c)</sup>

*Note:* The types of assets counted as 'maritime' assets varies between agencies—for example, MPSC counts only jetties and boat ramps, while EGSC includes marinas as well, and GP and PV also include navigation aids. VicRoads is not included as it does not have maritime assets. GORCC is not included as it could not provide relevant data.

*(a)* For protective assets only.

*(b)* For Port Phillip Bay and Western Port assets only.

*(c)* Data not supplied by GP.

*Source:* VAGO based on agency data.

## PV

PV manages the largest coastal area—70 per cent of Victoria's coast—and has the widest range and highest number of assets, both natural and built.

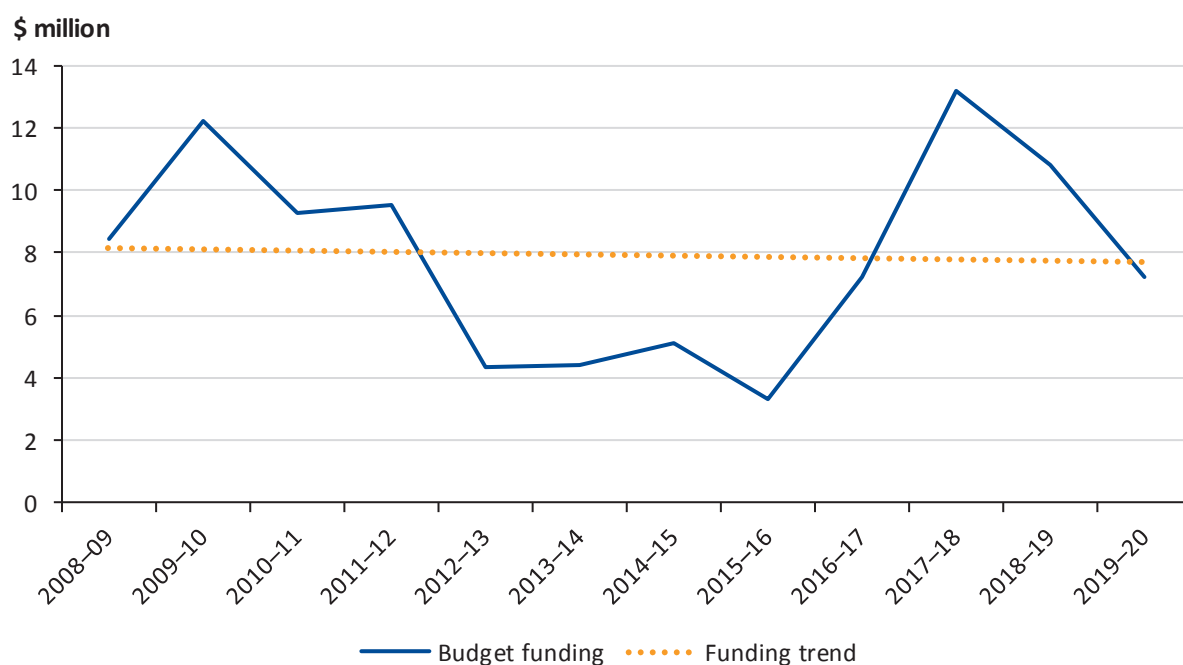
In 2015–16, PV received \$97.7 million in government funding to protect land-based natural and built assets across all the public land it manages, not just coastal. The amount it specifically spends on land-based coastal assets is unknown, as PV does not differentiate expenditure based on public land categories. Just over half of these funds—\$52.8 million—come from the Parks and Reserve Trust which PV is legislatively required to spend within Victoria's metropolitan park areas, leaving around \$45 million to protect park assets across the rest of the state.

PV receives no long-term funding to manage the maintenance and renewal of its local port assets. It relies on annual funding provided by DEDJTR and opportunistic grants. Based on PV's asset management plans there is a large gap between what PV believes it needs, compared to what it receives to maintain and renew its local port assets, as shown in Figure 4A.

## DELWP

Figure 4C illustrates the total State Budget funding allocated to DELWP for its coastal improvement programs from 2008 to 2020. DELWP distributes this funding annually to coastal managers via grants and, where required, to itself, to manage and protect deteriorating coastal assets. The state has allocated approximately \$95 million over the 12 years, with a small decrease in the average annual amount over this period. This decrease is contrary to the increase in costs associated with protecting an ageing and deteriorating coastal asset base and increased use and demand for coastal assets.

**Figure 4C**  
**State Budget funding for DELWP's coastal improvement programs, 2008–09 to 2019–20**



Source: VAGO based on figures provided by DELWP.

Figure 4D outlines the cost of treatment works for a range of coastal asset projects funded by DELWP and its predecessors between 2008 and 2016. The average cost of works was \$603 177. The significant costs associated with built protective structures, beach re-nourishment and erosion works limit the amount of asset works that can be funded on coastal Crown land in any one financial year. This creates a significant challenge for coastal managers, given the large number of assets they are responsible for, many of which are beyond their design life or in a deteriorating condition.

As an example, EGSC and DELWP received quotations to fix a metre of failing seawall ranging from \$1 000 to \$4 000. DELWP estimates that there are approximately 93 kilometres of seawalls across the state, most beyond their design life and in a deteriorating condition. The overall replacement cost of these walls would range from \$93 million to \$372 million. Hence, it is critical that agencies take a risk-based approach to prioritising the renewal of seawalls across the state.

**Figure 4D**  
**Examples of DELWP-funded coastal asset management works, 2011–2016**

Proposed and completed treatment works	Cost
Renewal of Point Lonsdale seawall and cliff	\$334 000
Replacement of Anglesea boat ramp	\$100 000
Addressing coastal erosion at Port Campbell	\$1 020 000
Renewing the seawall and beach works at East Beach, Geelong	\$864 000
Stormwater infrastructure protection works at Apollo Bay	\$160 000
Breakwater works at Warrnambool	\$680 000
Repairing the rock revetment at Inverloch jetty	\$170 000
Seawall works at Black Rock	\$400 000
Repairs to retaining wall at San Remo	\$300 000
North Aspendale beach re-nourishment	\$385 000
Groyne works at Cowes	\$148 177
Parkdale/Mentone beach re-nourishment	\$390 000
Elwood beach re-nourishment and erosion works	\$2 400 000
New Street Brighton beach re-nourishment and erosion works	\$1 000 000

Source: VAGO.

DELWP does not receive any fixed ongoing funding to maintain its coastal protection structures.

As a result of this funding model and the current age and deteriorating state of assets, DELWP and the audited agencies' capacity to protect coastal assets is generally limited to assets that are already failing and posing a public safety risk.

### Short-term funding cycles

The audited agencies' capacity to undertake long-term planning for asset maintenance and protection is limited by short-term funding cycles, and funding which varies in duration from year to year. Most funding has to be reapplied for annually although some programs and projects are funded for up to four years.

DEDJTR provides PV and GP, as local ports managers, with annual funding to maintain and renew their local port assets. To date, they have not been successful in obtaining longer-term secure funding. In 2017, PV developed detailed 10-year maintenance and capital works programs to better inform its funding bids for its local port assets.

These restrictions limit the audited agencies' ability to plan for the long-term protection of coastal assets and hinder their ability to phase works over a number of years, which is often needed due to the expensive nature of asset management and protection works.

There are few, if any, other reliable sources of funding for major asset projects not prioritised for state funding by DELWP and DEDJTR.

