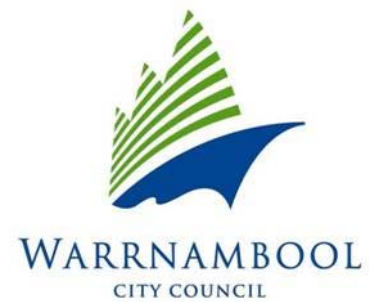


Date: 19 April 2022



Warrnambool Planning Scheme Amendment C205warr North Warrnambool Flood Controls

Warrnambool City Council Submission to the Independent Planning Panel

Panel Hearing Date: 26 April 2022

Panel: Geoff Underwood (Panel Chair), Alison McFarlane

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Introduction

1. This submission relates to Amendment C205warr (**the Amendment**) to the Warrnambool Planning Scheme (**Scheme**).
2. The Warrnambool City Council (**Council**), in its capacity as the Planning Authority under the Planning and Environment Act 1987 (Act), has prepared the Amendment in conjunction with the Glenelg Hopkins Catchment Management Authority (**GHCMA**).

Overview of the exhibited Amendment

Amendment C205warr to the Warrnambool Planning

3. As exhibited, the Amendment proposes to introduce or revise the application of flood controls within part of the Merri River and Russells Creek catchments in North Warrnambool.
4. The land was identified by GHCMA and Council as being liable to flooding from an open watercourse during a 1 in 100 year storm event (1% Annual Exceedance Probability (**AEP flood event**¹)).
5. More specifically the Amendment seeks to:
 - Apply the Urban Floodway Zone (**UFZ**) or Floodway Overlay (**FO**) to areas identified as high hazard flood risk which have the greatest risk and frequency of being flooded.
 - Apply the Land Subject to Inundation Overlay (**LSIO**) to areas identified as low hazard flood risk during a 1 in 100 year storm event (1% AEP flood event).
 - Amend the Schedule to Clause 72.08 to include Russell Creek Flood Mitigation – As Constructed Flood Modelling (Water Technology, 2017) and Design of North Warrnambool Floodplain Management Plan - Implementation Works (Cardno, 2010) as a Background Document.
6. In a number of areas, the application of the extent of the UFZ has been reduced and replaced with the Public Park and Recreation Zone (**PPRZ**) or General Residential Zone (**GRZ**), as appropriate.
7. A number of areas have also had the LSIO removed or reduced.

Panel Directions

8. The Panel has directed Council to circulate its submission to the Hearing by Tuesday 19 April 2022 (Direction number 7). This submission responds to the Panel's direction under the following headings:
 - Background to the Amendment
 - Strategic Context to the Amendment
 - Planning Practice Note #12 – Applying the flood provisions in Planning Schemes

¹ Annual Exceedance Probability refers to the probability or risk of a flood of a given size occurring or being exceeded in any given year. The 1% AEP design flood is the industry standard for planning purposes.

- Preparation and Exhibition of the Amendment
 - Council consideration of Submissions.
 - Council's final position on the Amendment
9. As directed by the Panel, Council convened discussions with those submitters who intend to present at the Hearing to explain the background to the Amendment including the methodology for the flood studies, to discuss the matters in dispute and to explain the effect of the proposed controls on individual properties (Direction 1). This submission advises the outcome of these discussions with submitters in accordance with Panel Direction 7.
10. The Expert Evidence statement of Mr Tim Morrison was circulated on Thursday 14 April 2022 in accordance with Panel Direction 11.

Preliminary matters

11. Approximately 2 weeks following the commencement of exhibition of the Amendment, it was brought to Council's attention that incorrect maps had been exhibited. Land on the west side of Bromfield Street had been incorrectly included in the Amendment and had incorrectly exhibited land in the General Residential 1 Zone, whereas the correct zoning was the Urban Floodway Zone.
12. The land on the west side of Bromfield Street was not included in the flood data Council provided to DELWP's mapping service, and was not part of the study area for Amendment C205warr. Landowners on the west side of Bromfield Street were not notified of the Amendment, as they were not part of the Amendment.
13. Discussions were held with DELWP, who advised Council to:
- Amend the maps to reflect the C205warr mapping data;
 - Publish a notice in the Warrnambool Standard newspaper advising that due to incorrect mapping, the exhibition period had been extended by two (2) weeks;
 - Write letters to all landowners whose land had been incorrectly included, and provide the landowners with copies of the correct maps.
14. Council received no enquiries or submissions in relation to the mapping error, therefore there were no consequential or adverse impacts incurred.

Summary of Council's position

15. Council submits that the Amendment is well founded in planning policy, is based on the best available scientific research and evidence and has been rigorously peer reviewed. The Amendment has the full support of relevant departments and authorities and we seek the Panel's endorsement of the proposed flood controls and background reports.

Background to the Amendment

16. This section provides details on the background to the Amendment.

Background

17. A chronology of key events relevant to the Amendment forms **Attachment A** to Council's submission.

Amendment C78

18. In July 2014, Council exhibited Amendment C78 to the Warrnambool Planning Scheme to implement revised flood controls within the Merri River and Russells Creek floodplains. Amendment C78 also included areas affected by the South Warrnambool Merri River floodplain.
19. Amendment C78 attracted 30 submissions, and on 4 May 2015, Council resolved to split the Amendment into two parts. Part 1 included implementation of flood controls on land that did not attract submissions, or where submissions were able to be resolved. Council resolved to adopt Amendment C78 Part 1 on 4 May 2015.
20. Amendment C78 Part 2 included land within the Russells Creek floodplain (downstream of Bromfield Street), and within the South Warrnambool floodplain (downstream of Block Street), and land within the Merri River floodplain in Membery Way, 123 Queens Road, and 2-18 Daltons Road (areas where submissions had been received).
21. Council had committed to undertaking \$4 million flood mitigation works to the Mortlake Road/Russell Creek floodplain area, and deferred further consideration of Amendment C78 Part 2 until the flood mitigation works had been completed and subsequent remodelling of flood levels within the Russells Creek floodplain. These works were committed and funded, therefore it was considered appropriate to defer the implementation of the flood controls.
22. On 21 January 2016, Amendment C78 Part 1 was gazetted by the Minister for Planning.
23. Amendment C78 Part 2 was put on hold to enable the *Russell Creek Flood Mitigation – As Constructed Flood Modelling Project (Water Technology, 2017)* to be finalised. This work resulted in a change in the flood extents in the Russells Creek floodplain area requiring an update to the mapping to enable the Amendment process to recommence.
24. Amendment C205warr proposes to implement the revised flood modelling for the Russells Creek floodplain as well as those areas within the Merri River floodplain (North Warrnambool only) that received submissions to Amendment C78.
25. Implementation of flood controls in South Warrnambool Merri River floodplain, which was to be based on the South Warrnambool Flood Study 2007, is no longer supported by the GHCMA.
26. The GHCMA has advised Council that the 2007 flood study does not adequately address climate change impacts, which is expected to increase the severity and

frequency of flood events. A new flood investigation for the South Warrnambool Merri River floodplain will commence later this year.

27. Amendment C78 Part 2 lapsed on 15 December 2018.

Amendment C205warr

28. The *Russell Creek Flood Mitigation – As Constructed Flood Modelling Project (Water Technology, 2017)* was endorsed by Council on 4 December 2017.

29. In 2017, Council received funding from the Department Environment Land Water and Planning (**DELWP**) under the Flood and Emergency Risk Resilience – Implementation of the Victorian Floodplain Management Strategy program to convert the revised flood modelling in the Water Technology 2017 report into a planning scheme amendment.

30. In May 2019, Council engaged Utilis to prepare revised mapping of areas affected by flooding in accordance with best industry practice and specifications of the GHCA, and to identify appropriate flood controls on the use and development of land through the selection of zones and overlays in the Victoria Planning Provisions.

Land Affected by the Amendment

31. The subject area for Amendment C205warr is generally the North Warrnambool (Russells Creek floodplain) area from Bromfield Street to north of Wangoom Road.

32. There are also three areas along the Merri River floodplain included in this amendment that are residual areas from the previous Amendment (C78 Part 1). **Refer Figure 1.** The residual areas are land at 123 Queens Road, 2-18 Daltons Road, and land at the rear of Membedery Way.

