

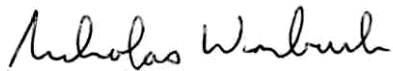
**COASTAL CLIMATE CHANGE
ADVISORY COMMITTEE**

**FINAL REPORT
VOLUME 1**

DECEMBER 2010

COASTAL CLIMATE CHANGE ADVISORY COMMITTEE

FINAL REPORT VOLUME 1



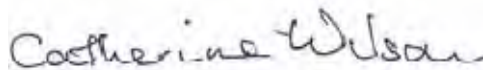
Nick Wimbush, Chair



Chris Harty, Member



Helen Martin, Member



Catherine Wilson, Member

23 DECEMBER 2010

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Acronyms

AHD	Australian Height Datum
AS/NZ4360	Australian and New Zealand Standard Risk Management Standard
BRC	Bushfire Royal Commission
CAO	Coastal Adaptation Overlay
CAP	Coastal Action Plan
CAZ	Coastal Adaptation Zone
CCA	Comprehensive Coastal Assessment (NSW)
CCZ	Coastal Conservation Zone
CHO	Coastal Hazard Overlay
CHVA	Coastal Hazard Vulnerability Assessment
CMA	Catchment Management Authority
COAG	Council of Australian Governments
CTZ	Coastal Transition Zone
DCP	Development Contribution Plan
DDO	Design and Development Overlay
DPCD	Department of Planning and Community Development
DPO	Development Plan Overlay
DSE	Department of Sustainability and Environment
EDO	Environment Defenders Office
EES	Environment Effects Statement
EGCMA	East Gippsland Catchment Management Authority
EMO	Erosion Management Overlay
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cmwth)</i>
ESO	Environmental Significance Overlay
FO	Flood Overlay
IPO	Incorporated Plan Overlay
LPPF	Local Planning Policy Framework
LSIO	Land Subject to Inundation Overlay
MAV	Municipal Association of Victoria
MSS	Municipal Strategic Statement
P&E Act	<i>Planning and Environment Act 1987 (Vic)</i>
PAI	Population Annoyance Index
PAO	Public Acquisition Overlay
PCRZ	Public Conservation and Resource Zone
PPN	Planning Practice Note
PPRZ	Public Park and Recreation Zone

PSP	Precinct Structure Plan
RCS	Regional Catchment Strategy
RCZ	Rural Conservation Zone
RO	Restructure Overlay
SBO	Special Building Overlay
SES	State Emergency Services
SMO	Salinity Management Overlay
SPPF	State Planning Policy Framework
TOR	Terms of Reference
UFZ	Urban Floodway Zone
UGZ	Urban Growth Zone
VCAT	Victorian Civil and Administrative Tribunal
VCC	Victorian Coastal Council
VCS	Victorian Coastal Strategy
VEAC	Victorian Environmental Assessment Council
VNPA	Victorian National Parks Association
VPO	Vegetation Protection Overlay
VPP	Victoria Planning Provisions
WMO	Wildfire Management Overlay

Glossary of key terms

Acid Sulfate Soils	Soils that contain metal sulfide minerals, which if exposed to air (for example by excavation) can react with oxygen and water to form sulfuric acid which can harm ecosystems and infrastructure.
Annual Exceedance Probability (AEP)	In flooding this is the probability that a given flood will occur in any one year. Thus a modelled (or observed) level set for a 1% AEP flood means that it is probable that in any 100 year period that level will be reached once.
Average Recurrence Interval (ARI)	This is a term related to AEP. Effectively it is another way of stating flood recurrence. A 1% AEP flood level (above) is equivalent to an ARI of 1 in 100 years.
Bush Broker	Victorian Government program that facilitates the location of sites that could generate Native Vegetation Credits which could be used as offsets when native vegetation is being cleared from other areas.
Bush Tender	Victorian Government auction based program to improve the management of native vegetation on private land. Under this system, landholders competitively tender for contracts to better protect and improve their native vegetation.
Coastal Action Plans (CAPs)	Plans developed in accordance with the <i>Coastal Management Act 1995</i> which provide a key mechanism for the implementing the Victorian Coastal Strategy. They provide strategic direction for the future management of an area of coast by identifying necessary priorities, actions and outcomes.
Coastal Climate Change Adaptation Plan (CCCAP)	A plan recommended by this Committee to be prepared by, or for, a planning authority that specifies actions to be taken to adapt settlements and other areas to the impacts of coastal climate change. Adaptation plans may set requirements for uses and development. Plans should respond to any CHVA(s) carried out for the relevant area, as well as other investigations of the costs and benefits of alternative adaptation strategies. A CCCAP does not have a specific head of power other than being incorporated into the planning scheme.
Coastal hazard	Defined in Ministerial Direction 13 as: An occurrence of an event within coastal Victoria which includes the individual or combined effects of inundation by the sea, the effects of storm tides, river flooding, coastal erosion, landslip/landslide and sand drift which adversely affects or may adversely affect human life, property or aspects of the environment.
Coastal Hazard Vulnerability Assessment (CHVA)	An assessment of the existing and future risk from sea level rise, storm tide and surge, coastal processes, river inundation

	based on local physical conditions and climate change projections. It may be at a property (for significant development), settlement or regional level.
Floodplain Development Plan	A plan prepared by the responsible authority, in consultation with the floodplain management authority, and incorporated in the planning scheme that provides for direction on flood management in specific areas or under specific circumstances.
Greenfields areas	Undeveloped land within a defined growth area or within a defined coastal settlement boundary, or areas immediately adjacent to such a boundary that may be required for urban expansion in the longer term.
Infill	Development occurring on existing lots, usually small, within a built-up area that could be developed. It includes the reuse of obsolete or underutilized buildings and sites and the insertion of additional housing units into an already developed subdivision or neighbourhood.
Precautionary Principle	<p>The Intergovernmental Agreement on the Environment defines the Principle as: Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:</p> <ul style="list-style-type: none"> (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and (ii) an assessment of the risk-weighted consequences of various options.
Precautionary approach	A conservative approach to approval of new land use and development that takes into account the hazards to which an area may be exposed in the future and seeks to limit intensification of development in areas where risks cannot be mitigated.

1. Summary and response to the Terms of Reference

The Coastal Climate Change Advisory Committee was appointed by the Minister for Planning in mid 2009 under Section 151 of the *Planning and Environment Act 1987*.

The Committee's work is in two volumes:

- Volume 1: Final Report, December 2010
- Volume 2: Issues and Options Paper, February 2010

This report, Volume 1, contains the Committee's resolved position on the issues identified in the Terms of Reference provided to the Committee.

The Committee's Terms of Reference (attached at Appendix A) state:

Key areas for consideration by the CCCAC include:

- *The operation and appropriateness of existing Victoria Planning Provisions (VPP) for example, policy, zones and overlays, in considering coastal climate change impacts.*
- *The form of new or amended VPP provisions to facilitate the use of emerging vulnerability information from the Government's Future Coasts program.*
- *Consideration of international and national approaches, frameworks etc and relevant case studies within Australia which are relevant to the Victorian context.*
- *The use and application of appropriate coastal hazard assessment methods and information within current or proposed planning and development control provisions of the VPP.*
- *Relevant regulatory and legislative arrangements which interact with Victoria's land-use planning system.*
- *Any other matters that the CCCAC considers relevant to planning and development decisions that facilitate climate change adaptation along the coast.*

Additional matters for consideration were addressed in Appendix 1 to the Terms of Reference. These issues were all considered in the Issues and Options Paper and the Committee's resolved position has been developed in

this report. The specific responses and where they are addressed in the report are shown in Table 1.

Table 1: The Committee's recommended approach

Issue	Committee consideration	Chapter
Strategic planning	Need for a new integrated, prioritised coastal strategic planning program for Victoria.	6.2
Managing existing urban areas	Finding the balance between risk identification and communication and its impact on use and development in the short to medium term.	6.3
New development	Existing tools are likely to be adequate for managing new development.	6.4
Areas between settlements	Strategic identification of Crown foreshore needs will be important as will restructure of small allotments outside urban areas.	6.5
Natural areas on the coast	Revising existing tools and introducing some new ones such as a Coastal Conservation Zone will be needed to ensure sound planning for natural areas.	6.6
Funding mechanisms	Overview of some of the key existing tools that may be used adapting to coastal climate change.	6.7
Complementary considerations	A range of considerations across the areas of; integration with the coastal management and natural resource management systems; education and training; and property and legal issues.	6.8
The Victoria Planning Provisions	A number of recommendations are made to introduce reference to climate change in the SPPF, LPPF, zones and overlays. New tools (a Coastal Conservation Zone and a Coastal Hazard Overlay) are also recommended.	7

In accordance with its Terms of Reference the Committee has drawn extensively on overseas and interstate experience in forming its views. All jurisdictions are taking a similar risk based approach and working to similar principles. There are different outcomes in implementation related to differences in particular planning regimes. The Committee has been particularly influenced by the interstate and New Zealand approaches.

The impacts of climate change over the next 90 years on the Victorian community and the Victorian environment are likely to result in significant changes to where and how we live. Nowhere will this be felt more keenly than on the coast where a significant proportion of the Victorian community lives.

Sea level rise projections by the Intergovernmental Panel on Climate Change (IPCC) suggest sea level rise in the range of 0.18m – 0.59m by the end of the century. This was interpreted into policy by the previous Victorian Government (through the Victorian Coastal Strategy) to mean that planning should consider a 0.8m sea level rise by 2100 (0.59m plus an allowance for ice cap melt).

The next IPCC assessment report is due in 2013 and will need to be considered in policy development. Two things stood out to the Committee in the course of its work:

- the science suggests that IPCC projections of sea level rise are unlikely to reduce in the next assessment report and are more likely to increase; and
- observed global sea level rise is tracking at the upper end of previous IPCC predictions¹.

However, as discussed at length in the Issues and Options Paper, the Committee considers that Victoria has a number of strengths that make it better suited than many States and nations to cope with these changes. These include:

- a relatively wealthy community;
- mature systems of Government and governance; and
- a generally sound, well developed and well understood property and planning system that provides a high level of certainty to land owners, business and the community.

As foreshadowed in the Issues and Options Paper, the Committee is not recommending radical change to Victoria's planning system, but rather evolution. In broad terms the Committee has provided recommendations around four key areas. These are:

- the completion of physical mapping to inform strategic land use planning;

¹ Planning for local areas has of course to consider local and regional sea level rise rates, not the global average. However a rise in the global average sea level will in most cases translate into local rises.

- the need for prioritised, comprehensive, strategic adaptation planning (both broad adaptation planning and planning tools) to set the framework for coastal suburbs, settlements and in-between areas;
- the need for revised tools to address the short term challenges in decision making; and
- a range of recommendations around complementary processes to the land use planning system.

In relation to dot point 3 above, the Committee notes the almost universal agreement that undertaking site specific Coastal Hazard Vulnerability Assessments for small developments within existing settlements is a potentially expensive diversion that takes away from the need for regional or settlement wide strategic planning and adaptation responses. In discussing revised and new tools the Committee makes it clear that such assessments should generally only be undertaken for larger sensitive uses and development.

A complete summary of recommendations is included in Chapter 8.

In developing the recommendations in this report the Committee has had extensive communications with local government, State agencies and other groups and individuals on the coast. Whilst the Committee has not always accepted the views put forward, it can state that these points of view have influenced the Committee and its work tremendously.

2. The Advisory Committee process

2.1 Overview

The Coastal Climate Change Advisory Committee was appointed under Section 151 of the *Planning and Environment Act 1987* by the Minister for Planning on 24 June 2009. The Committee members are:

- Mr Nick Wimbush (Chairperson);
- Mr Chris Harty;
- Ms Helen Martin; and
- Ms Catherine Wilson.

The Committee was provided with Terms of Reference from the Minister for Planning dated 19 May 2009 (included in Appendix A).

2.2 Committee process

In accordance with the Terms of Reference the Committee:

- undertook a series of consultation meetings in late 2009;
- prepared an Issues and Options Paper;
- released the Issues and Options Paper for comment for eight weeks from February to May 2010; and
- held a series of hearings and meetings from June to December with submitters and stakeholders during final report development.

A list of submitters is included in Appendix B and an overview provided in Section 3. Submissions on particular issues are considered and discussed throughout the report.

2.3 Approach in this report

The Issues and Options Paper contained a significant amount of information on the background to climate change, the existing planning system and possible ways forward. This Final Report does not repeat that material but draws on it as necessary. The Committee has thus labelled this Final Report Volume 1 and the Issues and Options Paper Volume 2.

This report is structured around the following approach:

- consideration of new policy initiatives since the Issues and Options Paper in February;
- framing of the key issues;
- discussion of the various planning approaches for developed and non-developed areas;
- recommendations for actions affecting other processes outside the planning system; and
- suggested drafting changes to the Victoria Planning Provisions.

3. Overview of submissions

The following is a brief overview of submissions made either in writing or at hearings. Reference to other comments made by submitters is included elsewhere in this report.

3.1 Zones and overlays

There was a clear consensus for the introduction of a Coastal Hazard Overlay, to achieve more equitable and consistent decision making across local government. Such an overlay would potentially provide scope for amendment, avoiding the possibility of potentially arduous changes to planning zones. However, it was suggested that if such an overlay were implemented, it may be difficult to apply just one overlay due to the complexity of climate change impacts. In addition, a single overlay addressing multiple factors can make undertaking coastal vulnerability assessments more difficult if some of the considerations are not relevant to a particular site.

A schedule to the Coastal Hazard Overlay could potentially be utilised to identify the specific hazards likely to affect different areas of land, such as erosion, storm surge or sea level rise. In anticipation of an overlay, planning and drainage authorities will need adequate warning, given their responsibility to properly administer the referral provisions, and to respond to risks to their infrastructure. Council and community consultation would be required in relation to where the overlay is to apply. Provision would need to be made for the fact that a Coastal Hazard Overlay would increase the workload for Catchment Management Authority (CMA) Referrals, which have already nearly doubled in recent years.

Due to its lack of flexibility compared to an overlay, the introduction of a new zone or adaptation of an existing zone was generally not supported. However, some were in favour of a new zone based on the Comprehensive Development Zone, previously considered by the Committee.

The Environment Defenders Office (EDO) and Victorian National Parks Association (VNPA), in a joint submission, were in favour of two new overlays – a Coastal Management Overlay and a Sea Level Rise Overlay, in addition to a Coastal Hazard Overlay. The objective of this would be to increase recognition of biodiversity and protect natural areas. In addition,

they recommended an Environmental Significance Overlay (ESO), Vegetation Protection Overlay (VPO) and Public Acquisition Overlay (PAO), to assist in maintaining public space and reserves. According to the EDO and VNPA, a series of legislated coastal growth boundaries would assist in protecting coastal biodiversity as sea level rises. However, a new zone would be required to regulate land outside the boundary.

Parks Victoria was concerned about the need to exercise care if proposing to apply a Coastal Hazard Overlay over a Public Park and Recreation Zone (PPRZ) and Public Conservation and Resource Zone (PCRZ), as this could prove counterproductive and restrictive.

Several of the submissions suggested that changes which are made to planning frameworks focusing on sea levels should also be applied to areas away from the coast, such as the Special Building Overlay for inland areas subject to inundation.

3.2 Coastal Hazard Vulnerability Assessments

Several submissions described the current Coastal Hazard Vulnerability Assessment (CHVA) process as expensive for the applicant and time consuming. Various issues were raised about the ad hoc nature of the CHVA, with some on-site arrangements for conducting a CHVA involving duplication in time and effort. In addition, there was concern that not all properties subject to coastal climate change impacts are being assessed. Confusion also exists about how to apply the results of a CHVA, and there is a lack of skills in local government to assess them. Suggestions were made that there be an accreditation process for consultants, a standardised methodology for engineers completing assessments, or a declaration that an assessment is consistent with the State Government requirements.

3.3 Section 173 Agreements

The implementation of agreements on title (Section 173 Agreements under the *Planning and Environment Act 1987*) was generally not supported. This was because agreements are difficult to amend and there may be problems financing projects on the land, insurance may be difficult to obtain or the land may be difficult to sell in future. They may also result in inconsistent decisions in relation to different properties. The Housing Industry Association noted that little value exists in applying a Section 173 Agreement over an individual property if uncertainty exists over the remainder of the settlement.

Time-based permits were questioned by one Council on the basis that they are inflexible, the requirement to vacate could be challenged, and enforcement issues may arise.

3.4 Integration and responsibility

There was consensus that support and resources should be provided from the State Government to local government to manage coastal climate change issues with local and regional communities. This could be combined with a greater alignment of state and national efforts. Direction from the State Government to provide certainty to the community is needed. This could include State Government having responsibility for standard methodology and funding for coastal vulnerability assessments.

Parks Victoria stressed that simplification in planning provisions is required; and provided example of the Bays and Maritime Initiative, which seeks to simplify planning and regulatory processes for the maritime precincts. They also suggested that development protocols with default requirements be implemented so that only exceptions are referred (as with the Floodplain Management Plans).

Regional Coastal Action Plans could be developed by councils, which would recognise the importance of regionally integrated action in relation to Victorian coastlines. This is particularly important because action by one municipality may have adverse coastal impacts on another. The Victorian Coastal Council stressed that legislated, enforceable regional strategic plans are needed, possibly in the form of Coastal Action Plans.

Without effective integration, a lack of information may constrain the type of overlays that can be developed, along with the timing with which they can be applied.

3.5 The role of the responsible authority

Regarding the role of the responsible authority, a range of suggestions were made:

- an independent decision making body or new referral authority could be established to assess planning applications. Therefore, the cumulative effect of decisions in relation to coastal conditions could be assessed;
- planning and decision making responsibility should stay with individual municipalities, with a referral agency providing technical input;

- a single government authority, perhaps the Department of Sustainability and Environment, or the Catchment Management Authorities, should be responsible for implementation, rather than local councils;
- a model local policy could potentially be added to the Victoria Planning Provisions (VPPs). Expert assistance to Councils would help ensure that coastal climate change issues are investigated and assessed. Concern was expressed that the SPPF gives direction but not guidance about how to apply policy at a local level. A model local policy incorporating standard conventions for mapping would provide guidance to local government. The VPP and planning schemes could provide tools to assist with risk assessments and adaptation measures.

The City of Port Phillip recommended that the Commonwealth and State Government could adopt an integrated approach to the issue, through:

- working in close partnership with councils to achieve planning outcomes that do not contradict each other;
- adopting an integrated approach to regional catchment and coastal management; and
- minimal conflict and integration exercised between individual coastal action plans.

It was generally felt that programs such as the Future Coasts Program accelerate the knowledge and skills needed for coastal adaptation planning.

The Real Estate Institute indicated that it wishes to be in a position to provide advice to clients on potential risks and the planning regime applying to particular properties to avoid misleading clients.

3.6 Existing planning system

There was a clear consensus that different regions will face different impacts as a result of climate change, and flexibility is needed to respond to local and regional variations within the structure of planning schemes.

There was support for the retention of the Victorian Coastal Strategy (VCS), while stressing however that a new level of State wide policy guidance is required.

There was a general concern that the structure of the SPPF does not allow for the inclusion of mapping, so that more detailed controls are needed to allow its policies to be understood and implemented. A suggestion was made to implement a climate change design standard or guidelines for developers.

Some submissions raised the issue that broad regional coastal climate vulnerability assessments across the Bayside municipalities are required.

There was a general consensus that an interim position is required to guide Councils. Lack of an appropriate current referral authority in relation to erosion, coastal recession, sediment transportation and deposition was also raised as an issue.

One CMA suggested that consistency be adopted within the planning framework, for terms such as riverine flooding and coastal inundation.

Concern was expressed about the predicted sea level rise, particularly as the predictive scientific models are based on assumptions which are currently uncertain. For instance, clarification was sought about the point at which the predicted 0.8 metre increase by 2100 is measured. It was felt that inconsistencies exist between the State Government and the Committee's sea level rise scenarios, and the most recent Federal Government predictions regarding sea level rise of 1.1 metres. The VNPA and the EDO warned that restrictions on development in low lying areas will raise pressures for settlement in areas above the 0.8 metre planning threshold.

3.7 Key issues in submissions not addressed by the Committee

The following issues were raised in submissions but are not addressed substantively elsewhere in this report. The Committee has not made specific recommendations on them but considers that they should be addressed by the relevant authorities. More detail is available in the primary submissions.

3.7.1 Tide Gauges

The Surveying and Spatial Sciences Institute suggested that to accurately measure local and regional sea level rise, the system of tide gauges needs to be reinforced. This would consist of:

- more primary tide gauges be installed on the Gippsland coast and additional gauges equidistant on the rest of the Victorian coast; and
- centralising and analysing data from the existing secondary tidal gauge network, maintained by ports authorities and other organisations.

The Committee considers this additional monitoring effort is critical, particularly when sea level rise based triggers are being suggested in the planning system.

3.7.2 Extension of planning schemes

The Department of Sustainability and Environment in discussions supported the idea of extending planning scheme boundaries 600m seaward, as recommended in Action 2.2d of the VCS. The VNPA/EDO submission also supported this change.

Some planning schemes along Port Phillip Bay already extend into the marine environment.

One of the main reasons suggested for extension of schemes is that it would bring a range of marine activities – such as energy development, artificial reefs, offshore coastal protection works – under the requirements of the *Planning and Environment Act 1987*.

The Committee considers that, whatever the benefits that such extensions may confer in other areas of coastal planning and management, the need in terms of climate change responses is less compelling. The requirements for approvals and the provisions for assessment under other Federal and State legislation would allow appropriate consideration of coastal climate change impacts. However, one potential area where it could be useful is if land reclamation were contemplated in a particular area, in order to protect significant natural or built assets (e.g. erodible cliffs or major urban development).

The Committee considers this is an issue that could be explored but does not place a high priority on it at this time.

3.7.3 Cultural Heritage

Several submissions or comments made in consultations raised issues concerning the impacts of coastal climate change on cultural heritage sites or places:

- Moyne Shire Council was concerned about the impact of coastal inundation and erosion on Indigenous cultural heritage sites, including Aboriginal burial sites;
- The City of Port Phillip, Hobsons Bay City, and Wellington Shire pointed out that a requirement for new development to be built with floor levels that addressed flood risk in conjunction with sea level rise would have major impacts on the consistency of built form in heritage precincts and on neighbourhood character.

The Committee recognises that these are genuine concerns.

With regard to Indigenous heritage sites, Aboriginal Affairs Victoria and Registered Aboriginal Parties under the *Aboriginal Heritage Act* 2007 will have a key role in determining the appropriate management responses for 'at risk' sites already known or uncovered due to coastal erosion.

For non-Indigenous heritage places, the Committee considers that responses to coastal climate change hazards should focus on reducing exposure to risk. Detailed studies of local areas will be required to determine the appropriate balance between lessening the risk to new buildings and maintenance of heritage significance or existing neighbourhood character.

4. New policies and reports

Since the Committee published its Issues and Options Paper in February, a range of new policies and reports has been released. Some of the key ones are discussed below.

4.1 Commonwealth and interstate

4.1.1 Government Response to the George Report

The report of the House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts into climate change and environmental impacts on coastal communities, *Managing our Coastal Zone in a Changing Climate: the time to act is now* (the George report) was summarised in the Issues and Options Paper. The Commonwealth Government has since responded to the recommendations made in that report² and either 'agreed', 'agreed in principle' or 'noted' all 47 recommendations. In particular the Government:

- stated that it recognised the need for national leadership and cooperation between all levels of government to effectively manage our valuable coastal resources, particularly in the context of climate change;
- seeks to develop a national coastal adaptation agenda and in February 2010 released its vision position paper *Adapting to Climate Change in Australia*;
- outlined initiatives currently underway that will increase local government's skills to respond to climate change impacts with a priority on coastal management. One such program is the Local Adaptation Pathways Program which provides funding to local government to develop risk management strategies and adaptive actions;
- detailed research initiatives related to sea level rise including programs that examine demographic pressures on coastal settlements and how planning responds and agreed that there is an urgent need for research into socio-economic vulnerability to climate change impacts in coastal communities;
- highlighted that the Ministerial Council for Police and Emergency Management – Emergency Management (MCPPEM-EM), in November 2009, endorsed a Climate Change Adaptation Action Plan;

² <http://www.climatechange.gov.au/~media/publications/adaptation/HoR-managing-coastal-zone.ashx>

- agreed that there should be a nationally consistent sea level rise benchmark;
- agreed in principle to look at amending the building code and to inquire into public authorities' legal liability;
- supports the desire to protect shorebird habitat;
- highlights research funds that are directed towards improving *our capacity to understand manage and conserve unique biodiversity and ecosystems* and other initiatives that together will inform the development of a national coastal plan; and
- agreed that coastal communities need to be informed and engaged in addressing the impacts of coastal climate change.

4.1.2 Coasts and Climate Change Council

The Coasts and Climate Change Council chaired by Professor Tim Flannery was appointed to work on the development of the agenda and content for the *National Climate Change Forum: Adaptation Priorities for Australia's Coast* (the Forum) held in February 2010 and to look at adaptation. The Council issued preliminary conclusions³ prior to the Forum which stressed the need to increase the awareness of the magnitude of risks Australia will confront in the future. It also emphasised that the costs of minimising damage through decision making that is *based on sound and timely access to information* that will come through having access to and sharing information on the costs and benefits of response options. The Council also stressed that *(T)here is an urgent and continuing need to reduce uncertainty and enhance consistency in coastal planning and decision-making*.

4.1.3 Developing a national coastal adaptation agenda

In February 2010 around 200 delegates, representing the three tiers of government, professional associations and the research community, attended the National Climate Change Forum in Adelaide. The Commonwealth subsequently released a report, *Developing a national coastal adaptation agenda*⁴ which provides a summary of the forum.

The report succinctly summarises many of the issues confronting the Committee and the broader community in the fields of climate change

³ <http://climatechange.gov.au/government/initiatives/australias-coasts-and-climate-change/adapting/~media/publications/coastline/coasts-climate-report-pdf.ashx>

⁴ *Developing a national coastal adaptation agenda: A Report on the National Climate Change Forum*, Adelaide 18–19 February 2010, Department of Climate Change and Energy Efficiency, Commonwealth of Australia, 2010 (www.climatechange.gov.au/media/whats-new/national-coastal-adaptation-agenda.aspx)

communication, coastal planning, local government liability, risk frameworks, and ecosystem protection, to name a few.

Some particular points of note from the Forum report are:

- there was a strong call for a national standardised integrated risk framework to provide support for effective adaptation decision making. The framework should cover all risks – sea level rise, coastal surge and storm event risks – and incorporate confidence limits, probabilities and sensitivities. It was postulated that such a framework could afford local governments some protection in litigation;
- there needs to be greater knowledge and understanding about the economic, social and cultural value of the goods and services that ecosystems provide. In addition existing buffer zones for ecosystems need to be maintained and new ones identified to allow ecosystems to migrate and adapt;
- the Attorney General's Department is conducting a *Critical Infrastructure Protection and Modelling and Analysis* program which will identify critical infrastructure that is at risk of climate change impacts;
- local government needs guidance on the costs and benefits of adaptation options and this could be facilitated by an authoritative Australian body which could distil the most up-to-date information; and
- there is a need to support low income earners and the disadvantaged to help protect them against, and adapt to rising sea levels.

4.1.4 New South Wales - developments in coastal planning tools

Coastal Planning Guideline, Coastal Risk Management and Flood Risk Management Guides

The Issues and Options paper outlined NSW's policy framework and specific coastal climate change planning measures including the draft *Coastal Planning Guideline: adapting to Sea Level Rise*⁵, *Draft Coastal Risk Management Guide: Incorporating sea level rise benchmarks into coastal risk assessment* and *Draft Flood Risk Management Guide: Incorporating sea level rise benchmarks in flood risk assessments*. Since then the NSW government has released the final versions of these three documents.

The Coastal Planning Guideline: adapting to Sea Level Rise stresses that it does not prohibit development but uses a risk based approach whereby various

⁵www.planning.nsw.gov.au/PlansforAction/Coastalprotection/AdaptingtoSeaLevelRise/tabid/177/language/en-AU/Default.aspx

levels of development are treated differently and proponents are required to demonstrate that the risk is manageable. It identifies coastal risks as *coastal erosion, tidal inundation and coastal flooding including sea level rise* and provides planning criteria, information requirements and assessment processes, to be included in the relevant planning instruments such as Local Environmental Plans and Development Control Plans.

The Coastal Planning Guideline encourages reducing intensification in developed areas where possible, while maintaining ongoing sustainable populations until coastal risks pose a risk to life and property. Intensification in coastal risk areas (for 2100 sea level rise), particularly on greenfield sites, is discouraged.

The Guideline introduces the concept of sea level rise investigation areas. A sea level rise investigation area is an interim measure which indicates land that is likely to be subject to coastal erosion or coastal flooding as a consequence of sea level rise and where more detailed study needs to be undertaken to inform strategic planning. Although investigation areas may be used, without further detailed studies, to identify land which should not be rezoned from rural to residential, they are not designed to be the basis for development assessments, Development Control Plans or environmental planning assessments. They are to be applied in recognition that coastal flood and coastal erosion mapping is ongoing and may not have been completed for an area.

The Guideline specifies eight (8) criteria for development assessment which appear similar to decision guidelines used within the Victorian planning system:

1. *Development avoids or minimises exposure to immediate coastal risks (within the immediate hazard area or floodway).*
2. *Development provides for the safety of residents, workers or other occupants on-site from risks associated with coastal processes.*
3. *Development does not adversely affect the safety of the public off-site from a change in coastal risks as a result of the development.*
4. *Development does not increase coastal risks to properties adjoining or within the locality of the site.*
5. *Infrastructure, services and utilities on-site maintain their function and achieve their intended design performance.*

6. *Development accommodates natural coastal processes including those associated with projected sea level rise.*
7. *Coastal ecosystems are protected from development impacts.*
8. *Existing public beach, foreshore or waterfront access and amenity is maintained.*

Developers are required to demonstrate that proposals can manage future risk through coastal risk assessments. Planning certificates are to indicate coastal risks where council or a public authority has imposed development restrictions on a specified site. Development approval conditions that may be used to manage risk include triggers and/or time limited approvals that would allow use of existing developed land until such time as coastal erosion or coastal flooding impacts become intolerable. Development controls can also require mitigation works or other adaptation measures including relocation.

Future acquisition of at risk land is not discounted and engineering solutions such as coastal protections works can be used *only where they do not adversely affect coastal or flood processes, the environment, beach access or other properties* but these are not necessarily encouraged. They can be undertaken on private land and soft engineering options such as beach renourishment are preferred.

The Coastal Risk Management Guide: incorporating sea level rise benchmarks in coastal risk assessments and the Flood Risk Management Guide: incorporating sea level rise benchmarks in flood risk assessments are adjuncts to already published guides.

The *Coastal Risk Management Guide*⁶ covers the impact of sea level rise on open coastal systems including dune systems as shown in the following diagrams. The second diagram is based on sea level rise benchmarks of 0.4 metres by 2050 and 0.9 metres by 2100:

⁶ <http://www.environment.nsw.gov.au/resources/water/coasts/10760CoastRiskManGde.pdf>

Figure 1: Dune profile and hazard area

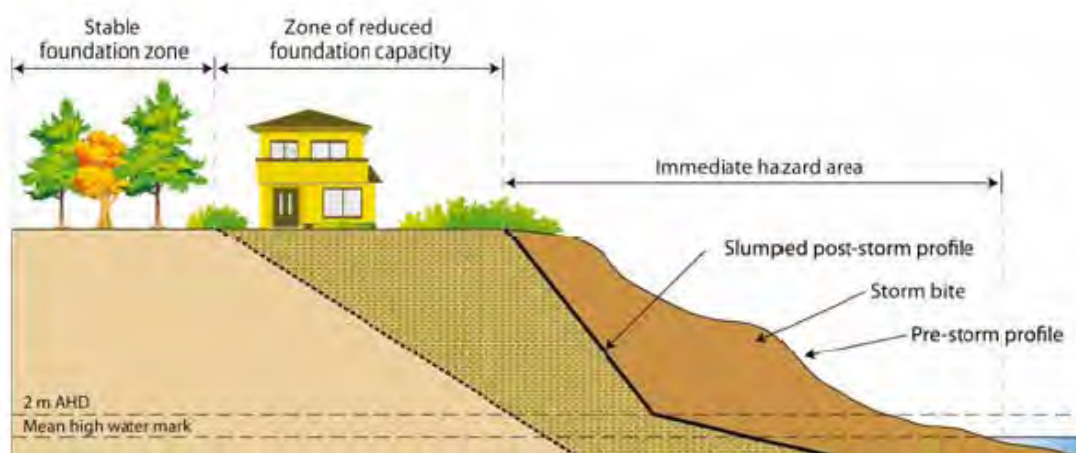


Figure 3.2. Idealised schematic of a dune profile depicting the immediate hazard area and associated zone of reduced foundation capacity (after Nielsen et al 1992).

Figure 2: Dune profile and hazard area with forecast sea level rise

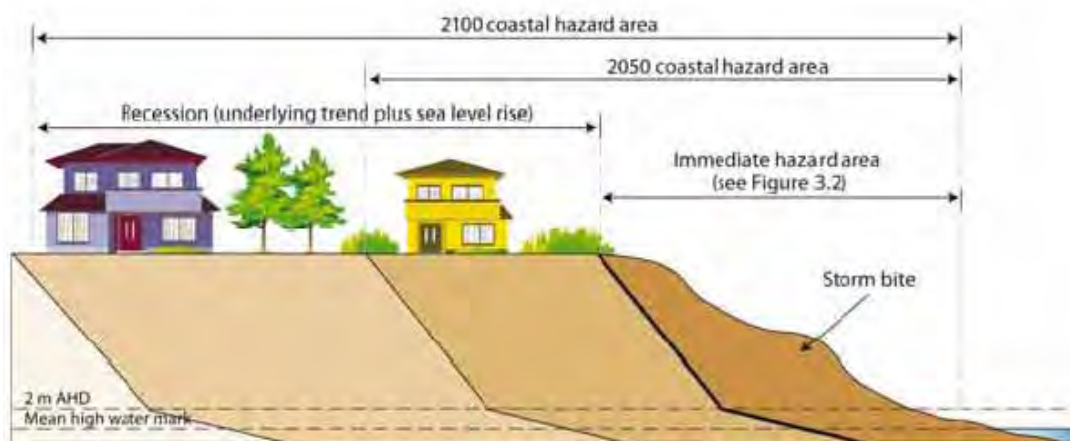


Figure 3.3. Idealised schematic of a dune profile depicting the high hazard area, 2050 coastal hazard area and 2100 coastal hazard area.

The Flood Risk Management Guide⁷ which includes interim advice for modelling the intersection of catchment and coastal flooding for different tidal waterways, says:

Where flood modelling has been undertaken, it can be updated to include the sea level rise planning benchmarks or a conservative assumption can be made about sea level rise impacts. Where the site is below 4 metres AHD, an appropriate conservative assumption to estimate the 1% AEP flood level considering sea level rise is to add the sea level rise planning benchmarks to the 1% AEP flood level relevant to the site.

⁷ www.environment.nsw.gov.au/resources/water/coasts/10759FloodRiskManGde.pdf

Other products produced by the NSW government include the *Comprehensive Coastal Assessment (CCA) toolkit*⁸ and mapping products. The CCA toolkit includes software to assist coastal councils and catchment management authorities to undertake strategic land use planning and develop Local Environmental Plans.

Draft Coastal Zone Management Plan Guidelines

The NSW Government has recently passed amendments to the *Coastal Protection Act 1979* with the *Coastal Protection and Other Legislation Amendment Act 2010*. The amending legislation deals with coastal erosion and projected sea level rise with particular emphasis on conducting coastal management planning and regulation of temporary coastal protection works on beaches and sand dunes.

In support of the amending legislation the NSW Government released for public comment draft *Guidelines for Preparing Coastal Zone Management Plans*. These Guidelines are an amalgamation of existing coastline management and estuary management manuals which have previously been used for coastal and estuary management in NSW for the last two decades. The primary purpose of the Guidelines is to outline how and what matters should be considered in preparing a coastal zone management plan.

Preparing coastal zone management plans leads to improved outcomes in the coastal zone, particularly in relation to coastal hazard risk management and the management of estuary health.

The NSW Government intends that the Minister for Planning will notify the final Guideline under section 733(5) of the *Local Government Act 1993*, which as a consequence, provides councils and government agencies acting substantially in accordance with the principles contained in the Guideline with a statutory exemption from liability for actions undertaken in good faith in accordance with any certified coastal zone management plan.

It is also intended that the Minister for Planning amend a direction under Section 117 of the *Environmental Planning and Assessment Act 1979* to require this Guideline to be taken into consideration when councils prepare draft Local Environmental Plans.

The Guideline outlines the steps and content on how to prepare and what to include in a coastal zone management plan in order to satisfy certification under the *Coastal Protection Act 1979*, including:

⁸ www.planning.nsw.gov.au/plansforaction/pdf/cca_toolkit_brochure.pdf

- *A description of the physical processes affecting the coastal zone for the area of coverage for the plan to a level of detail necessary to inform decision-making.*
- *A review of relevant current actions, and actions in any previous relevant plans, as well as identifying potential future actions.*
- *Prioritised, realistic and affordable options for managing risks from coastal hazards and/or risks to estuary health in the short term and long term.*
- *Proposed funding arrangements for potential options, including private sector or landowner funding contributions.*
- *Separate identification of actions council proposes to implement using council resources and other actions council would implement if external (e.g. grant) funding was available.*
- *Provisions to be included in council's local environmental plans and development control plans to manage risks, as well as any actions proposed for inclusion in council's operational plan and plans of management for community land or Crown reserves.*
- *Proposed monitoring and reporting on plan implementation and a timetable for the plan's review.*
- *Identification of any further studies or investigations required.*

The Guideline describes a range of methods for assessing management options including options for risk assessment and cost/benefit analysis. Information is also included on the detailed plan content including circumstances when coastal hazards are to be managed.

The Guideline offers an opportunity to guide coastal vulnerability assessment processes and show how a coastal management plan could be prepared for coastal climate change hazards and what its coverage should be.

Narrabeen Lagoon Investigation

AECOM was engaged by the Australian Department of Climate Change to undertake an economic analysis of climate change impacts on infrastructure through the development of a series of case studies⁹.

⁹ Commonwealth of Australia (2010) *Coastal Inundation at Narrabeen Lagoon: Optimising Adaptation Investment*, prepared by AECOM for the Department of Climate Change

The project aimed to give infrastructure owners, investors and government advice about adaptation options and their costs and benefits over time, in order to identify ways to optimise investments and manage risk. It also investigated impediments to infrastructure owners taking efficient adaptation measures to reduce the economic and community impacts of infrastructure failure.

The Narrabeen Lagoon case study analysed the impact of climate change on flooding in the northern Sydney local government area of Pittwater. It did not include analysis of impacts from beach erosion or of the costs and benefits of relocating some of the affected urban development to a safer location.

Narrabeen Lagoon is one of about 70 intermittently closed and open lakes and lagoons (ICOLs) spread along the coast of New South Wales. Storms can block ocean entrances depositing sand, but, in combination with flood waters from creeks that feed into a lagoon, they will occasionally also flush away deposits in the entrance. When its entrance is blocked, rain and floodwaters will generally fill a lagoon like a bathtub, and can therefore flood the land and houses around it.

Climate change is expected to increase the frequency and intensity of storms and rainfall in the Narrabeen catchment over the coming century, as well as raising sea levels. Therefore, decision makers need a better understanding of the social costs and benefits to their communities of the different adaptation measures that could be implemented to reduce inundation.

This study estimated the social benefits of adaptation to climate change in terms of willingness to pay, rather than just costs avoided. It also generated probabilities of overall costs and benefits, as well as modelling the expected future values of variables such as rainfall.

Six possible measures were analysed in detail; creating a permanent entrance to the Lagoon by excavating a channel through the headland rock shelf; levees in three different locations; flood awareness; and planning control.

Modelling suggested that a 70-metre wide entrance channel would be economically viable now, but the benefits would increase if deferred until 2035. One of the levee options was also found to be a viable proposition at present. However, the costs of the other levees investigated were found to outweigh the benefits.

A system to provide Pittwater residents with early warning of floods would be relatively inexpensive and worth implementing immediately. Amending

planning regulations to require an increase in floor height by at least one metre for all new buildings and renovations to existing buildings would reduce flood damage over time and should also be adopted immediately.

Overall, the study concluded that a socially and economically justifiable strategy for the Narrabeen community would be to immediately institute an early flood warning system, amend planning regulations, and build the Lake Park Road levee, followed by channel widening in 2035.