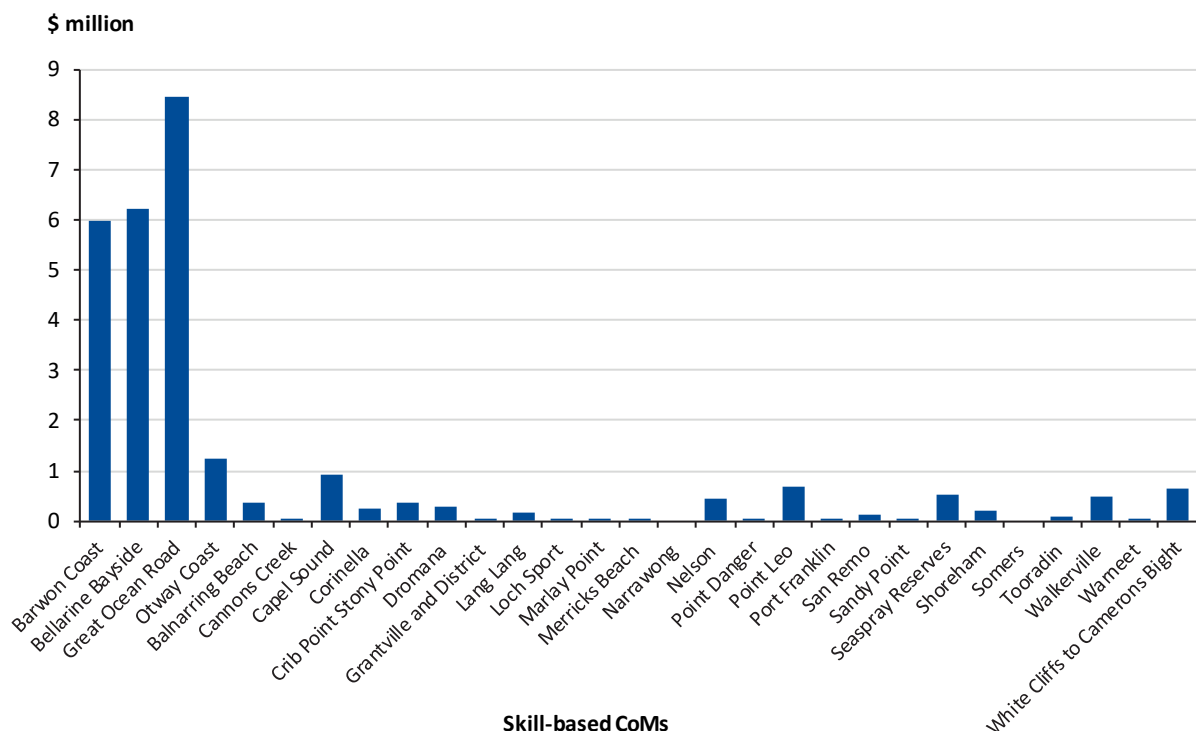
## Varying ability to raise revenue

The ability of the audited agencies to generate revenue that they can use to maintain and protect their assets varies significantly.

In 2015, PV generated \$97.5 million from all its parks' fees—not just coastal parks—while GP generated \$6.3 million. Both PV and GP received additional government funds totalling approximately \$97.7 million and \$4.1 million respectively in 2015–16. Specific revenue figures for coastal Crown land could not be obtained because councils and PV do not identify funding for assets in coastal areas separate to those in inland areas.

Figure 4E shows the revenue generated by CoMs along the coast, including grants provided by government, which CoMs must apply and compete for.

**Figure 4E**  
**Annual revenue generated by coastal CoMs, 2015–16**



*Note:* The number of CoMs has reduced from 30 (including Phillip Island Nature Park Board of Management) in 2015–16 to 24 in 2017–18.

*Note:* Revenue for Marlay Point and Point Franklin is for 2014–15, and revenue for Dromana is for 2013–14.

*Source:* VAGO, based on DELWP's data on CoM 2015–16 annual returns.

In 2015–16, the four category 1 CoMs we examined generated approximately \$22 million, or 74 per cent of the total revenue generated by all CoMs across the coast. Together, these four CoMs manage built assets valued at approximately \$80.6 million across 97 kilometres of Victoria’s west coast. The remaining CoMs generated approximately \$6 million to manage an estimated 22 per cent or 552 kilometres of coast. The total value of their assets is not known.

Overall, the ability of committees appointed under the *Crown Land (Reserves) Act 1978*—including councils and PV—to generate revenue varies and is not aligned to:

- the number, length and value of assets that the CoM manages
- the number of local, regional or state-significant assets that the CoM oversees
- the number of assets identified as failing or at high risk of failing
- the amount of vulnerable coastal hazard areas as identified by DELWP in 2015
- the number of visitors to its coastal area.

Category 1 and 2 CoMs are required to be financially self-sustaining to maintain and protect their assets. No grants are available to these CoMs for routine asset maintenance. PV and GP obtain an annual maintenance or operational grant from DEDJTR or DELWP, in addition to self-generated revenue and opportunistic grants, to maintain and renew their assets. Councils also obtain an annual budget for coastal asset maintenance generated from rates revenue in addition to the fees they generate from use of coastal assets. However, the two councils we audited indicated that rate capping has had a significant impact on their ability to keep pace with the costs of maintaining their coastal assets.

CoMs—including councils and PV—raise revenue through fees and charges to use assets within the coastal areas they are responsible for. These include commercial fees, licences and permits, with the largest source originating from coastal camping grounds and caravan parks. There are approximately 72 camping grounds and caravan parks across coastal Crown land. Not all CoMs have a camping ground or caravan park, while others have one or two.

In 2015–16, the four category 1 CoMs generated significant revenue—approximately 75 per cent of their total revenue—from each having at least one camping ground or caravan park in their area. DELWP recommends committees reinvest a portion of that revenue back into maintaining the camping ground and caravan park assets. This is a major investment for the four committees, which reinvest between 32 and 79 per cent of the revenue annually, as guided by their Boards.

In the past, DELWP’s predecessors argued that if a CoM did not have significant commercial assets generating revenue, their asset expenditure requirements would be low. However, this assumption is no longer valid, with an increased emphasis on protecting natural assets and the fact that water-based built assets are all ageing and many are beyond their design life.

Category 2 CoMs’ ability to obtain significant coastal grant funds to renew, repair and replace assets is also constrained.

Two of the four grant streams in DELWP's coastal improvement program require CoMs to match the funds that the state provides. This limits the ability of many of the category 2 CoMs to apply for larger grants for asset renewal or replacement. The majority of large grants in these two grant streams go to the category 1 CoMs because they have a better capacity to generate matching revenue.

For example, in 2016 approximately half of the category 2 CoMs received DELWP coastal improvement program grants, with the majority of those grants under \$50 000. Only two out of 19 category 2 CoMs obtained grants over \$100 000. In contrast, all four category 1 CoMs successfully obtained grants with three out of the four receiving grants over \$100 000.

Our 2014 audit *Oversight and Accountability of Committees of Management* found that DELWP's predecessor, the Department of Environment and Primary Industries (DEPI) did not have a comprehensive understanding of the current CoMs' funding arrangements and how this affected the condition of assets managed by CoMs. In response to our 2014 audit recommendations, DEPI committed to develop an informed approach to understanding the funding needs of CoMs, so that funding decisions appropriately consider and address risks. While DELWP has improved its oversight of CoMs' annual financial returns, DELWP has not used this information to create risk-based funding arrangements.

---

#### 4.3 Transparency of expenditure to protect coastal assets

As discussed earlier, CoMs cannot accurately calculate or report the total investment they make in managing and protecting coastal assets.

While volunteer CoMs routinely identify, collate, track and report revenue and expenditure trends to DELWP, PV and councils appointed as CoMs over coastal Crown land are not required to provide reports on annual coastal revenue and expenditure. They are also not required to report expenditure on public coastal areas not designated as Crown land.

As a result, DELWP and the state do not have oversight of:

- total revenue generated annually across coastal Crown land and other public coastal land
- total expenditure across coastal Crown land and other public coastal land
- where expenditure is targeted across the coast
- trends in funding generated and spent.

Despite being the delegated manager of coastal Crown land, DELWP has limited oversight of whether funds are being used to effectively manage and protect high-value, high-risk assets of significance to the state or the region. In addition, there is no one agency that oversees expenditure across all public coastal land areas. As a result, limited assurance can be provided around whether expenditure is being effectively prioritised and targeted at high-value, high-risk assets across the coast.

In 2014 and 2016, the VCC and DELWP respectively identified the need to gain a better understanding of coastal income and expenditure.

In 2017, the VCC and DELWP jointly funded a \$76 000 project to develop and test an agreed coastal accounting methodology for benchmarking income and expenditure information in a consistent way across coastal managers. This initiative should help improve the transparency and knowledge of coastal funding and expenditure. However, it is not designed to improve how effectively coastal managers use and target revenue already generated, or to improve the way revenue is raised or redistributed to better manage and protect coastal assets. Further work is required to address this.

Based on its 2016 work, DELWP made a number of recommendations to government on options to raise or redistribute revenue to more effectively fund coastal management. While government did not support these, this does not negate the need for DELWP to continue to investigate better practice models to maximise the effectiveness of revenue already generated and to improve revenue raising and distribution.





# 5

## Statewide management and oversight

In 2015 and 2016, government called for the review and reform of public land management to address longstanding issues that have hindered the governance and management of public land, including the coast and its assets.

In this part of the report, we examine the progress of proposed reforms and whether they address the issues identified in this audit.

---

### 5.1 Conclusion

Limited oversight of coastal areas and their managers continues to hinder the effective, integrated, risk-based management of coastal assets. Current government reviews and reforms intend to improve the integrated planning and management, governance and knowledge of coastal areas, leading to the better protection of coastal assets. This will require DELWP to prioritise and adequately resource the reform actions it has identified to deliver the intended outcomes. Delivery of these outcomes will also rely on strong active oversight by DELWP to ensure coastal managers are consistently implementing a targeted, risk-based approach to protect high-value, high-risk assets across the coast.

