



Colac Otway
SHIRE

ORDINARY COUNCIL MEETING

AGENDA

Wednesday 28 April 2021

at 4:00 PM

COPACC

95 - 97 Gellibrand Street, Colac

Next Council Meeting: 26 May 2021



COLAC OTWAY SHIRE COUNCIL MEETING

Wednesday 28 April 2021

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COLAC OTWAY SHIRE COUNCIL MEETING

NOTICE is hereby given that the next **COUNCIL MEETING OF THE COLAC OTWAY SHIRE COUNCIL** will be held at COPACC on Wednesday 28 April 2021 at 4:00 PM.

AGENDA

1 DECLARATION OF OPENING OF MEETING

OPENING PRAYER

Almighty God, we seek your blessing and guidance in our deliberations on behalf of the people of the Colac Otway Shire. Enable this Council's decisions to be those that contribute to the true welfare and betterment of our community.

AMEN

2 PRESENT

3 APOLOGIES AND LEAVES OF ABSENCE

4 WELCOME AND ACKNOWLEDGEMENT OF COUNTRY

Colac Otway Shire acknowledges the original custodians and law makers of this land, their elders past, present and emerging and welcomes any descendants here today.

RECORDING AND PUBLICATION OF MEETINGS

Please note: All Council and Committee meetings will be live streamed and recorded (where it is practicably possible to do so), and the meeting location has the required equipment and internet capability. This includes the public participation sections of the meetings. However, matters identified as confidential items in the Agenda will not be live streamed or recorded.

By participating in open Council meetings, individuals consent to the use and disclosure of the information they share at the meeting (including any personal and/or sensitive information).

As soon as practicable following each open Council meeting, the live stream recording will be accessible on Council's website. Audio recordings are also taken to facilitate the preparation of the minutes of open Council and Committee meetings and to ensure their accuracy. Live stream and audio recordings will be retained by Council for a period of four years.

As stated in the Governance Rules, other than an official Council recording, no video or audio recording of proceedings of Council Meetings will be permitted without specific approval by resolution of the relevant Council Meeting.

5 QUESTION TIME

A maximum of 30 minutes is allowed for question time. To ensure that each member of the gallery has the opportunity to ask questions, it may be necessary to allow a maximum of two questions from each person in the first instance. You must ask a question; if you do not ask a question you will be asked to sit down and the next person will be invited to ask a question. Question time is not a forum for public debate or statements.

1. Questions received in writing prior to the meeting (subject to attendance and time).
2. Questions from the floor.

6 TABLING OF RESPONSES TO QUESTIONS TAKEN ON NOTICE AT PREVIOUS MEETING

These responses will not be read out but will be included in the minutes of this meeting.

7 PETITIONS / JOINT LETTERS

A petition containing 24 names requesting that Council take action regarding the degradation of Main Street Beeac and the speed at which traffic is travelling has been received from the community. A report responding to the petition will be presented to the Council meeting to be held on 26 May 2021.

8 DECLARATIONS OF INTEREST

A Councillor who has declared a conflict of interest, must leave the meeting and remain outside the room while the matter is being considered, or any vote is taken.

9 CONFIRMATION OF MINUTES

- **Ordinary Council Meeting held on 24 March 2021.**

RECOMMENDATION

That Council confirm the minutes of the Ordinary Council Meeting held on 24 March 2021.

Item: 10.1

Council's Carbon Neutral Target - Residual Greenhouse Emissions - Offsetting Options & Future Emissions Reduction Projects

OFFICER	Dora Novak
GENERAL MANAGER	Tony McGann
DIVISION	Environment & Infrastructure Services
ATTACHMENTS	<ol style="list-style-type: none"> 1. Colac Otway Emissions Reduction Timeline 2010-2020 Final [10.1.1 - 1 page] 2. Colac Otway Corporate C O 2 Emissions Reduction Journey 2010-2020 – Key Facts [10.1.2 - 2 pages] 3. Total COS Greenhouse Emissions Breakdown 2010-2020 [10.1.3 - 1 page] 4. Summary Table - COS Carbon Neutral Options Costs, Savings and Emissions Reductions 2020-2030 [10.1.4 - 1 page]
PURPOSE	To inform Council about meeting Council's Carbon Neutral Target 2020 - Residual Greenhouse Emissions - Offsetting Options and Future Emissions Reduction Projects; and make related recommendations.

1. EXECUTIVE SUMMARY

In 2010 the Colac Otway Shire Council endorsed the Environment Strategy 2010-2018, which brought a range of existing plans and programs together into a single document outlining Council's objectives relating to our environment.

One of the most significant targets of the Strategy was for Council to become carbon neutral by 2016, later amended to 2020. Council has achieved an overall emissions reduction of 36% since 2010. This has been achieved across a wide range of Council operations and has significantly reduced the quantity of offsets required in order to claim carbon neutrality.

Figures compiled at the end of the 2019-20 financial year show that with the purchase of 100% Greenpower, Council is currently responsible for 1,799 tonnes of residual greenhouse gas emissions (CO₂-e) per year. With the 2020 Carbon Neutral Target in mind, a resolution was passed at the Ordinary Council Meeting held on the 28th of August 2020 that requested a detailed report from

Officers providing more detail on offsetting options, with a particular focus on local revegetation projects.

This report recommends the \$70,000 previously allocated for cost-shared streetlight upgrades be redirected to assist the funding for a project to replace the gas boilers at Bluewater with highly efficient electric heat pumps. If combined with an estimated additional \$80,000 in the 21/22 budget Council will be able to fund the installation of heat pumps at Bluewater. This will reduce our overall emissions by 12%.

Summary of key points:

- Meeting Council's 2020 Carbon Neutral Target is the culmination of 10 years of energy efficiency, renewable energy and emissions reduction work, investment of approximately \$1.5 million (which includes \$500,000 grants). This investment has now been fully paid back through ongoing savings (approx. \$250,000 per year), which have resulted from the upgrades.
- If Council meets its 2020 Carbon Neutral Target, we believe it would be the first rural council to do so, showing exceptional leadership in environmental sustainability and responding to the challenges of climate change.
- Current residual emissions that require the purchasing of offsets to reach the 2020 Carbon Neutral Target will continue to be reduced by future emissions reduction projects focusing on Council's gas and transport fuel usage over the next 10 years, however this will require time, funding and technological advances.
- It is important to note that for the foreseeable future (>10 years) it is not feasible to eliminate all residual emissions without investing in offsets to reach the Carbon Neutral Target.

2. RECOMMENDATION

That Council:

- 1. Honours the 2020 Carbon Neutral Target, originally established in 2010, by approving in-principle \$26,000 in funds for offsetting 2020-2021 corporate emissions in the 2021-2022 Council Budget;***
- 2. Commits to further corporate emissions reduction work, with particular focus on reducing consumption of reticulated gas and transport fuels (petrol and diesel); and***
- 3. Confirms its intention to fund the installation of heat pumps to serve all three pools at Bluewater Leisure Centre as follows;***
 - a) by the reallocation of \$70,000 of Council funds for street light upgrades given this project is on hold as Regional Roads Victoria are unable to fund their projects;***
 - b) by referring to the budget process an additional \$80,000 in Council funds.***

3. KEY INFORMATION

Key emissions reduction activities delivered over the last 10 years are outlined in the COS Sustainability Timeline (Attachment 1). These activities include the installation of 275kW of solar PV on Council buildings (providing 350,000kW of emissions-free electricity and saving \$70,000 annually), as well as streetlight upgrades and the installation of solar hot water at recreational facilities. Many of the upgrades implemented in the last 2 years have been co-funded with Sustainability Victoria through their Local Government Energy Saver (LGES) Program. These include LED upgrades of office

lighting, as well as major upgrades to HVAC and Building Management Systems (BMS) at the Rae St. precinct and Bluewater.

Council's 2020 decision to purchase 100% Greenpower means Council's residual emissions are almost entirely attributable to reticulated gas and transport fuels (diesel & unleaded petrol) for fleet, heavy plant and equipment. The assumption has been made in this report that Council will continue to purchase emissions-free electricity for the foreseeable future. A "Green Gas" purchasing option has also been considered and explored within the context of Council's Electricity and Gas contract (Council purchases electricity and gas via the Victorian State Government's Electricity and Gas Purchase Contracts) and while these contracts offer Greenpower options for electricity, they do not offer a "Green Gas" option for natural gas.

More detail on Council's emissions reduction journey over the last 10 years is outlined in Attachment 2. Details of Council's investment in carbon emissions reduction actions and projects, external funding received and the dollar savings achieved by each project are also provided, but the key to note is that since 2010, Council has achieved an overall emissions reduction of 36%. Taking into account the purchasing of Greenpower, the residual annual emissions from fossil fuel consumption have been calculated at 1,799 TCO₂-e for the 2019-20 financial year. A detailed breakdown of Council's greenhouse emissions, and in particular the residual emissions remaining, is presented in Attachment 3.

Council can reduce the residual emissions further in the future through the electrification of fleet and the exploration of alternatives to mains gas, however these upgrades will take time and additional investment to implement. Accordingly, to achieve Carbon Neutrality Council needs to invest in an ongoing carbon offsetting program. Current residual emissions that require the purchasing of offsets to reach the 2020 Carbon Neutral Target will continue to be reduced by future emissions reduction projects focusing on Council's gas and transport fuel usage over the next 10 years, however this will require time, funding and technological advances.

It is the recommendation of this report that Council funds a carbon offset program through Greenfleet in order to honour the Carbon Neutral Target set over 10 years ago, while also planning a staged approach to implement further emissions reduction upgrades.

Key focus areas for emission reduction activities are:

- 1) Transition away from gas at Bluewater Leisure Centre (pool heating and HVAC); and
- 2) Electrification of Council fleet and, in the longer term, heavy plant and equipment.

This report focuses on upgrades at Bluewater, in particular replacement of gas boilers with electric heat pumps for heating water in the main pool, hydrotherapy and spa areas. The attached COS Emissions Breakdown Table (Attachment 3) highlights the impact of previous upgrades on organisational GHG emissions since the Carbon Neutral Target was set in 2010.

Background - Cost-shared Street Lighting Upgrade 2020-21

In 2014-15, Colac Otway Shire joined other Barwon South West Councils to take part in the Commonwealth-funded Great South Coast Street Smart Lighting Project. Co-funded by COS, the project was successful in upgrading a total of 1,414 Category P (residential) streetlights to LED, resulting in carbon emissions savings of 458 tonnes CO₂-e per year. A subsequent audit in 2019 revealed streetlights remaining to be upgraded in the Shire included 56 Category P (due to network expansion), 125 Category V (fully Council-owned) and 178 Category V (cost shared with Regional Roads Victoria).

In June 2020, COS commissioned Powercor to upgrade the 125 remaining fully-owned Category V Streetlights. Following delays due to Covid-19 and other factors, the upgrade of these lights was

completed in February 2021. It is estimated this upgrade will deliver savings of around \$9,000 (45,000 kWh) per year, reducing carbon emissions into the atmosphere by 48 tonnes CO₂-e.

Council allocated \$70,000 in the 2019/20 budget to progress the upgrade of cost-shared Category V streetlights. The cost for powering, replacing and maintaining these lights is shared proportionally with Regional Roads Victoria – 60% RRV and 40% COS. The network operator – Powercor – have supplied a quote of \$201,744 for these upgrade works, meaning \$121,046 would be attributable to RRV and \$80,698 to COS. Council Officers have approached RRV to share the cost of upgrading these lights, however RRV are unable to fund their portion at this time.

Given the extent of the road network in Victoria, along with the many other Victorian councils keen to implement similar upgrades, it is probably unsurprising that RRV have thus far been unable to service this request. An alternative model has instead been proposed whereby Council would fund the full capital cost of upgrades and receive reimbursement over time through reduced operational costing arrangements with RRV (likely to be an extensive payback period of 10+ years). No Council to date has taken on this option in Victoria due to the high upfront costs and long timeframes of the cost recovery.

Alternative to cost-shared streetlight upgrades

Given that COS is currently unable to fund the full cost of streetlight upgrades, a range of alternatives have been examined to ensure allocated funds are utilised for beneficial sustainability projects.

Option 1 examines a complete retrofit of gas boilers with heat pump alternatives at Bluewater. Over 10 years, this option provides the lowest net cost to COS, but incurs a higher capital cost to implement.

Option 2 details a partial retrofit of gas boilers at Bluewater, providing a viable option for redirecting funds allocated for cost-shared streetlight upgrades. Options 1 and 2 provide far greater capacity for emissions reduction through the replacement of gas boilers with efficient electrical alternatives.

Option 3 includes upgrades previously identified as part of the Local Government Energy Saver (LGES) Program. Emissions reduction impact from these upgrades is purely theoretical given the purchase of Greenpower.

For a detailed breakdown of the alternative emissions reduction projects/options proposed, their impact on residual emissions, associated savings and related annual offset costs over the next ten years is outlined in Attachment 4. This attachment also shows the net cost to Council to maintain its carbon neutral status over the next ten years when the implementation costs, savings and offset costs for the remaining emissions is all taken into account.

Option 1 - Complete replacement of gas boilers with heat pumps at Bluewater

Given the recent Council decision to purchase 100% Greenpower, upgrades impacting electricity consumption will provide no further benefit in terms of emissions reduction. It is estimated that gas consumption at Bluewater accounts for approximately 8-10% of our total corporate emissions for the Shire. With this in mind, preliminary investigations have been undertaken looking at the replacement of gas boilers with electric heat pumps at Bluewater.

Various pool heating specialists have been consulted to identify the upgrades outlined in Options 1 and 2. The cost of electricity has been determined as 24c/kWh, calculated from the most recent Bluewater electricity bill issued by Red Energy. Gas price is taken to be 1.22c/MJ. All figures are approximate and will require further analysis to provide accurate capital costs, as well as ongoing financial and emissions savings. It is assumed that pool blankets are not used (currently the case), but acknowledge far greater savings (around 25-30%) are possible with the use of pool blankets and encourage their readoption as soon as possible. For relatively low cost, this could be implemented now and would serve to complement any future upgrades to the water heating system.

Water heating at Bluewater is currently delivered with 4 Moorea 260kW condensing gas boilers – 2 operating at once with 2 in back-up, rotated every 7 days. There are 3 separate wet areas in the aquatic centre - main pool, hydrotherapy pool and spa - each requiring different water temperatures. In order to achieve this, hot water from the boilers is delivered via heat exchange loops, enabling appropriate temperatures for each area. Subject to detailed system design, preliminary investigations have suggested that the optimal water heating upgrade at Bluewater would assign separate heat pumps to each of the 3 areas, enabling precise temperature control and highly efficient system operation for each loop.

Ideally, all gas boilers at Bluewater would be replaced with heat pumps at the same time, enabling maximum efficiency of system design and installation cost. This could be achieved for around \$150,000 (Option 1), utilising state-of-the-art aquatic centre heat pump technology and quality installers. The payback on a comprehensive system upgrade of this nature is estimated to be around 6 years, possibly less if resale of the used gas boilers is included, along with the use of pool blankets. The emissions impact of this upgrade would be considerable, reducing carbon to the atmosphere by around 221 TCO₂-e per year, equating to around half of the total annual emissions attributed to Bluewater Leisure Centre.

The table below outlines costs, savings, payback and emissions reduction associated with this option:

Option	Upgrade	Installation cost (\$)	Annual running cost (\$)	Annual savings (\$)	Payback (years)	Emissions reduction (tonnes CO ₂ -e/year)
BAU	BAU - Gas boilers only (main pool, spa, hydrotherapy pool)		\$ 55,000			0
1	Heat pumps only (main pool, spa, hydrotherapy)	\$ 150,000	\$ 31,000	\$ 24,000	6.25	221 <i>(12.3% of residual emissions = \$3,315 reduction in annual offsetting costs)</i>

**All figures are estimates*

Option 2 – Partial replacement of gas boilers with heat pumps at Bluewater

Once the full pool water heating system upgrade has been designed at Bluewater, it is then possible to consider a staged approach to implementation, dividing the full upgrade into smaller segments to be implemented as time and budget allows. However, given the nature of the current heat exchange loop, this staged upgrade approach will require detailed engineering design to ensure the theoretical emissions reductions outlined in the table below are realised. The table below outlines costs, savings, paybacks and emissions reductions associated with this staged/phased option:

Option	Upgrade	Installation cost (\$)	Annual running cost (\$)	Annual savings (\$)	Payback (years)	Emissions reduction (tonnes CO ₂ -e/year)
2a	1 x Heat pump (main pool only)	\$ 95,000	\$ 14,000	\$ 14,000	6.8	146 <i>(8.1% of residual emissions = \$2,190 reduction in annual offsetting costs)</i>
2b	2 x Heat pump (spa & hydrotherapy)	\$ 65,000	\$ 17,000	\$ 10,000	6.5	75 <i>(4.2% of residual emissions = \$2,190 reduction in annual offsetting costs)</i>

**All figures are estimates*

As can be seen in the table above, it would be possible to utilise the streetlight funding to install heat pumps for the spa and hydrotherapy pools, which has the potential to reduce carbon emissions by up to 75 tonnes CO₂-e.

While some further investigation is required to determine the technical requirements and full cost of implementation of a staged upgrade, it presents a very attractive option for commencing the transition away from gas at Bluewater and also reduces future annual offsetting costs, as would any of the heat pump options and other future emissions reduction programs (i.e. replacement of fossil fuel powered cars, plant and equipment with electric alternatives over the next 10 years).

Option 3 - LGES Upgrades

Colac Otway Shire took part in Sustainability Victoria's Local Government Energy Saver (LGES) Program in 2018-19. A key part of the program included detailed energy audits at 9 key facilities throughout the Shire. Based on these energy audits, a range of upgrades were implemented, including replacement of HVAC systems, optimisation of Building Management Systems and LED lighting retrofits at various locations.

A list of upgrade recommendations remaining from the audits are outlined in the table below. It should be noted that the emissions reductions listed are estimates based on the LGES Energy Audits. Given the current purchase of 100% Greenpower, the actual emissions impact of these upgrades would be zero, as all electricity consumption is already emissions-free, however to savings resulting from these upgrades could still contribute toward the net cost of offsetting the residual emissions to reach Council's Carbon Neutral Target.

	Upgrade	Cost	Payback (years)	Estimated Savings (\$/yr)	Estimated emissions reduction (tonnes CO₂-e/yr)
Rae Street Offices	Economy dampers	\$5,638	5.4	\$ 1,044	5
Gellibrand Street Office	Economy dampers	\$6,650	5.4	\$ 1,231	5
Cinema 2	Economy dampers	\$6,580	5.4	\$ 1,219	5
Gellibrand Street Office	Solar PV	\$13,915	4	\$ 3,479	16
COPACC	Power factor correction	\$22,315	4.6	\$ 4,851	22
Apollo Bay Harbour	Solar PV	\$1,392	2.1	\$ 663	3
Apollo Bay Harbour	LED lighting upgrade	\$2,538	7.5	\$ 338	2
GOR VIC	Solar PV	\$2,897	6.6	\$ 439	2
Nelson Street Office	Solar PV	\$2,783	6.3	\$ 442	2
Total		\$64,708	Avg 5.3	\$ 13,706	62

**All figures are approximate, based on LGES Energy Audit estimates.*

4. COMMUNITY CONSULTATION & ENGAGEMENT

Considerable engagement occurred in the development of the Environment Strategy that led to the setting of the Carbon Neutral Target. A petition containing 3,249 signatures was submitted in February 2020 calling on Council to acknowledge a Climate Emergency. Despite being narrowly defeated at the April Council meeting, considerable community support was evident during the process, demonstrating that the local community remains very supportive of the Carbon Neutral Target.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

- Alignment to Council Plan 2017-2021:
 - Theme 2 - Our Places
 - 2. Our places are managed for long-term sustainability.
 - 3. Towns and places are welcoming and attractive.
- 2019-20: Corporate Plan & Business Plan Strategy:
 - 2.2.1 Our places are managed for long term sustainability
 - Action 2.2.1.1 Ensure best practice guides planning and management of the natural environment and associated assets.
 - 2.4.1 Leadership in natural environment through good management practices.
 - Action 2.4.1.1 Ensure best practice guides planning and management of the natural environment and associated assets, and Council's response to climate change.
 - Action 2.4.1.5 Implement emission reduction programs for Council operations.
- COS Environment Strategy 2010-2018
- COS Carbon Neutral Roadmap 2013

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

Meeting Council's Carbon Neutral Target would make Colac Otway Shire Council the first rural Council to reach such an ambitious Target in Victoria, and possibly nationally.

It would also demonstrate and affirm Council's long-standing commitment to environmental sustainability.

LEGAL & RISK

The Local Government Act became law in Victoria on 24 March 2020, strengthening the mandate for considerations of climate change risk in Council decision-making processes. Several of the overarching governance principles create obligations for Councils in the context of climate change, including:

- Under 9(2)(b) Councils are required to give priority to achieving the best outcomes for the municipal community, including future generations.
- Under 9(2)(c) Councils are required to promote the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks.

- Under 9(2)(h) regional, state, and national plans and policies are to be taken into account during Council’s strategic planning.

There is now a clear expectation that decision-making is supported by robust and transparent practices, and that the long-term adverse consequences of climate change for future generations are incorporated into council planning, decisions and actions.” (Source: Attachment 3 - *Local Government Climate Change Adaptation Roles and Responsibilities under Victorian legislation - Guidance for local government decision-makers*, DELWP 2020)

The 2020 Carbon Neutral Target is a Council endorsed target and not meeting it could lead to reputational damage.

FINANCIAL & BUDGETARY

A 2021-2022 Council Budget Business Case has been submitted for \$26,000 to meet Council’s Carbon Neutral Target.

In addition, by transferring funds, \$70,000 is available in 2020-21 financial year to commence the installation of heat pumps at Bluewater to further reduce emissions requiring offsetting. To do this Council would need to approve it as an alternative to the Cost-shared Street Lighting Upgrade Project currently on hold indefinitely due to lack of required funding from RRV.

In order to fund the installation of heat pumps for all 3 pools Council would need to fund an additional \$80,000 (subject to final estimates) in the 21/22 budget.

7. IMPLEMENTATION STRATEGY

If the reallocation of funds from the streetlight upgrade project to one of the alternative options proposed is approved by Council, the alternate project will be implemented by December 2021.

If Council approves the 2020-2021 budget allocation for the Carbon Neutral Target offsets, the offsets will be secured via Greenfleet as soon as Council’s 2020-2021 total emissions are calculated and finalised by Council’s third-party independent environmental tracking service. (August 2021).

COMMUNICATION

The recommended proposal for meeting the Carbon Neutral Target offers many benefits and provides a great narrative for communication with shire residents and across the region.

TIMELINE

Executive Management Team Meeting – 23 March 2021

Council Briefing – 7 April 2021

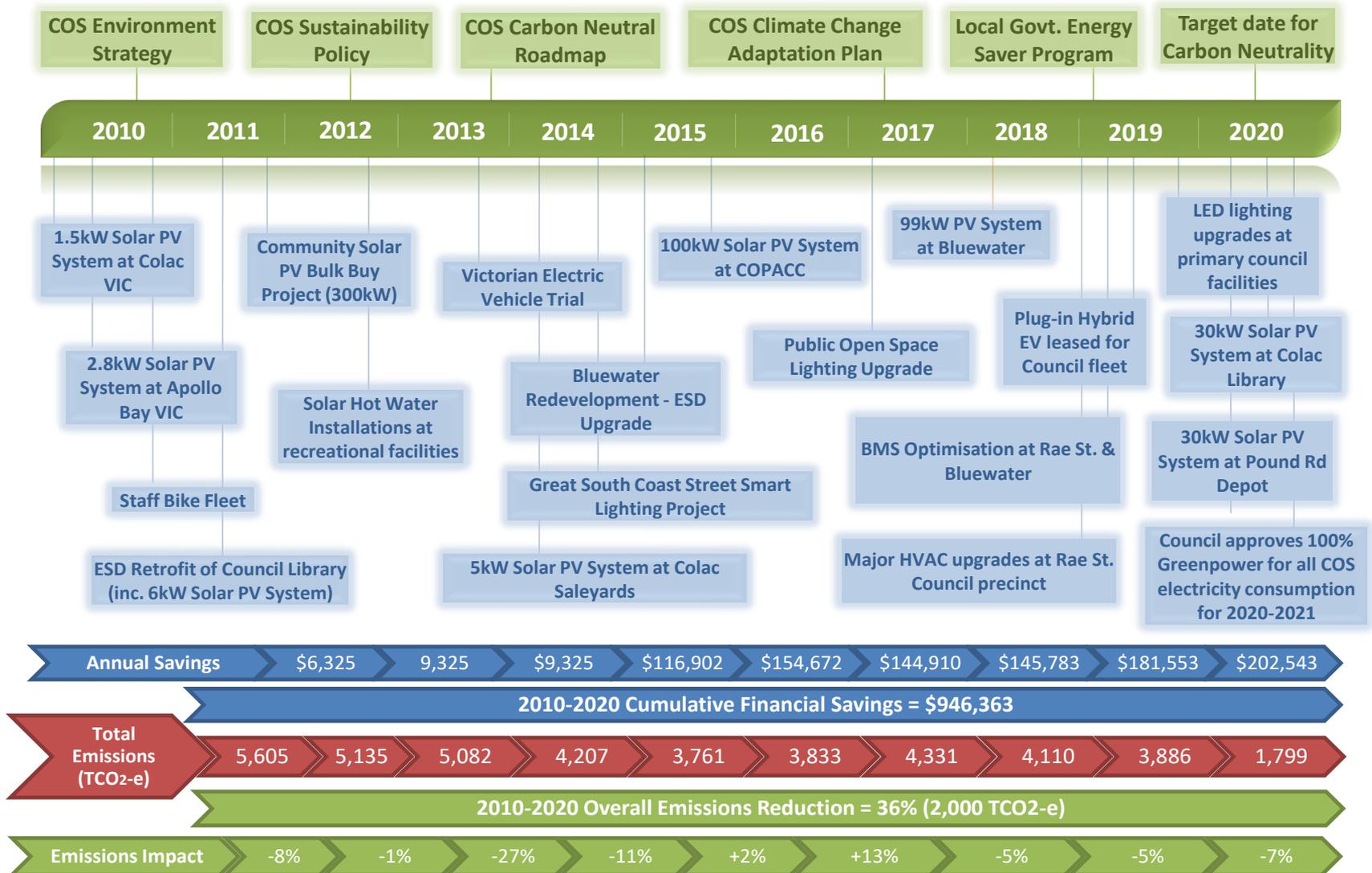
Ordinary Council Meeting - 28 April 2021

Implementation subject to Council Approval – May to December 2021

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.

Colac Otway Emissions Reduction Timeline 2010-2020



Colac Otway Corporate CO₂ Emissions Reduction Journey 2010-2020 – Key Facts

- In 2010 Council’s annual corporate emissions totaled **5,605** tonnes of CO₂-e.
- By mid-2020, total annual emissions totaled **3,605** tonnes of CO₂-e.
- That equates to a **35.6%** reduction in emissions due to many sustainability projects completed by Council over the past nine years.

Year	Tonnes CO ₂ -e					Reduction %
	Buildings	Gas	Street Lighting	Fleet	TOTAL	
2010/11	1,999	311	1,181	2,114	5,605	35.6 % Reduction since 2010
2011/12	1,916	290	1,202	1,727	5,135	
2012/13	1,879	323	1,182	1,698	5,082	
2013/14	1,484	186	1,014	1,523	4,207	
2014/15	1,356	3	872	1,530	3,761	
2015/16	1,846	282	436	1,269	3,833	
2016/17	1,881	478	412	1,560	4,331	
2017/18	1,887	488	406	1,329	4,110	
2018/19	1,747	470	406	1,263	3,886	
2019/20	1,389	466	417	1,333	3,605	

- Approximately **51%** of the emissions are associated with **buildings** (energy use);
- Approximately **37%** of the emissions are associated with **fleet and machinery** (fuel); and
- Approximately **11%** of the emissions are associated with **street and public lighting**.

Council’s decision to **purchase green electricity** offsets the emissions associated with buildings (electricity use) and street lighting - approximately **50%** of Council’s current emissions.

The **remaining 50% of emissions** are associated with gas use (Bluewater mainly) and fuel for the light fleet and machinery (graders and trucks, harbor vessels and dredge, street sweeper).

This will require the **purchase of offsets** (i.e. via CFI accredited tree planting schemes) and other forms of carbon sequestration projects. The cost of offsets to reach Carbon Neutral status would be approximately \$25,000 - \$35,000 annually.

Council invested **\$1.46 Million** in energy efficiency and renewable energy generation projects with an average payback period of **4.8 years**.

\$456,000 (~30%) has been grants received from State and Federal Governments and **\$1 Million** has been contributed by Council.

Council funds contributed (\$1Million) to date **will be paid back** by the savings generated (avoided electricity costs relating to solar PVs and reduced electricity consumption) by the end of 2020.

Council has 4 small (<6kw), 2 medium (30kW) and 2 large (100kW) solar PV systems installed on council facilities with a total of **275 kW generation capacity**.

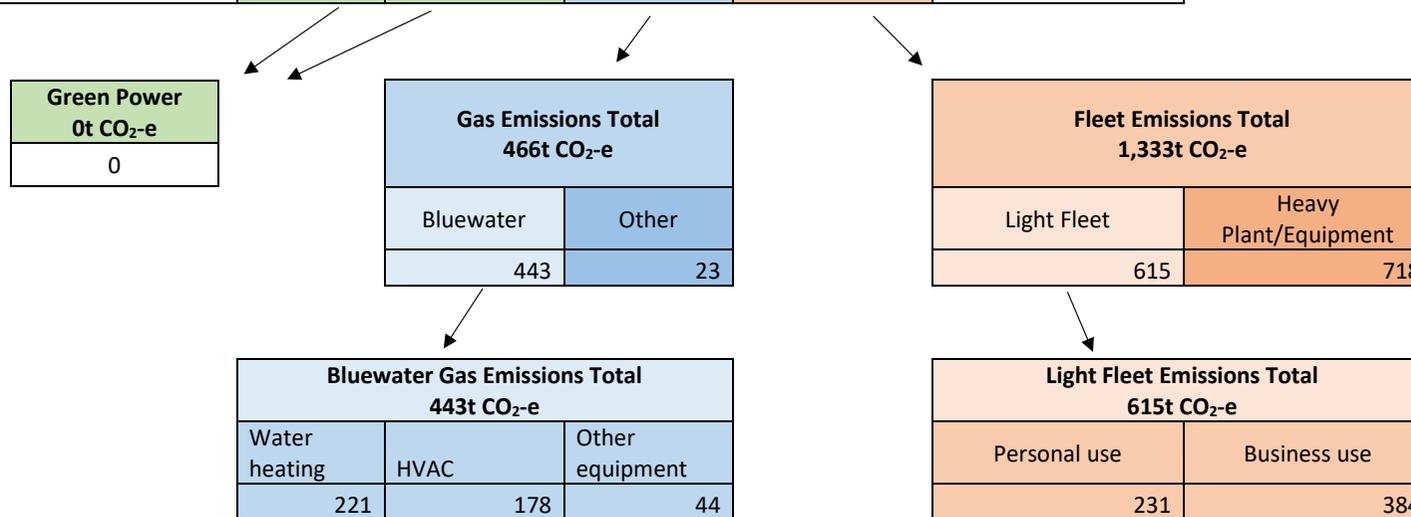
This provides Council with **~350,000kWh of clean, emissions free electricity generated per annum, saving ~\$70,000/p.a.** in avoided electricity costs.

Attachment 10.1.2 Colac Otway Corporate C O 2 Emissions Reduction Journey 2010-2020 – Key Facts

ENERGY EFFICIENCY PROJECTS	Year of Installation	Cost (\$)	Source of funding	Payback (years)	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20 (*estimates)	2020/21 (*estimates)
Bluewater 100kW Solar PV	2018	\$129,000.00	Council Funds	4.6	-	-	-	-	\$28,105.00	\$28,000	\$28,000
Rae Street/COPACC 100kW Solar PV	2015	\$143,000.00	Council Funds	5.7	\$12,793	\$25,508	\$20,844	\$21,717	\$29,382	\$29,000	\$29,000
Regional Category P Streetlighting Upgrade	2015	\$670,000.00	\$390,000 Council Funding + \$280,000 CEEP Grant	3.5	\$94,784	\$117,839	\$112,741	\$112,741	\$112,741	\$112,741	\$112,741
Small Solar PV systems (4 sites = 15.3kW)	2008 - 2011	\$24,000.00	Council Funds	6.3	\$3,825	\$3,825	\$3,825	\$3,825	\$3,825	\$3,825	\$3,825
Solar Hot Water Upgrades Savings	2012	\$50,000.00	RLCIP Grant (Note: savings are low to Council as many of the systems were installed at Council facilities leased by sporting clubs who pay the bills)	6.5	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
COPACC Lighting Upgrades	2013-2016	\$25,000.00	Council Funds	5.1	\$3,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Main Roads Street Lighting Upgrade	2020	\$105,000.00	Council Funds	6	-	-	-	-	-	-	\$16,500
Library Energy Efficiency Upgrades (Lighting and 30 kW Solar PV System)	2020	\$51,400.00	Council Funds	4	-	-	-	-	-	-	\$12,770
Council Facilities Lighting Upgrades	2019	\$62,500.00	Council Funds \$32,000.00 + SV LGES Grant \$30,500.00	1.7	-	-	-	-	-	\$10,446	\$20,892
LGES Energy Efficiency Upgrades (HVAC and BMS Optimisation; Pound Road 30 kW Solar PV)	2019	\$198,300.00	Council Funds \$102,300.00 + SV LGES Grant \$96,000.00	4.5	-	-	-	-	-	\$11,031	\$22,062
TOTALS		\$1,458,200	Grants \$ 456,500 + Council Funds \$1,001,700	4.79	\$116,902	\$154,672	\$144,910	\$145,783	\$181,553	\$202,543	\$253,290
Total cumulative savings 2020/21 = \$1.2 Million											

Total Annual COS Greenhouse Emissions (tonnes CO₂-e) – Detailed Breakdown

Total COS Greenhouse Emissions (tonnes CO ₂ -e)					
	Buildings	Street & Public Lighting	Gas	Fleet	Total
2010/11	1,999	1,181	311	2,114	5,605
2011/12	1,916	1,202	290	1,727	5,135
2012/13	1,879	1,182	323	1,698	5,082
2013/14	1,484	1,014	186	1,523	4,207
2014/15	1,356	872	3	1,530	3,761
2015/16	1,846	436	282	1,269	3,833
2016/17	1,881	412	478	1,560	4,331
2017/18	1,887	406	488	1,329	4,110
2018/19	1,747	406	470	1,263	3,886
2019/20	1,389	417	466	1,333	3,605



Summary Table - COS Carbon Neutral Options Costs, Savings and Emissions Reductions 2020-2030

Carbon Neutral Target - Residual Emissions Offsets - Greenfleet @\$15/tonne (Assumes 100% Greenpower)			Street Lighting Upgrade (Cost-shared) \$70,000 in 2020-21 budget to deliver Total upgrade cost \$201,744 (COS \$80,698, RRV \$121,046) Annual emissions reduction = 68 t CO2-e			Alternate Energy Efficiency Projects from Energy Audits Total install cost \$64,708 Annual emissions reduction = 62 t CO2-e			Full Heat Pump upgrade at BW, enabling removal of existing gas boilers Install cost \$150,000 Annual emissions reduction = 221 t CO2-e			Main Pool Heat Pump upgrade at Bluewater Install cost \$95,000 Annual emissions reduction = 146 t CO2-e			Spa & Hydrotherapy Heat Pump upgrades at Bluewater Install cost \$65,000 Annual emissions reduction = 75 t CO2-e		
Year	Residual Emissions to offset (tonnes CO2-e)	Annual offsetting cost	Residual Emissions to offset (tonnes CO2-e)	Annual savings (\$)	Annual offsetting cost	Residual Emissions to offset (tonnes CO2-e)	Annual savings (\$)	Annual offsetting cost	Residual Emissions to offset (tonnes CO2-e)	Annual savings (\$)	Annual offsetting cost	Residual Emissions to offset (tonnes CO2-e)	Annual savings (\$)	Annual offsetting cost	Residual Emissions to offset (tonnes CO2-e)	Annual savings (\$)	Annual offsetting cost
2020-2021	1799	\$ 26,985	1799		\$ 26,985	1799		\$ 26,985	1799		\$ 26,985	1799		\$ 26,985	1799		\$ 26,985
2021-2022	1751*	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2022-2023	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2023-2024	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2024-2025	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2025-2026	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2026-2027	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2027-2028	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2028-2029	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
2029-2030	1751	\$ 26,265	1683	\$ 12,800	\$ 25,245	1689	\$ 13,706	\$ 25,335	1530	\$ 24,000	\$ 22,950	1605	\$ 14,000	\$ 24,075	1676	\$ 10,000	\$ 25,140
10 yr totals	*COS-owned Cat V street light upgrade Feb 2021 = 48 TCO2-e/yr	\$236,385	3.8% emissions reduction p.a. (compared to 2020-21)	\$115,200	\$ 227,205	3.4% emissions reduction p.a. (compared to 2020-21)	\$123,354	\$255,000	12.3% emissions reduction p.a. (compared to 2020-21)	\$ 216,000	\$ 233,535	8.1% emissions reduction p.a. (compared to 2020-21)	\$ 126,000	\$243,660	4.2% emissions reduction p.a. (compared to 2020-21)	\$ 90,000	\$253,245



Carbon Neutral Target - Residual Emissions Offsets - Greenfleet @\$15/tonne (Assumes 100% Greenpower)		Street Lighting Upgrade (Cost-shared) \$70,000 in 2020-21 budget Total upgrade cost \$201,744 (COS \$80,698, RRV \$121,046) Annual emissions reduction = 68 t CO2-e			Alternate Energy Efficiency Projects from Energy Audits Total install cost \$64,708 Annual emissions reduction = 62 t CO2-e			Full Heat Pump upgrade at BW, enabling removal of existing gas boilers Install cost \$150,000 Annual emissions reduction = 221 t CO2-e			Main Pool Heat Pump upgrade at Bluewater Install cost \$95,000 Annual emissions reduction = 146 t CO2-e			Spa & Hydrotherapy Heat Pump upgrades at Bluewater Install cost \$65,000 Annual emissions reduction = 75 t CO2-e		
Emissions reduction impact	10 year offsetting cost (\$)	Emissions reduction impact	10 year savings (\$)	10 year offsetting cost (\$)	Emissions reduction impact	10 year savings (\$)	10 year offsetting cost (\$)	Emissions reduction impact	10 year savings (\$)	10 year offsetting cost (\$)	Emissions reduction impact	10 year savings (\$)	10 year offsetting cost (\$)	Emissions reduction impact	10 year savings (\$)	10 year offsetting cost (\$)
0%	\$236,385	3.8%	\$ 115,200	\$ 227,205	3.4%	\$ 123,354	\$ 255,000	12.3%	\$ 216,000	\$ 233,535	8.1%	\$ 126,000	\$ 243,660	4.2%	\$ 90,000	\$253,245
Carbon Neutrality: Net cost to COS after 10 yrs (Upgrade + offsets - savings)																
\$236,385		\$192,703* (only possible if RRV fund their portion, currently unavailable)			\$196,354			\$167,535			\$212,660			\$228,245		

Item: 10.2

Preparation of 2021 – 2025 Draft Revenue and Rating Plan – Endorse for Exhibition

OFFICER	Jason Clissold
GENERAL MANAGER	Errol Lawrence
DIVISION	Corporate Services
ATTACHMENTS	1. Draft Revenue and Rating Plan For Endorsement [10.2.1 - 30 pages]
PURPOSE	To present the Draft Revenue and Rating Plan 2021 – 2025 to Council for endorsement prior to public exhibition.

1. EXECUTIVE SUMMARY

As outlined in the attached Plan, Council is required to adopt a 4-year Revenue and Rating Plan by 30 June 2021. Council's intention is to adopt a plan that reflects the existing rating structure, while it engages with the community during 2021 to develop its new Community Vision, Council Plan and Long-Term Financial Plan.

Once these key strategic documents have been developed and adopted by Council the intention is for Council to conduct a review of the existing rating structure in 2021/22 to ensure it meets the objectives of Council. Therefore, Council is intending to review the plan prior to adopting the 2022/23 annual budget and make any amendments if required.

2. RECOMMENDATION

That Council:

- 1. Endorses the Draft Revenue and Rating Plan 2021 – 2025;***
- 2. Authorises the Chief Executive to give public notice, in accordance with Council's Community Engagement Policy, that Council has prepared a Draft Revenue and Rating Plan for 2021 - 2025;***
- 3. Determines that the standard public exhibition period of six weeks be reduced to a period of 28 days (as provided for in Council policy), to ensure sufficient time to adopt the Plan by 30 June 2021.***

4. **Schedules a meeting of the Submissions Committee to:**
 - 4.1. **Consider any written submission which is received by the Council within 28 days after the publication of the public notice;**
 - 4.2. **Hear any person wishing to be heard in support of their submission (or a person acting on their behalf) at a meeting of the Submissions Committee to be held on Wednesday 9 June 2021 commencing at 4pm.**
5. **Authorises the Chief Executive to undertake any and all administrative procedures necessary to enable Council to carry out its functions under the Local Government Act 2020;**
6. **Considers for adoption the Draft Revenue and Rating Plan 2021 - 2025, at the Council meeting scheduled to be held on Wednesday 23 June 2021 at 4pm at Colac Otway Performing Arts and Cultural Centre after consideration of any written and verbal submissions received by Council at its Submissions Committee meeting on Wednesday 9 June 2021.**

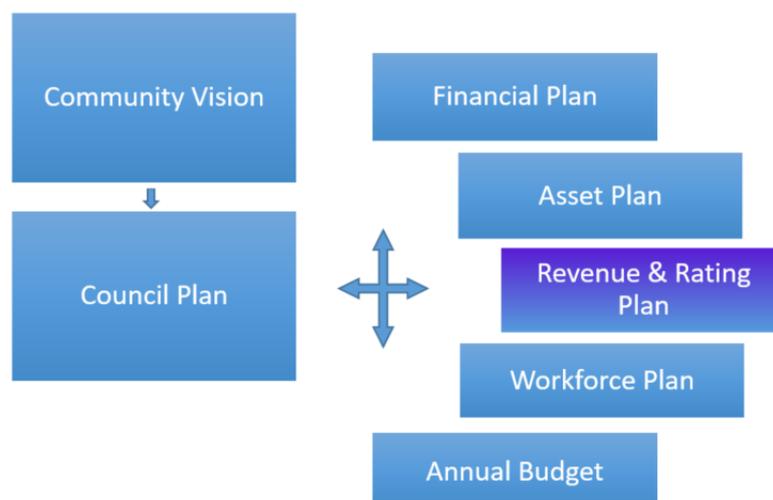
3. KEY INFORMATION

The *Local Government Act 2020* requires each council to prepare a Revenue and Rating Plan to cover a minimum period of four years following each Council election. The Revenue and Rating Plan establishes the revenue raising framework within which the Council proposes to work.

The purpose of the Revenue and Rating Plan is to determine the most appropriate and affordable revenue and rating approach for Colac Otway Shire Council, which in conjunction with other income sources, will adequately finance the objectives in the Council Plan. The plan is an important part of Council's integrated planning framework, all of which is created to help Council achieve the Community Vision.

Strategies outlined in the plan also need to align with the objectives contained in the Council Plan and will feed into our budgeting and long-term financial planning documents, as well as other strategic planning documents under our Council's strategic planning framework.

Council is about to commence a deliberative engagement process with the Community to develop these key strategic documents. Once these have been developed and adopted by Council the intention is for Council to conduct a review of the existing rating structure in 2021/22 to ensure it meets the objectives of Council.



The plan explains how Council calculates the revenue needed to fund its activities, and how the funding burden will be apportioned between ratepayers and other users of Council facilities and services.

In particular, the plan sets out decisions that Council has made in relation to rating options available to it under the *Local Government Act 2020* to ensure the fair and equitable distribution of rates across property owners. It also sets out principles that are used in decision making for other revenue sources such as fees and charges.

For 2021/22 the Colac Otway Shire Council rating structure will comprise six differential rating categories, with five different rates in the dollar. The differential rating structure is used in accordance with the requirements of Section 161 of the Local Government Act 1989 ('Differential Rates'), and the Ministerial Guidelines for Differential Rating 2013.

The differential between rates in the dollar per rating category are currently set as follows:

- Residential – Colac / Elliminyt 100%
- Residential – Balance of Shire 85%
- Holiday Rental 100%
- Rural Farm 75%
- Commercial / Industrial – Colac / Elliminyt 165%
- Commercial / Industrial – Balance of Shire 140%

Council levies a Municipal Charge. The Municipal Charge is a set charge per property and is declared for the purpose of covering some of the administrative costs of Council. In applying the Municipal Charge, Council ensures that each ratable property in the municipality makes a contribution towards the administrative costs of the shire.

In addition, Council levies a Waste Management Charge on all developed properties along kerbside waste collection routes. This is a set charge levied to recoup the cost of providing this service from those that receive the service.

Finally, Council also levies and collects the Fire Services Property Levy for the State government. Whilst this appears on annual rates notices, Council receives no revenue from this levy and it is therefore not relevant to the Revenue and Rating Plan.

The formula for calculating General Rates, excluding any additional charges, arrears or additional supplementary rates is:

- **Valuation (Capital Improved Value) x Rate in the Dollar (Differential Rate Type)**

The rate in the dollar for each rating differential category is included in Council's annual budget. Rates and charges are an important source of revenue, accounting for over 50% of operating revenue received by Council. The collection of rates is an important factor in funding Council services.

4. COMMUNITY CONSULTATION & ENGAGEMENT

The following public consultation process will be followed to ensure due consideration and feedback is received from relevant stakeholders.

- Draft Revenue and Rating Plan placed on public exhibition following the April 2021 Council meeting for a period of no less than 28 days and inviting public submissions;
- Community engagement through local news outlets and social media;
- Hearing of public submissions (June); and
- Draft Revenue and Rating Plan (with any revisions) presented to June 2021 Council meeting for adoption.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 4 - Our Leadership & Management

1. Effectively manage financial resources.
2. Openness and accountability in decision making.
4. Provide value for money services for our community.
5. Communicate regularly with our community and involve them in decision-making.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

The equitable distribution of rates and charges is a critical aspect of the Revenue and Rating plan and may have some social and economic impacts on the community.

LEGAL & RISK

Council has an obligation under Section 93 of the *Local Government Act 2020* to prepare and adopt a Revenue and Rating Plan by the next 30 June after a general election for a period of at least the next 4 financial years.

FINANCIAL & BUDGETARY

It is also important to note that the Revenue and Rating Plan does not set revenue targets for Council, it outlines the strategic framework and decisions that inform how Council will go about calculating and collecting its revenue. To ensure financial sustainability revenue targets will be set as part of Council's 10 Year Financial Plan and annual budget process.

7. IMPLEMENTATION STRATEGY

Following Council endorsement of the draft Revenue and Rating Plan, public submissions and adoption the Revenue and Rating Plan will be implemented as part of the 2021/22 adopted budget.

COMMUNICATION

It is planned the draft Revenue and Rating Plan will be placed on public exhibition for a period of no less than 28 days, during May as per Council's Community Engagement Policy.

TIMELINE

In order to achieve the legislated deadline of 30 June, it is planned that the draft Revenue and Rating Plan will be presented to Council on 28 April, invite submissions during May, hear any submissions on 9 June and adopted at the 23 June Council Meeting.

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.



Colac Otway

S H I R E

DRAFT

Colac Otway Shire Council

Revenue and Rating Plan

2021 - 2025

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1. PREAMBLE

As outlined in this Plan, Council is required to adopt a 4 year Revenue and Rating Plan by 30 June 2021.

Council's intention is to adopt a plan that reflects the existing rating structure, while it engages with the community during 2021 to develop its new Community Vision, Council Plan and Long Term Financial Plan.

Once these key strategic documents have been developed and adopted by Council the intention is for Council to conduct a review of the existing rating structure in 2021/22 to ensure it meets the objectives of Council. Therefore, Council is intending to review this plan prior to adopting the 2022/23 annual budget and make any amendments if required.

It must be noted that Council's Rating Strategy 2019-20 included a reduction in the differential rural farm rate from 75% to 73% of the base rate, commencing in the 2020/21 financial year. However, in May 2020, Council resolved to defer this reduction for 12 months due to the impacts COVID-19 was beginning to have on various sectors of our community and the economic climate at the time.

Council have decided to maintain the rural farm rate at 75% for the 2021/22 financial year, given the ongoing impacts COVID-19 is having on the economy and community. The newly elected Council is committed to undertaking a review of the existing rating structure during the 2021/22 financial year.

2. PURPOSE

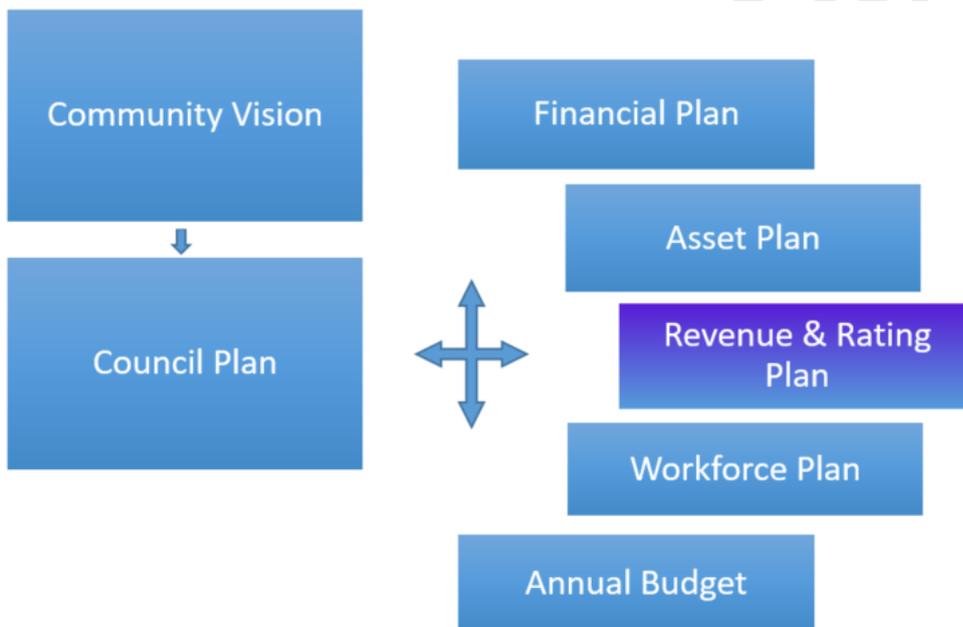
The *Local Government Act 2020* requires each council to prepare a Revenue and Rating Plan to cover a minimum period of four years following each Council election. The Revenue and Rating Plan establishes the revenue raising framework within which the Council proposes to work.

The purpose of the Revenue and Rating Plan is to determine the most appropriate and affordable revenue and rating approach for Colac Otway Shire Council which in conjunction with other income sources will adequately finance the objectives in the council plan.

This plan is an important part of Council's integrated planning framework, all of which is created to help Council achieve the Community Vision.

Strategies outlined in this plan also need to align with the objectives contained in the Council Plan and will feed into our budgeting and long-term financial planning documents, as well as other strategic planning documents under our Council's strategic planning framework.

At the time of preparing this plan Council were in the process of engaging with the Community to develop these key strategic documents. Once these have been developed and adopted by Council the intention is for Council to conduct a review of the existing rating structure in 2021/22 to ensure it meets the objectives of Council.



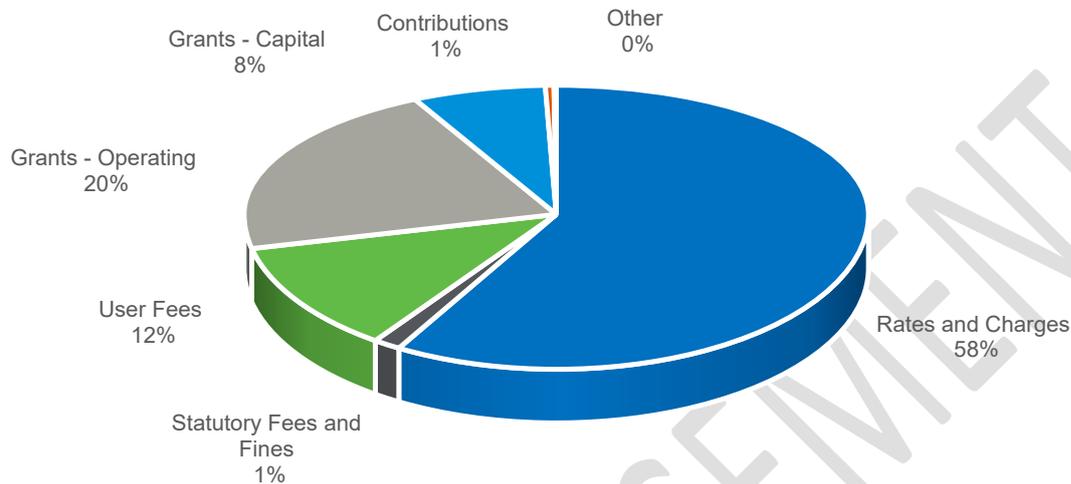
This plan will explain how Council calculates the revenue needed to fund its activities, and how the funding burden will be apportioned between ratepayers and other users of Council facilities and services.

In particular, this plan will set out decisions that Council has made in relation to rating options available to it under the *Local Government Act 2020* to ensure the fair and equitable distribution of rates across property owners. It will also set out principles that are used in decision making for other revenue sources such as fees and charges.

It is also important to note that this plan does not set revenue targets for Council, it outlines the strategic framework and decisions that inform how Council will go about calculating and collecting its revenue. To ensure financial sustainability revenue targets will be set as part of Council's 10 Year Financial Plan and annual budget process.

3. INTRODUCTION

Council provides a number of services and facilities to our local community, and in doing so, must collect revenue to cover the cost of providing these services and facilities. The following chart represents the revenue sources as proposed in the 2021/22 draft budget.



More broadly, Council's revenue sources include:

- Rates and Charges
- Annual Service (Waste Management) Charge
- Grants from other levels of Government
- Statutory Fees and Fines
- User Fees
- Cash and non-cash contributions from other parties (i.e. developers, community groups)
- Interest from investments
- Sale of Assets

Rates are the most significant revenue source for Council and make up roughly 55%-60% of its annual income.

The introduction of rate capping under the Victorian Government's Fair Go Rates System (FGRS) has brought a renewed focus to Council's long-term financial sustainability. The FGRS continues to restrict Council's ability to raise revenue above the rate cap unless application is made to the Essential Services Commission for a variation. Maintaining service delivery levels and investing in community assets remain key priorities for Council.

Council provides a wide range of services to the community, often for a fee or charge. The nature of these fees and charges generally depends on whether they relate to statutory or discretionary services. Some of these, such as statutory planning fees are set by State Government statute and are commonly known as regulatory fees. In these cases, councils usually have no control over service pricing. However, in relation to other services, Council has the ability to set a fee or charge and will set that fee based on the principles outlined in this Revenue and Rating Plan.

Council revenue can also be adversely affected by changes to funding from other levels of government. Some grants are tied to the delivery of council services, whilst many are tied directly to the delivery of new community assets, such as roads or sports pavilions. It is important for Council to be clear about what

grants it intends to apply for, and the obligations that grants create in the delivery of services or infrastructure.

FOR ENDORSEMENT

4. COMMUNITY ENGAGEMENT

The Revenue and Rating Plan outlines Council's decision-making process on how revenues are calculated and collected. The following public consultation process will be followed to ensure due consideration and feedback is received from relevant stakeholders.

Revenue and Rating Plan community engagement process:

- Draft Revenue and Rating Plan prepared by officers and endorsed by Council;
- Draft Revenue and Rating Plan placed on public exhibition following the April 2021 Council meeting for a period of no less than 28 days and inviting public submissions;
- Community engagement through local news outlets and social media;
- Hearing of public submissions (June); and
- Draft Revenue and Rating Plan (with any revisions) presented to June 2021 Council meeting for adoption.

FOR ENDORSEMENT

5. RATES AND CHARGES

Rates are property taxes that allow Council to raise revenue to fund essential public services to cater to their municipal population. Importantly, it is a taxation system that includes flexibility for councils to utilise different tools in its rating structure to accommodate issues of equity and to ensure fairness in rating for all ratepayers.

Council has established a rating structure comprised of three key elements. These are:

- **General Rates** – Based on property values (using the Capital Improved Valuation methodology), which are indicative of capacity to pay and form the central basis of rating under the *Local Government Act 1989*;
- **Service Charges** - A ‘user pays’ component for council services to reflect benefits provided by Council to ratepayers who benefit from a service; and
- **Municipal Charge** - A ‘fixed rate’ portion per property to cover some of the administrative costs of Council.

Striking a proper balance between these elements will help to improve equity in the distribution of the rate burden across residents.

Council makes two further distinctions when applying general rates by applying rating differentials based on the purpose for which the property is used and its locality. That is:

- whether the property is used for residential, holiday rental, commercial/industrial, or farming purposes; and
- in the case of residential and commercial/industrial, whether the property is located in the major urban area of Colac.

This distinction is based on the concept that different property categories should pay a fair and equitable contribution, taking into account the benefits those properties derive from the local community.

The Colac Otway Shire Council rating structure comprises six differential rates. These rates are structured in accordance with the requirements of Section 161 ‘Differential Rates’ of the Local Government Act 1989, and the Ministerial Guidelines for Differential Rating 2013.

The differential rates are currently set as follows:

- | | |
|---|------|
| • Residential – Colac / Elliminyt | 100% |
| • Residential – Balance of Shire | 85% |
| • Holiday Rental | 100% |
| • Rural Farm | 75% |
| • Commercial / Industrial – Colac / Elliminyt | 165% |
| • Commercial / Industrial – Balance of Shire | 140% |

Council also levies a municipal charge. The municipal charge is a minimum rate per property and declared for the purpose of covering some of the administrative costs of Council. In applying the municipal charge, Council ensures that each ratable property in the municipality makes a contribution.

The formula for calculating General Rates, excluding any additional charges, arrears or additional supplementary rates is:

- **Valuation (Capital Improved Value) x Rate in the Dollar (Differential Rate Type)**

The rate in the dollar for each rating differential category is included in Council’s annual budget.

Rates and charges are an important source of revenue, accounting for over 50% of operating revenue received by Council. The collection of rates is an important factor in funding Council services.

Planning for future rate increases is therefore an essential component of the long-term financial planning process and plays a significant role in funding both additional service delivery and the increasing costs related to providing Council services.

Council is aware of the balance between rate revenue (as an important income source) and community sensitivity to rate increases. With the introduction of the State Government's Fair Go Rates System, all rate increases are capped to a rate declared by the Minister for Local Government, which is announced in December for the following financial year.

Council currently utilises an annual service charge to fully recover the cost of Council's waste services. The annual service charge is not capped under the Fair Go Rates System, and Council will continue to allocate funds generated from this charge towards the provision of managing waste.

5.1. Rating Legislation

The legislative framework set out in the *Local Government Act 1989* determines council's ability to develop a rating system. The framework provides significant flexibility for Council to tailor a system that suits its needs.

Section 155 of the *Local Government Act 1989* provides that a Council may declare the following rates and charges on rateable land:

- General rates under Section 158
- Municipal charges under Section 159
- Service rates and charges under Section 162
- Special rates and charges under Section 163

The recommended strategy in relation to municipal charges, service rates and charges and special rates and charges are discussed later in this document.

In raising Council rates, Council is required to primarily use the valuation of the rateable property to levy rates. Section 157 (1) of the *Local Government Act 1989* provides Council with three choices in terms of which valuation base to utilise. They are: Site Valuation, Capital Improved Valuation (CIV) and Net Annual Value (NAV).

The advantages and disadvantages of the respective valuation basis are discussed further in this document. Whilst this document outlines Council's strategy regarding rates revenue, rates data will be contained in the Council's Annual Budget as required by the *Local Government Act 2020*.

Section 94(2) of the *Local Government Act 2020* states that Council must adopt a budget by 30 June each year (or at another time fixed by the Minister) to include:

- a) the total amount that the Council intends to raise by rates and charges;
- b) a statement as to whether the rates will be raised by the application of a uniform rate or a differential rate;
- c) a description of any fixed component of the rates, if applicable;
- d) if the Council proposes to declare a uniform rate, the matters specified in section 160 of the *Local Government Act 1989*;
- e) if the Council proposes to declare a differential rate for any land, the matters specified in section 161(2) of the *Local Government Act 1989*;

Section 94(3) of the *Local Government Act 2020* also states that Council must ensure that, if applicable, the budget also contains a statement –

- a) that the Council intends to apply for a special order to increase the Council's average rate cap for the financial year or any other financial year; or
- b) that the Council has made an application to the ESC for a special order and is waiting for the outcome of the application; or
- c) that a special Order has been made in respect of the Council and specifying the average rate cap that applies for the financial year or any other financial year.

This plan outlines the principles and strategic framework that Council will utilise in calculating and distributing the rating burden to property owners, however, the quantum of rate revenue and rating differential amounts will be determined in the annual Colac Otway Shire Council budget.

In 2019 the Victorian State Government conducted a Local Government Rating System Review. The Local Government Rating System Review Panel presented their final report and list of recommendations to the Victorian Government in March 2020. The Victorian Government subsequently published a response to the recommendations of the Panel's report. However, at the time of publication the recommended changes have not yet been implemented, and timelines to make these changes have not been announced.

5.2. Rating Principles

Taxation Principles:

When developing a rating strategy, in particular with reference to differential rates, a Council should give consideration to the following good practice taxation principles:

- Wealth Tax
- Equity
- Efficiency
- Simplicity
- Benefit
- Capacity to Pay
- Diversity.

Wealth Tax

The "wealth tax" principle implies that the rates paid are dependent upon the value of a ratepayer's real property and have no correlation to the individual ratepayer's consumption of services or the perceived benefits derived by individual ratepayers from the expenditures funded from rates.

Equity

Horizontal equity – ratepayers in similar situations should pay similar amounts of rates (ensured mainly by accurate property valuations, undertaken in a consistent manner, their classification into homogenous property classes and the right of appeal against valuation).

Vertical equity – those who are better off should pay more rates than those worse off (the rationale applies for the use of progressive and proportional income taxation. It implies a "relativity" dimension to the fairness of the tax burden).

Efficiency

Economic efficiency is measured by the extent to which production and consumption decisions by people are affected by rates.

Simplicity

How easily a rates system can be understood by ratepayers and the practicality and ease of administration.

Benefit

The extent to which there is a nexus between consumption/benefit and the rate burden.

Capacity to Pay

The capacity of ratepayers or groups of ratepayers to pay rates.

Diversity

The capacity of ratepayers within a group to pay rates.

The rating challenge for Council therefore is to determine the appropriate balancing of competing considerations.

Rates and Charges Revenue Principles:

Property rates will:

- be reviewed annually;
- not change dramatically from one year to next; and
- be sufficient to fund current expenditure commitments and deliverables outlined in the Council Plan, Financial Plan and Asset Plan.

Differential rating should be applied as equitably as is practical and will comply with the [Ministerial Guidelines for Differential Rating 2013](#).

5.3. Valuation Base

Under the *Local Government Act 1989*, Council has three options as to the valuation base it elects to use. They are:

- **Capital Improved Value (CIV)** – Value of land and improvements upon the land.
- **Site Value (SV)** – Value of land only.
- **Net Annual Value (NAV)** – Rental valuation based on CIV.

For residential and farm properties, NAV is calculated at 5 per cent of the Capital Improved Value. For commercial and industrial properties, NAV is calculated as the greater of the estimated annual rental value or 5 per cent of the CIV.

Capital Improved Value (CIV)

Capital Improved Value is the most commonly used valuation base by local government with over 90% of Victorian councils applying this methodology. Based on the value of both land and all improvements on the land, it is generally easily understood by ratepayers as it equates to the market value of the property.

Section 161 of the *Local Government Act 1989* provides that a Council may raise any general rates by the application of a differential rate if –

- a) It uses the capital improved value system of valuing land; and
- b) It considers that a differential rate will contribute to the equitable and efficient carrying out of its functions.

Where a council does not utilise CIV, it may only apply limited differential rates in relation to farm land, urban farm land or residential use land.

Advantages of using Capital Improved Value (CIV)

- CIV includes all property improvements, and hence is often supported on the basis that it more closely reflects “capacity to pay”. The CIV rating method takes into account the full development value of the property, and hence better meets the equity criteria than Site Value and NAV.
- With the increased frequency of valuations (previously two year intervals, now annual intervals) the market values are more predictable and has reduced the level of objections resulting from valuations.
- The concept of the market value of property is more easily understood with CIV rather than NAV or SV.
- Most councils in Victoria have now adopted CIV which makes it easier to compare relative movements in rates and valuations across councils.

- The use of CIV allows council to apply differential rates which greatly adds to council's ability to equitably distribute the rating burden based on ability to afford council rates. CIV allows council to apply higher rating differentials to the commercial and industrial sector that offset residential rates.

Disadvantages of using CIV

- The main disadvantage with CIV is the fact that rates are based on the total property value which may not necessarily reflect the income level of the property owner as with pensioners and low-income earners.

Site value (SV)

There are currently no Victorian councils that use this valuation base. With valuations based simply on the valuation of land and with only very limited ability to apply differential rates, the implementation of Site Value in a Colac Otway Shire Council context would cause a shift in rate burden from the industrial/commercial sectors onto the residential sector, and would hinder council's objective of a fair and equitable rating system.

There would be further rating movements away from modern townhouse style developments on relatively small land parcels to older established homes on quarter acre residential blocks. In many ways, it is difficult to see an equity argument being served by the implementation of site valuation in the Colac Otway Shire Council.

Advantages of Site Value

- There is a perception that under site value, a uniform rate would promote development of land, particularly commercial and industrial developments. There is, however, little evidence to prove that this is the case.
- Scope for possible concessions for urban farm-land and residential use land.

Disadvantages of using Site Value

- Under SV, there will be a significant shift from the industrial/commercial sector onto the residential sector of council. The percentage increases in many cases would be in the extreme range.
- SV is a major burden on property owners that have large areas of land. Some of these owners may have much smaller/older dwellings compared to those who have smaller land areas but well developed dwellings - but will pay more in rates. A typical example is flats, units, or townhouses which will all pay low rates compared to traditional housing styles.
- The use of SV can place pressure on council to give concessions to categories of landowners on whom the rating burden is seen to fall disproportionately (e.g. Farm land and residential use properties). Large landowners, such as farmers for example, are disadvantaged by the use of site value.
- SV will reduce Council's rating flexibility and options to deal with any rating inequities due to the removal of the ability to levy differential rates.
- The community may have greater difficulty in understanding the SV valuation on their rate notices, as indicated by many inquiries from ratepayers on this issue handled by council's customer service and property revenue staff each year.

Net annual value (NAV)

NAV, in concept, represents the annual rental value of a property. However, in practice, NAV is loosely linked to capital improved value for residential and farm properties. Valuers derive the NAV directly as 5 per cent of CIV.

In contrast to the treatment of residential and farm properties, NAV for commercial and industrial properties are assessed with regard to actual market rental. This differing treatment of commercial versus residential and farm properties has led to some suggestions that all properties should be valued on a rental basis.

Overall, the use of NAV is not largely supported. For residential and farm ratepayers, actual rental values pose some problems. The artificial rental estimate used may not represent actual market value, and means the base is the same as CIV but is harder to understand.

Recommended valuation base

In choosing a valuation base, councils must decide on whether they wish to adopt a differential rating system (different rates in the dollar for different property categories) or a uniform rating system (same rate in the dollar). If a council was to choose the former, under the *Local Government Act 1989* it must adopt either of the CIV or NAV methods of rating.

Colac Otway Shire Council applies Capital Improved Value (CIV) to all properties within the municipality to take into account the fully developed value of the property. This basis of valuation takes into account the total market value of the land plus buildings and other improvements.

Differential rating allows (under the CIV method) council to shift part of the rate burden from some groups of ratepayers to others, through different "rates in the dollar" for each class of property.

Section 161(1) of the *Local Government Act 1989* outlines the requirements relating to differential rates, which include:

- a) A Council may raise any general rates by the application of a differential rate, if Council considers that the differential rate will contribute to the equitable and efficient carrying out of its functions.
- b) If a Council declares a differential rate for any land, the Council must specify the objectives of the differential rate, which must be consistent with the equitable and efficient carrying out of the Councils functions and must include the following:
 - i. A definition of the types or classes of land which are subject to the rate and a statement of the reasons for the use and level of that rate.
 - ii. An identification of the type or classes of land which are subject to the rate in respect of the uses, geographic location (other than location on the basis of whether or not the land is within a specific ward in Council's district).
 - iii. Specify the characteristics of the land, which are the criteria for declaring the differential rate.

Once the Council has declared a differential rate for any land, the Council must:

- a) Specify the objectives of the differential rates;
- b) Specify the characteristics of the land which are the criteria for declaring the differential rate.

The purpose is to ensure that Council has a sound basis on which to develop the various charging features when determining its revenue strategies and ensure that these are consistent with the provisions of the *Local Government Act 1989*.

The general objectives of each of the differential rates are to ensure that all rateable land makes an equitable financial contribution to the cost of carrying out the functions of Council. There is no limit on the number or types of differential rates that can be levied, but the highest differential rate can be no more than four times the lowest differential rate.

Property Valuations

The *Valuation of Land Act 1960* is the principle legislation in determining property valuations. Under the *Valuation of Land Act 1960*, the Victorian Valuer-General conducts property valuations on an annual basis. Colac Otway Shire Council applies a Capital Improved Value (CIV) to all properties within the municipality to take into account the full development value of the property. This basis of valuation takes into account the total market value of the land including buildings and other improvements.

The value of land is always derived by the principal of valuing land for its highest and best use at the relevant time of valuation.

Council needs to be mindful of the impacts of revaluations on the various property types in implementing the differential rating strategy outlined in the previous section to ensure that rises and falls in council rates remain affordable and that rating 'shocks' are mitigated to some degree.

Supplementary Valuations

Supplementary valuations are carried out for a variety of reasons including rezoning, subdivisions, amalgamations, renovations, new constructions, extensions, occupancy changes and corrections. The Victorian Valuer-General is tasked with undertaking supplementary valuations and advises council on a monthly basis of valuation and Australian Valuation Property Classification Code (AVPCC) changes.

Supplementary valuations bring the value of the affected property into line with the general valuation of other properties within the municipality. Objections to supplementary valuations can be lodged in accordance with Part 3 of the *Valuation of Land Act 1960*. Any objections must be lodged with Council within two months of the issue of the supplementary rate notice.

Objections to property valuations

Part 3 of the *Valuation of Land Act 1960* provides that a property owner may lodge an objection against the valuation of a property or the Australian Valuation Property Classification Code (AVPCC) within two months of the issue of the original or amended (supplementary) Rates and Valuation Charges Notice (Rates Notice), or within four months if the notice was not originally issued to the occupier of the land.

A property owner must lodge their objection to the valuation or the AVPCC in writing to the Colac Otway Shire Council. Property owners also have the ability to object to the site valuations on receipt of their Land Tax Assessment. Property owners can appeal their land valuation within two months of receipt of their Council Rate Notice (via Council) or within two months of receipt of their Land Tax Assessment (via the State Revenue Office).

5.4. Rating Differentials

Council believes each differential rate will contribute to the equitable and efficient carrying out of council functions. Details of the objectives of each differential rate, the classes of land which are subject to each differential rate and the uses of each differential rate are set out below.

Residential – Colac/Elliminyt

Definition:

Any land, whether vacant or built upon, which is located in Colac, Colac East, Colac West and Elliminyt that is not zoned for commercial or industrial use and which does not have the characteristics of:

- a) Rural Farm Land;
- b) Holiday Rental Land; or
- c) Commercial/Industrial Land – Colac, Colac East, Colac West or Elliminyt.

and whose highest and best use is deemed to be as residential land.

Objectives:

To ensure that Council has adequate funding to undertake its strategic, statutory, service provision and community services obligations and to ensure that the differential rate in the dollar declared for defined

general rate land properties is fair and equitable, having regard to the cost and the level of benefits derived from provision of Council services.

Characteristics:

The characteristics of the planning scheme zoning are applicable to the determination of vacant land which will be subject to the rate of residential land. The vacant land affected by this rate is that which is zoned residential under the Colac Otway Shire Council Planning Scheme. The classification of the land will be determined by the occupation of that land for its best use and have reference to the planning scheme zoning.

Types and Classes:

Rateable land having the relevant characteristics described below:

- a) used primarily for residential purposes,
- b) highest and best use is deemed to be as residential,
- c) any land that is not defined as Holiday rental land, Farm Land or Commercial/Industrial Land.

Use of Rate:

The differential rate will be used to fund items of expenditure described in the Budget adopted by Council. The level of the differential rate is the level which Council considers is necessary to achieve the objectives specified above.

Level of Rate:

100% of the base rate. This rating category is deemed to be the “base rate” due to it containing the majority of assessments.

Use of Land:

Any use permitted under the Colac Otway Shire Council Planning Scheme to be used for residential purposes.

Geographic Location:

In the localities of Colac, Colac East, Colac West and Elliminyt.

Planning Scheme Zoning:

The zoning applicable to each rateable land within this category, as determined by consulting maps referred to in the relevant Colac Otway Shire Council Planning Scheme.

Types of Buildings:

All buildings which are already constructed on the land or which are constructed prior to the end of the financial year.

Residential – Balance of Shire

Definition:

Any land, whether vacant or built upon, which is located in localities other than Colac, Colac East, Colac West and Elliminyt that is not zoned for commercial or industrial use and which does not have the characteristics of:

- a) Rural Farm Land;
- b) Holiday Rental Land; or
- c) Commercial/Industrial Land – Colac, Colac East, Colac West or Elliminyt.

and whose highest and best use is deemed to be as residential land.

Objectives:

To ensure that Council has adequate funding to undertake its strategic, statutory, service provision and community services obligations and to ensure that the differential rate in the dollar declared for defined general rate land properties is fair and equitable, having regard to the cost and the level of benefits derived from provision of Council services.

Characteristics:

The characteristics of the planning scheme zoning are applicable to the determination of vacant land which will be subject to the rate of residential land. The vacant land affected by this rate is that which is zoned residential under the Colac Otway Shire Council Planning Scheme. The classification of the land will be determined by the occupation of that land for its best use and have reference to the planning scheme zoning.

Types and Classes:

Rateable land having the relevant characteristics described below:

- a) used primarily for residential purposes,
- b) highest and best use is deemed to be as residential,
- c) any land that is not defined as Holiday rental land, Farm Land or Commercial/Industrial Land.

Use of Rate:

The differential rate will be used to fund items of expenditure described in the Budget adopted by Council. The level of the differential rate is the level which Council considers is necessary to achieve the objectives specified above.

Level of Rate:

85% of the base rate. The justification for this category to be rated at a lesser rate than the base rate is that properties in this category are:

- generally in smaller townships or rural areas;
- have less access to the full suite of services and amenities provided by Council; and
- due to small populations are generally less likely to attract expenditure by Council.

A lesser rate in the dollar is therefore considered to be fair and equitable.

Use of Land:

Any use permitted under the Colac Otway Shire Council Planning Scheme to be used for residential purposes.

Geographic Location:

In the localities of the shire other than Colac, Colac East, Colac West and Elliminyt.

Planning Scheme Zoning:

The zoning applicable to each rateable land within this category, as determined by consulting maps referred to in the relevant Colac Otway Shire Council Planning Scheme.

Types of Buildings:

All buildings which are already constructed on the land or which are constructed prior to the end of the financial year.

Holiday Rental

Definition:

Any land that contains a dwelling, cabin or house or part of a house that:

- a) Is used for the provision of holiday accommodation for the purpose of generating income; or

b) Is made generally available for holiday accommodation and is a secondary or supplemental source of income for the owner.

Note: Typically, the category will include absentee owned holiday houses publically made available for short term accommodation for a tariff, owner occupied "Bed and Breakfast" establishments, farm properties with accommodation cabins, holiday farms and the like.

The category will not include:

- absentee owned holiday houses that are *not* publically made available for hire but are used by family/friends of the owner for short term holiday accommodation, and
- land used to provide tourist/holiday accommodation on an overtly commercial scale and basis where the provision of accommodation is an integral part of the use of the property.

The types of properties excluded from this category would therefore include motels, resorts, hotels with accommodation, caravan parks, centrally managed and promoted multi-unit developments and the like.

Objectives:

To ensure that Council has adequate funding to undertake its strategic, statutory, service provision and community services obligations and to ensure that the differential rate in the dollar declared for defined general rate land properties is fair and equitable, having regard to the cost and the level of benefits derived from provision of Council services.

Characteristics:

Properties included in this rating category will be characterised by their use and/or availability for short term holiday accommodation for a tariff. The proportion of the year for which they are used for this purpose is not relevant.

The extent to which a property is let out for short term holiday accommodation will vary from property to property and will depend on a variety of factors.

A common factor however is the most property owners have the property set up as a business for taxation purposes.

Types and Classes:

Rateable land having the relevant characteristics described below:

- a) used for the provision of holiday accommodation for the purpose of generating income,
- b) Is made generally available for holiday accommodation and is a secondary or supplemental source of income for the owner.

Use of Rate:

The differential rate will be used to fund items of expenditure described in the Budget adopted by Council. The level of the differential rate is the level which Council considers is necessary to achieve the objectives specified above.

Level of Rate:

100% of the base rate. The justification for this category to be rated at the base rate is that

- the provision of short term holiday accommodation is generally conducted as a semi commercial activity, so rating these properties at the Commercial rate in the dollar would be unfair;
- There is also a wide variation as to the extent to which these properties are used for this purpose, so rating these properties at the Commercial rate in the dollar would be unfair and may force reluctant property owners to make the property available more often, possibly saturating the market and reducing returns able to be generated by many
- Use of these properties for this purpose tends to be seasonal

It is recognised however that:

- these properties are in direct competition with other holiday accommodation property types that are included in the Commercial rating category;

- owners of these properties benefit from using the property in this manner and that customers to these properties use facilities and infrastructure provided by the shire; and
- rates paid for properties in this category are generally a tax deductible expense.

It is therefore considered fair and equitable that these properties pay a rate in the dollar higher than the “Residential - Balance of Shire” rate in the dollar, but less than the Commercial rate in the dollar.

It is noted this means the Holiday rental properties in Colac/Elliminyt pay no more than the “Residential – Colac/Elliminyt” rate. Historically, there have been few properties in Colac/Elliminyt used for short term holiday accommodation, however with the rise of AirBnB, etc, this is an issue that will be monitored.

Use of Land:

Any use permitted under the Colac Otway Shire Council Planning Scheme that allows use of the property to provide short term holiday accommodation.

Geographic Location:

In all the localities of the Colac Otway Shire.

Planning Scheme Zoning:

The zoning applicable to each rateable land within this category, as determined by consulting maps referred to in the relevant Colac Otway Shire Council Planning Scheme.

Types of Buildings:

All buildings which are already constructed on the land or which are constructed prior to the end of the financial year.

Rural Farm

Definition:

Any land located within the shire which is “Farm Land” within the meaning of section 2 of the Valuation of Land Act 1960 and is zoned to allow land to be used for rural and/or farming purposes.

Any land which is “Farm Land” within the meaning of Section 2(1) of the *Valuation of Land Act 1960*.

- a) Farm Land means any rateable land that is 2 or more hectares in area;
- b) used primarily for primary producing purposes from its activities on the land; used primarily for grazing (including agistment), dairying, pig-farming, poultry farming, fish farming, tree farming, bee keeping, viticulture, horticulture, fruit growing or the growing of crops of any kind or for any combination of those activities; and

That is used by a business –

- That has a significant and substantial commercial purpose of character;
- That seeks to make a profit on a continuous or repetitive basis from its activities on the land; and
- That is making a profit from its activities on the land, or that has a reasonable prospect of making a profit from its activities on the land if it continues to operate in the way that it is operating.

Typically, these properties may contain buildings used as a residence and for farm purposes and will also contain land with no buildings located upon it.

In addition, it may include small parcels of undeveloped land that do not meet the meaning of “Farm Land” prescribed in of section 2 of the Valuation of Land Act 1960, but are also deemed unlikely to be granted a town planning permit for a dwelling to be located on the property.

Typically these properties will be:

- a) up to 5 hectares in area;
- b) be zoned to allow the land to be used for rural and/or farming purposes;
- c) been deemed unviable for the purposes of carrying on a business of primary production by Council; and

d) been deemed unsuitable to allow the construction of a dwelling.

Objectives:

To ensure that Council has adequate funding to undertake its strategic, statutory, service provision and community services obligations and to ensure that the differential rate in the dollar declared for defined Farm Rate land properties is fair and equitable, having regard to the cost and the level of benefits derived from provision of Council services with considerations to maintain agriculture as a major industry in the municipal district, to facilitate the longevity of the farm sector and achieve a balance between providing for municipal growth and retaining the important agricultural economic base.

Characteristics:

The characteristics of the Rural Farm planning scheme zoning are applicable to the determination of whether land is included in the Rural Farm rating category.

Types and Classes:

Farm Land having the relevant characteristics described above that is:

- a) used primarily for primary production purposes; or
- b) any land that is not defined as Residential, Holiday Rental or Commercial/Industrial Land.

Use of Rate:

The differential rate will be used to fund items of expenditure described in the Budget adopted by Council. The level of the differential rate is the level which Council considers is necessary to achieve the objectives specified above.

Level of Rate:

75% of the base rate. The justification for this category to be rated at a lesser rate than the base rate is that properties in this category are:

- in rural areas;
- have less access to the full suite of services and amenities provided by Council;
- are generally less likely to attract expenditure by Council;
- due to the land area required to operate, these properties have higher valuations (and therefore higher rates) than residential properties; and
- tend to operate in an environment that is subject to the vagaries of weather and external factors beyond the farmer's control.

It is therefore deemed fair and equitable that properties in this category pay rates at a lesser rate in the dollar than the base rate.

Use of Land:

Any use permitted under the Colac Otway Shire Council Planning Scheme.

Geographic Location:

In all the localities of the Colac Otway Shire that contain land zoned in the Colac Otway Planning Scheme as Rural Farm.

Planning Scheme Zoning:

The zoning applicable to each rateable land within this category, as determined by consulting maps referred to in the relevant Colac Otway Shire Council Planning Scheme.

Types of Buildings:

All buildings which are already constructed on the land or which are constructed prior to the end of the financial year.

Commercial/Industrial – Colac/Elliminyt

Definition:

Any land which is located in Colac, Colac East, Colac West or Elliminyt which does not have the characteristics of:

- a) Rural Farm Land;
- b) Residential Land – Colac, Colac East, Colac West or Elliminyt; or
- c) Holiday Rental Land; and;

Is used primarily for:

- a. The sale of goods or services;
- b. Other commercial purposes; or
- c. Industrial purposes, or

is land which is vacant but zoned for commercial or industrial use.

Objectives:

To ensure that Council has adequate funding to undertake its strategic, statutory, service provision and community services obligations and to ensure that the differential rate in the dollar declared for defined Commercial/Industrial Rate land properties is fair and equitable, having regard to the cost and the level of benefits derived from provision of Council services.

The commercial businesses of Colac Otway Shire Council benefit from ongoing significant investment by Council in services and infrastructure. Council also notes the tax deductibility of Council rates for commercial properties which is not available to the residential sector, and also the income generating capability of commercial based properties.

The Commercial differential rate is applied to promote the economic development objectives for the Colac Otway Shire Council as outlined in the Council Plan. These objectives include an ongoing significant investment to create a vibrant economy and includes the maintenance and improvement of tourism infrastructure. Construction and maintenance of public infrastructure, development and provision of health and community services and the general provision of support services and promotion of business in the municipality.

Characteristics:

The characteristics of the planning scheme zoning are applicable to the determination of vacant land which will be subject to the rate applicable to Commercial/Industrial Land. The classification of the land will be determined by the occupation of that land for its best use and have reference to the planning scheme zoning.

Types and Classes:

Commercial/Industrial having the relevant characteristics described below:

- a) used primarily for commercial or industrial purposes; or
- b) any land that is not defined as Residential, Holiday Rental or Farm Land.

Use of Rate:

The differential rate will be used to fund items of expenditure described in the Budget adopted by Council. The level of the differential rate is the level which Council considers is necessary to achieve the objectives specified above.

Level of Rate:

165% of the base rate. The rationale for this category to be rated at a rate above the base rate is that:

- businesses conducted at these properties benefit from the services and facilities provided by Council;
- services and facilities provided by the shire help to attract residents to the shire, which can provide businesses with both a source of labour and customers; and

- businesses generally have a capacity pay, which is complimented by rates being a tax deductible expense.

It is therefore deemed fair and equitable that properties in this category pay rates at a higher rate in the dollar than the base rate.

Use of Land:

Any use permitted under the Colac Otway Shire Council Planning Scheme.

Geographic Location:

In the localities of Colac, Colac East, Colac West and Elliminyt.

Planning Scheme Zoning:

The zoning applicable to each rateable land within this category, as determined by consulting maps referred to in the relevant Colac Otway Shire Council Shire Planning Scheme.

Types of Buildings:

All buildings which are already constructed on the land or which are constructed prior to the end of the financial year.

Commercial/Industrial – Balance of Shire

Definition:

Any land which is located in localities other than Colac, Colac East, Colac West or Elliminyt which does not have the characteristics of:

- a) Rural Farm Land;
- b) Residential Land – Colac, Colac East, Colac West or Elliminyt; or
- c) Holiday Rental Land; and;

is used primarily for:

- a. The sale of goods or services;
- b. Other commercial purposes; or
- c. Industrial purposes, or

is land which is vacant but zoned for commercial or industrial use.

Objectives:

To ensure that Council has adequate funding to undertake its strategic, statutory, service provision and community services obligations and to ensure that the differential rate in the dollar declared for defined Commercial/Industrial Rate land properties is fair and equitable, having regard to the cost and the level of benefits derived from provision of Council services.

The commercial businesses of Colac Otway Shire Council benefit from ongoing significant investment by Council in services and infrastructure. Council also notes the tax deductibility of Council rates for commercial properties which is not available to the residential sector, and also the income generating capability of commercial based properties.

The Commercial differential rate is applied to promote the economic development objectives for the Colac Otway Shire Council as outlined in the Council Plan. These objectives include an ongoing significant investment to create a vibrant economy and includes the maintenance and improvement of tourism infrastructure. Construction and maintenance of public infrastructure, development and provision of health

and community services and the general provision of support services and promotion of business in the municipality.

Characteristics:

The characteristics of the planning scheme zoning are applicable to the determination of vacant land which will be subject to the rate applicable to Commercial/Industrial Land. The classification of the land will be determined by the occupation of that land for its best use and have reference to the planning scheme zoning.

Types and Classes:

Commercial/Industrial having the relevant characteristics described below:

- a) used primarily for commercial or industrial purposes; or
- b) any land that is not defined as Residential, Holiday Rental or Farm Land.

Use of Rate:

The differential rate will be used to fund items of expenditure described in the Budget adopted by Council. The level of the differential rate is the level which Council considers is necessary to achieve the objectives specified above.

Level of Rate:

140% of the base rate. The rationale for this category to be rated at a rate above the base rate is that:

- businesses conducted at these properties benefit from the services and facilities provided by Council;
- services and facilities provided by the shire help to attract residents to the shire, which can provide businesses with both a source of labor and customers; and
- businesses generally have a capacity pay, which is complimented by rates being a tax deductible expense.

However, as properties in this category are generally located in smaller townships, there can be less opportunity to generate revenue. This can vary depending on the type of business.

It is therefore deemed fair and equitable that properties in this category pay rates at a higher rate in the dollar than the base rate but less than the rate in the dollar for "Commercial/Industrial - Colac/Elliminyt"

Use of Land:

Any use permitted under the Colac Otway Shire Council Planning Scheme.

Geographic Location:

In all the localities of the Colac Otway Shire other than Colac, Colac East, Colac West and Elliminyt.

Planning Scheme Zoning:

The zoning applicable to each rateable land within this category, as determined by consulting maps referred to in the relevant Colac Otway Shire Council Shire Planning Scheme.

Types of Buildings:

All buildings which are already constructed on the land or which are constructed prior to the end of the financial year.

Advantages of a differential rating system

The advantages of utilising a differential rating system summarised below are:

- There is greater flexibility to distribute the rate burden between all classes of property, and therefore link rates with the ability to pay and reflecting the tax deductibility of rates for commercial and industrial premises.

- Differential rating allows Council to better reflect the investment required by Council to establish infrastructure to meet the needs of the commercial and industrial sector.
- Allows Council to reflect the unique circumstances of some rating categories where the application of a uniform rate may create an inequitable outcome (e.g. Farming enterprises).
- Allows Council discretion in the imposition of rates to facilitate and encourage appropriate development of its municipal district in the best interest of the community. (i.e. Vacant Commercial properties still attract the commercial differential rate)

Disadvantages of a differential rating system

The disadvantages in applying differential rating summarised below are:

- The justification of the differential rate can at times be difficult for the various groups to accept giving rise to queries and complaints where the differentials may seem to be excessive.
- Differential rates can be confusing to ratepayers, as they may have difficulty understanding the system. Some rating categories may feel they are unfavourably treated because they are paying rates at a higher level than other ratepayer groups.
- Differential rating involves a degree of administrative complexity as properties can shift from one rating category to another (e.g. Holiday Rental to Residential) requiring Council to update its records. Ensuring the accuracy/integrity of Council's data base is critical to ensure that properties are correctly classified into their right category.
- Council may not achieve the objectives it aims for through differential rating. For example, Council may set its differential rate objectives to levy a higher rate on land not developed, however it may be difficult to prove whether the rate achieves those objectives.

5.5. Municipal Charge

Another principle rating option available to Councils is the application of a Municipal Charge. Under Section 159 of the *Local Government Act 1989*, Council may declare a municipal charge to cover some of the administrative costs of the Council. The legislation is not definitive on what comprises administrative costs and does not require Council to specify what is covered by the charge.

The application of a municipal charge represents a choice to raise a portion of the rates by a flat fee for all properties, rather than sole use of the CIV valuation method.

Under the *Local Government Act 1989*, a council's total revenue from a municipal charge in a financial year must not exceed 20 per cent of the combined sum total of the Council's total revenue from the municipal charge and the revenue from general rates (total rates).

The municipal charge applies equally to all properties and is based upon the recovery of a fixed cost of providing administrative services irrespective of valuation. The same contribution amount per assessment to cover a portion of council's administrative costs can be seen as an equitable method of recovering these costs.

Being a set charge, the Municipal Charge has a more pronounced effect on lower valued properties as it represents a greater proportion of the total rates bill for these properties that it does for higher valued properties.

Evidence suggests that lower valued properties are more likely to be owned by people with lower incomes, so the Municipal Charge can be viewed as penalising the poorer members of the community

5.6. Annual Service (Waste Management) Charge

An annual service charge for the weekly and fortnightly domestic kerbside collection service is also levied. The aim of the charge is to apportion the total cost of managing the collection, transportation and disposal of domestic waste, to the owners of all properties that derive a benefit from having the service available for use.

The charge is therefore levied on all developed assessments used primarily for residential or commercial purposes that are located on the designated collection routes.

The charge is not levied on vacant land properties. Commercial/Industrial properties may apply for an exemption from the charge if they produce non domestic types of waste and provide proof they have engaged a contractor to collect and dispose of their waste.

As such this charge is akin to a “user pays” charge rather than a tax.

5.7. Fire Services Property Levy (FSPL)

Rates notices also contain two charges that make up the Fire Services Property Levy (FSPL). The FSPL is a State government levy that Council is required to collect for the State government and remit to the State government on a quarterly basis. Council derives no revenue from this action.

The State government used the revenue from the FSPL to fund the operation of the Country Fire Authority throughout Victoria.

There are two parts to the FSPL, namely:

- a Fixed charge
- a variable levy based on the Capital Improved Valuation of the property.

The State government sets the fixed charge and the rates in the dollar that apply to the variable component. Similar to Council’s differential rating structure, the State government applies different fixed charges and rates in the dollar to different categories of properties.

More detailed information regarding the FSPL is available at: www.sro.vic.gov.au

5.8. Special Charge Schemes

The *Local Government Act 1989* recognises that councils need help to provide improved infrastructure for their local communities. Legislation allows councils to pass on the cost of capital infrastructure to the owner of a property that generally receives a unique benefit from the construction works. The technical explanation of a Special Charge comes from legislation (under the *Local Government Act 1989*) that allows councils to recover the cost of works from property owners who will gain special benefit from that work.

The purposes for which special rates and special charges may be used include road construction, kerb and channelling, footpath provision, drainage, and other capital improvement projects.

The special rate or special charges may be declared on the basis of any criteria specified by the council in the rate (Section 163 (2)). In accordance with Section 163 (3), council must specify:

- a. the wards, groups, uses or areas for which the special rate or charge is declared; and
- b. the land in relation to which the special rate or special charge is declared;
- c. the manner in which the special rate or special charge will be assessed and levied; and
- d. details of the period for which the special rate or special charge remains in force.

The special rates and charges provisions are flexible and can be used to achieve a wide range of community objectives. The fundamental principle of special rates and charges is proof “special benefit” applies to those being levied. For example, they could be used to fund co-operative fire prevention schemes. This would ensure that there were no ‘free-riders’ reaping the benefits but not contributing to fire prevention.

Landscaping and environmental improvement programs that benefit small or localised areas could also be funded using special rates or charges.

Colac Otway Shire Council utilise Special Charges on a case-by-case basis, except for the application of the Tirrengower Special (Drainage) Scheme. This is an ongoing scheme where landholders who benefit from the infrastructure contribute an annual amount equal to \$2.50 per hectare.

5.9. Service Rates and Charges

Section 162 of the *Local Government Act 1989* provides council with the opportunity to raise service rates and charges for any of the following services:

- a. The provision of a water supply;
- b. The collection and disposal of refuse;
- c. The provision of sewage services;
- d. Any other prescribed service.

As mentioned in 1.4.6, Council applies an Annual Service (Waste Management) Charge to fully recover the cost of managing the collection, transportation and disposal of domestic waste.

It is recommended that council retain the existing waste service charge – should council elect not to have a waste service charge, this same amount would be required to be raised by way of an increased general rate – meaning that residents in higher valued properties would substantially pay for the waste service of lower valued properties.

Whilst this same principle applies for rates in general, the mix of having a single fixed charge combined with valuation driven rates for the remainder of the rate notice provides a balanced and equitable outcome.

5.10. Collection and Administration of Rates and Charges

The purpose of this section is to outline the rate payment options, processes, and the support provided to ratepayers facing financial hardship.

Payment options

In accordance with section 167(1) of the *Local Government Act 1989* ratepayers have the option of paying rates and charges by way of four instalments. Payments are due on the prescribed dates below:

- 1st Instalment: 30 September
- 2nd Instalment: 30 November
- 3rd Instalment: 28 February
- 4th Instalment: 31 May

Council offers a range of payment options including:

- in person at Council offices (cheques, money orders, EFTPOS, credit/debit cards and cash),
- online via Council's ratepayer portal, direct debit (on prescribed instalment due dates or monthly),
- BPAY,
- Australia Post (over the counter, over the phone via credit card and on the internet),
- by mail (cheques and money orders only).

Interest on arrears and overdue rates

Interest is charged on all overdue rates in accordance with Section 172 of the *Local Government Act 1989*. The interest rate applied is fixed under Section 2 of the *Penalty Interest Rates Act 1983*, which is determined by the Minister and published by notice in the Government Gazette.

Pensioner rebates

Holders of a Centrelink or Veteran Affairs Pension Concession card or a Veteran Affairs Gold card which stipulates TPI or War Widow may claim a rebate on their sole or principal place of residence. Upon initial application, ongoing eligibility is maintained, unless rejected by Centrelink or the Department of Veteran Affairs during the annual verification procedure. Upon confirmation of an eligible pensioner concession status, the pensioner rebate is deducted from the rate account before payment is required by the ratepayer.

With regards to new applicants, after being granted a Pensioner Concession Card (PCC), pensioners can then apply for the rebate at any time throughout the rating year. Retrospective claims up to a maximum of one previous financial year can be approved by Council on verification of eligibility criteria, for periods prior to this claims may be approved by the relevant government department.

Deferred payments

Under Section 170 of the *Local Government Act 1989*, Council may defer the payment of any rate or charge for an eligible ratepayer whose property is their sole place of residency, allowing ratepayers an extended period of time to make payments or alternatively to forestall payments on an indefinite basis until the ratepayer ceases to own or occupy the land in respect of which rates and charges are to be levied.

Deferral of rates and charges are available to all ratepayers who satisfy the eligibility criteria and have proven financial difficulties. Where Council approves an application for deferral of rates or charges, interest will continue to be levied on the outstanding balance of rates and charges but at an interest rate fixed annually by Council. This deferred interest rate will typically be well under the penalty interest rate levied by Council on unpaid rates and charges.

Ratepayers seeking to apply for such provision will be required to submit a Rates Deferment Application form which is available at the council offices, on the Council website or which can be posted upon request.

Rates Debtors in Financial Hardship Policy

It is acknowledged at the outset that various ratepayers may experience financial hardship for a whole range of issues and that meeting rate obligations constitutes just one element of a number of difficulties that may be faced. The purpose of the Rates debtors in Financial Hardship Policy is to provide assistance to ratepayers experiencing ongoing financial hardship.

The policy only applies to rates debts connected to the applicant's principal place of residence. It does not apply to investment properties or business properties.

The policy provides for Council to waive accrued interest and put a moratorium on future interest to allow the ratepayer to catch up with the debt. Waiving accrued interest immediately reduces the amount of the debt and not charging interest into the future allows payments made to be applied to paying off the debt rather than being applied towards paying interest in the first instance.

It is pointed out there is an expectation the debtor is trying to pay the debt and will use the assistance to catch up. Any assistance provided is effectively being provided by all other ratepayers.

Ratepayers seeking assistance under this policy required to submit an Application form and submit detailed personal information to verify they are legitimately in financial hardship, The application form which is available at the council offices, website or can be posted upon request.

All applications are treated confidentially.

Council also recognises financial hardship will usually result in a person having other debts in addition to a rates debt Council is therefore a participant in the Geelong region Financial Inclusion Action Plan (FIAP), which seeks to address poverty within the region. As part of this, Council can help connect hardship assistance applicants with other organisations in the region that they may have debts with to see if beneficial outcomes may be achieved.

Debt recovery

Council makes every effort to contact ratepayers at their correct address but it is the ratepayers' responsibility to properly advise Council of their contact details. The *Local Government Act 1989* Section 230 and 231 requires both the vendor and buyer of property, or their agents (e.g. solicitors and or conveyancers), to notify Council by way of notice of disposition or acquisition of an interest in land.

Council issues a Final Notice in March for unpaid lump sum payment option accounts.

As Instalment payment option payers received quarterly instalment notices in November, February and May, a Final Notice for these is not required. Council does however send a letter in June/July to these ratepayers who have not paid in full. These ratepayers then receive the next annual notice in August, which shows any unpaid rates as arrears.

Council makes every effort to make ratepayers aware of their responsibilities and relevant due dates. In recent years, Council has used SMS and email messages to remind ratepayers of due dates and impending action. Whilst Council prefers not to take legal action, in some cases it is necessary. Any account that is referred to debt collection is only referred after *at least* an annual notice and Final Notice have been sent to the recorded address of the ratepayer,

All fees and court costs incurred will be recoverable from the ratepayer and remain a charge against the property until they are paid.

If an amount payable by way of rates in respect to land has been in arrears for three years or more, Council may take action to sell the property in accordance with the *Local Government Act 1989* Section 181.

6. OTHER REVENUE ITEMS

6.1. User Fees and Charges

User fees and charges are those that Council will charge for the delivery of services and use of community infrastructure.

Examples of user fees and charges include:

- Kindergarten and Childcare fees
- Leisure Centre, Gym, and Pool visitation and membership fees
- Transfer Station and Waste Disposal fees
- Aged and Health Care service fees
- Leases and facility hire fees

The provision of infrastructure and services form a key part of council's role in supporting the local community. In providing these, council must consider a range of 'Best Value' principles including service cost and quality standards, value-for-money, and community expectations and values. Council must also balance the affordability and accessibility of infrastructure and services with its financial capacity and in the interests of long-term financial sustainability.

Councils must also comply with the government's Competitive Neutrality Policy for significant business activities they provide and adjust their service prices to neutralise any competitive advantages when competing with the private sector.

In providing services to the community, council must determine the extent of cost recovery for particular services consistent with the level of both individual and collective benefit that the services provide and in line with the community's expectations.

Services are provided on the basis of one of the following pricing methods:

- a. **Market Price**
- b. **Full Cost Recovery Price**
- c. **Subsidised Price**

Market pricing (A) is where council sets prices based on the benchmarked competitive prices of alternate suppliers. In general market price represents full cost recovery plus an allowance for profit. Market prices will be used when other providers exist in the given market, and council needs to meet its obligations under the government's Competitive Neutrality Policy.

It should be noted that if a market price is lower than council's full cost price, then the market price would represent council subsidising that service. If this situation exists, and there are other suppliers existing in the market at the same price, this may mean that council is not the most efficient supplier in the marketplace. In this situation, council will consider whether there is a community service obligation and whether council should be providing this service at all.

Full cost recovery price (B) aims to recover all direct and indirect costs incurred by council. This pricing should be used in particular where a service provided by council benefits individual customers specifically, rather than the community as a whole. In principle, fees and charges should be set at a level that recovers the full cost of providing the services unless there is an overriding policy or imperative in favour of subsidisation.

Subsidised pricing (C) is where council subsidises a service by not passing the full cost of that service onto the customer. Subsidies may range from full subsidies (i.e. council provides the service free of charge) to partial subsidies, where council provides the service to the user with a discount. The subsidy can be funded from council's rate revenue or other sources such as Commonwealth and state

funding programs. Full council subsidy pricing and partial cost pricing should always be based on knowledge of the full cost of providing a service.

As per the Victorian Auditor General's Office report "*Fees and charges – cost recovery by local government*" recommendations, council has developed a user fee pricing policy to help guide the fair and equitable setting of prices. The policy outlines the process for setting fee prices and includes such principles as:

- Both direct and indirect costs to be taken into account when setting prices;
- Accessibility, affordability and efficient delivery of services must be taken into account; and
- Competitive neutrality with commercial providers.

Council will develop a table of fees and charges as part of its annual budget each year. Proposed pricing changes will be included in this table and will be communicated to stakeholders before the budget is adopted, giving them the chance to review and provide valuable feedback before the fees are locked in.

6.2. Statutory Fees and Charges

Statutory fees and fines are those which council collects under the direction of legislation or other government directives. The rates used for statutory fees and fines are generally advised by the state government department responsible for the corresponding services or legislation, and generally councils will have limited discretion in applying these fees.

Examples of statutory fees and fines include:

- Planning and subdivision fees
- Building and Inspection fees
- Infringements and fines
- Land Information Certificate fees

Penalty and fee units are used in Victoria's Acts and Regulations to describe the amount of a fine or a fee.

Penalty units

Penalty units are used to define the amount payable for fines for many offences. For example, the fine for selling a tobacco product to a person aged under 18 is four penalty units.

One penalty unit is currently \$165.22, from 1 July 2020 to 30 June 2021.

The rate for penalty units is indexed each financial year so that it is raised in line with inflation. Any change to the value of a penalty unit will happen on 1 July each year.

Fee units

Fee units are used to calculate the cost of a certificate, registration or licence that is set out in an Act or Regulation. For example, the cost of depositing a Will with the Supreme Court registrar of probates is 1.6 fee units.

The value of one fee unit is currently \$14.81. This value may increase at the beginning of a financial year, at the same time as penalty units.

The cost of fees and penalties is calculated by multiplying the number of units by the current value of the fee or unit. The exact cost may be rounded up or down.

6.3. Grants

Grant revenue represents income usually received from other levels of government. Some grants are singular and attached to the delivery of specific projects, whilst others can be of a recurrent nature and may or may not be linked to the delivery of projects.

Council will pro-actively advocate to other levels of government for grant funding support to deliver important infrastructure and service outcomes for the community. Council may use its own funds to leverage higher grant funding and maximise external funding opportunities.

When preparing its financial plan, council considers its project proposal pipeline, advocacy priorities, upcoming grant program opportunities, and co-funding options to determine what grants to apply for. Council will only apply for and accept external funding if it is consistent with the Community Vision and does not lead to the distortion of Council Plan priorities.

Grant assumptions are then clearly detailed in council's budget document. No project that is reliant on grant funding will proceed until a signed funding agreement is in place.

6.4. Contributions

Contributions represent funds received by council, usually from non-government sources, and are usually linked to projects. Contributions can be made to council in the form of either cash payments or asset hand-overs.

Examples of contributions include:

- Monies collected from developers under planning and development agreements
- Monies collected under developer contribution plans and infrastructure contribution plans
- Contributions from user groups towards upgrade of facilities
- Assets handed over to council from developers at the completion of a subdivision, such as roads, drainage, and streetlights.

Contributions should always be linked to a planning or funding agreement. Council will not undertake any work on a contribution-funded project until a signed agreement outlining the contribution details is in place.

Contributions linked to developments can be received well before any council expenditure occurs. In this situation, the funds will be identified and held separately for the specific works identified in the agreements.

6.5. Interest on Investments

Council receives interest on funds managed as part of its investment portfolio, where funds are held in advance of expenditure, or for special purposes. The investment portfolio is managed per council's investment policy, which seeks to earn the best return on funds, whilst minimising risk.

6.6. Borrowings

Whilst not a source of income, borrowings can be an important cash management tool in appropriate circumstances. All borrowings must be undertaken in accordance with Council's Borrowing Policy 16.8.

Item: 10.3

Preparation of 2021/22 Draft Budget – Endorse for Exhibition

OFFICER	Jason Clissold
GENERAL MANAGER	Errol Lawrence
DIVISION	Corporate Services
ATTACHMENTS	<ol style="list-style-type: none"> 2021/22 Draft Budget - Colac Otway Shire [10.3.1 - 53 pages] 2021/22 Council Set Fees & Charges [10.3.2 - 35 pages] 2021/22 Statutory Fees & Charges [10.3.3 - 11 pages]
PURPOSE	To present the Draft Budget 2021/22 (Including Fees and Charges) to Council for endorsement prior to public exhibition.

1. EXECUTIVE SUMMARY

The 2021/22 Draft Budget development process has been extensive, involving collaboration between Council Officers and Councillors, as well as some community feedback. This process has taken many months, with all operating budgets, initiatives and business cases being reviewed to ensure the services identified within the Council Plan are being delivered, within a balanced budget. It has also been prepared in accordance with the requirements of the Local Government Act 2020 (the Act).

As required by Section 96 of the Act, Council has developed the budget in accordance with the financial management principles outlines in Section 101 of the Act.

The key financial outcomes from the attached budget include:

- Net Surplus - \$3.27m
- Adjusted Underlying surplus - \$160k
- Closing Cash Balance - \$13.3m
- Reserve Balance - \$13.0m
- Closing Working Capital Surplus - \$5.1m
- No new borrowings
- \$13.7m capital program per Business Cases.
- \$8.6m renewal, which equates to 94% of depreciation.

The draft budget provides for an average annual rate increase of 1.5%. Table 1 in this report provides a summary of the calculation, according to the formula prescribed by the State Government.

PLEASE NOTE:

- Section 94 (2) of the LGA 2020 states 'A Council must ensure that the budget gives effect to the Council Plan'. Subsections of this Section require commentary on the description and funding of services. Given Council is in the process of developing its Council Plan, Sections 1 and 2 of the draft budget have been based on the last adopted Council Plan.
- The three year budget included in the draft budget has been developed by the Finance team at this stage and will be further refined as Council reviews and eventually adopts a 10 Year Financial Plan by 31 October 2021.

2. RECOMMENDATION

RECOMMENDATION 1

That Council apply a Rural Farm differential of 75% for the 2021/22 financial year and undertake a further review of the rating structure prior to the 2022/23 financial year.

RECOMMENDATION 2

That Council:

- 1. Endorses the Draft Budget 2021/22 for the financial year, and subsequent 3 financial years (subject to adopting Council's 10 year Finance Plan in 2021/22), for the purposes of Section 94 of the Local Government Act 2020;***
- 2. Authorises the Chief Executive to give public notice, in accordance with Council's Community Engagement Policy, that Council has prepared a Draft Budget for the 2021/22 year and subsequent 3 financial years (subject to adopting Council's 10 year Finance Plan in 2021/22);***
- 3. Determines that the standard public exhibition period of six weeks be reduced to a period of 28 days (as provided for in Council policy), to ensure sufficient time to adopt a budget by 30 June 2021;***
- 4. Schedules a meeting of the Submissions Committee to:***
 - 4.1. Consider any written submission which is received by the Council within 28 days after the publication of the public notice.***
 - 4.2. Hear any person wishing to be heard in support of their submission (or a person acting on their behalf) at a meeting of the Submissions Committee to be held on Wednesday 9 June 2021, commencing at 4pm.***
- 5. Authorises the Chief Executive to undertake any and all administrative procedures necessary to enable Council to carry out its functions under the Local Government Act 2020;***
- 6. Considers for adoption the Draft Budget 2021/22, and subsequent 3 financial years (subject to adopting Council's 10 year Finance Plan in 2021/22), at the Council meeting scheduled to be held on Wednesday 23 June 2021 at 4pm at Colac Otway Performing Arts and Cultural Centre after consideration of any written and verbal submissions received by Council at its Submissions Committee meeting on Wednesday 9 June 2021.***

3. KEY INFORMATION

BACKGROUND

The 2021/22 Draft Budget development process has been extensive, involving collaboration between Council Officers and Councillors, as well as community feedback. This process has taken many months, with all operating budgets, initiatives and business cases being reviewed to ensure the services identified within the Council Plan are being delivered, within a balanced budget. It has also been prepared in accordance with the requirements of the Local Government Act 2020 (the Act).

The Senior Leadership Team reviewed all operating budgets, initiatives and business cases to ensure the services identified within the Council Plan are being delivered, all within a balanced budget. This included two dedicated workshop days in February. The draft operating budget, capital budget and operating initiatives were then reviewed in detail by Council at a budget workshop held in March.

The following items were reviewed and discussed by Council:

- Average Rate Increase;
- Fees and Charges;
- Proposed Business Cases;
- Operating Income and Expenditure.

As required by Section 96 of the Act, Council has developed the budget in accordance with the financial management principles outlines in Section 101 of the Act.

Rates and Charges calculations within the draft budget have been based on the indicative valuation data for 1 January 2021 provided by the Valuer-General Victoria. This is currently indicating a total increase in Capital Improved Value (CIV) of approximately \$792m, or 11% across the Shire (\$7.17b to \$7.96b). This has had the effect of decreasing each rate in the dollar by 8.2%, to ensure Council complies with the 1.5% rate cap. The detail is contained in note 4.1.1 of the attached budget.

FINANCIAL PERFORMANCE AND SUSTAINABILITY

The key financial outcomes from the attached budget include:

- Net Surplus - \$3.27m
- Adjusted Underlying surplus - \$160k
- Closing Cash Balance - \$13.3m
- Reserve Balance - \$13.0m
- Closing Working Capital Surplus - \$5.1m
- No new borrowings
- \$13.7m capital program per Business Cases.
- \$8.6m renewal, which equates to 94% of depreciation.

The draft budget provides for an average annual rate increase of 1.5%. Table 1 provides a summary of the calculation, according to the formula prescribed by the State Government.

