



**Bellarine Peninsula – Corio Bay
Local Coastal Hazard Assessment
Greater Geelong and Queenscliffe Planning
Schemes Implementation**

Prepared for:

Department of Environment, Land, Water and Planning

City of Greater Geelong

Borough of Queenscliffe

Corangamite Catchment Management Authority

Bellarine Bayside

Barwon Coast

by

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Abbreviations

AEP	Annual Exceedence Probability
AHD	Australian Height Datum
CMA	Catchment Management Authority
CCMA	Corangamite Catchment Management Authority
DCP	Development Control Plans
LCHA	Local Coastal Hazard Assessment
LEP	Local Environment Plan
LFDP	Local Floodplain Development Plan
MD13	Ministerial Direction 13: Managing Coastal Hazards and the Coastal Impacts of Climate Change
MD15	Ministerial Direction 15: The Planning Scheme Amendment Process
PPN11	Planning Practice Note 11: Applying for a Planning Permit under the Flood Provisions
PPN12	Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes
PPN53	Planning Practice Note 53: Managing Coastal Hazards and the Impacts of Climate Change
SLR	Sea Level Rise
The Act	Planning and Environment Act 1987
VCAT	Victorian Civil and Administrative Tribunal
VCS	Victorian Coastal Strategy 2014
VFMS	Victorian Floodplain Management Strategy 2016

Planning Scheme Abbreviations

DDO	Design and Development Overlay
ESO	Environmental Significance Overlay
EMO	Erosion Management Overlay
FO	Floodway Overlay
FZ	Farming Zone
GGPS	Greater Geelong Planning Scheme
GRZ	General Residential Zone
HO	Heritage Overlay
INZ1	Industrial 1 Zone
INZ2	Industrial 2 Zone
LPP	Local Planning Policy

LPPF	Local Planning Policy Framework
LSIO	Land Subject to Inundation Overlay
MSS	Municipal Strategic Statement
NRZ	Neighbourhood Residential Zone
PCRZ	Public Conservation and Resource Zone
PPRZ	Public Park and Recreation Zone
QPS	Queenscliffe Planning Scheme
RCZ	Rural Conservation Zone
RGZ	Residential Growth Zone
RLZ	Rural Living Zone
SBO	Special Building Overlay
SMO	Salinity Management Overlay
SPPF	State Planning Policy Framework
SUZ	Special Use Zone
TZ	Township Zone
UFZ	Urban Floodway Zone
VPP	Victoria Planning Provisions
WMO	Wildfire Management Overlay

Executive Summary

The Future Coasts program was initiated by the Victorian Government to assist planning for climate change related sea level rise and coastal hazards. The program included the preparation of four Local Coastal Hazard Assessments (LCHAs), including the Bellarine Peninsula - Corio Bay LCHA.

This project has investigated ways to implement the relevant findings of this LCHA into the Greater Geelong and Queenscliffe Planning Schemes.

This has involved reviewing Commonwealth and state planning frameworks as well as the state and local experience in Victoria.

The coastal inundation frameworks are generally similar across Australia and are commonly used at the 'strategic' planning level. However, the approaches to 'statutory' implementation vary significantly given that planning regimes are state based. It is also clear that statutory implementation has lagged behind policy development and is still at an early stage in most states.

Victoria has a strong policy framework based on the Victorian Coastal Strategy 2014 and the Victorian Floodplain Management Strategy 2016.

Statutory implementation of coastal hazard mapping in Victoria was comprehensively reviewed by the Coastal Climate Change Advisory Committee 2010, including the merits of different Victoria Planning Provision (VPP) tools, and has been advanced more recently by planning scheme amendments that have specifically addressed coastal flooding.

The approval of these amendments (at South Gippsland and Bass Coast) has established that the preferred approach to addressing coastal inundation is to map and apply the Land Subject to Inundation Overlay (LSIO) based on the 1% annual exceedance probability plus 0.8m sea level rise by 2100. This is consistent with State planning policy at Clause 13.01-1.

This project has reviewed the other available planning scheme options for addressing coastal inundation and has concluded that the LSIO is the most suitable VPP tool, although the use of Local Floodplain Development Plans is an option in some situations.

The project has also reviewed the current statutory approaches to managing coastal inundation in Greater Geelong and Queenscliffe. Despite the absence of any specific coastal flooding controls, both Councils assess applications and make decisions based on coastal flood mapping data held by the Corangamite Catchment Management Authority.

This approach is problematic, because there is an expectation in the Victorian planning system that hazards, such as coastal inundation, will be transparently identified and managed. This means that these areas should be identified on planning scheme maps and be subject to relevant controls.

To assist this, a draft LSIO schedule has been included in this report based on the LCHA mapping, together with draft Local Planning Policies and changes to the two Municipal Strategic Statements. The process for implementing the necessary planning scheme amendments has also been assessed and described.

1 Introduction

1.1 The project

This project has investigated ways to implement the relevant findings of the Bellarine Peninsula and Corio Bay Local Coastal Hazard Assessment (the LCHA) into the Greater Geelong and Queenscliffe Planning Schemes.

The key element of the LCHA to be implemented is the mapping of coastal inundation based on a 1% Annual Exceedance Probability (AEP) + 0.8m sea level rise. This standard approximates the State policy to “*Plan for possible sea level rise of 0.8 metres by 2100...*”

The project has reviewed the various ‘planning scheme’ options that are available to implement this mapping and to apply a set of planning scheme controls.

The project has been assisted by a range of stakeholders who have provided advice and information about the development of the LCHA and current approaches to managing flooding and coastal inundation in the study area, and more broadly within Victoria.

1.2 Tasks and outcomes

The key tasks included:

- consultation and liaison with the project team and stakeholders
- workshop with the project team and stakeholders
- literature and document review
- review and analysis of Victorian and interstate sea level rise management approaches
- assessment of Victoria Planning Provision (VPP) options.

The key outcomes are:

- A preferred planning scheme approach to managing sea level rises based on including all land within the 1% AEP + 0.8m SLR area as identified in the LCHA in a Land Subject to Inundation Overlay (LSIO).
- A draft LSIO schedule (exempting minor buildings and works from permission), a draft Local Planning Policy and draft changes to the two Municipal Strategic Statements.
- An outline and flowchart of the key steps for implementing planning scheme amendments.

1.3 Future Coasts program

This project falls within the Future Coasts program that was initiated by the Victorian Government to assist planning for sea level rise and coastal hazards. The program has delivered a package of tools to support decision-making, including inundation maps (Victorian Coastal Inundation Dataset), planning notes and guidelines (Victorian Coastal Hazard Guide 2012). The tools provide mapping and guidance about the potential risks from sea level rise along the Victorian coast.

The program included the preparation of four LCHAs, including the Bellarine Peninsula - Corio Bay LCHA.

1.3.1 Bellarine Peninsula and Corio Bay Local Coastal Hazard Assessment

The Geelong and Bellarine Peninsula region is one of four Victorian coastal regions for which LCHAs were prepared as part of this project. These assessments expanded on previous climate change coastal hazards research undertaken by the Victorian Government, and will assist coastal communities, councils and government to plan and respond together.

The Bellarine Peninsula and Corio Bay LCHA has involved three key steps:

Phase 1 - The Geelong-Queenscliff Coastal Mapping Project – identified areas exposed to erosion and inundation hazards with future sea level rise.

This involved a technical assessment of coastal data looking at hazards including catchment inundation, storm surge and erosion; and resulted in a series of hazard maps showing inundation in a range of severe weather events and sea level rise scenarios. The erosion component was not proceeded with following a peer review.

Phase 2 – The Geelong-Queenscliff Coastal Climate Change Risk Assessment

This assessment identified the impact of inundation hazards identified in the Geelong-Queenscliff Coastal Mapping project on coastal communities and adjoining natural areas. In particular, it investigated and prioritised risks to private, public, environmental and social/cultural assets.

Phase 3 – Geelong-Queenscliff Coastal Adaptation Program

This phase is investigating adaptation solutions and responses to the coastal hazards and risks identified in the earlier stages of the Our Coast program. This project falls within the Phase 3 process.

1.3.2 Other Local Coastal Hazard Assessments

LCHAs have also been prepared for Western Port, Gippsland Lakes and Port Fairy as part of the Future Coasts program. Although these LCHAs are used for planning purposes, including strategic planning and development assessment, none have been fully implemented within the respective planning schemes, although the Port Fairy LCHA has been partly implemented through Amendment C60 to the Moyne Planning Scheme.

2 Planning Framework

2.1 Commonwealth framework

The overarching Commonwealth climate change policy is the National Climate Resilience and Adaptations Strategy, 2015 that was developed under the National Climate Change Adaptation Framework.

The 'first pass' national coastal vulnerability assessment was undertaken within this Framework.

2.2 Victorian planning framework

2.2.1 Planning and Environment Act 1987

In Victoria, Section 6(2)(e) of the Planning and Environment Act, 1987 (the Act) enables planning schemes to “*regulate or prohibit any use or development in hazardous areas, or areas likely to become hazardous*”. As a result, planning schemes contain State planning policy for floodplain management (among other environmental risks), requiring that flood risk be considered in the preparation of planning schemes and in land use decisions.

2.2.2 Victorian Coastal Strategy 2014

The Victorian Coastal Strategy (the VCS) sets a long term vision and framework for planning and managing the Victorian coast, guided by a hierarchy of principles, policies and actions. The VCS identifies five key issues:

- Managing population growth
- Adapting to a changing climate
- Managing coastal land and infrastructure
- Valuing the natural environment
- Integrating marine planning.

In relation to sea level rises, the VCS includes the policies:

- 1 Plan for possible 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 coastal impacts associated with climate change.
- 2 In planning for possible sea level rise, an increase of 0.2 metres over current 1 in 100-year flood levels by 2040 may be used for new development in close proximity to existing development (urban infill).
- 3 For new greenfield development outside of town boundaries, plan for not less than 0.8 metre sea level rise by 2100.
- 4 Consider the risks associated with climate change in planning and management decision-making processes.

The VCS also includes the action “*Review and update planning benchmarks for sea level rise every five years. This will include investigating methods for deriving more detailed sea level planning allowances...*”

2.2.3 Victorian Floodplain Management Strategy 2016

The Victorian Floodplain Management Strategy (the VFMS) specifically addresses coastal flooding and includes related policies and actions. Key policies include:

Policy 15a Victoria's coastal flooding risks will be identified progressively through coastal hazard assessments.

Policy 15b LGAs with areas at risk of coastal flooding must ensure that their Planning Scheme contains:

- the objectives and strategies for managing the risk in the Municipal Strategic Statement
- the appropriate zones and overlays.

Policy 15e Planning scheme controls must be applied to all priority coastal areas, identified through Regional Floodplain Management Strategies, expected to be at risk of inundation by the 1% AEP flood level, taking into account a rise in mean sea level of at least 0.8 metres.

Statutory planning decisions for planning permits triggered by the relevant planning scheme controls:

- must be based on the risk of inundation taking into account a rise in mean sea level of at least 0.8 metres for subdivisions outside existing town boundaries and for all development accommodating emergency and community facilities
- may be based on the current 1% AEP flood level for all other development inside town boundaries and for development on existing lots outside town boundaries
- should include an additional 0.2 metres on top of the normal freeboard applied for decisions based on the current 1% AEP flood level.

The VFMS reinforces the planning standards required by the VCS and the role of Councils in ensuring that coastal flooding is addressed in planning schemes.

The VFMS also includes Action 13f:

DELWP in consultation with LGAs, CMAs and Melbourne Water will regularly review and, if necessary, revise the Victoria Planning Provisions to ensure they support this Strategy's objectives and policies.

The VFMS outlines the components of the 'Coastal flood management framework' that culminates in 'Coastal flood land use planning':

Figure 12: Coastal flood management framework

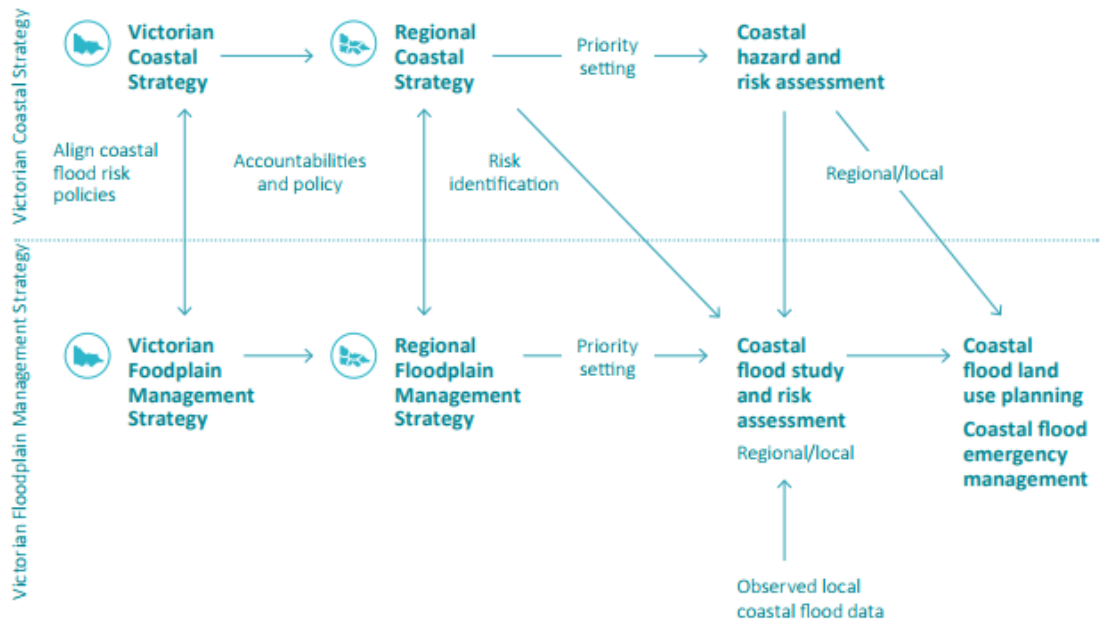


Figure 1 Coastal Flood Management Framework

2.2.4 Guidelines for Coastal Catchment Management Authorities: Assessing development in relation to sea level rise. June 2012

These Guidelines “set out relevant criteria and considerations to be taken into account by coastal Catchment Management Authorities (CMAs) in assessing development proposals that may potentially be affected by sea level rise”.

They are based on the strategies:

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 coastal impacts associated with climate change.

Apply the precautionary principle to planning and management decision-making when considering the risks associated with climate change.

Ensure that land subject to coastal inundation is identified and appropriately managed to ensure that future development is not at risk.

Avoid development in identified coastal hazard areas susceptible to inundation.

The Guidelines have been reviewed and a draft document has been prepared although it was not publicly available at the time this report was finalised.

2.2.5 Plan Melbourne 2017 – 2050

Plan Melbourne highlights planning issues associated with climate change and coastal hazard planning, including Direction 6.2:

Reduce the likelihood and consequences of natural hazard events and adapt to climate change.

Included under this Direction is Action 85:

Improvement of natural hazard, climate change and environmental adaptation and risk-mitigation strategies in planning schemes

Review, update and improve the implementation of natural hazard, climate change and environmental adaptation and risk-mitigation strategies in the Victoria Planning Provisions and planning schemes to:

- *ensure the right identification of the hazard through agreed technical criteria with data custodians*
- *ensure a consistent statewide policy approach targeted to relevant natural hazards and climate change impacts*
- *improve the approach to settlement resilience in areas exposed to high natural hazard and climate change risk*
- *ensure provisions remain current and based on the best available climate change science*
- *influence growth and settlement patterns to avoid and reduce long-term risk.*

2.2.6 State Planning Policy Framework

The State Planning Policy Framework (SPPF) is included in the VPPs and applies in every Victorian planning scheme, including Greater Geelong and Queenscliffe.

The SPPF provides the broad framework for the integration of flood policy and provisions in planning schemes, as well as guidance on how land affected by flooding should be treated in planning schemes and in planning decisions.

It requires that flood risk be considered when decisions are made about the use and development of land. If accurate flood information is available, the level of flood risk should be reflected in the type of flood provisions that have been applied to the land.

Clause 11.05-4 (Regional planning) directs that new development, such as dwellings and subdivisions, are located and designed in a way to minimise the risk from floods to life, property, the natural environment and community infrastructure.

The key SPPF provisions are found in **Clause 13.01-1 (Coastal inundation and erosion)** that was introduced by Amendment VC94 in 2012 and updated by Amendment VC127 in 2016. It includes the objective:

To plan for and manage the potential coastal impacts of climate change.

Related strategies are:

In planning for possible sea level rise, an increase of 0.2 metres over current 1 in 100 year flood levels by 2040 may be used for new development in close proximity to existing development (urban infill).

Plan for possible sea level rise of 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 coastal impacts associated with climate change.

Consider the risks associated with climate change in planning and management decision making processes.

For new greenfield development outside of town boundaries, plan for not less than 0.8 metre sea level rise by 2100.

Ensure that land subject to coastal hazards are identified and appropriately managed to ensure that future development is not at risk.

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

Avoid development in identified coastal hazard areas susceptible to inundation (both river and coastal), erosion, landslip/landslide, acid sulfate soils, bushfire and geotechnical risk.

The related policy guideline is:

Planning must also consider as relevant:

- *The Victorian Coastal Strategy (Victorian Coastal Council, 2014).*
- *Any relevant coastal action plan or management plan approved under the Coastal Management Act 1995 or National Parks Act 1975.*
- *Any relevant Land Conservation Council recommendations.*

Clause 13.02 (Floodplains) brings together various strands of policy and strategic planning from all areas of government that have a bearing on floodplain management. It aims to provide consistency in planning controls for flood affected areas of the State.

The objective is:

To assist the protection of:

- *Life, property and community infrastructure from flood hazard;*
- *The natural flood-carrying capacity of rivers, streams and floodways;*
- *The flood storage function of floodplains and waterways;*
- *Floodplain areas of environmental significance or of importance to river health.*

The related strategies are:

Identify land affected by flooding, including floodway areas, as verified by the relevant floodplain management authority, in planning scheme maps. Land affected by flooding is land inundated by the 1 in 100 year flood event or as determined by the floodplain management authority.

Avoid intensifying the impacts of flooding through inappropriately located uses and developments.

Locate emergency and community facilities (including hospitals, ambulance stations, police stations, fire stations, residential aged care facilities, communication facilities, transport facilities, community shelters and

schools) outside the 1 in 100 year floodplain and, where possible, at levels above the height of the probable maximum flood.

Locate developments and uses which involve the storage or disposal of environmentally hazardous industrial and agricultural chemicals or wastes and other dangerous goods (including intensive animal industries and sewage treatment plants) must not be located on floodplains unless site design and management is such that potential contact between such substances and floodwaters is prevented, without affecting the flood carrying and flood storage functions of the floodplain.

The related policy guideline is:

Planning must consider as relevant:

- *State Environment Protection Policy (Waters of Victoria).*
- *Regional catchment strategies and special area plans approved by the Minister for Environment and Climate Change.*
- *Any floodplain management manual of policy and practice, or catchment management, river health, wetland or floodplain management strategy adopted by the relevant responsible floodplain management authority.*
- *Any best practice environmental management guidelines for stormwater adopted by the Environment Protection Authority.*
- *Victoria Floodplain Management Strategy (Department of Natural Resources and Environment, 1998).*

This Clause reinforces the State policy that Councils should implement flood mapping in their planning schemes.

2.2.6 Ministerial Direction No 13 Managing Coastal Hazards and the Coastal Impacts of Climate Change (MD13)

MD13 sets out 'climate change' considerations for planning scheme amendments which would allow non-urban land to be used for urban purposes in coastal areas. It applies to land abutting the coastline or a coastal reserve, and land less than 5 metres AHD that is within one kilometre of the coastline.

MD13 requires that relevant amendments:

- are consistent with SPPF coastal policies
- address 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
- are based on an evaluation of the potential risks and seeks to avoid or minimise exposure to projected coastal hazards.

2.3 Interstate planning frameworks

2.3.1 New South Wales

The NSW framework for managing coastal inundation risks is provided by the NSW Coastal Policy, the Coastal Protection Act, 1979 and the Coastal Protection Regulations, 2011. This framework involves local councils, with financial and technical support from the State, undertaking coastal hazard studies and developing coastal zone management plans which then inform land-use planning, development controls and coastal activities.

The NSW Coastal Planning Guideline: Adapting to Sea Level Rise, 2010 establishes that the NSW sea level rise planning benchmarks are an increase above 1990 mean sea levels of 40cm by 2050 and 90cm by 2100. These benchmark figures were based on the most current and credible national and international projections of sea level rise for the NSW coast and take into consideration the uncertainty associated with sea level rise projections.

The benchmarks are not used as a blanket prohibition on development within areas affected by sea level rise. They are used to inform risk mitigation and management decision making in new Local Environment Plans (LEPs) and the assessment of development applications.