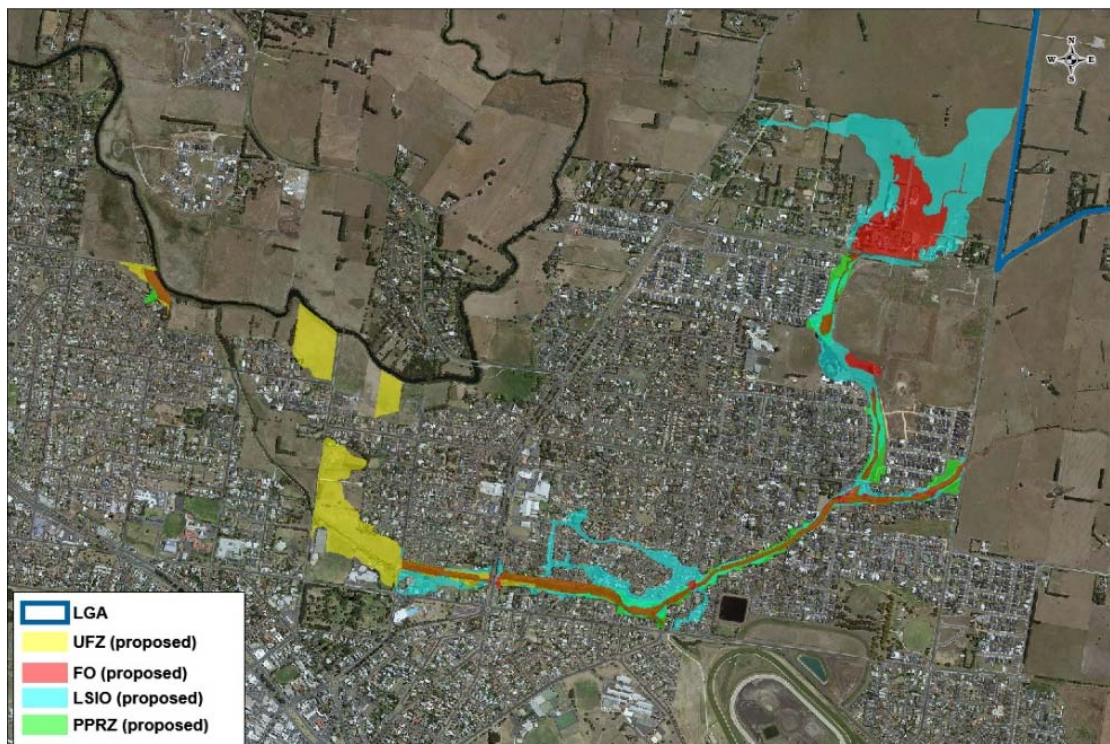


Figure 1. Area Covered by the Amendment

Planning Controls applicable to the Amendment

33. The relevant planning controls applicable to the Amendment as shown in Figure 1 are described in **Table 1** below.

Planning Control	Purposes
Urban Floodway Zone (UFZ)	<ul style="list-style-type: none"> To identify waterways, major flood paths, drainage depressions and high hazard areas within urban areas which have the greatest risk and frequency of being affected by flooding. To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.
Public Park and Recreation Zone (PPRZ)	<ul style="list-style-type: none"> To recognise areas for public recreation and open space. To protect and conserve areas of significance where appropriate.
Floodway Overlay (FO)	<ul style="list-style-type: none"> To identify waterways, major flood paths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding. To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting. To ensure that development maintains or improves river and wetland health, waterway protection and floodplain health.
Land Subject to Inundation Overlay (LSIO)	<ul style="list-style-type: none"> 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 ensure that development maintains or improves river and wetland health, waterway protection and floodplain health.

Table 1 Relevant Planning Controls and their Description

Zoning Response

Urban Floodway Zone vs. Public Park and Recreation Zone

34. Within public open space areas, the Amendment proposes to apply the PPRZ along with a FO. The key reasons for this are;

- To be consistent with previously exhibited controls for this area in 2014 via Amendment C78
- To be consistent with the interface of controls downstream of Bromfield Street
- The Planning Policy Framework 13.03-1L (Merri River and Russells Creek Floodplains) states:
 - Incorporate the Merri River and Russells Creek into open spaces.
- Planning Practice Note 12 – Applying the flood provisions in Planning Schemes, on the application of flood controls within public open space areas, advise the following;

The UFZ is not widely used due to its restrictive nature. As an alternative, a flood overlay can be used in conjunction with an appropriate zone (such as the Floodway Overlay and the Public Park and Recreation Zone) to enable the

primary use of the land to be recognised at the same time as acknowledging its flooding characteristics.

35. The reserve areas throughout the Russell Creek floodplain are widely used by local residents for passive recreation throughout the year. The combination of the PPRZ and FO is considered the most appropriate response to the use and development needs for these areas. In other areas, the retention of the UFZ is considered important. The UFZ is proposed to be retained on private land between Bromfield Street and Queens Road. The existing UFZ will reduce in this area as a result of the Amendment, however the area is considered unique for the following reasons:

- It is an important floodplain storage area;
- It regularly experiences disruptive and high hazard flooding (e.g. closure of both Bromfield Street and Queens Road);
- It may be influenced by flooding conditions of the Merri River; and
- While there are no Public Open Space areas, pedestrian and passive recreation occurs routinely given the proximity of St Joseph Primary School.

36. The CMA had expressed a desire to retain the UFZ rather than apply the PPRZ to areas of open space. However, the justifications above, particularly the guidance of the Planning Practice Note 12 and consistency with previous Amendments are very strong and defensible both on a planning and floodplain management basis.

37. Both the above issues are considered to have been resolved adequately in the planning phase of the Amendment process.

Why the Amendment is required?

38. The Amendment represents a significant correction to the flood controls that are currently applied to North Warrnambool in the Warrnambool Planning Scheme.

39. There are significant areas of land currently covered by a flood control that will have that control removed through the proposed Amendment. This is a direct result of the Planning Scheme's existing controls being based largely on a study from 1997 (*Warrnambool Land Liable to Flooding Report, 1997*). Conversely there is land that will be covered by a flood control for the first time (e.g., North Wangoom Road area).

40. Vast changes to the North Warrnambool area have occurred in recent decades. Development has occurred within the northeast growth corridor and a major flood mitigation project has been constructed in the Mortlake Road/Garden Street precinct along Russells Creek. The changes across the subject area are significant and considered a 'resetting' of the framework for flood controls.

41. **Table 2** below seeks to quantify the changes in the context of the timeframe in which the change has occurred.

Criteria	UFZ	PPRZ	LSIO	FO	Comment
Number of Current Properties	59	5	259	0	The majority of properties currently within an LSIO coverage, about the Mortlake Road area.
Number of Properties Proposed	30	20	269	49	A significant number of properties will now be zoned PPRZ or GRZ as a result of a reduction in flood hazard – and a preference for PPRZ in public open space areas. The increase in properties with an LSIO is largely due to the inclusion of flood affected properties that currently have no controls in the North Wangoom and Whites Road areas.
Area of Current Coverage (ha)	39	1.6	20	0	
Area of Proposed Coverage (ha)	13	19	43	20	The increase in LSIO areas can be attributed to new areas such as North Wangoom Road which currently do not have any flood controls.

Table 2 Key Statistics for the Amendment

42. A range of flood investigations have been undertaken for the North Warrnambool area since 2003. Flood investigations for an area with significant flood risk, such as the Russells Creek floodplain are ongoing and responsive to technological improvements and changes in the landscape (resulting from urbanisation including construction of roads, retention basins, etc), and will continue to occur over time.
43. It is important however that the flood controls are updated in the Planning Scheme concurrently with the best available flood information. Parts of the Warrnambool Planning Scheme (including the Russell Creek area) are currently based on the outdated *Warrnambool Land Liable to Flooding Report (1997)*.
44. The most recent flood study, the *Russell Creek Flood Mitigation – As Constructed Flood Modelling Project* (Water Technology 2017) was in response to the flood mitigation works installed along Russell Creek in 2016. The works consisted of four constructed flood walls and two new 2.4 x 3.6m box culverts under Mortlake Road, refer **Figure 2, 3 and 4**.



Figure 2. Location of the constructed flood walls. (Source; Water Technology 2017).



Figure 3. Constructed flood walls. (Source; Water Technology 2017).



Figure 4. Constructed culverts under Mortlake Road. (Source; Water Technology 2017).

45. The constructed mitigation works were designed to maintain the public open space provided by the Russell creek corridor and reduce privacy issues that could arise out of public access to a raised embankment abutting private property. Maintaining pedestrian access to the creek corridor over and around these walls was an important design consideration. These access points can be rapidly closed off in the event of major flood.

46. The constructed mitigation works were also designed to provide a significant benefit to properties within the floodplain. The benefits are summarised in **Table 3**.

Condition	Pre-Mitigation	Post-Mitigation	Benefit	Comment
Average Annual Damages	\$491,783	\$69,571	\$422,212	
Properties Flooded Above Floor	146	14	132	The 1% AEP flood event has reduced the number of properties expected to be flooded above floor from 146 to 14. Whilst 14 properties are still shown to be flooded above floor, a number of these properties are shown to be flooded by relatively shallow depths. All of the properties shown to be flooded above floor following the mitigation works had previously been identified at being at risk from above floor flooding during the 1% AEP flood events. The depth of above

				floor flooding has reduced for all but 1 of the 14 properties. The average depth of above floor flooding has reduced by 100mm. The locations of the above floor flooded properties are focused on three areas Wangoom Road, Whites Road and within the breakout area around Moonah Drive.
Properties Flooded Below Floor	234	205	29	
Area of Proposed Coverage (ha)	13	19	43	

Table 3. Benefit estimates from the mitigation works for a 1% AEP design flood

47. It should be noted that Table 3 refers to the benefits from the design 1% AEP flood. This is the probability or risk of a flood of a given size occurring or being exceeded in every given year. It is a very large flood and is used as the minimum design standard for new development in Victoria. The reduction in flood level is translated into a reduction in flood extents for a wide area (refer **Figure 5**).