Table 1

Forecast Annualised Rate Revenue at 30 June 2021	\$28,646,750
Forecast Number of Assessments at 30 June 2021	15,637

Forecast Base Average Rate 2020/21 per assessment	\$1,832
Budget Rate Revenue 2021/22	\$29,073,020
Capped Average Rate 2021/22 per assessment	\$1,859
Average Capped Increase	1.5%

It is important to note that this is only an average increase and actual increases will vary depending on the relative value of individual properties. As required by legislation, the rate burden must be distributed based upon the value of a property which will result in higher valued properties increasing by more than 1.5% and lower valued properties increasing by less than 1.5%.

Adjusted Underlying Surplus

The regulations prescribe the method for calculating the 'Adjusted Underlying Result'. The purpose for calculating the Adjusted Underlying Result is to remove the effect on the budget of one-off revenue items that may otherwise overstate Council's 'normal' performance, e.g. non-recurrent capital grants and non-monetary asset contributions as per Table 2.

Under the regulations the 2021/22 surplus of \$160k is calculated as follows:

Table 2

	\$'000
Total Comprehensive Result	3,271
Non-recurrent grants used to fund capital expenditure	(2,991)
Non-monetary asset contributions	-
Other contributions to fund capital expenditure	(120)
Adjusted Underlying Surplus/(Deficit)	160

Revenue

The following key points relate to the budgeted revenue of \$56.4m which is budgeted to decrease from the 2020/21 forecast of \$61.3m.

- Rates and charges total \$32.8m. This increase is the result of a 1.5% average increase in rates, compounded by supplementary valuations.
 - The average increase of 1.5% includes a Municipal Charge of \$195.
 - The annual kerbside collection charge is budgeted to increase, with the weekly waste charge increasing by \$8 from \$300 to \$308, representing a 2.7% increase. This will include the cost of collecting the proposed fourth bin allocated to glass.
- User Fees and Charges have increased by \$1.3m to \$6.5m. This increase is due to the 2020/21 forecast being impacted by the closure of Bluewater due to COVID-19, which is expected to remain open for 2021/22. It is also expected that increased income will be earned by the increased delivery of funded Home Care packages.
- Operating grants have decreased by \$6.8m to \$10.7m. This is primarily due to the 2020/21 forecast including \$4.6m of City Deal funding and \$1m of funding received for Working For Victoria, which is not included in the 2021/22 Budget.
 - It has been assumed that Federal Assistance Grants do not increase over the next three years.
- Capital grants has decreased by \$0.2m to \$4.7m. The 2021/22 Budget includes \$2.3m Local Sports Infrastructure stimulus funding for lighting upgrades and \$1.7m Roads to Recovery recurrent funding.

- Other income is budgeted to decrease by \$423k to \$367k. The 2020/21 Forecast includes a one-off insurance reimbursement of \$284k.

Expenditure

The following key points relate to the budgeted expenditure of \$53.1m which has decreased by \$7.6m compared to the 2020/21 forecast.

- Employee costs have increased by \$581k, or 2.8%, to \$21.7m.
 - The 2020/21 Forecast includes expenditure relating to Working for Victoria \$680k. Therefore employee costs, excluding WFV, have increased by \$1.26m in 2021/22.
 - The 2021/22 Budget includes the EBA increase of 2.25% (\$450k).
 - The 2021/22 Budget assumes services will be open for the full year, unlike 2020/21 where various services were closed due to COVID. This will result in employee costs in Bluewater Leisure Centre (\$350k), COPACC (\$80k) and the Visitor Information Centres (\$60k) returning to normal levels.
 - Additional employee costs are required to deliver an increased number of fully-funded Home Care Packages (\$290k)
 - FTE is budgeted to increase by 10, from 228 to 238. This increased FTE is partially due to the impacts of COVID, with an additional 5 FTE required to return to full-service levels. There is also additional fully-funded employees required to deliver increased Home Care Packages.
 - The Workcover Premium is expected to increase by \$100k.
- Materials and services are budgeted to decrease by \$5.7m, or 22%, to \$20.7m.
 - 2020/21 Forecast includes \$4.6m relating to fully-funded City Deals Projects and \$300k for expenses related to the fully-funded Working for Victoria.
 - Agency staff are budgeted to decrease by \$151k.
 - Contractor costs are budgeted to decrease by \$5.9m.
 - Expenditure on consultants is budgeted to decrease by \$179k.
 - Legal expenditure is budgeted to decrease by \$27k to \$146k.
 - Training costs are budgeted to increase by \$45k to \$432k.
- Depreciation expense will decrease by \$1.7m to \$9.1m. This reduction is due to a reduction in depreciation rates as a result of a depreciation review conducted in 2020/21, which concluded that depreciation rates were too high.
- Borrowing costs will decrease by \$53k to \$39k. This reduction is due to the reduced level of debt in 2021/22.

Balance Sheet

The key points to note are:

- Council's working capital will decrease by \$1.5m, from \$6.6m to \$5.1m.
- Council's net worth will increase by \$3.3m to \$359m.
- Property, infrastructure, plant and equipment comprise 95% of Council's total assets.
- Working capital is in surplus \$5.1m. Current assets will be 1.5 times current liabilities at the end of the financial year, down from 1.6 in 2020/21.
- Provisions are budgeted to remain steady at \$13.4m.
- \$142k in borrowings will be repaid.

Cash Flow

The closing cash balance is budgeted to be \$13.3m at 30 June 2022.

- The cash balance at 30 June 2022 is budgeted to include \$3.5m of Federal Assistance Grants received in advance.

Capital Works

The key points to note are:

- The capital works program for 2021/22 totals \$13.7m, \$0.6m less than the 2020/21 forecast of \$14.3m.
- The program is divided between capital renewal (62%), capital upgrade (37%) and new assets (1%).
- The capital works budget is funded from a mix of external and internal sources. 35% is funded by grants and contributions, 65% by operations.

Following is a summary of the major items of capital expenditure funded in the budget:

- Local Sports Lighting Infrastructure \$2.7m
- Sealed road reconstruction program \$2.6m
- Unsealed road reconstruction program \$1.4m
- Heavy Plant replacement \$1.3m
- Sealed road resealing program \$1.2m
- Bridge Upgrade programme \$900k
- Light Fleet Replacement \$760k
- Bridge rehabilitation programme \$540k
- Building upgrade programme \$522k
- Stormwater Programme \$350k
- Road Slip Rehabilitation Programme \$270k
- Footpath renewal \$127k
- Footpath extension \$105k
- Building renewal programme \$100k

SALE OF LAND

It must be noted that this draft budget does not currently include any income from sale of land. Should there be a Council decision to sell any land during the 2021/22 financial year it would be proposed that Council also make a decision on how any surplus would be treated. Given the one-off capital nature of such revenue it would be prudent to utilise it to fund a capital project or hold it in reserve for future projects that may require matching capital funding.

MAJOR INITIATIVES

As per section 94 of the Act, Council will need to identify and disclose any major initiatives contained within the 2021/22 budget.

Council has highlighted the following projects be major initiatives.

- Facilitate the process of making additional residential land available.
- Implementation of the transition from Corangamite to Geelong Regional Library Corporation.

- Implementation of additional glass recycling kerbside collection.
- Development of Asset Management Plan's.
- Service review of Colac Regional Saleyards.
- Construction of Apollo Bay Early Years Hub.

4. COMMUNITY CONSULTATION & ENGAGEMENT

As part of preparing the annual budget there has an online survey inviting the community to provide feedback and comment throughout November 2020. This was widely publicised and promoted in local media and on social media.

There were letters sent to the following 18 community groups inviting submissions to the budget prior to its development.

VFF and UDV	Colac Youth Group
Birregurra Community	Beech Forest Progress Association
Lavers Hill Progress Association	Carlisle River Community Group
Barwon Downs Community Group	Forrest Community Group
Red Rock District Progress Association	Kennett River Community Association
Wye River & Separation Creek Community Association	Skenes Creek Association
Apollo Bay Fisherman's Co-op	Great Ocean Road Authority
Apollo Bay Chamber of Commerce and Bob Knowles	Colac Large Employers Group
Colac Otway Rate Payers and Residents Association	Colac & District Chamber of Commerce

There was one submission received from the Colac & District Chamber of Commerce.

Due to the time limitations in adopting the budget by 30 June 2021, it is proposed the budget be placed on public exhibition for a period of no less than 28 days. During this time submissions will be invited to be considered by Council.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 4 - Our Leadership & Management

1. Effectively manage financial resources.
2. Openness and accountability in decision making.
4. Provide value for money services for our community.
5. Communicate regularly with our community and involve them in decision-making.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

The Annual Budget and Four Year budget must reflect the objectives of the Council Plan. Therefore, the resources allocated to environmental, social, cultural and economic issues must be considered as part of the process.

LEGAL & RISK

In relation to the Budget, Council has specific obligations under the following sections of the *Local Government Act 2020*: (Act)

- Section 94 – The Budget
- Section 95 – Revised Budget
- Section 96 – Preparation of budget and revised budget

In addition, Part 4 - Division 4 of the Act requires Council to implement the prescribed financial management principles in undertaking their duties. Section 96 specifically states that:

A Council must develop the budget and any revised budget in accordance with—

- (a) the financial management principles; and*
- (b) its community engagement policy.*

FINANCIAL & BUDGETARY

Refer to the draft budget document.

7. IMPLEMENTATION STRATEGY

COMMUNICATION

It is planned the draft budget will be placed on public exhibition for a period of no less than 28 days, during May as per Council's Community Engagement Policy.

TIMELINE

In order to achieve the legislated deadline of 30 June the draft budget will be presented to Council on 28 April, invite submissions during May, hear any submissions on 9 June and adopted at the 23 June Council Meeting.

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.



Colac Otway

SHIRE

COLAC OTWAY SHIRE DRAFT BUDGET 2021/22

This Budget Report has been prepared with reference to Local Government Victoria (LGV) Local Government Model Financial Report (LGMFR) 2021/22.

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Mayor's Summary

On behalf of Colac Otway Shire Council, I am pleased to present the 2021-22 Draft Budget, which aims to provide a strong, strategic base for our community's future growth and pandemic recovery.

Following considerable consultation and review, Councillors have worked together with the support of management and staff, to create a budget which enables the delivery of important Council services and meets community expectations, with a focus on sustainability and infrastructure.

The 2021-22 Draft Budget includes a proposed 1.5% average rate increase. Council is aware of the ongoing impacts of the pandemic, particularly on tourism, hospitality and exports, and as we focus on our community's recovery, we encourage ratepayers who are struggling to make contact to discuss how we can help.

The 2021-22 Budget will allow Council to deliver \$13.6 million in capital works projects including almost \$7 million for roads and bridges.

The Budget allocates \$500,000 for major changes to Colac Otway Shire's kerbside recycling service including the introduction of a fourth bin for households to separate glass from other recyclable material and associated upgrades at transfer stations.

Funding for development of the Deans Creek Precinct Structure Plan will be a key project to support Colac's residential growth, while improved library services through the transition to Geelong Regional Library Corporation, and improved sports infrastructure are also highlights of the Budget.

Key projects in the 2021-22 Budget include:

- Fourth bin for kerbside collection to accommodate glass - \$450k
- Transition to Geelong Regional Library \$200k
- Deans Creek Precinct Structure Plan \$225k
- Future Project Design and Scoping program \$210k
- Waste Transfer Station Upgrades for Glass Separation \$150k
- Closed Landfill aftercare management plan \$135k
- Cyber security managed service \$115k

The \$13.6m Capital Works Budget includes:

- Local Sports Lighting Infrastructure \$2.7m
- Sealed road reconstruction program \$2.6m
- Unsealed road reconstruction program \$1.4m
- Heavy Plant replacement \$1.3m
- Sealed road resealing program \$1.2m
- Bridge Upgrade program \$900k
- Light Fleet Replacement \$760k
- Bridge rehabilitation program \$540k
- Building upgrade program \$522k
- Stormwater Program \$350k
- Road Slip Rehabilitation Program \$270k
- Footpath renewal \$127k
- Footpath extension \$105k
- Building renewal program \$100k

Executive Summary

Council's 2021/22 draft budget has been developed according to the assumptions contained in the Council Plan, Financial Plan and those presented to Council on a regular basis during the budget development process.

All operating budgets, initiatives and business cases have been reviewed to ensure the services identified within the Council Plan are being delivered, within a balanced budget.

In preparing the Budget, Council considered the long term financial planning principles which include:

- Ensuring long term financial sustainability;
- Delivering services in a cost effective and efficient manner;
- Ensuring operating revenues are sustainable and consider community wide and individual benefits (rates versus user charges);
- Maintaining cash reserves and operating surpluses at appropriate levels;
- Identifying and quantifying long term liabilities;
- Meeting social equity objectives through specific programs;
- Managing the Shire's capital assets to maximise long term community benefit; and
- Recognising that funding from State and Federal Government is a crucial element of financial sustainability.

Meeting these principles has been more challenging over recent years given Council is now operating within an environment where revenue is restricted due to rate capping imposed by the State Government and Federal Assistance Grants were frozen for a three-year period between 2015 and 2018, creating a permanent impact on Council's reserves.

Furthermore, Council has implemented the financial management principles as required under Section 101 of the Local Government Act 2020 (the Act):

- revenue, expenses, assets, liabilities, investments and financial transactions must be managed in accordance with a Council's financial policies and strategic plans
- financial risks must be monitored and managed prudently having regard to economic circumstances
- financial policies and strategic plans, including the Revenue and Rating Plan, must seek to provide stability and predictability in the financial impact on the municipal community
- accounts and records that explain the financial operations and financial position of the Council must be kept

As has been the case for many years, Colac Otway faces substantial challenges associated with the provision and renewal of roads, paths, and community and recreation facilities

In February 2014, The Victorian Auditor-General's Office tabled a report in Parliament highlighting its concerns over this exact challenge that councils face in meeting the growing demand of asset maintenance and renewal. The Auditor-General, Mr John Doyle, states in the report:

'They also have legislative obligations to manage financial risks prudently and to ensure that their asset management decisions take into account economic circumstances and their financial effects on future generations. This is especially important in the current economic climate and in an environment where reliance on sources of revenue such as government grants cannot be assured.'

This challenge is further exacerbated with the introduction of rate capping. History shows that the cost of maintaining and constructing such assets greatly exceeds CPI and the rate cap.

The draft budget provides for an average annual rate increase of 1.5%. The table below provides a summary of the calculation, according to the formula prescribed by the State Government.

Forecast Annualised Rate Revenue at 30 June 2021	\$28,646,750
Forecast Number of Assessments at 30 June 2021	15,637
Forecast Base Average Rate 2020/21 per assessment	\$1,832
Budget Rate Revenue 2021/22	\$29,073,020
Capped Average Rate 2021/22 per assessment	\$1,859
Average Capped Increase	1.5%

It is important to note that this is only an average increase and actual increases will vary depending on the relative value of individual properties. As required by legislation, the rate burden must be distributed based upon the value of a property which will result in higher valued properties increasing by more than 1.5% and lower valued properties increasing by less than 1.5%.

MAJOR INITIATIVES

As per section 94 of the Act, the following six initiatives have been identified by Council as priorities to be undertaken during the 2021/22 financial year:

1. Facilitate the process of making additional residential land available

Colac has a significant lack of development ready land which is constraining the town's residential and economic growth. With the completion of the Princes Highway duplication and high quality social, education and recreation facilities, Colac has an enhanced reputation as an attractive place to live and work.

The Colac 2050 Growth Plan was adopted by the Victorian Government in late 2020 and paves the way for the future growth of the town. Further planning work is now required to unlock the potential for growth in key areas of Colac and ensure land is ready for residential development. Council will work with landowners, developers and key authorities to fast-track the availability of land for residential growth. Council will progress key rezoning applications as well prepare an Outline Development Plan for the Deans Creek Growth Corridor. This work will establish locations for key infrastructure such as public open space, main road and path connections, drainage and the like. Council is funding this work in part over 2021/22 and 2022/23, and is seeking Victorian Government funding to assist.

Council will also facilitate the sale of Council owned residential land at 36-52 Bruce Street Colac with a view to achieving affordable housing outcomes as part of a future development process.

2. Implementation of the transition from Corangamite to Geelong Regional Library Corporation

On July 1, 2021 Council will officially transition to the Geelong Regional Library Corporation. The new corporation will offer a range of enhanced services to our community including a large collection of more than 400,000 items and specialist programs for children and adults.

3. Implementation of additional glass recycling kerbside collection

In February 2020 the Victorian Government announced significant reforms to household recycling to ensure Victoria is well placed to transition to a circular economy. The First stage of the reform requires Councils to separate glass from the yellow co-mingled recycling bin. Councils are to transition into a four bin model. This means a separate glass bin with a purple lid will be rolled out for the collection of glass for all kerbside tenements and a separate glass disposal at the transfer stations and drop off facilities.

4. Development of Asset Management Plan's

As a requirement of the Local Government Act 2020, Council is preparing a suite of Asset Plans for adoption prior to July 2022. These plans will include an Asset Management Strategy and Asset Management Plans for our six major asset classes: bridges, roads, footpaths, stormwater/drainage, open space and buildings. Preparation of the plans involves collection of up to date condition data, a preliminary review of service levels and demand, and community consultation. The Asset Management Plans will inform the long-term financial plan.

5. Service review of Colac Regional Saleyards

The Saleyards industry has changed substantially in recent years including a move from some farmers to sell directly to abattoir and online sales. Colac Regional Saleyards has seen a decline in throughput in recent years, largely due to an overall decrease in local stock volumes. A full service review is required to ensure that Council is managing the asset and its operations in line with current best practice, with consideration of future strategic priorities.

6. Construction of Apollo Bay Early Years Hub

In late 2021, the Apollo Bay Preschool will move into the new Apollo Bay Early Years Hub on the Apollo Bay P-12 College site. This new facility will include a dedicated space for Maternal and Child Health consultations. The new two-room, 66-place kindergarten has been funded by the Victorian Government under its Kindergartens on School Sites program, with Council contributing up to \$500,000 towards the MCH consulting spaces.

Council's budget also contains an allocation to get the building ready to take children, which will include the addition of fixtures and fittings such as window coverings, and the costs associated with getting the building licenced for operation.

FINANCIAL PERFORMANCE AND SUSTAINABILITY

The key financial outcomes from the attached budget include:

- Net Surplus - \$3.27m
- Adjusted Underlying surplus - \$160k
- Closing Cash Balance - \$13.3m
- Closing Working Capital Surplus of \$5.1m
- Reserves balance of \$13.0m
- \$13.7m Capital Works Program.
- \$8.6m capital renewal, which equates to 94% of depreciation.

The Financial Performance Indicators are detailed in Section 5 on this document.

Adjusted Underlying Surplus

The regulations prescribe the method for calculating the 'Adjusted Underlying Result'. The purpose for calculating the Adjusted Underlying Result is to remove the effect on the budget of one-off revenue items that may otherwise overstate Council's 'normal' performance. Under the regulations the 2021/22 surplus of \$160k is calculated as follows:

	\$'000
Total Comprehensive Result	3,271
Non-recurrent grants used to fund capital expenditure	(2,991)
Non-monetary asset contributions	-
Other contributions to fund capital expenditure	(120)
Adjusted Underlying Deficit	160

Revenue

The following key points relate to the budgeted revenue of \$56.4m which is budgeted to decrease from the 2020/21 forecast of \$61.3m.

- Rates and charges total \$32.8m. This increase is the result of a 1.5% average increase in rates, compounded by supplementary valuations.
 - The average increase of 1.5% includes a Municipal Charge of \$195.
 - Compounding effect of supplementary valuations, including the transition of 230 newly identified holiday rental properties from 2019/20; and
 - The annual kerbside collection charge is budgeted to increase, with the weekly waste charge increasing by \$8 from \$300 to \$308 and the fortnightly waste charge by \$40 from \$205 to \$245.
- User Fees and Charges have increased by \$1.3m to \$6.5m. This increase is due to the 2020/21 forecast being impacted by the closure of Bluewater due to COVID-19, which is expected to remain open for 2021/22. It is also expected that increased income will be earned by the increased delivery of funded Home Care packages.
- Operating grants have decreased by \$6.8m to \$10.7m. This is primarily due to the 2020/21 forecast including \$4.6m of City Deal funding and \$1m of funding received for Working For Victoria, which is not included in the 2021/22 Budget. It has been assumed that Federal Assistance Grants do not increase over the next three years.
- Capital grants has decreased by \$0.2m to \$4.7m. The 2021/22 Budget includes \$2.3m Local Sports Infrastructure stimulus funding for lighting upgrades and \$1.7m Roads to Recovery recurrent funding.
- Other income is budgeted to decrease by \$423k to \$367k. The 2020/21 Forecast includes a one-off insurance reimbursement of \$284k.

Expenditure

The following key points relate to the budgeted expenditure of \$53.1m which has decreased by \$7.6m compared to the 2020/21 forecast.

- Employee costs have increased by \$581k, or 2.8%, to \$21.7m.
 - The 2020/21 Forecast includes expenditure relating to Working for Victoria \$680k. Therefore employee costs, excluding WFV, have increased by \$1.26m in 2021/22.
 - The 2021/22 Budget includes the EBA increase of 2.25% (\$450k).
 - The 2021/22 Budget assumes services will be open for the full year, unlike 2020/21 where various services were closed due to COVID. This will result in employee costs in Bluewater Leisure Centre (\$350k), COPACC (\$80k) and the Visitor Information Centres (\$60k) returning to normal levels.
 - Additional employee costs are required to deliver an increased number of fully-funded Home Care Packages (\$290k)
 - FTE is budgeted to increase by 10, from 228 to 238. This increased FTE is partially due to the impacts of COVID, with an additional 5 FTE required to return to full-service levels. There is also additional fully-funded employees required to deliver increased Home Care Packages.
 - The Workcover Premium is expected to increase by \$100k.
- Materials and services are budgeted to decrease by \$5.7m, or 22%, to \$20.7m.
 - 2020/21 Forecast includes \$4.6m relating to fully-funded City Deals Projects and \$300k for expenses related to the fully-funded Working for Victoria.
 - Agency staff are budgeted to decrease by \$151k.
 - Contractor costs are budgeted to decrease by \$5.9m.
 - Expenditure on consultants is budgeted to decrease by \$179k.
 - Legal expenditure is budgeted to decrease by \$27k to \$146k.
 - Training costs are budgeted to increase by \$45k to \$432k.
- Depreciation expense will decrease by \$1.7m to \$9.1m. This reduction is due to a reduction in depreciation rates as a result of a depreciation review conducted in 2020/21, which concluded that
- Borrowing costs will decrease by \$53k to \$39k. This reduction is due to the reduced level of debt in

Balance Sheet

The key points to note are:

- Council's working capital will decrease by \$1.5m, from \$6.6m to \$5.1m.
- Council's net worth will increase by \$3.3m to \$359m.
- Property, infrastructure, plant and equipment comprise 95% of Council's total assets.
- Working capital is in surplus \$5.1m. Current assets will be 1.5 times current liabilities at the end of the
- Provisions are budgeted to remain steady at \$13.4m.
- \$142k in borrowings will be repaid.

Cash Flow

The closing cash balance is budgeted to be \$13.3m at 30 June 2022.

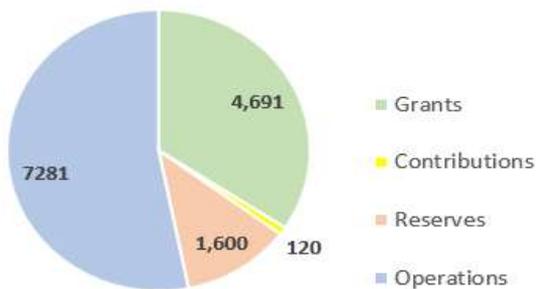
The cash balance at 30 June 2022 is budgeted to include \$3.5m of Federal Assistance Grants received in advance.

Capital Works

The key points to note are:

- The capital works program for 2021/22 totals \$13.7m, \$0.6m less than the 2020/21 forecast of \$14.3m.
- The program is divided between capital renewal (62%), capital upgrade (37%) and new assets (1%).
- The capital works budget is funded from a mix of external and internal sources. 35% is funded by grants

Chart 1 – Capital Works funding sources



Following is a summary of the major items of capital expenditure funded in the budget:

- Local Sports Lighting Infrastructure \$2.7m
- Sealed road reconstruction program \$2.6m
- Unsealed road reconstruction program \$1.4m
- Heavy Plant replacement \$1.3m
- Sealed road resealing program \$1.2m
- Bridge Upgrade programme \$900k
- Light Fleet Replacement \$760k
- Bridge rehabilitation programme \$540k
- Building upgrade programme \$522k
- Stormwater Programme \$350k
- Road Slip Rehabilitation Programme \$270k
- Footpath renewal \$127k
- Footpath extension \$105k
- Building renewal programme \$100k

Sale of Land

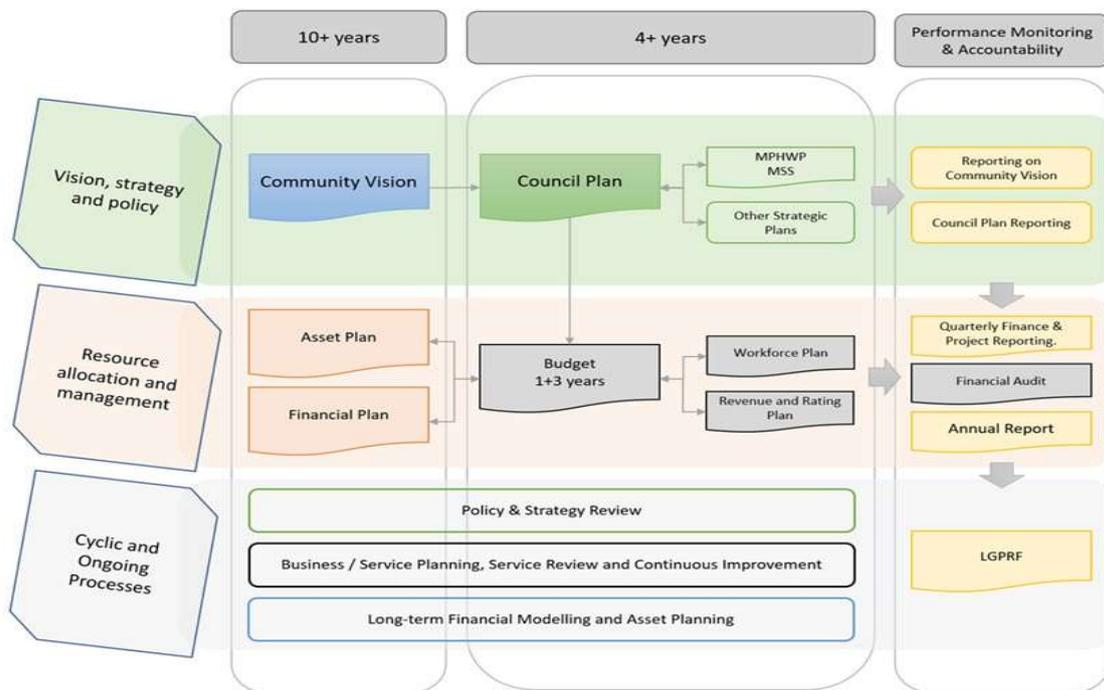
It must be noted that this draft budget does not include any income from sale of land. Should there be a Council decision to sell any land during the 2021/22 financial year it would be proposed that Council also make a decision on how any surplus would be treated. Given the one-off capital nature of such revenue it would be prudent to utilise it to fund a capital project or hold it in reserve for future projects that may require matching capital funding.

1. Link to the Strategic Integrated Planning and Reporting Framework

This section describes how the Budget links to the achievement of the Community Vision and Council Plan within an overall integrated planning and reporting framework. This framework guides the Council in identifying community needs and aspirations over the long term (Community Vision and Financial Plan), medium term (Council Plan, Workforce Plan, and Revenue and Rating Plan) and short term (Budget) and then holding itself accountable (Annual Report).

1.1 Legislative Planning and accountability framework

The Budget is a rolling four-year plan that outlines the financial and non-financial resources that Council requires to achieve the strategic objectives described in the Council Plan. The diagram below depicts the integrated planning and reporting framework that applies to local government in Victoria. At each stage of the integrated planning and reporting framework there are opportunities for community and stakeholder input. This is important to ensure transparency and accountability to both residents and ratepayers.



Source: Department of Jobs, Precincts and Regions

The timing of each component of the planning framework is critical to the successful achievement of the planned outcomes.

1.1.2 Key planning considerations

Service level planning

Although councils have a legal obligation to provide some services— such as animal management, local roads, food safety and statutory planning—most council services are not legally mandated, including some services closely associated with councils, such as libraries, building permits and sporting facilities. Further, over time, the needs and expectations of communities can change. Therefore councils need to have robust processes for service planning and review to ensure all services continue to provide value for money and are in line with community expectations. In doing so, councils should engage with communities to determine how to prioritise resources and balance service provision against other responsibilities such as asset maintenance and capital works. Community consultation needs to be in line with a Council's adopted Community Engagement Policy and Public Transparency Policy.

1.2 Our purpose

Our Vision "Towards a prosperous future"

The Councillors at Colac Otway Shire commit to plan for growth in business and employment for our town and settlements; The delivery of high quality services that meet community needs and demonstrate values for money; and to be leaders and work together as a team with the community and the organisation to achieve our goals for the shire.

Our values

- **Respect** – *Be open and consistent in our dealings with people and respect their views.*
- **Integrity** – *We will work in an open and transparent way, ensuring our processes, decisions and actions are ethical, responsible and honest.*
- **Goodwill** – *We will have an attitude of kindness and friendliness and build a good relationship with our customers and community.*
- **Honesty** – *We will be consistent, keep our promises, admit our mistakes and clearly communicate our decisions.*
- **Trust** – *We will act honestly, openly and fairly to build levels of trust.*

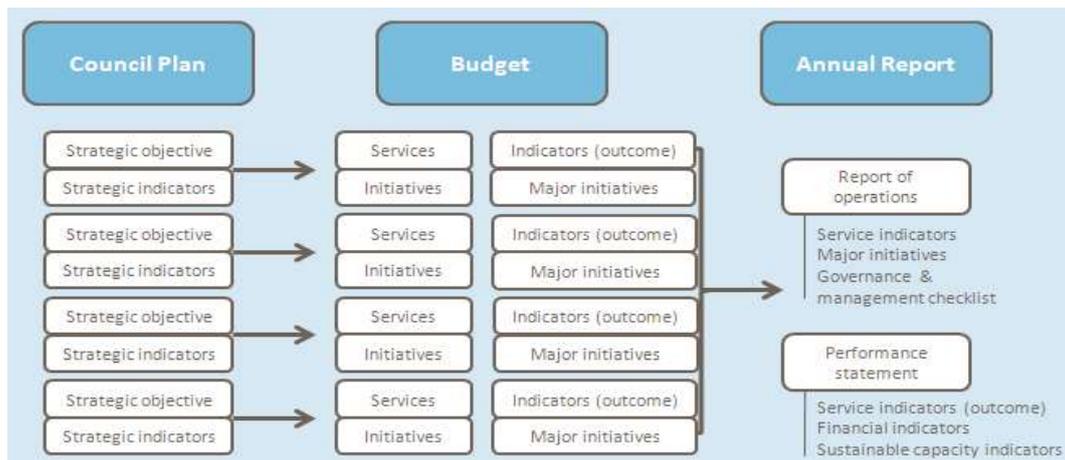
1.3 Strategic objectives

Council delivers activities and initiatives under major service categories. Each contributes to the achievement of one of the four Strategic Objectives as set out in the 2017-2021 Council Plan. The following table lists the four Strategic Objectives as described in the Council Plan.

Strategic Theme	Description
1. Our Prosperity	We work together to improve the prosperity of our people, businesses and community partners by working to promote our beautiful shire as an attractive place to invest, live and work.
2. Our Places	Our places are well-planned. We work with local and government partners to plan health, safe environments which promote community life and enhance well-being. Our infrastructure assets are managed so that they are sustainable for long term.
3. Our Community	We work to know our community and to understand their needs and aspirations. We plan our assets and services to meet community need and to foster a culture of good service and partnership with others.
4. Our Leadership & Management	We will work together with our community to create a sustainable future. We will deliver value for money for ratepayers in everything we do and we will achieve long term sustainability and transparent community leadership.

2. Services and service performance indicators

This section provides a description of the services and initiatives to be funded in the Budget for the 2021/22 year and how these will contribute to achieving the strategic objectives outlined in the Council Plan. It also describes several initiatives and service performance outcome indicators for key areas of Council's operations. Council is required by legislation to identify major initiatives, initiatives and service performance outcome indicators in the Budget and report against them in their Annual Report to support transparency and accountability. The relationship between these accountability requirements in the Council Plan, the Budget and the Annual Report is shown below



Source: Department of Jobs, Precincts and Regions

2.1 Strategic Theme 1: Our Prosperity

We work together to improve the prosperity of our people, businesses and community partners by working to promote our beautiful shire as an attractive place to invest, live and work.

Services

Service area	Description of services provided		2019/20 Actual \$'000	2020/21 Forecast \$'000	2021/22 Budget \$'000
Building Control	This service provides for planned building developments to meet present and future community requirements.	<i>Exp</i>	1,266	1,250	1,330
		<i>Rev</i>	(106)	(107)	(113)
		NET	1,160	1,143	1,216
Events	This service provides for active community involvement in the provisioning of management and support for community entertainment and events.	<i>Exp</i>	114	152	134
		<i>Rev</i>	(4)	(25)	(4)
		NET	110	127	130
Economic Development	This service facilitates a healthy and resilient economy by providing effective leadership, advocacy, and partnership, by working with government business and the community.	<i>Exp</i>	1,056	2,446	1,615
		<i>Rev</i>	(155)	(831)	(340)
		NET	900	1,616	1,276
Tourism	This service provides economic benefit by promoting the Shire as a location for visitors to enjoy, explore and return to. Visitor information is provided via Council's two Visitor Information Centres and via media.	<i>Exp</i>	843	680	768
		<i>Rev</i>	(238)	(202)	(265)
		NET	605	478	502
Apollo Bay Harbour	This service manages and maintains the Apollo Bay Harbour for the enjoyment of the community.	<i>Exp</i>	2,693	1,027	1,041
		<i>Rev</i>	(1,350)	(1,120)	(1,041)
		NET	1,343	(93)	-
Colac Livestock Selling Centre	This service provides a vital link in our rural infrastructure by providing a marketplace for buying and selling livestock.	<i>Exp</i>	378	387	354
		<i>Rev</i>	(462)	(417)	(445)
		NET	(84)	(30)	(90)
Statutory Planning	This service fulfils Council's statutory obligations in being the responsible authority for the management and regulation of land use and development, with the aim of achieving sustainable outcomes in the interests of current and future generations.	<i>Exp</i>	1,409	1,551	1,342
		<i>Rev</i>	(392)	(413)	(323)
		NET	1,017	1,139	1,019
Strategic Planning	This service ensures that land use planning is undertaken to meet the sustainable long term needs of current and future generations.	<i>Exp</i>	787	714	774
		<i>Rev</i>	(63)	(89)	(175)
		NET	724	624	599

Service Performance Outcome Indicators

Service	Indicator	Performance Measure	Computation
Statutory planning	Decision making	Council planning decisions upheld at VCAT. (Percentage of planning application decisions subject to review by VCAT and that were not set aside)	[Number of VCAT decisions that did not set aside Council's decision in relation to a planning application / Number of VCAT decisions in relation to planning applications] x100

2.2 Strategic Theme 2: Our Places

Our places are well-planned. We work with local and government partners to plan health, safe environments which promote community life and enhance well-being. Our infrastructure assets are managed so that they are sustainable for long term.

Services

Service area	Description of services provided		2019/20 Actual \$'000	2020/21 Forecast \$'000	2021/22 Budget \$'000
Emergency Management	This service provides for the necessary support for the community in the case of an emergency event occurring.	<i>Exp</i>	581	1,542	347
		<i>Rev</i>	(592)	(90)	(14)
		NET	(11)	1,452	333
Environment	This service provides for management of our natural environment to the betterment and enjoyment of all members of our community.	<i>Exp</i>	1,070	615	623
		<i>Rev</i>	(88)	-	(1)
		NET	981	615	622
Infrastructure Services	This service provides for the physical assets required by the community to maintain a happy, healthy and sustainable lifestyle.	<i>Exp</i>	9,436	11,069	6,655
		<i>Rev</i>	(731)	(5,464)	(766)
		NET	8,705	5,605	5,889
Parks, Gardens and Reserves	This service provides for the maintenance of open space for the enjoyment of all community members.	<i>Exp</i>	1,404	2,389	2,260
		<i>Rev</i>	(11)	-	-
		NET	1,393	2,389	2,260
Waste Management	This service provides for the efficient and effective control of waste products produced by our community. It includes the provision of waste collection services as well as for disposal to landfill.	<i>Exp</i>	4,067	4,109	5,537
		<i>Rev</i>	(3,455)	(3,337)	(3,414)
		NET	611	772	2,123

Major Initiatives

Facilitate the process of making additional residential land available

Colac has a significant lack of development ready land which is constraining the town's residential and economic growth. With the completion of the Princes Highway duplication and high quality social, education and recreation facilities, Colac has an enhanced reputation as an attractive place to live and work.

The Colac 2050 Growth Plan was adopted by the Victorian Government in late 2020 and paves the way for the future growth of the town. Further planning work is now required to unlock the potential for growth in key areas of Colac and ensure land is ready for residential development. Council will work with landowners, developers and key authorities to fast-track the availability of land for residential growth. Council will progress key rezoning applications as well prepare an Outline Development Plan for the Deans Creek Growth Corridor. This work will establish locations for key infrastructure such as public open space, main road and path connections, drainage and the like. Council is funding this work in part over 2021/22 and 2022/23, and is seeking Victorian Government funding to assist.

Council will also facilitate the sale of Council owned residential land at 36-52 Bruce Street Colac with a view to achieving affordable housing outcomes as part of a future development process.

Implantation of additional glass recycling kerbside collection

In February 2020 the Victorian Government announced significant reforms to household recycling to ensure Victoria is well placed to transition to a circular economy. The First stage of the reform requires Councils to separate glass from the yellow co-mingled recycling bin. Councils are to transition into a four bin model. This means a separate glass bin with a purple lid will be rolled out for the collection of glass for all kerbside tenements and a separate glass disposal at the transfer stations and drop off facilities.

Service Performance Outcome Indicators

Service	Indicator	Performance Measure	Computation
Roads	Satisfaction	Satisfaction with sealed local roads. (Community satisfaction rating out of 100 with how Council has performed on the condition of sealed local roads)	Community satisfaction rating out of 100 with how Council has performed on the condition of sealed local roads.
Waste collection	Waste diversion	Kerbside collection waste diverted from landfill. (Percentage of garbage, recyclables and green organics collected from kerbside bins that is diverted from landfill)	[Weight of recyclables and green organics collected from kerbside bins / Weight of garbage, recyclables and green organics collected from kerbside bins] x100

2.3 Strategic Theme 3: Our Community

We work to know our community and to understand their needs and aspirations. We plan our assets and services to meet community need and to foster a culture of good service and partnership with others.

Services

Service area	Description of services provided		2019/20 Actual \$'000	2020/21 Forecast \$'000	2021/22 Budget \$'000
Arts & Culture	This service is responsible for the management and provision of arts and cultural services to the community. This service is responsible for the running of the Colac Otway Performing Arts & Cultural Centre.	<i>Exp</i>	1,093	816	933
		<i>Rev</i>	(480)	(202)	(440)
		NET	613	614	492
Leisure Centres	This service actively promotes a healthy lifestyle for our community by directly providing swimming and gymnasium facilities.	<i>Exp</i>	2,137	1,328	2,142
		<i>Rev</i>	(1,118)	(426)	(1,387)
		NET	1,019	903	756
Children and Family Services	This service provides support to our children, families and youth to encourage and nurture their growth and development.	<i>Exp</i>	1,230	1,792	1,264
		<i>Rev</i>	(991)	(1,630)	(987)
		NET	239	162	278
Library Services	The library service provides resources and oversight to the Corangamite Regional Library Corporation for the provision of information, education, recreation and enrichment for the community.	<i>Exp</i>	704	752	857
		<i>Rev</i>	(1)	(11)	(1)
		NET	703	741	856
Local Laws	This service provides for community safety and health by providing for a framework for behaviours which affect our community well-being.	<i>Exp</i>	810	706	818
		<i>Rev</i>	(395)	(144)	(316)
		NET	415	562	502
Older Persons & Disability Services	This service provides support to older and disabled members of our community in order to sustain quality of life for all our residents.	<i>Exp</i>	3,661	4,734	5,063
		<i>Rev</i>	(3,604)	(4,613)	(4,709)
		NET	57	121	354
Public Health	This service promotes a healthy and safe lifestyle by actively promoting and policing public health issues.	<i>Exp</i>	598	602	525
		<i>Rev</i>	(269)	(98)	(279)
		NET	330	503	246
Recreation	This service provides for active community involvement and the promotion of healthy lifestyles by providing for suitable sporting and recreational facilities.	<i>Exp</i>	222	290	369
		<i>Rev</i>	(0)	-	(3)
		NET	222	290	366

Major Initiatives

Implementation of the transition from Corangamite to Geelong Regional Library Corporation

On July 1, 2021 Council will officially transition to the Geelong Regional Library Corporation. The new corporation will offer a range of enhanced services to our community including a large collection of more than 400,000 items and specialist programs for children and adults.

Service Performance Outcome Indicators

Service	Indicator	Performance Measure	Computation
Libraries	Participation	Active library members. (Percentage of the municipal population that are active library members)	[Number of active library members / municipal population] x100
Maternal and Child Health	Participation	Participation in the MCH service. (Percentage of children enrolled who participate in the MCH service)	[Number of children who attend the MCH service at least once (in the year) / Number of children enrolled in the MCH service] x100
		Participation in MCH service by Aboriginal children. (Percentage of Aboriginal children enrolled who participate in the MCH service)	[Number of Aboriginal children who attend the MCH service at least once (in the year) / Number of Aboriginal children enrolled in the MCH service] x100
Animal Management	Health and safety	Animal management prosecutions. (Number of successful animal management prosecutions)	Number of successful animal management prosecutions
Food safety	Health and safety	Critical and major non-compliance notifications. (Percentage of critical and major non-compliance notifications that are followed up by Council)	[Number of critical non-compliance notifications and major non-compliance notifications about a food premises followed up / Number of critical non-compliance notifications and major non-compliance notifications about food premises] x100
Aquatic Facilities	Utilisation	Utilisation of aquatic facilities. (Number of visits to aquatic facilities per head of municipal population)	Number of visits to aquatic facilities / Municipal population

2.4 Strategic Theme 4: Our Leadership & Management

We will work together with our community to create a sustainable future. We will deliver value for money for ratepayers in everything we do and we will achieve long term sustainability and transparent community leadership.

Services

Service area	Description of services provided		2019/20 Actual \$'000	2020/21 Forecast \$'000	2021/22 Budget \$'000
Councillors and Chief Executive	This area of governance includes the Mayor, Councillors, Chief Executive Officer, Business Improvement Officer and Public Relations Team and associated support which cannot be easily attributed to the direct service provision areas.	<i>Exp</i>	1,569	2,036	1,958
		<i>Rev</i>	(6)	(30)	(5)
		NET	1,563	2,006	1,953
Finance, Property and Rates	This service has the responsibility to generate revenue for Council via rate, levies and charges and to provide sustainable and accountable financial management of Council's resources.	<i>Exp</i>	1,630	1,730	1,890
		<i>Rev</i>	(8,055)	(7,318)	(7,290)
		NET	(6,425)	(5,588)	(5,400)
Customer Service	This service has the responsibility to provide the first point of contact between Council and the public through Council's Customer Service Centres. The service provides overall corporate customer service to the wider community and assists all areas of Council with the provision of corporate responsibility.	<i>Exp</i>	415	463	481
		<i>Rev</i>	7	-	-
		NET	422	463	481
Corporate Services Management	This service has the responsibility to maintain strong governance and administrative systems and to ensure that these systems are responsive, accountable and transparent to internal users and community needs.	<i>Exp</i>	506	1,451	610
		<i>Rev</i>	(866)	(1,010)	(15)
		NET	(361)	441	595
Contract Management	This service provides oversight and governance on contractual and procurement services undertaken by Council	<i>Exp</i>	248	259	269
		<i>Rev</i>	-	-	-
		NET	248	259	269
Information Services	This services provides management and governance of information flows, storage and retrieval within the organisation in accordance with appropriate legislation and standards.	<i>Exp</i>	2,328	2,938	2,616
		<i>Rev</i>	-	-	-
		NET	2,328	2,938	2,616
People, Performance & Culture	This service provides and develops a cultural of high performance, productivity and accountability across the organisation.	<i>Exp</i>	726	713	722
		<i>Rev</i>	-	-	-
		NET	726	713	722
Risk Management Services	This service has the responsibility to identify, record and manage all business risk associated with Council's activities. This service manages Council's insurance portfolio.	<i>Exp</i>	926	861	854
		<i>Rev</i>	(97)	(407)	(115)
		NET	829	454	739

Major Initiatives

Construction of Apollo Bay Early Years Hub

In late 2021, the Apollo Bay Preschool will move into the new Apollo Bay Early Years Hub on the Apollo Bay P-12 College site. This new facility will include a dedicated space for Maternal and Child Health consultations. The new two-room, 66-place kindergarten has been funded by the Victorian Government under its Kindergartens on School Sites program, with Council contributing up to \$500,000 towards the MCH consulting spaces.

Council's budget also contains an allocation to get the building ready to take children, which will include the addition of fixtures and fittings such as window coverings, and the costs associated with getting the building licenced for operation.

Service review of Colac Regional Saleyards

The Saleyards industry has changed substantially in recent years including a move from some farmers to sell directly to abattoir and online sales. Colac Regional Saleyards has seen a decline in throughput in recent years, largely due to an overall decrease in local stock volumes. A full service review is required to ensure that Council is managing the asset and its operations in line with current best practice, with consideration of future strategic priorities.

Development of Asset Management Plans

As a requirement of the Local Government Act 2020, Council is preparing a suite of Asset Plans for adoption prior to July 2022. These plans will include an Asset Management Strategy and Asset Management Plans for our six major asset classes: bridges, roads, footpaths, stormwater/drainage, open space and buildings. Preparation of the plans involves collection of up to date condition data, a preliminary review of service levels and demand, and community consultation. The Asset Management Plans will inform the long-term financial plan.

Service Performance Outcome Indicators

Service	Indicator	Performance Measure	Computation
Governance	Satisfaction	Satisfaction with Council decisions. (Community satisfaction rating out of 100 with how Council has performed in making decisions in the interests of the community)	Community satisfaction rating out of 100 with how Council has performed in making decisions in the interests of the community

2.5 Reconciliation with budgeted operating result

	Net Cost (Revenue)	Expenditure	Revenue
	\$'000	\$'000	\$'000
Our Prosperity	4,651	7,358	(2,706)
Our Places	11,228	15,423	(4,195)
Our Community	3,850	11,971	(8,122)
Our Leadership & Management	1,976	9,400	(7,424)
Total	21,705	44,152	(22,447)
Expenses added in:			
Depreciation	9,100		
Amortisation - right of use assets	110		
Finance costs	68		
Deficit before funding sources	30,983		
Funding sources added in:			
Rates and charges revenue (excluding Waste)	(29,563)		
Capital grants	(4,691)		
Total funding sources	(34,254)		
Operating (surplus)/deficit for the year	(3,271)		

3. Financial Statements

This section presents information in regard to the Financial Statements and Statement of Human Resources. The budget information for the year 2021/22 has been supplemented with projections to 2024/25.

This section includes the following financial statements prepared in accordance with the Local Government Act 2020 and the Local Government (Planning and Reporting) Regulations 2020.

- Comprehensive Income Statement
- Balance Sheet
- Statement of Changes in Equity
- Statement of Cash Flows
- Statement of Capital Works
- Statement of Human Resources

3.1 Comprehensive Income Statement

For the four years ending 30 June 2025

	NOTES	Forecast	Budget	Projections		
		2020/21 \$'000	2021/22 \$'000	2022/23 \$'000	2023/24 \$'000	2024/25 \$'000
Income						
Rates and charges	4.1.1	31,847	32,775	33,159	33,689	34,226
Statutory fees and fines	4.1.2	594	826	878	897	920
User fees	4.1.3	5,296	6,548	6,877	7,215	7,561
Grants - Operating	4.1.4	17,463	10,690	10,311	10,362	10,414
Grants - Capital	4.1.4	4,885	4,691	2,318	2,376	2,436
Contributions - monetary	4.1.5	139	420	125	125	125
Contributions - non-monetary	4.1.5	-	-	-	-	-
Net gain/(loss) on disposal of property, infrastructure, plant and equipment		292	25			
Fair value adjustments for investment property		-	-			
Share of net profits/(losses) of associates and joint ventures		30	30	30	31	31
Other income	4.1.6	790	367	511	520	562
Total income		61,336	56,372	54,209	55,215	56,276
Expenses						
Employee costs	4.1.7	21,103	21,683	22,557	23,239	23,912
Materials and services	4.1.8	26,436	20,730	19,963	20,486	21,286
Depreciation	4.1.9	10,800	9,100	9,200	9,300	9,400
Amortisation - right of use assets	4.1.10	115	110	80	80	80
Bad and doubtful debts		2	20	20	20	20
Borrowing costs		53	39	33	-	-
Finance Costs - leases		49	29	95	88	79
Other expenses	4.1.11	2,184	1,389	1,125	1,144	1,161
Total expenses		60,741	53,101	53,071	54,355	55,937
Surplus/(deficit) for the year		595	3,271	1,138	860	339
Other comprehensive income						
Items that will not be reclassified to surplus or deficit in future periods						
Net asset revaluation increment/(decrement)		-	-	-	-	-
Share of other comprehensive income of associates and joint ventures		-	-	-	-	-
Items that may be reclassified to surplus or deficit in future periods (detail as appropriate)						
		-	-	-	-	-
Total comprehensive result		595	3,271	1,138	860	339

3.2 Balance Sheet

For the four years ending 30 June 2025

	NOTES	Forecast	Budget	Projections		
		2020/21 \$'000	2021/22 \$'000	2022/23 \$'000	2023/24 \$'000	2024/25 \$'000
Assets						
Current assets						
Cash and cash equivalents		14,495	13,254	9,655	5,755	1,124
Trade and other receivables		2,673	2,748	1,461	1,484	1,517
Inventories		190	175	175	175	175
Other assets		329	366	366	366	366
Total current assets	4.2.1	17,687	16,543	11,657	7,780	3,182
Non-current assets						
Investments in associates, joint arrangement and subsidiaries		471	501	501	501	501
Property, infrastructure, plant & equipment		358,448	362,565	366,882	371,520	376,406
Right-of-use assets	4.2.4	748	638	558	478	399
Total non-current assets	4.2.1	359,667	363,704	367,941	372,499	377,305
Total assets		377,354	380,247	379,598	380,280	380,487
Liabilities						
Current liabilities						
Trade and other payables		5,749	5,685	4,783	4,904	5,080
Trust funds and deposits		724	661	661	661	661
Provisions		4,357	4,357	4,357	4,357	4,357
Interest-bearing liabilities	4.2.3	142	596	-	-	-
Lease liabilities	4.2.4	100	100	53	62	72
Total current liabilities	4.2.2	11,072	11,398	9,854	9,983	10,170
Non-current liabilities						
Provisions		9,005	9,005	8,759	8,513	8,267
Interest-bearing liabilities	4.2.3	596	-	-	-	-
Lease liabilities	4.2.4	663	553	554	493	421
Total non-current liabilities	4.2.2	10,264	9,558	9,313	9,006	8,688
Total liabilities		21,336	20,957	19,167	18,989	18,858
Net assets		356,019	359,290	360,431	361,291	361,629
Equity						
Accumulated surplus		133,854	138,116	139,257	140,117	140,455
Reserves		222,165	221,174	221,174	221,174	221,174
Total equity		356,019	359,290	360,431	361,291	361,629

3.3 Statement of Changes in Equity

For the four years ending 30 June 2025

	NOTES	Total \$'000	Accumulated Surplus \$'000	Revaluation on Reserve \$'000	Other Reserves \$'000
2021 Forecast Actual					
Balance at beginning of the financial year		355,423	130,527	208,131	16,765
Impact of adoption of new accounting standards		-	-	-	-
Adjusted opening balance		355,424	130,527	208,131	16,765
Surplus/(deficit) for the year		595	595	-	-
Net asset revaluation increment/(decrement)		-	-	-	-
Transfers to other reserves		-	(11,672)	-	11,672
Transfers from other reserves		-	14,402	-	(14,402)
Balance at end of the financial year		356,019	133,852	208,131	14,035
2022 Budget					
Balance at beginning of the financial year		356,019	133,854	208,131	14,035
Surplus/(deficit) for the year		3,271	3,271	-	-
Net asset revaluation increment/(decrement)		-	-	-	-
Transfers to other reserves	4.3.1	-	(8,136)	-	8,136
Transfers from other reserves	4.3.1	-	9,127	-	(9,127)
Balance at end of the financial year	4.3.2	359,290	138,116	208,131	13,044
2023					
Balance at beginning of the financial year		359,290	138,116	208,131	13,044
Surplus/(deficit) for the year		1,138	1,138	-	-
Net asset revaluation increment/(decrement)		-	-	-	-
Transfers to other reserves		-	-	-	-
Transfers from other reserves		-	-	-	-
Balance at end of the financial year		360,428	139,254	208,131	13,044
2024					
Balance at beginning of the financial year		360,428	139,254	208,131	13,044
Surplus/(deficit) for the year		860	860	-	-
Net asset revaluation increment/(decrement)		-	-	-	-
Transfers to other reserves		-	-	-	-
Transfers from other reserves		-	-	-	-
Balance at end of the financial year		361,288	140,114	208,131	13,044
2025					
Balance at beginning of the financial year		361,288	140,114	208,131	13,044
Surplus/(deficit) for the year		339	339	-	-
Net asset revaluation increment/(decrement)		-	-	-	-
Transfers to other reserves		-	-	-	-
Transfers from other reserves		-	-	-	-
Balance at end of the financial year		361,627	140,452	208,131	13,044

3.4 Statement of Cash Flows

For the four years ending 30 June 2025

	Notes	Forecast	Budget	Projections		
		2020/21	2021/22	2022/23	2023/24	2024/25
		\$'000	\$'000	\$'000	\$'000	\$'000
		Inflows (Outflows)	Inflows (Outflows)	Inflows (Outflows)	Inflows (Outflows)	Inflows (Outflows)
Cash flows from operating activities						
Rates and charges		32,770	32,662	33,937	33,664	34,196
Statutory fees and fines		594	826	899	897	919
User fees		5,296	6,548	7,038	7,204	7,549
Grants - operating		17,479	10,671	3,392	3,362	3,414
Grants - capital		4,885	4,691	2,373	2,374	2,433
Contributions - monetary		19	420			
Interest received			-	140	140	140
Trust funds and deposits taken			-			
Other receipts		910	367	7,669	7,500	7,540
Employee costs		(21,103)	(21,683)	(23,023)	(23,171)	(23,831)
Materials and services		(26,119)	(20,778)	(19,575)	(19,632)	(20,365)
Trust funds and deposits repaid		(523)	(63)	-	-	-
Other payments		(2,184)	(1,389)	(2,194)	(2,190)	(2,232)
Net cash provided by/(used in) operating activities	4.4.1	12,025	12,271	10,654	10,148	9,764
Cash flows from investing activities						
Payments for property, infrastructure, plant and equipment		(14,287)	(13,692)	-13597.02	-13937.66	-14285.86
Proceeds from sale of property, infrastructure, plant and equipment		1,062	500			
Payments for investments		-	-	-	-	-
Proceeds from sale of investments		-	-	30	31	31
Net cash provided by/ (used in) investing activities	4.4.2	(13,225)	(13,192)	(13,567)	(13,907)	(14,254)
Cash flows from financing activities						
Finance costs		(53)	(39)	(33)	0	0
Proceeds from borrowings						
Repayment of borrowings		(286)	(142)	(596)	-	-
Interest paid - lease liability		(49)	(29)	(95)	(88)	(79)
Repayment of lease liabilities		(115)	(110)	(46)	(53)	(62)
Net cash provided by/(used in) financing activities	4.4.3	(503)	(321)	(769)	(141)	(141)
Net increase/(decrease) in cash & cash equivalents		(1,703)	(1,241)	(3,682)	(3,900)	(4,631)
Cash and cash equivalents at the beginning of the financial year		16,198	14,495	13,253	9,571	5,672
Cash and cash equivalents at the end of the financial year		14,495	13,254	9,571	5,672	1,040

3.5 Statement of Capital Works

For the four years ending 30 June 2025

	Notes	Forecast	Budget	Projections		
		2020/21 \$'000	2021/22 \$'000	2022/23 \$'000	2023/24 \$'000	2024/25 \$'000
Property						
Land		-	-	-	-	-
Buildings		658	702	798	818	838
Total land & Buildings		658	702	798	818	838
Total property	4.5.2	658	702	798	818	838
Plant and equipment						
Plant, machinery and equipment		2,425	2,100	2,308	2,366	2,425
Fixtures, fittings and furniture		0	8	319	327	335
Computers and telecommunications		247	80	368	377	386
Total plant and equipment	4.5.2	2,672	2,188	2,994	3,069	3,146
Infrastructure						
Roads		5,746	5,713	6,841	7,013	7,188
Bridges		1,471	1,440	659	676	693
Footpaths and cycleways		886	372	245	251	257
Drainage		340	350	465	476	488
Other infrastructure		2,573	2,927	1,595	1,635	1,676
Total infrastructure	4.5.2	11,016	10,802	9,805	10,051	10,302
Total capital works expenditure		14,346	13,692	13,597	13,938	14,286
Represented by:						
New asset expenditure		507	118	0	0	0
Asset renewal expenditure		13,610	8,570	13,597	13,938	14,286
Asset upgrade expenditure		229	5,004	0	0	0
Total capital works expenditure		14,346	13,692	13,597	13,938	14,286
Funding Sources represented by:						
Grants		4,873	4,691	2,318	2,376	2,436
Contributions		-	120	-	-	-
Council Cash		9,473	8,881	11,279	11,561	11,850
Borrowings		-	-	-	-	-
Total capital works expenditure		14,346	13,692	13,597	13,938	14,286

3.6 Statement of Human Resources

For the four years ending 30 June 2025

	Forecast	Budget	Projections		
	2020/21	2021/22	2022/23	2023/24	2024/25
	\$'000	\$'000	\$'000	\$'000	\$'000
Staff expenditure					
Employee costs - operating	21,103	21,683	22,557	23,239	23,912
Employee costs - capital	418	450	450	450	450
Total staff expenditure	21,521	22,133	23,007	23,689	24,362
	FTE	FTE	FTE	FTE	FTE
Staff numbers					
Employees	228.0	238.4	238.4	238.4	238.4
Total staff numbers	228.0	238.4	238.4	238.4	238.4

A summary of human resources expenditure categorised according to the organisational structure of Council is included below:

Department	Budget 2021/22 \$'000	Comprises			
		Permanent		Casual	Temp
		Full Time \$'000	Part time \$'000	\$'000	\$'000
Chief Executive Office	765	653	112	-	-
Corporate Services	3,813	2,799	1,015	-	-
Development and Community Services	8,694	4,478	3,894	322	-
Environment and Infrastructure Services	8,411	7,836	575	-	-
Total permanent staff expenditure	21,683	15,765	5,596	322	-
Capitalised labour costs	450				
Total expenditure	22,133				

A summary of the number of full time equivalent (FTE) Council staff in relation to the above expenditure is included below:

Department	Budget 2021/22	Comprises			
		Permanent		Casual	Temp
		Full Time	Part time		
Chief Executive Office	8	7	1	-	-
Corporate Services	41	30	11	-	-
Development and Community Services	93	48	42	3	-
Environment and Infrastructure Services	90	84	6	-	-
Total permanent staff expenditure	232	169	60	3	-
Capitalised labour costs	6				
Total staff	238				

3.7 Summary of Planned Human Resources Expenditure

For the four years ending 30 June 2025

	2021/22 \$'000	2022/23 \$'000	2023/24 \$'000	2024/25 \$'000
Chief Executive Office				
Permanent - Full time	653	679	700	720
Female	414	431	444	457
Male	239	248	256	263
Self-described gender	0	0	0	0
Permanent - Part time	112	116	120	123
Female	112	116	120	123
Male	0	0	0	0
Self-described gender	0	0	0	0
Total Chief Executive Office	765	796	820	844
Corporate Services				
Permanent - Full time	2,799	2,911	2,999	3,086
Female	1,599	1,664	1,714	1,764
Male	1,199	1,248	1,285	1,323
Self-described gender	0	0	0	0
Permanent - Part time	1,015	1,055	1,087	1,119
Female	1,015	1,055	1,087	1,119
Male	0	0	0	0
Self-described gender	0	0	0	0
Total Corporate Services	3,813	3,967	4,087	4,205
Development and Community Services				
Permanent - Full time	4,478	4,658	4,799	4,938
Female	697	725	746	768
Male	3,781	3,933	4,052	4,170
Self-described gender	0	0	0	0
Permanent - Part time	3,894	4,051	4,174	4,295
Female	3,186	3,315	3,415	3,514
Male	708	737	759	781
Self-described gender	0	0	0	0
Total Development and Community Services	8,372	8,709	8,973	9,232
Environment and Infrastructure Services				
Permanent - Full time	7,836	8,152	8,398	8,641
Female	3,740	3,891	4,008	4,124
Male	4,096	4,261	4,390	4,517
Self-described gender	0	0	0	0
Permanent - Part time	575	598	617	634
Female	532	554	570	587
Male	43	45	46	48
Self-described gender	0	0	0	0
Total Environment and Infrastructure Services	8,411	8,750	9,014	9,276
Casuals, temporary and other expenditure	322	335	345	355
Capitalised labour costs	450	450.0	450.0	450.0
Total staff expenditure	22,133	23,007	23,689	24,362

	2021/22 FTE	2022/23 FTE	2023/24 FTE	2024/25 FTE
Chief Executive Office				
Permanent - Full time	7.0	7.0	7.0	7.0
Female	5.8	5.8	5.8	5.8
Male	1.2	1.2	1.2	1.2
Self-described gender	0.0	0.0	0.0	0.0
Permanent - Part time	1.2	1.2	1.2	1.2
Female	1.2	1.2	1.2	1.2
Male	0.0	0.0	0.0	0.0
Self-described gender	0.0	0.0	0.0	0.0
Total Chief Executive Office	8.2	8.2	8.2	8.2
Corporate Services				
Permanent - Full time	30.0	30.0	30.0	30.0
Female	17.1	17.1	17.1	17.1
Male	12.9	12.9	12.9	12.9
Self-described gender	0.0	0.0	0.0	0.0
Permanent - Part time	10.9	10.9	10.9	10.9
Female	10.9	10.9	10.9	10.9
Male	0.0	0.0	0.0	0.0
Self-described gender	0.0	0.0	0.0	0.0
Total Corporate Services	40.9	40.9	40.9	40.9
Development and Community Services				
Permanent - Full time	48.0	48.0	48.0	48.0
Female	7.5	7.5	7.5	7.5
Male	40.5	40.5	40.5	40.5
Self-described gender	0.0	0.0	0.0	0.0
Permanent - Part time	41.7	41.7	41.7	41.7
Female	34.2	34.2	34.2	34.2
Male	7.6	7.6	7.6	7.6
Self-described gender	0.0	0.0	0.0	0.0
Total Development and Community Services	89.7	89.7	89.7	89.7
Environment and Infrastructure Services				
Permanent - Full time	84.0	84.0	84.0	84.0
Female	40.1	40.1	40.1	40.1
Male	43.9	43.9	43.9	43.9
Self-described gender	0.0	0.0	0.0	0.0
Permanent - Part time	6.2	6.2	6.2	6.2
Female	5.7	5.7	5.7	5.7
Male	0.5	0.5	0.5	0.5
Self-described gender	0.0	0.0	0.0	0.0
Total Environment and Infrastructure Services	90.2	90.2	90.2	90.2
Casuals and temporary staff	3.5	3.5	3.5	3.5
Capitalised labour	6.0	6.0	6.0	6.0
Total staff numbers	238.4	238.4	238.4	238.4

4. Notes to the financial statements

This section presents detailed information on material components of the financial statements. Council needs to assess which components are material, considering the dollar amounts and nature of these components.

4.1 Comprehensive Income Statement

4.1.1 Rates and charges

Rates and charges are required by the Act and the Regulations to be disclosed in Council's budget.

As per the Local Government Act 2020, Council is required to adopt a four year Revenue and Rating Plan that outlines how Council will generate income to deliver the Council Plan, program and services and capital works commitments over a four-year period.

In developing the Budget, rates and charges were identified as an important source of revenue. Planning for future rate increases has therefore been an important component of the financial planning process. The Fair Go Rates System (FGRS) sets out the maximum amount councils may increase rates in a year. For 2021/22 the FGRS cap has been set at 1.5%. The cap applies to both general rates and municipal charges and is calculated on the basis of council's average rates and charges.

The level of required rates and charges has been considered in this context, with reference to Council's other sources of income and the planned expenditure on services and works to be undertaken for the community.

To achieve these objectives while maintaining service levels and a strong capital expenditure program, the average general rate and the municipal charge will increase by 1.5% in line with the rate cap.

The annual kerbside collection charge is budgeted to increase, with the weekly waste charge increasing by \$8 from \$300 to \$308 and the fortnightly waste charge by \$40 from \$205 to \$245.

4.1.1(a) The reconciliation of the total rates and charges to the Comprehensive Income Statement is as follows:

	2020/21 Forecast \$'000	2021/22 Budget \$'000	Change \$'000	%
General rates*	25,536	26,193	657	2.57%
Municipal charge*	2,823	2,880	57	2.02%
Waste management charge	3,128	3,213	85	2.7%
Special rates and charges	23	23	-	0.00%
Supplementary rates and rate adjustments	102	100	(2)	(1.96%)
Revenue in lieu of rates	223	227	4	1.86%
Interest on rates and charges	13	140	127	976.9%
Total rates and charges	31,847	32,775	928	2.91%

*These items are subject to the rate cap established under the FGRS

4.1.1(b) The rate in the dollar to be levied as general rates under section 158 of the Act for each type or class of land compared with the previous financial year

Type or class of land	2020/21 cents/\$CIV	2021/22 cents/\$CIV	Change
Residential - Colac	0.003898	0.003580	(8.2%)
Residential - BOS	0.003313	0.003043	(8.2%)
Holiday Rental	0.003898	0.003580	(8.2%)
Rural Farm	0.002924	0.002685	(8.2%)
Commercial/Industrial - Colac	0.006432	0.005907	(8.2%)
Commercial/Industrial - BOS	0.005457	0.005012	(8.2%)

4.1.1(c) The estimated total amount to be raised by general rates in relation to each type or class of land, and the estimated total amount to be raised by general rates, compared with the previous financial year

Type or class of land	2020/21	2021/22	Change	
	\$	\$	\$	%
Residential - Colac	7,287,369	7,519,246	231,876	3.2%
Residential - BOS	7,718,707	8,074,780	356,073	4.6%
Holiday Rental	1,604,768	1,473,743	(131,025)	(8.2%)
Rural Farm	5,732,852	6,026,064	293,212	5.1%
Commercial/Industrial - Colac	2,173,619	2,112,455	(61,163)	(2.8%)
Commercial/Industrial - BOS	1,018,674	986,778	(31,896)	(3.1%)
Total amount to be raised by general rates	25,535,988	26,193,065	657,077	2.6%

4.1.1(d) The number of assessments in relation to each type or class of land, and the total number of assessments, compared with the previous financial year

Type or class of land	2020/21	2021/22	Change	
	Number	Number	Number	%
Residential - Colac	5,770	5,853	83	1.4%
Residential - BOS	5,221	5,342	121	2.3%
Holiday Rental	668	618	(50)	(7.5%)
Rural Farm	2,836	2,838	2	0.1%
Commercial/Industrial - Colac	656	658	2	0.3%
Commercial/Industrial - BOS	333	328	(5)	(1.5%)
Total number of assessments	15,484	15,637	153	1.0%

4.1.1(e) The basis of valuation to be used is the Capital Improved Value (CIV).

4.1.1(f) The estimated total value of each type or class of land, and the estimated total value of land, compared with the previous financial year

Type or class of land	2020/21	2021/22	Change	
	\$	\$	\$	%
Residential - Colac	1,869,515,000	2,100,348,000	230,833,000	12.3%
Residential - BOS	2,329,613,000	2,653,559,000	323,946,000	13.9%
Holiday Rental	411,690,000	411,660,000	(30,000)	(0.0%)
Rural Farm	1,960,955,000	2,244,344,000	283,389,000	14.5%
Commercial/Industrial - Colac	337,954,000	357,619,000	19,665,000	5.8%
Commercial/Industrial - BOS	186,666,000	196,883,000	10,217,000	5.5%
Total value of land	7,096,393,000	7,964,413,000	868,020,000	12.2%

4.1.1(g) The municipal charge under Section 159 of the Act compared with the previous financial year

Type of Charge	Per Rateable Property 2020/21	Per Rateable Property 2021/22	Change	
	\$	\$	\$	%
Municipal Charge	193	195	2	1.0%

4.1.1(h) The estimated total amount to be raised by municipal charges compared with the previous financial year

Type of Charge	2020/21	2021/22	Change	
	\$	\$	\$	%
Municipal Charge	2,823,011	2,879,955	56,944	2.0%

4.1.1(i) The rate or unit amount to be levied for each type of service rate or charge under Section 162 of the Act compared with the previous financial year

Type of Charge	Per Rateable Property 2020/21	Per Rateable Property 2021/22	Change	
	\$	\$	\$	%
Weekly Kerbside collection	300	308	8	2.7%
Fortnightly Kerbside collection	205	245	40	19.5%

4.1.1(j) The estimated total amount to be raised by each type of service rate or charge, and the estimated total amount to be raised by service rates and charges, compared with the previous financial year

Type of Charge	2020/21	2021/22	Change	
	\$	\$	\$	%
Weekly Kerbside collection	3,089,400	3,171,784	82,384	2.7%
Fortnightly Kerbside collection	38,130	40,915	2,785	7.3%
Total	3,127,530	3,212,699	85,169	2.7%

4.1.1(k) The estimated total amount to be raised by all rates and charges compared with the previous financial year

	2020/21	2021/22	Change	
	\$	\$	\$	%
General rates	25,535,988	26,193,065	657,077	2.6%
Municipal charge	2,823,011	2,879,955	56,944	2.0%
Kerbside collection and recycling	3,127,530	3,212,699	85,169	2.7%
Tirrengower Drainage Scheme	22,500	22,500	-	-
Total Rates and charges	31,509,029	32,308,219	799,190	2.5%

4.1.1(l) Fair Go Rates System Compliance

Colac Otway Shire Council is required to comply with the State Government's Fair Go Rates System (FGRS). The table below details the budget assumptions consistent with the requirements of the Fair Go Rates System.

	2020/21	2021/22
Total Rates	\$ 27,941,807	\$ 28,646,750
Number of rateable properties	15,484	15,637
Base Average Rate	\$ 1,805	\$ 1,832
Maximum Rate Increase (set by the State Government)	2.00%	1.50%
Capped Average Rate	\$ 1,841	\$ 1,859
Maximum General Rates and Municipal Charges Revenue	\$ 28,500,643	\$ 29,076,451
Budgeted General Rates and Municipal Charges Revenue	\$ 28,358,999	\$ 29,073,020
Budgeted Supplementary Rates	\$ 102,000	\$ 100,000
Budgeted Total Rates and Municipal Charges Revenue	\$ 28,460,999	\$ 29,173,020

4.1.1(m) Any significant changes that may affect the estimated amounts to be raised by rates and charges

There are no known significant changes which may affect the estimated amounts to be raised by rates and charges. However, the total amount to be raised by rates and charges may be affected by:

- The making of supplementary valuations (2021/22: estimated \$100,000 and 2020/21: \$102,000)
- The variation of returned levels of value (e.g. valuation appeals)
- Changes of use of land such that rateable land becomes non-rateable land and vice versa
- Changes of use of land such that residential land becomes business land and vice versa.

4.1.1(n) Differential rates

The rate and amount of rates payable in relation to land in each category of differential are listed above in item 4.1.1(b).

Each differential rate will be determined by multiplying the Capital Improved Value of rateable land (categorised by the characteristics described below) by the relevant rate in the dollar listed above.

Council believes each differential rate will contribute to the equitable and efficient carrying out of council functions. Details of the objectives of each differential rate, the types of classes of land which are subject to each differential rate and the uses of each differential rate are set out below.

General Rates Charges

Please note, the following categories and differentials are subject to adoption of the Revenue and Rating Plan 2021 - 2025.

Residential Land – Colac

Any land, whether vacant or built upon, which is located in Colac, Colac East, Colac West and Elliminyt that is not zoned for commercial or industrial use and which does not have the characteristics of:

- a) Rural Farm Land;
- b) Holiday Rental Land; or
- c) Commercial/Industrial Land – Colac, Colac East, Colac West or Elliminyt.

Residential Land – Balance of Shire

Any land, whether vacant or built upon or which is not located in Colac, Colac East, Colac West or Elliminyt that does not have the characteristics of:

- a) Rural Farm Land;
- b) Holiday Rental Land; or
- c) Commercial/Industrial Land – Colac, Colac East, Colac West or Elliminyt; or
- d) Commercial/Industrial Land – Balance of Shire.

Holiday Rental Land

Any land that contains a dwelling, cabin or house or part of a house that:

- a) Is used for the provision of holiday accommodation for the purpose of generating income; or
 - b) Is made generally available for holiday accommodation and is a secondary or supplemental source of income for the owner.
- Note: Typically, the category will include absentee owned holiday houses, owner occupied "Bed and Breakfast" establishments, farm properties with accommodation cabins, holiday farms and the like.

The category will not include land used to provide tourist/holiday accommodation on an overtly commercial scale and basis where the provision of accommodation is an integral part of the use of the property. The types of properties excluded from this category would include motels, resorts, hotels with accommodation, caravan parks, centrally managed and promoted multi-unit developments and the like.

Rural Farm Land

Any land located within the shire which is "Farm Land" within the meaning of section 2 of the Valuation of Land Act 1960 and is zoned to allow land to be used for rural and/or farming purposes.

Typically, these properties may contain buildings used as a residence and for farm purposes and will also contain land with no buildings located upon it.

A Rural – Farm property may also be any land located within the shire which:

- a) Is greater than 5 hectares in area;
- b) Is zoned to allow the land to be used for rural and/or farming purposes;
- c) Has been deemed unviable for the purposes of carrying on a business of primary production by Council; and
- d) Has been deemed unsuitable to allow the construction of a dwelling.

Commercial/Industrial Land – Colac, Colac East, Colac West, Elliminyt

Any land which is located in Colac, Colac East, Colac West or Elliminyt which does not have the characteristics of:

- a) Rural Farm Land;
- b) Residential Land – Colac, Colac East, Colac West or Elliminyt; or
- c) Holiday Rental Land;

And;

- d) Is used primarily for:
 - a. The sale of goods or services;
 - b. Other commercial purposes; or
 - c. Industrial purposes or which is vacant but zoned for commercial or industrial use.

Commercial/Industrial Land - Balance of Shire

Any land which is not located in Colac, Colac East, Colac West or Elliminyt which does not have the characteristics of:

- a) Rural Farm Land;
- b) Residential Land – Balance of Shire; or
- c) Holiday Rental Land;

And;

- d) Is used primarily for:
 - a. The sale of goods or services;
 - b. Other commercial purposes; or
 - c. Industrial purposes or which is vacant but zoned for commercial or industrial use.

Other Charges

Municipal Charge

A Municipal Charge be declared for the budgeted period pertaining to this budget document to cover some of the administrative costs of the Council.

The Municipal Charge to be as stated in item 4.1.1(g) per annum for each rateable property in respect of which a municipal charge can be levied.

Annual Service (Waste Management) Charges

An annual service (waste management) charge per 4.1.1(i) for the weekly service provided be declared for:

- a) All land used primarily for residential or commercial purposes; or
- b) Other land in respect of which a weekly waste collection and disposal service is provided, for the budgeted period pertaining to this budget document.

An annual service (waste management) charge per 4.1.1(i) for the fortnightly service provided be declared for:

- a) All land used primarily for residential or commercial purposes; or
- b) Other land in respect of which a weekly waste collection and disposal service is provided, for the budgeted period pertaining to this budget document.

Commercial properties can have a maximum of one (1) 240 Litre or two (2) 120 litre bins.

Tirrengower Special (Drainage) Scheme

The special charge for the Tirrengower drainage works previously declared by Council to be fixed at \$2.50 per hectare for the period 1 July 2020 to 30 June 2021.

4.1.2 Statutory fees and fines

	Forecast	Budget	Change	
	2019/20	2020/21	\$'000	%
	\$'000	\$'000	\$'000	%
Statutory Planning Operations	290	320	30	10.4%
Public Health Operations	75	257	182	242.7%
Building Services Operations	100	107	8	7.7%
Local Laws Operations	72	72	0	-
Property & Rates Operations	30	33	3	10.0%
Infrastructure Customer Services	20	20	0	-
Emergency Management Operations	5	14	9	180.0%
Planning Compliance	3	3	0	-
Total statutory fees and fines	594	826	232	39.0%

The statutory fees generated from Council are expected to mostly remain consistent in 2021/22. The statutory income from Public Health Operations reduced in 2020/21 due to a community support initiative to offer fee relief for health and food registrations. Council expects to resume charging these fees in 2021/22, which will result in additional statutory fee income of \$182k.

4.1.3 User fees

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000	\$'000	%
Aged Care Management Administration	3,017	3,357	340	11.3%
Bluewater Fitness Centre Operations	633	1,362	729	115.1%
Colac Livestock Selling Centre Operations	417	445	28	6.6%
COPACC Management Operations	183	304	121	65.9%
Great Ocean Road VIC Operations	209	224	16	7.4%
Waste Management Administration	197	210	14	6.9%
Local Laws Operations	179	171	(8)	(4.5%)
Apollo Bay Harbour Admin	138	145	7	4.8%
Infrastructure Development	141	140	(1)	(0.9%)
Family & Children's Services Operations	104	124	20	19.2%
Colac Visitor Information Centre Operations	18	35	18	100.0%
Airfield Operations	15	20	5	33.8%
Building Services Operations	7	6	(1)	(13.9%)
Public Health Operations	3	3	0	-
Standpipe Management Operations	-	1	1	-
Risk Management Operations	1	1	0	-
Statutory Planning Operations	1	1	0	-
Strategic Asset & Property Services Operations	25	-	(25)	(100.0%)
Emergency Management Operations	10	-	(10)	(100.0%)
Total user fees	5,296	6,548	1,251	23.6%

The budgeted increase in user fees is largely due to the expectation of increased delivery of fully-funded Home Care Packages in 2021/22, as well as the impact of COVID-19 on 2020/21 operations. In the Aged services area there is a budgeted increase of fees due to increased numbers using the Home Care Services that Council provides to the community (\$340k). This increase is partially offset by the costs to deliver the additional packages, as shown in the '4.1.7 Employee Cost' analysis. The impact of COVID-19 resulted in reduced 2020/21 forecast user fees across several areas of the organisation, including Bluewater Leisure Centre (BWLC) and COPACC. It is expected that these services will remain open in 2021/22, resulting in increased user fees for BWLC (\$729k) and COPACC (\$121k).

4.1.4 Grants

Grants are required by the Act and the Regulations to be disclosed in Council's annual budget.

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000	\$'000	%
Grants were received in respect of the following:				
Summary of grants				
Commonwealth funded grants	14,316	11,823	(2,493)	(17.4%)
State funded grants	8,032	3,558	(4,474)	(55.7%)
Total grants received	22,348	15,381	(6,967)	(31.2%)
(a) Operating Grants				
Recurrent - Commonwealth Government				
Family & Children's Services Operations	400	425	25	6.3%
Aged Care Management Administration	78	91	14	17.4%
Other	66	66	0	-
Public Health Operations	3	3	0	-
Victorian Grants Commission	7,084	6,997	(87)	(1.2%)
Recurrent - State Government				
Aged Care Management Administration	1,155	1,047	(108)	(9.4%)
Port of Apollo Bay Operations	878	891	13	1.5%
Maternal & Child Health Operations	488	410	(78)	(15.9%)
Regional Assessment Service Operations	182	182	(0)	(0.1%)
COPACC Management Operations	95	95	0	-
School Crossing Supervision Operations	55	55	0	-
Revenue Services	46	49	3	6.3%
Public Health Operations	17	16	(1)	(8.0%)
Family & Children's Services Operations	1	1	0	-
Bluewater Leisure Centre	14	-	(14)	(100.0%)
Total recurrent grants	10,562	10,328	(259)	(2.5%)
Non-recurrent - Commonwealth Government				
City Deal Projects	4,610	-	(4,610)	(100.0%)
Family & Children's Services Operations	31	-	(31)	(100.0%)
Events	21	-	(21)	(100.0%)
Non-recurrent - State Government				
Economic Development Operations	796	300	(496)	(62.3%)
Community Services Management	81	32	(49)	(60.4%)
Family & Children's Services Operations	107	27	(80)	(74.7%)
Recreation & Open Spaces	-	3	3	100.0%
Working For Victoria	980	-	(980)	(100.0%)
Port of Apollo Bay Operations	110	-	(110)	(100.0%)
Strategic Planning Operations	89	-	(89)	(100.0%)
Disaster Recovery	75	-	(75)	(100.0%)
Total non-recurrent grants	6,900	362	(6,538)	(94.8%)
Total operating grants	17,463	10,690	(6,772)	(38.8%)
(b) Capital Grants				
Recurrent - Commonwealth Government				
Roads to recovery	1,700	1,700	-	-
Total recurrent grants	1,700	1,700	0	-
Non-recurrent - Commonwealth Government				
Recreation, Leisure and Community Facilities	323	2,541	2,218	686.9%
Non-recurrent - State Government				
Local Roads and Community Infrastructure Funding	1,702	-	(1,702)	(100.0%)
Recreation, Leisure and Community Facilities	1,160	450	(710)	(61.2%)
Total non-recurrent grants	3,185	2,991	(194)	(6.1%)
Total capital grants	4,885	4,691	(194)	(4.0%)
Total Grants	22,348	15,381	(6,967)	(31.2%)

The budgeted recurrent operating grants are similar to the 2020/21 forecast, with the expectation that Federal Assistant Grant funding will increase, with 50% received in advance. The budgeted reduction in non-recurrent operating grants predominantly relates to the receipt of \$4.6m for the City Deals Project in 2020/21, which has an offsetting expense of \$4.6m recognised in Materials and Services. The 2020/21 forecast also includes \$980k Working for Victoria funding, which has an offsetting expense.

The budgeted capital grants are less than the 2020/21 forecast and include Roads to Recovery funding (\$1.7m), the implementation of Local Sports Infrastructure lighting upgrades (\$2.3m) and the replacement and upgrade of the King Track bridge in Chapple Vale (\$450k). The 2020/21 forecast includes grants that have been carried forward from previous years, as well as grants that relate to capital works in the 2020/21 budget. These grants include funding for Local Roads and Community Infrastructure (\$1.7m), Central Reserve Lighting and Netball Court Redevelopment (\$556k), the Memorial Square Playspace (\$325k) and the Elliminyt Recreation Reserve Velodrome Resurfacing (\$279k). The reduction in expected capital grants is reflected in the reduced capital works program (refer '4.5 Capital works program').

4.1.5 Contributions

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000		
Monetary	139	420	281	202.7%
Non-monetary	-	-	-	-
Total contributions	139	420	281	202.7%

Monetary contributions are expected to increase due to an expected increase of contributions in 2021/22 relating to one-off projects. These contributions relate to projects including the Deans Creek Precinct Structure Plan (\$175k), Community Sport Lighting Upgrades (\$50k), and the replacement and upgrade bridge on King Track Chapple Vale (\$50k). It is also expected that Council will receive Public Open Space contributions (\$100k),

4.1.6 Other income

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000		
Reimbursements	456	109	(348)	(76.2%)
Port of Apollo Bay Administration Income	60	60	-	-
Interest	75	50	(25)	(33.3%)
Other income	99	48	(51)	(51.2%)
Works on Road Permits	40	40	-	-
Rates Legal Costs Recovered	40	40	-	-
Landing Fees	20	20	-	-
Total other income	790	367	(423)	(53.5%)

There are several expected variances relating to 'Other income' in 2021/22, including a reduction of interest on investments. It is expected that Interest received from investments will decrease by \$25k due to a combination of the RBA lowering the Cash Rate in 2020/21 and Council not holding as much cash as in previous years. The 2020/21 Forecast included a one-off reimbursement of \$284k for legal costs, as well as \$30k from penalties relating to the election. 2021/22 reimbursements include \$82k for reimbursed wages for employees on long-term WorkCover, in comparison to \$90k in 2020/21.

4.1.7 Employee costs

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000		
Wages and salaries	16,015	16,192	178	1.1%
Employee Leave	1,591	1,635	44	2.8%
Superannuation	1,789	1,898	109	6.1%
Casual Staff	456	565	110	24.1%
Sick Leave	561	576	15	2.8%
Other Employee Benefits	189	213	25	13.2%
Fringe Benefits Tax	170	170	0	-
WorkCover	333	433	100	30.0%
Total employee costs	21,103	21,683	581	2.8%

The 2020/21 Forecast includes expenditure relating to Working for Victoria \$680k. Therefore employee costs, excluding WFV, have increased by \$1.26m in 2021/22. The 2020/21 Forecast includes the impact of COVID-19, whereas the 2021/22 Budget assumes services will remain open, resulting in additional employee costs in BWLC (\$350k), COPACC (\$80k) and the Visitor Information Centres (\$60k). The 2021/22 Budget includes the EBA increase of 2.25% (\$450k). Additional employee costs are required to service increased fully-funded Home Care Packages (\$290k), which has offsetting income as shown within the User Fee analysis. The WorkCover Premium is expected to increase by \$100k.

4.1.8 Materials and services

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000	\$'000	%
Contractors	16,038	10,120	(5,918)	(36.9%)
Materials	3,800	4,294	494	13.0%
Subscriptions and memberships	1,721	1,860	139	8.1%
Utilities	1,203	1,290	87	7.2%
Consultants	1,118	939	(179)	(16.0%)
Agency staff	862	712	(151)	(17.5%)
Insurances	521	555	34	6.5%
Training costs	387	432	46	11.8%
Plant and equipment (maintenance & internal charge)	527	327	(201)	(38.1%)
Legal costs	173	146	(27)	(15.6%)
Venue Hire	62	33	(29)	(46.2%)
Other expenditure	15	15	0	-
Permits	4	4	0	-
Merchant Fees	5	3	(2)	(40.0%)
Total materials and services	26,436	20,730	(5,706)	(21.6%)

The budget for materials and services is expected to reduce in 2021/22, largely due to the 2020/21 forecast including projects carried forward from previous years, as well as non-recurrent operational initiatives. These initiatives include \$4.6m contractor costs relating to the City Deals Projects and \$300k for expenses related to the Working For Victoria program; which have offsetting operational grants. The budgeted 'materials' in 2021/22 is expected to increase, largely due to the implementation and distribution of the fourth glass bin to the community (\$450k).

4.1.9 Depreciation

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000	\$'000	%
Buildings	1,352	1,139	(213)	(15.7%)
Plant & equipment	2,292	1,932	(361)	(15.7%)
Infrastructure	7,156	6,029	(1,126)	(15.7%)
Total depreciation	10,800	9,100	(1,700)	(15.7%)

4.1.10 Amortisation - Right of use assets

	Forecast	Budget	Change	
	2020/21	2021/22	\$'000	%
	\$'000	\$'000	\$'000	%
Right of use assets	115	110	(5)	(4.3%)
Total amortisation - right of use assets	115	110	(5)	(4.3%)

4.1.11 Other expenses

	Forecast	Budget	Change	
	2020/21 \$'000	2021/22 \$'000	\$'000	%
Grants and donations paid	785	731	(54)	(6.9%)
Elected Members Allowances	229	234	5	2.0%
Other costs	930	204	(726)	(78.1%)
Fire service levy	65	65	-	-
Auditors remuneration	43	47	4	9.8%
Rates Written Off	35	29	-6	(15.9%)
Elected Members Superannuation Contribution	24	24	-	-
Elected Member Mileage Allowance per km	20	20	-	-
Animal registration levy	22	20	(2)	(9.7%)
Royalties and commissions	6	5	(1)	(16.7%)
Interest Payments Interfund	20	5	(15)	(75.0%)
Remote Area Councillor Travel Allowance	3	3	-	-
Corporate Card Expenses	2	2	-	-
Total other expenses	2,184	1,389	(794)	(36.4%)

The budgeted movement predominantly relates to Council setting aside funds in 2020/21, allocated as 'Other costs' (\$664k), for the financial impact of COVID-19 and community support initiatives in response to this Pandemic.

4.2 Balance Sheet

4.2.1 Assets

Assets remain consistent in 2021/22, with Cash expected to decrease and Property, infrastructure, plant and equipment expected to increase. Property, infrastructure, plant and equipment comprise 95% of Council's total assets and is expected to increase, largely due to the capital works program being greater than depreciation. A 'Right-of-Use' asset to the value of \$638k accounts for existing operating leases, which is offset by 'Lease Liabilities' in the liabilities section of the balance sheet.

4.2.2 Liabilities

Liabilities remain consistent in 2021/22, with loan repayments and lease payments expected to reduce Council's overall liabilities. Repayments of \$142k will be made on Interest Bearing Loans in 2021/22, with the final repayment of existing borrowings expected to occur in 2022/23. The lease liabilities of \$653k reflect the existing liability for committed operating lease payments. This is largely offset by a 'Right of Use' asset in the balance sheet.

4.2.3 Borrowings

The table below shows information on borrowings specifically required by the Regulations.

	Forecast	Budget
	2020/21 \$'000	2021/22 \$
Amount borrowed as at 30 June of the prior year	1,024	738
Amount proposed to be borrowed	-	-
Amount projected to be redeemed	(286)	(142)
Amount of borrowings as at 30 June	738	596

4.2.4 Leases by category

As a result of the introduction of AASB 16 Leases, right-of-use assets and lease liabilities have been recognised as outlined in the table below.

	Forecast	Budget
	2020/21 \$'000	2021/22 \$
Right-of-use assets	-	-
Plant and equipment	748	638
Total right-of-use assets	748	638
Lease liabilities		
Current lease Liabilities		
Plant and equipment	100	100
Total current lease liabilities	100	100
Non-current lease liabilities		
Plant and equipment	663	553
Total non-current lease liabilities	663	553
Total lease liabilities	763	653

Where the interest rate applicable to a lease is not expressed in the lease agreement, Council applies the average incremental borrowing rate in the calculation of lease liabilities. The current incremental borrowing rate is 4.25%.

4.3 Statement of changes in Equity

4.3.1 Reserves

Reserve Name	Reserve Type	Forecast	Budget
		2020/21 \$'000	2021/22 \$'000
Asset Revaluation Reserve	Discretionary	208,131	208,131
Financial Assistance Grants Received in Advance	Discretionary	3,438	3,499
Waste Management Reserve	Discretionary	2,619	1,617
Landfill Rehabilitation (Alvie) Reserve	Discretionary	1,037	1,094
Long Service Leave Reserve	Discretionary	2,652	2,652
Plant Replacement Reserve	Discretionary	1,296	1,082
Port of Apollo Bay Reserve	Contractual	389	389
Recreational Lands Reserve	Statutory	892	992
Rehabilitation Reserve	Discretionary	1,040	1,048
Water Sensitive Urban Design	Statutory	44	44
Strategic Projects Reserve	Discretionary	602	602
Tirrengower Drainage Scheme Reserve	Contractual	24	24
Total Equity Reserves		222,164	221,174

Purposes for Reserves

Asset Revaluation Reserve

This reserve captures the reassessment of the value of Council's capital assets.

Financial Assistance Grants received in advance

The purpose of this reserve is to set aside any Commonwealth Financial Assistance Grant funding received in advance of its intended allocation.

Waste Management Reserve

This reserve was set up as a source of funding the replacement of kerbside bins. All funds in this reserve are collected from the waste collection service charge and are to be used only in connection with the waste collection service.

Long Service Leave Reserve

The purpose of this reserve is to ensure that the nominal long service leave balances owing to employees are maintained.

Landfill Rehabilitation (Alvie) Reserve

This reserve relates to the funds required to restore the Alvie Tip. The rehabilitation reserve will continue to grow until the Tip closes, at which time, the funds will be utilised to meet this obligation.

Water Sensitive Urban Design

Statutory reserve to be used for the construction of water saving initiatives within council's waste water network.

Port of Apollo Bay Reserve

These funds are bound by an agreement with the Department of Transport concerning the operations of the Port of Apollo Bay and are the value of cash assets owed.

Recreational Lands Reserve

Statutory reserve to be used for the development of recreational reserves and public open space.

Rehabilitation Reserve

This reserve is to fund the rehabilitation of the various waste disposal sites across the Colac Otway Shire.

Plant replacement Reserve

This reserve is to fund the replacement of council's plant at the end of their useful lives. Inflows to the reserve accrue out of any plant operating surplus with the funds then being used for the changeover of plant.

Strategic Projects Reserve

The purpose of this reserve is for strategic projects and acquisitions of new or expanded assets that are of an intergenerational nature.

Tirrengower Drainage Scheme Reserve

These funds are collected via a special rate and must be expended against the purpose of the drainage scheme at Tirrengower.

4.4 Statement of Cash Flows

4.4.1 Net cash flows provided by/used in operating activities

There is an increase in cash provided by operating activities, predominantly due to the impact of COVID-19 on 2020/21 operations. The 2021/22 Budget reflects the impact of services remaining open, with Bluewater user fees increasing by \$729k and COPACC fees increasing by \$121k. Receipts from operating grants are expected to decrease, largely due to the 2020/21 forecast containing funding received for the City Deal Project (\$4.6m) and Working For Victoria (\$980k). It is important to note that this funding has associated offsetting outflow of funds from Materials and Services and Employee Costs. The capital programme is budgeted to reduce in 2020/21, with less funding anticipated.

4.4.2 Net cash flows provided by/used in investing activities

The capital programme forecasted for 2020/21 is larger than the 2021/22 budgeted programme, which is reflected in the budgeted decrease in 'Payments for property, infrastructure, plant and equipment.' The 2020/21 capital programme includes carried-forward projects from previous years and fully funded projects delivered as part of the non-recurrent Local Roads and Community Infrastructure Program (\$1.7m).

4.4.3 Net cash flows provided by/used in financing activities

There is a reduction in repayment of borrowings budgeted in 2021/22, due to the final settlement of one loan in 2020/21. The decrease in interest-bearing liabilities has resulted in reduced outflow of finance costs in 2021/22. The repayment of lease liabilities remains consistent, with a reduction in interest paid, reflecting a decreasing lease liability balance.

4.5 Capital works program

This section presents a listing of the capital works projects that will be undertaken for the 2021/22 year, classified by expenditure type and funding source. Works are also disclosed as current budget or carried forward from prior year.

4.5.1 Summary

	Forecast 2020/21 \$'000	Budget 2021/22 \$'000	Change \$'000	%
Property	658	702	44	6.69%
Plant and equipment	2,672	2,188	(485)	-18.13%
Infrastructure	11,016	10,802	(214)	-1.94%
Total	14,346	13,692	(654)	-4.56%

	Project Cost \$'000	Asset expenditure types			Summary of Funding Sources			
		New \$'000	Renewal \$'000	Upgrade \$'000	Grants \$'000	Contrib. \$'000	Council cash \$'000	Borrowings \$'000
Property	702	-	100	602	-	-	702	-
Plant and equipment	2,188	8	2,100	80	-	-	2,188	-
Infrastructure	10,802	110	6,370	4,322	4,691	120	5,991	-
Total	13,692	118	8,570	5,004	4,691	120	8,881	-

The 2020/21 forecast figures include capital works carried forward from previous years. The 2021/22 budgeted Capital Works Program has increase from the 2020/21 Original Budget (\$10.1m), reflective of an anticipated increase in capital grants received. It is expected that 63% of the Capital Works completed will be Renewal Works and 36% will be Upgrade Works.

4.5.2 Current Budget

Capital Works Area	Project Cost \$'000	Asset expenditure types			Summary of Funding Sources			
		New \$'000	Renewal \$'000	Upgrade \$'000	Grants \$'000	Contrib. \$'000	Council cash \$'000	Borrowings \$'000
PROPERTY								
Buildings								
<i>Building Renewal Programme</i>	100	-	100	-	-	-	100	-
<i>Building Upgrade Programme</i>	522	-	-	522	-	-	522	-
<i>Bluewater Heat Pump Upgrade</i>	80	-	-	80	-	-	80	-
TOTAL PROPERTY	702	-	100	602	-	-	702	-
PLANT AND EQUIPMENT								
Plant, Machinery and Equipment								
<i>Annual Heavy Plant Replacement Program</i>	1,340	-	1,340	-	-	-	1,340	-
<i>Annual Light Fleet Replacement Program</i>	760	-	760	-	-	-	760	-
<i>Kerbside compaction litter bins (solar)</i>	8	8	-	-	-	-	8	-
Computers and Telecommunications								
<i>Conference rooms - MS Teams AV Upgrades</i>	80	-	-	80	-	-	80	-
TOTAL PLANT AND EQUIPMENT	2,188	8	2,100	80	-	-	2,188	-

4.5.2 Current Budget (cont.)

Capital Works Area	Project Cost \$'000	Asset expenditure types			Summary of Funding Sources			
		New \$'000	Renewal \$'000	Upgrade \$'000	Grants \$'000	Contrib. \$'000	Council cash \$'000	Borrowings \$'000
INFRASTRUCTURE								
Roads								
<i>Crack Sealing Program</i>	108	-	108	-	-	-	108	-
<i>Kerb and Channel Renewal Program</i>	80	-	80	-	-	-	80	-
<i>Major Patching Program</i>	195	-	195	-	-	-	195	-
<i>Pascoe St Pedestrian Safety Treatment - Pascoe St. Apollo Bay</i>	30	30	-	-	-	-	30	-
<i>Road Resealing Program</i>	1,200	-	1,200	-	-	-	1,200	-
<i>Sealed Road Reconstruction Renewal Program</i>	2,100	-	2,100	-	1,700	-	400	-
<i>Sealed Road Reconstruction Upgrade Program</i>	200	-	-	200	-	-	200	-
<i>Unsealed Road Reconstruction Program</i>	1,400	-	1,400	-	-	-	1,400	-
<i>Road Safety New Program</i>	30	30	-	-	-	-	30	-
<i>Road Safety Renewal Program 1</i>	100	-	100	-	-	-	100	-
<i>Road Safety Renewal Program 2</i>	270	-	270	-	-	-	270	-
Bridges								
<i>Bridge Renewal Program</i>	540	-	540	-	-	-	540	-
<i>Bridge Upgrade Program</i>	900	-	-	900	450	50	400	-
Footpaths and Cycleways								
<i>Footpath Renewal Program</i>	127	-	127	-	-	-	127	-
<i>Footpath Upgrade Program</i>	105	-	-	105	-	-	105	-
<i>Old Beechy Rail Trail - Colac Station trail safety improvements</i>	140	-	-	140	120	-	20	-
Drainage								
<i>Stormwater Renewal Program</i>	200	-	200	-	-	-	200	-
<i>Stormwater Upgrade Program</i>	150	-	-	150	-	-	150	-
Other infrastructure								
<i>Colac Entry Signs</i>	50	50	-	-	-	-	50	-
<i>Cricket Pitch Upgrades (G21 and Cricket Victoria Barwon Regional Cricket Strategy Implementation)</i>	135	-	-	135	90	20	25	-
<i>Open Space Renewal Program</i>	50	-	50	-	-	-	50	-

<i>Community Sport Infrastructure Fund (Sports Lighting Upgrades) 1</i>	2,312	-	-	2,312	2,081	-	231	
<i>Community Sport Infrastructure Fund (Sports Lighting Upgrades) 2</i>	380	-	-	380	250	50	80	
TOTAL INFRASTRUCTURE	10,802	110	6,370	4,322	4,691	120	5,991	-
TOTAL NEW CAPITAL WORKS	13,692	118	8,570	5,004	4,691	120	8,881	-

4.6 Summary of Planned Capital Works Expenditure

For the four years ending 30 June 2025

2022/23	Asset Expenditure Types					Funding Sources				
	Total \$'000	New \$'000	Renewal \$'000	Expansion \$'000	Upgrade \$'000	Total \$'000	Grants \$'000	Contributions \$'000	Council Cash \$'000	Borrowings \$'000
Property										
Land	0	0	0	0	0	0	0	0	0	0
Land improvements	0	0	0	0	0	0	0	0	0	0
Total Land	0	0	0	0	0	0	0	0	0	0
Buildings	798	0	798	0	0	0	0	0	0	0
Total Buildings	798	0	798	0	0	0	0	0	0	0
Total Property	798	0	798	0	0	0	0	0	0	0
Plant and Equipment										
Plant, machinery and equipment	2,308	0	2,308	0	0	0	0	0	0	0
Fixtures, fittings and furniture	319	0	319	0	0	0	0	0	0	0
Computers and telecommunications	368	0	368	0	0	0	0	0	0	0
Total Plant and Equipment	2,994	0	2,994	0	0	0	0	0	0	0
Infrastructure										
Roads	6,841	0	6,841	0	0	13,597	2,318	0	11,279	0
Bridges	659	0	659	0	0	0	0	0	0	0
Footpaths and cycleways	245	0	245	0	0	0	0	0	0	0
Drainage	465	0	465	0	0	0	0	0	0	0
Other infrastructure	1,595	0	1,595	0	0	0	0	0	0	0
Total Infrastructure	9,805	0	9,805	0	0	13,597	2,318	0	11,279	0
Total Capital Works Expenditure	13,597	0	13,597	0	0	13,597	2,318	0	11,279	0

2023/24	Asset Expenditure Types					Funding Sources				
	Total \$'000	New \$'000	Renewal \$'000	Expansion \$'000	Upgrade \$'000	Total \$'000	Grants \$'000	Contributions \$'000	Council Cash \$'000	Borrowings \$'000
Property										
Land	0	0	0	0	0	0	0	0	0	0
Land improvements	0	0	0	0	0	0	0	0	0	0
Total Land	0	0	0	0	0	0	0	0	0	0
Buildings	818	0	818	0	0	0	0	0	0	0
Total Buildings	818	0	818	0	0	0	0	0	0	0
Total Property	818	0	818	0	0	0	0	0	0	0
Plant and Equipment										
Plant, machinery and equipment	2,366	0	2,366	0	0	0	0	0	0	0
Fixtures, fittings and furniture	327	0	327	0	0	0	0	0	0	0
Computers and telecommunications	377	0	377	0	0	0	0	0	0	0
Total Plant and Equipment	3,069	0	3,069	0	0	0	0	0	0	0
Infrastructure										
Roads	7,013	0	7,013	0	0	13,938	2,376	0	11,561	0
Bridges	676	0	676	0	0	0	0	0	0	0
Footpaths and cycleways	251	0	251	0	0	0	0	0	0	0
Drainage	476	0	476	0	0	0	0	0	0	0
Other infrastructure	1,635	0	1,635	0	0	0	0	0	0	0
Total Infrastructure	10,051	0	10,051	0	0	13,938	2,376	0	11,561	0
Total Capital Works Expenditure	13,938	0	13,938	0	0	13,938	2,376	0	11,561	0

2024/25	Asset Expenditure Types					Funding Sources				
	Total \$'000	New \$'000	Renewal \$'000	Expansion \$'000	Upgrade \$'000	Total \$'000	Grants \$'000	Contributions \$'000	Council Cash \$'000	Borrowings \$'000
Property										
Land	0	0	0	0	0	0	0	0	0	0
Land improvements	0	0	0	0	0	0	0	0	0	0
Total Land	0	0	0	0	0	0	0	0	0	0
Buildings	838	0	838	0	0	0	0	0	0	0
Total Buildings	838	0	838	0	0	0	0	0	0	0
Total Property	838	0	838	0	0	0	0	0	0	0
Plant and Equipment										
Plant, machinery and equipment	2,425	0	2,425	0	0	0	0	0	0	0
Fixtures, fittings and furniture	335	0	335	0	0	0	0	0	0	0
Computers and telecommunications	386	0	386	0	0	0	0	0	0	0
Total Plant and Equipment	3,146	0	3,146	0	0	0	0	0	0	0
Infrastructure										
Roads	7,188	0	7,188	0	0	14,286	2,436	0	11,850	0
Bridges	693	0	693	0	0	0	0	0	0	0
Footpaths and cycleways	257	0	257	0	0	0	0	0	0	0
Drainage	488	0	488	0	0	0	0	0	0	0
Other infrastructure	1,676	0	1,676	0	0	0	0	0	0	0
Total Infrastructure	10,302	0	10,302	0	0	14,286	2,436	0	11,850	0
Total Capital Works Expenditure	14,286	0	14,286	0	0	14,286	2,436	0	11,850	0

5. Financial performance indicators

The following table highlights Council's current and projected performance across a range of key financial performance indicators. These indicators provide a useful analysis of Council's financial position and performance and should be interpreted in the context of the organisation's objectives.

The financial performance indicators below are the prescribed financial performance indicators contained in Part 3 of Schedule 3 of the Local Government (Planning and Reporting) Regulations 2020. Results against these indicators will be reported in Council's Performance Statement included in the Annual Report.

Indicator	Measure	Notes	Actual	Forecast	Budget	Projections			Trend
			2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	+o/-
Operating position									
Adjusted underlying result	Adjusted underlying surplus (deficit) / Adjusted underlying revenue	1	-3.5%	-4.5%	0.3%	0.9%	0.3%	-0.6%	o
Liquidity									
Working Capital	Current assets / current liabilities	2	178.4%	159.7%	145.1%	118.3%	77.9%	31.3%	-
Unrestricted cash	Unrestricted cash / current liabilities	3	104.9%	116.3%	101.8%	91.3%	51.0%	4.6%	-
Obligations									
Loans and borrowings	Interest bearing loans and borrowings / rate revenue	4	3.3%	2.3%	1.8%	0.0%	0.0%	0.0%	+
Loans and borrowings	Interest and principal repayments on interest bearing loans and borrowings / rate revenue		5.7%	1.1%	0.6%	1.9%	0.0%	0.0%	+
Indebtedness	Non-current liabilities / own source revenue		27.1%	26.4%	23.6%	19.2%	18.2%	17.3%	+
Asset renewal	Asset renewal and upgrade expense / Asset depreciation	5	108.8%	128.1%	149.2%	147.8%	149.9%	152.0%	+
Stability									
Rates concentration	Rate revenue / adjusted underlying revenue	6	58.4%	54.8%	61.5%	61.0%	61.0%	60.8%	o
Rates effort	Rate revenue / CIV of rateable properties in the municipality		0.5%	0.4%	0.4%	0.4%	0.4%	0.4%	o
Efficiency									
Expenditure level	Total expenses/ no. of property assessments		\$3,609	\$3,923	\$3,396	\$3,394	\$3,476	\$3,577	o
Revenue level	Total rate revenue / no. of property assessments		\$1,811	\$1,832	\$1,859	\$1,884	\$1,918	\$1,952	+

Key to Forecast Trend:

- + Forecasts improvement in Council's financial performance/financial position indicator
- o Forecasts that Council's financial performance/financial position indicator will be steady
- Forecasts deterioration in Council's financial performance/financial position indicator

Notes to indicators**1. Adjusted underlying result**

This measure is an indicator of the sustainable operating result required to enable Council to continue to provide core services and meet its objectives. The results are showing an underlying surplus results of less than 1% in 2021/22, 2022/23 and 2023/24, with an underlying deficit in 2024/25. This deficit indicates the erosion of Council's ability to generate 'own-sourced' revenue.. I.e. As a proportion of total revenue Council is generating less revenue from sources it can control, increasing its reliance on funding from external sources such as grant funding. This is not considered to be sustainable in the medium to long term, however adjusted underlying deficits are sustainable in the short term, providing other indicators remain healthy.

Council are currently undertaking a review of its Long Term Financial Plan, which will require Council to critically review service types and levels to ensure they are sustainable into the future. The Long Term Financial Plan is a requirement of the Local Government Act 2020.

2. Working Capital

This indicator decreases over the projected period primarily due to the forecasted impacts of rate capping, which limits Council's ability to deliver services to the same level. It must be noted that the projections have largely been developed on a 'Business as Usual' basis.

3. Unrestricted Cash

This shows a decrease in the available unrestricted cash for the council. This is due to the reduction of cash and cash equivalents over the period. This trend is consistent and reflective of the adjusted underlying result and working capital.

4. Debt compared to rates

The steep decrease in this ratio reflects the effect of continuing payback and maturity of debt without any forecast new borrowings.

5. Asset renewal

This percentage indicates the extent of Council's renewals and upgrades against its depreciation charge (an indication of the decline in value of its existing capital assets). A percentage greater than 100 indicates Council is maintaining its existing assets, while a percentage less than 100 means its assets are deteriorating faster than they are being renewed and future capital expenditure will be required to renew assets.

Council has a history of this indicators being above 100%. The increase in 2021/22 has primarily resulted from a reduction in depreciation rates as a result of a depreciation review conducted in 2020/21. The review concluded that depreciation rates were too high. The depreciation expense will decrease from \$10.8m in the 2020/21 forecast to \$9.1m in 2021/22.

6. Rates concentration

This indicator shows a relatively consistent trend for the projected period reflecting Colac Otway Shire's reliance on rate revenues (as a proportion of total revenue) to fund all of Council's on-going services. Rates remain an important source of revenue for Council. This indicator is consistent with the Large Rural Council cohort in Victoria.