Statutory implementation is achieved through the mapping of coastal risk areas, separately as coastal erosion or coastal flooding areas, in LEPs and the associated Development Control Plans (DCP). This mapping can be applied to the coastal risk area through a LEP, while more detailed development controls (such as the immediate hazard line, the projected 2050 hazard line and the projected 2100 hazard line) can then be applied in a DCP. These development controls can cover mitigation works, construction methods or materials, size of the development, building design, the need for development to be relocatable or temporary and the location of utilities or services within the site. A DCP can also specify the use of time and/or trigger limited conditions within a development consent to allow sustainable accommodation of the coast until such time as the impacts of sea level rise compromise life and property.

A number of municipal Coastal Zone Management Plans have recently been prepared (including Wollongong and Newcastle in 2016). These Management Plans recommended updated statutory controls through new or revised DCPs and although this work is in progress, it seems that it has not been completed in many municipalities.

2.3.2 Queensland

The Queensland framework for coastal hazard planning is provided by State Planning Policy, 2017, the Coastal Hazard Technical Guide: Determining Coastal Hazard Areas, 2013, Developing a Coastal Hazard Adaptation Strategy: Minimum Standards and Guideline for Queensland Local Governments, 2016 and coastal hazard area maps prepared by the State government.

The coastal hazard mapping identifies a projected 0.8m sea-level rise by 2100.

The principal mechanism for addressing coastal hazards is through the preparation of Coastal Hazard Adaption Strategies that:

- identify coastal hazard areas
- understand vulnerabilities and risks to a range of assets (including tangible and intangible assets)
- engage with the community to understand their preferred approach to adaptation
- determine the costs, priorities and timeframes for their implementation.

In Townsville, for example, the Local Government Association of Queensland, Townsville City Council and the Queensland Government prepared a pilot coastal hazard adaptation strategy in 2012.

The project focused on parts of Townsville City projected to be at risk from coastal hazards (sea level rise, storm tide and erosion) as identified by the Queensland Government coastal hazard area maps.

The project piloted key steps in the development of a coastal hazard adaptation strategy, including:

- identifying areas at risk from current and future coastal hazards
- identifying current and future assets at risk (private, commercial, community, government)
- testing the viability of potential adaptation options that weighed effectiveness against future costs of actions or inaction
- identifying timeframes and trigger points for decision making and implementation actions
- identifying measures to ensure the adaptation strategy can be integrated into existing local, state and national government planning and program areas.

Coastal hazard is principally addressed in the Townsville Town Plan through zone and overlay controls.

2.3.3 South Australia

The South Australian Government's Policy on Coast Protection and New Coastal Development, 1991 adopted a sea-level rise allowance of 0.3 metres by 2050 and 1 metre by 2100. This has been reflected in subsequent policy documents including the Coast Protection Board Policy 2016, Coastal Development Plans and the Coastal Planning Information Package, 2013. Planning controls also apply a 25cm freeboard for floor levels.

In 2008, the Supreme Court of South Australia upheld a local Council decision to refuse a permit (*Northcape Properties Pty. Ltd. v District Council of Yorke Peninsula [2008] SAS 57*) on the grounds of the development failing to account for recession of the coastline under projected rising sea levels. Planning policy at the time specifically called for consideration of sea level rises in the first 100 years of the life of a development.

The Coast Protection Board Policy 2016 carries over the Standards Applying to New Development with regard to Coastal Flooding and Erosion and Associated

Protection Works that were developed over 1991 – 2000. The Coastal Planning Information Package Standards also provide the various coastal development standards together with guidance for planning policy and the application of zones.

The flooding standards are applied at the local level by coastal Councils in their Development Plans. Development applications within ‘coastal areas’ are generally referred to the Coast Protection Board.

2.3.4 Tasmania

In 2016, the Tasmanian Government engaged CSIRO to provide updated sea level rise planning allowances for the State. The updated allowances are based on the sea level rise projections provided in the Intergovernmental Panel on Climate Change (IPCC)'s Fifth Assessment Report (IPCC AR5) and are based on the high emissions scenario RCP8.5.

From the CSIRO work, Tasmania now has sea level rise projections and planning allowances for each coastal municipality in the State, as well as statewide averages for 2050 and 2100 (both relative to 2010 sea levels). The statewide averages are 0.23m (2050) and 0.85m (2100). These levels have been mapped by the State and will be inputs into the planning code for coastal hazards, which will be implemented through the statewide planning scheme being developed as part of the Government’s planning reforms.

2.3.5 Western Australia

The Western Australia State Coastal Planning Policy establishes that the allowance for sea level rise should be based on a vertical sea level rise of 0.9 metres over a 100-year planning timeframe to 2110. The implementation of the Policy is guided by the State Coastal Planning Policy Guidelines, 2013, Sea Level Change in Western Australia: Application to Coastal Planning, 2010 and Coastal Hazard Risk Management and Adaptation Planning Guidelines, 2014. The Policy is implemented through regional strategies, local planning strategies and regional and local planning schemes.

2.3.6 Implications

The coastal inundation and hazard policy frameworks are generally similar in all states, and information sharing and planning processes (particularly the use of flood mapping and hazard assessments) are commonly used at the ‘strategic’ planning level.

However, approaches to statutory implementation vary considerably, given that planning legislation and processes are state based. It is also evident that ‘local’ statutory implementation has been ‘patchy’ and is still at an early stage in most states. Nevertheless, various initiatives and projects (such as the Victorian Future Coast program), have provided impetus for action by some Victorian and interstate planning authorities.

3 Planning scheme tools

The available suite of planning scheme tools that can be used to implement the LCHA are drawn from the VPPs. The VPPs provide the building blocks for all Victorian planning schemes and provide a consistent basis for drafting and applying planning policy and planning scheme tools.

The following sections provide an overview of the relevant elements of the VPP, the available VPP tools and the factors that affect which tools can be used and how they can be used. Although this assessment is based on the current suite of VPP tools, Plan Melbourne and the Victorian Floodplain Management Strategy both indicate that the VPPs will be regularly reviewed and updated to address climate change, coastal hazard and flooding issues.

3.1 Victoria Planning Provisions

3.1.1 Overview

In the late 1990's, following Council amalgamations, all planning schemes in Victoria were converted into the VPP format and then exhibited and evaluated by an Independent Panel and Advisory Committee. The 'new format' planning schemes were gradually introduced over a two-year period between October 1998 until September 2000.

The general format of a VPP planning scheme includes:

- the State Planning Policy Framework (discussed earlier)
- the Local Planning Policy Framework (including the Municipal Strategic Statement at Clause 21 and Local Planning Policies at Clause 22)
- zones
- overlays
- particular provisions
- general provisions
- incorporated documents (documents that 'sit' outside the planning scheme but have the statutory 'weight' of VPP provisions).

A key aspect of all new format planning schemes was the need for a strategic basis for all statutory planning controls. With respect to flooding, most new format planning schemes simply carried over the existing flood data from former planning schemes. This was identified at the time as being less than perfect given various inaccuracies and gaps in some of the data.

All newly formed Catchment Management Authorities (CMAs) and the (then) Department of Natural Resources and Environment used the introduction of the new format schemes to commission an array of strategic work and flood reports which subsequently informed amendments to various planning schemes.

This has typically involved strategic analysis of riverine flooding and overland flows, which has more recently been extended to coastal inundation analysis and mapping.

3.1.2 The Ministerial Direction on the Form and Content of Planning Schemes

This Ministerial Direction applies to the form and content of all planning schemes and includes various ‘templates’ for how VPP provisions, including zone and overlay schedules are to be drafted and what they can include.

The current Ministerial Direction was approved in April 2017.

Importantly, the Direction requires that:

- a planning scheme must not include any zone or overlay clause other than a zone or overlay clause selected from the VPPs
- the drafting and content of any schedule to a planning scheme provision must be consistent with the templates provided in the Direction.

These requirements impose limitations around the choice and drafting of planning scheme provisions to implement the LCHA.

3.1.3 Local Planning Policy Framework (LPPF)

In the LPPF, the Municipal Strategic Statement (MSS) (Clause 21) can provide local policy guidance on flooding issues identified, for example, in a Regional Catchment Strategy or in floodplain management plans developed by a CMA. This can also include the types of hazards identified in LCHAs.

An LPPF can also include Local Planning Policies (LPPs) (Clause 22) that guide decision-making on applications for planning permits in flood affected areas.

Many Victorian planning schemes supplement the MSS ‘flooding’ content and overlay schedules with a local planning policy at Clause 22, although recent approaches to drafting LPPFs focus on including policy material in the MSS instead.

Importantly, LPPFs must be consistent with the SPPF. This means that local flood policies (and their implementation) must be consistent with those in the SPPF, notably Clause 13.01-1 (Coastal inundation and erosion).

3.1.4 Zones and overlays

Within a planning scheme, every parcel of land (other than Commonwealth land) is assigned a zone and may also have one or more overlays. An overlay provides an extra level of control for a specific issue (heritage, building height, bushfire, flooding etc).

The options provided in the VPP in relation to flooding (as set out in Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes) are the:

- Urban Floodway Zone (UFZ)
- Floodway Overlay (FO)
- Land Subject to Inundation Overlay (LSIO)
- Special Building Overlay (SBO).

A table outlining the use of these options is included at Appendix A.

Copies of the 'head' provisions are included at Appendix B

Other potentially relevant overlays to address coastal flooding include the:

- Environmental Significance Overlay (ESO)
- Erosion Management Overlay (EMO).

Each of the flood provisions in the VPPs provides differing degrees of flexibility for the development of flood-affected land which are directly related to the flood risk identified in the relevant flood study.

These controls (other than the UFZ) allow for a detailed schedule that provides for planning permit exemptions to be specified.

The VPP 'header' for the flooding overlays follows the normal format of requiring a planning permit for most buildings, works and subdivision except as:

- already exempted by other parts of the scheme (especially Clause 62); or
- specifically exempted in the schedule to the overlay.

The VPP 'header' also imposes obligations on referring planning permit applications to the relevant floodplain manager (which in most cases is the CMA), unless there is a written agreement that certain applications do not need to be referred.

When new format VPP planning schemes were first introduced, Councils typically inserted 'None specified' into the LSIO and FO schedules pending further flooding analysis that was needed to justify detailed requirements and provisions. Despite the passing of more than 15 years, a number of Victorian planning schemes (Warrnambool, Corangamite, Hobsons Bay, Hepburn and Wodonga among others) maintain the 'None specified' provisions.

Urban Floodway Zone

The UFZ is applied in urban areas where the primary function of the land is to convey active flood flows. It also applies to urban floodway areas where the potential flood risk is high due to the presence of existing development or pressure for new or more intensive development.

Apart from its first purpose (which is replicated in every zone and overlay):

To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.

the specific purposes of the UFZ are:

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 ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.

To reflect any declarations under Division 4 of Part 10 of the Water Act, 1989.

To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies, and particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

Unlike the flood overlays, the UFZ controls ‘use’ as well as ‘development’ and ‘subdivision’. Land use is restricted to low intensity uses, such as recreation and agriculture.

As a general observation, the UFZ is one of the most restrictive zones in the VPPs and development is generally not encouraged.

The UFZ requires that any permit application (use, development or subdivision) be consistent with a Local Floodplain Development Plan (LFDP) where one has been incorporated into the scheme at Clause 81. In the absence of a LFDP, applications must be accompanied by a Flood Risk Report.

There are mandatory referral requirements (under Section 55 of the Act) to the relevant floodplain management authority (which is the CCMA in both municipalities) except if the proposal complies with conditions agreed to in writing by the authority.

While the zone has a schedule, it only relates to advertising signs.

Floodway Overlay

The FO, LSIO and the SBO are the three ‘flooding’ overlays in the VPP and are part of the suite of ‘Land Management’ overlays.

The FO applies to major flood-paths and mainstream flooding in both rural and urban areas. These areas convey active flood flows or store floodwater in a similar way to the UFZ, but with a lesser flood risk.

The specific purposes of the FO are:

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

To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.

To reflect any declarations under Division 4 of Part 10 of the Water Act, 1989 if a declaration has been made.

To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies, and particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.

The FO controls buildings, works and subdivision and is suitable for areas where there is less of a need for control over land use, and more focus on controlling

development, especially development that will obstruct flood flows or increase flood risk.

It includes a schedule which only enables permit requirements or exemptions to be specified. In the event that a Council does not wish to identify any requirements, then 'None specified' must be inserted in the schedule.

Despite the evidence of numerous approved planning schemes having very enabling FO schedules, the latest Ministerial Direction on the Form and Content of Planning Schemes only allows permit requirements and/or exemptions.

Like the UFZ, the FO requires that permit applications must be consistent with a LFDP where one has been incorporated into the planning scheme. If not, then applications must be accompanied by a Flood Risk Report.

There are mandatory referral requirements (under Section 55 of the Act) to the relevant floodplain management authority (which is the CCMA in both Municipalities) except if the proposal complies with conditions agreed to in writing by the authority.

Land Subject to Inundation Overlay

The LSIO applies to mainstream flooding in both rural and urban areas. It identifies land in flood fringe areas affected by the 1 in 100 year flood. In general, areas covered by the LSIO have a lower flood risk than the UFZ or FO areas.

The specific purposes of the LSIO are:

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 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 reflect any declaration under Division 4 of Part 10 of the Water Act, 1989 where a declaration has been made.

To protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.

Like the FO, the LSIO includes a schedule that only enables permit requirements or exemptions to be specified. Despite the evidence of numerous approved schemes having very enabling schedules addressing application requirements, decision guidelines and referrals, the Ministerial Direction on the Form and Content of Planning Schemes only allows permit requirements and/or exemptions.

There are mandatory referral requirements (under Section 55 of the Act) to the relevant floodplain management authority (which is the CCMA in both

Municipalities) except if the proposal complies with conditions agreed to in writing by the authority.

Like the UFZ and the FO, the LSIO requires that any application must be consistent with an existing LFDP. Unlike the other controls, if no such plan has been incorporated into the planning scheme at Clause 81, there is no specific provision in the LSIO to require a Flood Risk Report.

Special Building Overlay

The SBO only applies to stormwater flooding in urban areas.

The specific purposes of the SBO are:

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 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 protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

With demand for the redevelopment of existing urban areas and the development of greenfield areas, there is growing pressure to develop land within overland flow path areas. The purpose of the SBO is to set appropriate conditions and building floor levels to address the flood risk and to ensure that flood waters are not obstructed or diverted by development.

The SBO schedule only enables permit requirements and exemptions to be specified.

Once again, there are mandatory referral requirements (under Section 55 of the Act) to the relevant floodplain management authority (which is the CCMA in both Municipalities) except if the proposal complies with conditions agreed to in writing by the authority.

Like the LSIO, the SBO requires that permit applications must be consistent with an incorporated Local Floodplain Development Plan. There is no specific provision in the SBO to require a Flood Risk Report.

Environmental Significance Overlay

The specific purposes of the ESO are:

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

To ensure that development is compatible with identified environmental values.

The ESO is part of the VPP suite of 'environmental and landscaping' overlays.

Like the flooding overlays the ESO can control buildings, works and subdivision. But unlike the flooding overlays it also controls the removal, destruction or lopping of vegetation.

Unlike the flood overlays, the ESO schedule is far more enabling, providing for a statement of environmental significance, the objective to be achieved, permit requirements and additional decision guidelines.

The ESO has been used in the Victorian system for 'coastal development' type purposes including at Moyne, South Gippsland, Warrnambool and Wellington (among others).

Erosion Management Overlay

The specific purpose of the EMO is:

To protect areas prone to erosion, landslip or other land degradation processes, by minimising land disturbance and inappropriate development.

The EMO is part of the VPP suite of 'land management' overlays.

Despite it being a land management overlay (like the FO, LSIO and SBO), the EMO has similar characteristics to the ESO in that it can regulate buildings, works, subdivision and the removal, destruction or lopping of vegetation.

It contains a very extensive list of 'decision guidelines' (including consideration of regional catchment strategies) and various technical reports.

The EMO schedule is not as enabling as the ESO and is limited to permit requirements and application requirements.

Flood Risk Report

A Flood Risk Report must be prepared for applications on land in the UFZ or the FO (but not the LSIO or SBO) if a LFDP has not been incorporated into the planning scheme. A Flood Risk Report is a detailed flood assessment of a particular development proposal. Its purpose is to provide information about the subject property, the proposed development and the relevant flood impacts. The Flood Risk Report should justify whether the proposed development is compatible with the flood risk.

3.1.5 Particular Provisions

Clause 62 (Uses, buildings, works, subdivisions and demolition not requiring a permit) of the VPP contains a list of planning permit exemptions, some of which can be 're-inserted' into specific zone or overlay schedules.

Clause 65.01 (Approval of an application or plan) of the VPP requires that for the approval of an application, the council must consider, among other things:

- *the degree of flood, erosion or fire hazard associated with the location of the land and the use, development or management of the land so as to minimise any such hazard.*

In addition to Clause 65, and as noted above, the flood zone and overlays contain their own decision guidelines that must be considered when determining an application.

3.1.6 Local Floodplain Development Plans

LFDPs can be used as a statutory planning mechanism (at Clause 81 of the VPP) to identify flood prone land and to apply complementary planning controls. They are typically commissioned by a council or CMA and provide an opportunity to develop a 'tailored' statutory planning regime.

PPN12 states that Councils and floodplain management authorities should give a high priority to the preparation of LFDPs, particularly in areas of significant flood risk and where a large number of applications are anticipated.

The original purpose of LFDPs was to capture all critical flooding information relating to a specific catchment and to clearly identify flood risks. Addressing flooding on a broad basis (such as a catchment) avoids the need to prepare Flood Risk Reports or assessments for individual properties.

LFDPs enable the Council and local floodplain management authority to include specific local requirements in the planning scheme and have two purposes:

- to provide a set of requirements and guidelines for development in a particular area.
- to simplify and streamline the consideration of planning permit applications and avoid the need to prepare a flood risk report.

PPN12 notes that a LFDP should include:

- flood history
- flood information sources
- flood impacts (a description of the types of flood behaviour in the UFZ, FO, LSIO and SBO areas and their importance)
- flora, fauna and other environmental values and constraints
- development guidelines for permissible subdivisions, buildings and works, including earthworks (these may vary for different zone and overlay areas)
- guidelines to assist the Council prepare its local policies, schedules and referrals.

A regulatory regime that will typically flow from using a LFDP consists of:

- planning scheme maps for the LSIO (and/or FO)
- 'flooding' references in the MSS
- a FO/LSIO schedule
- LFDP incorporated into the scheme at Clause 81.

As a general observation, LFDPs are more typically used where flooding issues are complex and there is a need for more sophisticated controls. They have been most extensively used to address riverine flooding in Northern Victoria (Campaspe, Strathbogie, Greater Shepparton etc).

3.2 Planning Practice Notes

A range of Planning Practice Notes (PPNs) are relevant to implementing the LCHA, including the drafting of policy, the consideration of flooding issues and the use of the various VPP 'flooding' tools.

While the key PPNs are discussed below, others are included at Appendix C.

Planning Practice Note 11: Applying for a Planning Permit under the Flood Provisions (PPN11):

- provides guidance about making an application for a planning permit where flooding is a consideration
- explains how an application will be assessed.

PPN11 includes:

Areas affected by flooding should be identified on the planning scheme maps and appropriate controls on the use and development of land introduced through the use of the flood zone and overlays in the VPP.

Local floodplain development plans should also be prepared and incorporated into the planning scheme to guide decision-making on applications for development on land in the flood zone or overlay.

Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes (PPN12) provides guidance on applying the flood provisions in planning schemes, including:

- preparing policy
- identifying land affected by flooding
- preparing a LFDP
- the application and operation of the flood provisions, including the preparation of schedules.

PPN12 was initially introduced in 2000 and was most recently revised in August 2015. It includes:

Exemptions in schedules should respond to local conditions, taking into account specific types of development and local needs. For example, in rural areas, typical exempt buildings and works that would not have a significant effect on flood risk might include minor earthworks, farm sheds and hay sheds. In view of the need to monitor development more carefully in floodway areas, exempt buildings and works in the FO should be more limited than in the LSIO.

In relation to 'earthworks', PPN12 includes:

Earthworks include land forming, laser grading, levee banks, lanes, tracks, aqueducts, surface and subsurface drains and any associated structures.

Inappropriate earthworks have the potential to obstruct or divert flood flows, reduce natural flood storage areas, impact on environmental values and increase flood flows, flow velocities and flood damage.

Significant earthworks, including levees and raised roads, are inappropriate for floodway land. In rural areas, private levees may be constructed without regard for the potential effects of these works beyond the farm boundaries. In urban areas, earthworks can interfere with local drainage and divert floodwater onto other properties. Councils should consider introducing earthworks provisions into their planning schemes where necessary as an additional measure in protecting floodplains.

A key feature of PPN12 is the explanation of the role of LFDPs that enable a Council or CMA to:

- include specific requirements for development in a particular area
- streamline planning permit assessment
- avoid the need to prepare a Flood Risk Report on a site-by-site basis.

The earliest versions of LSIO and FO schedules did not rely on LFDPs. These plans were an outcome of the monitoring and review of the operational aspects of the new VPP flooding controls and were driven by the early experience of the CMAs.

Typically, a LFDP should include a description and map of the flood precinct, the flood history, flood impacts and permit requirements.