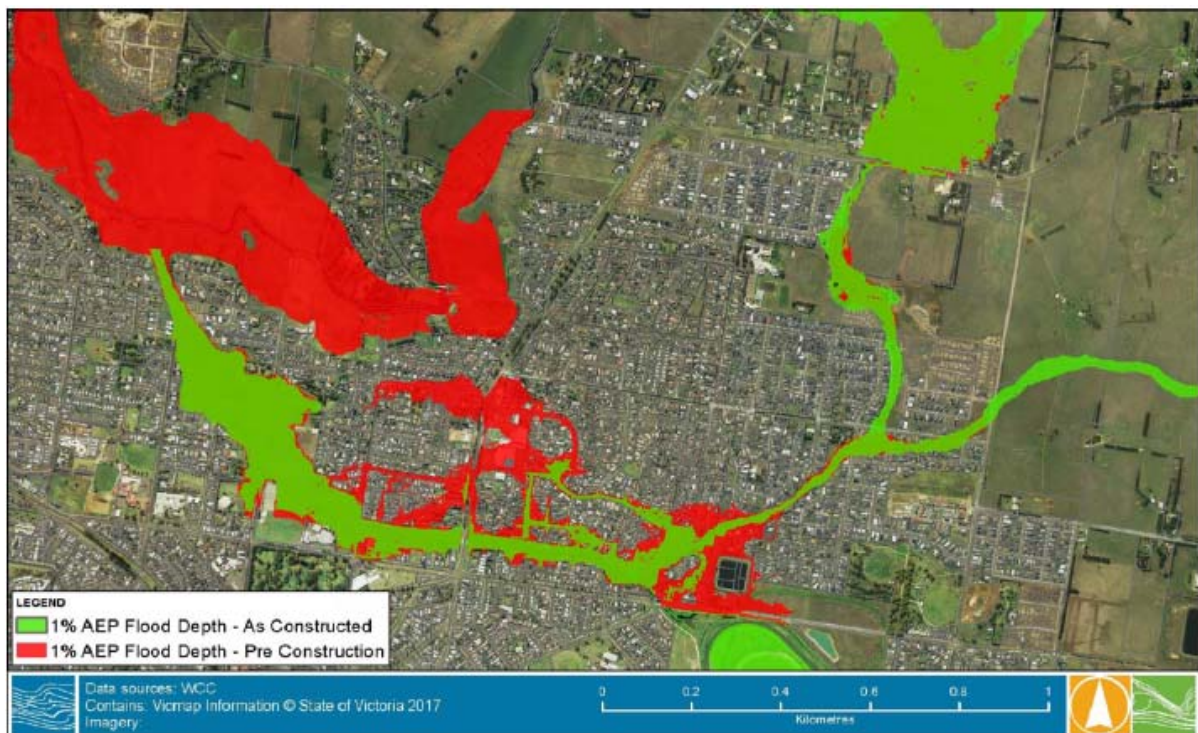


Figure 5. Comparison of pre and post mitigation works

48. The pre-mitigation flood extent (Figure 5 - red) is based on the design 1% AEP flood extent from the 'Floodplain Management Plan; Implementation Works' project (Cardno 2010). This modelling was based upon the floodplain of the day which did not include any of the mitigation infrastructure. The modelling representing the current day 1% AEP design flood extent is represented in Figure 5 – green.

Strategic Context to the Amendment

49. This section provides an overview of the Amendment's strategic basis, supplementing the detail set out in the exhibited Explanatory Report.

Planning and Environment Act 1987

50. The Planning and Environment Act 1987 (the Act) provides for the establishment of planning schemes in Victoria to regulate land use and development.
51. Section 6(2)(e) of the Act enables planning schemes to *regulate or prohibit any use or development in hazardous areas, or areas likely to become hazardous*. Flooding is a land management hazard and planning schemes contain state planning policy for floodplain management (as one of a number of environmental risks), requiring that flood risk be considered in the preparation and amendment of planning schemes and in land use decision making.

Victorian planning objectives

52. 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.
53. 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.

Planning Policy Framework

54. The Amendment is supported by relevant clauses in the Planning Policy Framework, which are outlined below.
55. **Clause 11 Settlement** – identifies that planning for settlements must have regard to health, wellbeing and safety. Clause 11.01-1S identifies that investment and growth is to be focussed in major regional cities, including Warrnambool.

56. The Amendment supports these objectives by documenting the extent of flooding and the degree of risk from its impacts by using the UFZ and FO for areas of high hazard, and LSIO for areas of lower hazard. Applying the most accurate flood data also ensures that developable land is maximised, thereby enabling infill residential growth to occur in areas that are not subject to inundation.
57. **Clause 11.03-2S Growth Areas** – requires planning to respond to climate change and increase environmental sustainability.
58. The Amendment implements this clause by introducing updated planning controls that will ensure new development and works respond appropriately to flood risk.
59. **Clause 13 Environmental Risks and Amenity** – identifies that planning should strengthen the resilience and safety of communities, and should identify, prevent and minimise the risk of harm to the environment, human health and amenity by applying effective controls to prevent or mitigate significant impacts.
60. The Amendment responds to this clause by applying appropriate flood controls to recognise and mitigate risk associated with flooding and by ensuring new development and works respond appropriately to environmental risks (e.g. river health) associated with flooding.
61. **Clause 13.01-1S Natural Hazards and Climate Change** – identifies the need for adaptation response strategies for existing settlements in risk areas to accommodate change over time.
62. The Amendment responds to this clause by providing more accurate information to guide development and works to respond appropriately to flood risk.
63. **Clause 13.03-1S Floodplain Management** – identifies that planning is to assist the protection of:
- Life, property and community infrastructure from flood hazard
 - The natural flood carrying capacity of rivers, streams and floodways
 - The flood storage function of floodplains and waterways
 - Floodplain areas of environmental significance or of importance to river health.
64. The Amendment supports these objectives by improving the mapping of flood extents and hazard associated with the floodplains of Russell Creek and Merri River in North Warrnambool.
65. **Clause 13.03-1L Merri River and Russells Creek floodplains** – contains the objective that the integrity of the Merri River and Russells Creek floodplains is to be maintained. The clause further identifies that planning is to discourage the filling of land that is subject to flooding; avoid development that will have an adverse downstream impact in terms of flooding and water quality; and ensure that when drainage and flood protection works are inadequate that habitable buildings are protected from flooding.
66. The Amendment responds to this clause by ensuring that land use and development is directed to locations with no or minor flood risks and carried out in ways that minimises its vulnerability to the threat of flood.

67. **Clause 14.02-1S Catchment planning and management** - seeks to assist the protection and restoration of catchments, water bodies, groundwater, and the marine environment. The relevant strategies of this clause are to:

- Consider the impacts of catchment management on downstream water quality and freshwater, coastal and marine environments,
- Ensure that development at or near waterways provide for the protection and enhancement of the environmental qualities of waterways and their instream uses.
- Require appropriate measures to filter sediment and wastes from stormwater prior to its discharge into waterways, including the preservation of floodplain or other land for wetlands and retention basins.
- Ensure planning is coordinated with the activities of catchment management authorities.

68. The Amendment supports this clause by providing revised planning controls relating to the identification and ongoing protection of the floodplain from inappropriate development, including potential for impacts on catchments. The introduction of new controls will align Council's decision making with the information available from GHCMA.

69. **Clause 14.02-2S Water quality** - seeks to protect water quality. The strategies to achieve this objective include discouraging 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.

70. The Amendment supports the objective and strategies of this clause by setting out revised planning controls for the floodplain areas, based on most recent flood data and best practice measures for flood affected areas. This will ensure incompatible land uses are not located in floodplain areas, and will reduce impacts on downstream water quality.

Municipal Planning Strategy

71. The Amendment is supported by relevant clauses in the Municipal Planning Strategy, which are outlined below.

72. **Clause 02.03-3 Environmental risks and amenity** (Floodplain management) acknowledges that large expanses of land are prone to flooding from the Merri River and Russells Creek. The relevant strategic directions include:

- Protecting floodplains from development that would detrimentally impact their function.
- Protecting life, property and community infrastructure from flood events.

73. The Amendment supports and implements the strategic directions of the Municipal Planning Strategy by implementing flood controls based on current and updated flood modelling.

Other planning strategies and policies

Warrnambool City-Wide Housing Strategy 2013

74. Council adopted the Warrnambool City-Wide Housing Strategy in December 2013.
75. The Housing Strategy establishes a 20-year housing growth framework for the municipality to ensure clear policy direction about where residential development will be focused and where it will be limited, in order to meet the changing needs of the municipality.
76. The plan notes that flooding is a significant constraint on development of Warrnambool, and makes the following relevant comments:
“Development within areas of high flood hazard must be avoided (zoned Urban Floodway Zone (UFZ) or included in Flood Overlay (FO) and Land Subject to Inundation Overlay (LSIO)).”
77. The objectives of the Amendment are considered to be in line with the strategy.

Victorian Floodplain Management Strategy

78. The Victorian Floodplain Management Strategy is listed as a policy guideline under Clause 13.02-1 and the latest version was released by the State Government in 2016. It provides state-wide 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.
79. The Strategy includes in Policy 13a that:
The 1% Annual Exceedance Probability flood will remain the design flood event for the land use planning and building system in Victoria.
80. One of the policy foundations of the Strategy includes avoiding or minimising future risks and endorsing land use planning controls to manage the potential growth in flood risk. In this regard, the Strategy promotes increasing the land use planning coverage for areas in the 1% Annual Exceedance Probability (AEP).
81. The objectives of the Amendment are considered to be in line with the strategy.

Warrnambool Floodplain Management Plan

82. The Warrnambool Floodplain Management Plan (2018-2023) follows on from extensive flood investigations and works across the Warrnambool City.
83. The plan notes that the UFZ is applied extensively within Warrnambool City, extending along urban areas adjoining Merri Russell Creek.
84. As an alternative, the plan identifies that a flood overlay can be used in conjunction with an appropriate zone (such as FO and the PPRZ) to enable the primary use of the land to be recognised at the same time acknowledging its flooding characteristics.
85. The plan notes that this approach may be suited to Council, as it aligns with Council's aspirations that all floodplain locations form part of open space networks as directed by strategies with the Planning Scheme.