---

### 5.2 Resourcing reforms

DELWP has developed a package of legislative and non-legislative actions in response to government's 2015 call to reform coastal and marine planning and management. This includes the development of a legislative framework, for which a Bill was introduced into Parliament in late 2017. DELWP is also reforming the state planning policy framework to improve future planning and use of coastal areas.

Together, these actions are intended to deliver:

- improved governance and institutional arrangements
- better integration of marine and coastal planning and management
- improved understanding of the coastal environment, to better inform decision-making
- stronger integrated regional and issues-based planning
- clearer planning and controls around access, use and development in the marine and coastal environment
- well-resourced, efficient and effective management arrangements.

DELWP sought funding to implement a range of non-legislative actions in 2016–17 to improve coastal governance, institutional and resourcing arrangements, particularly to address the considerable misalignment between CoM skills, resources and responsibilities identified in its 2016 *Marine and Coastal Act Consultation Paper*. Government funded or partially funded approximately half of the proposed actions.

The lack of funding, and poorly targeted funding, means that current issues and risks impeding the effective management and protection of coastal assets identified previously, and by this audit, remain. Future coastal hazards posed by climate change and continuing population growth will magnify these issues and risks, putting greater pressure on coastal assets.

DELWP has developed a comprehensive business case to seek improved budget funding for ongoing coastal improvement grants and programs, such as beach re-nourishment, and to fund the range of actions outlined in its 2018 proposed coastal reform package. It anticipates these reforms will address a number of the longstanding issues impacting the effective management and protection of coastal assets.

---

### 5.3 Governance and oversight of the coast

DELWP is responsible for governing and overseeing public coastal land. This means it is responsible for making sure that planning and management arrangements are effective and efficient and well implemented through strong governance and oversight. This includes ensuring coastal manager skills and resources are aligned with their accountabilities and risks, and their planning is current and adequately addresses coastal asset risks. This needs to be supported by clear and comprehensive guidance.

Limited oversight by DELWP and its predecessors has led and contributed to a range of governance issues across the coast, including:

- poorly integrated and overly complex coastal management arrangements
- out of date planning for some areas and a lack of planning for others
- a lack of clarity around roles and responsibilities for asset management and maintenance
- a lack of clarity and transparency around coastal funding and expenditure
- poor distribution and prioritisation of revenue to high-value, high-risk assets across the coast.

This is evidenced by:

- coastal plans that are generally not up to date and areas not covered by any local plans
- DELWP's limited oversight of the work PV and councils undertake when they act as CoMs under the *Crown Land (Reserves) Act 1978*
- poor monitoring of CoMs' compliance with risk management requirements
- the lack of effective reporting on total funds generated and expended across the coast.

The Victorian Environment Assessment Council's 2017 review of public land management identified poor governance and oversight arrangements for all public land, including the coast. Its 2017 report *The Statewide Assessment of Public Land* recommended an integrated legislative framework be developed to streamline and simplify public land governance and management, including coastal areas. Government responded in December 2017 by accepting all 30 recommendations of the report in full, in principle or in part, including supporting the development of new legislation for public land management to replace the current *Land Act 1958*, *Crown Land (Reserves) Act 1978* and *Forests Act 1958* within the next five years.

The Victorian Environment Assessment Council highlighted the previous poor implementation of improved governance and oversight recommendations from past public land reviews that had been accepted by government, specifically for coastal areas not protected under the *National Parks Act 1975*. This includes coastal Crown land. It is critical that the implementation of its 2017 recommendations is timely, supported by adequate funding and resources, and monitored by DELWP.

DELWP's proposed coastal reforms strengthen and simplify its role as the overarching agency responsible for coastal planning and management. Further work is required to address its current limited oversight of the management of all public coastal land and coastal managers. Without this, the issues identified in this audit associated with limited oversight will continue to pose a significant risk to the effective protection of coastal assets.

## Coastal management arrangements

There are at least 63 different entities managing the coast, making management arrangements overly complex. While this number has reduced from 160 in 1995, this decrease has occurred in an ad hoc manner.

Figure 5A is a case study showing how coastal areas are still subject to complex management arrangements resulting in different priorities and regulations for closely located coastal reserves.

**Figure 5A**

**Case study: Complex coastal management arrangements—Dromana foreshore**

The Dromana Foreshore Reserve covers a 3.25-kilometre length of narrow foreshore on the Mornington Peninsula. The reserve is 28.5 hectares of publicly owned coastal Crown land. Four CoMs are responsible for different areas within the reserve—Dromana CoM manages the Pier Street road section and MPSC manages the sections on each side of it. Between the edge of MPSC's managed area and the seawall is a further strip managed by the Dromana CoM. The unmarked boundary between council and the committee areas cuts across the middle of the lawn foreshore and pier car park. Between the two council-managed sections is a portion of foreshore reserve on which the council has constructed a public toilet, for which it is responsible. PV manages the Dromana Pier as a local CoM. VicRoads is responsible for the portion of foreshore between La Trobe Parade and Anthony's Nose, which Point Nepean Road occupies. The road is constructed through the reserve. There is also a small portion of the reserve that is not readily identifiable as part of the reserve and not managed by any entity.

Source: VAGO.

DELWP's 2016 *Marine and Coastal Act Consultation Paper* proposed the option that category 2 CoMs transition into larger category 1 CoMs, or the areas under their management be transitioned to local government or PV to improve skill-based management. Currently, its proposed 2018 reforms identify a pilot area on the Port Phillip coastline to review the coastal manager skills required to manage the reserve and then to work with the community to appoint the most appropriate manager. This continues the fragmented approach to reviewing management arrangements.

A planned and coordinated approach by DELWP is required to determine and assign the most effective coastal management model that aligns resources and skills with accountabilities and risk across the entire coast.

## Coastal planning

The majority of existing regional and local coastal plans under the *Coastal Management Act 1995* and the *National Parks Act 1975*, developed by CoMs and PV respectively, have not been reviewed in accordance with their required time frames and are not adequately risk-based. We found that:

- 90 per cent of coastal action plans (13 out of 15) for regional coastal Crown land areas and issues are out of date
- 56 per cent of local plans for coastal Crown land are out of date
- only a quarter of local plans developed under the *National Parks Act 1975* for public coastal areas are less than 15 years old.

Reviews by the VCC and the three regional coastal boards in 2004, 2010 and 2012 identified that coastal managers have not delivered a significant number of the actions and outcomes in their regional coastal plans. In addition, planning the delivery of actions has been ad hoc, even though this is a key requirement of the plans.

In 2015, the VCC in partnership with the regional coastal boards, committed to developing a state framework to monitor the delivery of actions in the three 2015 regional coastal plans. This has not occurred two years into the five-year term of these plans.

Regional coastal planning is overly complex. Currently there are:

- three overarching strategic regional coastal plans, with a further 12 regional and issue-based coastal action plans developed under the *Coastal Management Act 1995*
- PV's landscape plans for parks and reserves across the state, five of which cover coastal areas
- regional catchment strategies, which, under the proposed 2018 reforms, will be reviewed to strengthen coverage of marine and coastal natural resource management issues and focus on the impacts of catchment and coastal areas on the marine environment
- joint management plans developed by Traditional Owner Land Management Boards—under the *Traditional Owners Act 2006*—which also sit at the regional planning level.

There is limited integration of these plans and coastal managers find it difficult to navigate the number of competing, overlapping and often complex priorities and actions.

DELWP's 2018 proposed reforms are designed to improve accountability for, and monitoring of, the delivery of state coastal policy and strategy. They are also aimed at improving the integration of coastal planning, addressing cross-jurisdictional issues, reducing complexity and increasing coverage of local coastal plans.

The reforms also propose the introduction of regional and strategic partnerships to respond to overly complex regional coastal and marine planning arrangements, and deal with cross-jurisdictional challenges.

DELWP must continue to strengthen its oversight of coastal planning at both regional and local levels to reduce the complexity and poor integration of coastal planning processes across the entire coast, in addition to implementing regional and strategic partnerships. Currently, it is proposed that partnerships will be developed for three priority areas over the next four years. Reducing planning complexity, particularly at the regional level, must continue to be done progressively across the entire coast as issues and gaps arise, and as regional and local plans are due for review.

## Roles and responsibilities

DELWP has not clearly documented roles and responsibilities across the coast for asset maintenance and protection. As a result, we found that agencies lack clarity around roles and responsibilities for identification, management and maintenance of coastal assets on Crown land.

As an example, MPSC identified over 1 200 coastal assets prior to 2015 that were not recorded on any asset register. MPSC has since recorded these on its asset register, but noted responsibility as 'to be advised', pending resolution of responsibilities with DELWP. This issue remains unresolved.

Where PV acts as DELWP's service provider for constructing, renewing or maintaining built coastal assets, it is DELWP's responsibility to register these assets. DELWP does not do this.