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Fees & Charges

Colac Otway Shire Council

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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Colac Otway Shire

Corporate Services

Financial Services

Replacement Rate Notice

Fee	\$27.00	\$27.00	0.00%
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Payment Dishonour Fee (All Other)

Admin Fee	\$26.00	\$26.00	0.00%
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Payment Dishonour Fee (Direct Debit)

Admin Fee	\$11.00	\$11.00	0.00%
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Governance

Printing and Photocopying

A3 sheet	\$0.40	\$1.00	150.00%
A4 sheet	\$0.20	\$0.50	150.00%
Coloured copy – A3 sheet	\$2.00	\$2.50	25.00%
Coloured copy – A4 sheet	\$1.00	\$1.50	50.00%

Record Search Fee

Discovery Fee – Per Hour	\$65.00	\$65.00	0.00%
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Annual Report

Cost per copy	\$20.00	\$20.00	0.00%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Development & Community Services

Bluewater Fitness Centre

Aquatic – Daily Charges

Combo Swim Spa Sauna Stadium (SSSS)

Adult	\$12.40	\$13.00	4.84%
Concession	\$10.20	\$10.40	1.96%

Pool or spa or steam room or stadium

Adult	\$7.00	\$7.30	4.29%
Child	\$4.80	\$5.00	4.17%
Concession	\$5.60	\$5.90	5.36%
Family	\$20.90	\$22.00	5.26%
Parent/Toddler	\$5.60	\$5.90	5.36%
School Group	\$4.80	\$5.00	4.17%

Aqua Membership (Aquatics Only)

Adult

12 months	\$608.61	\$635.00	4.34%
Direct Debit	\$23.79	\$25.00	5.09%

Child

12 months	\$427.50	\$441.00	3.16%
Direct Debit	\$16.50	\$17.40	5.45%

Concession

12 months	\$498.00	\$505.00	1.41%
Direct Debit	\$19.35	\$20.00	3.36%

Family

12 months	\$905.00	\$920.00	1.66%
Direct Debit	\$35.44	\$37.50	5.81%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Childcare

Member – BWFC

Child 1 hr (per hour)	\$6.50	\$8.00	23.08%
Family 1 hr (per hour)	\$11.00	\$13.00	18.18%

Non-member – BWFC

Child 1 hr	\$13.00	\$13.60	4.62%
Family 1 hr	\$21.00	\$22.00	4.76%

Health Club & Group Fitness

Casual

Fitness Assessment (45 min)	\$58.50	\$62.00	5.98%
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Casual Entry

Adult	\$15.10	\$15.80	4.64%
Concession	\$12.50	\$12.70	1.60%

Group Fitness Casual Entry

Adult	\$15.10	\$15.80	4.64%
Concession	\$12.50	\$13.00	4.00%
Group Entry (Schools)	\$7.75	\$8.10	4.52%
Senior Programs	\$7.50	\$7.90	5.33%

Personal Training

10 Ticket OPEN Group Training – Member (per person)	\$100.00	\$130.00	30.00%
10 Ticket OPEN Group Training – Non Member (per person)	\$145.00	\$150.00	3.45%
1 session group training	\$77.00	\$80.00	3.90%
1 session personal training (45 min)	\$56.00	\$59.00	5.36%
10 ticket group training	\$650.00	\$685.00	5.38%
10 ticket personal training	\$480.00	\$499.00	3.96%
5 ticket group training	\$350.00	\$372.00	6.29%
5 ticket personal training	\$260.00	\$272.00	4.62%

Platinum Membership (Full Centre)

Youth and Student Membership (14-21 or Student card holder)

12 months	\$545.00	\$615.00	12.84%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Youth and Student Membership (14-21 or Student card holder) [continued]

Direct Debit (Fortnightly)	\$21.05	\$24.50	16.39%
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Off-Peak Full Facility Access (8.30am-4.30pm)

12 months	\$545.00	\$680.00	24.77%
Direct Debit	\$21.05	\$27.00	28.27%

Adult

12 months	\$915.00	\$900.00	-1.64%
Direct Debit	\$34.90	\$36.50	4.58%

Concession

12 months	\$757.00	\$765.00	1.06%
Direct Debit	\$29.10	\$30.50	4.81%

Family

12 months	\$1,375.00	\$1,350.00	-1.82%
Direct Debit	\$52.90	\$55.00	3.97%

Gold Membership (Gym Only)**Adult**

12 months	\$815.00	\$820.00	0.61%
Direct Debit	\$31.75	\$33.50	5.51%

Concession

12 months	\$677.01	\$685.00	1.18%
Direct Debit	\$25.91	\$27.00	4.21%

Family

12 months	\$1,222.00	\$1,270.00	3.93%
Direct Debit	\$47.10	\$50.00	6.16%

Membership Fee**Direct Debit Joining Fee**

Adult	\$51.00	\$51.00	0.00%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Direct Debit Joining Fee [continued]

Concession	\$43.00	\$43.00	0.00%
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Multipass**Adult**

10 Ticket Group Fitness	\$144.00	\$151.00	4.86%
30 Ticket Group Fitness	\$410.00	\$429.00	4.63%
10 Ticket Gym	\$144.00	\$151.00	4.86%
10 Ticket Aqua	\$66.20	\$70.00	5.74%
30 Ticket Gym	\$410.00	\$429.00	4.63%
30 Ticket Aqua	\$187.00	\$196.00	4.81%

Concession

10 Ticket Group Fitness	\$120.00	\$121.00	0.83%
30 Ticket Group Fitness	\$334.00	\$343.00	2.69%
10 Ticket Aqua	\$54.00	\$56.00	3.70%
10 Ticket Gym	\$120.00	\$121.00	0.83%
30 Ticket Gym	\$334.00	\$343.00	2.69%
30 Ticket Aqua	\$152.00	\$157.00	3.29%

Other Charges**Instructor hire/hr aquatic or dry**

Instructor Hire	\$65.00	\$68.00	4.62%
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Party

Birthday Part Invitations	\$0.45	\$0.45	0.00%
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Swim School**30 min Private Lesson**

30 Min Group SS 2 on 1 (per person)	\$35.00	\$37.00	5.71%
30 Min Group SS 3 on 1 (per person)	\$25.00	\$26.50	6.00%
30 Min Group SS 4 on 1 (per person)	\$20.00	\$21.00	5.00%
Swim School	\$47.50	\$50.00	5.26%

30 min group lesson

Swim School – Concession	\$12.50	\$13.35	6.80%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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30 min group lesson [continued]

Swim School – Paid in Full (per lesson)	\$18.80	\$15.70	-16.49%
Swim School Intensive Program	\$62.50	\$66.00	5.60%
Swim School	\$15.50	\$16.20	4.52%

Schools Instructor Charge

Instructor Charge	\$68.00	\$72.00	5.88%
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Schools Swim & Survive Program Entry

Program Entry	\$4.50	\$4.70	4.44%
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Venue Hire**Pool Hire**

Lane hire/hr (during normal operating hrs)	\$25.50	\$27.00	5.88%
Whole pool full day 4+ hrs (during normal operating hours)	\$559.00	\$585.00	4.65%
Program Pool Hire – half pool per hr	\$36.50	\$38.50	5.48%
Program Pool Hire – full pool per hr	\$60.50	\$64.00	5.79%
Additional Lifeguard Hire (per hour)	\$48.00	\$51.00	6.25%

Commercial Room Hire

Program Room Single	\$40.00	\$42.00	5.00%
Program Room Double	\$60.00	\$63.00	5.00%
Meeting Room	\$40.00	\$42.00	5.00%

Community Room Hire

Program Room Single	\$27.00	\$28.50	5.56%
Program Room Double	\$41.00	\$43.00	4.88%
Meeting Room	\$27.00	\$28.50	5.56%

Stadium Hire

All day hire	\$680.00	\$715.00	5.15%
Off Peak court hire/hr	\$41.00	\$43.00	4.88%
Peak court hire/hr	\$48.00	\$51.00	6.25%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Community Services – Family Day Care

Family Day Care Administration Levy

Educators Levy

Carers Levy per week	\$12.00	\$12.00	0.00%
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Per family per week

Child's hourly rate for a family per week	\$1.25	\$1.75	40.00%
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Family Day Care Charges

8am to 6pm Monday to Friday

Per hour per child – Lower Limit	\$8.40	\$8.70	3.57%
Per hour per child – Upper Limit	\$8.90	\$9.20	3.37%

Before 8 am and after 6 pm

Mon – Fri (per hour per child) – Lower Limit	\$9.40	\$9.70	3.19%
Mon – Fri (per hour per child) – Upper Limit	\$9.90	\$10.10	2.02%

Saturday, Sunday and Public Holidays

Per hour per child – Lower Limit	\$9.40	\$9.70	3.19%
Per hour per child – Upper Limit	\$9.90	\$10.10	2.02%

Meals (per meal)

Breakfast	\$3.85	\$3.90	1.30%
Evening Meal	\$6.45	\$6.50	0.78%
Lunch	\$4.90	\$4.95	1.02%
Snack	\$1.75	\$1.80	2.86%

Trips

Fee	\$5.10	\$5.15	0.98%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Community Services – Older Persons Ability Support Service (OPASS)

OPASS

Domestic Assistance

Per Hour – Lower Limit	\$4.80	\$4.90	2.08%
Per Hour – Upper Limit	\$47.87	\$47.97	0.21%

Overnight Respite (per night)

Respite Care	\$40.00	\$40.00	0.00%
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Personal Care

Per Hour – Lower Limit	\$4.80	\$4.90	2.08%
Per Hour – Upper Limit	\$47.87	\$48.00	0.27%

Property Maintenance

Per hr plus cost of materials – Lower Limit	\$16.00	\$16.50	3.13%
Per hr plus cost of materials – Upper Limit	\$70.00	\$71.00	1.43%

Respite Care

Per Hour – Lower Limit	\$4.80	\$4.90	2.08%
Per Hour – Upper Limit	\$47.87	\$48.00	0.27%

Community Transport

Birregurra/Forrest/Beeac/Warrion

One way	\$8.20	\$9.20	12.20%
Return	\$16.60	\$17.60	6.02%

Colac

Return	\$9.30	\$10.30	10.75%
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Colac Otway Shire – Apollo Bay, Lavers Hill

Return	\$32.00	\$33.00	3.13%
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Colac to Geelong or Ballarat

One way – single passenger	\$21.50	\$22.50	4.65%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Colac to Geelong or Ballarat [continued]

One way – two or more passengers	\$16.50	\$17.50	6.06%
Return	\$32.00	\$33.00	3.13%

Colac to Melbourne

Return	\$57.00	\$58.00	1.75%
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Colac to Warrnambool

Return	\$32.00	\$33.00	3.13%
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Community Bus Transport for Group Activities

Community Bus Transport for Group Activities	\$6.00	\$6.10	1.67%
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Contracted Services**Case Management**

Assessments, reassessments, reviews, set up arrangements. Per hour	\$92.00	\$92.00	0.00%
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Contracted Services

Rate per kilometre	\$1.20	\$1.20	0.00%
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Domestic Assistance**Per hour**

7:30am to 7:30pm – Sat./Sun./Public Holiday	\$92.00	\$93.00	1.09%
7:30am to 7:30pm Mon. to Fri.	\$51.00	\$52.00	1.96%

Personal Care**Per hour**

7:30am to 7:30pm – Sat./Sun./Public Holiday	\$92.00	\$93.00	1.09%
7:30am to 7:30pm Mon. to Fri.	\$51.00	\$52.00	1.96%
7:30pm to 7:30am Mon. to Fri.	\$92.00	\$93.00	1.09%

Property Maintenance**Per hour**

7:30am to 7:30pm Sat./Sun./Public Holiday	\$108.00	\$109.00	0.93%
7:30am to 7:30pm Mon. to Fri.	\$61.00	\$62.00	1.64%
7:30pm to 7:30am Mon. to Fri.	\$108.00	\$109.00	0.93%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Respite Care

Per hour

7:30am to 7:30pm Sat./Sun./Public Holiday	\$92.00	\$93.00	1.09%
7:30am to 7:30pm Mon. to Fri.	\$51.00	\$52.00	1.96%
7:30pm to 7:30am Mon. to Fri.	\$92.00	\$93.00	1.09%

Meals to Agency clients

Per hour plus cost of materials

All meals

Per meal – Lower Limit	\$10.60	\$10.70	0.94%
Per meal – Upper Limit	\$22.00	\$22.00	0.00%

Delivered meals

Per meal – Lower Limit	\$10.60	\$10.70	0.94%
Per meal – Upper Limit	\$22.00	\$22.00	0.00%

COPACC

Marketing

A1 Poster print & display	\$35.00	\$35.00	0.00%
A4 Poster Distribution around town/surrounding towns	\$40.00	\$40.00	0.00%
DL Flyer Distribution to Database as part of Newsletter	\$100.00	\$100.00	0.00%
Facebook Banner for 10 days prior to show/event	\$30.00	\$30.00	0.00%
Facebook Post (with boost)		\$10 plus boosted amount	
		Last YR Fee	
		\$10 plus boosted amount	
Facebook Post (without boost)	\$10.00	\$10.00	0.00%
Half screen advertisement on foyer big screen (rolling coverage)		\$15 / week	
		Last YR Fee	
		\$15 / week	
Listing on Arts Atlas Geelong & Southwest		\$15 each or both for \$25	
		Last YR Fee	
		\$15 each or both for \$25	
Metal Sign	\$110.00	\$110.00	0.00%
Number of signs to be displayed			
Newspaper ad			
		Last YR Fee	
		-	
We refer all clients directly to the Colac Herald for advertising rates and opportunities.			

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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Marketing [continued]

Standalone EDM	\$60.00	\$60.00	0.00%
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Auditorium 1 – 4 Hour Minimum Hire**Commercial Hire**

4 Hour Hire	\$1,046.00	\$1,067.00	2.01%
8 Hour Hire	\$1,548.00	\$1,579.00	2.00%
Additional Hour	\$138.00	\$141.00	2.17%
Hourly penalty	\$210.00	\$0.00	-100.00%

Community From Colac Otway

4 Hour Hire	\$770.00	\$774.00	0.52%
8 Hour Hire	\$1,148.00	\$1,154.00	0.52%
Additional Hour	\$112.00	\$113.00	0.89%

Catering

Tablecloth Hire – COPACC Black – per cloth	\$12.00	\$12.00	0.00%
Tea, Coffee & Mints – All Day – per head	\$3.80	\$3.80	0.00%
Juice – Apple/Orange per Jug	\$6.90	\$6.90	0.00%

Civic Hall**Commercial Hire**

4 Hour Hire	\$502.00	\$512.00	1.99%
8 Hour Hire	\$774.00	\$790.00	2.07%
Additional Hour	\$91.00	\$93.00	2.20%

Community From Colac Otway

4 Hour Hire	\$422.00	\$424.00	0.47%
8 Hour Hire	\$658.00	\$661.00	0.46%
Additional Hour	\$81.00	\$82.00	1.23%

Equipment Hire

Civic Hall 5 x 2 x 350mm skirted stage			\$50 / event
			Last YR Fee \$50 / event
Civic Hall presenter package/day	\$170.00	\$170.00	0.00%

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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Equipment Hire [continued]

Civic Hall presenter package/week	\$300.00	\$300.00	0.00%
Presenter technology pack			\$20 / day
			Last YR Fee \$20 / day
Projector Hire Epson 7.5K – Civic Hall – per day	\$113.00	\$115.00	1.77%
Projector Hire Epson 7.5K – Civic Hall – per week	\$256.00	\$261.00	1.95%
Projector Hire – Epson 11K – Auditorium – per day	\$210.00	\$214.00	1.90%
Projector Hire – Epson 11K – Auditorium – per week	\$523.00	\$535.00	2.29%
Projector Hire – Meeting Rooms per unit (per day)	\$29.00	\$30.00	3.45%
Haze Machine – Daily	\$42.00	\$43.00	2.38%
Haze Machine – Weekly	\$105.00	\$107.00	1.90%
Mirror Ball	\$83.00	\$85.00	2.41%
PA System – Advanced	\$268.00	\$273.00	1.87%
PA System – Basic	\$111.00	\$113.00	1.80%
PA System – Meeting Room (Fixed)	\$28.00	\$29.00	3.57%
Portable Stage – Flat Stage	\$220.00	\$225.00	2.27%
Wireless Microphone – per additional day	\$28.00	\$29.00	3.57%
Wireless Microphone – per day	\$54.00	\$55.00	1.85%

Green Room Hourly Rate

Commercial Hire

After Hours	\$72.00	\$72.00	0.00%
Between 8:30am & 5pm	\$44.00	\$44.00	0.00%

Community From Colac Otway

After Hours	\$61.00	\$61.00	0.00%
Between 8:30am & 5pm	\$31.00	\$31.00	0.00%

Kitchen Hourly Rate

Commercial Hire

After Hours & Weekends	\$72.00	\$73.00	1.39%
Between 8:30am & 5pm	\$56.00	\$57.00	1.79%

Community From Colac Otway

After Hours & Weekends	\$63.00	\$64.00	1.59%
Between 8:30am & 5pm	\$31.00	\$32.00	3.23%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Labour Charges

Hourly Rate

Public Holiday Surcharge (Staffing)		Additional 25% on standard rates	
		Last YR Fee Additional 25% on standard rates	
Event staff – First 8 Hours (per hour)	\$67.00	\$69.00	2.99%
Event staff – Additional Hour (per hour)	\$89.00	\$91.00	2.25%
Technical staff – First 8 Hours (per hour)	\$67.00	\$69.00	2.99%
Technical staff – Additional Hour (per hour)	\$89.00	\$91.00	2.25%

Meeting Room/s Hourly Rate

Commercial Hire

Double Room (After Hours)	\$94.00	\$96.00	2.13%
Double Room (Between 8:30am & 5pm)	\$72.00	\$73.00	1.39%
Single Room (After Hours)	\$72.00	\$73.00	1.39%
Single Room (Between 8:30am & 5pm)	\$49.01	\$50.00	2.02%

Community From Colac Otway

Double Room (After Hours)	\$84.00	\$84.00	0.00%
Double Room (Between 8:30am & 5pm)	\$62.00	\$62.00	0.00%
Single Room (After Hours)	\$62.00	\$62.00	0.00%
Single Room (Between 8:30am & 5pm)	\$39.00	\$39.00	0.00%

Other Charges

Commercial & Community Hire

Admin Fee	\$189.00	\$193.00	2.12%
Grand Piano	\$108.00	\$110.00	1.85%
Major Cleaning	\$226.00	\$231.00	2.21%
Minor Cleaning	\$168.00	\$172.00	2.38%
Piano Tuning	\$273.00	\$279.00	2.20%
Test & Tag Services – per item	\$11.00	\$11.00	0.00%

Community From Colac Otway

Admin Fee	\$189.00	\$0.00	-100.00%
Major Cleaning	\$226.00	\$0.00	-100.00%
Minor Cleaning	\$168.00	\$0.00	-100.00%
Piano Tuning	\$273.00	\$0.00	-100.00%

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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Year 21/22 Increase %
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Community From Colac Otway [continued]

Test & Tag Services – per item	\$11.00	\$0.00	-100.00%
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Public Gallery Exhibition & Display Hire Charges**Exhibition**

Exhibition – % Commission			10.00%
			Last YR Fee 10.00%

Public Gallery Hourly Rate For Meeting & Convention**Commercial Hire**

After Hours	\$72.00	\$73.00	1.39%
Between 8:30am & 5pm	\$49.01	\$50.00	2.02%

Community From Colac Otway

After Hours	\$61.00	\$61.00	0.00%
Between 8:30am & 5pm	\$38.50	\$39.00	1.30%

Rehearsal Room Hourly Rate**Commercial Hire**

After Hours	\$72.00	\$73.00	1.39%
Between 8:30am & 5pm	\$49.01	\$50.00	2.02%

Community From Colac Otway

After Hours	\$62.00	\$62.00	0.00%
Between 8:30am & 5pm	\$39.00	\$39.00	0.00%

Economic Development & Events**Aerodrome Landing Fees****Apollo Bay**

Per landing	\$11.00	\$11.00	0.00%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Year 21/22 Increase %
Colac			
Per landing	\$11.00	\$11.00	0.00%
Colac Livestock Selling Centre			
Agents (with leased office space) special sale			
Fee	\$200.00	\$200.00	0.00%
Agents (with leased office space) weekly fee			
Fee	\$200.00	\$200.00	0.00%
Agents (without office space) per sale fee			
Fee	\$500.00	\$500.00	0.00%
All horses			
Fee	\$17.60	\$17.60	0.00%
All other cattle			
Fee	\$13.50	\$13.50	0.00%
Annual licence and rental			
Fee	\$2,377.60	\$2,377.60	0.00%
Bobby calves			
Fee	\$5.90	\$5.90	0.00%
Bulls flat rate			
Fee	\$18.60	\$18.60	0.00%
Cows and calves weigh fee			
Weigh Fee per Animal	\$4.10	\$4.10	0.00%
Dairy cattle			
Fee	\$13.50	\$13.50	0.00%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Pigs

Fee	\$3.50	\$3.50	0.00%
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Private weigh

Fee	\$5.90	\$5.90	0.00%
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Sheep and lambs

Fee	\$2.20	\$2.20	0.00%
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Stud cattle

Fee	\$18.60	\$18.60	0.00%
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Weighed cattle

Fee	\$13.50	\$13.50	0.00%
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Other miscellaneous fees

Truck wash per minute	\$1.10	\$1.10	0.00%
Small bale of Hay	\$10.00	\$10.00	0.00%
Facility hire	\$385.00	\$440.00	14.29%
Adjustment for cattle per day per beast	\$4.00	\$4.00	0.00%

Events

Event in a public place	\$200.00	\$200.00	0.00%
Event trailer hire – Commercial	\$330.00	\$330.00	0.00%
Event trailer hire – not-for-profit	\$110.00	\$110.00	0.00%

Planning & Building

Building Control Charges

Application for Place of Public Entertainment (PoPE) Permit or Temporary Structure

PoPE Single Event

Application for Place of Public Entertainment (PoPE) Permit <500 persons	\$276.00	\$281.00	1.81%
Application for Place of Public Entertainment (PoPE) Permit 500-2000 persons	\$576.00	\$585.00	1.56%
Application for Place of Public Entertainment (PoPE) Permit >2000 persons	\$876.00	\$890.00	1.60%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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PoPE Multi year event (In addition to single event fee for additional years)

Application for Place of Public Entertainment (PoPE) Permit <500 persons, additional per year fee	\$150.00	\$153.00	2.00%
Application for Place of Public Entertainment (PoPE) Permit 500-2000 persons, additional per year fee	\$200.00	\$203.00	1.50%
Application for Place of Public Entertainment (PoPE) Permit >2000 persons, additional per year fee	\$250.00	\$254.00	1.60%

Application for Siting of Temporary Structure associated with PoPE (In addition to PoPE fee)

Application for Place of Public Entertainment (PoPE) Permit & Temporary Structure Siting Permit per structure	\$80.00	\$82.00	2.50%
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Application for PoPE & Siting of Temporary Structure Multi year Event max 5 year (In addition to single event fee)

Application for Place of Public Entertainment (PoPE) Permit & Temporary Structure Siting Permit per structure <500 persons, additional per year fee	\$150.00	\$153.00	2.00%
Application for Place of Public Entertainment (PoPE) Permit & Temporary Structure Siting Permit per structure 500-2000 persons	\$200.00	\$203.00	1.50%
Application for Place of Public Entertainment (PoPE) Permit & Temporary Structure Siting Permit per structure >2000 persons	\$250.00	\$254.00	1.60%

Application for Siting of Temporary Structure not associated with a PoPE

Application for Temporary Structure Siting Permit – Single Event per structure	\$150.00	\$153.00	2.00%
Application for Temporary Structure Siting Permit – Single Event, plus per multi year event per structure	\$100.00	\$102.00	2.00%

Late Application for PoPE or Siting of Temporary Structure

Application for Place of Public Entertainment (PoPE) or Temporary Structure Siting Permit made less than 21 days from the scheduled event (in additional to application fee)	\$512.00	\$520.00	1.56%
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Information charges

Building plans, plan search	\$113.00	\$115.00	1.77%
Building plans/plan search (archival search)	\$226.00	\$230.00	1.77%

Registration of Swimming Pool

Application for Registration	\$31.84	\$31.84	0.00%
Information Search	\$47.24	\$47.24	0.00%
Lodgement of Certificate – Pool Barrier Compliant	\$20.44	\$20.44	0.00%
Lodgement of Certificate – Pool Barrier Non-Compliant	\$385.06	\$385.06	0.00%
Swimming Pool/Spa Compliance Audit for Land Owner	\$695.00	\$695.00	0.00%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Building Permit Amendments

Permit Amendments	\$204.00	\$208.00	1.96%
Extensions of Time	\$204.00	\$208.00	1.96%

Building Permit Application Fee

All other classes of Occupancy 2-9 inclusive (construction and/or demolition)

Does not exceed \$5,000	\$471.00	\$945.00	100.64%
Does not exceed \$10,000	\$665.00	\$1,330.00	100.00%
Does not exceed \$20,000	\$1,005.00	\$2,010.00	100.00%
Does not exceed \$50,000	\$1,450.00	\$2,900.00	100.00%
Does not exceed \$100,000	\$2,250.00	\$4,500.00	100.00%
Does not exceed \$200,000	\$2,880.00	\$5,760.00	100.00%
Does not exceed \$500,000	\$3,570.00	\$7,140.00	100.00%
Does not exceed \$600,000	\$4,280.00	\$8,560.00	100.00%
Does not exceed \$700,000	\$4,995.00	\$9,990.00	100.00%
Does not exceed \$800,000	\$4,985.00	\$9,970.00	100.00%
Does not exceed \$900,000	\$6,430.00	\$12,860.00	100.00%
Does not exceed \$1,000,000	\$6,560.00	\$13,120.00	100.00%
Does not exceed \$1,500,000	\$9,780.00	\$19,560.00	100.00%
Does not exceed \$2,000,000	\$11,970.00	\$23,940.00	100.00%
Does exceed \$2,000,000	\$14,500.00	\$29,000.00	100.00%

Domestic – class 1a Dwellings (construction and demolition), where the value of building work:

Does not exceed \$5,000	\$366.00	\$735.00	100.82%
Does not exceed \$10,000	\$498.00	\$1,000.00	100.80%
Does not exceed \$15,000	\$685.00	\$1,370.00	100.00%
Does not exceed \$25,000	\$845.00	\$1,690.00	100.00%
Does not exceed \$50,000	\$1,325.00	\$2,650.00	100.00%
Does not exceed \$75,000	\$1,535.00	\$3,070.00	100.00%
Does not exceed \$100,000	\$1,855.00	\$3,710.00	100.00%
Does not exceed \$150,000	\$1,980.00	\$3,960.00	100.00%
Does not exceed \$200,000	\$2,425.00	\$4,850.00	100.00%
Does not exceed \$250,000	\$2,615.00	\$5,230.00	100.00%
Does not exceed \$300,000	\$2,880.00	\$5,760.00	100.00%
Does exceed \$300,000	\$3,400.00	\$6,800.00	100.00%

Minor Works – Class 10a, 10b & 1ai: Garages, carports, pool/spas & fence where value of work:

Less than \$5000	\$366.00	\$735.00	100.82%
Between \$5,000 to \$10,000	\$498.00	\$1,000.00	100.80%
Between \$10,001 to \$20,000	\$820.00	\$1,640.00	100.00%

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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Minor Works – Class 10a, 10b & 1ai: Garages, carports, pool/spas & fence where value of work: [continued]

More than \$20,000	\$945.00	\$1,890.00	100.00%
Minor works – Class 10b: Safety Barrier (without pool/spa) & Alterations to Safety Barrier.	\$262.00	\$525.00	100.38%

Inspections

Additional Inspection (charged where additional inspections are required)

Additional Inspection (Domestic) – within 20km radius of Colac	\$236.00	\$240.00	1.69%
Additional Inspection (Commercial)	\$294.00	\$299.00	1.70%
Additional Travel per km (in addition to additional inspection fee) – more than 20km from Colac	\$1.15	\$1.20	4.35%

Essential Safety Measures Assessments

Essential Safety Measures Determination

Fee	\$680.00	\$695.00	2.21%
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Report and Consent Fees

Report & Consent Application

Report & Consent Application – Charge per notice sent to adjoining properties	\$25.00	\$25.00	0.00%
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Planning Fees & Charges – Other

Advertising

Advertising notice sent to individual property owners per letter	\$7.70	\$8.00	3.90%
Advertising sign erected on site	\$339.00	\$345.00	1.77%

Application for approval of amended plans under secondary consent

Fee	\$184.00	\$187.00	1.63%
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Extension of time to planning permits

1st Extension of time to planning permits	\$105.00	\$107.00	1.90%
2nd Extension of time to planning permits	\$157.00	\$160.00	1.91%
Each additional extension of time to planning permits	\$210.00	\$214.00	1.90%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Property Enquiry

Does not require extensive research	\$113.00	\$115.00	1.77%
Extensive research	\$226.00	\$230.00	1.77%

Section 173 Agreements

Written consent to vary something registered on title.	\$640.00	\$650.00	1.56%
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Public Health

Health Protection Administration (Registration Fees)

CLASS 1 Food Premises

Class 1 – Not For Profit Renewal or New	\$323.00	\$323.00	0.00%
Class 1 Renewal or New	\$525.00	\$567.00	8.00%
Class 1 Transfer of Registration	\$262.00	\$283.50	8.21%

CLASS 2 Food Premises

Class 2 Major Renewal or New	\$743.00	\$890.00	19.78%
Class 2 Major Transfer of Registration	\$372.00	\$445.00	19.62%
Class 2 Not for Profit Renewal or New	\$260.00	\$266.00	2.31%
Class 2 Not for Profit Transfer of Registration	\$130.00	\$133.00	2.31%
Class 2 General Renewal or New	\$408.00	\$454.00	11.27%
Class 2 General Transfer of Registration	\$204.00	\$227.00	11.27%

CLASS 3 Food Premises

Class 3 General Renewal or New	\$225.00	\$262.00	16.44%
Class 3 General Transfer of Registration	\$112.00	\$131.00	16.96%
Class 3 Not for Profit Renewal or New	\$160.00	\$164.00	2.50%
Class 3 Not for Profit Transfer of Registration	\$80.00	\$82.00	2.50%

Additional Temporary/Mobile Food Registration

Class 2 Streatrader Additional Component	\$126.00	\$128.00	1.59%
Class 3 Streatrader Additional Component	\$70.00	\$72.00	2.86%

Community Group Support

Class 2 or 3 – Not For Profit – Community Service Club	\$50.00	\$50.00	0.00%
Class 2 or 3 less than 3 Months Not For Profit (once per year)	\$0.00	\$0.00	∞

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Personal Appearance Services

Beauty Therapies

Beauty Therapy/Ear Piercing (Med Risk) Renewal or New	\$159.00	\$162.00	1.89%
Beauty Therapy/Ear Piercing (Med Risk) Transfer of Registration	\$80.00	\$81.00	1.25%

Hairdressers

Hairdresser/Makeup (Low Risk) New – One Off Reg Fee	\$210.00	\$213.00	1.43%
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Skin Penetration (Tattooists, body piercing)

Tattooist/Body Piercing (High Risk) Renewal or New	\$212.00	\$215.00	1.42%
Tattooist/Body Piercing (High Risk) Transfer of Registration	\$106.00	\$107.50	1.42%

Miscellaneous

Conveyance Enquiries for regulated businesses

Pre Purchasing Inspection	\$232.00	\$235.00	1.29%
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Water Sampling

Professional service fee	\$148.00	\$150.00	1.35%
Actual testing fee			Actual cost
			Last YR Fee Actual cost

Immunisation

Immunisation Service Fee Flu Vaccine	\$25.00	\$25.50	2.00%
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Replacement Certificate

Fee	\$42.00	\$42.50	1.19%
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Express Service

Within 5 days	\$210.00	\$213.00	1.43%
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Professional Service

Additional compliance inspection	\$148.00	\$150.00	1.35%
Food Safety Program Template	\$83.00	\$84.00	1.20%
Historic document Search fee	\$226.00	\$230.00	1.77%

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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Professional Service [continued]

Historic Document Search Fee (Basic)	\$113.00	\$115.00	1.77%
Additional hour	\$54.00	\$55.00	1.85%

Prescribed Accommodation**6 to 10 persons**

Prescribed Accommodation up to 10 Renewal or New	\$228.00	\$271.00	18.86%
Prescribed Accommodation up to 10 Transfer of Registration	\$114.00	\$135.50	18.86%

11 to 20 persons

Prescribed Accommodation 10 -20 persons Renewal or New	\$318.00	\$366.00	15.09%
Prescribed Accommodation 11-20 persons Transfer of Registration	\$159.00	\$183.00	15.09%

20+ persons

Prescribed Accommodation 20+ persons Renewal or New	\$388.00	\$448.00	15.46%
Prescribed Accommodation 20+ persons Transfer of Registration	\$194.00	\$224.00	15.46%

Public Health – Septic Tanks**Additional inspections**

additional hours for OWMS approval per hour	\$148.00	\$90.60	-38.78%
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Septic tank alterations

Minor Alterations	\$520.00	\$551.70	6.10%
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Septic tanks system

Construct, install or alter	\$790.00	\$723.90	-8.37%
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Septic tank amend a permit

Amend a permit	\$0.00	\$153.70	∞
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Transfer a septic tank permit

Fee	\$0.00	\$147.10	∞
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Renew a septic tank permit

Fee	\$0.00	\$123.10	∞
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Septic tank exemption

Fee	\$0.00	\$217.30	∞
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Year 21/22 Increase %
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Environment & Infrastructure Services

Asset Management

Asset Protection Permit Fee

Permit Fee	\$155.00	\$158.00	1.94%
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Check Engineering Plans

These fees apply to developments/subdivisions that do not require the construction of new Council roads.

2 lot development	\$150.00	\$152.25	1.50%
3 to 5 lot development	\$250.00	\$253.75	1.50%
6 to 12 lot development	\$400.00	\$406.00	1.50%
13 to 19 lot development	\$550.00	\$558.25	1.50%
20 to 30 lot development	\$700.00	\$710.50	1.50%
31+ lot development	\$900.00	\$913.50	1.50%
Apartment, motel, hotel building (per 10 units)	\$250.00	\$253.75	1.50%
Small commercial developments (<500m2 + floor area)	\$250.00	\$253.75	1.50%
Medium commercial developments (500-2,000m2 + floor area)	\$550.00	\$558.25	1.50%
Large commercial developments (2,001m2 + floor area)	\$950.00	\$964.25	1.50%
1 industrial/factory/warehouse buildings/lots	\$150.00	\$152.25	1.50%
2-5 industrial/factory/warehouse buildings/lots	\$400.00	\$406.00	1.50%
6+ industrial/factory/warehouse buildings/lots	\$600.00	\$608.99	1.50%

Design Fee

In house	10.00%
	Last YR Fee 10.00%
External design – Supervision fee	20.00%
	Last YR Fee 20.00%
External design work	At Cost
	Last YR Fee At Cost

Special Charge Scheme

Contract administration	2.50%
	Last YR Fee 2.50%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Special Charge Scheme [continued]

Scheme administration			3.00%
			Last YR Fee 3.00%

Standpipe water fee

Per kilolitre	\$6.00	\$6.00	0.00%
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Environment & Community Safety

Animal Control

Registration

All other (refer Sch 2 of Domestic Animal Act 1994)	\$42.00	\$45.00	7.14%
Cat registration – full	\$115.00	\$120.00	4.35%
Cat registration – micro chipped and de-sexed	\$20.00	\$22.00	10.00%
Cat registration – micro chipped only	\$36.00	\$38.00	5.56%
Dog registration – full	\$130.00	\$140.00	7.69%
Dog registration – micro chipped and de-sexed	\$25.00	\$30.00	20.00%
Dog registration – micro chipped only	\$41.00	\$44.00	7.32%
Pensioner discount of registration fee			50.00%
			Last YR Fee 50.00%

Working farm dog	\$25.00	\$28.00	12.00%
Declared Dangerous & Menacing Dogs	\$140.00	\$150.00	7.14%
Pet Shop – Breeding/Boarding Facility Audit Fee	\$230.00	\$240.00	4.35%

Pound Release Fees

Cats – Initial impoundment plus	\$45.00	\$46.00	2.22%
Cats – per head per day	\$8.00	\$10.00	25.00%
Cattle/horses – Initial impoundment plus	\$90.00	\$100.00	11.11%
Cattle/horses – per head per day	\$17.00	\$18.00	5.88%
Dogs – Initial impoundment plus	\$68.00	\$70.00	2.94%
Dogs – per head per day	\$20.00	\$20.00	0.00%
Sheep/pigs – Initial impoundment plus	\$45.00	\$46.00	2.22%
Sheep/pigs – per head per day	\$12.00	\$14.00	16.67%
All other – Initial impoundment plus	\$32.00	\$35.00	9.38%
All other – per head per day	\$12.00	\$14.00	16.67%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Events

Other

Wedding on Council controlled/managed land	\$85.00	\$90.00	5.88%
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Fire Prevention

Administrative fee block slashing

Fee (plus cost of slashing)	\$180.00	\$180.00	0.00%
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Local Laws

Local Law No 1

Alcohol permit	\$170.00	\$180.00	5.88%
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Local Law No 2

Goods for sale per m2	\$70.00	\$75.00	7.14%
Signs (A frame) – Charitable Organisations	\$70.00	\$75.00	7.14%
Signs (A frame) – Other	\$140.00	\$150.00	7.14%
Street party/festival per event	\$215.00	\$220.00	2.33%
Tables and chairs – 1st table and 4 chairs	\$130.00	\$140.00	7.69%
Tables and chairs – then per seat thereafter	\$40.00	\$42.00	5.00%
Using Council land – Permit /admin fee	\$65.00	\$67.00	3.08%
Plus Cost Per Week			
Using Council land – Cost per week	\$35.00	\$37.00	5.71%
Vegetation	\$105.00	\$105.00	0.00%

Other

Abandoned or derelict vehicles

Pickup fee	\$280.00	\$290.00	3.57%
Plus Transport and Storage Costs			
Transport and storage costs			At Cost
			Last YR Fee At Cost

All other permits

Spruiking & Busking, Weddings, Door Knocks and Temporary Dwellings Permit	\$95.00	\$95.00	0.00%
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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Circus

Fee	\$170.00	\$170.00	0.00%
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Impoundment Fee

Fee	\$160.00	\$160.00	0.00%
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Public protection (hording permit)

Application fee	\$35.00	\$40.00	14.29%
Plus Per m2 fee			
Per m2 fee	\$18.00	\$20.00	11.11%
Work Zone Parking Permit (per bay per week)	\$45.00	\$47.00	4.44%

Parking

All day parking permit (Payable in 6 monthly blocks – Johnstone's Carpark only)

Per week	\$25.00	\$25.00	0.00%
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Car parking fines

Fine	\$80.00	\$80.00	0.00%
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Disabled parking

Disabled Persons Permit Issue Fee	\$12.00	\$12.00	0.00%
Permit replacement fee	\$7.00	\$7.00	0.00%

Apollo Bay Market

Apollo Bay Community Saturday Market 1/2 Day permit (per annum)	\$25.00	\$40.00	60.00%
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Waste Management

Waste Management Additional Service Charge/Bin

360 Litre Recycle additional bin	\$110.00	\$105.00	-4.55%
Additional Glass Bin 120 Litre	\$0.00	\$52.00	∞
240 litre garbage additional service charge/bin	\$300.00	\$322.00	7.33%
240 litre organic additional service charge/bin	\$110.00	\$112.00	1.82%
240 litre recycle additional service charge/bin	\$90.00	\$90.00	0.00%
Upgrade to 240 litre Garbage Bin	\$125.00	\$135.00	8.00%
Upgrade to 360 litre Recycling bin	\$30.00	\$20.00	-33.33%

Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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All waste receival sites

240L Comingled Recycling (Charging from 1 January 2022)	\$0.00	\$4.00	∞
Car bodies	\$70.00	\$0.00	-100.00%
Chemical drums (each)	\$1.20	\$1.20	0.00%
Commercial fully co-mingled recyclables (per m3)	\$30.00	\$45.00	50.00%
Commercial fully co-mingled recyclables (per tonne)	\$115.00	\$75.00	-34.78%
Mattresses each	\$26.00	\$26.50	1.92%
Putrescibles (incl mixed rubbish) per m3	\$40.00	\$45.00	12.50%
Putrescibles (incl mixed rubbish) 1st 240 litre bin or less	\$10.00	\$10.00	0.00%
Putrescibles (incl mixed rubbish) 2nd 240 litre bin	\$17.00	\$0.00	-100.00%
Putrescibles (incl mixed rubbish) per tonne	\$210.00	\$220.00	4.76%
Steel scrap (per m3)	\$8.00	\$8.00	0.00%
Steel scrap (per tonne)	\$40.00	\$40.00	0.00%
Tree pruning's (per m3)	\$40.00	\$50.00	25.00%
Tree pruning's (per tonne)	\$110.00	\$120.00	9.09%
TV & Monitors	\$0.00	\$0.00	∞
Car tyre	\$9.00	\$9.00	0.00%
Car tyre on rim	\$15.00	\$15.00	0.00%
Commercial batteries each (more than 2)	\$7.00	\$7.00	0.00%
Light truck tyre	\$17.00	\$17.00	0.00%
Tractor tyre 1 – 2m	\$215.00	\$215.00	0.00%
Tractor tyre up to 1m	\$102.00	\$102.00	0.00%
Truck tyre	\$46.00	\$46.00	0.00%
10 tickets up to 240L, Waste, Co-mingled or Mix of Both	\$72.00	\$80.00	11.11%
25 tickets up to 240L, Waste, Co-mingled or Mix of Both	\$155.00	\$169.00	9.03%

Kerbside Bin Fees

Bin change over fee (all bins)	\$32.00	\$32.00	0.00%
Lost or stolen bins – 120/240 litre	\$55.00	\$60.00	9.09%

Other

Tourist Bags (red and yellow) per pair	\$10.00	\$10.00	0.00%
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Apollo Bay Harbour

Marina Fees

Marina Berth – Annual Fee >18M	\$3,185.00	\$3,235.00	1.57%
Marina Berth – Annual Fee 12-15M	\$2,652.00	\$2,956.98	11.50%
Marina Berth – Annual Fee 15.01-18M	\$3,050.00	\$3,100.00	1.64%
Waiting List Application Fee	\$256.00	\$256.00	0.00%
Marina Berth – Annual <12M	\$2,652.00	\$2,745.00	3.51%

continued on next page ...

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Name	Year 20/21 Fee (incl. GST)	Year 21/22 Fee (incl. GST)	Increase %
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Marina Fees [continued]

Short Term Berth (Per Day) – <15	\$36.00	\$42.00	16.67%
Short Term Berth (Per Day) – 15 to 20m	\$42.00	\$52.00	23.81%
Short Term Berth (Per Day) – 20 to 25m	\$50.00	\$64.00	28.00%
Short Term Berth (Per Day) – 25 to 30m	\$77.00	\$80.00	3.90%
Short Term Berth (Per Day) – >30m	\$147.00	\$147.00	0.00%
Marina Key Replacement	\$52.00	\$52.00	0.00%
Swing Mooring – Annual Fee	\$518.00	\$540.00	4.25%
Swing Mooring – Establishment	\$360.00	\$360.00	0.00%

Slipway Fees

Slipping Fees

Slipping Fee – 15.1 to 20m	\$614.00	\$640.00	4.23%
Slipping Fee <10m	\$210.00	\$218.00	3.81%
Slipping Fee >20m	\$1,050.00	\$1,090.00	3.81%
Slipping Fee 10.1 to 15m	\$299.00	\$310.00	3.68%
Slipping Fee 15.1 to 20m	\$614.00	\$640.00	4.23%

Slip Yard Occupancy (Per Day)

Slip Yard Occupancy (Per Day) – <10m	\$53.00	\$55.00	3.77%
Slip Yard Occupancy (Per Day) – >20m	\$278.00	\$288.00	3.60%
Slip Yard Occupancy (Per Day) – 10.1 to 15m	\$100.00	\$104.00	4.00%
Slip Yard Occupancy (Per Day) – 15.1 to 20m	\$231.00	\$240.00	3.90%
Slipyard Occupancy (Day Rate) >20m	\$278.00	\$288.00	3.60%

Ancillary Services

Business Hours

Crane Truck with Operator and Dogman per hour	\$205.00	\$213.00	3.90%
Crew (Additional, Attend V/L or Mooring) per hour	\$62.00	\$65.00	4.84%
Hire "Barrum" Inc Coxswain per hour	\$205.00	\$213.00	3.90%
Hire "Urchin" inc. Master and Deckhand per hour	\$510.00	\$530.00	3.92%
Pressure Cleaner Hire per hour	\$36.00	\$37.50	4.17%

After Hours (3hr Min)

Crane Truck with Operator and Dogman per hour	\$461.00	\$478.00	3.69%
Crew (Additional, Attend V/L or Mooring) per hour	\$123.00	\$128.00	4.07%
Hire "Barrum" inc Coxswain per hour	\$461.00	\$478.00	3.69%
Hire "Urchin" Inc Master and Deckhand per hour	\$770.00	\$800.00	3.90%

DRAFT

Fees & Charges

Colac Otway Shire Council

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Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

Colac Otway Shire

Corporate Services

Financial Services

Land Information Certificate

Fee	S	\$26.30	\$26.95	2.47%
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Governance

Freedom of Information

Per application	S	\$29.60	\$29.60	0.00%
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DRAFT

Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

Development & Community Services

Community Services – Older Persons Ability Support Service (OPASS)

OPASS

Veterans Home Care (1st hr)

Minimum service fee	S	\$5.00	\$5.00	0.00%
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Planning & Building

Bonds

Bond for Demolition or Removal of Building (Reg 323)

Bond for Demolition or Removal of Building (Reg 323) – per sqm of floor area; OR – cost of works, whichever is the lesser	S	\$100.00	\$100.00	0.00%
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Bond for Re-erection of Building (Reg 323)

Bond for Re-erection of Building (Reg 323) – Fee; OR – cost of works	S	\$10,000.00	\$10,000.00	0.00%
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Building Control Charges

Property Information Certificate

Property information Application	S	\$47.20	\$47.20	0.00%
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Lodgement fees

Class 1 & 10	S	\$121.90	\$121.90	0.00%
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Building Permit Application Fee

Statutory charge on building permits

Building permit levy (cost of building over \$10,000)	S			0.128%
				Last YR Fee 0.128%

Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

Report and Consent Fees

Demolition fee (s. 29A)

Fee	S	\$85.10	\$85.10	0.00%
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Report & Consent Application

Report & Consent Application	S	\$290.40	\$290.40	0.00%
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Planning Fees & Charges – Other

Application for Certification of subdivision under Subdivision Act

Application for Certification of subdivision under Subdivision Act; plus	S	\$174.80	\$174.80	0.00%
Application for Certification of subdivision under Subdivision Act – cost per lot	S	\$20.00	\$20.00	0.00%
Required alteration of plan	S	\$111.10	\$111.10	0.00%

Application for Plan of Consolidation

Fee	S	\$174.80	\$174.80	0.00%
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Application for Recertification of Plan of Subdivision

Fee	S	\$140.70	\$140.70	0.00%
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Engineering Plan prepared by Council

Fee	S			3.50%
				Last YR Fee 3.50%

Satisfaction Matters

Satisfaction matters as specified by planning scheme	S	\$325.80	\$325.80	0.00%
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Supervision of Works

Fee	S			2.50%
				Last YR Fee 2.50%

Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

Section 173 Agreements

Amendment to an existing agreement	S	\$659.00	\$659.00	0.00%
Removal of an existing agreement	S	\$659.00	\$659.00	0.00%

Certificates of compliance

Fee	S	\$325.80	\$325.80	0.00%
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Permit for use of land

Application where only the land use is changed.	S	\$1,318.10	\$1,318.10	0.00%
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To develop land or to use and develop land for a single dwelling per lot or to undertake development ancillary to the use of the land for a single dwelling per lot if the estimated cost of development included in the application is:

Excluding VicSmart applications

\$100,000 to \$500,000	S	\$1,288.50	\$1,288.50	0.00%
\$10,000 or less	S	\$199.90	\$199.90	0.00%
\$10,000 – \$100,000	S	\$629.40	\$629.40	0.00%
\$500,000 – \$1,000,000	S	\$1,392.10	\$1,392.10	0.00%
\$1,000,000 – \$2,000,000	S	\$1,495.80	\$1,495.80	0.00%

NEW FEE Vic smart applications

Single dwelling

\$10,000 or less	S	\$199.90	\$199.90	0.00%
More than \$10,000	S	\$429.50	\$429.50	0.00%
Subdivision or consolidation	S	\$199.90	\$199.90	0.00%

To develop land (other than for a single dwelling per lot) if the estimated cost of development included in the application is:

Less than \$100,000	S	\$1,147.80	\$1,147.80	0.00%
\$100,000 – \$1,000,000	S	\$1,547.60	\$1,547.60	0.00%
\$1,000,000 – \$5,000,000	S	\$3,413.70	\$3,413.70	0.00%
\$5,000,000 – \$15,000,000	S	\$8,700.90	\$8,700.90	0.00%
\$15,000,001 – \$50,000,000	S	\$25,658.30	\$25,658.30	0.00%
More than \$50,000,000	S	\$57,670.10	\$57,670.10	0.00%
To subdivide an existing building	S	\$1,318.10	\$1,318.10	0.00%
To subdivide land into two lots	S	\$1,318.10	\$1,318.10	0.00%
To effect a realignment of a common boundary between lots or to consolidate two or more lots	S	\$1,318.10	\$1,318.10	0.00%

Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

To develop land (other than for a single dwelling per lot) if the estimated cost of development included in the application is: [continued]

All other subdivisions per 100 lots created	S	\$1,318.10	\$1,318.10	0.00%
An application to remove a restriction (within the meaning of the Subdivision Act 1988) in the circumstances described in Section 47(2) of the Planning and Environment Act 1987	S	\$1,318.10	\$1,318.10	0.00%
An application to create, vary or remove a restriction within the meaning of the Subdivision Act 1988 or to create or remove a right-of-way.	S	\$1,318.10	\$1,318.10	0.00%
To create, vary or remove an easement other than a right of way, or to vary or remove a condition in the nature of an easement other than a right of way in a Crown.	S	\$1,318.10	\$1,318.10	0.00%
A permit not otherwise provided for in the Fee regulations	S	\$1,318.10	\$1,318.10	0.00%

(b) Amendments to Permits – Set by Statute

1

Change of use only	S	\$1,318.10	\$1,318.10	0.00%
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2

To amend a permit other than a single dwelling to change the statement of what the permit allows or to change any or all of the conditions which apply to the permit	S	\$1,318.10	\$1,318.10	0.00%
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3

Single dwelling (\$10,000 or less)	S	\$199.90	\$199.90	0.00%
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4

Single dwelling (\$10,000 – \$100,000)	S	\$629.40	\$629.40	0.00%
Single dwelling (\$100,000 – \$500,000)	S	\$1,288.50	\$1,288.50	0.00%
Single dwelling (\$500,000 – \$2,000,000)	S	\$1,392.10	\$1,392.10	0.00%

5

VicSmart – \$10,000 or less	S	\$199.90	\$199.90	0.00%
VicSmart – development more than \$10,000	S	\$429.50	\$429.50	0.00%
VicSmart – subdivision or consolidation	S	\$199.90	\$199.90	0.00%

6

Other developments (less than \$100,000)	S	\$1,147.80	\$1,147.80	0.00%
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Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

8

Other developments (\$100,00 – \$1,000,000)	S		\$1,547.60	
			Last YR Fee \$1,547.60	
Other developments (\$1,000,000 – \$50,000,000)	S	\$3,413.70	\$3,413.70	0.00%

9

Amendment to a permit not otherwise provided for in the fee regulation	S	\$1,318.10	\$1,318.10	0.00%
Subdivision – common boundary realignment, consolidation of two or more lots, existing buildings and two lot subdivisions (other than VicSmart)	S	\$1,318.10	\$1,318.10	0.00%
Subdivision (other than VicSmart, two lot subdivisions and boundary realignments)	S	\$1,318.10	\$1,318.10	0.00%
Creation, variation and removal of restrictions, easements and rights of way	S	\$1,318.10	\$1,318.10	0.00%

(c) Planning Scheme Amendment Fees – Set by Statute

i.

Considering a request for an Amendment	S	\$3,050.90	\$3,050.90	0.00%
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ii.

For considering up to 10 submissions	S	\$15,121.00	\$15,121.00	0.00%
For considering 11-20 submissions	S	\$30,212.40	\$30,212.40	0.00%
For considering in excess of 20 submissions	S	\$40,386.90	\$40,386.90	0.00%

iii.

Adoption of Amendment by Responsible Authority	S	\$481.30	\$481.30	0.00%
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iv.

Consideration of a request to approve an Amendment (by the Minister for Planning)	S	\$481.30	\$481.30	0.00%
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Public Health**Prescribed Accommodation****Caravan Parks per site**

Fee	S	\$15.10	\$15.30	1.32%
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Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

Environment & Infrastructure Services

Asset Management

Check Engineering Plans

These fees apply to developments/subdivisions that do not require the construction of new Council roads.

Fee	S			0.75%
				Last YR Fee 0.75%

Checking of Engineering Plans

Fee	S			0.75%
				Last YR Fee 0.75%

Fee for Legal Point of Discharge Report

As per Section 36(4) Building Regulations 2018

Fee (9.77 units)	S	\$144.69	\$144.69	0.00%
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Supervision of Sub-division Works

% of estimated cost of constructing works proposed	S			2.50%
				Last YR Fee 2.50%

Local Road (speed at any time is greater than 50 kph)

Minor Works

Cost per fee unit

Conducted on any part of the roadway, shoulder or pathway (9.3 units)	S	\$137.73	\$137.73	0.00%
Not conducted on any part of the roadway, shoulder or pathway (6 units)	S	\$88.86	\$88.86	0.00%

Works on Roads (works other than minor works)

Cost per fee unit

Conducted on any part of the roadway, shoulder or pathway (43.1 units)	S	\$638.31	\$638.31	0.00%
Not conducted on any part of the roadway, shoulder or pathway (23.5 units)	S	\$348.04	\$348.04	0.00%

Name	Council / Statutory	Year 20/21	Year 21/22	
		Fee (incl. GST)	Fee (incl. GST)	Increase %

Local Road (speed at any time is not more than 50kph)

Minor Works

Cost per fee unit

Conducted on any part of the roadway, shoulder or pathway (9.3 units)	S	\$137.73	\$137.73	0.00%
Not conducted on any part of the roadway, shoulder or pathway (6 units)	S	\$88.86	\$88.86	0.00%

Works on Roads (works other than minor works)

Cost per fee unit

Conducted on any part of the roadway, shoulder or pathway (23.5 units)	S	\$348.04	\$348.04	0.00%
Not conducted on any part of the roadway, should or pathway (6 units)	S	\$88.86	\$88.86	0.00%

Environment & Community Safety

Fire Prevention

Local Law Infringement fee – burning of offensive material (2 penalty units)

Infringement fee – burning of offensive material (2 penalty units)	S	\$200.00	\$200.00	0.00%
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Statutory Penalty fee – Failing to comply with fire prevention notice (10 penalty units)

Infringement fee – failing to comply with fire prevention notice (10 penalty units)	S	\$1,585.70	\$1,585.70	0.00%
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Local Laws

Local Law No 2

Alcohol infringement fee (2 penalty unit)	S	\$200.00	\$200.00	0.00%
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Parking

Statutory Car parking fines

Car parking fines (.6 Statutory penalty Unit)	S	\$96.00	\$96.00	0.00%
Car parking fines (1 Statutory penalty Unit)	S	\$161.19	\$161.19	0.00%

Item: 10.4

Planning Scheme Amendment C109cola - 10 Drapers Road Colac East

OFFICER	Erin Sonogo
GENERAL MANAGER	Ian Seuren
DIVISION	Development & Community Services
ATTACHMENTS	<ol style="list-style-type: none"> 1. C 109 cola - email confirmation redacted [10.4.1 - 1 page] 2. C 109 cola Authorisation letter to Council - redacted [10.4.2 - 2 pages] 3. C 109 cola - 10 Drapers Road East Colac - Incorporated Document [10.4.3 - 4 pages] 4. C 109 cola - 10 Drapers Road amendment - Signage Plan [10.4.4 - 1 page] 5. C 109 cola - 10 Drapers Road Colac East - Explanatory Report [10.4.5 - 5 pages] 6. C 109 cola - 10 Drapers Road Colac East - Schedule 72.04 [10.4.6 - 1 page] 7. C 109 colac - 10 Drapers Road Colac East - SCO [10.4.7 - 1 page] 8. C 109 cola - 10 Drapers Road Colac East - Planning Permit by Consent Order- Council Meeting Report A [10.4.8 - 10 pages]
PURPOSE	For Council to resolve to adopt the Planning Scheme Amendment C109cola – Drapers Road, Colac East with minor changes.

1. EXECUTIVE SUMMARY

The purpose of this report is for Councillors to resolve to adopt the amendment and submit the amendment to the Minister for approval and gazettal.

The amendment is a private request, which is required to enable the owner to display business identification signage, associated with the approved service station.

The amendment was exhibited for 6 weeks, from 11 February 2021 to 25 March 2021. Exhibition of the amendment has now concluded. No submissions were received.

The amendment would introduce the Specific Controls Overlay (SCO) and associated Incorporated Document, allowing the signage depicted in the Incorporated Document to be displayed lawfully and without need for further planning permits. Officers support this approach as a means to facilitate advertising signage which would normally be expected for a service station of this nature, while ensuring that the siting and design of the signs would be respectful of the site's significant location at the eastern entrance to Colac.

Council must resolve to adopt the amendment before the amendment may be submitted to the Minister for approval.

2. RECOMMENDATION

That Council:

- 1. Resolves to adopt Planning Scheme Amendment C109cola – Drapers Road, Colac East and submit the amendment to the Minister for Planning for approval and gazettal; and,***
- 2. Authorises Council officers, in consultation with the landowners and/or representative, to make minor changes to the amendment documentation prior to submitting the amendment to the Minister for approval.***

3. KEY INFORMATION

The amendment is a private request, which is required to enable the owner to display business identification signage, associated with the approved service station.

The amendment request was submitted by the landowner's representative, Pierrepont Planning, on 16 September 2020. Consideration of the request was delayed due to the election period, with the amendment receiving Ministerial authorisation on 18 December 2020. Conditions of authorisation required the proponent to amend the documentation to make several minor corrections, with these corrections being required to be made prior to exhibition.

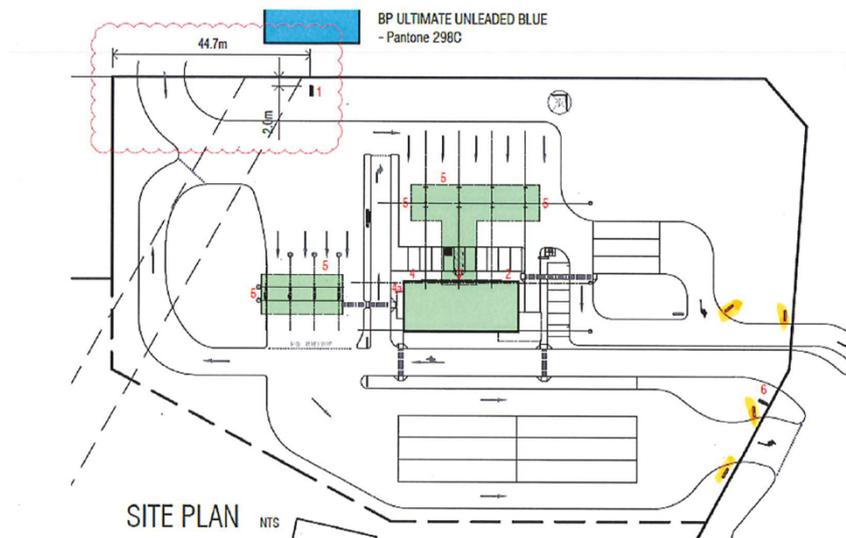
The amendment is required to permit the installation and display of business identification signage associated with the use of land for the service station, for which a planning permit has been granted (Planning permit number PP106/2018-1). Refer to Attachment 8 for a copy of the planning permit. The proposed signage is currently prohibited as the land is zoned Farming, where the total display area of business identification signage that can be granted a planning permit is limited to a maximum of 3m² per premises.

The proposed changes to the planning scheme would:

- Amend the schedule of Clause 45.12 (Specific Controls Overlay) to list the Incorporated Document 'Colac East Service Station Advertising Signage, August 2020).
- Amend the schedule to Clause 72.04 (Documents Incorporated in this Planning Scheme) to list the Incorporated Document.
- Amend the planning scheme map 9SCO and apply SCO4 to the land.

A Specific Controls Overlay enables specific controls to override other requirements in the planning scheme. In this case, the signage provisions in the Farming Zone.

During exhibition, an enquiry was received from a member of the public regarding the inclusion of unlabelled signs on the site plan. The proponent's representative has confirmed that these signs are direction signs, which will provide for traffic management within the site. Direction signs do not require a permit in the Farming Zone. Therefore, there is no need for these signs to be included in the incorporated document. These signs (highlighted in yellow in the plan below) will be removed from the documents submitted to the Minister for approval. Refer to Attachment 1 for confirmation from the proponent around the function of these signs.



Signage as Proposed in Incorporated Document

A total of 63.52m² signage is proposed for the whole site. This includes a double-sided pylon sign which, as proposed, would have a total signage area of 40.4m². The various other smaller signs would have a total area of 23.12m².

A summary of the proposed signage, as currently depicted in the draft Incorporated Document, is as follows:

North Elevation (facing Princes Highway)

- 5 x internally illuminated signs, affixed to the building and canopies.

South Elevation

- Sign deleted (previously a non-illuminated sign 7m x 4.6m affixed to building)

West Elevation

- 2 x internally illuminated signs; one per canopy.
- 1 x non-illuminated sign affixed to the building.

East Elevation

- 1 x internally illuminated sign, fixed to canopy.

Price Sign:

- Located at Drapers Road vehicle entrance – double sided and floodlit.

Pylon Sign:

- Located north-east corner of the site – 8.89m high, double sided and internally illuminated. The applicant has confirmed the sign will be constructed at the natural ground level, being the

existing ground level currently without any fill (Applicant has supplied a plan of survey confirming current levels).

Regarding the deletion of the sign on the south elevation, Council negotiated with the developer to remove this sign, due to the large size and visual impact, and it being unnecessary for business identification purposes.

Planning Permit Background

The planning permit (PP106/2018-1) for a service station on the land was issued on 13 February 2020, following a Consent Order being issued by the Victorian Civil and Administrative Tribunal (VCAT). This was based on agreement reached between the parties to the appeal – Council, VicRoads and the applicant. Council had initially refused to grant a permit, as the proposal included a convenience restaurant, which is prohibited in the Farming Zone. There were also some concerns about the visual impact of the development. Following negotiations after the VCAT appeal was lodged, amendments were made to the proposal, notably, including removal of the convenience restaurant. Various other changes were made to the layout of the site, to address concerns about the visual impact, including increased landscaping, alterations to the truck canopy, and the relocation of the truck parking bays.

4. COMMUNITY CONSULTATION & ENGAGEMENT

Exhibition of the amendment has now concluded. Exhibition was for a total of 6 weeks, commencing 11 February and concluding 25 March 2021. No submissions were received.

Notification comprised the following:

- Publishing of a notice in the government gazette;
- Publishing of a notice in the public notices section of the Colac Herald;
- Publishing on Council’s website and DELWP website;
- Letters to adjoining landowners;
- Letters to prescribed Ministers.

Exhibition has been conducted in accordance with the Planning and Environment Act and Ministerial Direction 15 – The Planning Scheme Amendment Process.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 1 - Our Prosperity

1. Plan infrastructure, assets and land use with a long-term vision for economic growth.
2. Support a thriving economy and industries.

Theme 2 - Our Places

2. Our places are managed for long-term sustainability.

Theme 4 - Our Leadership & Management

2. Openness and accountability in decision making.

Colac Otway Planning Scheme

A service station is a Section 2 (permit required) use in the Farming Zone. Therefore, Council was able to consider the proposal (with the convenience restaurant component removed) and ultimately grant a planning permit.

There is a tension in the Farming Zone policy whereby the signage restrictions are arguably out of step with the discretion afforded to certain land uses. In this case, although the service station was able to be considered for approval: the signage is not.

The use of the SCO and Incorporated Document is the mechanism to allow the required signage to be displayed, effectively over-riding the restrictions of the underlying zoning.

Relevant policies under the Colac Otway Planning Scheme have been considered and include:

Clause 15.01 - 1L – Colac Built Environment

The Views and Landscape Character Objective is to protect and enhance key views and landscape characteristics across Colac. Strategies include to improve town entrances to Colac (particularly the eastern entrance to the CBD) with:

- Landscaping.
- Framing views to the lake.
- Improved visibility to the Visitor Information Centre.
- Reducing the visual clutter of signs.

Clause 12.05-2L – Landscapes

A relevant **strategy** includes:

- Retain open and rural views, particularly from main road corridors and tourist routes.

The proposed signage is considered acceptable having regard to the relevant strategies for the following reasons:

- The total signage proposed is less than most typical service stations, and is limited to the minimum amount required to identify the premises. This includes the pylon sign, which is necessary given the high-speed environment and the need for motorists to identify the site with adequate time to change lanes. As a comparison, the Coles pylon sign fronting Queen Street is 13m high. The Liberty service station pylon sign in Colac West is 7m high.
- The majority of the signs are affixed to the building, which will reduce the visual impact of these signs.
- The land on which the pylon sign is situated is substantially lower than the road, which has been built up as part of the recent highway upgrade works.
- The landform and vegetation around the site is relatively significant and will mitigate the visual scale of the pylon sign. It will be further mitigated by the landscaping required under the planning permit.

It is acknowledged that this is an important entrance to Colac that requires improvement, and arguably the construction of the service station will help to achieve some level of improvement. However, the signage will be a critical component of the overall development, and reliance on the 3m² of signage allowed by the zone would undermine the viability of the development.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

The service station allowed by planning permit PP106/2018-1 is expected to generate significant positive economic benefit to Colac. The proposed signage is an integral part of the overall development. Therefore, the amendment is required to support the development of the service station. The development of this land will potentially lead to an aesthetic improvement of the surrounding sites, which form part of the entrance to Colac.

LEGAL & RISK

There are no legal or risk issues arising from this report.

FINANCIAL & BUDGETARY

As a privately driven amendment, the proponent is required to cover all statutory costs relating to the processing of the amendment, including any Panel costs.

7. IMPLEMENTATION STRATEGY

COMMUNICATION

The amendment has been formally exhibited for a period of 6 weeks, concluding on 25 March 2021. Upon approval and gazettal, Council will be required to publish notice of approval in the Colac Herald and on the website.

TIMELINE

Following the resolution of Council, the amendment will be submitted to the Minister for approval without delay.

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.

[REDACTED]

From: [REDACTED]
Sent: Friday, 19 February 2021 4:20 PM
To: [REDACTED]
Subject: RE: Signage query - Amendment c109cola

Hi [REDACTED]

Yes, the highlighted signs are directional signs that were included on the endorsed service station plans.

Regards

[REDACTED]
Principal
Pierrepoint Planning

From: [REDACTED]@colacotway.vic.gov.au>
Sent: Friday, 19 February 2021 3:21 PM
[REDACTED]
Subject: Signage query - Amendment c109cola

Hi [REDACTED]

I've just had a query from a member of the public. He doesn't have a concern about the signage, but asked what the signs are that I've highlighted in the attached. I presumed they were directional signage within the site. Would you mind just confirming what they are? I believe we could put a minor annotation on the plan and then submit it as part of the documents for approval once we are at that stage.

Regards,

[REDACTED]
Senior Strategic Planner
Phone: (03) 5232 9400
Fax: (03) 5232 9586
Email: [REDACTED]@colacotway.vic.gov.au
Website: www.colacotway.vic.gov.au



Colac Otway
SHIRE



Department of Environment,
Land, Water and Planning

Lvl 4, 30-38 Lt Malop Street
Geelong, Victoria 3220
Telephone: 03 5226 4667
DX 216048
www.delwp.vic.gov.au

Mr Peter Brown
Chief Executive Officer
Colac Otway Shire Council

Email address: [\[Redacted\]@colacotway.vic.gov.au](mailto:[Redacted]@colacotway.vic.gov.au)

Dear Mr Brown

**PROPOSED COLAC OTWAY PLANNING SCHEME AMENDMENT C109COLA – COLAC EAST
SERVICE STATION SIGNAGE, 10 DRAPERS ROAD, COLAC EAST**

I refer to the council's application for authorisation to prepare an amendment to the Colac Otway Planning Scheme. The amendment proposes to apply the Specific Controls Overlay to 10 Drapers Road Colac East and insert a new Incorporated Document titled 'Colac East Service Station Advertising Signage, 10 Drapers Road Colac East, December 2020' into the Colac Otway Planning Scheme.

Under delegation from the Minister for Planning, in accordance with section 8A of the *Planning and Environment Act 1987* (the Act), I authorise the council as planning authority to prepare the amendment, subject to the following conditions:

1. The Incorporated Document must include the following condition: The signs hereby permitted must not be constructed or displayed on the land until the construction of the service station has substantially commenced.
2. The amendment documents should be updated to ensure that the title of the proposed Incorporated Document is consistent across all documents including the Incorporated Document, Explanatory Report and the Schedules to Clause 45.12 and Clause 72.04.
3. The most recent Explanatory Report template must be used, and the content reviewed to ensure it provides a full description of the amendment, adequately addresses the social and economic effects of the amendment, and provides an assessment against the Municipal Planning Strategy.
4. The legibility of the sign plans in the Incorporated Document should be improved.
5. The Incorporated Document must be corrected to refer to SCO4 instead of SCO3.

The amendment must be submitted to the Minister for approval.

The authorisation to prepare the amendment is not an indication of whether or not the amendment will ultimately be supported.

Please note that [Ministerial Direction No. 15](#) sets times for completing steps in the planning scheme amendment process. This includes the council:

- giving notice of the amendment within 40 business days of receiving authorisation; and
- before notice of the amendment is given, setting Directions Hearing and Panel Hearing dates with the agreement of Planning Panels Victoria. These dates should be included in the Explanatory Report ([Practice Note 77: Pre-setting panel hearing dates](#) provides information about this step).

Privacy Statement

Any personal information about you or a third party in your correspondence will be protected under the provisions of the Privacy and Data Protection Act 2014. It will only be used or disclosed to appropriate Ministerial, Statutory Authority, or departmental staff in regard to the purpose for which it was provided, unless required or authorised by law. Enquiries about access to information about you held by the Department should be directed to the Privacy Coordinator, Department of Environment, Land, Water and Planning, PO Box 500, East Melbourne, Victoria 8002



OFFICIAL

The Direction also sets out times for subsequent steps of the process following exhibition of the amendment.

The Minister may grant an exemption from requirements of this Direction. Each exemption request will be considered on its merits. Circumstances in which an exemption may be appropriate are outlined in [Advisory Note 48: Ministerial Direction No.15 – the planning scheme amendment process.](#)

In accordance with sections 17(3) and (4) of the Act, the amendment must be submitted to the Minister **at least 10 business days** before the council first gives notice of the amendment.

Please submit the amendment electronically using the Amendment Tracking System (ATS).

If you would like further information, please contact [Redacted] Regional Planner, Department of Environment, Land, Water and Planning on email [\[Redacted\]@delwp.vic.gov.au](mailto:[Redacted]@delwp.vic.gov.au).

Yours sincerely,

[Redacted]

[Redacted]
Manager – Barwon South West, Regional Planning Services

18/ 12/ 2020

COLAC OTWAY PLANNING SCHEME

**Colac East Service Station Advertising Signage
10 Drapers Road Colac East
Incorporated Document**

December 2020

1. INTRODUCTION:

This document is an Incorporated Document in the Colac Otway Planning Scheme and is made pursuant to section (6)(2)(j) of the Planning and Environment Act 1987.

The land identified in the document may be developed in accordance with the specific controls contained in the document. The specific controls may exclude other controls in the Scheme.

If there is any inconsistency between the specific controls and the general provisions of the Scheme, the specific controls will prevail.

2. LAND TO WHICH THE INCORPORATED DOCUMENT APPLIES

The control in this document applies to the land shown as SCO4 on the planning scheme maps forming part of the Colac Otway Planning Scheme.

3. CONTROL

The development of the land for the installation and display of signage generally in accordance with signage plans prepared by JR Design Australia Pty. Ltd. comprising of drawing TP.06c Rev C 19 Nov 2020.

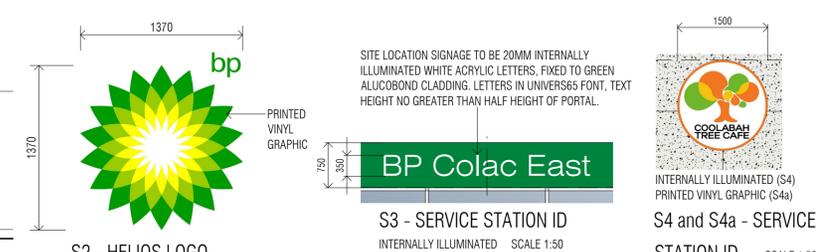
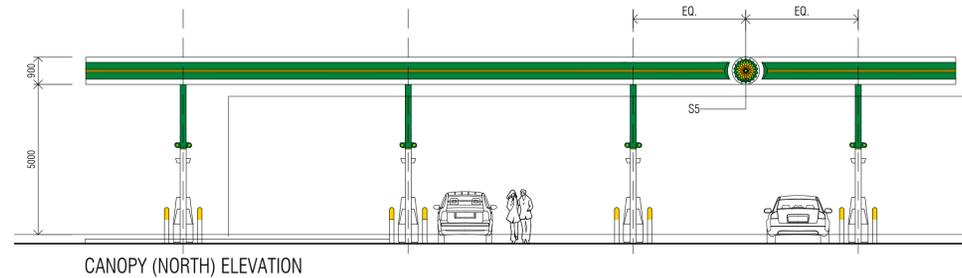
The signage plans form **Appendix A** to this document.

4. CONDITIONS

1. The development, including the location, size, material of construction, form and function of advertising content and degree of illumination of the signs, must be carried out generally in accordance with the Incorporated Document and associated plans.
2. The location, size, materials of construction, form and function of advertising content and degree of illumination of the signs, must not be altered or modified in any way without the written consent of the responsible authority.
3. The signs hereby permitted must not be animated or contain any flashing light.
4. The Pylon Sign will be no higher than 8.825 metres above natural ground level.
5. If the use of the land for a service station ceases and the planning permit which allows the use and development of the land for a service station expires the signage allowed by this incorporated document will be removed from the land within three (3) months of the expiry of the planning permit.
6. The signs hereby permitted must not be constructed or displayed on the land until the construction of the service station has substantially commenced.

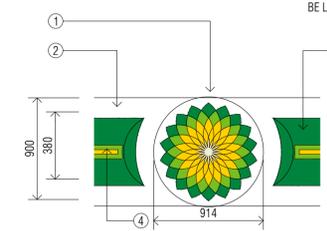
7. All signs must be constructed to the satisfaction of the responsible authority and maintained to the satisfaction of the responsible authority.

Appendix A – Advertising Signage Plan



BP COLOUR SCHEDULE

	BP RETAIL GREEN - Pantone 348C		BP YELLOW - Pantone 109C
	BP LIGHT GREEN - Pantone 368C		BP LIGHT GREEN - Pantone 368C
	BP WHITE - RAL 9003		BP GREEN - Pantone 355C
	BP ULTIMATE COLOURS		WHITE - Pantone White
	BP BRIGHT GREEN - Pantone 382C		
	BP DARK BLUE - Pantone 661C		
	BP ULTIMATE UNLEADED BLUE - Pantone 298C		



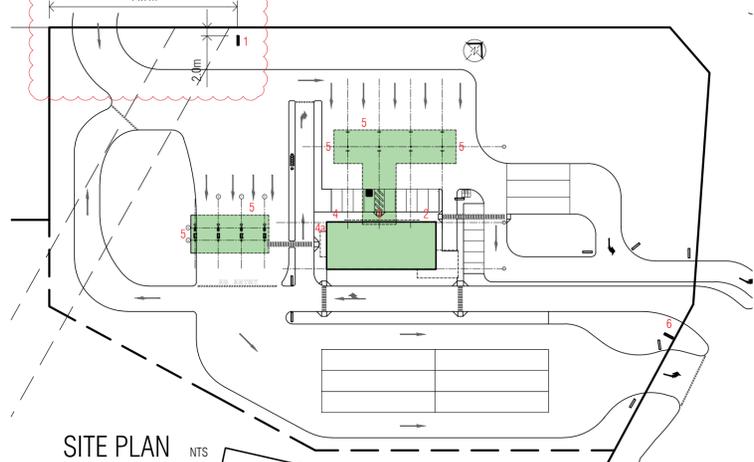
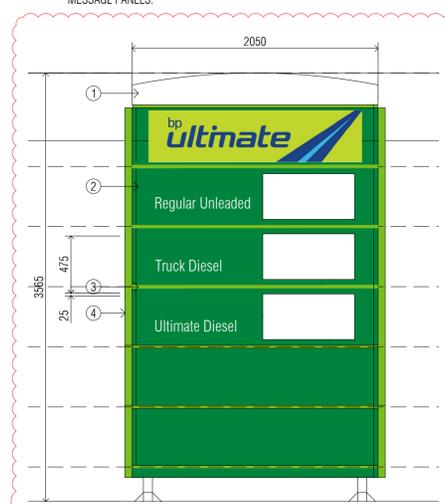
- CANOPY NOTES:**
- 914mm HELIOS CANOPY SIGN. DOMED FACE. INTERNALLY ILLUMINATED.
 - ALUMINIUM COMPOSITE CLADDING. BP WHITE AS SCHEDULED.
 - PRINTED VINYL BULLNOSE GRAPHIC WITH LED LIGHT BAR.
 - 25mm BP LIGHT GREEN LED LASER LINE FASTENED TO FASCIA USING CLIP SYSTEM.

NOTE: ALL BP AND AFFILIATED BRAND SIGNAGE IS TO BE CONFIRMED AND IN ACCORD WITH RESPECTIVE BRANDS DETAILS.

NOTE: ALL SIGNS NOT NOMINATED TO BE INTERNALLY ILLUMINATED WILL BE FLOOD LIT.

- PYLON SIGN CONDITIONS:**
- THE SIGN WILL BE CONSTRUCTED ON NATURAL GROUND LEVEL.
 - THE SIGNS ARE TO BE REMOVED IF THE USE CEASES AND THE PLANNING PERMIT SUBSEQUENTLY EXPIRES.
 - THE SIGNS MAY NOT BE CONSTRUCTED OR DISPLAYED UNTIL THE CONSTRUCTION OF THE SERVICE STATION HAS SUBSTANTIALLY COMMENCED

- SIGN PILLAR NOTES:**
- HELIOS LOGO DECORATION ON TOP OF FLAT 25MM EMBOSSEMENT. INTERNALLY ILLUMINATED.
 - SURROUNDING BP LIGHT GREEN EDGE RUNNING DOWN EACH SIDE OF THE HELIOS PANEL.
 - BP WHITE PANEL WITH 35MM X 35MM CHAMFERS RUNNING DOWN THE LENGTH OF EACH SIDE.
 - BP BRANDMARK LETTERS TO BE INTERNALLY ILLUMINATED.
 - ILLUMINATED PANEL RETURN EDGES.
 - FULLY INTERNALLY ILLUMINATED PANEL FRONT AND BACK.
 - LOGO AREAS ONLY INTERNALLY ILLUMINATED WITH WHITE LED LIGHT ARRAY TO GIVE EVEN BRIGHT ILLUMINATION. GREEN SECTION OF PANEL GRAPHIC IS MASKED OFF AND NOT ILLUMINATED - TYPICAL.
 - GRAPHICS FLAT (NOT EMBOSSED) - TYPICAL.
 - FUEL GRADE TEXT WHITE UNIVERS S5 ROMAN. BACK ILLUMINATED WITH LED LIGHTS.
 - BP LIGHT GREEN LED NUMERALS TO EPCU SPEC.
 - PANEL REVEAL PAINTED BP LIGHT GREEN.
 - PANEL PAINTED BP RETAIL GREEN.
 - COLOURS NOT SHOWN FOR CLARITY.
- PRICE SIGN NOTES:**
- TOP CAP AND SUPPORTS PAINTED BP WHITE.
 - STANDARD PANELS PAINTED BP RETAIL GREEN.
 - REVEALS PAINTED BP LIGHT GREEN.
 - 25MM BP LIGHT GREEN LED LASER LINE FIXED TO BOTH SIDES. CONSTRAINED TO MESSAGE PANELS.



PROPOSED SERVICE STATION

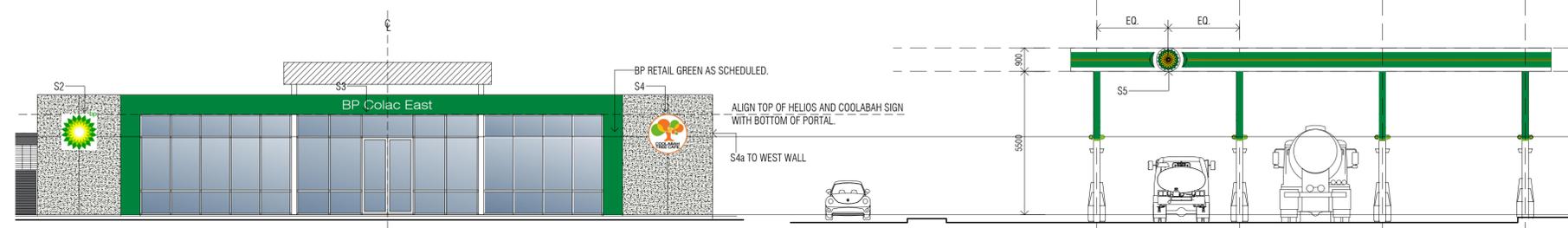
10 DRAPERS ROAD, COLAC EAST.

Rev D-SIGN 6 DELETED -03.12.20
Rev C-PYLON SIGN LOCATION AND SIZE AMENDED -19.11.20
Rev B-TOWN PLANNING ISSUE-07.08.20
Rev A-EPIC GROUP USER EDITS-28.07.20

J R DESIGN AUSTRALIA pty ltd

SIGNAGE TP.06d 1:100@A1 30.04.2018

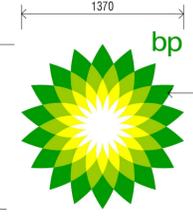
FILE REF: JR2022-19TP SIGN



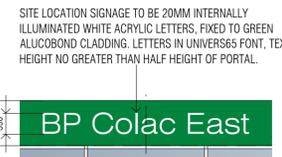
STORE (NORTH) ELEVATION
SCALE 1:100

CANOPY (NORTH) ELEVATION
SCALE 1:100

BP COLOUR SCHEDULE		BP HELIOS LOGO COLOURS	
	BP RETAIL GREEN - Pantone 348C		BP YELLOW - Pantone 109C
	BP LIGHT GREEN - Pantone 368C		BP LIGHT GREEN - Pantone 368C
	BP WHITE - RAL 9003		BP GREEN - Pantone 355C
BP ULTIMATE COLOURS			WHITE - Pantone White
	BP BRIGHT GREEN - Pantone 382C		
	BP DARK BLUE - Pantone 661C		
	BP ULTIMATE UNLEADED BLUE - Pantone 298C		



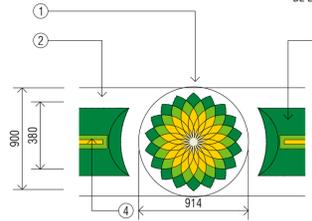
S2 - HELIOS LOGO
SCALE 1:25
1370 DIA. HELIOS. ALIGN TOP OF HELIOS WITH UNDERSIDE OF GREEN PORTAL. CENTRE HELIOS TO TOWER WIDTH AND 'bp' TO BE LOCATED AT 1 O'CLOCK. INTERNALLY ILLUMINATED.



S3 - SERVICE STATION ID
INTERNALLY ILLUMINATED SCALE 1:50



S4 and S4a - SERVICE STATION ID SCALE 1:50



S5 - CANOPY HELIOS LOGO
SCALE 1:25
CANOPY NOTES:
1. 914mm HELIOS CANOPY SIGN. DOMED FACE. INTERNALLY ILLUMINATED.
2. ALUMINIUM COMPOSITE CLADDING. BP WHITE AS SCHEDULED.
3. PRINTED VINYL BULLNOSE GRAPHIC WITH LED LIGHT BAR.
4. 25mm BP LIGHT GREEN LED LASER LINE FASTENED TO FASCIA USING CLIP SYSTEM.



S6 - SERVICE STATION SOUTH ELEVATION
UNLIT SCALE 1:100

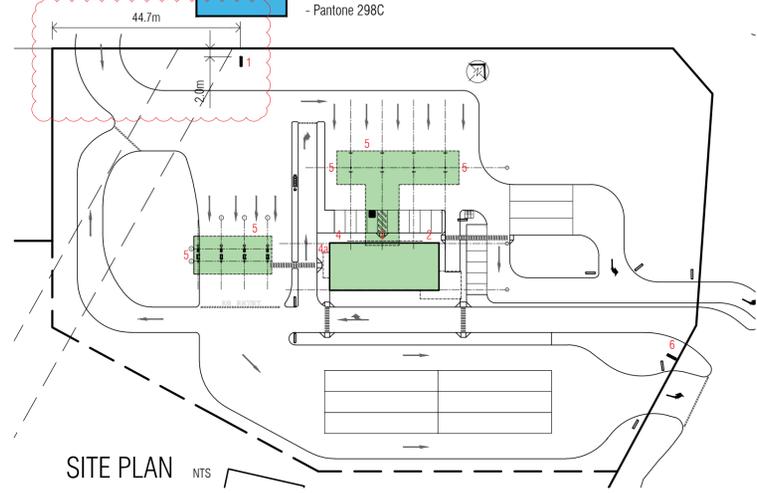
- SIGN PILLAR NOTES:**
- HELIOS LOGO DECORATION ON TOP OF FLAT 25MM EMBOSSEMENT. INTERNALLY ILLUMINATED.
 - SURROUNDING BP LIGHT GREEN EDGE RUNNING DOWN EACH SIDE OF THE HELIOS PANEL.
 - BP WHITE PANEL WITH 35MM X 35MM CHAMFERS RUNNING DOWN THE LENGTH OF EACH SIDE.
 - BP BRANDMARK LETTERS TO BE INTERNALLY ILLUMINATED.
 - ILLUMINATED PANEL RETURN EDGES.
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 - LOGO AREAS ONLY INTERNALLY ILLUMINATED WITH WHITE LED LIGHT ARRAY TO GIVE EVEN BRIGHT ILLUMINATION. GREEN SECTION OF PANEL GRAPHIC IS MASKED OFF AND NOT ILLUMINATED - TYPICAL.
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 - FUEL GRADE TEXT WHITE UNIVERS S5 ROMAN. BACK ILLUMINATED WITH LED LIGHTS.
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 - PANEL REVEAL PAINTED BP LIGHT GREEN.
 - PANEL PAINTED BP RETAIL GREEN.
 - COLOURS NOT SHOWN FOR CLARITY.
- PRICE SIGN NOTES:**
- TOP CAP AND SUPPORTS PAINTED BP WHITE.
 - STANDARD PANELS PAINTED BP RETAIL GREEN.
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NOTE: ALL SIGNS NOT NOMINATED TO BE INTERNALLY ILLUMINATED WILL BE FLOOD LIT.

PYLON SIGN CONDITIONS:

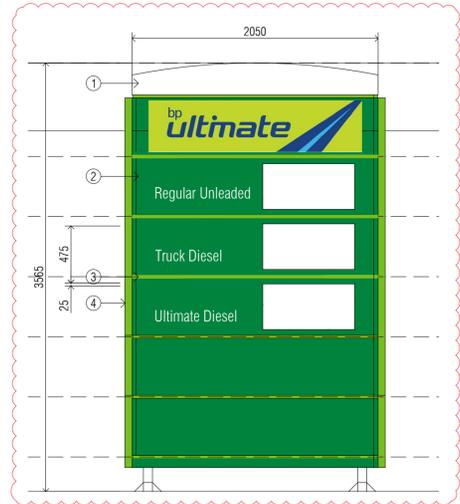
- THE SIGN WILL BE CONSTRUCTED ON NATURAL GROUND LEVEL.
- THE SIGNS ARE TO BE REMOVED IF THE USE CEASES AND THE PLANNING PERMIT SUBSEQUENTLY EXPIRES.
- THE SIGNS MAY NOT BE CONSTRUCTED OR DISPLAYED UNTIL THE CONSTRUCTION OF THE SERVICE STATION HAS SUBSTANTIALLY COMMENCED



SITE PLAN NTS



S1 - PYLON SIGN (DOUBLE SIDED - SAME)
SCALE 1:25



S6 - PRICE SIGN (DOUBLE SIDED - SAME)
SCALE 1:25

PROPOSED SERVICE STATION

10 DRAPERS ROAD, COLAC EAST.

Rev D-SIGN 6 DELETED -03.12.20
Rev C-PYLON SIGN LOCATION AND SIZE AMENDED -19.11.20
Rev B-TOWN PLANNING ISSUE-07.08.20
Rev A-EPIC GROUP USER EDITS-28.07.20

J R DESIGN AUSTRALIA pty ltd

SIGNAGE TP.06d 1:100@A1 30.04.2018

Planning and Environment Act 1987

COLAC OTWAY PLANNING SCHEME

AMENDMENT C109cola

EXPLANATORY REPORT

Who is the planning authority?

This amendment has been prepared by the Colac Otway Shire which is the planning authority for this amendment.

The amendment has been made at the request of Pierrepoint Planning Consultants, acting for Lease Link Property Consultants Pty. Ltd.

Land affected by the amendment

The amendment applies to land known as 10 Drapers Road Colac East, located on the south west corner of Drapers Road and the Princes Highway Colac East, being part of Lot 1 TP 115302R.



A mapping reference table is attached at Attachment A to this Explanatory Report.

The land is to be developed in accordance with Planning Permit PP106/2018-1 issued under the Colac Otway Planning Scheme on the 13 February 2020, which allows the “Use and development of a service station, access to a road in a Road Zone Category 1 and removal of native vegetation in accordance with the endorsed plans”.

What the amendment does

- Amends the schedule of Clause 45.12 to insert the Incorporated Document titled “Colac East Service Station Advertising Signage, 10 Drapers Road Colac East, December 2020” (incorporated document) to allow the development of the land for the installation and display of advertising signage in accordance with the Incorporated document.
- Amends the Schedule to Clause 72.04 by referencing the Incorporated Document.
- Amends Planning Scheme Map 9SCO and applies SCO4 to the land

Strategic assessment of the amendment

Why is the amendment required?

The amendment is required to facilitate the display and installation of business identification signage in excess of 3^m2 associated with the approved use of the land under Planning Permit PP106/2018-1 for a Service Station that would otherwise be prohibited under the applicable Category 4 advertising controls of the Farming Zone.

How does the amendment implement the objectives of planning in Victoria?

The amendment implements the objectives of planning in Victoria by permitting the display of business identification signage associated with a Service Station in accordance with Section 4 (1)(a) of the Planning and Environment Act 1987 to provide for the fair, orderly, economic and sustainable use and development of land.

How does the amendment address any environmental, social and economic effects?

The amendment makes a positive contribution socially and economically by providing certainty that advertising signage associated with an approved service station can be displayed on the land known as 10 Drapers Road East Colac and thus ensuring the development of a service station on the land. The construction of the service station will provide an immediate stimulus to the local economy via the engagement of local trades and suppliers. Once constructed the service station will provide on-going employment opportunities. There are no environmental effects likely to arise from the advertising signage facilitated by the amendment.

Does the amendment address relevant bushfire risk?

Not Applicable

Does the amendment comply with the requirements of any Minister’s Direction applicable to the amendment?

The amendment complies with:

- Ministerial Direction on the Form and Content of Planning Schemes under section 7(5) of the Act, and
- Ministerial Direction No. 11 – Strategic Assessments of Amendments

How does the amendment support or implement the Planning Policy Framework and any adopted State policy?

The amendment is consistent with, and has been prepared in accordance with, the planning policy framework (PPF) as detailed below:

- The project will support sustainable development in the regional centre of Colac, as supported in Clause 11.0 -1S (Settlement)
- The amendment will have no impact on surrounding sensitive land uses from noise as stated in Clause 13.05-1S (Noise Abatement)
- The amendment will not impact upon air quality as stated in Clause 13.06 -1S (Air Quality Management)
- An appropriate built form outcome will be achieved on site. The amendment will facilitate the provision of safe and practical advertising signage for a service station.

How does the amendment support or implement the Local Planning Policy Framework, and specifically the Municipal Strategic Statement?

The Amendment seeks to facilitate signage associated with a pre-determined use and development of the land for a service station. Local Planning Policy is not specific to signage.

Does the amendment make proper use of the Victoria Planning Provisions?

The amendment makes proper use of the Victorian planning provisions by applying the Specific Controls Overlay - Schedule 4 (SCO4) to allow the display of advertising signage typically associated with a service station.

How does the amendment address the views of any relevant agency?

The amendment will be referred to the Department of Transport (Regional Roads Victoria).

Does the amendment address relevant requirements of the Transport Integration Act 2010?

Not Applicable

Resource and administrative costs

- **What impact will the new planning provisions have on the resource and administrative costs of the responsible authority?**

The amendment will not generate any additional resource or administrative costs for the Responsible Authority.

Where you may inspect this Amendment

The amendment is available for public inspection, free of charge, during office hours at the following places:

- Colac Otway Shire, 2-6 Rae Street COLAC Vic 3250.

The Amendment can also be inspected free of charge at the Department of Environment, Land, Water and Planning website at www.planning.vic.gov.au/public-inspection.

Submissions

Any person who may be affected by the amendment may make a submission to the planning authority. Submissions about the amendment must be received by [insert submissions due date].

A submission must be sent to: Colac Otway Shire, 2-6 Rae Street COLAC Vic 3250.

Panel hearing dates

In accordance with clause 4(2) of Ministerial Direction No.15 the following panel hearing dates have been set for this amendment:

- directions hearing: [insert directions hearing date]
- panel hearing: [insert panel hearing date]

ATTACHMENT A - Mapping reference table

Location	Land /Area Affected	Mapping Reference
Colac East	Part of Lot 1 TP 115302R, south west corner of Drapers Road and the Princes Highway, Colac East,	Colac Otway C109cola Map 9SCO Exhibition

COLAC OTWAY PLANNING SCHEME

31/07/2018
VC 148**SCHEDULE TO CLAUSE 72.04 DOCUMENTS INCORPORATED IN THIS PLANNING SCHEME****1.0 Incorporated documents**---/---/---
Proposed
C109cola

Name of document	Introduced by:
Apollo Bay Coastal Valley and Hills Precinct Development Principles, 2003	C55
Australian Standard AS2021-2015, Acoustics – Aircraft Noise Intrusion – VC107 Building Siting and Construction, Standards Australia Limited, 2015	VC107
Beeac Commercial Precinct, Beeac Statement of Significance	C108cola
Beech Forest Precinct, Beech Forest Statement of Significance	C108cola
Birregurra Main Street Precinct, Birregurra Statement of Significance	C108cola
Birregurra Church Precinct, Birregurra Statement of Significance	C108cola
Colac Abattoir and Food Production Plant Master Plan, May 2016	C86
Colac East Service Station Advertising Signage, 10 Drapers Road, Colac East December 2020	C109cola
Colac Estate Housing Precinct, Colac Statement of Significance	C108cola
Coragulac Church Precinct, Coragulac Statement of Significance	C108cola
Cressy Water Tower Conservation Management Plan (26/2/2008)	C27 (Part 1)
Dairy Food Production Plant Master Plan - Connor and Murray Streets, Colac, C86 May 2016	C86
Duverney Street Precinct, Cressy Statement of Significance	C108cola
Factory Houses Precinct, Cororooke Statement of Significance	C108cola
Johanna Coast to Cape Otway Coastal Valley and Hills Precinct Development C55 Principles, 2003	C55
Memorial Square Precinct, Colac Statement of Significance	C108cola
Murray Street Precinct. Colac Statement of Significance	C108cola
Pier Precinct, Apollo Bay Statement of Significance	C108cola
Powerline Bushfire Safety Program - Native Vegetation Removal Code of GC57 Practice, August 2016	GC57
Princes Highway – Barongarook Creek Bridge Upgrade, October 2017 C103cola (Amended August 2019)	C103cola
Princes Highway Duplication – Winchelsea to Colac, July 2014	C80
Residential Precinct, Colac Statement of Significance	C108cola
Restructure Plans for Old and Inappropriate Subdivisions in Colac Otway Shire, C69 December 2012	C69
Warrnambool Line Upgrade - Incorporated Document, December 2019	GC121
Wye River and Separation Creek bushfire affected properties, October 2016	C93
Whiskey Distillery Colac, 265-281 Murray Street, Colac, November 2019	C104cola

COLAC OTWAY PLANNING SCHEME

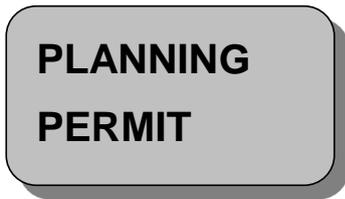
24/12/2019

SCHEDULE TO CLAUSE 45.12 SPECIFIC CONTROLS OVERLAY**1.0****Specific controls**

--/---
Proposed
C109cola

PS Map Ref	Name of incorporated document
SC02	Warrnambool Line Upgrade – Incorporated Document December 2019
SC03	Whiskey Distillery Colac, 265-281 Murray Street, Colac, November 2019
SC04	Colac East Service Station Advertising Signage 10 Drapers Road Colac East December 2020

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Assessment No – 9597
Permit No – PP106/2018-1
Planning Scheme – Colac Otway Scheme
Responsible Authority - COLAC OTWAY SHIRE

ADDRESS OF THE LAND:

10 Drapers Road COLAC EAST
Lot: 1 TP: 113302 V/F: 9625/463 Parish of Irrewarra

THE PERMIT ALLOWS:

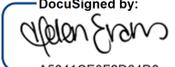
Use and development of a service station, creation of access to a road in a Road Zone Category 1, and removal of native vegetation in accordance with the endorsed plans.

THE FOLLOWING CONDITIONS APPLY TO THIS PERMIT

- 1 Prior to commencement of the use and/or development, amended plans to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved the plans will be endorsed and will then form part of the permit. The plans must be drawn to scale with dimensions. The plans must be generally in accordance with Site Plan TP.01C, Floor Plan TP.03C, Elevations TP.03C and Landscape Plan TP.04C, all dated 9/12/19 Rev C and prepared by J R Design Australia Pty Ltd, but modified to show:
 - (a) The 1:500 site plan amended to include the whole of the site, i.e. the south-east section of the site adjacent to Drapers Road
 - (b) The 1:500 site plan amended to include dimensions and setbacks
 - (c) A 1:50 scale floor plan of the service station building
 - (d) The Princes Highway duplication and the kerb extension from the Princes Highway to the site entrance on Drapers Road
 - (e) The length of the truck parking spaces reduced to reflect the turning movements in the submitted Traffic Impact Assessment, to ensure the parking spaces allow trucks to exit
 - (f) Warning signage, alerting westbound vehicles travelling past the truck fuelling area after entering from Drapers Road of turning vehicles ahead
 - (g) Left turn only exit from caravan/trailer parking
 - (h) Left turn only from car park exit

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

- (i) 'Reverse parking only' sign at the loading zone
- (j) Kerb locations and types, to direct traffic and to prevent vehicles

Endorsed Plans

- 2 The use and development as shown on the endorsed plans must not be altered without the written consent of the Responsible Authority.
- 3 The removal of native vegetation must be in accordance with the endorsed plan to the satisfaction of the Responsible Authority.

Reticulated Sewer

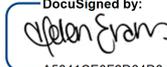
- 4 Prior to the commencement of the use, the site must be connected to reticulated sewer to the satisfaction of Barwon Water and the Responsible Authority.

Construction Environmental Management Plan

- 5 Prior to commencement of the development hereby permitted, a Construction Environmental Management Plan (CEMP) to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the plan will be endorsed and will then form part of the permit. The CEMP must include, but not be limited to, the following:
 - (a) overall environmental objectives for the construction and techniques for their achievement;
 - (b) procedures to ensure that no significant adverse environmental impacts occur as a result of the development and use;
 - (c) site plan showing phases of construction, siting of waste, fuel and materials storage, etc.;
 - (d) details, including details of any staging, of when the landscaping shown on the endorsed landscape plan will be provided, to ensure landscaping is established as soon as practicable;
 - (e) the time for the removal of those existing trees in the northeast section of the site identified for removal on the endorsed landscape plan, being a time as late in the sequence of development as practicable;
 - (f) information on how vehicle hygiene and vehicle wash-down areas will be maintained;
 - (g) information on the use of clean fill;
 - (h) information on how noxious weeds that may establish post-construction will be managed through spraying with herbicide or hand-removal;
 - (i) information on how a zoologist or DELWP accredited wildlife handler would recover any wildlife from trees prior to their removal;
 - (j) identification of possible risks and response measures to be implemented, including:
 - i Water Quality, Stormwater, Sediment and Erosion Control
 - ii Flora and Fauna Protection

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

- iii Measures to prevent the growth, spread and establishment of weeds and pathogens, including vehicle, machinery and equipment hygiene and the use of material such as sand, soil or gravel that is weed and pathogen free
- iv Cultural Heritage
- v Air Quality
- vi Noise and Vibration
- vii Land and Groundwater Contamination Management
- viii Waste Management and Minimisation
- ix Storage and Handling of Fuels and Chemicals
- x Neighbourhood Management and Communication
- xi Traffic and Parking Control

All works must be carried out in accordance with the approved CEMP to the satisfaction of the responsible authority or as otherwise approved by the responsible authority.

Drainage Report

- 6 Prior to the commencement of the development, a drainage report and design for the proposal, including calculations, must be prepared by a suitably qualified engineer to the satisfaction of the Responsible Authority. The design must show the impact of the overland runoff on the surrounding areas during a 100 year ARI storm event. The report and design must highlight the potential impact on neighbouring properties/roads and the subject property, once the development is completed. The design and report must also highlight how the runoff from the site would be discharged into a Council or VicRoads drainage asset.

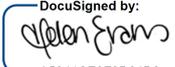
Stormwater

- 7 All runoff from stormwater, including overflow from water storage, must be taken to a legal point of discharge to the satisfaction of the Responsible Authority.
- 8 Prior to commencement of any works associated with the development, a Stormwater Management Plan, including details of paving, to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the plan will be endorsed and will form part of the planning permit. The plans must contain all the relevant information and be drawn to scale with dimensions.

The stormwater and paving infrastructure must be constructed in accordance with the endorsed plan.

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

- 9 Prior to the commencement of any works associated with the development, a stormwater detention system designed by a qualified engineer must be submitted to and approved by the Responsible Authority. The design must provide for a maximum site discharge rate equal to the pre-development 5 year storm (20% AEP) and detain the post development 10 year storm (10% AEP). The stormwater detention system must be implemented as part of the development in accordance with the approved plan.

Within one week of the installation of the stormwater detention system, notice of its installation must be given to the Responsible Authority, an inspection must be requested and the written approval of the Responsible Authority must be obtained.

- 10 The site must be developed and managed to ensure there is no stormwater pollution through the contamination of runoff by chemicals, sediments, wastes or pollutants in accordance with 'Best Practice Environmental Management Guidelines for Stormwater Management and Construction Techniques for Sediment Pollution Control' (EPA) at any time during construction or operation, to the satisfaction of the Responsible Authority.
- 11 All stored wastes must be kept in designated areas as identified on the endorsed plans and/or in covered containers to prevent escape into the stormwater system to the satisfaction of the Responsible Authority.

Drapers Road Investigation Report

- 12 Prior to the commencement of development, an investigation into the potential impact of the proposed development on the integrity and longevity of Drapers Road between the Princes Highway and 5 metres south of the proposed site entry/exit to Drapers Road must be carried out, and a report outlining the findings and recommendations of that investigation must be prepared, by a suitably qualified engineer and to the satisfaction of the Responsible Authority. The report must be submitted to and approved by the Responsible Authority prior to the commencement of any works. The investigation and report must assess matters including, but not limited to:

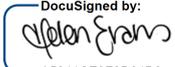
- (a) Existing conditions;
- (b) Required construction standards to accommodate traffic generated by the use, such as road width, pavement and road base standards, and drainage;
- (c) Any required upgrades to Drapers Road.
- (d) The recommendations of this report must be implemented at the direction, and to the satisfaction, of the Responsible Authority prior to the commencement of the use.

Access

- 13 Prior to commencement of the development, vehicular access from the roadway to the property boundary must be constructed to the satisfaction of the Responsible Authority.

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

Construction of Parking and Access Areas

14 Prior to the commencement of the use hereby permitted, the area/s set aside for the parking of vehicles and as access ways, including all areas around the bowzers, as shown on the endorsed plans must be:

- (a) Constructed;
- (b) Properly formed to such levels that they can be used in accordance with the plans;
- (c) Surfaced with an all-weather seal coat to the satisfaction of the Responsible Authority;
- (d) Drained;
- (e) Line-marked to indicate each car space and all access lanes;
- (f) Clearly marked, by signage and line-marking, to show the direction of traffic along access lanes and driveways;
- (g) Properly illuminated with lighting, including lighting at the Drapers Road entrance, which is designed, baffled and located to the satisfaction of the Responsible Authority to prevent any adverse effect on adjoining land;

to the satisfaction of the Responsible Authority.

The areas must be constructed, and drained to prevent diversion of flood or drainage waters, and maintained in a continuously useable condition to the satisfaction of the Responsible Authority.

All designated parking spaces and access lanes must be kept available for these purposes at all times.

Loading Bay

15 The loading bay must remain available, without obstruction, for the purpose of loading and unloading at all times.

Off-site Contamination

16 The site must be developed and managed to ensure that no contaminants, including but not limited to chemicals, sediments, wastes or pollutants, are deposited by vehicles on the abutting roads when vehicles are leaving the property, to the satisfaction of the Responsible Authority.

Filling of Dam

17 Prior to the commencement of use, a Certificate of Compliance from a suitably qualified person must be submitted to the Responsible Authority. The certificate must approve the filling of the dam, in accordance with the relevant Australian Standards.

18 Any fill material brought onto the subject land must meet the specifications contained in EPA publication IWRG621, 'Soil Hazard Categorisation and Management', 2009 or as amended.

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

Native Vegetation

- 19 Before the vegetation removal starts, the boundaries of all vegetation to be removed and retained must be clearly marked on the ground with tape or temporary fencing to the satisfaction of the Responsible Authority.
- 20 Vegetation removal and disposal must not cause damage to vegetation stands to be retained, to the satisfaction of the Responsible Authority. To prevent damage to remaining vegetation, there must be no temporary or permanent storage of any materials, vehicles or equipment within areas of native vegetation identified to be retained in accordance with the endorsed plans. Storage sites must not adversely impact upon native vegetation, including the root zones of existing trees. Such sites must not be located on or near erodible surfaces, surface water runoff areas or areas infested with weeds.

Native Vegetation Offset

- 21 To offset the removal of 0.69 hectares of native vegetation the permit holder must secure a native vegetation offset, in accordance with *the Guidelines for the removal, destruction or lopping of native vegetation (DELWP 2017)* as specified below:

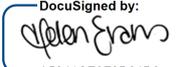
A general offset of 0.020 general habitat units:

- located within the Corangamite Catchment Management Authority boundary or Colac Otway Shire municipal district;
 - with a minimum strategic biodiversity score of at least 0.408.
- 22 Before any native vegetation is removed, evidence that the required offset for the project has been secured must be provided to the satisfaction of Responsible Authority. This evidence is one or both of the following:
- an established first party offset site including a security agreement signed by both parties, and a management plan detailing the 10 year management actions and ongoing management of the site, and/or
 - credit extract(s) allocated to the permit from the Native Vegetation Credit Register.
- A copy of the offset evidence will be endorsed by the Responsible Authority and form part of this permit.

- 23 In the event that a security agreement is entered into, the applicant must provide the annual offset site report to the Responsible Authority by the anniversary date of the execution of the offset security agreement, for a period of 10 consecutive years. After the tenth year, the landowner must provide a report at the reasonable request of a statutory authority.

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

Landscaping

24 Prior to commencement of the development, a landscape plan to the satisfaction of the Responsible Authority must be submitted to and approved by the Responsible Authority. When approved, the plan will be endorsed and will then form part of the permit. The plan must be drawn to scale with dimensions. The landscape plan must be generally in accordance with the landscape concept plan dated 9/12/19 Rev C prepared by J R Design Australia Pty Ltd, except that the plan must show:

- (a) The planting of trees and other vegetation at sufficient quantity to ameliorate the impact of the built development and to screen the truck parking area.
- (b) The temporary retention of existing trees in the northeast section of the site until the time set out in the Construction Environmental Management Plan, or such other time as agreed by the Responsible Authority in writing.
- (c) The staging of the landscaping, if required, to ensure larger trees and the planting in the north-eastern and western sections of the site is undertaken at the earliest opportunity during the construction phase.
- (d) Details of the planting heights of T1, T2, T3, S1 and S2 at planting, which must be at a minimum height of 2m.
- (e) A written commitment that if T1, T2, T3, S1 or S2 require replacement, any such replacement plants will be to at least the original planting height.
- (f) The use of semi-mature plantings where possible to provide screening when planted.
- (g) Details of any water sensitive urban design measures such as rain gardens or filtration systems and proposed drainage lines in accordance with the Stormwater Management Plan.
- (h) A visual representation of the developed site when landscaped, from the northeast, north and west, with tree quantities and heights at maturity accurately represented, together with building heights and scale.
- (i) Details of the maintenance schedule of the landscaping for the first 5 years.
- (j) Confirmation that the use of noxious species during any landscaping of the property will be avoided.

All species selected must be to the satisfaction of the Responsible Authority. The location of canopy trees must not conflict with the drainage requirements.

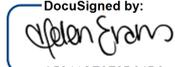
25 Prior to commencement of the use, or by such later date as is approved by the Responsible Authority in writing, the landscaping works shown on the endorsed plans must be completed to the satisfaction of the Responsible Authority. The landscaping must thereafter be maintained to the satisfaction of the Responsible Authority, including that any dead, diseased or damaged plants are to be replaced.

General Amenity

26 All security alarms or similar devices installed on the land must be of a silent type in accordance with any current standard published by Standards Australia International Limited and must be connected to a security service.

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

- 27 No external sound amplification equipment or loudspeakers are to be used for the purpose of announcement, broadcast, playing of music or similar purpose.
- 28 External lighting must be designed, baffled and located so as to prevent any adverse effect on adjoining land, to the satisfaction of the Responsible Authority.

EPA conditions

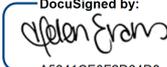
- 29 Odours offensive to the senses of human beings must not be discharged, emitted or released beyond the boundaries of the premises.
- 30 Nuisance dust and/or nuisance airborne particles must not be discharged or emitted beyond the boundaries of the premises.
- 31 Effective noise levels from the use of the premises must not exceed the recommended levels as set out in Noise from Industry in Regional Victoria (NIRV; EPA Publication 1411, 2011) or as amended.
- 32 A secondary containment system must be provided for liquids which if spilt are likely to cause pollution or pose an environmental hazard, in accordance with the EPA Publication 347.1 Bunding Guidelines 2015 or as amended.
- 33 The permit holder must not contaminate land or groundwater.
- 34 Surface water discharge from the premises must not be contaminated with waste.
- 35 Construction and post-construction activities must be in accordance with EPA Publication 275 Construction Techniques for Sediment Pollution Control 1991 or as amended.
- 36 Displaced petrol fumes must be collected with a vapour recovery system.
- 37 Petroleum storage tanks must be designed, installed and operated in accordance with the Guidelines on the Design, Installation and Management Requirements for Underground Petroleum Storage Systems (UPSSs) (EPA Publication No. 888.4, August 2015).

Powercor conditions

- 38 The applicant shall:
 - (a) Provide an electricity supply to the development in accordance with Powercor's requirements and standards, including the extension, augmentation or re-arrangement of any existing electricity supply system, as required by Powercor.

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

- (b) Where buildings or other installations exist on the land and are connected to the electricity supply, they shall be brought into compliance with the Service and Installation Rules issued by the Victorian Electricity Supply Industry. You shall arrange compliance through a Registered Electrical Contractor and provide to Powercor Australia Ltd a completed Electrical Safety Certificate in accordance with Electricity Safe Victoria's Electrical Safety System.
- (c) Any buildings must comply with the clearances required by the Electricity Safety (Installations) Regulations.
- (d) Any construction work must comply with Energy Safe Victoria's 'No Go Zone' rules.

VicRoads condition

39 Before the use approved by this permit commences, the following roadworks on the Princes Highway must be completed at no cost to and to the satisfaction of the Roads Corporation:

- (a) Left turn lane
- (b) Street lighting
- (c) Signage

Prior to works commencing, the applicant must enter a works agreement with VicRoads, confirming design plans and works approvals processes, including the determination of fees and the level of VicRoads service obligations.