86. The objectives of the Amendment are considered to be in line with the plan.

Ministers Directions

87. The Amendment complies with Minister's Direction No. 11 – Strategic Assessment of Amendments and Minister's Direction 15 in respect to The Planning Scheme Amendment Process.

88. The Amendment has been considered against Minister's Direction No. 11 Strategic Assessment of Amendments, as required by Section 12(2)(a) of the Act. The explanatory report evaluates and includes a discussion about how the amendment addresses the relevant strategic considerations outlined in the Minister's Direction.

89. Minister's Direction No. 15 The Planning Scheme Amendment Process, also applies to the amendment.

Planning Practice Note 12 – Applying the flood provisions in Planning Schemes

Practice Note Guidance

90. Planning Practice Note 12 – Applying the Flood Provisions in Planning Schemes (June 2015) (PPN12) provides guidance about applying the flood provisions in planning schemes, including

- The preparation of policy;
- Identifying land affected by flooding;
- Preparing a floodplain development plan; and
- The application and operation of the flood provisions, including the preparation of schedules.

91. PPN12 notes (at page 2) that

The flood provisions do not address the cause of flooding, but the way future land use and development will impact on the flooding problem or be impacted themselves by flooding. The cause needs to be dealt with by separate means. This may include other actions of council and/or the floodplain management authority, such as flood mitigation measures, that may be linked to a corporate plan or a floodplain management strategy.

....

Identifying land affected by flooding

Before flood provisions can be introduced to a planning scheme, information on the type and extent of flooding is required to accurately map land affected by flooding and apply the most appropriate flood provision.'

92. It further states, relevantly (pages 2 – 3)

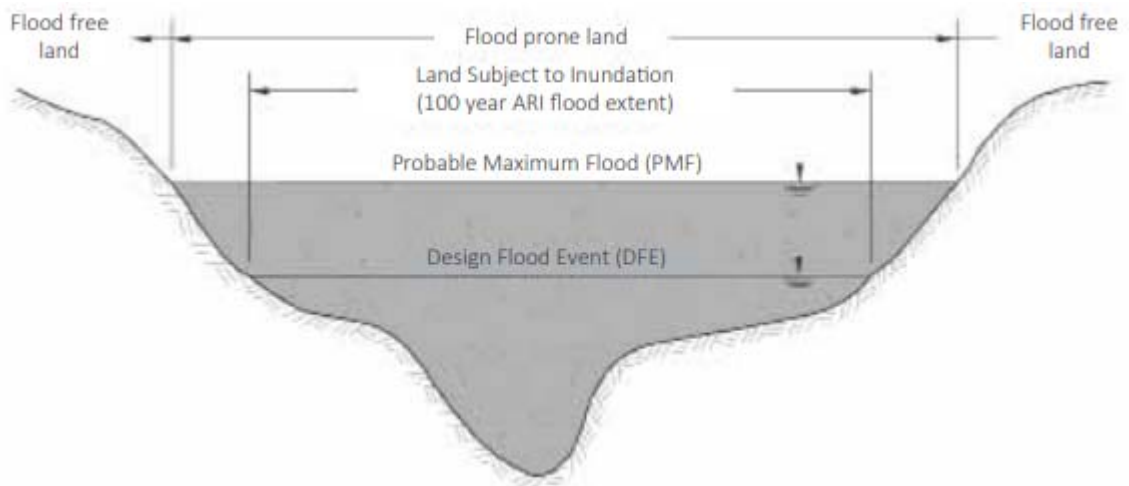
Defining the extent of flooding

The 'probable maximum flood' (PMF) determines the maximum possible extent and height of flooding. This is the largest flood that could conceivably occur at a particular location. The area defined by the PMF is referred to as 'flood prone' and the area outside the PMF is referred to as 'flood-free' (see Figure 1).

In general, it is not practical or economical to provide land use planning or flood protection up to the 'probable maximum flood' (PMF). A lesser flood standard, known as the 'design flood event' (DFE), is adopted for land use planning purposes and is the area applicable for planning schemes. The area defined by the DFE will be referred to as 'land subject to inundation' and can be divided into its relevant UFZ, FO, LSIO and SBO components as the case requires.

In Victoria, the DFE for land use planning and building purposes is the 100-year ARI (average recurrence interval) flood, which occurs on average once every 100 years. This is the basis for declaring flood levels and flood areas under the Water Act 1989 and for setting minimum building floor levels under the Building Act 1993."

93. The following accompanying image is provided in PPN12, which is instructive:



94. Figure 1 notes that the 'area designated as 'Land Subject to Inundation' is the area used for planning scheme purposes'.

95. When determining the appropriate overlay to apply, PPN12 includes Table 1. The following entries are included in respect of the UFZ, FO and LSIO:

	Urban Flood Zone	Floodway Overlay	Land Subject to Inundation Overlay
Urban or Rural Areas?	Urban areas only	Both urban and rural areas	Both urban and rural areas
Mainstream or stormwater flooding?	Mainstream flooding from a river or stream	Mainstream flooding from a river or stream	Mainstream flooding from a river or stream
Application	<ul style="list-style-type: none"> • Case 1 (see Fig. 2.3) Urban land which is mainly undeveloped • The stream channel or primary flow path area • Important for conveying and/or storing floodwater • Higher flood depths and/or flow velocities • Higher potential flood risk • Unsuitable for intensive urban development. 	<p>All cases</p> <ul style="list-style-type: none"> • The stream channel or primary flow path area • Important for conveying and/or storing floodwater Higher flood depths and/or flow velocities • Higher potential flood risk, but usually not as severe as in the UFZ. <p>Case 2</p> <ul style="list-style-type: none"> • Rural land which is mainly undeveloped. <p>Case 3</p> <ul style="list-style-type: none"> • Urban land which is mainly undeveloped • Unsuitable for intensive urban 	<p>Case 5 (see Fig. 2.1)</p> <ul style="list-style-type: none"> • Rural or urban areas where the extent of the floodway has not been identified and only the extent of land subject to inundation is known Areas that cover the total extent of land subject to inundation, including the higher risk floodway component • LSIO can be applied as an interim measure until further mapping of the floodway is carried out.

		<p>development but may be suitable for development compatible with the flood risk (for example, public purpose uses, such as school grounds, golf courses, sports grounds and recreation areas).</p> <p>Case 4 Urban land that is fully or substantially developed (for example, currently zoned residential, commercial or industrial areas).</p>	<p>Case 6 (see Fig. 2.2)</p> <ul style="list-style-type: none"> • Rural land that is mainly undeveloped • Areas where the extent of the floodway has been identified and LSIO covers the balance of land subject to inundation, excluding the floodway component • Lower flood depths and/or flow velocities • Lower potential flood risk <p>Case 7 (see Fig.2.3)</p> <ul style="list-style-type: none"> • Urban land that is fully or substantially developed ('flood fringe') • Areas where the extent of the floodway has been identified and the LSIO covers the balance of land subject to inundation, except the floodway component • Lower flood depths, lower flow velocities • Lower potential flood risk
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Application to the Amendment

96. As recommended in PPN12, the Russell Creek Flood Mitigation – As Constructed Flood Modelling (Water Technology, 2017) and Design of North Warrnambool Floodplain Management Plan - Implementation Works (Cardno, 2010) were prepared to determine the extent and severity of flooding in the relevant catchments. The modelling in the documents was used by Utilis to confirm the number of properties to be included in the UFZ, FO and LSIO based on the type of flooding identified. This was done with consultation with the GHCA.

97. In these circumstances, Council is satisfied that the methodology used to prepare the flood modelling and translate that modelling into the appropriate flood controls is robust and accurate. The flood controls as proposed will ensure that flood issues are addressed at the start of the development process, and that buildings and works are properly designed. They are based upon the extent of the flooding that would result from a 1 in 100 year ARI flood event.
98. It is also noted that the FO and LSIO do not include any specific exemptions to the permit requirement in the schedule. The standard exemptions contained within the FO and LSIO continue to apply and any application must be referred to the GHCMA in accordance with section 55 of the PE Act. This is consistent with the existing FO and LSIO provisions which do not include any local schedule specifying additional permit exemptions.
99. A Local Floodplain Development Plan is not required for this amendment. The nature, type and intensity of development anticipated in the affected areas as well as the flooding characteristics of the region does not trigger the need for these guidelines. Significant deviation from the state-wide development guidelines is not being proposed by the Amendment.
100. The GHCMA has expressed a desire for Council to prepare schedules to the FO and LSIO to reduce the burden of planning permits for inconsequential flood risk. However, based on the justifications above, Council does not support this work at this stage. The Amendment is essentially a reset of flood controls in North Warrnambool.
101. The Panel will observe that Council has agreed to modify Clause 72.04 of the Warrnambool Planning Scheme to undertake further strategic work to support schedules to the LSIO and FO, which would best be undertaken on a municipal wide basis. This issue is considered to be resolved to the satisfaction of the GHCMA.

Preparation and Exhibition of the Amendment

Resolution to prepare the Amendment

1. On 2 December 2019, Council resolved to seek authorisation from the Minister for Planning to prepare and exhibit the Amendment.