DELWP maintains it is responsible for built protective structures but the day to day management and maintenance of these structures is the responsibility of the delegated CoM. The Municipal Association of Victoria's submission to DELWP's 2016 *Marine and Coastal Act Consultation Paper* clearly states it believes this to be DELWP's responsibility. A number of councils and CoMs that we talked to as part of the audit did not have a clear understanding of whose responsibility coastal asset maintenance was.

In practice, a number of councils, as delegated CoMs, take on this responsibility, but others do not. Of the councils we examined, EGSC has taken on this responsibility for maintaining coastal protection assets if the asset is in good condition. EGSC indicated it does this because it benefits the community but has limited ability to generate revenue from these coastal assets. This is in contrast to other councils. MPSC does not routinely take on this responsibility, but does have limited individual asset maintenance agreements in place with DELWP, such as for the newly built Sorrento beach rock revetment.

This lack of clarity has led to inconsistency and inequity between councils across the coast for asset maintenance responsibilities.

## Coastal manager skills

DELWP's 2016 *Marine and Coastal Act Consultation Paper* identified that coastal managers' skills and capacity often do not align with their accountabilities and risks. This gap is likely to widen as hazards and risks to assets increase in the face of climate change and population growth.

Our 2014 audit *Oversight and Accountability of Committees of Management* identified a succession of audits and internal reviews over 20 years documenting the challenges CoMs face in undertaking their roles and responsibilities to successfully manage Crown land reserves. Our 2014 audit found that these issues had not been adequately addressed. We made a number of recommendations to improve the management of Crown land by volunteer committees and improve the skills of these CoMs to better align with the significance of, and risks to, the reserves they manage. At the time, the former DEPI committed to undertake a range of actions to address this.

However, DELWP and its predecessors have not yet satisfactorily addressed this issue or our recommendations. There remains considerable misalignment between CoM responsibilities and their capability to deliver them, as discussed in Part 4. There are 24 CoMs across the coast—not including the 19 coastal councils, local port managers and PV that act as CoMs under the *Crown Land (Reserves) Act 1978*. The 24 CoMs range from small volunteer-based committees who work hard to deliver some good outcomes—but manage their coastal reserves on a part-time basis with limited skills and revenue—to the five category 1 committees that employ a large number of staff, have internal technical expertise and the capacity to employ further expertise where required.

DELWP is proposing to improve the skills of coastal managers as part of the current set of reforms proposed to Parliament in late 2017:

- Five coastal catchment management authorities, plus Melbourne Water, will be upskilled to provide advice on coastal erosion and flooding issues. DELWP's 2018–19 proposed Budget bid identifies resources and funding for this initiative.
- Coastal management arrangements in a selected pilot area along the Port Phillip coastline will be reviewed, to better align managers' skills with accountabilities, responsibilities and risks. DELWP initially bid for budget funds in 2016–17 to review management arrangements across the entire coast as recommended in its 2016 *Marine and Coastal Act Consultation Paper* but had to modify this project to a small pilot area with a select number of coastal managers based on funds received.
- A marine and coastal hub will be created for knowledge sharing, education and capacity building for coastal and marine managers. DELWP's 2018–19 proposed Budget bid identifies resources and funding for this initiative.

Further work is required to ensure all managers' skills and capacities align with their accountabilities and are adequate to address current and future risks to coastal assets within assigned management areas. This is best achieved by reviewing national and international better practice models of coastal management to ensure best practice risk-based management of all Victoria's significant coastal assets by skilled managers.

## DELWP guidance

Coastal managers lack guidance from DELWP on how to protect their assets effectively from coastal hazards.

DELWP's current guidance does not adequately support CoMs to become effective risk-based asset managers. There is a lack of:

- a known statewide perspective on what areas and assets are at greatest risk from coastal hazards
- uniform knowledge across managers on what coastal assets are of regional and state significance
- fit-for-purpose guidance on how to effectively manage and protect assets according to risk.

DELWP only finalised guidelines for the development of local coastal management plans in 2017, although the requirement to develop these plans has been in place since 1995. These plans are key to supporting coastal managers to protect assets at greatest risk.

DELWP's 2015 *Committees of Management Responsibilities and Good Practice Guidelines* state that a CoM should undertake a risk management process in accordance with the *Government's Risk Management Framework* and ISO 31000. Many of the 19 category 2 CoMs are not adequately skilled to undertake this risk-based process in accordance with these requirements. DELWP has not provided fit-for-purpose guidance or support for these CoMs to meet these guidelines.

During this audit, CoMs advised us that DELWP is not providing adequate guidance and support for them to effectively manage their reserves and this has become more apparent over the last 12 months. They indicated there has been:

- a lack of information sharing
- a lack of guidance on how to implement the sea level rise benchmarks in the state planning policy in day-to-day land use and development decision-making
- an ongoing significant loss of support and passing on of DELWP corporate knowledge
- a fracturing of strong on-ground relationships between DELWP and coastal managers
- a loss of DELWP technical capacity to properly advise them.

DELWP has undertaken a number of projects to improve its guidance and information available on coastal hazards and their potential impacts, as well as risk-based approaches to protecting coastal assets. From these projects, it has developed a number of learning and guidance documents. However, DELWP has not consistently shared this information and guidance with its coastal managers.

For example, in 2014, DELWP identified assets with significant regional, state and national importance, and the current and future risks facing them, based on current controls. DELWP did not share the methodology or results of this study with its coastal managers, even though it identified that the risk assessment methodology could be applied to other regionally significant coastal public assets and the use of this process would allow like-for-like comparison.



# Appendix A

## *Audit Act 1994* section 16— submissions and comments

We have consulted with DELWP, PV, MPSC, EGSC, GP, GORCC and VicRoads, and we considered their views when reaching our audit conclusions. As required by section 16(3) of the *Audit Act 1994*, we gave a draft copy of this report, or relevant extracts, to those agencies and asked for their submissions and comments. We also provided a copy of this report to the Department of Premier and Cabinet.

Responsibility for the accuracy, fairness and balance of those comments rests solely with the agency head.

Responses were received as follows:

DELWP .....	88
PV .....	92
MPSC .....	94
EGSC .....	97
GP .....	99
GORCC .....	101
VicRoads .....	104

**RESPONSE provided by the Secretary, DELWP**



Department of Environment,  
Land, Water and Planning

PO Box 500, East Melbourne,  
Victoria 8002 Australia  
[delwp.vic.gov.au](http://delwp.vic.gov.au)

Mr Andrew Greaves  
Auditor-General  
Level 31 / 35 Collins Street  
MELBOURNE VIC 3000

Ref: SEC013470



Dear Auditor-General

**PROPOSED PERFORMANCE AUDIT REPORT PROTECTING VICTORIA'S COASTAL ASSETS**

Thank you for your letter dated 21 February 2018 providing the Department of Environment, Land, Water and Planning (DELWP) the opportunity to comment on the proposed performance audit report *Protecting Victoria's Coastal Assets*.

DELWP notes that the audit report concludes that audited agencies are undertaking good on-ground work locally to manage and protect coastal assets from current coastal inundation and erosion risks. However, the ability of agencies to do this strategically and cost-effectively is limited by weak asset management practices and other barriers.

DELWP welcomes the opportunity to improve our knowledge of coastal hazards and oversight of coastal asset management across the state. DELWP has recently formed the State-wide Coastal Programs team to coordinate the delivery of coastal programs (including coastal assets), technical standards, guidance and engagement coordination.

The team will work with the relevant areas of DELWP to strengthen oversight of coastal asset management and support coastal land managers to assess and manage risk to coastal assets to ensure asset management practices align with Victoria's Asset Management Accountability Framework.

DELWP accepts the audit recommendations and a management action plan to address the five recommendations is enclosed.

Should you require further information in relation to DELWP's response, please contact Angeline Charles, Manager Statewide Coastal Programs on 0408 213 721 or email [angeline.charles@delwp.vic.gov.au](mailto:angeline.charles@delwp.vic.gov.au)

Yours sincerely

**John Bradley**  
Secretary

7, 3, 18

Any personal information about you or a third party in your correspondence will be protected under the provisions of the *Privacy and Data Protection Act 2014*. It will only be used or disclosed to appropriate Ministerial, Statutory Authority, or departmental staff in regard to the purpose for which it was provided, unless required or authorized by law. Enquiries about access to information about you held by the Department should be directed to [foi@delwp.vic.gov.au](mailto:foi@delwp.vic.gov.au) or FOI Unit, Department of Environment, Land, Water and Planning, PO Box 500, East Melbourne, Victoria 8002.