4.2 Victoria - general

4.2.1 Climate Change White Paper and *Climate Change Act 2010*

The Climate Change White Paper was released in July 2010, with a White Paper Implementation Plan to be released in late 2010. A number of initiatives in the White Paper are legislated through the *Climate Change Act 2010* which is to come into operation on a date yet to be determined but no later than 1 July 2011. The Act's objective states that Government policy should have regard for, amongst other things, *managing risks to Victoria's infrastructure, built environment and communities through good planning and emergency response systems*. Its guiding principles on decision making require that this should be based on risk management where *an assessment of the consequences of each of the options* be made *having regard to the risks of each of those options*. Another of the Act's principles, the Principle of Equity requires among other things that *the present generation should consider the opportunities to increase the capacities to adapt to climate change of those people most vulnerable to the potential impacts of climate change*.

Building on initiatives already introduced in Victoria the White Paper enunciates 10 priority actions which include adapting to climate change. The key planks of adapting to climate change will be included in the yet to be released *Climate Change Adaptation Plan*. This Plan which aims to build *Victorian communities that will be more resilient to manage the effects of climate change such as sea level rise* and is part of the *Climate Change Act 2010*. The Plan, as required by the legislation, must provide *an outline a risk assessment of the potential impacts of climate change on various regions of Victoria, as well as the Government's priority areas for a State response*. It is a legislative requirement that this Plan is to be developed every four years.

Other initiatives included in the White Paper's action plan for adaptation include actions to ensure climate change considerations are *built into risk management programs and planning for coastal areas*.

A community based Climate Change Preparedness Program is also proposed *to provide local industries and communities with tailored support and advice on how they can best manage their climate change-related risks.*

Schedule 1 to the Climate Change Act lists the Victorian legislation which is subject to the requirement to take climate change into account in decision making, and the types of decisions or actions to which this requirement applies. It includes the Acts relating to catchments and natural resource management, coastal management, conservation of species, water and public health, but does not include the Planning and Environment Act.

4.2.2 *Planning and Environment Act 1987* review

A review of the *Planning and Environment Act 1987* was commenced in 2009 by the previous State government. A range of changes were proposed in response papers put forward in September 2009 including possible changes to:

- the objectives of the Act;
- the planning scheme amendment process; and
- the planning permit application process.

The introduction of an assessment process for State significance projects was also contemplated and a number of other changes proposed. At the time of the November 2010 State election the review process was still underway and its status under the new Government is unknown at the time of writing.

If the review (or another) is to proceed, the Committee considers it is important to include planning for climate change as one of the objectives of the Act to ensure that all planning (not just coastal planning) is cognisant of the risks and the need for appropriate decision making.

The Committee recommends:

- 1. A new objective be inserted at Section 4(c) of the *Planning and Environment Act 1987* as follows:**

To identify and plan for the potential impacts of climate change in order to minimise risks to human health and safety and to ecological communities.

4.2.3 **Ready for Tomorrow: A Blueprint for Regional and Rural Victoria**

Released by the previous Victorian Government in June 2010, this regional blueprint with a total funding package of \$631 million, aims to drive economic growth in rural and regional Victoria through five key strategies.

One of these strategies, *Planning Better Regions – A New Partnership*, includes *Coastal Settlements for the Future*, which aims to assist coastal settlements to manage the challenges of flooding inundation and storm surges. It has a funding commitment of \$13.6 million to be made available upon application to support *adjustment strategies and new land use planning tools, assessment of the vulnerability of assets and infrastructure, an audit of current land use commitments in coastal areas and guidelines for future settlement growth*. The 90 Mile Beach, Queenscliff and Port Fairy are nominated as priority areas.

4.2.4 **Bushfire Royal Commission**

Overview

The Victorian Bushfire Royal Commission (BRC) into the February 2009 Black Saturday bushfires considered whether changes can be made to the Victorian planning system to reduce the risk of bushfires to human life and safety in the future.

In many instances in the planning and building section of the BRC report 'bushfires' could be replaced by coastal climate change although in doing so it should be borne in mind that sea level rise is an ongoing process, which in Victoria, is extremely unlikely to have the same disastrous consequences that can occur with bushfires. However, sea level rise will also be irreversible and bring about a permanent change in the environment in some areas.

The Commission noted that planning has limited capacity to mitigate bushfire risk in existing developments. However the use of comprehensive and regularly reviewed bushfire risk and risk category mapping can underpin planning and lead to increased safety in new developments.

At the strategic level the Commission made the following remarks about the planning system that are pertinent to coastal climate change:

- *That there is considerable scope to substantially restrict development in areas that are known to pose an unacceptably high bushfire risk.*
- *The strategic policy framework should provide more clarity and guidelines for giving greater recognition to bushfire risk in*

planning decisions without imposing unacceptable biodiversity costs.

- *...the LPPF of each planning scheme where the Bushfire-prone Overlay is applied include a bushfire policy that broadly outlines how to incorporate risk management in land-use planning, including the policy's links with the council's municipal fire prevention plan and municipal emergency management plan.*
- *State should develop a model local bushfire plan which should clearly reflect the objective of substantially restricting development in areas of highest risk.*

The Commission, which took advice from an expert planning panel, rejected the introduction of 'bushfire – prone zones' on the basis that although they could limit inappropriate development, there were other planning measures available to better manage bushfire risk. One of these measures is to strengthen existing zones *to influence the use and development of land in areas of bushfire risk*. The expert panel were particularly concerned about the consequences zones would impose on existing landowners.

The Commission favoured using the Wildfire Management Overlay¹⁰ (WMO) over the introduction of bushfire prone zones. However the Commission recommended that the WMO be made more flexible to recognise different levels of risk and be made to account for local circumstances and tailored building treatments.

It also recommended the introduction of schedules to the WMO to indicate different risk levels and that the development for sensitive uses purposes in a WMO must meet certain fire protection objectives. As well it noted the inconsistent application of the overlay by local government with blame going to a number of overseeing authorities. It also recognised that the lack of resources within some councils was in part to blame.

Interestingly the Commission considered the WMO should be applied to areas where bushfires are likely to pose a threat rather than where protecting or defending would be difficult which is an approach that differs from the standard approach to risk, which considers likelihood and consequences.

Of the Commission's 19 recommendations related to planning and building, one of the very few recommendations rejected in full by the previous State

¹⁰ Recommended to be renamed the Bushfire Prone Overlay.

Government was for implementation of a retreat and resettlement strategy if risk mitigation measures were found not to be feasible.

The main vehicle for this was to be through non compulsory acquisition of land in places of unacceptably high risk. This was viewed as fairer to landowners than restricting use and development. The previous State Government rejection of this recommendation was based on the increased fire risk for those who choose to stay and with its preference given to risk mitigation.

Another recommendation of the Commission was that Section 32 of the *Sale of Land Act* 1962 be amended to require that in bush fire prone areas the vendor's statement include details of the standard to which the dwelling was constructed and a current bushfire attack level assessment. The State's response was that it will amend the Act to require Section 32 statements to include information as to whether the land is in a designated bushfire prone area but it rejected making it a requirement for vendors to undertake a current bushfire attack level assessment. However if one has already been undertaken then it would be included.

The new Victorian Government has indicated that it supports all of the BRC's recommendations including the retreat and resettlement strategy and changing vendor statements to require the inclusion of a bushfire attack level assessment.

Furthermore the Commission:

- supported the Regional Blueprint (see Section 4.2.3); and
- called for stronger links between planning and the Building Code of Australia to improve consistency. Bushfire mapping should be a fundamental basis for both. The Commission supported the work being undertaken by the State Government to achieve this.

The Commission's report emphasised that community safety is a shared, but uneven, responsibility between the State, municipal councils, individuals and the broader community. The State and municipal councils need to provide leadership and guidance through, for example, education, strengthening mitigation measures, assisting vulnerable people, having effective warnings systems and developing local plans. Individuals should be responsible for their own safety by being well informed and prepared including having contingency plans and, if they are tenants, raising concerns with their landlord.

Summary of issues relevant to coastal climate change

- mapping is fundamental to establishing the risk profile and ensuring safety for new developments;
- the policy framework needs to be clear and have strong links to the Building Regulations;
- LPPFs need to outline how risk can be managed and be linked to local emergency management plans;
- preference is for the application of overlays rather than zones which could limit appropriate development. The overlays need to be flexible, (schedules could do this) and recognise different levels of risk and local circumstances;
- support for the development of a model local plan;
- the previous Government was unwilling to support a retreat and resettlement strategy, where risk management measures were not feasible. However, it should be noted that this applied to areas exposed to intermittent hazards, not permanent environmental change;
- the former Government supported the recommendation to amend Section 32 of the *Sale of Land Act* 1962 to require disclosure of that the land is in a risk prone area. However, it rejected the call for individual property assessments to be undertaken at the time of sale (if none was available previously); and
- community safety is a shared, but uneven, responsibility with the government to show leadership and individuals having an obligation to be well prepared in the event of emergency.

4.2.5 Overview of significant VCAT decisions

Several significant Victorian Civil and Administrative Tribunal (VCAT) decisions were discussed in Section 5.11.1 of the Issues and Options Paper. Since the release of that report in February 2010, there have been a number of other cases. These are summarised below.

***Cadzow Enterprises Pty Ltd v Port Phillip CC* [2010] VCAT 634 (12 April 2010)**

The case involved a proposal to demolish the existing dwelling in Elwood and construct a two-storey dwelling on the land. The dwelling was located approximately one kilometre from the coast. The City of Port Phillip determined to approve the application and issued a Notice of Decision with conditions. Two adjoining property owners applied to VCAT for a review of the Council's decision.

Melbourne Water advised that it had no objection to the proposed development subject to a number of conditions, one of which required the floor level of the dwelling to be a minimum of 300mm above the applicable flood level of 1.63 metres to the Australian Height Datum. According to Melbourne Water, the review site would be affected by any incremental increase in sea level rise associated with climate change predictions above the current Port Phillip Bay level of 1.6 metres.

VCAT directed that the planning permit be issued subject to conditions. They held that in this instance, the best knowledge available was the advice of Melbourne Water. At the hearing, no evidence or submissions contradicting Melbourne Water's advice was provided. VCAT held that the proper application of the precautionary principle in this instance would see the floor levels of the dwelling raised in accordance with the advice of Melbourne Water as a prudent response to the anticipated rise in sea levels. This requirement was held to be in the interests of minimising adverse impacts on current and future generations.

VCAT acknowledged that as more data becomes available and more sophisticated modelling is undertaken, the responses to potential sea level rise may alter and alternatives to simply raising floor levels may be identified or recommended. However, at this point in time, based on the information available to VCAT, the appropriate response to this issue is to raise the floor levels of the dwelling. The precautionary principle required that appropriate action be taken in the circumstances of current proposals.

Taip v East Gippsland SC [2010] VCAT 1222 (28 July 2010)

This case concerned a decision by the East Gippsland Shire Council to grant a permit for residential development of eight dwellings in Lakes Entrance. The subject land was in a Business 1 Zone and affected by a Land Subject to Inundation Overlay (LSIO). A local resident sought review of Council's decision before VCAT. The East Gippsland Catchment Management Authority (EGCMA) subsequently applied to be joined in the action and continued with the application for review even though the original objector withdrew. The core issue under consideration by VCAT was the impact of climate change risks on the site in question and its surrounds.

The case brought into focus how the Victorian planning system seeks to deal with the pressing issues of climate change, rising sea levels and the vulnerability of coastal communities to the associated impacts of these conditions. VCAT concluded that a permit should not be granted and directed that the Council's decision be set aside.

VCAT noted that the low lying commercial centre of Lakes Entrance has a very high level of vulnerability to the impacts of not only sea level rise but other effects of climate change, such as an increased frequency of storm surges and wind driven flood events. The decision to grant a permit would fail to satisfy the purposes of planning in Victoria for intergenerational equity, sustainable, fair and socially responsible development. Although such a sea level rise would not necessarily be fatal to the ongoing use of the site or the main commercial centre of Lakes Entrance, buried infrastructure in this area would be subject to the impacts of saltwater inundation. This includes the failure of drainage systems, saline intrusion into sewer systems, buried telecommunications and other services, and the undermining of road and footpath foundations. Furthermore, the development would intensify the land use of the site and introduce a higher level of hazard and risks to future users of the site and emergency personnel.

While VCAT recognised that the Council had gone to considerable lengths to develop a planning framework for the future urban development of Lakes Entrance (and other settlements in the shire) it had done so in the face of shifting policy imperatives driven by an increasing understanding of the vulnerability of Lakes Entrance to climate change impacts. It had failed to take account of these shifts. The development of the urban design framework had been overtaken by events that will have major influences on future development of Lakes Entrance and more widely the current and future community. VCAT held that it is not sufficient to rely simply on raising a building above the projected water levels. In addition, the purported ability of the development to achieve its economic life is not an argument that has planning merit.

VCAT relied heavily on the application of the precautionary principle, explaining that the overall approach in applying the precautionary principle is to ensure that planning decisions about particular developments are made in the face of acknowledged climate change impacts and should not be deferred. Decisions should assess how the risks from climate change can be minimised to an acceptable level. Any uncertainty surrounding the potential impacts from climate change should not be a reason to defer decision making. It advised that a cautious approach should be adopted in relation to development until future planning frameworks and responses are put in place to address and minimise these risks.

***D'Abate v East Gippsland SC & Ors* [2010] VCAT 1320 (6 August 2010)**

This case related to a subdivision of land to create a new lot along with construction of a new, two storey dwelling on that lot in Lakes Entrance. The

land contained motel units with a manager's residence at the front. The pool area, which was located at the north-west corner of the lot on the Marine Parade frontage, was the subject land of the application. The application for a planning permit for this development was opposed by the EGCMA, the referral authority, and the Council was therefore obliged to refuse the grant of the permit. The EGCMA maintained that the proposal was unacceptable because the subdivision and construction of the dwelling was an intensification of residential use in a floodway.

The EGCMA argued that under the 1% ARI flood event peak level, the depth of flood water would be in excess of 0.7m around the site, making access unacceptably hazardous and that it would be a danger to residents and emergency personnel. VCAT found that the flood hazard level is not so serious as to warrant refusal of the development on this basis. Sufficient material was submitted to satisfy VCAT that established flood warning and response programs for Lakes Entrance were in place to facilitate early responses or evacuation during the lower flood levels.

However, VCAT held that a permit should not be granted. State policy directed that a consideration of the potential impacts from sea level rise of not less than 0.8m by 2100 and other climate change impacts be considered for a site such as this. The work of the Gippsland Coastal Board indicated these climate change impacts to include increases in the strength and occurrence of south-westerly winds, storms and storm surges. Not only was this site vulnerable to flooding from climate change impacts, the supporting infrastructure, such as roads, water and power, were also vulnerable. That is, the site remained vulnerable to more than just mere flooding.

Another issue raised in this case was whether or not the design response is appropriate for the climate change impacts. The EGCMA had recommended that the floor levels of the development be raised a further 0.8m above the current peak flood level to address the 2100 projections. VCAT did not accept this argument, finding that what is warranted is not a mere lifting of floor levels, but an overall strategy for this site and surrounding area for protection from the impacts of climate change. Any new dwelling proposed for this site can then respond within that context with an appropriate level of built form.

As in *Taip*, VCAT considered that while Council had gone to considerable lengths to develop a planning framework for the future urban development of Lakes Entrance (and other settlements in the shire), planning development work had not accounted for policy changes.

VCAT considered that the severe and long term consequences from the impacts of climate changes are required to be addressed now. The Tribunal recommended that Council and the EGCMA work together to address these issues now and eventually integrate with whatever state wide responses develop in the not too distant future. Until such time as this is completed and a framework prepared, it would be inappropriate and a disorderly planning outcome to grant a permit in this instance.

4.3 Victoria – planning for flooding and sea level rise

4.3.1 Floodplain management and sea level rise

The *Victorian Floodplain Management Strategy* (1998) is currently under review by DSE. The Committee was advised that consideration of climate change influences was likely to form a critical part of the revised strategy. The strategy will inform development of future regional flood studies, which provide information on flood risks, including flood information for planning purposes and data on the risk applying to particular parcels of land.

In the meantime, in December 2009, the Minister for Water wrote to floodplain management authorities advising them that they should take account of the previous Government's policy – expressed through the Victorian Coastal Strategy and the SPPF – to plan for a predicted sea level rise of 0.8 metres by 2100, plus associated storm surge and tidal effects, as well as catchment based flooding. The Minister's letter included some preliminary guidelines on the application of this policy.

DSE's Office of Water, in consultation with the floodplain management authorities – Melbourne Water in the metropolitan area and the Catchment Management Authorities in regional areas – developed a draft *Guide for Coastal Floodplain Management Authorities: assessing development risk in coastal flood risk areas* (June 2010). This document was circulated to coastal municipalities and other stakeholders for comment. It has not yet been finalised.

The draft Guide seeks to ensure that: coastal development responsibly addresses the overall flood risk; development proposals are assessed in a consistent and equitable manner in all coastal areas at risk; exposure of individuals and communities to increased flood risk is minimised; and there is recognition that local government needs time to undertake evidence-based strategic planning for the future.

The draft Guide proposes the following high level principles:

- *Proposals which intensify development, such as subdivision, re-zoning of land from rural to urban or more intensive forms, dual occupancies and multi-unit developments are discouraged as they lead to development intensification and will increase the number of people at risk. Consideration may need to be given to other government policies if they are in conflict.*
- *Opportunities to build within developed areas (infill development) are retained, provided that the occupants are not exposed to an unacceptable current or future flood risk.*
- *An approach that is consistent with the precautionary principle should guide decision-making when considering the risks associated with coastal inundation as a result of climate change. Essentially this requires being precautionary (or conservative) when considering coastal planning decisions, acknowledging the absence of the full scientific facts, new and emerging scientific information and the potential for unexpected changes to the physical nature of the coastline.*

The draft Guide adopts a risk management approach, which relies on assessing the flood hazard applicable to the site, including the effects of sea level rise. In line with the principles (above), they suggest that proposals that increase the intensity of development in an area at risk should be assessed against the predicted flood levels in 2100.

In regard to ‘infill development’ – which appears in this context to mean new or replacement buildings on existing lots – the draft Guide states:

Decision makers assessing use and development proposals should be mindful of existing arrangements and expectations of owners of the land to be able to develop the land in a manner consistent with the relevant zones and overlays. Consideration should be given to ensuring that the flood risk does not escalate unreasonably and can be managed without additional cost to the public.

‘Infill development’, in contrast to proposals for intensification, need only be assessed against expected 1 in 100 year flood levels in 2040 (including allowance for sea level rise, storm surge and storm tide). If a proposed development requires floor levels to be set, these should be at least 600 mm above the relevant flood level.

The draft Guide includes a table assessing various uses against different levels of flood hazard – extreme, high, medium and low – by 2040. It suggests that most residential or commercial developments would be

allowed in medium or low hazard areas. The exceptions are emergency management facilities, education facilities, hospitals, child care centres or retirement villages, which should be located well outside the area affected by a 1:100 year flood in 2100. In extreme or high flood hazard areas (by 2040), the draft Guide proposes that house extensions and temporary dwellings would be approved. Replacement dwellings may be approved, but new ones on vacant lots would not be and nor would new multi-unit developments, hotels or other commercial or industrial developments.

The draft Guide encourages floodplain management authorities to develop more comprehensive guidelines that take into account local flood information and issues. It also notes that local government climate change adaptation strategies will need to be considered in conjunction with the guidelines, when making decisions about future development.

Melbourne Water subsequently produced *Planning for sea level rise: Interim guidelines – assessing development in areas prone to tidal inundation from sea level rise in the Port Phillip and Westernport Region* (June 2010). The guidelines establish flood levels for Port Phillip and Westernport for 2040 and 2100 and floor levels for extensions or new buildings of 600 mm above 2040 flood levels. Unlike the DSE draft Guide, the Melbourne Water document does not relate particular uses to hazard levels, nor does it appear to consider severance of access to a site.

The Committee was advised Melbourne Water and several CMAs had offered to provide advice (as Section 52 referrals under the *Planning and Environment Act 1987*) to responsible authorities in areas at risk of inundation from coastal climate change, where these are not currently included under an LSIO or SBO.

4.3.2 Lakes Entrance planning process

As noted above, in December 2009 the Minister for Water wrote to floodplain management authorities informing them that they should plan for 0.8 metres of sea level rise by 2100 as well as for catchment-based flooding. Following this instruction, and particularly after the VCAT decisions discussed in Section 4.2.5 above, there was considerable concern that economic development of the central business area of Lakes Entrance might be unreasonably constrained.

East Gippsland Shire in partnership with a range of government and non-government agencies and stakeholders has initiated the East Gippsland Inundation Management Project (now referred to as the Gippsland Lakes

Strategic Inundation Management Planning Project). As part of this Council has convened an Inundation Management Steering Committee with members from relevant agencies, the development industry and the community.

The role of the Steering Committee is to:

- *Prepare and implement a community consultation strategy to support the project;*
- *Formulate a strategic framework for inundation management planning for townships surrounding the Gippsland Lakes that is capable of implementation and which has the endorsement of primary stakeholders;*
- *Assist agencies navigate immediate policy and other constraints to ensure decision-making processes are effective and can provide necessary levels of certainty;*
- *Explore a range of options or approaches that can be used to overcome or ameliorate current and future development constraints caused by inundation including:*
 - *options for appropriate building materials and design,*
 - *development or modification of infrastructure and public assets,*
 - *emergency response management, and*
 - *planning for appropriate land use and development;*
- *Guide the development of processes that will facilitate ongoing and appropriate development of Gippsland Lakes townships until such time as effective and comprehensive strategic planning can be undertaken to guide future adaptation options;*
- *Make recommendations about policy approaches, tools or responses that may be applicable to other locations across the Victorian coast;*
- *Prepare a final report outlining the Committee's findings to the East Gippsland Shire Council.*

As the first stage, the Shire has commissioned SGS Economics & Planning Pty Ltd to prepare a project framework for the Lakes Entrance inundation management and adaptation project. This work will take into account the various other studies and policy development projects in preparation and will recommend a logical sequence of investigations and strategic work to determine optimum adaptation strategies for Lakes Entrance.

In parallel with the Committee's considerations, the Department of Planning and Community Development prepared interim planning controls for the central business area of Lakes Entrance and parts of the adjoining low lying residential zoned land. These were introduced by means of Ministerial Amendment C95 on 21 October 2010.

The interim controls take the form of an incorporated document, the *Lakes Entrance Business District Interim Use and Development Control* (October 2010), which applies to land identified in the accompanying map and is called up by an entry in the schedule to Clause 52.03.

The incorporated document identifies the purpose of the controls as follows:

To ensure that existing and future vulnerability to sea level rise is considered in decisions to use and develop land.

To minimise the potential flood risk to life, and ensure the health and safety of existing and future residents from projected combined river, storm tide and sea level rise inundation impacts.

To achieve a fair balance between landowner expectations and the need to plan for the long term impacts of sea level rise by providing interim controls pending the completion and implementation of long term controls from the Gippsland Lakes Inundation Management Project.

The incorporated document includes several tables that attempt to combine an assessment of the vulnerability of different types of uses to flood risks with a development approval regime that is tailored to an assumed investment lifespan for each development.

Sensitive uses and developments, for example, residential aged care facilities, child care centres or service stations, are assessed against water levels derived from a combination of sea level rise (0.8 m), storm tide and a 1:100 years river flood to the year 2100.

Uses and developments regarded as less sensitive are only assessed only against predicted water levels from the same combination of events in 2040, with a sea level rise component of 0.2 metres.

Performance criteria are set down for each category of uses:

- for the sensitive uses, criteria specify the maximum depths allowed to ensure safe access to the site, as well as the allowable maximum depth and extent of coverage of water over the site itself at predicted 2100 water levels; and

- the criteria for uses and developments assessed against 2040 levels are slightly different for small-scale development (single dwellings on a lot, dependant persons units and alterations and extensions to existing dwellings) as opposed to multi-unit dwellings, commercial accommodation or business uses and developments:
 - there are no requirements for safe access depths for the small-scale developments, which are only required to provide a minimum finished floor level that includes an appropriate provision for 'freeboard', as determined by the floodplain management authority; and to not impact negatively on the floodplain, flood flows or local drainage.
 - the other categories of accommodation must meet similar criteria to those for the sensitive uses (above) but at predicted 2040 combined flood levels, as well as finished floor levels that include allowance for freeboard.
 - other Section 1 or Section 2 uses in the Business 1, Business 3 and Residential 1 zones only have to meet the finished floor level requirement. Underground car parks are prohibited.

Proposals for subdivision in the residential zone – in the absence of an application for use and development – will be assessed in relation to access depths and extent of coverage of the land at predicted water levels for 2100. For proposals for subdivision in the business zones, the time horizon is 2040.

Decision guidelines in the incorporated document include:

- *The estimated combined 1 in 100 year flood assessment of sea level rise, storm tide and river flood impact as determined by the floodplain management authority.*
- *The appropriateness of increasing the intensity of use, the built form and scale of development and their impact on ability for safe access to be achieved to and from the site in times of emergency and overall impacts on the floodplain characteristics.*
- *Whether the development can be designed and sited so that the flood impact and associated risk can be appropriately mitigated and less sensitive uses proposed above an established flood level within a building.*
- *Whether any actions required beyond conditions reasonably applied to a permit can be appropriately addressed through an agreement under Section 173 of the Act. This may include:*

- *The need to comply with any Municipal Flood Evacuation and Emergency Management Plan requirements or procedures.*
- *The need to prepare and periodically review a site specific Flood Evacuation and Emergency Response Plan.*
- *The need to implement any flood protection works to the building as directed to by the relevant Floodplain Management Authority.*
- *The need to remove existing buildings and the reinstatement of the land in the event that the site becomes permanently isolated by water or is otherwise uninhabitable.*
- *Acknowledgement of the future risks and the potential need to contribute to the future cost of the provision of adaptation infrastructure.*

The interim controls will expire on 31 December 2011.

East Gippsland Shire has advised that, because the controls are area-based, they will be shown on Section 32 statements (under the Sale of Land Act) when affected land is to be sold.

4.3.3 Port Fairy Working Group

The Department of Sustainability and Environment, Moyne Shire Council and other Government agencies are cooperating in a joint project called the Port Fairy Working Group. This is one of the 'Third Pass' projects funded through the Future Coasts program.

A Community Update released in August stated:¹¹

The purpose of the working group is to plan and coordinate tasks that:

- *Assess the risk to Port Fairy from flood and coastal erosion;*
- *Reduce coastal hazards such as erosion; and*
- *Help Port Fairy adapt to rising sea levels and increases in storm surges and floods.*

Port Fairy has a number of geomorphological features which make it vulnerable to catchment flooding, storm surge and the effects of sea level rise. These factors were discussed at length in the Panel Report that considered a residential subdivision on East Beach (Permit Application

¹¹ Port Fairy Working Group Peer Review, Community Update Issue 1, August 2010

PL04/232). The Panel recommended, and the Minister for Planning agreed, that the permit application be refused, primarily on the grounds of the vulnerability of the site.

These key geomorphological features include:

- an eroding dune system on the eastern side of town (East Beach) on a relatively narrow sandy peninsula; and
- the presence of the Moyne River running through town with potential for catchment and tidal/storm surge flooding.

The *East Beach Coastal Erosion Engineering and Feasibility Study Peer Review* was commissioned in early 2010 to review existing coastal erosion work undertaken for the area. Following on from this the Project Working Group will be looking at other work (such as flood studies undertaken for the Glenelg-Hopkins CMA) to agree on priorities for works and further studies. The project also involves a community consultation component.

4.3.4 Advisory Committee comment

A common feature of DSE's draft Guide on assessing development risk in coastal flood risk areas and of the interim controls prepared by DPCD for Lakes Entrance (now incorporated in the East Gippsland Planning Scheme) is the adoption of intermediate planning benchmarks (2040 and 2070) against which an assessment can be made of the risks of sea level rise when evaluating planning applications.

In the Committee's view, it is both acceptable and sensible to establish intervening planning horizons (for example, 2040 and 2070, the years for which Future Coasts is producing predictive mapping) – provided these are consistent with the overall requirement of planning for at least 0.8 metres of sea level rise by 2100. It is also logical, to the extent possible, to match the degree of risk and likely timing of impacts to the expected lifespan of proposed buildings and works, in order to determine the nature and intensity of development that may be appropriate.

However, the Committee is concerned about several aspects of the planning responses contained in the draft Guide and the Lakes Entrance controls. The main issue – which applies to both – concerns the implicit 30-year 'design life' for dwellings, particularly single new or replacement dwellings on existing lots, which do not have to meet very stringent standards to be approved.

The HIA representatives, in discussions with the Committee, were unwilling to assign a design life to modern, well-constructed housing, but they did indicate that they would expect it to be well over 30 years (indeed closer to 100 years). In Australia, a house often represents the majority or at least a significant proportion of the capital of a family or an individual. The normal expectation is that residential property will appreciate significantly and owners will be able to 'trade up' or leave a substantial asset to their heirs.

The Committee is not convinced that it is a responsible course of action for Councils and floodplain management authorities to be encouraging major investments by individuals or households in property which may depreciate significantly within a relatively short timeframe (i.e. within the length of an average mortgage).

It should also be remembered that more recent predictions of sea level rise indicate that the VCS benchmark may be conservative, so that changes may occur more rapidly than is presently forecast.

With regard to the Lakes Entrance controls, the Committee is also concerned about equity issues. Properties outside the boundary to which the controls apply may be at the same or even lesser risk of flooding than those inside the line, but under present conditions, they will be evaluated against a more stringent standard (i.e. 0.8 metres of sea level rise by 2100). The same applies to other vulnerable towns and settlements around the Gippsland Lakes, including Paynesville, Raymond Island and Loch Sport. It would be undesirable for the Lakes Entrance controls to set a precedent for other similar areas.

In addition, the Committee considers that the structure and wording of the Lakes Entrance controls means that they are potentially open to conflicting interpretations. Furthermore, the performance criteria (percentage of site coverage by water of a certain depth, depth of coverage over access roads, etc.) might be more appropriately contained in detailed local guidelines developed and maintained by the floodplain management authority (as envisaged by the DSE draft Guide) rather than in the planning provisions. However, the Committee acknowledges that these are interim controls, intended to be replaced by alternative provisions as adaptation planning progresses.

5. Risk Assessment

The Issues and Options paper section on risk approaches and frameworks highlighted that applying the precautionary principle requires an assessment of risk. The Paper outlined how the City of Melbourne had used the Australian and New Zealand Standard Risk Management Standard, AS/NZ4360, (and its recent replacement AS/NZS ISO 31000:2009 Risk management - Principles and guidelines) framework to determine the potential climate change risks and implications for the City¹². Elsewhere in the Issues and Options paper the risk based approach by the Borough of Queenscliffe and the Corangamite Catchment Management Authority to map areas of risk of inundation related to coastal flooding and sea level rise in Queenscliff was described. Looking interstate and overseas the Issues and Options paper also outlined; the New Zealand *Coastal Hazard and Climate Guidance Manual for Local Government* which is based on AS/NZ4360; the risk based approaches adopted by the City of Clarence in Tasmania, the NSW *Draft Coastal Risk Management Guide: Incorporating sea level rise benchmarks in coastal risk assessments*; and the approach used in the United Kingdom.

Since the Issues and Option paper NSW has finalized its *Coastal Risk Management Guide* and this is summarized in Section 4.1.4. In addition the Department of Sustainability and Environment (DSE) has made headway in preparing a guideline for local government to assist it in developing strategic responses to climate change coastal hazards. It is proposed to include a risk assessment component that uses a likelihood and consequences approach to assessing risk¹³. This Guideline is a companion to DSE's *Victorian Climate Change Coastal Hazard Guidelines - Coastal hazards and development assessment guideline* which is also currently being developed *to facilitate consistent decision-making on planning permit and development applications in coastal areas that accounts for the exposure of land to sea level rise and other climate change impacts*.¹⁴

¹² City of Melbourne (2008) Draft Climate Change Adaptation Report: A Risk Assessment and Action Plan: Discussion Paper now finalized and called the Climate Change Adaptation Strategy (2009) - available at:

melbourne.vic.gov.au/AboutCouncil/PlansandPublications/strategies/Documents/climate_change_adaptation_strategy.PDF

¹³ The likelihood and consequence framework is the basis for the City of Melbourne's Strategy and is described in the Issues and Option Paper.

¹⁴ *Victorian Climate Change Coastal Hazard Guidelines - Coastal hazards and development assessment guideline*, Draft September 2010.

Also in the draft stage is a *Guide for Coastal Floodplain Management Authorities: assessing development in coastal flood risk areas* which is being developed specifically to assist CMAs and Melbourne Water assess development proposals in coastal areas likely to be affected sea level rise. This Guide, discussed in Section 4.3.1 above, is intended to augment other planning guidelines and practices and possible local government adaptation strategies. The Draft Floodplain Guidelines also use the likelihood and consequence approach to assessing risk - the likelihood of flood and the consequences of flood, or flood behaviour, in terms of loss, injury, disadvantage or gain - for infill development, subdivisions and various land uses through to 2100.

5.1 Submissions

While the Port of Melbourne Authority and organisations such as VicRoads have established risk methods that can take account of coastal climate change impacts there was a general call by many of the local government submitters for consistent risk assessment methodology and the provision of guidance on how much risk is appropriate. Some submitters suggested preference for one of the risk assessment approaches outlined in the Issues and Options Paper. Others suggested other risk assessment and management approaches, for example, Mr Nick Withers from SMEC suggested risk be described as the severity of impact on achievement of goals from a hazard multiplied by the chance that the impact will occur (impact being the severity of the effect on sustainability). Mr Withers, who has experience assessing climate change risks at the local level, also said that screening or detailed risk assessment has to be multidisciplinary and integrated with local risk assessment within a regional context.

While the proposed development by Stockland at Point Lonsdale¹⁵ was criticised by some there were several submitters who considered that the climate change impacts assessment undertaken was a good example of a robust and adaptive assessment methodology.

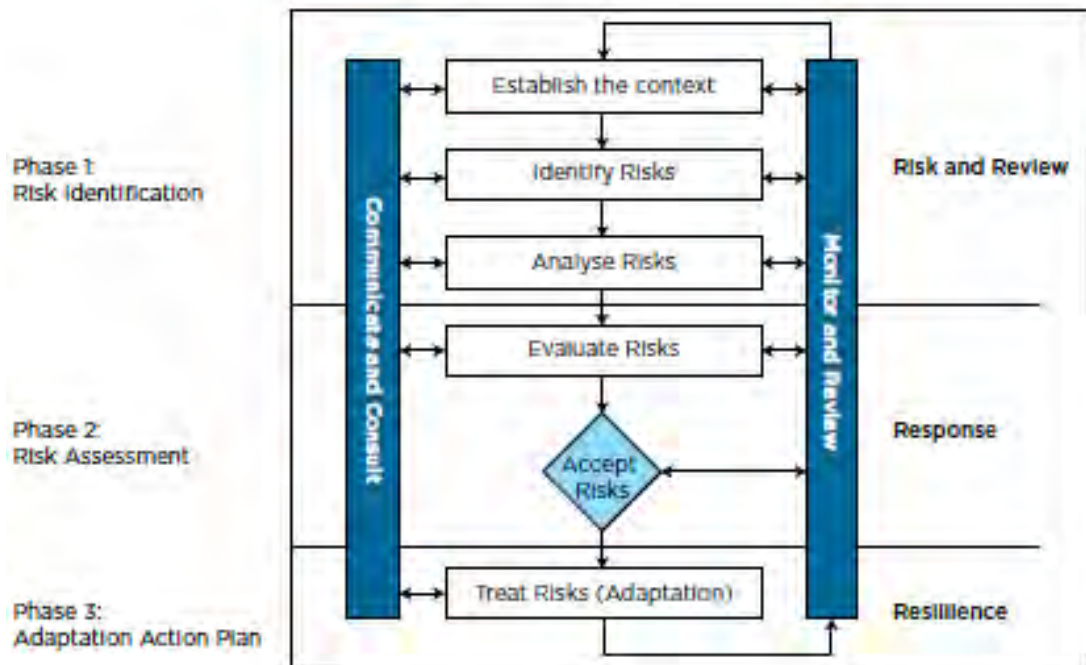
5.2 Discussion

Steps in the risk management process are shown below of which risk assessment is one component. So, while Future Coasts Digital Elevation Model mapping provides an extremely important tool to understand the future impacts of sea level rise and coastal processes along the Victorian coast, it is just the first vital step of identifying the risk within the risk

¹⁵ see EES and Greater Geelong Planning Scheme Amendment C150 Planning Panel Report

management process for planning, managing and adapting to future coastal climate change impacts.

Figure 3: Risk management approach¹⁶



The next step is assessing the risk, of which there are numerous risk assessment models from which to choose and many that could be appropriate for the task. The Committee however considers that it is essential that a standardised risk assessment methodology be developed for use by local government and others. The benefits of a standardised approach will provide efficient use of resources, will optimise the amount that will need to be allocated to training and also provide for the seamless integration of local and regional risk assessment and management plans. The Committee eagerly awaits the completion of DSE's guideline for local government which incorporates risk assessment in developing strategic responses to coastal climate change.

¹⁶ City of Melbourne, *Climate Change Adaptation Strategy* June 2009 process (adapted from AS/NZS 4360:2004)

6. The key challenges

6.1 The critical elements of time and space

6.1.1 The biggest issue

The background to predicted rates of sea level rise and their translation into the Victorian Coastal Strategy (VCS) and Victoria Planning Provisions (VPP) is covered at length in the Issues and Options Paper of February 2010.

Within this existing strategic framework, arguably the biggest issue for the Victorian planning system is the rate at which the planning system should start to respond with stricter land use controls.

If a particular property on the coast will be adversely affected by sea level rise of 0.8m by 2100, what use and development might be allowed on that land in the interim period and under what conditions?

Preventing new development ('greenfields') in areas that may be at risk in future is one issue, and this can be effectively managed through the planning scheme amendment process and applying Ministerial Direction No 13. However for redevelopment of existing properties or infill development, the issue is more complex.

If there is a moratorium on all development on all land that may be affected by a 0.8m sea level rise by 2100, then the opportunity cost would be enormous and the impact on individuals and communities very significant.

At the other end of the spectrum, if planning allows a 'business as usual' approach between now and 2100, areas that progressively are threatened between now and then may lose opportunities for sound strategic planning and adaptation measures and communities and individuals may be exposed to unnecessary risk and economic loss.

6.1.2 A staged approach

As discussed in the Issues and Options Paper and Section 4.1.4 above, Australian States have taken different approaches to this issue. For example NSW has a 0.4m by 2050 figure for sea level rise and 0.9m by 2100 figure.

Flood management agencies¹⁷ in Victoria through 2010 have developed guidelines for planning for flooding on the coast in a time of sea level rise and these are discussed in detail in Section 4.3.1 above. These authorities have also interpolated sea level rise projections (0.8m by 2100) and adopted an interim planning target of 0.2m sea level rise by 2040.

Within this mix of time and sea level rise, the Draft DSE coastal floodplain management guidelines apply a risk based assessment approach to land use based on the sensitivity of the use, its estimated lifespan and other factors.

Given the uncertainty around the rate of sea level rise, this approach of a reasonable and reasonably conservative sea level rise over time given our current state of knowledge appears eminently sensible.

6.1.3 Discussion

The Committee considers that the sea level rise planning target of 0.8m by 2100 has been effective in communicating the need for communities on the coast to start thinking seriously about the likely effects of climate change.

However as we move into a phase of intensive strategic and adaptation planning, the Committee believes it is necessary to consider interim steps in time and sea level rise. This provides more focus for decision makers in the short and medium time and will help to achieve the balance sought in managing risk whilst allowing some acceptable level of development.

As noted in relation to the DSE draft Guide and the interim planning provisions for Lakes Entrance, the Committee considers that it is sensible to establish interim sea level rise benchmarks for planning and evaluation of development proposals, provided the levels chosen are consistent with an overall sea level rise of not less than 0.8 metres by 2100.

As submitters have pointed out, 2100 is a somewhat arbitrary point of time of convenience but it is unlikely to be the end of sea level rise, even assuming global greenhouse gas levels are stabilised. As the century moves on the targets for both time and sea level rise will need to be reviewed and planned for in the light of new observed data and modelling.

¹⁷ Melbourne Water's *Planning for sea level rise. Interim Guidelines – assessing development in areas prone to tidal inundation from sea level rise in the Port Phillip and Westernport Region* and DSE's (Draft) *A Guide for Coastal Floodplain Management Authorities: Assessing development in coastal flood risk issues*

6.1.4 Conclusions and recommendations

The Committee concludes that whilst the current planning figure of 0.8m of sea level rise by 2100 is sound, interim sea level rise targets should be used in planning to provide a clearer framework for strategic planning and adaptation responses within that time horizon.

