

**Moorabool Planning Scheme Amendment C91moor
Moorabool Flood Provisions**

Panel Report

Planning and Environment Act 1987

30 July 2021

How will this report be used?

This is a brief description of how this report will be used for the benefit of people unfamiliar with the planning system. If you have concerns about a specific issue you should seek independent advice.

The planning authority must consider this report before deciding whether or not to adopt the Amendment.

[section 27(1) of the *Planning and Environment Act 1987* (the PE Act)]

For the Amendment to proceed, it must be adopted by the planning authority and then sent to the Minister for Planning for approval.

The planning authority is not obliged to follow the recommendations of the Panel, but it must give its reasons if it does not follow the recommendations. [section 31 (1) of the PE Act, and section 9 of the *Planning and Environment Regulations 2015*]

If approved by the Minister for Planning a formal change will be made to the planning scheme. Notice of approval of the Amendment will be published in the Government Gazette. [section 37 of the PE Act]

Planning and Environment Act 1987

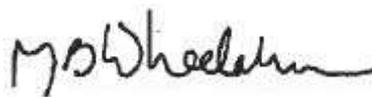
Panel Report pursuant to section 25 of the PE Act

Moorabool Planning Scheme Amendment C91moor

30 July 2021



Chris Harty, Chair



Michael Wheelahan, Member

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Glossary and abbreviations

the Act	<i>Planning and Environment Act 1987</i>
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
ARI	Average Recurrence Interval
ARR	Australian Rainfall and Runoff
CFA	Country Fire Authority
Council	Moorabool Shire Council
DELWP	Department of Environment, Land, Water and Planning
Engeny Report	<i>Lower Lerderderg Catchments Flood Mapping Report, Engeny Water Management, 16 December 2011</i>
FO	Floodway Overlay
GHD Report	<i>Report for Bacchus Marsh Area Floodplain Mapping, Main Report, GHD, 25 November 2010</i>
Halcrow Pacific Report	<i>Ballan Township Flood Study, Final Report, Halcrow Pacific Pty Ltd, 30 November 2011</i>
HARC	Hydrology and Risk Consulting Pty Ltd
LPPF	Local Planning Policy Framework
LSIO	Land Subject to Inundation Overlay
Melbourne Water Modelling	Modelling undertaken by Melbourne Water for rural areas not covered by the flood reports
Peer Review	<i>Peer Review Moorabool Shire Flood Studies, Cardno, 3 November 2017</i>
Planning Scheme	Moorabool Planning Scheme
PPF	Planning Policy Framework
PPN11	Planning Practice Note 11 – Applying for a Planning Permit under the Flood Provisions, August 2015
PPN12	Planning Practice Note 12 – Applying the Flood Provisions in Planning Schemes, June 2015
SBO	Special Building Overlay
SEPP	State Environment Protection Policy
The Strategy	Victorian Floodplain Management Strategy, 2016
UFZ	Urban Floodway Zone
ULD	Urban Land Development Pty Ltd
VPP	Victoria Planning Provisions

Overview

Amendment summary

The Amendment	Moorabool Planning Scheme Amendment C91moor
Common name	Moorabool Flood Provisions
Brief description	The Amendment proposes to implement the findings of various flood mapping studies affecting areas in Bacchus Marsh and Ballan, and within the Werribee River, Lerderderg River and Little River catchments by introducing and applying the Land Subject to Inundation Overlay (LSIO) and the Special Building Overlay (SBO) to the Moorabool Planning Scheme.
Subject land	Land identified as subject to inundation within the catchments of the Werribee River, Lerderderg River and Little River, in the eastern portion of Moorabool Shire. The Amendment includes land in Blackwood, Ballan, Greendale, Darley, Bacchus Marsh, Maddingley and Balliang.
The Proponent	Melbourne Water
Planning Authority	Moorabool Shire Council
Authorisation	25 November 2019
Exhibition	12 March to 18 August 2020
Submissions	Number of Submissions: 41 Opposed: 35 A list of submitters is included in Appendix A

Panel process

The Panel	Chris Harty, Chair and Michael Wheelahan, Member
Directions Hearing	20 April 2021
Panel Hearing	15 to 18 June 2021
Site inspections	Accompanied on 17 June 2021 and Unaccompanied on 7 July 2021
Parties to the Hearing	The parties appearing at the Hearing are listed in Appendix B
Citation	Moorabool PSA C91moor [2021] PPV
Date of this report	30 July 2021

Executive summary

Moorabool Planning Scheme Amendment C91moor (the Amendment) seeks to introduce and apply the Land Subject to Inundation Overlay (LSIO) and the Special Building Overlay (SBO) to areas within the Werribee River, Lerderderg River and Little River catchments and in the townships of Bacchus Marsh and Ballan.

Key issues raised in submissions with respect to the Amendment included:

- The need for the Amendment.
- The appropriateness of the proposed planning controls.
- The accuracy of the flood extent mapping.
- Site specific matters in Bacchus Marsh, Ballan, Darley, Maddingley and Blackwood.

Other issues raised in submissions included flood mitigation including drain maintenance and effects on property values and insurance.

The Panel finds the Amendment is overwhelmingly supported under the *Planning and Environment Act 1987*, State and local planning policy, and the Victorian Floodplain Management Strategy. The Amendment has sound strategic justification.

An important feature of the application of the LSIO and SBO is that they do not prohibit development. The schedules to the overlays have been drafted to limit unnecessary planning permit applications by identifying appropriate exemptions. The overlays will provide for the identification of land subject to flood risk within the eastern portion of Moorabool Shire and establish a process through the permit system that allows development of affected land to be assessed to determine if it would impact on or be impacted by flood processes.

The Panel considers the Amendment is necessary to identify in the Moorabool Planning Scheme (Planning Scheme) flood characteristics of certain areas of land and to fill an existing gap where Council does not have the tools to manage growth and flood risk.

The Panel concludes:

- The Amendment implements the relevant sections of the Planning Policy Framework and Local Planning Policy Framework and is consistent with the relevant Ministerial Directions and Planning Practice Notes.
- The Amendment is well founded and strategically justified.
- The LSIO and SBO are appropriate controls to use given the nature of the flood risks identified in the flood studies.
- The schedules to the LSIO and SBO have been appropriately drafted.
- Clauses 21.02-12 and 21.02-13 are unnecessary and should be deleted.
- The technical basis of the Amendment is sound.
- On-ground changes that have occurred since the flood studies can be dealt with via post-exhibition changes to the Amendment.

Recommendations

Based on the reasons set out in this Report, the Panel recommends that Moorabool Planning Scheme Amendment C91moor be adopted as exhibited subject to the following:

1. **Delete Clauses 21.02-12 and 21.02-13.**
2. **Amend the application of the Land Subject to Inundation Overlay on 94-98 Main Street, Bacchus Marsh, to the land below 99.86 metres Australian Height Datum as shown in Figure 4 of this Report.**
3. **Adopt the post-exhibition changes to the Land Subject to Inundation Overlay and Special Building Overlay extent as shown in Appendix D of this Report.**
4. **Amend the Explanatory Report under the heading *Does the Amendment address relevant bushfire risk?* to read:**

The amendment will not result in any increase in bushfire risk, as it only seeks to manage flood risks. The amendment does not involve, nor facilitate, any on-ground works (such as revegetation) which might lead to increased bushfire risk.

1 Introduction

1.1 The Amendment

1.1.1 Amendment description

The purpose of the Moorabool Planning Scheme Amendment C91 (the Amendment) is to introduce and apply the LSIO and the SBO to areas within the Werribee River, Lerderderg River and Little River catchments and in the townships of Bacchus Marsh and Ballan.

The Amendment has been prepared by Moorabool Shire Council (Council) as the planning authority at the request of Melbourne Water, the relevant floodplain management authority. It implements the technical findings of the following flood reports and models:

- *Report for Bacchus Marsh Area Floodplain Mapping, Main Report* prepared by GHD dated 25 November 2010 (GHD Report)
- *Ballan Township Flood Study, Final Report* prepared by Halcrow Pacific Pty Ltd dated 30 November 2011 (Rev 0) (Halcrow Pacific Report)
- *Lower Lerderderg Catchments Flood Mapping Report* prepared by Engeny Water Management dated 16 December 2011 (Rev 0) (Engeny Report)
- Modelling undertaken by Melbourne Water for rural areas not covered by the flood reports (Melbourne Water Modelling)
- *Peer Review Moorabool Shire Flood Studies* prepared by Cardno dated 3 November 2017 (Peer Review).

The Amendment introduces planning controls that seek to improve the Planning Scheme's response to flooding.

Specifically, the Amendment proposes to:

- Insert a new Clause 44.04 and Schedule 1 to apply the LSIO to land affected by riverine flooding based on a 1-in-100-year flood event probability.
- Insert a new Clause 44.05 and Schedule 1 to apply the SBO to land subject to inundation by overland flows from the urban drainage system based on a 1-in-100-year flood event probability.
- Amend Clause 21.02 (Natural Environment) to:
 - refer to the Little River catchment
 - recognise that some urban areas are prone to inundation by overland flows from the urban drainage system
 - insert a flood management objective and strategy.
- Amend Clause 21.11 (Reference Documents) to incorporate the flood reports as reference documents.
- Insert Planning Scheme maps for the LSIO and SBO.
- Amend the Schedule to Clause 72.03 to update the list of maps forming part of the Planning Scheme.

1.2 The subject land

The Amendment applies to land identified as subject to inundation within the catchments of the Werribee River, Lerderderg River and Little River, in the eastern portion of Moorabool Shire.

The Amendment includes land in Blackwood, Ballan, Greendale, Darley, Bacchus Marsh, Maddingley and Balliang.

1.3 Purpose of the Amendment

Melbourne Water has identified the areas affected by the LSIO and SBO as liable to inundation during a 1-in-100 year Average Recurrence Interval (ARI) storm event:

- LSIO - from an open watercourse
- SBO - overland flows exceeding the capacity of the underground drainage system.

Council submitted that including the LSIO and SBO in the Planning Scheme enables drainage and flooding issues to be addressed early in the development process (through triggering a planning permit for buildings and works) rather than only at the later building permit stage.

1.4 Background

The Amendment is the culmination of a history of attempts to introduce flood-related planning controls into the Moorabool Planning Scheme. Council initially sought to introduce flood controls (the LSIO and Flood Overlay) via Amendment C14 in 2008. This Amendment was abandoned in 2010 following Council's determination that the study methodology failed to provide sufficient strategic justification to support the Amendment.

Melbourne Water commissioned the flood studies between 2008 and 2010 and undertook the Melbourne Water Modelling that now forms the basis of the Amendment.

The flood studies and modelling undertaken in 2008 to 2010 formed the basis for proposed Amendment C73, which was exhibited in 2016 and sought to apply the LSIO and SBO. Council again abandoned this Amendment in response to concerns raised by submitters about potential inaccuracies in the flood studies and modelling.

In 2017, Council commissioned the Peer Review of the flood studies and modelling to address the concerns raised by Council about Amendment C73. The Peer Review concluded that the data, hydrological and hydraulic modelling used in each of the flood studies were a suitable basis for the Amendment. The Peer Review found that the hydrological model results for the Lower Lerderderg River study may have over-estimated flood flows, but not flood volume, and required the proposed flood extents and resulting SBO shapes to be reviewed.