**RESPONSE provided by the Secretary, DELWP—continued**

**Attachment 2 DELWP Management Action Plan – Protecting Victoria's Coastal Assets**

Recommendation	DELWP response	Timing
<p><b>1. We recommend that the Department of Environment, Land, Water and Planning improve its knowledge of coastal hazards and oversight of coastal asset management across the state, including by:</b></p> <ul style="list-style-type: none"> <li>- compiling and maintaining a state-wide inventory of state, regional and locally significant coastal assets on Crown land and their condition using consistent ratings (see Section 2.2)</li> <li>- supporting and overseeing committees of management to align their asset management practices with key elements of Victoria's Asset Management Accountability Framework and risk management practices with AS/NZS ISO 31000:2009 (see Sections 2.2 and 2.3)</li> <li>- addressing gaps in coastal hazard data and knowledge of risks to coastal assets across the state, and communicating this information and any tools developed to coastal managers to help them guide their local risk-based asset management approach (see Section 2.3)</li> </ul>	<p><b>DELWP accepts this recommendation</b></p> <p>DELWP is currently creating a database to collate coastal asset data.</p> <p>DELWP will strengthen its oversight, of coastal asset management and support of coastal land managers to ensure asset management practices align with Victoria's Asset Management Accountability Framework.</p> <p>DELWP has commenced the Victorian Coastal Monitoring Program to improve its knowledge of risks to coastal assets. This information will be shared with coastal land managers.</p>	<p>30 November 2019</p> <p>30 November 2019</p> <p>30 November 2019</p>
<p><b>2. Strengthen its oversight of Victoria's coastal managers, by extending and adequately resourcing its oversight role to cover the management of all public coastal areas and:</b></p> <ul style="list-style-type: none"> <li>- clarifying coastal asset management roles and responsibilities of DELWP and committees of management under the <i>Crown Land (Reserves) Act 1978</i>, their functions and the performance measures they will be held accountable for, and holding them accountable (see Section 5.3)</li> <li>- providing guidance to support coastal managers'</li> </ul>	<p><b>DELWP accepts this recommendation</b></p> <p>DELWP will clarify coastal asset management roles and responsibilities of DELWP and coastal land managers including accountabilities and performance measures and articulate this in future marine and coastal policy and strategy.</p> <p>The Great Ocean Road Taskforce has been convened to review the effectiveness of the governance and management</p>	<p>30 May 2020</p> <p>30 December 2018</p>



**RESPONSE provided by the Secretary, DELWP—continued**

	decisions about where and when it is appropriate to use different climate change response options—protect, adapt, relocate or decide not to renew assets—and additional support on coastal hazard and risk assessment to those managers with limited capability and/or resources (see Sections 2.3 and 3.3)	arrangements along the Great Ocean Road and make recommendations on governance reforms.  DELWP will implement Victoria's Climate Change Adaption Plan 2017-20 and review how land use policies and provisions can be improved to better deal with natural hazards.	30 October 2020
3.	<b>Develop a sustainable funding model to guide the effective resourcing of coastal managers, including:</b> <ul style="list-style-type: none"> <li>- developing a coast-wide understanding of the cost and skills required to manage and maintain significant coastal assets to the levels of service needed to support their function</li> <li>- appointing the most appropriate skilled and resourced coastal manager under the <i>Crown Land (Reserves) Act 1978</i> based on this understanding (see Section 4.2)</li> <li>- implementing the coastal accounting framework once developed and requiring coastal committees of management to adhere to it (see Section 4.3)</li> </ul>	<b>DELWP accepts this recommendation</b>  DELWP will develop a better understanding of the costs associated with the management and planning of coastal assets and land through the Financing the Coast Project currently underway and a review of fees and charges.  DELWP is piloting a project to simplify the management of coastal Crown land and improve the links between capacity, resources and the responsibilities of coastal Crown land managers. Informed by this work DELWP, will explore sustainable funding models to guide the effective resourcing of coastal managers.	31 April 2019  30 November 2019
4.	<b>We recommend that the Department of Environment, Land, Water and Planning, East Gippsland Shire Council, Gippsland Ports, Great Ocean Road Coast Committee, Mornington Peninsula Shire Council, Parks Victoria and VicRoads: Address the gaps in their asset management practices against Victoria's Asset Management Accountability Framework requirements and guidance and strategically target their asset funding, including where relevant:</b> <ul style="list-style-type: none"> <li>- identifying all the assets they are responsible for (see Section 2.2)</li> <li>- using information on asset risks from coastal inundation and erosion hazards to help target their asset management priorities and funding decisions, in</li> </ul>	<b>DELWP accepts this recommendation</b>  DELWP is currently creating a database to collate coastal asset data.  DELWP will work with coastal land managers to improve asset management practices and will develop and implement new	30 November 2019  31 December 2018

**RESPONSE provided by the Secretary, DELWP—continued**

	<p>conjunction with other defined prioritisation criteria (see Sections 2.3 and 4.2)</p>	<p>guidance materials for coastal land managers to assess and manage risk to coastal assets. Guidance material currently being prepared include the adoption and implementation of a coastal infrastructure decision making framework and the Coastal Protection Structures Visual Condition Assessment Manual.</p> <p>DELWP has commenced the Victorian Coastal Monitoring Program to improve its knowledge of risks to coastal assets. The information gathered from these programs will be used to inform asset management priorities and strategically target asset funding.</p>	<p>30 November 2020</p>
<p>5. Assess the risks that coastal inundation and erosion hazards pose to coastal assets, using robust risk assessment practices that they consistently apply AS/NZS ISO 31000:2009, including:</p> <ul style="list-style-type: none"> <li>- documenting the considerations, assessments, analysis and decisions that their assessments involve (see Section 2.3)</li> <li>- using available information to regularly review risks and monitor changes in risk ratings over time (see Section 2.3)</li> <li>- introducing triggers and monitoring information into their asset management and/or climate change activities as appropriate, to identify when to implement adaptation measures or revise their risk treatment approaches (see Section 3.3).</li> </ul>	<p><b>DELWP accepts this recommendation</b></p> <p>DELWP will build the capacity and expertise in DELWP and partner agencies to provide ongoing advice to coastal land managers on coastal erosion and flooding hazards. Filling a recognised knowledge gap in Victoria regarding risks from erosion hazards along the coast. This will include strengthening the state wide process to consistently apply AS/NZS ISO 31000:2009 and better document the considerations, assessments, analysis and decisions as part of risk assessment processes in the management of coastal assets and in the implementation of adaptation measures.</p> <p>DELWP will strengthen its guidance and support to Coastal land managers to assess climate change risks from coastal inundation and erosion hazards across their coastal asset portfolios and share findings from the Victorian Coastal Monitoring Program.</p>	<p>30 November 2022</p> <p>30 November 2020</p>	



**RESPONSE provided by the Acting Chief Executive Officer, PV**



**Parks Victoria**  
10/535 Bourke St  
Melbourne VIC 3000  
**Telephone 13 1963**  
[www.parks.vic.gov.au](http://www.parks.vic.gov.au)  
ABN 95 337 637 697

7 March 2018

Mr Andrew Greaves  
Auditor-General of Victoria  
Victorian Auditor-General's Office  
Level 31  
35 Collins Street  
MELBOURNE VIC 3000

Dear Mr Greaves

**VAGO's Proposed Performance Audit Report - Protecting Victoria's Coastal Assets**


Thank you for your letter of 21 February 2018, providing Parks Victoria with your proposed report on *Protecting Victoria's Coastal Assets*. We welcome the opportunity to provide comments.

Parks Victoria is committed to maintaining Victoria's natural, cultural and built assets in accordance with its legislative and land management responsibilities. To enhance organisational excellence, Parks Victoria is continuously improving risk and asset management practices and is working towards compliance with Victoria's Asset Management Accountability Framework (AMAF).

We accept VAGO's recommendations and Parks Victoria's response to the relevant recommendations is enclosed.