The Committee recommends:

- 2. Subject to further discussion with the Victorian Coastal Council to ensure consistency with the Victorian Coastal Strategy, the State Planning Policy Framework at Clause 13.01-01 be revised to include interim sea level rise planning figures of 0.2m (currently predicted to occur by 2040), 0.5m (currently predicted to occur by 2070) in addition to the existing 0.8m by 2100 figure.**

A draft revised SPPF is discussed in Section 7.1.

6.2 Strategic planning in a time of climate change

6.2.1 Introduction

The State Planning Policy Framework (SPPF) provides guidance for local government in undertaking strategic coastal planning for settlements. The various clauses and suggested changes to them are discussed in detail by the Committee in Section 7.1 below.

There is a range of strategic planning programs and projects being undertaken on the coast including the regional strategic plans being overseen by Regional Development Victoria¹⁸.

In addition there is a number of activities on the coast in this area (some of them discussed in Chapter 4) including:

- the Gippsland Lakes Strategic Inundation Management Planning Project;
- the Port Fairy Working group; and
- Future Coasts 3rd pass assessment projects for the Bellarine Peninsula, Western Port and the Ninety-Mile Beach and the Gippsland Lakes.

Another recent project is the Coastal Spaces project which led to the development of coastal settlement boundaries that have since been

¹⁸ For example the Great South Coast Regional Strategic Plan at http://greatsouthcoast.com.au/Regional_Strategic_Plan/index.html

incorporated into coastal planning schemes via a series of amendments (for example Wellington C50 and East Gippsland C68).

Elsewhere in Australia, the Narrabeen Lagoon project in NSW provides an example of a methodology that could be applied to evaluate adaptation options in other areas.

6.2.2 Existing strategic land use planning

The Committee considers that strategic planning as currently undertaken (such as the above examples, settlements and activity structure plans, urban design frameworks etc...) is unlikely to be effective in driving the significant planning needed for climate change responses. The areas where the Committee has concern include:

Lack of ability to integrate across agencies

Strategic planning for climate change is likely to need to include:

- land use planning;
- Crown land planning and management for foreshores, parks and reserves, including lakes and estuaries;
- infrastructure provision authorities, State owned enterprises and private companies;
- health and welfare agencies;
- emergency management organisations; and
- regional development organisations.

Significant community engagement and consultation to ensure community participation will also be necessary.

At a spatial scale this strategic planning may need to occur at the regional level (for example Port Phillip), at the sub-regional level (for example the Gippsland Lakes) or the settlement/suburb level. The various strategic planning processes that are employed have had some success but the Committee is concerned that existing processes may not be resilient enough to (for example):

- manage complex cost benefit analyses of adaptation options;
- tackle difficult land use decisions such as managed retreat strategies;
- effectively manage competing social, economic, environmental and political demands; and
- manage competing spatial planning priorities across a municipality or region.

In the past local government has traditionally managed such strategic planning processes, usually with agency and stakeholder input via steering committees or similar bodies.

In the future as the effects of climate change are felt and the imperative for planning and action becomes more urgent, local government authorities in some cases may lack the skills and resources to effectively manage and direct such processes on their own. In addition, there are strong reasons for preferring an integrated regional approach, rather than each municipality making its own adaptation decisions.

Lack of sense of priority across State and within Local Government Areas

The Committee also considers at this time there is a lack of clear sense of priority for strategic planning for climate change across the coast. This is understandable as communities and Government come to terms with the implications of sea level rise on the coast.

Strategic planning appears to some extent to be undertaken on an ad-hoc basis based on sources of funding availability or 'squeaky wheels'. Again this is understandable in the fast moving scientific and policy space that exists at the moment, but the Committee considers this is not sustainable.

To commence effective strategic planning (whether at settlement, sub-regional or regional level) there needs to be a clear sense of priority. The Committee argues this should be based on:

- the timing and degree of risk from inundation and coastal erosion; and
- the value of assets at risk (economic, social and environmental).

The Committee considers that the completion of the Future Coasts '2nd pass' mapping as a matter of urgency should help to clarify this issue but it will need to be matched with a comprehensive assessment of:

- critical State infrastructure assets - ports, roads, power supplies, etc...;
- social and economic resilience of communities;
- other economic assets - agricultural areas, tourism, commercial, infrastructure; and
- critical ecological assets.

The Committee considers a decision support system based on the elements above is needed to help guide State and local government in particular in terms of investment decision making for strategic planning and assessment of adaptation options.

6.2.3 Submissions

There was strong support for increased strategic planning to address the impact of climate change on coastal communities. As part of this support many submitters considered a regional approach was important. For example the City of Port Phillip identified the need to tackle the issues in Port Phillip on a regional basis.

The City of Casey called for a regional approach to ensure consistency of approach in using the various planning and assessment tools and called for greater State government leadership to assist with strategic planning given the pressure on local government.

East Gippsland Shire, in commenting on the Committee's discussion on strategic planning, emphasised the need for the State to work cooperatively with, and support, local government in developing any new programs. The Shire also stressed the need for resources and specialist skills in any such process.

6.2.4 Discussion

The Committee considers that a new program and approach to strategic planning will be needed to effectively prioritise and coordinate land use planning responses to climate change across the coast. The new model will need to:

- integrate land use, social, economic, infrastructure and environmental planning to a higher degree than currently occurs;
- have broad stakeholder support in the public and private sector;
- be underwritten by clear State policy leadership and with Government resource support;
- have significant opportunities for community engagement and consultation;
- be flexible to operate at a regional, sub-regional, municipal, bio-physical or other spatial unit as necessary; and
- have a clearly identified leadership and reporting structure.

An outline of the process that might be undertaken is shown in Figure 4 below. In this diagram the 'Overall Planning' column is intended to show the complete strategic adaptation planning picture while the essential involvement of the community is shown to the left of the diagram. Where the land use planning system interacts is shown to the right of the diagram.

To some extent the exact method of setting priorities across the State and undertaking coordinated strategic planning is not as essential as the fact that it is done. Getting this framework in place in the short to medium term will be critical for the future adaptation and land use planning responses in coastal communities.

A lead agency for coordinating (not necessarily doing) this strategic planning needs to be identified and authorised in the immediate future so that a comprehensive program can be put in place. Local government submitters have been clear through the Committee process that whilst they want to be able to retain a level of flexibility and control over their own affairs, they are also looking for clearer State leadership.

6.2.5 Committee conclusions and recommendations

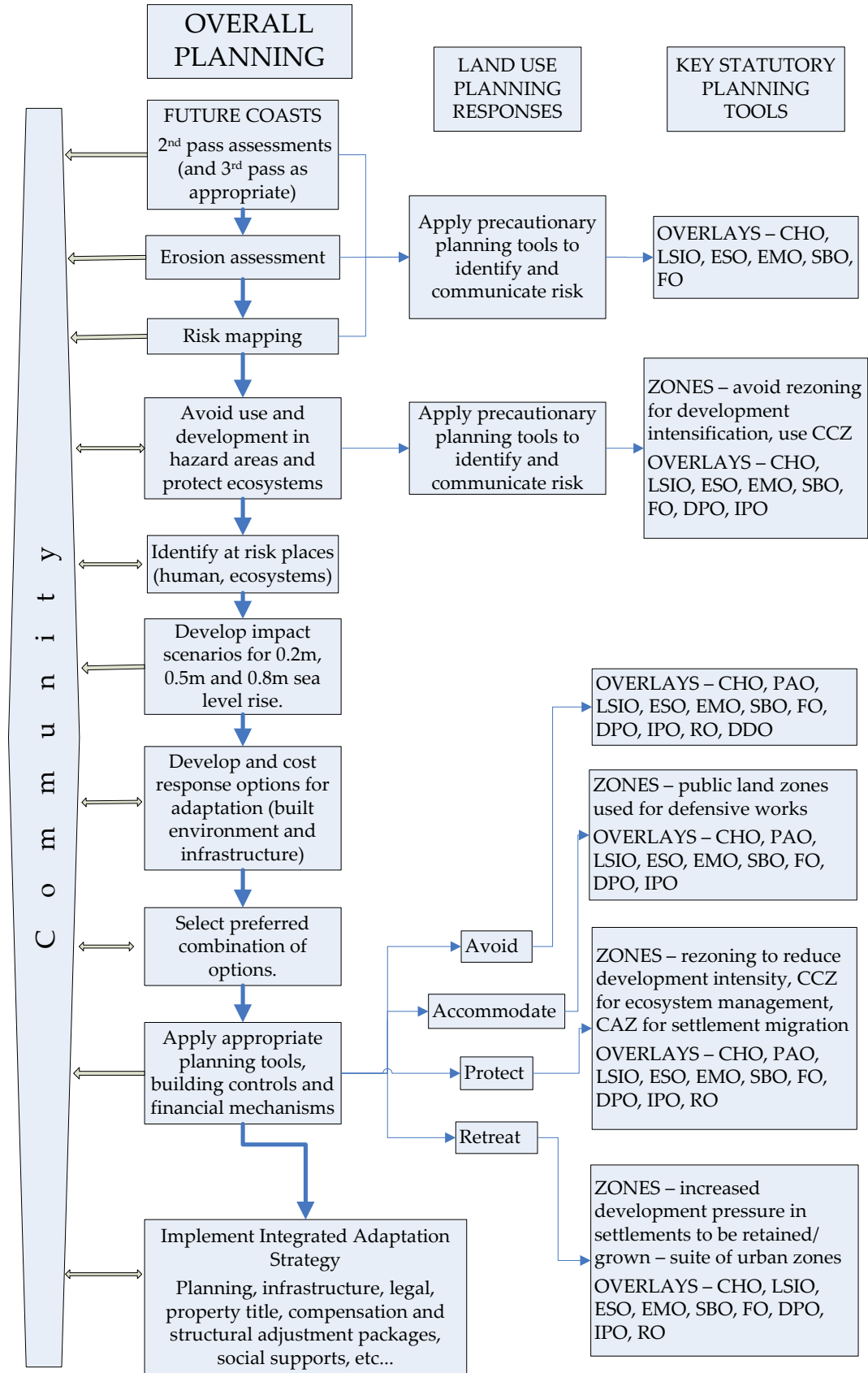
The Committee concludes that a new State led program of prioritising and coordinating strategic planning is needed as a matter of urgency. This new program should be housed in, and led by, one agency but with high level integration across other State agencies and local government.

Logically this program could sit within the Department of Planning and Community Development, particularly given its new role in Regional Cities and Regional and Rural Development. The Department of Sustainability and Environment with key skills in science and modelling, natural systems management and public land management will need to be an integral part of the program.

The Committee recommends:

- 3. That the Department of Planning and Community Development, in consultation with other agencies and local government, develop a strategic land use planning program for coastal climate change adaptation response planning.**
- 4. That the Department of Planning and Community Development and the Department of Sustainability and Environment develop a decision support system in consultation with local government to clearly identify priorities for on-going strategic planning.**

Figure 4: A model for strategic adaptation planning



6.3 Managing existing coastal urban areas in a time of climate change

6.3.1 Sea level rise impacts on coastal urban areas

In the context of this section, existing coastal urban areas includes existing built form (residential, commercial etc... and infrastructure) within both coastal regional settlements and coastal suburbs of the metropolitan area and regional cities. It also includes vacant properties (infill) within coastal settlements and suburbs where there is some expectation (if not a right) through the planning system that development in accordance with the identified use will be allowed.

The First Pass National Vulnerability Assessment report released by the Commonwealth Government in late 2009 (and discussed in the Issues and Options Paper)¹⁹ identified that with a 1.1m sea level rise by 2100 and 1 in 100 year storm event, between 27,600 and 44,600 residential buildings in Victoria may be at risk of inundation.

Whilst these are estimates based on high level mapping, it is clear that significant sea level rise is likely to affect thousands of residential properties in Victoria. Future Coasts 2nd pass mapping and recently released Ozcoasts mapping (at a higher level of detail than the Commonwealth's 1st pass assessment work) confirms this and is leading to the clearer identification of those areas most at risk.

Whilst the issue is often discussed in terms of residential property, existing development also includes:

- community infrastructure - hospitals, public administration buildings, halls, community centres, sporting facilities, etc...;
- service infrastructure - roads, drainage, water supply, sewerage, power, telecommunications, ports and harbours;
- commercial development - shops and shopping centres, commercial accommodation, service stations, offices, etc...; and
- industrial development.

As sea level rises (interim planning targets are discussed in Section 6.1), existing development at risk will be progressively affected. This may occur as high tide inundation creeps higher or be more catastrophic in terms of storm surges on top of a rising sea level.

¹⁹ This received widespread media coverage again in December 2010 as the mapping was made available through a website interface.

Properties identified as at risk out to 2100 are not all at risk now, and the need for strategic planning to look at long term adaptation for coastal suburbs and settlements is discussed in the previous section.

6.3.2 The issues

The fundamental issue with existing coastal urban areas is balancing the risk of harm to residents against the expectations and legal rights they may have for the use and enjoyment of their properties.

There are a number of other concerns such as:

- commercial and financial risks to property owners;
- financial risks to the State in stranded infrastructure assets or building infrastructure that may be at risk prior to the end of its design life; and
- social risk in community dislocation either through emergencies or through 'overshooting' with adaptation (also described as 'maladaptation').

Managing the risk in the medium to long term will require new efforts in strategic planning and actions outside the planning system as discussed elsewhere in this report.

The Committee considers by far the most difficult issue is what to do in the relatively short term, over the next thirty years or so. A risk based approach to this issue has been used for floodplain management and flood planning for many years. This requires a good understanding of flood extent and behaviour, and this information needs to be updated regularly in the light of the latest climate change projections. This risk based approach – extended to cover existing settlements and suburbs on the coast – is a key input into short term land use planning decision making in responding to the impacts of climate change on the coast.

One of the significant issues that will need to be addressed is the existing conflict between high level state policies (such as Activity Centre planning in the Melbourne Metropolitan Strategy) and coastal climate change risk. For example such policies encourage increases in development and consolidation in areas ostensibly at risk such as Altona and Rosebud. The new Victorian Government has a policy to revise metropolitan strategy so this may be an opportunity to revisit this issue.

6.3.3 Planning objectives for coastal urban areas

In the Issues and Options Paper the Committee (in Chapter 8) proposed the following objectives for managing existing coastal urban areas:

- *Manage existing urban areas identified as vulnerable, by:*
 - *Allowing settlements to operate effectively and safely for as long as possible;*
 - *Matching the nature and intensity of new development / redevelopment to the degree of risk and likely timing of impacts;*
 - *Implementing appropriate short to medium term strategies that protect existing development or accommodate existing development to climate change effects (e.g. building standards, floor heights, infrastructure improvements);*
 - *Developing and implementing longer term adaptation strategies to relocate development/uses from areas that will not be sustainable.*

Having further considered these objectives in the light of submissions, the Committee still considers they are sound. An additional objective might be:

- to effectively identify and communicate short, medium and long term risk of sea level rise, storm surge and coastal erosion to owners and prospective purchasers of coastal properties.

These objectives accurately reflect the need to plan for sea level rise and avoid risk of human harm whilst providing for people's expectations and legal rights attached to their properties.

As concluded in the Issues and Options Paper, the Committee considers the VPPs provide a sound base for considering the issue of coastal climate change. Some changes are recommended in this report to assist the achievement of the objectives above.

6.3.4 Revise the existing planning provisions

Current planning provisions for managing coastal urban areas are discussed at length in Chapter 8 and shown in Table 4 of the Issues and Options Paper. They include the following elements.

Zones

The existing suite of zones covering coastal urban areas will primarily include:

- the residential zones;
- the industrial zones;
- the business zones; and
- the public land zones.

The various zones within these groupings could be revised to, for example:

- alter the purpose to include reference to adapting to climate change effects (not just coastal); and/or
- change the uses allowed, or their 'permit required' status to reflect the risk of coastal climate change from sea level rise and coastal erosion.

The Committee considers that this would be quite a radical step at this time, as making substantive changes to permissible land uses in the residential, commercial and industrial zones could create a level of uncertainty that would make it difficult to put in place effective long term strategic planning.

In the Issues and Options Paper the Committee talked at length about the need to balance the requirements for strong adaptation responses with the need to ensure the current levels of certainty and understanding of the current planning system are retained.

However the Committee considers that at some point this issue of fundamental use controls will need to be revisited. As the strategic planning needed for settlements and coastal suburbs is completed, the various adaptation responses may require rezoning with adequate consideration of issues such as compensation, either to one of the existing zones or perhaps to a new zone as discussed in Section 6.3.5.

The one area of exception is the public land zones, which often apply to foreshore land in settlements and metropolitan areas. The purposes of the Public Park and Recreation Zone (PPRZ) beyond the general implementation purpose are as follows:

- *To recognise areas for public recreation and open space.*
- *To protect and conserve areas of significance where appropriate.*
- *To provide for commercial areas where appropriate.*

It would be relatively straightforward to include a purpose around climate change adaptation (not just for coastal areas) for the PPRZ and the Public

Conservation and Resource Zone (PCRZ), as this would not be prejudicial to private property rights. This issue is discussed further in Section 6.6 below and drafting changes are suggested in Chapter 7.

Overlays

As discussed in the Issues and Options Paper, a number of existing overlays in their current form can be used to support coastal climate change adaptation. For example the Land Subject to Inundation Overlay (LSIO) is already used to identify areas that flood around estuaries, often with a coastal influence such as floods backing up against a high tide. Similarly the Floodway Overlay (FO) could be used with some modification to address coastal climate change impacts. As another example, the Environmental Significance Overlay (ESO) has as one of its purposes:

- *To identify areas where the development of land may be affected by environmental constraints.*

Other directly relevant overlays include:

- the Erosion Management Overlay (EMO). This is written for terrestrial erosion but could be modified to include coastal erosion;
- the Salinity Management Overlay (SMO). The SMO is primarily focussed on dryland salinity but could be extended to include salinity from saltwater intrusion related to sea level rise;
- the Public Acquisition Overlay (PAO). This could be used for acquiring land for public purposes such as migrating ecosystems or conservation reserves or replacing foreshores and recreation areas lost to the sea; and
- the Restructure Overlay (RO). This could be used for restructuring urban areas coming under threat from sea level rise and coastal erosion.

The Special Building Overlay (SBO) is designed for urban areas subject to inundation, particularly from overland flow. Flooding due to capacity constraints in the stormwater system, or backflows through stormwater pipes or sewerage mains due to high water level events in coastal or lakeshore areas can have effects many kilometres inland. Mapping of areas at risk is usually dependent on observation of previous events, so prediction of the effects of coastal climate change is difficult. Nevertheless, the SBO is an important tool in identifying a certain type of risk. While its purposes do not refer specifically to sea level rise or coastal climate change, the focus of the overlay on the stormwater system makes it applicable to these issues.

Other existing overlays such as the Incorporated Plan Overlay (IPO) and Development Plan Overlay (DPO) could play a role managing existing

development and redevelopment and these are discussed in more detail in following sections.

The Design and Development Overlay (DDO) is designed to implement requirements based on a demonstrated need to control built form and the built environment. A DDO could be used to apply requirements for the structure and form of buildings in areas at risk from coastal hazards, for example, requiring buildings to be constructed on foundations, rather than a concrete slab, or to be capable of relocation.

6.3.5 Introducing new controls

Zones

In the Issues and Options Paper the Committee considered the development of a new zone (called the Coastal Transition Zone (CTZ) in that paper). The Committee stated:

The intent of the zone would be to provide a high level of flexibility for the planning authority to manage risk, facilitate land use change using innovative methods and provide a clear tool for adaptation to climate change.

The zone was conceptualised by the Committee as a powerful tool for use by a planning authority that could, for example:

- Be applied over existing and proposed urban areas to recognise existing use rights whilst allowing for management of settlement relocation;
- Provide as one of its purposes the transitioning of land use;
- Allow for planning for tradeable development rights and the effective and efficient 'replacement' of at risk properties; and
- Provide an anchor for settlement strategic planning including infrastructure, environmental protection and social considerations.

There was little comment from submitters on the CTZ, although several municipalities commented that they did not support a new zone, particularly for urban areas with a mature built form.

The Committee considers that such a zone has merit, but is a tool that should be subject to further consideration and development in the medium term as the effects of sea level rise eventuate and strategic planning for adaptation is implemented in coastal urban areas. A more appropriate name for this zone could be the Coastal Adaptation Zone (CAZ) to reflect the existing terminology of adaptation.

Overlays

In the Issues and Options Paper the Committee discussed the introduction of a Coastal Hazard Overlay (CHO). The CHO would have two primary purposes:

- to communicate risk of coastal vulnerability (sea level rise and/or coastal recession); and
- to provide an appropriate local permit trigger for considering coastal vulnerability during development assessment.

In addition, the CHO could provide an anchor for coastal hazard assessment guidelines being developed by Future Coasts. The Committee conceptualises this working in practice being similar to the arrangement for flooding and LSIOs now. Table 2 outlines the general approach.

Table 2: LSIO compared to CHO

	Existing LSIO	Proposed CHO
Mapping	<ul style="list-style-type: none"> ▪ Extent of flood hazard mapped spatially 	<ul style="list-style-type: none"> ▪ Extent of coastal inundation, coastal erosion risk and possibly coastal acid sulfate soils hazard mapped spatially – degree of risk over time shown
Ordinance	<ul style="list-style-type: none"> ▪ Permit required for buildings or works unless scheduled out ▪ Permit required for subdivision ▪ Referral to floodplain manager required 	<ul style="list-style-type: none"> ▪ Permit required for buildings or works unless scheduled out²⁰ ▪ Permit required for subdivision ▪ Referral to floodplain manager/coastal manager required

Submissions on the proposed CHO were generally supportive with most submitters preferring an overlay control rather than a new coastal zone, particularly for urban areas.

The difficulties with the application and use of the CHO are:

- to what extent should the CHO mapping identify risk, for example:
 - at 0.8m of sea level rise with a single level of risk applied;

²⁰ See discussion and CHO matrix at Table 3.

- at 0.8m of sea level rise with graduated risk (similar to the approach taken in the draft DSE coastal floodplain management guidelines);
 - a lesser target for sea level rise (for example 0.2m of sea level rise by 2040) with either a single level of risk, or graduated risk where that data is available;
 - some other combination; and
- What level of development control should be applied across these various risk scenarios?

The Committee has developed a matrix at Table 3 showing a range of possible scenarios which could be addressed via a CHO. These scenarios effectively range across a continuum from low response to climate change/low level of impact on development to high response to climate change and high impact on development.

The Committee considers that the 2nd pass mapping undertaken by Future Coasts, with some further work to acknowledge existing coastal defensive measures, is suitable to form the basis of an overlay to identify areas of coastal inundation.

In the Melbourne metropolitan area, similar mapping has been undertaken by Melbourne Water which informs the basis of their decision making around sea level rise and development control in flood susceptible areas. This work and the Future Coasts mapping would need to either be reconciled in the metropolitan area or at least agreement on which data set to use be reached.

Erosion risk mapping is less well developed. The Smartline mapping commissioned by the Australian Government is a useful 'first pass' tool that can be used in the absence of more detailed information. However over time erosion risk mapping at a more detailed level for identified areas of vulnerability will be critical to assist in land use planning and developing adaptation responses.

The current Future Coasts second pass assessments do not address either 'storm bite' analyses for sandy coasts or the risk of undermining of soft rock coasts (likely to be exacerbated by predicted increases in ocean acidity). It is not known whether this is being included in 3rd pass assessments.

Table 3: Application of Coastal Hazard Overlay – risk and time

Option	SLR (m) ²¹	Indicative year	Response to climate change	CHO	Permit requirement – general approach	Formal CHVA required	Overall potential impact on development at the present time
1	0.2	2040	Very low. Serves as a 'flag' only.	Apply over area based on Future Coasts 2 nd pass mapping and initial erosion hazard mapping ²²	No specific permit trigger	No	Very low
2			Low		Required for institutional, commercial and industrial development, subdivision of more than three lots and development of more than three dwellings on one lot	No	Low
3			Medium		Permit required for all development except extension to existing dwelling, single dwelling on existing lot	No	Medium
4	0.5	2070	Very low. Serves as a 'flag' only.	Apply over area based on Future Coasts 2 nd pass mapping and initial erosion hazard	No specific permit trigger	No	Very low
5			Medium		Required for institutional, commercial and industrial	Yes	Medium

²¹ SLR – Sea level rise

²² Where more recent or more detailed data exists this should be used. Smartline mapping could be used in the absence of a better understanding of shoreline resilience.

Option	SLR (m) ²¹	Indicative year	Response to climate change	CHO	Permit requirement – general approach	Formal CHVA required	Overall potential impact on development at the present time
				mapping.	development, subdivision of more than three lots and development of more than three dwellings on one lot		
6			High		Permit required for all development except extension to existing dwelling, single dwelling on existing lot	Yes	High
7	0.8	2100	Very low. Serves as a 'flag' only.	Apply over area based on Future Coasts 2 nd pass mapping and initial erosion hazard mapping	No specific permit trigger	No	Very low
8			High		Required for institutional, commercial and industrial development, subdivision of more than three lots and development of more than three dwellings on one lot	Yes	High
9			Very high		Permit required for all development	Yes	Very high.

Coastal acid sulfate soils are already identified to some degree by mapping undertaken through the Victorian Coastal Acid Sulfate Soils Strategy. This has been supplemented by detailed assessments in some areas. Coastal Acid Sulfate Soils mapping could usefully be incorporated in the CHO to inform decisions making around climate change impacts.

Drafting suggestions for the Coastal Hazard Overlay are discussed in Chapter 7 and provisions included in Appendix M.

6.3.6 Asset life planning and time or trigger based permits

Other approaches frequently discussed in relation to existing settlements are asset life planning and time or trigger based permits. If a staged approach is used and some level of development allowed, different mechanisms have been suggested for allowing development to exist for a limited amount of time, triggered by the asset life itself or a trigger based on sea level rise.

For example if a house is allowed to be built on a property that is likely to be inundated in 30 years (with a 0.2m sea level rise), it could have a permit condition that requires building removal when sea level rise has risen 0.15m based on an agreed measurement or trigger point and monitoring method for sea level rise.

Asset life planning on the other hand suggests that the asset life of buildings and works might drive consideration of whether to issue a permit. A building with a 30 year design life might be allowed, whereas a building with a 60 year design life may not. Significant issues to consider with respect to basing permit life on asset design life include:

- the fact that often, although a built asset may have an initial limited design life expectancy, the value of the asset is such that routine maintenance and renovation is undertaken which can extend the life of the structure well beyond any such limits; and
- for time or event limited permits to be administered effectively, the nature of the built structure in terms of being removable or demountable for relocation or retreat is an important pre-requisite for planning approval.

These types of proposals have been suggested to allow some level of development flexibility in the short to medium term in areas which may be at risk of sea level rise in the longer term. Mr Clem Newton-Brown in his submissions strongly supported the concept of a time based permit to allow

some use and enjoyment of properties until sea level rise manifests in a more severe way.

6.3.7 Section 173 Agreements

Section 173 of the *Planning and Environment Act 1987* allows the responsible authority to enter into agreements with landowners. These agreements are registered on title and have been used for tying Climate Change Response Plans to particular properties. As discussed in submissions in Section 3.3, there is not great support for using them at the individual property level as they would be difficult to administer (and remove) and could end up applied to isolated lots within existing settlements. This outcome would not be an effective or efficient response to climate change.

6.3.8 Submissions

The range of submissions on how to manage existing settlements was diverse. For example, the Housing Industry Association (HIA) suggested that no development should be refused in response to concerns about the impact of coastal climate change. It considered that building materials, floor levels and protective mechanisms should be enough to ensure that buildings are not at risk. The Association put the view that the responsible agencies needed to determine how to deliver the necessary infrastructure to allow zoned land to be developed.

However, a considerable majority of submissions were of the view that some level of recognition of risk was essential and that a 'technical' response might not always be available. Thus a range of response tools (such as zones and overlays) is needed as well as maintenance of the responsible authority's discretion on individual applications.

Mr Chris Mason suggested that all development in areas identified as at risk by 2100 should require a permit and an associated Coastal Hazard Vulnerability Assessment (CHVA). Other submitters, such as the City of Port Phillip suggested that regional CHVAs were preferable to site by site assessments to provide a more 'equitable, comprehensive and workable response'. The City of Casey also noted that site by site CHVAs in existing settlement can result in 'subsequent duplication of effort and cost'.

Many submitters, who are either responsible authorities or referral agencies, gave concrete examples of how they are managing infill development in urban areas. For example Melbourne Water (a referral authority) has

produced interim guidelines for considering applications that may be affected by sea level rise out to 2040.

Many submitters, and particularly local government, recognised that we are in a difficult period where the risk is becoming apparent but the strategic planning and adaptation response is not yet clear, and this creates difficulties in the short term for existing settlements and urban areas.

There was not a strong view put forward overall by submitters that the risk identified in coastal climate change could be ignored and that development on a 'business as usual' basis was appropriate.

The Committee agrees with the majority of submitters in that Section 173 agreements are of limited utility in effectively managing the impacts of climate change. However, whilst their widespread application should be discouraged, they remain in the *Planning and Environment Act* as a tool that may be useful in some circumstances.

6.3.9 Discussion

Zones

In general the Committee does not consider that a new zone is needed in the short term for managing existing coastal urban settlements and suburbs. The Committee considers that in the process of identifying and communicating risk; undertaking strategic planning for vulnerable settlements; and implementing adaptation strategies; it is in the last stage that a new zone may need to be introduced.

The Committee considers that a CAZ or similar is likely to be needed in the longer term to provide a powerful, flexible and adaptable tool for facilitating adaptation of at risk communities.

The Committee does consider there is value in making some minor changes in the public land zones as suggested in Chapter 7. These changes will increase the utility of the public land zones in climate change planning and adaptation for both settlements and natural areas as discussed in Chapter 6.

In addition the Committee considers that minor amendments to the Urban Floodway Zone are also desirable. These are included in detail in Section 7.3 and include:

- new purposes to reflect sea level rise issues;
- minor changes to building and works and subdivision and other provisions; and

- the suggestion of a new schedule, shown in Appendix I.

Overlays

The Committee considers there are two approaches in principle that could be pursued. These are redrafting existing overlays to accommodate reference to climate change (and particularly coastal climate change); and developing a new overlay to address coastal hazards.

The Committee considers that both approaches are possible in that:

- existing VPP planning overlays such as the ESO, FO, LSIO, SBO and EMO could be amended to encapsulate climate change issues including those on the coast; and
- a new CHO that would focus on coastal hazards associated with climate change could be developed.

Both approaches to planning tools offer choice to planning authorities to use whatever overlay is considered best suited to their particular circumstance and appropriate for implementing the directions arising from their strategic planning outcomes.

The use of the CHO is considered by the Committee to allow the best and clearest means of identification of coastal hazards, which in time are likely to be significant risks to coastal communities, and it enables all of the various coastal hazards to be addressed in the one overlay.

Whichever approach is taken²³, the Committee considers that this is an action that should be taken in the short term. That is, to identify and communicate to landowners and prospective purchasers within coastal settlements and suburbs that a risk does exist, or on best available knowledge is likely to, and the risk needs to be considered in their choices on where to live and what development might be appropriate.

The overlay can be applied based on Future Coasts 2nd pass mapping and refined as more detailed mapping and assessment is undertaken. The Committee talks more about implementation in Chapter 7.

The development of a new CHO raises an issue in terms of how it might be applied at the interface with the LSIO. This scenario might arise in a coastal settlement on an estuary where a township or suburb is susceptible to both

²³ A hybrid is also possible. For example even if a CHO is introduced it may be worthwhile explicitly identifying climate change adaptation in the ESO, FO, LSIO, SBO and EMO as discussed in Chapter 7.

catchment based inundation as well as potential coastal erosion and inundation.

The Committee considers this would be managed in a number of ways by either applying both overlays in an overlap situation, or preferably, using the overlay that best reflects the particular risk being addressed. This may require some amendments to the existing flood zone and flood overlays, to ensure that they can address coastal climate change impacts.

A range of risk and time scenarios for applying the CHO is shown in the matrix in Table 3 above. The Committee considers at this point in time and with our current state of knowledge, a planning response that recognises and communicates short, medium and long term risk but does not place a moratorium on coastal development is essential, and may be acceptable in the timeframes being considered.

Asset life planning and time or trigger based permits

In relation to time or trigger based permits, the Committee considers that these are likely to create considerable difficulties for decision makers and particularly Councils. Where removal of houses (for example) based upon a permit imposed sea level rise trigger is required, this may be extremely difficult to enforce.

Furthermore, a few infill development houses may have a trigger for action imposed through a planning permit condition or a Section 173 Agreement, and others in the same settlement – which are equally vulnerable – may not and this would be inequitable. However in spite of these difficulties, the Committee considers that on balance such permits could be useful tools for the short to medium term while settlement based strategic planning is undertaken.

A permit may contain the following triggers:

- at an observed sea level rise of say 0.2m an assessment is triggered;
- Is the development in a settlement/suburb to be protected?
- if yes, then no further action may be required;
- if no, then planning for asset removal at say 0.3m observed sea level rise will need to commence.

It is clear that this should be a sea level rise based trigger and not a time based trigger. This relates the development to actual observed sea level rise. The sea level rise trigger could relate to:

- direct threat to the development;

- a threat to access for individuals; and/or
- a threat to infrastructure servicing the development.

The Committee considers that this may be an approach to be considered by the responsible authority for infill development in existing residential, business or industrial zoned areas, NOT a general pathway for allowing 'greenfields' development in areas at risk.

If such an approach is used by responsible authorities, it would be useful to update the *Writing Planning Permits* manual to include standard conditions relating to trigger based removal of buildings and works and sunset clauses related to physical changes.

The planning tools for these different scenarios are discussed in more detail in the following sections.

6.3.10 Conclusions and recommendations

The Committee concludes that managing existing coastal urban areas in a time of climate change will require a flexible mix of planning tools but that the general approach should include:

- completing the physical mapping of coastal sea level rise hazard areas and coastal and shoreline erosion risk;
- introducing in the near future (next 2 years) a planning instrument that:
 - identifies and communicates to property owners and prospective purchasers those coastal areas that are likely to be affected by sea level rise, storm surge and accelerated erosion over the next 90 years;
 - introduces some level of planning control over development that intensifies use; and
- commencing as soon as possible a broad based strategic planning program, based on an agreed priority framework, that investigates the options and land use planning responses for coastal urban area adaptation.

The strategic planning approach was discussed in 6.2 and the planning controls are discussed in Chapter 7. The Committee recommends in relation to specific issues in this chapter:

- 5. That amending the public land zones (PPRZ and PCRZ) and the Urban Floodway Zone should be considered to include reference to climate change.**

6. A Coastal Adaptation Zone should be considered for development in future to help implement settlement and suburb strategic coastal urban planning.
7. A new Coastal Hazard Overlay should be developed to identify and communicate coastal risk and hazard to 2100 with implementation in accordance with Section 7.10 of this report.
8. Sea level rise based permit conditions (rather than time based permits) may be acceptable in some limited circumstances but responsible authorities will need to consider:
 - a. The broader strategic planning context for the decision in relation to climate change adaptation;
 - b. The advice of the relevant flooding and/or coastal risk referral authority;
 - c. The ability for future requirements for any permitted building to be relocatable (i.e. demountable structures) and to relocate or retreat from the coastal hazard threat to be achievable;
 - d. The level of risk they may be exposing the permit holder to (even if the permit holder accepts that risk); and
 - e. The risk the responsible authority is accepting in issuing the permit.

6.4 Managing greenfields development in a time of climate change

Greenfields development, in this context, refers to the conversion of non-urban land to residential, commercial, industrial or other urban uses. Such land may be within the established Urban Growth Boundary – in metropolitan Melbourne – or a within a coastal settlement boundary defined in the Municipal Strategic Statement (MSS) of a planning scheme in a regional area. Alternatively, it may be land adjacent to settlements that has not yet been identified for urban expansion.

6.4.1 Current planning provisions

Planning for land within defined growth boundaries

Different processes apply at present between the metropolitan area of Melbourne and the remainder of Victoria in approving conversion of non-urban land within urban growth or settlement boundaries to urban use.

In Melbourne's growth areas, all undeveloped land (Farming Zone) within the Urban Growth Boundary has been rezoned to the Urban Growth Zone (UGZ). In the system that applied until recently, the former Growth Areas Authority worked with local Councils, government and infrastructure agencies and landowners to develop Precinct Structure Plans (PSP) – or master plans - for new communities in each of the five designated Growth Areas.

Precinct Structure Planning Guidelines set out the steps required to plan strategically for employment, transport and sustainability in the growth areas. Once a PSP is prepared, approved and incorporated in the relevant planning scheme(s), land is rezoned progressively so that development can proceed according to the staging identified for each area.

The VPP Practice Note on the Urban Growth Zone (2008) advised that the zone would be applied initially to land in a Farming Zone in designated growth areas within Melbourne's Urban Growth Boundary. However, the Practice Note suggested that the zone may also be applied in future to land adjacent to regional cities and towns, where a strategy has been prepared that clearly identifies that the land is suitable for future urban development.

The Practice Note describes a Precinct Structure Plan as follows:

A precinct structure plan is a long-term strategic plan that describes how a precinct or a series of sites will be developed. It is designed to:

- ensure that the key strategic planning issues in a precinct are considered when planning ahead for urban development*
- ensure communities in new urban areas have good access to services, transport, jobs, shops, open space and recreation facilities*
- identify and address any opportunities and constraints that will affect future urban development*
- give developers, investors and local communities greater certainty and confidence about future development in growth areas.*

Work leading to the preparation of a PSP includes consideration of environmental values – including application of the native vegetation framework – and of environmental hazards or constraints. In the metropolitan areas, the native vegetation assessments have been undertaken through a strategic environmental assessment process under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

It is not clear to the Committee the extent to which potential coastal climate change impacts, particularly sea level rise and shoreline erosion, have been

considered in planning for those metropolitan growth areas that include coastlines. However, the updated Precinct Structure Plan Guidelines (2009) require preparation of background technical reports that, amongst other things, consider *climate change (any biophysical risks)*.

In regional areas, many major towns now have settlement boundaries identified in strategy plans that form part of the MSS in the relevant planning scheme. Unlike the metropolitan area, undeveloped land within the boundaries retains its original zoning.

Any request to rezone such land for residential or other urban uses would be subject to a normal amendment process. This would call up the requirements of Minister's Direction No 13 – Managing Coastal Hazards and the Coastal Impacts of Climate Change (2008).

Expansion of urban growth or settlement boundaries

Expansion of the Urban Growth Boundary for Melbourne requires approval by Parliament.

Proposals to expand the settlement boundaries (where these exist) of regional cities and towns would require an amendment to the strategy plan in the MSS that designates the boundaries. This would not, of itself, trigger consideration of the Minister's Direction. However, the strategic assessment guidelines for proposed amendments include evaluation of their consistency with the SPPF, which requires consideration of coastal climate change, including sea level rise, as well as with relevant Minister's Directions. It is likely, therefore, that any Planning Panel considering such an amendment would expect to see a thorough evaluation of the present or potential exposure of such areas to coastal hazards.

The new Victorian Government has a range of policies in this area and these will need to be considered in the development and application of planning tools for the metropolitan coast and regional settlements.

6.4.2 Issues & Options Paper consideration

The Issues and Options Paper suggested that a number of tools were required to respond to the likely impacts of climate change on the coast. For new development on the coast these included:

- *Direct new investment / development to areas identified as less vulnerable and ensure appropriate setbacks from the coast.*

The paper suggested that the key to managing future development in greenfields areas was identifying vulnerable areas and ensuring that they were planned accordingly.

Comments in submissions

Many submissions held the view that future communities and assets should not be exposed to coastal hazard risks and that the impact on the environment should be minimised. Mr Chris Mason wrote:

As a first principle, development should be avoided in identified coastal hazard areas subject to inundation (river and coastal), erosion, landslip/ landslide, acid sulphate soils, wildfire and geotechnical risk.

He went on to say that development in such areas should only be supported if it could be demonstrated that the proposal appropriately protected communities and assets from coastal hazards and future climate change impacts.

There was substantial support for an approach that provided a clear and graphic definition of hazard areas in the relevant planning scheme and which adopted risk avoidance principles to ensure that new development was not at risk over the intended design lifespan.

The submission from the Victorian National Parks Association (VNPA) and the Environment Defenders Office (EDO) suggested that coastal settlement boundaries should be established as soon as possible – where there are none at present – and that existing boundaries should be reviewed to make provision for the relocation of existing development in hazard areas. After that, changes to boundaries should require parliamentary approval, as is the case in Melbourne.

Several submissions dealt with the need to establish buffer areas or setbacks, not only to protect new development from the operation of coastal processes, but to allow natural systems to adapt. Others referred to the need to protect spaces between settlements, for their recreational opportunities, aesthetic values and environmental significance. Another submitter suggested that the Victorian Coastal Strategy's (VCS) hierarchy of principles for development on the coast – protect, plan, sustain and then, if appropriate, develop – should be enshrined in legislation (Planning measures to allow for adaptation of natural systems are discussed in a following section).