Overall, the Peer Review recommended that the Lower Lerderderg River flood extent mapping and resultant SBO shapes be amended, and that the Amendment process recommence.

Council accepted the recommendations of the Peer Review and sought authorisation for the Amendment.

1.5 Procedural issues

1.5.1 Post-exhibition changes to the Amendment

Council advised in its Part A submission that in response to submissions and further work undertaken by Melbourne Water, Council proposed a number of post-exhibition changes to the Amendment documentation, which included changes to text in the Planning Scheme and adjustments to the flood extent mapping (all of which were reductions and not enlargements in

the areas affected). Maps showing these changes were included in the evidence of Mr Rob Swan on behalf of Melbourne Water (Document 18).

The Panel has had regard to these proposed post-exhibition changes to the Amendment. They have resulted in at least one submitter who was scheduled to present not attending the Hearing.¹

1.5.2 COVID-19 influence on Hearings

At the Directions Hearing, several submitters objected to the Panel Hearing being held online, stating that it would limit their ability to participate due to technology or internet connection issues. The Panel noted that, to ensure the safety of participants in Panel Hearings during the COVID-19 pandemic, the legislation governing Panel Hearings had been amended to allow hearings to be held via online video conference. The Panel Hearing was held entirely via video conference, as there were restrictions on movement due to a COVID-19 infection outbreak.

Submitter 20 (Antonietta and Frank Provenzano and Josie Folino) sought to reschedule the Panel Hearing as their counsel was not able to attend the scheduled Hearing. The Panel did not support this proposal as it considered that rescheduling the Hearing would be unnecessarily disruptive for other parties and would unduly delay the Amendment process. Submitter 20 was scheduled to present at the Hearing and subsequently submitted a written submission (Document 24) for the Panel to consider in lieu of presenting. The issues raised are addressed in Chapter 4.

1.5.3 Amendment VC203

On 1 July 2021, Amendment VC203 was gazetted as part of the implementation of Victoria's new environment protection regime.² Amendment VC203 makes a series of changes to policies and provisions in the Victoria Planning Provisions (VPP) including deletion of references to various State Environment Protection Policies (SEPPs). Amongst those removed is the SEPP (Waters of Victoria) which is referenced in the purposes of both the LSIO and SBO.

The Panel considers the changes relatively minor, and the intent behind the purposes in the LSIO and SBO remain unchanged. Given no submitters made comments on these particular purposes of the overlays, the Panel does not consider it necessary to seek further responses from parties to the Hearing, including Council or Melbourne Water.

1.6 Summary of issues raised in submissions and the Panel's approach

The Panel considered all written submissions made in response to the exhibition of the Amendment, further submissions, evidence, and other material presented to it during the Hearing, and observations from two site visits (one accompanied and one unaccompanied). The 35 submissions objecting to the Amendment focussed primarily on site-specific concerns. The objecting submissions included the following issues:

- The need for the Amendment.
- The appropriateness of the proposed planning controls.
- The accuracy of the flood extent mapping.
- Site specific matters in Bacchus Marsh, Ballan, Darley, Maddingley and Blackwood

¹ Submitter 39 from Blackwood.

² Commencement on 1 July 2021 of the new *Environment Protection Act 2017* and *Environment Protection Regulations 2021*.

- Post-exhibition changes.
- Non-planning matters:
 - drainage system maintenance
 - capital works for flood mitigation
 - property values and insurance
 - COVID-19 effects and appropriateness of pursuing the Amendment.

The Panel has assessed the Amendment against the principles of net community benefit and sustainable development, as set out in **Clause 71.02-3 (Integrated decision making)** of the Planning Scheme.

The Panel has reviewed a large volume of material. The Panel has had to be selective in referring to the more relevant and determinative material in this report. The Panel has considered all submissions and materials in reaching its conclusions and making its recommendations, regardless of whether they are specifically mentioned in the report.

This report deals with the issues in the following chapters:

- Planning context
- Strategic justification
- Overlay selection and Amendment drafting
- Technical basis and mapping of the Amendment
- Site specific issues
- Other matters
- Post-exhibition changes.

2 Planning context

2.1 Planning policy framework

Council submitted that the Amendment is supported by a range of provisions in the *Planning and Environment Act 1987* (the Act), the Planning Scheme, relevant Planning Practice Notes, Ministerial Directions, and strategic documents including the Victorian Floodplain Management Strategy, and the Central Highlands Regional Growth Plan. These are summarised below.

2.1.1 Victorian planning objectives

The Amendment will assist in implementing the objectives of the Act:

- 4(1)(a) to provide for the fair, orderly, economic and sustainable use, and development of land
- 4(1)(b) to provide for the protection of natural and man-made resources and the maintenance of ecological processes and genetic diversity
- 4(1)(c) to secure a pleasant, efficient and safe working, living and recreational environment for all Victorians and visitors to Victoria
- ...
- 4(1)(f) to facilitate development in accordance with the objectives set out in paragraphs (a), (b) (c)...
- 4(1)(g) to balance the present and future interests of all Victorians.

The Amendment will implement those objectives by identifying land affected by flooding and applying appropriate planning controls to that land to:

- provide for the orderly and sustainable development of land affected by flooding
- protect natural and man-made resources from flooding
- secure a pleasant, efficient and safe working, living and recreational environment in flood affected areas
- facilitate development that is in accordance with the above objectives by triggering a planning permit requirement for subdivision and buildings and works (subject to exemptions) in flood affected areas
- require that development proposals have regard to flood risk in order to balance the present and future interests of all Victorians.

2.1.2 Moorabool Planning Scheme

The Planning Scheme includes a range of policies under the Planning Policy Framework (PPF) and the Local Planning Policy Framework (LPPF) relevant to flooding and the Amendment.

(i) Planning Policy Framework

Clause 11 (Settlement) provides that planning is to “*recognise the need for, and as far as practicable contribute towards*” matters including safety and to protect environmentally sensitive areas such as waterways.

Clause 12.03-1S (River corridors, waterways, lakes and wetlands) seeks “*to protect and enhance river corridors, waterways, lakes and wetlands*” by ensuring that development “*does not...impact on a water body or wetland’s natural capacity to manage flow*”. Council submitted that the LSI0

seeks to ensure that development in flood prone areas maintains or improves river and wetland health, waterway protection and floodplain health via the planning permit application process.

Clause 13 (Environmental risks and amenity) provides that:

Planning should strengthen the resilience and safety of communities by adopting a best practice environmental management and risk management approach.

Planning should aim to avoid or minimise natural...environmental hazards, environmental degradation ...

Planning should identify and manage the potential for the environment and environmental changes to impact on the economic, environmental or social well-being of society.

Council considered that the Amendment would strengthen the resilience and safety of communities by adopting a risk management approach to subdivision and development in flood prone areas.

Clause 13.01-1S (Natural hazards and climate change) includes the objective:

to minimise the impacts of natural hazards and adapt to the impacts of climate change through risk-based planning.

and strategies to:

Ensure planning controls allow for risk mitigation or risk adaptation strategies to be implemented.

Site and design development to minimise risk to life, property, the natural environment and community infrastructure from natural hazards.

Clause 13.03-1S (Floodplain management) is particularly relevant to the Amendment as it seeks:

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.

It includes the following relevant strategies:

- Identify land affected by flooding, including land inundated by the 1-in-100-year flood event or as determined by the floodplain management authority in planning schemes.
- Avoid intensifying the impact of flooding through inappropriately located use and development ...

It also includes reference to policy guidelines such as any best practice environmental management guidelines for stormwater adopted by the Environment Protection Authority, which is relevant with respect to the application of the SBO regarding stormwater flooding, and to policy documents such as the Victorian Floodplain Management Strategy, 2016 (the Strategy).

Clause 14.02-1S (Catchment planning and management), addresses catchment planning and management. Council submitted that the LSIO supports this policy through ensuring development maintains or improves river and wetland health, waterway protection and flood plain health.

Clause 14.02-2S (Water quality), seeks to “*protect water quality*” and includes as one of its strategies:

Discourage incompatible land use activities in areas subject to flooding, severe soil degradation, groundwater salinity or geotechnical hazards where the land cannot be

sustainably managed to ensure minimum impact on downstream water quality or flow volumes.

Council reiterated that both the LSIO and SBO support this policy by including as a purpose the protection of water quality and waterways as natural resources.

Clause 19.03-3S (Integrated water management) seeks, amongst other matters, the integrated management of drainage and stormwater through an integrated water management system that includes minimising flood risks.

(ii) Local Planning Policy Framework

Under the LPPF, the Amendment supports and implements the following clauses of the Municipal Strategic Statement:

Clause 21.01-2 (Municipal Context - Key Issues: Settlement) recognises flooding as a significant constraint for urban development.

Clause 21.02-1 (Natural Environment - Key issues and influences - Flood management), acknowledges that large areas of Moorabool Shire are prone to flooding from the Moorabool, Werribee, and Lerderderg Rivers.

Clause 21.02-7 (Implementation – Zones and overlays) identifies the application of the Floodway Overlay (FO) and LSIO to reflect relevant Council flood studies. Council submitted the Amendment provides for the achievement of the strategic objectives by applying the LSIO and SBO to reflect relevant flood studies.

Clause 21.02-8 (Further strategic work) identifies studies to be undertaken to further identify areas subject to flooding and areas subject to poor drainage.

Clause 21.02-9 (Other actions) seeks to encourage greater landowner awareness, involvement and responsibility towards protecting their land and property from the threat of flooding.

There are no local planning policies relevant to flooding or the Amendment.

2.2 Other planning strategies and policies

2.2.1 Victorian Floodplain Management Strategy, 2016

The Strategy is listed as a policy guideline under Clause 13.02-1. It provides Statewide policy direction for managing floodplains and minimising flood risks in cities, towns, regional areas, and rural communities, including guidance on riverine flooding, flash flooding and coastal flooding.

The Strategy includes in Policy 13a that:

The 1% Annual Exceedance Probability (AEP) flood will remain the design flood event for the land use planning and building system in Victoria.³

One of the policy foundations of the Strategy is to avoid or minimise future flood risks and endorse land use planning controls to manage the potential growth in flood risk. In this regard, the Strategy promotes the expansion of the land use planning system to cover areas in the 1 per cent AEP.⁴

³ Page 40.

⁴ For simplicity and clarity, the 1 per cent AEP is referred to as the 1-in-100-year event in this report.

The Strategy recognises value in ensuring appropriate planning controls are applied consistently across the State.

2.2.2 Central Highlands Regional Growth Plan

The *Central Highlands Regional Growth Plan, 2014* is listed as a policy document under Clause 11.01-1S and more specifically referred to under **Clause 11.0-1R (Settlement – Central Highlands)** and recognises that there are several urban settlements that are particularly susceptible to flood risk including Ballan and Bacchus Marsh.⁵

The Regional Growth Plan aims to support the preparation and implementation of floodplain modelling studies and flood strategies, to update planning schemes to reflect known information about flood hazards and to update planning schemes to take a consistent approach to the designation of flood prone areas across the region.