Planning Practice Note 53: Managing Coastal Hazards and the Coastal Impacts of Climate Change (PPN53) provides guidance on managing coastal hazards, the decision-making process for assessing coastal hazard risk and planning for development in coastal areas.

PPN53 highlights that the planning framework for coastal inundation and hazards is established by the VCS and included in the SPPF.

3.3 Drafting zone and overlay schedules

Very few planning schemes in Victoria fully comply with the Ministerial Direction on the Form and Content in Planning Schemes in respect of flooding issues. The most recent version of the Ministerial Direction (April 2017) attempts to redress this.

While the former (and new) Ministerial Direction do not make allowance for anything other than permit exemptions in schedules, there are repeated examples throughout the Victorian system of the flooding schedules being used for purposes well beyond the Ministerial Direction. Inevitably (and historically), there is also a degree of repetition between the schedules and an LFDP.

The manner in which the issue of flooding should be addressed in the Victorian planning system is neatly summarised in the preamble to PPN11 as follows:

Areas affected by flooding should be identified on the planning scheme maps and appropriate controls on the use and development of land introduced through the use of the flood zone and overlays in the VPP.

In simple terms, planning scheme **maps** will identify where there is a flooding issue and the severity of that issue (UFZ, SBO, FO or LSIO).

It is then the role of the **overlay** to identify whether a permit is triggered. This can be qualified in the **schedule** which can identify matters that do not require a permit.

An objective in drafting flooding schedules should be to minimise the number of unnecessary planning permit applications that are required, and to focus on those types of applications which the floodplain manager (and Council) believe are necessary in a flooding context.

A related objective has been to minimise the amount of referrals that are forwarded to the floodplain manager. This can be achieved by exempting applications from referral, or by exempting applications from referral so long as previously agreed conditions are attached to a permit.

4 Recent planning scheme approaches

Over time, a 'model' planning schemes structure for implementing flood related material has typically consisted of:

- standardised MSS insertion at Clause 21
- standardised LPP at Clause 22
- schedule (blank) for UFZ at Clause 37.03
- schedule for FO (detailed) at Clause 44.03
- schedule for LSIO (detailed) at Clause 44.04.

Some Councils have incorporated LFDPs (at Clause 81) where needed.

This general approach has been applied to inland, as well as coastal flooding although the choice of overlay has varied depending on the characteristics of the flooding. In recent years, planning scheme approaches to managing coastal flooding have been reviewed by a Ministerial Advisory Committee and various planning panels that are discussed below.

4.1 Coastal Climate Change Advisory Committee (Victoria)

In 2009, the Victorian Minister for Planning appointed the Coastal Climate Change Advisory Committee *"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 impacts of climate change as outlined within the Victorian Coastal Strategy 2008"*.

In broad terms, the Committee provided recommendations around four key areas:

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

The Committee considered a range of issues and submissions, and reached the following key conclusions and recommendations:

- While the planning figure of 0.8m of sea level rise by 2100 is sound, interim sea level rise targets should be used to provide a clearer framework for strategic planning and adaptation responses within that time horizon. In particular, the State Planning Policy Framework should 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 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.
- A new planning instrument (a new Coastal Hazard Overlay) should be introduced that identifies those coastal areas that are likely to be affected by sea level rise, storm surge and accelerated erosion over the next 90 years and introduces some level of planning control over development that intensifies use.
- The recommended Coastal Hazard Overlay should provide for multiple schedules to reflect different levels of risk or different timeframes over which impacts may occur
- Existing VPP tools, with minor modifications, are capable of managing changes of use or development in non-urban areas and in 'greenfield' areas identified for future growth that are at risk of impacts from coastal climate change.
- The SPPF references to coastal climate changes should be strengthened.
- Relevant local policy should be included in the MSS.

The Minister for Planning supported many of the Committee's recommendations, either in part or in full. However, the various recommendations that sought the introduction of new coastal zones and a new Coastal Hazard Overlay were not supported.

The VPP changes supported by the Minister were implemented by Amendment VC94 that was approved in July 2012. VC94 was accompanied by a revised PPN53 Managing Coastal Hazards and the Impacts of Climate Change.

4.2 Planning scheme amendments

4.2.1 Bass Coast Amendment C82

Amendment C82 applied the LSIO to areas affected by riverine flooding and predicted coastal inundation, and introduced supporting policy in Clause 21. It was initiated by the Bass Coast Shire Council, West Gippsland Catchment Management Authority and Melbourne Water, and was approved following a Panel Hearing in 2014.

The exhibited LSIO was applied to areas within the predicted 0.8m sea level rise by 2100 based on the Victorian Coastal Inundation Dataset.

The Panel that considered submissions on the Amendment recommended that it be adopted and supported the use of the LSIO as the most appropriate VPP tool to *"use for planning for climate change within a strategic land use planning context"*. The Panel also concluded that:

- planning for the predicted effects of climate change is consistent with State policy
- the LSIO mapping should be reviewed in the future if more detailed mapping (such as a LCHA for Westernport) is prepared

- the LSIO should differentiate between urban infill areas that correspond to sea level rise of 0.2m by 2040 and greenfield area (outside township boundaries) that correspond to sea level rise of 0.8m by 2100
- the LSIO should require Coastal Hazard Vulnerability Assessments for buildings and works on land below 5m AHD.

The approved LSIO only implemented the predicted 0.8m sea level rise by 2100. It did not specifically map the area subject to sea level rise of 0.2m by 2040 or include the 0.2m measure as a planning trigger.

The Amendment was approved in June 2016.

4.2.2 South Gippsland Amendment C81

Amendment C81 applied the LSIO to areas affected by inland flooding and current and predicted coastal inundation, and introduced supporting policy in Clause 21. Importantly, the LSIO replaced an interim 'flooding' ESO on the basis that the LSIO was the preferred VPP tool. The Amendment was initiated by South Gippsland Shire Council and the West Gippsland Catchment Management Authority. The Amendment was exhibited in 2015 and was the subject of a Panel Hearing in 2016.

The exhibited LSIO mapping was based on a 'hierarchy' of mapping, including State (Victorian Coastal Inundation Dataset) and local level mapping and analysis. The LSIO was applied to areas within the predicted 0.8m sea level rise by 2100. The schedule included a permit exemption for dwellings with a floor level above a specified AHD height, including a 0.3m freeboard.

The Panel that considered submissions on the Amendment recommended that it be adopted and agreed that the LSIO was the appropriate VPP tool to manage inland and coastal flooding, and that the mapping methodology was appropriate. In contrast to Bass Coast C82, the Panel did not recommend that the area subject to sea level rise of 0.2m by 2040 be separately mapped or that the 0.2m level be used as a planning trigger.

The Amendment was approved in November 2016 in a form consistent with the approved Bass Coast Amendment C82.

The South Gippsland and Bass Coast approvals indicate that the Government's preferred approach to implementing LCHAs is to apply the LSIO based on 0.8m sea level rise by 2100. The SPPF reference to an interim 0.2m by 2040 (Clause 13.01-1) can continue to be implemented as a SPPF policy, rather than through flood overlay mapping and provisions.

This approach has been adopted for the purposes of this report and the drafting of the recommended LSIO schedule included at Appendix F.

4.2.3 Moyne Amendment C54

Amendment C54 implemented Stage 1 of the Port Fairy Floodplain Management Plan, and introduced new flood mapping, through the use of the FO and LSIO, together with a new 'flooding' policy and Local Floodplain Development Plan. The Amendment was based on the Port Fairy Regional Flood Study 2008, the Addendum reports on Sea Level Rise Modelling 2010/2012. Notably, the Amendment included

a LFDP that is applied in conjunction with the FO and LSIO, although these schedules do not contain any links to the LFDP.

The Amendment was exhibited in 2013 and was the subject of a Panel Hearing in April 2014. The Panel supported the Amendment and recommended that it be adopted, subject to some minor changes.

The Amendment was approved in December 2014.

4.2.4 Moyne Planning Scheme Amendment C60

Amendment C60 implemented the Port Fairy West Structure Plan and applied the LSIO based on the Future Coasts Port Fairy LCHA 2013. The Amendment was exhibited in 2015 and was the subject of a Panel Hearing held in 2016.

The LSIO mapping was based on available modelling and was applied to the area within the predicted 0.8m sea level rise by 2080 (rather than 2100 referred to in the SPPF).

The Panel supported the Amendment and the use of the LSIO, and recommended that it be adopted.

The Amendment was approved in October 2016

4.3 Victorian Civil and Administrative Tribunal decisions

The Victorian Civil and Administrative Tribunal (VCAT) addressed the impact of sea level rise and the risk of coastal inundation in *Gippsland Coastal Board v South Gippsland Shire Council [2008] VCAT 1545*. The Tribunal noted (in its Summary):

The construction of dwellings on land subject to inundation is contrary to policy and not a good outcome. The case is of particular interest because of potential sea level rises due to the effects of climate change. We conclude that sea level rise and risk of coastal inundation are relevant matters to consider in appropriate circumstances.

The Tribunal came to this conclusion despite there being no explicit policy direction at the time in the VPPs (such as Clause 13.01-1 that was introduced in 2012) and highlighted the significance of coastal inundation as a relevant planning consideration.

Over time, VCAT has also reached some general conclusions about the operation of planning schemes that are relevant to flooding and other controls, including in the local Bellarine area.

In *Trevor Homes Pty. Ltd v Greater Geelong City Council (P2514/2010)*, the Tribunal considered an application to refuse to extend the life of a permit for the construction of two, two storey dwellings on a site in Portarlington that was first issued in 2007. The Tribunal noted that since the grant of the original permit there had been significant changes to the planning scheme provisions relating to the land including:

- Clause 15.08 (Coastal Areas) at the state level which introduced objectives including the need to plan for and manage the potential coastal impacts of climate change; and

- Clause 21.05-5 (Climate Change) at the local level which sought to avoid land use and development within areas considered at risk of coastal erosion or inundation.

In rejecting the request, the Tribunal commented:

In my opinion, the significant change to the planning scheme provisions relevant to this application is the introduction of policies in respect of climate change and coastal development in both the state and local sections of the scheme.

The Corangamite Catchment Management Authority opposed a related application for a two-lot subdivision of the land on the basis of its estimate of a 1% annual exceedance probability storm tide level at the property of 2.22 metres AHD by the year 2100.

The effect of this is that to provide a 300 millimetre free board above the estimated flood level, floor levels would need to be between 900 millimetres and 1200 millimetres above existing ground levels. Moreover, the nearest high ground in such an event would be approximately 170 metres south along Sproat Street with flood levels across the road being up to 1 metre in depth.

It is clear to me that climate change issues raise serious considerations in respect of the development of this land and that consequentially the life of the permit granted in 2007 in the absence of these considerations should not be extended.

In *Rowe v Greater Geelong City Council [2011] VCAT 1772*, the Tribunal took a different view when it considered an application for the construction of two dwellings and a two-lot subdivision in Point Lonsdale. According to the Tribunal:

The subject land has an elevation of 1.64-1.95 m AHD. The Corangamite CMA assessed that, in 2100, under the SRES A1FI scenario, the 1% AEP peak flood level will be 1.90 m AHD, and up to 2.24 m AHD with storm surges and high winds. The proponent amended the plans to account for this, raising the floor levels to 2.35 m AHD, giving it a freeboard of 10 cm in a 2100 flood event.

Council had refused the application on the basis of the potential coastal climate hazard impacts in 2100. Council claimed that intensification of development should not be allowed in a low-lying area when no mitigation works can be guaranteed. Council also felt that in the event of an inundation event in 2100, while the dwellings may not be inundated, the land would be, thereby preventing occupants from exiting the property.

The Tribunal over-turned Councils decision, primarily on the expectation that the property would benefit from future 'adaptation measures' to protect Point Lonsdale, and that occupants would have opportunities to exit the building prior to inundation. Notably, the future adaptation measures were unspecified and uncommitted.

These decisions not only arrive at different conclusions, they are both well over five years old and predate later policy inclusions in the SPPF arising from the 2014

Coastal Strategy. They also predate the discussions in the detailed PPV reports of Bass Coast C82 and South Gippsland C81.

(See also Ronchi and Campbell v Wellington SC [2009] VCAT 1206; Owen v Casey CC [2009] VCAT 1946; Cooke and Ors v Greater Geelong CC [2010] VCAT 60; Sheahan and Ors v Hobsons Bay CC [2010] VCAT 64; Lake Park Holdings Pty. Ltd. V East Gippsland SC [2011] VCAT 1491; Suburban Blue Print Pty. Ltd. V Hobsons Bay CC [2010] VCAT 1272).

VCAT has also found on many occasions that the basis of a decision must relate to a specific exercise of discretion in a planning scheme. This is particularly relevant in situations where a planning scheme control or a permit trigger that is unrelated to flooding is used to make a decision about flooding. This is relevant in Queenscliffe (and to a lesser extent Geelong), where Council relies on the Design and Development Overlay (DDO) and Heritage Overlay (HO) to address flooding issues, although neither overlay specifically triggers the consideration of flooding.

The possible consequence of this is that a permit that seeks to address flooding issues, without a related flooding permit trigger, could be appealed to VCAT on that basis.

5 Greater Geelong and Queenscliffe Planning Schemes

5.1 Greater Geelong Planning Scheme

5.1.1 Local Planning Policy Framework

There are extensive references to flooding controls within the Greater Geelong Planning Scheme (GGPS) although none of the 'controls' specifically deal with coastal inundation.

In a strategic sense, **Clause 21.05** (Natural Environment) identifies key issues including:

The extensive coastline is an important natural feature of the municipality, which is vulnerable to the impacts of urban development, climate change and natural processes.

A number of areas in the municipality are susceptible to flooding, via the flooding of waterways, stormwater runoff and coastal inundation, which have the potential to result in significant adverse economic, social and environmental impacts.

Clause 21.05-4 (Coastal environments) includes objectives such as:

To protect, maintain and enhance the coast, estuaries and marine environment.

To respect and manage coastal processes.

and a number of strategies including:

- *Focus urban coastal development within existing urban settlements.*
- *Prevent lineal urban sprawl along the coast.*
- *Avoid the loss of, and wherever possible increase, public access to the foreshore environment.*
- *Restrict development on primary dunes.*
- *Ensure the potential for existence of acid sulphate soils adjacent to coastal and wetland locations is considered.*
- *Limit the number of stormwater outlets to the coast.*
- *Setback future land use and development from coastal areas, estuaries and coastal wetlands to provide a buffer which is adequate to accommodate coastal recession and the landward migration of coastal wetland vegetation communities such as mangroves and salt marshes.*

Clause 21.05-5 (Climate change) has the objective:

To plan for and adapt to the impacts of climate change.

and the accompanying strategy:

- *Avoid land use and development within areas considered at risk of coastal erosion or inundation from flooding, storm surge or rising sea levels.*

There are also complementary objectives and strategies (at **Clause 21.05-7**) for riverine and overland flooding such as:

To minimise the potential for damage and risks to public safety and property from flooding.

In anticipation of more detailed coastal flood mapping, **Clause 21.05-9** includes the Council action:

Work with the Department of Environment, Land, Water and Planning to investigate the application of appropriate planning provision(s) to the coastal fringe.

5.1.2 Zones and overlays

The GGPS utilises the FO, LSIO and SBO.

The FO and LSIO have the same schedule which simply states:

A permit is not required to:

Construct a building or to construct or carry out works by or on behalf of VicRoads for the purposes of the Breakwater Road project and associated works.

There are also two detailed schedules to the SBO that include permit requirements, application requirements and referral requirements. They also specify “*minimum designated lot finished surfaces*” of 300mm or more above the flood level and “*minimum finished floor levels*”.

Within or in proximity to the municipality’s coastal areas:

- the FO is applied to the Barwon River and Lake Connewarre
- the LSIO is applied to limited areas around Barwon Heads and west of Point Lonsdale
- the SBO is applied within Geelong, Portarlington and Barwon Heads.

Within the SBO, LSIO and FO, nearly all buildings, works and subdivisions require a planning permit; and all of these applications need to be referred to the CCMA under Section 55 of the Act.

5.1.3 Existing planning processes

Council relies on the most recent (‘third phase’) 2040 SLR mapping and it uses these maps internally, although this mapping is not part of the Planning Scheme. It is understood that Council reviews application sites against the mapping and then relies on the planning permit triggers in the existing flooding overlays (SBO, FO and LSIO) or in other ‘non-flooding’ controls where there is no ‘flood’ overlay. Council previously required a Coastal Hazard Vulnerability Assessment for applications, but now follows the process outlined below.

Process for considering climate change induced sea-level rise.

Notes:

- An applicant may also choose to undertake a Coastal Hazard Vulnerability Assessment (CHVA) where they disagree with the process below.
- There may be a circumstance where another assessment method/process is considered suitable, eg due to severity of impact or unreasonable development outcome due to higher floor levels.

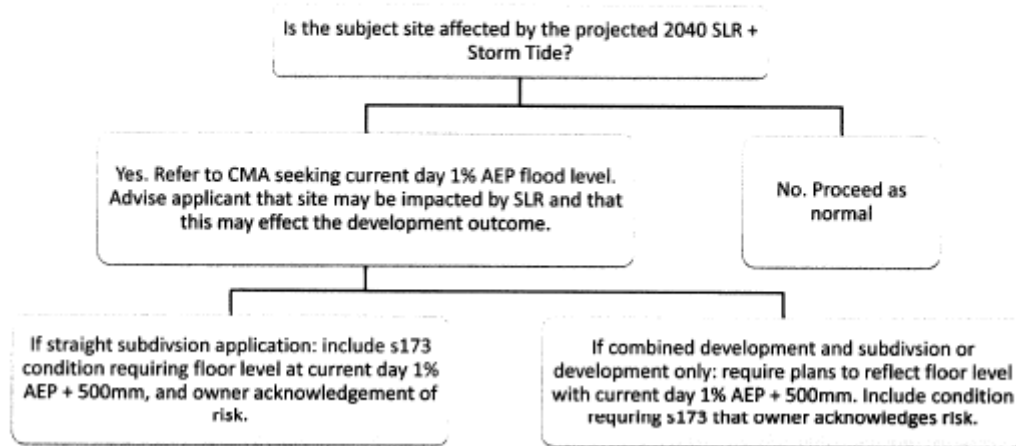


Figure 2 City of Greater Geelong Climate Change Process

It is understood that this process has not been 'appealed' to VCAT.

In some situations, Council requires a S173 agreement to enforce minimum floor levels and to note flooding potential on title:

The land owner acknowledges that the land and development on the lot may potentially suffer detriment as a result of climate change, including sea level rises, storm tides, coastal erosion and sand drift.

This process means that only those applications that are triggered by the zone or overlay are assessed for impact. This could mean that 'as of right' applications for use, buildings or works (such as detached houses on land zoned General Residential Zone) would escape such assessment.

Council also uses the LCHA mapping to inform structure plan reviews, such as the current Barwon Heads Structure Plan review and the upcoming Leopold Structure Plan review.

The CCMA is also in the process of undertaking a riverine flooding study for the Barwon River that is likely to overlap with the coastal inundation area.

5.2 Queenscliffe Planning Scheme

5.2.1 Local Planning Policy Framework

The Queenscliffe Planning Scheme (QPS) was recently updated by Amendment C27 that was approved in May 2017. The MSS contains various flooding references and a specific section dealing with 'Environmental Risks', including climate change.

Clause 21.01.02 (Key influences) includes:

Environmental risks from flooding, bushfire, coastal inundation and storm surge.

Clause 21.01-3 (Key issues) includes:

The protection of life and property from flooding and wildfire.

Managing environmental risks from sea level rise and storm surge.

Clauses 21.03-1 (Natural Environment) and **21.03-2** (Significant Landscapes) contain various objectives and strategies in relation to coastal and foreshore development, although not specifically related to coastal hazards. Clause **21.03-1** includes the following item of 'further strategic work':

Develop a local policy to address the management of coastline and foreshore environs for inclusion within the Planning Scheme.

Clause 21.03-3 (Environmental Risks) specifically addresses the impacts of climate change and notes that:

Large sections of the Borough are low-lying and particularly vulnerable to the coastal impacts of climate change. Accordingly, the Borough has an obligation to plan for projected sea level rises when considering the risks and coastal impacts associated with climate change.

It also identifies that applying the precautionary principle to decision-making is a key issue "When considering the risks and coastal impacts associated with climate change".

The clause includes the objective:

To ensure that the community and assets are not exposed to an unacceptable level of risk associated with the coastal impacts of climate change.

This objective is supported by the strategy:

- *Avoid new development and the intensification of land use in areas that are exposed to an unacceptable level of risk associated with the coastal impacts of climate change.*

The clause includes the policy guideline:

Seek the informal views and advice of the Corangamite Catchment Management Authority when considering Planning Permit applications on land which may be exposed to risks associated with the coastal impacts of climate change.

It also includes the following items of further strategic work:

Develop a Borough-wide coastal hazard vulnerability assessment that identifies areas most vulnerable to sea level rise and storm surge inundation, and sets out a long-term plan to respond to the projected coastal impacts of climate change.