Ministerial Authorisation

2. The GIS mapping for the Amendment was complex and the official amendment maps took Council and DELWP several months to resolve.
3. On 15 July 2021, Council requested Ministerial authorisation to prepare and exhibit the Amendment.
4. Ministerial Authorisation was issued by the Minister for Planning on 3 August 2021, subject to the following conditions:
 - The Explanatory Report needs to be amended under 'How does the amendment support or implement the Municipal Planning Strategy' to reflect the recently gazetted content at Clause 02.
 - The Explanatory Report needs to be amended to reflect the content under Clause 13.03-1L.
 - Given the recent translation of the Warrnambool Planning Policy Framework (PPF), the background document that was to be referred to in the now removed Clause 21.04-2 should be included within the Schedule to Clause 72.08 Background Documents.
 - Notice of the amendment must be given to First Nations Legal and Research Services (info@fnlrs.com.au), as the amendment affects Crown land.
 - The exhibited amendment documents to include the *Russell Creek Flood Mitigation – As Constructed Flood Modelling (Water Technology Pty Ltd, 2017)*.
 - An Instruction Sheet must be prepared.
5. Council complied with all of these conditions prior to the exhibition of the Amendment.

Exhibition of the Amendment

6. The Amendment was exhibited between 23 September and 12 November 2021 in accordance with the *Planning and Environment Act 1987*. More particularly notice of the Amendment was given:
 - to owners and occupiers of all affected properties (approximately 400 properties);
 - to prescribed Ministers and authorities;
 - to First Nations Legal and Research Services as the amendment affects Crown Land;
 - by publishing a notice of the amendment in the Victorian Government Gazette and *Warrnambool Standard*; and
 - by publishing notice of the amendment on Council's amendment website and public engagement website (YourSay)
7. In collaboration with Council's communications department and the GHCMA, a multi-page fact sheet was developed for direct mail to owners and occupiers of all affected properties. A copy of the fact sheet forms **Attachment B** to Council's submission.

8. Key elements of the fact sheet included details of the Amendment; a description of proposed flood controls (such as UFZ, FO, and LSIO) to assist landowners and occupiers to understand how they work; the justification for applying flood controls based on flood studies, questions and answers to possible implications; and important timelines for processing the Amendment.
9. The exhibited documents were made available on Council's website and on the DELWP amendment page. The Amendment documentation as exhibited comprised the following documents:
 - The explanatory report
 - The notice of preparation of an amendment
 - The instruction sheet
 - The relevant planning scheme maps (zone, FO, LSIO);
 - Past studies by Cardno 2010 and Water Technology 2017 as background to the Amendment.

Response to Exhibition

10. The dedicated Council public engagement webpage received approximately 70 hits between when the webpage went live and closing date for submissions.
11. Council officers received and responded to a number of enquiries during the exhibition period mostly by phone or email due to COVID restrictions and lockdowns during September/October last year.
12. Council officers provided GIS maps of the proposed flood controls overlaid on to aerial photos in response to enquiries to approx. 20 landowners.

Submissions Received

13. Despite 400 (approx.) properties being affected by the Amendment, only 21 submissions were received, including 2 submissions which were received outside the exhibition period. Of the 21 submissions received:
 - 16 were from directly affected landowners,
 - 2 were from adjacent landowners objecting to the flood controls changing on their neighbour's property,
 - 1 was from a landowner objecting to their neighbour undertaking filling on their land,
 - 1 was from a landowner who requested his property be included in the Amendment, and
 - 1 submission was from the Glenelg Hopkins CMA, which was largely in support of the Amendment.
14. Council officers had either email discussion or telephone discussion with the majority of submitters.
15. Council officers held telephone discussions in lieu of face to face meetings (when COVID snap lockdowns occurred) with submitter 6 and submitter 13, as well as ongoing email discussions with both submitters.
16. Council officers held an online 'zoom' meeting with submitter 16.

17. Prior to the exhibition of the Amendment and throughout the exhibition period, Council officers had extensive discussions with the GHCMA (submitter 21).

Post Exhibition Communications

18. All submitters received an acknowledgement letter in relation to the Amendment.
19. To the wider community, Council's website was updated advising that Council officers were considering submissions in relation to the Amendment.
20. In order to ensure Council officers were fully informed of submitters' concerns and to ensure that each submission was thoroughly and comprehensively assessed, Council officers scheduled meetings with a number of submitters to discuss the submitters' concerns and/or to seek/clarify further information from the submitters. These meetings were held during November/December 2021.
21. The meetings also sought to explain to the submitters Council's position on their submission and importantly why Council had come to the position it had, and why Council was unable to support the submission.
22. Importantly, officers from the GHCMA were in attendance at the meetings. The GHCMA officers were able to explain the technical nature of flood modelling and how the modelling is derived.
23. Meetings were held with Submitter 21 (Glenelg Hopkins CMA), submitter 15, submitter 4, submitter 10, and submitter 5.
24. An online 'zoom' meeting was held with submitter 14, and an on-site meeting followed between submitter 14 and officers from the GHCMA.

Council Consideration of Submissions

Technical review of submissions

25. Following receipt of submissions, officers of Council and GHCMA undertook a rigorous review of all submissions received in relation to the Amendment. The further technical review (**FTR**) was undertaken in cases where submitters questioned the inclusion of their property in the LSIO and / or FO due to:
- the accuracy of the modelling;
 - where flooding had not been experienced in the past; and
 - where the extent of coverage over the subject land is minimal.
26. The objective of the review was to determine if the exhibited flood shape was accurate, and if any changes to flood shapes should be considered.
27. The FTR has resulted in several recommended refinements to the flood shapes that have been modelled, and in some instances, the removal of flood controls from properties and therefore removal from the Amendment. The outcomes of the FTR were contained in the officer responses to submissions attached to the Council Meeting report of 2 February 2022.

Catchment Simulation Solutions Peer Review

28. In addition to the Council and GHCMA officer review of submissions, Catchment Simulations Solutions was engaged to undertake a peer review assessing the methodology for the catchment mapping and translation to the planning controls, and the FTR.
29. It was considered important that a peer review be undertaken to ensure that all submissions were considered and assessed in a thorough and transparent manner. The Peer Review concluded that:

Catchment Simulation Solutions have undertaken a review of the studies used to inform the proposed planning amendment, how the information from these studies have been translated into overlays, the submissions received following public exhibition of the planning amendment and draft responses within the FTRs.

With respect to the Russell Creek flood modelling, several potential issues were found with the hydraulic model. However, none of these are likely to have a significant impact on the outputs that form the basis for the planning overlays. The reduction of design flows in Water Technology (2017) relative to past studies suggests that the modelling is less conservative than previous studies, which implies that the planning overlays are smaller.

The Merri River modelling is only used to inform changes in three locations. The modelling is only questioned in one of these locations (Membery Way). The review suggests that even if the modelling is underestimating extents (as suggested by the submissions) the land proposed to be zoned as residential would still be developable from a flood risk perspective.

Based on our review of the public submissions, only Submission 4 discusses an area where the planning overlays should potentially be altered by including additional FO. However, based on the zoning of this area (Farm Zone), it is unlikely that a change in the FO would have any practical impact on future development.

The CMA have identified 47 properties where they recommend the LSIO be modified to remove “Minor Incursions” where flood controls are not practical to apply. From our review, we recommend that 43 of these are removed, while 4 are retained within the LSIO. The four that we recommend to be retained are due to the raw model results extending further into the lot compared to the smoothed LSIO product and potentially inundation building footprints.

Our review concludes that

- *The proposed planning overlays and zone changes are appropriate and should proceed from a floodplain management perspective*
- *Discrepancies in the Russell Creek model should be resolved in the medium term*
- *The Russell Creek model should be calibrated against a flood event, when a suitable event occurs*
- *The Merri River modelling should be updated in the medium term, and moved to a more commonly accessible modelling software*
- *Community engagement and education should be undertaken to assist in understanding of the issues raised within the submissions*

Council resolution of 7 February 2022

30. After considering submissions to the Amendment, Council resolved at its Ordinary Meeting on 7 February 2022 to receive and consider all submissions, including the two late submissions; request that the Minister for Planning appoint an Independent Planning Panel to review submissions received; and refer all submissions to the Independent Planning Panel.
31. In accordance with this resolution, all submissions regarding the Amendment have been referred to the Panel.

Submissions referred to the Panel

32. A total of 21 submissions have been referred to the Panel for consideration.

Status of submissions following Council resolution of 7 February 2022

33. Direction 1 from the Panel’s Directions Hearing directed that Council and parties must meet to mediate issues in dispute.
34. In addition to the number of meetings held as part of Council’s consideration of submissions, individual face to face meetings were held with all submitters appearing before the Panel. Again, officers from the GHCMA were also in attendance to explain the more technical aspects of flood modelling and to answer questions regarding this issue.
35. The consultation generated a significant amount of follow up work undertaken by Council and GHCMA officers.

36. This work included investigating new issues and information raised through the discussions in addition to the original submissions, further reviewing the flood shape based on topographical information submitted by several submitters, and responding to requests for further detailed information from submitters.
37. Council and GHCMA officers have clarified their position in respect of all submitters who intend to present at the Panel Hearing.

Issues Raised in Submissions

38. The Council Meeting report of 7 February 2022 summarised the key issues that had been raised in the submissions. Attachment 3 summarised the officer responses to these key issues. Attachment 4 then broke these issues down in respect to each individual submission, and provided the officer recommended response.
39. A copy of the Council Meeting report forms **Attachment C** to Council's submission.
40. In summary, the main issues raised in the submissions are:
 - Individual properties have not experienced flooding in the past and should therefore not be subject to flood controls.
 - The modelling is inaccurate and does not reflect real life flood events and/or existing site/area characteristics such as existing topography.
 - Council and GHCMA should review and introduce mitigation works/improvements to cope with overland flow and flooding.
 - New development and increased density across North Warrnambool has increased the level of overland flow and flooding.
 - Property values and property resale will be impacted, and compensation should be payable.
 - Insurance costs/premiums will be impacted
41. The following is a summary of, and response to, the substantive or key issues raised in submissions. It supplements the detail provided in the Council report of 5 February 2022. With regard to localised or individual issues (including request to remove properties from flood controls) Council relies on the responses provided in the Council report of 7 February 2022.