Barwon Water conditions

Potable Water

- 40 The provision and installation of a potable water supply to the development.
- 41 An additional potable water connection(s) is to be provided to service the proposed development. A dimensioned plan showing location of all new connections relative to the allotment boundaries is to be submitted, where a meter is not being fitted. Note that tappings and service lines are not to be located under existing or proposed driveways.
- 42 Individual potable water supply meters are required for each lot or building as part of water connection works.
- 43 The payment of a standardised New Customer Contribution is required for any new connection or any upsize to an existing connection. The number of standardised charges applied will be determined on the basis of an equivalent lot calculation and is based on potable domestic water meter size or water service size (where a meter is not being fitted). An equivalent lot is a measure of the additional demand a connection will place on the infrastructure in terms of the water consumption and sewage discharge for an average connection utilising a 20mm tapping and/or meter. If there is more than one meter within a single meter assembly, the size of the largest meter (excluding the fire service meter) will determine the number of equivalent connections. If there is a combined fire and domestic meter

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CONDITIONS CONTINUED FOR PERMIT NO. PP106/2018-1

assembly proposed (incorporating a low flow meter), whereby the meter size is largely dictated by the fire service requirements, the developer is required to submit to Barwon Water the proposed peak “(probable simultaneous demand) associated with the domestic supply in accord with AS/NZS 3500. Barwon Water will then assess the equivalent number of connections.

Expiry

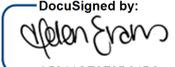
44 This permit will expire if one of the following circumstances applies:

- (a) The development has not commenced within two years of the date of this permit.
- (b) The development and vegetation removal works are not completed, and the use has not commenced, within four years of the date of this permit.

In accordance with section 69 of the *Planning and Environment Act 1987*, an application may be made to the Responsible Authority to extend the periods referred to in this condition.

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Item: 10.5

Birregurra Flood and Drainage Strategy & Planning Scheme Amendment

OFFICER	Simon Clarke
GENERAL MANAGER	Ian Seuren Tony McGann
DIVISION	Development & Community Services Infrastructure & Leisure Services
ATTACHMENTS	1. Birregurra Flood Study- Draft Report [10.5.1 - 203 pages]
PURPOSE	To seek approval from Council to obtain the Minister for Planning's authorisation to commence a planning scheme amendment to implement the draft Birregurra Flood and Drainage Strategy's findings, and commence the public exhibition of the draft Strategy and planning scheme amendment.

1. EXECUTIVE SUMMARY

The Colac Otway Shire, in partnership with Corangamite Catchment Management Authority (CCMA), VicSES and the Department of Environment, Land, Water and Planning (DELWP) have overseen preparation of the draft *Birregurra Flood and Drainage Strategy* (the Study). The Study has undertaken a detailed flood analysis to determine more accurate flood levels and extents for a range of flood events for Birregurra and the flood study catchment. Current flood levels and mapping are outdated and require urgent review to avoid placing people and property at risk from flood events. The Study has shown the current Planning Scheme flood mapping in Birregurra is insufficient and does not accurately identify the full extent of flood prone land, which may lead to poor land use and development decisions.

The project has determined the potential impacts of flooding in Birregurra and identified potential drainage infrastructure improvements. The updated flood extents mapping will be used for emergency management planning, updating the planning scheme, and in community education.

The project has been overseen by an interagency steering committee which included the CCMA, SES, and internal Council stakeholders. The steering committee also included two community representatives to help integrate community views into the project and also provide a conduit back

to the community and provide suggestions about engagement opportunities. The project also liaised with the Eastern Maar Aboriginal Corporation to integrate their views.

The project has reached a milestone with the completion of the exhibition version of the draft strategy and draft planning scheme amendment to update the flood mapping in the town. It is important now to seek the community's views about the draft Strategy and proposed planning controls through a public exhibition process. Officers therefore recommend that Council note the exhibition version of the Strategy, and support officers to request the Minister for Planning to authorise the commencement of a planning scheme amendment, in addition to a public exhibition process.

2. RECOMMENDATION

That Council:

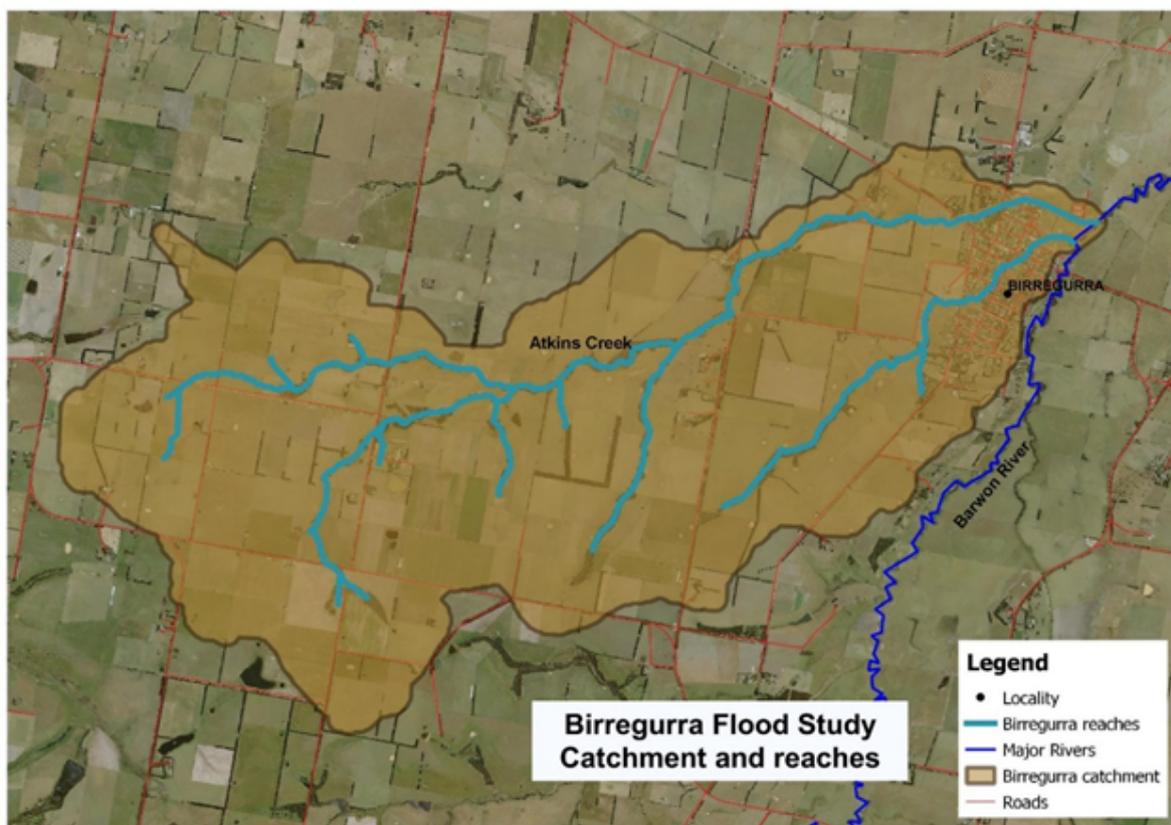
- 1. Notes the exhibition version of the Birregurra Flood and Drainage Strategy;***
- 2. Requests the Minister for Planning to authorise the preparation of a planning scheme amendment to implement the flood planning controls and flood mapping updates in Birregurra;***
- 3. Commences a public exhibition process to seek community views about the draft planning scheme amendment and the exhibition version of the Birregurra Flood and Drainage Strategy.***

3. KEY INFORMATION

The Colac Otway Shire, in partnership with Corangamite Catchment Management Authority (CCMA), VicSES and the Department of Environment, Land, Water and Planning (DELWP) have overseen preparation of the draft *Birregurra Flood and Drainage Strategy* (the 'Study'). After an open tender process, Council appointed Engeny Water Management to prepare the Study. The Study has involved a detailed flood analysis to determine more accurate flood levels and extents for a range of flood events for Birregurra in the flood study catchment.

The Study is focussed on the flooding behaviour of the Atkins Creek and unnamed tributary which flow through the town. It is not a flood study of the Barwon River catchment which is very large and covers three local government areas and has been separately investigated by the CCMA. The Study does however consider how the flooding of the creeks interact with the Barwon River when it is also flooding.

A flood study by nature is focussed on the flood behaviour of creeks and rivers and does not consider other inherent or intrinsic values of our waterways such as cultural heritage, recreational, aesthetic, or ecological values. It is important to highlight that flooding and its management must be considered within this broader context when considering engineered flood mitigation measures which involve works within waterways. This will be discussed later in this report.



Rational for Study

Birregurra and its surrounds are located within the study area and have experienced growth and infill development within recent times. A number of properties are affected by flooding from Atkins Creek and the unnamed tributary.

Although the Colac Otway Planning Scheme applies a Land Subject to Inundation Overlay (LSIO), a planning overlay that identifies flood prone land to part of the town, no previous flood studies have been undertaken for Birregurra. The existing LSIO mapping was created many years ago from available flood data collected as part of the former Department of Natural Resources and Environment's Flood Data Transfer Project. The data was based on a combination of aerial photography, geology, soil and topographic mapping. No recorded flood information or flood studies were available. The data was considered 'low reliability'. Since then, flood data has been captured from the September 2016 flood event and the evolution of more sophisticated flood modelling and survey technology has enabled more accurate flood mapping to be developed.

The current (or existing) LSIO insufficiently captures all properties affected by flooding particularly those properties located north of Scouller Street and properties along Atkins Creek. This was seen by the community during the September 2016 flood event where areas particularly in Anderson and Scouller Street were severely affected by flood waters. It is an urgent reason why the flood mapping needs to be updated to avoid placing people and property at risk from flood events, and to improve land use and development decisions made by Council. There is low confidence that the current Planning Scheme mapping is accurate. Indeed, the draft Birregurra flood and drainage strategy has highlighted the importance of updating the existing overlays within Birregurra with those developed as part of this study because it has shown such a discrepancy between flood prone land identified through its modelling compared with land that is identified as flood prone through the Planning Scheme.

Current flood mapping technologies utilise two-dimensional mapping software. Furthermore, LiDAR (Light Detection and Ranging which is a remote sensing method) was commissioned specifically for the study to provide accurate contour data which provides improved representation of the waterways and key topographical features across the study area. This is used to improve the overall accuracy of the flood modelling. In addition to the LiDAR other data has been made available including rainfall and streamflow data as well as feature surveys of building floor levels and key structures such as bridges. There have also been large technological advancements in recent years in the software used to undertake detailed flood modelling and the most advanced software has been utilised in this current study.

The latest industry guidelines (Australian Rainfall and Runoff or ARR) have been adopted for the Birregurra Flood and Drainage Strategy forming the basis of the proposed planning overlays. The ARR guidelines were significantly updated in 2016 and capture 30 years of additional rainfall data to define new estimates of Intensity Frequency Data (IFD) for the full range of Annual Exceedance Probability (AEP) events (i.e. the 1% AEP event or 1 in 100-year event). Prior to 2016 the ARR guidelines relied upon rainfall intensity estimates produced in 1987.

Other compelling reasons for investing in this work have been to improve understanding of the response time of catchment flooding as it was not known and emergency warning and responses are difficult in their absence. No formal flood warning gauges exist for the smaller waterways upstream of Birregurra and therefore future flood warning needs to be tied to predicted rainfall totals and associated flood mapping of a range of design flood events. Future major floods are likely to result in significant damage to business, private residences and public infrastructure if not informed by robust flood behaviour information.

The Corangamite Regional Floodplain Management Strategy (2018-2028) identified a high priority action for Colac Otway Shire to undertake a flood study for Birregurra, with the potential to develop an integrated flood and drainage strategy for the town.

Funding was obtained from the Natural Disaster Resilience Grant Scheme (NDRGS) managed by Emergency Management Victoria to deliver the strategy, which also allowed for the procurement of updated LiDAR for the 3D modelling to be undertaken with greater accuracy.

High quality up-to-date flood maps are critical to support land use and development decisions relating to the Birregurra township and surrounds, particularly for land identified to cater for future urban growth, as well as in-fill development and subdivision of existing properties.

The flood information produced through this investigation will inform land use planning and flood response and will be subject to careful scrutiny by the community and government as part of a public exhibition process and planning scheme amendment.

The project has determined the potential impacts of flooding in Birregurra and has also considered potential drainage infrastructure improvements. The updated mapping will be used for emergency management planning, updating the planning scheme and in community education.

The project has had several broad components:

- data collation and review included engagement with the Birregurra community to share their flood stories;

- hydrological and hydraulic flood investigation covering both the riverine and urban flooding arising from drainage infrastructure exceeding its design capacity;
- consideration of climate change impacts for the 1% and 10% AEP storm events;
- independent peer review of hydrology and hydraulic modelling;
- commissioning of building floor level feature survey to inform flood damages assessment;
- identification of constraints for future development of flood prone land;
- consideration of flood mitigation options to reduce urban flooding;
- consideration of stormwater quality and potential Water Sensitive Urban Design assets to improve water quality;
- consideration of flood intelligence, warning systems, and an update of the Municipal Flood Emergency Plan to inform emergency management;
- planning scheme amendment mapping and overlay schedules to implement the strategy and update flood controls in the Planning Scheme.

Hydrological and Hydraulic Modelling

Hydrological modelling and hydraulic modelling were undertaken as an important part of the study. Hydrological modelling refers to the study of rainfall and stormwater runoff processes. The modelling produces hydrographs which are graphs representing how fast water is moving across the landscape over the duration of the flood event (flow versus time graphs). Hydraulic modelling in contrast, refers to the study of water flow through the catchment and the associated flow depth and velocity parameters. The hydrologic modelling outputs (i.e. hydrographs) are applied as inputs to the hydraulic TUFLOW model.

Hydrological and hydraulic modelling was undertaken in line with the latest Australian Rainfall and Runoff guidelines (ARR2019) which provides current rainfall data issued from the Federal Government. This allows a better understanding of flooding conditions for a series of Annual Exceedance Probability (AEP) design events. The AEP design events are commonly referred to as a 1 in 10 (10% AEP), or a 1 in 100-year event (1% AEP), for example. Utilising the September 2016 historical flood data, a computer-generated simulation and calibration of the hydrologic and hydraulic models was undertaken to provide confidence in modelling outputs and its accuracy to identify what land is flood prone under certain conditions. A climate change sensitivity analysis was also undertaken.

Given the highly technical nature of flood modelling, the project included a peer review process where independent flood modelling experts (Water Technology) were commissioned by Council to review the methodology and approach of Engeny in relation to their hydrological and hydraulic modelling to ensure it is robust and well considered. This provides additional confidence the study is well-founded and technically robust.

Flood Damages

Flood mapping outputs for the 20% to 1% AEP storm event were used to estimate the Average Annual Damage (AAD) for existing conditions. This assessment considered the properties and dwellings which intersect the proposed flooding overlays based on the 1% AEP flood mapping results. The proposed flooding overlays are shown in section 8 of the study. Table 1: Summary of Flood Damages in the Study (Attachment 1) indicates that flood related damages in Birregurra can be considered high.

Flood Mitigation

To reduce both flood risk and flood damage, structural and non-structural mitigation works were investigated. Structural mitigation works typically consist of engineered solutions, which are constructed to improve the conveyance of overland stormwater flows or provide flood water storage (e.g. pipe upgrades / diversions, new retarding basin, etc.). Non-structural mitigation works relate to planning overlays and controls as well as flood emergency management plans.

After consultation with local residents and the Project Control Group, five interventions were considered and modelled by Engeny to determine their effect on downstream flooding and resultant reduction in overall flood damage, particularly to housing. They were assessed within the hydraulic TUFLOW model for the 20% to 1% AEP storm events. These interventions were then carefully considered against the estimated cost of the construction of the drainage asset to determine and any reduction in the Annual Average Damages (AAD) cost to determine whether they were potentially feasible. Thus, where relevant, the flood mitigation benefits were assessed with the calculation of the AADs and the expected reduction in damages when compared to existing conditions. Other factors such as the estimated capital costs were considered in addition to the social impacts/benefits, environmental impacts/benefits and construction/feasibility risks.

There are no obvious interventions which will easily reduce urban flooding in Birregurra in a cost-effective way. This is because of the constrained nature of the waterways, lack of available land, and sheer volume of water moving through the waterways in a flood event which would require temporary storage in large flood events.

Furthermore, it is important to reiterate that drainage interventions need to consider other values of the waterways including cultural heritage and ecological values. It is understandable that people may consider widening or straightening a creek as a sensible solution to reduce flooding, and sometimes this may be the case. However, any drainage interventions must include the commissioning of further assessments to understand cultural heritage and ecological values before finalising any approach. Waterways are places of great cultural heritage values to Aboriginal people, and also habitat for threatened species such as the EPBC Act listed Growling Grass frog. Council is required under other legislative obligations to investigate these matters before making any final determination. These recommendations are noted in the Study.

The Planning Scheme Amendment

Planning controls are one of the most cost-effective non-structural mitigation means of reducing the community's flood risk by:

- Encouraging people to, where possible, avoid development on flood-prone land.
- Minimising the potential impacts on existing flood-prone developments by raising floor levels of proposed habitable buildings and ensuring the development does not increase the risk of flooding on other properties.

This is because the suite of flooding overlays clearly identifies (through maps in planning schemes) what land is flood prone. They also provide guidance in relation to the level of flood risk and whether development may be acceptable under certain conditions.

A planning scheme amendment is now required to implement the updated flood maps in the Planning Scheme, and the draft strategy needs to be exhibited. Draft mapping has been prepared as well as draft overlay schedules. These are based on similar planning provisions as have been applied through

the Amendment C90 which implemented the Colac flood study, and include sensible exemptions to planning permit requirements if certain criteria are met.

Proposed flood control overlay maps were prepared using the 1% AEP flood depth, water surface elevation, velocity and hazard outputs. The planning overlay controls available as part of the Victorian Planning Provisions are:

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

The three overlays are distinct and apply to land which is subject to different types of flooding. The FO and LSIO apply to land which is subject to flooding caused by creeks and rivers overflowing their embankments (riverine flooding). The SBO is applied to land where the drainage system, that is pits and pipes, cannot cater for the large rain events and water ends up flowing overland because the pits and pipes are full (surface flooding). This is common in some areas as normal engineering design standards for pits and pipes are to accommodate only small or frequent rainfall events and do not cater for larger or less frequent events beyond the 1 in 5-year or 1 in 10-year event. Further advice is being sought from the design consultant on the potential cost of works that would be required to be undertaken to avoid the need for application of the SBO.

The FO (flooding > 300mm) is applied to land where there is a high risk to people and property in a flood event because flood waters are deep and can be fast moving. Its key purpose is to provide for the unimpeded flow of the creek and river waters to avoid increasing flooding on other properties and also reduce risk to life and property. Development is tightly controlled and less likely to be approved than in the LSIO or SBO.

The LSIO identifies land which is subject to flooding or inundation shallower in nature (<300mm) and could be developed under certain conditions. Amendment C90 took the approach to enable development in Colac under some circumstances subject to conditions being met, such as minimum floor level heights for dwellings. This amendment proposes a similar approach.

In summary, the FO is where the flood hazard is considered unsafe and most development is generally not supported. The LSIO is where the flood hazard is within safe parameters and development is generally supported subject to conditions such as raising the floor level of buildings. This is also the case for the SBO.

Using the latest technical guidelines and best available data, the Study has highlighted that the existing overlays and flood planning controls in the Planning Scheme for Birregurra do not sufficiently identify flood prone land. As such the updated overlay maps are intended to replace the existing overlays within the township. Draft amendments to the Colac Otway Planning Scheme to implement revised flooding controls have been prepared and form the basis of the proposed planning scheme amendment subject to Council's consideration.

An assessment of how the overlays would differ under climate change conditions, was also undertaken. This identified that the key difference would be the delineation of the FO extent. With the greater depths and velocities predicted under climate change conditions, the FO extent would marginally affect more properties which are proposed through this amendment to be assigned to the LSIO. The proposed controls do not reflect climate change conditions as there is no clear State government direction about this approach at this stage.

Impact of the Amendment

In terms of total numbers, 45 properties are covered by the current controls. This amendment would result in a total of 105 being included in the LSIO & FO and a further 12 included in the SBO (total 117). The number of dwellings predicted to be affected by above floor flood damage in a 1% AEP event is 26. With regard to total area, currently 17.9 ha of land is included in the current flood controls (private properties and road reserves). This amendment would result in 58.4 ha being included in the LSIO, FO and SBO in Birregurra, as follows:

	Properties (ha)	Road Reserves (ha)	TOTAL (ha)
LSIO	22	5.8	27.8
SBO	1.2	0.7	1.9
FO	22.3	6.4	28.7
TOTAL	45.5	12.9	58.4

The Schedules to the flood overlays contained in the Colac Otway Planning Scheme were rewritten as part of the amendment associated with C90 Colac Flood Overlay Amendment. Under the previous Schedule, the Overlay triggers the need for a planning permit for virtually all development and works. The new Schedules establish or extend the broad range of works that do not require a planning permit in the Overlays, including some forms of replacement buildings, some extensions or external alterations to buildings some forms of fencing and open sided agricultural sheds. The Schedule to the Birregurra Overlays will be the same as those established in Colac.

As was the case in Colac, it is possible that concerns may be raised regarding land values and insurance premiums. While these concerns are acknowledged, the *Planning and Environment Act 1987* does not allow such matters to be considered as part of the planning process.

However, it should be noted that insurance companies adjust their premiums based on mapping held by the CCMA, not the planning scheme. Therefore, the proposed amendment is unlikely to cause any significant change.

Furthermore, other research including '*Special Building Overlay – Value Impact Assessment 2016*' prepared by Charter Keck Cramer for the City of Manningham in 2016, and '*Are Residential Property Values Adversely Affected by Disclosure of Flood Risk*' - Proceedings of the 44th Annual Floodplain Management Authorities Conference, Coffs Harbour. May 2004, reveal that where flood controls have been introduced, there is little evidence that the controls have had an overall adverse impact on property valuations. It is possible however that some properties included in the Flood Overlay could be impacted more than others, where flood risk is the highest and development is discouraged to a greater extent.

Council has an obligation to include overlays in its planning scheme to address flood risk. The proposed overlay mapping represents a snap-shot in time that measures the full extent of a 1% AEP (1 in 100 year) event. Future works in flood mitigation may result in the need for Council to refine the proposed overlays (ie reduce their coverage).

Flood warning assessment

Improved emergency flood warning management also provides a non-structural means for reducing the flood risk to the Birregurra community. A flood warning or alerting system does not currently exist for Birregurra. Essential building blocks (elements) of a Total Flood Warning System (TFWS) have, however, been delivered as part of this study via a series of flood modelling outputs. This has included the delivery of flood inundation mapping, an updated Municipal Flood Emergency Plan (MFEP), an

indicative flood guidance tool and other outputs also suitable for inclusion in a local flood guide such as a property inundation tables and associated flood intelligence information. This information can be used by Council, the SES, and the Birregurra community to help flood preparedness and emergency management services.

Stormwater Treatment Assessment

In addition to the management of flood risks within Birregurra, consideration of the opportunities available to manage stormwater quality were also assessed. This was particularly relevant given the township's expected future growth informed by the Birregurra Structure Plan (2013) and the additional pollutant loads generated through increased impervious areas from new developments.

Current policy requires new developments to achieve the Best Practice Environmental Management Guidelines (BPEMG) pollutant removal targets. This consists of the following requirements:

- 80% reduction of Total Suspended Solids (TSS).
- 45% reduction of Total Phosphorus (TP).
- 45% reduction of Total Nitrogen (TN).
- 70% reduction of Gross Pollutants (GP).
- Retention of flows to pre-development 1.5 year Average Recurrence interval (ARI) post-development.

As such, a range of Water Sensitive Urban Design (WSUD) options were investigated and sized in order to achieve these BPEMG targets for the predicted increase in impervious area. The benefits of other works such as incorporating lot scale rainwater tanks and the benefits of sealing the township's roads were also investigated.

The stormwater quality assessment identified the wetland footprint area which would be required to ensure the predicted future development/increase in impervious area meet the BPEMG targets. The assessment also highlighted the benefits of rainwater tanks and sealing roads within Birregurra and the practicality of implementing bio retention assets to meet the targets. It is noted however that sealing roads may not be supported by the community on neighbourhood character grounds.

4. COMMUNITY CONSULTATION & ENGAGEMENT

The development of the strategy has involved two stages of consultation with the Birregurra community to date, and a third is proposed as part of the formal exhibition of the amendment and draft Strategy.

The first round of community consultation occurred on the 7 and 8 December 2019. It involved inviting the community by direct mail to three drop-in sessions in Birregurra to share their knowledge of local flooding. Its purpose was to gather information about historical flood events and to launch the project with the community. The first drop-in session was held outside the Birregurra General Store, the second at the Birregurra Sunday Market, and the third was a session with the Birregurra Historical Society. This information was used to calibrate the flood model prepared by Engeny.

The second round of community consultation occurred at the commencement of the COVID-19 outbreak and was adjusted from further drop-in sessions to direct phone meetings with interested parties who had registered as part of the first round of consultation. The purpose of this session was

to share the first draft of the flood mapping prepared by Engeny for the 2016 flood event with interested community members and check with them whether it aligned with their experience of that flood event.

A third round of consultation is proposed as part of the formal public exhibition of the strategy with the Planning Scheme Amendment to implement the updated flood mapping into the Colac Otway Planning Scheme. This will afford the community an opportunity to make submissions to Council about the draft strategy and proposed mapping as part of the statutory process to update the Planning Scheme. It is anticipated three further information sessions will be held in Birregurra at different times of the day / week / weekend to provide members of community with an opportunity to have input, subject to COVID-19 health requirements.

Communications

The amendment and Study are highly technical documents and it is important to provide material to assist the public to understand the purpose of the Study and amendment and what is being proposed. To this end, alongside the full technical document, a summary version has been prepared by Engeny. A further short information brochure will also be prepared to help explain the amendment and process for making a submission. Concise information in plain English will also be provided through Council's website.

A mail out to all property owners and occupiers in the town will be undertaken as part of the public exhibition of the amendment and strategy. This will be accompanied with a letter and brochure to help communicate the project in plain English to the public. Notices in the Colac Herald and Birregurra Mail will also be scheduled as part of the amendment. Those property owners potentially impacted by the amendment were advised of this item being considered by Council, prior to the meeting.

COVID-19 appropriate consultation activities will be held during the exhibition process to allow interested parties to discuss the amendment and strategy with Council officers and the CCMA.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 1 - Our Prosperity

1. Plan infrastructure, assets and land use with a long-term vision for economic growth.

Theme 2 - Our Places

1. Assets and infrastructure meet community needs.
2. Our places are managed for long-term sustainability.
4. Leadership in natural environment through good management practices.
6. Emergency management is coordinated locally and on a regional basis.

Theme 3 - Our Community

1. Increase social connection opportunities and community safety.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

It is important that any further infrastructure works include cultural heritage and ecological assessments to inform any decisions about their location. The construction of a new wetland to treat stormwater runoff may significantly reduce environmental issues and impacts by treating runoff and reducing uncontrolled stormwater, which will benefit the Birregurra community as well as the downstream Barwon River catchment. The potential to reduce flooding may have positive economic and social benefits.

LEGAL & RISK

Council has an obligation to the community to ensure that its planning controls accurately reflect risk. If Council does not pursue the mapping update, it could result in risks for Council and the community. For instance:

- People could buy a property that they later learn has limited development potential;
- People could sell land, believing that the development potential is limited, when it later becomes apparent that the development potential was far greater than they had known at the time of the sale;
- People could unknowingly develop their land which is subject to flooding.

There are properties in Birregurra that have flooded in recent years which are currently not covered by the overlays. Legal and risk implications associated with localised flooding caused by inadequate planning controls are expected to reduce upon completion of the planning scheme amendment. This includes updated flood mapping in the Planning Scheme, improved emergency management in relation to flood events, and identification of future capital works projects to upgrade drainage infrastructure if required. Council would experience increased liability if it chose not to progress this process given the known flood risks involved.

FINANCIAL & BUDGETARY

A grant of \$168,000 was obtained from the Natural Disaster Resilience Grant Scheme managed by Emergency Management Victoria (EMV). Council contributed \$70,000 in its 2019/20 budget for the project.

Council has been advised that it is likely to be eligible for a grant to cover its costs in undertaking the planning scheme amendment. An application is currently being lodged. No further Council funds are being sought for this project in the 2021/22 budget on this basis.

7. IMPLEMENTATION STRATEGY

The draft Birregurra Flood and Drainage strategy will be implemented through:

- a Planning Scheme Amendment process to update flood mapping which is expected to commence mid 2021
- updated sections of the Municipal Emergency Management Plan in relation to flood management.

Any capital works identified by the strategy would be implemented through separate projects once appropriate budgets have been allocated. Council will need to give careful consideration in future budget processes to which flood mitigation projects it might pursue, depending on financial capacity weighed against other commitments.

COMMUNICATION

The exhibition of the draft strategy and planning scheme amendment will be communicated via Council's website, and community engagement activities will be advertised using direct mail, local newsheets, Facebook, and local media.

Councillors are reminded that proposing new planning controls on property owners can raise significant community concerns, and this was the case in Colac/Elliminyt when Amendment C90 was advertised to change the boundaries of the flood based overlays. It is therefore critical that communication with any potentially affected land owners be undertaken in a sensitive manner, and which seeks to address known issues that people might have. Officers have a deep understanding of common questions concerning flood based controls from the C90 experience, and this has guided the development of Frequently Asked Questions sheets for distribution to land owners, explaining the implications.

We believe there is a good understanding of flooding and the current project in Birregurra through the engagement that has happened to date, but this does not guarantee that some owners may not become aggrieved at the changes when the amendment mapping is more prominently in front of them as a proposition.

TIMELINE

The following is a proposed timeline for the Birregurra Flood and Drainage Strategy project and planning scheme amendment to implement the strategy's key findings.

Milestone	Timing
Council exhibition process for Strategy and Amendment	May 2021 to late 2021
Independent Planning Panel review process	Late 2021
Report back to Council with Panel Report and adoption of Strategy	Late 2021
Planning Scheme amendment finalisation	Early 2022

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.



Colac Otway Shire

Birregurra Flood & Drainage Strategy

Detailed Report – Exhibition Version

25 March 2021

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Rev	Date	Description	Author	Reviewer	Project Mgr.	Approver
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1	11/11/2020	Draft Issue	Maria Matamala	Scott Dunn	Maria Matamala	Scott Dunn
2	1/12/2020	Client Issue	Maria Matamala	Scott Dunn	Maria Matamala	Scott Dunn
3	21/12/2020	Exhibition Version	Maria Matamala	Scott Dunn	Maria Matamala	Scott Dunn
4	15/01/2021	Exhibition Version	Maria Matamala	Scott Dunn	Maria Matamala	Scott Dunn
5	25/03/2021	Exhibition Version	Maria Matamala	Scott Dunn	Maria Matamala	Scott Dunn

Signatures



The Colac Otway Shire and Engeny Water Management proudly acknowledges the Gulidjan and Gadubanud peoples of the Eastern Maar Nation as the traditional custodians of the Colac Otway Region.

We pay our respects to their Ancestors and Elders, past, present and emerging. We recognise and respect their unique cultural heritage, beliefs and relationship to their traditional lands, which continue to be important to them today and into the future.

DISCLAIMER

This Report has been prepared on behalf of and for the exclusive use of Colac Otway Shire and is subject to and issued in accordance with Colac Otway Shire instruction to Engeny Water Management (Engeny). The content of this Report was based on previous information and studies supplied by Colac Otway Shire.

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ABBREVIATIONS AND TERMS

The following abbreviations and terms are used and referenced in the Strategy.

Abbreviation / Term	Explanation
Annual Exceedance Probability (AEP)	Refers to the probability or risk of a rainfall event of a given magnitude (intensity and duration) occurring or being exceeded in any given year. A 90 % AEP event has a high probability of occurring or being exceeded; it would occur quite often and would be a relatively minor rainfall event. A 1 % AEP event has a low probability of occurrence or being exceeded; but is likely to cause extensive damage. A 1 % AEP event has the same probability as a 1 in 100-year ARI.
Australian Height Datum (AHD)	A common national surface level datum approximately corresponding to mean sea level. Introduced in 1971 to eventually supersede all earlier datums.
Average Recurrence Interval (ARI)	Refers to the average time interval between a given flood magnitude occurring or being exceeded. For instance, a 100-year ARI flood is expected to be exceeded on average once every 100 years. The AEP is the ARI expressed as a percentage.
Best Practice Environmental Management Guidelines (BPEMG)	Guidelines developed by the Victorian Stormwater Committee and published by the CSIRO in 1999. Guidelines include the required stormwater pollutant removal load and flow attenuation targets.
Birregurra Flood and Drainage Strategy (BFDS)	Detailed within the separate full technical detailed document and summarised within this document.
Development Contribution Plan (DCP)	A DCP is a levy for developments that are proposing to increase the number of dwellings on a site. The contributions collected are used to fund infrastructure required for development and can include shared drainage infrastructure.
Freeboard	A factor of safety above design flood levels typically used in relation to the setting of floor levels or crest heights of flood levees. It is usually expressed as a height above the level of the design flood event.
Hydraulics	The term given to the study of water flow in a river, channel or pipe, in particular, the evaluation of flow parameters such as depth and velocity.
Flooding 'Hot Spot'	An area which has a history of repeat flooding highlighted through flood modelling, anecdotal information and / or customer complaints.
Hydrograph	A graph that shows how the discharge changes with time at any particular location.
Hydrology	The term given to the study of the rainfall and runoff process as it relates to the derivation of hydrographs.
Intensity Frequency Duration (IFD)	Statistical analysis of rainfall, describing the rainfall intensity (mm/hr), frequency (probability measured by the AEP), duration (hrs). This analysis is used to generate design rainfall estimates.
Light Detection and Ranging (LiDAR)	Airborne surveying technology that provides a regularly spaced grid (one metre horizontal interval in this case) of ground levels. The data allows for the representation of elevations along waterways and other key topographical features across the study area.
Representative Concentration Pathway (RCP)	Greenhouse gas concentration trajectories adopted by the Intergovernmental Panel on Climate Change. These projections consist of four different climate futures relative to temperature and sea level rises possible depending on the volume of greenhouse gases emitted in the years to come.
RORB	Hydrological modelling software used in this study to calculate the runoff generated for rainfall events.
TUFLOW	Hydraulic modelling software used in this study to simulate the flow of flood water through the study area. The model uses numerical equations to describe the water movement.

EXECUTIVE SUMMARY

The Birregurra Flood and Drainage Strategy has involved a series of investigations including:

1. Data collation and review.
2. Hydrologic and hydraulic modelling.
3. Flood damages assessment.
4. Structural mitigation works assessment.
5. Stormwater quality assets assessment.
6. Development of planning overlays and schedules.
7. Flood intelligence, warning and planning assessment.
8. Development of Flood Spatial Data Specifications (SDS) outputs.

These have been undertaken to gain a better understanding of the flood behaviour affecting the Birregurra township and the associated structural and non-structural mitigation measures which could be implemented to reduce impacts on existing developments and future proposed developments. The study was delivered by Engeny Water Management in collaboration with planning specialists, Rod Bright & Associates and floodplain risk management specialists, HARC. The project was commissioned by Colac Otway Shire in partnership with the Project Steering Committee (PSC) which consisted of the Corangamite Catchment Management Authority (CCMA), Victorian State Emergency Service (VICSES), Department of Environment, Land, Water and Planning (DELWP), Eastern Maar Aboriginal Corporation and residents of the Birregurra township / community representatives. This report provides the details of each of the investigations undertaken noting that the updated Municipal Flood Emergency Plan (MFEP) has been delivered as a separate document.

Birregurra has a known history of flooding predominantly associated with the flows from Atkin Creek and an Unnamed Tributary which enter the township at Warncoort-Birregurra Road and Ennis Street respectively and discharge into the Barwon River. During the data collation and review phase several flood photos and anecdotal recounts were made available. Additional community knowledge was also sought throughout the project through a formal engagement session at the commencement of the project and direct one-on-one communications with residents and community representatives outside of the formal engagement session. Based on the data available, the September 2016 flood event was considered the only event where sufficient information was available to enable a comprehensive hydrologic analysis and the calibration of modelled flood levels to surveyed flood marks. The magnitude of this event was estimated to relate to a storm event in the range of 10 % to 20 % Annual Exceedance Probability (AEP).

In addition to adopting an approach consistent with the latest Australian Rainfall and Runoff guidelines (ARR2019), the ability of the developed September 2016 calibration model to produce flood levels which replicate 8 of the 9 captured surveyed flood marks provides confidence in the accuracy of the flood mapping outputs. This model was also used to simulate the full suite of AEP design events (39.25 %, 20 %, 10 %, 5 %, 2 %, 1 % AEP and Probable Maximum Flood (PMF)).

Flood mapping outputs for the 20 % to 1 % AEP storm event were utilised to estimate the Average Annual Damage (AAD) for existing conditions. This assessment considered the properties and dwellings which intersect the produced flooding overlays based on the 1 % AEP flood mapping results. Table 1 provides a summary of the number of properties affected and dwellings affected by above floor level flooding in addition to the associated total flood damages. Based on these results, the flood related damages in Birregurra can be considered high.

Table 1: Summary of Flood Damages

AEP	Number of Dwellings	Number of Properties	Total Damages (\$)
20 %	5	14	\$1,316,613
10 %	7	27	\$2,543,329

AEP	Number of Dwellings	Number of Properties	Total Damages (\$)
5 %	9	34	\$3,662,597
2 %	23	44	\$5,664,210
1 %	26	47	\$6,576,244
		AAD	\$746,741 / year

To reduce both flood risk and flood damages, structural and non-structural mitigation works were investigated. Structural mitigation works typically consist of engineered solutions which are constructed to improve the conveyance of overland flows or provide flood storage (e.g. pipe upgrades / diversions, new retarding basin, etc.). Non-structural mitigation works relate to planning overlays and controls as well as flood emergency management plans.

Following discussions with Council and the wider PSC, five (5) structural mitigation works were assessed within the hydraulic TUFLOW model for the 20 % to 1 % AEP storm events. Where relevant, the flood mitigation benefits were assessed with the calculation of the AADs and the resultant reduction in damages when compared to existing conditions. Other factors such as the capital costs were also estimated in addition to considerations of the social impacts / benefits, environmental impacts / benefits and construction / feasibility risks. The five (5) mitigation works assessed included:

1. Atkin Creek waterway widening downstream of Roadknight Street.
2. Drainage upgrades along Sladen Street.
3. Unnamed Tributary retarding basin upstream of Ennis Street.
4. Hopkins Street Pipe Diversion.
5. Drainage upgrades between Prime and Sladen Street.

The high-level multi-criteria assessment highlighted the significant benefits in widening Atkin Creek downstream and the Hopkins Street Pipe Diversion. However, further investigations which considers areas of cultural and heritage significance and outcomes of a flora and fauna impact assessment would be required to gain a better understanding of the feasibility of the works.

Non-structural mitigation measures in the form of planning overlays and controls formed a key study deliverable. The 1 % AEP flood depth, water surface elevation, velocity and hazard outputs were used to develop the proposed planning overlays which consisted of a Special Building Overlay (SBO), Land Subject to Inundation Overlay (LSIO) and a Floodway Overlay (FO). Using the latest technical guidelines and best available data, these overlays have highlighted that the existing overlays and flood planning controls in the Colac Otway planning Scheme for Birregurra do not sufficiently identify flood prone land. As such the updated overlays are intended to replace the existing overlays within the township. Updates to the existing planning schemes and controls were also prepared and a draft has been provided for Council's review and implementation. Planning controls are one of the most cost-effective non-structural mitigation means of reducing the community's flood risk by:

- Encouraging people to, where possible, avoid development on flood-prone land.
- Minimising the potential impacts on existing flood-prone developments by raising floor levels of proposed habitable buildings and ensuring the development does not increase the risk of flooding on other properties.

Improved emergency flood warning management also provides a non-structural means for reducing the flood risk to the Birregurra community. A flood warning or alerting system does not currently exist for Birregurra. Essential building blocks (elements) of a Total Flood Warning System (TFWS) have, however, been delivered as part of this study via a series of flood modelling outputs. This has included the delivery of flood inundation mapping, an updated Municipal Flood Emergency Plan (MFEP), an indicative flood guidance tool and other outputs also suitable for inclusion in a local flood guide such a property inundation tables and associated flood intelligence information.

The existing effective flood warning time has been estimated to be around 3 to 5 hours for Atkin Creek and the Unnamed Tributary under severe flood conditions. With the use of the developed indicative flood guidance tool and flood intelligence and mapping outputs, delivered with this study, it is estimated that this effective flood warning time could be extended by at least 3 hours. It is likely that even with this effective warning time, the emergency services driven flood response actions within Birregurra

in the lead up to flooding would be limited. Local residents however, armed with the indicative flood tool and with access to rain data from the gauge at Ricketts Marsh and an overall improved awareness of the flood risk offer substantial opportunity for improved preparedness. A feasibility assessment was undertaken into how this effective flood warning time could be further extended through improved alerting and warning systems. The identified options range from no / low cost options such as making better use of existing rainfall monitoring resources through enabling near real-time public access to rain data at Ricketts Marsh gauge to options which would require a greater level of investment. These more costly options would involve improved rain and / or river monitoring and automated messaging immediately upstream of the Birregurra township for Atkin Creek and the Unnamed Tributary.

In addition to the management of flood risks within Birregurra, consideration of the opportunities available to manage stormwater quality were also assessed. This was particularly relevant given the township's expected future growth informed by the Birregurra Structure Plan and the additional pollutant loads generated through increased impervious areas from new developments. Current policy requires new developments to achieve the Best Practice Environmental Management Guidelines (BPEMG) pollutant removal targets. A range of Water Sensitive Urban Design (WSUD) options were thus investigated and sized in order to achieve these BPEMG targets for the predicted increase in impervious area. These included a centralised wetland option and a street-scale bioretention assets option in addition to reporting on the additional benefits rainwater tanks can provide on a lot basis.

Following the completion of these investigations, the following recommendations are provided:

1. Colac Otway Shire Council:
 - a) Seek internal endorsement of the flood study and undertake public exhibition to ensure the Birregurra community has the opportunity to comment and provide feedback.
 - b) Update the planning scheme to incorporate the findings of this study.
 - c) Consider the outcomes of the high level multicriteria assessment and findings of additional investigations and consider options which may progress to further feasibility assessments, subject to funding requirements.
 - d) Commission cultural heritage, flora and fauna, and geotechnical investigations to help inform the location of any flood mitigation assets.
 - e) Reference the provided flood modelling outputs, in particular the flood level information, to provide advice on recommended minimum floor levels for new developments for which Council is the responsible authority.
 - f) Review the Municipal Flood Emergency Plan with input from VICSES and adopt revised document.
2. Corangamite CMA:
 - a) Seek internal endorsement of the flood study and use mapping outputs to manage floodplain risk and inform development advice to ensure risks are minimised.
 - b) Reference the provided flood modelling outputs, in particular the flood level information, to provide advice on recommended minimum floor levels for new developments for which CCMA is the responsible authority.
 - c) Add the produced Flood Spatial Data Specification (SDS) outputs and other relevant mapping outputs to FloodZoom.
3. Victorian State Emergency Services:
 - a) Continue to engage with the community to increase their awareness of flood related risks.
 - b) Review and discuss the updated MFEP.

1 INTRODUCTION

1.1 OVERVIEW

Engeny Water Management (Engeny) in collaboration with specialists in planning schemes and emergency flood warning plans have developed the Birregurra Flood and Drainage Strategy. The study was commissioned by Colac Otway Shire (Council) in partnership with the Project Steering Committee (PSC) which consists of the following stakeholders:

- Corangamite Catchment Management Authority (CCMA);
- Victorian State Emergency Service (VICSES);
- Department of Environment, Land, Water and Planning (DELWP);
- Eastern Maar Aboriginal Corporation; and
- Residents of the Birregurra township.

Several investigations and tasks were undertaken to develop the Birregurra Flood and Drainage Strategy including:

1. Data collation and review.
2. Hydrologic and hydraulic modelling.
3. Peer Review of hydrologic and hydraulic modelling.
4. Flood damages assessment.
5. Structural mitigation works assessment.
6. Stormwater quality assets assessment.
7. Development of planning overlays and schedules.
8. Flood intelligence, warning and planning assessment.
9. Development of Flood Spatial Data Specifications (SDS) outputs.

This report provides all the details from each of these project phases and a summarised version of this document will be prepared for public exhibition.

1.2 CATCHMENT DESCRIPTION

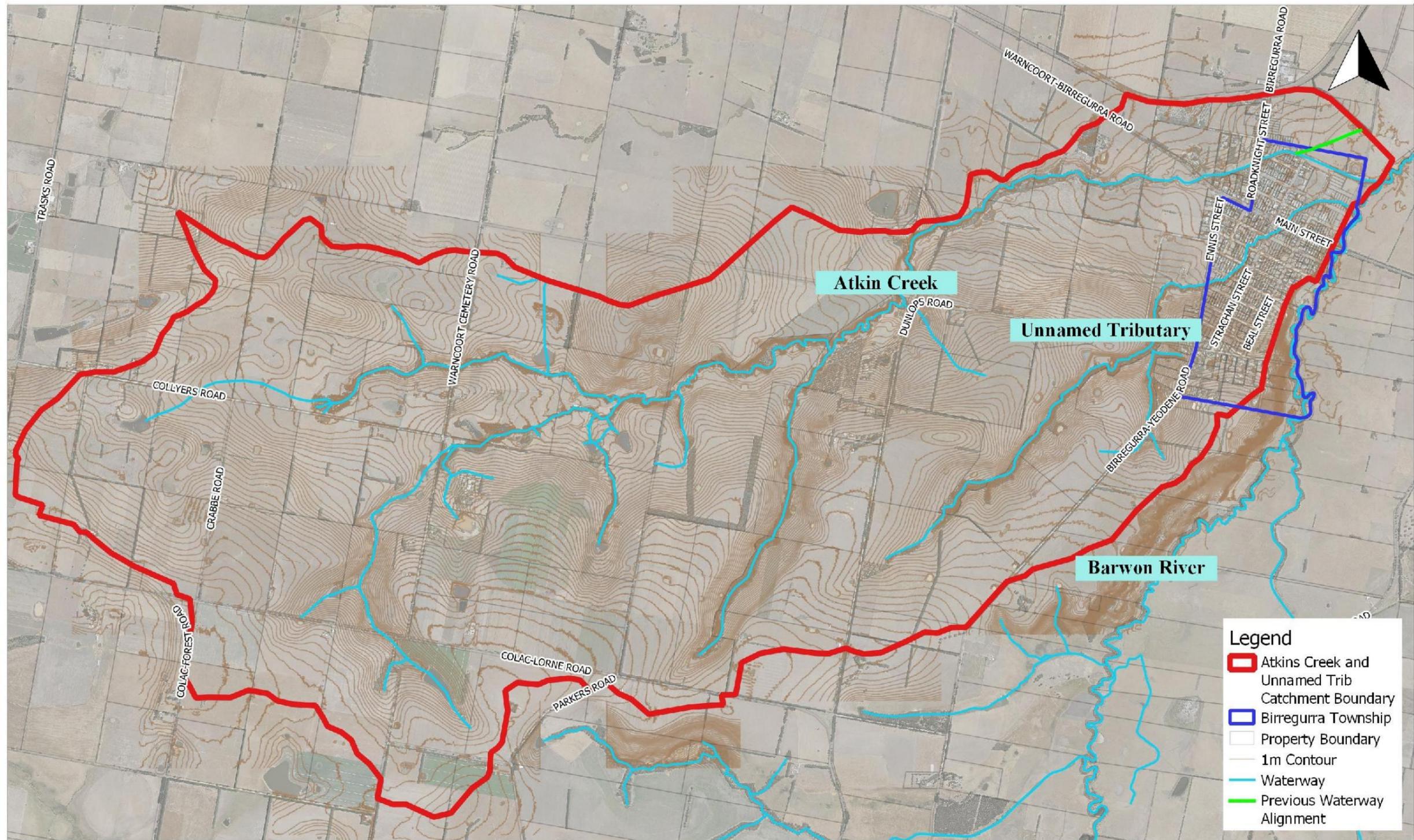
The township of Birregurra is located approximately 130 kilometres south-west of Melbourne. Atkin Creek and an Unnamed Tributary of the Barwon River flow through the town. The Unnamed Tributary is referred by some locals as Kettles Creek however is referred to herein as Unnamed Tributary. These waterways have a contributing catchment area of approximately 23 km² and 5.5 km² respectively prior to discharging into the Barwon River which forms the town's eastern boundary.

The catchment generally consists of well-defined flow paths and ridges rising from a level of approximately 198 m AHD at the top of the Atkin Creek catchment to 106 m Australian Height Datum (AHD) at the confluence to the Barwon River over a distance of 10.5 kilometres.

Birregurra has experienced growth and infill development in recent times with a high number of properties reported to be flood affected from the local waterways flowing through the town. During the September 2016 storm event, properties within the new developments along Scouller Street and Anderson Street were affected by significant flooding in addition to other established residential areas within the township.

The limited capacity provided by Atkin Creek downstream of Anderson Street contributes to flooding impacts in the new development areas along Scouller Street. This section of the creek (running along the southern side of Scouller Street) represents the diversion channel constructed several years ago. It is understood that under natural catchment conditions, Atkin Creek originally continued in a north easterly direction towards the Barwon River. However, with new developments and the establishment of the now abandoned regional rail link embankment, the creek was channelised towards the east along the southern side of Scouller Street, towards the Barwon River.

Figure 1.1 provides an overview of the Birregurra township including the upstream Atkin Creek and Unnamed Tributary catchment areas.



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600 0 600 m

Scale in metres (1:5000 @ A3)

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Vertical Datum: Australia Height Datum
Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 1.1
Birregurra Township Catchment Overview

Job Number: V2013_007
Revision: 0
Drawn: AN
Checked: MM
Date: 14/1/2021

1.3 OBJECTIVES

The following provides a list of the project objectives:

1. To improve the understanding of flooding within Birregurra for a range of flood events (minor and major).
2. To assist with the protection of property and life.
3. Inform Planning Scheme Amendments which enable the update of existing flood overlays.
4. To improve decision making about development proposals in flood prone areas.
5. Inform development advice to ensure new developments consider and do not worsen existing flooding behaviours and risks.
6. Inform Council's future growth strategy such as the Birregurra Structure Plan to understand which areas are appropriate for growth.
7. Identify structural mitigation measures¹ which could be implemented to reduce existing flood risks.
8. Understand Water Sensitive Urban Design (WSUD) measures which could be implemented to ensure future development meets stormwater quality requirements for new development areas.
9. Update Council's Flood Emergency Plan and develop flood intelligence outputs to inform emergency response planning.

Whilst the Strategy has a focus on flood management related objectives, it is important to note the importance of waterways in relation to broader ecological, cultural, and aesthetic values. Waterways serve wider ecological functions as habitat and places of biodiversity including for the growling grass frog (*Litoria raniformis*) listed as vulnerable by the *Environment Protection and Biodiversity Conservation Act 1999*. There are areas of cultural sensitivity and significance for Aboriginal people, in addition to places of aesthetic and recreational value. It is important that these values continue to be upheld and enhanced whilst balancing the flood mitigation objectives and outcomes of this strategy.

1.4 STAKEHOLDERS

The following stakeholders own / manage drainage and waterway assets within Birregurra:

1. Colac Otway Shire Council (Council).
2. Corangamite Catchment Management Authority (CCMA).
3. VicRoads.
4. VicTrack.
5. Eastern Maar Aboriginal Corporation (EMAC).
6. Department of Environment, Land, Water and Planning (DELWP).
7. Victorian State Emergency Service (VicSES).

The roles and responsibilities of each of these stakeholders is summarised in the following sub-sections.

1.4.1 Colac Otway Shire Council

Councils are not floodplain management authorities under the Water Act. Councils are local government authorities under the Local Government Act and are Planning Authorities under the Planning and Environment Act. These Acts include roles to provide local drainage services and to provide planning advice.

Councils provide roads and drainage systems to collect and convey stormwater to creeks and rivers; they also maintain the stormwater mains owned by Council on private property. Across Birregurra, Council is the drainage authority and the responsible authority for managing stormwater drainage assets and any overland flooding resulting from the stormwater drainage network. This includes provision of advice for development in areas at risk of flooding from the stormwater drainage network. Prior to the development of this strategy knowledge of areas at risk of stormwater flooding were not well understood or documented and the

¹ Structural mitigation measures refer to engineered works which are constructed to reduce flooding impacts this could include the upgrade of existing drainage assets, new diversion pipes, formalised above or underground flood storage areas or levee works.

outputs generated from the development of this strategy, including the attached flood maps, will assist Council in their drainage authority role particularly in areas assigned with a Special Building Overlay (SBO).

In 2005 the Victorian State Government recognised that the functions of Melbourne based Councils and Melbourne Water in managing drainage and flooding should be reviewed. A study was commissioned by the Victorian Auditor General's Office (VAGO). VAGO recommended that both Melbourne Water and Councils should manage flood risks associated with their systems and that this should be done on a risk-based approach under two headings:

- Structural Measures.
- Non-Structural Measures.

Whilst acknowledging the recommendation refers to Melbourne based Councils and Melbourne Water, it was considered a useful approach to managing flood risks and has been adopted for this strategy.

Structural Measures include physical works to reduce flooding such as retarding basins, floodways and larger drains. Non-structural measures include flood mapping, planning and building controls, public education and operational tasks.

Flood mapping of Council's drainage system, undertaken as part of the development of this strategy, is a non-structural measure which has been used to inform the introduction of Special Building Overlay (SBO) controls that will be used to set conditions on development, including the floor levels of habitable buildings.

1.4.2 Corangamite Catchment Management Authority

In Victoria the floodplain management authorities are the various Catchment Management Authorities. In Birregurra the Corangamite Catchment Management Authority (CCMA) is the floodplain management authority as defined in the Water Act.

Under Part 10 of the Water Act 1989, CMAs are designated with responsibility for a waterway management district and have the lead role in developing and delivering regional programs for waterway management. The Water Act outlines their functions and powers in relation to waterway management, floodplain management and regional drainage. Within Birregurra and surrounds key functions of the CCMA include:

- Declaration of flood levels and flood fringe areas to find out how far floodwaters are likely to extend and how high they are likely to rise.
- Declaration of building lines.
- Controlling developments that have occurred or that may be proposed for land adjoining waterways.
- Taking any action necessary to minimise flooding and flood damage.
- Provision of advice about flooding and controls on development to local councils, the Secretary for Planning and Environment, and the community.

In its statutory role the CCMA co-ordinates the process for permitting works on designated waterways and designated land within the Corangamite region. This applies to Atkin Creek, the Unnamed Tributary (referred to by some locals as Kettles Creek) and Barwon River. The CCMA are a recommending referral authority in the planning system (under Section 55 of the Planning and Environment Act 1989), providing advice and recommendations to Council for proposed developments within the floodplain.

1.4.3 Regional Roads Victoria

VicRoads is responsible for the overall management (including construction, maintenance, inspection and repair) of a network of freeways and arterial roads (the major connecting roads) throughout Victoria. VicRoads is responsible for the management of the following roads within Birregurra and surrounds (note these road names are as defined by VicRoads and may be referred to differently by the Birregurra community):

- Birregurra Road.
- Warncoort-Birregurra Road.
- Birregurra-Forrest Road.

The responsibilities of VicRoads within Birregurra and surrounds extends to the drainage assets, including culverts and bridges, which have been constructed as part of roads managed by VicRoads.

1.4.4 VicTrack

VicTrack is responsible for Victoria's transport land, assets, and infrastructure. This includes the drainage infrastructure that cross railways and the associated maintenance. Within the Birregurra township there are no VicTrack owned assets except for the drainage identified crossing the now abandoned rail embankment north of Scouller Street.

1.4.5 Property Owners

Under the Water Act 1989 (Section 16), residents and property owners:

- Are liable for the unreasonable flow of water from their land onto any other land if that water causes injury, damage or economic loss.
- Have a duty of care not to interfere with the flow of water.
- Must not participate in negligent conduct that will interfere with the flow of water onto any land.

Property owners are required by law to maintain the stormwater pipes, gutters, downpipes, stormwater pits and any other components of their approved stormwater drainage system in good condition and in compliance with any Council requirements. Property owners are also required to accept natural overland flow from adjoining properties or public land and must not divert or redirect the flow from its natural path onto neighbouring properties.

Under the Road Management Act 2004, the responsibility for the maintenance of vehicle and culvert crossings that service private property rests with the owner of the property to which they serve. It is incumbent on the property owner to ensure that water flow through their culvert crossing is not impeded in any way.

A few examples of behaviours that may have a detrimental impact on the performance of the overall drainage system:

- Poor maintenance of private drains may result in premature blockage, reduced pipe capacity and/or prevention of stormwater runoff entering the system. This may result in localised flooding and/or increased overland flows.
- Increasing the proportion of impervious surfaces within a property (such as driveways and paths) will result in increased overland flows onto adjacent properties and / or public roads, as the existing private drain may no longer have adequate capacity. When constructing hardstand (hard surfaced) areas e.g. driveways, concrete and paved areas, landscaping and any other impervious surfaces or drains owners must control the stormwater in order to prevent concentrated flows onto the adjacent property.
- The erection of a physical barrier, such as a fence, across an overland flow path or within a floodplain may divert stormwater runoff from its flow path and possibly put other properties at risk.
- Easements in private backyards are generally located to minimise impact on surrounding buildings. Sheds, paths, driveway edging and other landscaping are common improvements that are sometimes placed over easements.
- The planting of trees that develop large invasive root systems may lead to burst or blocked pipes.

While each property may only have a minor influence on the performance of the overall drainage network and floodplain, the cumulative effects of poor maintenance and other activities may become significant.

1.4.6 VICSES

The Victoria State Emergency Services is a volunteer-based organization which provides emergency assistance to minimize the impact of emergencies and strengthen the community's capacity to:

- Plan / mitigate by assisting Council in the development of emergency management plans and increasing individual capacity and capability by providing communities with information and undertaking community education and engagement work.
- Respond by providing continuous protection of life, property and the environment.
- Recover by undertaking assessments, restoration, clearing and rehabilitation of public buildings and assets where VICSES is the manager of that building or asset in addition to also supporting and providing assistance and advice to individuals, families and communities affected by floods or other natural disasters.

In the context of this flood and drainage strategy, VICSES has provided feedback on the emergency flood warning assessment undertaken and the separate Municipal Flood Emergency Plan (MFEP) document. VICSES will utilize the study's outputs to distribute and engage with the Birregurra community to improve their capacity to plan and respond to future flood events.

1.4.7 Eastern Maar Aboriginal Corporation (EMAC)

The EMAC is an organization which represents the Eastern Maar People of South West Victoria. As traditional owners of the region, the group manages the native title rights and interests of Birregurra and as such were consulted during the development of the strategy. Alongside this engagement, the study also highlights the need to undertake investigations to understand the cultural heritage values which exist in specific locations through further archaeological and anthropological investigations.

1.4.8 DELWP

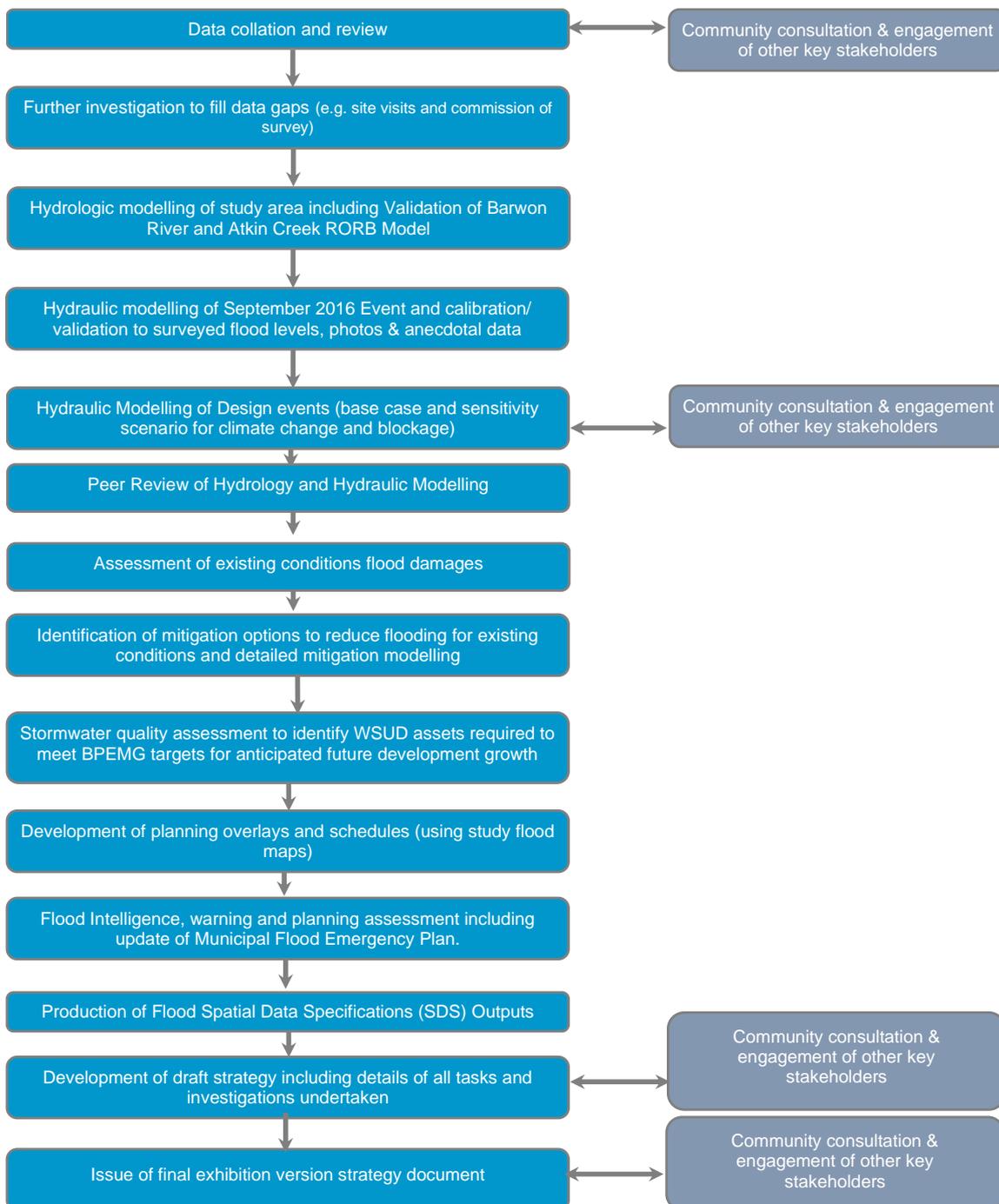
DELWP is a state government department that encompasses several agencies and brings together Victoria's climate change, energy, environment, water, forest, planning and emergency management functions. The department aims to care for and protect the environment whilst maximising the connections between the community, industry, and economy.

In line with DELWP's role to protect natural environments, the water associated with the Barwon River floodplain / crown land is managed by DELWP. Proposed works within this area would require DELWP's approval.

1.5 STUDY METHODOLOGY

Figure 1.2 illustrates the key steps undertaken to achieve the objectives of this study.

Figure 1.2: Study Methodology Flow Chart



2 DATA COLLATION AND REVIEW

2.1 DATA SUMMARY

A series of data sets were collated and reviewed to inform the Birregurra township Flood and Drainage Strategy. This information was sourced from the following agencies and individuals:

- Colac Otway Shire Council.
- Corangamite Catchment Management Authority (CCMA).
- Department of Environment, Land, Water and Planning (DELWP).
- Bureau of Meteorology (BoM).
- Birregurra Historical Society.
- South West Survey Group (SWSG).
- Residents of the Birregurra township.

The data consisted of GIS layers and reports in addition to other technical data such as rainfall data, streamflow recordings, historical flood photos, etc. The following sections provide further details.

2.2 DRAINAGE

Council provided Engeny with GIS layers of drainage pipes and pits within the township. This data contained pipe diameter attributes which were used as an input to the hydraulic model. A thorough review of this data identified gaps where missing assets were identified on site and verified with development plans where available. In critical locations where development plans were not available and a site inspection was not possible, surveyors were engaged to verify the pipe diameters and drainage connectivity.

Key hydraulic structures such as culvert crossings and bridge structures along Atkin Creek and the Unnamed Tributary as well as evident private driveway crossings were also measured on site where access was possible. On site measurements included obtaining the following details:

- Culvert widths and heights.
- Bridge deck thickness and approximate height of flow area beneath deck.
- Railing heights and an indication of opening flow area.
- Number of bridge piers or culverts.

Where measurements on site could not be undertaken, private property access was arranged by Council and surveyors were engaged to obtain details on the existing inlet / outlet structures in addition to the associated pipe diameter. The surveyor details were also verified with data measured during the site visits.

2.3 AERIAL PHOTOGRAPHY

Aerial photography of the study area captured on the 28th of January 2019 was supplied by Council. This photography was compared to the latest www.nearmap.com aerial photography which resembled the same level of development across the study area. The date of the latest aerial photography on Nearmap is unknown, whilst it is listed as being captured on the 1st of January 2005 it is clearly more recent as recent developments north of Scouller Street are displayed. Although, based on discussions with Council and observations made on site, these aerials have not captured the most recent lots which have since been subdivided and developed north of Scouller Street.

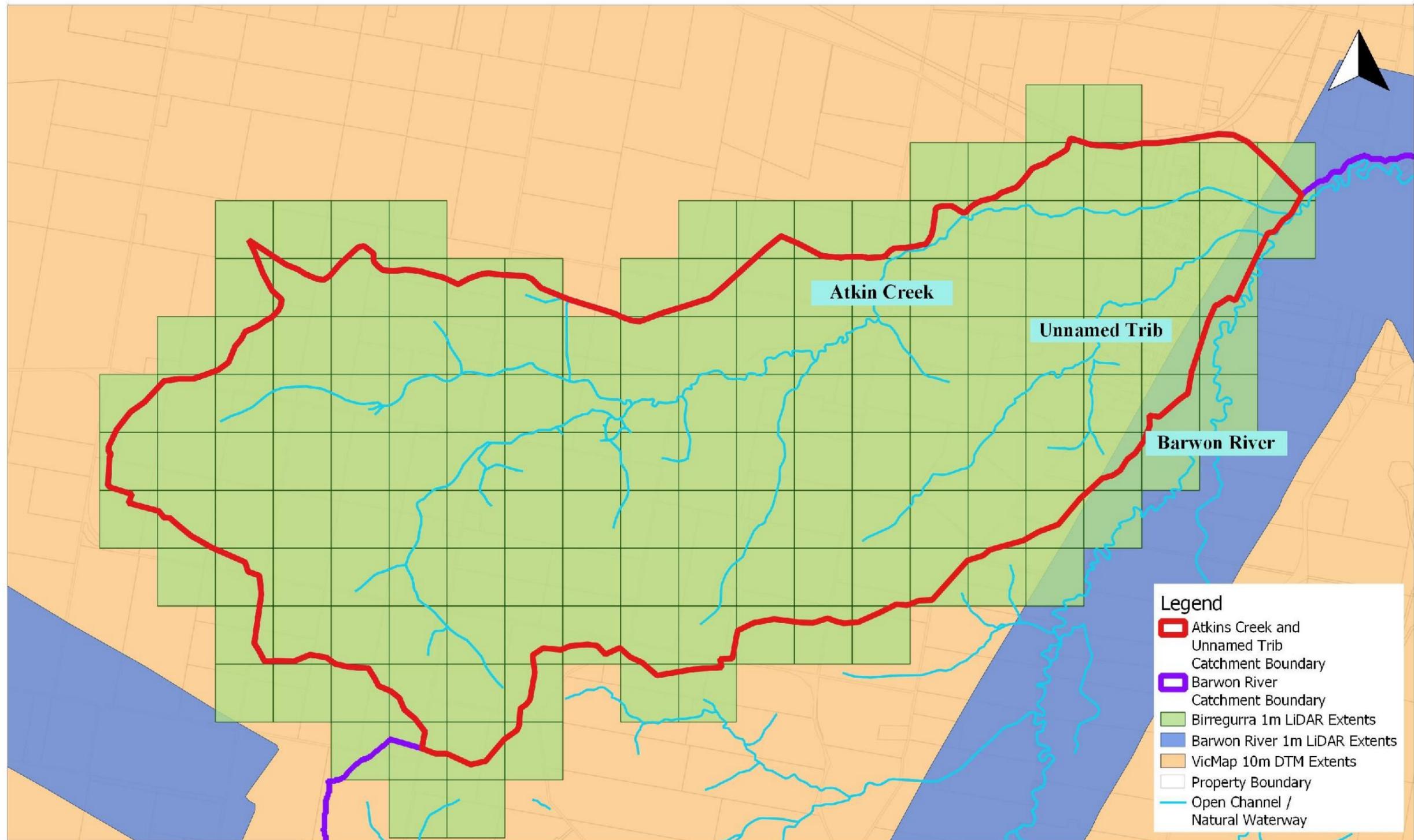
2.4 TOPOGRAPHY

2.4.1 Summary

A series of data sets were collated and reviewed to define the topography of the study area and contributing catchments. Table 2.1 provides a summary of these data sets including details on the resolution, accuracy and source. Figure 2.1 depicts the extent of the topographical data sets utilised in this study.

Table 2.1: Summary of Topography Data Sets

Data Set	Resolution	Quoted Accuracy	Source	Purpose
Birregurra LiDAR data (11th September 2019)	1 metre	Vertical 0.1 m Horizontal 0.3 m	Council	Utilised to define hydrological sub-catchment delineation for Atkin Creek and Unnamed Tributary hydrology model. Utilised to represent the 2D domain in hydraulic flood model.
Barwon River LiDAR data (Corangamite 15th May 2010)	1 metre	Vertical 0.2 m Horizontal 0.3 m	DELWP	Utilised to fill gaps and define Barwon River flood plain terrain in hydraulic flood model.
VicMap 2008 DTM	10 metre	Vertical 5.0 m Horizontal 12.5 m	DELWP	Utilised to define hydrological sub-catchment delineation of wider Barwon River hydrology model.
Survey Data	Cross sections at the upstream and downstream end of key culvert structures and at approx. 100 m intervals along Atkin Creek downstream of Anderson Street.	-	South West Survey Group	Used to better define ground elevations at critical locations along Atkin Creek and at culvert crossing structures.
Permanent Survey Marks	-	Vertical typically < 40 mm Horizontal typically < 30 mm	DELWP (Survey Marks Enquiry Service online portal)	Used to verify accuracy of Birregurra LiDAR data to known survey marks.



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700 0 700 m
Scale in metres (1:5000 @ A3)
Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Vertical Datum: Australia Height Datum
Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 2.1
Extent of Topography Data Sets

Job Number: V2013_007
Revision: 0
Drawn: AN
Checked: MM
Date: 14/1/2021

2.4.2 Birregurra township LiDAR

Council provided LiDAR (Light Detection and Ranging) data tiles covering the Birregurra township and the upstream catchment areas of Atkin Creek and the Unnamed Tributary. This data was captured on the 11th September 2019 and is an airborne surveying technology that provides a regularly spaced grid (one metre horizontal interval in this case) of ground levels. This data was used to produce a Digital Terrain Model (DTM), which allows for the waterways and other key topographical features across the study area to be defined in a flood model.

The LiDAR data was commissioned specifically for this study where the output data report shows that after processing and comparison to field survey, the following level of accuracy was achieved:

- Vertical accuracy +/- 100 mm.
- Horizontal accuracy less than 300 mm.

2.4.3 Barwon River LiDAR

As part of DELWP's data sharing agreement, LiDAR data captured as part of the 2009-10 Victorian State Wide Rivers LiDAR Project for the Corangamite CMA was utilised to define the topography along the Barwon River floodplain. This data was captured on the 15th May 2010 with a grid resolution of one metre and the following levels of accuracy:

- Vertical accuracy +/- 200 mm.
- Horizontal accuracy less than 300 mm.

2.4.4 VicMap DTM

The VicMap database includes a state-wide DTM generated utilising contours at 10 metre intervals. Due to the extent of the DTM and the various input resolutions, accuracies and ages used to generate the grid the following level of accuracy applies:

- Vertical accuracy +/- 200 mm.
- Horizontal accuracy less than 300 mm.

This data was utilised to delineate the wider Barwon River catchment and associated sub-catchments (or subareas) as inputs to the hydrology model.

2.4.5 Feature and Level Survey Data

South West Survey Group (SWSG) were engaged to provide drainage data in addition to ground elevation data at key culvert structures and along Atkin Creek downstream of Anderson Street. Typical cross-sections of the creek at intervals of 100 metres were requested along Atkin Creek in addition to cross-sections at the upstream and downstream end of key drainage structures.

This data was requested due to the uncertainties identified with the LiDAR data and its ability to capture waterway invert levels without interpolation issues² particularly within highly vegetated areas.

2.4.6 Permanent Survey Marks

The Survey Marks Enquiry Service (SMES) online portal was accessed to extract the existing permanent survey marks across the Birregurra study area. These elevations were utilised to verify the accuracy of the Birregurra LiDAR data adopted for the overall hydraulic TUFLOW model.

Figure 2.2 displays the comparison of elevations indicating that in general the difference is within 100 mm at key locations. It was however noted that the survey mark near the intersection of Sladen Street and Beal Street differs by approximately 8 metres. This is because the marker is located on the top of the church spire and would be filtered out of the LiDAR data set.

² Linear Interpolation is used to fill gaps in irregularly spaced LiDAR elevation data sets. This can cause a loss of information and introduce possible errors in producing the Digital Elevation Model (DEM) especially in areas with various ground cover types because vegetation may limit ground elevation detection.

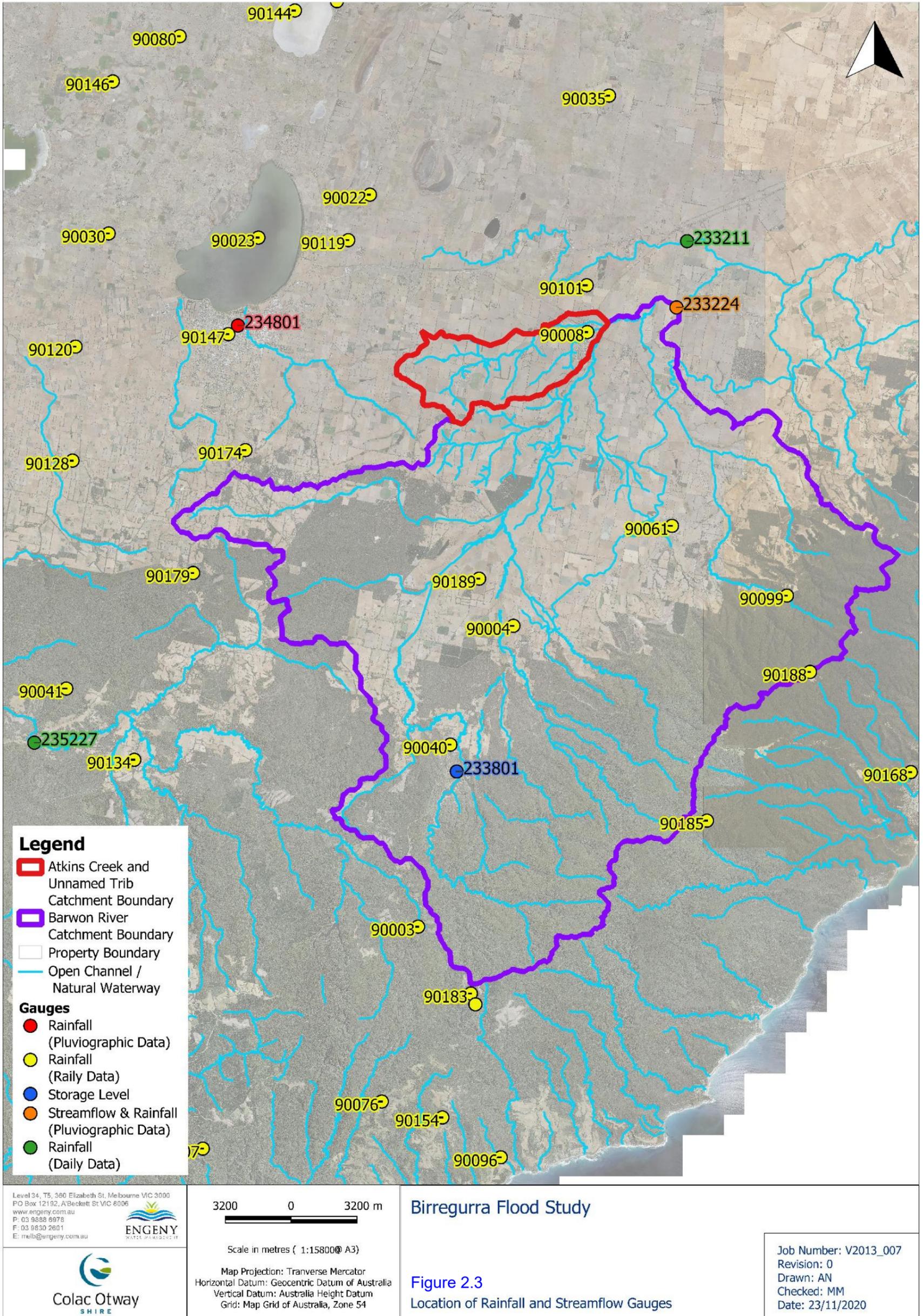
Overall, the findings indicate the LiDAR data forming the basis behind the flood modelling is accurate and can be compared to other survey marks such as the flood levels provided by the CCMA.

Figure 2.2: LiDAR Verification to Known Survey Marks



2.5 GAUGES

A series of rainfall and stream flow gauge data sets were identified within and surrounding the Birregurra study area. The locations of these stations are displayed within Figure 2.3 and are described in the following sections. This data was sourced from both the Bureau of Meteorology and DELWP's rivers and streams online portal.



2.5.1 Rainfall Data

Both daily and where available pluviographic rainfall data sets were reviewed as part of the hydrological modelling undertaken and discussed in Section 3. Table 2.2 provides a summary of the rainfall stations where pluviographic data was extracted and analysed.

Daily rainfall averages were also assessed for the remaining stations displayed in Figure 2.3 to understand the spatial variability across the study area and surrounding catchments for historic storm events. The comparison of total daily rainfall depths at the Birregurra (Post Office) station (90008) to the Barwon River at Ricketts Marsh station confirmed that the pluviographic data was of poor quality for the September 2016 event as noted below.

Table 2.2: Rainfall Data

Gauge Location	Station Number	Start Date	End Date
Lake Colac @ Colac	234801	23/01/2016	22/04/2020
Barwon River @ Ricketts Marsh	233224	21/05/1993	22/04/2020
			Poor Quality Data for September 2016 event

2.5.2 Streamflow Data

Table 2.3 provides a summary of the streamflow gauge data collated and assessed as part of the hydrological calibration component. It is important to note that the local Atkin Creek and Unnamed Tributary catchments are ungauged.

Table 2.3: Streamflow Data

Gauge Location	Station Number	Catchment Area (km2)	Start Date	End Date
Birregurra Creek @ Ricketts Marsh	233211	87	07/05/1953	13/11/2013
Barwon River @ Ricketts Marsh	233224	593	27/07/1971	22/04/2020
Gellibrand River @ Bunkers Hill	235227	311	20/03/1970	20/02/2018

2.5.3 Reservoir Data

Given the West Barwon Reservoir is located within the Barwon River catchment upstream of the gauge at Ricketts Marsh, storage level data was obtained from DELWP's online portal.

Table 2.4: Reservoir Data

Gauge Location	Station Number	Start Date	End Date
West Barwon Reservoir	233244	28/05/2002	Ongoing

2.5.4 Birregurra Structure Plan

The Birregurra Structure Plan (2013) displayed in Figure 2.4 forms the framework for future growth within the township. Following a review of the structure plan report, the following references to flooding were identified:

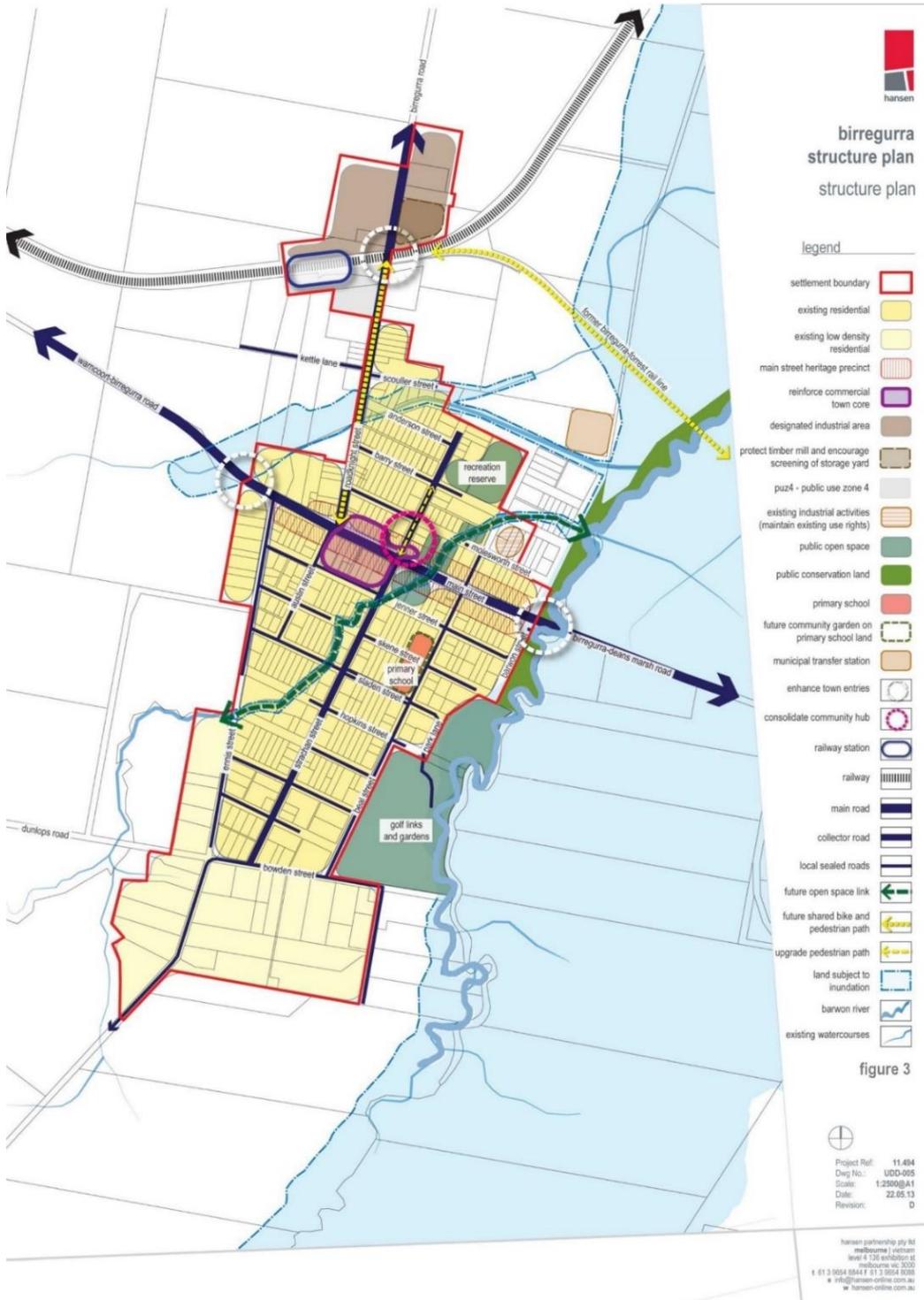
- The northern half of the town is relatively flat and has several areas of poorly drained land that is prone to flooding.
- Given the constraints posed by the Barwon River and its floodplains to the east of town, and topography / escarpment to the south, options for future urban expansion are limited to the north and west.

- Direct future growth of the township away from designated floodplains ³.
- If or when a need is identified for urban expansion, the following principles should be applied in identifying and assessing potential areas of future rezoning.
- The land is not constrained by slope or flooding / drainage issues.

As these flooding considerations are informed by existing flood overlays (discussed within Section 2.5.5), it is anticipated that the findings from this study will inform future updates to the current structure plan.

³ "Designated floodplains" wording has been referenced directly from the Birregurra Structure Plan. "Designated" here does not take on the same meaning as in the Water Act

Figure 2.4: Birregurra Structure Plan / Framework Plan



2.5.5 Existing Flood Overlays

Land Subject to Inundation Overlays (LSIO) currently cover the Atkin Creek and Unnamed Tributary waterways traversing the township in addition to the Barwon River floodplain as depicted in Figure 2.5 below. These are included within Council's Planning Scheme, however particularly after recent flood events the LSIO extents have been shown to not adequately represent existing flooding conditions. This is because these LSIO extents represented the best available knowledge of the time based on the available data inputs and different overall modelling practices and technologies which are now considered outdated.

Figure 2.5: Existing Flood Overlays



2.6 SITE VISIT

Engeny conducted a site visit of the study area on the 26th February 2020 with members of the Project Steering Committee (PSC). The site visit focused on key areas of the catchment in order to:

- Gain an understanding of site conditions including flow paths and low-lying areas.
- Verify the existence of drainage assets.
- Obtain measurements of drainage culvert and bridge structures.
- Understand the general feasibility and key constraints which could influence the selection of structural mitigation works.

Appendix A includes photos taken during the site visits.

2.7 HISTORIC INFORMATION

A series of historic flood information data was collated during the progression of the study from various sources. This data typically consisted of flooding photos and videos, anecdotal recounts and surveyed flood marks provided by Council, stakeholder agencies and the local Birregurra community.

Daily and hourly rainfall data sets sourced from the Bureau of Meteorology and DELWP's online portal were also referenced to understand the related storm event magnitudes. The following sections provide a summary of the data collated and reviewed. This phase formed a critical component in the September 2016 event calibration and verification of flood modelling outputs discussed within Section 3.

2.7.1 Flood History

Based on the anecdotal descriptions and flood photos / videos collated from stakeholder agencies and community members noteworthy floods that have impacted the township include:

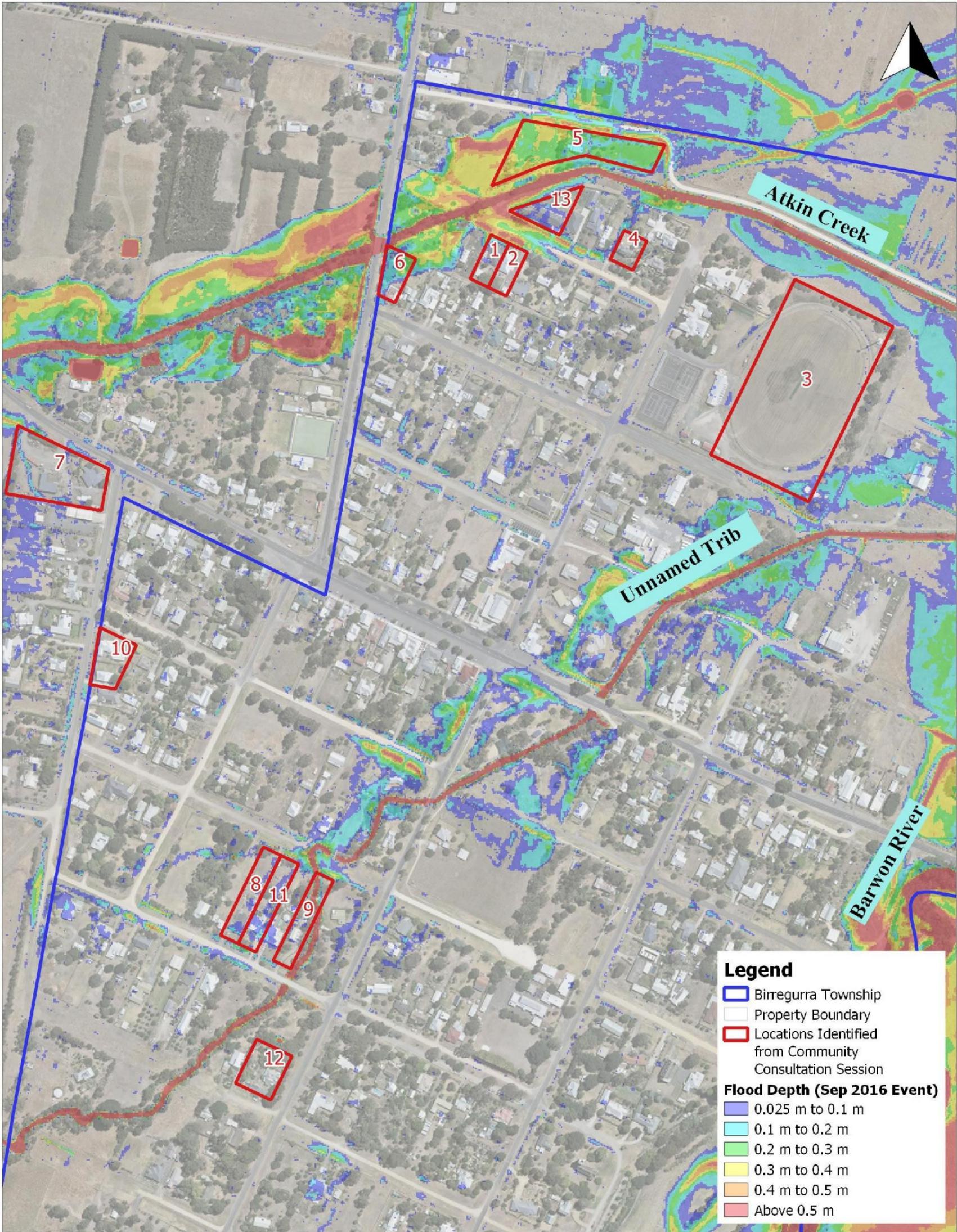
- November 1995.
- September 2016.
- September 2017.

It is important to note that due to the lack of data detailed calibration and verification of flood modelling results was only possible for the September 2016 event.

2.7.2 Community Engagement

To gain a better understanding of the flooding behaviour within Birregurra, several community engagement sessions were held at different stages of the study.

Appendix B provides a summary of the information captured from residents during consultation session held on December 7th and 8th 2019 led by Council and the CCMA. This data was referenced during the calibration and verification of flood modelling results discussed in Section 4.4. The corresponding address / location of each resident comment has been referenced within Figure 2.6 with the underlying September 2016 event modelling results for comparison purposes.



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ENGNEY
 WATER SOLUTIONS

Colac Otway
 SHIRE

70 0 70 m

Scale in metres (1:3500 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 54

Birregurra Flood Study

Figure 2.6
 Locations Identified from Community Consultation Session

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 Checked: MM
 Date: 14/1/2021

2.7.3 Surveyed September 2016 Flood Marks

Surveyed flood marks from the September 2016 event were captured along the Atkin Creek and Unnamed Tributary flow paths and provided by the CCMA. Figure 2.7 displays the location of these across the township and Table 2.5 references the location's description and the surveyed level.

These flood levels were critical during the calibration and verification of the September 2016 modelled results. A comparison of the modelled versus surveyed flood levels is provided in Section 4.4.

Table 2.5: Surveyed Flood Marks for September 2016 Event

Location	Description	Flood Level m AHD
1	Warncoort-Birregurra Rd (Fence line)	113.44
2	Roadknight Street	111.61
3	Scouller St (Side of Shed)	Unable to access property
4	Scouller St (Sewer pit)	110.49
5	Anderson St (Fence post)	111.3
6	Main Street (US left bank bride abutment)	109.89
7	Skene St (Top of crossing)	112.4
8	Skene St (Base of letter box)	112.63
9	Bridge abutment (DS Right bank)	114.3



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100 0 100 m

Scale in metres (1:5000 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 54

Birregurra Flood Study

Figure 2.7
 Location of Surveyed Flood Marks

Legend

- Surveyed Flood Marks
- Birregurra Township
- Open Channel / Natural Waterway
- Property Boundary

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 14/1/2021

3 HYDROLOGICAL MODELLING

3.1 PURPOSE

The purpose of the hydrologic modelling was to generate runoff hydrographs⁴ for input to the hydraulic model. This included the generation of:

- Rainfall excess hydrographs for the sub-catchments covering the local Birregurra township.
- Routed hydrographs to represent the inflows from Atkin Creek, the Unnamed Tributary and Barwon River.

Table 3.1 provides a summary of the model scenarios.

Table 3.1: Hydrological Modelled Scenarios

Storm Event	Existing Conditions	Climate Change Conditions
39.35 % AEP or 2-year ARI ⁵	x	
18.13 (20) % AEP or 5-year ARI	x	
10 % AEP or 10-year ARI	x	x
5 % AEP or 20-year ARI	x	
2 % AEP or 50-year ARI	x	
1 % AEP or 100-year ARI	x	x
0.5 % AEP or 200-year ARI	x	
0.2 % AEP or 500-year ARI	x	
Probable Maximum Flood (PMF)	x	
September 2016 validation event	x	

3.2 METHODOLOGY

RORB was utilised as the rainfall runoff software where numerous inputs were generated in accordance with the Australian Rainfall and Runoff Guidelines (ARR 2019). A combination of both the Monte Carlo and ensemble simulation approach was adopted to the hydrologic modelling undertaken. The following provides the basis for adopting each of the simulation approaches:

- **Monte Carlo Approach** was adopted to define the design flows along the Atkin Creek, Unnamed Tributary and Barwon River watercourses. These flows correspond to longer critical durations with larger contributing catchments. The approach was adopted to more accurately account for the catchment's inherent variability and probabilistic nature of key variables such as initial loss, rainfall depths and temporal patterns.
- **Ensemble Approach** was adopted to define the design flows for the local Birregurra township catchments. These flows correspond to shorter critical durations associated with smaller contributing catchments. The approach was adopted to

⁴ A runoff hydrograph is a graph that shows how the discharge changes with time at any particularly location.

⁵ Annual Exceedance Probability (AEP) or Average Recurrence Interval (ARI)

consider the variability from different temporal patterns and the more accurate application of losses for the different surface types within the township.

Two (2) hydrological RORB models were developed to represent the combined Atkin Creek and Unnamed Tributary catchments in one RORB model and the larger Barwon River catchment in the other.

The Atkin Creek and Unnamed Tributary are ungauged catchments and as such the calibration of the Barwon River RORB model to the gauge was used to define the input parameters for the Atkin Creek and Unnamed Tributary RORB model.

The following provides a summary of the hydrologic methodology adopted:

1. Undertake a Flood Frequency Analysis (FFA) for the Barwon River at Ricketts Marsh Gauge.
2. Develop the Barwon River RORB model to the gauging station at Ricketts Marsh.
3. Calibrate the design Barwon River RORB model to the Flood Frequency Analysis (FFA) using the Monte Carlo simulation approach.
4. Verify the Design Barwon River RORB model flows and parameters to literature findings and the Rural Flood Frequency Estimate (RFFE).
5. Generate a series of design hydrographs for the various AEP storm events and scenarios (base and climate change conditions) for input to the hydraulic TUFLOW model.
6. Develop the Atkin Creek and Unnamed Tributary RORB model to the Barwon River confluence.
7. Utilise the k_c / distance average (d_{av}) ratio to determine the k_c value for the Atkin Creek and Unnamed Tributary RORB model and adopt the defined FFA design calibration loss parameters.
8. Simulate the local township catchment design flows using the ensemble approach for durations between the 10 minute to 2 hour storm durations (where relevant) accounting for the indirectly and directly connected impervious proportions as recommended within the ARR 2019 guidelines.
9. Simulate the routed waterway inflows (Atkin Creek, Unnamed Tributary and Barwon River) using the Monte Carlo approach for the given critical durations.
10. Collate the relevant ensemble rainfall excess hydrographs and routed inflows for the 10 minute to 2 hour storm durations (where relevant) in addition to the Monte Carlo rainfall excess hydrographs and routed inflows for the given Atkin Creek and Unnamed Tributary critical durations for input to the hydraulic TUFLOW model discussed in Section 4.
11. Utilise the design Barwon River RORB model to simulate the September 2016 storm event and calibrate to the gauged hydrograph by varying the input loss parameters. Utilise these parameters to generate the relevant Barwon River inflow hydrograph for application to the hydraulic September 2016 TUFLOW model scenario discussed in Section 4.4.
12. Utilise the design Atkin Creek and Unnamed Tributary RORB model to simulate the September 2016 event in order to generate the rainfall excess and routed inflow hydrographs for application to the hydraulic TUFLOW model. Iterative hydrologic and hydraulic modelling was undertaken varying the loss parameters and hydraulic model parameters to calibrate the modelled flood levels to the surveyed flood levels discussed in Section 4.4.

The following sub-sections provide details on the various inputs, assumptions and calibration / verification processes undertaken.

3.3 FFA FOR BARWON RIVER AT RICKETTS MARSH GAUGE

A Flood Frequency Analysis (FFA) was undertaken using FLIKE. The available recorded streamflow data between 1971 to 2020 was used for the Barwon River at Ricketts Marsh gauge (Station 233224). This 50-year data set was analysed to determine the maximum recorded flow for each year. The censoring of data was considered, however due to the relatively limited data set of 50 years, was not adopted as it would require the exclusion of several records resulting in significantly wider confidence limit ranges.

The Log Pearson III distribution output is displayed in Figure 3.1 and Table 3.2. This distribution was preferred in contrast to the Generalised Extreme Value distribution (GEV) as the upper and lower confidence limits were within a closer range to the mean values. These outputs formed the basis of the Barwon River calibration discussed within Section 3.4.8.

The analysis also confirms that the following three storm events, considered notable within the Birregurra township based on anecdotal information, contributed to the given annual peak flow recorded at the Ricketts Marsh gauge:

- November 1995 – recorded 446.6 m³/s with estimated magnitude of 1 in 30.75 years.
- September 2016 – recorded 99.5 m³/s with estimated magnitude of 1 in 3.62 years.
- September 2017 – recorded 34.5 m³/s with estimated magnitude of 1 in 1.56 years.

Figure 3.1: Barwon River at Ricketts Marsh FFA Graph Output

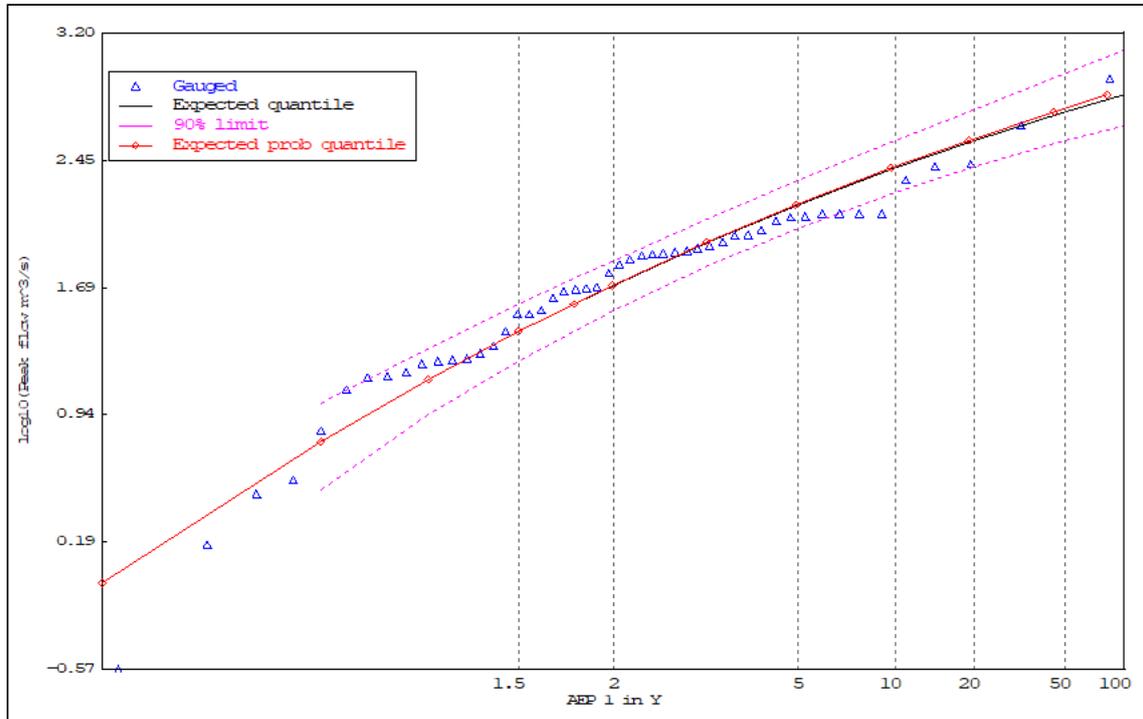


Table 3.2: Barwon River at Ricketts Marsh FFA Table Output

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)
50	50.9	36.0	71.5
20	151.7	110.7	214.2
10	250.1	180.5	363.8
5	364.7	257.9	560.3
2	537.8	366.4	911.3
1	682.4	449.9	1251.6
0.5	836.7	533.2	1699.3
0.2	1053.0	636.8	2393.7

3.4 BARWON RIVER MODEL DEVELOPMENT

3.4.1 Catchment Boundary

The Barwon River catchment boundary was defined utilising the VicMap 2008 DTM and the corresponding 10 metre contours. Figure 3.2 provides the overall catchment boundary of approximately 572 km² and structure of the RORB model including the location of the Barwon River at Ricketts Marsh gauging station (Station ID 233224) at the annotated Node ID of 'Y4'.

3.4.2 Sub-catchment Boundaries

A watershed analysis was run for the Barwon River catchment based on the VicMap DTM from which sub-catchment boundaries were generated. These were reviewed and modified where possible to ensure sub-catchments were generally consistent in size and land use.

3.4.3 Fraction Impervious

A weighted fraction impervious value was calculated for each sub-catchment based on typical values assigned to each land use type. Table 3.3 provides a summary of the typical values adopted. Fraction impervious is a vital component of the hydrological model as it is a key parameter in the process of converting rainfall into runoff. The values adopted were within the industry standard ranges where the resultant weighted values were cross-checked against the aerial photography.

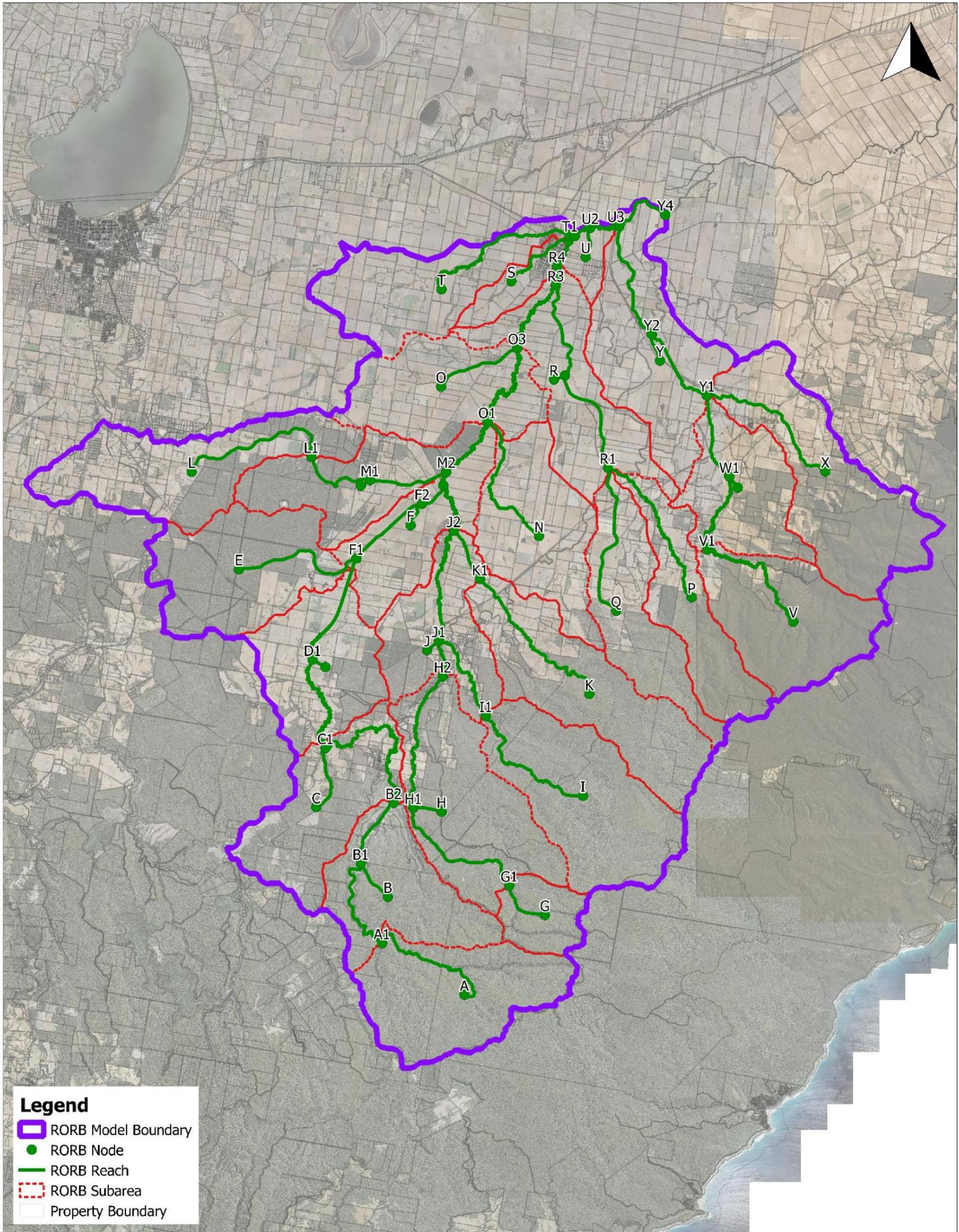
Table 3.3: Typical Fraction Impervious Values for Land Uses

Land-use Type	Fraction Impervious
General Residential / township / Low Density Residential Zone	20 - 75 % (informed by lot sizes and aerial photography)
Farming Zone	0 - 5 %
Commercial / Industrial Zone	80 - 90 %
Public Park and Recreation Zone	10 %
Local roads & car parks	40 - 60 %

3.4.4 Other Modelling Input Considerations

Appendix C provides details of other modelling considerations which informed the inputs during the development of the Barwon River RORB model including:

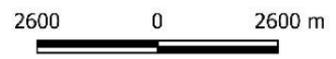
- Intensity-Frequency-Duration (IFD) Data adopted for base conditions, climate change and PMF scenarios.
- Application of spatial rainfall patterns.
- Application of pre-burst rainfall depths.
- Temporal patterns adopted.
- Areal Reduction Factors (ARFs) calculations and resultant factors.



Legend

- RORB Model Boundary
- RORB Node
- RORB Reach
- RORB Subarea
- Property Boundary

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Scale in metres (1:130000@ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 54

Birregurra Flood Study

Figure 3.2
 Barwon River RORB Hydrologic Model Layout

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 24/7/2020

3.4.5 West Barwon Reservoir

The West Barwon Reservoir is located within the Barwon River catchment upstream of the gauging station at Ricketts Marsh. The reservoir is located at the junction of the West Barwon River and Munday Creek and has a catchment area of approximately 51 km². It serves as a source of drinking water for the greater Geelong region and has a total capacity of approximately 21,500 ML (when full) with a release capacity of up to 300 ML/day (3,500 L/s) via the outlet tower and valve house (*Barwon Water, West Barwon Reservoir Factsheet, 2020*). These controlled outflows are directed into the West Barwon River where some flows are diverted into the Wurdee Boluc inlet channel and ultimately directed towards the Wurdee Boluc Reservoir for storage prior to treatment at the Wurdee Boluc Water Treatment Plant. In addition to these controlled water supply outflows, a minimum of 4ML/day (45 L/s) is released to meet environmental flow requirements.

During rare flood events when the water level within the reservoir exceeds 192.8 m AHD, the reservoir spills via a large concrete weir into the downstream West Barwon River. (*Barwon Water, West Barwon Reservoir Factsheet, 2020*).

During the development of the RORB model, considerations were made to represent the reservoir as a storage within the RORB model. The following information was collated and reviewed to inform the approach and whether inclusion of the storage provided by the reservoir was required:

- Contributing catchment area into West Barwon Reservoir = 51km² (consists of less than 10 % of the catchment area which reaches the gauge at Ricketts Marsh).
- The controlled outflows from the reservoir are minor and focused on water supply or environmental flow requirements with diversion channels in place that are not considered flood conveyance assets.
- The available peak storage levels recorded within West Barwon Reservoir did not correlate to peak flows recorded at the downstream Ricketts Marsh gauging station. Table 3.4 summarises the peak flows recorded at the Ricketts Marsh gauge and the corresponding peak water level recorded at the reservoir. The data has been sorted from highest recorded flow to lowest highlighting no correlation to the recorded storage levels nor engagement of the large concrete weir spillway.

Table 3.4: Analysis of West Barwon Reservoir Storage Levels

Date	Peak Flow recorded at Barwon River @ Ricketts Marsh Gauge (m ³ /s)	Peak Water level recorded at West Barwon Reservoir (m AHD)
4/11/2007	136.0	185.73
5/06/2012	134.7	191.057
14/09/2016	99.5	188.632
12/08/2010	81.6	184.492
22/07/2011	72.2	190.337
15/08/2004	67.1	190.316
25/08/2003	50.3	184.773
4/02/2005	49.2	188.124
16/09/2017	34.5	188.175
28/08/2010	27.1	188.621
18/07/2006	18.5	181.277
30/08/2009	18.0	182.519
24/07/2016	17.7	183.881
30/06/2002	14.5	192.711

Date	Peak Flow recorded at Barwon River @ Ricketts Marsh Gauge (m ³ /s)	Peak Water level recorded at West Barwon Reservoir (m AHD)
15/08/2010	12.4	185.331
8/11/2007	7.1	186.576
12/02/2012	3.0	185.239
19/05/2013	0.3	189.816

Based on the above findings it was concluded that the reservoir did not significantly contribute to the flows recorded at the gauging station and as such was not included within the developed Barwon River RORB model.

3.4.6 Initial and Continuing Loss Model

The RORB model utilises an initial loss (IL) /continuing loss (CL) model approach, in accordance with the recommendations of ARR 2019. Losses in RORB were assigned based on three surface types:

- **Effective Impervious Area (EIA)** – comprising areas which are effectively impervious and are connected to the drainage system.
- **Indirectly Connected Area (ICA)** – comprising impervious areas which are not directed to the drainage system (e.g. a paved patio or footpath) and pervious areas that interact with impervious areas which are not directly connected (e.g. nature strips and garden areas).
- **Rural Area** – comprising pervious areas which do not interact with impervious areas (e.g. parklands and bushlands).

Table 3.5 presents the approach adopted for the EIA / ICA / Rural proportioning of subareas within the catchment based on different land use types and Total Impervious Area (TIA) percentages. These TIA values were obtained from the weighted FI for each subarea calculated and discussed in Section 3.4.3.

Table 3.5: Subarea Land Use Proportioning in Barwon River RORB Model

Land Use Type	Total Impervious Area (TIA)	EIA proportion	ICA proportion	Rural proportion
Rural Pervious Urban	0-15 %	Not utilised as rural subareas are assumed to have no direct connections to drainage	Total impervious area	Total pervious area (area – impervious area)
Low Density Residential	15 – 30 %	60 % of total impervious area (ARR 2016, Book 5. Ch. 3 - Section 3.4.2.2.2 quotes 50-70 %)	40 % of total impervious area	Total pervious area (area – impervious area)

Based on the proportion summary provided above and the Barwon River catchment characteristics, the majority of the subareas were assigned a rural land use with the exception of the two subareas covering the Birregurra township which were assigned a land use of low density residential.

3.4.7 Run Parameters

The Barwon River RORB model including the associated inputs described above were utilised to simulate the design flows for a series of storm events. As previously noted, the model was run using the Monte Carlo approach. The parameters summarised below were used as the starting point prior to the calibration and adoption of final loss values, discussed within Section 3.4.8:

- $m = 0.8$.
- $k_c = 39.7$ (derived utilising the Pearse et al. (2002) equation).
- Loss values were initially informed by rural losses extracted from the ARR Data Hub and the relevant recommendations provided within ARR 2019 guidelines. Table 3.17 displays the values adopted for each surface type prior to the loss changes undertaken as part of the design calibration discussed in Section 3.4.8.