Various suggestions were made in submissions concerning new planning tools, including zones and overlays. The Great South Coast Regional Strategic Planning Team suggested a new 'Living with Inundation Zone',

which would require moveable dwellings, have soft-engineered roads and drainage systems, reticulated services designed for a 20-30 year lifespan and capable of being isolated in inundation events. The submission considered that such areas could provide for low-density, low capital investment living in areas likely to be impacted in the medium term.

There was also some support for the extension of all planning schemes seawards, to cover intertidal and marine areas (as is the case in Port Phillip Bay, for example).

6.4.3 Discussion

The major strategies for adaptation to the anticipated impacts of coastal climate change are generally summarised as:

- 'Avoid', by not placing additional development at risk of climate change impacts;
- 'Accommodate', for example by raising floor levels required for new buildings or designing infrastructure to be more resilient to occasional inundation;
- 'Protect', by either hard or soft engineering solutions; and
- 'Retreat' in a planned and staged manner, when likely costs (financial, environmental and social) significantly outweigh the net community benefits of attempting to protect existing development.

However, for greenfields development, avoiding intensification of investment in vulnerable areas is clearly the preferred approach.

The VCS and the SPPF require planning authorities to plan for sea level rise of not less than 0.8 metres by 2100. The SPPF (formerly Clause 15.08 but now 13.01) clarifies that planning should also allow for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology.

The '0.8 metres' planning benchmark and the requirement to allow for the other impacts of coastal climate change has been interpreted in some jurisdictions as implying that any development approved from here on must be assessed as likely to be safe from any significant impacts in 90 years time. This is not how the Committee reads the VCS and SPPF provisions and this issue was discussed in Section 6.1.

The evaluation of new construction against predictable risks over time is a key issue for continued development in existing settlements that are or may be vulnerable, and has been discussed in Section 6.3 above. For undeveloped

areas, differentiating between time periods in terms of risk may be less critical.

For land not yet included within an urban growth or settlement boundary, the 'avoid' strategy essentially represents the status quo, although some additional controls on development may be required to ensure that use within hazard areas is not intensified.

For areas already within settlement boundaries, the situation is rather more complicated. Given the processes by which coastal settlement boundaries for regional cities and towns have been determined and the time lags involved in getting them into planning schemes, it is possible that the potential impacts of coastal climate change on proposed growth areas included within them may not have been evaluated fully.

It is highly desirable that a detailed structure planning process, similar to but on a smaller scale than that carried out for Melbourne's growth areas, should be put in place before any rezoning is considered for undeveloped land within the settlement boundaries of regional cities and major towns in coastal areas.

In addition to broader strategic planning considerations, such as environmental values and infrastructure efficiencies, it would enable consideration of buffers required to separate new development from hazards, to allow natural systems to adapt to climate change and to retain public access to and use of the coast.

Similar strategic planning approaches are needed to identify new areas – outside current boundaries – that might be suitable to accommodate uses likely to be displaced from vulnerable areas that are already developed. Integrated planning will also be necessary to establish viable structures for the new development areas (e.g. designation of activity centres, school sites, open space and other service infrastructure).

The following sections consider two models for planning regimes that could apply to undeveloped coastal land that has been identified for or has potential for future urban use: one which depends on use of existing VPP tools – with minor amendments, where necessary; and another which discusses potential new tools.

6.4.4 The minimalist model – amending existing VPP tools

The Issues and Options paper concluded that the SPPF establishes key principles and sets out a broad strategic approach to assessing the impact of coastal climate change, particularly with regard to decisions on new development. Minister's Direction No 13 deals with the rezoning of non-urban land to urban uses, and the accompanying General Practice Note provides details of the type of assessment that would be expected for major proposals for land use change in coastal hazard areas. Under the minimalist model for 'greenfields' development, no significant changes are proposed to these documents.

The Issues and Options paper suggested that the MSS of each coastal planning scheme should include an outline of the specific nature of the coastal climate change hazards that exist in the area. A local policy would aid the exercise of discretion in coastal hazard areas. We believe these conclusions are still valid and should be pursued.

The suite of existing VPP tools relevant to planning for climate change impacts in 'greenfields' areas (i. e. potential areas for new urban growth) includes:

- Incorporated Plan Overlay (IPO) or Development Plan Overlay (DPO);
- Environmental Significance Overlay (ESO);
- Erosion Management Overlay (EMO) and Salinity Management Overlay (SMO);
- Urban Floodway Zone (UFZ), Flood Overlay (FO) and Land Subject to Inundation Overlay (LSIO);
- Design and Development Overlay (DDO); and
- Public Acquisition Overlay (PAO).

As noted in the Issues and Options paper, the IPO provides a means to link an integrated coastal hazard vulnerability assessment and subsequent adaptation plan for a settlement to planning requirements for particular areas of land within it. The DPO could play a similar role, without the need for the plan to be incorporated in the planning scheme. Either could be applied effectively to undeveloped areas within existing coastal settlement boundaries or for potential areas that might be brought within those boundaries in future. Whereas the IPO's main function would be to give effect to the outputs of structure planning, the DPO would be particularly useful in managing use and development of areas outside urban growth or

settlement boundaries, until such time as detailed planning could be undertaken.

The purposes of the ESO include identifying areas where the development of land might be affected by environmental constraints, as well as ensuring that development is compatible with identified environmental values. The VPP Manual stated that it could be used to identify areas subject to a particular planning requirement, such as a buffer area. Each schedule to the ESO can contain its own customised decision guidelines, which is an advantage compared to other existing overlays.

Some current planning schemes, such as Wellington, use the ESO as a general coastal overlay. While that particular example focuses on minimising the impact of human activities on the coast, the Committee can see no reason why an ESO could not also address issues such as potential coastal recession or cliff collapse, or areas needed to provide space for adaptation of natural systems. The use of the ESO to address such issues is discussed further in Section 7.4 below.

The purposes of the EMO refer to protection of areas prone to ‘erosion, landslip or other land degradation processes’, so – in theory at least – the overlay might be used for identification of areas prone to coastal erosion or cliff collapse as a result of undermining.

However, the decision guidelines for the EMO concentrate on the potential impact of development on the environment, rather than the risks to the development from environmental change. They focus on whether development will increase the risk of fluvial erosion or land instability as a result of clearing and/or penetration of rainwater or stormwater. Unlike the ESO, specific purpose decision guidelines are not provided for in schedules, although the decision guidelines in the head clause include: *Any technical information or reports required to be provided by a schedule to this overlay*. If the EMO were to be used for areas at risk of long-term coastal recession, additional decision guidelines would be required. A separate schedule for each different type of erosion / land degradation risk could be an advantage. In addition, a referral authority for applications relating to coastal recession would need to be identified (this comment also applies to the ESO, if used to identify coastal erosion risk).

Similarly, the use of the SMO to address relevant impacts of sea level rise – such as saline penetration into freshwater wetlands or groundwater systems – would also be dependent on reliable predictive modelling, translated into useable maps.

The flood zones and overlays have obvious relevance to planning for coastal inundation as well as catchment-based flooding. As noted in the Issues and Option paper, the UFZ and its rural equivalent, the FO, have not been widely used outside the metropolitan area, due to the absence of detailed mapping and a reluctance to constrain land use to the extent that follows from the application of the zone. While the FO does not prohibit uses, it requires a permit for all uses and development, including many that are normally exempt. The purposes and decision guidelines of the UFZ, the FO and the LSIO all concentrate on catchment-based flooding.

In many parts of the Victorian coast, particularly those adjacent to river mouths or on estuary shorelines, the effects of sea level rise will be to exacerbate risks already experienced from catchment based flooding, leading to flood depths and durations above what would be experienced at present from a flood of a defined return interval. In these areas, use of the existing flood zones and overlays, with allowance for sea level rise and storm surge in modelling of flood levels, may be an effective way of dealing with the enhanced risk. The purposes and decision guidelines of the zone and overlays could be adjusted to reflect this expanded application.

The appropriateness of the LSIO for areas at risk of inundation directly from the ocean is more problematic. While sea level rise is expected to be gradual and is unlikely – of itself – to expose people or property to severe risks, the danger posed by major storm events in combination with higher sea levels is much more serious. The effects could be equivalent to the wave heights and velocities currently experienced in tropical cyclones. The severe erosion that accompanies such events is also likely to cause major damage to property and risks to human life. There could be a case for applying an amended UFZ or FO to those areas at greatest risk of ocean based flooding and or storm surge, particularly on high wave energy coasts.

A PAO could be used to identify priority areas for retaining or regaining public access to or amenity on the coast.

Finally, and very importantly, the zones applied to undeveloped land within a settlement boundary should not imply a capacity for intensification of land use that is inconsistent with the level of hazard likely to be experienced.

6.4.5 Alternative model - New planning tools

Of the new planning tools discussed in Section 6.3 above, the proposed Coastal Hazard Overlay (CHO) would be most relevant to the 'greenfields' situation, both for undeveloped areas within defined settlement boundaries and for broad areas with potential for future urban use.

This would enable areas at risk from the impacts of coastal climate change to be identified and managed to ensure that any development is consistent with the need to avoid intensification in medium-to-high hazard areas.

The Living with Inundation Zone proposed by submitters may have some merits in areas where no alternative location exists for residential use. However, in line with the recommendations above regarding a Coastal Adaptation Zone, the Committee considers such radical changes to planning provisions to be premature.

6.4.6 Conclusions and recommendations

Existing VPP tools, with minor modifications, are capable of managing changes of use or development in 'greenfields' areas identified for future growth, which are also exposed to risks from coastal climate change. In areas adjacent to settlements, where there is potential for inclusion within settlement boundaries in the future, a CHO could also be a useful planning tool. In both cases, detailed strategic planning should be a precursor to the application of precautionary planning provisions.

The Committee considers that a high priority should be given to reviewing the exposure of undeveloped land within defined coastal settlement boundaries to the impacts of coastal climate change. This could take the form of a structure planning exercise, at an appropriate scale.

If the outcomes of such an evaluation indicate that some land within the boundaries is not suitable for future urban development, it may be necessary to review the boundaries to identify new areas – not exposed to the same level of risk – to accommodate predicted urban expansion.

The Committee recommends that:

- 9. Support should be given to planning authorities – potentially through the process of preparation of regional land use plans – to review the development capacity of undeveloped areas included within coastal settlement boundaries, to ensure that the potential impacts of coastal**

climate change are taken into account in deciding the future of these areas, and to adjust settlement boundaries where required.

6.5 Non urban areas

Non-urban areas of the Victorian coast are characterised by a combination of public foreshore and coastal lands, some including national parks such as the iconic Port Campbell coastal cliffs and privately owned lands used for agricultural and rural purposes. There are rural areas where the farming land is protected by existing seawalls, for example Corner Inlet, while other locations directly abut the coast and may be exposed to the influence of coastal processes.

For the most part, private land abutting the coast is included under the Farming Zone (FZ). There are areas such as around Apollo Bay where the RCZ is applied while many areas containing small rural lots may, be included in the Rural Living Zone (RLZ) and other areas are included in the less commonly used Rural Activity Zone (RAZ).

6.5.1 Issues and Options Paper consideration

Amongst the objectives identified in the Issues and Options Paper for the planning system, to facilitate adaptation to coastal climate change, the following are particularly relevant to non-urban coastal areas:

- *Sustain the social and economic values of the coast, including public access for recreation and tourism;*
- *Designate new foreshore or lakeshore reserves to replace those lost to erosion or inundation; ...*
- *Manage rural / non urban areas identified as potentially at risk;*

6.5.2 Comments in submissions

Several submissions referred to the need to protect spaces between settlements, for their recreational opportunities, aesthetic values and environmental significance. One submitter suggested that the Victorian Coastal Strategy's hierarchy of principles for development on the coast – protect, plan, sustain and then, if appropriate, develop – should be enshrined in legislation.

Other submissions dealt with the need to establish buffer areas or setbacks, not only to protect new development from the operation of coastal processes, but also to allow natural systems to adapt.

6.5.3 Discussion

As noted above, for land outside coastal settlement boundaries, the 'avoid' strategy essentially represents the status quo. Existing non-urban land uses, including agricultural and other rural pursuits, can continue as at present, although some land immediately adjacent to the coast may become unsuitable for some forms of production in the medium to longer term. Restrictions may need to be introduced on the nature and location of new built infrastructure, both to avoid damage to the assets themselves and to ensure that they do not cause undesirable offsite impacts. In addition, potentially hazardous areas should not be proposed for rezoning to the Rural Activities Zone or the Rural Living Zone primarily because these zones enable increased development which may place people at greater risk and reduced safety from the impacts associated with sea level rise.

Amending the purposes of the FZ to take into consideration climate change impacts on coastal rural areas is not considered necessary by the Committee because the zone can be supported by using the CHO. Permissible land uses within the FZ involving cropping and grazing are not considered to justify additional control. Buildings and works controls applied through the use of the CHO offers an appropriate safety net for ensuring that new structures and works do not create problems with respect to the effects of sea level rise or unduly alter or interfere with coastal processes. An alternative would be to provide a control that could be 'turned on' in a schedule (as suggested for the RCZ) to require a permit for earthworks that aim to protect land against inundation from the sea or lakes/estuaries or against coastal erosion.

A key issue for rural and natural areas is the identification of priority locations for retaining public access to the coast and lakeshores, if Crown reserves are eroded or inundated. This could be achieved through agreements with landholders – especially in relatively low intensity use areas – or through targeted acquisition of land (through application of a Public Acquisition Overlay) to create new reserved areas.

In some non-urban coastal areas, there remains a legacy of small Crown allotments (townships that were never developed or small rural lots intended for semi-subsistence agricultural activities) and 'old and inappropriate' subdivisions. Many of the 'old and inappropriate' subdivisions are covered by Restructure Overlays that require consolidation of lots prior to development for low-density residential use. However, some of these areas have since been shown to be highly susceptible to the effects of sea level rise and accompanying coastal erosion, so further reductions in development intensity may need to be planned and implemented.

Many of the undeveloped townships and other original groupings of small titles along the coast are located in rural zones. The 'sea change' phenomenon and the popularity of housing in rural settings near the coast has led to increased pressure for development of dwellings on individual lots. While their restructure has not been a priority in the past, more attention is now needed to developing restructure plans for these areas and applying a Restructure Overlay.

Planning measures to allow coastal natural systems to respond to climate change are discussed in the following section. These include proposals for a Coastal Conservation Zone (CCZ), as well as the proposed Coastal Hazard Overlay (CHO).

6.5.4 Conclusions and Recommendations

Existing VPP tools, with minor modifications, are capable of managing changes of use or development in non-urban areas at risk of impacts from coastal climate change. A CCZ and a CHO could also be useful planning tools.

The Committee considers that priority should be given to identifying Crown foreshore or lakeshore reserves and intertidal areas with high recreational or social values that are at significant risk from the impacts of coastal climate change and to developing strategies to ensure that an appropriate level of public access is retained in key areas. Several avenues could be utilised to achieve this: the regional land use planning process being led by DPCD; or planning processes under the *Coastal Management Act* or the *Victorian Environmental Assessment Council Act 2001*.

Old townships or other groupings of small Crown allotments in non-urban coastal areas at risk from coastal climate change should be considered for restructuring, to ensure that the land is maintained in rural use and not converted to 'de facto' rural residential areas.

The Committee recommends that:

- 10. The Government should establish a process to identify Crown foreshore and lakeshore reserves and intertidal areas with high recreational and social values that are at significant risk from the impacts of coastal climate change, as a basis for developing strategies to ensure the retention of an appropriate level of public access in key areas.**

- 11. Assistance should be provided to planning authorities to prepare restructure plans for existing groupings of small allotments in non-urban areas that are unsuitable for future development due to the likely impacts of coastal climate change.**

6.6 Natural environments in the planning system

6.6.1 The existing system

The Victorian planning system currently establishes both a policy and regulatory framework aimed at the protection, enhancement and sustainability of natural environments. The main role of the planning framework is to guide decision making about new use and development through planning schemes.

Natural environments on the coast have traditionally been treated similarly to inland systems with little distinction between natural environments or their ecosystem processes within marine, estuarine, riparian or terrestrial locations. The main emphasis in the SPPF has been on flora and fauna and native vegetation with some reference to coastal environments.

Under the VPPs, natural environments and their ecological function and importance are recognised as a land use under the definition for 'Natural Systems' in Clause 74 – *Land Use Terms* as:

Land in substantially its natural state which is used to maintain ecological systems, or to preserve an area of historic, scientific, aesthetic, or cultural significance.

The natural systems land use definition appears to have a dual role to recognise a natural environment and to more proactively facilitate land use for the ecological functioning of a natural environment.

A planning framework has been established which utilises strategic policies and a range of zoning and overlay tools to implement policy.

The key planning tools that can be used for natural environments along the coast include:

- the Public Conservation and Resource Zone (PCRZ) and the Public Park and Recreation Zone (PPRZ) for public land areas;
- the Rural Conservation Zone (RCZ) for privately owned rural land;
- the Environmental Significance Overlay (ESO) for private and public land areas; and

- the Vegetation Protection Overlay (VPO) for private and public land areas.

However, none of these planning tools are specifically oriented towards natural environments associated with coastal, estuarine or marine areas or to how these natural systems may react or respond to climate change effects and impacts on the coast.

Under the VPPs there is no land use zone for private land within urban areas that has a conservation focus on the natural environment.

In dealing with natural environments, it is recognised that the planning framework only relates to new land use and development. The planning system seeks to ensure that natural environments and their values are protected from the effects and impacts of proposed land use and development and to plan for the sustainability of natural environments in the long term.

Hence the role of the planning system is to work towards future objectives and outcomes and to militate against detrimental impacts. In this regard, the process of undertaking strategic planning becomes important as a means to plan for future outcomes and changes particularly relevant for the future of natural coastal environments that are likely to be subject to climate change impacts.

6.6.2 Natural environments outside planning

Much planning and management of natural environments occurs outside the planning system. An example of this includes management planning for national parks and public reserves. This type of management planning is important in terms of improving ecosystems' resilience and supporting the ability for adaptation to occur.

Other forms of management planning is evident with various programs focused on private land such as Landcare, and more recently the Bush Broker and Bush Tender programs, where financial support and incentives as well as markets have been established to support the protection and enhancement of natural environments. Support for this type of activity needs to continue because the planning system is not able to proactively engage landowners to commit to undertaking on ground works for environmental protection unless a land use or development is proposed that requires planning approval. The statutory planning framework does not impose its requirements or policy directions on land uses and developments that

lawfully exist and operate in accordance with the relevant planning scheme. Accordingly, new directions for planning outcomes are not applicable.

Such support for managing natural environments is recognised under the Land and Biodiversity White Paper which seeks to build ecosystem resilience, protect and enhance natural environments identified in key biodiversity flagship areas and to improve connectivity with different environments through implementing 'bio-links' (or vegetated corridors). Actions such as these allow for natural environments to continue to evolve and adapt to changing circumstances such as the effects of climate change.

Coastal environments would benefit through the opportunity for space to be maintained, allocated or created to enable coastal ecosystems to migrate or adapt in response to the effects and impacts of climate changes including increased temperatures, increased levels of carbon dioxide, increased severity of storms, reduction in rainfall and rising sea levels. Protection of natural coastal systems allows for their ongoing contribution of ecosystem services and assists their resilience to a changing environment. Improving their resilience ensures that natural coastal systems may withstand impacts from climate change without mass extinction. Providing space creates opportunities for connectivity which in turn permits movement to occur for those systems that need to do so to adapt. Combined, these outcomes offer potential for natural coastal systems to be sustainable.

6.6.3 Integrated planning

The Committee's Issues and Options Paper identified the following objectives for planning of natural systems and environments in response to climate change impacts:

- *Protect natural systems – terrestrial, estuarine & marine – and give them room to adapt;*
- *Retain important biodiversity features in the landscape and increase connectivity between them;*

The paper highlighted the range of effects and impacts that climate change may have on the coastal environment. The Paper also identified the complexity associated with the different management regimes between public and private land. A key effect of coastal climate change is sea level rise and a key impact of sea level rise will be increased coastal erosion and inundation.

In Victoria, much of the coast is public land (approximately 96%) on which substantial areas are occupied by natural coastal environments including

beach and dune systems, cliffs, mudflats, seagrass beds, mangroves and coastal saltmarsh, estuaries and estuarine wetlands and important park and visitor facilities. Public land on the coast and the associated natural environments will bear the brunt of shoreline changes associated with increased coastal erosion and inundation generated by sea level rise.

Accordingly, management of public land is critical in responding to the effects of coastal climate change. Parks Victoria reiterated this point in its submission that public land managers have significant holdings and therefore, play an important role in delivering the government's coastal climate change policy.

Parks Victoria advised the Committee that it has been developing tailored climate change responses for each park across Victoria based on a number of factors including the geographic location of each park, the extent of climate change impacts anticipated, the park purpose and facilities, visitation numbers and government policy. However it also stated that:

As the work of Future Coasts (and similar work) is completed, it will be critical to designate different areas of the coast for protection against sea level rise, storm surge and increased flooding, accommodation of climate change effects through adaptation and planned retreat where these impacts cannot be reasonably managed.

Parks Victoria emphasised that it is important for planning policy to recognise the importance of maintaining a public coastal reserve along the coast. With respect to the operation of the planning system over public land Parks Victoria submitted that although additional and specific use and development planning tools should be introduced along the coast, these should not be applied over public land. The imposition of additional and more complex planning tools over public land would not be efficient given the risk management planning process Parks Victoria has in place to manage climate change impacts on the coast. They emphasised that where possible, existing planning tools should be used, with the aim of achieving simplicity and certainty and that the planning schemes already contain the capacity to plan for protection and development in a long term sea level rise situation. Their submission highlighted the examples of the PCRZ and the PPRZ which both look towards the protection of significant values and natural processes which contrasts to the zones that are applied to private land where the purposes support urban development and rural activities. With respect to how these public land zones might respond to climate change it was suggested that improvement could be made by adding an objective such as:

To respond to the scientific and policy imperatives of climate change.

Similarly, much of the private land on the coast or abutting public land on the coast also contains natural environments which are of value and which would also be at risk from the effects of sea level rise.

In considering the impacts associated with sea level rise how public and private land is managed becomes important in terms of coordinated and integrated planning.

While planning over both land tenures is important, the submission from Peninsula Speaks Inc. highlighted the benefit of viewing public land management differently from private land in that while issues may be similar over both land tenures, management can occur over public land to respond to sea level rise impact more immediately and be guided by the *Victorian Coastal Strategy* 2008 and the provisions of the *Coastal Management Act* 1995.

With regards to integrated planning, options include application of the planning system over both public and private land and integrated and coordinated administration of provisions of the *Planning and Environment Act* 1987 and the *Coastal Management Act* 1995 over both land tenures.

Integrated planning for natural coastal environments in response to the impacts of sea level rise will need to be based on a strategic planning approach. A strategic approach to planning was supported by the Glenelg Hopkins CMA who submitted that:

Biodiversity planning should be carried out in conjunction with planning for other land uses. Fringing coastal flora communities such as mangroves and saltmarsh are likely to be subject to "coastal squeeze" between rising sea levels and landforms and land use. Strategic biodiversity planning can seek to ensure that appropriate lateral and longitudinal corridors are set aside to accommodate migration of species both higher up the bank and further upstream along estuaries.

With respect to the concept of integrated strategic planning for natural systems and sea level rise, the Committee noted the submission by the VNPA/EDO to the Issues and Options Paper that planning for both coastal settlements and coastal biodiversity be undertaken in a manner that meets the following objectives:

- *Protect existing biodiversity from immediate development, especially 'coastal squeeze', so that it is more resistant to the impacts of climate change;*

- *Protect biodiversity in its current location from sea level rise for as long as possible to increase its ability to adapt to climate impacts; and*
- *Assist biodiversity to adapt to sea level rise and other impacts of climate change.*

The planning process outlined in the VNPA/EDO submission included:

- *Conduct comprehensive mapping of current settlements, 'biodiversity priority areas', and predicted sea level rise for the whole Victorian coastline.*
- *Combine this with mapping of projections of where both settlements and biodiversity will, and can, move to as a result of sea level rise.*
- *Establish a Coastal Growth Boundary around existing settlements as soon as possible (which takes account of the need for settlements to move as a result of sea level rise) to define the limit of coastal settlements and thereby balance biodiversity protection and development priorities.*
- *Review the zoning and conservation status of all identified 'biodiversity priority areas' to determine whether they will adequately protect biodiversity in those areas.*
- *For each 'biodiversity priority area', determine on a case-by-case basis what planning tools best provide for biodiversity adaptation after sea level rise begins. Such planning tools may include:*
 - *Protected biolinks to another current conservation area;*
 - *Rezoning areas that are likely to support biodiversity adaptation inland from the predicted new coastline; and*
 - *Implementing existing overlays such as Environmental Significance Overlay and Public Acquisition Overlay to protect the area behind the conservation area from development so that biodiversity can adapt.*
- *Additional investment and policy development will be required from all levels of government in order to protect key areas of biodiversity in their current locations. In some cases physical protection may be necessary, which may include sea walls, artificial reefs, and translocation.*

The VNPA/EDO submission also expressed support for a prohibition on development within 50 metres of a tidal flat, lagoon or estuary or in dune

systems (as proposed in the draft Tasmanian planning provisions included in the Issues and Options Paper).

The Committee notes the emphasis on integrated strategic planning for projected sea level rise and to identify and differentiate between different parts of the Victorian coast to which varied and targeted planning directions ought to be applied. Such planning should also be commensurate with what is projected to occur with respect to impacts and changes to the coastal environment. Any strategic planning will need to be informed by good science particularly with respect to how natural coastal environments may respond to coastal climate change. Information from *Future Coasts* will be critically important in this respect. The emphasis from the *Land and Biodiversity White Paper* on landscape scale ecological management and the use of approaches that benefit a range of species will support both resilience and ability to adapt.

The role of the planning system is considered to be best highlighted through its ability to:

- identify important biodiversity areas;
- establish a planning policy framework to support biodiversity protection, enhancement and the capability for adaptation; and
- implement the policy outcomes by the application of zones and/or overlays that avoid or minimise adverse impacts from land use and development and preserve options for adaptive responses from natural environments in the future.

Planning policies that relate to natural coastal environments on both public and private land can be included within the MSS in coastal planning schemes. Examples already exist through Clause 12.02-3 - *Coastal Crown Land* contained in the SPPF. There is a need for the planning system to recognise, plan and regulate land use and development over both public and private land to ensure there is regard for the effects and impacts of coastal climate change. This is because activity on public land will influence the effects of climate change on the adjoining private land and vice versa.

Planning policy also offers opportunities to recognise and complement strategic intent, directions and outcomes that may be contained in other strategic documentation that fall outside the planning system such as park management plans, coastal action plans, coastal management plans and regional catchment strategies.

In these ways, integrated strategic planning for natural coastal environments under pressure from sea level rise can be considered within the Victorian planning system.

6.6.4 Amending existing planning tools

Apart from planning policy, planning tools such as zones and overlays can be used for implementing the outcomes and directives of strategic planning integrated across public and private land on the coast. Options include amending and using the existing zones and overlays contained in the VPPs relevant to planning for natural coastal environments or developing new zones and overlays in response to the impacts of sea level rise. These options relate to two matters:

- directly protecting coastal biodiversity assets; and/or
- directing the siting and design of land use and development to provide scope for adaptation and the sustainability of coastal biodiversity assets.

Existing planning tools such as the PCRZ, PPRZ and RCZ have potential to be amended to revise their purposes to include recognition of the need to plan for and accommodate adaptation responses of natural environments to the effects of climate change. Changes could also be made to control land uses and development that would have the potential to restrict the ability for natural environments to be adaptive in responding to climate change effects and impacts. The generality of the reference to climate change allows sufficient flexibility for the zones to continue to be applied in circumstances that are not necessarily coastal specific.

With respect to the ESO and VPO both of these tools would be appropriate for providing for not only protection but to provide for adaptation responses of natural environments to climate change.

With regards to other options including the Incorporated Plan Overlay (IPO), Development Plan Overlay (DPO) and the Design and Development Overlay (DDO), these overlays would have potential for amendment because the IPO and the DPO can control and direct land use and development and a DDO can direct development only. Thus they have the potential to provide natural environments the scope to adapt and respond to changes associated with climate change. They can accommodate the concepts put forward by the VNPA/EDO for establishing biodiversity priority areas. Again the generality of the reference would permit flexibility to consider climate change effects across the State including on the coast.

The flexibility of making generic reference to climate change and natural systems adaptation in amending these tools retains the opportunity for more specific reference to coastal climate change impacts including those associated with sea level rise to be provided in schedules. Schedules to either zones or overlays allow for specific provisions to be included implementing any strategic plan for a particular coastal locality and the adopted outcome to coastal climate change.

6.6.5 Alternative options

Alternative options for planning tools include developing new zones and overlays to achieve both protection and assurance for natural environments to evolve and adapt in response to coastal climate change. Whereas the Committee's consideration above focused on existing planning tools that are currently applied across the State, the development of new zones and overlays could be drafted with a focus solely on natural coastal environments.

Just as the existing zones and overlays can have schedules to elucidate local circumstances or characteristics, any new zone or overlay dealing with natural coastal environments and their responses to sea level rise could also contain schedules to reflect localised characteristics or issues.

For example, potential exists to use zones similar to those used in South Australia such as the Coastal Conservation Zone (CCZ), which could be included in the VPPs. Likewise, with respect to overlays, a new Coastal Adaptation Overlay (CAO) could be added to the VPPs or possibly the new Coastal Hazard Overlay (CHO) as previously discussed could incorporate natural systems.

As mentioned in the Issues and Options Paper, the CCZ could have a role to safeguard coastal features and habitats that are highly sensitive to the direct impacts of development, including coastal dunes, coastal wetlands, samphire (tidal marshes), mangrove areas, estuaries and other important habitat areas.

The policies in the South Australian Coastal Conservation Zone seek to:

- *Safeguard areas of environmental significance on the coast, including sensitive coastal features, natural ecosystems, habitats (and linkages between these systems) and the marine environment.*
- *Protect development from coastal hazards, such as flooding, erosion (including taking into account the impacts of climate change) and acid sulfate soil.*

- *Safeguard significant coastal areas or places of historic, cultural or scientific significance.*
- *Support the provision of appropriate public access to the coast and foreshore.*
- *Allow appropriate development activity in balance with the natural environment and cultural values associated with the coast.*

The Zone can be introduced where the land includes:

- *Coastal features and habitats highly sensitive to the direct impacts of development, including coastal dunes, coastal wetlands, samphire (tidal marsh), mangrove areas and other important habitat areas.*
- *Important coastal geological features or other natural features of scientific, education, heritage or cultural importance (such as coastal cliffs).*
- *Buffers that provide separation between development and sensitive coastal habitats or important marine fauna sites.*
- *Very high quality landscapes fundamentally coastal in nature (excluding land of rural character that provides a backdrop to the coast).*
- *Undeveloped areas exposed to coastal hazards (such as seawater flooding or erosion) where there are no provisions to resolve the deficiency (such as a council managed seawall or levee bank) or a strategy to protect development.*

With respect to the CAO its purpose could be to ensure that coastal ecosystems are able to adapt in response to coastal climate change and primarily from the impacts of sea level rise. This means it would regulate development to ensure that landward migration of coastal wetlands would not be restricted.

Alternatively, the proposed CHO could be drafted to encapsulate the same intent and purpose as the CAO.

6.6.6 Discussion

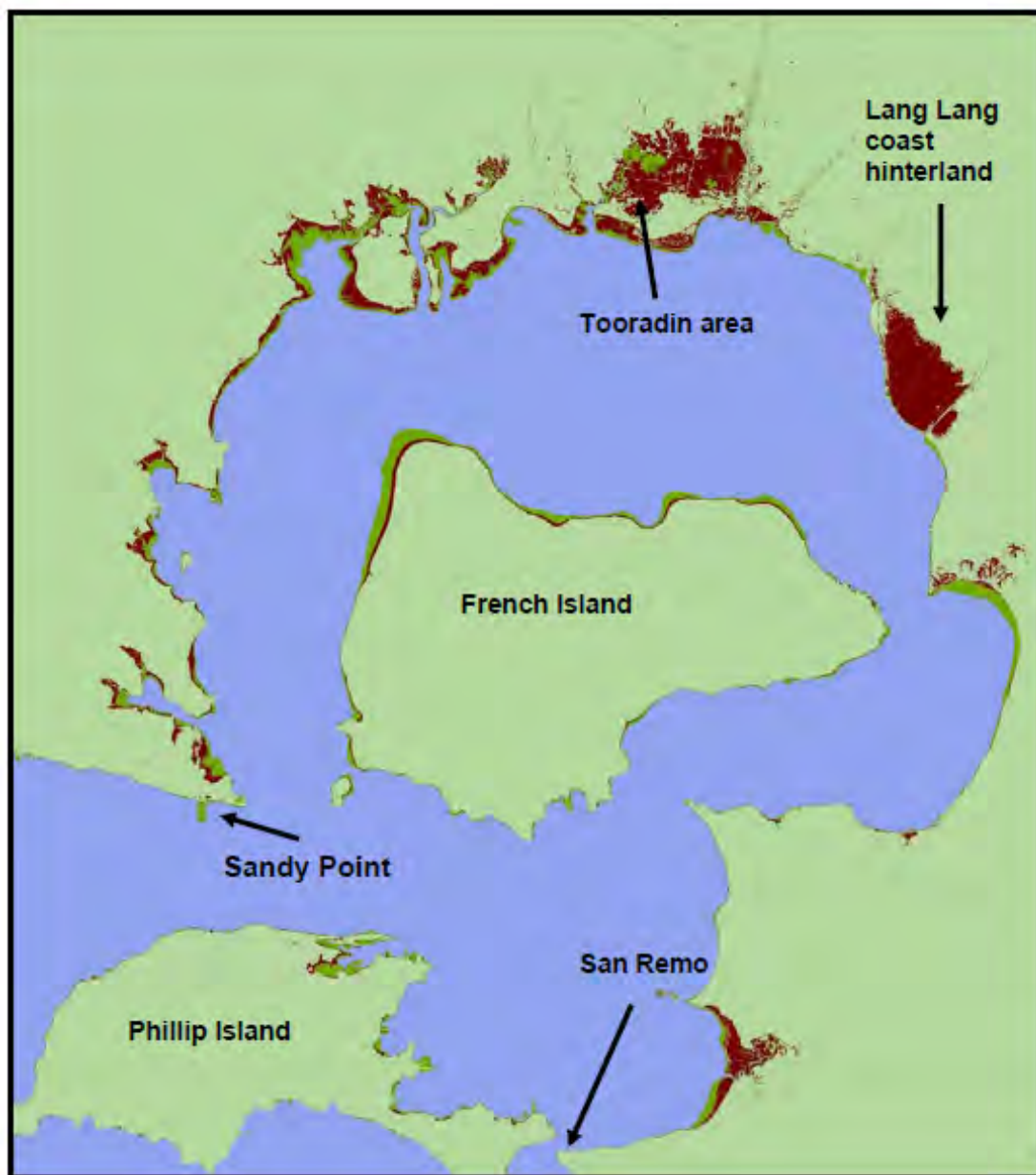
With respect to natural environments and coastal climate change, the Committee noted that a small number of submissions addressed this topic in response to the Issues and Options Paper. It appears that the majority of submissions focussed their comments on the risks associated with coastal hazards on existing and new land use and development. However, the Committee was pleased to note that those comments submitted on the matter of planning for sea level rise effects on the natural environment were of assistance to its considerations.

As noted above, the Committee considers that planning for natural coastal environments with respect to the impacts of climate change on the coast is important in terms of both protection and provision of scope for adaptive response. Coastal climate change will have varying influences on natural coastal environments. The Committee accepts that if projected rates of sea level rise are realised, much of Victoria's public lands which currently support intertidal vegetation will be inundated or significantly threatened with inundation and the conservation of tidal wetlands such as mangroves and coastal saltmarsh will require substantial areas of what is currently private land to be set aside for their landward migration and reassembly.

As an example, the Committee is aware of simple modelling of the effects of sea level rise on mangrove and coastal saltmarsh distributions in Western Port (refer to Figure 5) to demonstrate the broad areas where mangrove and coastal saltmarsh migration is conceivable, such as the coastal plains around Tooradin, against those where it is impossible due to steep hinterland terrain, such as the San Remo coast²⁴.

²⁴ Boon PI, White M & Sinclair S (2010). *Climate change impacts on Victoria's coastal vegetation (mangroves and saltmarsh): Western Port case study*. Institution of Engineers Australia: Practical responses to climate change 2010 conference. 29 September to 1 October 2010, Melbourne (Full refereed paper: Paper 107: Presentation 107).

Figure 5: The effect of sea level rise on mangrove and coastal saltmarsh



Note to figure: Projections of the effect of sea level rise on mangrove (green) and coastal saltmarsh (red-brown) to a possible future late 21st century shoreline of Western Port (0.80 m rise in sea level).

The Committee considers that strategic planning integrated across public and private land, across marine environments, coasts and estuaries will be critically important to setting planning outcomes for natural coastal environments. Integrated strategic planning allows for a variety of issues, information and opinions to be considered together. It can be informed by science, risk assessment and community comment to establish priority needs

and actions across a coastline that may comprise a variety of physical forms and natural environments.

The Committee is aware that undertaking integrated strategic planning in whatever format can be assisted by a number of subsidiary planning tools many of which have a focus on natural environments. The strategic assessment undertaken under the auspices of the *Environment Protection and Biodiversity Conservation Act 1999* for assessing native vegetation and its management with respect to Melbourne's growth areas is a good example of planning for natural environments in the face of urban expansion. Another, similar planning tool that currently is available under the VPPs is native vegetation precinct plans.

Native vegetation precinct plans are available under Clause 52.16 in the Particular provisions of the VPPs. Their primary aim is to provide a strategic approach to native vegetation management which includes identifying and planning for significant native vegetation early in any strategic planning process. This process allows native vegetation issues within a defined area to be considered when planning for and guiding the form of new development and identifying native vegetation to be protected or removed in the context of development constraints and opportunities. Relevant to coastal climate change, the VPP Planning Practice Note - Native Vegetation Precinct Plan, September 2008 indicates that:

In a rural area, for example, it (Native Vegetation Precinct Plan) could be used to manage the retention or removal of native vegetation along a waterway or coastline and to specify appropriate offset works or actions.

Tools such as a native vegetation precinct plan offer opportunities to address coastal and estuarine vegetation management in the face of coastal climate change effects and impacts. Similar to their use to support urban growth precinct planning, they are considered by the Committee to also have an important role to play in planning and managing natural coastal environments and facilitate their resilience and adaptation to coastal climate change.

With respect to the appropriate use of planning tools to achieve these outcomes, the Committee notes the Wyndham City Council's submission that overlays are more easily adapted to different circumstances and while they could be used to regulate land use, this role should remain with zones to avoid conflict.

The Committee considers there is choice as to whether an existing VPP planning tool is amended or a new tool introduced. Amending an existing

tool like the RCZ which provides for conservation is possible without significant changes. However, because it is a zone that can be used across the State it does contain some generality which may make the understanding as to why it has been selected to be applied potentially unclear. The RCZ is a zone that arose from the development of Melbourne 2030. Its application, apart from the Ministerial transition from the previous Environmental Rural Zone (ERZ) has been limited because when applied it changes the status of some uses (i.e. certain types of agriculture) from 'as of right' to permit required. This introduces the need to consider, in introducing the zone, the scope of subsequent existing use rights being created.

In considering coastal climate change issues, the Committee evaluated whether there is potential to introduce a new zone specific to the coast and to conservation. It has looked at the South Australian model and its CCZ. Amending an existing VPP zone like the RCZ - which has state wide use and is general in its intent to address a fundamentally coastal hazard risk – is not considered ideal, for a number of reasons. For example, in changing the table of land use to better reflect those land uses that should require a planning permit or perhaps be prohibited in coastal hazard areas may create unforeseen ramifications elsewhere across the State where the zone is applied. Or it may restrict the desirability of applying the zone in locations away from the coast.

Introducing a new zone like a CCZ could provide for the achievement of a relevant land use and development zoning tool, increase the ability of the zone to properly address coastal climate change impacts and avoid unforeseen consequences from interference with existing zone structures.

The Committee considers that there is merit in promoting an amendment to the RCZ, to include a general purpose statement about climate change effects on natural systems (not just coastal), and the introduction of a new CCZ, as options for consideration by the Minister.