Should you require further advice on this matter please contact Stuart Hughes, Director Park Planning and Policy 03 8427 3383, or via email: [stuart.hughes@parks.vic.gov.au](mailto:stuart.hughes@parks.vic.gov.au)

Yours sincerely

  
Simon Talbot  
Acting Chief Executive Officer  
Parks Victoria



**RESPONSE provided by the Acting Chief Executive Officer, PV—continued**

No	Recommendation	Parks Victoria response
4	<p>Address the gaps in asset management practices against Victoria's Asset Management Accountability Framework requirements and guidance and strategically target their asset funding, including, where relevant:</p> <ul style="list-style-type: none"> <li>Identifying all the assets they are responsible for (Section 2.2)</li> <li>Using information on asset risks from coastal inundation and erosion hazards to help target their asset management priorities and funding decisions, in conjunction with other defined prioritisation criteria (Section 2.3 and 4.2)</li> </ul>	<p><b>Recommendation:</b> Accepted in principle. Parks Victoria has a road map / continuous improvement plan to achieving AMAF compliance. Implementing this plan will ensure that asset funding and management of assets (including risk) will be more strategically targeted to mitigate risk and provide best value for Victoria.</p> <p><b>Action Date:</b> 30 June 2019</p>
5	<p>Assess the risks that coastal inundation and erosion hazard pose to coastal assets using robust risk assessment practices that consistently apply AS/NZS ISO 31000:2009, including:</p> <ul style="list-style-type: none"> <li>Documenting the considerations, assessments, analysis and decisions that their assessments involve (Section 2.3)</li> <li>Using available information to regularly review risks and monitor changes in risk ratings over time (Section 2.3)</li> <li>Introducing triggers and monitoring information into their asset management and/or climate change activities as appropriate, to identify when to implement adaptation measures or revise their risk treatment approaches (Section 3.3)</li> </ul>	<p><b>Recommendation:</b> Accepted in principle. Parks Victoria will develop a strategic asset management plan and portfolio asset risk plans as part of the implementation of the road map for achieving AMAF compliance. These plans are for all Parks Victoria assets, including those located in the coastal environment. Under the AMAF guidelines, assets need to be proactively managed as a whole of life approach.</p> <p><b>Action Date:</b> 30 June 2019</p>

**RESPONSE provided by the Mayor, MPSC**



8 March 2018

Your ref: 32782/01

Mr Andrew Greaves  
Victorian Auditor-General  
Level 31  
35 Collins Street  
Melbourne VIC 3000

Dear Mr Greaves

**Re: Proposed Performance Audit Report Protecting Victoria's Coastal Assets**

I refer to your correspondence dated 21 February 2018 giving a copy of the proposed report on *Protecting Victoria's Coastal Assets* under section 16(3) of the *Audit Act 1994*. In addition to giving notice of the report you also sought comments on the report's recommendations relating to the Mornington Peninsula Shire.

Recommendation 4 is directed to the Department of Environment, Land, Water and Planning (DELWP), East Gippsland Shire Council, Great Ocean Road Coast Committee, Parks Victoria, VicRoads and the Mornington Peninsula Shire (MPSC) and recommends:

*address the gaps in their asset management practices against Victoria's Asset Management Accountability Framework requirements and guidance and strategically target their asset funding, including, where relevant:*

- *identifying all the assets they are responsible for (see Section 2.2)*
- *using information on asset risks from coastal inundation; and erosion hazards to help target their asset management priorities and funding decisions, in conjunction with other defined prioritisation criteria (see Sections 2.3 and 4.2).*

MPSC response: The MPSC foreshore risk assessment project conducted in 2014-15 identified a large number of coastal assets with spatial and attribute data collected. Following this assessment, it has been observed that a number of coastal protection assets (e.g. rock revetments, seawalls etc) remain unaccounted for and as such, MPSC will proactively conduct a gap analysis to audit coastal protection assets along the coastline within Shire, and proactively collaborate with State authorities and Committees of Management and to share coastal protection asset information.



**RESPONSE provided by the Mayor, MPSC—continued**



The gap analysis is to be a high-level assessment conducted as a desktop audit, with on-site verification performed as required. The level of information to be captured will be limited to spatial and attribute data, and on-site photographic imagery (where sufficient pedestrian access is available).

The newly captured data, coupled with existing data in the Shire's asset management system, will serve as the basis for future discussions around clarification of responsibilities, aiding long and short-term asset planning, and for the formation and implementation of coastal protection asset risk migration strategies.

The analysis is anticipated to be completed by 30 June 2018.

MPSC also acknowledges the new *Marine and Coastal Act* is being developed and is expected to address further gaps, and assist in developing regional and strategic partnerships to manage ageing coastal infrastructure now and into the future.

Recommendation 5 is also addressed to the same agencies and recommends:

*assess the risks that coastal inundation and erosion hazards pose to coastal assets, using robust risk assessment practices that consistently apply AS/NZS ISO 31000:2009, including:*

- *documenting the considerations, assessments, analysis and decisions that their assessments involve (see Section 2.3)*
- *using available information to regularly review risks and monitor changes in risk ratings over time (see Section 2.3)*
- *introducing triggers and monitoring information into their asset management and/or climate change activities as appropriate, to identify when to implement adaptation measures or revise their risk treatment approaches (see Section 3.3).*

MPSC response: MPSC notes that the responsibility for recommendation 5 has been acknowledged by DELWP as a state-wide issue (not local) and as such it is the driving body in partnership with Melbourne Water for development of the Port Phillip Bay Coastal Hazard Assessment (PPB-CHA). MPSC has a strong interest in working through ways to better assess risks to assets posed by coastal inundation or erosion hazards and as such a senior MPSC officer has accepted a position on the Project Control Board.

Following the outcome of the assessment, which includes the mapping of inundation areas in Port Phillip Bay, it is anticipated that the information will inform planning decisions and on-ground management options.

Once the PPB-CHA is finalised the MPSC may consider the possibility of introducing a system of risk assessment. This may include analysis, documentation and review of coastal inundation and erosion hazards.

**RESPONSE provided by the Mayor, MPSC—continued**



Recommendation 6 is directed at East Gippsland Shire Council, Gippsland Ports and Mornington Peninsula Shire Council and recommends:

*assess climate change risks from coastal inundation and erosion hazards across their coastal asset portfolios (see Section 3.2).*


MPSC response: Please refer to the MPSC response to recommendation 5. In addition, MPSC is building capability within its adopted risk management framework to assess climate change risk, with controls and treatments to be developed based on best practice, and global alignment to the Intergovernmental Panel on Climate Change framework.

Science based targets will be developed in line with the global framework for mitigation. This capability will employ an organisational approach to climate change risk with alignment to the objectives of the Council Plan 2017-2021.

Finally, I would like to take this opportunity to highlight the need for DELWP and the State Government to take the lead on many of these recommendations and to significantly boost financial support, training opportunities, access to expertise, best practice toolkits, systems sharing, and the provision of accurate coastal inundation and hazard mapping. Coastal agencies cannot simply flick a switch and undertake and complete the recommendations. The MPSC has over 10,000 coastal assets, the ability to undertake assessments for each of them and prioritise them is an extremely resource intensive task that will take a significant amount of time to complete.

Should any further information be required, please contact Russell Smith, Team Leader Strategy (Coastal, Urban & Heritage), Property and Strategy - on 5950 1854.

Yours sincerely



Cr Bryan A Payne  
Mayor  
Mornington Peninsula Shire

**RESPONSE provided by the Chief Executive Officer, EGSC**

Contact: Kate Nelson  
Telephone No: (03) 5153 9500  
Email: feedback@egipps.vic.gov.au

7 March 2018

Mr Andrew Greaves  
Auditor-General  
Victorian Auditor General's Office  
Level 31/35 Collins Street  
MELBOURNE VIC 3000

**Corporate Centre**  
273 Main Street (PO Box 1618)  
Bairnsdale Victoria 3875  
**Telephone:** (03) 5153 9500  
**National Relay Service:** 133 677  
**Residents' Info Line:** 1300 555 886  
**Facsimile:** (03) 5153 9576  
**Email:** feedback@egipps.vic.gov.au  
**ABN** 81 957 967 765

Dear Mr Greaves

**Proposed Performance Audit Report – Protecting Victoria's Coastal Assets**

Thank-you for your letter dated 21 February 2018 seeking Council's response to the proposed audit report Protecting Victoria's Coastal Assets and for the opportunity to participate in this important process.

East Gippsland Shire manages extensive areas of Coastal Crown Land as we recognise the significant benefits to our community that flow to the amenity and economy of our communities.

East Gippsland Shire Council acknowledges the recommendations that have been made in respect asset and risk management and planning to manage the impacts of future climate change on coastal assets. I can advise of the following responses to the recommendations:

- **Improved Coastal Asset and Risk Management.**  
East Gippsland has already committed to implementing an improved and more strategic approach to asset and associated risk management processes. This work has been commenced and forms a component of a broader project that is designed to improve and upgrade a number of our existing business systems and processes. Implementation will be programmed over a number of years and will provide a focus on all asset classes including coastal assets.
- **Planning for the impact of coastal climate change**  
East Gippsland Shire has commenced the development of the Lakes Entrance Growth and Adaptation Strategy. This is a substantial project that is designed to pilot our approach to supporting an integrated approach to the adaptation of our coastal townships. This project will support our understanding of the most appropriate way to plan for and manage future impacts to infrastructure that supports our townships and will guide the way that adaptive responses to asset management are included in our strategic asset management systems and processes.