Investigate possible drainage improvements for Point Lonsdale, to establish where flooding is liable to occur and to determine whether further works to the drainage system are required.

Undertake environmental investigations (including hydro-geological and ecological) into the surrounding landscape of Point Lonsdale to determine

appropriate protection of natural environmental areas and features in the planning scheme.

Continue to work with the City of Greater Geelong to identify and address common cross-municipality issues, such as flooding and stormwater management.

Clause 21.08 (Infrastructure) includes various references to flooding and drainage, and the following item of further strategic work:

Apply the Land Subject to Inundation Overlay to land identified as being subject to flooding.

5.2.2 Zones and overlays

Notably, there are no flooding maps in the Queenscliffe Planning Scheme.

There are two ESO maps, (ESO1 and ESO2) which address:

- ESO1 Coastal and Foreshore Areas
- ESO2 Swan Bay and Marine and Terrestrial Habitats.

These overlays are largely confined to the foreshore areas and do not extend inland over urban areas.

ESO1 applies (at Clause 1) to areas that have a high degree of sensitivity to certain forms of development and subdivision which have “...*potentially unstable conditions which are susceptible to environmental hazards.*”

Its objectives include:

To maintain the stability of the foreshore, coastal cliffs and sand dunes.

Decision guidelines in the ESO include the “*coastal planning principles*” in Clause 21, the Victorian Coastal Strategy, 2014 and the Siting and Design Guidelines for Structures on the Victorian Coast, 1998.

ESO2 applies (at Clause 1) to areas “...*containing flora and fauna listed under the Flora and Fauna Guarantee Act, 1988.*”

Although the ESO1 relates to flooding (among other things), it is only applied to part of the 1% AEP + 0.8m SLR area and is not a substitute for a dedicated flooding control.

5.2.3 Existing planning processes

Like Greater Geelong, and despite the absence of any flooding controls, Council has assessed applications against the ‘second phase’ flood mapping data which is held by both the CCMA and Council. More recently, the ‘third phase’ LCHA mapping has been used, although it has not been incorporated into the QPS.

Council’s GIS relies on the ‘second phase’ mapping and is yet to be updated to include the ‘third phase mapping’. Regardless of the outcome of this project, it would be useful if Council updated its GIS with the current mapping.

Although the QPS does not transparently identify the extent of the LCHA mapping, it was provided to all landowners in the Borough as part of a community awareness program around the LCHA project.

Council addresses flooding by invoking Clause 65 (Decision guidelines) where a planning permit is triggered. This broadens the ambit of discretion to include the 'Coastal inundation and erosion' objectives and strategies at Clause 13.01-1.

This generates an informal referral to the CCMA which will typically suggest permit conditions that are routinely attached to the planning permit. Typical conditions attached to a recent permit (2016/063) and as specified by the CCMA were:

The finished floor level of the proposed dwellings must be no lower than 1.1 metres Australian Height Datum (AHD) (500mm above the 2010 Swan Bay sea surge flood level).

The finished floor level of the proposed garages must be no lower than 0.95m Australian Height Datum (AHD) (350mm above the 2010 Swan Bay sea surge flood level).

While most development (buildings and works) within the Borough requires a planning permit under the Heritage Overlay and/or the Design and Development Overlay, there are significant parts of Point Lonsdale that are covered by DDO5 (Point Lonsdale Contributory Area). The schedule to DDO5, unlike all other DDOs in Queenscliffe, contains exemptions for (among other things) single storey buildings. Where there is no permit trigger there is no opportunity to address coastal flooding by way of the permit process.

6 Hazard assessment implications

6.1 Hazard responses

The Coastal Inundation Options Report (part of the LCHA) identified three options for responding to the impacts of coastal hazards – defend, accommodate and retreat.

***Defend** refers to options that maintain the location of existing settlements and land uses without modifications to those settlements and uses. These options can sometimes fix the shoreline in its current location, or provide a physical barrier to inundation, such as tidal gates or sea dykes. These options are commonly used for protecting intensive development such as townships.*

*An option to **accommodate** inundation seeks to allow continued use of an asset or land regardless of an inundation event, whilst applying measures to reduce the risks associated with the inundation hazard. This can be achieved by either modifying the asset or the use of the land. For example, raising infrastructure above flood levels so that it can still function during an inundation event, or rezoning residential land as agricultural land are both examples of accommodating hazards.*

***Retreat** options refer to a conscious or unconscious decision to no longer use an area at risk of inundation. It is most often used for areas that are already or are expected to be regularly inundated, either through projected increases in sea level, or through their position on unstable shorelines, such as coastal sand dunes.*

The report also identified four general types of inundation hazard within the LCHA area:

***Storm tide** – the combined water level of a storm surge with an astronomical tide. Storm surges are localised increases in water level caused by strong winds and low atmospheric pressure, often during a storm event. The technical assessment considered a storm tide event of magnitude that it would be statistically expected to occur once every 100 years (i.e. the chance that an event this size may occur in any given year is 1%).*

***Coincident catchment flooding** – flooding from rainfall in a waterway that occurs at the same time as a storm tide event. Oceanic water levels that exceed levels in the waterway act as a barrier to floodwaters, impacting on local flooding extents.*

***Sea level rise** – a gradual increase in mean sea level over time. The change in sea level may be caused by warming of the atmosphere, tectonic movements and local land subsidence. Progressive increases in sea level are modelled up to 1.4 m above current levels.*

***Overtopping** – splashing of waves as they break on coastal protection structures or run up beaches and dunes can result in localised inundation. If left unmanaged, breaching of dunes may result in more widespread, semi-permanent inundation extents.*

6.2 Hazard findings

The Coastal Inundation Options Report includes hazard assessments for the nine sub-areas (compartments) shown below.

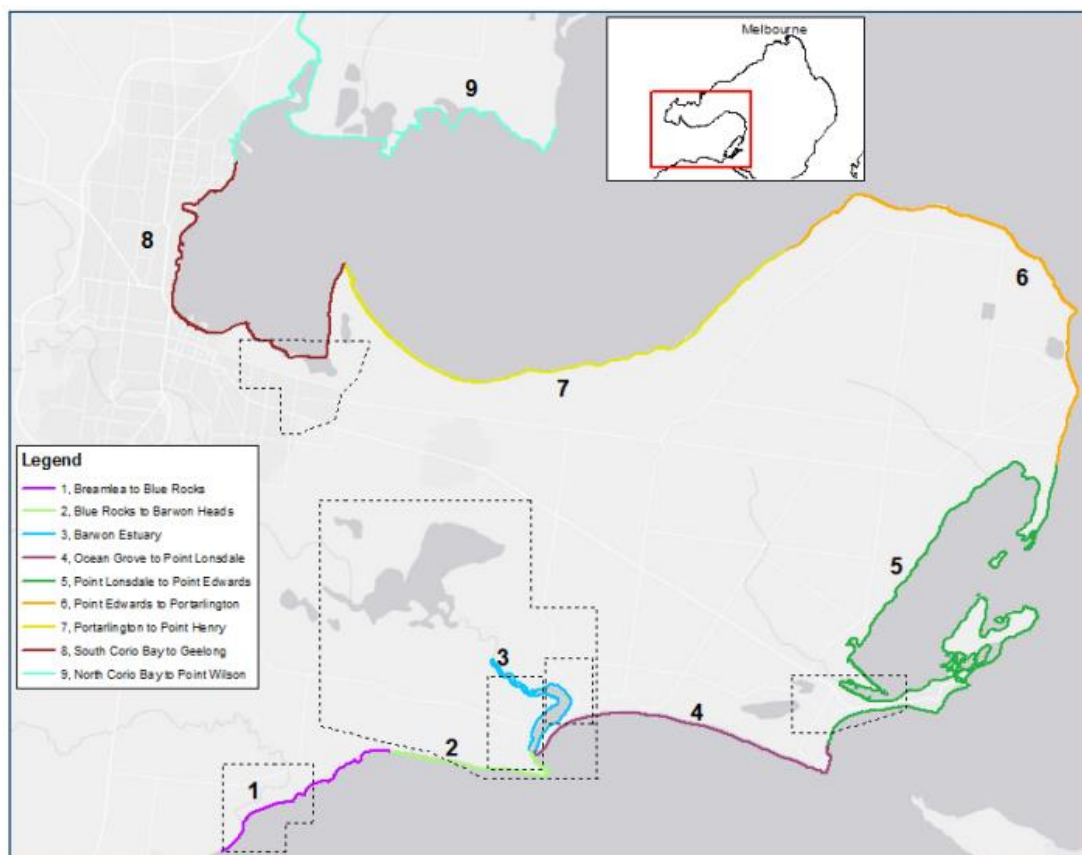


Figure 3 LCHA compartments

These assessments are summarised below in conjunction with an overview of the existing planning scheme controls, planning issues and possible planning scheme responses.

Compartment 1 - Breamlea to Blue Rocks

The Coastal Inundation Options Report described the hazard for this area as follows:

In this coastal sector the majority of the inundation is linked to flooding of low lying areas adjacent to Thompson Creek. Agricultural and floodplain (habitat) areas are affected by storm tide inundation under all scenarios. Under scenarios of a 1% AEP storm tide event with sea level rise of 0.5 m and greater, assets such as dwellings and roads are affected. Minor inundation of the frontal dune is experienced during the storm events, but the dune is not breached.

This predominantly rural area is zoned PCRZ and RCZ. Breamlea is zoned TZ but is outside the 1% AEP + 0.8m SLR area. In light of the rural and public zoning and land use in this area the pressure for future development is limited. Nevertheless, the area of potential inundation should be a factor in future strategic planning, the application of appropriate planning scheme provisions and managing public land.

This area is also subject to a number of environmental overlays, including the ESO1 and 2, LSIO, FO and SMO. The 1% AEP + 0.8m SLR area overlaps the LSIO and FO and this will need to be reconciled with any new overlay or other flooding control.

Compartment 2 - Blue Rocks to Barwon Estuary

The Coastal Inundation Options Report described the hazard for this area as follows:

This section of coastline is backed by high cliffs and dunes; no inundation extents have been mapped. Retention of dune integrity will be required for ongoing protection of landward areas against inundation.

The immediate coastal area is predominantly zoned PCRZ and there are scattered areas of ESO1 and 2 in the hinterland.

The area has not been mapped for inundation because of the coastal topography and consequently the planning scheme implications are limited. Nevertheless, the implications of sea level rise will be a factor in future public land management in this area.

Compartment 3 - Barwon Heads, Barwon Estuary and Lake Connewarre

The Coastal Inundation Options Report described the hazard for this area as follows:

Low lying, undeveloped areas of the estuary are inundated under a 1% AEP storm tide event with no sea level rise. For all increases on this level in sea level and catchment based flooding, inundation extents increase, with sea level rises of 0.5 m and greater impacting on dwellings at Ocean Grove and Barwon Heads, including some sites remote from the riverfront. A 1% AEP storm tide event with sea level rise of 0.2 m is largely contained within the river channel due to the presence of low-crested revetments along the riverbank. At Ocean Grove, seasonal camping grounds, caravan parks and recreational facilities along the riverfront are also impacted. Minor inundation of the frontal dune along the Ocean Grove spit is experienced during the storm events, but the dune is not breached.

The areas in Barwon Heads within the 1% AEP + 0.8m SLR area are predominantly along the Barwon Estuary foreshore (refer to Figure 4), although there are also some inland areas zoned GRZ2 and RGZ3 that are affected.

A number of environmental overlays apply within the area, including the FO, SBO and ESO2. The SBO is applied extensively within the town area, while the FO is generally applied within the Barwon River estuary.

The areas within Ocean Grove within the 1% AEP + 0.8m SLR area are predominantly public land zoned PCRZ and PPRZ (refer to Figure 4), although it also includes some areas zoned GRZ2. The LSIO and FO are applied to limited areas along the estuary foreshore.

The area of potential inundation affects urban areas within or adjacent to Barwon Heads and Ocean Grove and will be a significant factor in future strategic planning, and in applying appropriate planning scheme provisions in this area. It is also an

important consideration for public land managers given the extent of public land that is affected.

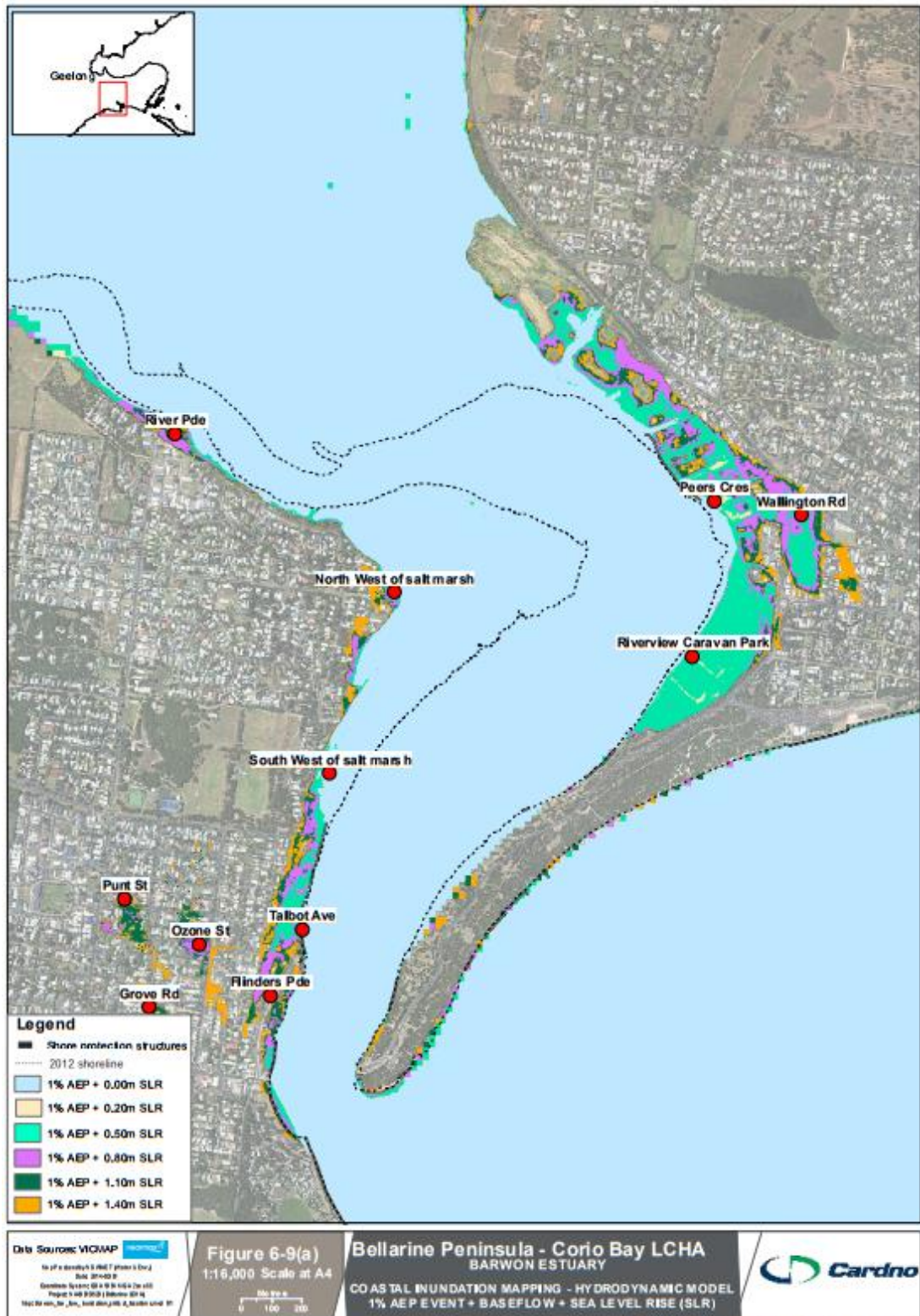


Figure 4 Barwon Estuary LCHA mapping

The existing SBO and FO within the 1% AEP + 0.8m SLR area would need to be reconciled with any new overlay or other flooding control that might be applied.

Compartment 4 - Ocean Grove to Point Lonsdale

The Coastal Inundation Options Report described the hazard for this area as follows:

This section of coastline is backed by high dunes; no inundation extents have been identified. Retention of dune integrity will be required for ongoing protection of landward areas against inundation.

The immediate coastal area is predominantly zoned PCRZ and there are scattered areas of LSIO and ESO1 and 2 in the hinterland.

Like Compartment 2, the area has not been mapped for inundation because of the coastal topography and consequently the planning scheme implications are limited. Nevertheless, the implications of sea level rise will be a factor in future public land management in this area.

Compartment 5 - Point Lonsdale to Point Edwards

The Coastal Inundation Options Report described the hazard report for this area as follows:

Wave overtopping presents a localised inundation hazard at Point Lonsdale, and is influenced by the vertical form of the seawall. Inundation of dwellings and commercial premises on Fisherman's Flats at Queenscliff can occur during a 1% AEP storm tide event with no sea level rise. As sea levels rise, inundation extents increase. The adjacent marine precinct approaching the ferry terminal is notably higher and affected by a 1% AEP storm tide event with sea level rises of 1.1 m and above. The area around Lakers cutting from Swan Bay through to Lake Victoria is affected by a 1% AEP storm tide event with no sea level rise. The existing waterways in this area contain much of this inundation, but extents rapidly increase with only minor increases in sea level rise. Road and rail infrastructure in this area are impacted, as well as private dwellings. Under a 1% AEP storm tide event with sea level rises of 0.8 m and above, properties on the north-western fringe of Point Lonsdale are affected and road connectivity to the Point Lonsdale community is severed. The Swan Bay coastline is largely undeveloped; habitat may be affected in some locations.

Fishermans Flats (Queenscliffe) is within the 1% AEP + 0.8m SLR area and is zoned NRZ2 (refer to Figure 5). Although it is not subject to any flooding overlays, it is subject to the HO1 and DDO6.

The marine precinct (Queenscliffe) is predominantly within the 1% AEP + 0.8m SLR area (refer to Figure 5). It is zoned SUZ1 and SUZ3, and is partly subject to the ESO1 and 2, HO1 and SLO1.

Lakers Cutting (Greater Geelong) includes a broad area between and around Lake Victoria and Swan Bay (refer to Figure 6). The zones within this area include the FZ, RCZ11, SUZ3, GRZ1, NRZ1, and RCZ6. Various environmental overlays apply in the area, including the LSIO (Geelong) that is applied to a small number of inland areas in the vicinity of Lake Victoria.