With regards to a new overlay such as the earlier mentioned CAO, the Committee considers the need to introduce such a new overlay for environmental purposes is not as strongly warranted as compared to zoning. Overlays can have quite detailed schedules to convey specific directions and outcomes compared to zones. As a result, the Committee considers that the existing ESO and proposed CHO may offer appropriate opportunities to address environmental issues relating to coastal climate change effects and impacts on natural coastal environments.

Furthermore, the Committee considers that generally the suite of current planning tools in the VPPs is adequate to implement the outcomes flowing out of strategic planning for natural coastal environments in response to coastal climate change. The Committee also considers that a new zone dedicated to coastal environments and coastal climate change would improve the level of support needed to protect natural systems.

Planning for natural coastal environments will focus predominantly on non-urban areas where the RCZ or the CCZ offers the best opportunity to manage land uses along the coast in a way to maintain options for natural system adaptation and thus avoiding the loss of options for future adaptation that may result from land use and development. Both zones like the other rural zones also offer the opportunity to regulate forms of development including earthworks.

Likewise, the use of the PCRZ and to a lesser extent the PPRZ for public land areas that contain significant natural environments offers the opportunity to ensure that land use and development takes account of sea level rise and its impacts on coastal environments.

These zones can be supported by the use of the ESO because it would allow buildings and works, subdivision and native vegetation to be regulated on the basis of considering the effects of sea level rise and other coastal climate change effects.

The Committee notes the comments from Parks Victoria, but considers that it is important for planning for natural environments to be undertaken over both land tenures to achieve better integration and to ensure that affects of activity on land tenure will be complementary.

Other planning tools such as the IPO and DPO also offer the opportunity to more strongly and strategically manage the siting and design of land use and development in a way which supports strategic planning for the adaptation responses of natural coastal environments to sea level rise and other coastal climate change influences. The Committee considers that the use of these overlays is not limited to urban scenarios and can have a useful application in the circumstances of coastal climate change for coastal environments.

The Committee considers that making amendments to the PCRZ, PPRZ and ESO and using the IPO and DPO offers significant benefits over developing new tools with respect to planning for natural environments on the coast in the face of coastal climate change because of the following reasons:

- they already exist in the VPPs and planning authorities would be familiar with their use;
- in the case of the PCRZ and PPRZ they are zones dedicated to public land with arrangements that recognise the role of the public land manager and require only minor changes to improve their relevancy and effectiveness for coastal climate change;
- the overlays have the option of using schedules which can delve into more detailed provisions including explanations of what are important and what they seek to achieve. Schedules also allow flexibility in determining what activity is and is not to be regulated and they can relate to local characteristics and circumstances including variation with respect to impacts from coastal climate change effects; and
- changes to these planning tools does not need to be extensive and can relate to climate change generally given that they are applied across the State.

6.6.7 Conclusion and recommendations

The Committee supports the need for integrated strategic planning as it allows coverage across public and private land tenure which is important for coastal areas, estuaries and bays.

There are opportunities to utilise existing planning tools such as native vegetation precinct plans (under Clause 52.16 of the VPPs) to plan and manage natural coastal environments to adapt to the effects and impacts of coastal climate change and support any broader integrated strategic planning process. The use of such plans would be particularly useful in circumstances where a range of strategies are developed to respond to coastal climate change impacts including retreat, accommodation and protection and where some vegetation loss may be anticipated and protection and offsetting may be necessary.

Existing planning tools like the RCZ, PCRZ, PPRZ, ESO, IPO and DPO all provide strong support for implementing strategic plans and can be amended to better reflect on addressing climate change effects and impacts on natural environments.

The Committee also considers that a new CCZ may be appropriate as an option to have a coastal specific zone that can support the protection, enhancement and adaptation response to coastal climate change effects and impacts on natural coastal environments.

The Committee considers that changes to the VPO are not necessary because this overlay focuses on vegetation and not necessarily is broad enough to address habitat values and does not afford control over subdivision compared to that under the ESO.

The IPO and DPO support the implementation of plans to guide the future use and development of land. They both have the purpose of identifying areas that require the form and conditions of future use and development to be shown on a plan before a permit can be granted for use or development. They prevent the granting of permits under the zone before a plan has been prepared to the satisfaction of the responsible authority and ensure that future use and development is carried out in accordance with the plan. They enable a plan to make provision for use as well as development.

These overlays are planning tools that are to be used in conjunction with the underlying zone. They do not introduce permit triggers but merely prevent a permit as required under the zone from being granted until a plan as required by the overlay has been satisfactorily prepared. Permits for use and development may be approved if they are generally in accordance with the plan.

Accordingly, both these overlays provide the ability to implement a plan which has been supported by an overarching strategic planning assessment. In this regard the opportunity exists to use the overlays to support future adaptation options for natural coastal systems to respond to coastal climate change. Both the IPO and DPO have potential to be used to address climate change impacts on coastal areas. They have the capacity to be used in areas that comprise existing development, future growth areas, rural localities and natural areas.

These overlays can require a plan to be prepared which takes into account the effects of climate change on the coast including sea level rise and make allowance for space and land to be allocated for ecosystem responses. The overlays also have potential to define biodiversity movement corridors and linkages between habitat areas to assist in ecosystem resilience for natural systems. Fundamentally the basis of using the overlays is guided by appropriate integrated strategic planning which takes into account projected climate changes and effects such as sea level rise and its various impacts.

Another benefit of using these overlays to plan for the response of natural systems to climate change is through the Schedule to the overlays providing the planning authority with the opportunity to establish a strategic framework for the content of a plan. Use of the Schedule in this way would

provide certainty to landowners, developers and others about what the plan must contain.

To assist in such use, the Committee considers that the overlays themselves do not require amending but rather the VPP Practice Note – *Applying the Incorporated Plan and Development Plan Overlays*, January 2003 should be amended to include reference to climate change effects and in particular climate change impacts on the coast.

The Committee does not support amending the DDO because it is an overlay that is more related to built form issues rather than siting and location of development.

The Committee also supports amending the definition of Earthworks to explicitly include the types of earthworks that would restrict tidal flows such as seawalls levees and revetments. A recommendation on this issue is made in Section 7.7.

The Committee recommends that:

- 12. Existing planning tools like native vegetation precinct plans under Clause 52.16 of the Victoria Planning Provisions (VPPs) should be used to plan and manage natural coastal environments to adapt to the effects and impacts of coastal climate change and support broader integrated strategic planning.**
- 13. Existing planning tools like the Rural Conservation Zone (RCZ), Public Conservation and Resource Zone (PCRZ), Public Park and Recreation Zone (PPRZ) and Environmental Significance Overlay (ESO) all provide strong support for implementing strategic plans and can be amended to better reflect the need to address climate change effects and impacts on natural environments.**
- 14. A new Coastal Conservation Zone (CCZ) should be introduced into the Victoria Planning Provisions (VPPs) to provide a coastal specific zone that can support the protection, enhancement and adaptation response to coastal climate change effects and impacts on natural coastal environments.**
- 15. The VPP Practice Note – *Applying the Incorporated Plan and Development Plan Overlays*, January 2003 should be amended to include reference to climate change effects to improve the awareness of how the Incorporated Plan Overlay (IPO) or the Development Plan**

Overlay (DPO) can be applied to protect natural systems from climate change impacts with the following changes:

- Under 'Strategic Framework' on page 2 add an additional dot point to read – 'identify and address areas that may be subject to impact from projected climate change including coastal climate change effects and hazards such as sea level rise, coastal inundation and coastal erosion'.
- Under 'Plan content' within the section 'Preparing a development or incorporated plan' on page 7 add an additional section – 'Responsive adaptation to climate change' and include questions such as 'What impacts from climate change should be taken into consideration? How should land use and development be planned, sited and designed to accommodate impacts from climate change hazards? How should natural systems, biodiversity and habitats be protected and allowed to respond in adapting to the effects of climate change particularly with respect to coastal impacts including sea level rise, coastal inundation and coastal erosion?'

6.7 Planning funding mechanisms

There are a number of existing mechanisms in the planning system and through local government which may be used in future to apportion the costs of implementing coastal climate change adaptation options. Some of the main ones are discussed below.

6.7.1 Development contributions

A Development Contribution Plan (DCP) may be prepared under Part 3B of the *Planning and Environment Act 1987*. This requires persons undertaking development to contribute to the cost of works, services and facilities.

DCPs have to be included in the planning scheme and this is undertaken via a planning scheme amendment. The DCP may be included in the scheme through a DCP Overlay or as an incorporated document in Clause 81.01.

DPCD has issues guidelines for the use and applications of DCPs and there is also a Ministerial Direction on what DCPs can cover. The list of issues does not include items such as coastal defences and there may be a need to review the Direction to broaden its scope for development in coastal risk areas.

6.7.2 Differential rating

Under Section 161 of the *Local Government Act* 1989 a Council has the ability to charge differential rates. The key determinant of a differential rate is that it must contribute to the 'equitable and efficient carrying out of Council's functions'.

A differential rate could conceivably be used positively (to reduce rates for property owners undertaking climate change adaptation measures) or negatively (to charge higher rates for properties in a settlement or part of a settlement to contribute to climate change adaptation measures).

6.7.3 Special Charge Schemes

Under Section 163 of the *Local Government Act* 1989 Councils can introduce a special charge scheme. This is a scheme to defray expenses or recoup loan costs associated with Council's 'performance of a function or exercise of a power' that benefits a particular group of people.

The charge to be raised is calculated on a formula set out in the *Local Government Act*. Guidelines for use of Special rate and special charge schemes are provided by the Minister responsible for the Act.

A group of coastal properties under threat from sea level rise and with practical and affordable adaptation options could conceivably be covered by such a scheme. The scheme could levy funds to be applied to the protection of those properties, i.e. those getting a benefit from the protective works.

6.7.4 Discussion

The Committee is not suggesting that the above examples are the only possible funding mechanisms for coastal climate change planning and adaptation response. In reality there could be a mix of options that could include the State and local government, the private sector and the community, at the local, regional, State and national level.

However it is clear that there is a range of funding mechanisms that will need to be drawn on, some perhaps appropriate as they are, and some requiring legislative or policy changes to enable their use for coastal climate change planning and response.

6.8 Beyond planning – complementary considerations

6.8.1 Environmental planning mechanisms

Environmental planning mechanisms under other Victorian legislation could be used to supplement or substitute for some of the planning approaches under the *Planning and Environment Act* that have been discussed above.

These include:

- Regional Catchment Strategies;
- Floodplain management plans;
- Coastal Action Plans; and
- Investigations by the Victorian Environmental Assessment Council.

Regional Catchment Strategies

One of the purposes of the *Catchment and Land Protection Act* 1994 (CALP Act) is setting up a framework for the integrated management and protection of catchments. The objectives expand on this purpose by stating that the framework for integrated and co-ordinated management of catchments will 'maintain and enhance long-term land productivity while also conserving the environment' and 'aim to ensure that the quality of the State's land and water resources and their associated plant and animal life are maintained and enhanced'.

The CALP Act establishes Catchment Management Authorities (CMA), whose functions include to 'prepare a regional catchment strategy for the region and co-ordinate and monitor its implementation'. A regional catchment strategy, as directed by the Act (Section 24), must:

- (a) *assess the land and water resources of the catchments in the region and how they are used; and*
- (b) *assess the nature, causes, extent and severity of land degradation of the catchments in the region and identify areas for priority attention; and*
- (c) *identify objectives for the quality of the land and water resources of the catchments in the region; and*
- (d) *set a program of measures to promote improved use of land and water resources and to treat land degradation; and*
- (e) *state the action necessary to implement the strategy and who should take it; and*

- (f) *specify procedures for monitoring the implementation of the strategy, achieving the land and water resource quality objectives and assessing the effectiveness of the program set under paragraph (d); and*
- (g) *provide for the review of the strategy.*

The Act provides that a CMA that prepares a regional catchment strategy may recommend, to a planning authority under the *Planning and Environment Act* 1987, amendments to a planning scheme to give effect to the strategy.

Most current RCSs date from prior to 2005. DSE, under the direction of the Victorian Catchment Management Council (VCMC), is preparing new guidelines to assist with the review of these strategies. The State policy context will be set by a revised River Health Strategy (now to be called the Victorian Strategy for Healthy Rivers, Estuaries, and Wetlands [VSHREW]), a revised Biodiversity Strategy and a proposed Victorian Natural Resource Management Plan, as well as the VCS.

Relatively few of the existing RCSs for coastal regions deal specifically with coastal and marine environments, but the *Land and Biodiversity White Paper* indicated that it was expected that the new strategies would take a 'catchment to coast' approach. Work is underway to develop frameworks for identification of coastal and marine assets, to complement land-based or riverine assets already designated.

The White Paper also proposed that each RCS should contain a 'planning addendum' to align regional and local planning and express how the RCS priorities should be implemented. It was envisaged that this addendum would identify areas that could and could not be developed without affecting important catchment values. The new Government's planning policy, published before the election, indicates that this enhanced role of the RCS in relation to local planning schemes may not be pursued.

Nevertheless, the Committee considers that Regional Catchment Strategies – for the five CMA regions that have coastlines – could be appropriate vehicles through which to identify priority coastal areas where ecosystem resilience and potential to adapt to sea level rise can be enhanced by improved planning mechanisms (for example the zones or overlays discussed in Section 6.6 above), reinforced by co-operative approaches with landholders.

Water Act 1989

Section 202 of the *Water Act 1989* covers Floodplain management functions, and provides that a designated floodplain management authority has a responsibility to:

- (a) to find out how far floodwaters are likely to extend and how high they are likely to rise;*
- (b) to declare flood levels and flood fringe areas;*
- (c) to declare building lines;*
- (d) to control developments that have occurred or that may be proposed for land adjoining waterways;*
- (e) to develop and implement plans and to take any action necessary to minimise flooding and flood damage;*
- (f) to provide advice about flooding and controls on development to local councils, the Secretary to the Department and the community.*

An authority may declare a flood level in relation to a specified area, a flood fringe area or a building line in relation to either side of a designated waterway or of designated land or works. In making such a declaration, an authority 'may adopt a flood level, a flood fringe area or a building line which, in its opinion, is the best estimate, based on the available evidence, of a flood event which has a probability of occurrence of 1 per cent in any one year'. Responsible authorities under the *Planning and Environment Act* must have regard to the particulars of the declaration and:

- (3) A council or other public statutory body that has power to do so must prevent land uses that are inconsistent with any identified flood hazards.*

Section 208 of the *Water Act* provides that the consent of the floodplain management authority is required for any person to:

- (a) cause or permit the undertaking or erection, within an area of land declared to be liable to flooding or declared to be a floodway area, of works or structures that may have the effect of—*
 - (i) controlling or mitigating floodwaters; or*
 - (ii) discharging stormwater; or*
 - (iii) excluding tidal water; or*
 - (iv) concentrating or diverting floodwater or stormwater; or*

- (b) *cause or permit the undertaking or erection of works or structures between a building line and any part of the designated waterway or designated land or works in relation to which the building line was declared.*

The floodplain management authority may also require landowners to allow it to enter properties and demolish or modify any existing works or structures, once the land has been declared to be in an area liable to flooding or between a building line and a designated waterway.

The Committee considers that the floodplain management provisions of the *Water Act* are a key component of a co-ordinated Victorian response to management of existing and future development in areas at risk of inundation from a combination of flooding and the impacts of coastal climate change.

While biodiversity conservation is not the primary focus of the floodplain management system, the requirement for consent for the erection of works or structures in flood-prone areas could be used to control construction on private land of coastal protection works that might limit the capacity of natural systems to adapt to coastal climate change, or exacerbate the impacts on adjoining land. This would require coastal areas at risk of inundation to be declared as areas liable to flooding and may need building lines to be established in these areas.

Coastal Action Plans and Management Plans

The *Coastal Management Act* 1995 established the Victorian Coastal Council (VCC) and provided for the establishment of Regional Coastal Boards. Its other purposes include:

- *to provide for co-ordinated strategic planning and management for the Victorian coast; and*
- *to provide for the preparation and implementation of management plans for coastal Crown land; and*
- *to provide a co-ordinated approach to approvals for the use and development of coastal Crown land.*

The VCC is responsible, amongst other things for: undertaking state wide strategic coastal planning; preparing a draft VCS for submission to the Minister; providing advice to the Minister on implementation of the VCS, proposed Coastal Action Plans or management plans for coastal Crown land, funding priorities and research into coastal issues. It is also charged with facilitating the operation of Regional Coastal Boards and monitoring the

development and implementation of Coastal Action Plans. The VCC is also empowered to prepare and publish guidelines for planning and management of the coast.

The functions of Regional Coastal Boards include developing Coastal Action Plans (CAPs) for land within their region – either on their own initiative or at the direction of the Minister or the VCC – and advising the Minister and the VCC on coastal development in the region. Boards are also charged with the responsibility of facilitating the implementation of the VCS, CAPs and approved coastal guidelines. They also have a further function:

[T]o liaise with and encourage the co-operation of Government departments, municipal councils, public authorities, industry, community groups and persons and bodies involved in the planning and management of the region in developing and implementing strategic solutions to matters affecting the conservation and use of the region's coast; ...

The *Coastal Management Act* specifies that a CAP 'must identify strategic directions and objectives for use and development in the region' and 'provide for detailed planning of the region or part of the region to facilitate recreational use and tourism; and to provide for protection and enhancement of significant features of the region's coast, including the marine environment'. Draft CAPs must be referred to the VCC for consideration; once approved by the Council, they are referred to the Minister for endorsement. CAPs must be reviewed every five years, or at the direction of the Minister.

The Issues and Options Paper (Section 9.2.1) discussed the potential relevance of CAPs to planning for adaptation to coastal climate change and suggested that they could look at issues on a regional basis and identify opportunities for co-operative approaches between agencies and local governments across coastal regions, as well as helping to apply the results of the Future Coasts program. The Committee sought feedback on the whether there was a need for CAPs to be developed to plan and act on sea level rise and coastal climate change effects along our coasts and estuaries, and if so, whether they should be regionally based.

There was considerable support amongst submitters, particularly from Councils in the metropolitan area, for the use of a CAP to address regional issues resulting from coastal climate change. Points raised included:

- CAPs could provide a comprehensive response that included, but was not limited to, planning measures;

- a regionally integrated response was necessary to ensure that actions by one local government authority did not have adverse effects in another;
- regional CAPs should be prepared in conjunction with Councils and should be flexible enough to respond to local conditions, perhaps through a local section for each municipality;
- the use of a CAP would be a good way to address interactions between Crown and private lands and could also help to inform adaptation strategies and co-ordinate activities across municipal boundaries;
- CAPs could provide a 'big picture' strategy, to inform the public about climate change responses;
- they could identify short, medium and long term actions, integrating land use planning and engineering; and
- CAPs (and RCSs) could be an effective way of documenting regional impacts and responses and ensuring that the latest science was available to decision makers.

On the other hand, a few Councils commented that a CAP might duplicate work that was being done elsewhere and would have limited use in the planning system.

The Committee considers that CAPs would be an effective way of implementing a co-operative, inter-agency approach to planning for climate change adaptation across the interfaces between land and sea, between private and public land and between local government areas. They would enable the application of the VCS planning benchmark of 0.8 metres to be customised to the nature of different types of coasts and the specific impacts likely to be experienced over time. They could also be seen as regional components of the state wide Adaptation Plan required under the Climate Change Act. Involvement of local government – through a joint approach on problem definition and identification of solutions – would be essential to the success of such an approach.

CAPs, like RCSs, could also establish priorities for buffer areas to allow natural systems to adapt. However, unlike RCSs, they could also focus attention on priority locations for recreational and tourist use of the coast, where applicable.

Victorian Environmental Assessment Council

Section 5 of the *Victorian Environment Assessment Council Act 2001* specifies the principle objective of the Council is to:

- (a) *provide independent and strategic advice to the Government of Victoria on matters relating to the protection and ecologically sustainable management of the environment and natural resources of public land; ...*

The principle function of the Council is to:

- (a) *carry out investigations that are requested by the Minister on matters relating to the protection and ecologically sustainable management of the environment and natural resources of public land; ...*

If a state wide approach is preferred to a regional one, the Committee considers that an alternative to addressing coastal climate change impacts on natural systems through a RCS or a CAP might be for the Government to request VEAC to identify priority areas where co-ordinated responses are required to improve ecosystem resilience and provide opportunities for adaptation. Similarly, VEAC could assess the uses and values of coastal Crown land and identify key localities where action will be needed to maintain public access in the future, if inundation and erosion lead to the loss of existing Crown reserves.

At present, VEAC is restricted to the consideration of public land. The Committee recognises that its charter would need to be extended to enable it to carry out these types of investigations.

6.8.2 Emergency planning and response

In the future, without intervention, there is potential for increases in damage to the built environment and loss of life as consequences of floods and storm surge in coastal settlements.

While there has been a focus on bushfire emergency management in the wake of the February 2009 Victorian bushfires, floods and storms can also have devastating consequences:

- the State Emergency Response Plan for Victoria (2007)²⁵ cites analysis in Economic Costs of Natural Disasters, Report 103, Bureau of Transport Economics, January 2001, that says in Australia more lives have been lost during floods than any other emergency resulting from a natural disaster; and
- floods are costly. The Bureau of Transport Economics report (2001)²⁶ estimated that the annual average cost of natural disasters - generally only those disasters costing \$10 million or more - in Victoria for the period 1967 –1999 was \$61.3 million (in 1999 dollars) for floods and severe storms compared to \$32.4 million for bushfires. These figures are underestimates as they do not include smaller emergencies or many indirect costs such as transport and business disruption and clean up activities undertaken by households, psychological impacts etc.

While these statistics are not specific to coastal settlements they do highlight the serious threat to life and the high costs that can be caused by floods and storms. It would be anticipated that due to the expected increase in the severity of these types of events due to climate change, without active management these losses will escalate. Active management can be cost effective: the COAG Natural Disasters Report²⁷, found that for every dollar invested in flood mitigation more than \$2.10 was saved and the Victoria State Emergency Services website says *well prepared communities can reduce flood damage by 80%*.

The cornerstone of emergency management in Victoria is the *Emergency Management Act 1986* which defines Victoria's emergency management structure and the roles and responsibilities of agencies and individuals. The Act's objectives are to prevent, respond and recover from emergencies²⁸ '*within a structure which facilitates planning, preparedness, operational co-ordination and community participation*' (s.4A).

²⁵ State Flood Response Plan prepared by the Victoria State Emergency Services, Version 1.4 – 9th November 2007

²⁶ Cited in the Emergency Management Manual Victoria 2010, <http://www.oesc.vic.gov.au/emergencymanual>

²⁷ Cited in the Emergency Management Manual Victoria 2010, <http://www.oesc.vic.gov.au/emergencymanual>

²⁸ Emergency is the terminology used in the Act and is defined as an emergency due to the actual or imminent occurrence of an event which in any way endangers or threatens to endanger the safety or health of any person in Victoria or which destroys or damages, or threatens to destroy or damage, any property in Victoria or endangers or threatens to endanger the environment or an element of the environment in Victoria..... There is the ability in the Act for the Police Minister to call a State of Disaster however this has never happened in Victoria.

To comply with the *Emergency Management Act 1986* the Office of the Emergency Services Commissioner has developed the Emergency Management Manual. This has been substantially upgraded in response to recommendations made by the Bushfire Royal Commission.

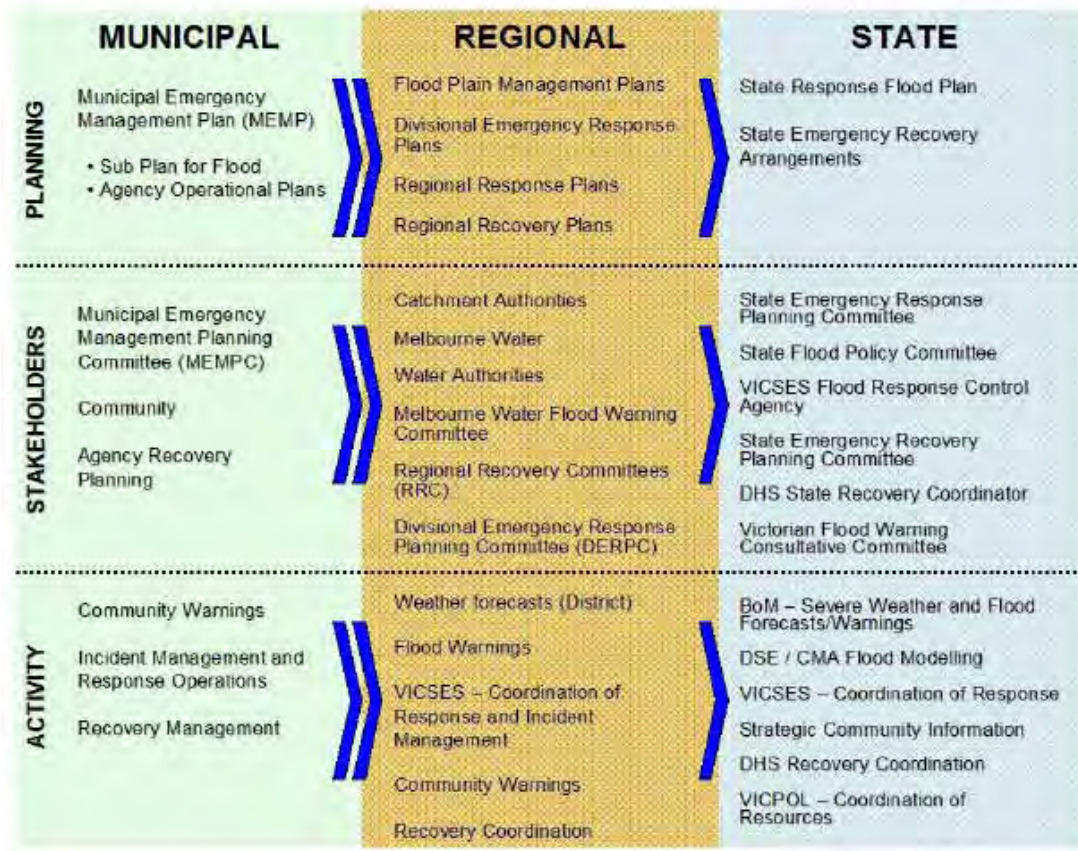
The Victoria State Emergency Service (SES) is the controlling agency for providing advice, information, education, training and assistance to municipal councils, other agencies and the community in relation to floods. The SES has the responsibility for preparing the State Flood Response Plan (2007). While this Plan recognises that climate change may result in *(..possibly larger) riverine floods and more frequent flash flooding events associated with localised storm activity* it does not mention, or consider the need for future planning for these events. In addition to responding to flood emergencies the Plan outlines roles and responsibilities in relation to preventing and mitigating emergency events and their effects as well responsibilities during and after floods and other activities such as community alerts. Like the Country Fire Authority the SES is an organisation whose emergency response is reliant on trained volunteers.

The Victorian Flood Management Framework and the interrelationship between the key organizations and their flood management activities is shown in the following diagram²⁹. As can be seen there are a number of plans that complement the State Flood Response Plan. At the local level, and in addition to planning controls to assist in mitigating flooding of buildings and infrastructure, Councils are required under the *Emergency Management Act 1986* to prepare Municipal Emergency Management Plans which where relevant include a sub plan for flood. It is also a requirement of the Act that at least every three years Municipal Emergency Management Plans are reviewed by the Municipal Emergency Management Planning Committee and audited by the SES to ensure compliance with the guidelines laid out in the Emergency Management Manual Victoria. The guidelines in the Manual are based on *Emergency Risk Management–Applications Guide* (Emergency Management Australia, 2000, re-issued 2004) which is a customized emergency management version of the *Australian/New Zealand Risk Standard – Management, AS/NZS 4360:2004*. The Guidelines are based on the principles of risk, minimisation, intergenerational equity, building resilience and sustainability amongst others.

Similarly under the Victorian Flood Management Framework catchment management authorities are required to prepare regional flood management plans and also have oversight of mitigation and prevention management.

²⁹ State Flood Response Plan 2007

Figure 6: Victorian Flood Management Framework



Other agencies including the Department of Sustainability and Environment, Department of Human Services, Police and the Bureau of Meteorology have important emergency roles particularly when lives and communities are threatened by flood.

The State Emergency Services issue community flood alert announcements and provide a range of publicly available material on being 'Storm Safe' and 'Flood Safe' that gives guidance on preparing for floods and storms and what to do before during and after a flood or storm emergency.

This Committee's review of emergency flood and storm management has been largely limited to publicly available documents. From the sample of documents reviewed it found that limited attention is being directed to prevention and mitigation and there is limited recognition or planning for increased future flooding emergencies in areas where flooding is predicted to occur. To this end Future Coast's mapping should be an invaluable resource to identify areas on which to focus mitigation actions to reduce the likelihood of emergencies, and to plan for heightened emergency response capabilities should these be needed.

Many changes have recently been made to mitigate the impact of bushfires based on the work and recommendations of the Bushfire Royal Commission. Of significant difference in coastal communities compared to the majority of the bushfire prone areas that would need to be considered in optimising communications is the high seasonal influx of holidaymakers including those in caravan parks. This difference in peak population presents significant logistical challenges for emergency services if the majority of people decide to leave early or if evacuation becomes necessary.

While these differences need to be considered, many of these recommendations from the Bushfire Royal Commission - particularly in relation to roles and responsibilities - could be adapted to reduce the impact and cost of floods. For example the BRC commented that *Fire agencies should attach the same value to community education and warnings as they do to fire-suppression operations*. Likewise it would appear to the Committee that those responsible for flood management should attach greater emphasis on supporting the individuals and the community in preparing their own flood plans which includes: – alerting neighbours; deciding to stay or go; if going, preparing the property as much as possible, leaving early, packing valuables and identifying a place of refuge; if staying being well prepared and provisioned and physically able to cope should the property be cut off and without services. There is also the potential to align flood emergency alerts to the new fire danger ratings amongst other adaptable BRC recommendations.

Recommendation

The Committee recommends:

16. That agencies responsible for emergency management in coastal settlements incorporate climate change induced sea level rise impacts into their emergency response planning.

In so doing, coastal communities identified through the Future Coasts program as vulnerable to the impacts of climate change measures should be given priority.

6.8.3 Education and training

The Issues and Options Paper made reference to the limited number of coastal engineers with the knowledge and capacity to undertake Coastal Hazard Vulnerability Assessments and the absence of accredited coastal engineering courses in Australia. The shortage of coastal planners and engineers was also acknowledged in the House of Representatives Committee Report *Managing our coastal zone in a changing climate: the time to*

act is now. That Committee recommended that the Australian Government liaise with tertiary institutions to ensure an adequate supply of appropriately skilled coastal planners and engineers.

A number of submitters also highlighted the shortage of skilled practitioners with the knowledge to provide specialist assistance in assessing and managing coastal climate change impacts including coastal processes engineers and geomorphologies. One submitter had sought coastal engineering expertise from New Zealand because of the lack of available expertise locally and another indicated that as coastal climate change impacts on the coast is a national problem, expertise will be further stretched. Other submitters suggested that regional workshops and training programs are also needed to build capacity at the local level.

In response to the House of Representatives Committee Report the Australian Government noted the skills shortage and said that work is being undertaken to assess the feasibility of conducting flexible education programs in hydrography. The Committee considers this initiative is laudable but even if these courses proceed they will only go some way in filling the skills gap. Further investment in training and education in a range of specialist areas is critical to ensure that there are a sufficient number of people in referral authorities, State and local government and in the consulting profession with a high level of capability to adequately support informed decision making.

In the Victorian context, there could be benefits in considering a model similar to that by which specialist advice from heritage professionals is made available to local government. Either an individual coastal engineer or coastal geomorphologist could be assigned a particular Council or group of councils, or a panel of experts could be retained to be available as required to assist decision makers.

Recommendations

The Committee recommends that:

- 17. The Minister for Planning consult with the Minister for Higher Education and Skills to initiate, in conjunction with tertiary institutions, the Municipal Association of Victoria and relevant professional associations, a skills audit with the view to developing a range of professional development courses to meet the shortfall of professionals with the capability to assess coastal climate change impacts.**

18. Upon completion of DSE's *Coastal Floodplain management guidelines – assessing development in coastal flood risk areas* and its local government companion guideline, a range of workshops and seminars be conducted to assist local government implement the guidelines and build capacity and that these workshops form the basis for an ongoing program of coastal climate change training for local government.

6.8.4 Legal and property issues

The Committee discussed issues around coastal property titles, legal liability and insurance in Chapter 7 of the Issues and Options Paper. This drew heavily upon the work done by the Victorian Planning and Environmental Law Association in their Reference Group Briefing Paper to the Committee.

The Committee also notes, and this was touched upon in Section 4.1.1 of this report, that the Commonwealth House of Representatives Standing Committee on Climate Change, Water, Environment and the Arts in its report *Managing our coastal zone in a changing climate: the time to Act is now* made recommendations in this area (particularly number 19 related to insurance and number 23 related to legal liability).

In relation to recommendation 19, the Commonwealth has agreed in principle to look at the operation of the insurance markets in this area. The Committee's discussions with representatives of the industry suggest that due to the relatively short term of insurance policies (usually 12 months), provided insurers are aware of the risks to property through means such as planning schemes (flood overlays for example), they can be highly responsive in delivering a product mix.

In relation to recommendation 23, which is primarily about legal liability of decision makers, the Commonwealth in its response to the report has agreed in principle to work with the legal profession to further investigate the challenges posed by climate change on the coast.

In the recent Commonwealth report *Developing a National Adaptation Agenda*, the following statement was made:

Mr Andrew Beatty (Baker & McKenzie) commented on liability for past development decisions, which are extremely difficult from a legal point of view "... not only because of questions of proof; who knew what when, but also Limitation Acts, and whether and how the law of negligence applied at a particular time... I do however think that a line in the sand needs to be drawn at some stage and perhaps the instrument that draws that line in the sand is these nationally approved guidelines."

The same report also notes:

It was suggested the national approach be linked to a statutory system to serve two purposes. Firstly, it would legally oblige decision-makers to consider the risks from sea-level rise and climate change in future planning. Hence, it would reduce the incidence of planners who choose to ignore public good information, such as the risks of climate change. Secondly, it would empower local governments by affording them some protection in litigations.

The Committee is aware that individual Councils have been commissioning legal advice as to their liability in decision making. The Committee considers it may be useful for such a piece of work to be commissioned by the State Government (through the Victorian Government Solicitors Office) to provide some level of consistent advice to responsible authorities.

From the Committee's perspective, it appears that there is now an increasing level of scientific information (climate change modelling and sea level rise predictions) that suggests that decision makers can no longer afford to discount such information in their decision making. That is not to say that every decision on a property that is predicted to be at risk must be refused, it simply means that at the least the climate change and sea level rise implications must be considered.

In relation to property titles, the Committee considers there is a body of law (both statute and common law) that provides good direction as to what the situation might be at any given location, whether it is subject to coastal accretion or recession. What is likely however, is that this legal corpus may be needed and used to a far greater extent than in the past. As sea level rise increases in rate, it may be necessary to commission a review from a body such as the Victorian Law Reform Commission to ensure the legal framework remains appropriate. In addition, the State government should remain involved in, and contribute to, the national discussion around these issues.

The Committee recommends:

- 19. That legal advice be commissioned from the Victorian Government Solicitors Office on the liability of decision makers to consider coastal climate change information (both in principle and to what degree necessary) and this advice be published for broader community interest.**

6.8.5 Building regulations

Building regulations did not form a significant part of the response to the Committee's Issues and Options Paper. The Committee notes that the House of Representatives Inquiry recommended that the Building Code of Australia be revised to increase climate change resilience. The Committee supports that view.

In the Committee's mind this may include:

- improving resilience of buildings to temperature, rainfall and wind extremes;
- consideration of a new standard for relocatable buildings in coastal environments; and
- consideration of the implications for building standards of increasing episodes of periodic saltwater inundation (due to storm surge).

The Committee recommends that:

- 20. The Minister for Planning consult with the Building Commission of Victoria to ensure climate change resilience is included in discussions with the Commonwealth Government about the Building Code of Australia as appropriate.**

7. The Victoria Planning Provisions

The Committee considers a range of provisions in the Victoria Planning Provisions (VPP) can be improved to address the potential impacts of climate change and sea level rise.

7.1 State Planning Policy Framework

A revised State Planning Policy Framework (SPPF) was introduced into the VPP under Amendment VC71 on 20 September 2010. The revised SPPF is a 'policy neutral'³⁰ translation of the existing SPPF policies with new themes, a new structure and updated references to various documents.

With respect to coastal climate change, key policy themes in the revised SPPF include:

- Clause 11 Settlement – This provides the settlement pattern vision for Victoria and gives direction to the location and form of urban settlement including coastal settlements. It also includes reference to not only the Melbourne Metropolitan area but to regional settlements and the hinterland region around Melbourne within 100 kilometres of the Central Activities District.
- Clause 12 Environmental and landscape values – This provides direction for the protection, conservation and sustainable management of Victoria's environmental and landscape assets. It includes policies for biodiversity and coastal areas.
- Clause 13 Environmental risks – This provides direction for the management of environmental risks, both man-made and naturally occurring. The Clause includes policies for climate change impacts and specifically on coastal inundation and erosion.

Despite the 'policy neutral' commitment, there have been changes to the nature of references to key policy documents in the new SPPF. Whereas previously Clause 15.08, Coastal areas, required that decision making by planning and responsible authorities should 'be consistent' with the VCS and any relevant approved Coastal Action Plan or management plan (as well as other major Government-endorsed policies), this has now been downgraded

³⁰ Policy neutral' in this context means that the changes in the structure and presentation of the SPPF did not alter the intent or expression of the policies contained in the previous version.

to require that planning should consider the VCS 'as relevant'. Reference to CAPs and management plans has been omitted in some of the sections dealing with coasts.

With respect to how well the SPPF addresses coastal climate change, the Committee considers that the policy framework should deliver three key outcomes:

- ensure that land use and development is not placed at risk from coastal hazards arising from coastal climate change impacts;
- the effects of coastal climate change impacts on areas of existing at-risk land use and development are managed; and
- coastal ecosystems are provided with space to adapt to the impacts of climate change, where they have the capacity to do so.

7.1.1 Issues and Options Paper view

In considering the role of the Victorian Planning System in responding to the effects of coastal climate change, the Committee noted that potential risks to coastal areas in Victoria arise from:

- sea level rise;
- storm surge;
- estuarine (catchment based) flooding;
- overland flows in storm events;
- backup of floodwaters through reticulated systems;
- saline intrusion into water tables and freshwater wetlands;
- beach and cliff erosion;
- severance of access; and
- coastal subsidence.

Based on these factors the Committee concluded in the Issues and Options Paper at Chapter 8 that the VPP and planning schemes should provide tools to:

- *Implement the Victorian Government's requirement – expressed in the 2008 VCS – of planning for sea level rise of not less than 0.8 metres by 2100, while recognising that the rate of sea level rise may change over time and that seas will continue rising well after the end of the century;*
- *Provide a clear strategic framework within which planning and responsible authorities can apply appropriate VPP tools to address climate change issues in their areas of responsibility;*

- *Achieve a permit and decision making regime that is clear and consistent, increases certainty, reduces duplication and avoids unnecessary permit applications, but still retains the flexibility to respond to changing conditions;*
- *Protect natural systems – terrestrial, estuarine & marine – and give them room to adapt;*
- *Retain important biodiversity features in the landscape and increase connectivity between them;*
- *Sustain the social and economic values of the coast, including public access for recreation and tourism;*
- *Designate new foreshore or lakeshore reserves to replace those lost to erosion / inundation;*
- *Direct new investment / development to areas identified as less vulnerable and ensure appropriate set-backs from the coast;*
- *Manage rural / non-urban areas identified as potentially at risk;*
- *Manage existing urban areas identified as vulnerable, by:*
 - *Allowing settlements to operate effectively and safely for as long as possible*
 - *Matching the nature and intensity of new development / redevelopment to the degree of risk and likely timing of impacts*
 - *Implementing appropriate short - to medium term strategies that protect existing development or accommodate existing development to climate change effects (e.g. building standards, floor heights, infrastructure improvements)*
 - *Developing and implementing longer term adaptation strategies to relocate development/uses from areas that will not be sustainable*
- *Contribute to integrated coastal zone planning and management.*

VPP tools should be accompanied by appropriate guidance to allow planning authorities to implement them in a manner that is economically efficient, equitable and environmentally sustainable.

The Committee commented in its Issues and Options Paper that:

The Committee considers that, overall, with respect to sea level rise hazards the SPPF – both current and proposed – establishes the key principles, sets out a strategic approach to coastal climate change issues

and provides clear directions concerning planning for new development. However, it is less helpful in assisting planning and responsible authorities to deal with decisions about appropriate adaptation responses to coastal hazards of existing settlements which are already at risk, or are likely to be so in the future.