2.2.3 Flood studies

- As identified in Chapter 1.1.1, a number of flood studies and the Peer Review are the primary reports identified by Council as relevant to the Amendment and which provides the technical basis behind how the Amendment has applied the LSIO and SBO across the eastern areas of Moorabool Shire.

The Panel notes the studies and their respective summaries have been provided in the expert evidence of Mr Robert Swan from Hydrology and Risk Consulting Pty Ltd (HARC) on behalf of Melbourne Water. They are discussed later in the report in terms of how they support the technical basis of the LSIO and SBO mapping.

2.3 Planning scheme provisions

2.3.1 Overlays

The Amendment proposes to introduce and apply the LSIO and SBO.

A common purpose of the overlays is to implement the Municipal Strategic Statement and the Planning Policy Framework.

The LSIO includes the following purposes (as amended by Amendment VC203):

- 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 and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.
- To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.

⁵ Pages 36 and 37.

The SBO includes the following purposes (as amended by Amendment VC203):

- 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 and waterways as natural resources by managing urban stormwater, protecting water supply catchment areas, and managing saline discharges to minimise the risks to the environmental quality of water and groundwater.

2.4 Ministerial Directions and Practice Notes

2.4.1 Ministerial Directions

Council submitted that the Amendment meets the relevant requirements of the following Ministerial Directions:

(i) The Form and Content of Planning Schemes (s7(5))

The Amendment is consistent with the Ministerial Direction on the Form and Content of Planning Schemes under Section 7(5) of the Act.

(ii) Ministerial Direction No 9 – Metropolitan Planning Strategy

The Amendment is consistent with Ministerial Direction No.9 (Metropolitan Planning Strategy), as it supports Plan Melbourne - Direction 6.2 (Reduce the likelihood and consequences of natural hazard events and adapt to climate change). The Amendment will minimise the impact of flooding by ensuring that new development is protected from flooding and does not cause any significant rise in flood levels or flow velocities.

(iii) Ministerial Direction No 11 - Strategic Assessment of Amendments

The Amendment is consistent with Ministerial Direction 11 (Strategic Assessment of Amendments) and Planning Practice Note 46 (Strategic Assessment Guidelines).

2.4.2 Planning Practice Notes

Council submitted that the Amendment uses the most appropriate VPP tools and is consistent with Planning Practice Note 11 - Applying for a Planning Permit under the Flood Provisions, August 2015 (PPN11) and Planning Practice Note 12 - Applying the Flood Provisions in Planning Schemes, June 2015 (PPN12). In particular, the Planning Practice Notes identify the LSIO and SBO as appropriate tools to apply in circumstances where relatively shallow overland flows occur in urban areas during rainfall events of an intensity which exceeds the capacity of the established drainage infrastructure.

3 Strategic justification

The Panel considers in this chapter the strategic justification for the Amendment having regard to the planning context.

3.1 Evidence and submissions

The submissions of Council and Melbourne Water addressed the strategic justification of the Amendment. Mr John Glossop, from Glossop Town Planning gave evidence on behalf of Melbourne Water that assessed the strategic justification of the Amendment in detail.

The Panel notes that submitters did not challenge the broad strategic justification of the Amendment, although they did challenge certain aspects, such as the need for flood controls. Generally, submitters objected to the Amendment⁶:

- as they were not notified of flood risks when they purchased their properties
- on the basis that the overlays should not apply to developed land
- due to the low probability of floods.

Council's position with respect to the Amendment was that the strategic planning justification had been assessed by Mr Glossop as strong, and whose evidence in the matter was unchallenged.

Both Council and Melbourne Water submitted that the Planning Scheme currently does not include any flood controls. Mr Glossop's evidence identified that the Planning Scheme is one of four planning schemes yet to contain flood controls, the others being the Alpine, French Island and Sandstone Island and Queenscliffe Planning Schemes.

Mr Glossop referenced the Victoria Auditor General's Report, *Managing Victoria's Planning System for Land Use and Development (2017)*, observing that the previous Amendment C73 to the Moorabool Planning Scheme that sought to introduce flood controls was abandoned due to community objections, with the report noting that⁷:

As a result, Moorabool Shire Council is not managing flood risks through its planning scheme, which has no trigger to require a proper assessment of flooding and inundation risk at the planning permit stage, due to the absence of the relevant planning control.

The 2016 Victorian Floodplain Management Strategy stresses the importance of using planning controls to help avoid or minimise flood risks. Planning authorities fail communities when they know of risks but do not use available planning controls to manage them.

Both Council and Mr Glossop considered this to be an important observation, highlighting the critical need for flood controls to be utilised to manage flood risk where that risk is identified in detailed flood studies and modelling, as is the case in this Amendment.

Mr Glossop emphasised how sections 12(1)(a) and (b) of the Act require a planning authority to implement the objectives of planning in Victoria and to provide sound, strategic and co-ordinated planning of the use and development of land in its area. Mr Glossop gave evidence that the implementation of planning controls that seek to restrict use and development are contemplated by the Act in section 6 which says that a planning scheme can:

⁶ Submitters 2, 3, 4, 6, 7, 11, 12, 16, 19, 21, 23, 29, 33, 35, 37 and 38.

⁷ Page 41.

- Regulate or prohibit the use or development of land.⁸
- Regulate or prohibit any use or development in hazardous areas or in areas which are likely to become hazardous areas.⁹

Council submitted there is a strategic planning imperative for the Planning Scheme to address flood risk, particularly given it is reflected in local emergency management planning which has identified flood risks in Bacchus Marsh.¹⁰ It referred to PPN11 which provides that:

Flooding results in significant financial cost and personal hardship for the community.

Flood risk must be considered in planning decisions to avoid intensifying the impact of flooding through inappropriately located uses and developments. Areas affected by flooding should be identified on 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 some parts of Victoria there are still considerable pressures to subdivide and develop floodplains for urban and rural residential uses. The redevelopment of sites in established urban areas has also made it necessary to adopt stringent measures to minimise flood risk.

Land use planning is one mechanism that is used to minimise the risk of flooding to life and property. It is also a means of protecting the environmental values of the floodplain as part of an overall catchment strategy.

Council also referred to PPN12 which states:

Flooding is a natural hazard but, unlike most other natural hazards, floods are to a great degree predictable in terms of their location, depth and extent. This means that appropriate measures can be developed to reduce flood damage. Land use planning is recognised as being the best means of avoiding future flooding problems. Through careful planning, flood risks to life, property and community infrastructure can be minimised and the environmental significance of our floodplains protected.

Mr Glossop's evidence was that:

The concept of identifying and then regulating (or even prohibiting) certain uses and developments in areas affected by flood hazard is fundamentally consistent with notions of orderly and proper planning. In addition to it being orderly planning, it is also 'good' planning.

He stated that the *Guidelines for Development in Flood Affected Areas, 2019* published by the Department of Environment, Land, Water and Planning (DELWP) says:

Land that is affected by flooding should be identified by a flood overlay, unless it is zoned for flood purposes. This makes the flood risk clear to all and provides the necessary trigger for development proposals to be referred to a floodplain management authority. It also enables future purchasers of land to be informed of the flood risk through vendor disclosure statement.

Mr Glossop concluded that:

The Amendment is strategically justified and there is a clear policy basis for undertaking and preparing a flood mapping amendment for the municipality.

Council submitted the Amendment supports the PPF and LPPF and implements planning policy by:

- utilising the LSIO and SBO to alert landowners and occupiers (including prospective landowners) to development constraints in areas subject to flooding;

⁸ Section 6(2)(b).

⁹ Section 6(2)(e).

¹⁰ Moorabool Shire Municipal Emergency Management Plan 2020-2023 page 19 (Document 38).

- applying the LSIO and SBO to implement the findings of the Flood Reports and Melbourne Water Modelling (as peer reviewed), and including the Flood Reports as reference documents in the Planning Scheme;
- applying the LSIO and SBO 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;
- applying the LSIO and SBO to prevent inappropriate development in areas subject to flooding, thereby protecting water quality;
- applying the LSIO to ensure that development maintains or improves river and wetland health, waterway protection and floodplain health; and
- applying the LSIO and SBO to encourage greater landowner awareness, involvement and responsibility towards protecting land and property from the risk of flooding.

Melbourne Water reiterated the position of Council and supported the evidence of Mr Glossop submitting that the Amendment is strategically justified for the following reasons:

- The introduction of flood controls in Moorabool is strategically warranted (and in fact, overdue) having regard to the responsibilities of Melbourne Water and Council to ensure that the risk of flooding within the municipality is properly managed;
- State and local planning policy strongly supports a proactive approach to the identification and minimisation of flood risk to private and public land;
- The proposed flood controls are supported by appropriately detailed Flood Reports prepared by qualified engineers;
- The Flood Reports have been peer reviewed and evidence from Mr Swan, Engineer, is called in support of this Amendment;
- The mapping and nomination of flood controls in the form of LSIO or SBO overlays appropriately responds to the technical data; and
- The LSIO and SBO are the appropriate controls to identify and manage the flood risk.

Melbourne Water submitted that the Amendment should be supported generally as exhibited, subject to the post-exhibition changes put forward by Council and supported by Melbourne Water and the evidence of Mr Robert Swan from Hydrology and Risk Consulting Pty Ltd (HARC) on behalf of Melbourne Water.

3.2 Discussion

The Panel finds that there is overwhelming support under the Act, the Planning Scheme and other strategic reports and documents that justifies the strategic basis for the Amendment. The Amendment is supported by State and local planning policy for flooding and is consistent with the objectives of the Strategy.

An important feature of the LSIO and SBO in the Amendment, is that they do not prohibit development. Any new development will require a permit under the overlays and would be assessed to determine if such development would impact on, or be impacted by, flood processes. The schedules to the overlays have been drafted to limit unnecessary planning permit applications by identifying appropriate exemptions.

Several submitters objected to the Amendment on the basis that they were not notified that their land was subject to flooding risks when they purchased their properties. This is because the Planning Scheme does not include any flooding controls that would need to be disclosed to land purchasers – a circumstance that this Amendment will remedy. The current Planning Scheme

does not appropriately address flood risk and is one of a small number of planning schemes remaining in Victoria that do not do so. When flood provisions are introduced into planning schemes, they will by necessity apply to land where the landholders were not aware of the flooding risk. This is not a valid reason for the Amendment not to proceed. Current and future landholders will have the benefit of information about the flooding risk due to the Amendment.

Several submissions objected to the Amendment on the basis that it should not apply to land that has already been developed. The Amendment is directed at managing flooding risks to land during redevelopment that triggers a planning permit application under the LSIO or SBO and is directed at notifying prospective purchasers of the land about flooding risks. Victorian planning policy for floods is designed to apply to all land, not just undeveloped land.

Several submissions objected to the Amendment on the basis that the probability of the 100-year ARI flood is, by definition, low. The 100-year ARI flood is the design flood event identified in the Strategy and is used consistently throughout the State as the basis for flood risk identification and mapping of overlays and has been applied correctly by Council in this Amendment.