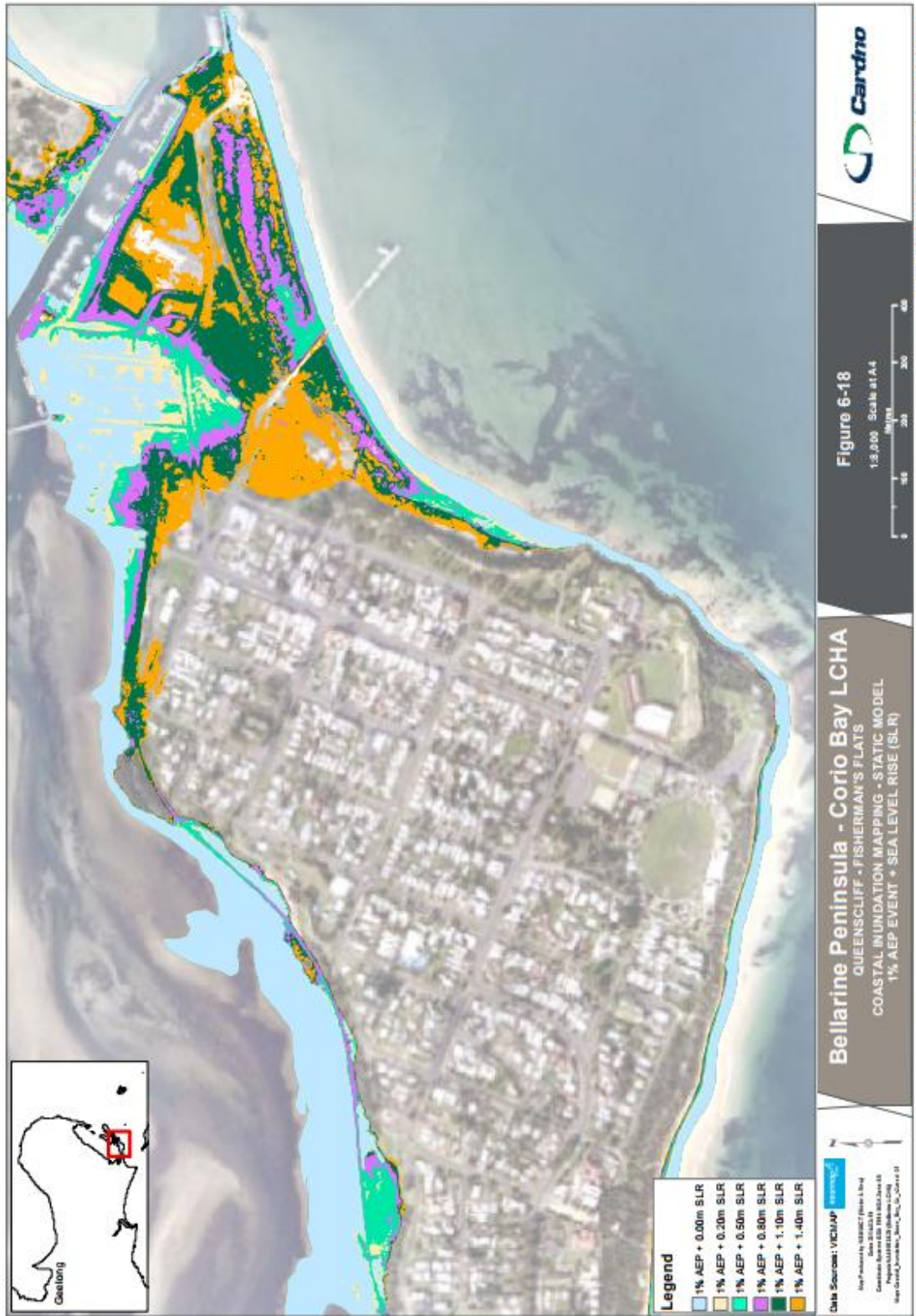


Figure 5 Queenscliff – Fisherman’s Flats LCHA mapping

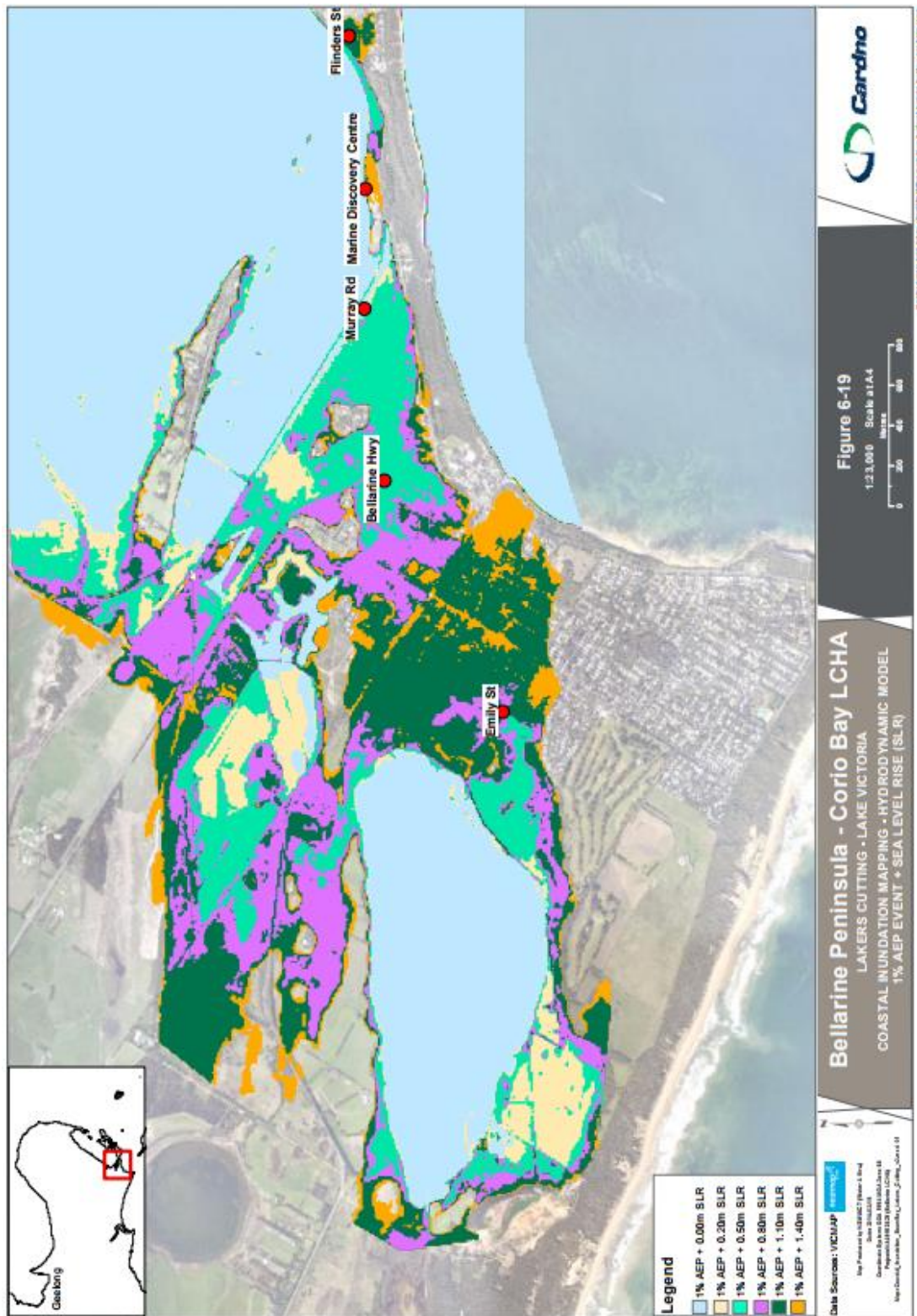


Figure 6 Lakers Cutting – Lake Victoria LCHA mapping

A narrow strip of land along western Swan Bay (Greater Geelong) is within the 1% AEP + 0.8m SLR area. This area is zoned a mixture of PCRZ, FZ and RCZ6 and is subject to various environmental overlays, but no flooding overlays.

The Swan Bay to St Leonards coastal area (Greater Geelong) is within the 1% AEP + 0.8m SLR area, although only a narrow strip of the coast is affected. This area is zoned PCRZ and FZ, and possibly includes the southern tip of St Leonards/Point

Edwards that is zoned GRZ2. Various environmental overlays apply in this area, including the SLO2 and ESO2, but there are no flooding overlays.

The area of potential inundation affects urban areas within and adjacent to Queenscliffe and will be a significant factor in future strategic planning, and also in applying appropriate planning scheme provisions. It is also an important consideration for public land and public infrastructure managers given the extent of public land and infrastructure that is affected.

As discussed elsewhere, it is notable that coastal inundation is a significant issue in Queenscliffe but there are no statutory flooding provisions to manage it.

The only flooding overlays in this general area are areas of LSIO in the vicinity of Lake Victoria (within Greater Geelong), some of which fall within the 1% AEP + 0.8m SLR area. These areas would need to be reconciled with any new overlay or flood related control.

Compartment 6 - Point Edwards to Portarlington

The Coastal Inundation Options Report described the hazard for this area as follows:

Inundation in this coastal sector can occur during a 1% AEP storm tide event with no sea level rise at selected locations, and under regular astronomical tidal conditions with a sea level rise of 0.2 m or greater. Dwellings, camp grounds and other recreational facilities are impacted during these events. Inundation extents into additional developed areas generally increase significantly on a 1% AEP storm tide event with a sea level rise of 0.8 m and above, although small coastal pockets are affected by lower increases in sea level. Road access is also severed in some locations, however alternative access is available in some areas.

At St Leonards, the 1% AEP + 0.8m SLR area is mainly confined to public land along the foreshore area and around St Leonards Lake that is zoned PPRZ. It might also partly affect the southern area of the town. There are no flooding overlays.

Sections of the foreshore around the salt lagoon and the coastal foreshore north of St Leonards are within the 1% AEP + 0.8m SLR area. The lagoon is zoned PCRZ, the hinterland is zoned FZ and the coastal foreshore is zoned PPRZ and PCRZ. The lagoon is subject to the ESO2 and there are no flooding overlays in the area.

The foreshore area from Indented Head to Portarlington is within the 1% AEP + 0.8m SLR area and extends inland. This area is predominantly zoned PCRZ and FZ, with some small areas zoned GRZ. The SBO is applied to a significant area to the east of Portarlington, including and beyond the 1% AEP + 0.8m SLR area.

Public land within Point Richards and zoned PPRZ and PCRZ is within the 1% AEP + 0.8m SLR area. This area is not subject to any flooding overlays. A small area along Ramblers Road is zoned GRZ2.

The 1% AEP + 0.8m SLR area is adjacent to and potentially includes urban zoned land within St Leonards, Portarlington and Indented Head. Higher resolution mapping would be needed to confirm the extent of this, however, potential

inundation is clearly a significant factor in future strategic planning of these towns and their hinterlands.

Potential inundation will also be an important factor in applying appropriate planning scheme provisions and an important consideration for public land and infrastructure managers.

The existing SBO within the 1% AEP + 0.8m SLR area would need to be reconciled with any new overlay or other flood related control.

Compartment 7 - Portarlington to Point Henry

The Coastal Inundation Options Report described the hazard for this area as follows:

The inundation risk in this area is primarily to a private caravan park and a small residential estate. Inundation extents increase dramatically on a 1% AEP storm tide event combined with sea level rises of 0.5 m and above, however limited additional infrastructure is affected.

The area to the west of the Sands Caravan Park that is within the 1% AEP + 0.8m SLR area is zoned FZ, with the foreshore zoned PCRZ. There is a small residential/tourism development in this area (Pelican Shores), but it seems that only the adjacent foreshore area is within the 1% AEP + 0.8m SLR area. There is also a strip of land zoned RLZ to the east of the Caravan Park, but only the adjacent foreshore area is within the 1% AEP + 0.8m SLR area. This area is not subject to any flooding overlays.

Potential inundation within this area will be an important factor in future strategic planning, although it is likely that the current zoning will limit future development potential. It will also be an important factor in applying appropriate planning scheme provisions and managing the foreshore area.

Compartment 8 - Stingaree Bay to Geelong

The Coastal Inundation Options Report described the hazard for this area as follows:

Primary inundation risks to road infrastructure occur at water levels of a 1% AEP storm tide event with 0.5 m sea level rise, with dwellings affected by a 1% AEP storm tide event with 0.8 m sea level rise. Large sections of uninhabited land associated with the Moolap salt pans and degraded land at Point Henry are also inundated. Limited overtopping risks occur along the seawall-lined frontage of central Geelong.

The area of Point Henry that is within the 1% AEP + 0.8m SLR area is zoned IN1Z and SUZ1, with the foreshore zoned PCRZ. Although the area is subject to various overlays including the ESO2, it is not subject to any flooding overlays. This area is within the draft Moolap Coastal Strategic Framework Plan, 2017 that supports 'coastal retreat' as the preferred response to coastal inundation in this area. The Framework Plan process will provide an appropriate mechanism to address coastal inundation in this area.

Areas within Newcomb and Moolap are within the 1% AEP + 0.8m SLR area, including land zoned SUZ1 and potentially GR22. The foreshore areas are zoned

PCRZ and PPRZ. Higher resolution mapping would be needed to confirm the extent of developed or developable areas that are prone to inundation.

The inundation vulnerability around Geelong is low. The shoreline is heavily modified and protection structures (mostly vertical seawalls) exist from east of Eastern Beach to Western Beach.

The potential for inundation in some of these areas is a significant factor in future strategic planning and in developing and applying appropriate planning scheme provisions. It is also an important consideration for public land and infrastructure managers.

Compartment 9 - North Corio Bay to Point Wilson

The Coastal Inundation Options Report described the hazard for this area as follows:

The coastal fringe of this area is readily inundated by a 1% AEP storm tide event with no sea level rise. As sea level rise increases additional areas are impacted, including roads and stormwater infrastructure; Avalon Beach is also inundated and isolated.

Parts of the Geelong Shell foreshore area are within the 1% AEP + 0.8m SLR area. These areas are zoned IN2Z and PZ. A number of overlays apply within this area, including the SBO. There is some overlap between the SBO and the 1% AEP + 0.8m SLR area.

Areas along the Limeburners Bay foreshore within the 1% AEP + 0.8m SLR area are zoned FZ, RLZ, RCZ8, PCRZ and PPRZ. Most of the Bay is subject to the ESO1, while the northern area is subject to the FO. There is some overlap between the FO and the 1% AEP + 0.8m SLR area.

A large part of the Avalon Beach area is within the 1% AEP + 0.8m SLR area, including land zoned FZ, SUZ1 and PCRZ. It is partly subject to the ESO1 and ESO2, but is not subject to any flooding overlays.

The Point Wilson area within the 1% AEP + 0.8m SLR area is zoned IN2Z and PCRZ. It includes Commonwealth land. There are no flooding overlays.

This compartment is a mix of rural, industrial and public land, and is affected by a range of zones and overlays. The 1% AEP + 0.8m SLR area affects a mixture of private and public land over a fairly large area, and is adjacent to and potentially affects land used for industry. More detailed mapping would be needed to identify the extent of existing development that is within the 1% AEP + 0.8m SLR area, however, the potential for inundation in this area is clearly a significant factor in future strategic planning in this area. It is also a factor in developing and applying appropriate planning scheme provisions.

6.3 Implications

The key implications of this assessment are that:

- The existing 'flooding' controls that apply within the 1% AEP + 0.8m SLR area are focussed on riverine and stormwater flooding and do not specifically address coastal flooding.

- Most of the 1% AEP + 0.8m SLR area is either public land or 'rural' private land.
- Coastal inundation is a significant consideration for public land managers, given the extent of the 1% AEP + 0.8m SLR area.
- The rural areas within the 1% AEP + 0.8m SLR area are likely to experience ongoing pressure for development given their coastal location.
- The 1% AEP + 0.8m SLR area only includes limited areas of urban zoned or developed land, but the potential implications for these areas are significant.
- Strategic planning for existing and future urban areas and uses should take account of the 1% AEP + 0.8m SLR area.
- A more detailed assessment of the extent of the 1% AEP + 0.8m SLR area in relation to other flood overlays, urban areas and zones, and the number of properties potentially affected should be undertaken.

7 Implementation options

The review of planning policy, coastal hazards, existing land uses and planning scheme controls undertaken for the purposes of this report have been relatively 'high level', however, a number of key issues and findings have emerged. These have informed options and recommendations about how the LCHA should be implemented in the planning system.

The key observations are:

- State policy and guidance material consistently support the mapping of flood prone areas in planning schemes.
- The existing approach to addressing flooding issues is haphazard and inconsistent across the LCHA area, particularly the lack of specific coastal inundation and sea level rise mapping.
- Public land and infrastructure managers should have regard to the LCHA and take it into account in planning and decision making. The two planning schemes should highlight the need for this to occur.
- Most of the land affected by the 1% AEP + 0.8m SLR is public or private land that, because of its 'rural' location, purpose or zoning, may not have capacity for more intensive development. However, there is always a level of development 'pressure' in coastal locations and managing this pressure should take account of coastal inundation mapping that is included in the planning schemes.
- Some of the land affected by the 1% AEP + 0.8m SLR is in urban areas or is near urban land or land uses. Strategic planning for these areas should take into account the LCHA, particularly in the context of identifying areas for new or more intensive development. This has already occurred within Greater Geelong including at Moolap and Barwon Heads. Importantly, transparent and consistent coastal inundation mapping and controls should also be applied to these areas as a matter of priority.
- There will be a need to 'blend' any new LCHA overlay mapping with existing flooding overlays in the Greater Geelong Planning Scheme.

These observations have helped assess the various options for implementing the LCHA through the planning system that are discussed below.

7.1 Continue the current approach

As noted, at present neither Queenscliffe nor Greater Geelong Council has any accurate coastal hazard mapping within their planning schemes. While Greater Geelong uses the FO, LSIO and SBO, this is for riverine flooding, drainage issues or overland flow paths. Queenscliffe has no flood mapping at all.

Despite this, both Councils have consistently utilised coastal flood map data generated by either 'Phase 2' or 'Phase 3' of the LCHA to assess planning permit applications.

That assessment involves both Councils relying on their MSS, (or more often) Clause 13.01-1 of State policy to provide them with policy direction, especially regarding

infill development. Applications are routinely referred to the CCMA which provides comment and suggests conditions. It is understood that the suggested conditions usually find their way onto planning permits.

In the case of Queenscliffe, Council relies on permit triggers (HO or DDO) which have no bearing on flooding in either their purpose or content.

As this system has operated for some time, seemingly without complaint or problems, it is an option to continue the regime of assessing applications based on the latest coastal flood data which would continue to sit outside the planning scheme. A clear advantage of this process is that in the event that new data emerges, the decision makers will rely on that data without having to undertake costly and time consuming planning scheme amendments.

However, this option is problematic.

It is a fundamental tenet of the planning system that transparent planning controls should be used so that all stakeholders are aware of the planning opportunities, constraints and risks associated with a site. Council's MSS acknowledges that coastal inundation is a significant constraint and risk, and its existence should be transparent within the planning system

As is clear from PPN12, Councils should identify and map areas affected by flooding. As both Councils have that data it should be mapped and used.

Furthermore, parts of the Borough do not trigger a planning permit for low rise buildings and works, including single story dwellings, meaning there is no opportunity for Council or the CCMA to influence the siting or floor level of buildings on land that is clearly affected by potential inundation.

There is also an element of risk for Councils in the 'do nothing' option as it open to criticism, and possible action for not alerting stakeholders to a known and documented risk. Applying any of the 'risk' overlays is quite different to a Council deciding whether or not to apply a (say) vegetation overlay or a heritage overlay. Knowledge of risk to life or property is in a different category of responsibility.

For these reasons, the 'do nothing' approach is not supported.

7.2 Planning scheme options

7.2.1 Local Planning Policy Framework

The Municipal Strategic Statement (MSS) (Clause 21) provides Councils with the principal opportunity to explain their policy position in relation to coastal inundation. The MSS can include explanatory material, objectives, strategies and implementation actions, such as policy guidelines. It also enables Councils to list 'Reference Documents' that have informed the preparation of the planning scheme.

Local Planning Policies (LPPs) (Clause 22) are intended to guide decision making in relation to a specific discretion in a zone or overlay. They serve a different and more limited role than the MSS.

Importantly, neither the MSS nor the LPPs can trigger the need for a permit, this is the function of zones and overlays.

Both planning schemes include MSS references to climate change and coastal inundation. The QPS was recently updated (Amendment C27) and includes more expansive coastal material in its MSS. Neither planning scheme contains any local policy on flooding.

At the very least, both MSS's should include the LCHA as a 'reference document' and there is also scope to augment existing objectives and strategies, particularly to reinforce the need to take account of coastal inundation and the LCHA as part of land management and strategic planning processes.

Another role that the MSS can play is to include 'policy guidelines' which guide discretion where a permit application is required. Policy guidelines can include application requirements, decisions guidelines and policy outcomes. They are regularly used by those Councils that do not utilise LPPs.

Both Queenscliffe and Greater Geelong Councils utilise Clause 22, but only Queenscliffe uses 'policy guidelines', although only to a limited extent. For these reasons, the use of Clause 22 for assessing flooding applications is probably more consistent with the existing structure of the two planning schemes and would be the preferred approach.

7.2.2 Mapping

In accordance with PPN12, planning schemes should identify those areas that are susceptible to flooding based on as accurate a data set as possible.

Using the LCHA as that data set, and guided by Clause 13.01 (and the outcomes of Bass Coast Amendment C82 and South Gippsland Amendment C81), a very clear and transparent option is to map all land within the LCHA 1% AEP + 0.8m SLR in an overlay. The two 'flooding' overlay options are the FO and the LSIO.

The FO is used to denote floodway land that is generally the high hazard part of the floodplain where deep and fast flowing floodwater can be expected. Placement of buildings and other structures on floodway land substantially increases risk to life and community wellbeing and should therefore be avoided.

The LSIO generally denotes the fringe of the floodplain where flooding is shallower than the FO and slower moving. The level of hazard in this part of the floodplain is lower relative to the FO.

The FO is typically applied to the 'active' part of the floodway while the LSIO is applied to the flood fringe.

In this context, the LSIO is the more appropriate of the two overlays to implement the LCHA. It is not a perfect fit, but it is the closest fit of all the VPP options.

For instance, while it does not explicitly refer to 'coastal inundation' in its purposes, it does allow identification of "*..any other area*" as determined by a CMA. And while it does not control vegetation, the most critically affected habitats and ecosystems will be right on the coastal fringe and will ordinarily be controlled by the public land managers.

The LSIO controls the most critically 'at risk' proposals including buildings, works, earthworks and subdivision. It also requires a formal referral to the CMA and lists an array of decision guidelines including the "*...potential flood risk to life, health and*

safety associated with the development". This formal referral under s55 of the Act contrasts with the 'informal' CCMA referral arrangements under s52 of the Act currently used by Queenscliffe Council in relation to flooding.

In the event that a Council wishes to refine the list of matters that require a permit, there is scope in the LSIO schedule to exempt developments.

It is also important to note that the LSIO has been used by both Bass Coast and South Gippsland to implement coastal inundation mapping and both schedules have been approved by the Minister. However, both schedules now appear to be at odds with the recent Ministerial Direction on the Form and Content of Planning Schemes because they include material (application and referral requirements) that is outside the scope of the schedule template. This material is important, but can be located in a LPP or MSS decision guideline instead of the schedule.