Issue 1: Individual properties have not experienced flooding in the past and should therefore not be subject to flood controls.

42. Submissions objecting to the Amendment referred to previous flood events (or the lack thereof) in a local area. In this context, advice that their property had not experienced flooding was used to substantiate their position that the modelling must be incorrect.

Response:

43. A number of the submissions cite lived experience (ranging from 5 to 60 years) as their evidence that the flood model over-estimates extents.
44. The shape of the flood controls are based on the overland flow paths identified through best practice computer modelling. It is the most reliable, cost effective estimate that can be made from existing information and techniques.
45. The lack of historical evidence about flooding on a particular site does not mean the property may not be inundated by overland flooding in the future.
46. Storm events vary considerably and the factors that contributed to flooding in one storm event may not be repeated for the next.

47. The UFZ, FO and LSIO maps are based on the forecasted overland stormwater flows associated with a 1 in 100 year storm event at a specific location, meaning that there is a 1 per cent chance that such an event could occur in any given year. This is a standard used across the industry for flood planning and management. The 1% AEP has been determined through the Russell Creek Flood Mitigation – As Constructed Flood Modelling (Water Technology Pty Ltd, 2017) and Design of North Warrnambool Floodplain Management Plan - Implementation Works (Cardno, 2010). In many cases, the 1% AEP storm event may only result in flooding and inundation for a short period of time, but it is capable of causing damage.
48. The lived experiences outlined in submissions only includes smaller floods, it cannot be used to directly compare to the modelled 1% AEP. Available information confirms that a 1% AEP flood may not have been experienced by the local community within the Merri River or Russell Creek catchments, as the largest flood in living memory was in 1946.
49. Where this issue was raised in a submission, the Further Technical Review investigated and clarified if it was relevant to the floodshape on affected properties.
50. Given the above, there is no justification to remove properties from the model simply because a submission has been made with this request.

Issue 2: The modelling is inaccurate and does not reflect real life flood events and/or existing site/area characteristics such as existing topography

51. Submissions questioned the fundamentals of the modelling and questioned the data that was used as a basis for the modelling.

Response:

52. The Amendment is based on computer modelling prepared by expert consultants that reflect state policy requirements. The process of measurements used within the background reports have been undertaken within a tolerance that is an acceptable best practice used within the engineering industry.
53. The reports established the 1%AEP flood levels using a robust methodology that relied on a range of data sources including consideration of stream flow and rainfall data, surveyed flood level data, aerial photography and LIDAR point data provided by DELWP, storage data and broad range of background data from various sources.
54. The use of computer based modelling has been consistently accepted by Planning Panels as an appropriate basis for application of flood controls (UFZ, FO and LSIO).
55. Council and GHCMA have gone to great lengths to ensure that the boundaries of the flood controls are mapped as accurately as possible (including undertaking further analysis following exhibition and receipt of submissions). The best available information and contemporary best practice modelling techniques have been used.
56. A Further Technical Review has been undertaken to investigate whether there are any anomalies with the floodshape on affected properties that have made a submission. If an anomaly is found, then it has been recommended that the floodshape be amended.

57. Fully assessing the flooding impact to an individual property will rightly occur at the planning application stage; when more detailed, site specific information can be assessed. At that stage any specific conditions for development can be most appropriately determined.

Issue 3: Council and GHCMA should review and introduce mitigation works/improvements to cope with overland flow and flooding.

58. Submissions raised concern that Council and the GHCMA have failed to undertake on-ground flood mitigation works/improvements to prevent flooding and inundation in North Warrnambool. The submitters consider the extent of the application of the FO and LSIO may be less than that proposed under the Amendment if on-ground flood mitigation works are undertaken.

Response:

59. Flood mitigation works/improvements across the entire Warrnambool catchment area would cost the community millions of dollars and can only be undertaken incrementally over a period of many years.
60. As identified in Table 3 of this submission, recent flood mitigation works undertaken by Council in north Warrnambool (Russell Creek catchment) have reduced the number of above floor flooded properties from 146 to 14 properties. This is a significant achievement. The locations of the above floor flooded properties are focused on three areas Wangoom Road (6 properties), Whites Road (4 properties) and within the breakout area around Moonah Drive (4 properties).
61. A number of submitters have requested Council undertake further mitigation works to reduce the flood overlay coverage in north Warrnambool.
62. At this stage, the most practical and economical solution to manage flood prone land in north Warrnambool is to manage new development to reduce the impact of possible flooding by requiring planning permission for certain buildings and works on properties that are subject to flooding (e.g. raise floor levels of new buildings), and to utilise a capital works program.
63. In accordance with legislation, Council and the GHCMA work collaboratively on opportunities to reduce the impact of flooding throughout the municipality, with highest priority given to areas that pose high risk to public safety.
64. Council officers do note and accept that if, and when, and future on-ground structural flood mitigation works are completed, Council should amend its planning scheme to update the application of the flood controls at that time.
65. In previous instances where an independent planning panel has been asked to consider and report on submissions opposing the application of a flooding control, the issue of mitigation has been considered and rejected by the panel (Reference: Ballarat, Amendment C178)

Issue 4: New development and increased density across North Warrnambool has increased the level of overland flow and flooding.

66. A number of submissions have raised concerns with the impacts that new development and increased density across North Warrnambool are having on

existing infrastructure such as drainage, which in turn is increasing local flooding and overland flow impacts.

Response:

67. The flood mapping is based on overland flows associated with the Merri River and Russells Creek catchments. The mapping does not identify areas liable to flooding and inundation by overland flows that exceed the capacity of the urban drainage system.
68. The Planning Policy Framework supports and encourages increased densities in appropriate locations and Council actively requires developers to provide sustainable development that uses the principles of integrated water management that can help address these issues.
69. Integrated water management has three aims: reduce reliance on potable water supplies; reduce the amount of wastewater and stormwater generated; and improve water quality in water catchment ecosystems.
70. The North Warrnambool Rainwater Harvesting Scheme² is a leading example of integrated water management. The project ‘taps’ a new water catchment by capturing water from roofs that would otherwise be lost in stormwater run-off, supporting more liveable and sustainable suburb.
71. The initiative began in 2011 with the pilot applied to 250 lots across two subdivisions. In an average year, the system harvests all the annual water needs of the properties it is connected to.
72. There are plans to connect another 580 future houses to the initiative as a result of a 500-metre extension of the main pipeline. The pipeline was extended from north of Kings College to Wangoom Road in February 2019, and a 150,000-litre detention storage tank installed to manage peak flows from the new North Ridge Estate.
73. The initiative is progressively being expanded as development occurs in Warrnambool’s main north-east growth corridor over the next 30 years.
74. Providing a drainage system that promotes the on-site retention and re-use of stormwater run-off and regulates overland flow to prevent flooding may assist in ameliorating and intensification of the impacts of flooding.

Issue 5: Property values and property resale will be impacted, and compensation should be payable.

75. Issues raised include: potential reduction in property values because of the flood controls; potential impact on the future value, usability and resale of the property; and higher redevelopment costs due to flood controls requirements. Compensation should be payable.

Response:

² Roof Water Harvesting refers to rain water being collected from rooftops in new residential or Industrial subdivisions and transported through pipes to an existing raw water storage.

76. As outlined in the Council report of 7 February 2022, designation of an area as 'subject to flooding' does not cause or change the likelihood of flooding but recognises the existing condition of land and its potential to be flooding by storm events. The value of any property is determined by the complex interplay of many different factors such as location, streetscape and amenity, and it is difficult to assign what effect if any, the identification of land a liable to flooding may have on the value of a property.
77. In previous instances where an independent planning panel has been asked to consider and report on submissions opposing the application of a flooding control, the issue of property devaluation has been considered and rejected by the panel (Reference: Geelong, Amendment C127)

Issue 6: Insurance costs/premiums will be impacted

78. Submissions identified the potential increase in insurance premiums or difficulty to obtain coverage because of properties now being within the FO or LSIO.

Response:

79. Insurance premiums are likely to be based upon the latest available flood studies rather than Planning Scheme controls. The insurance industry has its own National Flood database where this information is obtained from.

[Further Discussion on Submissions for the Planning Panel](#)

80. This section provides further discussion on individual submissions to be heard by the Independent Panel and outlines the outcome of Council discussions with those submitters in accordance with Direction 1 and Direction 7 of the Panel.

Submission 3 (138 Bromfield Street)

81. The submission is seeking the partial repeal of the UFZ and replacement with the GRZ based on earthworks which have been approved under Planning Permit PP2020-0101. The conditions of the planning permit included post works feature survey to demonstrate compliance with the approved plans.

Response:

82. Council relies upon its response to the submission as outlined in the 7 February 2022 Council Report. In this instance, if the submitter completes the earthworks, and can provide a feature survey to verify compliance, Council and GHCMA would support the partial repeal of the UFZ and replacement with the GRZ in this location.

Outcome of further discussions:

83. The submitter has notified Council that the earthworks have been completed in accordance with the planning permit, including the provision of a feature survey for assessment. The GHCMA has undertaken a site inspection and assessed the feature survey and advised Council that the earthworks have been completed to the required standard. The GHCMA can support the repeal of the UFZ in this location and in accordance with the earthworks undertaken.