The Panel considers the Amendment is necessary to identify in the Planning Scheme flood characteristics of certain areas of land and to plug an existing gap where Council does not have the tools to manage growth and flood risk. The Panel considers the Amendment is necessary to implement the policy regime under the Planning Scheme relating to flooding and that it has been adequately demonstrated that it has appropriate strategic justification.

3.3 Conclusions

The Panel concludes that:

- The Amendment implements the relevant sections of the PPF and LPPF and is consistent with the relevant Ministerial Directions and Planning Practice Notes.
- The Amendment is well founded and strategically justified.
- The Amendment should proceed, subject to addressing the more specific issues discussed in the following chapters.

4 Overlay selection and Amendment drafting

4.1 The issues

The Panel directed Council to address the appropriateness of the proposed overlay controls and respond to the differences between the schedules to the LSIO and SBO with respect to permit requirements.

The Amendment proposes to add a new objective and strategy on flood management under **Clause 21.02 (Natural Environment)** in the Planning Scheme. The proposed changes include:

- Inserting a new objective dealing with flood management under Clause 21.02-12 to read:
 - To recognise the constraints of floodplains and overland flow paths on the use and development of land.
- Inserting a new strategy under Clause 21.02-13 to read:
 - Ensure that new development maintains the free passage and temporary storage of floodwater, integrates with the local drainage conditions, and minimises soil erosion, sedimentation and silting.

The issues are whether the:

- planning controls selected, and the drafting of the schedules are appropriate.
- proposed new policies exhibited in Clauses 21.02-12 and 21.02-13 are appropriate.

4.2 Overlay selection and schedule drafting

4.2.1 Evidence and submissions

(i) Selection of the LSIO and SBO

Clause 21.02-7 of the Planning Scheme outlines various actions to implement the application of zones and overlays to achieve the strategic objectives of the policy and includes the following:

- Apply Floodway Overlay (FO) and Land Subject to Inundation Overlays (LSIO) to reflect relevant Council flood studies.

Although not an issue raised in submissions, the Panel directed Council to provide an explanation of the choice of planning overlays and to understand the rationale for the selection of the LSIO and the SBO, and not the FO that is referred to in Clause 21.02-7.

In response to this direction, Council submitted that the LSIO has been applied to areas identified in the relevant flood studies in both urban and rural areas that are subject to mainstream flooding from rivers and waterways¹¹, while the SBO has been applied to areas identified in the relevant flood studies to areas that are subject to flooding from poor stormwater drainage.¹²

¹¹ Mainstream flooding occurs where heavy rainfall produces a large amount of surface run-off, which flows into streams and rivers and causes riverbanks to overflow onto adjacent low-lying land.

¹² Stormwater flooding occurs where, during severe storms in urban areas, rainfall run-off exceeds the capacity of the piped drainage system and no or inadequate provision has been made for overland flows, resulting in inundation due to overland flows. Stormwater flooding often occurs in areas where there is a high density of existing development and a high flood damage potential.

Council submitted that the LSIO and SBO have been applied to areas with a relatively lower degree of flood risk having regard to the flood risk at locations documented by the flood studies and the Melbourne Water Modelling.

In response to this direction, Mr Glossop stated:

Clause 21.02 relates to the Natural Environment and refers to the application of the FO and LSIO, whereas the amendment proposes the LSIO and SBO. PPN12: Applying the Flood Provisions in Planning Schemes provides advice on which flood zone or overlay should be applied. I summarise this advice as follows:

- Urban Floodway Zone (UFZ) – For land where any further intensification of use or development is unsuitable.
- Floodway Overlay (FO) – For areas which convey active flood flows or store floodwaters but have a lesser flood risk than the UFZ.
- Land Subject to Inundation Overlay (LSIO) – For areas subject to mainstream flood but with a lesser flood risk than the FO.
- Special Building Overlay (SBO) – For urban areas only liable to stormwater flooding.

Mr Glossop explained that the FO and UFZ are used where flood risks may be more severe, and accordingly the controls are more stringent. In contrast, the LSIO is generally applied to areas with a lesser identified flood risk, and the SBO is applied to urban areas that are liable to flooding from stormwater drainage.

Importantly, Council submitted:

That the application of the LSIO and SBO do not prohibit development. Rather, the controls introduce a permit requirement for buildings and works (subject to a series of exceptions), and subdivision. In that sense, the controls enable flood risk to be considered at the permit application stage, and the proposed development (whether buildings and works or subdivision) assessed against the relevant decision guidelines.

Mr Glossop concluded:

The use of the LSIO and SBO to control use and development within flood affected areas is appropriate. I support the use of the SBO as it is intended to be applied in urban areas on land liable to stormwater flooding. I rely on the hydrological evidence as to the nature of flood risk with respect to the use of the FO or LSIO, but support the use of the LSIO where the flood risk is less severe.

(ii) Schedule drafting

The Panel notes the Ministerial Authorisation for the Amendment included a condition requiring Council to consider amending the schedules to the LSIO and SBO to streamline planning controls by scheduling out unnecessary permit triggers in consultation with Melbourne Water. Council advised DELWP that the schedules to the LSIO and SBO had been carefully drafted to remove any unnecessary permit triggers.

Council submitted that the schedules to the LSIO and SBO have been drafted to provide for similar permit exemptions, although there are some differences which reflect the potentially higher degree of flood risk associated with the LSIO. Accordingly, Schedule 1 to the SBO contains a broader range of permit exemptions than Schedule 1 to the LSIO. Considering the head clauses and schedules together, the SBO Schedule 1 includes the following permit exemptions which the LSIO Schedule 1 does not:

- For 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 flow path is not obstructed.¹³
- For an extension of less than 20 square metres in floor area to an existing building (not including an outbuilding), 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 flow path is not obstructed.
- For 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.
- For an outbuilding (including replacement of an existing building) if the outbuilding is less than 20 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 flow path is not obstructed.¹⁴
- For a replacement building (not including an outbuilding) 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.
- For fencing with at least 25% openings and with the plinth at least 300mm above the flood level.¹⁵
- For an in-ground (non-domestic) 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 flow path.¹⁶
- For an aviary or other enclosure for a domestic animal if it is less than 10 square metres in floor area at ground level.

Council submitted that the drafting of the schedules has been based on recent flood controls approved within and adjacent to the Melbourne Metropolitan area.

4.2.2 Discussion

(i) Selection of the LSIO and SBO

The Panel considers the evidence and submissions in relation to the choice of LSIO and SBO as the appropriate controls in this Amendment supports their use and justifies the Amendment not using the UFZ or FO. While Clause 21.02-7 of the Planning Scheme identifies the FO and LSIO and not the SBO, the Panel considers Council's use of the LSIO and SBO is consistent with the guidance in PPN12.

(ii) Schedule drafting

The Panel considers the drafting of the schedules to the LSIO and SBO to be appropriate. The Panel notes that there were no submissions challenging the drafting of the schedules. The

¹³ Noting that the schedules to the LSIO and SBO both include a permit exemption for carrying out of works if the relevant floodplain management authority has agreed in writing that the flow path is not obstructed.

¹⁴ Noting that the schedule to the LSIO includes a similar permit exemption, except that it requires the floor level to be at least 300mm above the flood level.

¹⁵ Noting that if the fence doesn't have a plinth at least 300mm above the flood level, then the Schedule to the SBO provides an additional permit exemption for a fence that is 50% permeable. The Schedule to the LSIO also provides for that exemption.

¹⁶ Noting that the Schedules to the LSIO and SBO both provide an exemption for a domestic in-ground swimming pool or spa and associated mechanical and safety equipment.

schedules provide appropriate statements of risk and permit exemptions for development considered to be routine or of minor consequence with regards to flood risk.

4.3 Conclusions

The Panel concludes:

- The LSIO and SBO are appropriate controls to use given the nature of the flood risks identified in the flood studies.
- The schedules to the LSIO and SBO have been appropriately drafted.

4.4 The appropriateness of proposed policy changes

4.4.1 Evidence and submissions

Submitter 20 (Antonietta Provenzano, Josie Folino and Frank Provenzano) and Submitter 13 (Rijk Zwaan Australia Pty Ltd) made submissions proposing that the objective under exhibited Clause 21.02-12 and the strategy under exhibited Clause 21.02-13 should be either amended or deleted.

Submitter 20 provided a written submission (Document 24) to the Panel describing how they own several properties some of which cover large areas in the heart of Bacchus Marsh¹⁷, the development of which would support the following strategies in Clause 21.07 of the Planning Scheme:

- ... accommodate sustainable residential growth within the existing settlement boundary of Bacchus Marsh in the short to medium term
- reinforce the commercial hub role of Main Street through the intensification of a mix of retail, commercial and leisure land uses, within a walkable environment.

The submitter acknowledged that:

There is an inherent tension between policies which encourage development in areas identified as suitable for urban consolidation and growth and policies which seek to discourage development which may be subject to flooding.

The submitter agreed with Council's position that the LSIO does not prohibit development and that the controls enable flood risk to be considered at the permit application stage at which time the proposed development (whether buildings and works or subdivision) would be assessed against the relevant decision guidelines.

However, Submitter 20 considered the new strategy in Clause 21.02-13 did not provide sufficient flexibility for specific site conditions. It could be interpreted to mean that the existing overland flow paths must remain in situ whereas the normal intent of a planning scheme flood control is to allow for the flow paths and storage to be engineered and distributed within a development if there are no significant off-site impacts. As a result, Submitter 20 believed that both Clauses 21.02-12 and 21.02-13 should be deleted.

Submitter 20 contended that if Clause 21.02-13 is to be retained, it should be amended as follows:

Ensure that new development maintains the free passage so that there is no significant rise in flood level or velocity, and maintains temporary storage of floodwater, integrates with the local drainage conditions, and minimises soil erosion, sedimentation and silting.

¹⁷ For example, large parcels in Pilmer Street with an area of 2.19 hectares and in Waddell Street with an area of 3.94 hectares.

The intent of the suggested amendment is to provide flexibility for the decision maker to recognise there may be some change to flood conditions arising from new development, but that the suitability of that change can be considered having regard to a range of site specific factors relating to either the form of the development or the conditions of the land and assessed under the decision guidelines in the LSIO.

Similarly, Submitter 13, who operates a large horticultural enterprise in the Bacchus Marsh Irrigation District accepted that there is a need to formally recognise the extent of flooding possible in the Bacchus Marsh Irrigation District during a 1-in-100-year flood event via the application of the LSIO. However, the Submitter considered that a planning scheme amendment to recognise this constraint should also provide policy guidance to make it clear that innovative means to address flood management should be encouraged so that important economic development outcomes sought in the Planning Scheme, as enunciated in State, regional and local policies, can still be achieved.

In response, Mr Glossop stated that he had no objection to deleting Clauses 21.02-12 and 21.02-13 as they potentially overlap with State clauses and therefore do not materially add to the Planning Scheme.

In Council's Part C submission, Council indicated that it accepts Mr Glossop's evidence that the addition of Clauses 21.02-12 and 21.02-13 is unnecessary, stating:

In substance Council considers that the text in this part of the Planning Scheme does not augment what is already included in the State provisions and the control itself and therefore does not serve to add local content in the way contemplated by the Planning Scheme.