Table 3.6: Initial ARR Datahub Barwon River Loss Values

Surface Type	Initial Loss	Continuing Loss
Rural	23 mm (sourced from ARR Data Hub)	3.4 mm/hr (sourced from ARR Data Hub)
EIA	1 mm (ARR 2019 recommendation)	0 mm/hr (ARR 2019 recommendation)
ICA	16.1 mm (70 % of Rural IL – ARR 2019 recommendation)	2.38 mm/hr (ARR 2019 recommends a CL of 2.5 mm/h for South-East Australia, typically ranging between 1-3 mm/h. 70 % of Rural CL was adopted)

3.4.8 Design Calibration to FFA

Several simulation iterations varying the initial loss, continuing loss and k_c values listed above were undertaken to match the modelled peak flows to those presented within the FFA curve for each AEP event.

The Monte Carlo approach was adopted for the calibration of the Barwon River RORB model flows at Ricketts Marsh to the FFA Curve in order to account for the catchment's inherent variability with regards to losses, rainfall depths and temporal patterns.

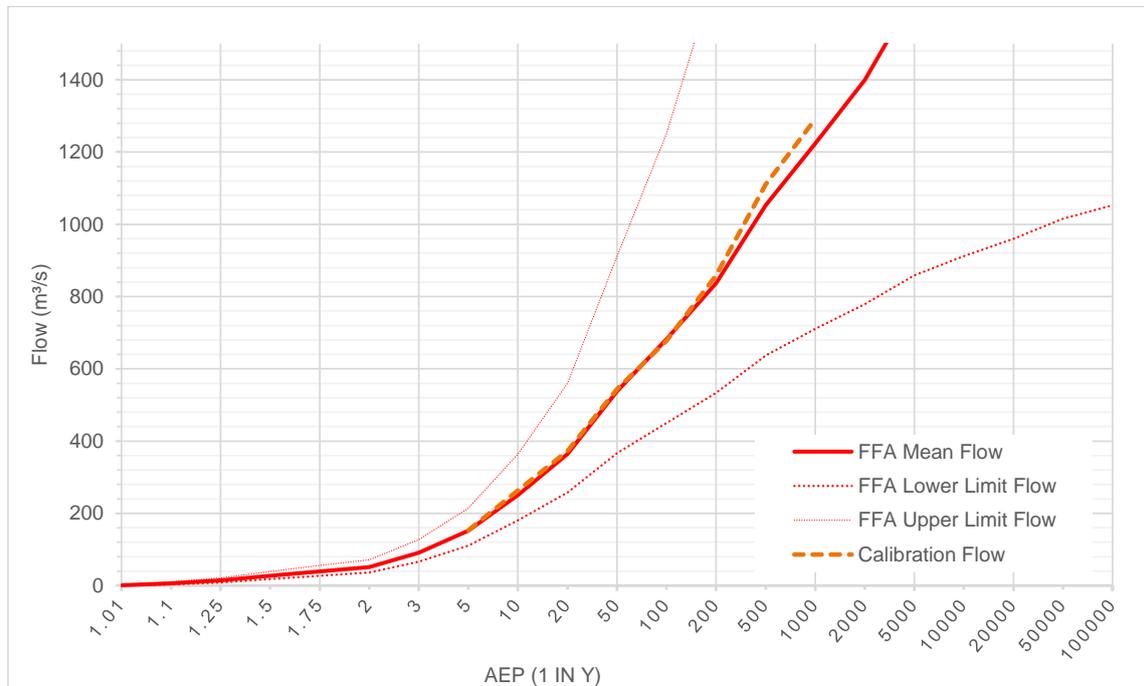
Table 3.7 provides a summary of the final design calibration parameters utilised to calibrate the Barwon River RORB model to the FFA output. The losses presented were utilised as the mean inputs to the Monte Carlo simulation.

Figure 3.3 displays a comparison between the FFA curves and the resultant design peak flows highlighting the similarities between flows.

Table 3.7: Barwon River Design FFA Calibration Parameters

Parameter	Value
Rural Initial Loss	14.95 mm
Rural Continuing Loss	2.21 mm/hr
ICA Initial Loss	10.47 mm (70 % of Rural IL – ARR 2019 recommendation)
ICA Continuing Loss	1.55 mm/hr (70 % of Rural CL was adopted)
EIA Initial Loss	1 mm (ARR 2019 recommendation)
EIA Continuing Loss	0 mm/hr (ARR 2019 recommendation)
k_c	35
m	0.8

Figure 3.3: Comparison of Barwon River Design Flows to FFA Curve



3.4.9 Validation of Design Parameters

Following the selection of calibration parameters for the Barwon River RORB model, a comparison to industry standard equations, study findings and Regional Flood Frequency Outputs was undertaken. The following subsections provide further details.

Regional k_c Equations

The adopted k_c value of 35 was compared to other values which could be derived utilising a series of regional equations. Table 3.8 provides a summary of this comparison and highlights the adopted k_c value lies within acceptable ranges providing confidence that the parameter is adequate.

Table 3.8: Barwon River RORB Model k_c Comparison to Regional Equation Values

Source	Formula	k_c value
RORB Default (Eqn. 2.5 RORB Manual)	$k_c = 2.2 \times A^{0.5}$	52.6
Victoria (Mean Annual Rainfall<800 mm) – Equation 3.21 from AR&R Book V	$k_c = 0.49 \times A^{0.65}$	30.4
Victoria (Mean Annual Rainfall>800 mm) – Equation 3.21 from AR&R Book V	$k_c = 2.57 \times A^{0.45}$	44.8
Victoria Data (Pearse et al, 2002)	$k_c = 1.25 \times d_{av}$	39.7
Australia Wide Dyer (1994) data (Pearse et al, 2002)	$k_c = 1.14 \times d_{av}$	36.2
Australia Wide Yu (1989) data (Pearse et al, 2002)	$k_c = 0.96 \times d_{av}$	30.5
Adopted k_c Value		35

Previous Studies of k_c / d_{av} Relationship

Analysis of the relationship between k_c and the average flow distance (d_{av}) was also undertaken to further validate the adopted k_c value. The calculated Barwon River k_c / d_{av} ratio of 1.1 was compared to previous studies (Pearse et al, 2002; Yu, 1989 and CRCCH) which have determined the expected, low and high confidence limits k_c / d_{av} relationships for RORB hydrological models.

Table 3.9 provides a summary of these previous study values which highlight the calculated k_c / d_{av} ratio for the Barwon River RORB model is within the expected ranges.

Table 3.9: Summary of k_c / d_{av} Relationships from Previous Studies

Confidence Limits	Victorian (Pearse, 2002)	Yu, 1989	CRCCH
Expected	1.25	0.96	1.14
Low	0.75	0.47	0.61
High	2.07	1.94	2.13

Regional Flood Frequency Estimation (RFFE)

Flood frequency curves were generated using the RFFE method available online. The catchment's area, centroid and model outlet coordinates were used as inputs. This analysis was undertaken to validate the peak flows produced with the adopted input parameters. Table 3.10 presents the resultant flood quantiles for a range of AEP events.

Table 3.10: RFFE Flow Estimates for Barwon River at Ricketts Marsh Gauge

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)
50	144	54.3	380
20	270	108	680
10	378	149	969
5	503	193	1330
2	695	252	1920
1	865	301	2500

By undertaking this analysis, the online RFFE portal also highlighted the correlation between the catchment's area, intensity, shape and recorded flows to a neighbouring catchment recorded by the Gellibrand River at Bunkers Hill Gauge (Station - 235227). This catchment has an area of 311 km² with Table 3.11 presenting the associated flood frequency curves.

Table 3.11: RFFE Flow Estimates for Gellibrand River at Bunkers Hill Gauge

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)
50	51	41	64
20	101	78	133
10	147	109	212
5	202	143	325

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)
2	294	189	557
1	380	224	817

Utilising a simplified factoring approach based on the Barwon River catchment area (572 km²) and the neighbouring Gellibrand River catchment area (311 km²), factored flows were obtained for each AEP event as shown within Table 3.12 below. As displayed, the marginal differences between these flows provide additional certainty that the adopted parameters produce peak flows within acceptable ranges even when compared to neighbouring catchments with similar characteristics.

Table 3.12: Calibrated Barwon River Flows Comparison to RFFE Estimates

AEP (%)	Calibrated Barwon River Flows (m ³ /s)	Barwon River @ Ricketts Marsh FFA Expected Quantile (m ³ /s)	Barwon River RFFE flows (m ³ /s)	Factored Neighboring Catchment RFFE flows (m ³ /s)
20	153	151.7	270	186
10	263	250.1	378	270
5	373	364.7	503	372
2	544	537.8	695	541
1	677	682.4	865	700

3.4.10 September 2016 Event Calibration

Calibration of the RORB model was undertaken for the September 2016 event using the data available. The Barwon River catchment did not have a pluviographic station that contained data suitable for the exact representation of the September 2016 event. A rainfall station at the Barwon River at Ricketts Marsh gauge station (233224) was identified however following a review was considered erroneous when compared to the daily rainfall totals and was not utilised.

As such some assumptions were made in relation to the storm's spatial distribution and temporal pattern. The following provides details on these assumptions and the associated basis:

- 'The Weather Chaser' website was accessed to gain an understanding of the storm's duration, spatial variation and intensity across the Barwon River catchment. The website provides radar images where Figure 3.4 displays a still image taken during the September 2016 event. The image confirms the relatively uniform distribution and intensity of rainfall across the study catchment. Based on this, it was considered appropriate to assume a uniform rainfall depth for each modelled subarea. This was further justified by the review of available daily rainfall totals recorded at gauges within the Barwon River catchment.

Table 3.13 provides the available recorded depths for the gauges within the catchment sourced from the BoM.

Figure 3.4: 'The Weather Chaser' website Radar Images

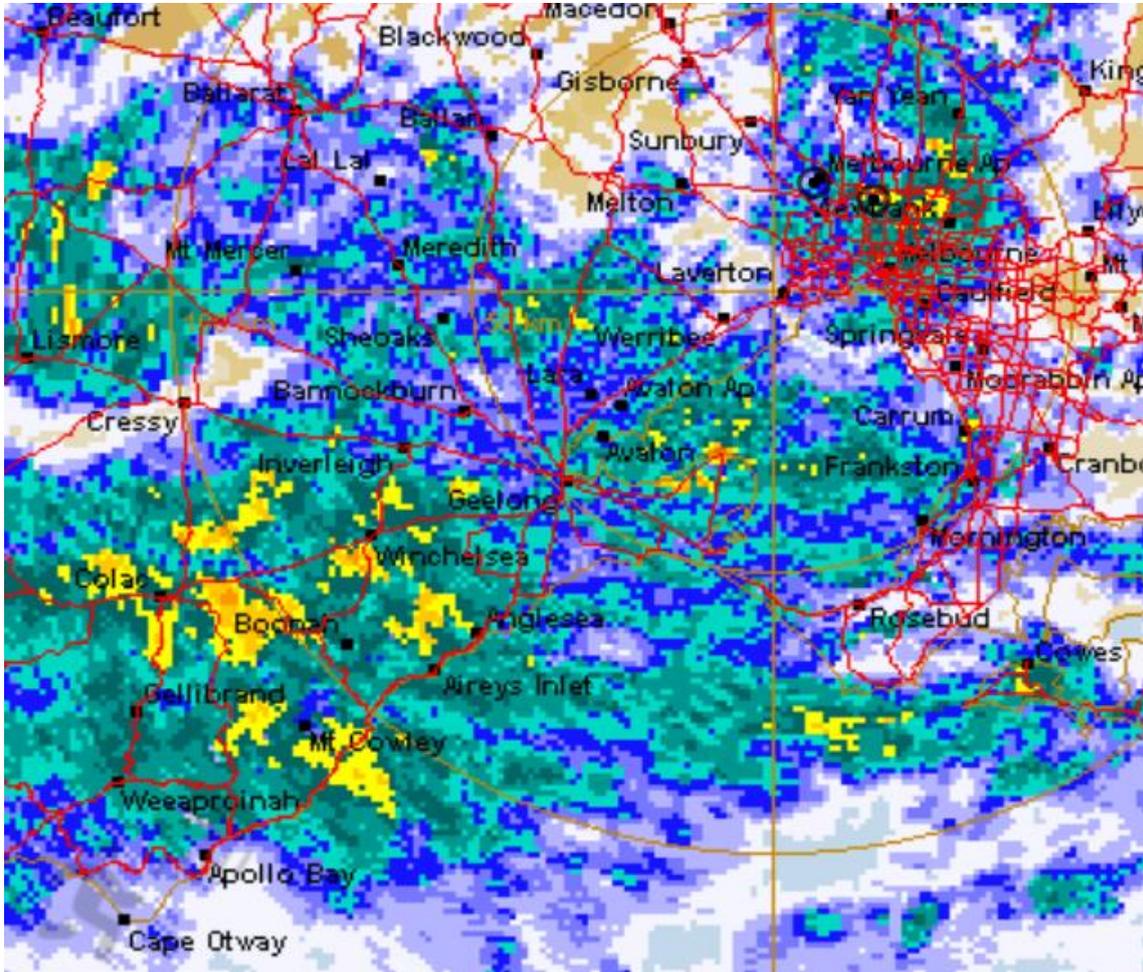
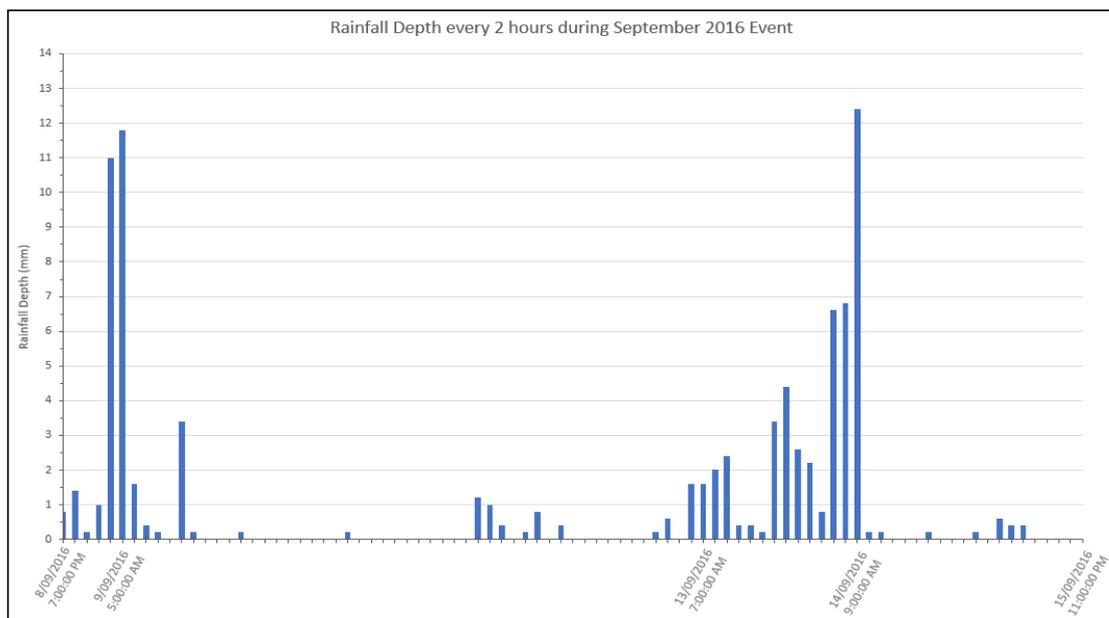


Table 3.13: September 2016 Event Daily Rainfall Depths within Barwon River Catchment

Rainfall Station Gauge Name	Rainfall Station Gauge ID	Recorded Rainfall Depth on 14 th September 2016
Birregurra (Post Office)	90008	43 mm
Pennyroyal Creek	90061	31.4 mm
Barwon Downs (Gerangamete)	90189	42.2 mm
Forrest State Forest	90040	37.2 mm
Benwerrin	90188	53.4 mm
Lorne (Mount Cowley)	90185	65.4 mm
West Barwon River @ West Barwon Dam	233801	41.2 mm
Lake Colac	234801	47.8 mm

- Due to the observed relative uniform rainfall which fell across the catchment and wider area including the Colac township, the rainfall data recorded at the Lake Colac station in Colac station (234801) was utilised. A total rainfall depth of 47.8 mm which fell between the 13th September to the 14th September 2016 was applied to the catchment. The Lake Colac pluviographic data was considered suitable as it more closely related to the total daily rainfall depth recorded within the township at the Birregurra Post Office Station (90008) of 43 mm. This contrasts to the pluviographic data at the Barwon River at Ricketts Marsh station which recorded a total rainfall depth of 170 mm which was considered erroneous and not utilised.
- The temporal pattern of the September 2016 event was defined by the rainfall data extracted from the Lake Colac station in Colac (234801). Figure 3.6 displays the rainfall distribution from the 8th of September to the 15th September 2016 noting that the September 2016 calibration event focused on the temporal pattern between the 13th September to the 15th September 2016.

Figure 3.5: September 2016 Event Rainfall Distribution



Following the application of these assumptions into the RORB model, the parameters presented within Table 3.14 were determined. These parameters achieve the required calibration between the modelled and gauged peak September 2016 flow. As shown the initial loss was not modified from the FFA calibration value as an analysis of the September 2016 temporal pattern indicated it did not have a bearing on the peak flow due to the pattern's rear loaded distribution. In contrast the lowering of the continuing loss had a greater influence.

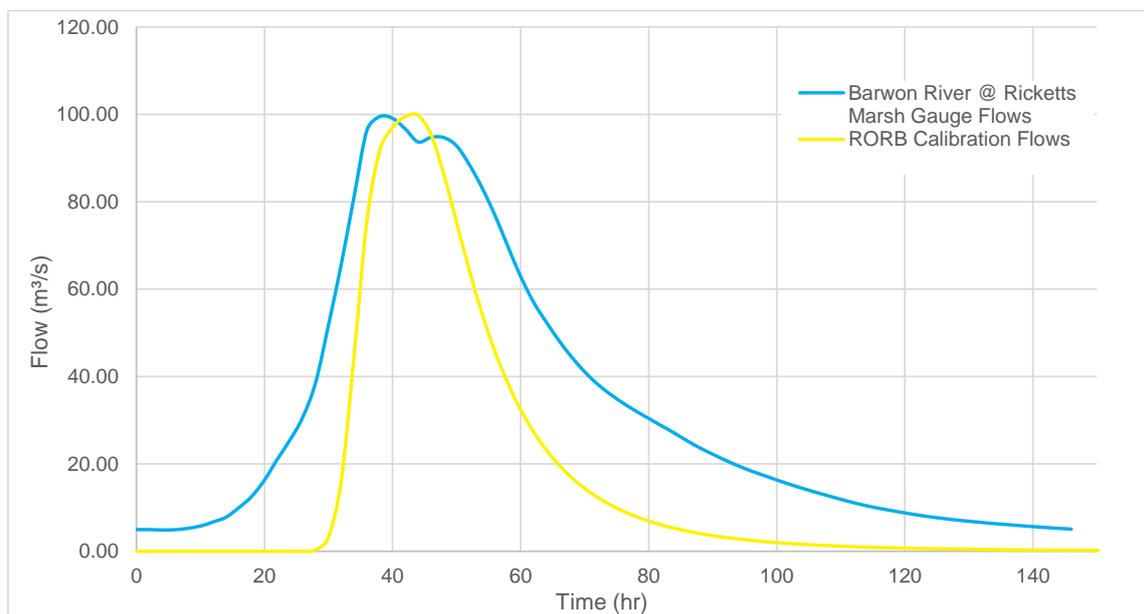
Table 3.14: September 2016 Barwon River Calibration Parameters

Parameter	Value
Rural Initial Loss	14.95 mm
Rural Continuing Loss	1.76 mm/hr
ICA Initial Loss	10.47 mm (70 % of Rural IL – ARR 2019 recommendation)
ICA Continuing Loss	1.23 mm/hr (70 % of Rural CL was adopted)
EIA Initial Loss	1 mm (ARR 2019 recommendation)

Parameter	Value
EIA Continuing Loss	0 mm/hr (ARR 2019 recommendation)
k_c	35
m	0.8

Figure 3.6 displays the comparison between the modelled and gauged September 2016 hydrograph. As shown, the parameters adopted have resulted in a match of peak flows and peak durations however differences between the hydrograph volume were noted.

Figure 3.6: Comparison of September 2016 Recorded and Modelled Hydrograph



As the Barwon River is not a focus of this study, this difference was considered acceptable particularly when taking into account the following factors:

- Baseflow – as prescribed within ARR 2019, baseflow was not extracted from the recorded gauge hydrograph as its contribution was estimated to be less than 5 %. However, this flow would still contribute to the additional volume recorded at the gauge and reduce the difference of volumes between the rising and falling limbs of the gauged September 2016 hydrograph.
- Limited rainfall data – although efforts have been made to utilise appropriate rainfall inputs with the information available, pluviographic data was not available for the September 2016 event within the Atkin Creek and Unnamed Tributary catchments nor was there pluviographic data within the Barwon River catchment that could be reliably used for this study (pluviographic data at the Ricketts Marsh gauge was noted as erroneous and could not be utilised for the September 2016 Event). Rainfall data from the 8th of September was also extracted from the Lake Colac Station and represented as an extended storm within the RORB model, however similar hydrograph volume differences were also noted.
- Spatial variation – for the September 2016 event spatial variation was not accounted for in the Barwon River RORB model. The fact that the Barwon River RORB model produced a set of loss parameters which resulted in a good match to the majority of survey marks across the Birregurra township meant that flooding within the township was not sensitive to spatial variation within the Barwon River catchment. This is logical considering the large difference in catchment sizes and resultant times of concentration.

- Limited data for other rainfall events (e.g. survey marks) within the study catchment results in challenges with the calibration / verification of model parameters.
- The loss parameters adopted for the Barwon River September 2016 calibration event do not inform the design loss parameters which will be used to define the flood overlays for the Birregurra township. The FFA Calibration parameters have been used to define the Atkin Creek and Unnamed Tributary design flood event modelling.
- The k_c parameter adopted for the Barwon River has been validated against regional equations and studies with the resultant flows validated against the neighbouring Gellibrand River at Bunkers Hill catchment RFFE analysis. These comparisons have indicated that it is appropriate for adoption and can be used to derive the k_c values for the Atkin Creek and Unnamed Tributary catchments.
- Comparisons of the modelled flood levels to surveyed marks for the September 2016 event within the township confirms the parameter's suitability with flood levels at 8 out of the 9 survey marks within an acceptable range for event calibration. This is described further in Section 4.2.2 along with a comparison of photos and anecdotal evidence providing further confidence that the hydraulic modelling results for the September 2016 event are a good match to those reported by residents across the township.
- Coincidence of flows (refer to Section 4.3.7) – if the peak flow for the Barwon River at Birregurra from the critical 24 hour duration event (considered to be the township's highest tailwater boundary condition) was to coincide with the peak flow from the waterways within the township for their critical duration (12 hours), the difference in flood levels would be less than 30 mm when compared to a scenario whereby the 12 hour rainfall event fell consistently across the Barwon River, Atkin Creek and Unnamed Tributary catchments. The modelling undertaken also indicates this flood depth difference is limited to the downstream end of the township. This confirms that even though the difference in hydrograph volumes is significant (4000 ML) the resultant influence on flood levels and tailwater levels for the Birregurra township was considered minor.

3.5 ATKIN CREEK AND UNNAMED TRIBUTARY MODEL DEVELOPMENT

3.5.1 Catchment Boundary

The boundary of the Atkin Creek and Unnamed Tributary catchments was defined utilising Council provided LiDAR data and the corresponding 1 metre contours. Figure 3.7 displays the overall catchment area of approximately 30 km² and structure of the RORB model.

3.5.2 Sub-catchment Boundaries

A watershed analysis was run for the Atkin Creek and Unnamed Tributary catchment based on the Council provided LiDAR data from which sub-catchment boundaries were generated. These were further reviewed within the township in particular to ensure sub-catchments considered the key overland flow paths in addition to Council's drainage system and likely legal points of discharge. The sub-catchments were also modified to ensure consistency in areas and land use.

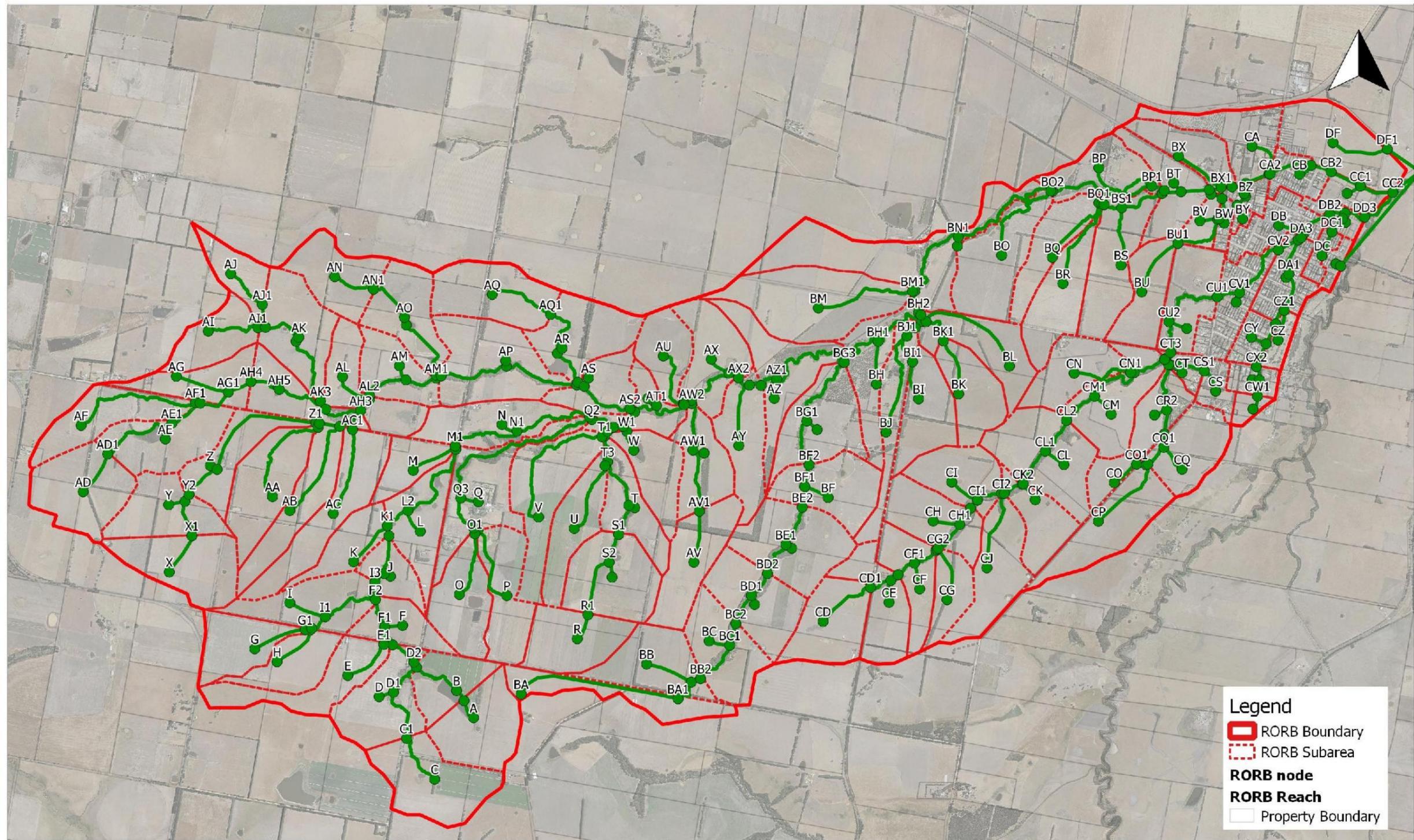
3.5.3 Fraction Impervious

A weighted fraction impervious value was calculated for each sub-catchment based on typical values assigned to each land use type. Table 3.3 presented above includes the typical fraction impervious values which were adopted for the key land uses. These values adopted were within the industry standard ranges where the resultant weighted values were cross-checked against aerial photography.

3.5.4 Other Modelling Input Considerations

Appendix D provides details of other modelling considerations which informed the inputs during the development of the Atkin Creek and Unnamed Tributary RORB model including:

- Intensity-Frequency-Duration (IFD) Data adopted for base conditions, climate change and PMF scenarios.
- Application of spatial rainfall patterns.
- Application of initial loss duration factors to account for pre-burst rainfall depths.
- Temporal patterns adopted.
- Areal Reduction Factors (ARFs) calculations and resultant factors.



Legend

- RORB Boundary
- RORB Subarea
- RORB node
- RORB Reach
- Property Boundary

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600 0 600 m

Scale in metres (1:5000 @ A3)

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Vertical Datum: Australia Height Datum
Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 3.7
Atkin Creek and Unnamed Trib Hydrologic Model
Layout

Job Number: V2013_007
Revision: 0
Drawn: AN
Checked: MM
Date: 14/1/2021

3.5.5 Initial and Continuing Loss Model

The Atkin Creek and Unnamed Tributary RORB model utilised the same initial loss (IL) /continuing loss (CL) model approach discussed in Section 3.4.6 with the proportioning of the three surface types; EIA, ICA and Rural areas.

Table 3.15 presents the approach adopted for the subareas within the Atkin Creek and Unnamed Tributary RORB model based on the different land use types and Total Impervious Area (TIA) percentages. These TIA values were obtained from the weighted FI for each subarea calculated and discussed in Section 3.5.3.

Table 3.15: Subarea Land Use Proportioning for Atkin Creek and Unnamed Tributary RORB Model

Land Use Type	Total Impervious Area (TIA)	EIA proportion	ICA proportion	Rural proportion
Rural / Pervious Urban	0-15 %	Not utilized as rural subareas are assumed to have no direct connections to drainage	Total impervious area	Total pervious area (area – impervious area)
Low Density Residential	15 – 30 %	60 % of total impervious area (ARR 2016, Book 5. Ch. 3 - Section 3.4.2.2.2 quotes 50-70 %)	40 % of total impervious area	Total pervious area (area – impervious area)
General Residential / township	40- 75 %	60 % of total impervious area (ARR 2016, Book 5. Ch. 3 - Section 3.4.2.2.2 quotes 50-70 %)	Remaining area (40 % of total impervious area and total pervious area)	Not utilized as residential subareas are assumed to either have direct or indirect connections to drainage.

Based on the proportion summary provided above and the Atkin Creek and Unnamed Tributary catchment characteristics, the majority of the subareas were assigned a land use of either rural or low density residential. Subareas located within the Birregurra township which contained drainage or well-defined roadside swales were categorised as a General Residential / township land use to account for the greater portion of directly connected impervious areas.

The resultant directly and indirectly connected impervious areas were applied to each subarea within the RORB interface. In order to more accurately account for the application of losses for each surface type within the township, the RORB model was split to represent the EIA, ICA and Rural components separately. This approach was adopted for the ensemble runs only as it was focused on more accurately representing the flooding within the township area. RORB was utilised to generate the separate EIA, ICA, and Rural rainfall excess hydrographs for input to the ensemble simulations. As the Monte-Carlo simulations focused on more accurately representing the flooding associated to the waterways, a single set of rainfall excess hydrographs were generated. The averaging of losses across the township was acknowledged for the Monte-Carlo simulations. However, as the ensemble simulations were focused on representing flooding outside of the waterways, it was considered acceptable.

3.5.6 Design Run Parameters

The parameters summarised below were utilised for the design runs:

- $m = 0.8$.
- k_c values were derived from the Barwon River RORB model, using the k_c/d_{av} ratio), and are shown in Table 3.16 below. As displayed, different k_c values were adopted to account for the different characteristics of the catchments reflected by the distance average parameter.

Table 3.16: Atkin Creek and Unnamed Tributary RORB Model k_c Values

Catchment	Distance Average (d_{av})	Adopted k_c
Atkin Creek	8.93 km	9.85
Unnamed Tributary	3.65 km	4.02

- Loss values informed by the Barwon River RORB model calibration to the FFA curve and recommendations within ARR 2019 guidelines. Table 3.17 displays the values adopted for each surface type.

Table 3.17: Atkin Creek and Unnamed Tributary Design RORB Model Loss Values

Surface Type	Initial Loss	Continuing Loss
Rural	14.95 mm (from Barwon River RORB model FFA calibration)	2.21 mm/hr (from Barwon River RORB model FFA calibration)
EIA	1 mm (ARR 2019 recommendation)	0 mm/hr (ARR 2019 recommendation)
ICA	10.47 mm (70 % of Rural IL – ARR 2019 recommendation)	1.55 mm/hr (ARR 2019 recommends a CL of 2.5 mm/h for South-East Australia, typically ranging between 1-3 mm/h. 70 % of Rural CL was adopted)

3.5.7 Validation of Design Parameters

Regional k_c Equations

The adopted k_c values for the Atkin Creek and Unnamed Tributary catchment was compared to other values which could be derived utilising a series of regional equations.

Table 3.18 provides a summary of this comparison and highlights the adopted k_c values generally lie within acceptable ranges except for the Victorian mean annual rainfall less than 800 mm equation. This overall similarity provides confidence that the parameters adopted are appropriate.

Table 3.18: Atkin Creek and Unnamed Tributary RORB Model k_c Comparison to Regional Equation Values

Source	Formula	Atkin Creek k_c value	Unnamed Tributary k_c value
RORB Default (Eqn. 2.5 RORB Manual)	$k_c = 2.2 \times A^{0.5}$	10.5	5.1
Victoria (Mean Annual Rainfall < 800 mm) – Equation 3.21 from AR&R Book V	$k_c = 0.49 \times A^{0.65}$	3.7	1.5
Victoria (Mean Annual Rainfall > 800 mm) – Equation 3.21 from AR&R Book V	$k_c = 2.57 \times A^{0.45}$	10.5	5.5
Victoria Data (Pearse et al, 2002)	$k_c = 1.25 \times d_{av}$	11.2	4.6
Australia Wide Dyer (1994) data (Pearse et al, 2002)	$k_c = 1.14 \times d_{av}$	10.2	4.2
Australia Wide Yu (1989) data (Pearse et al, 2002)	$k_c = 0.96 \times d_{av}$	8.6	3.5
Adopted k_c Value		9.85	4.02

Regional Flood Frequency Estimation (RFFE)

Flood frequency curves were generated using the RFFE method available online to validate the Atkin Creek and Unnamed Tributary inflows estimated within the township mid-way along the watercourses at location CA2 and CV2. The Atkin Creek and Unnamed Tributary catchment area, centroid and model outlet coordinates were used as inputs. Table 3.19 and Table 3.20 provides a comparison of the resultant RFFE flood quantiles and modelled design flows for the range of AEP events.

As shown, the Atkin Creek design flows are within a marginal range to the expected RFFE Quantiles. In contrast however, the RFFE outputs obtained for the Unnamed Tributary resulted in flood quantiles which were consistently lower than the modelled design flows. This is likely to be as a result of the catchment's characteristics based on the area, centroid coordinates and model outlet coordinates which as highlighted by the RFFE online interface 'has an unusual shape' noting that the 'results have lower accuracy and may not be directly applicable in practice'.

Table 3.19: RFFE Comparison to Design Flow Estimates for Atkin Creek within township

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)	Design RORB flow (m ³ /s)
50	6.3	2.3	17.0	-
20	11.8	4.6	30.5	10.8
10	16.5	6.4	43.2	15.3
5	21.9	8.3	59.0	19.3
2	30.4	10.9	85.1	28.6
1	37.8	13.1	110.0	36.4

Table 3.20: RFFE Comparison to Design Flow Estimates for Unnamed Tributary within township

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)	Design RORB flow (m ³ /s)
50	1.5	0.5	4.1	-
20	2.8	1.1	7.3	6.9
10	3.9	1.5	10.3	9.6
5	5.2	2.0	14.1	13.1
2	7.2	2.6	20.3	18.1
1	9.0	3.1	26.2	22.2

Based on the nearby gauged catchments utilised to inform the RFFE outputs, the catchment draining to the Atkin Creek West Branch at Wyelangta gauge (235205) was identified as having comparable catchment characteristics including a similar catchment area of 3 km² and rainfall intensities. Table 3.21 provides this neighbouring catchment's RFFE output in addition to a factored expected quantile informed by the slightly greater area of the Unnamed Tributary catchment. A comparison of these flows to the design RORB flows provides confidence that the design parameters adopted are appropriate.

Table 3.21: Nearby Catchment's RFFE Comparison to Design Flow Estimates for Unnamed Tributary

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)	Factored Expected Quantiles (m ³ /s)	Design RORB flow (m ³ /s)
50.0	1.8	1.5	2.1	2.7	-
20.0	3.3	2.6	4.4	5.1	6.9

AEP (%)	Expected Quantiles (m ³ /s)	5 % Confidence Limit (m ³ /s)	95 % Confidence Limit (m ³ /s)	Factored Expected Quantiles (m ³ /s)	Design RORB flow (m ³ /s)
10.0	4.9	3.5	7.6	7.6	9.6
5.0	7.2	4.7	12.7	11.1	13.1
2.0	11.6	6.7	24.6	17.8	18.1
1.0	16.4	8.6	40.8	25.2	22.2

3.5.8 September 2016 Event Validation

A uniform rainfall depth of 47.8 mm in addition to the corresponding temporal pattern as described in Section 3.4.10 was applied to the Atkin Creek and Unnamed Tributary RORB model. The routed local watercourse inflows and rainfall excess hydrographs representing the September 2016 event were generated as outputs.

These outputs were applied to the hydraulic TUFLOW model described in Section 4.4 where iterative modifications to the losses were undertaken to calibrate the modelled flood levels to the surveyed flood levels.

Similar to the September 2016 event calibration undertaken for the Barwon River catchment, due to the storm's rear loaded rainfall distribution, the initial loss did not have a significant impact on the generated peak flows. As such the continuing loss was the only adjusted parameter. Table 3.17 summarises the loss values applied to represent the Atkin Creek and Unnamed Tributary September 2016 event RORB model.

As presented, the rural continuing loss value was reduced to 0.25 mm/hr which could be considered low particularly when compared to the rural continuing loss adopted for the Barwon River calibration of 1.76 mm /hr. However, this was considered appropriate given:

- The difference in antecedent catchment conditions particularly between the larger Barwon River catchment and the local Atkin Creek & Unnamed Tributary catchments.
- The continuing loss value of 0.25 mm/hr results in a close match between the modelled and surveyed flood levels discussed in Section 4.4.
- The continuing loss value of 0.25 mm/hr are within the ranges utilised for previous flood studies including the neighbouring Deans Creek and Barongarook Creek calibration events.

Table 3.22: Atkin Creek and Unnamed Tributary September 2016 Event RORB Model Loss Values

Surface Type	Initial Loss	Continuing Loss
Rural	14.95 mm (from Barwon River RORB model FFA calibration)	0.25 mm/hr (from Barwon River RORB model FFA calibration)
EIA	1 mm (ARR 2019 recommendation)	0 mm/hr (ARR 2019 recommendation)
ICA	10.47 mm (70 % of Rural IL – ARR 2019 recommendation)	0.18 mm/hr (ARR 2019 recommends a CL of 2.5 mm/h for South-East Australia, typically ranging between 1-3 mm/h. 70 % of Rural CL was adopted)

3.6 SUMMARY OF RORB DESIGN FLOWS

Table 3.23 provides a summary of the design flows generated from the RORB model and the associated critical duration. These formed the inflows applied to the hydraulic TUFLOW model. The Barwon River flow at Node Location 'R4' was applied directly as the inflow hydrograph to the TUFLOW model. The separate upstream hydrographs used to produce the combined flows presented at location CA2 and CV2 were extracted and applied to the hydraulic TUFLOW model.

Table 3.23: Atkin Creek and Unnamed Tributary Design RORB Flows

AEP (%)	Atkin Creek flow at CA2		Unnamed Tributary flow at CV2		Barwon River flow at R4	
	Flow (m ³ /s)	Critical Duration	Flow (m ³ /s)	Critical Duration	Flow (m ³ /s)	Critical Duration
39.35	5.9	12hr	3.9	6hr	76.0	12hr
20	10.8	12hr	6.9	3hr	145.6	12hr
10	15.3	12hr	9.6	3hr	256.9	12hr
5	19.3	12hr	13.1	2hr	373.9	24hr
2	28.6	12hr	18.1	2hr	512.3	12hr
1	36.4	12hr	22.2	2hr	602.1	24hr

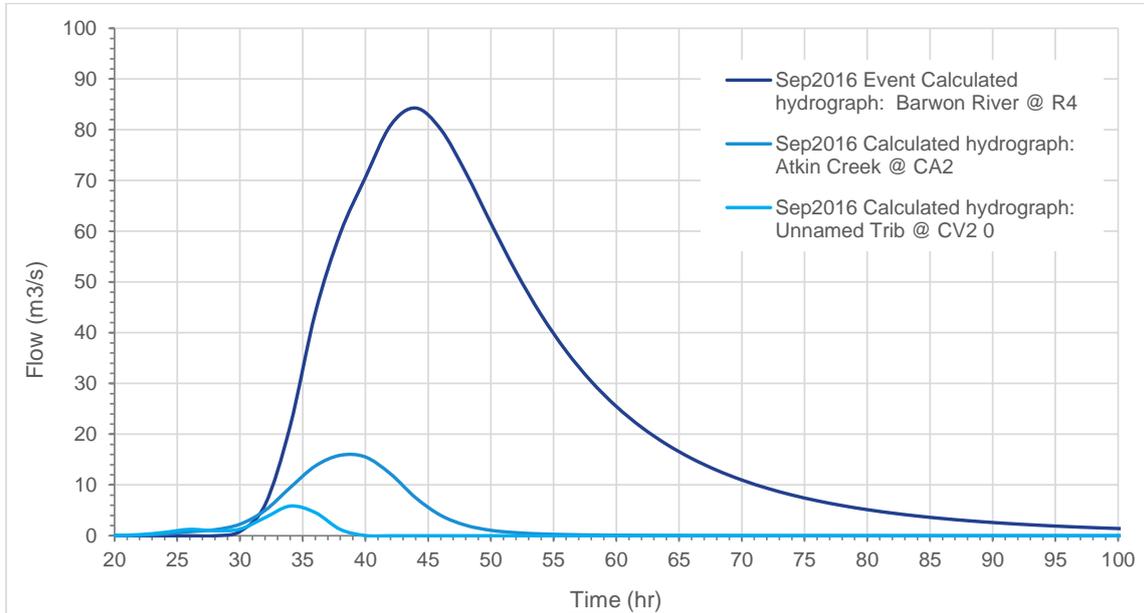
3.7 SUMMARY OF RORB SEPTEMBER 2016 EVENT FLOWS

Table 3.24 provides a summary of the September 2016 calibration flows generated from the RORB model and utilised to form the inflows applied to the hydraulic TUFLOW model. Figure 3.8 displays the corresponding hydrographs and highlights the differences in each catchment's response to generate the peak flow. When the Atkin Creek flows and the Unnamed Tributary flows are compared to the previous outlined design flows, the September 2016 event which affected the Birregurra township is estimated to be between a 10 % AEP event and a 20 % AEP event.

Table 3.24: Atkin Creek and Unnamed Tributary September 2016 Event RORB Flows

Event	Atkin Creek flow at CA2	Unnamed Tributary flow at CV2	Barwon River flow at R4
September 2016	15.9 m ³ /s	5.9 m ³ /s	84.3 m ³ /s

Figure 3.8: Comparison of September 2016 Event Hydrographs



4 HYDRAULIC MODELLING

4.1 OVERVIEW

Combined one-dimensional (1D) and two-dimensional (2D) dynamic hydraulic modelling of the study area was undertaken using TUFLOW version 2020-01-AA-iDP-w64 to estimate flood water levels, extents, flows and other hydraulic variables for a range of scenarios and design events. The model has been run using the TUFLOW HPC (Heavily Parallelised Compute) scheme. Although HPC does not typically require the use of double precision, in this instance due to the terrain elevations being above 100 m AHD, it was required to ensure sufficient decimal places were available for the correct computation of flows and velocities within the 1D domain. A sensitivity run utilising the single precision solver highlighted issues with the 1D mass error particularly during the model's start-up phase which confirmed the requirement to use the alternative double precision server for all flood modelling simulations.

A single hydraulic model was constructed using a 3-metre cell size to represent urban areas and the associated Council drainage networks. Urban areas include and are limited to the Birregurra township as defined by Council's brief.

4.2 METHODOLOGY

The following steps outline the tasks undertaken to develop the TUFLOW model for the study area and to obtain the flood mapping outputs:

- Generate Digital Elevation Model (DEM).
- Create inflow boundary conditions in order to reference the relevant inflow hydrographs generated in RORB including both rainfall excess hydrographs and routed inflow hydrographs.
- Input surface roughness (materials layer) based on given parcel's existing land use defined by the obtained aerial photographs and standard industry values.
- Input and verify data for the 1-D network (pits and pipes).
- Improve the representation of waterways / open channels / drains where required (utilising z-shapes and the obtained survey data).
- Set 1-D and 2-D boundary conditions to pipes / pits and overland flows where required.
- Undertake a blockage assessment as detailed within the ARR 2019 guidelines to assess the potential for blockage and the associated flood impact.
- Run the TUFLOW model for the September 2016 flood event where the generated inflow hydrographs are applied and undertake iterative modelling to calibrate / validate the modelled flood levels to the surveyed flood marks with modifications to hydrology loss values (influencing the magnitude of waterway inflows), roughness values along Atkin Creek and the Unnamed Tributary and the refinement of waterway invert levels using the commissioned survey data.
- Run the TUFLOW model for the 0.2 %, 0.5 %, 1 %, 2 %, 5 %, 10 %, 20 %, 39.35 % AEP design events including both the Monte Carlo inflows and the ensemble inflows. This included:
 - Monte Carlo simulations representing the critical durations for the waterway inflows
 - Ensemble simulations representing flooding within the local township for the 10 minute to 2 hour storm durations
- Run the TUFLOW model for the PMF scenario.
- Run the TUFLOW model for the 1 % and 10 % AEP Climate Change Conditions.
- Prepare relevant outputs including flood depth, extents, velocities layout plans in addition to GIS deliverables compliant with the Flood Spatial Data Specifications requirements.

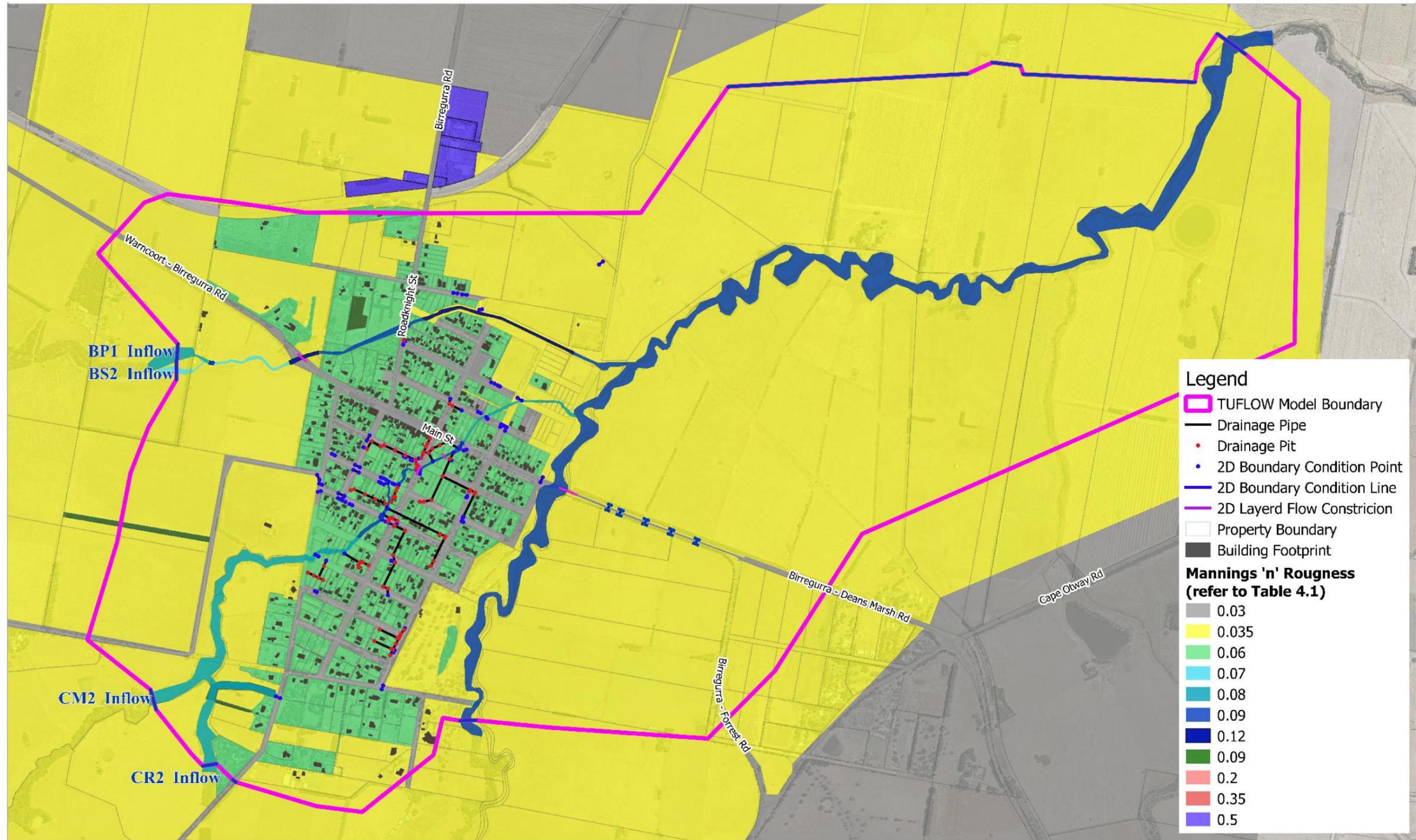
4.3 MODEL DEVELOPMENT

4.3.1 Model Extent

The extent of the hydraulic model is based on enabling the key topographical features of the study area (such as waterways and open drains) to be modelled focussing on the Birregurra Town. It was not necessary to model the entire hydrologic catchment. Use of inflow boundaries from the RORB models developed for the Barwon River and Atkin Creek and Unnamed Tributary catchments discussed in Section 3 assisted to limit the required extent of the TUFLOW model.

The extent of the TUFLOW hydraulic model is sufficient to ensure that runoff through Birregurra township and surrounds is accurately modelled, as well as being able to identify key flooding hotspots.

Figure 4.1 shows the extent of the hydraulic model and depicts some of the key inputs to the model which are described further in the following sections of this report.



Legend

- TUFLOW Model Boundary
- Drainage Pipe
- Drainage Pit
- 2D Boundary Condition Point
- 2D Boundary Condition Line
- 2D Layerd Flow Constriction
- Property Boundary
- Building Footprint

Mannings 'n' Rougness (refer to Table 4.1)

- 0.03
- 0.035
- 0.06
- 0.07
- 0.08
- 0.09
- 0.12
- 0.09
- 0.2
- 0.35
- 0.5

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300 0 300 m
Scale in metres (1:5000 @ A3)

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Vertical Datum: Australia Height Datum
Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 4.1
Birregurra TUFLOW Model Layout

Job Number: V2013_007
Revision: 0
Drawn: AN
Checked: MM
Date: 23/11/2020

4.3.2 Topography

A model resolution (grid size) of three metres has been used, resulting in the definition of elevation every 1.5 horizontal metres in the model. This grid size is in accordance with recommendations in industry guidelines and allows for key catchment features such as waterways, open channels, and roads to be defined in the model.

The hydraulic model uses a combination of LiDAR and Digital Terrain Model data as detailed within Section 2.4 to assign elevations throughout the flood model. Where appropriate, survey data was used to address uncertainties in the Atkin Creek and Unnamed Tributary LiDAR data. Z-shapes were used to represent waterway / open channel sections and to improve the overall representation of the Atkin Creek and Unnamed Tributary waterways. Atkin Creek downstream of Anderson Street was represented with a DEM that was created from the cross-sections surveyed at 100 metre intervals. Due to the width of the channel in this area, a Sub-grid Sampling (SGS) approach was also adopted within the TUFLOW model to allow for a finer resolution of the DEM at a grid size of 1 metre rather than 3 metres.

4.3.3 Drainage Assets

All assets identified in Council's Geographic Information System (GIS) database have been included in the model and considerable effort has gone into the capture of additional drainage assets missing from the GIS database so that they can be included in the model.

Particular emphasis was placed on accurately modelling the drainage assets that convey significant overland flow paths under roads, driveways and into waterways and open channels. A large number of those assets were inspected and measured during the site visit conducted by Engeny and/ or by the engaged surveyors.

The hydraulic model requires invert levels at upstream and downstream ends of all pipes and culverts. This information is not available for most pipes within Council's GIS database. Invert levels were estimated by adopting the following formula:

- $\text{Invert level} = \text{Ground level RL} - 600 \text{ mm (pipe cover)} - \text{pipe diameter}.$

The estimated invert levels were then checked to ensure that they were connected appropriately with the inverts of upstream and downstream pipes and adjusted where necessary to produce a downward grade.

4.3.4 Waterways and Open Drains

The study area includes three main waterways: Atkin Creek; Unnamed Tributary and Barwon River that run through / or adjacent to the Birregurra township. The available terrain data consisting of both LiDAR and survey data provides a satisfactory definition of these watercourses and open drains and as such it's representation within the 2-D domain was deemed acceptable. Culverts and bridge structures have been included in the model, with the culverts modelled as pipes in the 1-D domain and bridges modelled as layered flow constrictions in the 2-D domain.

Survey data (as discussed in Section 2.4) was captured to address uncertainties in the Atkin Creek and Unnamed Tributary LiDAR data. This data was supplied in the form of cross sections representing waterway invert levels and bridge / overpass structures. Particular emphasis was put on accurately representing cross-sections at the key drainage structures along Atkin Creek and Unnamed Tributary. Z-shapes were used in TUFLOW to represent channel invert levels as shown in the survey plans and to address inaccuracies with the LiDAR data at drainage structure surface levels and densely vegetated areas where appropriate. Figure 4.2 displays the location of the model's terrain modifications including:

- The yellow highlighted areas which were informed by the survey obtained at the upstream and downstream end of key drainage structures along the waterways.
- The green highlighted areas which consisted of a series of interpolation z-shapes from the known surveyed locations ensuring the waterway's slope (defined by the LiDAR data) was maintained.

Figure 4.2: Location of Model's Terrain Modifications Informed by Survey Cross-Sections



As shown in Figure 4.2 above, additional cross-sectional survey data captured along Atkin Creek downstream of Anderson Street was also provided (orange lines). Engeny utilised this data to generate a DEM in 12d which was integrated into the hydraulic model to further improve the model accuracy and representation of the Atkin Creek waterway upstream of its confluence with the Barwon River.

Figure 4.3, Figure 4.4, Figure 4.5, Figure 4.6 and Figure 4.7 presents a series of cross-sections comparing the surveyed data and the LiDAR data along Atkin Creek downstream of Anderson Street in addition to other locations upstream and downstream of key drainage structures. These highlight the improved representation of the waterway's invert level when compared to the LiDAR data elevations which were typically higher due to overgrown vegetation and / or ponded water.

Figure 4.3: Comparison of Survey Cross-Sections to LiDAR data for Atkin Creek at Location B2 Atkin

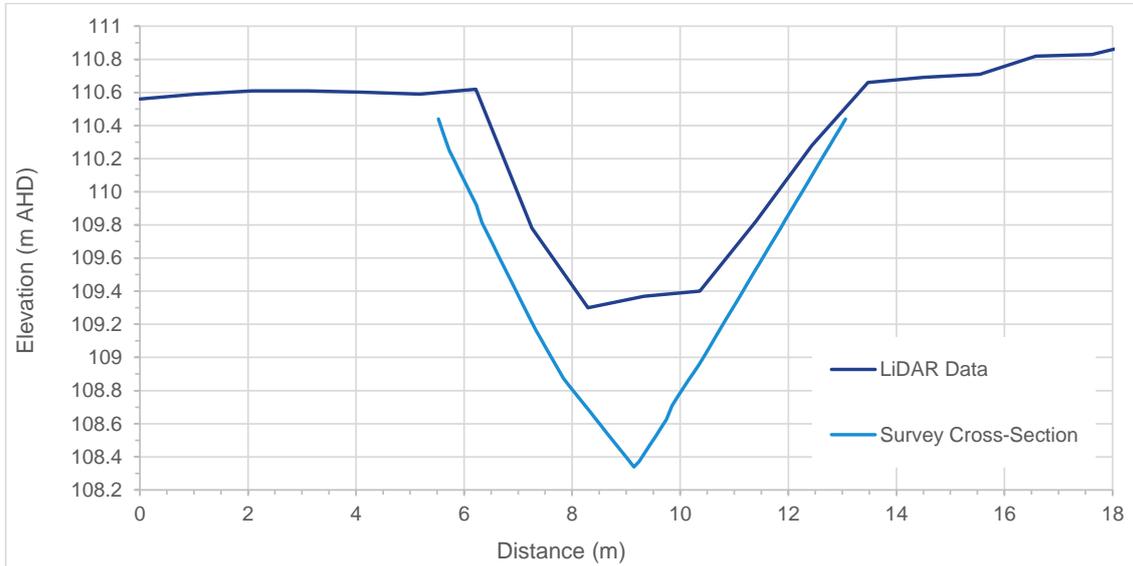


Figure 4.4: Comparison of Survey Cross-Sections to LiDAR data for Atkin Creek at Location B5

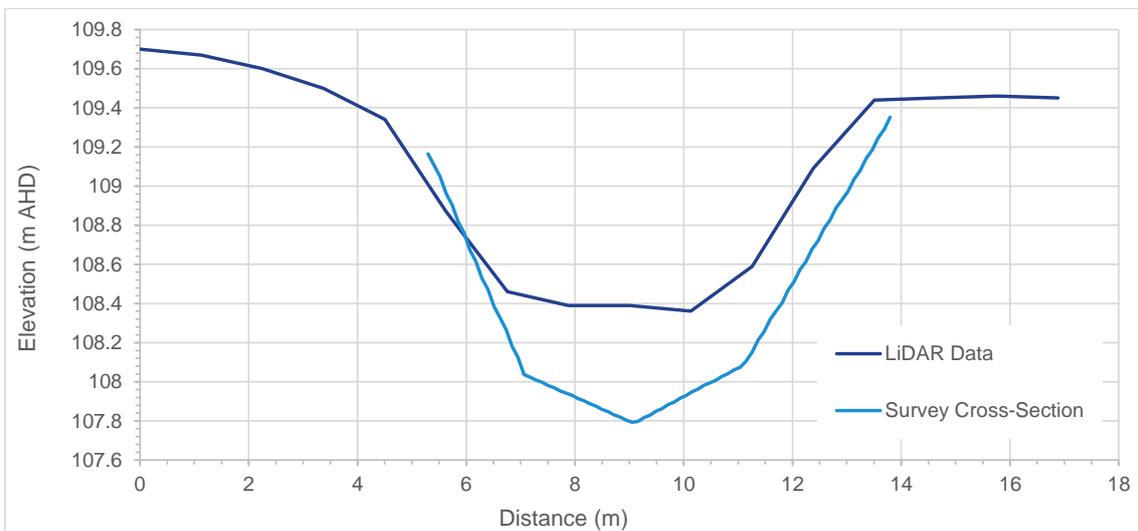


Figure 4.5: Comparison of Survey Cross-Sections to LiDAR data for Atkin Creek at Location 1

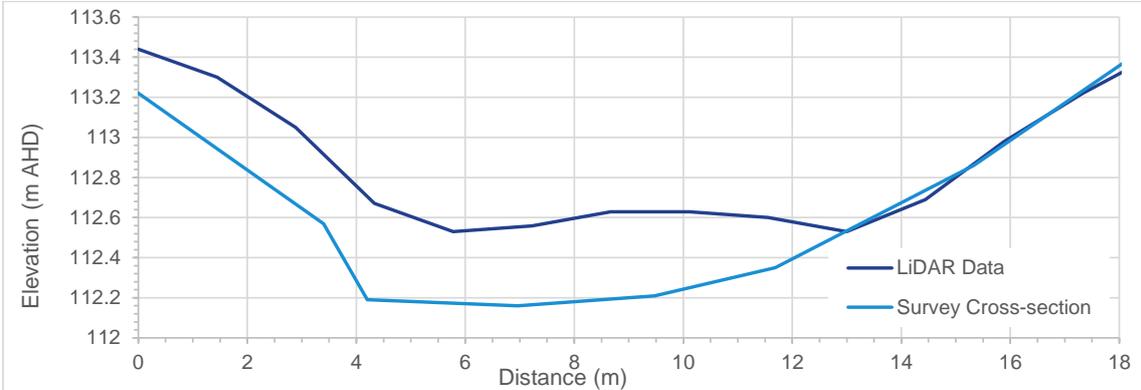


Figure 4.6: Comparison of Survey Cross-Sections to LiDAR data for Atkin Creek at Location 2

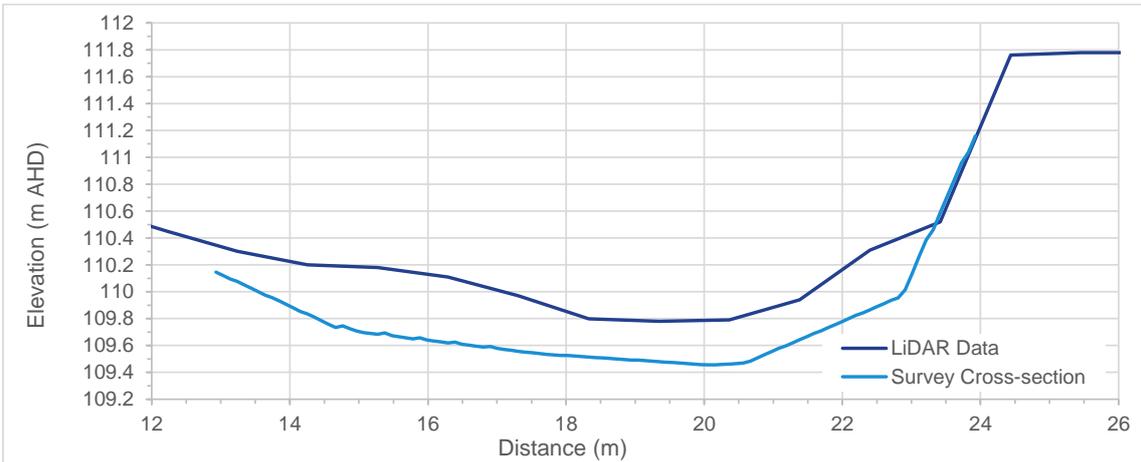
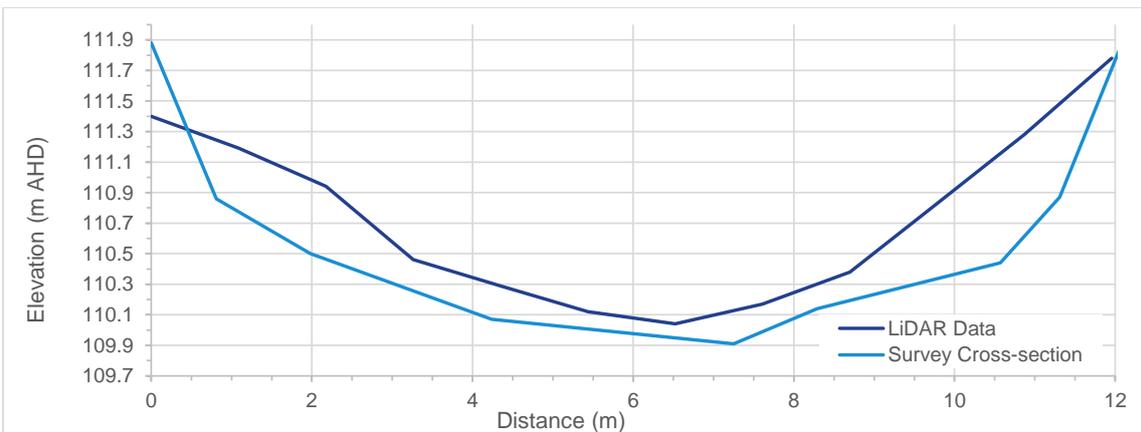


Figure 4.7: Comparison of Survey Cross-Sections to LiDAR data for Unnamed Tributary at Location 4



4.3.5 Surface Roughness

The hydraulic model includes a land use (materials) layer that reflects the surface roughness (Manning's 'n') throughout the catchment. The surface roughness defines how much resistance there is to runoff / overland flow passing over different land use types. For instance, high surface roughness values are found in residential properties due to the presence of buildings, fences and other structures that impede the flow of water, while flow through a paddock will have a lower surface roughness value.

Table 4.1 summarises the roughness values applied to the hydraulic model. These values are based on industry guidelines and were verified during site visits and from aerial photographs. The outcomes of the September 2016 Validation run were also utilised to inform the roughness values particularly along the Atkin Creek and the Unnamed Tributary where higher roughness values were adopted after iterative modelling to appropriately represent the areas of thick / high density vegetation in order to ensure the modelled flood levels account for the resistance. The results of the sensitivity analysis undertaken for the September 2016 event and influence of thick vegetation on the flood levels is discussed and included within Section 4.3.9.

Table 4.1: Hydraulic Model Surface Roughness Values

Land Use	Manning's n
Low density residential property	0.20
Remainder of parcel (residential)	0.10
Commercial or industrial / Building footprints	0.50
Parks, Recreational, Public Conservation and Resource Zone	0.035
Waterway / Parks – grass, some weeds	0.035
Waterway / Parks – minor density vegetation	0.06
Waterway / Parks – medium density vegetation	0.09
Waterway / Parks – high density vegetation	0.12
Car parks and roads (RDZ1, RDZ2)	0.02

Figure 4.8 and Figure 4.9 displays two areas where high Manning's roughness values of 0.12 were adopted along Atkin Creek immediately upstream of Warncoort-Birregurra Road and downstream of Anderson Street.

Figure 4.8: Photo of High-Density Vegetation within Atkin Creek Downstream of Warncoort-Birregurra Road



Figure 4.9: Photo of High-Density Vegetation within Atkin Creek Downstream of Anderson St



4.3.6 Boundary Conditions and Model Inflows

The TUFLOW model includes a series of boundary conditions to control points where flow enters or leaves the model. A HQ (head versus discharge) boundary was drawn to allow flows from the Barwon River floodplain to exit the model. This boundary uses a water surface slope of 0.01 m/m or 1 % to represent the minimal grade and permit the calculation of the stage-discharge relationship.

A series of QT (flow versus time) boundaries were also placed at the upstream extents of the model in order to represent the inflows from Atkin Creek, Unnamed Tributary and Barwon River. These relationships were set up to reference the plot outputs of flow versus time results from the RORB hydrological models discussed in Section 3 and enabled the TUFLOW model extent to be reduced to focus on the study area / township.

The TUFLOW design ensemble simulations used to define flooding within the local township (not associated with the waterway flooding) involved the application of inflows for the 10 minute to 2-hour storm durations with front, rear and mid loaded temporal patterns. The 1 % AEP hydraulic modelling results found the following mid-loaded temporal patterns to result in the median flood levels for each modelled duration:

- 10 minute – tp26.
- 15 minute - tp28.
- 30 minute – tp28.
- 1 hour – tp28.
- 2 hour – tp25.
- 3 hour – tp28.

Rainfall excess hydrographs were also applied as 2-D source areas onto the ground surface covering the sub-catchments within the township.

4.3.7 Barwon River Influence

An assessment of the interaction between the Barwon River and the local Atkin Creek and Unnamed Tributary flows was undertaken for the 1 % AEP event. The following scenarios were modelled and compared:

- Scenario1: 12-hour duration hydrographs for the Atkin Creek and Unnamed Tributary (critical duration for these waterways) with the 24-hour duration hydrograph for the Barwon River (critical duration for the Barwon River at Birregurra). The peak of the Barwon River 24-hour duration hydrograph was shifted to coincide with the peak of the 12-hour duration hydrographs for the Atkin Creek and Unnamed Tributary.
- Scenario 2: 12-hour duration hydrographs for Atkin Creek, Unnamed Tributary and Barwon River. No shifting of the peak flow for the Barwon River was accounted for in this scenario.

Figure 4.10 displays the resultant hydrographs near the Atkin Creek and Unnamed Tributary outlet to the Barwon River floodplain in addition to the Barwon River hydrograph for each of the relevant critical 1 % AEP storm durations. The figure also annotates the significant difference in volumes between the scenarios of 4000 ML prior to the local Atkin Creek peak flow occurring.

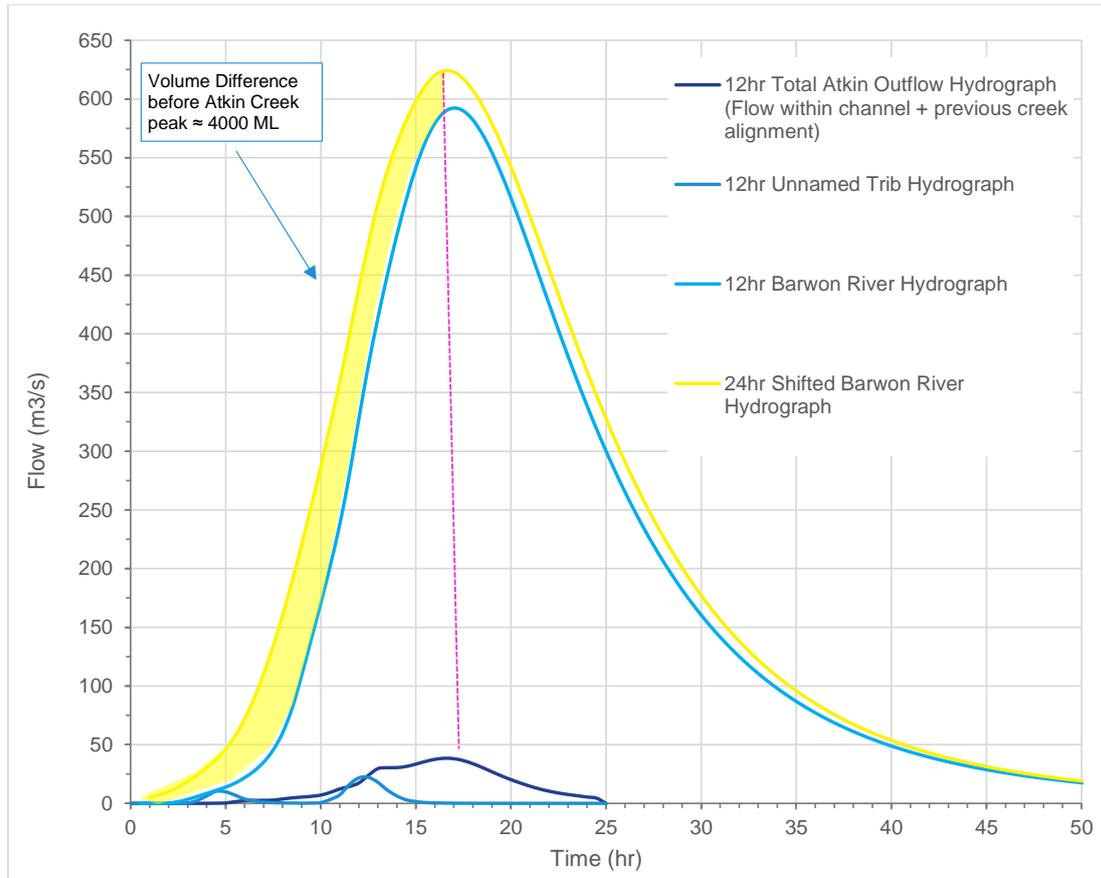
Figure 4.11 displays the corresponding flood depths and Barwon River area of influence for each of the scenarios modelled. As displayed the Barwon River area of influence is limited to the downstream end of the township where the same number of properties are predicted to be impacted regardless of the modelled scenario. The figure also displays the flood depth afflux, highlighting that there would generally be less than 30 mm of flood level difference within the area of influence.

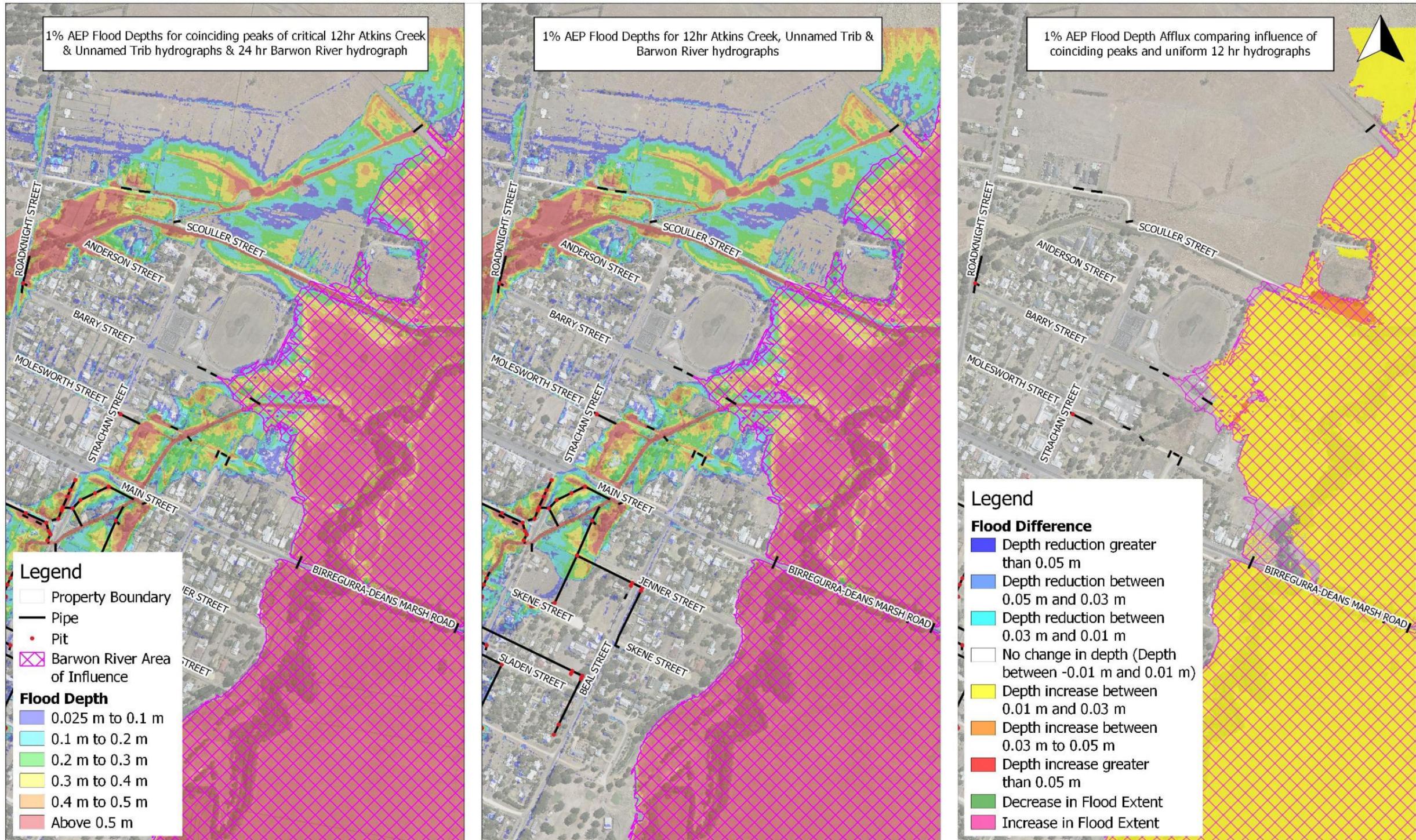
As a result of this analysis it was considered appropriate that for each design storm duration modelled the corresponding Barwon River storm duration inflow would be applied for design events. This allows for a conservative representation of the downstream Barwon River flood levels while noting:

- The design hydraulic model is not intended to run long enough to capture the peak flood levels within the Barwon River. It is also not focused on running the critical 24-hour duration since defining the Barwon River floodplain extent is not required from this study.
- If the peak flow for the Barwon River at Birregurra from the critical 24 hour duration event (considered to be the township's highest tailwater boundary condition) was to coincide with the peak flow from the waterways within the township for a 12hour

critical duration, the difference in flood levels would be less than 30 mm when compared to a scenario whereby the 12 hour rainfall event fell consistently across the Barwon River, Atkin Creek and Unnamed Tributary catchments. The modelling undertaken also indicates this flood depth difference is limited to the downstream end of the township. This confirms that even though the difference in hydrograph volumes is significant (4000 ML) the resultant influence on flood levels and tailwater levels for the Birregurra township was considered minor.

Figure 4.10: Comparisons of Peak 1 % AEP Atkin Creek, Unnamed Tributary and Barwon River Hydrographs





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170 0 170 m

Scale in metres (1:5000 @ A3)

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Vertical Datum: Australia Height Datum
Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 4.11
Barwon River Interaction with local Township watercourses

Job Number: V2013_007
Revision: 0
Drawn: AN
Checked: MM
Date: 29/7/2020

4.3.8 Blockage Considerations

ARR 2019 provides a framework to assess blockage risk of culverts and bridges. The guidelines recommend this assessment be undertaken, to determine the potential for the blockage of structures and the likely impact to flood behaviour. Engeny has assessed the blockage risk of six key structures located along Atkin Creek and the Unnamed Tributary within the township for the 1% AEP. The locations of these structures are shown on Figure 4.12.

Figure 4.12: Location of Culverts and Bridges Assessed for Blockage Potential



In line with the ARR 2019 guidelines, the risk of blockage is informed by several factors including the structures opening flow area and the availability, mobility and transportability of debris and sediment at the inlet and through the bridge/ barrel respectively.

The structures assessed within the township assumed a consistent debris risk potential due to the similarities in land use and waterway slopes. By adopting this approach an inlet (debris) and barrel (sediment) blockage risk of medium to low was determined for all structures. This was based on the following underlying assumptions:

- Medium to Low Debris and Sediment Availability due to:
 - Catchment consisting of rural lands and grazed paddocks.
 - Moderate average bed slopes of 2.5 %.
- Medium Debris and Sediment Mobility due to:

- Moderate rainfall intensities.
- Moderately sloped catchment areas of 2.5 %.
- Medium Debris and Sediment Transportability due to:
 - Moderate bed slopes of 2.5 %.
 - Comparable stream size width to expected debris load dimension.

This medium to low blockage risk corresponds to the 1 % AEP blockage percentages shown in Table 4.2 for each structure analysed.

Table 4.2: Predicted 1 % AEP Blockage Percentages for Each Structure

Location	Structure Type	% Blockage
1	Bridge	15 %
2	Bridge	15 %
3	Culvert	50 %
4	Bridge	15 %
5	Box culvert	15 %
6	Culvert	50 %

The 1 % AEP design event was run with these calculated percentages for each bridge and culvert structure to assess the impacts on flood behaviour. Figure 4.13 displays the 1 % AEP flood depth afflux results from this 1 % AEP blockage sensitivity scenario. As displayed by assuming blockage to the key structures within Birregurra a combination of both increases and decreases in flood depths were identified. These changes to flood depth are generally within + / - 100 mm with the exception of blockage to the culvert structure at Main Street (location 3) where flood depths increase up to 150 mm at the intersection of Main Street and Strachan Street in addition to upstream of the culvert structure. These differences do not however result in an increase to the 1 % AEP flood extent. The flood risk changes at this location were also assessed.

Figure 4.14 presents a comparison of the ARR 2019 flood hazard values without and with blockage at the Main Street structure. As shown, no significant changes to the flood risk were identified except for the changes immediately upstream of the Main Street culvert structure within the Council owned reserve. Due to these sensitivity results, blockage was not accounted for in the simulation of design events.

Figure 4.13: 1 % AEP Blockage Sensitivity Scenario Flood Depth Difference

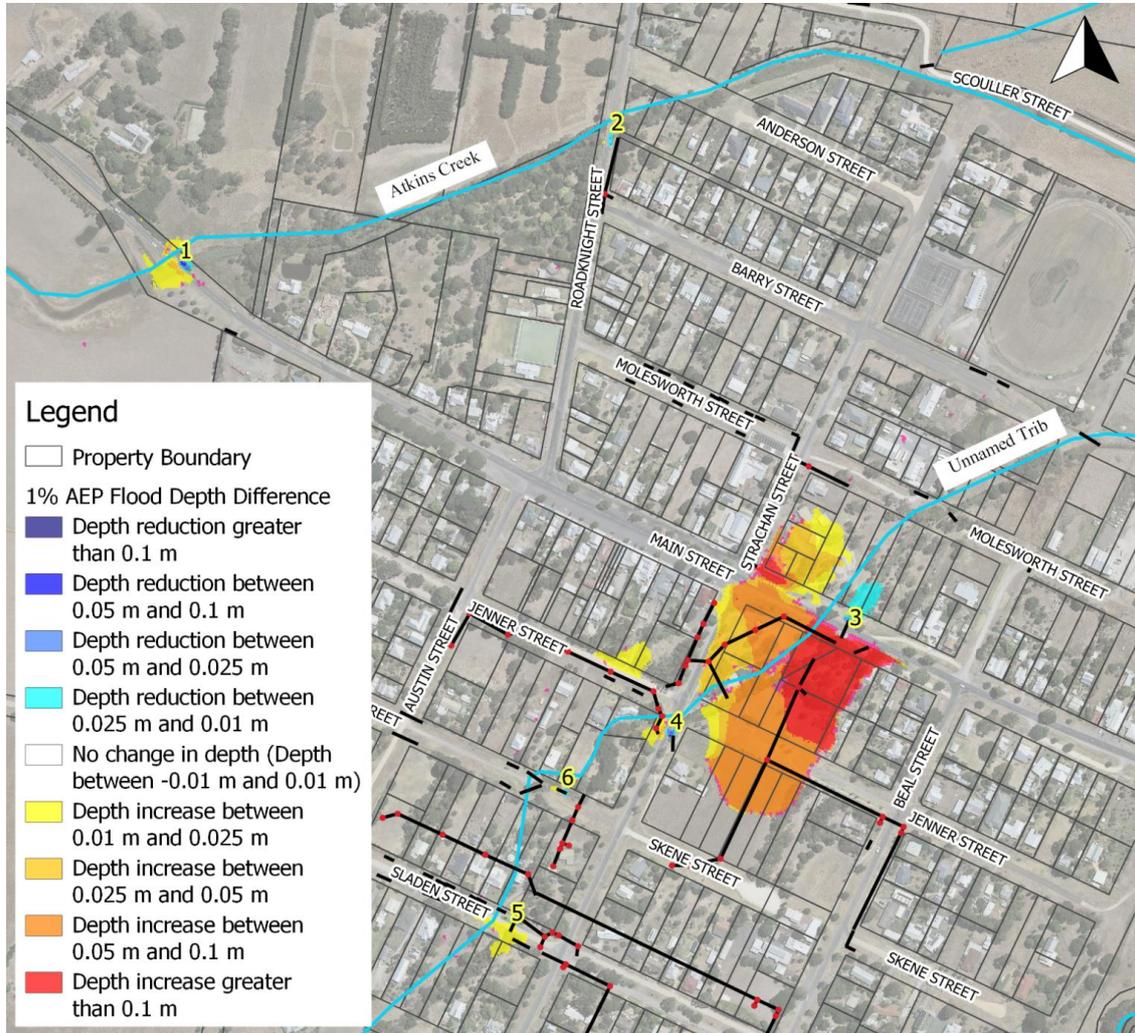
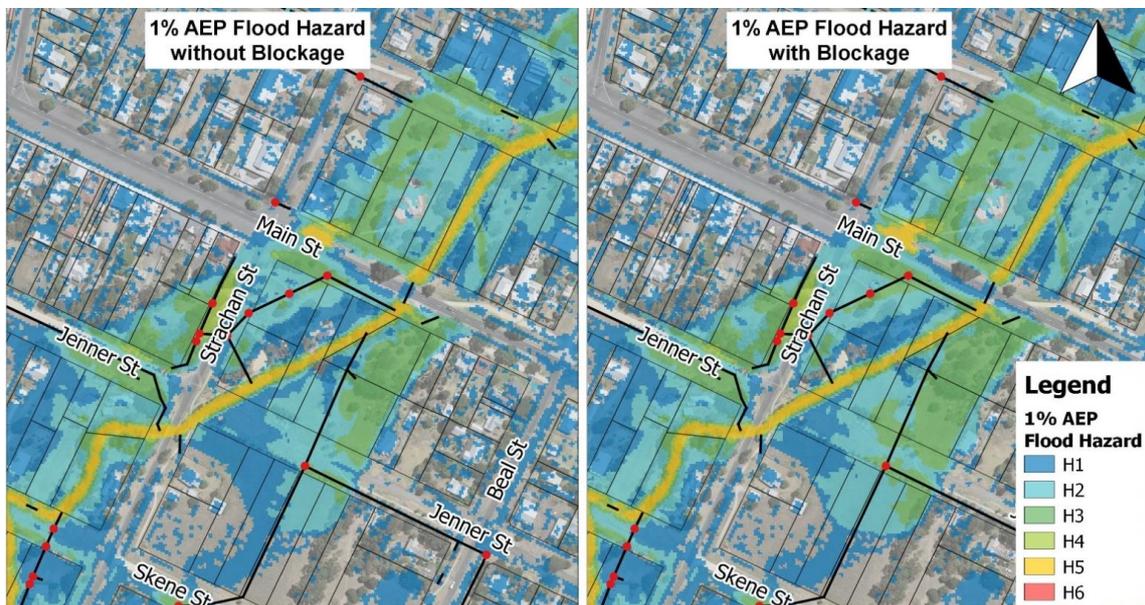


Figure 4.14: 1 % AEP Blockage Sensitivity Scenario Flood Hazard Comparison

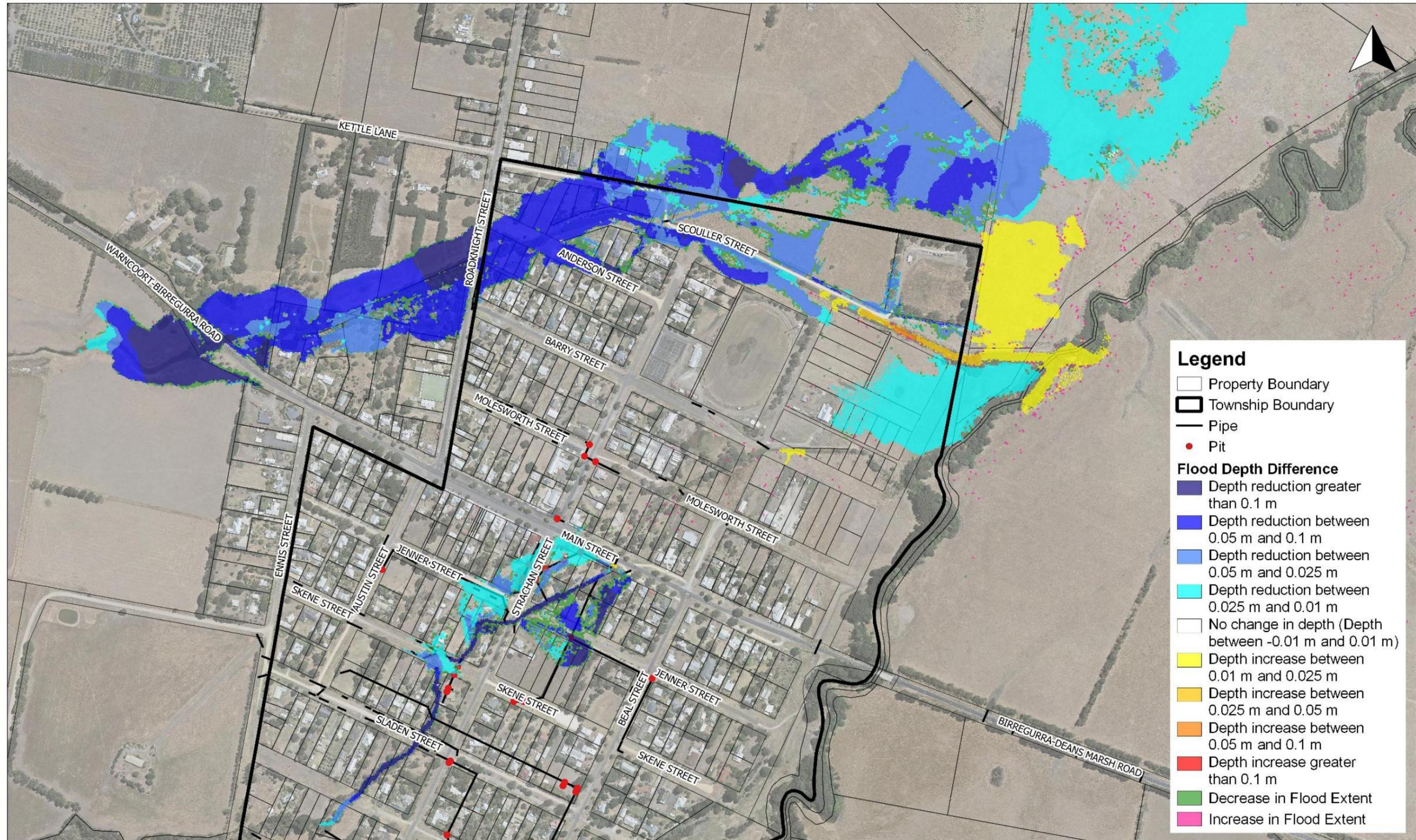


4.3.9 Waterway Vegetation Considerations

An investigation into the influence of thick vegetation within Atkin Creek and the Unnamed Tributary on the resultant flood levels was undertaken using the September 2016 rainfall event. Thick vegetation, as observed within Atkin Creek and the Unnamed Tributary can often be perceived as having a significant negative impact on the conveyance of flows. To understand this degree of influence, the September 2016 rainfall event was simulated with lower surface roughness values along Atkin Creek and the Unnamed Tributary. A maximum surface roughness value of 0.06 was adopted within the waterways. This value does not represent fully maintained waterways with all vegetation removed as this would not be realistic or desirable but instead, aims to represent a thorough trimming of vegetation.

Figure 4.15 displays the resultant flood depth afflux for the September 2016 event from the thorough trimming of vegetation. The plan highlights reductions of up to 100 mm along the waterways with an overall average reduction of 60 mm along Atkin Creek downstream of Warncoot-Birregurra Road. This flood depth difference is not significant and would not have contributed to a change in the number of dwellings affected by above floor level flooding during the September 2016 flood event.

Section 6.3 provides further discussion related to the feasibility of trimming vegetation within Atkin Creek and the Unnamed Tributary as a potential flood mitigation measure given the findings of this assessment and the highlighted minor changes to flood depths. Section 6.3 also discusses the importance of vegetation within waterways from an environmental perspective in stabilizing banks and reducing sediment runoff and erosion in addition to the flora and fauna significance.



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40 0 40 80 120 160 m
Scale in metres (1:5600 @ A3)

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Vertical Datum: Australia Height Datum
Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 4.15
September 2016 Flood Depth Afflux from trimming
of vegetation within Atkins Creek and Unnamed
Tributary (Sensitivity Scenario)

Job Number: V2013_007
Revision: 0
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Checked: MM
Date: 30/11/2020

4.3.10 Simulation Parameters

The hydraulic model has been simulated with a minimum 1-D time step of 0.2 seconds. As the model was run with the HPC solver adaptive timesteps were applied.

4.4 SEPTEMBER 2016 EVENT MODEL CALIBRATION

4.4.1 Approach

The September 2016 inflow hydrographs were applied to the hydraulic TUFLOW model to represent the flood levels across the township. Iterative modelling was undertaken with modifications to the following parameters:

- **Continuing Loss** – As discussed in Section 3.5.8, after a few iterations a lower continuing loss value was confirmed to provide a closer match to the September 2016 surveyed flood levels.
- **Manning's roughness values** – Application of higher roughness values (within values specified in industry guidelines) within Atkin Creek and the Unnamed Tributary to represent densely vegetated sections indicated that flood levels generally increased by less than 100 mm providing a marginally closer match to the September 2016 surveyed flood levels. These values were also applied to the base case design event hydraulic modelling simulations.
- **Refinement of terrain along the waterways** – following an initial model simulation some differences between the modelled flood levels and the September 2016 flood levels were identified within waterways and near key structures. Survey data was captured and the resultant outputs were used to refine the terrain along waterways and at structures. These refinements were also applied to the base case design event hydraulic modelling simulations.

4.4.2 Results

The TUFLOW model's resultant September 2016 event flows along the waterways are summarised in Table 4.3.

Table 4.3: September 2016 Event TUFLOW Flows Across Township

Location	September 2016 Event Flow
Atkin Creek - Upstream of Warncoort-Birregurra Road	16.0 m ³ /s
Atkin Creek - Upstream of Roadknight Street	16.0 m ³ /s
Atkin Creek – Downstream of Strachan Street	7.8 m ³ /s
Overbank flows from Atkin Creek along previous creek alignment	8.2 m ³ /s
Unnamed Tributary – Upstream of Sladen Street	5.8 m ³ /s
Unnamed Tributary – Upstream of Skene Street	6.4 m ³ /s
Unnamed Tributary – Upstream of Strachan Street	6.5 m ³ /s
Unnamed Tributary – Upstream of Main Street	6.7 m ³ /s
Unnamed Tributary – Upstream of Barry Street	6.9 m ³ /s

Table 4.4 provides a comparison of the surveyed flood levels with the modelled flood levels. As displayed the similarity in results provides confidence in the hydraulic model input parameters.

However, it was noted that the surveyed flood mark at location 9 was up to 400 mm higher than the modelled flood level. In some instances, differences between surveyed and modelled flood levels could be attributed to the blockage of structures during the given storm event noting that blockage generally occurs at the upstream end of structures. In this instance if the Sladen Street structure was blocked during the September 2016 event it would result in a lower modelled flood level at the structures downstream end where the surveyed mark was captured. Alternatively, blockage at the downstream Skene Street structure may result in some banking up and subsequent higher flood levels at Sladen Street, however the modelling suggests that there

is already a close match between surveyed and modelled flood levels here (locations 6, 7 and 8). As such, the accuracy of the survey flood level at location 9 was considered questionable.

The location of the surveyed flood marks which matched closely to the modelled flood levels and the questionable survey mark at location 9 are displayed within Figure 4.16.

Table 4.4: Comparison of Surveyed to Modelled Flood Levels for September 2016 Event

Location	Description	Surveyed Flood Level	Modelled Flood Level
1	Wamcoort-Birregurra Rd (Fence line)	113.44	113.3
2	Roadknight Street	111.61	111.6
3	Scouler St (Side of Shed)	Unable to access property (approx. 200 mm from shed base @ Lidar level 110.4 m AHD)	110.63
4	Scouler St (Sewer pit)	110.49	110.34
5	Anderson St (Fence post)	111.3	111.12
6	Main Street (US left bank bridge abutment)	109.89	109.98
7	Skene St (Top of crossing)	112.4	112.3
8	Skene St (Base of letter box)	112.63	112.65
9	Bridge abutment (DS Right bank)	114.3	113.94

Figure 4.16: Location of September 2016 Event Surveyed Flood Marks

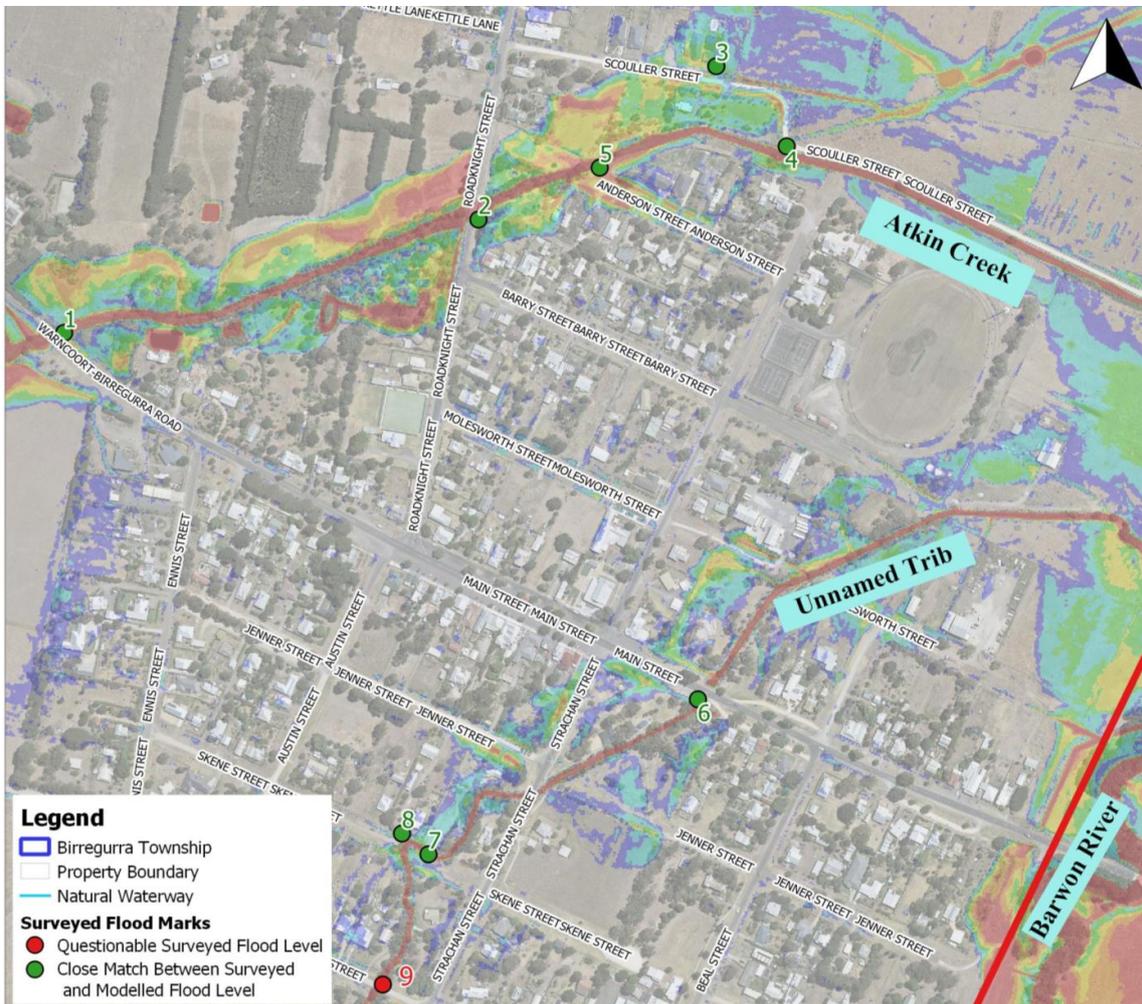


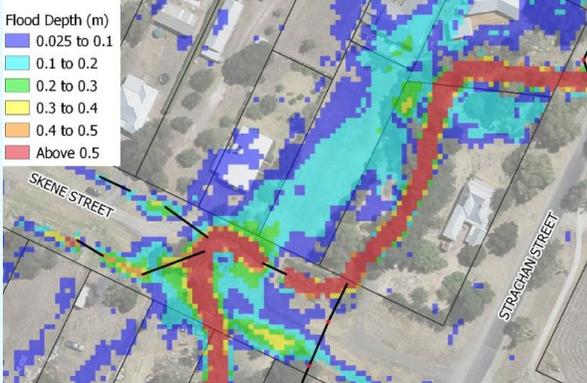
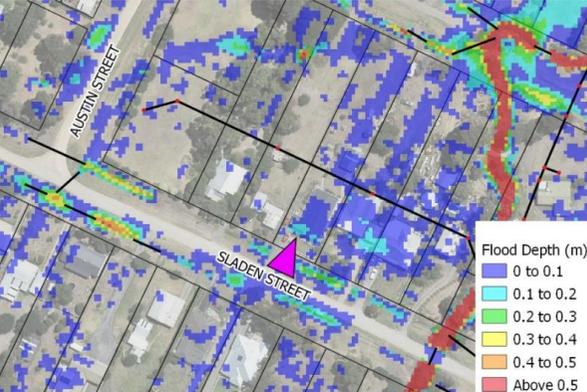
Table 4.5 provides a comparison of the modelled flood depths to photographs and anecdotal evidence collated for the September 2016 event. Comparisons of anecdotal evidence and photographs has provided further confidence that the hydraulic modelling results for the September 2016 event are a good match to those reported by residents across the township.

Information obtained from the targeted community engagement sessions conducted in April 2020 to obtain feedback of the results of draft calibration for the September 2016 event also provided support for the results produced with participants having witnessed flooding at key locations across the entire study area.

Appendix E displays the resultant flood depth layout plan for the September 2016 flood event.

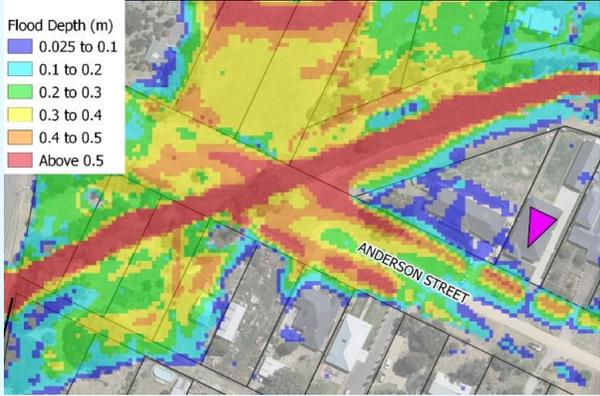
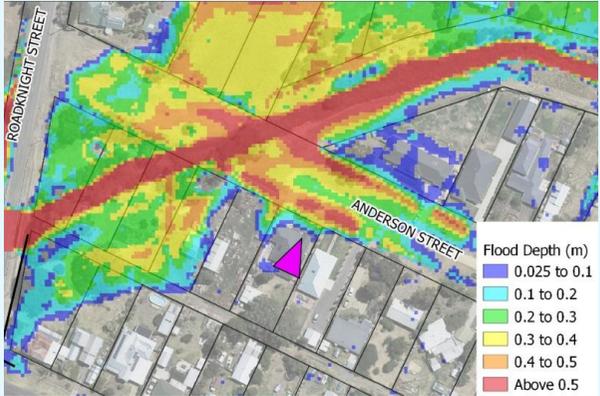


Table 4.5: Comparison of September 2016 Event Photograph / Anecdotal Evidence to Modelled Flood Extent

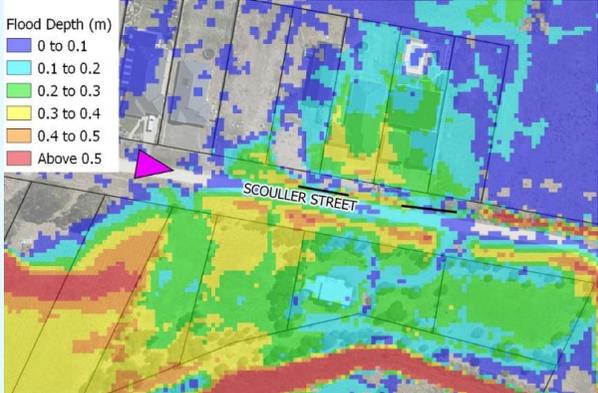
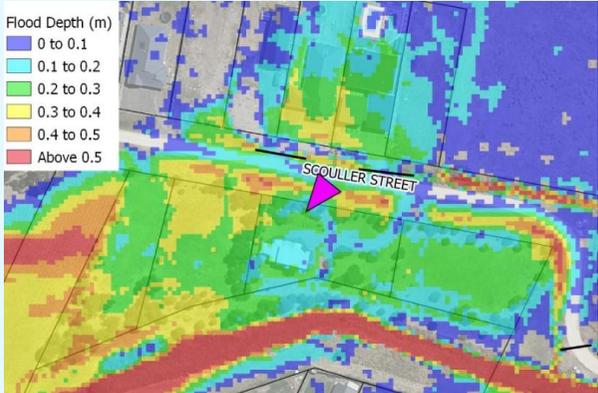
Location	Photograph / Anecdotal Evidence	Modelled Flood Extent
50 Skene Street		
42 Sladen Street	<p>Resident noted:</p> <ul style="list-style-type: none"> • House did not flood above floor level in 2016. • Water reached the bottom of the weepholes in the brick work. • Considers that the water is backing up the swale because the cross over pipes are not big enough. • Shed floods regularly. • Skene Street and Strachan Street provide overspill point in 2016 near the creek bend. 	



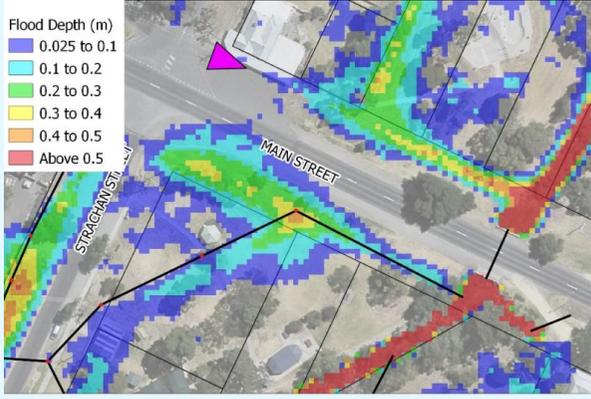
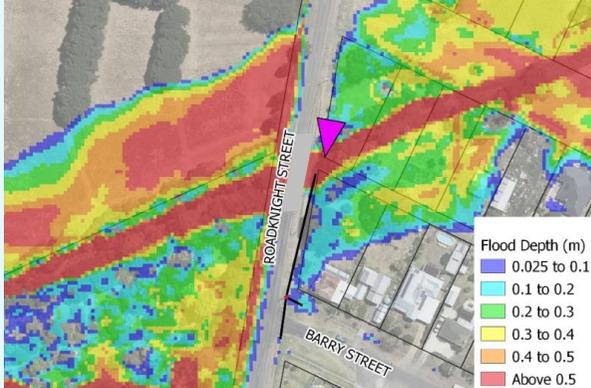
Location	Photograph / Anecdotal Evidence	Modelled Flood Extent
Football Oval	Resident noted that '2016 flood reached the northern boundary of the football oval"	
6 Anderson Street	Resident noted that '2016 flood reached their western boundary"	

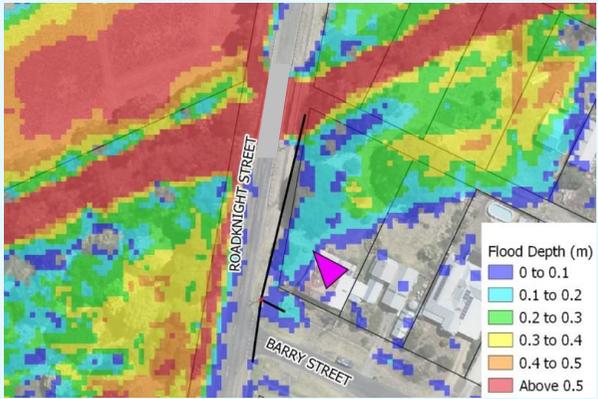
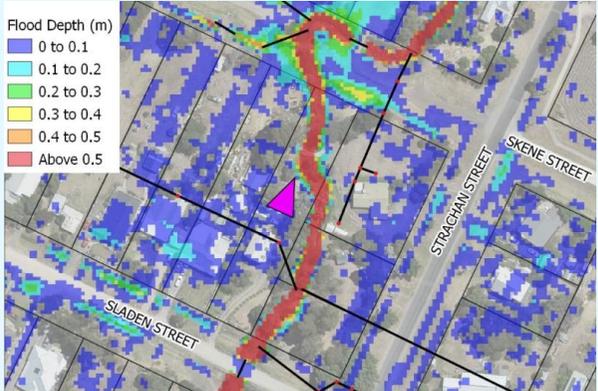
Location	Photograph / Anecdotal Evidence	Modelled Flood Extent
12 Anderson Street		
17 Anderson Street	 <p>Resident noted that flood waters did not reach above floor level but were over garage floor in 2016</p>	



Location	Photograph / Anecdotal Evidence	Modelled Flood Extent
18-24 Scouller Street		
22 Scouller Street	<p>Resident noted "waters entered house and reached 300 mm above floor level". Following photo provided where modelled flood depths were between 250 to 300 mm.</p> 	



Location	Photograph / Anecdotal Evidence	Modelled Flood Extent
<p>Main Street looking east towards Unnamed Tributary</p>		
<p>Roadknight Road looking south towards Main Street</p>		

Location	Photograph / Anecdotal Evidence	Modelled Flood Extent
43 Roadknight Street	Resident noted: <ul style="list-style-type: none"> House didn't flood in 2016 Flood waters reached bearers of the dwelling 	
36 Sladen Street	Resident noted that house didn't flood in 2016	
64 Strachan Street	Resident noted that "block didn't flood – water stayed within its banks"	Consistent with Modelled September 2016 Event Results
71 Jenner Street and 19 Ennis Street	Resident noted that "House didn't flood in 2016" and that the subsoil was saturated	Consistent with Modelled September 2016 Event Results

4.5 DESIGN EVENT FLOOD MAPPING

4.5.1 BASE CASE / EXISTING CONDITIONS

Appendix F provides the resultant flood depth layout plans for all modelled design storm events for existing base case climate conditions. These results were produced with the combination of the maximum grids generated from the following:

- Monte Carlo simulation (representing the flooding along the Atkin Creek and Unnamed Tributary) for the given critical storm durations.
- Ensemble simulations for the 10 minute to 2 hour storm durations (representing flooding within the local township) for the defined mid-loaded temporal patterns.

Table 4.6 provides a summary of the peak 1 % AEP to 20 % AEP flows at road crossings along Atkin Creek and the Unnamed Tributary.

Table 4.6: Design TUFLOW Flows Across the township

Location	39.35 % AEP Flow (m ³ /s)	20 % AEP Flow (m ³ /s)	10 % AEP Flow (m ³ /s)	5 % AEP Flow (m ³ /s)	2 % AEP Flow (m ³ /s)	1 % AEP Flow (m ³ /s)
Atkin Creek - Upstream of Warncoort-Birregurra Road	5.89	10.69	15.12	19.33	28.70	36.30
Atkin Creek - Upstream of Roadknight Street	5.79	10.73	15.21	19.30	28.70	36.31
Atkin Creek – Downstream of Strachan Street	5.22	6.47	7.39	8.32	10.56	12.33
Overbank flows from Atkin Creek along previous creek alignment	1.56	4.30	7.71	10.73	16.94	22.11
Unnamed Tributary – Upstream of Sladen Street	3.96	6.82	10.77	13.23	20.26	22.57
Unnamed Tributary – Upstream of Skene Street	4.40	7.34	11.64	14.13	21.61	24.09
Unnamed Tributary – Upstream of Strachan Street	4.24	7.40	11.64	14.13	21.61	24.09
Unnamed Tributary – Upstream of Main Street	4.29	7.68	11.94	14.69	22.03	25.00

4.5.2 CLIMATE CHANGE CONDITIONS

Modelling of climate change for the 1 % and 10 % AEP storm events consisted of an increase in rainfall intensity based on the forecasted year 2100 and representative concentration pathway (RCP) 8.5 percentage of 18.5 %. This increase was applied via the IFD within the hydrological model (detailed within **Appendix C** and **Appendix D** for both the Barwon River and Atkin/Unnamed Tributary hydrology models).

Appendix G provides the resultant Flood Depth Layout Plans produced as part of the Climate Change Conditions modelling for the 1 % and 10 % AEP storm events: **Appendix H** provides the associated Flood Depth Afflux Plan when compared to existing base climate conditions.

As displayed within these layout plans, an increase of 18.5 % to rainfall intensity increases flood depths, on average, by up to 100 mm in most areas along Atkin Creek and the Unnamed Tributary particularly where the flow path is wider and consists of greater flood storage. In contrast the Unnamed Tributary upstream of Sladen Street is narrow and well incised and as such average flood depth increases of up to 500 mm were noted.