Website: [www.eastgippsland.vic.gov.au](http://www.eastgippsland.vic.gov.au) Twitter: @egsc Email: [feedback@egipps.vic.gov.au](mailto:feedback@egipps.vic.gov.au)

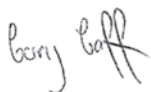


***RESPONSE provided by the Chief Executive Officer, EGSC—continued***

East Gippsland Shire looks forward to receiving a copy of the final report and to understanding the response to the overall recommendations of the Performance Audit.

If you require any further information please do not hesitate to contact Kate Nelson, Director Community and Strategic Development on 5153 9500.

Yours sincerely



**GARY GAFFNEY**  
**Chief Executive Officer**

Website: [www.eastgippsland.vic.gov.au](http://www.eastgippsland.vic.gov.au) | Twitter: @egsc | Email: [feedback@egipps.vic.gov.au](mailto:feedback@egipps.vic.gov.au)





**RESPONSE provided by the Chief Executive Officer, GP**

Ref: 20-600

7 March 2018

Mr Andrew Greaves  
Auditor-General  
Victorian Auditor-General's Office  
Level 31 / 35 Collins Street  
Melbourne VIC 3000

Dear Mr Greaves

**Re: Proposed Performance Audit Report Protecting Victoria's Coastal Assets**

Thank you for your letter of 21 February 2018, providing Gippsland Ports with a copy of the proposed report. Gippsland Ports appreciates the opportunity to provide comments for the report.

Gippsland Ports acknowledges the importance of managing and safeguarding coastal assets, and will continue to make improvements to asset management processes for Crown assets for which the organisation is responsible. Gippsland Ports accepts VAGO's recommendations and provide the enclosed response to these recommendations.

Should you require any further information, please contact Greg Hatt, Executive Manager Infrastructure and Operations on 03 5150 0500 or email [greg.h@ GippslandPorts.vic.gov.au](mailto:greg.h@ GippslandPorts.vic.gov.au).

Yours sincerely,



**Nick Murray**  
CEO Gippsland Ports

Enclosure:

Gippsland Ports Response - Proposed Performance Audit Report  
Protecting Victoria's Coastal Assets



ABN 98 943 634 870

[www.gippslandports.vic.gov.au](http://www.gippslandports.vic.gov.au)

**Port Managers**

Anderson Inlet  
Corner Inlet & Port Albert  
Gippsland Lakes  
Snowy River  
Mallacoota Inlet

**Waterway Manager**

Shallow Inlet  
Lake Tyers

**Head Office**

PO Box 388  
(97 Main Street)  
Bairnsdale Vic 3875  
Ph: 03 5150 0500  
Fax: 03 5150 0501  
Email:  
[feedback@gippslandports.vic.gov.au](mailto:feedback@gippslandports.vic.gov.au)

**Depots**

Bullock Island  
Lakes Entrance Vic 3909  
Ph: 03 5155 6900  
Fax: 03 5155 6931

Lewis Street  
Port Welshpool Vic 3965  
Ph: 03 5688 1303  
Fax: 03 5688 1658

**Boatyards**

Slip Road  
Paynesville Vic 3880  
Ph: 03 5156 6352  
Fax: 03 5156 6816

Bullock Island  
Lakes Entrance Vic 3909  
Ph: 03 5155 6950  
Fax: 03 5155 6951

**RESPONSE provided by the Chief Executive Officer, GP—continued**

**Gippsland Ports Response - Proposed Performance Audit Report Protecting Victoria's Coastal Assets**

No.	VAGO Recommendation	Gippsland Ports Response
1	<p>Address the gaps in their asset management practices against Victoria's Asset Management Accountability Framework requirements and guidance and strategically target their asset funding, including, where relevant:</p> <ul style="list-style-type: none"> <li>Identifying all the assets they are responsible for</li> <li>Using information on asset risks from coastal inundation and erosion hazards to help target their asset management priorities and funding decisions, in conjunction with other defined prioritisation criteria.</li> </ul>	<p>Accept</p> <p>Gippsland Ports is not subject to the Standing Directions of the Minister for Finance and as such is not an agency required to comply with the Asset Management Accountability Framework (AMAF), however acknowledges the importance of AMAF to coastal assets and will, where practical, follow the requirements and guidelines of AMAF in addressing this recommendation.</p> <p>Action date: Ongoing</p>
2	<p>Assess the risks that coastal inundation and erosion hazards pose to coastal assets, using robust risk assessment practices that consistently apply AS/NZS ISO 31000: 2009, including:</p> <ul style="list-style-type: none"> <li>Documenting the considerations, assessments, analysis and decisions that their assessments involve</li> <li>Using available information to regularly review risks and monitor changes in risk ratings over time</li> <li>Introducing triggers and monitoring information into their asset management and/or climate change activities as appropriate, to identify when to implement adaption measures or revise their risk treatment approaches.</li> </ul>	<p>Accept</p> <p>Gippsland Ports will implement this recommendation across it's coastal assets, including ongoing review and updating.</p> <p>Action date: Ongoing</p>
3	<p>Assess climate change risks from coastal inundation and erosion hazards across their coastal asset portfolios.</p>	<p>Accept</p> <p>Similar to item 2, Gippsland Ports will assess these risks across it's coastal assets.</p> <p>Action date: Ongoing</p>

**RESPONSE provided by the Chief Executive Officer, GORCC**



**Great Ocean Road Coast Committee**

PO Box 53, Torquay Vic 3228  
Phone: 03 5220 5055  
Fax: 03 5264 7763  
[info@gorcc.com.au](mailto:info@gorcc.com.au)  
[www.gorcc.com.au](http://www.gorcc.com.au)  
ABN: 71 640 537 948

6 March 2018

Mr. Andrew Greaves  
Auditor-General  
Victorian Auditor Generals Office  
Level 31  
35 Collins St  
MELBOURNE, Vic.  
3000

Dear Andrew

**Response to Proposed Report on *Protecting Victoria's Coastal Assets***

The Great Ocean Road Coast Committee(GORCC) is pleased to submit this response to the Victorian Auditor-General's Office (VAGO) regarding the proposed report on *Protecting Victoria's Coastal Assets*. provided by VAGO on initially for comment on 22 December 2017.

We have provided comments on that version and note satisfactory amendments concerning our comments have been incorporated into this latest version of the Report.

We believe the work is timely and provides a worthwhile reflection on the status of this important issue.

If the findings of this report are acted upon by the responsible bodies in conjunction with the upcoming directions emanating from the proposed Marine and Coastal Act, then coastal management planning and effective delivery of outcomes should be greatly improved.

In regard to specific issues in the report relating to recommendations on pages 22 and 23 for our organisation, please find tabulated below our responses to those.

---

*Caring for the coast and community*

**RESPONSE provided by the Chief Executive Officer, GORCC—continued**

Recommendation	GORCC Actions/Response
1.	Specific Department of Environment, Land, Water and Planning. (not applicable)
2.	Specific Department of Environment, Land, Water and Planning. (not applicable)
3.	Specific Department of Environment, Land, Water and Planning. (not applicable)
<p>4. Address the gaps in asset management practices against Victoria's Asset Management Accountability Framework requirements and guidance and strategically target their asset funding, including where possible:</p> <ul style="list-style-type: none"> <li>Identifying all the assets they are responsible for</li> <li>Using information on asset risks from coastal inundation and erosion hazards to help target their asset management priorities and funding decisions</li> </ul>	<p><b>Actions:</b></p> <ol style="list-style-type: none"> <li>GORCC has identified long term asset planning as a priority for coastal asset management and shall commence development of a 10 year asset replacement planning tool immediately following the Board's strategic Planning Workshop on 16<sup>th</sup> march 2017. This issue is one of four priorities being addressed at that workshop. The planning tool shall be completed in time to incorporate into 2019/2020 FY budget cycle, and across the extended ten-year planning horizon. The planning tool shall be developed in accordance with the VAGO recommendations regarding the State's Asset Management Accountability Framework</li> </ol> <p><b>Timeframe:</b> Commence: July 2018 Completion: Dec. 2018</p> <ol style="list-style-type: none"> <li>Undertake a gap analysis of GORCC's current Asset register and incorporate relevant assets to develop a listing to populate the new asset replacement program. Current reports prepared by GORCC on coastal</li> </ol>



**RESPONSE provided by the Chief Executive Officer, GORCC—continued**

	<p>inundation and the asset information contained shall be used to identify and prioritise assets within the program.</p> <p><b>Timeframe:</b> Commence: July 2018 Completion: October 2018</p>
<p><b>5.</b> Assess the risks that coastal inundation and erosion hazards pose to coastal assets, using risk assessment practices that comply with AS/NZS ISO 31000:2009</p>	<p><b>Actions:</b></p> <ol style="list-style-type: none"> <li>1. Review the current Visitor Risk Management Framework to ensure compliance with required Standards (to ensure consistency with new work)</li> <li>2. Complete a risk analysis, in priority order, of assets in revised Asset register and complete an initial prioritisation to assist with development of the long term asset management plan.</li> <li>3. As is currently completed under the Visitor Risk Framework, develop and implement an annual asset audit program for review of risk status and provide necessary adjustments to asset management plan.</li> </ol> <p><b>Timeframe:</b> Commence: August 2018 Completion: October 2018</p>
<p><b>6.</b></p>	<p>Specific to East Gippsland Shire Council, Gippsland Ports and Mornington Peninsula Shire Council (not applicable)</p>



**Richard Davies**  
Chief Executive Officer



Great Ocean Road  
Coast Committee Inc

Important Notice: This email and any attachments may contain information that is personal, confidential, legally privileged and/or copyright. No part of it should be reproduced, adapted or communicated without the prior written consent of the copyright owner.