4.4.2 Discussion

The evidence and submissions on proposed Clauses 21.02-12 and 21.02-13 usefully addressed the potential overlap between State and local planning provisions. The strategy proposed under Clause 21.02-13 effectively duplicates the third purpose of both the LSIO and SBO which states:

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.

The Panel considers the combination of the policy under Clause 13.03-1S and the purposes in both the LSIO and SBO appropriately addresses floodplain management. The Panel agrees with Mr Glossop's evidence and Council's submission that the exhibited Clauses 21.02-12 and 21.02-13 do not materially add to the State provisions and therefore are superfluous.

The Panel does not consider it useful to add policy which would duplicate what is effectively already addressed elsewhere in the provisions of the Planning Scheme.

The Panel acknowledges that supporting Council's position for the removal of Clauses 21.02-12 and 21.02-13 means that the Amendment would not introduce any new local policy into the Planning Scheme relating to flooding. Despite this, the Panel considers it remains important to introduce flood controls into the Planning Scheme, given that flooding is recognised as a risk elsewhere in the Planning Scheme and in emergency planning as a present risk, particularly in the larger settlements of Bacchus Marsh and Ballan and is consistent with State and regional policy.

The Panel observes that it may be useful for Council, in consultation with Melbourne Water, to undertake further strategic work to assist landowners, like Submitters 13 and 20, who own land in the Bacchus Marsh Irrigation District or in urban areas, with flood management design guidance.

The Panel notes this work could include new local policy, land subject to inundation objectives included in the LSIO or flooding management objectives included in the schedule to the SBO or a local floodplain development plan. The Panel considers there is merit in integrating horticultural or urban development design options with flood risks.

4.5 Conclusion and recommendation

The Panel concludes:

- Clauses 21.02-12 and 21.02-13 are unnecessary and should be deleted.

The Panel recommends:

1. **Delete Clauses 21.02-12 and 21.02-13.**

5 Technical basis and mapping

5.1 The issues

Flooding provisions such as the LSIO and SBO in planning schemes are based on technical flood studies and modelling that analyse and predict flood risk and behaviour. These technical flood studies need to be carried out in accordance with relevant policies and standards to be considered suitable for use in a planning scheme. For this Amendment, the flood studies on which the proposed Planning Scheme maps are based were carried out around ten years ago. Many submitters questioned the validity and accuracy of the mapping because it may be out of date due to land use and development changes that have occurred in the intervening period.

The issues are whether:

- the flood studies that underpin the Amendment were carried out in accordance with relevant policies and standards
- the age of the flood studies affects their suitability to underpin the Amendment

5.2 Evidence and submissions

In its directions, the Panel requested Council and Melbourne Water to clarify whether the mapping and modelling had become outdated as a result of development and on-ground changes.

Council noted that 13 submissions¹⁸ contend that the modelling and flood extent mapping informing the Amendment are inaccurate, for reasons including:

- the assumptions and data inputs are incorrect and/or outdated
- flooding has not been observed or historically known to occur on their land to the extent shown.

Submitter 19 (Arthur Chapman) submitted the modelling was too coarse for small catchment areas such as those around Ballan, lacked calibration with previous flood events in 2011 and 2016 and considered the modelling in Ballan should be re-done.

Submitter 6 (Maurice Moss) considered the LSIO should not be applied to Lay Court, Lay Street and Walsh Street, Ballan because the area had already been developed with drainage infrastructure approved by Melbourne Water and Council. He believed that issues with the capacity of the drainage infrastructure in the area would be effectively ignored once the LSIO was in place.

Similarly, in Bacchus Marsh, Submitter 37 (Stephen Vereker) submitted the Amendment failed to consider the history of flooding in the town and the flood mapping is flawed.

Council submitted the flood extent mapping in the Amendment reflects the applicable flood standard for land use planning and building purposes in Victoria, being the 100-year ARI flood, which occurs on average once every 100 years and is otherwise referred to as the 1-in-100-year flood event. Council considers this to be best practice and it accords with what the Strategy and Planning Practice Notes. Council contended that it is therefore understandable that current landowners have not observed, nor heard historical accounts of, flooding on their land to the extent shown on the LSIO and SBO mapping.

¹⁸ Submissions 6, 8, 12, 16, 19, 23, 30, 31, 32, 34, 37, 39 and 40.

Council submitted that although flood modelling occurred around a decade ago, at the time it was a requirement to consider future land use and development change and to assume full development regardless of whether the land had actually been developed. Melbourne Water considered that even where an area has been rezoned and development carried out, the drainage schemes and planning controls for that development will generally require that peak flows are limited to pre-development levels, which would be similar to those used in the flood studies and Melbourne Water modelling, hence if flooding was a risk then, it would most likely remain so now.

Melbourne Water added that with respect to rural waterways, Mr Swan considers that the modelling is suitable for its purpose given the rural nature of the use and the size of the allotments, noting that if significant redevelopment or rezoning is proposed, site specific flood studies would be required.

Council, Melbourne Water and Mr Swan all consider that the flood studies followed best practice through the use of hydrological and hydraulic modelling. The Halcrow Pacific Report uses the RORB¹⁹ model for hydrological assessment and HEC-RAS²⁰ and XPStorm²¹ models for hydraulic assessment. The GHD and Engeny Reports both use the RORB model for hydrological assessment and the TUFLOW²² model for hydraulic assessment. The Melbourne Water Modelling uses RORB and HEC-RAS models.

Council and Melbourne Water note that importantly, the flood studies and Melbourne Water modelling have been subject to expert peer review by Mr Swan, which found the flood modelling was suitable except for some further work required to be done relating to the SBO in Bacchus Marsh which was incorporated into the Amendment. Council and Melbourne Water submitted that the findings of the Peer Review ought to generate confidence in the accuracy of the flood studies and Melbourne Water modelling, and the resultant LSIO and SBO mapping.

Mr Swan gave evidence that:

The modelling methodology used to develop the flood maps for Amendment C91 is a standard approach used in Victoria and across Australia. All modelling was undertaken in accordance with the provisions of Australian Rainfall and Runoff.

Further, Mr Swan stated:

The models and approaches used for the development of the LSIO and SBO extents in Moorabool are appropriate and consistent with industry practice.

The overlays proposed are a reasonable estimate of the 1 per cent AEP flood extents throughout the Moorabool Shire

Council submitted the guidance offered by PPN12 demonstrates that the threshold for applying the LSIO in relation to mainstream flooding and for the SBO with regards to stormwater flooding is not one of absolute precision. Rather, it is satisfactory for the flood risk to be based on the floodplain management authority gathering flood information and undertaking investigations to assess flood risk and identify land subject to inundation "*as best it can*". Council submitted that the modelling methodologies are sufficiently accurate for the purpose of applying the LSIO and SBO.

¹⁹ RORB is an interactive event-based hydrological model that calculates runoff and streamflow conditions arising from individual storm events.

²⁰ HEC-RAS is a hydraulic model that is used to estimate water behaviour in rivers and creeks.

²¹ XPStorm is a hydraulic model used for the analysis of drainage networks including for piped underground drainage and overland flow paths simultaneously and can calculate flood levels based on storage and flow considerations.

²² TUFLOW is a hydraulic model that is used to predict the flow of water over land and through drainage infrastructure.

The application of the overlays identifies flood risk, within which permits are triggered for development (with some exemptions as stipulated in the overlay schedules), where more detailed investigation of flood risk and design response can occur. This can be further supported by any other local strategic work such as a local floodplain development plan or through local planning policy that may take a more nuanced approach to development design with flood risks.

Council's submission referred to comments in the *Final Report New Format Planning Schemes*:

However, it needs to be recognised that the overlay is not the last word. Its application will not alter the fact of whether the land floods or not. Rather, it indicates that flooding is a problem in the area and needs to be carefully considered when making any planning or other land management decisions concerning the property.

Mr Swan considers that the modelling and flood extent mapping informing the Amendment have not been rendered outdated or inaccurate because of subsequent development and on-ground changes.

Since the flood studies were undertaken, there have been developments in flood guidance, most notably:

- DELWP (2016) *Victorian Flood Data and Mapping Guidelines*
- the Strategy
- *Australian Rainfall and Runoff: A Guide to Flood Estimation (ARR)* (substantial revision in 2016, current version 2019).

The Panel asked Mr Swan about the implications for the flood studies and mapping of this new flood guidance and how the guidance seeks to address climate change. Mr Swan's response was that the flood studies assumed a level of climate change impacts in their preparation. His evidence was that this was addressed by an allowance for climate change impacts.

Mr Swan agreed that the general implication of climate change is that there will be greater frequency and intensity of storm events.

Mr Swan agreed that through the preparation of permit applications it could be expected that the current version of the ARR could be used, and any modelling would therefore appropriately address any previous defects where the LSIO/SBO is in fact to be applied (noting he considered there would be close accord between the various versions of ARR).

Accordingly, it was Mr Swan's view that the current models remain fit for purpose.

Regarding climate change, Melbourne Water stated:

- Melbourne Water is currently working to establish policy to implement rainfall intensity aspects of climate change.
- That said, it is submitted that the current 300 mm and 600 mm freeboard used in development advice (above the 1%AEP flood levels) is to cater for uncertainty in flood modelling.
- It is expected that the Moorabool flood studies are likely to be revised in the next 5-10yrs and it is expected that climate change modelling will be addressed during that process of model renewal.

5.3 Discussion

Council has on two prior occasions abandoned flood-related planning scheme amendments. The decisions to abandon the amendments have resulted in this third attempt to amend the Planning

Scheme a decade after the flood studies were carried out. This has led, understandably, to some submitters questioning the relevance of the flood studies today.

The Panel received extensive submissions and evidence on the appropriateness of the flood studies to underpin the Amendment. The submissions and evidence indicate that although the flood studies were undertaken some time ago, nothing has occurred in the intervening time period to render them no longer a suitable basis for the Amendment, save some minor on-ground changes due to land development (these are addressed in Chapter 8). The Peer Review of the flood studies in 2017 confirmed their suitability, as did Mr Swan's expert evidence.

The application of the LSIO and SBO recognises flood risk at a 1-in-100-year event. For example, in Bacchus Marsh, Mr Swan's evidence demonstrated that in such an event, flooding will occur from a breakout of flows from the Werribee River to the north, occurring west of Grant Street. They will typically occur only in a very large flood event. This is the level of risk that planning seeks to address for the long term. It allows for such risk to be considered at the planning permit stage with respect to the location and design of proposed development. The overlays ensure that the effects of flooding on new development, and of new development on flooding, (including redevelopment) is appropriately considered.

The Panel notes that no evidence was presented to it demonstrating any problems with the flood studies and Melbourne Water modelling such that the work should be disregarded in its entirety.

Relevantly, the Panel notes and supports both Council and Melbourne Water's willingness to review flood mapping for individual sites where development and on-going works have been identified through submissions and where Council and Melbourne Water have agreed to amend the extent of the LSIO and SBO mapping where appropriate.

The Panel notes Mr Swan's evidence that the general implication of climate change is that there will be greater frequency and intensity of storm events and his evidence of how climate change was considered in the flood studies. The Panel accepts Mr Swan's evidence that the current flood models remain fit for purpose.