Although these flood depth increases are evident, the resultant flood extent has not significantly changed when compared to existing / base climate conditions.

Appendix I provides a comparison of the changes to the ARR 2019 Flood Hazard criteria values for the 1 % AEP storm event between existing climate conditions and the predicted future climate change conditions. As noted above, although the flood extent does not significantly change when compared to existing conditions, some differences to the flood risk were noted. This

would in turn contribute to changes to the proposed planning overlays. Some areas assigned a Land Subject to Inundation Overlay (LSIO) under existing climate conditions, would be assigned a Floodway Overlay if climate change conditions was considered. Based on this comparison, consideration of climate change conditions may be required for the development of the planning overlays. Further discussion is provided in Section 8.

4.6 EXTERNAL INDEPENDENT PEER REVIEW

The hydrological and hydraulic modelling analysis was independently reviewed to ensure the models and their outputs were fit for purpose. The Quality Assurance (QA) review considered the modelling methodology, assumptions and model input parameters. This phase identified the need to include all underlying assumptions and discussion on the limitations related to the data available (rainfall and calibration data) within the study report but also highlighted the overall suitability of the modelling parameters adopted in producing the resultant close match between the surveyed and modelled flood levels presented in Section 4.4.

5 FLOOD DAMAGES

5.1 BACKGROUND

The Average Annual Damages (AAD) assessment estimates the average probable tangible flood damages expected in a year for residential, commercial and industrial property land use types, as well as major, minor and unsealed roadways. The AAD was calculated using Melbourne Water's 2020 AAD spreadsheet which utilises the flood mapping results from a range of storm events including the 20 %, 10 %, 5 %, 2 %, and 1 % AEP.

A flood damages assessment for existing flooding conditions is useful in understanding whether the cost of structural mitigation works is justified. Section 6 presents the mitigation assessment undertaken and also provides a comparison of the mitigation work's resultant AAD value to that presented in this section for base case.

The following provides a summary of the key steps and assumptions made as part of the calculation:

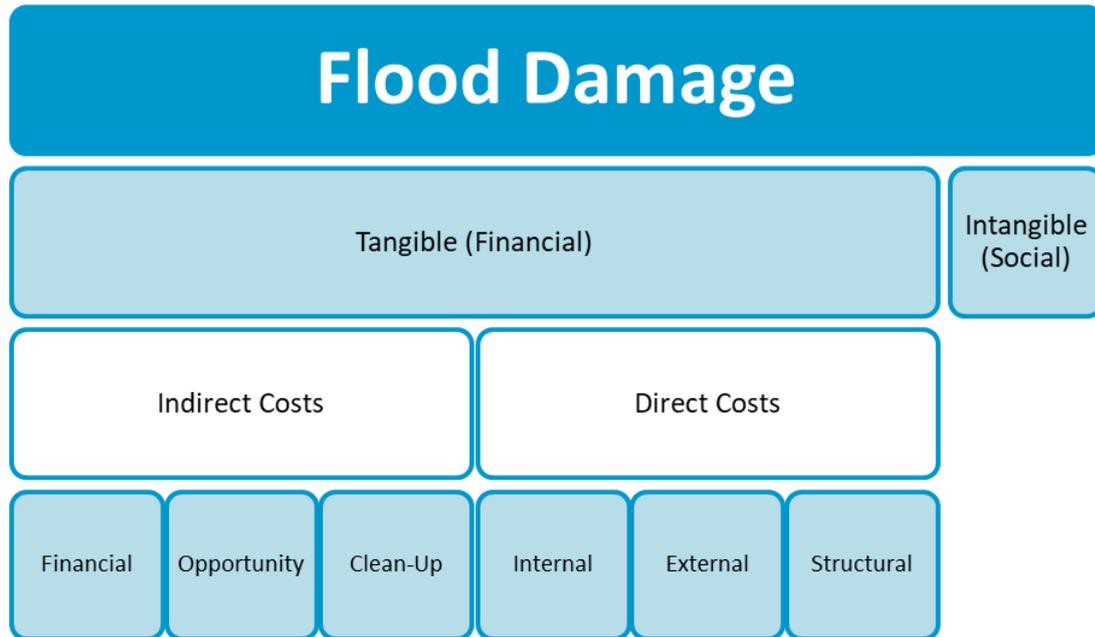
- A building footprint layer digitised using aerial imagery and surveyed floor levels was utilised to determine the maximum water surface level within each flood affected building footprint for the various flood events.
- An up to date property parcel layer obtained from the Department of Environment, Land, Water and Planning (DELWP) was utilised to determine the total area within each property affected by flooding.
- Melbourne Water's AAD spreadsheet contains stage-damage curves that were utilised to inform the damages estimates. These stage-damage curves are not intended to represent the full financial impact caused by flood damage. The damage estimation methodology for residential and commercial / industrial properties utilises a combination of the following methods:
 - The Department of Natural Resources & Mines methodology (DNRM, 2002), which is based on the stage-discharge curves developed by ANUFLOOD (Smith & Greenway, 1988). This methodology was adopted for commercial / industrial properties and uses both building size and contents value to inform the costs associated with the stage-damage curve.
 - The Department of Environment and Climate Change Residential Flood Damages Guidelines as documented in the Floodplain Risk Management Guideline: Residential Flood Damages (DECCW, 2007). This methodology was used to inform the flood damage costs associated with residential properties.
- Indirect damage costs, which represents inconveniences such as emergency assistance, community support and temporary relocation, are assumed to be 30 % of the direct damage costs.
- The AAD assessment does not consider depth or safety in roads but does consider the area of roads that are inundated.
- Calculation of event damages has been undertaken for all surveyed building footprints and roadways within the 2D code boundary delineated for the extent of the TUFLOW flood model.

5.2 FLOOD DAMAGE TYPES

5.2.1 Actual vs Potential

Various types of flood damage may occur and can be measured in different ways. Figure 5.1 presents a summary of the various categories of flood damages, where each type can be either an 'actual' or 'potential' damage. Actual damages are a direct result of a flood event whereas, potential damages are the probable damages that could occur from a flood event. Both types of damages can be minimised or in some cases prevented by community awareness and structural or behavioural measures such as flood mitigation works and flood warning procedures.

Figure 5.1: Flood Damage Categories



5.2.2 Tangible vs Intangible

Flooding that results in direct damage to a physical building's structure or its contents is considered to be tangible damage and is quantifiable. Intangible damage is when social processes are impacted due to inconvenience, loss of cultural heritage, biodiversity and psychological distress. It is recognised that intangible damages have a level of significance, however their incurred damages cannot be quantified in monetary terms.

5.2.3 Direct vs Indirect

As presented in Figure 5.1 tangible damages can be further classified as either direct or indirect flood damages. Direct damages include flood waters contacting a structure or its contents and causing damage due to either high velocities or above floor level flooding. Typical methods for assessing flood damages estimate costs differently for various land use types. This investigation has separated costs between residential and commercial / industrial land uses as well as roadways.

Indirect damages generally include disruptions to community wellbeing, social activities and economic procedures, where costs are incurred to cover inconveniences such as emergency assistance, community support, temporary relocation and transport.

5.2.4 Average Annual Damage (AAD)

The AAD assessment has considered the potential damage to roads and buildings based on the existing conditions flood modelling for storm events between the 20 % AEP and 1 % AEP.

With regards to buildings considered in the AAD assessment:

- Buildings are included in the assessment if they intersect the proposed flood overlays including the LSIO, FO and SBO extents (based on the 1 % AEP existing conditions flood mapping results). This captured 60 buildings.
- The AAD is then calculated by subtracting the maximum flood level within the building footprint to the surveyed floor level.
- Increased damages are assigned proportional to the difference between flood level and floor level.
- Of the 60 buildings considered at risk of flooding for the 1 % AEP base case scenario (existing conditions), 26 buildings were determined to be flooded above floor level based on the surveyed floor levels and detailed interrogation of the modelling outputs.

- These 26 buildings 'flooded above floor level' were assigned higher damage costs comparative to the remaining buildings 'at risk of flooding' but not flooded above floor level.
- If the flood level was below the surveyed floor level a flat rate of \$12,261 was applied to capture the potential flood damage to the overall property surrounding the dwelling.

In order to determine the number of dwellings affected by above floor level flooding, the interrogation of the modelling outputs was considered essential to ensure dwellings most likely affected were included only. This was particularly important given the influence higher dwelling counts would have on potentially unrealistically inflating the benefits of mitigation works when comparing the AAD to existing conditions. The interrogation of the dwelling counts informed by the raw modelling results included the removal of dwellings initially identified as affected by flooding if:

- The dwelling had high flood depths as a result of the model's grid cell representation of steep terrain slopes and subsequent interpolation within model outputs (grid results).
- The dwelling had high flood depths as a result of the model's applied higher manning's roughness value whilst flood depths surrounding the dwelling were shallow / insignificant.
- Google Street View identified a step up to the dwellings floor level as such indicating a minor discrepancy between the surveyed floor level and the dwellings surround natural ground levels particularly if flood depths above floor level were minor.

Table 5.1 provides a summary of the number of dwellings identified as most likely affected by above floor level flooding under existing conditions for each modelled storm event following the detailed interrogation of raw modelling results. These dwelling counts differ from those presented within Section 0 as the flood warning and MFEP assessments have focused on conservatively ensuring all dwellings with a potential for above floor level flooding are considered. As such the counts presented within this later section of the report consists of a greater overall count as they have been based on the raw flood mapping results.

Table 5.1: Number of Dwellings Most Likely Affected by Above Floor Level Flooding

AEP	Number of Dwellings	Number of Properties
20 %	5	14
10 %	7	27
5 %	9	34
2 %	23	44
1 %	26	47

Table 5.2 provides a summary of the calculated damages for each AEP event. The total AAD of **\$746,741 / year** is also displayed which captures the contribution of each AEP's calculated flood damage when considering the likelihood of the flood event. As an example, the 1 % AEP contribution to AAD is generally less than the 10 % AEP due to the lesser likelihood of occurrence, despite the 1 % AEP event predicting a larger number of buildings / larger extent of the roadways at risk of flooding.

Table 5.2: Existing Conditions AAD Summary

AEP	Calculated Damages
20 %	\$1,316,613
10 %	\$2,543,329
5 %	\$3,662,597
2 %	\$5,664,210
1 %	\$6,576,244
Total AAD	\$746,741 / year

6 FLOOD MITIGATION

6.1 INTRODUCTION

This phase of the study has focused on conceptually identifying and assessing structural flood mitigation measures which aim to balance:

- The extent and cost of works.
- The flood mitigation benefits focused on reducing the number of dwellings affected by above floor level flooding.
- The impacts to surrounding properties as a result of the mitigation works ensuring works do not cause adverse flooding impacts to adjacent / downstream private properties.

As noted within Section 1.3, while the strategy has a focus on flood management it is important to note the importance of waterways in relation to broader ecological, cultural and aesthetic values. Therefore prior to progressing with any conceptual options outlined within this section, outcomes from the following investigations / assessments need to be considered:

- Environmental flora and fauna impact assessment highlighting the ecological values within the mitigation locations and potential impacts, particularly to endangered species.
- Cultural and heritage assessment with further engagement with the traditional owners.
- Geotechnical assessment which identifies the potential erosion and degraded bank stability risks as a result of the mitigation works.
- Aesthetic and recreational values assessment.

This mitigation assessment has consisted of:

1. The identification of mitigation options which could be implemented to address the known flooding hotspots.
2. Selection of five (5) preferred mitigation options. These were selected following discussions with Council and CCMA and high-level consideration of the feasibility / practicality of each option.
3. Mitigation modelling of the selected mitigation works for the 20 % to 1 % AEP storm events and analysis of the resultant flood depth differences when compared to existing flooding conditions.
4. AAD assessment for the selected mitigation works and comparison to the damage's values calculated for existing conditions.
5. High-level cost estimate for the selected mitigation works.
6. High-level multi criteria assessment which summarises the estimated cost of works and AAD in addition to other qualitative factors for each selected option.

6.2 FLOODING HOTSPOTS

From the existing conditions modelling results several flooding hotspots were identified within Birregurra including:

1. The overtopping of Atkin Creek downstream of Roadknight Street caused from the creek's lack of conveyance capacity particularly along the channelised section south of Scouller Street. This affects a number of properties on Scouller Street, Anderson Street and Roadknight Street.
2. The overtopping of the Unnamed Tributary downstream of Sladen Street caused by the creek's lack of conveyance capacity and constriction of the Skene Street driveway culvert structure. This affects a number of properties adjacent to the Unnamed Tributary down to the Barwon River confluence.
3. Overland flow path from Prime Street to Sladen Street caused by the underground drainage system's lack of conveyance capacity. This flow path affects a few properties prior to connecting with the Unnamed Tributary.
4. Overland flow path along Sladen Street originating from the rural farmland east of Ennis Street caused by the road-side channel's lack of conveyance capacity. This results in sheet flows overtopping towards the northern side of Sladen Street and passing through several residential properties.

6.3 IDENTIFIED MITIGATION OPTIONS

Table 2.1 summarises each of the mitigation options identified (Listed A to H) with a description of the works involved and the considerations made to determine whether the option was worth pursuing. To inform this decision making and the works effectiveness in mitigating flooding impacts and overall feasibility, some of these options were assessed in the hydraulic TUFLOW model for the 1 % AEP storm event only. The table clearly notes the options which were selected for further assessment within Section 6.4.

Table 6.1: Summary of Mitigation Options Identified

Mitigation Option	Description	Considerations	Selected for Further Assessment in Section 6.4
A – Atkin Ck Levee	1 metre high levee on northern bank of Atkin Ck, between Roadknight St and Scouler St	<p>1 % AEP modelling results highlighted reduced flood depths to northern residential properties but increases to southern residential properties along Barry Street and Anderson Street. Levee along the southern side of Atkin Creek to maintain flows within waterway was not considered feasible due to obstruction which would be created for overland flows entering the creek from southern side.</p> <p>Option was not considered feasible due to impacts to existing properties south of Atkin Creek along Anderson Street.</p>	No
B Atkin Ck Waterway Widening	Widened Atkin Ck waterway, from Roadknight Street to Barwon river confluence.	<p>Proposed channel works contained to Council owned land</p> <p>Sized to convey a majority of the 1 % AEP Atkin Creek flow from Roadknight Street.</p> <p>Requires the removal of vegetation for widening works and as noted above if progressed there will be a need to undertake several investigations including flora and fauna impact assessments, cultural heritage assessment and geotechnical assessment.</p>	Yes
C Scouler Street Culverts	Upgrade of existing 375 mm diameter culvert crossing Scouler Street to allow conveyance of flows along previous Atkin Creek alignment towards now abandoned rail embankment	<p>Need to maintain full access along Scouler Street and maintain minimum required road cover (600 mm) for vehicles.</p> <p>Flood modelling results indicate the flood depth reductions would be limited to the areas immediately surrounding the upgraded culverts and would not reduce flooding for properties along Anderson Street or Scouler Street. This option would also result in an increase to flood depths on the farmland immediately north of the culverts.</p>	No
D1 Atkin Creek Retarding Basin	Formalise a retarding basin upstream of Warncoort-Birregurra Road for the attenuation of Atkin Creek flows.	<p>Storages sized assuming the existing topography is maintained and an embankment along Warncoort Road is constructed.</p> <p>The required flood storage to attenuate Atkin Creek to the estimated capacity of the existing Atkin Creek is significant. Based on the preliminary hydrological modelling sizing runs it was estimated that even assuming a 4-metre-high embankment, which would provide approximately 158,000 m³ of flood storage, would not provide sufficient attenuation for flows greater than a 10 % AEP storm event.</p> <p>This option was not considered feasible given the flood storage requirements and minimal associated downstream flooding benefits. Although, consideration could be given to reducing the designated flood storage and pairing this option with additional mitigation works downstream such as the Atkin Creek waterway widening option.</p> <p>A flora and fauna impact assessment, cultural heritage assessment and geotechnical assessment would be required if this option is progressed given the expected changes to flood storage provided upstream of Warncoort-Birregurra Road.</p>	No

Mitigation Option	Description	Considerations	Selected for Further Assessment in Section 6.4
D2 Unnamed Tributary Retarding Basin	Formalise a retarding basin upstream of Ennis Street for the attenuation of the Unnamed Tributary flows.	<p>The location of this storage will need to consider future land acquisition which could be considered as part of a Birregurra Structure Plan review.</p> <p>The flood storage has been sized to attenuate the 1 % AEP flow back to the capacity of the Unnamed Tributary at Sladen Street. These works would also require the upgrade of the Skene Street driveway culvert at 48 Skene Street (due to the hydraulic constraint it creates) or alternatively straightening of the Unnamed Tributary at this location (described as Mitigation Option E).</p> <p>The excavation costs associated with these works are significant and the consideration of how and where this storage would lie within the existing steep topography needs to be considered. Nonetheless this option does realise flood reduction benefits to several properties downstream of Sladen Street.</p> <p>A flora and fauna impact assessment, cultural heritage assessment and geotechnical assessment would be required if this option is progressed given the excavation required in order to achieve the flood storage requirements.</p>	Yes
E Waterway Straightening of Unnamed Tributary at Skene Street	Modify (straighten) waterway along Unnamed Tributary at Skene Street to improve conveyance from existing meandering alignment.	<p>Required works on upstream end would be within property at Number 36 Skene Street</p> <p>Works are expected to improve conveyance of flows for minor and more frequent storm events however due to the magnitude of flows, particularly in the modelled 1 % AEP event, the works also essentially move flows from one area to another creating localised increases in flood level (afflux).</p> <p>Outcomes from a flora and fauna impact assessment, cultural heritage assessment and geotechnical assessment would be need to be considered if this option is progressed.</p>	No
F Hopkins Street Pipe Diversion	1500 mm pipe draining Unnamed Tributary to Barwon River along Hopkins Street	<p>Design to convey medium / high flows only, maintain baseflow and low flow environmental requirements</p> <p>Works would require the need for pipe jacking the last pipe section due to the excessive trench depths (10 metres) and adding significantly to the capital costs. This mitigation option is however expected to have significant benefits for several downstream properties.</p> <p>A flora and fauna impact assessment, cultural heritage assessment and geotechnical assessment would be required if this option is progressed given the size of the proposed diversion pipe and the significant trench depths.</p>	Yes
G Drainage Upgrades along Sladen Street	Additional pits within swale and increased pipe capacity along the southern side of Sladen Street to improve conveyance of overland flows originating from rural farmland west of Ennis Street.	<p>In major storm events the ability for pipes to freely drain is restricted downstream tailwater levels in the Unnamed Tributary.</p> <p>Increased pipe and pit capacity have potential to worsen flooding through residential properties if pipes cannot drain freely and / or pits are surcharging during rare storm events.</p>	Yes
H Drainage Upgrades between Prime & Sladen Street	Construct large grated inlet pits at low point of Prime Street and Hopkins Street to allow greater inlet capacity and maximise capacity of underground drain	<p>Inflow to existing 600 mm drainage is limited by inlet pit capacities running between Prime Street and Hopkins Street</p> <p>Grated pits located within low points ensures underground stormwater conveyance is maximised.</p>	Yes

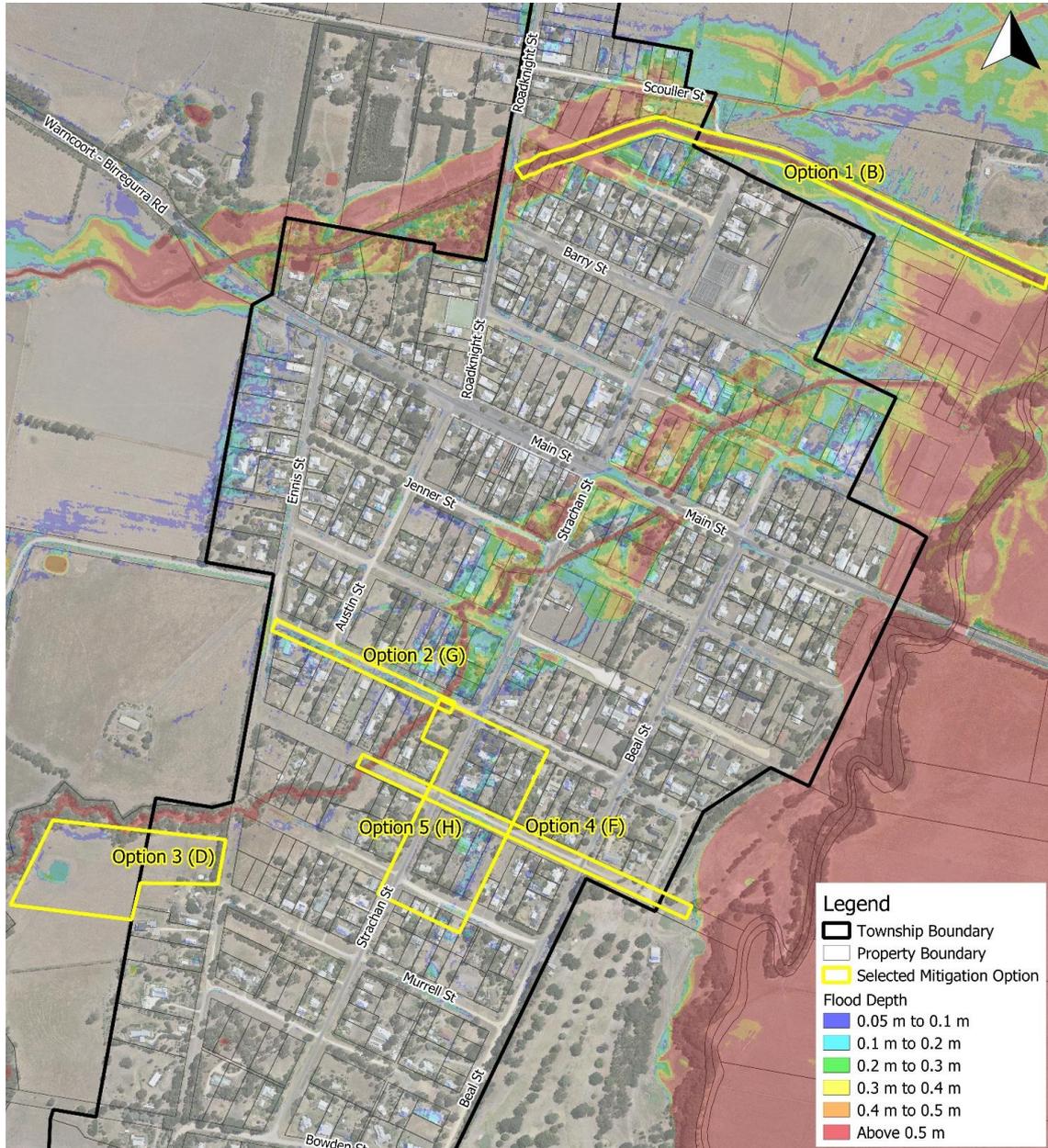
Mitigation Option	Description	Considerations	Selected for Further Assessment in Section 6.4
I Vegetation Removal from Atkin Creek and the Unnamed Tributary	Thorough Trimming of vegetation within Atkin Creek and Unnamed Tributary (downstream of Warncoort-Birregurra Road and Ennis Street respectively)	<p>Dense vegetation (as is the case within Atkin Creek and the Unnamed Trib) can often be perceived as having a significant negative impact on the conveyance of flows. Due to this, vegetation removal can sometimes be considered a potential flood mitigation measure. However, as discussed within Section 4.3.9, following the modelling of the September 2016 sensitivity scenario which assessed the difference in flood depths as a result of thorough vegetation trimming within the waterways, the reductions to flood depths were not considered extensive (typically achieving reductions of up to 100 mm only).</p> <p>The cost of wide-spread vegetation trimming would be a significant ongoing maintenance cost for Council. Consideration of the subsequent impacts to the waterway's ecological values would also need to be investigated to determine whether this option is feasible. This would consist of a flora and fauna impact assessment as well as a cultural heritage assessment.</p>	No

6.4 ASSESSED MITIGATION OPTIONS

Following discussions with Council and Corangamite CMA and consideration of the above listed notes, five (5) mitigation options were selected for further assessment. These options are displayed in Figure 6.1 below.

The following sections provide a summary on the assumptions, considerations, and the required works for each mitigation option and where relevant references are made to the resultant flood depth afflux results provided within **Appendix J**.

Figure 6.1: Location of Selected Mitigation Options (1 % AEP Flood Depth)



6.4.1 Option 1 – Atkin Creek Waterway Widening (B)

The key objective for mitigation Option 1 is to improve the conveyance of flows within Atkin Creek from Roadknight Street to the Barwon River confluence. This option aims to reduce the overtopping of flows which currently result in the flooding of adjacent properties particularly along Scouler Street and Anderson Street.

A widened trapezoidal channel has been included within the hydraulic TUFLOW model between Roadknight Road and the Barwon River confluence. This channel's widened flow area and resultant conveyance capacity was maximised by making the following assumptions:

- No changes to the existing waterway's invert level (to ensure conveyance into the Barwon River is still possible).
- Base width of 8 meters.
- 1 in 3 side slopes.
- Maximum top width of 20 meters which would ensure the widened channel can be accommodated within constrained areas particularly downstream of Strachan Street where based on the road reserve width would only have 20 meters available south of Scouler Street. The total width upstream of Strachan Street is however 30 meters which allows for a small buffer between the widened channel's top of bank and property boundaries.

Based on the modelling undertaken, it is predicted that this widened channel would be able to convey approximately 35 m³/s. Given the 1 % AEP flow upstream of Roadknight Street is 36.5 m³/s, assuming limited tailwater impacts, the proposed channel would be capable of conveying the majority of the 1 % AEP flows in contrast to its current capacity of less than 20 m³/s.

The mitigation modelling results indicate that flows in excess of the widened channel's capacity will impact adjacent properties as is the case in existing conditions, however the reduction in overtopping flows is predicted to result in flood depth decreases of up to 200 mm within properties along Scouler Street and Anderson Street. Minor localised raising of the channel's northern bank between Roadknight Road and Anderson Street could also be considered as part of future works to reduce the magnitude of shallow sheet flows overtopping the Atkin Creek bank.

Appendix J displays the 1 % AEP flood depth afflux highlighting the significant reduction to flood depths. The plan also shows the subsequent increase to flood depths (up to 150 mm). However, this is limited to farmland areas within the Barwon River floodplain.

This is a significant intervention to the waterway and will require further investigation in relation to flora and fauna, cultural heritage and geotechnical considerations to determine whether it is feasible and acceptable in relation to wider legislative requirements.

6.4.2 Option 2 – Drainage Upgrades along Sladen Street (G)

The current drainage system along Sladen Street consists of grassed roadside swales and generally 300 mm driveway culvert crossings. These existing swales and driveway culverts aim to convey runoff originating from the farmland west of Ennis Street to the Unnamed Tributary. However, due to the relatively flat grade and channel flow area, flows overtop Sladen Street in existing conditions and pass through properties on the northern side of the street.

Mitigation Option 2 includes the addition of a drainage line beginning at the corner of Ennis Street and Sladen Street and continuing east along the southern side of Sladen Street and out falling into the Unnamed Tributary. The proposed pipe includes three grated inlet pits located at low points within the existing grass swale to capture overland flows which would have previously overtopped Sladen Street. The following provides a summary of the drainage works and assumptions included in the mitigation modelling undertaken for Option 2:

- 450 mm pipe from Ennis Street to Number 49 Sladen Street.
- 525 mm pipe from Number 49 Sladen Street to discharge at Unnamed Tributary.
- 1 in 80 longitudinal pipe slopes.
- Minimum 600 mm cover on all pipes.
- Three 600 x 600 (length x width) grated pits providing 0.45 m³/s inlet capacity at ponding depths of up to 500 mm.

Following the modelling of this option for all storm events from the 20 % AEP to the 1 % AEP and closer analysis of the receiving Unnamed Tributary peak flood levels the following was identified:

- A flood depth reduction of less than 25 mm to properties north of Sladen street during a 1 % AEP event.
- The flood mitigation benefits in the 1 % AEP event were limited by the Unnamed Tributary's peak flood level.
- For small to moderate flood events, where the mitigation works would be less inhibited by the downstream peak flood level, the flooding impacts to properties north of Sladen Street were less critical.

As a result of these modelling outcomes, the value provided by this option was considered insignificant and as such disregarded from further assessments presented within this section.

6.4.3 Option 3 – Unnamed Tributary Retarding Basin Upstream Ennis Street (D2)

Option 3 consists of a retarding basin west of Ennis Street, intended to attenuate the peak flows along the Unnamed Tributary prior to entering the Birregurra township. These works would include the design of an inlet and outlet which allows low flows to bypass the storage and high flows to become attenuated respectively. Although the storage has been conceptually located within farmland, the feasibility of this option could be further considered as part of the township's review of the Birregurra Structure Plan. It is however important to note that due to the steep topography west of Ennis Street further design and terrain modelling would need to be undertaken to determine the exact land take requirements. The area presented within this report has excluded the additional land take required for matching the top of bank of the storage to existing ground levels and as such the total asset footprint is expected to be larger than the storage area presented below.

The proposed retarding basin was modelled in RORB with the storage outflow hydrograph applied to the hydraulic TUFLOW model. The following provides details of the retarding basin size and relevance to the 1 % AEP storm event:

- Top of Bank Area = 33,900 m².
- 1 in 5 side slopes.
- 1 % AEP Peak Outflow = 7.6 m³/s (attenuated from 1 % AEP inflow of 20 m³/s).
- 1 % AEP Storage Depth = 4.33 meters.
- 1 % AEP Peak Flood Storage Volume = 109 ML.

The modelling also identified a constraint caused by the existing driveway crossing at Skene Street. The results indicated the existing 1200 mm diameter culvert had a capacity of approximately 3 m³/s where the majority of the excess flows would continue north and not within the Unnamed Tributary. As such, the storage works should also consider the need to upgrade this driveway culvert by adding at least 2 additional 1200 mm diameter pipes.

With these works combined, the flood mitigation benefits are significant for all events from the 20 % AEP to the 1 % AEP. **Appendix J** displays the resultant 1 % AEP flood depth afflux plan highlighting reductions of up to 200 mm along the Unnamed Tributary. The plan also indicates that at the Barwon River confluence a marginal increase to flood depths (11-15 mm) is predicted occur. This is likely as a result of the Skene Street culvert upgrade and the improved conveyance of flows within the Unnamed Tributary. As this afflux is limited to the Barwon River floodplain and does not affect existing dwellings, it was considered acceptable.

Should Council determine to pursue investigation of this option, the cultural heritage values will need to be determined with an assessment including field work before confirming the location for this asset.

6.4.4 Option 4 – Hopkins Street Pipe Diversion (F)

Option 4 consists of a 1500 mm drainage pipe diverting water from the Unnamed Tributary at Hopkins Street east towards the Barwon River. The goal of this diversion pipe is to convey medium – high flows which exceed the waterway's capacity downstream and contribute to the overbank flooding under existing conditions. The Unnamed Tributary offtake would be configured to allow low flows to continue within the Unnamed Tributary and high flows to enter the 1500 mm diameter pipe via a large grated pit. The 1500 mm drainage pipe is capable of conveying 6 m³/s in the 1 % AEP and assumes:

- 1 in 250 longitudinal slope.
- Minimum 600 mm cover.
- There is a need for pipe jacking for some sections of the alignment when depths to invert are as much as 10 meters.

Appendix J displays the resultant flood depth afflux with the implementation of this pipe diversion. As shown, consistent flood depth decreases of up to 100 mm are predicted to be achieved along the Unnamed Tributary.

6.4.5 Option 5 – Drainage Upgrades between Prime & Sladen Street (H)

The TUFLOW hydraulic model indicates that the existing 600 mm drainage pipes between Prime and Hopkins Street are approximately 50 % full for the 1 % AEP event. To achieve full pipe capacity and reduce flood impact / damage to residential

properties in the area, an upgrade to the inlet pits capacity is proposed south of Prime Street and Hopkins Street between Beal Street and Strachan Street. Pits have been sized to provide sufficient inlet capacity to the 600 mm drainage pipes such that the system is flowing full for a 1 % AEP event.

The following provides a summary of the pit upgrades, considerations, and key assumptions for mitigation option 5:

- Upgrade pit inlet at low point of grassed swale fronting 11 Prime Street.
- Upgrade pit inlet at low point in grassed swale along the southern side of Hopkins street fronting 23 Hopkins Street.

Following initial model iterations, the modelling results identified:

- Increases to flood depth within private property in the 1 % AEP north east of the Strachan Street and Sladen Street intersection. This was due to an increase in flows surcharging from the pit immediately upstream of the Strachan Street pipe crossing.
- Approximately 0.6 m³/s of overland flows remains downstream of the pit upgrade in Prime Street in a 1 % AEP event.

Due to these findings new 750 mm / 900 mm diameter drainage pipes were included in the model to divert the flows in excess of the existing drainage system's capacity to the Unnamed Tributary at Sladen Street. These drainage upgrades assumed:

- Minimum 600 mm cover.
- Minimum 1 in 200 longitudinal grade, steepening to 1 in 30 at the intersection of Prime and Strachan Street to match the grade of Strachan Street.
- Only minor Council road works trenching, and traffic management required.

The resultant 1 % AEP flood depth afflux plan is displayed within **Appendix J**. As shown minor flood depth reductions up to 25 mm were obtained.

6.5 COST ESTIMATE OF MITIGATION OPTIONS

Table 6.2 presents high-level cost estimates for each of the selected mitigation works (excluding the Sladen Street Works). Direct construction cost estimates were derived from Melbourne Water's Development Services Scheme (DSS) costing spreadsheet (2019). The total capital costs have made an allowance for the indirect costs that are likely to be incurred by each option in addition to an overall 20 % contingency rate applied to the sum of the direct and indirect costs. The indirect cost was calculated with an allowance for the following items, presented as a percentage of the total direct cost:

- Site establishment, preparation & reinstatement costs, site supervision and administration fees (~16 % of direct cost).
- Site environmental and traffic management plans (~5 % of direct cost).
- Engineering / consultancy design fees (~15 % of direct cost).

These cost estimates and associated contingencies have not made an allowance for the outcomes which may arise following the completion of further investigations such as flora and fauna impact assessments, cultural heritage assessments and geotechnical assessments. The findings from these assessments may highlight the need for additional approvals and / or changes to the conceptual mitigation options presented and as such alterations to the cost estimates presented below would be required.

Table 6.2: Cost Estimate Mitigation Options

Mitigation ID	Description	Direct Cost	Indirect Cost	Total Capital Cost (Direct + Indirect) + 20 % Contingency
1	Atkin Creek Waterway Widening	\$800,000	\$268,000	\$1,282,000 ⁶

⁶ Estimated capital cost has used standard typical rates for channel works. They are indicative only and subject to further investigation with consideration of the specific site's characteristics and constraints.

Mitigation ID	Description	Direct Cost	Indirect Cost	Total Capital Cost (Direct + Indirect) + 20 % Contingency
3	Unnamed Tributary Retarding Basin Upstream Ennis Street	\$4,100,000	\$1,374,000	\$6,569,000
4	Hopkins Street Pipe Diversion	\$2,262,000	\$758,000	\$3,624,000
5	Drainage Upgrade Between Prime & Sladen Street	\$861,000	\$289,000	\$1,380,000

6.6 AVERAGE ANNUAL DAMAGES COMPARISON

Table 6.3 provides a summary of the calculated damages for each event and modelling scenario. Table 6.4 presents the number of buildings flooded above floor level. Option 3 shows the greatest reduction in flood damages and number of buildings flooded above floor level for the rare storm events (5 %, 2 %, and 1 % AEP) while Options 1 presents more benefit for frequent storm events (20 % AEP).

Table 6.3: Summary of Calculated Event Damages per Modelling Scenario and AEP Event

Scenario	AEP Event				
	20 %	10 %	5 %	2 %	1 %
Existing Conditions	1,316,613	2,543,329	\$3,662,597	\$5,664,210	\$6,576,244
Mitigation Option 1 – Atkin Creek Waterway Widening	\$840,426	\$2,111,347	\$3,165,858	\$4,774,976	\$5,652,573
Mitigation Option 3 – Unnamed Tributary Retarding Basin Upstream Ennis Street	\$1,128,227	\$2,035,684	\$2,871,438	\$4,208,873	\$5,015,312
Mitigation Option 4 – Hopkins Street Pipe Diversion	\$1,124,668	\$2,086,476	\$3,013,181	\$5,044,947	\$5,868,252
Mitigation Option 5 – Drainage Upgrade Between Prime & Sladen Street	\$1,294,050	\$2,543,329	\$3,335,470	\$5,660,166	\$6,521,980

Table 6.4: Number of Buildings Flooded Above Floor Level per Modelling Scenario and AEP Event

Scenario	AEP Event				
	20 %	10 %	5 %	2 %	1 %
Existing Conditions	5	7	9	23	26
Mitigation Option 1 – Atkin Creek Waterway Widening	2	4	7	20	22
Mitigation Option 3 – Unnamed Tributary Retarding Basin Upstream Ennis Street	4	5	6	13	17
Mitigation Option 4 – Hopkins Street Pipe Diversion	4	5	7	14	20
Mitigation Option 5 – Drainage Upgrade Between Prime & Sladen Street	4	7	8	23	25

Calculation of the contribution of each AEP to the total AAD for each modelled scenario was then undertaken via consideration of the calculated event damage and the likelihood of the flood event. As a result of this, the 1 % AEP contribution to AAD is generally less than the 10 % AEP, despite the 1 % AEP event predicting a larger number of buildings / larger extent of the

roadways at risk of flooding. The total AAD per each modelling scenario was then calculated as the summation of each AEP's contribution to the AAD. Table 6.5 provides a summary of the calculated AAD for each modelled scenario.

The Atkin Creek water widening option (Option 1) presents the largest cost savings, approximately \$170,000 / year, followed by the Unnamed Tributary Retarding Basin option (Option 3) at approx. \$144,000 / year. The Hopkins Street pipe diversion (Option 4) presents moderate AAD benefits, approx. \$115,000 / year, and the drainage upgrades between Prime and Sladen Street (Option 5) shows only minor benefits, approx. \$18,000 / year.

Table 6.5: Estimated AAD per Model Scenario

Scenario	AAD (\$ / year)	Reduction in AAD (\$ / year)
Existing Conditions	\$746,741	-
Mitigation Option 1 – Atkin Creek Waterway Widening	\$576,833	\$169,908
Mitigation Option 3 – Unnamed Tributary Retarding Basin Upstream Ennis Street	\$602,433	\$144,308
Mitigation Option 4 – Hopkins Street Pipe Diversion	\$632,187	\$114,554
Mitigation Option 5 – Drainage Upgrade Between Prime & Sladen Street	\$728,792	\$17,949

6.7 HIGHLEVEL MULTI-CRITERIA ASSESSMENT

Table 6.5 presents the high-level multi-criteria assessment for each mitigation option considering the tangible criteria such as the calculated AAD result and the capital cost in addition to the following non-tangible considerations for each option:

- Social impacts / benefits including:
 - Disruption to private properties / public open spaces.
 - Disruption to major / minor roads.
 - changes to flooding for vulnerable properties.
- Environmental impacts / benefits including:
 - Vegetation removal / potential disturbance to habitats.
 - Stormwater harvesting opportunity.
- Constructability considerations including:
 - Existing services.
 - Land acquisition requirements.
- Risks including:
 - Risk of worsening flooding conditions.
 - Propensity for ongoing maintenance / design issues.

Table 6.6: Multi-Criteria Assessment for Selected Mitigation Options

Mitigation ID	Description	AAD Result (\$ / year)	AAD Reduction (\$ / year)	Total Capital Cost	Social and Cultural Impact / Benefit	Environmental Impact / Benefit	Constructability	Risks
1	Atkin Creek Waterway Widening	\$576,833	\$169,908	\$1,282,000	<ul style="list-style-type: none"> Medium disruption to public open spaces as works are maintained within Council owned land or road reserve. Some disruption to Scouller Street likely. Benefits several properties currently subject to above floor level flooding in all storm events between 20 % to 1 % AEP Potential impact to areas of cultural heritage significance – Cultural Heritage Management Plan (CHMP) would be required 	<ul style="list-style-type: none"> Disruption to existing environmental values provided by vegetation within Atkin Creek Habitat disturbance and potential impact to vulnerable species within waterway. A flora and fauna impact assessment would need to be conducted prior to any works to understand feasibility Potential for the vegetation removed to be reinstated / carefully established with appropriate management plans 	<ul style="list-style-type: none"> Widening works do not include the deepening of the existing Atkin Creek invert and as such clashes with existing underground services is reduced. No additional land acquisition required 	<ul style="list-style-type: none"> Increase to flood depths identified however afflux area is contained to the Barwon River Floodplain where no existing dwellings are present.
3	Unnamed Tributary Retarding Basin Upstream Ennis Street	\$602,433	\$144,308	\$6,569,000	<ul style="list-style-type: none"> Disruption limited to farmland and driveway upgrade at 48 Skene Street Potential impact to areas of cultural heritage significance – Cultural Heritage Management Plan would be required 	<ul style="list-style-type: none"> Opportunity to incorporate wetland / stormwater harvesting system within base of RB A flora and fauna impact assessment would be required 	<ul style="list-style-type: none"> Land acquisition required 	<ul style="list-style-type: none"> Dependent on further investigations into design arrangement, RB likely to have inherent risk such as embankment failure.
4	Hopkins Street Pipe Diversion	\$632,187	\$114,554	\$3,624,000	<ul style="list-style-type: none"> Disruption to use of Hopkins Street and access to properties Potential impact to areas of cultural heritage significance – CHMP would be required 	<ul style="list-style-type: none"> Removal of vegetation required within the Unnamed Tributary offtake location in addition to Barwon River outlet. Potential for habitat disturbance with vegetation removal A flora and fauna impact assessment would be required 	<ul style="list-style-type: none"> Depth of Trenching and need to bore a section of the 1500 mm diameter pipe 	<ul style="list-style-type: none"> Potential maintenance burden associated with pipe offtake and weir pit arrangement within the Unnamed Tributary to ensure low flow bypass functions as intended.
5	Drainage Upgrade Between Prime & Sladen Street	\$728,792	\$17,949	\$1,380,000	<ul style="list-style-type: none"> Disruption to use of Prime Street and along Strachan Street Potential impact to areas of cultural heritage significance – CHMP would be required 	-	-	-

7 STORMWATER TREATMENT ASSESSMENT

7.1 PURPOSE

Future development of Birregurra (informed by the Birregurra Structure Plan) poses potential risks to the environmental values of receiving waterways (Atkin Creek, Unnamed Tributary and Barwon River) if the stormwater quality from new developments is not appropriately considered and managed. There is also an opportunity to improve the stormwater quality from existing development to enhance the health of the Barwon River and local waterways.

Due to a new development's increased impervious fraction, additional pollutant loads are generated. Under legislative requirements, new developments are required to implement Water Sensitive Urban Design (WSUD) assets which treat the stormwater generated to meet a set of pollutant load reduction targets. These are referred to in the Commonwealth Scientific and Industrial Research (CSIRO) Urban Stormwater Guidelines (CSIRO, 1999) as the Best Practice Environmental Management Guidelines (BPEMG) targets and consist of an:

- 80 % reduction of Total Suspended Solids (TSS).
- 45 % reduction of Total Phosphorus (TP).
- 45 % reduction of Total Nitrogen (TN).
- 70 % reduction of Gross Pollutants (GP).
- Retention of flows to pre-development 1.5 year Average Recurrence interval (ARI) pre-development.

Birregurra is an established regional residential town with few vacant lots but significant opportunity for subdivision and densification as identified in the Birregurra Structure Plan. Due to these characteristics, the current planning of WSUD assets is challenging due to the need to retrofit drainage assets and the associated physical land constraints. Although the exact location of WSUD assets is uncertain, Engeny has undertaken this stormwater treatment assessment to provide Council with initial guidance on the type / extent of WSUD assets which could be considered given the predicted increase in stormwater runoff. The outcomes of this investigation could be used to inform the future planning for growth and could also be considered in the next revision of the Birregurra Structure Plan. The assessment has specifically:

- Identified the wetland asset footprint area which would be required to meet the pollutant load removal targets for the predicted increase in impervious area from future development.
- Assessed the benefits and practicality of incorporating street-scale bio-retention basins and lot-scale rainwater tanks.
- Assessed the benefits of sealing the roads within Birregurra.

7.2 METHODOLOGY

Model for Urban Stormwater Improvement Conceptualisation (MUSIC) software has been used to assess the pollutant loads generated from the Birregurra township and the resultant removal rates achieved through the implementation of various WSUD treatment assets. The following provides a summary of the methodology and assumptions adopted:

1. Calculate the increased impervious area for future developed conditions considering the zoning, classification areas and associated minimum lot sizes outlined within the Birregurra Structure Plan (discussed Section 7.3).
2. Include these areas as 'Urban Source Nodes' in the MUSIC model to estimate the pollutant loads generated (Total Suspended Solids, Total Nitrogen, Total Phosphorus and Gross Pollutants) from the predicted total additional impervious area.
3. Calculate the pollutant loads (kg / year) which need to be removed to achieve the BPEMG targets.
4. Add a wetland treatment node assuming it is located at the downstream end of the Unnamed Tributary within the Barwon River floodplain with its catchment being the entire Birregurra township.
5. Size wetland to achieve BPEMG targets for the additional impervious area (calculated in Step 3).
6. Assess additional pollutant loads which would be removed through the implementation of 3 KL rainwater tanks.
7. Assess the pollutant load removal benefits which would be achieved through the implementation of a street-scale bioretention basin and factor up to determine the total treatment area which would be required to meet BPEMG targets.

8. Assess pollutant loads generated from unsealed road surfaces and the reduction of pollutants which could be achieved by sealing the roads within the township.

The water quality modelling has been undertaken in accordance with Melbourne Water's updated *MUSIC Guidelines (2018)* where the following parameters and assumptions were adopted in the general model set-up:

- 10-year 6-minute rainfall data (2000-2010) from the Winchelsea (post office) station dataset was extracted from the eWater online portal. This data contained an Average Annual Rainfall of 410 mm.
- Average annual Potential Evapotranspiration (PET) of 1059 mm extracted.
- Soil Storage = 120 mm and Field Capacity = 50 mm.
- Fraction Impervious values displayed in Table 7.1 for each land use.

These fraction impervious values were informed by the typical recommended ranges provided within Melbourne Water's MUSIC guidelines (2018). Due to the regional residential characteristics of Birregurra the road fraction impervious was assumed to be slightly lower than the standard range of 0.5-0.8 which are more representative of a paved kerb and channel road arrangement. The lower density residential areas have also been classified into allotment sizes to achieve a better representation of existing conditions. These values were interrogated against the township's aerial photography. Although the Infrastructure Design Manual (IDM) is Council's engineering guide, it only outlines recommended runoff coefficients for the various lot sizes which is calculated using both the fraction impervious and rainfall insensitivity. Given the rainfall intensity can vary when undertaking MUSIC modelling, the MUSIC guidelines and interrogation of aerial photography was considered an appropriate approach.

Table 7.1: Fraction Impervious Values Adopted in MUSIC Model

Land Use	Allotment Size (m ²)	Adopted Fraction Impervious	MUSIC Guidelines Recommended Fraction Impervious Range
Road	-	0.45	0.50 – 0.80
Open Space	-	0.05	0.00 – 0.20
Commercial	-	0.80	0.70 – 0.90
General Residential	300 - 600 m ²	0.75	0.70 – 0.80
	600 - 1,000 m ²	0.60	0.50 – 0.80
Low Density Residential	1,000 - 1,200 m ²	0.55	0.10 – 0.30
	1,200 - 1,400 m ²	0.50	0.10 – 0.30
	1,400 - 1,600 m ²	0.45	0.10 – 0.30
	1,600 - 2,100 m ²	0.40	0.10 – 0.30
	2,100 - 8,000 m ²	0.20	0.10 – 0.30
	> 8,000 m ²	0.15	0.10 – 0.30

7.3 PREDICTED FUTURE DEVELOPMENT AREA

Assumptions were made to estimate the predicted increase in impervious area as a result of future development within Birregurra. This was required in order to determine the target pollutant loads which should be removed to achieve the BPEMG targets.

The Birregurra Structure Plan outlines the identified character areas and associated minimum single and multi-unit dwelling lot sizes for each character area as displayed in Figure 7.1 and Table 7.2 respectively. In conjunction with this information the following assumptions were also used to estimate the increased impervious area:

- Existing developed lots within Birregurra were summed for each character area and assumed to subdivide into the relevant single dwelling lot size value for each relevant character area.
- Existing undeveloped lots within Birregurra were summed for each character area and assumed to develop into the relevant minimum multi-unit lot size value (except character areas D and E where the single dwelling lot size value was used). For character areas D and E some increase in impervious fraction is possible given that the existing level of development is below guideline values.
- Existing undeveloped lots zoned with a commercial land use were assumed to develop with an 80 % impervious fraction under future developed conditions. This lies within MUSIC's recommended range and aims to more closely reflect the level of development which would be likely within the regional residential town of Birregurra based on aerial photography.

Figure 7.1: Birregurra Structure Plan Preferred Character Areas

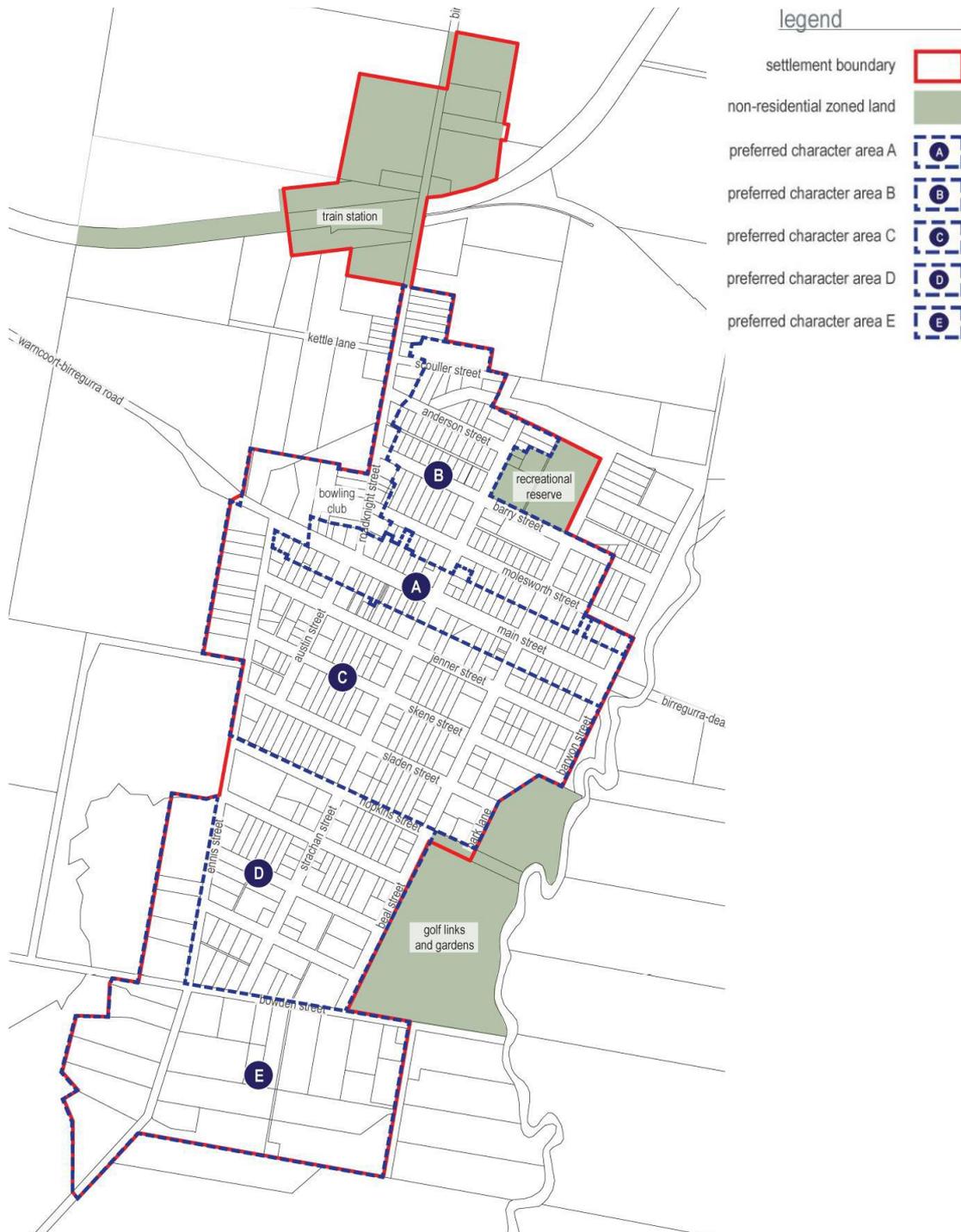


Table 7.2: Proposed Subdivision for Preferred Character Areas

Character Area	Min. lot size single dwelling (m ²)	Min. lot size multi-unit dwelling (m ²)
A	1,000	500
B	700	500
C	1,000	600
D	1,000	discouraged
E	4,000	discouraged

Table 7.3 summarises the estimated increased impervious areas for Birregurra based on the assumptions made under the predicted fully developed conditions. The table also displays the percentage increase from existing conditions.

Table 7.3: Predicted Increase in Impervious Area from Future Development

Character Area	Increase in Impervious Area (ha)			% Impervious Area Increase from Existing Conditions		
	Existing Developed Residential	Existing Undeveloped Residential	Existing Undeveloped Commercial	Existing Developed Residential	Existing Undeveloped Residential	Existing Undeveloped Commercial
A	0.28	0.22	0.08	6.9 %	70.0 %	4 %
B	0.95	2.08	0.00	10.8 %	64.3 %	0 %
C	5.21	5.53	0.60	22.0 %	70.0 %	33 %
D	3.18	2.52	0.00	26.6 %	55.0 %	0 %
E	0.89	1.23	0.00	3.5 %	15.0 %	0 %
Total	10.51	11.58	0.68	14.3 %	47.8 %	16.0 %

7.4 POLLUTANT REMOVAL TARGETS

The increased residential and commercial impervious areas presented in Table 7.3 were modelled in MUSIC to determine the resultant mean pollutant loads generated. Table 7.4 summarises these pollutant loads in addition to the target pollutant removal loads required to meet the BPEMG reduction targets.

Table 7.4: Pollutant Removal Targets for Birregurra Township

Pollutant	Pollutant Load generated from Increased Impervious Area (kg / year)	Target Pollutant Load requiring removal to achieve BPEMG Target (kg / year)	% BPEMG Pollutant Reduction Target
Total Suspended Solids (TSS)	13,590.0	10,872.0	80 %
Total Phosphorus (TP)	21.8	9.8	45 %
Total Nitrogen (TN)	161.0	72.4	45 %
Gross Pollutants (GP)	2,968.5	2,078.0	70 %

7.5 WETLAND ASSET FOOTPRINT

End of drainage line WSUD treatment assets such as wetlands reduce Council's long-term maintenance cost. Following discussions with Council, a consolidated wetland at the Unnamed Tributary's confluence to the Barwon River was modelled and sized. At this location it is noted that the land where the wetland is indicatively positioned is flood prone and as such future residential development is constrained and limited. The location also provides an opportunity to integrate a stormwater harvesting system which could provide an alternative water source for the irrigation of the oval located on the west.

The following assumptions were made during the sizing of the wetland asset in relation to its function and size:

- Contributing catchment area from the Unnamed Tributary consisting of:
 - township Area = 113.8 ha (Weighted Fraction Impervious = 0.44).
 - Upstream Agricultural Area = 417.3 ha (Weighted Fraction Impervious = 0.05).
 Given its current assumed location there is also an opportunity for the wetland asset to receive some low flows from Atkin Creek if required. Although, future development within the contributing Atkin Creek catchment, is expected to be somewhat minor when compared to the Unnamed Tributary's catchment.
- Wetland Treatment Area = 9,000 m².
- Wetland Permanent Pool Volume (PPV) = 3,600 m³.
- Sediment Inlet Pond Area = 1,600 m².
- Sediment Inlet Pond Volume = 1,450 m³.
- Sediment Drying Area = 1,785 m².
- Extended Detention Depth = 0.35 m.
- Low Flow Bypass = 0.7 m³/s (50 % Q3-month remains within creek).
- High Flow Bypass = 6.9 m³/s (flows in excess of 20 % AEP bypass into creek).

The total wetland asset footprint was estimated at approximately 22,500 m². This area considers:

- The wetland and sediment inlet pond treatment areas and associated 1 in 5 battering.
- The predicted sediment drying area.
- A 25 % increase to allow for the terrain shaping associated with the wetland's bathymetry.
- A 10-metre buffer surrounding the total treatment and drying area to allow for a maintenance access track and associated 1 in 5 battering.

This estimated wetland footprint and part of its contributing catchment area is displayed below in Figure 7.2.

Based on these inputs, the MUSIC results shown in Table 7.5 were obtained. As shown when considering the pollutant source generated from the additional impervious area only and the total pollutant removed with the wetland asset, the BPMEG reduction targets are achieved.

Table 7.5: MUSIC Treatment Effectiveness of Wetland Asset

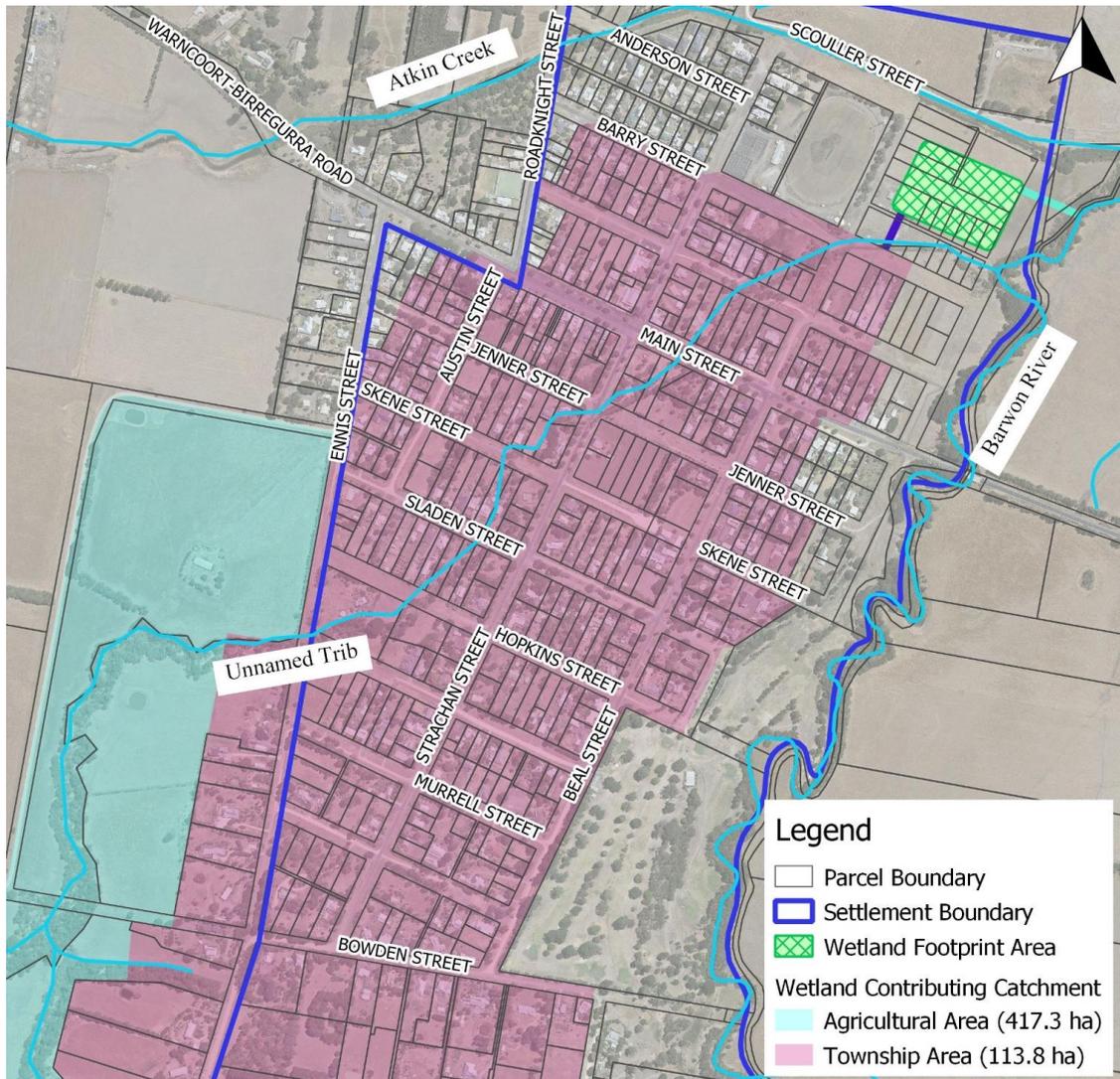
Pollutant	Pollutant Source from Additional Impervious Area	Pollutant Load Removed with Wetland Asset	% Reduction Achieved
Total Suspended Solids (kg/yr)	13,590.0	17,900.0	> 100 %
Total Phosphorus (kg/yr)	21.8	16.1	74.0 %
Total Nitrogen (kg/yr)	161.0	87.0	54.0 %
Gross Pollutants (kg/yr)	2,968.5	2,240.0	75.5 %

It is important to note that if the location of the wetland asset is not deemed suitable through the future planning and revision of the Birregurra Structure Plan, in order to achieve the treatment effectiveness required the following needs to be ensured:

- The wetland cannot be located at the upstream end of the township and should at least have a contributing 20-hectare township catchment area.

- Modifications to the low flow bypass in addition to the high flow bypass should be considered.
- MUSIC modelling should be revised with the updated contributing catchment area to confirm the resultant treatment effectiveness.

Figure 7.2: Wetland Footprint and Contributing Catchment Area



7.6 BENEFITS OF LOT-SCALE RAINWATER TANKS

Rainwater tanks are a lot-scale, at source stormwater quality treatment measure. They can provide multiple benefits including reducing the mean annual load of pollutants discharging into receiving environments and providing a valuable reuse alternative to potable water for toilet flushing, use in laundries and garden irrigation.

A MUSIC model was developed to quantify the additional pollutant load reductions that could be achieved with the installation of rainwater tanks in conjunction with the wetland asset sized above.

The following outlines the assumptions adopted within the MUSIC model:

- The calculated sum of the identified undeveloped lots for each character area was divided by the relevant minimum multi-unit single dwelling lot size to calculate the number of lots. Each of these lot's roof areas was assumed to connect to 3KL rainwater tank. Although Section 7.3 also predicts the existing developed residential areas could also be further developed and subdivided into the identified minimum single dwelling lot size, these developments were not assumed to have connected rainwater tanks.
- Each lot's roof area was assumed to equal 80 % of the lot's impervious area (this percentage of roof area assumes the additional 20 % of imperviousness would be associated with driveways and paved areas).
- Daily reuse demand per person = 20 L/person/day (sourced from the Australian Government's Your Home online resource for Toilet Flushing demand).
- Number of people per household = 2.4 (sourced from the 2016 Census Data).

By adopting these assumptions for each character area within the previously sized wetland's contributing area, the MUSIC results presented within Table 7.6 were obtained. As shown, this would increase the % reduction achieved when compared to the scenario without rainwater tanks and potentially justify the reduction in the wetland area required to meet the BPEMG targets.

Table 7.6: MUSIC Treatment Effectiveness of 3KL Rainwater Tanks

Pollutant	Pollutant Source from Additional Impervious Area	Pollutant Load Removed with Wetland Asset and 3KL Rainwater Tanks	% Reduction Achieved
Total Suspended Solids (kg/yr)	13,590.0	18,119.0	> 100 %
Total Phosphorus (kg/yr)	21.8	16.8	77.0 %
Total Nitrogen (kg/yr)	161.0	96.7	60.1 %
Gross Pollutants (kg/yr)	2,968.5	3,228.0	> 100 %

Based on the results presented within this section, Council could consider the implementation of planning provisions/ subdivision policies to mandate the need for a rainwater tank particularly given the likely reduction to the required wetland asset footprint. Given that most of the town is already developed, other incentive schemes could be considered with Barwon Water to explore opportunities to encourage property owners to install water tanks.

7.7 BENEFITS OF STREET-SCALE BIORETENTION ASSETS

The treatment effectiveness of a single street-scale bioretention asset was assessed. The following was assumed:

- Single Bioretention Treatment Area = 100 m².
- Extended Detention Depth = 0.35 m.
- Filter Media Depth = 0.5 m.
- Contributing Catchment Area = 1.35 ha.
- Contributing Catchment Weighted Fraction Impervious = 0.6.

With a single asset and contributing catchment area of this size, the MUSIC treatment effectiveness displayed within Table 7.7 was obtained.

Table 7.7: MUSIC Treatment Effectiveness of Single Bioretention Asset

Pollutant	Pollutant Source from Single Bioretention Asset Contributing Catchment Area	Pollutant Load Removed with Single 100 m ² Bioretention	% Reduction Achieved
Total Suspended Solids (kg/yr)	1,980.0	1,890.1	95.5
Total Phosphorus (kg/yr)	1.3	0.9	67.6
Total Nitrogen (kg/yr)	6.8	4.2	61.0
Gross Pollutants (kg/yr)	140.0	140.0	100.0

The asset area was factored up to estimate the treatment area required to meet the township's BPEMG targets assuming the same contributing catchment area characteristics. This resulted in the following areas in order to achieve the treatment effectiveness summarised in Table 7.8:

- Estimated Total Bioretention Treatment Area = 1740 m².
- Estimated Total Contributing Catchment Area = 23.66 ha.

Although this arrangement would meet the BPEMG targets, the following factors should also be considered:

- Although a bioretention treatment area greater than 100 m² could be implemented, guidelines recommend the contributing catchment area should be less than 5 hectares.
- If approximately 17 assets with treatment areas of 100 m² each are implemented an increased reliance on maintenance would be required.

Table 7.8: MUSIC Treatment Effectiveness of Bioretention Assets

Pollutant	Pollutant Source from Additional Impervious Area	Pollutant Load Removed with multiplied Bioretention Assets	% Reduction Achieved
Total Suspended Solids (kg/yr)	13,590.0	32,887.7	> 100 %
Total Phosphorus (kg/yr)	21.8	14.9	68.6 %
Total Nitrogen (kg/yr)	161.0	72.6	45.1 %
Gross Pollutants (kg/yr)	2,968.5	2,436.0	82.1 %

7.8 BENEFITS OF SEALED ROADS

The Birregurra township consists mostly of unsealed roads which can result in the generation of increased sediment and pollutant loads. MUSIC enables users to simulate the difference in pollutants generated from sealed versus unsealed roads to identify the benefits of potentially formalising the road network. Table 7.9 presents this comparison when assuming all roads within Birregurra become sealed. The results highlight that the sealing of roads reduces the TSS load by up to 73 % with minor decreases to the nutrient load as well.

Table 7.9: MUSIC Treatment Effectiveness of Sealed Roads

Pollutant	Pollutant Source from Unsealed Roads	Pollutant Source from Sealed Roads	% Reduction Achieved
Total Suspended Solids (kg/yr)	56,300.0	15,000.0	73.4 %
Total Phosphorus (kg/yr)	25.6	25.5	0.4 %
Total Nitrogen (kg/yr)	107.0	104.0	2.8 %
Gross Pollutants (kg/yr)	2,190.0	2,190.0	0.0 %

7.9 OTHER CONSIDERATIONS

Other treatment measures which could also be considered are Gross Pollutant Traps (GPT). They are considered a primary treatment measure which can remove TSS and GPs. They can be installed to:

- Treat wetland asset inflows to reduce Council's long-term maintenance requirements in the wetland asset.
- Treat otherwise untreated outflows to the waterways to ensure the receiving waterways are protected from excessive sediment and gross pollutant loads.

These have not been included in the modelling undertaken as GPT's cannot claim nitrogen removal which is typically the pollutant which dictates the treatment areas required. It is also worth noting the GPTs have their own maintenance requirements and are ineffective if not maintained regularly.

7.10 COST ESTIMATE OF WSUD ASSETS

Standard rates sourced from Melbourne Water's DSS spreadsheet were used to inform the estimated capital cost of the wetland asset and bioretention assets discussed above. The following contingencies were applied to the capital cost estimates summarised within Table 7.10:

- Indirect costs calculated based on:
 - Site establishment, preparation & reinstatement costs, site supervision and administration fees (~16 % of direct cost).
 - Site environmental and traffic management plans (~2.5 % of direct cost).
 - Engineering / consultancy design fees (~15 % of direct cost).
- Additional 20 % contingency applied to the sum of Direct and Indirect Costs to account for potential changes during detailed/ construction phase.

Although these contingencies have made some allowance for uncertainties in the design of the proposed WSUD further investigations including flora, fauna, geotechnical and cultural heritage assessments will be required to confirm the feasibility and approvals required. These investigations and their outcomes may significantly increase the cost estimates presented in Table 7.10.

The table below also provides an estimate of the ongoing maintenance costs utilising the standard rates provided within the WSUD Life Cycle Costing Data Analysis Report prepared by Parsons Brinckerhoff for Melbourne Water (2013).

Table 7.10: WSUD Asset Cost Summary

Item Allowance	Cost
WETLAND CAPITAL COST	
Planting and Earthworks (Sediment Inlet Pond & Wetland Treatment Area)	\$1,666,700
Litter Trap / GPT	\$71,500
High flow Bypass	\$6,800
Outlet Control Structure	\$70,500
Total Direct Cost	\$1,816,000
Total Indirect Cost	\$609,000
<i>TOTAL (including direct and indirect cost) + 20 % contingency</i>	<i>\$2,910,000</i>
WETLAND ONGOING MAINTENANCE COST	<i>\$20,000 / year</i>
BIORETENTION CAPITAL COST	<i>\$2,180,000</i>
BIORETENTION ONGOING MAINTENANCE COST	<i>\$26,000 / year</i>

8 PLANNING OVERLAYS AND CONTROLS

8.1 BACKGROUND

Flood related planning controls are applied in Council's Planning Scheme through the use of designated planning overlays. These are used to ensure flood risks are appropriately considered as part of any development of flood prone land. The strategy has identified that the existing flood planning controls in the Colac Otway Planning Scheme for Birregurra do not sufficiently identify flood prone land and therefore are not effectively informing decisions about development. In contrast to the construction of structural mitigation works, planning controls are one of the most cost-effective means of reducing the community's flood risk by:

- Encouraging people to, where possible, avoid development on flood-prone land.
- Minimising the potential impacts on existing flood-prone developments by raising floor levels of proposed habitable buildings and ensuring the development does not increase the risk of flooding on other properties.

As part of this study planning controls for a series of flood overlays were developed using the design 1 % AEP flood mapping outputs. Draft planning maps and associated schedule documentation has been prepared and is suitable for amendments to the Colac Otway Planning Scheme, to update and replace the existing flood controls currently covering parts of the Birregurra township.

There are three main planning controls to identify flood prone land within the Victorian Planning Provisions: the Floodway Overlay (FO), the Land Subject to Inundation Overlay (LSIO); and the Special Building Overlay (SBO). Their purpose reflects different levels of flood risk. Details of the relevant overlays proposed, and their significance is provided within the sections below. Refer to **Appendix K** for the associated parent clause which should be read in conjunction with the details provided below and the draft planning schedule documentation included as **Appendix L**.

8.1.1 Floodway Overlay (FO)

The FO applies to active flood paths including waterways, significant depressions and areas associated with high hazard. The FO can sometimes be identified as land conveying active flood flows or the high hazard portion of the floodplain and as such new development in these areas is quite restricted. The purpose of the FO is as follows:

- 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, minimizes flood damage and is compatible with flood hazard, local drainage conditions and the minimization of soil erosion, sedimentation, and silting.
- To reflect any declarations under Division 4 of Part 10 of the Water Act, 1989 if a declaration has been made.
- To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies, and particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).
- To ensure that development maintains or improves river and wetland health, waterway protection and floodplain health.

8.1.2 Land Subject to Inundation Overlay (LSIO)

The LSIO identifies land which is flood affected by overland flow, areas contributing to the floodplains storage or areas fringing a FO. Development and works proposed within an LSIO require a planning permit where the subsequent planning controls are imposed which are intended to ensure the development:

- Maintains unobstructed passage of floodwaters.
- Maintains flood storage.
- Minimises flood damage to proposed building footprints.
- Considers flood hazard and local drainage conditions.
- Does not increase flood levels or velocities on surrounding properties.

The LSIO planning controls imposed through planning permits are similar to those imposed with Special Building Overlays (SBOs). The key difference is the mechanism of flooding and the LSIO and FO directly relate to flooding associated with waterways or runoff from rural land.

The LSIO produced for Birregurra covers flooding along the Atkin Creek and Unnamed Tributary waterways in addition to local minor tributaries which originate from the rural farmland west of the township boundary. The purpose of the overlay is to:

- 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, minimizes flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
- To reflect any declaration under Division 4 of Part 10 of the Water Act, 1989 where a declaration has been made.
- To protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).
- To ensure that development maintains or improves river and wetland health, waterway protection and floodplain health.

8.1.3 Special Building Overlay (SBO)

The proposed draft planning overlays produced for Birregurra include two key flow paths that have been included in the SBO extent as these areas are located within urbanized areas of the township where flooding is attributed to the lack of capacity in the underground drainage system to convey stormwater.

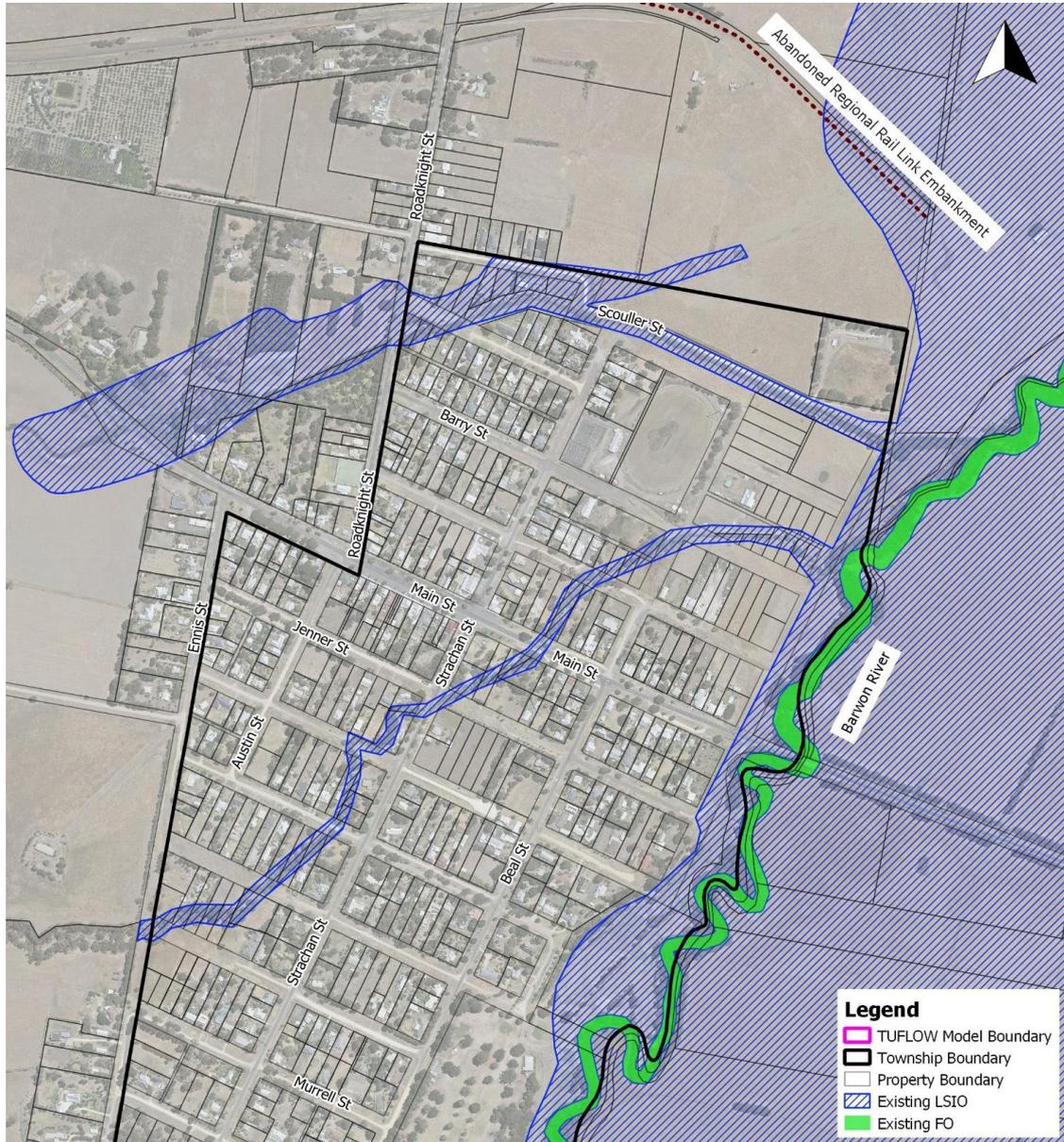
Current industry practice requires the consideration of both major and minor stormwater flows where in addition to conveying minor flows within underground drains, new developments also need to consider the conveyance of major flows resulting from the 1 % AEP event and in excess of the underground drainage capacity (gap flow). These flows are typically conveyed within road reserves and easements. In areas which are well established, such as Birregurra this allowance within development areas and drainage infrastructure has not been made due to differences in the now outdated industry standards and drainage guidelines. Many developments pre-date the introduction of industry standards or the drainage guidelines of the time did not adequately consider the conveyance of overland major flows. The SBO is a way to identify areas where overland flow paths exist. The defined SBO flow paths are included to ensure future developments covered by the overlay consider the flow path and meet the planning controls to manage flood risk.

8.2 EXISTING OVERLAYS AND PLANNING CONTROLS

In the Colac Otway Planning Scheme, an existing LSIO covers sections of Atkin Creek and the Unnamed Tributary waterways in addition to the Barwon River floodplain. An existing FO covers the Barwon River waterway. These overlay extents are proposed to be replaced with the 1 % AEP extents delineated as part of this study and discussed within Section 8.3. Figure 8.1 displays the existing overlays which will be replaced on the west of the Barwon River FO and south of the abandoned regional rail link embankment.

Suggested amendments to the existing planning controls for the LSIO and FO have also been provided as part of this study's scope.

Figure 8.1: Existing Birregurra Overlays



8.3 DRAFT OVERLAY DELINEATION

Figure 8.2 displays the study's proposed draft overlays. The following sections provide a summary of the criteria and approach used to define the extent of each overlay type which have been discussed and agreed upon with Council and CCMA.

8.3.1 FO Delineation

The following approach was adopted to define the draft FO extent within the Birregurra township:

1. The vehicle hazard criterion derived from ARR's 'Project 10: Stage 2 Appropriate Safety Criteria for Vehicles' report (ARR, 2011) was adopted. It was used as the initial cutoff and was applied directly to the relevant 1 % AEP Monte Carlo flood mapping output grids used to define critical flooding along Atkin Creek and the Unnamed Tributary;
 - a) Depth greater than 0.3 m.
 - b) Velocity greater than 3 m/s.
 - c) Hazard (Depth times Velocity) greater than 0.3 m²/s.
2. The extent was smoothed using the Feature Manipulation Engine (FME).
3. Judgement calls to exclude isolated areas of flooding from the FO not within the main flow path were made with areas less than 1000 m² and transferred to the LSIO layer discussed below.
4. Small 'high' islands within the flood extent were included within the FO. Even though these areas are dry they still represent a significant flood hazard with the loss of safe access and egress.

8.3.2 LSIO Delineation

The following approach was adopted to define the draft LSIO extent within the Birregurra township:

1. The 1 % AEP Monte Carlo flood depth and critical durations source grid was used to inform the initial flood extent associated to flooding from the waterways only.
2. This extent was smoothed using the Feature Manipulation Engine (FME) with no flood depth filter applied.
3. Manual manipulation was undertaken to ensure the delineation of the smoothed LSIO focused on flooding associated to the waterways and rural flow paths only. This manipulation was informed by velocity vectors, flood level contours and engineering judgement calls including:
 - a) Removal of isolated areas of flooding less than 100 m².
 - b) Filling in of small 'high' islands within the flood extent. Even though these areas are dry they still represent a flood hazard with the loss of safe access and egress.
 - c) Joining of flow paths particularly where flows overtop roads to capture very shallow sheet flows which were originally filtered out through results processing functions.
 - d) Judgement calls to remove portions of the LSIO extent which cover less than 2 % of a property parcel where appropriate.
4. Removal of designated FO extent from LSIO extent.

8.3.3 SBO Delineation

The following approach was adopted to define the draft SBO extent within the Birregurra township:

1. A 50 mm filter was applied to the raw 1 % AEP flood depth grid.
2. The filtered extent was smoothed using the Feature Manipulation Engine (FME).
3. The SBO flow paths were manually manipulated using velocity vectors and flood level contours to ensure continuous flow paths. This included:
 - a) Removal of isolated areas of flooding less than 100 m².
 - b) Filling in of small elevated dry islands within the flood extent.
 - c) Joining of flow paths particularly where flows overtop roads to capture very shallow sheet flows which were originally interpolated out through results processing functions.

- d) Judgement call to remove portions of the LSIO extent which cover less than 2 % of a parcel where appropriate.
4. Connection of SBO flow paths into the associated waterway / LSIO extent.

8.3.4 Additional Adjustments to Overlays

Following a review by Council of the overlays produced in line with the above criteria, it was noted that there were numerous examples where small areas of land titles were partially impacted by the proposed FO, LSIO or SBO extents. Meetings between the CCMA and Council established a framework where these slivers of overlays could be removed. These included:

- where the overlays encroached into less than 20 m² of a property,
- where the overlay was located at the corner / edge of the front boundary of a property, and access to that property did not require access into a roadway that was abutting a Flood Overlay (to ensure safe escape routes and emergency response access).

The entire FO, LSIO and SBO mapping extents were examined in detail using these parameters, and a conservative approach was taken in reducing the overlay extent. Where land was removed from the FO mapping, it was replaced with the LSIO.

8.4 OVERLAY DOCUMENTATION

The following planning schedules are proposed as part of this study:

- Introduction of new SBO with schedule.
- Adoption of LSIO and FO schedules for Birregurra which are the same as the current C90 planning scheme amendment for Colac.

The defined 1 % AEP flood levels and other modelling outputs have also been provided to Council in order to inform development advice particularly the declaration of flood levels following the implementation of the proposed planning scheme amendment.

The draft overlays documentation is contained within **Appendix L**.

8.5 CLIMATE CHANGE CONSIDERATIONS

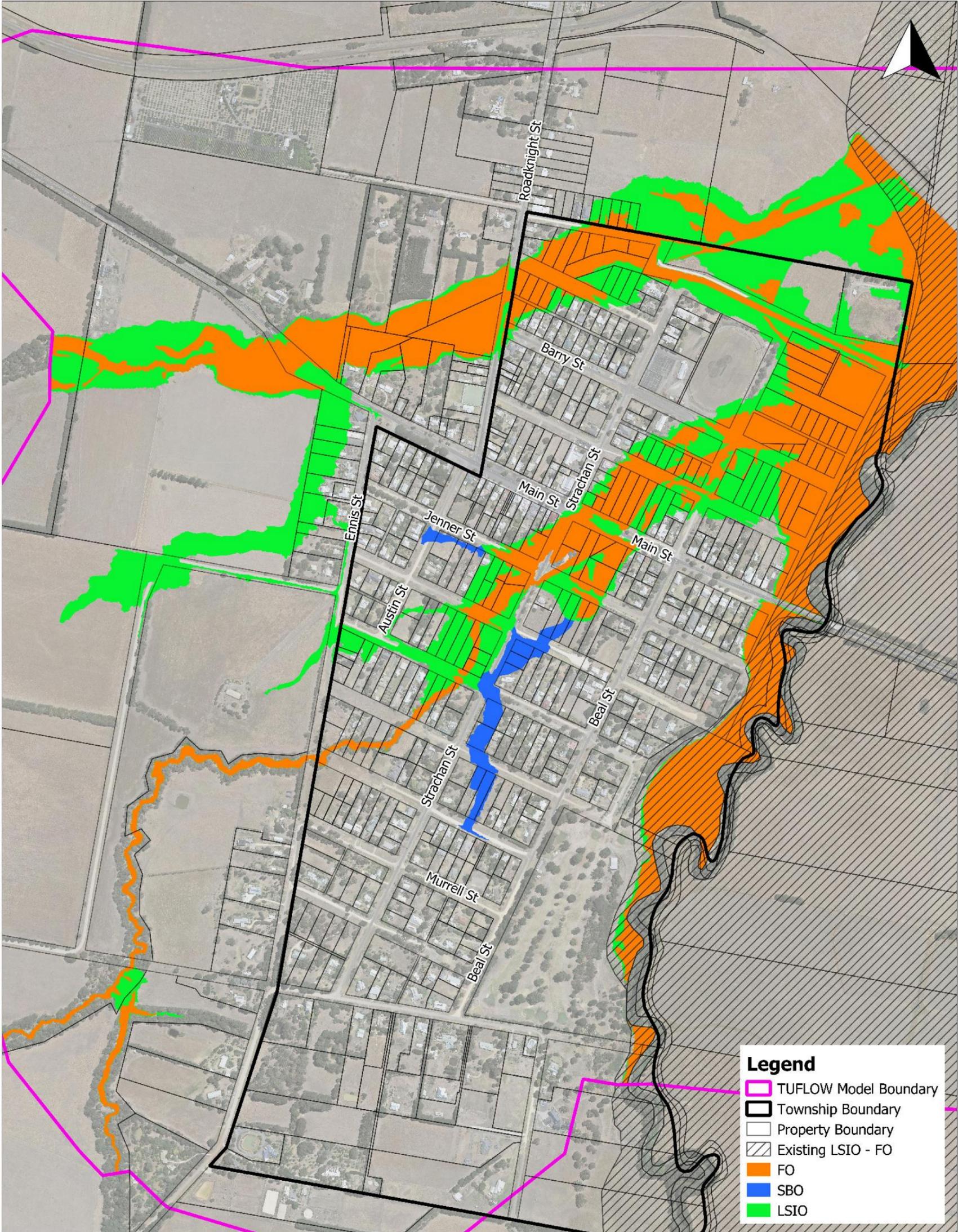
Following the 1 % AEP climate change mapping and discussion presented within Section 4.5.2, an assessment was undertaken to determine how the delineated planning overlays would differ if these climate change mapping outputs were utilised.

Figure 8.3 displays the planning overlays based on the 1 % AEP climate change outputs. Table 8.1 provides a comparison of the number of properties covered by each of the proposed overlays when current and future climate change conditions are considered. This identified that the key difference would be the delineation of the FO extent and the subsequent increase to the number of properties covered by both the LSIO and FO extents. Table 8.1 provides a comparison of the number of properties covered by each of the proposed overlays when current and future climate change conditions are considered. Given these differences were not considered significant and to maintain consistency with current State Government policy on riverine flooding and the recently produced Colac township overlays, the final Birregurra overlays have been based on current climate conditions.

The table also highlights the number of properties captured by the existing overlays and how this insufficiently captures all properties affected by flooding due to the now outdated but previously best available data and modelling approaches.

Table 8.1: Summary of property counts captured by existing and proposed planning overlays

Overlay	Existing Overlays	Proposed Overlays based on current climate conditions	Proposed Overlays based on climate change conditions
SBO only	-	12	12
LSIO only	45	35	20
FO only	-	9	4
LSIO & FO	-	60	84
SBO, LSIO & FO	-	1	1
Total	45	117	121



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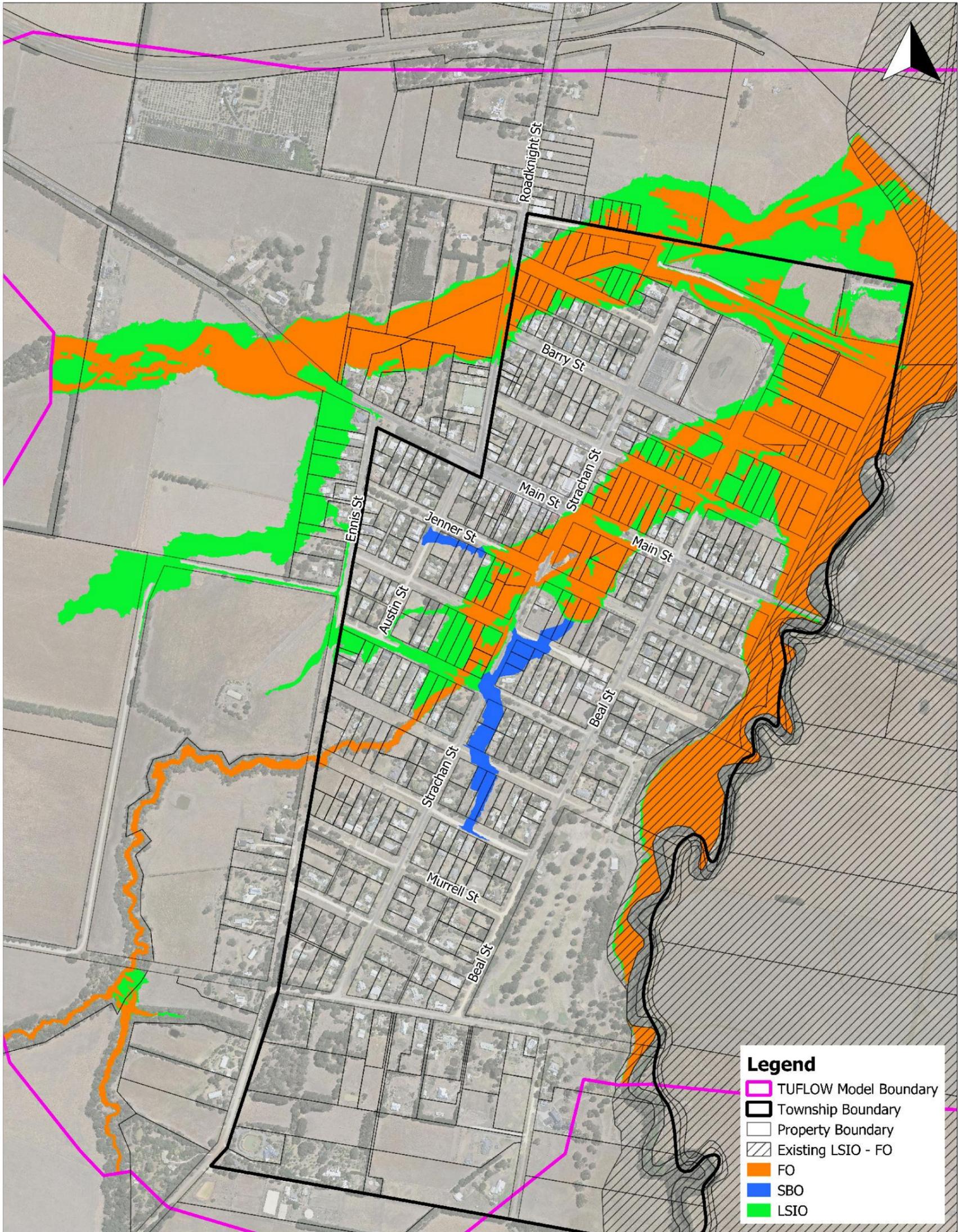


Scale in metres (1:6800 @ A3)
 Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 8.2
 Birregurra Draft Planning Overlays

Job Number: 2013_007
 Revision: 1
 Drawn: AN
 Checked: MM & SD
 Date: 30/11/2020



Legend

- TUFLOW Model Boundary
- Township Boundary
- Property Boundary
- Existing LSIO - FO
- FO
- SBO
- LSIO

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150 0 150 m



Scale in metres (1:6800 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Figure 8.3
 Birregurra Draft Planning Overlays
 Climate Change Scenario

Job Number: 2013_007
 Revision: 1
 Drawn: AN
 Checked: MM & SD
 Date: 30/11/2020

9 FLOOD WARNING ASSESSMENT

9.1 OVERVIEW

A flood warning or alerting system does not currently exist for Birregurra. Essential building blocks (elements) of a Total Flood Warning System (TFWS) have, however, been delivered via other outputs from the Birregurra Flood and Drainage Strategy (i.e. this study). These include:

- Updated flood inundation and related mapping⁷.
- An updated Municipal Flood Emergency Plan (MFEP) with Birregurra-centric flood consequence information.
- An indicative flood guidance tool.
- Information suitable for inclusion in a Local Flood Guide (LFG).

This section of the report builds on other study outputs by documenting a flood warning feasibility assessment for Birregurra. It identifies feasible options for improving local capability to act in a timely manner and improving future response to impending floods in Atkin Creek and the Unnamed Tributary that both flow through Birregurra, thereby potentially reducing future impacts and costs. The identified options range from making better use of existing rainfall information in conjunction with deliverables from the Birregurra Flood and Drainage Strategy (i.e. no / low cost options) through to investment in a monitoring and messaging system with automated system elements, that if implemented, could lead to more reliable and substantive outcomes (i.e. an option requiring more substantial investment of time and money to set up and maintain). Guidance is provided as to how such a system may operate.

Where necessary this report draws on the earlier stages of the study. Reports on the work supporting those stages should therefore be read in conjunction with this section of the report.

9.2 ESTIMATED EFFECTIVE FLOOD WARNING TIME

Noting that in general floods develop quicker on wetter catchments (i.e. runoff is generated quicker and there is more of it), that big floods tend to travel faster than small floods (due to greater stream energy), and that a flood on a 'wet' watercourse will generally travel quicker than a flood on a 'dry' watercourse (e.g. the first flood after a dry period will travel more slowly than the second flood in a series of floods), the response time⁸ for a major flood through Birregurra is estimated at around 6 to 7 hours under wet antecedent conditions. Response time is estimated to be a little longer for smaller floods and somewhat longer again when the catchment is dry. This places Birregurra within the flash flood category as per Bureau of Meteorology definitions⁹ in BoM (1996) and as discussed in VFWCC (2001) and BoM (2020).

⁷ While only key maps have been included in the MFEP, all mapping delivered by this study (together with the reports) is expected to be loaded to FloodZoom and also be available from both CCMA and Colac Otway Shire Council. It is further expected that during a flood, CMA and Council officers will have direct access to copies of the original model results in GIS format along with the corresponding reports through respective agency hosting arrangements.

⁸ Time between start of heavy rain and the creeks beginning to rise at Birregurra.

⁹ Flooding within 6 hours of causal rain.

Under severe flood conditions and having regard for the current consequences of flooding at Birregurra¹⁰, the effective flood warning time¹¹ for Atkin Creek and the Unnamed Tributary creek is currently (i.e. no flood warning system elements in place) estimated to be around 3 to 5 hours.

With the benefit of the indicative flood guidance tool provided in Appendix C2 of the Colac Otway Shire Council (COSC) Municipal Flood Emergency Plan (MFEP) in concert with the flood intelligence and mapping delivered by this study, it is estimated that effective flood warning time could be extended for the Unnamed Tributary and Atkin Creek by at least 3 hours. The indicative flood guidance tool is included herein as Figure 9.4.

In view of the estimated effective flood warning time, emergency services driven flood response actions within Birregurra in the lead up to flooding are currently likely to be severely limited. There is insufficient time available to mobilise emergency services and for them to prepare the dwellings most at risk of being flooded over-floor (e.g. relocate or lift valuables and household items, sandbag the dwelling, etc). Even with the benefit of the deliverables and additional available time that could result from this study, it is suggested that with due regard for other regional flooding issues and the need to prioritise calls for assistance, there would be limited opportunity to mobilise emergency services to assist local flood response (i.e. damage reducing) activities. Local residents however, armed with the indicative flood tool and with access to rain data from the gauge at Ricketts Marsh, may be able to lay sufficient sandbags during a small flood and raise / move valuable items in the event of a large flood, provided that a supply of sandbags was at hand and / or help was immediately available from neighbours to assist with valuable items. Key to this is awareness of the flood risk, recognition of the likelihood and scale of imminent flooding, and knowing what to do to reduce damage.

While not canvassed with VICSES, EMV or BoM, it is suggested that there may also be opportunities in the context of successful proof of concept trials at Natimuk (see Section 9.4.2) and following successful implementation of protocols and some adjustments to how data from the Ricketts Marsh gauge is managed, for a Vic Emergency warning of likely flooding to be issued for Birregurra during severe rain events. This could be augmented by an Emergency Alert if it was assessed that there was a risk to life.

9.3 FLOOD WARNING SYSTEMS

9.3.1 Introduction

Flood warning is an effective and credible non-structural flood mitigation or flood risk reduction measure. Successful system implementation requires attention to all system elements as well as the striking of a balance between each of those elements appropriate for the community it will serve. A “one size fits all” or standard approach is not appropriate. What works for one community may not necessarily be appropriate for another.

In relation to Birregurra, any system established must meet the needs of the at-risk community with appropriate emphasis on the various system elements while also accounting for the constraints imposed by the effective flood warning time. Consideration of the benefit to cost ratio is also important. This is because in order to secure funding support at State and Commonwealth level, the benefits of establishing a flood warning system need to outweigh costs.

9.3.2 Aim and Function

Put simply, flood warning systems provide:

- A means of gathering information about impending floods.
- Communicating that information to those who need it (those at risk).

¹⁰ Out of bank flows occur along Atkin Creek and the unnamed tributary through Birregurra for events more frequent than the 1 in 2 year ARI flood. There are 35 buildings (excluding sheds but including the CFA shed) identified as being inundated over-floor by the 20 % AEP (5-year ARI) flood. The number of floors wetted rises as flood severity increases.

¹¹ The time available after receiving advice of an impending flood before flood water prevents appropriate flood response action.

- Facilitating an effective and timely response.

Thus, flood warning systems aim to enable and persuade people and organisations to take timely action to increase personal safety and to reduce the damage caused by flooding¹². Key to this for those at risk is:

- The availability of information about flood risk.
- Easy access to relevant and timely real time rainfall and water level data / information.
- Knowing what needs to be done in the lead up to and during a flood event.

Flood warning systems (and investments in their implementation) that over-emphasise the collection of input data and / or the production of (highly accurate) flood forecasts relative to the attention given to other elements, often fail to fully meet the needs of the at-risk communities they have been set up to serve. Put another way, it is essential that those parts of the flood warning system that work to build resilience within a community while also increasing warning lead time are given due emphasis and attention.

9.3.3 The Total Flood Warning System Concept

In 1995 the Australian Emergency Management Institute published a best-practice manual entitled Flood Warning: an Australian Guide (AEMI, 1995), and in so doing, introduced the concept of the 'Total Flood Warning System' (TFWS). While the original manual has been updated and republished as Manual 21 of the Australian Disaster Resilience Handbook Collection (AIDR, 2009), the concepts, practices and key messages from the original manual endure.

The Victorian Floodplain Management Strategy (DELWP, 2016) also promotes the TFWS concept and provides clarification on roles and responsibilities for system development and operation in Victoria.

9.3.4 Total Flood Warning System Building Blocks

An effective flood warning system is made up of several building blocks. Each building block represents an element of the Total Flood Warning System (TFWS).

Figure 9.1: Elements of the Total Flood Warning System (source: VFMS)



¹² More generally, the objective of early warning is to empower individuals and communities, threatened by natural or similar hazards, to act in sufficient time and in an appropriate manner so as to reduce the possibility of personal injury, loss of life and damage to property, or nearby and fragile environments (UN, 1997).

Experience shows that flood warning systems that are not designed in an integrated manner and that over-emphasise one element of the warning system at the expense of others inevitably fail to elicit appropriate responses within the at-risk community. An appropriately developed and integrated system considers not only the production of a timely and informative alert¹³ of a potential flood, but also the efficient dissemination of that alert to those who need to respond in an appropriate manner, most important of whom are the threatened community. A community that is informed, flood aware and prepared (i.e. flood resilient) is more likely to receive the full benefits of a warning system.

It follows that actions to improve flood response and community flood awareness using technically sound data (such as that produced by the Birregurra Flood and Drainage Strategy) will by themselves result in some reduction in flood losses.

9.3.5 FLARE

As identified in Section 9.2, Birregurra is subject to flash flooding. While BoM does not currently provide flash flood warning services, it has developed FLARE, the national flash flood warning advisory resource. It acts as a repository of technical information and guidance in relation to flash flood warning systems (FFWS). It provides:

- Historical information on flash flooding;
- An overview of some of the systems operating in Australia (i.e. case studies);
- Details of BoM services available to support flash flood warning systems;
- Some suggestions on flash flood warning system elements;
- Advice on relevant standards and guidelines (e.g. on data sensing and measurement, telemetry, data collection systems, metadata management, etc); and
- An office hour help line to respond to questions.

A guide to flash flood warning system considerations and design is also provided, as a supplement to jurisdictional approaches and methods. The guide steps the user through the use of the FLARE resources as part of system design (refer Figure 9.2).

Figure 9.2: Guide to FFWS Design (source: FLARE)



The Step by Step Guidance section of FLARE highlights important considerations for the initial planning and decision making of setting up a flash flood warning system (Flash Flood WS).

¹³ An alert may take the form of access to real-time data, an SMS or message via social media from a credible source, a forecast of expected flood conditions, advice of indicative flood conditions, etc.

9.4 THE TASK FOR BIRREGURRA

9.4.1 Context

The Corangamite Regional Floodplain Management Strategy (RFMS) (CCMA, 2017) characterises Birregurra as a priority flood risk area and cites the September 2016 flooding as an indication that the then current flood data for the area was inaccurate. Consistent with that characterisation, the current study (Engeny, 2020) has shown that flood damages at Birregurra are quite high, with Average Annual Damage (AAD) calculated as being approximately \$747K. The study has also shown that out-of-bank flows, flooding of roads and over-floor flooding of dwellings commences during quite frequent floods (i.e. less than the 20 % AEP¹⁴ event). While depths and velocities within the creek channel do present an extreme hazard during those quite frequent events, flood depths and velocities within the overbank floodplain (including through the town) are in general, low hazard.

The Corangamite RFMS proposes a strategic direction that articulates the need for community and regional resilience as a key and sustainable response to flood risk. This is consistent with State and Federal Government policy. This report and the suggested approach to flood warning for the Birregurra community is similarly consistent. It is aimed at a system that will provide information to enable individuals to make informed decisions about risk and what they need to do. The emphasis is therefore on "what works best for Birregurra" with due regard for flood risk, available flood warning and response times, available rain and creek level data, and the funding and other responsibilities associated with implementing and maintaining elements of a (flash) flood warning system.

9.4.2 Policy and Strategy Considerations

The division of responsibilities associated with the establishment, maintenance and operation of flood warning systems as documented in VFWCC (2001) have been endorsed by the relevant Ministers at both State and Federal level. More recent developments have seen the BoM establish a Service Level Specification (SLS) that identifies the flood forecast and warning service it will provide for specific locations across the State (BoM, 2020). BoM is currently moving to establish a fee-for-service approach to the development (on a priority basis) of flood forecasting tools for locations not included in the SLS. In relation to flash flood warning services, BoM will continue to provide generalised warnings of weather conditions likely to lead to flash flooding but it will not currently provide flash flood warnings for specific creeks or locations.

The Victorian Floodplain Management Strategy (DELWP, 2016) provides clarification on roles and responsibilities for TFWS development and operation in Victoria. Policy 16a is directed at flood warning in general while Policy 16d is directed specifically at flash flooding (see below).

VFMS – Policies 16a and 16d

Policy 16a outlines the future arrangements for flood warnings in Victoria:

- The Bureau of Meteorology (BoM) will develop new flood prediction services using a cost-recovery model that involves DELWP covering the capital cost of initial model development and BoM the cost of operating, maintaining and continually improving those models.
- Existing flood prediction services will continue to be operated, maintained and improved by BoM.
- Where a flood study identifies the need for new rain or stream monitoring gauges to support a TFWS for a community within Melbourne Water's region, Melbourne Water will cover the capital and maintenance costs of those gauges.
- Where a flood study or regional floodplain management strategy outside Melbourne Water's region identifies the need for a TFWS and that service has community support, the capital costs for new rain or stream monitoring gauges will be shared between the Victorian and Australian Governments. The local community, through its LGA, will fund ongoing maintenance costs for the gauges.

¹⁴ Annual exceedance probability (AEP) is the inverse of Average Recurrence Interval (ARI): the 20 % AEP event is equivalent to the 5-year ARI event.

- Where existing rain and stream monitoring gauges are providing flood warning services, the Victorian Government expects existing cost-sharing arrangements to continue until a regional floodplain management strategy or local flood study assesses the need for a TFWS service.
- Where existing gauges are assessed as being an essential component of a TFWS, the costs of maintaining those gauges will be shared between the LGA and the CMA if it is also used for water quality monitoring, or with a water corporation if it is also used for water resource assessments. In some cases, the costs may be shared between all three agencies.

Policy 16d

- The CMAs and Melbourne Water, with the support of VICSES and LGAs, will progressively identify areas with a history of flash flooding and include them in their Regional Floodplain Management Strategies and implementation plans.
- Cost-sharing arrangements for flash flood warnings will be the same as for riverine flooding (Policy 16a).

Local government has a more prominent role in flash flood warning than for other flood warning systems while the role of the BoM, as outlined above, is substantially diminished¹⁵.

Looking ahead and as an out-working from the Services Standardisation Project, BoM has been working in Victoria with Emergency Management Victoria (EMV) and VICSES on scoping and trialling an Automated Alerting Project. The project involves BoM systems automatically identifying exceedance of critical levels on data ingested from selected telemetered rain and river gauges and alerting of that exceedance to EMV. It is understood that those alerts then generate warnings of potential or actual river level rises as a push to the VicEmergency website and App and as more formal public issue warnings from VICSES. The work offers exciting potential to alert and warn at-risk communities of developing (flash) flood events. While it is not suggested that the project offers a ready-made solution for Birregurra, subject to further development and adoption following completion of proof of concept trials with the Natimuk community, the future potential for benefits to the Birregurra and similar communities is evident.

There are a number of decisions required in relation to how each of the TFWS elements can be developed and implemented for Birregurra. Regardless, the main messages from the 2005 Flood Warning Service Development Plan for Victoria (VFWCC, 2005) remain valid. Those applicable to Birregurra include:

- Making existing data and information / flood intelligence easily accessible to the at-risk community.
- Assisting at-risk communities use that data and intelligence (for example, personalised “what does it mean for me” letters, pamphlets and related information).
- Developing / providing tools that add value to or drag value from available data and intelligence (e.g. indicative flood guidance tools).
- Developing a (local) means of providing an indication of likely flooding with some lead time for the many communities for which the BoM does not currently provide a flood warning service.
- Driving maximum value from flood mapping and other study outputs for local community benefit.
- Focussing on delivering and / or making available those things that will achieve a reduction in damages (i.e. focussing on facilitating the availability of relevant information with some lead-time and a degree of accuracy and consistency).
- Providing the data, information and tools to enable at-risk communities build resilience.

¹⁵ A flood warning system established for a stream or location considered to be subject to flash flooding is, in general terms, the responsibility of the local Council. This includes the installation, operation and maintenance of the technical elements. BoM will maintain delivery of existing severe weather and riverine flood warning related services. Delivery on other TFWS elements including alerting / warning, the development and application of flood response plans as well as (flash) flood education and awareness programs, is a shared state and local government responsibility.

9.4.3 The Challenge for Birregurra

In view of what TFWS elements have been delivered by the current study (see Section 9.1 above), the key issue for Birregurra (given the short effective flood warning time) is how a potential flood will be detected ahead of the onset of flooding within the town and how the at-risk community will be alerted, ideally with sufficient lead time to enable completion of effective response actions.

A range of systems, equipment and approaches are available. The dilemma is “which of these are appropriate and sufficient” given that with a wet catchment, the time between the beginning of heavy rain and the start of creek level rises is estimated (see Section 9.2) at around 6 to 7 hours, with the peak occurring at Birregurra in Atkin Creek and the Unnamed Tributary creek around 12 to 15 hours later. However, it should be noted that over-floor flooding of the first house affected begins well before the peak of a big flood is reached: around 8 hours after the start of rise. In this situation under current conditions as discussed in Section 9.2, the effective flood warning time for Atkin Creek and the Unnamed Tributary creek is estimated to be around 3 to 5 hours.

Allowing time for information to be made available to the community through a flood warning system and for event severity to become evident (say half way through a heavy rain event) plus time required by the community to confirm that information¹⁶, the time available to respond (i.e. lift furniture and other household goods off the floor, move vehicles and other assets to dry ground and relocate, noting that the first floor in town is flooded at a little below the 20 % AEP flood level) is estimated to increase from between 3 and 5 hours out to 8 hours or more during a large flood and a couple of hours longer for a small flood. With such a short effective warning time and the increase in time estimated to be achievable with a flood warning system, it is apparent that delivery of information to the local community as quickly as possible is paramount.

9.4.4 A TFWS for Birregurra

Having regard for first level achievements only, gives rise to the following functional requirements:

- Monitoring of rainfall (and perhaps also creek level), possibly for exceedance of triggers that indicate that flooding may occur.
- Ready public access to raw rainfall data¹⁷.
- Alerting the community, VICSES and the Colac Otway Shire Council (COSC) to potential flooding as quickly as possible.
- Ready public access to flood intelligence (i.e. mapping perhaps as soft copies or through an interactive GIS hosted by Council and / or CCMA, flood information card, etc) so that the community can determine likely impacts and individual consequences and initiate appropriate response actions.
- Low setup and operating costs with (ideally) a positive benefit-cost ratio.
- Acknowledgement and acceptance that a formal flood warning service is unlikely to be provided for Birregurra.

Most of the above can be achieved with minimal cost. Opportunities do exist for local government to seek and secure Commonwealth and State funding to assist with system set up. Operational and on-going costs remain a local government responsibility as outlined in Section 9.4.2.

¹⁶ The need for recipients of flood warnings or information that indicates they are in danger from flooding to verify the warning or information and assess it in their own context is discussed at length in the risk communication literature. The time taken for this part of the response process varies based to a large extent on prior experience. It is assumed for Birregurra to be of order 1 to 2 hours.

¹⁷ Easy and timely access to data is important for communities at risk from flash flooding. Data maps and tables available through the BoM website provide one such avenue. Commitment is required from BoM that rain data from existing sites will be available every 15 minutes (minimum) through the tables and maps (as appropriate). Three-hourly data is not ideal for Birregurra due to the short window between event identification and flood consequences.

9.5 FLASH FLOOD WARNING SYSTEM CONSIDERATIONS

9.5.1 Introduction

It is suggested that consideration of a flash flood warning system for Birregurra should have regard for the:

- Potential for rapid development and progress of floods within the Atkin Creek catchment and the limited lead time available between heavy rain and stream rises.
- Character of the flood risk (i.e. rapid onset, high likelihood of over-floor flooding from a little below the 20 % AEP flood level).
- The benefits achievable through the implementation of structural flood mitigation works aimed at reducing flood impacts within the town.
- Economic metrics (i.e. likely benefit-cost based on consideration of the contribution of avoidable damages to the value of average annual damages).

The following sections outline how each of the TFWS elements could be addressed in order to implement an effective, low maintenance, scalable flash flood warning system that has some utility to the Birregurra community, at minimal cost.

9.5.2 Data Collection and Collation

There is a wide range of equipment that will variously collect, collate and / or undertake assessments on rain and / or creek level data and make it available to a single entity or to a group of entities. Data can be pushed either directly from the equipment at site, through a post box or website, or following delivery to a predetermined digital address. The focus here is on what is best for Birregurra. Capital and on-going costs are therefore a consideration as (given Birregurra is subject to flash flooding) they are a local responsibility.