7.2.3 Local Floodplain Development Plan

The LSIO (as well as the UFZ, SBO and FO) provides the option of including planning requirements in a Local Floodplain Development Plan (LFDP) which has been formally incorporated into the planning scheme at Clause 81. LFDPs provide considerably more scope to specify requirements, guidelines and decision making considerations than overlay or zone schedules. They are also typically introduced in association with a flood overlay that triggers the need for a permit and therefore the consideration of the LFDP.

Numerous Councils have used this option in riverine areas, but usually on a very localised or catchment basis, rather than on a broader 'regional' basis such as the LCHA mapping. That said, there is scope to prepare two municipal LFDPs or to adopt a localised approach by breaking the LCHA down into a number of LFDPs, such as the 'compartments' defined in the LCHA. Attached at Appendix D is an example of how a LFDP might look for the Barwon Estuary area.

Within the LFDP framework, the FO also requires that an application be accompanied by a Flood Risk Report in the absence of a LFDP. The content required in a Flood Risk Report is similar to the 'Coastal Hazard Vulnerability Assessment' reports that have been required from time to time in both Greater Geelong and Queenscliffe.

A benefit of applying a LFDP is that it provides greater flexibility and broader scope than VPP flooding overlays, and can be used to address more complex flooding and land use situations. However, this level of sophistication is probably unnecessary to implement this LCHA.

7.2.4 Reference and incorporated documents

The VPP system provides for 'policy' documents to be referenced in planning schemes as either a 'reference document' or an 'incorporated document'.

As noted earlier, and as a minimum, both Councils should include the LCHA as 'reference document' in their respective MSSs. This would give the LCHA some level of policy recognition but would not overcome the need to implement it through a specific planning scheme provision such as the LSIO.

As noted in PPN13:

Reference documents provide background information to assist in understanding the context within which a particular policy or provision has been framed.

Reference documents have only a limited role in decision-making as they are not part of the planning scheme. They do not have the status of incorporated documents or carry the same weight.

Incorporated documents are listed at Clause 81 and form part of the planning scheme. PPN13 notes that incorporated documents carry the same weight as other parts of a planning scheme and that because they are part of a planning scheme they can only be changed by a planning scheme amendment.

Using the LCHA as an incorporated document would be problematic because it contains a number of 'reports' and none of those reports contain the type of material that would be directly relevant or useful in a planning scheme context. For this reason, a new 'LCHA' document would need to be prepared, similar to preparing a LFDP.

7.2.5 Clause 52.03 Specific sites and exclusions

Clause 52.03 can be used to 'lift' areas from planning scheme control (or augment other planning scheme controls) in order to address specific issues. It relies on the use of an incorporated document to apply the new or additional controls. It is a rarely used provision and it is understood that it is only supported by DELWP in special circumstances.

It is used in the Mildura Planning Scheme, for example, to apply specific controls over and above those in the Farming Zone to address a localised area of high quality agricultural land.

Most recently, and relevantly, it has been used at Wye River in the Colac Otway Planning Scheme in the aftermath of the 2015 bushfires. In simple terms, and despite all other provisions of the planning scheme, the incorporated document controls use and development on the land to which the document applies. However, the base zones continue to apply and all affected land is covered by the Bushfire Management Overlay.

This might be an option for Queenscliffe (albeit unlikely) as a means of formalising its existing planning processes. An Incorporated Document (see attached example at Appendix E) could be prepared that includes controls, referrals, application requirements, decision guidelines and the relevant mapping from the LCHA.

Apart from being an unorthodox approach to addressing flooding issues, using this provision would not provide the transparency that comes from identifying flood areas on planning scheme maps.

8 Recommendations

8.1 Preferred implementation tool

The recommended option for implementing the LCHA is to apply the LSIO with a specific schedule, in conjunction with new LPPs, strengthening the respective MSS's and including the LCHA as a 'reference document'.

The LSIO is the most widely used and understood flooding overlay in the VPP and is a preferred approach in guidance material such as PPN12. It is also a highly transparent option for identifying flood risk, unlike some of the other VPP options, because it is mapped in the planning scheme maps.

Importantly, the LSIO has been endorsed as the most suitable VPP tool for managing coastal inundation and sea level rise through the recent Panel and approval processes for Bass Coast C82 and South Gippsland C81.

Although the Coastal Climate Change Advisory Committee recommended that a new Coastal Hazard Overlay be implemented for managing coastal inundation (mainly for "greenfield" areas), it also noted the LSIO could be used to manage coastal inundation. The then Minister did not agree to introduce a new overlay, and noted that an option might be to apply the LSIO to "coastal sea level rise hazard areas when more detailed information becomes available".

The LSIO is preferred over the other overlays such as the SBO and FO, which have more specific purposes. It is also preferred over using the LCHA as an Incorporated Document, developing Local Flooding Development Plans or applying a Clause 52.03 exclusion (in the case of Queenscliffe). These other approaches are generally more complex and less transparent, although the use of LFDPs in conjunction with the LSIO is a legitimate option that has been used elsewhere in the past.

Although the LSIO might not be a perfect implementation tool, it is the best of the available VPP options.

The LSIO (and other hazard overlays) are typically applied to private and public land, including the current LSIO and FO in Greater Geelong, and this should be the case for the LCHA mapping. Although applying it to public land may create an administrative and resource burden for land managers, the significance of the 'hazard' warrants its application. Nevertheless, the LSIO schedule should include appropriate exemptions to minimise unnecessary permit requirements.

8.2 LSIO schedule content

A draft LSIO schedule that would apply to the 1 % AEP + 0.8m SLR mapping is included at Appendix F. It would be a second LSIO schedule in the GGPS and the first LSIO schedule in the QPS.

This schedule has been formatted in accordance with the recently approved Ministerial Direction on the Form and Content of Planning Schemes. Consequently, it only includes a list of planning permit exemptions, and not the other type of material, such as referral and application requirements, often found in other schedules (including the Bass Coast and South Gippsland LSIO schedules).

This other material has been included in a draft LPP (refer to Appendix G) that provides some policy context, together with application and referral requirements that cannot be included in the LSIO schedule. This material could easily be converted into 'policy guidelines' in the MSS if this approach was preferred by the Councils.

The LSIO schedule contains a set of permit exemptions that have largely been based on discussions with stakeholders and the exemptions in the Bass Coast and South Gippsland LSIO schedules. These schedules were developed to take into account coastal inundation and were tested through public exhibition, Panel and DELWP approval process. The LCHA does not provide much direct guidance about what matters should or should not require a permit, although the recommended LSIO exemptions (and LPP requirements) are intended to strike a reasonable balance between addressing inundation hazard and minimising unnecessary applications and referrals.

PPN12 suggests that exemptions in schedules should respond to 'local conditions'. In framing exemptions to implement the LCHA, the attached LSIO schedule at Appendix F exempts small domestic extensions (20m²) and outbuildings, buildings and works associated with agriculture, vegetation removal, approved works on public land, and typical recreation infrastructure associated with coastal areas. On the other hand, the schedule will be used to 'trigger' applications such as new buildings and earthworks. While it could apply the finished floor levels already specified by the CCMA (being 500mm above the sea surge flood level for dwellings and 350mm for non-habitable buildings) this is best left to a case by case consideration by the CCMA.

Importantly, the schedule includes a general exemption for works undertaken in accordance with the Coastal Management Act 1995 or the Crown Land Reserves Act 1978 that have had regard to the LCHA. These exemptions recognise that much of the affected area is public land and that there are existing approval processes in place that can take account of coastal inundation.

8.3 MSS updates

In addition to applying the LSIO and an associated LPP, it would be appropriate to augment the relevant MSS references to climate change, and coastal inundation and hazards. This would provide policy context for the application of the LSIO, the use of the LPP and the status of the LCHA.

The changes would be relatively minor and have been included in Appendix H (Queenscliffe) and Appendix I (Greater Geelong). These changes include:

- Referencing the implementation of the Bellarine – Corio Bay Local Coastal Hazard Assessment 2016 and the use of the LSIO to implement it.
- Strategies to consider the coastal impacts of climate change in strategic planning and public land management.
- Including the LCHA as a reference document in the GGPS MSS.

The Queenscliffe MSS does not include a list of reference documents that the LCHA can be added to, however, including it in the preamble to Clause 21.03-3 (Environmental Risks) would address this.

8.4 Existing flood mapping

Regardless of which VPP mapping tool is used, the extent of the 1 % AEP + 0.8m SLR area to be mapped needs to be considered in light of the existing SBO, FO and LSIO, in the GGPS.

The **SBO** is applied to urban land that is liable to inundation by overland flows from the urban drainage system. In the 1 % AEP + 0.8m SLR area, this includes land in Barwon Heads, Portarlington, Newcomb/Moolap and North Shore. The two SBO schedules specify “*minimum designated lot finished surfaces*” of 300mm or more above the flood level and “*minimum finished floor levels*”. The SBO serves a different purpose to the FO and LSIO and should be retained as a standalone control where it falls within the 1 % AEP + 0.8m SLR area. The LSIO should be applied over the SBO area.

The **FO** is applied to high hazard areas that have the greatest risk and frequency of being flooded in urban and rural areas. It can also be applied to undeveloped rural land, and undeveloped and developed urban land. The only affected land within the 1 % AEP + 0.8m SLR area is in the Breamlea, Barwon Heads and Limeburners Lagoon areas. Given that the FO specifically identifies high hazard areas, it should be retained where it falls within the 1 % AEP + 0.8m SLR area. However, also applying the LSIO to these areas would be an unnecessary duplication.

The **LSIO** is applied to areas subject to mainstream flooding in both urban and rural areas that have a lower risk of flooding than in the FO. The only affected land within the 1 % AEP + 0.8m SLR area is in the Breamlea area. There will be a degree of overlap between the existing LSIO in this area and any new LSIO that is applied to the 1 % AEP + 0.8m SLR area, although the extent of the overlap would require a review of more detailed mapping. For administrative convenience and clarity, the existing LSIO in this area could be replaced by the new (coastal flooding) LSIO where they overlap. Doing this would not significantly change the flooding controls that apply to this land because it would retain the LSIO, albeit with a set of new permit exemptions.

The ‘coastal’ LSIO mapping would require a new LSIO schedule to differentiate it from the existing LSIO mapping and schedule that predominantly deals with riverine and inland flooding. Although Bass Coast and South Gippsland use a single LSIO schedule that differentiates between different areas (including coastal areas) this approach does not appear to be consistent with the recently revised Ministerial Direction on the Form and Content of Planning Schemes. The use of multiple LSIO schedules is not common, but is allowed under the Ministerial Direction on the Form and Content of Planning Schemes.

8.5 Implementation actions and timelines

The amendments to implement the LCHA into the two planning schemes could be undertaken concurrently or individually. There would be benefits in running concurrent processes, particularly by having a single Panel hearing to consider any objections. This would be less costly than running separate processes and would facilitate consistent Panel recommendations and outcomes

Either way, there are common steps and processes in developing and processing the amendments. The following outline of these steps includes some indicative timelines, although some of these could vary considerably. Where relevant, the timelines required under Ministerial Direction No 15 The Planning Scheme Amendment Process (MD15) are referenced, although the Minister can grant an exemption to these requirements.

The typical planning scheme amendment flowchart is included at Appendix J.

8.5.1 Decisions to proceed with amendments to implement to the LCHA

The first step in the implementation process is for the two Council's to consider this report and to decide whether to proceed with implementing the LCHA through planning scheme amendments.

The timing of this initial step rests with the two Councils.

8.5.2 Further mapping analysis

Before preparing the draft amendments, it would be useful to overlay the 1 % AEP + 0.8m SLR mapping (proposed LSIO) on the existing planning scheme overlay and zone maps, particularly the flooding overlays, to identify and review the extent of overlap with existing flood provisions and existing or planned urban areas. This might influence how the new LSIO is mapped in terms of 'blending' the mapping with existing flood control mapping.

It would also be useful to overlay the LSIO mapping on an ownership plan in order to understand the extent of notification likely to be required and whether, for example, an exemption from notifying landowners should be requested or whether different forms of notification would be suitable.

Depending on resources, this step might take 2 to 3 months.

8.5.3 Prepare draft amendments

Draft amendment documentation will need to be prepared in support of requesting authorisation from the Minister for Planning. It could also be used as a basis for undertaking further informal consultation prior to seeking authorisation. There might be benefit, for example, in undertaking informal consultation on the draft amendment with key stakeholders, including DELWP, the CCMA, public land managers and relevant community and other stakeholder groups.

This documentation should include:

- LSIO mapping
- LSIO schedule
- MSS inclusions/changes
- LPP
- Explanatory Report
- Instruction Sheet
- Authorisation Application Form

Depending on resources and whether any informal consultation is undertaken, it might take 3 to 6 months to prepare the documentation and lodge the authorisation request.

8.5.4 Request authorisation of the amendments

The Minister for Planning must authorise the preparation of the amendments. The application must be made in writing and contain the information required by the Minister.

The purpose of authorisation is to identify whether a proposed amendment is consistent with state policy or interests and to ensure it makes appropriate use of the VPP.

The Minister may:

- authorise the preparation of the amendment
- authorise the preparation of the amendment subject to conditions, including conditions relating to notice
- require further review
- refuse authorisation for preparation of an amendment

Assuming the Minister authorises the amendments, they must address any matters required by the authorisation.

It might take 1 month to lodge and process the request.

8.5.5 Undertake notification of the amendments

Copies of the amendments must be given to:

- the Minister
- anyone else specified by the Minister.

Notice of preparation of the amendments must be given to:

- Every minister, public authority and municipal council that may be materially affected by the amendment.
- The owners and occupiers of land that may be materially affected by the amendment. This includes anyone whose land is subject to changed controls under the amendments and might include owners and occupiers of adjoining or nearby land.
- Any Minister, public authority, municipal council or person prescribed.

Notice also includes publishing notice of the amendments in the Government Gazette and a newspaper/s generally circulating in the area.

To assist community and stakeholder understanding of the amendments, it might be useful to supplement the formal notification requirements with:

- additional explanatory material available in hard copy and on Council websites
- opportunities to discuss the amendments directly with council officers, such as at after-hours sessions in the areas most affected by the amendments

- extending the notification period from the minimum one month to 6 weeks.

Greater awareness and understanding of the amendments might address concerns and reduce potential objections, reducing the resources needed for a Panel hearing/s.

This step is likely to take 2 to 3 months including administrative actions associated with organising notification. It could take longer if the notification period is longer than one month.

8.5.6 Review submissions

Following notification of amendments, the planning authority must consider all submissions. If a submission objects to or requests a change to the amendments, the planning authority must:

- change the amendment/s in the manner requested
- refer the submission to a panel or
- abandon the amendment/s or part of the amendment/s.

A planning authority may also refer submissions that do not require a change to the amendment to a panel.

If a panel is not requested, the planning authority must resolve to adopt or abandon the amendment within 60 business days of the closing date for submissions.

If a panel is required, MD15 requires that a planning authority request a panel within 40 business days of the closing date for submissions.

8.5.7 Panel Hearing

If a panel is requested, it will be appointed by the Minister for Planning. As noted earlier, there would be cost and resource benefits in referring both amendments to the one panel.

Depending on the number and complexity of submissions, the panel hearing would likely add up to 6 months to the process.

MD15 specifies various times for actions in the panel process, including times within which hearings must be held and the panel report submitted.

8.5.8 Adoption or abandonment

Following the receipt of a panel report, a planning authority must decide whether to abandon or adopt the amendment.

MD15 requires that this decision be made within 40 business days of the date it receives the panel's report.

8.5.9 Decision by the Minister

If an amendment is adopted, it must be submitted to the Minister for approval.

MD15 requires that an adopted amendment be submitted within 10 business days and that the Minister decide on the amendment within 40 business days.

9 References

- Bass Coast Planning Scheme Amendment C82 Panel Report, 2014
- Bellarine Peninsula – Corio Bay Local Coastal Hazard Assessment Coastal Inundation Options Report, GHD, 2016
- Bellarine Peninsula – Corio Bay Local Coastal Hazard Assessment Inundation Report, Cardno, December 2015
- Coastal Inundation Options Report, GHD, 2016
- Draft Moolap Coastal Strategic Framework Plan, DELWP, 2017
- Greater Geelong Planning Scheme
- Ministerial Direction No 13 Managing Coastal Hazards and the Coastal Impacts of Climate Change
- National Climate Resilience and Adaptions Strategy, 2015
- Planning and Environment Act, 1987
- Planning Practice Note 11: Applying for a Planning Permit under the Flood Provisions
- Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes
- Planning Practice Note 53: Managing Coastal Hazards and the Impacts of Climate Change
- Queenscliffe Planning Scheme
- South Gippsland Planning Scheme Amendment C81 Panel Report, March 2016
- Victorian Coastal Climate Change Advisory Committee Report, 2010
- Victorian Coastal Strategy 2014
- Victorian Floodplain Management Strategy 2016
- The Geelong-Queenscliffe Coastal Climate Change Risk Assessment Report, 2016

Appendix A Flood zones and overlays

Table 1. Application of the flood zone and overlays

	Urban Floodway Zone	Floodway Overlay	Land Subject to Inundation Overlay	Special Building Overlay
Urban or rural areas?	Urban areas only	Both urban and rural areas	Both urban and rural areas	Urban areas only
Mainstream or stormwater flooding?	Mainstream flooding from a river or stream	Mainstream flooding from a river or stream	Mainstream flooding from a river or stream	Stormwater flooding along overland flow paths
Application	<p>Case 1 (see Fig. 2.3)</p> <ul style="list-style-type: none"> Urban land which is mainly undeveloped The stream channel or primary flow path area Important for conveying and/or storing floodwater Higher flood depths and/or flow velocities Higher potential flood risk Unsuitable for intensive urban development. 	<p>All cases</p> <ul style="list-style-type: none"> The stream channel or primary flow path area Important for conveying and/or storing floodwater Higher flood depths and/or flow velocities Higher potential flood risk, but usually not as severe as in the UFZ. <p>Case 2</p> <ul style="list-style-type: none"> Rural land which is mainly undeveloped. <p>Case 3</p> <ul style="list-style-type: none"> Urban land which is mainly undeveloped Unsuitable for intensive urban development but may be suitable for development compatible with the flood risk (for example, public purpose uses, such as school grounds, golf courses, sports grounds and recreation areas). <p>Case 4</p> <ul style="list-style-type: none"> Urban land that is fully or substantially developed (for example, currently zoned residential, commercial or industrial areas). 	<p>Case 5 (see Fig. 2.1)</p> <ul style="list-style-type: none"> Rural or urban areas where the extent of the floodway has not been identified and only the extent of land subject to inundation is known Areas that cover the total extent of land subject to inundation, including the higher risk floodway component LSIO can be applied as an interim measure until further mapping of the floodway is carried out. <p>Case 6 (see Fig. 2.2)</p> <ul style="list-style-type: none"> Rural land that is mainly undeveloped Areas where the extent of the floodway has been identified and LSIO covers the balance of land subject to inundation, excluding the floodway component Lower flood depths and/or flow velocities Lower potential flood risk. <p>Case 7 (see Fig.2.3)</p> <ul style="list-style-type: none"> Urban land that is fully or substantially developed ('flood fringe') Areas where the extent of the floodway has been identified and the LSIO covers the balance of land subject to inundation, except the floodway component Lower flood depths, lower flow velocities Lower potential flood risk. 	<p>Case 8 (see Fig. 2.4)</p> <ul style="list-style-type: none"> Urban land that is inundated if the capacity of the drainage system is exceeded during heavy rainfall Currently used by Melbourne Water in the Melbourne metropolitan area Can be applied by councils for regional towns provided overland flow path areas are delineated.

Source: Planning Practice Note 12: Applying the Flood Provisions in Planning Schemes

Appendix B Zones and Overlays

37.03
08/08/2012
VC87

URBAN FLOODWAY ZONE

Shown on the planning scheme map as **UFZ**.

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 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 ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.

To reflect any declarations under Division 4 of Part 10 of the Water Act, 1989.

To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies, and particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

37.03-1
08/08/2012
VC87

Table of uses

Section 1 - Permit not required

Use	Condition
Extensive animal husbandry	
Informal outdoor recreation	
Any use listed in Clause 62.01	Must meet the requirements of Clause 62.01.

Section 2 - Permit required

Use	Condition
Agriculture (other than Apiculture and Extensive animal husbandry)	
Leisure and recreation (other than Informal outdoor recreation, Indoor recreation facility, and Motor racing track)	
Road	
Utility installation (other than Telecommunications facility)	
Any use listed in Clause 62.01 if any requirement is not met	

Section 3 - Prohibited

USE
Indoor recreation facility
Motor racing track
Any other use not in Section 1 or 2

37.03-2
15/09/2008
VC49

Buildings and works

A permit is required to construct a building or construct or carry out works, including:

- A 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.
- A pergola or verandah, including an open-sided pergola or verandah to a dwelling with a finished floor level not more than 800mm above ground level and a maximum building height of 3 metres above ground level.
- A deck, including a deck to a dwelling with a finished floor level not more than 800mm above ground level.
- A non-domestic disabled access ramp.

This does not apply to:

- Flood mitigation works carried out by the responsible authority or floodplain management authority.
- 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 erection of telephone or power lines provided they do not involve the construction of towers or poles.
- Post and wire and post and rail fencing.