The Committee also noted that the:

....current policy – both in the SPPF and the VCS – supports consolidation of development in established urban areas, concentration of commercial development in activity centres and intensification of housing provision around them. The boundaries of some of these areas will need review in the light of their vulnerability to coastal climate change impacts.

7.1.2 Weaknesses in the SPPF

In reviewing the SPPF, the Committee considers that in addition to issues raised in section 7.1 the following weaknesses require redress with respect to coastal climate change.

Activity centres

Activity centres on the coast³¹ or coastal lakes and estuaries should have regard to the effects of coastal climate change. An additional dot point should be added under Strategies in Clause 11.01-2 (Activity centre planning) to read:

Undertake strategic planning for land use and development within activity centres located on the coast, Port Phillip Bay and Western Port Bay, or coastal lakes or estuaries to take account of and manage the effects of coastal climate change.

Growth areas

Growth areas on the coast should have regard to coastal climate change. The Objective under Clause 11.02-2 (Planning for growth areas) should be amended to read:

To locate urban growth close to transport corridors and services and provide efficient and effective infrastructure to create benefits for sustainability while protecting primary production, major sources of raw materials, valued environmental areas and avoiding risk from the effects

³¹ For example Rosebud or Mordialloc on the shores of Port Phillip or Hastings on Western Port.

of climate change including on the coast and bayside or coastal lakeside locations.

An additional dot point should be added under Strategies in Clause 11.02-2 to read:

Avoid or minimise new land uses and development within those growth areas located on the coast or adjacent to Port Phillip Bay and Western Port Bay or coastal lakes or estuaries that are at risk from the effects of coastal climate change.

Settlement Planning

The principles of settlement planning in coastal areas need to reflect risks from climate change. The first dot point under Climate change, natural hazards and community safety under Strategies in Clause 11.05-4 (Regional planning strategies and principles) should be amended to read:

Siting and designing new dwellings, subdivisions and other development to minimise risk to life, property, the natural environment and community infrastructure from natural hazards, such as bushfire, flooding and sea level rise.

Coastal settlement

It is important to ensure that new land use and development is; directed to locations that are not at risk from the impacts of projected sea level rise; and coastal environments are provided with the opportunity to adapt to the effects of coastal climate change.

The fourth paragraph or strategy under Strategies in Clause 11.05-5 (Coastal settlement) should be amended to read:

Direct residential and other urban development and infrastructure within defined settlement boundaries of existing settlements that are capable of accommodating growth and avoid areas at risk from coastal climate change induced sea level rise impacts including coastal inundation and erosion.

Add an additional strategy under Strategies in Clause 11.05-5 to read:

Encourage land use and development that protects coastal ecosystems, enhances their resilience to the effects of climate change and provides for their adaptive response including retreat, migration, translocation or expansion.

Coastal development

Appropriate coastal development should refer to the effects of climate change to allow for adaptation responses in ecosystems. Under Strategies in Clause 12.02-2 (Appropriate development of coastal areas) add an additional strategy to read:

Encourage land use and development that protects coastal ecosystems, enhances their resilience to the effects of climate change and provides for their adaptive response to the effects of projected sea level rise including retreat, migration, translocation or expansion.

Coastal inundation and erosion

As discussed in Section 6.1, the Committee strongly supports the existing planning target of at least 0.8m of sea level rise by 2100 and allowing for tides, storm surge and local conditions. The Committee also considers that to improve the understanding and implementation of the 'journey' to reach this figure, interim planning targets should also be introduced.

Under Strategies in Clause 13.01-1 (Coastal inundation and erosion) introduce a new second strategy to read:

In planning for this longer term sea level rise, interim planning targets of 0.2m and 0.5m – expected on present predictions to occur by approximately 2040 and 2070 respectively – may be used when assessing risks and impacts associated with coastal climate change with the addition of an allowance for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology.

In this clause reference should also be made to the need to consider coastal environments and processes when making decisions on development for climate change response (e.g. coastal defences). Under Strategies in Clause 13.01-1 add an additional strategy to read:

Ensure that development or protective works seeking to respond to coastal hazard risks avoids detrimental impacts on coastal environments and coastal processes.

7.1.3 Recommendation

The Committee recommends:

21. The State Planning Policy Framework of the Victoria Planning Provisions should be amended to strengthen references to planning for coastal climate change in accordance with the detailed proposals in Section 7.1.2 of this report.

7.2 Local Planning Policy Framework

7.2.1 Municipal Strategic Statement

As discussed in the Issues and Options Paper, the reference to coastal planning and coastal climate change impacts in Mass and local policy varies widely in application and extent. Some coastal municipalities do not reference it at all whilst others have comprehensive policies³².

The Committee considers that planning schemes on the coast should have comprehensive local policies on coastal planning and development and responses to climate change. Whilst the SPPF provides the high level direction, local considerations must be clearly articulated by the planning authority to ensure planning decisions are made within an effective State and local framework.

The Committee provides a suggested MSS outline Appendix D.

7.2.2 Local Planning Policy

Current thinking in relation to LPPFs is that the majority of policy should be included in the MSS with Local Planning Policies being reserved for specific local issues.

The role of a local planning policy in a planning scheme is to guide decision making in relation to a specific discretion in a zone or overlay. It helps the responsible authority and applicants to understand how a particular discretion is likely to be exercised.

However, local policies can only be 'called up' if zone or overlay provisions in the scheme provide a trigger for planning applications. This emphasises the need for the strategic intent of the LPPF to be carried through into the detailed provisions of the scheme.

Any local planning policy dealing with coastal climate change issues and guiding decisions on permit applications would need to have certain characteristics and these are provided in a framework shown in Appendix E.

³² Bass Coast and Geelong were cited as good examples.

7.2.3 Recommendation

The Committee recommends:

22. Coastal municipalities should be encouraged and supported to develop coastal planning and coastal climate change policies in their Municipal Strategic Statements, and where appropriate Local Planning Policies.

7.3 Zones

The Committee is recommending a number of changes to existing zones and the creation of a new Coastal Conservation Zone. These changes are discussed below.

7.3.1 Rural Conservation Zone

Amendments to the RCZ (shown in full in Appendix F) would include changing the purposes of the zone to include recognition of ecosystem services from natural systems such as fish habitat provided by coastal wetlands, providing the ability for natural systems to adapt to projected climate change effects and impacts and to encourage land use and development to make such provision.

Changes to the purpose of the zone should also be reinforced with amendment to the decision guidelines particularly relating to environmental matters.

With regards to the table of land uses under the RCZ, it is considered that they should remain unchanged. The allocation of land uses that do not require a planning permit from those that do and those listed as prohibited appears to be an appropriate balance. This balance is supported by the requirement for a permit under Clause 35.06-5 Buildings and works for earthworks identified in the zone Schedule.

With regards to the buildings and works permit trigger under Clause 35.06-5 relating to the 100 metre setback from a waterway, wetlands or designated flood plain, it is considered that reference to coastal/estuarine areas or high water mark should also be included. This would ensure that a planning permit is required for buildings and works that are close to tidal areas thus allowing responsible authorities the opportunity to consider coastal climate change issues for both the proposed development and the capacity for natural system adaptation.

Under the VPPs, earthworks is defined under Clause 72 – *General Terms* as:

Land forming, laser grading, levee banks, raised access roads and tracks, building pads, storage embankments, channel banks and drain banks and associated structures.

Earthworks have the potential to interfere with tidal movement through restriction of the ebb and flow of tidal water movement. Tidal flows critically drive ecological and physiological responses of coastal wetlands such as seagrasses, mangroves, coastal saltmarsh and estuarine wetlands. Restrictions on tidal flows can limit fauna movement including fish migration and the ability for coastal and estuarine flora and fauna to adjust and adapt to any changes to tidal movement influenced by projected sea level rise affected by climate change. Hence it is important to ensure that earthworks are considered with respect to climate change induced sea level rise through the planning permit process.

Where earthworks occur in the Schedule to the RCZ, it is considered that tidal flows should also be safeguarded. It is considered important that a permit be required to undertake any earthworks which prevents or interrupts the flow of water from the ocean, estuaries or lakes due to tides, storm surge or flooding or any combination of these events. These comments could also apply to the earthworks provisions in the Farming Zone, the Rural Activities Zone and the Rural Living Zone.

7.3.2 Coastal Conservation Zone

A new Coastal Conservation Zone (CCZ) would include purposes similar to the RCZ but more directly relevant to coastal climate change effects and impacts on natural coastal environments. It is different to the public land zones below in that it could apply to private land on the coast that may otherwise be covered by the Farming Zone or RCZ. A draft CCZ is shown in Appendix G.

7.3.3 Public Conservation and Resource Zone

With regards to the Public Conservation and Resource Zone (PCRZ) changes should be made to the purpose of the zone to improve its relevance to climate change and its effects and impacts on natural environments, and to improve the opportunity for habitat linkages and movement.

The reference to public land manager responsibilities should be tied to a risk assessment process relating to climate change. This should be introduced as

an application requirement for land use and development that may require a permit.

These suggested changes are shown in Appendix H.

7.3.4 Public Park and Recreation Zone

The changes suggested for the PCRZ could also be applied to the Public Park and Recreation Zone (PPRZ).

7.3.5 Urban Floodway Zone

The Urban Floodway Zone (UFZ) is another zone that could be used to apply significant land use controls over land once the risk of flooding and sea level rise is more accurately known. The zone could be revised as follows:

Insert additional Purposes at Clause 37.03 as follows (underlined):

...

To identify waterways, major floodpaths, drainage depressions and high hazard areas within urban areas which have the greatest risk and frequency of being affected by flooding.

To identify land outside current high hazard areas that may be subject to high hazards in future, due to predicted sea level rise, combined with storm surge and storm tide, in the short term, medium term and longer term (equivalent to 0.2 metres, 0.5 metres and 0.8 metres respectively).

To encourage a precautionary approach to planning for development in areas at risk of inundation (including areas where flooding may be exacerbated by sea level rise, storm surge and storm tides), in order to protect life, property and natural systems.

...

Under Subdivision at Clause 37.03-3 amend the second dot point to read:

- *The subdivision is the resubdivision of existing lots and the number of lots is not increased, unless a local floodplain development plan or climate change adaptation plan incorporated in this scheme specifically provides otherwise.*

Under Application requirements at Clause 37.03-4 insert the following after Local floodplain development plan:

Coastal climate change adaptation plan

If a coastal climate change adaptation plan has been prepared for the area and has been incorporated into this scheme, an application must be consistent with the plan.

After 'Flood risk report' add the following:

Additional requirements specified in a schedule

If a schedule to this zone specifies that additional information is required, this information must be submitted with an application.

Under Referral of applications at Clause 37.03-5, amend the provision as follows:

An application must be referred to the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority the proposal satisfies the requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority, or unless a schedule to this overlay specifies that referral is not required.

The Decision guidelines at Clause 37.03-6 should be expanded to include the following dot point:

- *Any specific decision guidelines included in a schedule to this overlay.*

The only schedule currently considered for the UFZ relates to advertising signs. Implementation of the above recommendations requires modification of the zone to allow for specific focused schedules to address particular risks. A draft model schedule for areas at risk from a combination of catchment based flooding and sea level rise is included at Appendix I.

The Committee notes, but has not made a specific recommendation, that it is likely that the VPP Practice Note *Applying the flood provisions in planning schemes* will require revision to accommodate the proposed changes in this report.

This change will also require a change to the Ministerial Direction on *The Form and Content of Planning Schemes* to allow for additional schedules to the UFZ.

7.3.6 Recommendations

The Committee recommends:

23. That changes to the existing zones in the Victoria Planning Provisions be made in accordance with the suggestions Section 7.3 above and the relevant appendices of this report.
24. That a new Coastal Conservation Zone be introduced to the Victoria Planning Provisions to increase the effectiveness of preparing for climate change impacts in coastal (non settlement) areas.

7.4 Overlays

A number of suggested changes to overlays are discussed below and in the Appendices as relevant. The Committee notes a number of these changes (to the FO, LSIO, SBO and EMO) will require a change to the Ministerial Direction on *The Form and Content of Planning Schemes* to allow revised structures in schedules.

7.4.1 Revise existing overlays

Environmental Significance Overlay

Changes proposed to the ESO relate to improving the relevance of the purpose of the overlay in relation to climate change and to habitat linkages and movement and to include additional decision guidelines relating to coastal hazard vulnerability assessments and the response of natural coastal environments to climate change effects and impacts on the coast. The changes to the ESO suggested by the Committee are shown below.

Insert under Purpose in Clause 42.01 the following:

...

To protect ecosystems from the effects of climate change and enhance their ability to adapt to a changing climate.

To provide and promote the establishment of links between remnant natural vegetation and environments and buffer zones to improve biodiversity resilience.

Insert under Decision guidelines in Clause 42.01-4 (new additions underlined):

- *The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.*
- *The statement of environmental significance and the environmental objective contained in a schedule to this overlay.*
- *Any relevant Coastal Hazard Vulnerability Assessment or similar statement.*
- *Whether development can be designed and sited so that it does not prevent natural landform and ecological adjustment and enhances the resilience of coastal environments and habitats such as mangroves and coastal saltmarsh to adapt and migrate in response to changing climatic conditions and sea levels.*
- *Any other matters specified in a schedule to this overlay.*

Revised Floodway Overlay

Insert new Purposes at Clause 44.03 as follows (underlined):

To identify waterways, major floodpaths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding.

To identify land outside current high hazard areas that may be subject to high hazards in future, due to predicted sea level rise, combined with storm surge and storm tide, in the short term, medium term and longer term (equivalent to 0.2 metres, 0.5 metres and 0.8 metres of sea level rise respectively).

To encourage a precautionary approach to planning for development in areas at risk of inundation (including areas where flooding may be exacerbated by sea level rise, storm surge and storm tides), in order to protect life, property and natural systems.

...

Under Subdivision at Clause 44.03-2 amend the second dot point to read:

- *The subdivision is the resubdivision of existing lots and the number of lots is not increased, unless a local floodplain development plan or climate change adaptation plan incorporated in this scheme specifically provides otherwise.*

Under Application requirements at Clause 44.03-3 insert the following after Local floodplain development plan:

Coastal climate change adaptation plan

If a coastal climate change adaptation plan has been prepared for the area and has been incorporated into this scheme, an application must be consistent with the plan.

After 'Flood risk report' add the following:

Additional requirements specified in a schedule

If a schedule to this zone specifies that additional information is required, this information must be submitted with an application.

Under Referral of applications at Clause 44.03-5, amend the provision as follows:

An application must be referred to the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority the proposal satisfies the requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority, or unless a schedule to this overlay specifies that referral is not required.

The Decision guidelines at Clause 44.03-6 should be expanded to include the following dot point:

- *Any decision guidelines included in a schedule to this overlay.*

A model schedule for the FO to consider coastal flooding and sea level rise is included in Appendix K.

Revised Land Subject to Inundation Overlay

Insert new Purposes at Clause 44.04 as follows (underlined):

...

To identify land in a flood storage or flood fringe area affected by the 1 in 100 year flood or any other area determined by the floodplain management authority.

To identify land outside the flood storage or flood fringe area affected by the 1 in 100 year flood at 2010 that may be at risk of inundation due to predicted sea level rise, combined with storm surge and storm tide, in the short term, medium term and longer term (equivalent to 0.2 metres, 0.5 metres and 0.8 metres of sea level rise respectively).

To encourage a precautionary approach to planning for development in areas at risk of inundation (including areas where flooding may be

exacerbated by sea level rise, storm surge and storm tides) in order to protect life, property and natural systems.

...

Under Application requirements at Clause 44.04-3 insert the following after Local floodplain development plan:

Coastal climate change adaptation plan

If a coastal climate change adaptation plan has been prepared for the area and has been incorporated into this scheme, an application must be consistent with the plan.

Under Referral of applications at Clause 44.04-5, amend the provision as follows:

An application must be referred to the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority the proposal satisfies the requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority, or unless a schedule to this overlay specifies that referral is not required.

The Decision guidelines at Clause 44.04-6 should be expanded to include the following dot point:

- *Any specific decision guidelines included in a schedule to this overlay.*

A draft model schedule to the LSIO, for areas subject to the combined effects of flooding and sea level rise, is included at Appendix L.

Revised Special Building Overlay

Insert a new Purpose at Clause 44.05 as follows (underlined):

To identify land in urban areas liable to inundation by overland flows from the urban drainage system as determined by, or in consultation with, the floodplain management authority.

To identify land in urban areas that may be liable to inundation by overland flows from the urban drainage system in future as a result of sea level rise as well as storm surge and storm tide.

...

Erosion Management Overlay

Insert new Purposes in Clause 44.01 as follows:

To identify and manage areas subject to coastal or shoreline erosion, including the impacts of a combination of sea level rise, storm surge and storm tide.

To identify and manage areas subject to cliff recession or slumping, including risks resulting from sea level rise, storm surge or ocean acidification.

Add a new Clause 44.01-7, Referral of applications:

An application must be referred to any referral authority identified in a schedule to this overlay under Section 55 of the Act, unless in the opinion of the responsible authority the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the referral authority, or unless a schedule to this overlay specifies that referral is not required.

In Clause 44.01-8 (currently 44.01-7), add a new dot point as follows:

- *Any additional decision guidelines that are specified in a schedule to this overlay.*

A draft model schedule to the EMO, for areas subject to coastal or shoreline erosion, is included at Appendix J.

7.4.2 New Coastal Hazard Overlay

The Coastal Hazard Overlay (CHO) has been drafted and is included in Appendix M to strengthen the VPPs capacity to regulate development in response to coastal hazards associated with climate change effects. Planning authorities could choose to select and use the CHO alongside the other land management overlays recommended for amendment by the Committee, or as an alternative to them.

The CHO contributes towards the communication of risk and provides sufficient flexibility through its purposes. It should also be able to provide planning authorities with the capacity to develop and use schedules to reflect different levels of risk or different timeframes over which impacts may occur (based on short term 2030, medium term 2070 and long term 2100 timeframes for sea level rise) or to identify the specific hazards applying to different areas of land. This is reinforced by its focus on the coast compared to the other land management overlays.

The Committee considers that drafting the CHO to cover inundation, erosion and acid sulfate soils is important to ensure that its use can support integration of coastal hazards management and development regulation. Its focus on coastal hazards permits provisions to be included in the VPP overlay covering application requirements including CHVA's, referral mechanisms and decision guidelines that are specific. Accordingly, the Committee considers that the CHO presents the 'one-stop-shop' for coastal hazard management with respect to development for the immediate short term.

The CHO encompasses the ability to use schedules to vary both the extent of application of the overlay on the ground and with regards to the level of risk to be addressed. Guidance over how the CHO is applied and what level of control it applies over coastal hazard risk can be informed by the combination of coastal hazard vulnerability assessment and strategic planning directions for managing any such identified hazard vulnerability that may be reflected in a Coastal Climate Change Adaptation Plan or similar strategic planning document. A Coastal Climate Change Adaptation Plan (CCCAP) is a document that spells out the planning directions for development in response to the outcomes from any CHVA and which may be incorporated into the relevant planning scheme. Under the CHO, the CCCAP and the CHVA have different roles with the latter being required to identify, describe and assess the effects of climate change on coastal processes and what are the impacts from projected sea level rise on any proposed or existing development. The CHO requires a CHVA to be prepared to support a planning permit application (unless scheduled out) and is to be considered by the responsible authority in determining the application. With respect to the CCCAP its role is to inform how a development should be sited and designed or if a form of development may be unsuitable or inappropriate due to the level of exposure to coastal vulnerability hazard. Hence, the CHO requires development to be consistent with any CCCAP that is incorporated into the planning scheme.

The use of multiple schedules is possible for short term (2030), medium term (2070) and long term (2100) levels of sea level rise risk. Schedules can also provide for the following:

- list additional objectives to be achieved with regards to managing coastal hazards and/or development associated with coastal hazards;
- exempt forms of low scale and non-sensitive development from the need for a planning permit;

- exempt certain types of applications from the need to be referred subject to conditions similar to those recommended by the Committee and drafted in the FO and LSIO; and
- List additional decision guidelines that relate specifically to particular localities or characteristics identified by a planning authority or contained in a strategic plan.

Importantly, the CHO can link the hazard vulnerability work of Future Coasts and the associated Coastal Development Hazard Guidelines.

7.4.3 Recommendations

The Committee recommends:

- 25. That changes to the existing overlays in the Victoria Planning Provisions be made in accordance with the suggestions in Section 7.4 and the relevant appendices of this report.**
- 26. That a new Coastal Hazard Overlay be introduced to the Victoria Planning Provisions in accordance with the model shown in Appendix M.**

7.5 Particular provisions

Clause 50 of the VPPs contains the Particular Provisions which apply to specified matters of use and development in schemes. For example, as discussed in 4.3.2, for the Lakes Entrance Interim Controls, Clause 52.03 (Specific sites and exclusions) provides the call up clause for the Incorporated Document at Clause 81.

The Particular Provisions will likely prove useful in some aspects of adaptation planning and the Committee considers that in their current form they are capable of being used to achieve particular results.

7.6 General provisions

Clause 60 of the VPPs contains the General Provisions of a planning scheme which sets out the provisions about the administration of a planning scheme, existing uses, decision guidelines, referral of applications and other matters. One of the matters dealt with include specifying forms of land uses, buildings and works that do not require a planning permit.

7.6.1 Clause 62 Activities not requiring a permit

Clause 62.02-1 deals with buildings and works not requiring a planning permit unless specifically required by another part of the planning scheme. Listed under this Clause is the following:

Any works necessary to prevent soil erosion, or to ensure soil conservation or reclamation.

Works preventing soil erosion or to ensure reclamation can include coastal hazard protection works such as construction of a seawall, groyne, revetment or even beach renourishment.

The Committee considers that it would be prudent to amend this definition to make it clear that soil erosion control works associated with coastal inundation or coastal erosion should not be interpreted as not requiring a planning permit. A municipality or public authority would still be able to undertake such works under the general exemption for works by or on behalf of a municipality valued at \$1,000,000 or less or for emergency works if necessary. Amending the provision would require private works for coastal protection to remain a permit required activity capable of being assessed for its impacts, effectiveness and appropriateness.

The Committee considers that the provision should be amended by either excluding works associated with coastal hazard protection including construction of revetments, seawalls, groynes or beach nourishment or by ensuring that works associated with coastal hazard protection requires a planning permit under buildings and works controls under the overlays recommended for amendment under this section of the report (i.e. ESO, RCZ, CCZ and CHO). An example could be:

Any works necessary to prevent soil erosion, or to ensure soil conservation or reclamation not including coastal hazard protection works such as seawalls, revetments, groynes, beach nourishment or works to prevent coastal inundation or coastal erosion.

7.6.2 Clause 65 Decision guidelines

The Committee discussed Clause 65.01 (Decision guidelines for an application or a plan) and Clause 65.02 (Decision guidelines for an application to subdivide land) in Section 5.7 of the Issues and Options Paper.

These general decision guidelines must be applied to applications by the responsible authority in addition to any decision guidelines called up by the zone or overlays. The Committee considers that new guidelines requiring

the consideration of the coastal impacts of climate change (or climate change more broadly) could be applied.

However, the list of issues to be considered by the responsible authority is already extensive, and if the coastal impacts of climate change are relevant and important, it is more than likely they will have been called up in the more specific use or development control. Thus on balance the Committee does not consider that the current Clause 65 decision guidelines should be changed.

7.6.3 Clause 66 Referrals

Section 55 of the *Planning and Environment Act 1987* establishes the legislative power for planning referrals. Clause 66 of planning schemes establishes the basis for referrals and more particularly subdivision (66.01), use and development (66.02) and State standard provisions (66.03).

In general the relevant floodplain management authority is the referral authority for flooding issues. This is Melbourne Water in the metropolitan area and the Catchment Management Authorities in regional Victoria. There is no doubt in the Committee's mind that such referral is essential, particularly for larger developments and sensitive uses. Local government authorities (as responsible authorities) will often not have the skills and resources in this technical and complex area.

The potential gaps in this field are in the areas of coastal seawater inundation and coastal erosion. The Committee does not have a strong view on who the referral authority should be in this area but considers that skills and experience in this area are limited and will need to be further developed. Logically the skills and referral responsibility could rest within the floodplain management authority, but they could just as easily rest centrally (perhaps with DSE or an adviser model employed in heritage matters). The critical issue is that they are needed.

The Committee has made specific comment on referrals for State standard provisions in its recommendations on particular overlays.

7.6.4 Recommendation

The Committee recommends:

27. That under Clause 62.02-1 - Buildings and works not requiring a planning permit unless specifically required by the planning scheme, the provision relating to works preventing soil erosion be amended to read:
- Any works necessary to prevent soil erosion, or to ensure soil conservation or reclamation not including coastal hazard protection works such as seawalls, revetments, groynes, beach nourishment or works to prevent coastal inundation or coastal erosion.
28. That referral on coastal flooding and erosion will be a critical and growing need in future and skills in this field must be developed and expanded.

7.7 Definitions

Coastal climate change and the increasing levels of risk associated with impacts on coastal areas from the effects of sea level rise including coastal inundation and coastal erosion will generate responses to protect against, accommodate, or retreat from these effects. The definitions under the VPPs will need to respond accordingly to reflect new terminology.

Clause 72 contains definitions for General Terms which may be used in a planning scheme. The terms most relevant to coastal climate change is:

Earthworks - Land forming, laser grading, levee banks, raised access roads and tracks, building pads, storage embankments, channel banks and drain banks and associated structures.

Earthworks, as a term which can describe works for which a permit can be specifically required, for example under the rural zones or an overlay (which generally controls buildings and works) has been considered by the Committee with respect to amendments to the RCZ and the introduction of the CCZ. However, the Committee considers that it could be amended to improve its clarity and fit for purpose with respect to activity addressing coastal climate change hazards. The Committee considers that the following amendment to the definition of earthworks would be appropriate to improve its meaning with regards to coastal climate change impacts (additions underlined):

Earthworks - Land forming, laser grading, levee banks, raised access roads and tracks, building pads, storage embankments, channel banks and drain banks and associated structures or works which prevent or interrupt the flow of water from the ocean, estuaries or lakes due to tides, storm surge or flooding or any combination of these events.

This is a significant change as it results in the avoidance of having to include specific reference to earthworks as including 'coastal' earthworks in numerous zones and overlays.

As mentioned above, the impacts of coastal climate change will increase activity to undertake coastal hazard protection. The types of coastal hazard protection works will include construction of seawalls, revetments, groynes, beach nourishment or works to prevent coastal inundation or coastal erosion. The Committee considers the broad definition of 'works' under the *Planning and Environment Act 1987* covers these coastal specific issues and a separate coastal hazard works definition is not needed.

7.7.1 Recommendation

The Committee recommends:

29. A revised definition for 'Earthworks' be included in Clause 72 of the Victoria Planning Provisions based on the suggested text in this report.

7.8 Incorporated documents

Incorporated documents at Clause 81.01 will be a useful tool in adapting to climate change. The incorporated plan for Lakes Entrance is discussed in Section 4.3.2. Other coastal municipalities use incorporated plans for issues that may require greater consideration in a time of climate change and sea level rise³³.

It may in time be useful to incorporate agreed guidelines such as coastal hazard assessment guidelines under Clause 81.01 to give them greater weight in the planning system. This capacity exists now and the Committee does not consider that a change to the arrangement of Clause 81.01 is needed.

The decision on whether to incorporate such guidelines in future will depend on a number of factors including their final form, their likely frequency of review and their specific role in the planning system.

³³ For example Wellington Shire uses Restructure Plans in its schedule to Clause 81.01 for addressing 90 mile Beach Subdivisions.

7.9 Ministerial Directions and Practice Notes

As mentioned in the Issues and Options Paper, Ministerial Direction No 13 – *Managing Coastal Hazards and the Coastal Impacts of Climate Change* and a General Practice Note – *Managing Coastal Hazards and the Coastal Impacts of Climate Change* were released in December 2008.

7.9.1 Ministerial Direction

Ministerial Direction No 13 (MD13) sets out the requirements for consideration of the impacts of climate change within coastal Victoria as part of the amendment process. The Direction applies to any planning scheme amendment that provides for the rezoning of non-urban land for urban use and development of all land:

- *Abutting the coastline or a coastal reserve.*
- *Less than 5 metres Australian Height Datum within one kilometre of the coastline including the Gippsland Lakes.*

The Direction requires a planning authority to consider and evaluate potential risks of coastal climate change on land abutting the coast which would include sand dunes and coastal cliffs or land that is low lying within close proximity to the coast. Hence ensuring that both the impacts of coastal erosion and coastal inundation from the effect of sea level rise is taken into consideration with any amendment that would have the effect of allowing non-urban to be used for an urban use and development.

The Committee considers that the Ministerial Direction would benefit from a clearer expression to:

- ensure that it is clear that it only relates to planning scheme amendments; and
- ensure that the references to land abutting the coastline or coastal reserve and land less than 5 metres AHD within one kilometre of the coastline including the Gippsland Lakes are better separated.

The Committee considers that there has been some confusion over whether the application of the Direction is construed as applying to both land abutting the coast and land below 5 kilometres of the coast or relates more to two separate areas of land. The Committee considers that the intent of the Direction is that it applies to land that is either abutting the coast or is low lying to ensure that both the impacts of erosion and inundation are considered in amendment processes.

It was also suggested to the Committee that although MD13 is intended to only apply to planning scheme amendments, the text in the Application section could imply that it also applies to development (i.e. permit applications). The Committee does not agree with this interpretation but believes the text should be amended to clarify this issue.

7.9.2 General Practice Note

The General Practice Note - *Managing coastal hazards and the coastal impacts of climate change, December 2008* is a general guide to assist Councils and applicants in addressing coastal hazard matters with not only amendment proposals to a planning scheme, but also planning permit applications. It does not form part of a planning scheme but has been used to reinforce requests for CHVA's to accompany or support planning permit applications in coastal areas identified in the application of MD13.

The Committee notes the criticism over the use of the General Practice Note particularly by VCAT in requiring CHVA's to be prepared for planning applications that relate to site specific land use and development proposals. The Committee commented on the limited benefit of CHVA's addressing single properties associated with planning applications in both the Issues and Options Paper and in this report.

To improve on the usefulness of CHVA's, the Committee considers that their scope of coverage should be broader (preferably on a regional or settlement scale). Accordingly, the Committee considers that the General Practice Note should be amended to more strongly reflect the need to avoid requiring CHVA's for minor development that would not significantly intensify land use nor would increase the level of habitation potentially at risk.

Opportunities for amending the General Practice Note include amending the references in the last three paragraphs on the bottom of page 2 to improve identifying the use of a CHVA between settlement planning and individual planning applications. On page 4, the second dot point and last paragraph under the heading; *How can planning seek to avoid development in vulnerable areas?* could be improved by providing clearer differentiation about what forms of development a CHVA might be useful for to assist decision making by a responsible authority. Page 5 under the heading; *Assessing applications for planning permits* the existing urban and non-urban areas section could be amended to better reflect the limited benefit of requiring CHVA's for single infill development sites situated within developed urban areas.

7.9.3 Recommendation

The Committee recommends:

- 30. That the Application section of Ministerial Direction No 13 be amended to read as follows:**

This Direction applies to any planning scheme amendment that provides for the rezoning of non-urban land for urban use where that land:

- *Abuts the coastline or a coastal reserve; or*
- *Is less than 5 metres Australian Height Datum within one kilometre of the coastline including the Gippsland Lakes.*

- 31. That the General Practice Note – *Managing Coastal Hazards and the Coastal Impacts of Climate Change* should be amended to more strongly reflect the need to avoid requiring CHVAs for minor forms of development or infill development within established urban areas and which does not significantly intensify land use nor would significantly increase the level of habitation potentially at risk.**

7.10 Implementation of Committee approach

The Committee has recommended a comprehensive program of strategic planning to first develop priorities for addressing coastal climate change issues, and then to commence the planning for settlements and natural areas according to that priority. Recommendations 3 and 4 address this issue.

The Committee considers, as a starting point, that a high level inter-departmental committee (possibly led by DPCD with its planning and regional development responsibilities) could be formed to map out the program of priority setting and strategic planning.

The Committee has also recommended a number of changes to zones and overlays and the introduction of a new Coastal Hazard Overlay to identify and communicate risk and introduce land use controls for sensitive development. The introduction of changes to zones can be done via a Ministerial Amendment under Section 20(4) of the Planning and Environment Act which would avoid notice requirements. Alternatively the changes could be done as an Amendment with the Minister as Planning Authority but allowing for the normal consultation processes for an Amendment.

The same choice of approaches applies to the changes to the State standard provisions for overlays and the introduction of a new overlay (CHO).

Application of these new tools can also be undertaken by a Ministerial Amendment. Alternatively application of the overlays could be undertaken by Councils, as the planning authority, as they see fit. However comprehensive inclusion of changes via this process is likely to take quite a long time.

The Committee prefers a blend of these approaches and considers that the changes to zones could be introduced via a Ministerial Amendment but with some level of consultation with the community, local government and other affected agencies. This would allow for consultation and modification if required whilst providing a reasonable level of efficiency.

In relation to the application of other tools, the Committee considers that the introduction of a CHO is the most significant in the short term. For this the Committee has proposed:

- a broad overlay with some currently 'as of right' developments requiring a permit and applications also triggering the need for specific consideration of climate change impacts; and
- 'opt out' schedules that remove the requirement for permits in specified circumstances.

The Committee's preferred approach on this matter is a four stage process:

- The introduction in the first half of 2011 via Section 20(4) of an 'empty' CHO across the coast (this would map sea level rise potential from Future Coasts at an agreed level/time but would only act as a 'flag' with no specific development control);
- For the Minister to issue a 'notice of intent' to coastal planning authorities of his intention to apply the developed CHO in Appendix M of this report at some point in future (say the end of 2012);
- In the period leading up to that time coastal planning authorities develop and exhibit their schedules for the CHO; and
- At the end of 2012 (or other time as specified) the new complete CHO and schedules are implemented via Section 20(4).

7.10.1 Recommendation

The Committee recommends:

32. That the Victoria Planning Provision changes recommended in this report be made via a combination of Ministerial and local government driven amendments as suggested in Section 7.10 of this report.

8. Summary of recommendations

The Committee makes the following recommendations in this report.

Planning and Environment Act

1. A new objective be inserted at Section 4(c) of the *Planning and Environment Act 1987* as follows:

To identify and plan for the potential impacts of climate change in order to minimise risks to human health and safety and to ecological communities.

Interim Planning Targets

2. Subject to further discussion with the Victorian Coastal Council to ensure consistency with the Victorian Coastal Strategy, the State Planning Policy Framework at Clause 13.01-01 be revised to include interim sea level rise planning figures of 0.2m (currently predicted to occur by 2040), 0.5m (currently predicted to occur by 2070) in addition to the existing 0.8m by 2100 figure.

Strategic Planning Programs

3. That the Department of Planning and Community Development, in consultation with other agencies and local government, develop a strategic land use planning program for coastal climate change adaptation response planning.
4. That the Department of Planning and Community Development and the Department of Sustainability and Environment develop a decision support system in consultation with local government to clearly identify priorities for on-going strategic planning.

Existing Urban Areas

5. That amending the public land zones (PPRZ and PCRZ) and the Urban Floodway Zone should be considered to include reference to climate change.

6. A Coastal Adaptation Zone should be considered for development in future to help implement settlement and suburb strategic coastal urban planning.
7. A new Coastal Hazard Overlay should be developed to identify and communicate coastal risk and hazard to 2100 with implementation in accordance with Section 7.10 of this report.
8. Sea level rise based permit conditions (rather than time based permits) may be acceptable in some limited circumstances but responsible authorities will need to consider:
 - a. The broader strategic planning context for the decision in relation to climate change adaptation;
 - b. The advice of the relevant flooding and/or coastal risk referral authority;
 - c. The ability for future requirements for any permitted building to be relocatable (i.e. demountable structures) and to relocate or retreat from the coastal hazard threat to be achievable;
 - d. The level of risk they may be exposing the permit holder to (even if the permit holder accepts that risk); and
 - e. The risk the responsible authority is accepting in issuing the permit.

Greenfields Areas

9. Support should be given to planning authorities – potentially through the process of preparation of regional land use plans – to review the development capacity of undeveloped areas included within coastal settlement boundaries, to ensure that the potential impacts of coastal climate change are taken into account in deciding the future of these areas, and to adjust settlement boundaries where required.

Non Urban Areas

10. The Government should establish a process to identify Crown foreshore and lakeshore reserves and intertidal areas with high recreational and social values that are at significant risk from the impacts of coastal climate change, as a basis for developing strategies

to ensure the retention of an appropriate level of public access in key areas.

11. Assistance should be provided to planning authorities to prepare restructure plans for existing groupings of small allotments in non-urban areas that are unsuitable for future development due to the likely impacts of coastal climate change.

Natural Systems

12. Existing planning tools like native vegetation precinct plans under Clause 52.16 of the Victoria Planning Provisions (VPPs) should be used to plan and manage natural coastal environments to adapt to the effects and impacts of coastal climate change and support broader integrated strategic planning.
13. Existing planning tools like the Rural Conservation Zone (RCZ), Public Conservation and Resource Zone (PCRZ), Public Park and Recreation Zone (PPRZ) and Environmental Significance Overlay (ESO) all provide strong support for implementing strategic plans and can be amended to better reflect the need to address climate change effects and impacts on natural environments.
14. A new Coastal Conservation Zone (CCZ) should be introduced into the Victoria Planning Provisions (VPPs) to provide a coastal specific zone that can support the protection, enhancement and adaptation response to coastal climate change effects and impacts on natural coastal environments.
15. The VPP Practice Note – *Applying the Incorporated Plan and Development Plan Overlays*, January 2003 should be amended to include reference to climate change effects to improve the awareness of how the Incorporated Plan Overlay (IPO) or the Development Plan Overlay (DPO) can be applied to protect natural systems from climate change impacts with the following changes:
 - Under 'Strategic Framework' on page 2 add an additional dot point to read – 'identify and address areas that may be subject to impact from projected climate change including coastal climate change effects and hazards such as sea level rise, coastal inundation and coastal erosion'.
 - Under 'Plan content' within the section 'Preparing a development or incorporated plan' on page 7 add an additional section – 'Responsive adaptation to climate change' and include

questions such as ‘What impacts from climate change should be taken into consideration? How should land use and development be planned, sited and designed to accommodate impacts from climate change hazards? How should natural systems, biodiversity and habitats be protected and allowed to respond in adapting to the effects of climate change particularly with respect to coastal impacts including sea level rise, coastal inundation and coastal erosion?’

Beyond the Planning System

16. That agencies responsible for emergency management in coastal settlements incorporate climate change induced sea level rise impacts into their emergency response planning.
17. The Minister for Planning consult with the Minister for Higher Education and Skills to initiate, in conjunction with tertiary institutions, the Municipal Association of Victoria and relevant professional associations, a skills audit with the view to developing a range of professional development courses to meet the shortfall of professionals with the capability to assess coastal climate change impacts.
18. Upon completion of DSE’s *Coastal Floodplain management guidelines – assessing development in coastal flood risk areas* and its local government companion guideline, a range of workshops and seminars be conducted to assist local government implement the guidelines and build capacity and that these workshops form the basis for an ongoing program of coastal climate change training for local government.
19. That legal advice be commissioned from the Victorian Government Solicitors Office on the liability of decision makers to consider coastal climate change information (both in principle and to what degree necessary) and this advice be published for broader community interest.
20. The Minister for Planning consult with the Building Commission of Victoria to ensure climate change resilience is included in discussions with the Commonwealth Government about the Building Code of Australia as appropriate.

The Victoria Planning Provisions and Implementation

- 21. The State Planning Policy Framework of the Victoria Planning Provisions should be amended to strengthen references to planning for coastal climate change in accordance with the detailed proposals in Section 7.1.2 of this report.**
- 22. Coastal municipalities should be encouraged and supported to develop coastal planning and coastal climate change policies in their Municipal Strategic Statements, and where appropriate Local Planning Policies.**
- 23. That changes to the existing zones in the Victoria Planning Provisions be made in accordance with the suggestions Section 7.3 above and the relevant appendices of this report.**
- 24. That a new Coastal Conservation Zone be introduced to the Victoria Planning Provisions to increase the effectiveness of preparing for climate change impacts in coastal (non settlement) areas.**
- 25. That changes to the existing overlays in the Victoria Planning Provisions be made in accordance with the suggestions in Section 7.4 and the relevant appendices of this report.**
- 26. That a new Coastal Hazard Overlay be introduced to the Victoria Planning Provisions in accordance with the model shown in Appendix M.**
- 27. That under Clause 62.02-1 - Buildings and works not requiring a planning permit unless specifically required by the planning scheme, the provision relating to works preventing soil erosion be amended to read:**
 - Any works necessary to prevent soil erosion, or to ensure soil conservation or reclamation not including coastal hazard protection works such as seawalls, revetments, groynes, beach nourishment or works to prevent coastal inundation or coastal erosion.**
- 28. That referral on coastal flooding and erosion will be a critical and growing need in future and skills in this field must be developed and expanded.**

29. A revised definition for 'Earthworks' be included in Clause 72 of the Victoria Planning Provisions based on the suggested text in this report.