Both Atkin Creek and the Unnamed Tributary are ungauged – there are no formal stream or rain gauges in the catchment.

A permanent fully operational telemetered rain and stream gauge is in place on the Barwon River at Ricketts Marsh (Station No 233224: Barwon River @ Ricketts Marsh). Three-hourly data is publicly available from the BoM website.

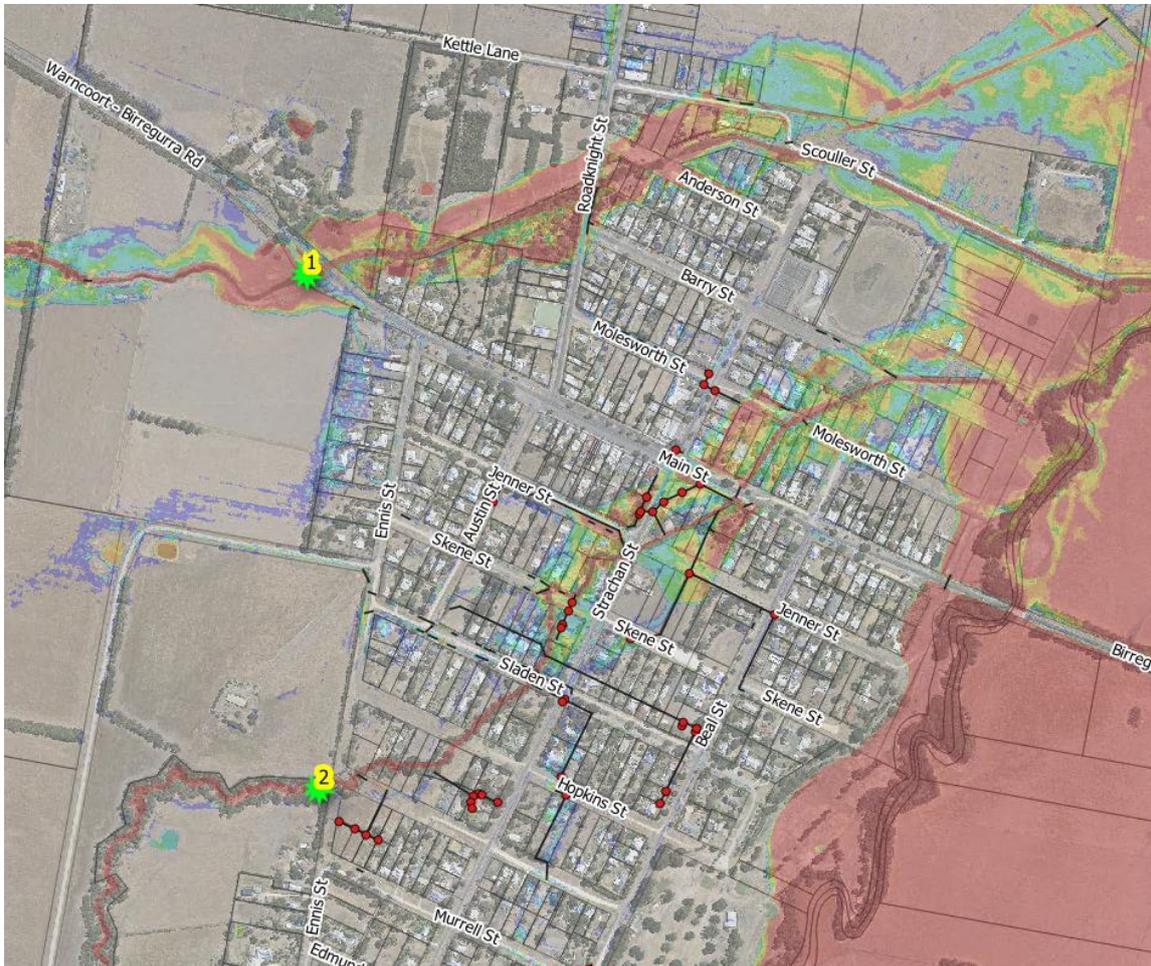
A rain gauge is also in place at the CCMA's office in Colac. However, it is not telemetered. Data only becomes available around the end of each month for the previous month.

It is suggested that with near real-time access to rainfall data from the Ricketts Marsh gauge and an indicative flood guidance tool (see Section 9.5.3), a basis exists for a local community-based flash flood warning system. However, data from the Ricketts Marsh gauge would need to be made publicly available in near real-time (say updated every 15 minutes). The BoM website is an obvious choice to achieve this.

It is suggested that Council:

- Approach BoM (with support from VICSES, CCMA and DELWP) to request necessary changes to enable near real-time public access to rain data from the Ricketts Marsh gauge via the BoM website (e.g. 15 minute updates).
- Alternatively, approach CCMA to request that telemetry be added to the Colac rain gauge and that BoM be requested to enable near real-time public access to rain data from that gauge via the BoM website (e.g. 15 minute updates).
- Arrange for the installation of a set of staff gauges on the upstream side of the Warncoort-Birregurra Road Bridge (Atkin Creek) and on the upstream side of the Ennis Street crossing of the Unnamed Tributary. They should be installed such that the gauge boards can be read from the road for small and larger (i.e. 1 % AEP) floods so that Birregurra residents and emergency services can confirm water levels and rates of rise in the creeks (see Figure 9.3).
- Following a successful approach to the BoM regarding data accessibility, consider providing guidance to the local community (through a locally focussed flood awareness brochure or similar) on how to access and interpret data from the Ricketts Marsh gauge together with instruction on its use with the indicative flood guidance tool. Information about other elements of the flood warning system and how it will assist in reducing risk could also be included.
- Consider developing and maintaining a website (and potentially social media) presence for the FFWS. As a minimum, this website could contain the indicative flood guidance tool and the associated flood mapping and intelligence outputs from this study.

Figure 9.3: Suggested Gauge Locations



If a greater degree of confidence in the likelihood of flooding is required, it is suggested that Council consider:

- As a first step, purchase of an ERTS rain gauge and its installation in the mid reaches of the Atkin Creek catchment close to the shared boundary with the Unnamed Tributary. At the same time, Council with support from VICSES, CCMA and DELWP, would need to approach BoM to provide near real-time public access to data from that gauge via its website.
- As a second step, purchase of two ERTS river (or rain-river) gauges and their installation on the upstream side of the Warncoort-Birregurra Road Bridge (Atkin Creek) and on the upstream side of the Ennis Street crossing of the Unnamed Tributary. As above, Council with support from VICSES, CCMA and DELWP, would need to approach BoM to provide near real-time public access to data from those gauges via its website.

- Alternatively and instead of ERTS equipment, arranging purchase and installation of different commercially available rain and / or rain-river monitoring equipment¹⁸ (e.g. such as DipStik¹⁹) in the locations described in the above two bullets and identified in Figure 9.3.
- The addition of "sirens and / or flashing lights" options (triggered by exceedance of pre-set rainfall rates and depths, and creek levels and rates of rise) for the automated gauges installed at the creek crossings as an alternative or additional means of alerting the community to imminent flooding.
- As appropriate and dependent on the monitoring and alerting equipment installed, invite Birregurra residents, along with VICSES, local CFA and Police, to opt-in to receive SMS alert messages direct from installed equipment.
- Provide guidance to the local community (through a locally focussed flood awareness brochure and website) on how to interpret and use available rain and creek level data and the indicative flood guidance tool, along with information about the flood warning system and how it will assist in reducing risk.

A decision would need to be made on whether to establish any proposed creek level gauges to local datum or to AHD.

While there is the possibility that the two sites identified in Figure 9.3 could be used as PALS²⁰ installation sites, catchment response times indicate that in most situations there would be insufficient time to install the equipment ahead of a likely flood. Further, while the PALS would provide useful data for post-event analyses, there are restrictions to public access to the real-time data they provide. Local access to data is key to effective flood warning for Birregurra. There is also no certainty that PALS would be available when needed as there are a limited number of the units available across the state.

9.5.3 Flood Detection & Prediction – Indicative Flood Guidance Tool

Capability Following Completion of this Study

The indicative flood guidance tool provided in Appendix C2 of the COSC MFEP (included here as Figure 9.4) provides some guidance on the likelihood and severity of expected flooding at Birregurra with an estimated lead time of 8 hours or more during a large flood on a wet catchment.

Rainfall data from the Ricketts Marsh gauge (or perhaps from the catchment of Atkin Creek and the Unnamed Tributary) should be used to drive the indicative flood guidance tool. However, the tool may not perform to expectations in severe thunderstorm situations, when there are locally heavy falls embedded in more general rain and when the catchment is dry.

¹⁸ A variety of rain and water level monitoring equipment and systems are available commercially. DipStik is one such example. It is not suggested that any one system is better than another and should be adopted by Council. Equipment or systems should be evaluated by Council and a choice made based on value (e.g. benefit-cost), functional capability and other relevant factors consistent with prevailing procurement and related guidelines and considerations.

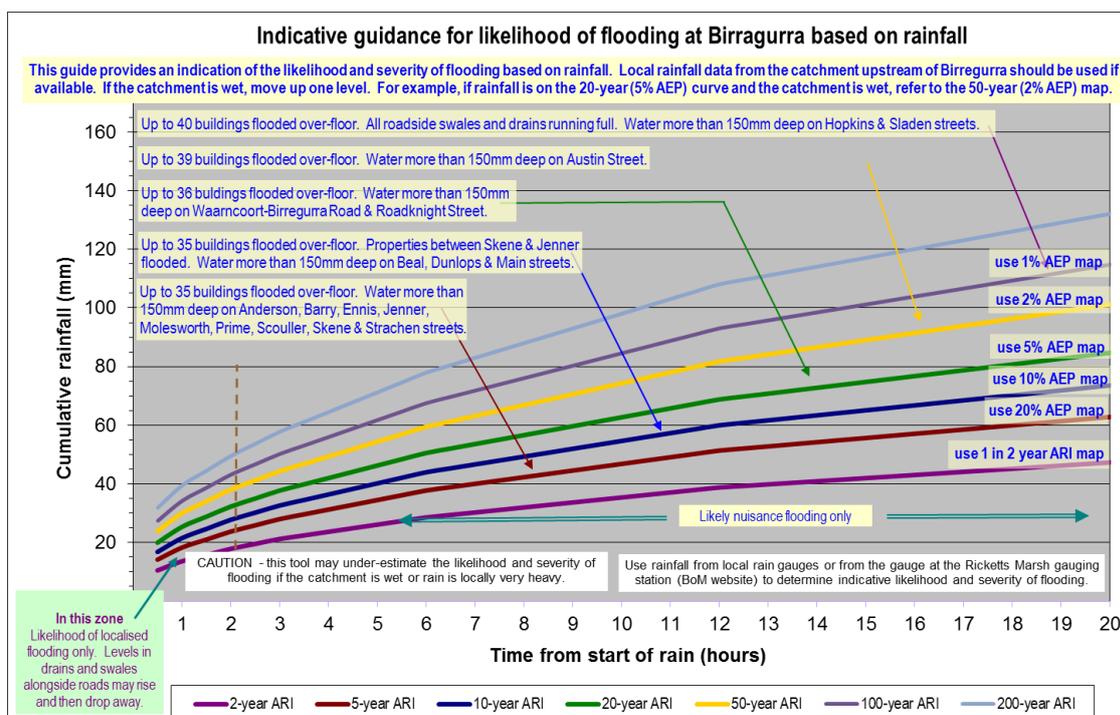
¹⁹ DipStik will continually monitor rainfall and / or water level for potential flood conditions (i.e. exceedance of threshold rainfall amounts and intensities and / or rising water levels). When trigger conditions are met, DipStik sends an SMS alert message, via the mobile phone network, to opted-in recipients. It also sends messages as water levels fall. DipStik maintains a record of maximum flood heights and rate of rise of water levels to help with post-event analyses and future flood mitigation planning. Other functionality including a cloud enabled infrared camera is available. See <http://tuftec.com.au/> and particularly the joint NRMA, IAG, LG project in NSW and the Cardinia Shire Council project in Victoria.

Note that cameras are increasingly being added to local gauges in the US in order to keep curious people out of harm's way. Looking at the creek through the cameras is much safer than going to the creek bank to look at it.

²⁰ PALS continually monitor rainfall and / or water level. Every 15 minutes, the unit transfers data via the mobile phone network to a server for display in near real-time. In addition, the unit can provide simple text alerts when pre-set water level alarm conditions (these are able to be adjusted dynamically by SMS) are triggered. The alerts can be sent to 5 mobile phone numbers (as an SMS) and to 2 email addresses. All data are logged to assist with post-event analyses and future flood mitigation planning.

It is suggested that the indicative flood guidance tool is adopted by VICSES, local CFA and Council for routine use. It is also suggested that the tool and instructions for its use could be shared with the Birregurra community and key community members instructed on use.

Figure 9.4: Indicative Flood Guidance Tool



Potential Capability Pending Investment in Improvements

It is suggested that in the context of State-wide and Regional priorities and the relative scale of flood damages at Birregurra, investment in a more sophisticated and technically demanding forecast tool that would need to be established, operated and maintained by Council (DELWP, 2016 and VFWCC, 2001) is probably not warranted.

With a view to the longer term and subject to the programming of alerts for exceedance of pre-determined rainfall rates and depths at the Ricketts Marsh gauge (and / or additional rain and / or water level monitoring equipment being installed within the creek catchments upstream of Birregurra), the Automated Alerting Project (see Section 9.4.2) appears to offer potential as the basis for a robust initial flood alerting and warning system²¹. It is suggested that Council maintain contact with VICSES on project progress with a view to implementation for Birregurra.

²¹ Experience gained in establishing the Natimuk flash flood warning system and proof of concept trials should assist the setting of rainfall and creek level triggers for Birregurra. Warning actions could simply involve issue of a VicEmergency warning of likely flooding and / or in the event of a perceived risk to life, issue of an Emergency Alert.

Flood Class Levels

Flood class levels determined against standard definitions²², are used to establish a degree of consistency in the categorisation of floods. In order to assist the flood warning process and increase awareness of flooding within the community, it is suggested that Council give consideration to establishing flood class levels for Birregurra at the Warncoort-Birregurra Road Bridge (Atkin Creek) and at the Ennis Street crossing of the Unnamed Tributary. The process would involve coordination between Council, VICSES, CCMA and BoM and is relatively straight-forward. Note however that flood class levels can only be established for locations with a permanent water level gauge.

9.5.4 Interpretation

The flood inundation maps and COSC MFEP Appendices developed as part of the Birregurra Flood and Drainage Strategy provide the base information to enable the community and stakeholder agencies to determine the likely effects of a potential flood. This means however that the flood inundation maps and relevant Appendices of the MFEP, and more specifically the flood information card for Birregurra, would need to be readily available to the Birregurra community.

9.5.5 Message Construction and Dissemination

There are a number of alerting and notification tools, technologies and service providers available, some of which both alert (make people aware of an imminent hazard) and notify (provide a warning message). A summary of those that might be suitable for Birregurra has not been included herein as the approach proposed does not include the construction and / or dissemination of formal warning messages, other than as may occur as a result of the Automated Alerting Project (or similar) described in Section 9.4.2. This is because of the short effective flood warning time in combination with the dependencies between the alerting and notification functional requirements and decisions regarding the data collection network equipment and locations to be instrumented.

If a flood was to occur soon after delivery to the Birregurra community of the maps and indicative flood guidance tool arising from this study, it is likely that for most Birregurra residents, the initial alert of likely flooding will be personal (or perhaps from a neighbour within the community) and will come from a combination of environmental indicators (e.g. observance of heavy rain, local runoff, etc) and the resident's consideration of the flood inundation maps in conjunction with the MFEP. If an alternate commercial monitoring system such as DipStik was installed, the initial (or confirming) alert may come from the unit's SMS'ed message and / or siren, as rain and / or creek levels exceeded triggers with the above acting to reinforce and add value to resident's assessments and decision processes. Alternatively, and subject to resolution of VICSES and EMV roles in the initiation and dissemination of flash flood warnings, the initial alert may come via electronic and social media.

If a marginally more formal alerting system was deemed appropriate and viable for Birregurra, regardless of whether additional permanent rain and water level monitoring equipment (e.g. ERTS, DipStik, other) was installed, the Birregurra community could be encouraged to be more involved in the TFWS by sharing information about the (likely or actual) on-set of flooding and to then back this up with information about likely consequences (e.g. from the MFEP and local knowledge / observations). Social media provides a suitable vehicle. A Twitter and / or Facebook account could be established for the Birregurra TFWS. This would require Council (in conjunction with VICSES) to champion the formation of a Birregurra community flood action group (or similar).

Members of this group could play a key role in local flood warning operations and review. In particular, say via the social media group, they could share information initiated within the community and by VICSES (say, following their use of the indicative flood guidance tool) on likely flood severity, impacts and appropriate actions.

9.5.6 Response

The COSC MFEP Appendices have been populated for Atkin Creek and the Unnamed Tributary at Birregurra as part of the Birregurra Flood and Drainage Strategy. Information in the MFEP includes available intelligence relating to flooding from the upstream catchment along with the indicative flood guidance tool provided at Figure 9.4 of this report. Instructions for the tool's

²² Standard definitions for minor, moderate and major flood class level are available from the BoM website.

use have also been included in the MFEP. Flood inundation extent and depth maps have been added together with a list of areas and roads likely to be flooded. A table of properties and key infrastructure likely to be flooded along with the likelihood and depth of over-ground and over-floor flooding at each property is also included along with a flood information card for the town.

The availability of this flood intelligence will improve the situational awareness of the emergency service agencies and the Birregurra community while also increasing their potential to respond in a more timely and appropriate manner.

Following (or perhaps in concert with) acceptance of the updated MFEP by Council and VICSES, a program to encourage and assist residents and businesses to develop individual flood response plans should be developed and delivered. A package that assists businesses and individuals is available from VICSES and provides an excellent model for community use.

9.5.7 Community Flood Awareness

As per the project brief, technical text for a Local Flood Guide (LFG) has been provided to Council separately from this report. The text should be forwarded to VICSES to enable production of a LFG for provision to the Birregurra community.

Looking further ahead, it is suggested that VICSES, in partnership with Council, develop activities and materials for the Birregurra community that emphasise personal safety, how available rain and, if available, creek level data can be used, what any warnings / alerts mean and what individuals can do to stay safe and protect their property including how to fill and lay sandbags. This should extend to also making relevant parts of the MFEP publicly available (e.g. Council offices, library, website, etc). Such investments will assist in maintaining and renewing flood awareness within the local community.

9.5.8 Funding Opportunities

Opportunities do exist for local government to seek and secure Commonwealth and State funding to assist with flash flood warning system set up. Generally, the benefits of establishing the system need to outweigh costs in order to secure funding support. Regardless of the support received, operational and on-going costs remain a local government responsibility as outlined in Section 9.4.2.

It is suggested that having determined the desired elements of the flash flood warning system to be established for Birregurra and a timetable for the establishment of each element, Council (with support from CCMA and VICSES) should scope and submit an application for funding under the Commonwealth-State National Partnership Agreement on National Disaster Resilience (i.e. the Natural Disaster Resilience Grants Scheme – NDRGS) or successor funding programs.

9.6 MAIN OUTCOMES FROM THE FEASIBILITY ASSESSMENT

Currently achievable response actions at Birregurra, as outlined above and without regard for time of day or night, are limited to what residents are able to achieve.

It is suggested that an “accurate” forecast is not the key to achieving an increase to personal safety and flood damage reduction in Birregurra. Rather it is timely alerting and access to relevant data and easy-to-use indicative tools that, coupled with robust communications systems supported by sound awareness of flooding consequences (i.e. community resilience), provide the information that triggers those at risk to take timely and appropriate actions: to improve local capability and deliver the benefits sought from a flood warning system.

Further to these specific requirements, this assessment identifies feasible options for improving local capability to act in a timely manner and improving future response to impending floods from the creek catchments upstream from Birregurra, thereby potentially reducing future impacts and costs. The identified options range from making better use of existing rainfall monitoring resources (i.e. no / low cost options) through to investment in improved rain and / or river monitoring in conjunction with automated messaging, that if implemented, could lead to more reliable and substantive outcomes (i.e. an option requiring more substantial investment of time and money to set up and maintain). Guidance is provided as to how such a system may operate.

Adopting and making best use of the immediate deliverables from this investigation (i.e. making the indicative flood tool, flood intelligence and flood mapping available to both the emergency agencies and the Birregurra community and being able to make better use of rainfall data that will (hopefully) soon be available in near real-time from BoM), will increase flood awareness and

the opportunity for residents to recognise imminent flooding and initiate appropriate response actions. This has been assessed as being achievable in the near term with minimum investment.

With some investment, a telemetered rain gauge could be installed in the mid reaches of the Atkin Creek catchment close to the shared boundary with the Unnamed Tributary and additional measures implemented to increase flood awareness and community engagement. Together, these measures are estimated to give additional confidence in expected flood severity along with an increase in the time available for damage reducing actions by the town's residents (i.e. more reliable and substantive outcomes). This has been assessed as being achievable in the mid-term.

Further increased confidence in the expected severity of a developing flood, along with additional time to undertake damage reducing measures could be achieved if there was investment in additional and more sophisticated instrumentation to monitor rainfall, creek levels and the associated systems to alert emergency services and individuals to the exceedance of trigger values (i.e. improved monitoring and messaging system with automated elements). It is estimated that together these measures would achieve a further increase in effective flood warning time. This has been identified as the fully developed option for Birregurra and assessed as being achievable in the longer term. Implementation would require significant investment.

The above three paragraphs are presented in summary form against the TFWS building blocks as suggested actions aimed at securing a flash flood warning system for Birregurra in **Appendix M**. A reworked version of this table presented in terms of what is achievable now, with a greater level of investment and longer term is also provided in **Appendix M**.

10 MUNICIPAL FLOOD EMERGENCY PLAN (MFEP)

Flood intelligence data was extracted from the study's deliverables. At VICSES's request, the intel has been collated into the updated MFEP template provided by VICSES rather than into the current version of Council's MFEP. The data included within Council's current version has been reviewed and no information relating to Birregurra was found to need correction. The collated intel have been delivered directly to VICSES and Council within the updated template.

11 FLOOD SPATIAL DATA SPECIFICATION

11.1 OVERVIEW

As part of this study a number of outputs were generated compliant with the format outlined within the Flood Spatial Data Specifications (DELWP, 2020). These results were produced utilising the flood mapping results including extents and grid points for each simulated storm event.

The following sections provide details on the various data sets produced.

11.2 RASTER DATA

The following gridded data sets were provided as final deliverables for each modelled design event scenario:

- Maximum depth.
- Maximum velocity.
- Maximum water surface level.
- Maximum velocity x depth.
- Flood Hazard using the ARR 2019 Flood Hazard Curves Criteria.

11.3 VECTOR DATA

The following vector data was generated in a SDS compliant format:

- Study area (defined by the 1 % AEP flood extent).
- Flood extents (for all modelled scenarios/AEPs).
- Flood level contours (for all modelled scenarios/AEPs).
- Mapping limits.
- Proposed FO, LSIO and SBO extents.
- Flood affected properties.
- Surveyed Floor Levels.

11.4 MAPS

A map was produced for each design flood event which included the following vector and grid GIS layers:

- Flood extents.
- Flood level contours at 1 m intervals.
- Flood depths.
- Identification of essential services.
- Road labels.
- township cadastre.

12 CONCLUSIONS AND RECOMMENDATIONS

12.1 CONCLUSIONS

The investigations undertaken as part of this study highlight the following key outcomes:

- Several dwellings within the 1 % AEP design event flood extent (approximately 78) of which 26 dwellings are affected by above floor level flooding.
- The key flooding hotspots are associated with:
 - Atkin Creek downstream of Roadknight Street due to the existing channel's limited capacity.
 - Unnamed Tributary downstream of Sladen Street due to the existing waterway's limited capacity.
 - Council's existing underground drainage capacity between Prime to Sladen Street and along Sladen Street from Ennis Street.
- The September 2016 flood event modelling and the resultant close match between the surveyed and modelled flood levels provide confidence in the selected input parameters.
- The mitigation assessment undertaken identified 4 key structural mitigation works which could be implemented to reduce flooding impacts to dwellings, subject to securing an appropriate funding source. The high-level multicriteria assessment considering both tangible (capital cost and average annual damage reduction) in addition to intangible factors (such as environmental and social impacts and constructability and risks) were assessed.
 - Detailed assessments have not been considered including in relation to flora and fauna (biodiversity), cultural heritage values, or geotechnical matters. These will need to be examined before any mitigation option is pursued in addition to approvals processes.
- The stormwater quality assessment identified the wetland footprint area which would be required to ensure the predicted future development / increase in impervious area meet the BPEMG targets. Although further investigations would be required to confirm its feasibility, the asset could be funded through developer contributions. The assessment also highlighted the benefits of rainwater tanks and sealing roads within Birregurra and the practicality of implementing bioretention assets to meet the targets.
- The strategy highlighted the importance of updating the existing overlays with the extents delineated and implementation of planning scheme amendments that include schedules for the developed FO, LSIO and SBO with the relevant planning controls.
- The flood warning assessment identified the effective food warning time relevant to Birregurra in addition to highlighting the essential building blocks of a Total Flood Warning System (TFWS) which have been delivered via the outputs of this study including:
 - Updated flood inundation and related mapping.
 - An updated Municipal Flood Emergency Plan (MFEP) with Birregurra-centric flood consequence information.
 - An indicative flood guidance tool.
 - Information suitable for inclusion in a Local Flood Guide (LFG).
- As part of the flood warning assessment a feasibility assessment was also undertaken into how the effective flood warning time could be further extended through improved alerting and warning systems. The identified options range from making better use of existing rainfall monitoring resources (i.e. minimum investment achievable in the near term) through to the improved rain and / or river monitoring with automated messaging (i.e. moderate to significant investment achievable in the mid to longer term).
- Flood intelligence data was extracted from the study deliverables and collated into the updated Municipal Flood Emergency Plan template. This separate working document has been delivered to Council and VicSES directly and aims to provide guidance on the approximate relationship between food magnitude and flood consequences so that appropriate actions can be taken.

12.2 RECOMMENDATIONS

Based on the study's outcomes, the following recommendations relevant to each stakeholder were identified:

1. Colac Otway Shire Council:
 - a) Seek internal endorsement of the flood study and undertake public exhibition to ensure the Birregurra community has the opportunity to comment and provide feedback.
 - b) Update the planning scheme to incorporate the findings of this study.
 - c) Consider the outcomes of the high level multicriteria assessment and findings of additional investigations and consider options which may progress to further feasibility assessments, subject to funding requirements.
 - d) Reference the provided flood modelling outputs, in particular the flood level information, to provide advice on recommended minimum floor levels for new developments for which Council is the responsible authority.
 - e) Review the Municipal Flood Emergency Plan with input from VICSES and adopt revised document.
2. Corangamite CMA:
 - a) Seek internal endorsement of the flood study and use mapping outputs to manage floodplain risk and inform development advice to ensure risks are minimised.
 - b) Reference the provided flood modelling outputs, in particular the flood level information, to provide advice on recommended minimum floor levels for new developments for which CCMA is the responsible authority.
 - c) Add the produced Flood Spatial Data Specification (SDS) outputs and other relevant mapping outputs to FloodZoom.
3. Victorian State Emergency Services
 - a) Continue to engage with the community to increase their awareness of flood related risks.
 - b) Review and discuss the updated MFEP.

13 QUALIFICATIONS

- a) In preparing this document, including all relevant calculation and modelling, Engeny Water Management (Engeny) has exercised the degree of skill, care and diligence normally exercised by members of the engineering profession and has acted in accordance with accepted practices of engineering principles.
- b) The strategy is based on best available information at the time and is subject to an exhibition period which may include minor updates.
- c) Engeny has used reasonable endeavours to inform itself of the parameters and requirements of the project and has taken reasonable steps to ensure that the works and document is as accurate and comprehensive as possible given the information upon which it has been based including information that may have been provided or obtained by any third party or external sources which has not been independently verified.
- d) During the exhibition period, Engeny reserves the right to review and amend any aspect of the works performed including any opinions and recommendations from the works included or referred to in the works if:
 - i) Additional sources of information not presently available (for whatever reason) are provided or become known to Engeny; or
 - ii) Engeny considers it prudent to revise any aspect of the works in light of any information which becomes known to it after the date of submission.

Once the document has been adopted and included in the planning scheme it can no longer be amended and a new version would need to be issued.
- e) Engeny does not give any warranty nor accept any liability in relation to the completeness or accuracy of the works, which may be inherently reliant upon the completeness and accuracy of the input data and the agreed scope of works. All limitations of liability shall apply for the benefit of the employees, agents and representatives of Engeny to the same extent that they apply for the benefit of Engeny.
- f) If any claim or demand is made by any person against Engeny on the basis of detriment sustained or alleged to have been sustained as a result of reliance upon the Report or information therein, Engeny will rely upon this provision as a defence to any such claim or demand.
- g) This Report does not provide legal advice.

14 REFERENCES

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- Victorian Flood Warning Consultative Committee (VFWCC) (2001): *Arrangements for Flood Warning Services in Victoria*. February 2001.

Appendix A: Site Visit Photos

Appendix Figure A. 1: Atkin Creek Bridge at Warncoort-Birregurra Road



Appendix Figure A. 2: Atkin Creek Bridge at Roadknight Street



Appendix Figure A. 3: Box culverts crossing Sladen Street at Unnamed Tributary



Appendix Figure A. 4: Unnamed Tributary east of Barry Street looking towards Barwon River Confluence



Appendix Figure A. 5: Barwon River Bridge crossing at Birregurra-Deans Marsh Road



Appendix B:

Summary of Findings from Community Engagement Sessions

Appendix Table B. 1: Summary of findings from Community Engagement Sessions

Location	Address	Resident Comment
1	17 Anderson Street	<ul style="list-style-type: none"> Flood waters did not reach above floor level but were over garage floor in 2016 They were pumping water all day The flood data transfer 1 % extent looked about right for this property. Road drainage in Anderson Street is an issue. Drains at different levels / grades, water doesn't get away.
2	15 Anderson Street	<ul style="list-style-type: none"> The 2016 flood came half way up the front yard.
3	Football Oval	<ul style="list-style-type: none"> 2016 flood reached the northern boundary of the football oval.
4	6 Anderson Street	<ul style="list-style-type: none"> 2016 flood reached their western boundary.
5	18-24 Scouller Street	<ul style="list-style-type: none"> Sewer line is creating a ditch where water is collecting Sewer line construction blocked off drain at end of Scouller Street Drain in Scouller Street needs maintenance Opening of extra drain Photos provided \$40,000 of flood damage Waters entered house and reached 300 mm above floor level
6	43 Roadknight Street	<ul style="list-style-type: none"> House did not flood in 2016 Flood waters reached bearers Contents there are issues with reeds in Atkin Creek near its junction with Barwon River which are impeding the flow of flood waters Roadknight Street is acting as a levy bank Suggest contacting Barwon Water about the depression created from sewer line construction Suggest that Atkin Creek should be inspected for obstructions Many noted obstructions in waterway at the Atkin Ck bridge on Birregurra Warncoort Road down to Roadknight Street and from Anderson Street to the Barwon River. Resident suggests creek should be cleared with machinery
7	2 Ennis Street	<ul style="list-style-type: none"> Atkin Creek does not flood upstream of this property. The only flood waters on the property come from water backing up at the main road bridge. Resident suggests creek would benefit from clearing of vegetation 8 inches deep at Colac / western entrance in 2016 Channel dug around property Channel was full in 2016, before that, yearly Hasn't been full since 2016
8	42 Sladen Street	<ul style="list-style-type: none"> Didn't flood above floor level in 2016 Water reached the bottom of the weepholes in the brick work Considers that the water is backing up the swale because the cross over pipes are not big enough Also thinks the farming practices on nearby farmland have changed and there is more run-off coming off the land Shed floods regularly Skene Street and Strachan Street provide overspill point in 2016 near the creek bend Swales need to be cleaned out because of sediment build up in Sladen Street Austin Street has no swale at the moment Suggest diverting some water down Austin Street and building swale to split some of the runoff load Area also to be inspected by council officers
9	36 Sladen Street	<ul style="list-style-type: none"> House didn't flood in 2016
10	71 Jenner Street and 19 Ennis Street	<ul style="list-style-type: none"> Didn't flood in 2016 Saturated subsoil
11	40 Sladen Street	<ul style="list-style-type: none"> Farmland overflow water draining to north side of Sladen Street Could be split down Sladen and Skene Street In 2016 neighbours were pumping water all day
12	64 Strachan Street	<ul style="list-style-type: none"> Has had difficulties in obtaining approval for building despite location of house being at high point In 2016 when floods happened at block didn't flood – water stayed within its banks

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Location	Address	Resident Comment
13	14 Anderson Street	<ul style="list-style-type: none">• In 2011? – came up to the bridge• Different levels in the swale drains, no constant flow in Anderson Street• Survey height checks required in Atkin Creek between Barwon River and Roadknight Street• Always water at the back of their properties• Doesn't look like the creek is flowing potentially due to lack of grade• Swale on west side of skate park always full of water

Appendix C:

Barwon River Hydrological Modelling Details

C.1 INTENSITY-FREQUENCY-DURATION (IFD) DATA

C.1.1 Base Conditions

Intensity-Frequency-Duration (IFD) data for each sub-catchment's geographic centroid was sourced from the Bureau of Meteorology. The data was assessed as part of the spatial variation analysis discussed in Section B.2 where a representative subarea (Subarea X) was selected and weighted IFD depths specifically re-defined for the 1 % AEP. The input IFD data is shown in Appendix Table C. 1. This data was used as the basis for the application of Areal Reduction Factor (ARF) where required.

Appendix Table C. 1: IFD Table for Barwon River RORB Model

Duration	Average rainfall depth (mm)							
	39.35 %	20 %	10 %	5 %	2 %	1 %	1 in 200	1 in 500
10 min	7.6	9.2	11.0	12.9	15.6	17.8	20.5	24.0
15 min	9.1	11.1	13.3	15.5	18.9	21.6	24.8	29.1
30 min	12.1	14.7	17.5	20.5	24.8	28.3	32.4	38.0
1 hour	15.8	19.1	22.8	26.6	32.0	36.3	41.4	48.5
2 hour	21.0	25.6	30.4	35.4	42.3	47.9	54.7	64.1
3 hour	25.2	30.9	36.7	42.7	51.0	57.7	65.9	77.4
6 hour	35.2	43.6	52.1	60.6	72.7	82.4	94.5	111.0
12 hour	48.9	61.7	74.2	86.9	105.0	120.0	137.0	162.0
24 hour	65.1	83.5	102.0	120.0	146.0	167.0	191.0	224.0
48 hour	80.7	104.0	128.0	153.0	185.0	210.0	239.0	278.0
72 hour	88.7	114.0	139.0	167.0	200.0	227.0	253.0	291.0

C.1.2 Climate Change Conditions

Appendix Table C. 2 displays the IFD data which was used for the climate change modelling of the 1 % AEP and 10 % AEP storm events.

Appendix Table C. 2: Climate Change IFD Table for Barwon River RORB Model

Duration	Average rainfall depth (mm)							
	39.35 %	20 %	10 %	5 %	2 %	1 %	1 in 200	1 in 500
10 min	6.8	9.2	11	12.9	15.6	17.6	20.5	24
15 min	8.21	11.1	13.3	15.5	18.9	21.3	24.8	29.1
30 min	10.9	14.7	17.5	20.5	24.8	28	32.4	38
1 hour	14.2	19.1	22.8	26.6	32	36.2	41.4	48.5
2 hour	18.9	25.6	30.4	35.4	42.3	48.2	54.7	64.1
3 hour	22.7	30.9	36.7	42.7	51	58.2	65.9	77.4
6 hour	31.7	43.6	52.1	60.6	72.7	83	94.5	111

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Duration	Average rainfall depth (mm)							
	39.35 %	20 %	10 %	5 %	2 %	1 %	1 in 200	1 in 500
12 hour	44	61.7	74.2	86.9	105	120	137	162
24 hour	58.6	83.5	102	120	146	164	191	224
48 hour	72.7	104	128	153	185	203	239	278
72 hour	79.9	114	139	167	200	218	253	291

C.2 SPATIAL RAINFALL PATTERNS

The modelled Barwon River catchment exceeds 20 km², and as such a single non-uniform spatial pattern was applied to all modelled design storm events for each of the given storm durations.

As a key objective of the flood study is to produce planning scheme overlays based on the 1 % AEP storm event, the single non-spatial pattern was derived from the 1 % AEP IFD data. The resultant pattern was then compared to the resultant pattern derived from the 20 % AEP IFD data as a sensitivity check to confirm minimal variability. The following provides further details on the creation of the single non-uniform spatial pattern:

1. Download IFD data for the centroid of each Barwon River RORB model sub-catchment.
2. Calculate the volume of rainfall for each sub-catchment for the given duration utilising the design rainfall depth and area.
3. Calculate the weighted rainfall depth average for each duration by dividing the sum of sub-catchment rainfall volumes for each duration (calculated in Step 2) by the total catchment area.
4. Calculate the percentage of rainfall variation for the given duration and sub-catchment by multiplying the weighted average (calculated in Step 3) by the IFD rainfall depth obtained for each sub-catchment and duration (Step 1).
5. Undertake the above steps for the 20 % AEP to compare and confirm the minimal variability between the generated 1 % AEP pattern.
6. Apply the 1 % AEP non-uniform pattern as an input to the Barwon River RORB model.
7. Adopt the weighted rainfall depths (calculated as part of Step 3) to represent the 1 % AEP IFD input with the other AEP design rainfall depths defined by the depths identified as the catchment's representative subarea (Subarea X).

C.3 PRE-BURST RAINFALL DEPTHS

The rural initial losses obtained from the ARR Data Hub corresponds to complete storms (abbreviated as IL_s), however the IFD data provided by the Bureau of Meteorology is associated to rainfall bursts only. To account for this difference, ARR 2019 recommends reducing the rural initial loss (storm) to represent the initial burst loss (IL_b).

- $IL_{Burst} = IL_{STORM} - \text{Preburst rainfall depth (mm)}$

Whilst undertaking the Monte Carlo calibration of the Barwon River RORB model to the FFA curves, the initial burst losses were applied in RORB utilising the in-built default pre-burst distribution patterns for each storm duration and the median pre-burst depths sourced from the ARR Data Hub and displayed within Appendix Table C. 3. As the Data Hub does not provide pre-burst depths for durations less than 60 minutes, these durations have adopted the 60-minute pre-burst depths in line with current industry recommendations.

Appendix Table C. 3: Barwon River ARR Data Hub Median Pre-burst Depths

min	hr	20 % AEP	10 % AEP	5 % AEP	2 % AEP	1 % AEP
10	-	1.8	1.7	1.7	1.9	2.1
15	-	1.8	1.7	1.7	1.9	2.1

min	hr	20 % AEP	10 % AEP	5 % AEP	2 % AEP	1 % AEP
30	-	1.8	1.7	1.7	1.9	2.1
60	1	1.8	1.7	1.7	1.9	2.1
120	2	2.1	2.4	2.8	2.6	2.4
180	3	1.7	2.4	3	2.4	2
360	6	2.9	2.6	2.3	1.8	1.5
720	12	2.3	3.4	4.5	4	3.7
1440	24	0.9	1.4	2	3	3.8
2880	48	0	0	0	0.9	1.6
4320	72	0	0	0	0	0.1

For the simulations which defined the Barwon River inflows to the hydraulic TUFLOW model (at Node ID R4), initial burst losses were considered with the application of duration factors for each given storm event. This duration factor was calculated by subtracting the median pre-burst depth of each storm duration from the rural storm initial loss (IL_{storm}) divided by the rural storm initial loss. The duration factors applied to the rural initial loss are summarised in Appendix Table C. 4.

Appendix Table C. 4: Barwon River ARR Initial Loss Duration Factors

min	hr	20 % AEP	10 % AEP	5 % AEP	2 % AEP	1 % AEP
10	-	0.88	0.89	0.89	0.87	0.86
15	-	0.88	0.89	0.89	0.87	0.86
30	-	0.88	0.89	0.89	0.87	0.86
60	1	0.88	0.89	0.89	0.87	0.86
120	2	0.89	0.84	0.80	0.84	0.87
180	3	0.81	0.83	0.85	0.88	0.90
360	6	0.85	0.77	0.70	0.73	0.75
720	12	0.91	0.87	0.83	0.59	0.41
1440	24	1.00	1.00	1.00	1.00	0.99
2880	48	0.88	0.89	0.89	0.87	0.86
4320	72	0.88	0.89	0.89	0.87	0.86

The ARR Data Hub does not provide median pre-burst depths for events greater than the 1 % AEP. A study undertaken by Jordan et al. (2005) has estimated the pre-burst depth to be 3.2 % of the total burst depth. Given the total burst depths are quite large for these rarer events where the pre-burst would not have a significant influence on the peak runoff volume or flow rate, this approach was considered appropriate and adopted for the 0.5 % AEP, 0.2 % AEP and the PMF storm events.

C.4 TEMPORAL PATTERNS

Temporal patterns were obtained from the ARR Data Hub for the modelled Barwon River's catchment centroid. As the catchment is greater than 75 km², areal temporal patterns were adopted. Temporal patterns were derived from the Southern Slopes Mainland Increment data set.

C.5 AREAL REDUCTION FACTOR

The IFD data provided by the BoM is applicable for rainfall in small catchments. As catchment size increases, the chance of that average intensity of rainfall occurring over the entire catchment decreases. To address this issue an Areal Reduction Factor (ARF) can be applied to account for the larger catchment area.

ARR 2019 provides procedures for the calculation of ARFs for catchments up to 30,000 km² and durations up to and including 7 days. The ARF to be applied to the design rainfall is a function of the total area of the catchment, the duration of the design rainfall event and its AEP.

During the assessment of modelled flows at the gauging station / model outlet, the ARF was applied through the RORB interface allowing the consideration of the total catchment area for the given AEP and storm duration.

In contrast for the generation of inflow hydrographs (at Node ID 'R4') for application into the hydraulic TUFLOW model, the ARF was applied to the IFD input data. The relevant procedure and equations described within ARR 2019 for a catchment area between 10 to 1000 km² were utilised. As an example, for the Barwon inflow location (Node ID 'R4') which consists of an upstream catchment area of approximately 432 km² and for a storm duration of 12 hours and 1 % AEP event, an ARF of 0.865 was applied to the relevant IFD rainfall depth. Appendix Table C. 5 provides a summary of the ARF factors applied to generate the Barwon River flows at location 'R4' for the various storm events modelled to date.

Appendix Table C. 5: ARF Factors applied to the Barwon River 'R4' Inflow Location

Duration	20 % AEP	1 % AEP
720 min (12 hr)	0.891	0.865
1440 min (24 hr)	0.936	0.943
2880 min (48 hr)	0.950	0.958

Appendix D:

Atkin Creek & Unnamed Tributary Hydrological Modelling Details

D.1 INTENSITY-FREQUENCY-DURATION (IFD) DATA

D.1.1 Base Case / Existing Conditions

Intensity-Frequency-Duration (IFD) data for each sub-catchment's geographic centroid was sourced from the Bureau of Meteorology. The data was assessed as part of the spatial variation analysis discussed below in Section D.2 where a representative subarea (Subarea AK) was selected and weighted IFD depths specifically re-defined for the 1 % AEP. The input IFD data is shown in Appendix Table D. 1. This data was used as the basis for the application of Areal Reduction Factor (ARF) where required.

Appendix Table D. 1: IFD Table for Atkin Creek and Unnamed Tributary RORB Model

Duration	Average rainfall depth (mm)							
	39.35 %	20 %	10 %	5 %	2 %	1 %	1 in 200	1 in 500
10 min	7.1	8.8	10.6	12.4	15.1	17.2	20.2	23.8
15 min	8.6	10.6	12.8	15.0	18.3	20.9	24.5	29.0
30 min	11.4	14.0	16.8	19.7	23.8	27.2	31.7	37.4
1 hour	14.8	18.0	21.4	25.0	29.8	33.9	39.2	46.0
2 hour	19.2	23.2	27.4	31.7	37.6	42.6	49.0	57.6
3 hour	22.6	27.2	32.0	36.9	43.6	49.4	57.0	67.1
6 hour	30.0	36.2	42.6	49.0	58.0	66.0	76.4	90.5
12 hour	39.6	48.3	57.1	65.8	78.8	90.0	105.0	124.0
24 hour	50.5	62.5	74.5	86.7	105.0	119.6	138.0	163.0
48 hour	61.1	76.1	91.5	107.0	129.0	146.9	167.0	195.0
72 hour	66.9	82.7	99.3	117.0	140.0	157.7	176.0	202.0

D.1.2 Climate Change Conditions

Appendix Table D. 2 displays the IFD data which was used for the climate change modelling of the 1 % AEP and 10 % AEP storm events. This data was also used as the basis for the application of ARFs where relevant.

Appendix Table D. 2: IFD Table for Barwon River RORB Model

Duration	Average rainfall depth (mm)							
	39.35 %	20 %	10 %	5 %	2 %	1 %	1 in 200	1 in 500
10 min	8.4	10.4	12.6	14.7	17.9	20.4	23.9	28.2
15 min	10.2	12.6	15.2	17.8	21.7	24.8	29.0	34.4
30 min	13.5	16.6	19.9	23.3	28.2	32.2	37.6	44.3
1 hour	17.5	21.3	25.4	29.6	35.3	40.2	46.5	54.5
2 hour	22.8	27.5	32.5	37.6	44.6	50.4	58.1	68.3
3 hour	26.8	32.2	37.9	43.7	51.7	58.6	67.5	79.5

Duration	Average rainfall depth (mm)							
	39.35 %	20 %	10 %	5 %	2 %	1 %	1 in 200	1 in 500
6 hour	35.6	42.9	50.5	58.1	68.7	78.2	90.5	107.2
12 hour	46.9	57.2	67.7	78.0	93.4	106.6	124.4	146.9
24 hour	59.8	74.1	88.3	102.7	124.4	141.8	163.5	193.2
48 hour	72.4	90.2	108.4	126.8	152.9	174.1	197.9	231.1
72 hour	79.3	98.0	117.7	138.6	165.9	186.9	208.6	239.4

D.2 SPATIAL RAINFALL PATTERNS

The modelled Atkin Creek and Unnamed Tributary catchment exceeds 20 km², and as such a single non-uniform spatial pattern was applied to all modelled design storm events for each of the given storm durations.

As a key objective of the flood study is to produce planning scheme overlays based on the 1 % AEP storm event, the single non-spatial pattern was derived from the 1 % AEP IFD data. The resultant pattern was then compared to the resultant pattern derived from the 20 % AEP IFD data as a sensitivity check to confirm minimal variability. The creation of a single non-uniform spatial pattern was undertaken using the same approach documented in Section 3.4.6.

D.3 PRE-BURST RAINFALL DEPTHS

The rural initial losses obtained from the ARR Data Hub corresponds to complete storms (abbreviated as ILs), however the IFD data provided by the Bureau of Meteorology is associated to rainfall bursts only. To account for this difference, ARR 2019 recommends reducing the rural initial loss (storm) to represent the initial burst loss (IL_b).

- $IL_{Burst} = IL_{STORM} - \text{Preburst rainfall depth (mm)}$

The ensemble and Monte Carlo simulations for the Atkin Creek and Unnamed Tributary RORB model accounted for pre-burst losses by applying loss duration factors for each given storm event. This duration factor was calculated by subtracting the median pre-burst depth of each storm duration from the rural storm initial loss (IL storm) divided by the rural storm initial loss.

Appendix Table D. 3 displays the median pre-burst depths obtained from the ARR Data Hub for the Atkin Creek and Unnamed Tributary catchment centroid with

Appendix Table D. 4 displaying the resultant pre-burst duration factors applied to the rural initial loss for each storm event and duration.

Appendix Table D. 3: Atkin Creek and Unnamed Tributary ARR Data Hub Median Pre-burst Depths

Duration	20 % AEP	10 % AEP	5 % AEP	2 % AEP	1 % AEP
10 min	1.7	1.6	1.5	1.8	1.9
15 min	1.7	1.6	1.5	1.8	1.9
30 min	1.7	1.6	1.5	1.8	1.9
1 hour	1.7	1.6	1.5	1.8	1.9
2 hour	2.8	3	3.2	2.6	2.2
3 hour	2.7	2.8	2.8	2.7	2.7

Duration	20 % AEP	10 % AEP	5 % AEP	2 % AEP	1 % AEP
6 hour	1.7	2.1	2.5	2.9	3.3
12 hour	0.8	1.4	1.9	3.9	5.4
24 hour	0	0	0	0.4	0.6
48 hour	0	0	0	0	0
72 hour	0	0	0	0	0

Appendix Table D. 4: Atkin Creek and Unnamed Tributary ARR Data Hub Initial Loss Depth Duration Factors

Duration	20 % AEP	10 % AEP	5 % AEP	2 % AEP	1 % AEP
10 min	0.89	0.89	0.90	0.88	0.87
15 min	0.89	0.89	0.90	0.88	0.87
30 min	0.89	0.89	0.90	0.88	0.87
1 hour	0.89	0.89	0.90	0.88	0.87
2 hour	0.81	0.80	0.79	0.83	0.85
3 hour	0.82	0.81	0.81	0.82	0.82
6 hour	0.89	0.86	0.83	0.81	0.78
12 hour	0.95	0.91	0.87	0.74	0.64
24 hour	1.00	1.00	1.00	0.97	0.96
48 hour	1.00	1.00	1.00	1.00	1.00
72 hour	1.00	1.00	1.00	1.00	1.00

The ARR Data Hub does not provide median pre-burst depths for events greater than the 1 % AEP. A study undertaken by Jordan et al. (2005) has estimated the pre-burst depth to be 3.2 % of the total burst depth. Given the total burst depths are quite large for these rarer events where the pre-burst would not have a significant influence on the peak runoff volume or flow rate, this approach was considered appropriate and adopted for the 0.5 % AEP, 0.2 % AEP and the PMF storm events.

D.4 TEMPORAL PATTERNS

Temporal patterns were obtained from the ARR Data Hub for the modelled Atkin Creek and Unnamed Tributary RORB model catchment centroid. As the catchment is less than 75 km² point temporal patterns were adopted. Temporal patterns were derived from the Southern Slopes Mainland Increment data set.

D.5 AREAL REDUCTION FACTOR

The IFD data provided by the BoM is applicable for rainfall in small catchments. As catchment size increases, the chance of that average intensity of rainfall occurring over the entire catchment decreases. To address this issue an Areal Reduction Factor (ARF) can be applied to the IFD data to account for the larger catchment area.

ARR 2019 provides procedures for the calculation of ARFs for catchments up to 30,000 km² and durations up to and including 7 days. The ARF to be applied to the design rainfall is a function of the total area of the catchment, the duration of the design rainfall event and its AEP.

The ARF was computed using the relevant procedure described in ARR 2019 for the Monte Carlo simulations focussing on the township's watercourses utilising the short duration ARF equation. Due to the small area of the local township catchment, an ARF of 1 was applied to the ensemble simulations.

Appendix Table D. 5 displays the ARF applied to the Atkin Creek and Unnamed Tributary inflow locations for the AEP events and durations simulated to date. These ARF's were calculated based on the following catchment areas upstream of the relevant node locations:

- 'CA2' on Atkin Creek – 22.7 km²
- 'CV2' on the Unnamed Tributary – 4.6 km²

These node locations and associated upstream catchment areas were mid-way along the waterways within the township to allow for the averaged effects of the ARF between the inflow locations and downstream Barwon River confluence of both the Atkin Creek and Unnamed Tributary.

Appendix Table D. 5: ARF Factors applied to the Atkin Creek and Unnamed Tributary inflow locations

Duration	20 % AEP		1 % AEP	
	Inflows to Atkin Creek (BP1 & BS2)	Inflows to Unnamed Tributary (CM2 & CR2)	Inflows to Atkin Creek (BP1 & BS2)	Inflows to Unnamed Tributary (CM2 & CR2)
720 min (12 hr)	0.968	0.991	0.955	0.981
1440 min (24 hr)	0.985	0.999	0.998	1
2880 min (48 hr)	0.990	1	1	1

D.6 PMF MODELLING APPROACH

The Probable Maximum Flood (PMF) is the flow generated from the theoretical peak maximum precipitation (PMP) for a given duration under current climate conditions. Procedures for estimating PMP rainfall depths have been developed by the Bureau of Meteorology (BoM) for different locations and durations. For durations up to 6 hours and areas up to 1000 km² the Generalised Short Duration Method (GSDM) is applicable for all of Australia.

The following provides a summary of the approach undertaken and assumptions adopted for calculating the PMF for the Unnamed Tributary and Atkin Creek waterways.

Key Assumptions (used as inputs to the GSDM calculation)

- Elevation Adjustment Factor = 1
- Moisture Adjustment Factor = 0.53
- Proportion of Catchment Rough = 100 %
- Proportion of Catchment Smooth = 0 %

GSDM Methodology

1. Estimate the PMP depth (nearest 10 mm) using the GSDM inputs (above) and the PMP value equation and depth-duration-area curves presented in *The Estimation of Probable Maximum Precipitation in Australia: Generalised Short-Duration Method* (BoM, 2003)
2. Manually adjust the 4-12 hour PMP estimates to achieve a better fit to the rainfall-duration curve
3. Finalise estimates of the PMP (Appendix Table D. 6)
4. Calculate the depth per time increment for each event duration using the design temporal distribution pattern derived by the BoM (Appendix Table D. 7).

5. Calculate the design spatial distribution of the PMP for each event duration up to the 6 hour event over the catchment using the methodology recommended within the BoM guidelines which includes the use of ellipses (BoM, 2003):
6. Calculate the proportion of each RORB subarea inside each ellipse
7. Calculate the PMP depth applied to each subarea by summing the product of the proportion of each RORB subarea inside each ellipse (calculated in Step 6) by the mean rainfall depth for the ellipse (calculated in Step 5)
8. Generate RORB storm files using the subarea spatial distribution calculated in Step 7 for each event duration to represent the PMF
9. Output the required RORB hydrographs for application to the TUFLOW hydraulic model.

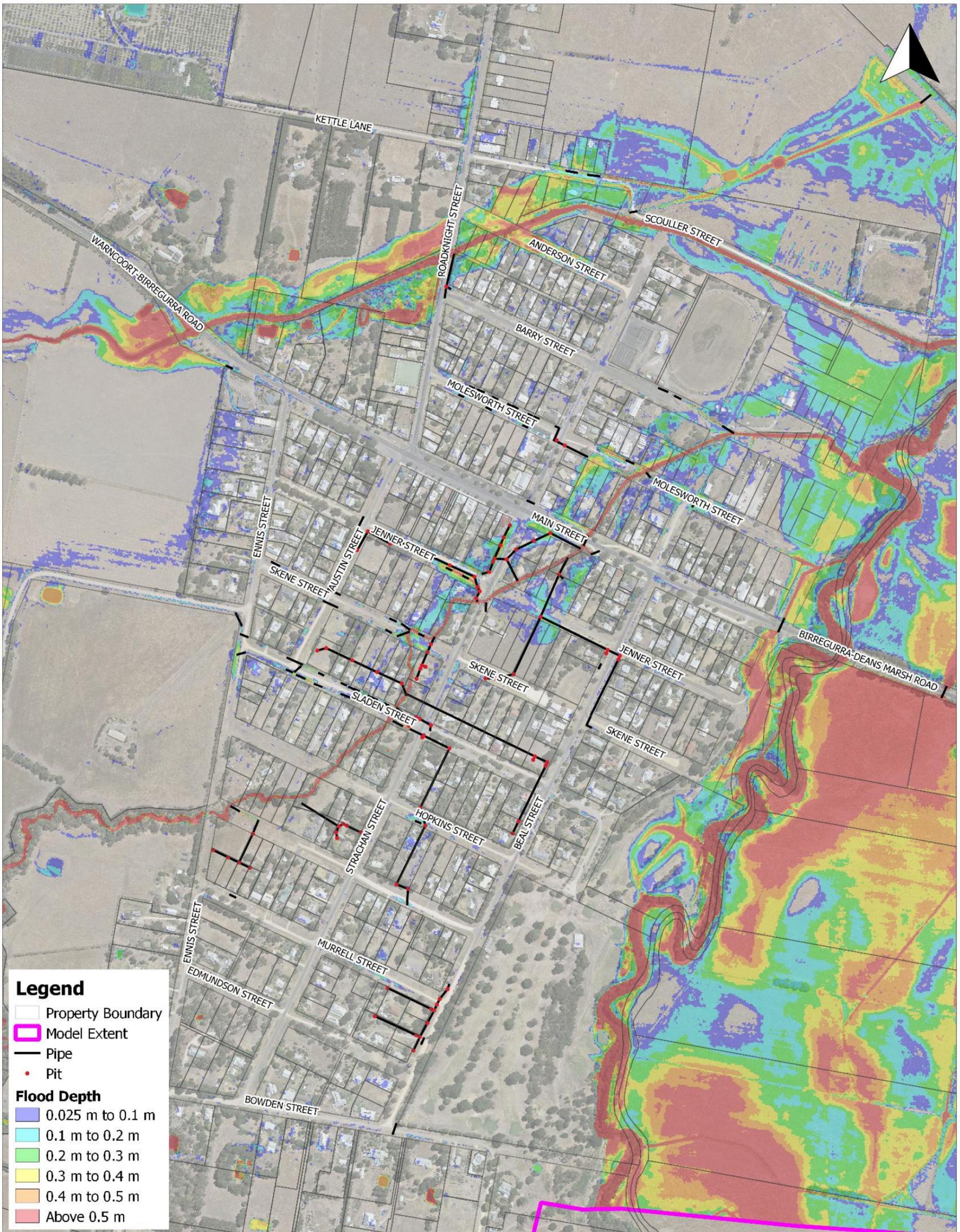
Appendix Table D. 6: Total PMP for Event Duration for the Unnamed Tributary and Atkin Creek Waterways

Event Duration	Unnamed Tributary (mm)	Atkin Creek (mm)
15 minute	120	110
30 minute	170	160
1 hour	260	230
2 hour	390	350
3 hour	470	420
4 hour	560	510
6 hour	565	560

Appendix Table D. 7: Design Temporal Distribution of Short Duration PMP (taken from BoM, 2003)

% of time	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	5
% of PMP	4	10	18	25	32	39	46	52	59	64	70	75	80	85	89	92	95	97	99	100	4

Appendix E: September 2016 Calibration Flood Depth Layout Plan



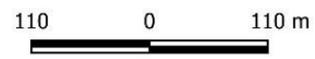
Legend

- Property Boundary
- ▭ Model Extent
- Pipe
- Pit

Flood Depth

- 0.025 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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Scale in metres (1:5600 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 54

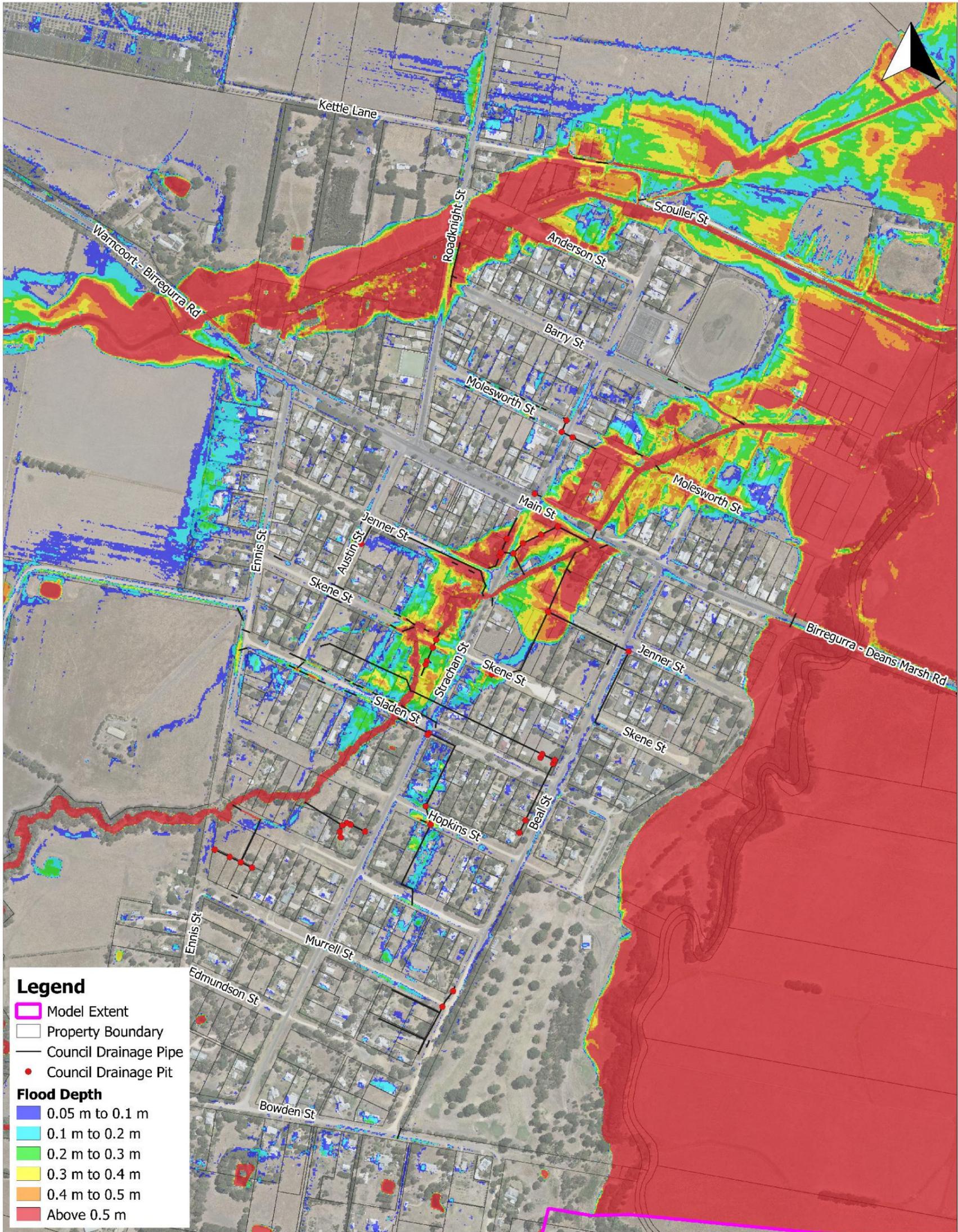
Birregurra Flood Study

September 2016 Calibration Event
 Flood Depth Layout Plan

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 2/11/2020

Appendix F:

Design Flood Depth Layout Plans



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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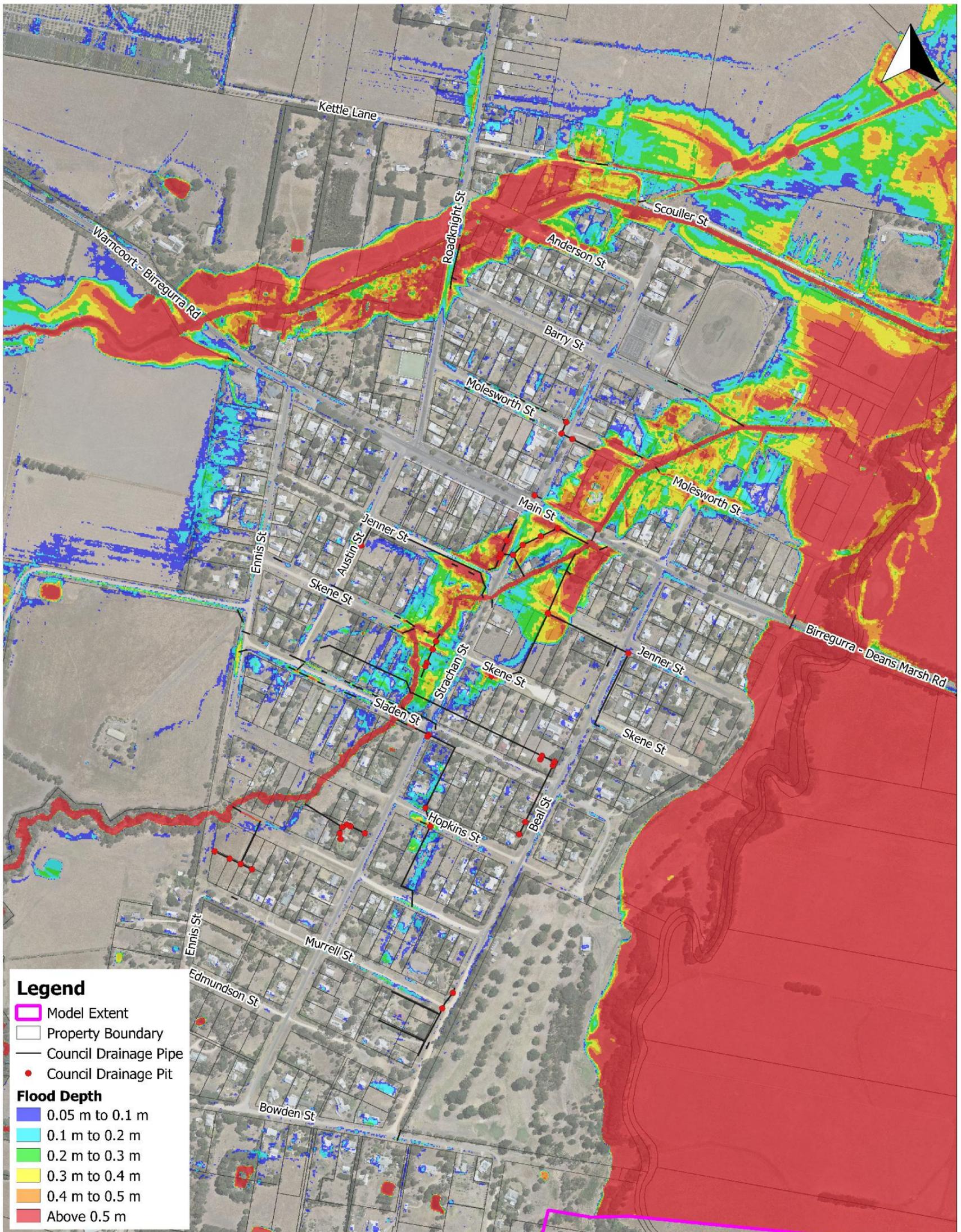
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Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth - 0.2% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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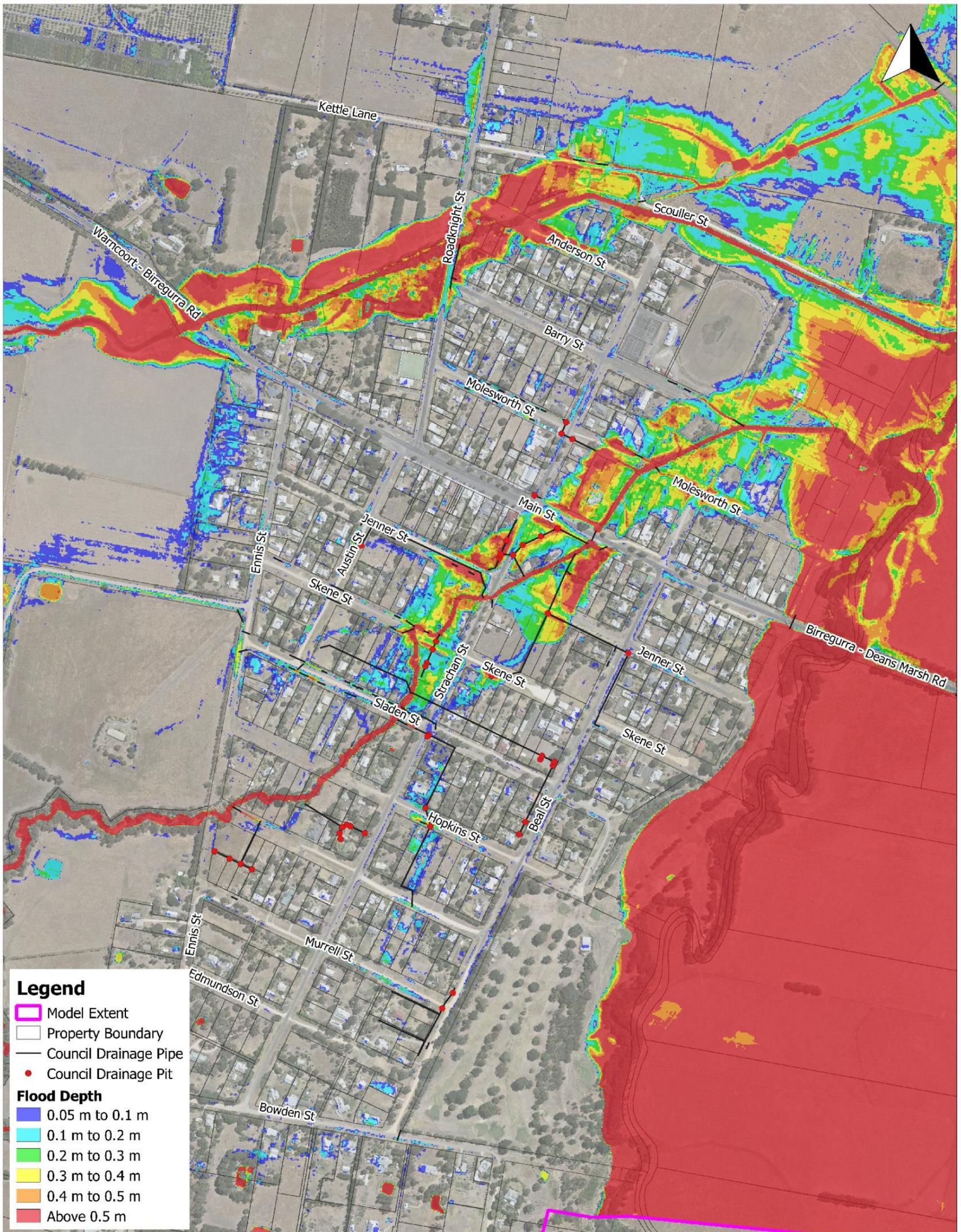
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Map Projection: Transverse Mercator
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 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth - 0.5% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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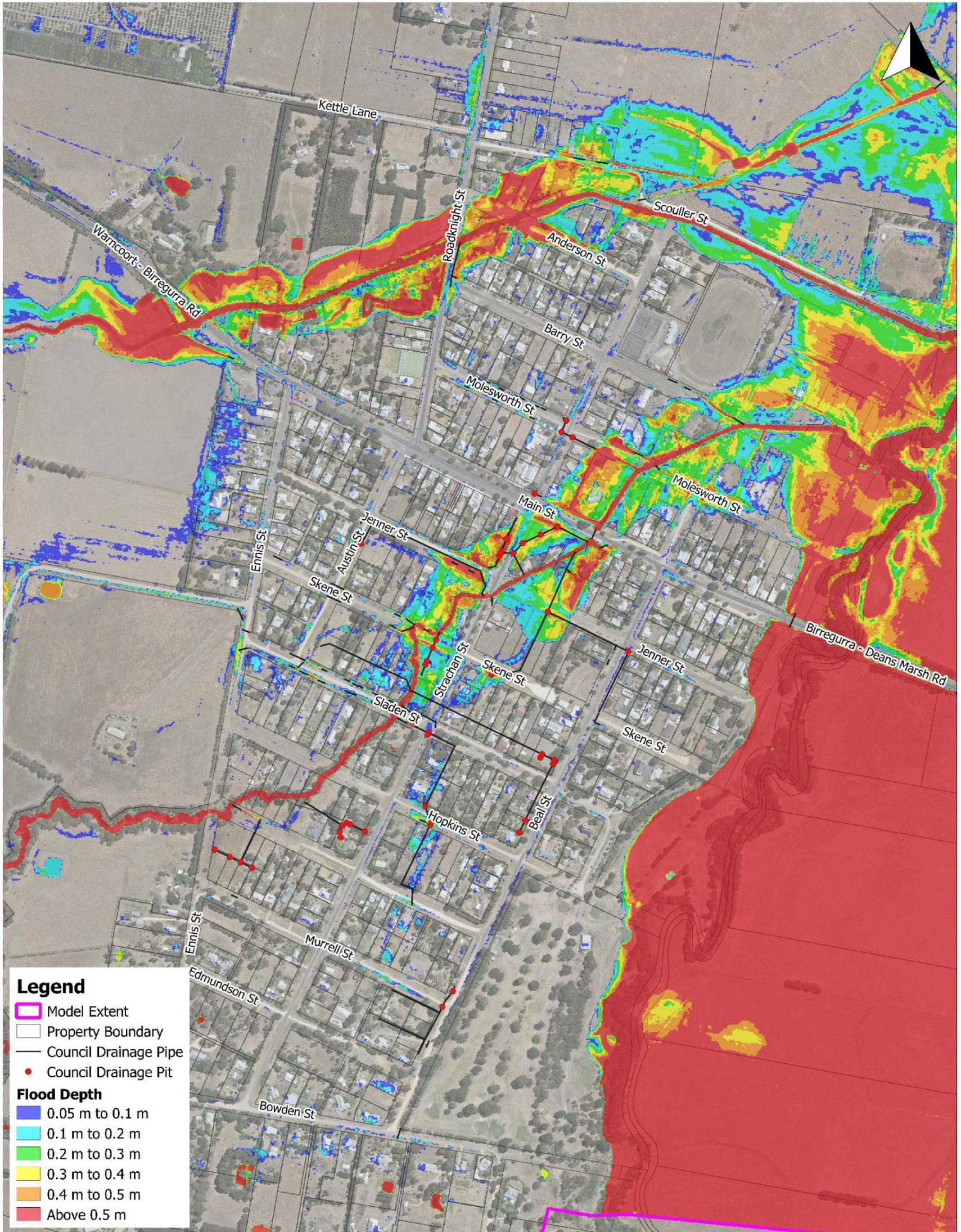
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Map Projection: Transverse Mercator
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 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth - 1% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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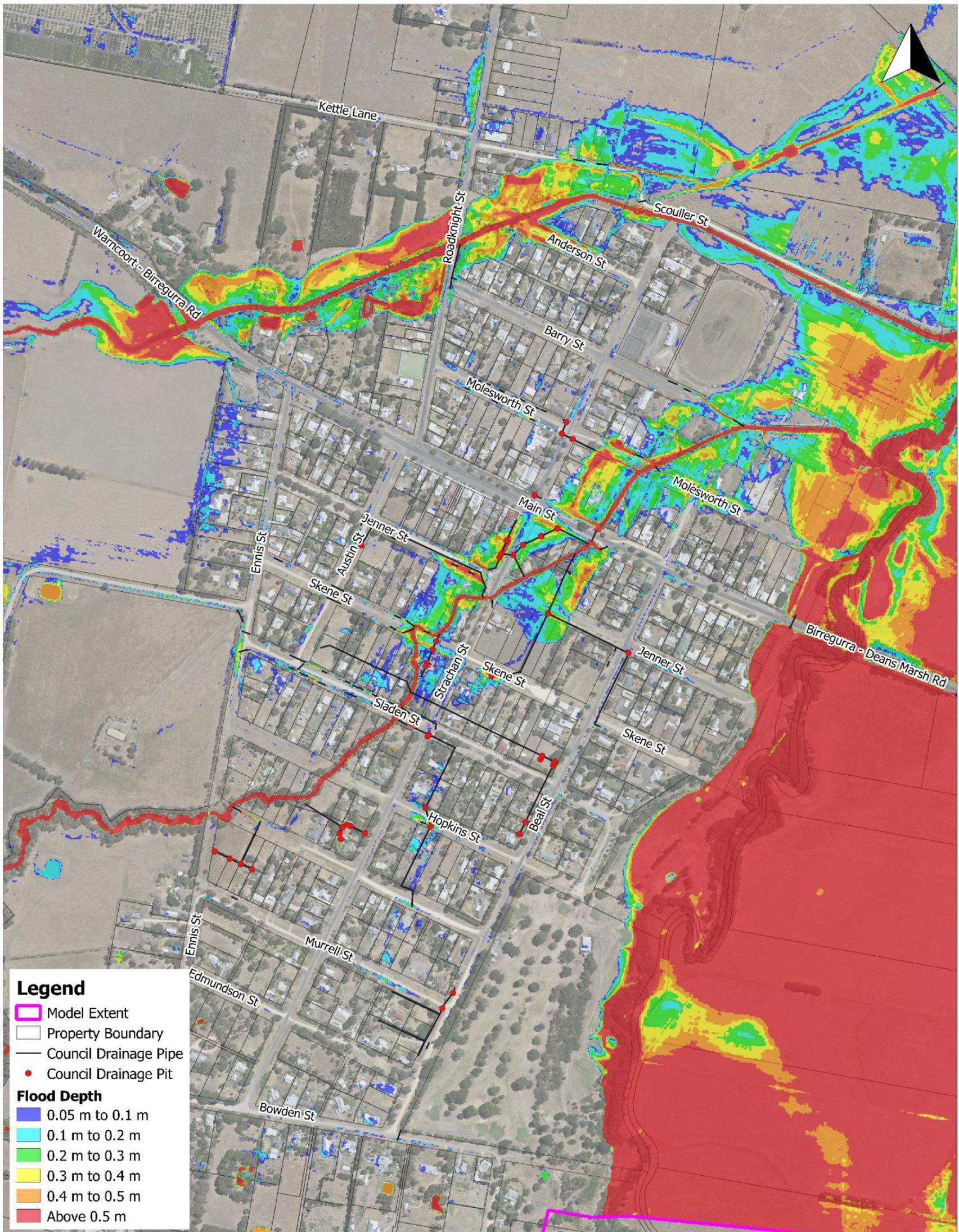
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Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth - 2% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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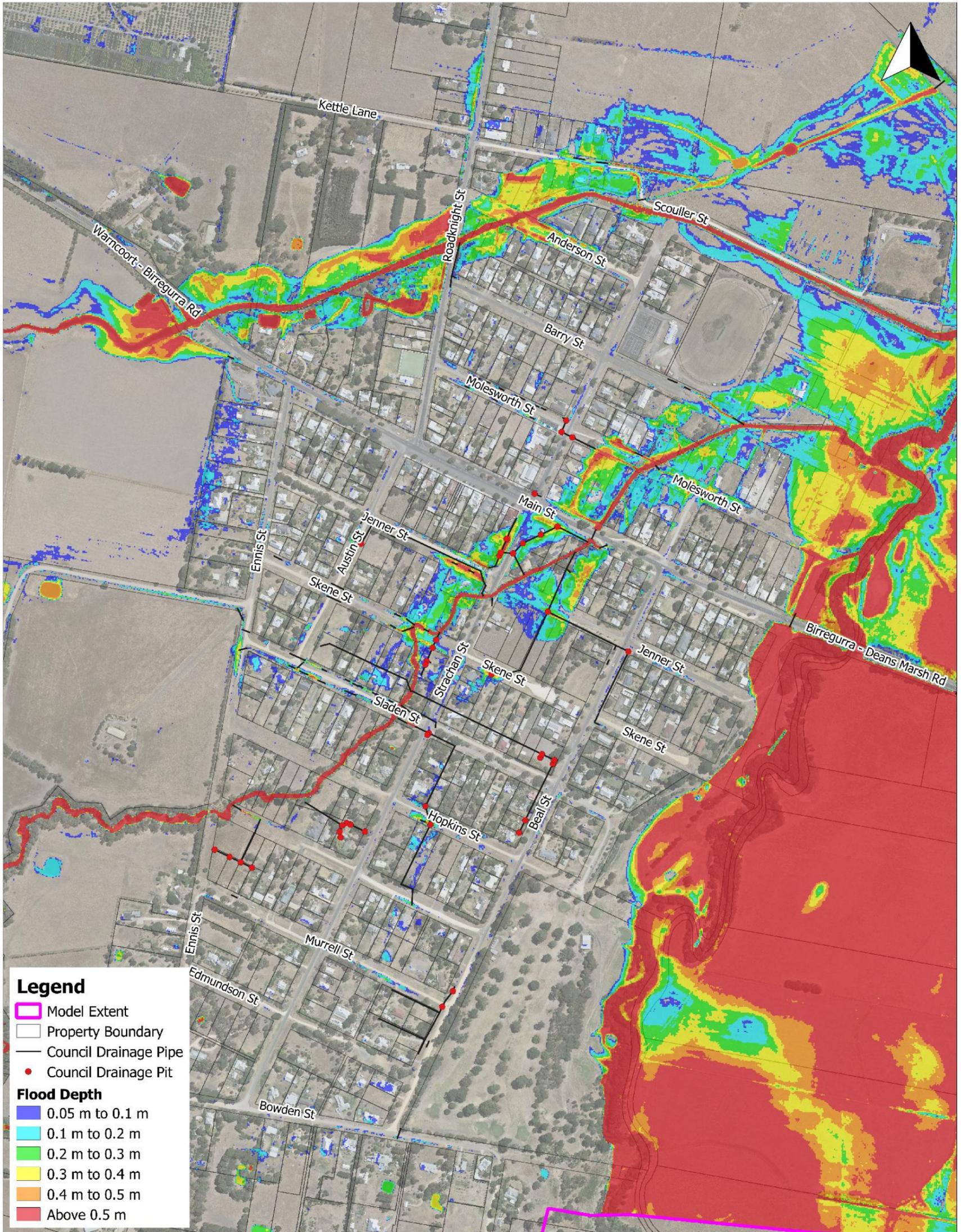
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 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth - 5% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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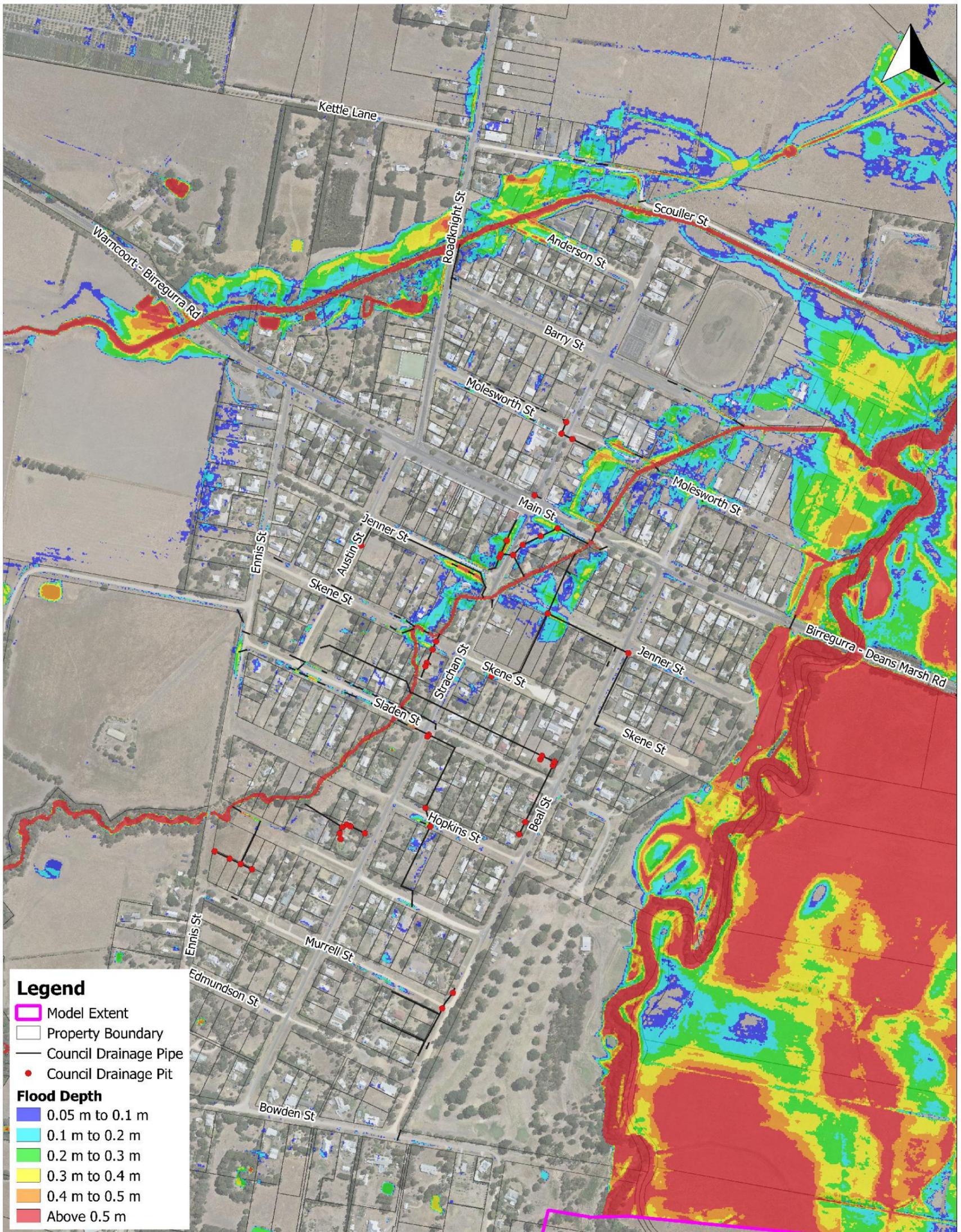
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 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth - 10% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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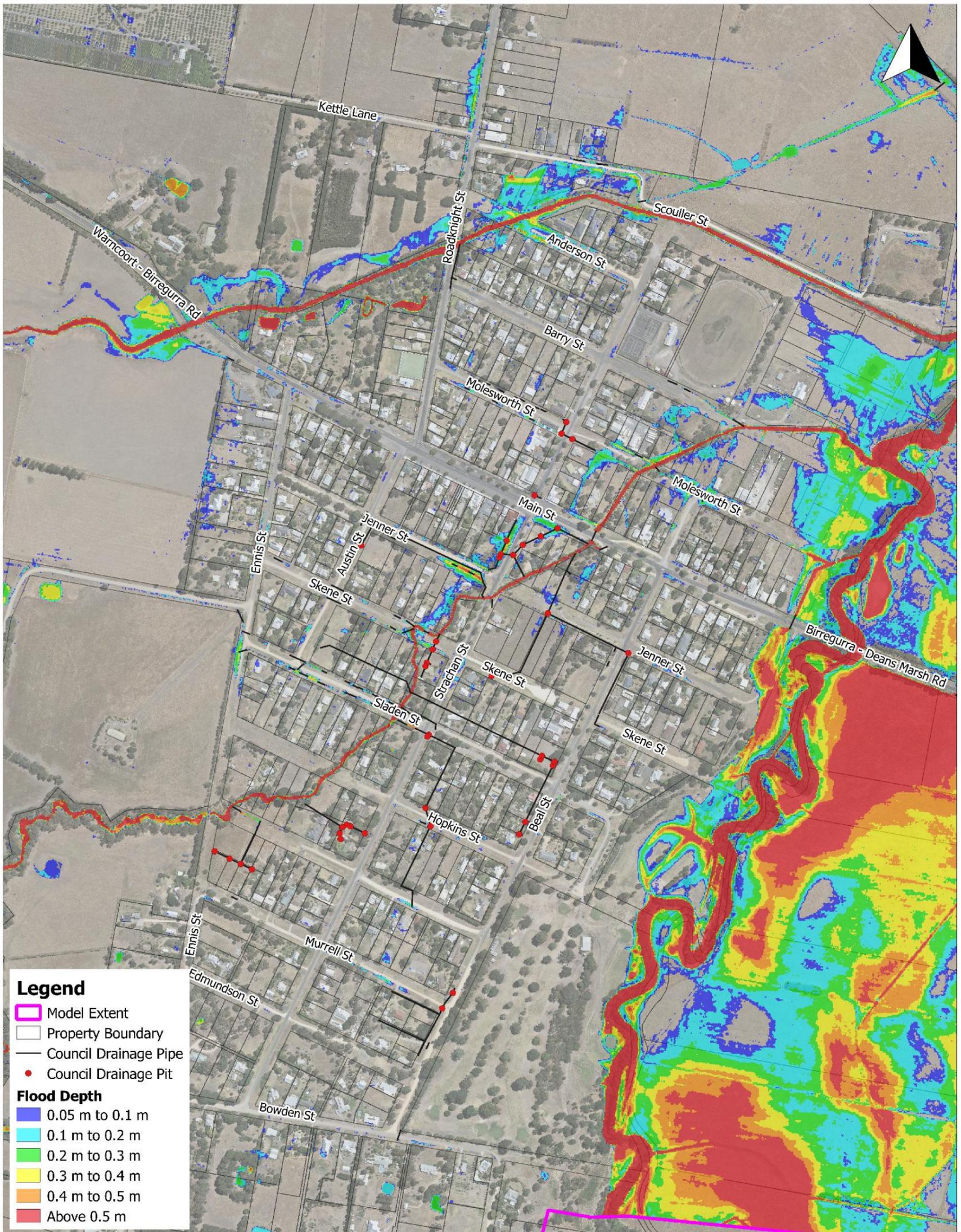
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Birregurra Flood Study

Flood Depth - 20% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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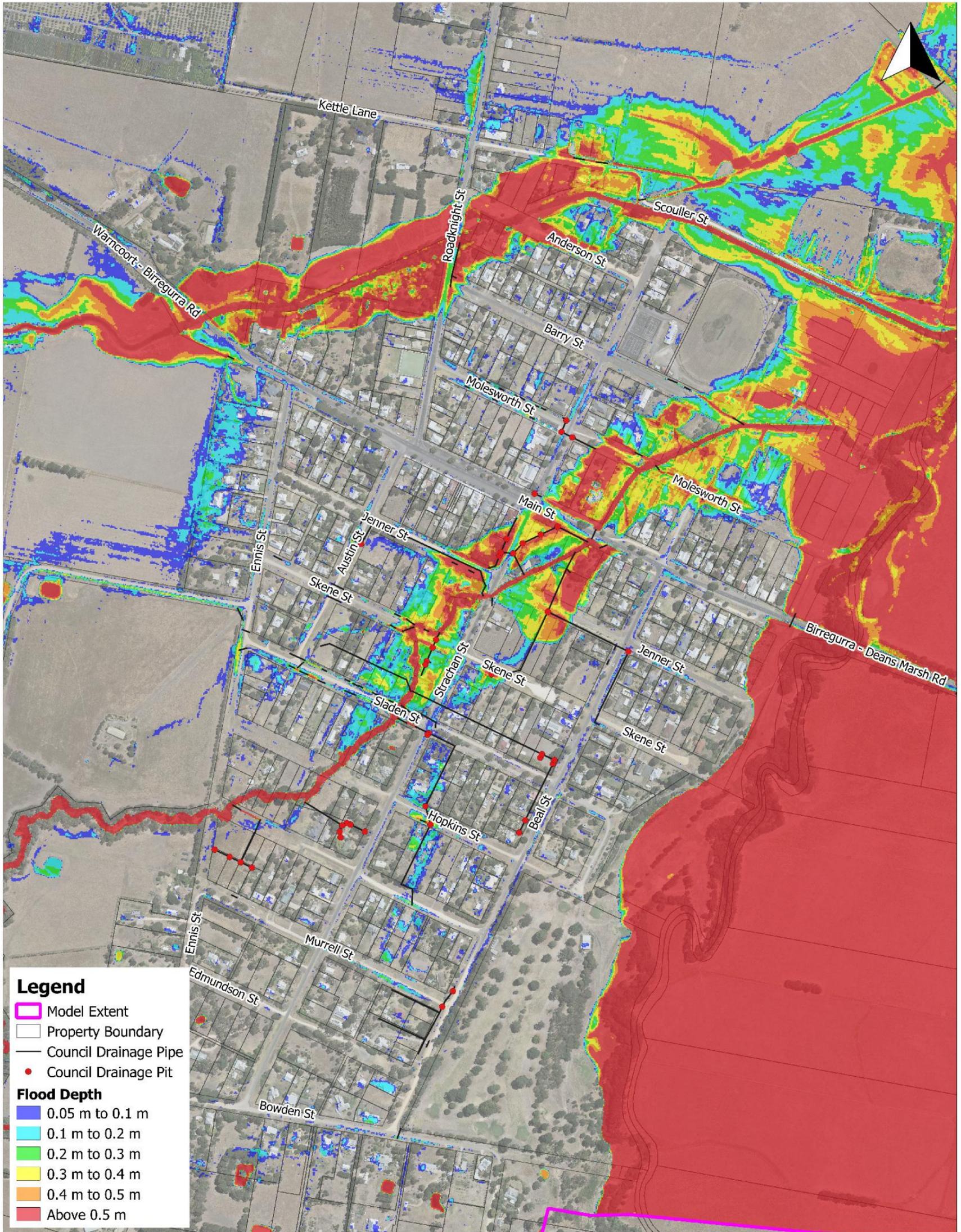
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Birregurra Flood Study

Flood Depth - 39.35% AEP

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020

Appendix G: Climate Change Flood Depth Layout Plans



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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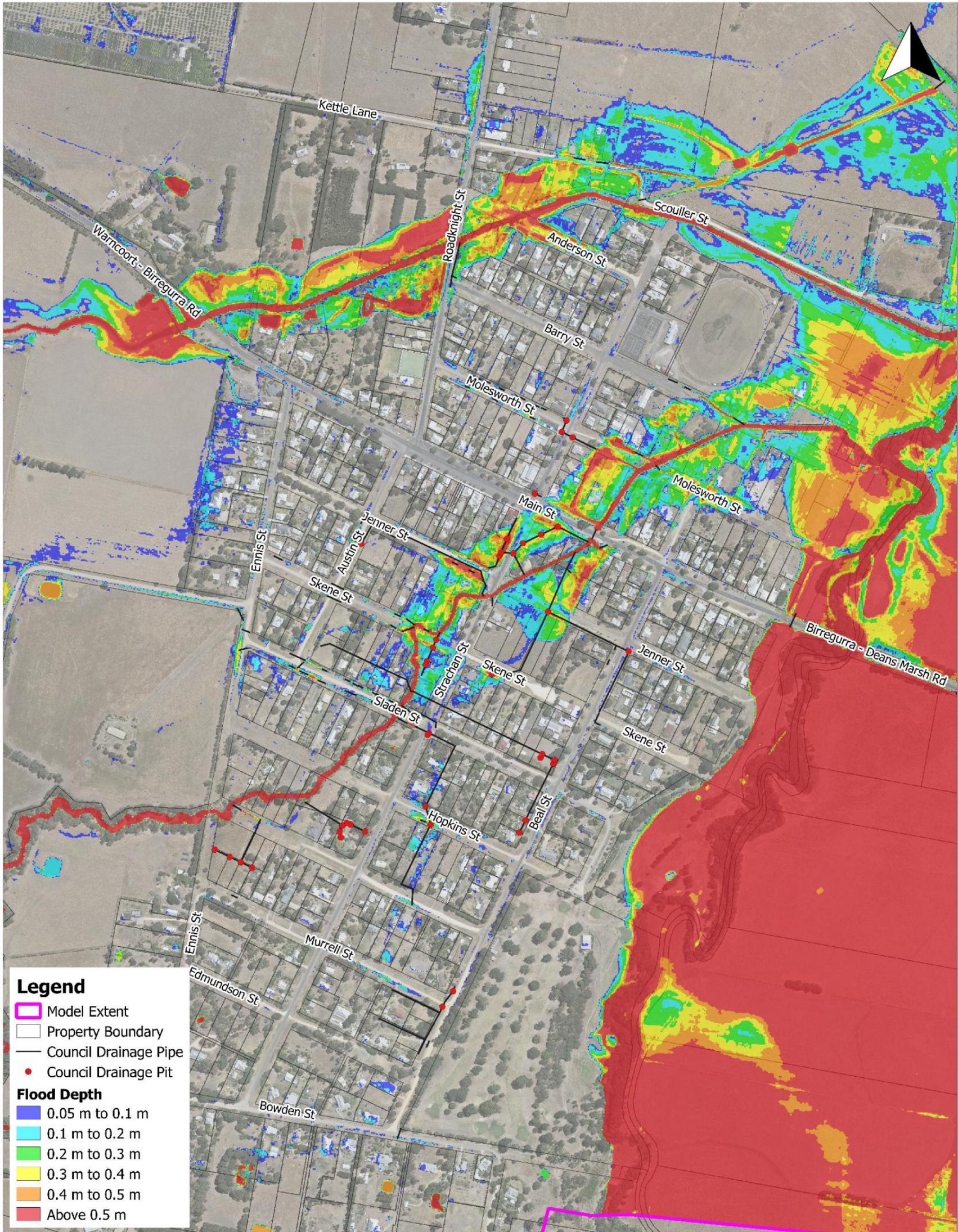
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 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth - 1% AEP Climate Change

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth

- 0.05 m to 0.1 m
- 0.1 m to 0.2 m
- 0.2 m to 0.3 m
- 0.3 m to 0.4 m
- 0.4 m to 0.5 m
- Above 0.5 m

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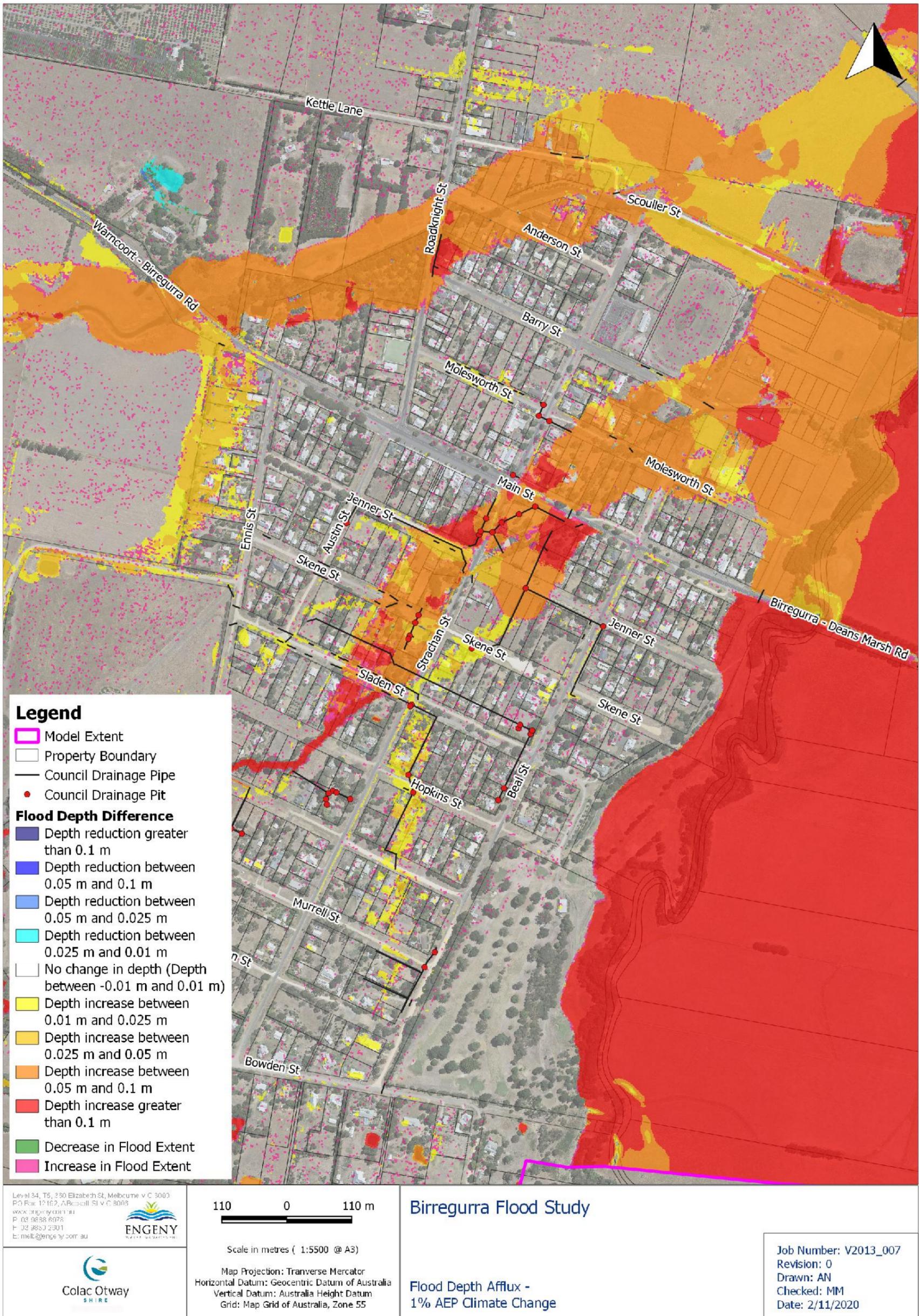
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Birregurra Flood Study

Flood Depth - 10% AEP Climate Change

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/10/2020

Appendix H: Climate Change Flood Depth Afflux Layout Plans



Legend

- Model Extent
- Property Boundary
- Council Drainage Pipe
- Council Drainage Pit

Flood Depth Difference

- Depth reduction greater than 0.1 m
- Depth reduction between 0.05 m and 0.1 m
- Depth reduction between 0.05 m and 0.025 m
- Depth reduction between 0.025 m and 0.01 m
- No change in depth (Depth between -0.01 m and 0.01 m)
- Depth increase between 0.01 m and 0.025 m
- Depth increase between 0.025 m and 0.05 m
- Depth increase between 0.05 m and 0.1 m
- Depth increase greater than 0.1 m
- Decrease in Flood Extent
- Increase in Flood Extent

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110 0 110 m



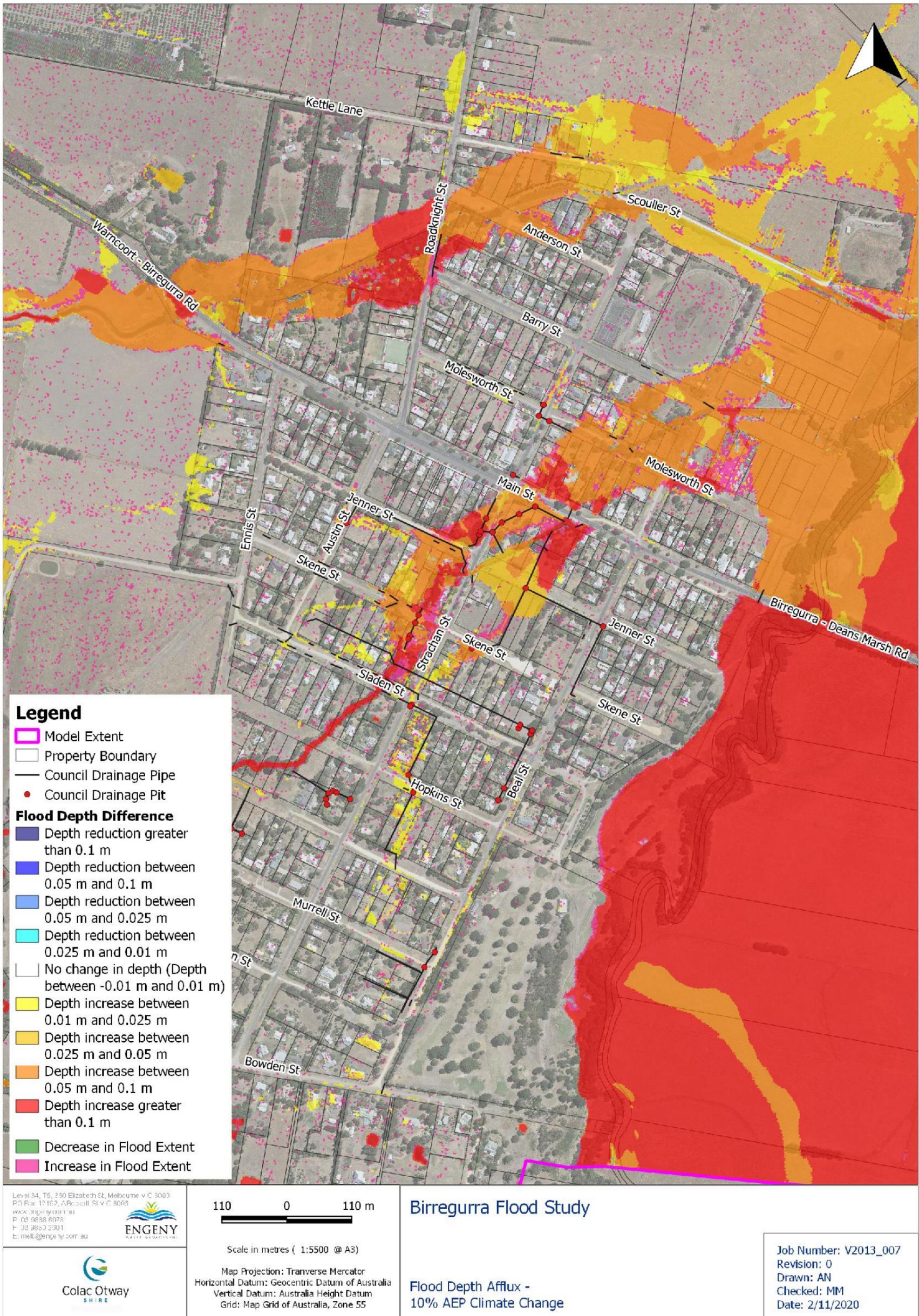
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 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Flood Depth Afflux -
 1% AEP Climate Change

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 2/11/2020



Appendix I: Climate Change Flood Hazard Comparison Layout Plan



**1% AEP Existing Climate Conditions
ARR 2019 Flood Hazard**

**1% AEP Existing Climate Conditions
ARR 2019 Flood Hazard**

Legend

- Property Boundary
- Pipe
- Pit

ARR 2019 Flood Hazard

- H1
- H2
- H3
- H4
- H5
- H6

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190 0 190 m
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Vertical Datum: Australia Height Datum
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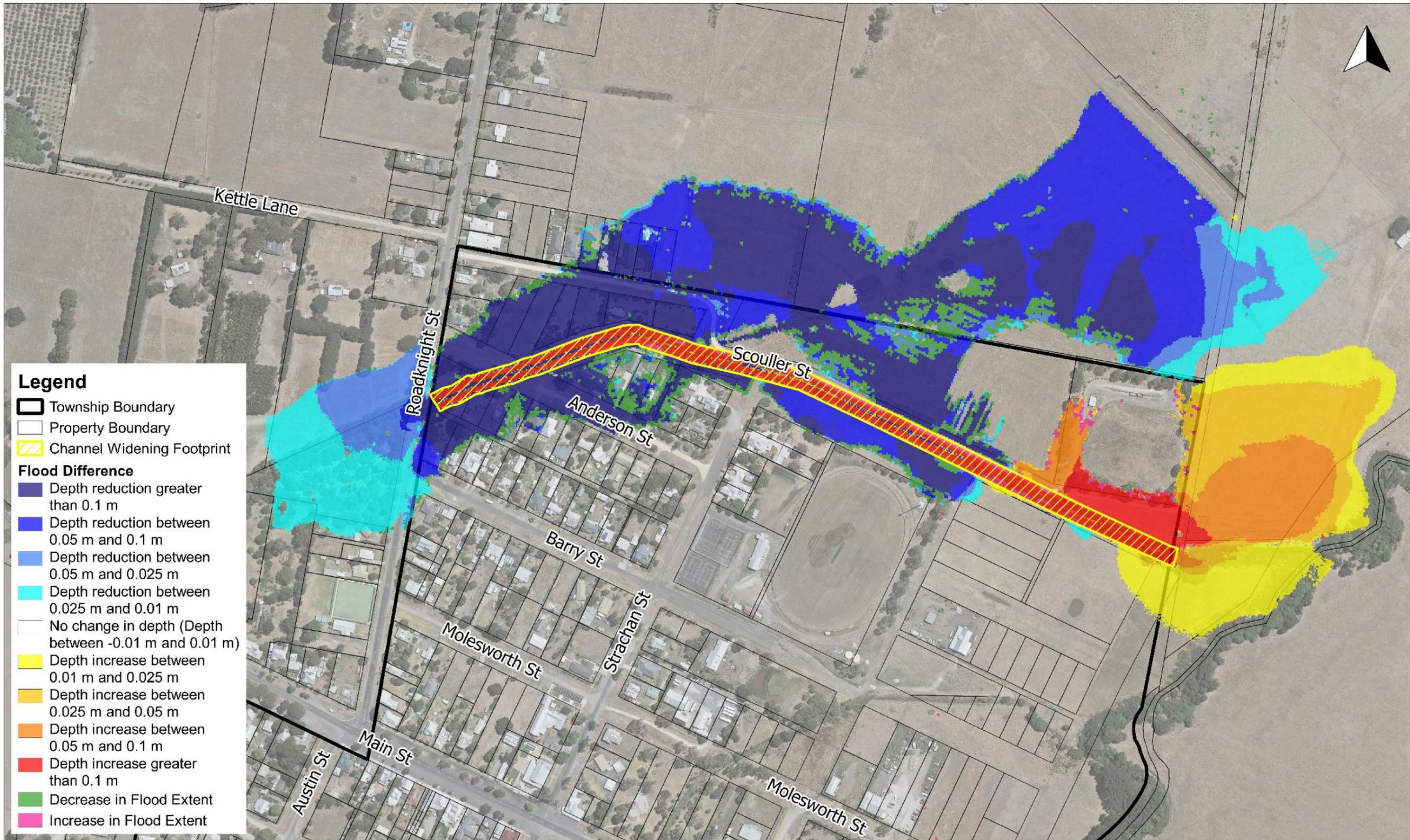
Birregurra Flood Study

1% AEP Climate Change Flood Hazard Comparison
Layout Plan

Job Number: V2013_007
Revision: 0
Drawn: AN
Checked: MM
Date: 30/11/2020

Appendix J:

Mitigation Modelling Flood Depth Afflux Layout Plans



Legend

- Township Boundary
- Property Boundary
- Channel Widening Footprint

Flood Difference

- Depth reduction greater than 0.1 m
- Depth reduction between 0.05 m and 0.1 m
- Depth reduction between 0.05 m and 0.025 m
- Depth reduction between 0.025 m and 0.01 m
- No change in depth (Depth between -0.01 m and 0.01 m)
- Depth increase between 0.01 m and 0.025 m
- Depth increase between 0.025 m and 0.05 m
- Depth increase between 0.05 m and 0.1 m
- Depth increase greater than 0.1 m
- Decrease in Flood Extent
- Increase in Flood Extent

Level 34, Tenancy 5, 360 Elizabeth St,
Melbourne VIC 3000
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Colac Otway
SHIRE

40 0 40 80 120 160 m

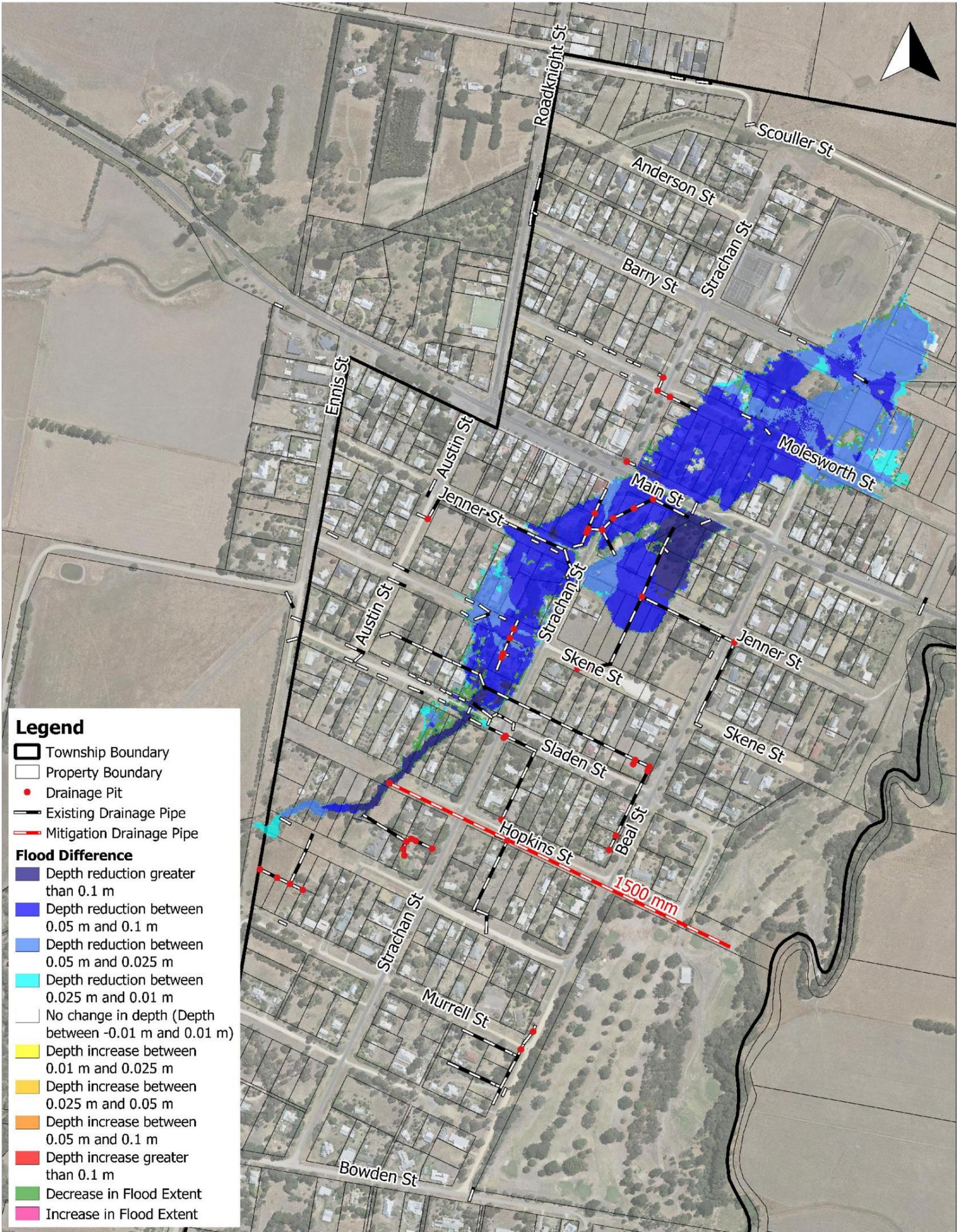
Scale in metres (1:3600 @ A3)

Map Projection: Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Vertical Datum: Australia Height Datum
Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

**Mitigation Option 1- Atkins Creek Waterway
Widening
1 % AEP Flood Depth Afflux**

Job Number: V2013_007
Revision: 0
Drawn: AN
Checked: MM
Date: 30/11/2020



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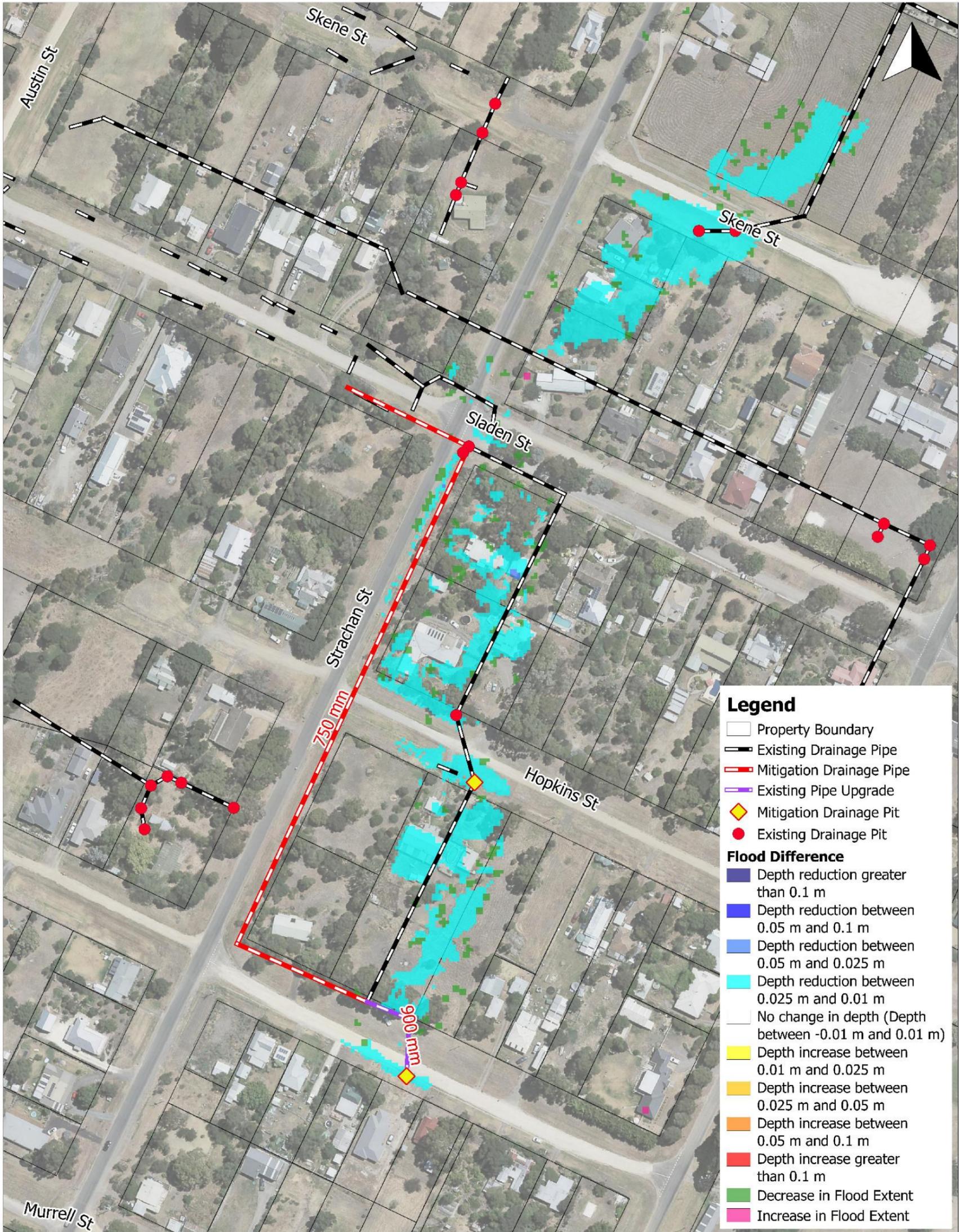


Scale in metres (1:4800 @ A3)
 Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Mitigation Option 4 - Hopkins Street Pipe Diversion
 1 % AEP Flood Depth Afflux

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/11/2020



Legend

- Property Boundary
- Existing Drainage Pipe
- - - Mitigation Drainage Pipe
- Existing Pipe Upgrade
- ◇ Mitigation Drainage Pit
- Existing Drainage Pit

Flood Difference

- Depth reduction greater than 0.1 m
- Depth reduction between 0.05 m and 0.1 m
- Depth reduction between 0.05 m and 0.025 m
- Depth reduction between 0.025 m and 0.01 m
- No change in depth (Depth between -0.01 m and 0.01 m)
- Depth increase between 0.01 m and 0.025 m
- Depth increase between 0.025 m and 0.05 m
- Depth increase between 0.05 m and 0.1 m
- Depth increase greater than 0.1 m
- Decrease in Flood Extent
- Increase in Flood Extent

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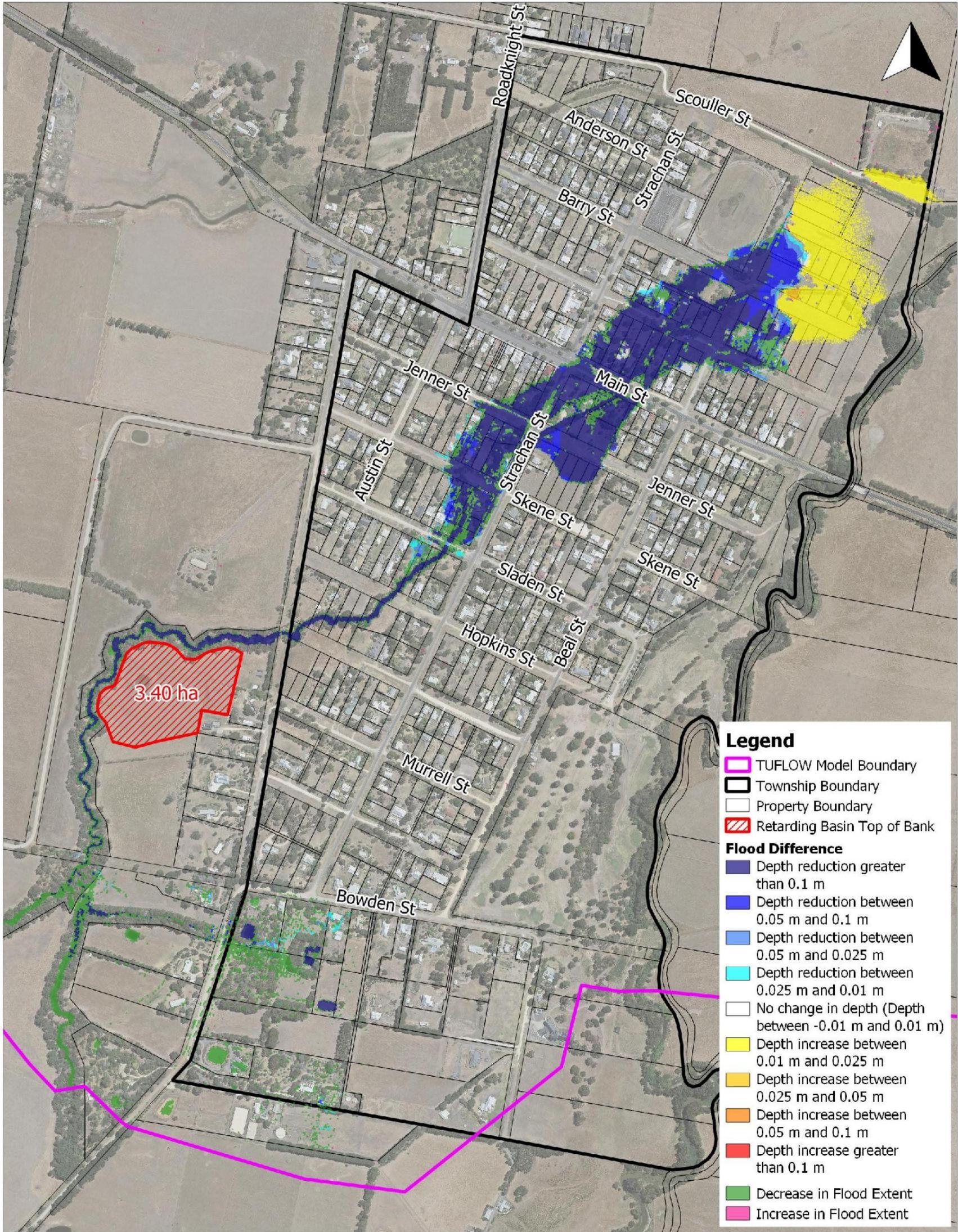
Scale in metres (1:1500 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Mitigation Option 5 - Drainage Upgrades Between
 Prime & Sladen Street
 1 % AEP Flood Depth Afflux

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 30/11/2020



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150 0 150 m

Scale in metres (1:6200 @ A3)

Map Projection: Transverse Mercator
 Horizontal Datum: Geocentric Datum of Australia
 Vertical Datum: Australia Height Datum
 Grid: Map Grid of Australia, Zone 55

Birregurra Flood Study

Mitigation Option 3 - Unnamed Trib Retarding Basin
 1 % AEP Flood Depth Afflux

Job Number: V2013_007
 Revision: 0
 Drawn: AN
 Checked: MM
 Date: 21/12/2020

Appendix K: Planning Overlays Parent Clauses

VICTORIA PLANNING PROVISIONS

44.0331/07/2018
VC148**FLOODWAY OVERLAY**

Shown on the planning scheme map as **FO** or **RFO** with a number (if shown).