The Panel observes that it will be important for future flood studies that seek to introduce, apply, or amend flood provisions in planning schemes to demonstrate how climate change has been considered.

The Panel agrees with the submissions of Council and Melbourne Water and the evidence of Mr Swan that the flood studies are a sufficient basis for the Amendment and that it is fit for purpose.

5.4 Conclusion

The Panel concludes:

- The technical basis of the Amendment is sound.
- The Amendment is consistent with State policy for flood studies and mapping.
- On-ground changes that have occurred since the flood studies can be dealt with via post-exhibition changes to the Amendment (see Chapter 8 below).

6 Site specific issues

6.1 406-420 Bacchus Marsh Road, Bacchus Marsh

(i) The issue

Submitter 13, Rijk Zwaan Australia Pty Ltd (Rijk Zwaan), has proposed that Council include an additional strategy in the Amendment that would address Rijk Zwaan's concerns about the impact of the Amendment on its land at 406 and 420 Bacchus Marsh Road, Bacchus Marsh, and its planned horticultural operations.

The issue is whether Clause 21.02-13 should be amended, or a new policy introduced into the Planning Scheme to include reference to the use of innovative design measures to manage flood risk.

(ii) Evidence and submissions

The Amendment proposes to apply the LSIO to a significant part of Rijk Zwaan's land – see Figure 1.

Figure 1 Rijk Zwaan land, 406-420 Bacchus Marsh Road, Bacchus Marsh



In its submission and during the accompanied site visit, Rijk Zwaan stated that it was preparing a planning permit application (that at the time of the Hearing was yet to be submitted to Council) for a major expansion of its existing seed production facility at the site. The expansion would involve

the construction of a large area of glass greenhouses to replace existing plastic covered greenhouses on the site. The expansion involves a significant investment by Rijk Zwaan, would support local employment, and would be a key part of Rijk Zwaan's international seed production business.

Rijk Zwaan explained to the Panel that it was examining innovative means to manage flood risk to the development, including installing plastic panels instead of glass panels at ground level in the greenhouses that would collapse under the pressure of flood water, allowing flood water to pass through the greenhouses.

Rijk Zwaan expressed "*concern as to the restrictive nature of the LSIO*", and how it may constrain further intensive horticultural development within the Bacchus Marsh Irrigation District and seeks "*further clarification in relation to the effect on the development potential*" of its landholding. Specifically, it also proposed a new strategy for inclusion in Clause 21.02-13 to²³:

Encourage innovative means to manage flood risk where it will provide for the development and use of land for intensive horticulture in the Bacchus Marsh Irrigation District.

Neither Council nor Melbourne Water supported the suggested change to the Amendment. Melbourne Water submitted that the identification of the flooding risk by the LSIO would ensure the early identification of the risk in the planning permit process.

Council submitted in its Part B submission (paragraph 93) that it:

considers it to be contrary to orderly and proper planning to make pre-emptive amendments to the Planning Scheme, whether by way of reducing the LSIO extent or introducing a particular strategy, on account of some future, unknown development proposal.

(iii) Discussion

The Panel notes the significance of the Bacchus Marsh Road site to Rijk Zwaan, its international seed production business and the local economy with regards to horticultural development within the Bacchus Marsh Irrigation District. The Panel also notes the innovative means that Rijk Zwaan proposes to address flooding risk at the site by means of its greenhouse design.

Nevertheless, the Panel does not think that the issues at the site warrant any changes to the Amendment. The site has extensive areas that would be subject to flooding in the design flood event, and the most appropriate way to take account of the flooding issues and the submitter's development proposal is at the planning permit stage.

(iv) Conclusion

The Panel concludes:

- The Amendment should not be altered as submitted by Rijk Zwaan, and instead, site specific conditions should be addressed at the planning permit stage.

²³ Notwithstanding the Panel's recommendation in Chapter 4 to delete Clause 21.02-13.

6.2 Ballan South

(i) The issue

Submitter 8, Ballan South Pty Ltd (Ballan South) owns land to the south of Ballan that it plans to develop for residential use. Ballan South objects to the Amendment and the application of the LSIO. The issue is whether the LSIO should be applied.

(ii) Evidence and submissions

Ballan South owns several parcels of land that are zoned Farming zone to the south of Ballan proposed to be affected by the LSIO (refer to Figure 2):

- Lots 1 and 2 on TP340145
- Lots 1, 2 and 3 on TP748666H
- Crown Allotments 35-41, 48, 22, 49 and 56 Section 3 Parish of Gorong
- Crown Allotments 22 and 23 Section 2 Parish of Gorong.

Figure 2 Ballan South Pty Ltd land



Ballan South set out the following planning issues relevant to its land:

Planning Scheme Amendment C88 to the Moorabool Planning Scheme was gazetted in March 2020, introducing the Ballan Framework Plan at Clause 21.08. The Framework Plan includes all of the subject land in the Ballan Township Boundary and identifying it as suitable for residential development. The Ballan Framework Plan identifies areas subject to inundation on the subject site; and

Ballan South Pty Ltd has in May 2021 lodged a PSA request to rezone its land from Farming Zone to General Residential Zone Schedule 4, the same schedule as the existing Ballan township, together with a new Development Plan Overlay to guide development and address key issues.

Ballan South also submitted:

We contend where processes for a rezoning and flooding are occurring concurrently as in this instant there should be another way forward that allows other planning tools, for

example the DPO [Development Plan Overlay], to identify flood risk and require it to be addressed in the following Development Plan and Planning Permit.

Ballan South stated that the application of the LSIO to the site is unnecessary. Ballan South acknowledged that it did not question the extent of the 1 per cent AEP proposed to be implemented by the Amendment.

In relation to the Ballan South land, Council submitted:

If the subject land is rezoned at some point in the future, and developed for residential purposes, it is possible that approved drainage works may result in a reduced flood extent and therefore warrant a reduced application of the LSIO. This is a matter which can only be determined once the land has been rezoned and drainage works have been implemented. It would be contrary to orderly and proper planning to not apply the LSIO to the subject site in the current circumstances, simply because the land may be rezoned and drainage works implemented at some indeterminate point in the future.

In his expert witness statement, Mr Swan stated that he believed the LSIO should remain on the land.

In response, Melbourne Water noted that:

there is no certainty on the timing of the proposed Amendment, which has only been lodged with Council. Furthermore, there is no certainty on the timing of the construction of works.

Melbourne Water further submitted:

Once confirmed, land that is no longer affected by flood can be removed through a fast-track amendment process pursuant to Section 20(4) of the Planning and Environment Act 1987, consistent with Melbourne Water's approach across the Operating Area.

(iii) Discussion

The Panel agrees with Council and Melbourne Water that the Planning Scheme amendment process to rezone the Ballan South land and the construction works that Ballan South envisages are subject to considerable uncertainty. There are many steps that would need occur in the planning and construction process before parts of the land may no longer be subject to inundation. During those steps there are many opportunities for the land development process to be delayed, altered, or abandoned. In any of these events, were the LSIO to be removed from the land now in anticipation of the completion of the development, the flood risk to the land would not be properly reflected in the Planning Scheme. The Panel considers that given such uncertainty, it does not support the removal of the LSIO from the Ballan South land.

(iv) Conclusion

The Panel concludes:

- The Amendment should not be altered for the Ballan South land, and instead, once any further Planning Scheme amendment process for the land and any construction works are complete, the application of the LSIO should be reviewed.

6.3 94-98 Main Street, Bacchus Marsh

(i) The issue

Submitter 32, Urban Land Development Pty Ltd (ULD), owns land at 94-98 Main Road, Bacchus Marsh. ULD objects to the Amendment applying the LSIO on its land. The issue is whether the LSIO should be applied.

(ii) Evidence and submissions

The Panel heard evidence from Mr Swan and Mr Chris Beardshaw, flooding engineer from Afflux Consulting on behalf of ULD in relation to flooding and submissions from ULD, Council and Melbourne Water.

ULD submitted that the Amendment should not apply the LSIO to the land (shown in Figure 3).

Figure 3 Urban Land Development Pty Ltd land, 94-98 Main Street, Bacchus Marsh



ULD called evidence from Mr Beardshaw to review the flood studies and Peer Review. In its submission to the exhibited Amendment, Mr Beardshaw stated that the LSIO has been *incorrectly represented* on the site due to:

- low grid resolution
- ignoring site specific features that affect the trapped low point
- application of hydrology.

Mr Beardshaw recommended that the LSIO be removed from the subject site. He recommended that the LSIO be trimmed to Grant Street and Gisborne Road, on the north side of Main Street, “to represent the flooding uncertainty in this area”.

Mr Beardshaw gave evidence that reviewed the Amendment as it applied to the subject site, and prepared additional modelling to support his initial review.

Mr Beardshaw’s evidence was that:

- The subject site has been filled and should be above the flood level.
- The trapped low point on the site no longer existed, and rainfall would flow off the site by overland flow or by the local pipe network.
- Any flow towards the site from the Fischen Street drain would be diverted by the raised street level (at the roundabout at the intersection of Main Street and Grant Street), and

any flow across the street would be a small trickle, at worst, and would be removed by the local pipe network.

- As a result the flood modelling does not represent the “best estimate” of the impact of flooding on the site.

In its submission ULD stated:

Urban Land Development seeks that the LSIO be removed from the Site on the basis that the Site is not affected by flooding and accordingly the application of the LSIO is both unnecessary and inappropriate.

ULD further submitted:

While the level of resolution of a flood model certainly needs to be practical, nothing within the material extracted by Council supports a proposition that, if more detailed and accurate modelling or mapping is available, it ought not be properly taken into account in the application of the LSIO.

ULD stated:

On 26 October 2018, Council granted planning permit PA2018113 (the Planning Permit) allowing a three-lot subdivision on the Site. Conditions 17 and 18 of the Planning Permit were Melbourne Water conditions:

17. *Prior to Certification, the Plan of Subdivision must be referred to Melbourne Water in accordance with Section 8 of the Subdivision Act 1988.*
18. *Lots 3 and 4 must be filled to a minimum level of 100.16 metres to Australian Height Datum (AHD). 11*

While the subdivision of the Site was ultimately not pursued, the totality of the Site has been filled to this fill level in late 2019 and 2020. As detailed within the evidence of Mr Beardshaw, this fill level is 300mm above the level at the edge of the exhibited plan and therefore includes freeboard to the flood levels.

As Mr Beardshaw states *“Effectively, this overlay is now being applied to an area that has already been filled above the overlay level”*.

Put simply, the Site will not fill with water as predicted, as the previous trapped low point on the Site no longer exists. For this reason alone, the proposed LSIO ought be removed from the Site.

Council challenged Mr Beardshaw’s evidence, stating:

Provided that ULD is able to produce a certified survey plan to verify that the fill levels have been achieved, Council recommends that Melbourne Water review the flood extent mapping applicable to the subject site to determine whether any amendment to the LSIO extent is required.

ULD subsequently produced a certified survey plan that shows that part of the land has been filled.