30. That the Application section of Ministerial Direction No 13 be amended to read as follows:

This Direction applies to any planning scheme amendment that provides for the rezoning of non-urban land for urban use where that land:

- *Abuts the coastline or a coastal reserve; or*
- *Is less than 5 metres Australian Height Datum within one kilometre of the coastline including the Gippsland Lakes.*

31. That the General Practice Note – *Managing Coastal Hazards and the Coastal Impacts of Climate Change* should be amended to more strongly reflect the need to avoid requiring CHVAs for minor forms of development or infill development within established urban areas and which does not significantly intensify land use nor would significantly increase the level of habitation potentially at risk.

32. That the Victoria Planning Provision changes recommended in this report be made via a combination of Ministerial and local government driven amendments as suggested in Section 7.10 of this report.

Appendix A Terms of Reference

RESPONDING TO COASTAL CLIMATE CHANGE IMPACTS THROUGH THE PLANNING SYSTEM

TERMS OF REFERENCE

ADVISORY COMMITTEE APPOINTED PURSUANT TO PART 7, SECTION 151 OF THE PLANNING AND ENVIRONMENT ACT 1987

1. PURPOSE

The purpose of the Coastal Climate Change Advisory Committee (CCCAC) is to investigate and recommend ways in which Victoria's land-use planning and development controls can best support the Victorian Government's policy for managing the coastal impacts of climate change as outlined within the Victorian Coastal Strategy 2008.

The CCCAC will need to consider strategic and statutory planning and development provisions to support implementation of the above in order to:

- Support emerging vulnerability information being assembled as part of the Victorian Government's *Future Coasts* program.
- Improve the operation and effectiveness of the Victorian planning system to deal with coastal hazards and the impacts of climate change into the future.
- Support the ability for strategic, long-term adaptation planning of coastal areas to ensure sustainable and appropriately located development and infrastructure.

Key areas for consideration by the CCCAC include:

- The operation and appropriateness of existing Victoria Planning Provisions (VPP) for example, policy, zones and overlays, in considering coastal climate change impacts.
- The form of new or amended VPP provisions to facilitate the use of emerging vulnerability information from the Government's *Future Coasts* program.
- Consideration of international and national approaches, frameworks etc and relevant case studies within Australia which are relevant to the Victorian context.
- The use and application of appropriate coastal hazard assessment methods and information within current or proposed planning and development control provisions of the VPP.
- Relevant regulatory and legislative arrangements which interact with Victoria's land-use planning system.
- Any other matters that the CCCAC considers relevant to planning and development decisions that facilitate climate change adaptation along the coast.

Further issues for consideration by the CCCAC can be found at Attachment 1.

2. BACKGROUND

Reasons for the CCCAC

Climate change represents an unparalleled challenge that will alter the coastline as we know it. Predicted sea level rise presents one of the greatest long term planning challenges facing Victoria. In the short to medium term, changing weather patterns combined with rising sea levels will create a more immediate challenge to coastal land-use planning and management.

Periodic flooding from rivers and the sea is a natural process that plays an important role in shaping the natural environment. Flooding threatens and causes substantial damage to property and communities. Approximately 60% of all coastal settlements in Victoria are located next to an estuary or on low-lying land associated with an estuary.

The climate change story for the coast is evolving. Modelling of the impacts of coastal vulnerability is being prepared for the entire coastline over time. A parallel investigation into planning and development approaches and responses is required in order to support the use of this information as well as evolve coastal land-use policy and planning.

Victorian Coastal Strategy 2008

On 10 December 2008, the Victorian Government released the *Victorian Coastal Strategy 2008* (the Strategy). The Strategy is the third iteration since its inception in 1997. It was reviewed in accordance with the *Coastal Management Act 1995* and approved by the Minister for Environment and Climate Change.

The Strategy identifies a number of significant challenges for the future management of the coast. In particular, it identifies the impacts of climate change as a significant challenge facing all jurisdictions.

The Strategy identifies the need to plan for the long term impacts of sea level rise (up to 0.8m to 2100) and the combined impacts of coastal hazards such as storm surges, erosion and inundation.

As a first step to supporting the policy position of Government (through the Strategy) the Minister for Planning has adopted the following measures to provide initial guidance:

- Update of clause 15.08 of the State Planning Policy Framework of the VPP providing updated reference to new coastal planning policy (see Attachment 2) ;
- Release of Ministerial Direction No.13 requesting coastal rezoning proposals from non-urban to urban uses be accompanied by a suitable assessment of coastal hazard vulnerability (see Attachment 3); and
- Release of a General Practice Note providing an overview of coastal hazard vulnerability and what climate change means for these hazards.

Future Coasts Program

The Future Coasts program represents a multi-million dollar investment by the Victorian Government to consider climate change adaptation on the coast.

Future Coasts will produce detailed mapping of the coastline that will be used as a tool for assessing the physical vulnerability of coastal areas to climate change.

These physical vulnerability assessments, along with on-going consultation with coastal managers and stakeholders, will be used to inform coastal policy and develop planning measures that help coastal settlements adapt to the impacts of sea level rise and storm surge.

These assessments, along with on-going consultation with coastal managers and stakeholders, will be used to inform coastal policy and develop planning measures that help coastal settlements adapt to the impacts of sea level rise and storm surge.

Within this context, the role and function of Victoria's land-use planning and development system is considered as one of a number of significant tools available to government to assess, respond and manage the future challenges facing the coast.

Other activity

Increasing momentum and activity is being generated along the coast to find solutions to this significant challenge. Activity that is currently underway on the issue of climate change with an element or focus on coastal planning include:

- Victorian Climate Change Green/White Paper.
- Council of Australian Governments – Climate Change and Water Adaption Group.
- House of Representatives (Federal) – Inquiry into climate change and environmental impacts on coastal communities.

3. METHOD

The CCCAC will be expected to liaise on an ongoing basis with the *Future Coasts* program to ensure consistency, progress priority issues, release of reports and exchange of relevant information as part of its program.

The CCCAC should undertake its review through the following phases:

- Phase 1: Investigation, Issues and Options Paper for consultation:
 - Consultation with key stakeholders identified in this Terms of Reference and others as determined by the CCCAC.
 - Any immediate and/or interim planning and development provision or consequential measure which may be required to further support implementation of the Government's policy position.
 - Gaps and opportunities within existing governance arrangements to achieve integrated management of climate change impacts within coastal areas.
 - Public exhibition of the Issues and Options Paper.
- Phase 2: Submissions on the Issues and Options Paper to include:
 - An appropriate program of hearings based across the coastal regional Victoria and Melbourne.
 - A variety of workshops, hearings and other individual meetings with stakeholders.

- Phase 3: Preparation of a Final Report containing recommendations that:
 - Form the basis for further adjustments, changes and considerations to the planning and development provisions in Victoria.
 - Assist in the development of further actions and activities as part of the Victorian Government's *Future Coasts* program.

4. CONSULTATION

Within this context, the CCCAC is encouraged to provide a focus for effective engagement relevant to the planning and environmental law sector in preparing its advice and any associated recommendations.

To inform the preparation of an Issues and Options Paper and the Final Report, the CCCAC should seek the views and opinions of (but not limited to) the following key stakeholders:

- All coastal local councils
- Building Commission (Victoria)
- Catchment Management Authorities
- Department of Planning and Community Development
- Department of Premier and Cabinet
- Department of Treasury and Finance
- Department of Sustainability and Environment
- Engineers Australia (Victoria)
- Municipal Association of Victoria
- Melbourne Water
- Planning Institute of Australia
- Property Council of Australia
- Urban Development Institute of Australia (Victoria)
- Victorian Coastal Council and Regional Coastal Boards.
- Victorian Civil and Administrative Tribunal
- Victorian Local Government Association
- Victorian Planning and Environmental Law Association
- Water Authorities

The CCCAC may inform itself in any way it sees fit including inviting submissions, arranging hearings and consulting with other stakeholders beyond those listed.

5. TIMING

The activities of the CCCAC should be completed within the following time frame:

- Phase 1 – by October 2009
- Phase 2 – by March 2010
- Phase 3 – by December 2010

6. FEES

The member(s) of the Advisory Committee will receive fees and allowances as prescribed for a Panel appointed under Division 1, of Part 8 of the *Planning and Environment Act 1987*.

The CCCAC may operate as a quorum of one as required and/or as determined by the Chair.

7. FURTHER INFORMATION

Day to day liaison for the review will be through:

[REDACTED]
Senior Policy Officer
Planning Policy
Planning and Local Government Division
Department of Planning and Community Development
[REDACTED]



.....
JUSTIN MADDEN MLC
Minister for Planning

Date: 19.5.2010

ATTACHMENT 1: ISSUES FOR CONSIDERATION

Issues for consideration and advice sought from the Advisory Committee include for example, but are not limited to:

Statutory planning provisions

- The adequacy of existing zones, overlays and other relevant provisions to support the implementation of coastal vulnerability assessments.
- The fundamental and practical need for new zones, overlays and other provisions to respond to the impacts of climate change on the coast.
- Any consequential amendments or improvements to existing provisions that should be made immediately to allow improved efficiency of decision making.
- The general construct and operation of any proposed new provision to be applied through the VPP.
- The effect, use and application of the *Precautionary Principle* in land-use planning and decision making, and advice on improving guidance on its use and application.
- Appropriate planning and development provisions for e.g. building setbacks, minimum floor levels, appropriate engineering assessments, construction techniques, building materials and temporary/demountable dwellings etc.

Strategic planning

- The consideration of risk management approaches and frameworks and their applicability within Victoria and the Victorian land-use planning system.
- Consideration of strategic climate change adaptation responses and the role of the Victorian planning and development system within these.
- Advice on measures that might assist in the achievement of strategic adaption through the land-use planning system.

Planning and property law

- Potential use and application of common law doctrines relating to coastal land accretion and erosion.
- Common law liability and its relationship to coastal climate change impacts and land-use planning decision making.
- Potential role of property titles and relevant legislation in communicating and conveying risk.
- Use and appropriateness of Agreements under section 173 of the *Planning and Environment Act 1987*.

Emergency management and planning

- The nexus between emergency management planning and land-use planning decision making in a coastal context.

Operational context

- The extent and role of the Victorian planning and development system in responding to coastal climate change impacts.
- The interrelationships and operation of relevant legislation, such as the *Environment Effects Act 1978*, *Coastal Management Act 1995*, *Catchment and Land Protection Act 1994* etc in achieving integrated coastal zone management.

Appendix B List of submitters

Title	First Name	Last Name	Organisation
Mr	Chris	Mason	St Quentin Consulting
Mr	Clem	Newton-Brown	
Mr	David	Clarke	Great Ocean Road Coast Committee
Mr	Jamin	Moon	Aboriginal Affairs Victoria
Ms	Marion	Manifold	Port Campbell Community Group Inc
Ms	Sharon	Tan	Port of Melbourne Corporation
Ms	Sandra	Wade	City of Port Phillip
Dr	Helen	Murphy	VicRoads
Mr	Nick	Withers	SMEC Australia
Mr	Chris	Johnson	Queenscliffe Community Association
Dr	Nancy	McMurray	
Mr	Robert	Fuller	Global Warming Group Queenscliff
Mr	Robert	Larocca	The Real Estate Institution of Victoria
Mr	Tim	Hellsten	City of Greater Geelong
Mr	Ross	Martin	Great South Coast Regional Strategic Planning Team
Ms	Roz	Franklin	Mornington Peninsula Shire
Mr	Mick	Murphy	Victorian Catchment Management Council
Ms	Sonia	Rappell	City of Casey
Mr	Garry	McQuillan	Cardinia Shire Council
Mr	Greg	Hunt	South East Councils Climate Change Alliance
Mr	Roger	Harvey	RG Harvey Pty Ltd
Mr	Jonathan	Guttman	City of Kingston
Dr	Alan	Nelsen	Peninsula Speaks Inc.
Ms	Victoria	Brown	
Mr	Martin	Fuller	West Gippsland CMA
Mr	Ian	Fitzgibbon	Warrnambool City Council
Ms	Natalie	Walker	City of Hobsons Bay
Mr	Peter	Butcher	Glenelg Hopkins CMA
Mr	Matt	Kelleher	Bayside City Council
Mr	Lindsay	Perry	Spatial Sciences Institute
Mr	Lenny	Jenner	Borough of Queenscliffe

Mr	Gareth	Smith	Corangamite CMA
Mr	John	Moore	Wyndham City Council
Mr	Bruce	Rush	Melbourne Water
Ms	Ros	Macvean	Save Bastion Point
Dr	Geoff	Westcott	Australian Coastal Society
Mr	Chris	Wightman	South Gippsland Shire
Ms	Susan	Ross	
Mr	Matthew	Cripps	Frankston City Council
Mr	Trevor	Miles	Parks Victoria
Ms	Nicola	Rivers	Environment Defenders Office
Mr	Andrew	Mason	Corangamite Shire Council
Mr	Doug	McNeill	Colac Otway Shire Council
Mr	Russell	Guest	Moyne Shire Council
Cr	Michael	Norris	Association of Bayside Municipalities
Mr	Steve	Blackley	Western Coastal Board
Mr	Ralph	Kenyon	Port of Hastings Corporation
Mr	Joe	Adamski	Barwon Water
Ms	Tricia	Tjondropuro	South East Metro Councils
Mr	Paul	Holton	Wellington Shire Council
Mr	Guiseppe	Taranto	
Mr	David	Harper	Victorian Coastal Council
Mr	Gil	King	HIA
Mr	Steve	Kozlowski	East Gippsland Shire Council

In addition four submitters requested their submissions to be treated in confidence.

Appendix C Ministerial Direction 13 and the Coastal Planning Practice Note

Planning and Environment Act 1987

Section 12 (2) (a)

DIRECTION NO. 13

MANAGING COASTAL HAZARDS AND THE COASTAL IMPACTS OF CLIMATE CHANGE

Purpose

The purpose of this Direction is to set out the general requirements for consideration of the impacts of climate change within coastal Victoria as part of an amendment which would have the effect of allowing non-urban land to be used for an urban use and development.

Application

This Direction applies to any planning scheme amendment that provides for the rezoning of non-urban land for urban use and development of all land:

- Abutting the coastline or a coastal reserve,
- Less than 5 metres Australian Height Datum within one kilometre of the coastline including the Gippsland Lakes.

Definition

In this Direction:

Coastline means the line of the low water mark off the sea coast which includes any bay, inlet, estuary and any waters within the ebb and flow of the tide.

Coastal hazard means an occurrence of an event within coastal Victoria which includes the individual or combined effects of inundation by the sea, the effects of storm tides, river flooding, coastal erosion, landslip/landslide and sand drift which adversely affects or may adversely affect human life, property or aspects of the environment.

Requirements to be met

In preparing an amendment which would have the effect of rezoning non-urban land for urban use or development, a planning authority must include in the explanatory report how the proposed amendment:

- Is consistent with the policies, objectives and strategies for coastal Victoria as outlined in Clause 15.08 of the State Planning Policy Framework.
- Addresses the current and future risks and impacts associated with projected sea level rise and the individual and/or combined effects of storm surges, tides, river flooding and coastal erosion.
- Is based on an evaluation of the potential risks and presents an outcome that seeks to avoid or minimise exposing future development to projected coastal hazards.

- Ensures that new development will be located, designed and protected from potential coastal hazards to the extent practicable and how future management arrangements will ensure ongoing risk minimisation.
- Considers the views of the relevant floodplain manager and the Department of Sustainability and Environment.

Exemption by Minister

The Minister may grant an exemption from the need to comply with this Direction in relation to a particular amendment. An exemption may be granted subject to conditions.

JUSTIN MADDEN MLC
Minister for Planning

18 December 2008



Managing coastal hazards and the coastal impacts of climate change

This General Practice Note provides guidance on:

- ▶ managing coastal hazards in the context of climate change
- ▶ coastal vulnerability assessments
- ▶ the decision making process for assessing coastal hazard risk
- ▶ planning for development in vulnerable coastal areas.

Background

Significant development has already occurred in coastal areas. Population growth and the demand for coastal living are ongoing pressures. The potential impacts of climate change on existing coastal hazards are also likely to increase.

The *Victorian Coastal Strategy 2008* identifies that during this century our coastline is likely to be impacted by climate change. Impacts such as sea level rise and an increase in frequency and severity of storm events are projected which are likely to lead to greater coastal inundation and erosion that may cause damage and loss to property, infrastructure and the environment.

Managing risk exposure relative to such coastal hazards and understanding how climate change will impact on these coastal hazards is an important component of informed decision making.

What are coastal hazards?

There are many coastal hazards that need to be considered as part of any planning process, for example, wildfire, various forms of flooding, acid sulfate soils, landslip and landslide. For the purposes of this practice note, coastal hazards mean inundation (both coastal and river) and erosion.

Coastal inundation

Coastal inundation is the flooding of land by ocean waters or river catchments. The frequency, extent and magnitude of coastal and river inundation is likely to be altered by climate change over time and through the combined interactions with sea level rise, tide ranges, storm surges and other coastal processes.

Coastal erosion

Erosion is a naturally occurring process which is impacted on by a number of climatic factors. Erosion can be classified as either long term or short term.

Long term erosion refers to a trend of erosion extending over several years and can be caused by a reduction in the annual offshore deposition of sand or in the rate of longshore deposition of sand.

Short term erosion refers to erosion that can occur over a short period of time as a result of extreme weather events. Short term erosion caused by sudden and extreme weather can result in significant eroding of the beach profile. During a short term erosion event the sand is transported offshore. After the storm passes the normal coastal process brings the sand back onshore and restores the beach naturally over many months or years.



How will climate change affect coastal hazards?

With the exception of long term sea level rise, climate change is not likely to introduce new types of coastal hazards. However, climate change is likely to increase the frequency, intensity and extent of existing coastal hazards.

This means that for some parts of the Victorian coast, climate change impacts are likely to exacerbate coastal erosion processes and inundation, potentially further increasing the impacts of these coastal hazards on existing and future coastal communities and development.

While some climate change impacts such as sea level rise are gradual and occur over a long timeframe, extreme weather events can occur at any time and can significantly reshape the coastline.

Land use planning decisions have long-term implications due to the relatively long life span and permanency of use and development proposals such as residential growth areas, buildings, roads and utilities.

What is sea level rise and what is the benchmark for planning purposes?

Sea level rise means an increase in the mean level of the ocean. Even if atmospheric concentrations of greenhouse gases were stabilised at today's levels, ongoing sea-level rise would continue from past greenhouse gas emissions and consequent warming.

Sea level rise

Key contributions to sea level rise include the melting of ice stored in glaciers and the polar ice sheets, increasing the amount of water in the ocean. Warming contributes to thermal expansion of oceans contributing to the raising of sea levels.

The Fourth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) November 2007 concludes that:

- ▶ global average sea level has increased at an average rate of 1.8 millimetres per year between 1961 and 2003 but between 1993 and 2003 at 3.1 millimetres per year; and
- ▶ annual average ice extent has shrunk by 2.7 per cent per decade since 1978.

The *Victorian Coastal Strategy 2008*, identifies sea level rise as a significant coastal issue that requires specific attention. Based on current scientific projections by the IPCC, the Strategy identifies the need to:

Plan for sea-level rise of not less than 0.8 metres by 2100, and allow for the combined effects of tides, storm surges, coastal processes and local conditions such as topography and geology when assessing risks and impacts associated with climate change.

The upper limit of sea level rise of 0.8 metres by 2100 is derived from the Fourth Assessment Report of the IPCC (November 2007). This includes a provision of 0.2 metres to take into account the projected extent of ice sheet melt to that time.

For further information about Victorian Government policy on planning for sea level rise please refer to the *Coastal Advisory Note: How to consider sea level rise along the Victorian Coast* (Department of Sustainability and Environment, 2008).

What are coastal hazard vulnerability assessments?

Our understanding of the coastal impacts of climate change is evolving and as time progresses our knowledge and understanding will continue to improve. Understanding coastal hazard vulnerability will help avoid increased risk exposure as part of future coastal development.

Planning and responsible authorities should determine if a coastal hazard vulnerability assessment is required to assist in making informed decisions about use and development proposals or to inform long term settlement and strategic planning activities.

If coastal hazard vulnerability assessments are required, consideration should include factors such as sea level rise, storm tide and surge, coastal processes, river inundation and local topography and geology.

Coastal hazard vulnerability assessments can be undertaken at a scale appropriate to inform a particular proposal or development need. In some areas this work may have already been undertaken.



The Future Coasts Program

Future Coasts is a major program of the Victorian Government to assess the physical vulnerability of Victoria's coast to climate change, and develop strategies to help communities and industry respond and adapt. The Future Coasts program is being led by the Department of Sustainability and Environment. Further information on this important project can be obtained at: www.climatechange.vic.gov.au/futurecoasts

Coastal vulnerability assessments can be undertaken by a suitably qualified coastal engineer or coastal processes specialist to assist with understanding erosion rates and developing appropriate setbacks or protection works.

In some instances, where local geology may be unknown or unstable, or where inundation from rivers and streams may also be an issue, advice can also be sought from a qualified hydrological or geotechnical expert.

What is the process for assessing coastal hazard risks?

The *Victorian Coastal Strategy 2008* sets out the policy and strategic direction for responding to coastal hazard risks in the context of climate change. This is reflected in the State Planning Policy Framework through Clause 15.08 'Coastal areas'.

The general steps in the process for assessing and responding to proposals in coastal areas are outlined in Figure 1.

Planning decision making for the impacts of climate change on coastal hazards should be guided by a process of investigation and number of general principles. These include:

Risk Avoidance: New use and development should be sited and designed in a way that does not unnecessarily expose future communities and assets to coastal hazard risks over its intended lifespan.

For coastal erosion, avoidance means ensuring that new use and development is not affected by the retreat of a coastline over the intended design lifespan.

For inundation, avoidance means ensuring that new use and development is not placed in harms way and is located beyond, or above an area prone to temporary inundation.

Integrated coastal planning: Requires the assessment of the future impacts of coastal hazard risk exposure on the economic, environmental and social wellbeing of people and communities in coastal areas.

Precautionary approach: The precautionary approach is an accepted principle in coastal decision making. It requires decision makers to act having regard to the best available science, knowledge and understanding of the consequences of decisions and in the context of increasing uncertainty, to make decisions that minimise adverse impacts on current and future generations and the environment.

Figure 1: Decision making process





How can planning seek to avoid development in vulnerable areas?

Planning for the impacts of climate change on coastal hazards need to be considered for:

- ▶ Amendments to planning schemes which seek to rezone land which would have the effect of allowing non-urban land to be used for a new urban use and development. Refer to Ministerial Direction No. 13 *Managing coastal hazards and the coastal impacts of climate change*.
- ▶ Considerations regarding development of individual parcels of land within existing zoning and overlay provisions within planning schemes.

In both the above cases, coastal hazard assessments may be required to understand the risks and identification of strategies to respond to and manage risk.

Rezoning of land for urban purposes

Given the current body of knowledge and information an important principle is the need to avoid the further intensification of development in areas that are likely to be impacted by projected coastal hazards under climate change.

Proposals to rezone land should be accompanied by an informed coastal vulnerability assessment for that part of the coastline. This should be informed using the best available information to understand the impacts of climate change.

Considerations as part of this process may include:

- ▶ The intended use and design lifespan and value of a proposal assessed against the relative risk exposure during that time.
- ▶ The local geographic characteristics of the coastline such as ocean exposure (for example open coast or sheltered exposure) and land type (such as sandy, rocky, engineered).
- ▶ The role of natural coastal processes and the need to provide for allowances for such processes to continue as a cost effective form of coastal defence against climate change.
- ▶ The critical need for coastal protection infrastructure and the type, location and cost of providing and maintaining such infrastructure throughout its intended lifespan.

- ▶ The need to establish and provide for appropriate setbacks to avoid a projected permanent hazard event and/or withstand a temporary event.
- ▶ The ability for a proposal to provide safe, all-weather access during times of emergency.
- ▶ Consideration of appropriate built form responses such as the need for land fill, materials, sub-floor and floor level heights.
- ▶ The cumulative impacts or any flow-on effects of proposed development and any associated protection works to adjacent properties and the coastline.
- ▶ Other identified coastal hazards such as coastal acid sulfate soils, land subsidence, wildfire and other general geotechnical risks.
- ▶ Any other issues relative to the orderly and proper management of use and development within coastal areas such as development within identified settlement boundary, significant landscapes, native vegetation and cultural heritage.
- ▶ Any other issues relative to the orderly and proper management of use and development within coastal areas such as development within an identified settlement boundary, significant landscapes, native vegetation and cultural heritage.

Strategic investigations should take into consideration the above and other future management issue that may be relevant to ensure risk minimisation and effective long term management of new use and development.



Assessing applications for planning permits

A more complex planning issue is dealing with existing developed areas in particular within or adjacent to low lying areas susceptible to coastal hazards.

The following provides an overview of potential situations and possible considerations:

Minor buildings and works

Situation	Permits for minor building and works, for example non-habitable buildings, dwelling extensions or ancillary farm buildings.
Consideration	Typically no change from current practice. Assessment of impacts may be advisable for high value assets. Siting and design considerations may also need to be factored in.

Existing urban and non-urban areas

Situation	Permits for buildings and works such as replacement of an existing dwelling or construction on a vacant allotment.
Consideration	Assessment of impacts may be advisable for sites immediately adjacent to the coast or near an existing floodplain. Location specific information may be required to inform a localised coastal vulnerability assessment and the development of appropriate land suitability, set back or design responses. The relevant flood plain manager or a suitably qualified coastal engineer or hydrology expert can provide relevant advice as required.

Large scale development/subdivision proposals

Situation	Permits for buildings and works that seek to introduce significant change to built form and intensity within and adjacent to the coast or near existing floodplains.
Consideration	A coastal hazard vulnerability assessment may be required to determine potential exposure and development suitability of the land to evaluate risks. This may include coastal engineering, design or setback responses necessary to demonstrate assessed risks can be effectively and sustainably managed. The relevant flood plain manager or a suitably qualified coastal engineer or hydrology expert can provide relevant advice as required.

Obtaining further information

For guidance on whether a coastal process or coastal hazard vulnerability assessment is required for developments along the Victorian coast, and the key elements of a hazard assessment, advice should be sought from the appropriate flood plain management authority and the Department of Sustainability and Environment.

For more information regarding the *Victorian Coastal Strategy 2008* and the Victorian Government climate change program please visit the following websites:

www.vcc.vic.gov.au

www.climatechange.vic.gov.au

ISBN 978-1-921331-89-2

Published by the Victorian Government Department of Planning and Community Development Melbourne, December 2008.

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www.dpcd.vic.gov.au/planning

Appendix D MSS framework for climate change

COASTAL CLIMATE CHANGE

This Clause provides local content to support Clause 11 (Settlement), Clause 12 (Environmental and Landscape Values) and Clause 13 (Environmental Risks) of the State Planning Policy Framework.

1.0 Overview

Describe the nature of the coastal environment of the municipality, its special features, values and environments.

Describe the extent of coastal vulnerability to climate change impacts on the coast of the municipality.

Include reference to any coastal planning study, coastal management plan, coastal action plan or regional or local coastal hazard vulnerability assessments.

2.0 Key Issues

Outline the key issues about the coastal environment or settlement that are at risk from coastal climate change including areas of short term, medium term and long term risk/vulnerability from sea level rise induced coastal inundation and coastal erosion.

Describe that short term risk are those areas that will be at risk of coastal vulnerability by 2030 (0.2m), medium term risk will be those coastal areas that will be at risk of coastal vulnerability by 2070 (0.5m) and long term areas of risk will be those coastal areas that will be at risk of coastal vulnerability by 2100 (0.8m).

3.0 Objectives

What is it that is to be done or achieved?

It may relate to an issue or to a location on the coast.

Objectives may address the following issues:

- The desire to avoid land use and development in areas identified as being at short, medium or long term risk of coastal erosion and inundation.
- Protection from land use and development in locations where natural environments are most at threat from the effects and impacts of sea level rise.
- Encourage land use and development which is adaptable to climate change effects on the coast.

4.0 Strategies

Outline how the objective will be done, achieved or implemented. There may be a number of different strategies with some issue based and others geographically based.

5.0 Implementation

The strategies in relation to coastal climate change will be implemented through the planning scheme by:

6.0 Policy guidelines

Reference any local or regional coastal hazard vulnerability assessment, Future Coast vulnerability assessment, Future Coast Coastal Hazard Guidelines and/or Floodplain Management Guidelines.

7.0 Application of zones and overlays

Reference what zones and/or overlays are to be used/applied.

8.0 Further strategic work

Outline what further planning tool development or investigation may be required.

9.0 Reference documents

List any reference documents relevant to coastal climate change and coastal hazards.

10.0 Map or Framework Plan

Include a map or plan which pictorially shows areas of the coast that are vulnerable to coastal climate change impacts.

Appendix E Local policy framework for climate change

COASTAL CLIMATE CHANGE

A title such as this may allow issues to be addressed such as coastal hazards, adaptation to coastal climate change impacts, sea level rise effects etc...

A link to where the policy is applied to. In simplest terms it could be linked to the area covered under any Coastal Hazard Overlay, a Schedule to the Environmental Significance Overlay that covers the coast or coastal environments or to any new Coastal Transition Zone.

Policy Basis

The policy would need to be based on a MSS policy together with a brief description of the issue, what trends are occurring and what threats are to be addressed by the policy.

Objectives

Decisions made using the local planning policy are tested against what the objectives say, so it is important that they reflect matters to support decision making. In relation to coastal hazards it may be to ensure that land use or development which increases habitation levels in locations identified as being at risk of coastal erosion or inundation is avoided.

Alternatively, it could be an objective to make room for mangroves or coastal saltmarsh to migrate landward in response to sea level rise.

Another objective could be to encourage development which demonstrates a capacity to adapt to sea level rise effects through setbacks, demountable structure, use of raised floor levels etc...

Policy

The policy should reflect what is expected to happen or what the responsible authority will do in specific circumstances and are statements of intent or expectation.

Policy may require guidelines to be used or coastal hazard vulnerability assessments to be undertaken to inform decision making.

Policy can include criteria for assessing applications for example for requiring retreat from coastal hazards it may specify that development retreat when inundation levels reach a certain height or erosion gets to within a certain distance or location in relation to development.

Application requirements

Information requirements for an application can be spelt out but may duplicate what is included under a Coastal Hazard Overlay, so care may be required.

It could detail the content for a coastal hazard vulnerability assessment.

Decision guidelines

Decision guidelines should be policy neutral and assist in considering particular issues or facts. They should not duplicate what may be included in an overlay or zone.

Appendix F Revised Rural Conservation Zone

35.06 RURAL CONSERVATION ZONE

Shown on the planning scheme map as RCZ with a number (if shown)

Purpose

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To conserve the values specified in the schedule to this zone.
- To protect and enhance the natural environment and natural processes for their historic, archaeological and scientific interest, landscape, faunal habitat and cultural values and their ecosystem services.
- To protect and enhance natural resources and the biodiversity of the area.
- To provide for the sustainability of natural environments and their adaptation responses to the effects of projected climate change by encouraging development and use of land including agriculture that:
 - Recognises the effects of projected climate change and makes allowance for ecosystem adaptation responses to the impacts of climate change on natural systems.
 - Is consistent with sustainable land management and land capability practices, and which takes into account the conservation values and environmental sensitivity of the locality.
- To provide for the linking of flora and fauna habitats and movement of biodiversity across the landscape.
- To conserve and enhance the cultural significance and character of open rural and scenic non urban landscapes.

35.06-5 Buildings and works

A permit is required to construct or carry out any of the following:

- A building which is within any of the following setbacks:
 - 100 metres from a waterway, wetlands, designated flood plain or high water mark of a tidal waterway, estuary or coastline.

35.06-6 Decision guidelines

Before deciding on an application to use or subdivide land, lease or license a portion of a lot for a period of more than 10 years if the portion is to be leased or licensed for the purpose of Accommodation, construct a building or construct or carry out works, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

General issues

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- Any Regional Catchment Strategy and associated plan applying to the land.
- Any relevant coastal action plan, coastal management plan or coastal hazard vulnerability study.
- The capability of the land to accommodate the proposed use or development.
- How the use or development conserves the values identified for the land in the schedule.
- Whether use or development protects and enhances the environmental, agricultural and landscape qualities of the site and its surrounds.
- Whether the site is suitable for the use or development and the compatibility of the proposal with adjoining land uses.

Rural issues

- The environmental capacity of the site to sustain the rural enterprise.
- The need to prepare an integrated land management plan.
- The impact on the existing and proposed infrastructure.
- Whether the use or development will have an adverse impact on surrounding land uses.

Environmental issues

- An assessment of the likely environmental impact on the biodiversity and in particular the flora and fauna of the area.
- The protection and enhancement of the natural environment of the area, including the retention of vegetation and faunal habitats and the need to revegetate land including riparian buffers along waterways, estuaries, coastal areas, gullies, ridgelines, property boundaries and saline discharge and recharge areas.

- How the use and development relates to sustainable land management and the need to prepare an integrated land management plan which addresses the protection and enhancement of natural systems, native vegetation and waterways, stabilisation of soil and pest plant and animal control.
- How the use and development takes into account the predicted effects of climate change on natural systems.
- The location of on site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.
- An assessment of the capacity and ability of coastal natural systems to adapt or migrate in response to projected sea level rise along coastal areas and estuaries.

Design and siting issues

- The need to minimise any adverse impacts of siting, design, height, bulk, and colours and materials to be used, on landscape features, major roads and vistas.
- The location and design of existing and proposed infrastructure services which minimises the visual impact on the landscape.
- The need to minimise adverse impacts on the character and appearance of the area or features of archaeological, historic or scientific significance or of natural scenic beauty or importance.
- The location and design of roads and existing and proposed infrastructure services to minimise the visual impact on the landscape.
- The need to ensure that the capacity of natural systems to adapt to climate change is not constrained by inappropriate physical barriers or land uses.

Schedule to the RCZ

The Schedule to the RCZ under Ministerial Direction on The Form and Content of Planning Schemes should be amended by adding the following additional reference to Earthworks:

Permit requirement for earthworks:

Earthworks which prevent or interrupt the flow of water from the ocean, estuaries or lakes due to tides, storm surge or flooding or any combination of these events.

Appendix G New Coastal Conservation Zone

COASTAL CONSERVATION ZONE

Shown on the planning scheme map as **CCZ** with a number (if shown)

Purpose

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To conserve the values specified in the schedule to this zone.
- To protect and enhance natural systems, biodiversity and ecosystem processes and services associated with coastal and estuarine environments.
- To promote and facilitate the capacity and ability of natural systems and biodiversity on the coast and estuaries to adapt in response to projected sea level rise associated with climate change.
- To provide for the sustainability of natural environments and their adaptation responses to the effects of projected sea level rise by encouraging development and use of land that:
 - Recognises and makes allowance for ecosystem adaptation responses.
 - Provides for the linking of flora and fauna habitats and movement of biodiversity across the landscape.
 - Is consistent with sustainable land management and land capability practices, and which takes into account the conservation values and environmental sensitivity of the locality.
- To conserve and enhance the cultural significance and character of open rural and scenic non urban landscapes.

Table of uses

Section 1 - Permit not required

Use	Condition
Animal keeping (other than Animal boarding)	Must be no more than 2 animals
Apiculture	Must meet the requirements of the Apiary Code of Practice, May 1997.
Bed and breakfast	No more than 6 persons may be

	<p>accommodated away from their normal place of residence.</p> <p>At least 1 car parking space must be provided for each 2 persons able to be accommodated away from their normal place of residence.</p>
Geothermal energy extraction	Must meet the requirements of Clause 52.08-4.
Greenhouse gas sequestration	Must meet the requirements of Clause 52.08-6.
Greenhouse gas sequestration exploration Home occupation Informal outdoor recreation Mineral exploration	
Mining	Must meet the requirements of Clause 52.08-2.
Natural systems Railway Road	
Search for stone	Must not be costeaning or bulk sampling.
Telecommunications facility	Buildings and works must meet the requirements of Clause 52.19.

Section 2 - Permit required

Use	Condition
Agriculture (other than Animal keeping, Apiculture, Intensive animal husbandry and Timber production)	
Car park	Must be used in conjunction with another use in Section 1 or 2.
Community market	
Dependent person's unit	<p>Must be the only dependent person's unit on the lot.</p> <p>Must meet the requirements for land use.</p>
Dwelling (other than Bed and breakfast)	<p>Must be the only dwelling on the lot. This does not apply to the replacement of an existing dwelling if the existing dwelling is removed or altered (so it can no longer be used as a dwelling) within one month of the occupation of the replacement dwelling.</p> <p>Must meet the requirements for land use.</p>

Emergency services facility	
Group accommodation	Must be no more than 6 dwellings with no permanent accommodation.
Host farm	
Interpretation centre	
Mineral, stone, or soil extraction (other than Mineral exploration, Mining, and Search for Stone)	
Minor utility installation	
Primary produce sales	
Renewable energy facility (other than a Wind energy facility)	Must meet the requirements of Clause 52.42.
Rural industry (other than Abattoir and Sawmill)	
Rural store	
Timber production	Must meet the requirements of Clause 52.18.
Utility installation (other than Telecommunications facility)	
Wind energy facility	Must meet the requirements of Clause 52.32.

Section 3 - Prohibited

Any other use not in Section 1 or 2.

Use of land for a dwelling

A lot used for a dwelling must meet the following requirements:

- Access to the dwelling must be provided via an all-weather road with dimensions adequate to accommodate emergency vehicles.
- The dwelling must be connected to a reticulated sewerage system or if not available, the waste water must be treated and retained on-site in accordance with the State Environment Protection Policy (Waters of Victoria) under the *Environment Protection Act 1970*.
- The dwelling must be connected to a reticulated potable water supply or have an alternative potable water supply with adequate storage for domestic use as well as for fire fighting purposes.
- The dwelling must be connected to a reticulated electricity supply or have an alternative energy source.

These requirements also apply to a dependent person's unit.

Subdivision

A permit is required to subdivide land.

Each lot must be at least the area specified for the land in a schedule to this zone. If no area is specified, each lot must be at least 40 hectares.

A permit may be granted to create smaller lots if any of the following apply:

- The subdivision is the re-subdivision of existing lots, the number of lots is not increased, and the number of dwellings that the land could be used for does not increase. An agreement under Section 173 of the Act must be entered into with the owner of each lot created which ensures that the land may not be further subdivided so as to increase the number of lots. The agreement must be registered on title. The requirement to enter into an agreement only applies to a lot which could be further subdivided in accordance with this scheme.
- The subdivision is by a public authority or utility service provider to create a lot for a utility installation.
- The subdivision is the resubdivision of existing lots and the number of lots is not increased unless a climate change adaptation plan incorporated in this scheme specifically provides otherwise.

Buildings and works

A permit is required to construct or carry out any of the following:

- A building or works associated with a use in Section 2 of Clause 35.06-1. This does not apply to:
 - An alteration or extension to an existing dwelling provided the floor area of the alteration or extension does not exceed the area specified in a schedule to this zone or, if no area is specified, 50 square metres. Any area specified must be more than 50 square metres.
 - An out-building associated with an existing dwelling provided the floor area of the out-building does not exceed the area specified in a schedule to this zone or, if no area is specified, 50 square metres. Any area specified must be more than 50 square metres.
 - An alteration or extension to an existing building used for agriculture provided the floor area of the alteration or extension does not exceed the area specified in a schedule to this zone or, if no area is specified, 50 square metres. Any area specified must be more than 50 square metres. The building must not be used to keep, board, breed or train animals.
 - A rainwater tank.

- Earthworks specified in a schedule to this zone, if on land specified in a schedule.
- A building which is within any of the following setbacks:
 - 100 metres from a Road Zone Category 1 or land in a Public Acquisition Overlay to be acquired for a road, Category 1.
 - 40 metres from a Road Zone Category 2 or land in a Public Acquisition Overlay to be acquired for a road, Category 2.
 - 20 metres from any other road.
 - 5 metres from any other boundary.
 - 100 metres from a dwelling not in the same ownership.
 - 100 metres from a waterway, wetlands, designated flood plain or high water mark of a tidal waterway, estuary or coastline.

Decision guidelines

Before deciding on an application to use or subdivide land or to construct a building or construct or carry out works, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

General issues

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- Any Regional Catchment Strategy and associated plan applying to the land.
- Any relevant coastal action plan, coastal management plan or coastal hazard vulnerability study.
- The capability of the land to accommodate the proposed use or development.
- How the use or development conserves the values identified for the land in the schedule.
- Whether use or development protects and enhances the environmental and landscape qualities of the site and its surrounds.
- Whether the site is suitable for the use or development and the compatibility of the proposal with adjoining land uses.