Resolution:

84. Council affirms its position that the UFZ can be repealed as requested by the submitter.
85. Council recommends that the Panel supports changes to the mapping as necessary.

Submission 6 (Whites Road)

86. The submission covers a number of key issues (1, 3, 4, 5 & 6) that were identified in relation to the 21 submissions received. These have been outlined and discussed in the previous section of this submission.
87. The submission requests Council place the Amendment on hold until further mitigation/improvements are assessed and implemented, including recommendations from studies previously adopted by Warrnambool City Council (pre 2000 and 2007)

Response:

88. Council relies upon its response to the submission as outlined in the 7 February 2022 Council Report. In this instance, the introduction of flood risk planning controls is based on current risk. The land is considered subject to flooding due to high quality flood intelligence obtained through two dimensional flood modelling techniques. This was not available for this area of Warrnambool for previous studies. The introduction of future, currently unplanned and uninvestigated, flood mitigation/improvements is not sufficient reason to delay the introduction of flood controls. On this basis, no change to the Amendment is supported.

Outcome of further discussions:

89. Council and GHCMA officers met with the submitter in person to explain the background to the Amendment including the methodology for the flood studies, to discuss the matters in dispute and to explain the effect of the proposed controls on the property.
90. Subsequent to their submission, the submitter has raised a perceived issue with the flood modelling, specifically in relation to the bridge structure at Wares Road. In this instance, the flood modelling shows the bridge being inundated in the modelled 20% AEP. The submitter claims that the October 2020 event (estimated to be 20% AEP by the GHCMA immediately downstream of the bridge) did not result in the bridge being inundated.
91. This matter has been referred to Mr Tim Morrison for assessment. The Expert Evidence statement of Mr Morrison has not identified any significant issue with the flood model in relation to the bridge structure at Wares Road.

Resolution:

92. There has been no change to Council position.
93. Council is of the view that the proposed flood controls be adopted as exhibited for this land.

Submission 12 (2-18 Dalton Road)

94. The Amendment proposes to partially repeal the UFZ and replace with GRZ at 2-18 Daltons Road. The submission is seeking further repeal of UFZ, based on earthworks which have been approved under Planning Permit PP2017-0127.

Response:

95. Council relies upon its response to the submission as outlined in the 7 February 2022 Council Report. In this instance, if the submitter completes the earthworks, and can provide a feature survey to verify compliance, Council and GHCMA would support the partial repeal of the UFZ and replacement with the GRZ in this location.

Outcome of further discussions:

96. The submitter has notified Council that the earthworks have been completed in accordance with the planning permit, including the provision of a feature survey for assessment.
97. The GHCMA has undertaken a site inspection and assessed the feature survey. The GHCMA has advised Council that it is satisfied that the earthworks have been completed as close as practicable to the planning permit. While the finished works do not quite match the modelling, given the size, shape and nature of the 1% AEP floodplain in this location the GHCMA has confirmed the works have been completed to a satisfactory standard and can support the partial repeal of the UFZ on this land.

Resolution:

98. Council affirms its position that the UFZ can be repealed as requested by the submitter.
99. Council recommends that the Panel supports changes to the mapping as necessary.

Submission 11, 13 and 18 (Land North of Wangoom Road)

100. Submissions in relation to land north Wangoom Road cite the need for on-ground flood mitigation works/improvements rather than application of flood controls.

Response:

101. Council relies upon its response to the submission as outlined in the 7 February 2022 Council Report and the following supplementary commentary.
102. Land to the north of Wangoom Road essentially forms a large informal flood detention basin that is constrained by the Wangoom Road embankment, with the existing two culverts (900 by 900 millimetre box culverts) limiting the peak flow rate, while anecdotally flooding is exacerbated with the culverts being blocked at times. This then leads to surcharging of the creek and flooding of properties (being encumbered by the 1% AEP flood extent).
103. Council has undertaken a range of investigations to improve flood mitigation for land north of Wangoom Road. In 2006, GHD examined culvert upgrades, however as described in Connell Wagner (2008), even larger upgrade options considered flood overlays would still need to be created.

104. Engeny (2016) is the latest study undertaken by Council to examine the culvert issue. This work noted increasing the culvert capacity was unfeasible as it may increase flooding further downstream in the Russell Creek catchment.
105. The Engeny (2016) study examined other options to mitigate flooding in the area, including a large retarding basin (estimated to require 6 hectares of land) and a high flow diversion channel. While the study did not look at any option in great detail, it estimated that the two options would cost \$4.5 million and \$2 million respectively, and would require significant land acquisition (excluded from the estimated cost).
106. The study noted that both options presented a level of risk to community. For instance, the large retarding basin could present a significant risk in relation to its size and depth, should the embankment structure fail. While a high flow diversion channel may impact on environmental management objectives downstream in the Russell Creek catchment.
107. The above timeline shows that Council has been active in looking for solutions for land north of Wangoom Road. At this stage, it is not feasible for Council to implement these mitigation options given there are only 6 properties with above floor flooding that are likely to benefit from these options and the high cost of any solution, excluding land acquisition. Any potential future flood mitigation needs to be undertaken via large scale development of the area.
108. Council undertook extensive community consultation in 2017 to 2018 to ascertain landowner expectations and aspirations for the area, noting land to the north of Wangoom Road is identified in local strategies as a possible residential growth area. The consultation found little to no support for further residential development in the area, with the community expressing that they currently value the larger rural lots, landscape character and amenity of the area.
109. At this stage, the lack of community support would be a major constraint to large scale development of the area, particularly in relation to mitigating flooding.
110. It would not be reasonable to delay or abandon the application of flood controls for north Wangoom Road area until some future development and mitigation structure is constructed. This outcome would be against the principles of floodplain management to protect life and property. This is highlighted in the Victorian Floodplain Management Strategy (2016), which states:

“Flood overlays need to be introduced or updated as soon as possible after new flood maps are produced to maximise the returns on investment in flood information and help manage risk”
- Outcome of further discussions:**
111. Council and GHCMA officers met with the submitters in person to discuss the key matters in dispute (lack of flood mitigation/improvement options for the north Wangoom Road area). Past investigations, including the limitations of implementing flood mitigation works were discussed with the submitters.
112. Despite quite lengthy and robust discussions, Council and GHCMA officers could not find common ground on the issue.

Resolution:

113. There has been no change to Council position.
114. Council is of the view that the proposed flood controls be adopted as exhibited for this land. There is a clear need to control development and set floor levels for future dwellings in this area.

Submission 14 (32 Dooley Street)

115. The submission is seeking the partial repeal of the UFZ and replacement with GRZ so that the zoning regime applied to 32 Dooley Street is consistent with neighbouring properties to the east (26-30 Dooley Street).
116. The submission states the topographic layout of the land has been raised by fill.
117. The repeal of the UFZ if considered necessary by the submitter to enable optimal use of the land for the construction of a dwelling.

Response:

118. Council relies upon its response to the submission as outlined in the 7 February 2022 Council Report. In this instance, a Further Technical Review has been undertaken, noting the fill has been undertaken without appropriate planning approvals. The GHCMA does not support the introduction of fill in this location and would prefer to see the fill removed and levels reinstated to pre-works conditions. The GHCMA would support the partial repeal of the UFZ and introduction of the FO in its place if earthworks are undertaken to a specified standard. The FO would need to be introduced to enable the construction of a dwelling encroaching onto the 1%AEP floodplain provided the portion within the floodplain is appropriately designed to allow through flow (i.e., stumps and bearers).

Outcome of further discussions:

119. The GHCMA conducted a site inspection and provided technical advice to enable the submitter to rectify the land to enable the repeal of the UFZ.
120. The submitter has notified Council that the earthworks have been completed, including the provision of a feature survey for assessment.
121. The GHCMA has assessed the feature survey and advised Council that the earthworks have been completed to the required standard. The GHCMA can support the partial repeal of the UFZ in line with the boundary of the adjacent row of properties (26-30 Dooley Street), subject to the introduction of the FO in its place. The UFZ is to be retained on the northern portion of the land.

Resolution:

122. Council affirms its position that the UFZ can be partially be repealed, subject to the introduction of the FO in its place.
123. Council recommends that the Panel supports changes to the mapping as necessary.

Submission 20 (20 Botanic Road)

124. The Amendment proposes to partially repeal the UFZ and replace with GRZ, and apply the LSIO at 20 Botanic Road. The submission seeks to repeal all of the UFZ from the property on the premise that this land has not been subject to flooding, stating the land remained clear of flooding during recent 5%AEP flood event.
125. The submission also states that in preparation for residential building development, in March of 2015, the land was surveyed, including level datum survey, ADH PM No.389 RL 17.594. The submission claims the lowest level of the survey showed a reading of 6.59, which should be considered above the flood hazard and be considered GRZ but with a LSIO overlay.

Response:

126. Council relies upon its response to the submission as outlined in the 7 February 2022 Council Report. In this instance, A Further Technical Review identifies the 1% AEP flood levels range from 7.60m AHD on the upstream boundary (east) to 7.23m AHD on the downstream boundary (west). On this basis, no further repeal of the UFZ or LSIO is supported.

Outcome of further discussions:

127. Council and GHCMA officers met with the submitter in person to discuss the key matters in dispute. Council was unable to reach any resolution with submitter.

Resolution:

128. There has been no change to Council position.
129. Council is of the view that the proposed flood controls be adopted as exhibited for this land.