However, contrary to Mr Beardshaw’s evidence and ULD’s submission, the survey plan did not show that the site had been filled to a minimum level of 100.16 metres AHD as specified in the expired planning permit. The survey plan shows a low point of 99.34 metres AHD, 0.82 metres lower than asserted in ULD’s submission, and a portion of the site remaining below 99.86 metres AHD, Melbourne Water’s design flood level. Figure 4 shows the approximate extent shown with a red line by Melbourne Water that would remain affected by the LSIO based on the extent of fill on the land shown in the survey plan.

At the Hearing Ms Emily Porter, barrister for ULD submitted that, as an alternative to removing the LSIO from the site, the Panel should recommend that, should the site be filled to above 99.86

metres AHD before the adoption of the Amendment, then the LSIO should not be applied to the site.

Figure 4 Approximate extent shown with a red line that would remain affected by the LSIO based on the extent of fill



Mr Greg Tobin, solicitor from Harwood Andrews for Council objected to this proposal, but nevertheless stated that, were the site to be filled to 99.86 metres AHD before the adoption of the Amendment and should this be confirmed in a certified survey plan, Council would not seek to apply the LSIO to the site.

(iii) Discussion

The Panel was presented with conflicting evidence from Mr Swan and Mr Beardshaw on the extent of flooding that would be experienced at the site in a 1-in-100-year ARI flood. The differences covered a range of issues, including:

- the model resolution

- the effect of the local drainage network on flooding on the site
- the impact of upstream runoff on the site
- the impact of the Southern Rural Water irrigation channel to the West of the site.

The Panel is not convinced that it was presented with “*more detailed and accurate modelling or mapping*” and that the site would not be impacted in a 1-in-100-year ARI flood.

It is important to reiterate that the LSIO does not prohibit development; it requires that development that needs a permit is assessed to determine if it would impact on or be impacted by flood processes.

The Amendment should not be altered now in anticipation of potential on-ground changes that may or may not occur. As in the case of the Rijk Zwaan and the Ballan South land, the land development and planning permit processes would take account of flood risk at the site level.

Should conditions on the ground change so that the site is filled above 99.86 metres AHD, then Council has indicated that it does not intend to apply the LSIO to the site. Accordingly, ULD can seek a planning permit to fill the site, and should it do so to the requisite level, Council has indicated that it would not apply the LSIO to the land.

(iv) Conclusion and Recommendation

The Panel concludes:

- The application of the LSIO to the land at 94-98 Main Street, Bacchus Marsh below 99.86 metres AHD is appropriate.

The Panel recommends:

- 2. Amend the application of the Land Subject to Inundation Overlay on 94-98 Main Street, Bacchus Marsh, to the land below 99.86 metres Australian Height Datum as shown in Figure 4 of this Report.**

7 Other matters

7.1 Land values and insurance

(i) The issue

Several parties raised concerns that the Amendment would decrease the value of their property, increase the cost of insurance, and affect the availability of their access to insurance. The issue is whether the potential impacts on insurance costs and availability and land values are relevant considerations for the Panel in considering the Amendment.

(ii) Evidence and submissions

11 submissions²⁴ raised concerns that the Amendment would result in property devaluation and increased insurance costs.

Council submitted that:

Panels have consistently found that property values and insurance costs are not relevant considerations in the context of the introduction of flood provisions, including the LSIO and SBO. Furthermore, Panels have consistently observed that section 98 of the Act sets out the circumstances in which compensation is payable to landowners, and is essentially limited to where land is reserved or required for a public purpose or where access is to be denied by the closure of a public road.⁷⁹ It does not encompass situations where flood controls are imposed.

(iii) Discussion

The Panel agrees with Council that any impacts on insurance and land values are not relevant considerations.

(iv) Conclusion

The Panel concludes:

- Any potential impacts on insurance price and availability for affected properties, and on the value of affected properties, are not relevant considerations for the Panel in considering the Amendment.

7.2 Flood mitigation measures

(i) The issue

The issue is whether works that could mitigate the impact of floods, including waterway maintenance and future capital works are relevant considerations for the Panel in considering the Amendment.

(ii) Submissions

The Panel notes submissions suggesting that flood mitigation works could alleviate flood risk and avoid the need for applying overlays like the LSIO and SBO under the Amendment. This was best exemplified by Submitter 23 (Stephen Kelly) in the Lay Court, Walsh Street and Ingliston Road area

²⁴ Submissions 2, 3, 4, 6, 11, 14, 16, 21, 35, 37 and 39

of Ballan where he considered it was necessary for Melbourne Water and Council to ‘fix’ the drains through land at Ingliston Road and Lay Court to improve their capacity to handle 100-year event flood flows. He considered such work would alleviate the extent of flooding and hence reduce the flood risk to a point that it would not be necessary to apply the flood overlays.

Similarly, Submitter 34 (John Righetti) submitted that the flood risk from the Werribee River in Bacchus Marsh would benefit from maintenance that keeps the bed and banks of the river clear of overgrowth and obstructions to allow unobstructed flows in a flood event.

Council submitted that the issue of future drainage system maintenance and capital works are not relevant to the merits of the Amendment and the application of the LSIO and SBO to the land identified as subject to flooding.

It is also relevant to note that flood provisions are not intended to address the cause of flooding, but rather the *“way future land use and development will impact on the flooding problem or be impacted themselves by flooding.”* The cause of flooding needs to be dealt with by separate means and is beyond the scope of this Amendment.

(iii) Discussion

The Panel has been established to review the proposed introduction of the LSIO and SBO into the Planning Scheme. It is not within the scope of the Panel to consider on-ground mitigation works.

The Panel considers that, while there may well be opportunities to refine and improve drainage maintenance practices and undertake capital works, the issue of future drainage system maintenance and capital works is not relevant to the merits of the Amendment and the application of the LSIO and SBO to land identified as subject to flooding. This is work that will require separate consideration outside and most likely beyond the Amendment process. The Panel acknowledges some of the challenges to drainage system maintenance. These can include:

- accessing private land and landholder consent (as would need to occur at Ingliston Road)
- the environmental impact of clearing vegetation from the bed and banks of rivers.

The Panel notes that once any capital works to mitigate the impact of floods are carried out that may impact the behaviour of flood waters, the impact of the works should be considered when assessing any planning permit applications for activities that may be affected by the works. Any resulting changes to flood extent can then be reflected in subsequent changes to the LSIO and SBO in the Planning Scheme.

(iv) Conclusion

The Panel concludes:

- Drainage system maintenance and future capital works are not relevant considerations for the Panel in considering the Amendment.

7.3 Western Water

(i) The issue

The issue is whether new residential development would be allowed to proceed in areas subject to flooding, due to the challenges in providing such areas with water and wastewater services.

(ii) Submissions

Western Water (Submitter 18) submitted that there is an expectation that new residential developments will not proceed within areas identified as subject to flooding (based on a 1-in-100-year flood event), meaning that future servicing will not be required in those areas. Western Water expressed its concern if future residential developments were allowed to proceed in those areas.

In its Part B submission, Council noted that:

Western Water's submission does not express any concern in relation to the application of the LSIO and SBO as proposed, nor the Amendment generally. Council submits that the impact of flooding on sewer assets, and the potential for future residential development on land identified as subject to flooding are matters beyond the scope of this Amendment, acknowledging that the LSIO and SBO do not prohibit development (including subdivision), but rather, introduce permit requirements. The appropriate time to assess the merits of any proposed residential subdivision is at the time of the permit application, and not as part of this Amendment process.

(iii) Discussion

The Panel agrees with Council's submission that the issue raised by Western Water is outside the scope of the Amendment and the Panel process, and that the implications of any residential subdivisions on land subject to inundation should be addressed at the permit application stage. Indeed, the inclusion of the LSIO in the Planning Scheme will facilitate the identification of flooding issues for land development and challenges that may arise for the provision of water and wastewater services to that land.

(iv) Conclusion

The Panel concludes:

- The issues raised by Western Water are outside the scope of the Amendment and Panel process.

8 Post-exhibition changes

8.1 Council proposed changes

(i) The issue

There are several sites where on-ground changes have affected how floods would impact those sites. This chapter addresses this issue. It also addresses several sites where the landowner has objected to the LSIO or SBO impacting a small part of their land.

(ii) Evidence and submissions

In reviewing the submissions, Melbourne Water's expert witness Mr Swan stated:

I have recommended that some changes to the proposed flood overlays be considered by Melbourne Water for these submissions.

In response to submissions to the Amendment, Council has accepted Mr Swan's recommended changes, Melbourne Water supports the changes, and these are set out in Table 1:

Table 1 Post-Exhibition Amendments

Address	Submission	Change proposed
Ballan: Lay Court area reductions		
5 Walsh Street, Ballan	6	Reduction to LSIO extent
15 Walsh Street, Ballan	23 a, b, c and d	Reduction to LSIO extent
2A Lay Street, Ballan	19	Reduction to LSIO extent
Other reductions		
5 Griffith Street, Maddingley	5	Reduction to LSIO extent
Parwan Creek, south of the Ballarat-Melbourne Railway Line	-	Reduction to LSIO extent
48 Connor Court, Ballan	29	Reduction to LSIO extent
Ballan Wastewater Treatment Plant at Ingliston Road, Ballan	9	Reduction to LSIO extent
Removals		
8 Hall Street, Ballan	7	Removal of LSIO extent
4 Albert Street, Blackwood	39	Removal of LSIO extent
10 Cairns Drive, Darley	26	Removal of SBO

Maps of the proposed changes are included in Appendix D.

Several submissions sought the reduction or removal of the LSIO from their land. Council addressed some of these requests in its Part A submission and has proposed reductions and removals of the LSIO, listed in the table above.

(iii) Discussion

The proposed post-exhibition amendments are based on reconsideration of the extent of the LSIO based on on-ground changes since the LSIO was mapped, and removal of the LSIO where it applied to only a small area at the margin of the land in question.

The Panel accepts the proposed post-exhibition changes. They are all either reductions in the extent of application of the overlays or removal. The Panel does not consider they materially impact on submitters or other parties. The Panel notes that Melbourne Water will liaise with Council regarding updating the relevant mapping in the Amendment.

8.2 Conclusion and recommendation

The Panel concludes:

- The reductions and removals of the LSIO in Table 1 and shown on the maps in Appendix D are appropriate and should be supported.

The Panel recommends:

- 3. Adopt the post-exhibition changes to the Land Subject to Inundation Overlay and Special Building Overlay extent as shown in Appendix D of this Report.**

8.3 Country Fire Authority**(i) The issue**

Submitter 17, the Country Fire Authority (CFA) raised a concern about how the Amendment addressed potential bushfire risk from revegetation in the land subject to the LSIO.

(ii) Submissions

The CFA submitted that the majority of land proposed to be covered by the LSIO is also located within a Bushfire Management Overlay. The CFA submitted that:

CFA is concerned that the introduction of policy within the Land Subject to Inundation Overlay (LSIO) may impact on the location of bushfire hazards and potentially bushfire risk ...

CFA recommends that Council provide further information regarding revegetation along the proposed LSIO to demonstrate any change in bushfire risk as a result of the amendment. This should be reflected in the supporting amendment documentation, including in the Explanatory Report.