Environmental issues

- An assessment of the likely environmental impact on the biodiversity and in particular the flora and fauna of the area.

- The protection and enhancement of the natural environment of the area, including the retention of vegetation and faunal habitats and the need to revegetate land including riparian buffers along waterways, estuaries, coastal areas, gullies, ridgelines, property boundaries and saline discharge and recharge areas.
- How the use and development relates to sustainable land management and the effects of climate change on natural systems and the need to prepare an integrated land management plan which addresses the protection and enhancement of natural systems, native vegetation and waterways, stabilisation of soil and pest plant and animal control.
- The location of on site effluent disposal areas to minimise the impact of nutrient loads on waterways and native vegetation.
- An assessment of the capacity and ability of coastal natural systems to adapt or migrate in response to projected sea level rise along coastal areas and estuaries.

Design and siting issues

- The need to minimise any adverse impacts of siting, design, height, bulk, and colours and materials to be used, on landscape features, major roads and vistas.
- The location and design of existing and proposed infrastructure services which minimises the visual impact on the landscape.
- The need to minimise adverse impacts on the character and appearance of the area or features of archaeological, historic or scientific significance or of natural scenic beauty or importance.
- The location and design of roads and existing and proposed infrastructure services to minimise the visual impact on the landscape.
- The need to ensure the capacity of natural systems is not prevented from adaptation responses to the effects and impacts of climate change.

Advertising signs

Advertising sign requirements are at Clause 52.05. This zone is in Category 4.

Notes: Refer to the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement, for strategies and policies which may affect the use and development of land.

Check whether an overlay also applies to the land.

Other requirements may also apply. These can be found at Particular Provisions.

Schedule to the CCZ

Schedule similar to RCZ: the Schedule to the CCZ should be introduced under Ministerial Direction on The Form and Content of Planning Schemes by adding the following additional reference to Earthworks:

Permit requirement for earthworks

Earthworks which prevent or interrupt the flow of water from the ocean, estuaries or lakes due to tides, storm surge or flooding or any combination of these events.

Appendix H Revised Public Conservation and Resource Zone

36.03 PUBLIC CONSERVATION AND RESOURCE ZONE

Shown on the planning scheme map as **PCRZ**.

Purpose

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To protect and conserve the natural environment and natural processes for their historic, scientific, landscape, habitat or cultural values.
- To provide for appropriate responses to the effects and impacts of projected climate change.
- To promote and facilitate the capacity and ability of natural systems and biodiversity to adapt in response to the effects of climate change.
- To provide for the linking of flora and fauna habitats and movement of biodiversity across the landscape.
- To provide facilities which assist in public education and interpretation of the natural environment with minimal degradation of the natural environment or natural processes.
- To provide for appropriate resource based uses.

36.03-1 Table of uses & 36.03-2 Permit requirement

Under both land uses and development throughout the PCRZ wherever reference is made with respect to land use and buildings and works being conducted by or on behalf of a public land manager or Parks Victoria under the relevant provisions of the *Local Government Act 1989*, the *Reference Areas Act 1978*, the *National Parks Act 1975*, the *Fisheries Act 1995*, the *Wildlife Act 1975*, the *Forest Act 1958*, the ***Water Industry Act 1994***, the *Water Act 1989*, the *Marine Act 1988*, the *Port of Melbourne Authority Act 1958* or the *Crown Land (Reserves) Act 1978*, reference should be added regarding such activity being subject to a coastal hazard vulnerability assessment (where appropriate) to address the effects and impacts of climate change.

36.03-3 Application requirements

An application for a permit by a person other than the relevant public land manager must be accompanied by:

- The written consent of the public land manager, indicating that the public land manager consents generally or conditionally either:
 - To the application for permit being made.
 - To the application for permit being made and to the proposed use or development.
- A Coastal Hazard Vulnerability Assessment or similar statement which contains the following information:
 - A location plan showing the site and surrounding uses including distance to natural systems or features;
 - An elevation plan showing the location of the site relative to Australian Height Datum and the highest recorded inundation event;
 - A detailed site plan showing the layout of existing and proposed buildings and works, access roads and other infrastructure and environmental values that may be affected by the effects of climate change;
 - An assessment of the effects of coastal inundation, coastal erosion or other coastal hazards; and
 - An outline of what actions are required, if any, to the siting and design of development or to the land or area to reduce the risk to individuals and the community over the predicted life of the use and development. This assessment may include the consideration of adaptation options such as planned retreat, setbacks, accommodation of changes, protection from changes or other responses.

36.03-6 Decision guidelines

Before deciding on an application to use or subdivide land, construct a building or construct or carry out works, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.

- The comments of any public land manager or other relevant land manager having responsibility for the care or management of the land or adjacent land.
- Whether the development is appropriately located and designed, including in accordance with any relevant use, design or siting guidelines and with respect to the effects and impacts of projected climate change.
- Any relevant Coastal Hazard Vulnerability Assessment or similar statement;
- Whether development can be designed and sited so that it does not prevent natural landform and ecological adjustment and enhances the resilience of coastal environments and habitats such as mangroves and coastal saltmarsh to adapt and migrate in response to changing climatic conditions and sea levels.

36.03-7 Incorporated plan

An Incorporated plan is a plan which shows the way the land is to be used and developed.

An Incorporated plan may include the following information:

- Recognition of existing use and how the area is to be developed.
- Recognition of areas that may be subject to climate change hazard.
- The building envelope of any proposed buildings.
- Details of proposed buildings or works including how they are to be sited and designed to respond to projected climate change hazards.
- The location of pedestrian or vehicle access points or car parking areas.
- The location of any areas for specific uses and a schedule of specific uses which are allowed without permit.
- Topographic details including any proposed cut and fill.
- The location of existing and proposed features.
- The location of existing native or other vegetation and any proposed landscaping works or areas of vegetation to be added or removed.
- The identification of sites of flora or fauna significance (including, in particular, any potentially threatened species or significant habitat) or other places of cultural, heritage or scientific value and how they may be affected or impacted by climate change.
- Actions to ensure that flora and fauna values can be protected and supported to adapt in response to the effects and impacts of climate change.

The Incorporated plan must be consistent with the intent of the public land reservation under any Act and make reference to relevant policies and guidelines.

An Incorporated plan may be prepared in parts or stages.

Appendix I Example Urban Floodway Zone schedule

SCHEDULE 2 TO THE URBAN FLOODWAY ZONE OVERLAY

Areas subject to the combined effects of flooding and sea level rise (including storm surge and storm tide)

Shown on the planning scheme map as UFZ2.

1.0 Permit requirement

A permit is not required to construct or carry out the following buildings or works:

- An extension to an existing dwelling, provided the floor level of the proposed extension is not less than the existing floor level and the gross floor area of the extension at ground level does not exceed 20 square metres.
- An upper storey extension to an existing building within the building footprint, provided this does not increase the number of dwellings within an accommodation building.
- An extension to an industrial, retail or office building, where the combined ground floor area of the extension since [define date] is not greater than 100 square metres and the floor level is at least 300 mm above the applicable overall flood level, allowing for 0.2 metres of sea level rise, storm surge and storm tide.
- Works ancillary to an existing dwelling, including landscaping, a pergola, driveway, verandah, barbeques and water tank.
- An open building with no walls.
- A footpath, bicycle path or elevated boardwalk, at 300 mm above the applicable overall flood level allowing for 0.2 metres of sea level rise, storm surge and storm tide.
- A mast, antenna, lighting or telecommunications tower.
- Advertising signs on posts or attached to buildings.
- Replacement fences of the same materials as the existing fence.
- Aviaries and other enclosures for domestic animals.
- An agricultural shed (other than one used for industrial, retail or office purposes) for the storage of farm machinery, farm vehicles and workshop

associated with a rural use in a rural zone with a floor area not more than 100 m².

- A sportsground or recreation area (with no permanent grandstand or raised viewing area), pathways and trails constructed at general natural surface elevation, playground, open picnic shelter, picnic table, drinking tap, rubbish bin, barbecue, or underground infrastructure.
- Advertising signs on posts or attached to buildings.
- A mast, antenna, lighting or telecommunications tower.
- An accessway constructed at general natural surface elevations.
- Roadworks carried out by a public authority.
- Earthworks in accordance with a certified Whole Farm Plan approved by the responsible authority and the floodplain management authority.

2.0 Application requirements

An application to construct a building or construct or carry out works must be accompanied by:

- A Coastal Hazard Vulnerability Assessment or similar statement prepared by a suitably qualified coastal engineer or coastal processes specialist prepared in accordance with any approved coastal hazard guidelines to the satisfaction of the responsible authority and which contains the following information:
 - A location plan showing the boundaries and dimensions of the site and surrounding uses including distance to the coast or estuary;
 - Relevant ground levels, taken by or under the direction or supervision of a licensed land surveyor, in relation to Australian Height Datum and the highest recorded coastal inundation event;
 - A detailed site plan showing the layout of existing and proposed buildings and works, access roads and other infrastructure and environmental values that may be affected by flooding, sea level rise or coastal inundation, taken by or under the direction of a licensed land surveyor;
 - An assessment of the effects of flooding combined with sea level rise (including storm surge and storm tide) or other coastal hazards with reference to the Coastal inundation and erosion policy in Clause 13.01-1 of the State Planning Policy Framework; and
 - An outline of what actions are required, if any, to the siting and design of development or to the land or area to reduce the risk to

individuals and the community over the predicted life of the use and development. This assessment may include the consideration of adaptation options such as planned retreat, setbacks, accommodation of changes, protection from changes or other responses.

A Coastal Hazard Vulnerability Assessment is not required where:

- A statement from a suitably qualified person prepared to the satisfaction of the responsible authority is lodged with the responsible authority which verifies that due to the particular geological, geomorphological, or other characteristics of the site the level of risk from coastal hazards are acceptable.
- Either a site specific or regional based Coastal Hazard Vulnerability Assessment has already been undertaken for the land.

If a local floodplain development plan has been developed for the area and has been incorporated into this scheme, an application must be consistent with the plan.

3.0 Decision Guidelines

In addition to the Decision Guidelines in Clause 44.03-5, before deciding on an application, the responsible authority must consider the following:

- Any relevant local floodplain development plan
- Any relevant coastal action plan or coastal management plan.
- Any relevant coastal climate change adaptation plan, which has been incorporated at Clause 81 of this scheme, as indicated on the attached map:
 - [list plans]
- The General Planning Practice Note Managing coastal hazards and the coastal impacts of climate change;
- Any Coastal Hazard Vulnerability Assessment or similar statement prepared for the region or the settlement or submitted with the application;
- Whether development that seeks to protect property from the effects of flooding combined with sea level rise will have a detrimental impact on coastal processes or a significant impact on the environment.
- Whether the development will intensify human habitation and increase the risk to human health and safety or to the environment;

- Whether any actions required under a Coastal Hazard Vulnerability Assessment can be appropriately addressed via permit conditions, a Section 173 agreement on title or both.
- The existing use and development of the land.
- The susceptibility of the development to damage from flooding combined with sea level rise (including storm surge and storm tide).
- Coastal inundation risk factors to consider include:
 - The potential increase in flooding risk through aggravation of catchment flooding from inundation associated with coastal climate change including sea level rise and increased storminess.
 - The frequency, duration, extent, depth and velocity of flooding of the site and accessway.
 - The flood warning time available.
 - The danger to the occupants of the development, other floodplain residents and emergency personnel if the site or accessway is flooded.

4.0 Referral of Applications

An application must be referred to the Department of Sustainability and Environment and the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority, the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the Department of Sustainability and Environment and the floodplain management authority.

5.0 Reference documents

DSE (201?) A Guideline for Coastal Floodplain Management Authorities: Assessing development in coastal flood risk areas.

DSE Future Coasts (201?) Victorian Climate Change Coastal Hazard Guidelines – Coastal Hazards and Development Assessment Guideline.

Appendix J Example Erosion Management Overlay Schedule

SCHEDULE TO THE EROSION MANAGEMENT OVERLAY

Shown on the planning scheme map as EMO2

Areas subject to coastal or shoreline erosion

1.0 Permit requirement

A planning permit is not required to construct a building or to construct or carry out works for the following:

- Erosion mitigation works carried out by the responsible authority or public land manager.
- Construction of buildings or works outside any coastal buffer distance that has been identified in a coastal climate change adaptation plan incorporated in this scheme.

2.0 Application requirements

In addition to the requirements of Clause 44.01-4, an application to construct a building or construct or carry out works must be accompanied by:

- A Coastal Hazard Vulnerability Assessment or similar statement prepared by a suitably qualified coastal engineer or coastal processes specialist prepared in to the satisfaction of the responsible authority in accordance with any approved coastal hazard guidelines and which contains the following information:
 - A location plan showing the boundaries and dimensions of the site and surrounding uses including distance to the coast or estuary;
 - Relevant ground levels, taken by or under the direction or supervision of a licensed land surveyor, in relation to Australian Height Datum and the highest recorded coastal inundation event;
 - A detailed site plan showing the layout of existing and proposed buildings and works, access roads and other infrastructure and environmental values that may be affected by flooding, sea level rise or coastal inundation, taken by or under the direction of a licensed land surveyor;
 - An assessment of the effects coastal hazards; and

- An outline of what actions are required, if any, to the siting and design of development or to the land or area to reduce the risk to individuals and the community over the predicted life of the use and development. This assessment may include the consideration of adaptation options such as planned retreat, setbacks, accommodation of changes, protection from changes or other responses.

A Coastal Hazard Vulnerability Assessment is not required where:

- A statement from a suitably qualified person prepared to the satisfaction of the responsible authority is lodged with the responsible authority which verifies that due to the particular geological, geomorphological, or other characteristics of the site the level of risk from coastal hazards are acceptable.
- Either a site specific or regional based Coastal Hazard Vulnerability Assessment has already been undertaken for the land.

3.0 Referral of applications

An application must be referred to the Department of Sustainability and Environment and the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority, the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the Department of Sustainability and Environment and the floodplain management authority.

4.0 Decision Guidelines

In addition to the Decision Guidelines in Clause 41.01-7, before deciding on an application, the responsible authority must consider the following:

- Any relevant coastal climate change adaptation plan, which has been incorporated at Clause 81 of this scheme, as indicated on the attached map:
 - [list plans]
- The General Planning Practice Note Managing coastal hazards and the coastal impacts of climate change;
- The views of the Department of Sustainability and Environment;
- Any Coastal Hazard Vulnerability Assessment or similar statement prepared for the region or the settlement or submitted with the application;

- Whether development that seeks to protect property from the effects of erosion or cliff recession will have a detrimental impact on coastal processes or a significant impact on the environment.
- Whether the development will intensify human habitation and increase the risk to human health and safety or to the environment;
- Whether any actions required under a Coastal Hazard Vulnerability Assessment can be appropriately addressed via permit conditions, a Section 173 agreement on title or both.
- The existing use and development of the land.
- The susceptibility of the development to damage from coastal or shoreline erosion or cliff recession or slumping.
- Whether the proposed use or development could be located on land with a lesser coastal erosion risk or land outside this overlay that would be free from coastal erosion risk.

5.0 Reference document

DSE Future Coasts (201?) Victorian Climate Change Coastal Hazard Guidelines – Coastal Hazards and Development Assessment Guideline.

Appendix K Example Floodway Overlay Schedule

SCHEDULE 2 TO THE FLOODWAY OVERLAY

Areas subject to the combined effects of flooding and sea level rise (including storm surge and storm tide)

Shown on the planning scheme map as FO2.

1.0 Permit requirement

A permit is not required to construct or carry out the following buildings or works:

- An extension to an existing dwelling, provided the floor level of the proposed extension is not less than the existing floor level and the gross floor area of the extension at ground level does not exceed 20 square metres.
- An upper storey extension to an existing building within the building footprint, provided this does not increase the number of dwellings within an accommodation building.
- An extension to an industrial, retail or office building, where the combined ground floor area of the extension since [define date] is not greater than 100 square metres and the floor level is at least 300 mm above the applicable overall flood level, allowing for 0.2 metres of sea level rise, storm surge and storm tide.
- Works ancillary to an existing dwelling, including landscaping, a pergola, driveway, verandah, barbeques and water tank.
- An open building with no walls.
- A footpath, bicycle path or elevated boardwalk, at 300 mm above the applicable overall flood level allowing for 0.2 metres of sea level rise, storm surge and storm tide.
- A mast, antenna, lighting or telecommunications tower.
- Advertising signs on posts or attached to buildings.
- Replacement fences of the same materials as the existing fence.
- Aviaries and other enclosures for domestic animals.
- An agricultural shed (other than one used for industrial, retail or office purposes) for the storage of farm machinery, farm vehicles and workshop

associated with a rural use in a rural zone with a floor area not more than 100 m².

- A sportsground or recreation area (with no permanent grandstand or raised viewing area), pathways and trails constructed at general natural surface elevation, playground, open picnic shelter, picnic table, drinking tap, rubbish bin, barbecue, or underground infrastructure.
- Advertising signs on posts or attached to buildings.
- A mast, antenna, lighting or telecommunications tower.
- An accessway constructed at general natural surface elevations.
- Roadworks carried out by a public authority.
- Earthworks in accordance with a certified Whole Farm Plan approved by the responsible authority and the floodplain management authority.

2.0 Application requirements

An application to construct a building or construct or carry out works must be accompanied by:

- A Coastal Hazard Vulnerability Assessment or similar statement prepared by a suitably qualified coastal engineer or coastal processes specialist prepared to the satisfaction of the responsible authority in accordance with any approved coastal hazard guidelines and which contains the following information:
 - A location plan showing the boundaries and dimensions of the site and surrounding uses including distance to the coast or estuary;
 - Relevant ground levels, taken by or under the direction or supervision of a licensed land surveyor, in relation to Australian Height Datum and the highest recorded coastal inundation event;
 - A detailed site plan showing the layout of existing and proposed buildings and works, access roads and other infrastructure and environmental values that may be affected by flooding, sea level rise or coastal inundation, taken by or under the direction of a licensed land surveyor;
 - An assessment of the effects of flooding combined with sea level rise (including storm surge and storm tide) or other coastal hazards; and
 - An outline of what actions are required, if any, to the siting and design of development or to the land or area to reduce the risk to individuals and the community over the predicted life of the use and development. This assessment may include the consideration of adaptation options such as planned retreat, setbacks,

accommodation of changes, protection from changes or other responses.

A Coastal Hazard Vulnerability Assessment is not required where:

- A statement from a suitably qualified person prepared to the satisfaction of the responsible authority is lodged with the responsible authority which verifies that due to the particular geological, geomorphological, or other characteristics of the site the level of risk from coastal hazards are acceptable.
- Either a site specific or regional based Coastal Hazard Vulnerability Assessment has already been undertaken for the land.

3.0 Decision Guidelines

In addition to the Decision Guidelines in Clause 44.03-5, before deciding on an application, the responsible authority must consider the following:

- Any relevant local floodplain development plan
- Any relevant coastal climate change adaptation plan, which has been incorporated at Clause 81 of this scheme, as indicated on the attached map:
 - [list plans]
- The General Planning Practice Note Managing coastal hazards and the coastal impacts of climate change;
- Any Coastal Hazard Vulnerability Assessment or similar statement prepared for the region or the settlement or submitted with the application;
- Whether development that seeks to protect property from the effects of flooding combined with sea level rise will have a detrimental impact on coastal processes or a significant impact on the environment.
- Whether the development will intensify human habitation and increase the risk to human health and safety or to the environment;
- Whether any actions required under a Coastal Hazard Vulnerability Assessment can be appropriately addressed via permit conditions, a Section 173 agreement on title or both.
- The existing use and development of the land.
- The susceptibility of the development to damage from flooding combined with sea level rise (including storm surge and storm tide).
- Coastal inundation risk factors to consider include:

- The potential increase in flooding risk through aggravation of catchment flooding from inundation associated with coastal climate change including sea level rise and increased storminess.
- The frequency, duration, extent, depth and velocity of flooding of the site and accessway.
- The flood warning time available.
- The danger to the occupants of the development, other floodplain residents and emergency personnel if the site or accessway is flooded.

4.0 Referral of Applications

An application must be referred to the Department of Sustainability and Environment and the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority, the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the Department of Sustainability and Environment and the floodplain management authority.

5.0 Reference documents

DSE (201?) A Guideline for Coastal Floodplain Management Authorities: Assessing development in coastal flood risk areas.

DSE Future Coasts (201?) Victorian Climate Change Coastal Hazard Guidelines – Coastal Hazards and Development Assessment Guideline.

Appendix L Example Land Subject to Inundation Overlay Schedule

SCHEDULE 2 TO THE LAND SUBJECT TO INUNDATION OVERLAY

Areas subject to the combined effects of flooding and sea level rise (including storm surge and storm tide)

Shown on the planning scheme map as LSIO2.

1.0 Permit requirement

A permit is not required to construct or carry out the following buildings or works:

- A dwelling on a lot of 500 square metres or greater in a Residential 1, Low Density Residential or Township Zone shown on a plan of subdivision registered after [defined date], provided the dwelling is located within a building envelope identified on the plan.
- A dwelling on a lot in a rural zone, provided it is located outside the area identified as being at risk from 0.5 metres of sea level rise, in combination with catchment-based flooding, storm surge and storm tide and has a minimum finished floor level including an appropriate freeboard level approved by the floodplain management authority in writing.
- A non-habitable building – other than a child care centre, education centre, or hospital – in a business zone, provided it is located outside the area identified as being at risk from 0.5 metres of sea level rise, in combination with catchment based flooding, storm surge and storm tide and has a minimum finished floor level including an appropriate freeboard level approved by the floodplain management authority in writing.
- A building in an industrial zone, provided it is located outside the area identified as being at risk from 0.5 metres of sea level rise, in combination with catchment based flooding, storm surge and storm tide and has a minimum finished floor level including an appropriate freeboard level approved by the floodplain management authority in writing.
- An extension to an existing dwelling, provided the floor level of the proposed extension is not less than the existing floor level and the gross floor area of the extension at ground level does not exceed 20 square metres.

- An upper storey extension to an existing building within the building footprint, provided this does not increase the number of dwellings within an accommodation building.
- An agricultural shed (other than one used for industrial, retail or office purposes) for the storage of farm machinery, farm vehicles and workshop associated with a rural use in a rural zone with a floor area not more than 100 square metres.
- An extension to a non-habitable building, with concrete floors, where floor levels are at least 300mm above the overall flood level, allowing for 0.2 metres of sea level rise, storm surge and storm tide.
- An extension to a non-habitable building, with dirt floors, where floor levels are at least 150mm above the overall flood level allowing for 0.2 metres of sea level rise, storm surge and storm tide.
- Works ancillary to an existing dwelling, including landscaping, a pergola, driveway, verandah, barbeques and water tank.
- An open building with no walls.
- An open-style fence.
- A tennis court at natural surface level with curtain fencing.
- An in-ground swimming pool with open style security fencing adjacent to an existing dwelling.
- A sportsground or recreation area (with no permanent grandstand or raised viewing area), pathways and trails constructed at general natural surface elevation, playground, open picnic shelter, picnic table, drinking tap, rubbish bin, barbecue or underground infrastructure.
- A mast, antenna, lighting or telecommunications tower.
- Advertising signs on posts or attached to buildings.
- Replacement fences of the same materials as the existing fence.
- Aviaries and other enclosures for domestic animals.
- Earthworks in accordance with a certified Whole Farm Plan approved by the responsible authority and the floodplain management authority.
- If in a defined Flood Mitigation District or area covered by a Coastal Climate Change Adaptation Plan incorporated in this planning scheme:
[add specific exemptions]
- [Other uses may be specified]

2.0 Application requirements

An application to construct a building or construct or carry out works must be accompanied by:

- A Coastal Hazard Vulnerability Assessment or similar statement prepared by a suitably qualified coastal engineer or coastal processes specialist prepared in accordance with any approved coastal hazard guidelines and which contains the following information:
 - A location plan showing the boundaries and dimensions of the site and surrounding uses including distance to the coast or estuary;
 - Relevant ground levels, taken by or under the direction or supervision of a licensed land surveyor, in relation to Australian Height Datum and the highest recorded coastal inundation event;
 - A detailed site plan showing the layout of existing and proposed buildings and works, access roads and other infrastructure and environmental values that may be affected by flooding, sea level rise or coastal inundation, taken by or under the direction of a licensed land surveyor;
 - An assessment of the effects of flooding combined with sea level rise (including storm surge and storm tide) or other coastal hazards with reference to the Coastal inundation and erosion policy in Clause 13.01-1 of the State Planning Policy Framework; and
 - An outline of what actions are required, if any, to the siting and design of development or to the land or area to reduce the risk to individuals and the community over the predicted life of the use and development. This assessment may include the consideration of adaptation options such as planned retreat, setbacks, accommodation of changes, protection from changes or other responses.

A Coastal Hazard Vulnerability Assessment is not required where:

- A statement from a suitably qualified person is lodged with the responsible authority which verifies that due to the particular geological, geomorphological, or other characteristics of the site the level of risk from coastal hazards are acceptable.
- Either a site specific or regional based Coastal Hazard Vulnerability Assessment has already been undertaken for the land.
- If a local floodplain development plan has been developed for the area and has been incorporated into this scheme, an application must be consistent with the plan.

3.0 Decision Guidelines

In addition to the Decision Guidelines in Clause 44.03-5, before deciding on an application, the responsible authority must consider the following:

- Any relevant local floodplain development plan
- Any relevant coastal action plan or coastal management plan.
- Any relevant coastal climate change adaptation plan, which has been incorporated at Clause 81 of this scheme, as indicated on the attached map:
 - [list plans]
- The General Planning Practice Note Managing coastal hazards and the coastal impacts of climate change;
- Any Coastal Hazard Vulnerability Assessment or similar statement prepared for the region or the settlement or submitted with the application;
- Whether development that seeks to protect property from the effects of flooding combined with sea level rise will have a detrimental impact on coastal processes or a significant impact on the environment.
- Whether the development will intensify human habitation and increase the risk to human health and safety or to the environment;
- Whether any actions required under a Coastal Hazard Vulnerability Assessment can be appropriately addressed via permit conditions, a Section 173 agreement on title or both.
- The existing use and development of the land.
- The susceptibility of the development to damage from flooding combined with sea level rise (including storm surge and storm tide).
- Coastal inundation risk factors to consider include:
- The potential increase in flooding risk through aggravation of catchment flooding from inundation associated with coastal climate change including sea level rise and increased storminess.
- The frequency, duration, extent, depth and velocity of flooding of the site and accessway.
- The flood warning time available.
- The danger to the occupants of the development, other floodplain residents and emergency personnel if the site or accessway is flooded.

4.0 Referral of Applications

An application must be referred to the Department of Sustainability and Environment and the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority, the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the Department of Sustainability and Environment and the floodplain management authority.

5.0 Reference documents

DSE (201?) A Guideline for Coastal Floodplain Management Authorities:
Assessing development in coastal flood risk areas.

DSE Future Coasts (201?) Victorian Climate Change Coastal Hazard
Guidelines – Coastal Hazards and Development Assessment Guideline.

Appendix M Draft Coastal Hazard Overlay

44.XX COASTAL HAZARD OVERLAY

Shown on the planning scheme map as CHO with a number (if shown)

Purpose

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To identify areas where coastal erosion and/or coastal inundation influenced by sea level rise including storm surge and storm tide are likely to pose a threat to life and property.
- To ensure that development is assessed for coastal hazard vulnerability and not at risk from coastal erosion and/or inundation and does not result in an increased number of people at risk from coastal hazards.
- To protect the environment from the impacts of sea level rise induced coastal erosion and coastal inundation and provide for adaptation responses of coastal ecosystems.
- To identify land that is affected by flooding from the combined effects of coastal inundation, storm surge and storm tide and by a 1 in 100 year flood based on the projected effects of short term (2030), medium term (2070) and long term (2100) risks from sea level rise.
- To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
- To identify areas of potential or actual acid sulfate soils.
- To ensure development does not expose and is protected from the effects of acid sulfate soils.

44.XX-1 Permit requirement

A permit is required to construct a building or to construct or carry out works, including:

- A fence other than a post and wire or post and rail fence.
- Roadworks.
- Bicycle pathways and trails.

- Public toilets.
- A domestic swimming pool or spa and associated mechanical and safety equipment if associated with one dwelling on a lot.
- Oil pipelines.
- Earthworks which include ground excavation and disturbance and may lead to the exposure of coastal acid sulfate soils.
- Underground infrastructure services including electricity, gas, telephone lines, sewerage, water supply and stormwater drainage.

This does not apply:

- If a schedule to this overlay specifically states that a permit is not required.
- To flood mitigation works carried out by the responsible authority or floodplain management authority.
- To the following works in accordance with plans prepared to the satisfaction of the responsible authority:
 - The laying of underground sewerage, water and gas mains, oil pipelines, underground telephone lines and underground power lines provided they do not alter the topography of the land.
 - The laying of underground sewerage, water and gas mains, oil pipelines, underground telephone lines and underground power lines provided they do not expose anaerobic soils and are protected from damage or exposure as a result of coastal erosion and inundation with seawater.
 - The erection of telephone or power lines provided they do not involve the construction of towers or poles.

44.XX-2 Subdivision

A permit is required to subdivide land.

44.XX-3 Vegetation

A permit is required to remove, destroy or lop any vegetation, including dead vegetation. This does not apply:

- If a schedule to this overlay specifically states that a permit is not required.
- If the table of exemptions at Clause 44.XX-3 specifically states that a permit is not required.

- To the removal, destruction or lopping of native vegetation in accordance with a native vegetation precinct plan specified in the schedule to Clause 52.16.

Table of exemptions

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
Regrowth	<p>The vegetation is regrowth which has naturally established or regenerated on land lawfully cleared of naturally established vegetation and is within the boundary of a timber production plantation, as indicated on a Plantation Development Notice or other documented record, and has established after the plantation.</p> <p>This exemption does not apply to land on which vegetation has been cleared or otherwise destroyed or damaged as a result of flood, fire or other natural disaster.</p>
Bracken	<p>The vegetation is bracken (<i>Pteridium esculentum</i>) which has naturally established or regenerated on land lawfully cleared of naturally established vegetation.</p> <p>This exemption does not apply to land on which vegetation has been cleared or otherwise destroyed or damaged as a result of flood, fire or other natural disaster.</p>
Noxious weeds	<p>The vegetation is a noxious weed the subject of a declaration under section 58 or section 58A of the <i>Catchment and Land Protection Act 1994</i>. This exemption does not apply to Australian Dodder (<i>Cuscuta australis</i>).</p>
Pest animal burrows	<p>The vegetation is to be removed, destroyed or lopped to enable the removal of pest animal burrows.</p> <p>In the case of native vegetation the written agreement of an officer of the Department responsible for administering the <i>Flora and Fauna Guarantee Act 1988</i> is required before the vegetation can be removed, destroyed or lopped.</p>
Land use conditions	<p>The vegetation is to be removed, destroyed or lopped to comply with a land use condition served under the <i>Catchment and Land Protection Act 1994</i>.</p>

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
Land management notices	The vegetation is to be removed, destroyed or lopped to comply with land management notice issued under the <i>Catchment and Land Protection Act 1994</i> .
Planted vegetation	The vegetation has been planted or grown as a result of direct seeding for Crop raising or Extensive animal husbandry.
Emergency works	<p>The vegetation presents an immediate risk of personal injury or damage to property and only that part of vegetation which presents the immediate risk is removed, destroyed or lopped.</p> <p>The vegetation is to be removed, destroyed or lopped by a public authority or municipal council to create an emergency access or to enable emergency works.</p>
Fire protection	<p>The vegetation is to be removed, destroyed or lopped for the making of a fuelbreak by or on behalf of a public authority in accordance with a strategic fuelbreak plan approved by the Secretary to the Department of Sustainability and Environment (as constituted under Part 2 of the <i>Conservation, Forest and Lands Act 1987</i>. The maximum width of a fuelbreak must not exceed 40 metres).</p> <p>The vegetation is to be removed, destroyed or lopped for fire fighting measures, periodic fuel reduction burning, or the making of a fuel break up to 6 metres wide.</p> <p>The vegetation is ground fuel within 30 metres of a building.</p> <p>The vegetation is to be removed, destroyed or lopped in accordance with a fire prevention notice under:</p> <ul style="list-style-type: none"> ▪ Section 65 of the Forests Act 1958. ▪ Section 41 of the Country Fire Authority Act 1958. ▪ Section 8 of the Local Government Act 1989. <p>The vegetation is to be removed, destroyed or lopped to keep the whole or any part of any vegetation clear of an electric line in</p>

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
	<p>accordance with a code of practice prepared under Part 8 of the <i>Electricity Safety Act 1998</i>.</p> <p>The vegetation is to be removed, destroyed or lopped in accordance with any code of practice prepared in accordance with Part 8 of the <i>Electricity Safety Act 1998</i> in order to minimise the risk of bushfire ignition in the proximity of electricity lines.</p>
Surveying	The vegetation is to be removed, destroyed or lopped for establishing sight-lines for the measurement of land by surveyors in the exercise of their profession, and if using hand-held tools.
Public roads	The vegetation is to be removed, destroyed or lopped to maintain the safe and efficient function of an existing public road managed by the relevant responsible road authority (as defined by the <i>Road Management Act 2004</i>) in accordance with the written agreement of the Secretary of the Department of Sustainability and Environment (as constituted under Part 2 of the <i>Conservation, Forest and Lands Act 1987</i>).
Railways	The vegetation is to be removed, destroyed or lopped to maintain the safe and efficient function of an existing railway or railway access road, in accordance with the written agreement of the Secretary to the Department of Sustainability and Environment (as constituted under Part 2 of the <i>Conservation, Forest and Lands Act 1987</i>).
Extractive industry	The vegetation is to be removed, destroyed or lopped to enable the carrying out of Extractive industry in accordance with a work plan approved under the <i>Mineral Resources (Sustainable Development) Act 1990</i> and authorised by a work authority granted under that Act.
Search for stone	<p>The vegetation is to be removed, destroyed or lopped to enable the carrying out of the Search for stone.</p> <p>The maximum extent of vegetation removed,</p>

No permit is required to remove, destroy or lop vegetation to the minimum extent necessary if any of the following apply:	
	<p>destroyed or lopped under this exemption on contiguous land in the same ownership in a five year period must not exceed any of the following:</p> <ul style="list-style-type: none"> ▪ 1 hectare of vegetation which does not include a tree. ▪ 15 trees if each tree has a trunk diameter of less than 40 centimetres at a height of 1.3 metres above ground level. ▪ 5 trees if each tree has a trunk diameter of 40 centimetres or more at a height of 1.3 metres above ground level. <p>This exemption does not apply to vegetation to be removed, destroyed or lopped to enable costeaning and bulk sampling activities.</p>
Mining	The vegetation is to be removed, destroyed or lopped to enable the carrying out of Mining in accordance with a work plan approved under the <i>Mineral Resources (Sustainable Development) Act 1990</i> and authorised by a work authority granted under that Act.
Mineral Exploration	The vegetation is to be removed, destroyed or lopped to enable the carrying out of Mineral exploration.
Geothermal energy exploration and extraction	The vegetation is to be removed, destroyed or lopped to enable the carrying out of geothermal energy exploration or extraction in accordance with the <i>Geothermal Energy Resources Act 2005</i> .
Greenhouse gas sequestration exploration	The vegetation is to be removed, destroyed or lopped to enable the carrying out of geothermal energy exploration or extraction in accordance with the <i>Greenhouse Gas Geological Sequestration Act 2008</i> .
Greenhouse gas sequestration	The vegetation is to be removed, destroyed or lopped to enable the carrying out of geothermal energy exploration or extraction in accordance with the <i>Greenhouse Gas Geological Sequestration Act 2008</i> .

44.XX-4 Application requirements

An application must be accompanied by the following:

- A Coastal Hazard Vulnerability Assessment or similar statement prepared to the satisfaction of the responsible authority by a suitably qualified coastal engineer or coastal processes specialist prepared in accordance with any approved coastal hazard guidelines and which contains the following information:
 - A location plan showing the site and surrounding uses including distance to the coast or estuary;
 - An elevation plan showing the location of the site relative to Australian Height Datum and the highest recorded coastal inundation event;
 - A detailed site plan showing the layout of existing and proposed buildings and works, access roads and other infrastructure and environmental values that may be affected by coastal recession, sea level rise or coastal inundation;
 - An assessment of the effects of coastal inundation, coastal erosion or other coastal hazards; and
 - An outline of what actions are required, if any, to the siting and design of development or to the land or area to reduce the risk to individuals and the community over the predicted life of the use and development. This assessment may include the consideration of adaptation options such as planned retreat, setbacks, accommodation of changes, protection from changes or other responses.

A Coastal Hazard Vulnerability Assessment is not required where:

- A schedule to this overlay specifically states that a Coastal Hazard Vulnerability Assessment is not required;
- A statement from a suitably qualified person is lodged with the responsible authority prepared to the satisfaction of the responsible authority which verifies that due to the particular geological, geomorphological, or other characteristics of the site the level of risk from coastal hazards are acceptable; or
- Either a site specific or regional based Coastal Hazard Vulnerability Assessment has already been undertaken for the land.

Local floodplain development plan

If a local floodplain development plan has been developed for the area and has been incorporated into this scheme, an application must be consistent with the plan.

Coastal climate change adaptation plan

If a coastal climate change adaptation plan has been prepared for the area and has been incorporated into this scheme, an application must be consistent with the plan.

44.XX-5 Exemption from notice and review

An application under this overlay is exempt from the notice requirements of Section 52(1)(a), (b) and (d), the decision requirements of Section 64(1), (2) and (3) and the review rights of Section 82(1) of the Act.

44.XX-6 Referral of applications

An application must be referred to the Department of Sustainability and Environment and the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority, the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the Department of Sustainability and Environment and the floodplain management authority.

44.XX-7 Decision guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- The General Planning Practice Note *Managing coastal hazards and the coastal impacts of climate change*;
- DSE (201?) *A Guideline for Coastal Floodplain Management Authorities: Assessing development in coastal flood risk areas*.
- Future Coasts (201?) *Victorian Climate Change Coastal Hazard Guidelines – Coastal Hazards and Development Assessment Guideline*.
- Any Coastal Climate Change Adaptation Plan that has been developed for the area and has been incorporated into this scheme.

- Any Coastal Hazard Vulnerability Assessment or similar statement submitted with the application;
- DSE (2009) *Coastal Acid Sulfate Soils Strategy* and (2010) *Best Practice Guidelines for assessing and Managing Coastal Acid Sulfate Soils*.
- Whether development that seeks to protect property from the effects of coastal erosion and coastal inundation will have a detrimental impact on coastal processes and a significant impact on the environment.
- The anticipated changes to be brought about by coastal processes affected by coastal climate change and induced sea level rise including their timing;
- Whether the development will intensify human habitation and increase the risk to human health and safety or to the environment;
- Whether development can be designed and sited so that it does not prevent natural landform and ecological adjustment and enhances the resilience of coastal environments and habitats such as mangroves and coastal saltmarsh to adapt and migrate in response to changing climatic conditions and sea levels.
- Whether any actions required under a Coastal Hazard Vulnerability Assessment can be appropriately addressed via permit conditions, a Section 173 agreement on title or both.
- Any comments from the Department of Sustainability and Environment.
- Any local floodplain development plan.
- Any comments from the relevant floodplain management authority.
- The existing use and development of the land.
- Whether the proposed use or development could be located on land that would be free from coastal inundation or land with a lesser inundation hazard outside this overlay.
- The susceptibility of the development to coastal inundation and damage.
- Coastal inundation risk factors to consider include:
 - The potential increase in flooding risk through aggravation of catchment flooding from inundation associated with coastal climate change including sea level rise and increased storminess.
 - The frequency, duration, extent, depth and velocity of flooding of the site and accessway.
 - The flood warning time available.
 - The danger to the occupants of the development, other floodplain residents and emergency personnel if the site or accessway is flooded.

- The effect of the development on redirecting or obstructing tidal floodwater, catchment floodwater, stormwater or drainage water and the effect of the development on reducing flood storage and increasing flood levels and flow velocities.
- The effect of the development on estuary health values including coastal wetlands, natural habitat, stream stability, erosion, environmental flows, water quality and sites of scientific significance.
- Whether development will result in the creation of acid sulfate soils and if they can be treated to avoid their effects.
- Any other matters specified in a schedule to this overlay.

Notes: Refer to the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement, for strategies and policies which may affect the use and development of land.

Check the requirements of the zone which applies to the land.

Other requirements may also apply. These can be found at Particular Provisions.