**RESPONSE provided by the Acting Chief Executive Officer, VicRoads**



Office of the Chief Executive  
60 Denmark Street  
Kew Victoria 3101

Please Quote:  
VRMBN007218  
(File No. BN009256)

Mr Andrew Greaves  
Auditor General  
Victorian Auditor – General Office  
Level 31/35 Collins Street  
Melbourne VIC 3000

Dear Mr Greaves

**RE: Proposed Performance Audit Report *Protecting Victoria's Coastal Assets***

Thank you for your letter dated 21 February 2018, providing VicRoads with the opportunity to comment on the Victorian Auditor – General Office's proposed performance audit report on Protecting Victoria's Coastal Assets.

VicRoads notes the report's findings and recommendations, and acknowledges the constructive guidance in the report.

VicRoads is currently transforming its overall asset management approach that includes coastal assets, to not only comply with the Department of Treasury and Finance Asset Management Accountability Framework, but to also work towards a mature asset management approach aligned with ISO55001.

VicRoads' detailed response to your specific recommendations is outlined in **Attachment 1**.

Work is already well underway at VicRoads to address your recommendations and we look forward to reporting to you on future progress.

***RESPONSE provided by the Acting Chief Executive Officer, VicRoads—continued***

We thank you for the opportunity to comment on the report. If you require any further information regarding VicRoads' response, Ms Catherine Dear, Director Assets Services (Tel: 9854 2434 or Email: [catherine.dear@roads.vic.gov.au](mailto:catherine.dear@roads.vic.gov.au)), would be pleased to assist.

Yours sincerely



Kerry Thompson  
Acting Chief Executive Officer

8 / 5 / 2018

**RESPONSE provided by the Acting Chief Executive Officer, VicRoads—continued**

VRMBN007218

**Attachment 1**

VicRoads' response to the Auditor-General's proposed report on Protecting Victoria's Coastal Assets

VAGO Recommendation	VicRoads Responses	Delivery Timing
<p><b>Recommendation 4:</b></p> <p>Address the gaps in their asset management practices against Victoria's Asset Management Accountability Framework requirements and guidance, and strategically target their asset funding, including, where relevant:</p> <ul style="list-style-type: none"> <li>Identifying all the assets they are responsible for (see Section 2.2)</li> <li>Using information on asset risks from coastal inundation and erosion hazards to help target their asset management priorities and funding decisions, in conjunction with other defined prioritisation criteria (see Sections 2.3 and 4.2)</li> </ul>	<p>VicRoads supports this recommendation.</p> <p>VicRoads is at various stages of implementing the following, which will form the active response to this recommendation:</p> <ul style="list-style-type: none"> <li><i>Asset Transformation Project</i> - VicRoads is reforming its asset management practices, enabling VicRoads to not only comply with the Department of Treasury and Finance (DTF)'s Asset Management Accountability Framework, but to also work towards a mature asset management approach aligned with ISO55001.</li> <li><i>Asset Transformation Project</i> - VicRoads has asset inventory information for built and major assets, the requirements for which are being revised based on an assessment of the criticality, to identify the level of information required to sufficiently manage assets.</li> <li><i>Asset Strategic Framework</i> - VicRoads is developing strategic frameworks for each major asset class, which includes resilience criteria enabling consideration of climate change adaptation risks and requirements, emergency management and incident recovery, environmental impact and response to other disruptions. This strategic framework will facilitate improved investment decisions and prioritise available funding.</li> </ul>	<p>June 2021</p>

**RESPONSE provided by the Acting Chief Executive Officer, VicRoads—continued**

VRMBN007218

VAGO Recommendation	VicRoads Responses	Delivery Timing
<p><b>Recommendation 5:</b></p> <p>Assess the risks that coastal inundation and erosion hazards pose to coastal assets, using robust risk assessment practices that consistently apply AS/NZS ISO 31000:2009, including:</p> <ul style="list-style-type: none"> <li>• Documenting the considerations, assessments, analysis and decisions that their assessments involve</li> <li>• Using available information to regularly review risks and monitor changes in risk ratings over time</li> <li>• Introducing triggers and monitoring information into their asset management and/or climate change activities as appropriate, to identify when to implement adaptation measures or revise their risk treatment approaches</li> </ul>	<p>VicRoads supports this recommendation.</p> <p>As acknowledge though out the report that VicRoads has already used risk assessment practices to prioritise our investment in major works and at state-wide level. This include various documentation, which has been developed to address climate changes including coastal inundation:</p> <ul style="list-style-type: none"> <li>• A Climate Change Risk Assessment was developed in 2015 to summarise the risk of climate change to the VicRoads road network and identify the risks to different asset types.</li> <li>• The Sustainability and Climate Change Strategy 2015-2020 describes the principles adopted to manage the significant and important risks. This will continue to be reviewed and updated periodically.</li> <li>• Geotechnical Risk Assessment Program, which is adapting to include changes in coastal erosion risk.</li> </ul> <p>VicRoads will further incorporate climate change into its asset management practices, predominantly within the <i>Asset Strategic Framework</i>, and look to assess, review and monitor climate related risks including coastal erosion and inundation, based on the findings of <i>VicRoads Climate Change Risk Assessment</i> document, which has been developed in-line with the principles of AS/NZS ISO 31000.</p>	<p>June 2021</p>



# Appendix B

## Audited agency roles and responsibilities for asset management

**Figure B1**

**Agency responsibilities, funding sources, and asset and risk management practice expectations**

Aspect	DELWP	PV	MPSC	EGSC	GP	GORCC	VicRoads
<b>Responsibilities</b>							
Oversight of all audited agencies	Y	N	N	N	N	N	N
Coastal manager under <i>Crown Land (Reserves) Act 1978</i>	Y	Y	Y	Y	Y	Y	N
Manages maritime assets	N	Y	Y	Y	Y	Y	N
Manages protection assets	Y	Y	Y	Y	Y	Y	N
<b>Funding source</b>							
Self-generated	N	Y	Y	Y	Y	Y	N
State Budget allocation	Y	Y	N	N	N	N	Y
DELWP grant program	Y	Y	Y	Y	Y	Y	N
DEDJTR service agreement	N	Y	N	N	Y	N	N
<b>Asset and risk management practice expectations</b>							
Fit-for-purpose asset management information and practices <sup>(a)</sup>	Y	Y	Y	Y	Y	Y	Y
Applies ISO 31000	Y	Y	Y	Y	Y	Y	Y

Note: Y = yes; N = No.

(a) Practices include asset maintenance, renewal, replacement, upgrade and disposal.

Source: VAGO.





# Auditor-General's reports tabled during 2017–18

Report title	Date tabled
V/Line Passenger Services (2017–18:1)	August 2017
Internal Audit Performance (2017–18:2)	August 2017
Effectively Planning for Population Growth (2017–18:3)	August 2017
Victorian Public Hospital Operating Theatre Efficiency (2017–18:4)	October 2017
Auditor-General's Report on the Annual Financial Report of the State of Victoria, 2016–17 (2017–18:5)	November 2017
Results of 2016–17 Audits: Water Entities (2017–18:6)	November 2017
Results of 2016–17 Audits: Public Hospitals (2017–18:7)	November 2017
Results of 2016–17 Audits: Local Government (2017–18:8)	November 2017
ICT Disaster Recovery Planning (2017–18:9)	November 2017
Managing the Level Crossing Removal Program (2017–18:10)	December 2017
Improving Victoria's Air Quality (2017–18:11)	March 2018
Local Government and Economic Development (2017–18:12)	March 2018
Managing Surplus Government Land (2017–18:13)	March 2018

All reports are available for download in PDF and HTML format on our website  
[www.audit.vic.gov.au](http://www.audit.vic.gov.au)

Victorian Auditor-General's Office  
Level 31, 35 Collins Street  
Melbourne Vic 3000  
AUSTRALIA

Phone +61 3 8601 7000  
Email [enquiries@audit.vic.gov.au](mailto:enquiries@audit.vic.gov.au)