In its Part A submission, the Council acknowledged the CFA's submission. Council proposed post-exhibition changes to clarify that the Amendment does not seek to enhance riparian vegetation and therefore does not impact upon bushfire risk. The Council proposed a post-exhibition change to reflect this, adding the following sentence in the Explanatory Report under the heading "Does the Amendment address relevant bushfire risk?":

The amendment does not involve, nor facilitate, any on-ground works (such as revegetation) which might lead to increased bushfire risk.

The CFA confirmed in a letter to Council dated 20 May 2021 that, subject to the proposed post-exhibition changes to the Explanatory Report being approved, its submission had been resolved.

8.4 Recommendation

The Panel recommends:

4. Amend the Explanatory Report under the heading *Does the Amendment address relevant bushfire risk?* to read:

The amendment will not result in any increase in bushfire risk, as it only seeks to manage flood risks. The amendment does not involve, nor facilitate, any on-ground works (such as revegetation) which might lead to increased bushfire risk.

Appendix A Submitters to the Amendment

No.	Submitter	No.	Submitter
1	Mr Terry Coombs	22	Barunah Park Geelong Pty Ltd
2	Mr Scott and Ms Katina Lowry	23	Mr Stephen Kelly
3	Mr Michael and Ms Marie Donovan	24	Mr John Kowarsky
4	Ms Jennifer and Mr Daniel Tabone	25	Ms Maureen and Mr Des McDonald
5	Villa Maria Catholic Homes	26	Mr Troy Addison
6	Mr Maurice Moss	27	Ms Kate Fischer
7	Ms Deidre Hunter-Flynn	28	Mr Peter Lunt
8	Ballan South Pty Ltd	29	Mr Chaie Broad
9	Central Highlands Region Water Corporation	30	Mr David Caligari
10	KLN Industries	31	Ms Jennifer Caligari
11	Tripod Farmers	32	Urban Land Development Pty Ltd
12 & 12b	Mr Cyril Fox	33	Bodawill Investments and B.R. Griffith
13 & 13b	Rijk Zwaan	34	M.K. and J.B. Righetti
14	Ms Lynn and Mr Richard Defoe	35	Ms Linden McDowell
15	Ms Maria Vella	36	Mr Ezaz Sheikh
16	Mr Santino and Ms Kim Anastasi	37	Mr Stephen and Ms Geraldine Vereker
17	Country Fire Authority	38	Payne's Orchards
18	Western Water	39	Ms Kelly Matheson-Miller
19	Mr Arthur Chapman	40	Mr Nick Sher
20	Ms Antonietta and Mr Frank Provenzano, and Ms Josie Folino	41	OGR Developments
21	Mr Sam and Ms Maryanne Pernice	42	Melbourne Water

Appendix B Parties to the Panel Hearing

Submitter	Represented by
Moorabool Shire Council	Mr Greg Tobin, Solicitor from Harwood Andrews
Melbourne Water	Ms Jane Sharp, Barrister by direct brief who called expert evidence on: <ul style="list-style-type: none"> - Flooding from Robert Swan of HARC Hydrology and Risk Consulting - Town Planning from John Glossop of Glossop Town Planning
Urban Land Development Pty Ltd	Ms Emily Porter, Barrister and Ms Carly Robertson, Barrister instructed by Norton Rose Fulbright Lawyers who called expert evidence on: <ul style="list-style-type: none"> - Flooding from Chris Beardshaw of Afflux Consulting
Ballan South Pty Ltd (Morgan & Griffin)	Ms Shannon Hill, Town Planner from Urban Design and Management
Rijk Zwaan Australia Pty Ltd	Mr Michael Dunn, Town Planner from Metropol Planning Solutions Pty Ltd
Maurice Moss	
Arthur Chapman	
Stephen Kelly	
John Righetti	

Appendix C Document list

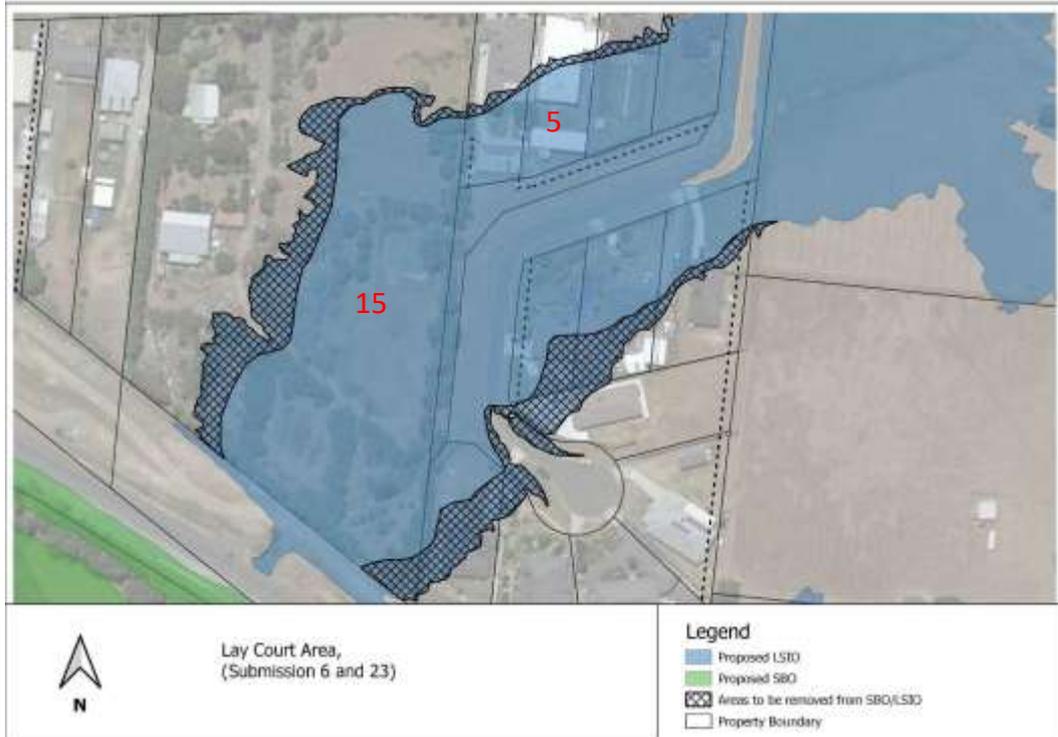
No.	Date	Description	Presented by
1	18 May 21	Panel Directions and Timetable Letter Version 2	Panel Chair
2	21 May 21	Request for Site Visits of Ballan	A Chapman, S Kelly, M Moss
3	26 May 21	Email from Solicitors for Council regarding accessing Hubshare document sharing platform for Panel documents	Council
4	26 May 21	Letter from solicitors for Council regarding sites for inspection	Harwood Andrews
5	28 May 21	PowerPoint presentation in support of submission	A Chapman
6	28 May 21	Letter in support of submission #1	S Kelly
7	28 May 21	Letter in support of submission #2	S Kelly
8	1 June 21	Part A Submission of Moorabool Shire Council	Council
9	1 June 21	Document 8 Attachment 1 – Letter from DELWP to Council authorising Amendment Moorabool C91	Council
10	1 June 21	Document 8 Attachment 2 - Chronology	Council
11	1 June 21	Document 8 Attachment 3 - Agencies Notified of Amendment	Council
12	1 June 21	Document 8 Attachment 4 - List of Proposed Post-Exhibition Changes	Council
13	1 June 21	Document 8 Attachment 5 – Moorabool C91moor Explanatory Report	Council
14	1 June 21	Document 8, Attachment 6 – CFA Submission on Response to Proposed Changes	Council
15	1 June 21	Email from Solicitors for Council regarding site inspection arrangements	Harwood Andrews
16	1 June 21	Site Inspection Map	Council
17	1 June 21	Site Inspection Itinerary	Council
18	7 June 21	Expert Witness Statement of Robert Campbell Swan regarding Flooding	Melbourne Water
19	7 June 21	Expert Witness Statement of John Glossop regarding Town Planning	Melbourne Water
20	7 June 21	Expert Witness Statement of Christopher Beardshaw	Urban Land Development P/L
21	9 June 21	Request to be Heard	John Righetti
22	9 June 21	Submission	John Righetti
23	10 June 21	Submission	M Moss

No.	Date	Description	Presented by
24	10 June 21	Submissions on behalf of Antonietta & Frank Provenzano, and Josie Folino	Rigby Cooke
25	10 June 21	Submission on behalf of Ballan South Pty Ltd	Urban Design and Management P/L
26	10 June 21	Submission on behalf of Rijk Swaan, with four appendices	Metropol Planning Solutions Pty Ltd
27	10 June 21	Submission on behalf of Urban Land Development Pty Ltd	Norton Rose Fulbright
28	10 June 21	Submission on behalf of Melbourne Water, with three attachments	Jane Sharp, Barrister
29	10 June 21	Part B Submission of Moorabool Shire Council	Council
30	10 June 21	Part B, Attachment 1 – Melbourne Water Revised Flood Extent Mapping, Parwan Creek	Council
31	10 June 21	Part B, Attachment 2 – C91moor Exhibition with tracked changes	Council
32	10 June 21	Part B, Attachment 3 – Council email to S Kelly	Council
33	11 June 21	Council response to submission from R Righetti	Harwood Andrews
34	11 June 21	Panel Directions and Timetable Letter, Version 3	Panel
35	11 June 21	Aerial photos and zone maps (22 in all) of Bacchus Marsh, Ballan and other areas	Harwood Andrews
36	15 June 21	Urban Land Development survey plan for 94-98 Main Street, Bacchus Marsh	Norton Rose Fulbright
37	15 June 21	Expert Review Presentation by Mr Beardshaw for Urban Land Development	Norton Rose Fulbright
38	15 June 21	Moorabool Shire Flood Emergency Plan	Melbourne Water
39	16 June 21	Timetable Version 4	Panel
40	16 June 21	Indicative Outline of LSIO on survey plan of 94-98 Main Street, Bacchus Marsh	Melbourne Water
41	16 June 21	Urban Land Development Certified survey plan for 94-98 Main Street, Bacchus Marsh	Norton Rose Fulbright
42	16 June 21	Ballan South Pty Ltd PowerPoint presentation	Urban Design and Management
43	17 June 21	PowerPoint presentation version 2	A Chapman
44	17 June 21	Email submission	S Vereker
45	18 June 21	Photos of 15 Walsh Street and Lay Court area drainage	S Kelly

Appendix D Post-Exhibition Amendments

5 Walsh Street, Ballan - Submitter 6 - Reduction to LSIO extent

15 Walsh Street, Ballan - Submitter 23 a, b, c and d - Reduction to LSIO extent



2A Lay Street, Ballan - Submitter 19 - Reduction to LSIO extent



Griffith Street, Maddingley – Submitter 5 - Reduction to LSIO extent



Parwan Creek, south of the Ballarat-Melbourne Railway Line - Reduction to LSIO extent



48 Connor Court, Ballan - Submitter 29 - Reduction to LSIO extent



Ballan Wastewater Treatment Plant, Ingliston Road, Ballan- Submitter 9 – Reduction to LSIO extent



8 Hall Street, Ballan - Submitter 7 - Removal of LSIO extent



4 Albert Street, Blackwood - Submitter 39 - Removal of LSIO extent



10 Cairns Drive, Darley – Submitter 26 – Removal of SBO extent