Purpose

To implement the Municipal Planning Strategy and the Planning Policy Framework.

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

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

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

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

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

44.03-131/07/2018
VC148**Floodway objectives and statement of risk**

A schedule to this overlay may contain:

- Floodway management objectives to be achieved.
- A statement of risk.

44.03-224/01/2020
VC160**Buildings and works**

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

- A fence.
- Roadworks, if the water flow path is redirected or obstructed.
- Bicycle pathways and trails.
- Public toilets.
- A domestic swimming pool or spa and associated mechanical and safety equipment if associated with one dwelling on a lot.
- Rainwater tank with a capacity of not more than 10,000 litres.
- A pergola or verandah, including an open-sided pergola or verandah to a dwelling with a finished floor level not more than 800mm above ground level and a maximum building height of 3 metres above ground level.
- A deck, including a deck to a dwelling with a finished floor level not more than 800mm above ground level.
- A non-domestic disabled access ramp.
- A dependent person's unit.

This does not apply:

- If a schedule to this overlay specifically states that a permit is not required.
- To flood mitigation works carried out by the responsible authority or floodplain management authority.

VICTORIA PLANNING PROVISIONS

- To the following works in accordance with plans prepared to the satisfaction of the responsible authority:
 - The laying of underground sewerage, water and gas mains, oil pipelines, underground telephone lines and underground power lines provided they do not alter the topography of the land.
 - The erection of telephone or power lines provided they do not involve the construction of towers or poles.
- To post and wire and post and rail fencing.

44.03-3

31/07/2018
VC148

Subdivision

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

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

44.03-4

31/07/2018
VC148

Application requirements

Local floodplain development plan

If a local floodplain development plan has been developed for the area and has been incorporated into this scheme, an application must be consistent with the plan.

Flood risk report

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

- The Municipal Planning Strategy and the Planning Policy Framework.
- The existing use and development of the land.
- Whether the proposed use or development could be located on flood-free land or land with a lesser flood hazard outside this overlay.
- The susceptibility of the development to flooding and flood damage.
- The potential flood risk to life, health and safety associated with the development. Flood risk factors to consider include:
 - The frequency, duration, extent, depth and velocity of flooding of the site and accessway.
 - The flood warning time available.
 - The danger to the occupants of the development, other floodplain residents and emergency personnel if the site or accessway is flooded.
- The effect of the development on redirecting or obstructing floodwater, stormwater or drainage water and the effect of the development on reducing flood storage and increasing flood levels and flow velocities.
- The effects of the development on river health values including wetlands, natural habitat, stream stability, erosion, environmental flows, water quality and sites of scientific significance.

VICTORIA PLANNING PROVISIONS

- An application must be accompanied by any information specified in a schedule to this overlay.

44.03-5

31/07/2018
VC148

Exemption from notice and review

An application under this overlay is exempt from the notice requirements of section 52(1)(a), (b) and (d), the decision requirements of section 64(1), (2) and (3) and the review rights of section 82(1) of the Act.

44.03-6

31/07/2018
VC148

Referral of applications

An application must be referred to the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority.

44.03-7

31/07/2018
VC148

Decision guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The Municipal Planning Strategy and the Planning Policy Framework.
- The local floodplain development plan or flood risk report.
- Any comments of the relevant floodplain management authority.
- The Victorian River Health Strategy (2002) and any relevant regional river health strategy and associated wetland plan.
- Any other matters specified in a schedule to this overlay.

VICTORIA PLANNING PROVISIONS

44.0431/07/2018
VC148**LAND SUBJECT TO INUNDATION OVERLAY**

Shown on the planning scheme map as **LSIO** with a number (if shown).

Purpose

To implement the Municipal Planning Strategy and the Planning Policy Framework.

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

To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.

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

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

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

44.04-124/01/2020
VC160**Land subject to inundation objectives and statement of risk**

A schedule to this overlay may contain:

- Land subject to inundation management objectives to be achieved.
- A statement of risk.

44.04-231/07/2018
VC148**Buildings and works**

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

- A fence.
- Roadworks, if the water flow path is redirected or obstructed.
- Bicycle pathways and trails.
- Public toilets.
- A domestic swimming pool or spa and associated mechanical and safety equipment if associated with one dwelling on a lot.
- Rainwater tank with a capacity of not more than 10,000 litres.
- A pergola or verandah, including an open-sided pergola or verandah to a dwelling with a finished floor level not more than 800mm above ground level and a maximum building height of 3 metres above ground level.
- A deck, including a deck to a dwelling with a finished floor level not more than 800mm above ground level.
- A non-domestic disabled access ramp.
- A dependent person's unit.

This does not apply:

- If a schedule to this overlay specifically states that a permit is not required.
- To flood mitigation works carried out by the responsible authority or floodplain management authority.

VICTORIA PLANNING PROVISIONS

- To the following works in accordance with plans prepared to the satisfaction of the responsible authority:
 - The laying of underground sewerage, water and gas mains, oil pipelines, underground telephone lines and underground power lines provided they do not alter the topography of the land.
 - The erection of telephone or power lines provided they do not involve the construction of towers or poles.
- To post and wire and post and rail fencing.

44.04-3

31/07/2018
VC148

Subdivision

A permit is required to subdivide land.

44.04-4

31/07/2018
VC148

Application requirements

An application must be accompanied by any information specified in a schedule to this overlay.

44.04-5

31/07/2018
VC148

Local floodplain development plan

If a local floodplain development plan has been developed for the area and has been incorporated into this scheme, an application must be consistent with the plan.

44.04-6

31/07/2018
VC148

Exemption from notice and review

An application under this overlay is exempt from the notice requirements of section 52(1)(a), (b) and (d), the decision requirements of section 64(1), (2) and (3) and the review rights of section 82(1) of the Act.

44.04-7

31/07/2018
VC148

Referral of applications

An application must be referred to the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority, the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the floodplain management authority.

44.04-8

24/01/2020
VC160

Decision guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The Municipal Planning Strategy and the Planning Policy Framework.
- Any local floodplain development plan.
- Any comments from the relevant floodplain management authority.
- The existing use and development of the land.
- Whether the proposed use or development could be located on flood-free land or land with a lesser flood hazard outside this overlay.
- The susceptibility of the development to flooding and flood damage.
- The potential flood risk to life, health and safety associated with the development. Flood risk factors to consider include:
 - The frequency, duration, extent, depth and velocity of flooding of the site and accessway.

VICTORIA PLANNING PROVISIONS

- The flood warning time available.
- The danger to the occupants of the development, other floodplain residents and emergency personnel if the site or accessway is flooded.
- The effect of the development on redirecting or obstructing floodwater, stormwater or drainage water and the effect of the development on reducing flood storage and increasing flood levels and flow velocities.
- The effect of the development on river health values including wetlands, natural habitat, stream stability, erosion, environmental flows, water quality and sites of scientific significance.
- Any other matters specified in a schedule to this overlay.

44.0531/07/2018
VC148**SPECIAL BUILDING OVERLAY**

Shown on the planning scheme map as **SBO** with a number (if shown).

Purpose

To implement the Municipal Planning Strategy and the Planning Policy Framework.

To identify land in urban areas liable to inundation by overland flows from the urban drainage system as determined by, or in consultation with, the floodplain management authority.

To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.

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

44.05-131/07/2018
VC148**Flooding management objectives and statement of risk**

A schedule to this overlay may contain:

- Flooding management objectives to be achieved.
- A statement of risk.

44.05-231/07/2018
VC148**Buildings and works**

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

- A fence.
- Roadworks, if the water flow path is redirected or obstructed.
- Bicycle pathways and trails.
- Public toilets.
- A domestic swimming pool or spa and associated mechanical and safety equipment if associated with one dwelling on a lot.
- A rainwater tank with a capacity of not more than 10,000 litres.
- A pergola or verandah, including an open-sided pergola or verandah to a dwelling with a finished floor level not more than 800mm above ground level and a maximum building height of 3 metres above ground level.
- A deck, including a deck to a dwelling with a finished floor level not more than 800mm above ground level.
- A non-domestic disabled access ramp.
- A dependent person's unit.

This does not apply:

- If a schedule to this overlay specifically states that a permit is not required.
- To flood mitigation works carried out by the responsible authority or floodplain management authority.
- To the following works in accordance with plans prepared to the satisfaction of the responsible authority:
 - The laying of underground sewerage, water and gas mains, oil pipelines, underground telephone lines and underground power lines provided they do not alter the topography of the land.

- The erection of telephone or power lines provided they do not involve the construction of towers or poles designed to operate at more than 66,000 volts.
- To landscaping, driveways, vehicle cross overs, footpaths or bicycle paths if there is no significant change to existing surface levels, or if the relevant floodplain management authority has agreed in writing that the flowpath is not obstructed.
- To an extension of less than 20 square metres in floor area to an existing building (not including an out-building), where the floor levels are constructed to at least 300mm above the flood level or if the relevant floodplain management authority has agreed in writing that the flowpath is not obstructed.
- To an upper storey extension to an existing building.
- To an alteration to an existing building where the original building footprint remains the same and floor levels are constructed to at least 300mm above flood level.
- To an out-building (including replacement of an existing building) if the out-building is less than 10 square metres in floor area and constructed to at least 150mm above the flood level or the relevant floodplain management authority has agreed in writing that the flowpath is not obstructed.
- To a replacement building (not including an out-building) if it is constructed to at least 300mm above the flood level and the original building footprint remains the same. The responsible authority may require evidence of the existing building envelope.
- To fencing with at least 25% openings and with the plinth at least 300mm above the flood level.
- To a replacement fence in the same location and of the same type and materials as the existing fence.
- To a pergola or an open deck area with unenclosed foundations.
- To a carport constructed over an existing carspace.
- To an in-ground swimming pool and associated security fencing, where the perimeter edging of the pool is constructed at natural surface levels and excavated material is removed from the flowpath.
- To a tennis court at existing surface level with fencing designed to minimise obstruction to flows.
- To an aviary or other enclosure for a domestic animal if it is less than 10 square metres in floor area at ground level.
- To open sided verandahs, open sided picnic shelters, barbeques and park furniture (excluding playground equipment) if there is less than 30mm change to existing surface levels.
- To radio masts, light poles or signs on posts or attached to buildings.

VicSmart applications

Subject to Clause 71.06, an application under this clause for a development specified in Column 1 is a class of VicSmart application and must be assessed against the provision specified in Column 2.

Class of application	Information requirements and decision guidelines
Construct a building or construct or carry out works.	Clause 59.08

44.05-3

31/07/2018
VC148

Subdivision

A permit is required to subdivide land.

VicSmart applications

Subject to Clause 71.06, an application under this clause for a development specified in Column 1 is a class of VicSmart application and must be assessed against the provision specified in Column 2.

Class of application	Information requirements and decision guidelines
<p>Any of the following classes of subdivision:</p> <ul style="list-style-type: none"> ▪ Subdivide land to realign the common boundary between 2 lots where the area of either lot is reduced by less than 15 percent and the general direction of the common boundary does not change. ▪ Subdivide land into lots each containing an existing building or car parking space where: <ul style="list-style-type: none"> - The buildings or car parking spaces have been constructed in accordance with the provisions of this scheme or a permit issued under this scheme. - An occupancy permit or a certificate of final inspection has been issued under the Building Regulations in relation to the buildings within 5 years prior to the application for a permit for subdivision. ▪ Subdivide land into 2 lots if: <ul style="list-style-type: none"> - The construction of a building or the construction or carrying out of works on the land is approved under this scheme or by a permit issued under this scheme and the permit has not expired. - The construction or carrying out of the approved building or works on the land has started lawfully. - The subdivision does not create a vacant lot. 	<p>Clause 59.08</p>

44.05-4
31/07/2018
VC148

Application requirements

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

- The boundaries and dimensions of the site.
- Relevant existing and proposed ground levels, to Australian Height Datum, taken by or under the direction or supervision of a licensed land surveyor.
- The layout, size and use of existing and proposed buildings and works, including vehicle parking areas.
- Floor levels of any existing and proposed buildings to Australian Height Datum.
- Cross sectional details of any basement entry ramps and other basement entries to Australian Height Datum, showing floor levels of entry and exit areas and drainage details.
- Any other application requirements specified in a schedule to this overlay.

Local floodplain development plan

If a local floodplain development plan has been developed for the area and has been incorporated into this scheme, an application must be consistent with the plan.

44.05-5

31/07/2018
VC148

Exemption from notice and review

An application under this overlay is exempt from the notice requirements of section 52(1)(a), (b) and (d), the decision requirements of section 64(1), (2) and (3) and the review rights of section 82(1) of the Act.

44.05-6

31/07/2018
VC148

Referral of applications

An application must be referred to the relevant floodplain management authority under Section 55 of the Act unless in the opinion of the responsible authority, the proposal satisfies requirements or conditions previously agreed to in writing between the responsible authority and the floodplain management authority.

44.05-7

31/07/2018
VC148

Decision guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- The Municipal Planning Strategy and the Planning Policy Framework.
- Any local floodplain development plan.
- Any comments from the relevant floodplain management authority.
- The existing use and development of the land.
- Whether the proposed use or development could be located on flood-free land or land with a lesser flood hazard outside this overlay.
- The susceptibility of the development to flooding and flood damage.
- Flood risk factors to consider include:
 - The frequency, duration, extent, depth and velocity of flooding of the site and accessway.
 - The flood warning time available.
 - The danger to the occupants of the development, other floodplain residents and emergency personnel if the site or accessway is flooded.
- The effect of the development on redirecting or obstructing floodwater, stormwater or drainage water and the effect of the development on reducing flood storage and increasing flood levels and flow velocities.
- Any other matters specified in a schedule to this overlay.

Appendix L:

Draft Birregurra Planning Schedules

COLAC OTWAY PLANNING SCHEME

DRAFT SCHEDULE 1 TO CLAUSE 44.04 LAND SUBJECT TO INUNDATION OVERLAY

Shown on the planning scheme map as **LSIO1**.

LAND SUBJECT TO INUNDATION OVERLAY SCHEDULE 1**1.0 Land subject to inundation objectives to be achieved**

None specified.

2.0 Statement of risk

None specified.

3.0 Permit requirement

A permit is not required for the following:

New buildings, including extensions

- If the floor level of the building is finished at least 300mm above the 100 year ARI flood level and meets the safety hazard of FMA, and
- If the new building is constructed on stumps (or piers) and bearers, and
- Cladding to the sub floor structure of the extension has openings or is of an open style (such as spaced timber boards) to allow automatic entry and exit of flood water for all floods up to the 1 per cent AEP event, and
- Earthworks including any driveways, paths or services that do not alter the natural ground level.

External alterations to existing buildings

- If the original building footprint remains the same

Repairs and routine maintenance of existing fences

- If the fence design and material remains the same.

New or replacement fence

- A post and wire fence with:
 - Post spacing no less than three metres apart
 - Single wires spaced no more than one horizontal strand per 200mm.
- A post and rail fence with:
 - Post spacing no less than three metres apart
 - Rails no more than 150mm wide
 - Rails spaced no less than 200mm apart
 - Bottom rail no less than 150mm off the ground.
- Tubular steel/pool fencing.

Other buildings and works

- A building which is open on all sides including a pergola, carport, domestic shed, animal enclosure outbuildings, stockyard or agricultural sheds with unenclosed foundations.
- A ramp, verandah or decking and similar structures with a floor raised on stumps or piers and with unenclosed foundations

COLAC OTWAY PLANNING SCHEME

- Road works or works including footpath/shared paths, bicycle path, car parks, access ways, pathways or driveways (public or private) that do not change the natural ground level
- A mast, antenna, satellite dish, power pole, light pole, or telecommunication tower
- An outdoor advertising sign/structure provided it does not alter flood flows or floodplain storage capacity
- Repairs and routine maintenance that do not affect the height, length, width or location of a levee or embankment
- A rainwater tank with a capacity of not more than 5000 litres
- A shed of 20sqm or less gross floor area
- An in-ground domestic swimming pool or spa, and associated mechanical and safety equipment, providing that:
 - The excavated spoil is removed from within the 100 year ARI floodplain; and
 - The perimeter edging of the pool is finished at natural ground level; and
 - Security pool fencing is of an open style.
- A sportsground, racecourse or recreation area, pathways and trails constructed at general natural surface elevation, playground, open picnic shelter, picnic table, drinking tap, rubbish bin, barbecue and or similar works associated with a park, recreation area and or public places.

4.0 Application requirements

None specified.

5.0 Decision guidelines

None specified.

COLAC OTWAY PLANNING SCHEME

DRAFT SCHEDULE 1 TO CLAUSE 44.05 SPECIAL BUILDING OVERLAY

Shown on the planning scheme map as **SBO1**.

SPECIAL BUILDING OVERLAY SCHEDULE 1**1.0 Flooding management objectives to be achieved**

None specified.

2.0 Statement of risk

None specified.

3.0 Permit requirement

A permit is not required for the following:

New buildings, including extensions

- If the floor level of the building is finished at least 300mm above the 100 year ARI flood level and meets the safety hazard of FMA, and
- If the new building is constructed on stumps (or piers) and bearers, and
- Cladding to the sub floor structure of the extension has openings or is of an open style (such as spaced timber boards) to allow automatic entry and exit of flood water for all floods up to the 1 per cent AEP event, and
- Earthworks including any driveways, paths or services that do not alter the natural ground level.

Other buildings and works

- A building which is open on all sides including a domestic shed, stockyard or agricultural sheds with unenclosed foundations.
- A ramp, verandah or decking and similar structures with a floor raised on stumps or piers and with unenclosed foundations
- An antenna, satellite dish, power pole, or telecommunication tower
- Repairs and routine maintenance that do not affect the height, length, width or location of a levee or embankment
- A rainwater tank with a capacity of not more than 5000 litres
- A shed of 20sqm or less gross floor area
- An in-ground domestic swimming pool or spa, and associated mechanical and safety equipment, providing that:
 - The excavated spoil is removed from within the 100 year ARI floodplain; and
 - The perimeter edging of the pool is finished at natural ground level; and
 - Security pool fencing is of an open style.
- A sportsground, racecourse or recreation area, pathways and trails constructed at general natural surface elevation, playground, picnic table, drinking tap, rubbish bin, and or similar works associated with a park, recreation area or public places.

4.0 Application requirements

None specified.

5.0 Decision guidelines

None specified.

COLAC OTWAY PLANNING SCHEME

DRAFT SCHEDULE 1 TO CLAUSE 44.03 FLOODWAY OVERLAY

Shown on the planning scheme map as **FO1**.

FLOODWAY OVERLAY SCHEDULE 1**1.0 Floodway objectives to be achieved**

None specified.

2.0 Statement of risk

None specified

3.0 Permit requirement

A permit is not required for the following:

Replacement buildings

- If the footprint of the replacement building(s) is the same or less than the original building(s), and
- If the floor level of the building is finished at least 300 mm above the 100 year ARI flood level, and
- If the replacement building is constructed on stumps (or piers) and bearers, and
- Cladding to the subfloor structure of the extension has openings or is of an open style (such as spaced timber boards) to allow automatic entry and exit of flood water for all floods up to the 1 per cent AEP event.

External alterations to existing buildings

- If the original building footprint remains the same

Ground level extensions to existing buildings

- If the floor level of the extension is at least 300mm above the applicable 100 year ARI flood level, and
- The extension of the building is constructed on stumps (or piers) and bearers, and
- Cladding to the subfloor structure of the extension has openings or is of an open style (such as spaced timber boards) to allow automatic entry and exit of flood water for all floods up to the 1 per cent AEP event.
- If the floor level of the extension is not lower than the existing floor level and the combined ground floor area of extensions since 31 December 2018 is no greater than 20sqm.

Upper level extensions to existing buildings

- If there is no increase in the ground floor building footprint other than the floor area exempted above and except for any additions or alterations to the footings to support the extensions to the upper level.

Repairs and routine maintenance of existing fences

- If the fence design and material remains the same.

New or replacement fence

- A post and wire fence with:
 - Post spacing no less than three metres apart
 - Single wires spaced no more than one horizontal strand per 200mm.

COLAC OTWAY PLANNING SCHEME

- A post and rail fence with:
 - Post spacing no less than three metres apart
 - Rails no more than 150mm wide
 - Rails spaced no less than 200mm apart
 - Bottom rail no less than 150mm off the ground.
- Tubular steel/pool fencing.

Other buildings and works

- A building which is open on all sides including a pergola, carport, domestic shed, animal enclosure outbuildings, stockyard or agricultural sheds with unenclosed foundations.
- A ramp, verandah or decking and similar structures with a floor raised on stumps or piers and with unenclosed foundations
- Road works or works including footpath/shared paths, bicycle path, car parks, access ways or driveways (public or private) that do not change the natural ground level
- A mast, antenna, satellite dish, power pole, light pole, or telecommunication tower
- An outdoor advertising sign/structure provided it does not alter flood flows or floodplain storage capacity
- Repairs and routine maintenance that do not affect the height, length, width or location of a levee or embankment
- A rainwater tank with a capacity of not more than 5000 litres
- A shed of 20sqm or less gross floor area
- An in-ground domestic swimming pool or spa, and associated mechanical and safety equipment, providing that:
 - The excavated spoil is removed from within the 100 year ARI floodplain; and
 - The perimeter edging of the pool is finished at natural ground level; and
 - Security pool fencing is of an open style.
- A sportsground, racecourse or recreation area, pathways and trails constructed at general natural surface elevation, playground, open picnic shelter, picnic table, drinking tap, rubbish bin, barbecue and or similar works associated with a park, recreation area and or public places.

4.0 Application requirements

None specified.

5.0 Decision guidelines

None specified.

Appendix M:

Summary of TFWS Building Blocks and Suggested Actions

Appendix Table M. 1: TFWS Building Blocks and Suggested Actions for Birregurra with due regard for the EMMV, Commonwealth-State arrangements for flood warning service provision VFWCC (2001), AIDR (2009) and DELWP (2016)

FFWS Building Blocks	Potential Improvement Actions for Birregurra
DATA COLLECTION COLLATION	<p>& COSC to approach BoM (with support from VICSES, CCMA and DELWP) to request necessary changes to enable near real-time public access to rain data from the Ricketts Marsh gauge via the BoM website (e.g. 15 minute updates).</p> <p>Alternatively, COSC to approach CCMA to request that telemetry be added to the Colac rain gauge and that BoM be requested to enable near real-time public access to rain data from that gauge via the BoM website (e.g. 15 minute updates).</p> <p>COSC to arrange for the installation of a set of staff gauges on the upstream side of the Warncoort-Birregurra Road Bridge (Atkin Creek) and on the upstream side of the Ennis Street crossing of the unnamed creek. They should be installed such that the gauge boards can be read from the road for small and larger (i.e. 1 % AEP) floods.</p> <p>If a greater degree of confidence in the likelihood of flooding is required, it is suggested that COSC:</p> <ul style="list-style-type: none"> • As a first step, arrange installation of an ERTS rain gauge in the mid reaches of the Atkin Creek catchment close to the shared boundary with the unnamed creek. At the same time, COSC with support from VICSES, CCMA and DELWP, to approach BoM to provide near real-time public access to data from that gauge via its website. • As a second step, arrange installation of two ERTS rain (or rain-river) gauges on the upstream side of the Warncoort-Birregurra Road Bridge (Atkin Creek) and on the upstream side of the Ennis Street crossing of the unnamed creek. As above, COSC with support from VICSES, CCMA and DELWP, to approach BoM to provide near real-time public access to data from those gauges via its website. • Alternatively and instead of ERTS equipment, arrange installation of different commercially available equipment (e.g. DipStik) to monitor (and alert on) rainfall and / or water level in the creeks at the locations described in the above two bullets and identified in Figure 9.3. • As appropriate and depending on the monitoring and alerting equipment installed, invite Birregurra residents, along with VICSES, local CFA and Police, to opt-in to receive SMS alert messages direct from installed equipment. • Consider the addition of "sirens and / or flashing lights" options (triggered by exceedance of pre-set rainfall rates and depths, and creek levels and rates of rise) for the automated gauge installed at the creek crossings as an alternative or additional means of alerting the community to imminent flooding. <p>As part of all of the above:</p> <ul style="list-style-type: none"> • Provide guidance to the local community (through a locally focussed flood awareness brochure and website) on how to interpret and use available rain and creek level data and the indicative flood guidance tool, along with information about the flood warning system and how it will assist in reducing risk; and • Develop and maintain a website (and social media?) presence for the FFWS that includes the above guidance along with (a link to) flood mapping and intelligence outputs from the Birregurra Flood and Drainage Strategy. <p>COSC in consultation with CCMA to decide on the datum to be used for any new creek level gauges: AHD or local.</p>
DETECTION & PREDICTION (i.e. Forecasting)	<p>COSC to provide the indicative flood guidance tool and instructions for its use to COSC staff, VICSES and local CFA for routine use. Provide training in use as appropriate.</p> <p>COSC and VICSES to agree who will maintain the tool and how.</p> <p>COSC to lead the determination of flood class levels for Birregurra. Will involve coordination between Council, VICSES, CCMA and BoM and is a relatively straight-forward process.</p> <p>COSC to maintain contact with VICSES on progress with the Automated Alerting Project with a view to implementation for Birregurra.</p>

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FFWS Building Blocks

Potential Improvement Actions for Birregurra

<p>INTERPRETATION (i.e. an ability to answer the question "what does this mean for me - will I be flooded and to what depth".</p>	<p>Mapping and intelligence from the Birregurra Flood and Drainage Strategy has been captured to the MFEP. The indicative flood guidance tool together with the MFEP enable those at risk to determine the likely effects of a potential flood with some lead time.</p> <p>COSC to ensure flood inundation maps and relevant Appendices of the MFEP along with the flood information card for Birregurra are readily available to the Birregurra community.</p> <p>If local datum has been chosen for water level gauges, COSC to lead update of the MFEP and indicative flood guidance tool. This will assist local interpretation and the determination of likely flood impacts during future events.</p>
<p>MESSAGE CONSTRUCTION</p>	<p>The initial alert of likely flooding is likely to come from a combination of environmental indicators (e.g. observance of heavy rain) and from consideration of rain data, the flood inundation maps, the indicative flood guidance tool and the flood intelligence in the MFEP and / or from observing a rise in the level of the creeks.</p> <p>If monitoring equipment with SMS capability is installed, the initial (or confirming) alert may come from the unit's SMS'ed message as rain and / or creek levels exceed triggers with the above acting to reinforce and add value to resident's assessments and decision processes. Alternatively, and subject to resolution of VICSES and EMV roles in the initiation and dissemination of flash flood warnings, the initial alert may come via electronic and social media.</p> <p>If a marginally more formal alerting system is deemed appropriate for Birregurra, COSC in conjunction with VICSES to:</p> <ul style="list-style-type: none"> • Champion formation of a Birregurra community flood action group (or similar); and • Lead establishment of a Twitter and / or Facebook account for the Birregurra TFWS so that information can be shared within the community and by VICSES (say, following use of the indicative flood guidance tool) on likely flood severity, impacts and appropriate actions.
<p>MESSAGE DISSEMINATION (i.e. Communication and Alerting)</p>	<p>Establish a COSC championed community flash flood action group.</p> <p>Use social media.</p> <p>A role remains for the Emergency Alert (EA) during a severe flood event.</p> <p>If an SMS enabled gauge is active, COSC to identify / nominate key community members (in addition to VICSES and perhaps CFA) to receive SMS or email alerts on exceedance of alarm trigger values.</p> <p>If alternate commercially available water level (and rain) monitoring equipment is installed, COSC to establish and maintain an opt-in system that must be heavily community driven.</p>
<p>RESPONSE</p>	<p>Initiate a community engagement program to communicate how the FFWS will work.</p> <p>Following (or perhaps in concert with) acceptance of the MFEP by COSC and VICSES, encourage and assist residents to develop individual flood response plans. A package that assists businesses and individuals is available from VICSES and provides an excellent model for community use.</p>
<p>REVIEW</p>	<p>Review and update of local flood intelligence (i.e. flood characteristics, impacts, etc), local alerting arrangements, response plans, local flood awareness material, etc (initially) after every flood that triggers a response. Best driven by COSC with input from VICSES, CCMA, CFA and the Council championed community flash flood action group.</p> <p>COSC to develop review and update protocols => who does what when and process to be followed to update material consistently across all parts of the flash flood warning and response system, including the MFEP.</p>

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FFWS Building Blocks**Potential Improvement Actions for Birregurra****AWARENESS**

VICSES to complete the draft LFG then print and make it available to the Birregurra community.

Make relevant parts of the MFEP publicly available (e.g. Council offices, library, website).

Develop, maintain and renew flood awareness through activities and materials that emphasise personal safety, where data is available, how that data can be used, what any warnings / alerts mean and what individuals should do to stay safe and protect their property including filling and laying sandbags.

COSC and VICSES to:

- Load and maintain material including the MFEP to the COSC and VICSES websites with appropriate links to relevant useful sites;
- Routinely revisit and update awareness material to accommodate lessons learnt, additional or improved material and to reflect advances in good practice; and

Routinely repeat distribution of awareness material and consider other measures.

Appendix Table M. 2: TFWS Building Blocks and Staged Suggested Actions for Birregurra with due regard for Appendix Table M. 1**FWS Building Blocks****Potential Improvement Actions for Birregurra****Achievable in the near term with minimum investment****DATA COLLECTION
COLLATION**

& COSC to approach BoM (with support from VICSES, CCMA and DELWP) to request necessary changes to enable near real-time public access to rain data from the Ricketts Marsh gauge via the BoM website (e.g. 15 minute updates).

Alternatively, COSC to approach CCMA to request that telemetry be added to the Colac rain gauge and that BoM be requested to enable near real-time public access to rain data from that gauge via the BoM website (e.g. 15 minute updates).

Provide guidance to the local community (through a locally focussed flood awareness brochure and website) on how to interpret and use available rain data and the indicative flood guidance tool, along with information about the flood warning system and how it will assist in reducing risk.

**DETECTION & PREDICTION
(i.e. Forecasting)**

COSC to provide the indicative flood guidance tool and instructions for its use to COSC staff, VICSES and local CFA for routine use. Provide training in use as appropriate.

COSC and VICSES to agree who will maintain the tool and how.

**INTERPRETATION (i.e. an ability
to answer the question "what
does this mean for me - will I be
flooded and to what depth".**

Mapping and intelligence from the Birregurra Flood and Drainage Strategy has been captured in the MFEP. The indicative flood guidance tool together with the MFEP enable those at risk to determine the likely effects of a potential flood with some lead time.

COSC to ensure flood inundation maps and relevant Appendices of the MFEP along with the flood information card for Birregurra are readily available to the Birregurra community.

MESSAGE CONSTRUCTION

The initial alert of likely flooding is likely to come from a combination of environmental indicators (e.g. observance of heavy rain) and from consideration of rain data, the flood inundation maps, the indicative flood guidance tool and the flood intelligence in the MFEP and / or from observing a rise in the level of the creeks.

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FWS Building Blocks

Potential Improvement Actions for Birregurra

MESSAGE DISSEMINATION (i.e. Communication and Alerting)	<p>Establish a COSC championed community flash flood action group.</p> <p>Use social media.</p> <p>A role remains for the Emergency Alert (EA) during a severe flood event.</p>
RESPONSE	<p>Following (or perhaps in concert with) acceptance of the MFEP by COSC and VICSES, encourage and assist residents to develop individual flood response plans. A package that assists businesses and individuals is available from VICSES and provides an excellent model for community use.</p>
REVIEW	<p>Review and update of local flood intelligence (i.e. flood characteristics, impacts, etc), local alerting arrangements, response plans, local flood awareness material, etc (initially) after every flood that triggers a response. Best driven by COSC with input from VICSES, CCMA, CFA and the Council championed community flash flood action group.</p> <p>COSC to develop review and update protocols => who does what when and process to be followed to update material consistently across all parts of the flash flood warning and response system, including the MFEP.</p>
AWARENESS	<p>VICSES to complete the draft LFG then print and make it available to the Birregurra community.</p> <p>Make relevant parts of the MFEP publicly available (e.g. Council offices, library, website).</p> <p>COSC and VICSES to:</p> <ul style="list-style-type: none"> • Load and maintain material including the MFEP to the COSC and VICSES websites with appropriate links to relevant useful sites; • Routinely revisit and update awareness material to accommodate lessons learnt, additional or improved material and to reflect advances in good practice; and • Routinely repeat distribution of awareness material and consider other measures.

Achievable in the mid-term with a greater level of investment

DATA COLLECTION COLLATION	<p>& In addition to the above:</p> <ul style="list-style-type: none"> • COSC to arrange for the installation of a set of staff gauges on the upstream side of the Warncoort-Birregurra Road Bridge (Atkin Creek) and on the upstream side of the Ennis Street crossing of the unnamed creek. They should be installed such that the gauge boards can be read from the road for small and larger (i.e. 1 % AEP) floods. • Develop and maintain a website (and social media?) presence for the FFWS that includes guidance from the previously prepared locally focussed flood awareness brochure (see above) along with (a link to) flood mapping outputs from the Birregurra Flood and Drainage Strategy. • COSC in consultation with CCMA to decide on the datum to be used for any new creek level gauges: AHD or local.
DETECTION & PREDICTION (i.e. Forecasting)	<p>In addition to the above:</p> <ul style="list-style-type: none"> • COSC to lead the determination of flood class levels for Birregurra. Will involve coordination between Council, VICSES, CCMA and BoM and is a relatively straight-forward process. • COSC to maintain contact with VICSES on progress with the Automated Alerting Project with a view to implementation for Birregurra.

FWS Building Blocks

Potential Improvement Actions for Birregurra

INTERPRETATION (i.e. an ability to answer the question "what does this mean for me - will I be flooded and to what depth".	In addition to the above: <ul style="list-style-type: none"> • If local datum has been chosen for water level gauges, COSC to lead update of the MFEP and indicative flood guidance tool. This will assist local interpretation and the determination of likely flood impacts during future events.
MESSAGE CONSTRUCTION	In addition to the above: <ul style="list-style-type: none"> • If monitoring equipment with SMS capability is installed, the initial (or confirming) alert may come from the unit's SMS'ed message as rain and / or creek levels exceed triggers with the above acting to reinforce and add value to resident's assessments and decision processes. Alternatively and subject to resolution of VICSES and EMV roles in the initiation and dissemination of flash flood warnings, the initial alert may come via electronic and social media. • If a marginally more formal alerting system is deemed appropriate for Birregurra, COSC in conjunction with VICSES to: <ul style="list-style-type: none"> – Champion formation of a Birregurra community flood action group (or similar); and – Lead establishment of a Twitter and / or Facebook account for the Birregurra TFWS so that information can be shared within the community and by VICSES (say, following use of the indicative flood guidance tool) on likely flood severity, impacts and appropriate actions.
MESSAGE DISSEMINATION (i.e. Communication and Alerting)	In addition to the above: <ul style="list-style-type: none"> • If an SMS enabled gauge is active, COSC to identify / nominate key community members (in addition to VICSES and perhaps CFA) to receive SMS or email alerts on exceedance of alarm trigger values.
RESPONSE	In addition to the above: <ul style="list-style-type: none"> • Initiate a community engagement program to communicate how the FFWS will work.
REVIEW	As above:
AWARENESS	In addition to the above: <ul style="list-style-type: none"> • Develop, maintain and renew flood awareness through activities and materials that emphasise personal safety, where data is available, how that data can be used, what any warnings / alerts mean and what individuals should do to stay safe and protect their property including filling and laying sandbags.
Achievable longer term – fully developed option requiring significant investment	
DATA COLLECTION & COLLATION	In addition to the above: <ul style="list-style-type: none"> • COSC to arrange installation of an ERTS rain gauge in the mid reaches of the Atkin Creek catchment close to the shared boundary with the unnamed creek. At the same time, COSC with support from VICSES, CCMA and DELWP, to approach BoM to provide near real-time public access to data from that gauge via its website. • COSC to arrange installation of two ERTS rain (or rain-river) gauges on the upstream side of the Warncoort-Birregurra Road Bridge (Atkin Creek) and on the upstream side of the Ennis Street crossing of the unnamed creek. As above, COSC with support from VICSES, CCMA and DELWP, to approach BoM to provide near real-time public access to data from those gauges via its website.

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FWS Building Blocks

Potential Improvement Actions for Birregurra

- Alternatively and instead of the ERTS equipment, COSC to arrange installation of different commercially available equipment (e.g. DipStik) to monitor (and alert on) rainfall and / or water level in the creeks at the locations described in the above two bullets and identified in Figure 9.3.
- As appropriate and depending on the monitoring and alerting equipment installed, COSC to invite Birregurra residents, along with VICSES, local CFA and Police, to opt-in to receive SMS or other alert messages direct from the installed equipment.
- COSC to consider the addition of "sirens and / or flashing lights" options (triggered by exceedance of pre-set rainfall rates and depths, and creek levels and rates of rise) for the automated gauge installed at the creek crossings as an alternative or additional means of alerting the community to imminent flooding.

DETECTION & PREDICTION (i.e. Forecasting) As above:

INTERPRETATION (i.e. an ability to answer the question "what does this mean for me - will I be flooded and to what depth".) As above:

MESSAGE CONSTRUCTION As above:

MESSAGE DISSEMINATION (i.e. Communication and Alerting) In addition to the above:

- If alternate commercially available water level (and rain) monitoring equipment is installed, COSC to establish and maintain an opt-in system that must be heavily community driven.

RESPONSE As above:

REVIEW As above:

AWARENESS As above:



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Item: 10.6

Development Agreement & Lease Agreement for Apollo Bay Early Hub Facility

OFFICER	Sharyn Ryan & Tamzin McLennan
GENERAL MANAGER	Ian Seuren
DIVISION	Development & Community Services
ATTACHMENTS	Nil
PURPOSE	For Council to agree to enter into a Development Agreement and Lease Agreement with the Department of Education and Training for the Apollo Bay Early Years Hub.

1. EXECUTIVE SUMMARY

Colac Otway Shire Council is currently working in partnership with the Department of Education & Training (DET) to develop a new 66-place, two-room kindergarten facility and Maternal & Child Health consulting space to be located on the Apollo Bay P-12 College site. The Victorian School Building Authority (VSBA) under the State Government's Kindergartens on School Sites (KOSS) initiative is overseeing the construction of the facility.

The kindergarten build is being funded under the KOSS program, which aims to establish early childhood facilities on government school sites, making it easier for families to access early childhood facilities and providing children with a more stable transition from kinder to school. The KOSS program is a key part of the State Government's early years reform.

Council resolved in August 2016 to support in principle the sale of the property that currently houses Apollo Bay's kindergarten in McLachlan Street in the event that funding became available for the construction of a new kindergarten, with a view to using the proceeds of the sale to make a financial contribution to a new build.

In early 2019, Council engaged a consultant to undertake a comprehensive community engagement with stakeholders in Apollo Bay about the concept of an Early Years Hub. This community consultation identified that an integrated early years facility would best benefit the community, and the preferred site for an Early Years Hub would be on the Apollo Bay P-12 College site. In late 2019, as a result of

Council and community advocacy, the State Government announced its intention to build a new kindergarten on the Apollo Bay P-12 College site.

Until January 2019, Council's Maternal and Child Health (MCH) facilities operated out of an office space within the Great Ocean Road precinct, after which the service had to move to accommodate a redevelopment of the health facilities. It currently resides in a room in Apollo Bay Senior Citizens' Centre in Whelan Street, that has been adapted into a consulting suite. This location was put in place as a temporary measure until more suitable accommodation could be found.

As a result of Council's previous resolution regarding its support of an Apollo Bay Early Years Hub, and to respond to the need for more suitable accommodation for the MCH service in Apollo Bay, Council has set aside \$500,000 as part of its 2020/21 budget to contribute to the building of an MCH consulting suite and storage area as part of the current KOSS build. As part of this partnership, Council is required to engage in a Development Agreement for the duration of the construction of the building. The purpose of the Development Agreement is to clearly outline the obligations of the State Government via the Victorian School Building Authority (VSBA) and Council pertaining to the partnership we have forged to establish an Early Years Hub in Apollo Bay. Council is also required to enter into a Lease Agreement to be the custodians of the building once it has been constructed.

The purpose of this report is to ask Council to authorise the Chief Executive to sign the Development Agreement and Lease Agreement. Due to State Government confidentiality requirements, the full Development Agreement and Lease Agreement are in the confidential attachments of this agenda. Council's preference is to make both the Development Agreement and Lease Agreement available for public viewing, however State Government requirements do not allow this.

2. RECOMMENDATION

RECOMMENDATION 1

That Council:

- 1. Endorses the Development Agreement between the Department of Education and Training and the Colac Otway Shire Council for the construction of the Apollo Bay Early Years Hub.***
- 2. Authorises the Chief Executive to enter into a Development Agreement between the Department of Education & Training and Colac Otway Shire Council for the construction of Apollo Bay Early Years Hub facilitated by the Victorian School Building Authority.***
- 3. Notes that the Apollo Bay Early Years Hub will be co-located at the Apollo Bay P-12 College, in Pengilley Avenue.***
- 4. Acknowledges that as part of the Development Agreement, Council agrees to contribute up to \$500,000 towards the Maternal and Child Health component of the build, which is included in the 2020/21 budget.***
- 5. Notes that the signatories of the Development Agreement agree that in the event that the Maternal and Child Health component of the build costs less than Council's \$500,000 agreed contribution, the State Government will repay the difference to Council.***
- 6. Authorises the Chief Executive to negotiate any further terms of the Development Agreement as deemed appropriate.***

- 7. In accordance with the public transparency principles, clarifies that it is Council's preference for the Development Agreement document to be publicly available, but notes it remains confidential as per the directive of the State Government.*

RECOMMENDATION 2

That Council:

- 1. Endorses the Lease between the Department of Education and Training and the Colac Otway Shire Council for the use of the Apollo Bay Early Years Hub for the delivery of children's services.*
- 2. Authorises the Chief Executive to enter into a Lease Agreement between the Department of Education & Training and Colac Otway Shire Council to be lessee of the Apollo Bay Early Years Hub.*
- 3. Notes that the Apollo Bay Early Years Hub will be co-located at the Apollo Bay P-12 College, in Pengilley Avenue.*
- 4. Notes that the lease term shall be for a period of 20 years, with two further terms of 10 years each.*
- 5. Notes that the rent payable by Council shall be \$1 per annum, if demanded.*
- 6. Notes that upon receiving consent from the State Government, Council can appoint a sub-licence to a suitably-qualified operator to run the kindergarten and early years services on Council's behalf.*
- 7. Acknowledges that as part of the lease agreement, Council will be responsible for any necessary repairs, maintenance and/or capital improvements to structures, fixtures, facades, plant, equipment, and fixtures and fittings related to services and utilities for the duration of the lease.*
- 8. Notes that Schedule 1 of the lease permits uses at the site including children's services, maternal and child health, long day care, before and after school child care, complementary family and community-based services, occasional child care, supported playgroups, childhood intervention services and toy library.*
- 9. Authorises the Chief Executive to negotiate any further terms of the Lease as deemed appropriate.*
- 10. In accordance with the public transparency principles, clarifies that it is Council's preference for the Development Agreement document to be publicly available, but notes it remains confidential as per the directive of the State Government.*

3. KEY INFORMATION

Development Agreement

The development of an Early Years Hub in Apollo Bay is a priority project of Council, and both Councillors and officers have been advocating for funding for some time.

In December 2019, State Government announced that the Victorian Government would fund a two room, 66-place kindergarten building to be located at the Apollo Bay P-12 College. Based on previous

community engagement, which determined strong support for an integrated Early Years Hub at the Apollo Bay P-12 College site, Council allocated \$500,000 towards the Maternal and Child Health component of the project as part of its 2020-21 budget. An in-principle resolution supports the sale of the property that currently houses Apollo Bay's kindergarten at 69 McLachlan Street in the event that funding became available for the construction of a new kindergarten, with a view to using the proceeds of the sale to make a financial contribution to a new build. A separate report will be brought to Council regarding the proposed sale of the property by Council's Strategic Property Coordinator.

The Victorian School Building Authority (VSBA) is managing the Early Years Hub project including the design and construction components. The construction will comprise permanent modular buildings that will blend with the existing P-12 College buildings already onsite. Discussions are currently taking place with the VSBA to seek Ministerial permission to progress with plans for the future addition of an adjoining childcare centre.

The Development Agreement is primarily concerned with the current construction process for the kindergarten and MCH building, and associated amenities such as car parking.

The objectives of the **Development Agreement** are:

- To support the Department of Education and Training's policies in relation to shared community use facilities located on school sites and the Government's commitment to rolling out 15 hours of funded three-year-old kindergarten across Victoria over the decade.
- Deliver a high quality, fit for purpose, multi-purpose community facility, which is co-located with the Apollo Bay P-12 College.
- Facilitate Council's long-term delivery of kindergarten services for both three and four-year-olds at the Apollo Bay Early Years facility.

Key points that the **Development Agreement** outlines include:

- Council's contribution to the project – \$500,000.
- The intent to construct a Maternal & Child Health consulting room and associated amenities such as MCH storeroom and waiting area.
- Additional car parking requirements to cater for MCH clients and staff.
- That Council will be obliged to enter into a lease on or before three months prior to the date for practical completion of the building.
- That Council will be required to operate the facility as an early learning centre, or install an appropriate operator to do the same on Council's behalf.

Unspent funds

The Development Agreement contains a clause which will ensure any unspent funds are returned to Council. Clause 6.3 states that 'in the event that the Council Facilities Costs are less than Council's Contribution, the Minister will repay any difference to Council within 30 Business Days of the Superintendent issuing a final certificate in respect of the Community Facility Works'.

The tender details are currently commercial in confidence and are being finalised by the VSBA.

Lease agreement between the DET and Council

The **lease agreement**, which is an appendix of the Development Agreement, outlines the roles and responsibilities of both parties – being Minister of Education as the landlord and Council as the primary tenant. The draft lease agreement that has been reviewed by Council’s Contracts and Procurement team, Strategic Property team, and legal representatives.

Key features of the lease include:

- The lease agreement is for 20 years with two further terms of 10 years each.
- Rent charged to Council is \$1.00 per annum plus GST if demanded.
- Upon receiving consent from the State Government, Council can appoint a sub-licence to a suitably-qualified operator to run the kindergarten on Council’s behalf.
- Council will be responsible for any necessary repairs, maintenance and/or capital improvements to structures, fixtures, facades, plant, equipment, and fixtures and fittings related to services and utilities for the duration of the lease.
- Notes that Schedule 1 of the lease permits uses at the site including children’s services, maternal and child health, long day care, before and after school child care, complementary family and community-based services, occasional child care, supported playgroups, childhood intervention services and toy library.

4. COMMUNITY CONSULTATION & ENGAGEMENT

The design phase of the project has been under the jurisdiction of the VSBA, and engagement has been in line with the VSBA’s processes which is focussed on the key partners such as Council and the Apollo Bay P-12 College. Council has been a partner to that process because of our monetary investment in the Early Years Hub.

Once a tender has been let, the VSBA will coordinate a Ministerial announcement when the kindergarten designs can be unveiled to the community.

Council officers have sought permission from the VSBA to progress plans for a future childcare centre addition to the building. Once this is received, we will progress with concept designs and community engagement.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 1 - Our Prosperity

3. Strengthen partnerships with key stakeholders to benefit the whole community.

Theme 2 - Our Places

1. Assets and infrastructure meet community needs.

Theme 3 - Our Community

3. Opportunities for the community to participate in lifelong learning.

6. Community planning informs provision of Council services and social infrastructure.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

This project will have a major impact on how the Apollo Bay community interacts with Early Years services. It is anticipated that the facility will link to the environmental philosophy of the Apollo Bay community and its residents, and include some environmentally sustainable design elements.

The facility will be a social hub and link for families to come together and create a learning environment in which children can be active participants in their community and the world around them. Having a fully integrated early years hub will provide better access to a broad range of children's services and education.

The provision of early years services, including the possible addition of childcare to the facility in the future, is an important element of a strong local economy. The take up of childcare in recent years clearly shows the demand in Apollo Bay which has assisted many parents, particularly women, to return to work. There are significant challenges with attracting a sustainable workforce in Apollo Bay, and the provision of stable early childhood services including childcare is vital to helping address this issue.

The 66-place facility will also cater for future population growth in Apollo Bay, which may grow faster than previous Australian Bureau of Statistics projections due to the regional migration brought to bear by COVID.

The number of Apollo Bay children who are developmentally vulnerable is higher than the state average in the areas of emotion and language. This is illustrated by the Australian Early Development Census data as shown below in Table 1. The new kindergarten building will help increase the community's access to universally funded three-year-old kindergarten. In addition, the kindergarten's location on the school site will assist with smoother transitions of children from kindergarten to school.

Table 1

TABLE: Percentage of children developmentally vulnerable in 2018

Domains explained

Export selected results

Geography	Physical	Social	Emotional	Language	Communication	Vuln 1	Vuln 2
Australia	9.6	9.8	8.4	6.6	8.2	21.7	11.0
VIC	8.2	8.8	8.1	6.4	7.4	19.9	10.1
Colac-Otway	10.7	11.1	10.7	6.3	7.1	23.3	10.3
Location	Physical	Social	Emotional	Language	Communication	Vuln 1	Vuln 2
Apollo Bay / Colac Otway South	7.1	7.1	14.3	7.1	3.6	21.4	10.7

LEGAL & RISK

The Development Agreement and Lease are based on standard State Government formats and have been reviewed by our Leasing and Procurement departments. In signing the Development Agreement, Council commits to contributing the agreed amount of \$500,000 in line with the agreement's requirements.

FINANCIAL & BUDGETARY

Council has committed \$500,000 to the Apollo Bay Early Years hub as outlined in the Development Agreement. This financial contribution will be scheduled in two parts. The first payment will be required in July 2021 followed by a final payment in October 2021.

As outlined in the Unspent Funds clause, if the MCH component costs less than \$500,000, the unspent component of Council's contribution will be returned.

The Lease agreement states that Council will be charged an annual rate of \$1.00 (a peppercorn) rent for the lease of the building.

Council will be financially responsible for capital and renewal requirements of the building, whilst day-to-day maintenance will be the responsibility of the sub-licensee. This is the same arrangement as the current kindergarten facility.

7. IMPLEMENTATION STRATEGY

COMMUNICATION

Regular communication is occurring between Council staff and representatives of the VSBA regarding the development of the project.

Council staff attend project meetings with the relevant stakeholders regarding the progress of the project.

Councillors will be kept abreast of the project development through Council briefing sessions and/or the Councillor Bulletin.

TIMELINE

The VSBA has advised Council that it will let the tender once Council has signed the Development Agreement. A Council resolution is required for this, because the indicative contribution of \$500,000 is above the Chief Executive's delegation.

This report also seeks Council's approval for the Chief Executive Officer to sign the lease agreement, although timing for this is more flexible as it needs to be signed three months before practical completion of the building, which is estimated to be late September 2021.

First payment for Council's contribution will be due July 2021. Final payment for Council's contribution will be due October 2021.

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.

Item: 10.7

Appointment of members of the Port of Apollo Bay Consultative Committee (POABCC)

OFFICER	Simon McBeth
GENERAL MANAGER	Tony McGann
DIVISION	Environment & Infrastructure
ATTACHMENTS	1. POABCC - Terms of Reference - January 2021 [10.7.1 - 4 pages]
PURPOSE	To appoint new members of the Port of Apollo Bay Consultative Committee (POABCC) for a 2-year term.

1. EXECUTIVE SUMMARY

The Port of Apollo Bay Consultative Committee (POABCC) is the primary user and community consultative forum of the Colac Otway Shire for the Port of Apollo Bay. The purpose of the committee is to promote and facilitate two-way communication, share information and provide a forum by which to consult with port users, community and members of the public who may be impacted by port operations. It also enables provision of advice to the Colac Otway Shire on issues of concern to users, community and stakeholders.

The committee was revitalised and formalised in 2018 following an Expression of Interest (EOI) process resulting in a formal Council appointed committee. The resulting Terms of Reference for the committee indicate that members will be elected for a two (2) year term. This term is now due for renewal. To this purpose, an EOI process has again been followed during the six weeks ending on 22 February 2021.

The committee membership is comprised of representatives from four organisations as well as four self-nominated community representatives. The community representatives, as outlined in the Terms of Reference, will include persons active in both commercial fishing and recreational fishing/boating as well as two persons with relevant interest and experience in fields pertaining to the Port.

The four organisations have nominated a representative and a proxy. Self-nominations from the community have also been received and assessed.

The nominated members must be appointed by Council prior to the commencement of the new 2-year term.

2. RECOMMENDATION

That Council:

1. **Endorses the appointment to the Port of Apollo Bay Consultative Committee the four organisation representatives as follows:**
 - a) **Apollo Bay Fishermen’s Co-Op: Markus Nolle, Nick Polgeest as proxy;**
 - b) **Apollo Bay Sailing Club: Mick Heland, Jesse Morrow as proxy;**
 - c) **GORCAPA (formerly Otway Coast Committee): Anthony Alfirenko, Paul Jane as proxy; and**
 - d) **Apollo Bay Ocean Rescue: Peter Biddle, no proxy.**

2. **Endorses the appointment to the Port of Apollo Bay Consultative Committee the four self-nominated community representatives as follows:**
 - a) **Russell Frost – representing commercial fishers;**
 - b) **Wayne Diffey – representing recreational fishers and boaters;**
 - c) **Bill Gross – community representative; and**
 - d) **John Marriner – community representative.**

3. KEY INFORMATION

Colac Otway Shire manages and administrates the Port of Apollo Bay (the Port) on behalf of the Victorian State Government Department of Transport’s local ports program. The POABCC was established as a forum for users and community members to provide advice and discuss important matters in relation to port operations with Colac Otway Shire as Port Manager. The Terms of Reference (attached) summarise the purpose, structure, nominations process and governance of the committee.

Following the EOI process in January/February 2021, an assessment of the applications/nominations was made by Council officers at the Port of Apollo Bay. The Council officers have formed the view that these nominations should be supported. It is therefore recommended that Council resolve to appoint the nominees to the POABCC.

The nominations received and assessed are tabulated here:

POABCC Position	Nominee Name	Proxy
Apollo Bay Fishermen’s Co-Op	Markus Nolle	Nick Polgeest
Apollo Bay Sailing Club	Mick Heland	Jesse Morrow
GORCAPA (formerly Otway Coast Committee)	Anthony Alfirenko	Paul Jane
Apollo Bay Ocean Rescue	Peter Biddle	None nominated
Apollo Bay Commercial Fishers	Russell Frost	N/A
Apollo Bay Recreational Fishers and Boaters	Wayne Diffey	N/A
Community Representative	Bill Gross	N/A
Community Representative	John Marriner	N/A

4. COMMUNITY CONSULTATION & ENGAGEMENT

Council officers undertook a formal Expression of Interest process. The opportunity for community members to self-nominate for a position on the POABCC was advertised for a period of six weeks ending on 22 February 2021. Both digital media (COS website and social pages) and print media (Colac Herald and Apollo Bay News Sheet) were engaged for this purpose.

The four organisations (Apollo Bay Fishermen's Co-Op, Apollo Bay Sailing Club, GORCAPA and Apollo Bay Ocean Rescue) were also notified and received requests for their nominations for the POABCC and a proxy for the next 2-year term.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 1 - Our Prosperity

3. Strengthen partnerships with key stakeholders to benefit the whole community.

Theme 2 - Our Places

1. Assets and infrastructure meet community needs.

Theme 4 - Our Leadership & Management

5. Communicate regularly with our community and involve them in decision-making.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

Not applicable.

LEGAL & RISK

Not applicable.

FINANCIAL & BUDGETARY

Not applicable.

7. IMPLEMENTATION STRATEGY

Subject to a Council resolution to appoint the preferred nominees to the POABCC, the successful members will be notified of their appointment and of the date of the next meeting.

COMMUNICATION

The appointed members should be notified of their appointment by email and/or by telephone after the Council meeting on Wednesday 28 April 2021. Council officers at the Port of Apollo Bay office will fulfil this task. An update will be made on the Council website.

TIMELINE

The expectation is that the new members will be appointed to the POABCC at the Council meeting on Wednesday 28 April 2021, just prior to the next scheduled POABCC meeting on Tuesday 4 May 2021.

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.



Port of Apollo Bay Consultative Committee (POABCC)

Terms of Reference

1.0 Purpose

The Port of Apollo Bay Community Consultative Committee (POABCC) is the primary user and community consultative forum of the Colac Otway Shire for the Port of Apollo Bay.

The POABCC scope is to:

1. Promote and facilitate two-way communication;
2. Share information and consult with the port users, community and members of the public who are interested in, or may be impacted by, port operations;
3. Provide advice to the Colac Otway Shire on issues of concern to the users, community and stakeholders;
4. Provide a forum where government agencies and potential port users can inform the Apollo Bay community of issues relevant to the Colac Otway Shire, Port of Apollo Bay and the community;
5. Be included in any project control groups/steering committees for consultative input in conjunction with other groups pertaining to the Port of Apollo Bay. The POABCC should be consulted regarding use of funds and execution of grants.

For the sake of clarity, the role as Member of the POABCC is *not* to direct or govern the strategic or operational decisions, nor direct staff of the Port of Apollo Bay, as that is solely the legislated remit of the Colac Otway Shire. However, the input and feedback of the POABCC membership will be considered by the Colac Otway Shire. Decisions/findings of the POABCC will be shared and circulated to the councillors and CEO of Colac Otway Shire. The Chairman will make available an escalation process as deemed necessary.

2.0 Membership and Attendees

The POABCC will have up to a maximum of eleven (11) members. All nominated POABCC members require endorsement by the Colac Otway Shire.

The membership and attendance of the POABCC will include the following persons:

1. One (1) Councillor & proxy (appointed by Council);
2. Two (2) Council Officers & proxy (appointed by Council);
3. One (1) nominated representative & proxy of the Apollo Bay Fisherman's Co-op;
4. One (1) nominated representative & proxy of the Apollo Bay Ocean Rescue;
5. One (1) nominated representative & proxy of the Apollo Bay Sailing Club;
6. One (1) nominated representative & proxy of the Otway Coast Committee;
7. One (1) self-nominated representative active in the Apollo Bay Commercial Fishers;
8. One (1) self-nominated representative active in Apollo Bay in Recreational Boating and Fishers;
9. Two (2) self-nominated community representatives with a demonstrated interest in the Port & experience in the fields of marine operations, harbours, coastal issues, legislation or risk management;
10. A Secretariat to be provided by the Colac Otway Shire;
11. The POABCC Chairperson, at his or her discretion, may invite other persons to attend meetings as considered appropriate for matters under discussion, e.g. project proponents, consultants and government agencies.



Port of Apollo Bay Consultative Committee (POABCC)

Terms of Reference

The POABCC shall elect a Chairperson and Deputy Chairperson at its first meeting held under these Terms of Reference and then subsequently in June/July of each year.

3.0 Nominations

Colac Otway Shire will appoint all Council representatives. Organisation representatives shall be nominated by their organisations and a proxy shall also be nominated. Only one proxy is allowed to be nominated.

Representatives will be appointed or selected as follows:

- a) A call for nominations for positions on establishment, or made vacant by expiry of terms, or vacation of position on the POABCC will be issued in June/July of each year;
- b) Existing members interested in remaining on the POABCC will be eligible to re-nominate;
- c) Self-nominated representatives will be selected by Colac Otway Shire based on an Expression of Interest recruitment process and selected on merit.
- d) POABCC members will be elected for a two (2) year term;
- e) Membership of the POABCC will be ratified by the Colac Otway Shire Council;
- f) Members and profiles of delegates to the POABCC will be publicised by the Colac Otway Shire when elected.

Conditions of Membership are as follows:

- Members formally agree that they do not have authority to speak, represent, or go on the public record on behalf of the POABCC and that authority lies entirely with the Council or delegated Authority. (This does not preclude a Member's rights as a citizen or sector they may represent at the POABCC.)
- That Members agree to abide by all relevant Council policies, procedures and code of conduct when on-site and/or when in attendance or representing in the capacity as a member of the POABCC.

4.0 Meetings

Meetings shall be held every three (3) months (i.e. four (4) meetings per annum). The meetings will be held on the 1st Tuesday of the months of February, May and August and on the 2nd Tuesday of the month of November. Colac Otway Shire will be responsible for organising the meeting venue and providing secretariat services. More frequent meetings will be convened at the discretion of the Chairperson.

5.0 Quorum

A quorum shall be 50 per cent of the membership. Non-Council members or their proxy should attend at least 3 of the 4 meetings per annum to be eligible for re-nomination.

6.0 Attendance

The designated proxy should only attend in the absence of the nominated representative. Attendance of a meeting may be in-person or via suitable electronic means. Meeting attendance, including apologies, will be noted in the minutes of each meeting.



Port of Apollo Bay Consultative Committee (POABCC)

Terms of Reference

7.0 Agenda

The Colac Otway Shire will nominate a date, time and location for the meeting. The Colac Otway Shire will also collate agenda items and circulate an agenda one week prior to the meeting. An agenda item is to be included regarding financial transparency and accountability of spending. The Port Coordinator will include any financial aspects in his/her Port Projects update. Where (or if) an agenda item cannot be addressed sufficiently in the time leading up to the proposed meeting date, it will be the Colac Otway Shire's responsibility to ensure the item is carried over and addressed in either a subsequent meeting or through appropriate correspondence. Members can submit items for the agenda two weeks prior and will be accepted at the discretion of the Chairperson.

8.0 Minutes

Minutes will be taken by the secretariat service provided by Colac Otway Shire and be circulated to all stakeholders within one week of a meeting occurrence. Minutes are to be circulated by email to all POABCC members, councillors and CEO.

Confidential matters may be recorded and not circulated to POABCC members but be reported to Colac Otway Shire via its delegate. The Colac Otway Shire in consultation with POABCC will determine matters considered at the meeting that are confidential or of a sensitive nature.

The Colac Otway Shire will be responsible for retaining meeting minutes and circulating copies of the minutes to stakeholders.

9.0 Out of Session Items

Where an issue of importance arises out of session and that cannot be dealt with at a meeting, but does not require calling an additional meeting, the Colac Otway Shire may circulate material out-of-session.

10.0 Working Principles and Protocols

- Members of the POABCC will work together to promote an environment that fosters mutual respect and understanding with open discussion.
- The POABCC will respect confidentiality of issues if requested by the Colac Otway Shire.
- Non-Council Members of the POABCC will not have open access to Council budgets.
- Reports of the POABCC meetings will be available to the Colac Otway Shire Executive Management Team and Councillors.
- The POABCC will be consulted on any new or proposed material change to the Port of Apollo Bay.
- Members of the media shall not attend meetings of the POABCC. Statements to the media from the POABCC will be made through the Colac Otway Shire only.
- The POABCC will discuss methods of dissemination of information from the Colac Otway Shire to the community and provide advice accordingly. This will include the dissemination of information on environmental audits and monitoring data. The methods of dissemination of information will include public meetings, the media, and publication on the Colac Otway Shire Website etc.



Port of Apollo Bay Consultative Committee (POABCC) **Terms of Reference**

- The POABCC will provide advice to the Colac Otway Shire on any proposal which is the subject of a community consultation process.
- Representatives to the POABCC will take an active role in assisting the Colac Otway Shire in community consultation and dissemination of information to their member organisations.
- Profiles of Members of the POABCC will be publicised by the Colac Otway Shire when elected each year.
- Discussion items from the POABCC will be included in the Colac Otway Shire's regular media placements.

11.0 Review of Terms of Reference

A review of these Terms of Reference will be undertaken one year after inception and then every new membership term as required. Administrative changes will be made as necessary by the Colac Otway Shire.

Item: 10.8

Contract 2107 - Heavy Plant Equipment- Supply and Deliver Emulsion Truck

OFFICER	Hailey Spokes
GENERAL MANAGER	Tony McGann
DIVISION	Environment & Infrastructure
ATTACHMENTS	Nil
PURPOSE	Council approval is required to award Contract 2107 – Supply and deliver one Road Repair Truck (Emulsion Truck)

1. EXECUTIVE SUMMARY

This contract is for the supply and delivery of a new Road Repair (Emulsion) Truck to Colac Otway Shire. The procurement is required for the replacement of the current *flo-con* emulsion truck that services Colac Otway's sealed road network and this procurement is in line with Councils 10-year rolling fleet replacement program.

A request for tender (RFT) was advertised through Municipal Association of Victoria seeking responses from suitable vendors to undertake the contract. Two tender submissions were received by the closing date of 25 December 2020. The submissions were evaluated by the Tender Evaluation Panel (TEP) using a set of weighted criteria that considered not only financial value (40%) but also capacity (30%), capability (25%) and local contribution (5%).

It is anticipated that the current emulsion truck will be sold by auction later in the calendar year. It is estimated Council will receive approximately \$70,000 to \$90,000 through the sale of the existing truck. A portion of this amount will be used to offset the budget deficit of \$11,871.99 excluding GST.

2. RECOMMENDATION

That Council:

- 1. Awards Contract 2107 – Heavy Plant Equipment - Emulsion Truck to Fuso Truck and Bus Shogun at the lump sum price referred to in the confidentially distributed document pertaining to this contract;***

2. **Authorises the Chief Executive to sign the contracts following award of Contract 2107 – Heavy Plant Equipment - Emulsion Truck;**
3. **Authorises the Chief Executive Officer to perform all roles of the Principal; and**
4. **Requests that the Chief Executive ensures the contract price is listed on Council’s website once steps listed in point 2 have been completed.**

3. KEY INFORMATION

Currently Council owns a Hino Flo-Con (emulsion) truck, registration WHN847 as part of the fleet to maintain Colac Otway’s road network. The Hino Flo-Con was purchased new in August 2009 and has reached the end of its useful life.

An open request for tenders was issued via Municipal Association Victoria (MAV). Tenders closed on 25 December 2020. Tender submissions were received from two suppliers.

Tenders were evaluated and a recommendation made in accordance with Council’s *Procurement Policy and Tenders/Quotations and Purchasing Procedure*. All tenders were evaluated and scored using the following selection criteria:

Criteria	Weighting
Capacity	30%
Capability	25%
Local contribution	5%
Financial	40%

The Tender Evaluation Panel consisted of the Fleet Coordinator, Roads North Team Leader and Works Supervisor, all of whom declared no conflict of interest with any of the suppliers.

4. COMMUNITY CONSULTATION & ENGAGEMENT

Not applicable.

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 2 - Our Places

1. Assets and infrastructure meet community needs.
5. Delivery of our capital works program.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

Fuso Shogun engine models are built to comply with JP17 (Euro 6 equivalent) emission standards. New truck compared to old is more ergonomic and environmentally friendly.

LEGAL & RISK

The plant procured must comply with all relevant legislation and Australian and international standards.

FINANCIAL & BUDGETARY

Plant purchases are funded by the plant replacement reserve. The net cost of the purchase is within the total available budget, taking into account the sale price of the existing truck.

7. IMPLEMENTATION STRATEGY

Upon award of the contract 2107 to the successful tenderer, and unsuccessful tenderers will be notified and delivery of the new plant (and disposal of the replaced plant) will be scheduled.

COMMUNICATION

The successful tenderer will be notified by a letter of acceptance signed by the Chief Executive.

Notice of the award of the Contract will be published on Council's website. Letters will also be issued to the unsuccessful tenderers.

TIMELINE

The advice given by Fuso Truck and Bus on delivery time of new unit will be 12-24 weeks. This timeframe is acceptable taking into account the time it will take to build up the Flo-Con (Emulsion) body.

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.

Item: 10.9

Authorisation of Officers under the Planning and Environment Act 1987

OFFICER	Maree Powell
GENERAL MANAGER	Errol Lawrence
DIVISION	Corporate Services
ATTACHMENTS	<ol style="list-style-type: none"> 1. Inst of App & Auth - Jacinta Langdon - Planning & Environment Act - April 2021 [10.9.1 - 1 page] 2. To Be Revoked - Instrument of Appointment and Authorisation - Callum Fairnie [10.9.2 - 1 page] 3. To Be Revoked - Instrument of Appointment and Authorisation - Mandy Baker [10.9.3 - 1 page] 4. To Be Revoked - Instrument of Appointment and Authorisation - John Postma [10.9.4 - 1 page]
PURPOSE	For Council to appoint an officer as an authorised officer under section 147(4) of the <i>Planning and Environment Act 1987</i> .

1. EXECUTIVE SUMMARY

The purpose of the report is for Council to appoint Jacinta Langdon, Emergency Management Coordinator as an authorised officer under section 147(4) of the *Planning and Environment Act 1987* and to revoke the Instruments of Appointment and Authorisation for Callum Fairnie, Mandy Baker and John Postma who are no longer employed by Council.

2. RECOMMENDATION

That Council:

1. **revokes the Instruments of Appointment and Authorisation for:**
 - **Callum Fairnie (Emergency Management Coordinator)**
 - **Mandy Baker (Acting Emergency Management Coordinator)**
 - **John Postma (Senior Compliance/Prosecutions Officer)**
2. **appoints Jacinta Langdon as an authorised officer pursuant to section 147(4) of the Planning and Environment Act 1987;**

3. *notes that the Instrument of Appointment and Authorisation comes into force immediately the common seal of Council is affixed to the Instruments and remains in force until Council determines to vary or revoke them; and*
4. *delegates to the Chief Executive Officer authority to sign and place under Council Seal the Instrument of Appointment and Authorisation.*

3. KEY INFORMATION

BACKGROUND

The *Planning and Environment Act 1987* establishes a framework for planning the use, development and protection of land in Victoria in the present and long-term interests of all Victorians.

Various staff members within the Council's Planning, Environment and Community Safety units are required to undertake assessments, give advice or investigate various issues in relation to the Act. In order to undertake these assessments legally, particularly during issues of non-compliance, authorisation under the Act is required.

KEY INFORMATION

Due to the appointment to the vacant position of Emergency Management Coordinator, it is required that Council appoints Jacinta Langdon under the Act due to the following:

- The *Planning and Environment Act 1987* regulates enforcement and is reliant on authorised officers acting on behalf of the responsible authority.
- Legal advice recommends that authorised officers be appointed by Council using an instrument to address specific authorisation provisions of section 147(4) of the *Planning and Environment Act 1987* versus the broader authorisations of section 224 of the *Local Government Act 1989*.

It is important to note that the broader Instruments of Appointment and Authorisation by the Chief Executive Officer pursuant to section 224 of the *Local Government Act 1989* must also be retained as it appoints the officer's positions as an authorised officer for the administration and enforcement of other acts.

Council's former Emergency Management Coordinator, Acting Emergency Management Coordinator and Senior Compliance/Prosecutions Officer are no longer working for Council and therefore their current Authorisations require to be revoked by Council.

4. COMMUNITY CONSULTATION & ENGAGEMENT

Not Applicable

5. ALIGNMENT TO COUNCIL PLANS, POLICIES OR STRATEGIES

Alignment to Council Plan 2017-2021:

Theme 4 - Our Leadership & Management

3. Organisational development and legislative compliance.

6. CONSIDERATIONS

ENVIRONMENTAL, SOCIAL & CULTURAL, & ECONOMIC

Authorisation is required for officers to investigate and enforce planning and land use issues as outlined in this report serve to protect the wider environment in line with the requirements of the planning scheme and *Planning and Environment Act 1987*.

LEGAL & RISK

The *Planning and Environment Act 1987* regulates enforcement and is reliant on authorised officers acting on behalf of the responsible authority.

FINANCIAL & BUDGETARY

Not applicable

7. IMPLEMENTATION STRATEGY

TIMELINE

The attached Instrument of Appointment and Authorisation (*Planning and Environment Act 1987*) comes into force immediately upon execution.

8. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.



INSTRUMENT OF APPOINTMENT AND AUTHORISATION

(Planning and Environment Act 1987)

In this Instrument “**officer**” means –

JACINTA LANGDON

By this Instrument of Appointment and Authorisation Colac Otway Shire Council –

1. Under section 147(4) of the *Planning and Environment Act 1987* appoints the officer to be an authorised officer for the purposes of the *Planning and Environment Act 1987* and the regulations made under that Act; and
2. Under section 313 of the *Local Government Act 2020* authorises the officer either generally or in a particular case to institute proceedings for offences against the Acts and regulations described in this Instrument.

It is declared that this Instrument –

- (a) comes into force immediately upon its execution;
- (b) remains in force until varied or revoked

This Instrument is authorised by a resolution of the Colac Otway Shire Council on 26 August 2020.

THE COMMON SEAL of Colac Otway Shire
Council was hereunto affixed in accordance
with Local Law No 4

.....
Chief Executive Officer

Dated



INSTRUMENT OF APPOINTMENT AND AUTHORISATION

(*Planning and Environment Act 1987*)

In this Instrument "officer" means –

CALLUM FAIRNIE

By this Instrument of Appointment and Authorisation Colac Otway Shire Council –

1. Under section 147(4) of the *Planning and Environment Act 1987* appoints the officer to be an authorised officer for the purposes of the *Planning and Environment Act 1987* and the regulations made under that Act; and
2. Under section 313 of the *Local Government Act 2020* authorises the officer either generally or in a particular case to institute proceedings for offences against the Acts and regulations described in this Instrument.

It is declared that this Instrument –

- (a) comes into force immediately upon its execution;
- (b) remains in force until varied or revoked

This Instrument is authorised by a resolution of the Colac Otway Shire Council on 26 August 2020.

THE COMMON SEAL of Colac Otway Shire Council was hereunto affixed in accordance with Local Law No 4


.....
Chief Executive Officer

Dated







INSTRUMENT OF APPOINTMENT AND AUTHORISATION

(*Planning and Environment Act 1987*)

In this Instrument “**officer**” means –

MANDY BAKER

By this Instrument of Appointment and Authorisation Colac Otway Shire Council –

1. Under section 147(4) of the *Planning and Environment Act 1987* appoints the officer to be an authorised officer for the purposes of the *Planning and Environment Act 1987* and the regulations made under that Act; and
2. Under section 313 of the *Local Government Act 2020* authorises the officer either generally or in a particular case to institute proceedings for offences against the Acts and regulations described in this Instrument.

It is declared that this Instrument –

- (a) comes into force immediately upon its execution;
- (b) remains in force until varied or revoked

This Instrument is authorised by a resolution of the Colac Otway Shire Council on 16 December 2020.

THE COMMON SEAL of Colac Otway Shire Council was hereunto affixed in accordance with Local Law No 4


.....
Chief Executive Officer
18/12/2020
Dated





INSTRUMENT OF APPOINTMENT AND AUTHORISATION

(*Planning and Environment Act 1987*)

In this Instrument "officer" means –

JOHN POSTMA

By this Instrument of Appointment and Authorisation Colac Otway Shire Council –

1. Under section 147(4) of the *Planning and Environment Act 1987* appoints the officer to be an authorised officer for the purposes of the *Planning and Environment Act 1987* and the regulations made under that Act; and
2. Under section 313 of the *Local Government Act 2020* authorises the officer either generally or in a particular case to institute proceedings for offences against the Acts and regulations described in this Instrument.

It is declared that this Instrument –

- (a) comes into force immediately upon its execution;
- (b) remains in force until varied or revoked

This Instrument is authorised by a resolution of the Colac Otway Shire Council on 26 August 2020.

THE COMMON SEAL of Colac Otway Shire Council was hereunto affixed in accordance with Local Law No 4




.....
Chief Executive Officer

Dated 

Item: 10.10

Report of Informal Meetings of Councillors

OFFICER	Lyndal McLean
CHIEF EXECUTIVE	Peter Brown
DIVISION	Corporate Services
ATTACHMENTS	<ol style="list-style-type: none"> 1. Informal Meeting of Councillors Record - City Deals Executive Steering Committee - 20210309 [10.10.1 - 1 page] 2. Informal Meeting of Councillors Budget 2021 2022 including Revenue 17 Marc [10.10.2 - 2 pages] 3. Informal Meeting of Councillors Councillor Briefing 18 March 2021 CB 20210 [10.10.3 - 2 pages] 4. Informal Meeting of Councillors - Friends of the Botanic Gardens - 18 March 2021 [10.10.4 - 1 page] 5. Informal Meeting of Councillors CEO Recruitment Agency Presentations 24 Ma [10.10.5 - 2 pages] 6. Informal Meeting of Councillors Council Preparation Meeting 24 Marc [104L] [10.10.6 - 2 pages] 7. LCCC Meeting - Informal Meeting of Councillors Record - 20210329 - PDF [10.10.7 - 1 page] 8. Informal Meeting of Councillors Councillor Briefing 7 April 2021 CB 202104 [10.10.8 - 3 pages] 9. Informal Meeting of Councillors - Friends of the Botanic Gardens - 8 April 2021 [10.10.9 - 1 page] 10. Informal Meeting of Councillors Councillor Briefing 14 April 2021 CB 20210 [10.10.10 - 2 pages] 11. Informal Meeting of Councillors Planning Meeting Preparation 14 April 2021 [10.10.11 - 2 pages]
PURPOSE	To report the Informal Meetings of Councillors.

1. EXECUTIVE SUMMARY

INFORMAL MEETINGS OF COUNCILLORS

The Colac Otway Shire Governance Rules require that records of Informal Meetings of Councillors which meet the following criteria:

If there is a meeting of Councillors that:

- *is scheduled or planned for the purpose of discussing the business of Council or briefing Councillors;*
- *is attended by at least one member of Council staff; and*
- *is not a Council meeting, Delegated Committee meeting or Community Asset Committee meeting*

be tabled at the next convenient meeting of Council and recorded in the minutes of that Council meeting.

All relevant meetings have been recorded and documented, as attached.

2. REPORTING

The Informal Meetings of Councillors are reported herewith:

- | | |
|--|----------------------|
| • <i>City Deals Executive Steering Committee</i> | <i>9 March 2021</i> |
| • <i>Budget 2020 - 2021 including Revenue</i> | <i>17 March 2021</i> |
| • <i>Councillor Briefing</i> | <i>18 March 2021</i> |
| • <i>Friends of the Botanic Gardens</i> | <i>18 March 2021</i> |
| • <i>CEO Recruitment Agency Presentations</i> | <i>24 March 2021</i> |
| • <i>Council Meeting Preparation</i> | <i>24 March 2021</i> |
| • <i>Lake Colac Coordinating Committee Meeting</i> | <i>29 March 2021</i> |
| • <i>Councillor Briefing</i> | <i>7 April 2021</i> |
| • <i>Friends of the Botanic Gardens</i> | <i>8 April 2021</i> |
| • <i>Councillor Briefing</i> | <i>14 April 2021</i> |
| • <i>Planning Committee Meeting Preparation</i> | <i>14 April 2021</i> |

3. KEY INFORMATION

The following Informal Meetings of Councillors have been held and are attached to this report:

- | | |
|---|---------------|
| • City Deals Executive Steering Committee | 9 March 2021 |
| • Budget 2020 - 2021 including Revenue | 17 March 2021 |
| • Councillor Briefing | 18 March 2021 |
| • Friends of the Botanic Gardens | 18 March 2021 |
| • CEO Recruitment Agency Presentations | 24 March 2021 |
| • Council Meeting Preparation | 24 March 2021 |
| • Lake Colac Coordinating Committee Meeting | 29 March 2021 |
| • Councillor Briefing | 7 April 2021 |
| • Friends of the Botanic Gardens | 8 April 2021 |
| • Councillor Briefing | 14 April 2021 |
| • Planning Committee Meeting Preparation | 14 April 2021 |

4. OFFICER DIRECT OR INDIRECT INTEREST

No officer declared an interest under the *Local Government Act 2020* in the preparation of this report.



Informal Meeting of Councillors Record

This form must be completed by the attending Council Officer and the completed form must be provided to governance@colacotway.vic.gov.au for reporting at the next practicable Council Meeting.

Please refer to Chapter 5 (Disclosure of Conflict of Interest) and Chapter 6 (Informal Meetings of Councillors) of the Governance Rules and the guidelines over page.

Meeting Details

Meeting name: City Deal Projects COS Executive Steering Committee Meeting

Date: 9/03/2021 **Time:** 11:15 am

Meeting Location: Online – Microsoft Teams

(eg. COPACC; Colac Otway Shire Offices – 2-6 Rae Street, Colac; Shire Offices – Nelson Street, Apollo Bay)

Matter/s Discussed: Kennett River Tourism Infrastructure Improvements City Deal, Apollo Bay to Skenes Creek Coastal Trail City Deal, Redevelopment of Apollo Bay Harbour City Deal and Geelong City Deal

In Attendance:

Councillors:
Cr Stephen Hart
Officers:
Peter Brown (COS CE), Errol Lawrence (COS GM Corporate Services), Tony McGann (COS GM Environment & Infrastructure), Ian Seuren (COS GM Development & Community), Marlo Emmit (Manager COS Governance), Frank Castles (City Deals - Project Director), Lisa Healey (City Deals - Administrator & Projects)

Conflict of Interest Disclosures for Councillors and Officers: (refer to over page for guidelines)

Name	Type of interest	Left meeting at	Returned to meeting at
Nil			

Completed by: Lisa Healey

Updated 24 October 2020



Informal Meeting of Councillors Record

Budget 2021 - 2022 including Revenue

Date: 17 March 2021

Time: 11:00am

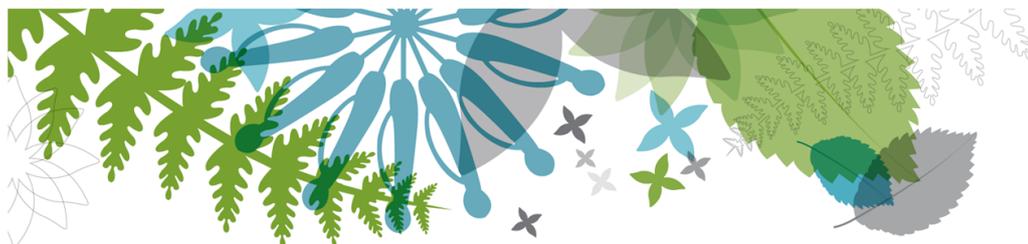
Meeting Location: Civic Hall, COPACC

Invitees:			
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Marlo Emmitt			
Attendees:			
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Jason Clissold, Nick Howard, Nick Welsh, Toni Uphill, Sabina Ivancic, Samara Riley, James Myatt, Jo Grainger, Steven Crawford, Doug McNeill, Tamzin McLennan, Marlo Emmitt, Terry Maisey, Tony Gullone, Kristy Cochrane, Amila Wijekoon, Tamzin McLennan, Madeleine Bisits, Cameron Duthie, Tim Brain, Dora Novak, Paul Carmichael			
External attendees:			
Nil			
Apologies:			
Nil			
Absent:			
Nil			

Meeting Commenced at: 11:30am

Declarations of Interest:

Name	Type of Disclosure	Item	Reason
Nil			



Budget 2021 - 2022 including Revenue – 17 March 2021 (continued)		
Time	Item	Attendees
11:30am – 1:00pm	Budget 2021 - 2022 including Revenue – Morning Session	Jason Clissold Nick Howard Nick Welsh Toni Uphill Sabina Ivancic Samara Riley James Myatt Jo Grainger Steven Crawford Doug McNeill Tamzin McLennan Marlo Emmitt Terry Maisey Tony Gullone
1:00pm – 1:30pm	Break	
1:30pm – 5:48pm	Budget 2021 - 2022 including Revenue – Afternoon Session	Jason Clissold Nick Howard Nick Welsh Toni Uphill Kristy Cochrane Amila Wijekoon Tamzin McLennan Madeleine Bisits Cameron Duthie Tim Brain Dora Novak Paul Carmichael Steven Crawford Samara Riley James Myatt Terry Maisey Tony Gullone Doug McNeill Cameron Duthie
5:48pm	Meeting closed	



Informal Meeting of Councillors Record

Councillor Briefing

Date: 18 March 2021

Time: 10:00am

Meeting Location: Civic Hall, COPACC

Invitees:			
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Marlo Emmitt			
Attendees:			
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Marlo Emmitt, Frank Castles, Dora Novak, Cameron Duthie, Simone Robertson, Ben McLaughlin, Maddison Harty, Lee Castles			
External attendees:			
Gellibrand Resident, Co-ordinator Colac Aboriginal Gathering Place			
Apologies:			
Cr McCracken			
Absent:			
Nil			

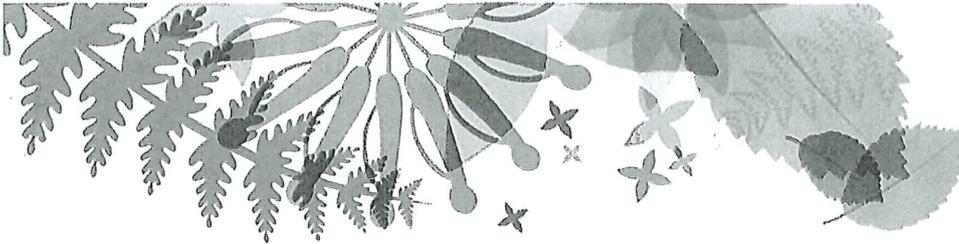
Meeting Commenced at: 10:04am

Declarations of Interest:

Name	Type of Disclosure	Item	Reason
Nil			



Councillor Briefing 18 March 2021 (continued)		
Time	Item	Attendees
10:04am – 10:35am	Otway Subterranean National Park Cr Bell attended the meeting at 10:15am	Gellibrand Resident Dora Novak
10:35am – 10:38am	Break	
10:38am – 11:20am	Waste and Resource Recovery Strategy Presentation	Cameron Duthie Simone Robertson Maddison Harty
11:20am – 11:35am	City Deal Projects Update	Frank Castles
11:35am – 11:37am	Break	
11:37am – 12:04pm	Procurement Policy - Version 3.4	Ben McLaughlin Lee Castles
12:04pm – 12:45pm	Break	
12:45pm – 1:45pm	Cultural Awareness Session at Caracarmigen (Miller Street, Colac)	Co-ordinator, Colac Aboriginal Gathering Place
1:45pm – 2:00pm	Break	
2:00pm – 2:27pm	Overview of Instruments of Delegation and Instruments of Appointment and Authorisation	Errol Lawrence
2:27pm – 2:32pm	Councillor update on Committee Meetings	
2:32pm – 2:59pm	General Business <ul style="list-style-type: none"> ▪ Staff movements ▪ Housing discussion with Minister for Planning ▪ Increase in and management of Councillor invitations ▪ Councillor Briefings: first, second and third Wednesdays of each month ▪ Old Beechy Rail Trail update 	
2:59pm	Meeting closed	



Informal Meeting of Councillors Record

This form must be completed by the attending Council Officer and the completed form must be provided to governance@colacotway.vic.gov.au for reporting at the next practicable Council Meeting.

Please refer to Chapter 5 (Disclosure of Conflict of Interest) and Chapter 6 (Informal Meetings of Councillors) of the Governance Rules and the guidelines over page.

Meeting Details

Meeting name: AGM / General Meeting - Friends of Colac Botanic Gardens.

Date: Click or tap to enter a date. 18.3.21 Time: 7-30 am/pm

Meeting Location: Lake View Cafe - Fyans St Colac.

(eg. COPACC; Colac Otway Shire Offices – 2-6 Rae Street, Colac; Shire Offices – Nelson Street, Apollo Bay)

Matter/s Discussed: - Annual General Meeting.
- March General Meeting - Committee

(eg. Discussions with property owners and/or residents; Planning Permit Application No. xxxx re proposed development at No. xx Pascoe Street, Apollo Bay; Council Plan steering committee with Councillors and officers.)

In Attendance:

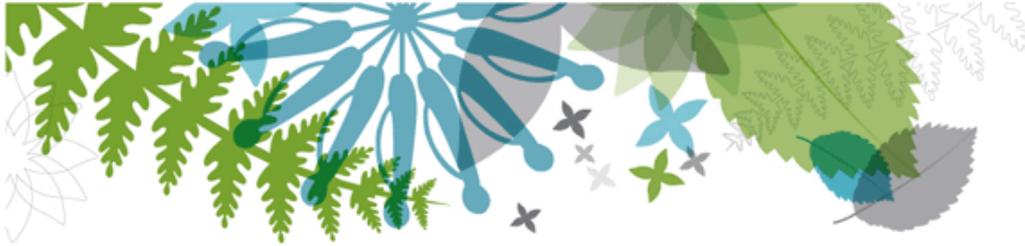
Councillors: Cs Marg White

Officers: CE - Peter Brown, Colac Botanic Gardens Curator - Laurence Towers

Conflict of Interest Disclosures for Councillors and Officers: (refer to over page for guidelines)

Name	Type of interest	Left meeting at	Returned to meeting at
<u>— Nil</u>	Choose an item.	am / pm	am / pm
<u>— Nil</u>	Choose an item.	am / pm	am / pm
<u>— Nil</u>	Choose an item.	am / pm	am / pm

Completed by: 
MARK ROBINSON



Informal Meeting of Councillors Record

CEO Recruitment Agency Presentations

Date: 24 March 2021

Time: 11:30am

Meeting Location: Meeting Room 1 and 2, COPACC

Invitees:
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Marlo Emmitt, Jo Grainger
Attendees:
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Marlo Emmitt, Jo Grainger
External attendees:
Recruitment agencies x four
Apologies:
Nil
Absent:
Nil

Meeting Commenced at: 11:32am

Declarations of Interest:

Name	Item	Reason
Nil		



CEO Recruitment Agency Presentations 24 March 2021		
Time	Item	Attendees
11:32am – 1:30pm	CEO Recruitment Agency Presentations Cr Bell attended the meeting at 11:38am.	Jo Grainger Marlo Emmitt
1:30pm	Meeting closed	



Informal Meeting of Councillors Record

Council Meeting Preparation

Date: 24 March 2021

Time: 2:00pm

Meeting Location: Meeting Room 1 and 2, COPACC

Invitees:
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Marlo Emmitt, Lyndal McLean
Attendees:
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Marlo Emmitt, Lyndal McLean, Peter Macdonald, Tamzin McLennan, Emma Ashton, Nicole Frampton, Tim Brain, Doug McNeill, Simon Clarke, James Myatt, Madeleine Bisits, Jason Clissold
External attendees:
Nil
Apologies:
Nil
Absent:
Nil

Meeting Commenced at: 2:07pm

Declarations of Interest:

Name		Item	Reason
Cr Costin	General Conflict of Interest	10.1 Petition - Traffic Management in Old Coach Road Skenes Creek	Signed petition prior to becoming a Councillor.



Council Meeting Preparation 24 March 2021		
Time	Item	Attendees
2:07pm – 3:38pm	Council Meeting preparation Having declared a conflict of interest for item 10.1 Petition - Traffic Management in Old Coach Road Skenes Creek, Cr Costin left the room prior to the discussion of this item and returned at the completion of the discussion.	
3:38pm	Meeting closed	



Informal Meeting of Councillors Record

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Meeting Details

Meeting name: Lake Colac Coordinating Committee Meeting

Date: 29/03/2021 **Time:** 1pm – 3pm

Meeting Location: COPACC; Colac Otway Shire Offices – 2-6 Rae Street, Colac and MS Teams Meeting

Matter/s Discussed: TERMS OF REFERENCE – EXPRESSIONS OF INTEREST PROCESS; LOUGH CULVERT UPDATE - Water Level Report; WATER QUALITY REPORT and PRESENTATION FROM ALLUVIUM CONSULTING; DR TAYLOR HUNT FISH RELEASE; LCCC MEDIA RELEASES; BARWON WATER PRESENTATION – Treatment Plant Upgrade; WATER SUPPLY ISSUE; LAKE COLAC TIMELINE; MEREDITH PARK WORKING GROUP UPDATE – (Options Paper); 12 MONTH PRIORITY LIST;

In Attendance:

Councillors:
Cr Jamie Bell; Cr Margaret White
Officers:
Tony McGann – Colac Otway Shire; Dora Novak – Colac Otway Shire; Liza Kennedy – Colac Otway Shire; Jasmina Neill – Colac Otway Shire

Conflict of Interest Disclosures for Councillors and Officers: (refer to over page for guidelines)

Name	Type of interest	Left meeting at	Returned to meeting at
NIL	Choose an item.	am / pm	am / pm

Completed by: **Jasmina Neill**



Informal Meeting of Councillors Record

Councillor Briefing

Date: 7 April 2021

Time: 11:00am

Meeting Location: Civic Hall, COPACC

Invitees:

Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Marlo Emmitt

Attendees:

Cr Jamie Bell, Cr Graham Costin, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Ian Seuren, Marlo Emmitt, Jason Clissold, Cameron Duthie, Doug McNeill, Simon Clarke, Tim Brain, Madeleine Bisits, Dora Novak, Bláithín Butler, Ravi Ayyagari, Tamzin McLennan, Peter Macdonald, Nick Welsh, Nick Howard, Toni Uphill, Sharyn Ryan, Alison Martin

External attendees:

MP Member for Western Victoria, Shadow Minister for Local Government, Executive Director Client Services - Barwon Child Youth and Family, Director Early Years - Barwon Child Youth and Family, Manager - Early Years Education & Community Barwon Child Youth and Family

Apologies:

Errol Lawrence, Tony McGann, Cr Kate Hanson

Absent:

Nil

Meeting Commenced at: 11:00am

Declarations of Interest:

Name	Type of Disclosure	Item	Reason
Nil			



Councillor Briefing 7 April 2021 (continued)		
Time	Item	Attendees
11:00am - 11:30am	Birregurra Flood and Drainage Strategy & Planning Scheme Amendment	Doug McNeill Simon Clarke Tim Brain Madeleine Bisits
11:30am - 12:10pm	Council's Carbon Neutral Target - Residual Greenhouse Emissions - Offsetting Options & Future Emissions Reduction Projects	Dora Novak
12:10pm - 12:20pm	Melbourne Cup Day Public Holiday	Marlo Emmitt
12:20pm - 12:45pm	PP280/2020-1 - 285 Deans Creek Road, Elliminyt - Proposed Dwelling	Doug McNeill Bláithín Butler Ravi Ayyagari
12:45pm – 1:40pm	MP Member for Western Victoria, Shadow Minister for Local Government	
1:40pm – 1:45pm	Break	
1:45pm - 2:20pm	Community engagement survey results	Tamzin McLennan Peter Macdonald
2:20pm – 3:00pm	Draft Budget 2021/22 and Draft Revenue and Rating Plan 2021 - 2025 for Adoption in Principle	Jason Clissold Nick Howard Toni Uphill Nick Welsh
3:00pm – 3:15pm	Break Cr Potter left the meeting at 3:10pm and did not return.	



<p>3:15pm – 3:30pm</p>	<p>Wydinia Kindergarten Childcare proposed changes</p>	<p>Executive Director Client Services - Barwon Child Youth and Family Director Early Years - Barwon Child Youth Family, Manager - Early Years Education & Community Barwon Child Youth and Family Tamzin McLennan Sharyn Ryan Alison Martin</p>
<p>3:30pm – 4:00pm</p>	<p>Family & Children Services Unit Review</p>	<p>Tamzin McLennan Sharyn Ryan</p>
<p>4:00pm – 4:05pm</p>	<p>Great Ocean Road Event Closure - Expression of Interest process</p>	
<p>4:05pm – 4:30pm</p>	<p>Councillor update on Committee Meetings and General Business</p>	
<p>4:30pm</p>	<p>Meeting closed</p>	



Informal Meeting of Councillors Record

This form must be completed by the attending Council Officer and the completed form must be provided to governance@colacotway.vic.gov.au for reporting at the next practicable Council Meeting.

Please refer to Chapter 5 (Disclosure of Conflict of Interest) and Chapter 6 (Informal Meetings of Councillors) of the Governance Rules and the guidelines over page.

Meeting Details

Meeting name: April - General Meeting Friends of Colac Botanic Gardens

Date: Click or tap to enter a date. 8.4.21 Time: 6.00 am / pm

Meeting Location: Lake View Cafe - Fyans St Colac

(eg. COPACC; Colac Otway Shire Offices – 2-6 Rae Street, Colac; Shire Offices – Nelson Street, Apollo Bay)

Matter/s Discussed: April - General Meeting, - Friends of Colac Botanic Gardens

(eg. Discussions with property owners and/or residents; Planning Permit Application No. xxxx re proposed development at No. xx Pascoe Street, Apollo Bay; Council Plan steering committee with Councillors and officers.)

In Attendance:

Councillors: Apology Cr Marg White

Officers:

MARK ROBINSON - PARK + GARDENS TEAM LEADER TIL 7.15 PM
LAURENCE TOWERS - Colac Botanic Gardens Curator

Conflict of Interest Disclosures for Councillors and Officers: (refer to over page for guidelines)

Name	Type of interest	Left meeting at	Returned to meeting at
	Choose an item.	am / pm	am / pm
	Choose an item.	am / pm	am / pm
	Choose an item.	am / pm	am / pm

Completed by: 
MARK ROBINSON



Informal Meeting of Councillors Record

Councillor Briefing

Date: 14 April 2021

Time: 12:15pm

Meeting Location: Meeting Rooms 1 and 2, COPACC

Invitees:			
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Cameron Duthie, Marlo Emmitt			
Attendees:			
Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Ian Seuren, Cameron Duthie, Marlo Emmitt, Madeleine Bisits, Tamzin McLennan, Cameron Duthie, Dora Novak, Mark Robinson, Daniel Roberts			
External attendees:			
National Technical Executive – Ecology, WSP Australia Pty Limited			
Apologies:			
Tony McGann			
Absent:			
Nil			

Meeting Commenced at: 12:18pm

Declarations of Interest:

Name	Type of Disclosure	Item	Reason
Nil			



Councillor Briefing 7 April 2021 (continued)		
Time	Item	Attendees
12:18pm - 12:47pm	Colac Entry Signage Update Cr Bell left the meeting at 12:45pm; returned at 12:46pm.	Madeleine Bisits
12:47pm - 1:01pm	Development Agreement & Lease Agreement for Apollo Bay Early Hub Facility	Tamzin McLennan
1:01pm - 1:12pm	General business: <ul style="list-style-type: none"> • COVID-19 seating arrangements in meetings • Council contract • Speed reading course • Electric car charging stations • Action for Apollo Bay 	
1:12pm - 3:10pm	Break	
3:10pm - 4:25pm	Grey Headed Flying Foxes Update	National Technical Executive – Ecology, WSP Australia Pty Limited Cameron Duthie Dora Novak Mark Robinson Daniel Roberts
4:25pm	Meeting closed	



Informal Meeting of Councillors Record

Planning Committee Meeting Preparation

Date: 14 April 2021

Time: 1:15pm

Meeting Location: Meeting Room 1 and 2, COPACC

Invitees:

Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Tony McGann, Ian Seuren, Cameron Duthie, Marlo Emmitt, Lyndal Redford

Attendees:

Cr Jamie Bell, Cr Graham Costin, Cr Kate Hanson, Cr Stephen Hart, Cr Joe McCracken, Cr Chris Potter, Cr Margaret White, Peter Brown, Errol Lawrence, Ian Seuren, Cameron Duthie, Marlo Emmitt, Lyndal Redford, Ravi Ayyagari, Bláithín Butler, Doug McNeill

External attendees:

Nil

Apologies:

Tony McGann

Absent:

Nil

Meeting Commenced at: 1:15pm

Declarations of Interest:

Name	Item	Reason
Nil		



Planning Committee Meeting Preparation 14 April 2021 (continued)		
Time	Item	Attendees
1:15pm – 1:36pm	Planning Committee Meeting preparation	Ravi Ayyagari Bláithín Butler Doug McNeill
1:36pm	Meeting closed	

CLOSED SESSION

RECOMMENDATION

That pursuant to the provisions of Section 66 of the Local Government Act 2020, the meeting be closed to the public and Council move into Closed Session in order to deal with:

SUBJECT	REASON	SECTION OF ACT
<i>Minutes of the Closed Session Council Meeting held on 16 December 2020.</i>	This matter deals with personal information, being information which if released would result in the unreasonable disclosure of information about any person or their personal affairs.	Section 3 (1) (f)
<i>Personal Information</i>	This matter deals with personal information, being information which if released would result in the unreasonable disclosure of information about any person or their personal affairs.	Section 3 (1) (f)
<i>CEO Employment Matters Advisory Committee</i>	This matter deals with personal information, being information which if released would result in the unreasonable disclosure of information about any person or their personal affairs.	Section 3 (1) (f)