37.03-3
19/01/2006
VC37

Subdivision

A permit is required to subdivide land. A permit may only be granted to subdivide land if the following apply:

- The subdivision does not create any new lots, which are entirely within this zone. This does not apply if the subdivision creates a lot, which by agreement between the owner and the relevant floodplain management authority, is to be transferred to an authority for a public purpose.
- The subdivision is the resubdivision of existing lots and the number of lots is not increased, unless a local floodplain development plan incorporated into this scheme specifically provides otherwise.

37.03-4
19/01/2006
VC37

Application requirements

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.

Flood risk report

If a local floodplain development plan for the area has not been incorporated into this scheme, an application must be accompanied by a flood risk report to the satisfaction of the responsible authority. The flood risk report must consider the following, where applicable:

- The existing use and development of the land.
- Whether the proposed use or development could be located on flood-free land or land with a lesser flood hazard outside this zone.
- The susceptibility of the development to flooding and flood damage.
- The potential flood risk to life, health and safety associated with the development. Flood risk factors to consider include:
 - 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 floodwater, stormwater or drainage water and the effect of the development on reducing flood storage and increasing flood levels and flow velocities.
- The effects of the development on environmental values such as natural habitat, stream stability, erosion, water quality and sites of scientific significance.

37.03-5

19/01/2006
VC37

Referral of applications

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 requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority.

37.03-6

19/01/2006
VC37

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 local floodplain development plan or flood risk report.
- Any comments of the relevant floodplain management authority.

37.03-7

19/01/2006
VC37

Advertising signs

Advertising sign requirements are at Clause 52.05. This zone is in Category 4 unless a schedule to this zone specifies a different category.

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.

44.03
21/09/2009
VC60

FLOODWAY OVERLAY

Shown on the planning scheme map as **FO** or **RFO** 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 waterways, major floodpaths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding.

To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.

To reflect any declarations under Division 4 of Part 10 of the Water Act, 1989 if a declaration has been made.

To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies, and particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.

44.03-1
15/09/2008
VC49

Buildings and works

A permit is required to construct a building or to construct or carry out works, including:

- A 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.
- Rainwater tank with a capacity of not more than 4500 litres.
- A pergola or verandah, including an open-sided pergola or verandah to a dwelling with a finished floor level not more than 800mm above ground level and a maximum building height of 3 metres above ground level.
- A deck, including a deck to a dwelling with a finished floor level not more than 800mm above ground level.
- A non-domestic disabled access ramp

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 erection of telephone or power lines provided they do not involve the construction of towers or poles.
- To post and wire and post and rail fencing.

44.03-2 Subdivision

19/01/2006
VC37

A permit is required to subdivide land. A permit may only be granted to subdivide land if the following apply:

- The subdivision does not create any new lots, which are entirely within this overlay. This does not apply if the subdivision creates a lot, which by agreement between the owner and the relevant floodplain management authority, is to be transferred to an authority for a public purpose.
- The subdivision is the resubdivision of existing lots and the number of lots is not increased, unless a local floodplain development plan incorporated into this scheme specifically provides otherwise.

44.03-3 Application requirements

21/09/2009
VC60

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.

Flood risk report

If a local floodplain development plan for the area has not been incorporated into this scheme, an application must be accompanied by a flood risk report to the satisfaction of the responsible authority, which must consider the following, where applicable:

- The State Planning Policy Framework and the Local Planning Policy Framework.
- The existing use and development of the land.
- Whether the proposed use or development could be located on flood-free land or land with a lesser flood hazard outside this overlay.
- The susceptibility of the development to flooding and flood damage.
- The potential flood risk to life, health and safety associated with the development. Flood risk factors to consider include:
 - 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 floodwater, stormwater or drainage water and the effect of the development on reducing flood storage and increasing flood levels and flow velocities.
- The effects of the development on river health values including wetlands, natural habitat, stream stability, erosion, environmental flows, water quality and sites of scientific significance.

44.03-4 Exemption from notice and review

19/01/2006
VC37

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.

44.03-5 Referral of applications

19/01/2006
VC37

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 requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority.

44.03-6 Decision guidelines

21/09/2009
VC60

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 local floodplain development plan or flood risk report.
- Any comments of the relevant floodplain management authority.
- The Victorian River Health Strategy (2002) and any relevant regional river health strategy and associated wetland plan.

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.

44.04
21/09/2009
VC60

LAND SUBJECT TO INUNDATION OVERLAY

Shown on the planning scheme map as **LSIO** 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 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 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 reflect any declaration under Division 4 of Part 10 of the Water Act, 1989 where a declaration has been made.

To protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.

44.04-1
15/09/2008
VC19

Buildings and works

A permit is required to construct a building or to construct or carry out works, including:

- A 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.
- Rainwater tank with a capacity of not more than 4500 litres.
- A pergola or verandah, including an open-sided pergola or verandah to a dwelling with a finished floor level not more than 800mm above ground level and a maximum building height of 3 metres above ground level.
- A deck, including a deck to a dwelling with a finished floor level not more than 800mm above ground level.
- A non-domestic disabled access ramp

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 erection of telephone or power lines provided they do not involve the construction of towers or poles.
- To post and wire and post and rail fencing.

44.04-2 Subdivision

19/01/2006
VC37

A permit is required to subdivide land.

44.04-3 Application requirements

19/01/2006
VC37

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.

44.04-4 Exemption from notice and review

19/01/2006
VC37

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.

44.04-5 Referral of applications

19/01/2006
VC37

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 requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority.

44.04-6 Decision guidelines

21/09/2009
VC60

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.
- 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 flood-free land or land with a lesser flood hazard outside this overlay.
- The susceptibility of the development to flooding and flood damage.
- The potential flood risk to life, health and safety associated with the development. Flood risk factors to consider include:
 - 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 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 river health values including wetlands, natural habitat, stream stability, erosion, environmental flows, water quality and sites of scientific significance.

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.

SPECIAL BUILDING OVERLAY

Shown on the planning scheme map as **SBO** 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 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 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 protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

Buildings and works

A permit is required to construct a building or to construct or carry out works, including:

- A 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.
- A pergola or verandah, including an open-sided pergola or verandah to a dwelling with a finished floor level not more than 800mm above ground level and a maximum building height of 3 metres above ground level.
- A deck, including a deck to a dwelling with a finished floor level not more than 800mm above ground level.
- A non-domestic disabled access ramp.

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 erection of telephone or power lines provided they do not involve the construction of towers or poles designed to operate at more than 66,000 volts.
- To landscaping, driveways, vehicle cross overs, footpaths or bicycle paths if there is no significant change to existing surface levels, or if the relevant floodplain management authority has agreed in writing that the flowpath is not obstructed.

- To roadworks and associated works if this is limited to resurfacing the existing road or the relevant floodplain management authority has agreed in writing that the flowpath is not obstructed.
- To an extension of less than 20 square metres in floor area to an existing building (not including an out-building), where the floor levels are constructed to at least 300mm above the flood level or if the relevant floodplain management authority has agreed in writing that the flowpath is not obstructed.
- To an upper storey extension to an existing building.
- To an alteration to an existing building where the original building footprint remains the same and floor levels are constructed to at least 300mm above flood level.
- To an out-building (including replacement of an existing building) if the out-building is less than 10 square metres in floor area and constructed to at least 150mm above the flood level or the relevant floodplain management authority has agreed in writing that the flowpath is not obstructed.
- To a replacement building (not including an out-building) if it is constructed to at least 300mm above the flood level and the original building footprint remains the same. The responsible authority may require evidence of the existing building envelope.
- To fencing with at least 25% openings and with the plinth at least 300mm above the flood level.
- To a replacement fence in the same location and of the same type and materials as the existing fence.
- To a pergola or an open deck area with unenclosed foundations.
- To a carport constructed over an existing carspace.
- To an in-ground swimming pool and associated security fencing, where the perimeter edging of the pool is constructed at natural surface levels and excavated material is removed from the flowpath.
- To a tennis court at existing surface level with fencing designed to minimise obstruction to flows.
- To an aviary or other enclosure for a domestic animal if it is less than 10 square metres in floor area at ground level.
- To open sided verandahs, open sided picnic shelters, barbeques and park furniture (excluding playground equipment) if there is less than 30mm change to existing surface levels.
- To radio masts, light poles or advertising signs on posts or attached to buildings.

44.05-2 Subdivision

19/01/2006
VC37

A permit is required to subdivide land.

44.05-3 Application requirements

19/01/2006
VC37

Unless otherwise agreed in writing by the relevant floodplain management authority, an application to construct a building or construct or carry out works must be accompanied by a site plan which shows, as appropriate:

- The boundaries and dimensions of the site.
- Relevant existing and proposed ground levels, to Australian Height Datum, taken by or under the direction or supervision of a licensed land surveyor.
- The layout, size and use of existing and proposed buildings and works, including vehicle parking areas.

- Floor levels of any existing and proposed buildings to Australian Height Datum.
- Cross sectional details of any basement entry ramps and other basement entries to Australian Height Datum, showing floor levels of entry and exit areas and drainage details.

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.

44.05-4

19/01/2006
VC37

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.

44.05-5

19/01/2006
VC37

Referral of applications

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 requirements or conditions previously agreed to in writing between the responsible authority and the floodplain management authority.

44.05-6

19/01/2006
VC37

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.
- 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 flood-free land or land with a lesser flood hazard outside this overlay.
- The susceptibility of the development to flooding and flood damage.
- Flood risk factors to consider include:
 - 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 floodwater, stormwater or drainage water and the effect of the development on reducing flood storage and increasing flood levels and flow velocities.

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.

Appendix C Planning Practice Notes

In addition to the Planning Practice Notes discussed in section 3.2, the following PPNs are also relevant to implementing the LCHA.

Planning Practice Note 4: Writing a Municipal Strategic Statement (PPN4):

- clarifies the role of the MSS in planning schemes
- provides guidance on the preferred format of the MSS
- provides guidance on how an MSS should be written

Planning Practice Note 8: Writing a Local Planning Policy (PPN8) provides guidance on:

- the role of Local Planning Policy in planning schemes
- the need for a Local Planning Policy
- how a Local Planning Policy should be written.

Planning Practice Note 10: Writing Schedules (PPN10):

- explains the role of schedules in planning schemes
- provides guidance on how schedules should be written
- provides practical examples of the use of schedules

Planning Practice Note 13: Incorporated and Reference Documents (PPN13) explains:

- the role of external documents in planning schemes,
- the difference between incorporated and reference documents
- when a document should be incorporated or be a reference document.

Planning Practice Note 36: Implementing a Coastal Settlement Boundary (PPN36) provides guidance about implementing a coastal settlement boundary in a planning scheme for settlements outside Metropolitan Melbourne.

Appendix D Example LFDP

BARWON ESTUARY LOCAL FLOODPLAIN DEVELOPMENT PLAN 2017

Incorporated Document

INCORPORATED WITHIN CLAUSE 81 OF THE GREATER GEELONG PLANNING SCHEME PURSUANT TO SECTION 6(2)(J) OF THE *PLANNING AND ENVIRONMENT ACT 1987*

1.0 PURPOSE

This Local Floodplain Development Plan is an Incorporated Document at Clause 81 of the Greater Geelong Planning Scheme.

The plan establishes criteria for buildings, works and subdivision and provides a performance-based approach to the assessment of applications for all land affected by the Land Subject to Inundation Overlay (LSIO schedule 2) in the Barwon Estuary in the Greater Geelong Planning Scheme. The land is included on planning scheme maps 81 and 88 affecting urban and rural areas of Barwon Heads as shown below.

[insert plan]

An application for a planning permit to develop or subdivide land affected by the LSIO (Clause 44.04) of the Greater Geelong Planning Scheme must demonstrate compliance with the performance criteria established by this Local Floodplain Development Plan.

In addition to the decision guidelines in Clauses 44.03-6, 44.04-6 and Clause 65, Greater Geelong City Council must also consider the Performance Criteria of this Local Floodplain Development Plan as appropriate.

2.0 GLOSSARY/ABBREVIATIONS

LSIO	Land Subject to Inundation Overlay (Clause 44.04, Victoria Planning Provisions)
Floodplain Management Authority	The floodplain management authority function is assigned in Victoria under the <i>Water Act 1989</i> . The Victorian Planning Provisions Practice note ' <i>Applying for a Planning Permit under the Flood Provisions</i> ' identifies the floodplain management authorities in Victoria.
ARI	Average Recurrence Interval (ARI) - the average or expected value of the period between events of a nominated size. A 100-year ARI event would occur on average, once every 100 years and can also be expressed as Annual Exceedance Probability (AEP).
AEP	Average Exceedance Probability (AEP) - the probability or risk of a flood of a given size occurring or being exceeded in any given year. A 90% AEP flood has a high probability of occurring or being exceeded; it would occur quite often and would be relatively small. A 1% AEP flood has a low probability of occurrence or being exceeded; it would be fairly rare but it would be a relatively large event. A 100-year ARI event is

	equivalent to a 1%AEP event. A 1%AEP event has a 1% chance of occurring in any year.
Design flood event	A probabilistic or statistical estimate of flood magnitude generally based on some form of probability analysis of flood and/or rainfall data. An ARI or AEP is attributed to the estimate.
NFPL	Nominal Flood Protection Level – The level above the 1% AEP flood level that includes freeboard. For the purposes of this Local Floodplain Development Plan the NFPL is 0.3 metres above the 1% AEP flood level.
SLR	Sea Level Rise
VxD	The product of depth (metres) and velocity of flow (metres per second), also referred to as m^2/s , is an indicator of flood hazard. This factor provides for consideration of circumstances where flood depth may be relatively low, but floodwater is hazardous due to the speed of water flow.

3.0 BASIS OF THE PLANNING CONTROLS

3.1 Flood History

[insert]

3.2 Flood impacts

[insert]

3.3 Flood information

The extent and likely impacts of coastal inundation have been determined by the Bellarine – Corio Bay Local Coastal Hazard Assessment 2016 (the LCHA). This followed earlier local and state sponsored studies undertaken across the area.

The results of the LCHA are documented in the reports included in Clause 9 of this Plan (Reference Documents).

3.4 Purpose of the overlays

The Greater Geelong Planning Scheme (GGPS) includes a number of planning control options that address flooding issues.

The planning controls ensure that risks associated with the development and subdivision of flood prone land are recognised and responded to appropriately via the planning permit application process.

The Land Subject to Inundation Overlay (LSIO) is based on the degree of hazard identified in different parts of the flood area. They consider factors such as flood depth, velocity, natural storage, flood duration and warning time during the 1% AEP + 0.8m SLR design flood event.

The LSIO generally denotes the fringe of the floodplain where flooding is shallower than the FO and slower moving. The level of hazard in this part of the floodplain is lower relative to the FO.

Development (buildings and works) and subdivision on land within the LSIO and, to a lesser extent, the FO and can be considered provided permit applications meet the flood risk minimisation criteria stipulated by this Local Floodplain Development Plan.

4.0 APPLICATION REQUIREMENTS

Unless the Floodplain Management Authority has advised otherwise in writing, every application for a planning permit to construct a building, to carry out works, to amend a permit or to subdivide land under Clause 44.04 (LSIO) of the Greater Geelong Planning Scheme must be accompanied by plans and supporting documents (as appropriate and to the satisfaction of the responsible authority) including the following information:

- A Flood Risk Report if it does not comply with the Barwon Estuary Local Floodplain Development Plan 2016
- The existing use and development of the site.
- The boundaries, dimensions, orientation, and slope of the site.
- Location, layout, size and use of existing buildings and works on the site and on adjoining properties.
- Location, layout, size and use of all proposed development.
- Elevations of all proposed buildings drawn to scale.
- A plan of survey to Australian Height Datum (AHD) showing:
 - existing and proposed ground levels of the site;
 - floor levels of all existing and proposed buildings;
 - the difference in levels between the site and surrounding properties;
 - the levels of adjoining roads, internal driveways and access tracks;
 - the layout of any proposed subdivision, including a plan indicating the location of existing buildings.
- An assessment of whether the proposed development could be located on flood-free land or land with a lesser flood hazard.
- Details of the measures to be used to reduce the susceptibility of the development to flood damage.
- An explanation as to how any proposed earthworks (including cut and fill) complies with the *Catchment Management Authority Guidelines for Floodplain Cut and Fill* including plans showing ground levels to AHD of all fill and borrow areas, depths of cut and height of fill, and calculations showing the net level for level floodwater storage volume balance.

5.0 REFERRAL REQUIREMENTS

Referral of an application to the relevant Floodplain Management Authority pursuant to Section 55 of the *Planning and Environment Act 1987* is required unless:

- it is accompanied by written approval for the proposal from the floodplain management authority granted no more than three months prior to the application date (quoting the reference; date of the advice; the applicable flood level; and any flood related building design requirements).

Notwithstanding the above, every application that is accompanied by a Flood Risk Report must be referred to the relevant Floodplain Management Authority pursuant to Section 55 of the *Planning and Environment Act 1987*.

6.0 FLOOD RISK REPORT

If an application does not comply with this Local Floodplain Development Plan then:

- the applicant must submit a Flood Risk Report consistent with the requirements set out under clause 44.03-3 of the Greater Geelong Planning Scheme and any other requirements of the Floodplain Management Authority.

7.0 DECISION GUIDELINES

When deciding on an application in the area covered by this Local Floodplain Development Plan, the responsible authority must consider (as appropriate) whether:

- the proposal minimises the risk to life, health and wellbeing associated with flooding.
- any development permitted on floodplain land ensures that it:
 - does not increase the risk to existing residents, property and community infrastructure from flooding.
 - maintains to the maximum possible extent the free passage and temporary storage of floodwaters.
 - uses materials and is designed and constructed so that the likelihood of damage by floodwater is minimised.
 - will not cause any significant rise in flood level or flow velocity to the detriment of other land holders or property.
- the construction of new buildings and works can be encouraged on land outside the LSIO.
- the filling of the floodplain can be avoided unless it can be demonstrated that:
 - the level for level floodplain storage and conveyance compensation can be achieved; *or*
 - there will be no adverse impacts on neighbouring property as verified by hydraulic modelling approved by the floodplain management authority.
 - the construction of private levees can be avoided.
- the subdivision of parcels that could lead to intensification of development on flood prone land can be avoided.

- the subdivision of parcels that could lead to intensification of development on land not prone to flooding but significantly isolated from flood refuge facilities or essential and emergency services by flooding over roads can be avoided.
- the retention of drainage corridors with vegetation buffer areas along waterways can be encouraged so as to minimise erosion of stream banks and verges during large floods and maintain the natural drainage function, stream habitat, wildlife corridor and landscape values.

8.0 PERFORMANCE CRITERIA

When deciding on an application for buildings, works or subdivision in the area covered by the LSIO, the responsible authority must consider (as appropriate) the following performance criteria.

8.1 Subdivision

Subdivision applications for land that is either partly or wholly within the LSIO should not create new lots wholly within the overlay areas, unless it can be demonstrated that:

[Insert]

8.2 New or replacement buildings

Applications for new or replacement buildings including outbuildings and sheds (other than open sided) **should** satisfy the following criteria:

[Insert]

8.3 Extensions to existing habitable buildings

[Insert]

8.4 Fences

Fences should be designed and constructed to minimise the likely effects of flooding. Fences should not divert or obstruct floodwater unduly. The potential for fences to trap debris should be minimised.

8.5 Earthworks

Earthworks should be designed and constructed to minimise the likely effects of flooding.

[Insert]

9.0 REFERENCE DOCUMENTS

Bellarine Peninsula – Corio Bay Local Coastal Hazard Assessment, Inundation Report, December 2016

Coastal Climate Change Risk Assessment Methodology Report,

Bellarine Peninsula – Corio Bay Local Coastal Hazard Assessment, Coastal Inundation Options Report,

Bellarine Peninsula – Corio Bay Local Coastal Hazard Assessment

Appendix E Example Clause 52.03

BOROUGH OF QUEENSLIFFE COASTAL INUNADTION AFFECTED PROPERTIES (2017)

1.0 INTRODUCTION

This document is an incorporated document in the Schedule to Clause 52.03 and the Schedule to Clause 81.01 of the Queenscliffe Planning Scheme (“the planning scheme”).

Despite any provision to the contrary in the planning scheme, the land specified in Clause 3.0 of this document must be used and developed in accordance with the specific controls in Clause 4.0.

A reference to a Clause of the planning scheme in this incorporated document includes a reference to a Schedule to that Clause.

For the avoidance of doubt:

- the exemptions from permit requirements in the planning scheme set out in Clauses 62.02-1, 62.02-2 and 62.05 of the planning scheme continue to apply to the land affected by this incorporated document
- Clause 62.03 of the planning scheme continues to apply to any requirement in this incorporated document relating to the construction or carrying out of works.

2.0 PURPOSE

To protect land that is vulnerable to coastal inundation from inappropriate development.

To ensure that the community and assets are not exposed to an unacceptable level of risk associated with the coastal impacts of climate change.

3.0 LAND TO WHICH THIS INCORPORATED DOCUMENT APPLIES

The specific controls in Clause 4.0 apply to the land shown in the maps in Schedule 1 to this incorporated document.