Evidence

130. The expert evidence called in this matter is that of Mr Tim Morrison on behalf of Council, who in his capacity as an experienced consultant in hydrologic and hydraulic studies and floodplain management has confirmed his support for the Amendment (with post-exhibition modifications).
131. Council adopts the evidence of Mr Morrison. It provides an excellent summary of the modelling and flood mapping that is the underlying basis of the Amendment.
132. Mr Morrison outlines the project uncertainties and how these were overcome in Section 4.1.1 of this report.
133. The following statement by Mr Morrison at page 11 of this evidence describes the uncertainty, which is acknowledged by Council:

“Ideally a flood model is calibrated to recent historic floods and design flows are based on gauged data with a suitable period of record. However, Water Technology (2017) states that no calibration of the model was undertaken due to the lack of historical flood data as well as the lack of gauging (both rainfall and flow) data within the catchment. In the absence of calibration data, Water Technology have compared headloss at two structures to a previous SOBEK model (Cardno, 2010) to provide a qualitative assessment of the model performance and this determined that both models match well.

While the lack of calibration data is a limitation in the study, it is not uncommon in small urban catchments like Russell Creek with a lack of gauge data. It is recommended to Council and the CMA that flow events in the catchment are continued to be monitored and if an appropriately sized event occurs, information on water levels, extents and/or depths are collected, and this information is used to calibrate/validate the model.

In order to determine design rainfalls and rainfall loss conditions, Water Technology have applied the approaches outlined in Australian Rainfall and Runoff (2016). Our review of the report, as well as the DELWP review, finds that, in general, the calculations undertaken by Water Technology are appropriate and standard practice for flood modelling.”

134. Mr Morrison at Section 4.1.2 Model Files Review provides comments on the reliability of the model to assist in developing flood controls:

“Given the outcomes of the sensitivity analysis, and the fact the other issues raised are likely to have an insignificant impact on the results, our view is that the Russell Creek model results are fit for use in developing flood planning controls, including flood overlays. However, as noted earlier, if a flood event occurs, it is recommended that data is collected, and the model is calibrated. It is also recommended that the issues raised in Table 1 should be resolved for future use of the model, such as in flood impact assessments.”
135. Mr Morrison at Section 4.3 Translation of Flood Overlays provides comments on the translation of the model into flood controls, based on the 1%AEP flood:

“Our review of the proposed overlays suggest that these processes have been completed accurately and appropriately. In some areas the smoothing will locally increase or decrease the flood extent compared to the raw model results, however these are generally small and will unlikely change development outcomes. In summary, the 1% AEP flood outputs from the flood modelling completed for Russell Creek and the Merri River have been appropriately translated to create the flood overlay layers.”

136. Mr Morrison has reviewed the submissions received following public exhibition and provides the following comments at page 36:

“Based on our review of the public submissions, only Submission 4 discusses an area where the planning overlays should potentially be altered by including additional FO. However, based on the zoning of this area (Farm Zone), it is unlikely that a change in the FO would have any practical impact on future development.”

137. Mr Morrison has also reviewed the properties where it is recommended the LSIO be modified to remove “Minor Incursions”, where flood controls are not practical to apply. Mr Morrison supports the approach undertaken.

Changes to the Amendment

Council position

138. The officer recommendation at the 7 February 2022 meeting included that Council:

Endorses the officer response to issues raised by submission outlined in Attachments 3, 4, 5 & 6 as the basis for Council's submission to the Independent Planning Panel.

139. As noted above, however, the Panel will observe that in making its resolution that Council officers support Submissions 3, 12, and 14 (partial repeal of the UFZ in areas including 2-18 Daltons Road, 138 Bromfield Street and 32 Dooley Street, and replace with the GRZ), subject to completion of earthworks, provision of a post works feature survey, and confirmation from the GHCMA that the earthworks have been completed to the required standard.
140. Discussions with, and further information from submitters 3, 12 and 14 enabled Council to reach a resolution and agreed position.
141. As the supported changes will allow a sensitive use by way of repealing the UFZ and replacing it with the GRZ1, Council officers have consulted with the Environment Protection Authority (**EPA**). The EPA have reviewed their records and assessed the changes, noting the changes are low risk to the environment, amenity and human health as a result of pollution and waste.
142. The Panel will observe a recommendation by officers to Council in the report of 7 February 2022, for an additional change to partially repeal the UFZ from a property at 120 Bromfield Street (submission 16). The GHCMA supports the change in UFZ to align with on ground survey information provided by the submitter, and Council endorses this change.
143. In response to the GHCMA submission (submission 21), the Panel will observe a recommendation by officers to Council to modify Clause 72.04 of the Warrnambool Planning Scheme to undertake further strategic work to support schedules to the LSIO and FO to reduce the burden of planning permits for inconsequential flood risk.
144. Council seeks a direction from the Panel that these changes be included as part of the Amendment.

Additional changes to non-submitter properties

145. Further to the above, additional changes to the exhibited LSIO were identified in the FTR undertaken by Council and GHCMA officers.
146. These changes were recommended for properties that did not make submissions to the exhibited Amendment, and involved "Minor Incursions" where flooding just "touches" on a cadastral lot and therefore flood controls are not warranted.
147. The recommended changes were as follows:

- Remove overlay from 88 Wangoom Road, WARRNAMBOOL
- Remove overlay from 48 Cherlin Drive, WARRNAMBOOL
- Remove overlay from 31 Garden Street, WARRNAMBOOL
- Remove overlay from 4 Breton Street, WARRNAMBOOL
- Remove overlay from 18 Garden Street, WARRNAMBOOL
- Remove overlay from 14 Garden Street, WARRNAMBOOL
- Remove overlay from 45 Moonah Street, WARRNAMBOOL
- Remove overlay from 43 Moonah Street, WARRNAMBOOL
- Remove overlay from 6 Dunlea Court, WARRNAMBOOL
- Remove overlay from 2/9 Breton Street, WARRNAMBOOL
- Remove overlay from 1/9 Breton Street, WARRNAMBOOL
- Remove overlay from 2/15 Breton Street, WARRNAMBOOL
- Remove overlay from 1 Newry Court, WARRNAMBOOL
- Remove overlay from 16 Breton Street, WARRNAMBOOL
- Remove overlay from 44 Breton Street, WARRNAMBOOL
- Remove overlay from 47 Breton Street, WARRNAMBOOL
- Remove overlay from 49 Breton Street, WARRNAMBOOL
- Remove overlay from 54 Breton Street, WARRNAMBOOL
- Remove overlay from 59 Breton Street, WARRNAMBOOL
- Remove overlay from 61 Breton Street, WARRNAMBOOL
- Remove overlay from 5 Evelyn Crescent, WARRNAMBOOL
- Remove overlay from 1/4 Evelyn Crescent, WARRNAMBOOL
- Remove overlay from 15 Brolga Court, WARRNAMBOOL
- Remove overlay from 2 Brolga Court, WARRNAMBOOL
- Remove overlay from 29 Evelyn Crescent, WARRNAMBOOL
- Remove overlay from 31 Evelyn Crescent, WARRNAMBOOL
- Remove overlay from 1 Sapphire Court, WARRNAMBOOL
- Remove overlay from 9 La Bella Court, WARRNAMBOOL
- Remove overlay from 4-9 La Bella Court, WARRNAMBOOL
- Remove overlay from 9 Rosyln Close, WARRNAMBOOL
- Remove overlay from 1/17 Mortlake Road, WARRNAMBOOL
- Remove overlay from 52 Queens Road, WARRNAMBOOL
- Remove overlay from 28 Queens Road, WARRNAMBOOL
- Remove overlay from 10 Rogers Avenue, WARRNAMBOOL
- Remove overlay from 11 Medinah Close, WARRNAMBOOL
- Remove overlay from 15 Breton Street, WARRNAMBOOL
- Remove overlay from 11 Breton Street, WARRNAMBOOL
- Remove overlay from 154 Moore Street, WARRNAMBOOL
- Remove overlay from 142 Moore Street, WARRNAMBOOL
- Remove overlay from 2 Truro Court, WARRNAMBOOL
- Remove overlay from 26 Breton Street, WARRNAMBOOL
- Remove overlay from 46 Breton Street, WARRNAMBOOL
- Remove overlay from 1 Adam Court, WARRNAMBOOL

148. These changes were included in the report to Council and endorsed by Council at its meeting on 7 February 2022.

149. Council seeks a direction from the Panel that these changes be included as part of the Amendment.

Conclusion

150. Council reiterates its opening submission that the Amendment is well founded in planning policy, is based on best available scientific research and evidence and has been rigorously peer reviewed.
151. As has been demonstrated the Amendment is well supported by the GHCMA and the expert evidence statement of Mr Tim Morrison.
152. The Amendment is an important step forward by providing a land use planning response to the impact of flooding in North Warrnambool. On this basis, we seek the Panel's support for the Amendment.
153. This completes Council's submission to the Panel.

Attachment A – Chronology of Events

Date	Event
2010	Detail modelling of Merri River and Russell Creek flood plain
July 2014	Exhibition of Amendment C78
4 May 2015	Council resolved to split Amendment C78 into two parts
21 January 2016	Amendment C78 Part 1 gazetted by the Minister for Planning.
4 December 2017	Detailed modelling of Russell Creek Mitigation
2019-2020	Preparation of the Amendment commenced by Council
3 August 2021	Authorisation of the Amendment received from DELWP
23 September – 12 November 2022	Exhibition of the Amendment
7 February 2022	Council resolves to refer submissions to the Amendment to PPV
8 February 2022	Appointment of PPV formally requested
8 March 2022	Directions Hearing
26 April 2022	Panel Hearing

Attachment B – Fact Sheet

Attachment C – Council Report 7 February 2022