4.0 SPECIFIC CONTROLS

4.1 EXEMPTIONS FOR PLANNING SCHEME PERMIT REQUIREMENTS

[insert]

4.2 PERMIT REQUIREMENTS

A permit is required to

[insert]

4.3 APPLICATION OF PROVISIONS OF THE PLANNING SCHEME

The following provisions of the planning scheme apply to an application under this incorporated document:

[insert]

4.4 APPLICATION REQUIREMENTS

An application under this incorporated document must be accompanied by the following information:

- the information specified in Clause 44.04-3 of the planning scheme
- proposed inundation mitigation measures including:

[insert]

If in the opinion of the responsible authority any part of these requirements is not relevant to the assessment of an application, the responsible authority may waive, vary or reduce the requirement.

4.5 DECISION GUIDELINES

Before deciding on an application under this incorporated document, in addition to the decision guidelines of Clause 65 of the planning scheme, the responsible authority must consider, as appropriate:

- Prioritising the protection of human life over other policy considerations.
- The siting of the proposal (including a dwelling) on the lot to minimise the risk to life and property from inundation.
- Whether an alternative solution for the treatment of waste water is acceptable if the treatment and retention of waste water within the lot is significantly constrained by the lot's size and/or topography.

4.6 MANDATORY PERMIT CONDITION

A permit granted under this incorporated document to construct a building or construct or carry out works must include the following condition:

“The coastal inundation mitigation measures forming part of this permit or shown on the endorsed plans must be maintained to the satisfaction of the responsible authority on a continuing basis. This condition continues to have force and effect after the development authorised by this permit has been completed.”

SCHEDULE 1

[insert 1% AEP + 0.8m SLR map]

--/- SCHEDULE [NUMBER] TO CLAUSE 44.04 LAND SUBJECT TO INUNDATION OVERLAY

Shown on the planning scheme map as LSIO [number].

Coastal inundation and hazard

1.0 Permit requirement

A permit is not required to construct a building or carry out works for:

- An extension to an existing dwelling, provided the gross floor area of the extension does not exceed 20 square metres.
- Outbuildings and works normal to an existing dwelling including a deck or verandah that do not exceed 20 square metres, landscaping, a pergola, driveway, carport, barbeques and water tank.
- Agricultural and farm buildings less than 100 square metres in gross floor area.
- A building which is open on all sides including a domestic shed, animal enclosure, stockyard or agricultural shed.
- An upper storey extension to an existing building within the existing building footprint.
- A footpath, bicycle path, boardwalk, tennis court or sports ground provided that they are constructed at ground level.
- An in-ground domestic swimming pool or spa and associated mechanical and fencing equipment where the excavated spoil is removed and the perimeter edging of the pool is finished at natural ground level.
- An elevated boardwalk, provided that the new surface levels are above the applicable levels set by the relevant floodplain management authority.
- Repairs and routine maintenance of existing fences if the fence design and materials remain the same.
- A radio mast, telecommunications tower, antenna, power pole or light pole.
- An outdoor advertising sign/structure.
- Earthworks that do not change the rate of flow or the discharge point of water across a property boundary.
- Works carried out by any water authority to maintain and replace infrastructure related to sewer and water supply.
- Works carried out under the Coastal Management Act 1995 or the Crown Land (Reserves) Act 1978 that have had regard to the *Bellarine Peninsula – Corio Bay Local Coastal Hazard Assessment* and are conducted by a public land manager or a coastal committee under the Coastal Management Act 1995.

Appendix G Draft Local Planning Policy

22.01 COASTAL INUNDATION AND HAZARD

This policy applies to all land within the Land Subject to Inundation Overlay [insert schedule number].

22.01-1 Policy basis

This policy builds on the MSS at Clause [insert clause number] which acknowledges that areas of the municipality are low-lying and vulnerable to the impacts of climate change and coastal sea level rise. The *Bellarine – Corio Bay Local Coastal Hazard Assessment (2016)* identifies the potential landward extent of coastal inundation now and into the future, considering the effects of climate change.

Various scenarios have been mapped and, consistent with state policy at Clause 13.02-1, all land affected by the 1% AEP storm plus a 0.8m sea level rise is affected by this policy.

22.01-2 Objectives

To protect land vulnerable to coastal inundation from inappropriate development.

To plan for projected sea level rises when considering the risks and coastal impacts of climate change.

To ensure that the community and assets are not exposed to an unacceptable level of risk associated with the coastal impacts of climate change.

To ensure that any new development is suitably designed to ensure that it is compatible with the identified flood hazard and local drainage characteristics.

22.01-3 Application Requirements

The responsible authority or floodplain management authority may require that a coastal hazard vulnerability assessment or similar statement be prepared to accompany the following planning permit application types:

- Subdivision.
- Accommodation (including Dwelling, Residential building, Residential village, Retirement village, Camping and caravan park, Corrective institution, Dependent persons unit, Group accommodation, Host farm).
- Earthworks involving the receipt, importation, stockpiling or placement of more than 100 cubic metres of fill.

This requirement does not apply where the information has previously been published in a regional Local Coastal Hazard Assessment.

If a coastal hazard vulnerability assessment or similar statement is required, it must be prepared by a suitably qualified coastal processes engineer and/or coastal processes specialist and be prepared in accordance with any approved coastal hazard guidelines to the satisfaction of the responsible authority and floodplain management authority.

The assessment is to be prepared in accordance with the Victorian Coastal Hazard Guide (or superseding document) and must not be more than six months old and contain at least the following information:

- A location plan drawn to scale, showing the boundaries and dimensions of the site, surrounding uses, the layout of existing and proposed buildings and works and the distance to coast or estuary.
- Elevation plans taken by or under the direction and supervision of a licensed land surveyor showing natural ground level, finished ground level and the floor levels of

any proposed buildings in relation to both AHD and the level as nominated by the relevant floodplain management authority at 2100.

- A detailed site plan with 0.5 metres contours showing the layout of existing and proposed buildings and works, watercourses, access roads, vegetation and all infrastructure that may be affected by flooding, sea level rise or coastal inundation, taken by or under the direction and supervision of a licensed land surveyor.
- An assessment of the combined effects of any area affected by the 1 in 100 year average recurrence interval (ARI) flood event together with sea level rise of 0.8m by 2100, storm tides, storm surges, coastal processes and topography. The assessment should consider sediment budget, geotechnical risk and instability, shoreline erosion and recession, wave set up and run up, overtopping, flood extent from adjacent estuary or catchment, and sand drift. The assessment should detail expected flood levels (AHD) and the depth of inundation above existing surface levels (in cm) across the property for the following planning periods: present day, 2040, 2070 and 2100.
- An outline of actions or measures required, if any, to the siting and design of the buildings or works, or in association with the use and occupation of all aspects of the proposal in order to reduce the risk to individuals, property, infrastructure and the environment over the predicted life of the buildings or works. These actions may include the consideration of adaptation options such as planned retreat, setbacks, accommodation of changes through floor heights, site and land forming and drainage works.

22.01-4 Referral of Applications

An application to construct a building or construct or carry out works, or an application to amend a permit, does not require referral under Clause 44.04-5 to the relevant floodplain management authority if the application satisfies one of the following:

- Is accompanied by the relevant floodplain management authority's written approval, which must be granted not more than three months prior to lodging with the responsible authority; quote the reference number and date of the approved plans; and state the applicable flood level and any required floor levels.
- Is in accordance with an adopted local floodplain development plan or other agreement between the floodplain management authority and the responsible authority.
- Complies with a building envelope, filling levels and floor levels specified by the relevant floodplain management authority for the subject land in the previous six months.

Decision guidelines

Before deciding on an application, and in addition to Clauses 13.01-1 and [insert clause number], the responsible authority must consider:

- The Bellarine – Corio Bay Local Coastal Hazard Assessment (2016)
- Victorian Coastal Hazard Guide, Victorian Government Department of Sustainability and Environment (2012),

21.03-3 ENVIRONMENTAL RISKS

Large sections of the Borough are low-lying and particularly vulnerable to the coastal impacts of climate change. Accordingly, the Borough has an obligation to plan for projected sea level rises when considering the risks and coastal impacts associated with climate change. **Areas of coastal inundation and hazard have been identified in the Bellarine – Corio Bay Local Coastal Hazard Assessment 2016 and mapped in the LSIO.**

Areas of the Borough have been identified as subject to bushfire hazard and are included within the Bushfire Management Overlay. As identified in the State *Bushfire Plan 2014*, the overall level of bushfire risk in Victoria is increasing.

Key issues

- Applying the precautionary principle to decision-making:
 - When considering the risks and coastal impacts associated with climate change; and
 - When assessing the risk to life, property and community infrastructure from bushfire.

Objective 1

- To ensure that the community and assets are not exposed to an unacceptable level of risk associated with the coastal impacts of climate change.

Strategies

- Avoid new development and the intensification of land use in areas that are exposed to an unacceptable level of risk associated with the coastal impacts of climate change.
- **Consider the coastal impacts of climate change in strategic planning and public land management.**

Objective 2

- To ensure that the community and assets are not exposed to an unacceptable level of bushfire risk

Strategies

- Avoid new development and the intensification of land use in areas that are exposed to an unacceptable level of bushfire risk.

Implementation

These strategies will be implemented by:

Policy guidelines

- ~~Seek the informal views and advice of~~ Refer relevant applications to the Corangamite Catchment Management Authority when considering Planning Permit applications on land **within the LSIO** which may be exposed to risks associated with the coastal impacts of climate change

Scheme implementation

- Applying the Land Subject to Inundation Overlay to land affected by the 1 % AEP + 0.8m SLR
- Applying the Bushfire Management Overlay to areas where bushfire is a significant risk.

Future strategic work

- Develop a Borough-wide coastal hazard vulnerability assessment that identifies areas most vulnerable to sea level rise and storm surge inundation, and sets out a long-term plan to respond to the projected coastal impacts of climate change.
- Investigate possible drainage improvements for Point Lonsdale, to establish where flooding is liable to occur and to determine whether further works to the drainage system are required.
- Undertake environmental investigations (including hydro-geological and ecological) into the surrounding landscape of Point Lonsdale to determine appropriate protection of natural environmental areas and features in the planning scheme.
- Continue to work with the City of Greater Geelong to identify and address common cross-municipality issues, such as flooding and stormwater management.

21.05 NATURAL ENVIRONMENT

Key issues and influences

The municipality includes a rich diversity of flora and fauna, including rare and unique species and communities, major waterways, large coastal areas and complex freshwater and marine wetlands.

Remnant vegetation across the municipality is conservatively estimated to be approximately 5% of that which existed pre European settlement.

Many of the municipality's significant natural environments are protected by international and national agreements and legislation.

Urban and rural growth has had a direct impact on the municipality's natural environments and the flora and fauna that they sustain. There is a need to protect and enhance the natural environment and provide for more sustainable development.

The extensive coastline is an important natural feature of the municipality, which is vulnerable to the impacts of urban development, climate change and natural processes.

A number of areas in the municipality are susceptible to flooding, via the flooding of waterways, stormwater runoff and coastal inundation, which have the potential to result in significant adverse economic, social and environmental impacts.

Areas of coastal inundation and hazard have been identified in the Bellarine – Corio Bay Local Coastal Hazard Assessment 2016 and mapped in the LSIO.

A number of areas in the municipality are susceptible to wildfire hazard, including some grasslands around Lara, the foothills of the Brisbane Ranges, and parts of the Anakie township.

21.05-2 Waterways

Objectives

- To protect, maintain and enhance waterways, rivers, wetlands and groundwater.
- To protect connectivity between waterways and wetlands.
- To reduce the amount of runoff from urban development and improve the quality of stormwater runoff entering waterways, estuarine and marine waters.

Strategies

- Ensure that land use and development avoids isolating wetlands and provides for connective water flows and vegetative links.
- Ensure waterways and wetlands are not drained or adversely affected as a result of development.
- Ensure development provides for appropriate buffer setbacks and fencing to waterways and wetlands.
- Ensure identified groundwater catchments are protected from surface contamination.
- Effectively manage stormwater runoff from development.

21.05-3 Biodiversity

Objective

- To protect, maintain and enhance the biodiversity of the municipality.

Strategies

- Ensure that land use and development enhances areas of native vegetation and other habitats.
- Ensure that land use and development minimises the fragmentation of areas of native vegetation and other habitats.
- Ensure habitats of indigenous species are protected from the impacts of land use and development.
- Ensure that land use and development does not aggravate existing salinity impacts or lead to the generation of newly affected areas, particularly through rising groundwater levels.

21.05-4 Coastal environments

Objectives

- To protect, maintain and enhance the coast, estuaries and marine environment.
- To respect and manage coastal processes.

Strategies

- Focus urban coastal development within existing urban settlements.
- Prevent lineal urban sprawl along the coast.
- Avoid the loss of, and wherever possible increase, public access to the foreshore environment.
- Restrict development on primary dunes.
- Ensure the potential for existence of acid sulphate soils adjacent to coastal and wetland locations is considered.
- Limit the number of stormwater outlets to the coast.
- Setback future land use and development from coastal areas, estuaries and coastal wetlands to provide a buffer which is adequate to accommodate coastal recession and the landward migration of coastal wetland vegetation communities such as mangroves and salt marshes.

21.05-5 Climate change

Objective

- To plan for and adapt to the impacts of climate change.
- To ensure that the community and assets are not exposed to an unacceptable level of risk associated with the coastal impacts of climate change.

Strategy

- Avoid land use and development within areas considered at risk of coastal erosion or inundation from flooding, storm surge or rising sea levels.
- Consider the coastal impacts of climate change in strategic planning and public land management.

21.05-6 Natural resource management

Objectives

- To use non-renewable resources more efficiently.
- To increase the use of renewable resources.

Strategies

- Encourage all land use and development to incorporate best practice Water Sensitive Urban Design (WSUD) principles.
- Encourage planting of low water use vegetation, particularly indigenous vegetation.
- Encourage the installation of alternative, renewable energy supply systems.
- Encourage the installation of alternative water supply systems, including the use of recycled water where appropriate.
- Encourage development to incorporate best practice energy efficiency design principles and measures.

21.05-7 Flooding

Objectives

- To protect floodplains.
- To minimise the potential for damage and risks to public safety and property from flooding.

Strategies

- Ensure that land use and development is compatible with flood prone land.
- Discourage land use and development in floodplains where flood function may be impaired.
- Recognise flood hazards associated with waterways and ensure the free passage of water whilst protecting development from flooding impacts.

21.05-8 Wildfire

Objective

- To minimise the impacts of wildfire.

Strategies

- Identify areas at risk of wildfire.
- Ensure that development in identified areas considers the impacts of wildfire.

21.05-9 Implementation

These strategies will be implemented by:

Using policy and exercise of discretion

Where appropriate, requiring the preparation of Stormwater Management Plans and/or Construction Management Plans which provide for the protection of receiving waterways.

Where appropriate, require applications for marine based development, including aquaculture development, to provide an environmental assessment.

Utilise indigenous species in revegetation programs on public land, including roadsides to improve the overall biodiversity of the municipality.

Ensure urban development on the Bellarine Peninsula complies with structure plan maps as detailed in Clause 21.14.

Further Work

Prepare and implement an updated flood study for Lara.

Work with the Corangamite Catchment Management Authority and the Department of Primary Industries to implement the Salinity Management Overlay Project, which may also include the protection of primary salinity sites via the Environmental Significance Overlay.

Work with the Corangamite Catchment Management Authority and the relevant state agency to implement the Erosion Management Overlay Project.

Investigate the application of the Environmental Significance Overlay to contributory value wetlands.

Investigate the application of the Environmental Significance Overlay or Vegetation Protection Overlay to areas identified as Biodiversity Sites and/or Primary Biodiversity Conservation Zones.

Work with the Department of Environment, Land, Water and Planning to investigate the application of appropriate planning provision(s) to the coastal fringe.

Work with the Department of Environment, Land, Water and Planning to investigate the application of appropriate planning provision(s) to areas identified as containing Bellarine Yellow Gum and Coastal Moonah Woodland.

References

Bellarine – Corio Bay Local Coastal Hazard Assessment 2016

City of Greater Geelong Environment Management Strategy 2006 - 2011, City of Greater Geelong, 2006.

Geelong Wetland Strategy, City of Greater Geelong, 2006.

Geelong Biodiversity Strategy, City of Greater Geelong, 2003.

Corio Bay Coastal Action Plan, Central Coastal Board and the City of Greater Geelong, 2005.

Corangamite Regional Catchment Strategy 2013-2019, Corangamite CMA, 2013.

City of Greater Geelong Stormwater Management Plan, City of Greater Geelong, 2002.

Central West Victoria Regional Coastal Action Plan, Western Coastal Board, 2003.

Central West Victoria Estuaries Coastal Action Plan, Western Coastal Board, 2005.

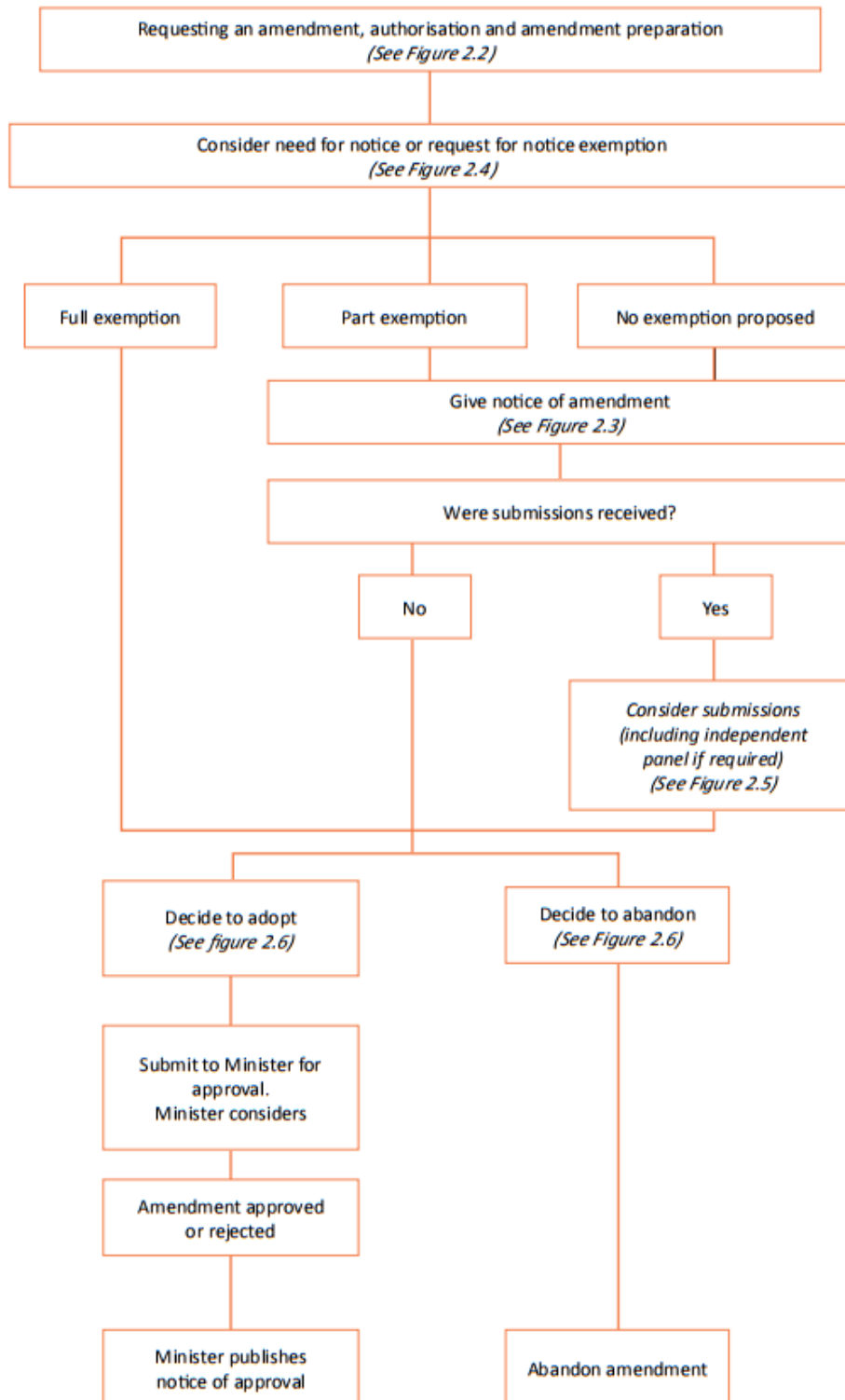
Geelong Flood Mitigation Strategy, Gutteridge Haskins & Davey Pty Ltd for City of Greater Geelong, May 1997.

Geelong Regional Floodland Study, Geelong Regional Commission, June 1979.

Hovells Creek, Lara: Flooding – December 10, 1988, prepared by Technical Services Department Shire of Corio, January 1990.

Appendix J Planning scheme amendment process

Figure 2.1: Outline of the planning scheme amendment process



Source: Using Victoria's Planning System, 2015