MINUTES

ORDINARY MEETING OF COUNCIL

TUESDAY, 10 DECEMBER 2019

7.00PM

COUNCIL CONFERENCE AND RECEPTION CENTRE
CITY HALL
LITTLE MALOP STREET, GEELONG

COUNCIL:
Cr S Asher (Bellarine Ward)
Mayor
Cr K Grzybek (Windermere Ward)
Deputy Mayor

Cr J Mason (Bellarine Ward)
Cr T Sullivan (Bellarine Ward)
Cr E Kontelj (Brownbill Ward)
Cr S Mansfield (Brownbill Ward)
Cr P Murrihy (Brownbill Ward)
Cr B Harwood (Kardinia Ward)
Cr P Murnane (Kardinia Ward)
Cr R Nelson (Kardinia Ward)
Cr A Aitken (Windermere Ward)

CITY OF GREATER GEELONG

SECTION A - PROCEDURAL MATTERS

Acknowledgements 1

Confirmation of Minutes 2

Declarations of Conflicts of Interest 2

Public Question and Submission Time 2-4

Petitions 4

SECTION B – REPORTS

1. Waste and Resource Recovery Strategy 5-8
2. Draft Stormwater Services Strategy 2020-30 9-17
3. Amendment C363 – Central Road, Drysdale – Consideration of Submissions 18-19
4. Malop Street Green Spine – Traffic Flow – Interim Report 20-24
5. Establishing an Ageing-Well Advisory Committee 25-27
6. Road Renaming Due to Drysdale Bypass 28-35
7. Community Life Council Advisory Committee's Report 36-37
8. Council Meeting Dates 38-40
9. Planning Authorisations – Council to Staff 41-42
10. Tender T2000008 Free Wi-Fi and Enhanced Broadband Services 43-49
11. Revocation of Flood Prone Area Designation of New Lots at Armstrong Estate, Stages 40, 40A, 40B, 42, 43 and 48 50-53
12. Revocation of Flood Prone Area Designation of New Lots at Watermark Estate, Stages 10-12 54-57
13. Contractual Matter *(Confidential)* 58
14. Contractual Matter *(Confidential)*.. 59
15. Contractual Matter *(Confidential)* *60*

SECTION C - NOTICE OF MOTION

SECTION D - ASSEMBLY OF COUNCIL

SECTION E - PLANNING DELEGATIONS

SECTION F - CONFIDENTIAL

URGENT BUSINESS

MINUTES OF THE ORDINARY MEETING OF THE GREATER GEELONG CITY COUNCIL HELD AT THE COUNCIL CONFERENCE AND RECEPTION CENTRE CITY HALL, LITTLE MALOP STREET, GEELONG TUESDAY, 10 DECEMBER 2019 COMMENCING AT 7.00 PM

PRESENT: Cr S Asher (Mayor)**,** Crs A Aitken, K Grzybek, B Harwood, E Kontelj, S Mansfield, J Mason, P Murrihy, P Murnane, R Nelson, T Sullivan

Also present: M Cutter (Chief Executive Officer), B Luxford (Director Planning, Design and Development), G Smith (Director Planning, Design and Development), M Dugina (Director Customer and Corporate Services), R Stevens (Director Community Life), R Leonard (Director Governance, Strategy and Performance), K Phyland (Executive Manager People & Culture)

OPENING: The Deputy Mayor declared the meeting open at 7.00pm

ACKNOWLEDGEMENT:

Council acknowledged Wadawurrung Traditional Owners of this land and all Aboriginal and Torres Strait Islander People who are part of the Greater Geelong community today.

APOLOGIES: Nil

LEAVE OF ABSENCE:

Gr Grzybek moved, Cr Sullivan seconded -

That Leave of Absence be granted to Cr Stephanie Asher (Mayor) from 24-26 January, 2020.

Carried.

Cr Mason moved, Cr Sullivan seconded –

That Cr Grzybek (Deputy Mayor) be appointed as Acting Mayor during the Mayor's absence between 24-26 January 2020.

Carried.

Cr Sullivan moved, Cr Asher seconded -

That Leave of Absence be granted to Cr Jim Mason from 23 December 2019 to 19 January 2020.

Carried.

Cr Kontelj moved, Cr Grzybek seconded –

That Leave of Absence be granted to Cr Anthony Aitken from 26 December to and including 4 January 2020.

Carried.

Cr Aitken moved, Cr Grzybek seconded -

That Leave of Absence be granted to Cr Sarah Mansfield from 26 January to 14 February 2020.

Carried.

Cr Mason moved, Cr Murrihy seconded -

That Leave of Absence be granted to Cr Bruce Harwood from 20 December 2019 to 5 January 2020 and 19 January to 26 January 2020.

Carried.

CONFIRMATION OF MINUTES:

Cr Grzybek moved, Cr Harwood seconded -

That the Minutes of the Ordinary Meeting held on 26 November 2019 be confirmed.

Carried.

DECLARATIONS OF CONFLICTS OF INTEREST:

Cr Harwood declared a Direct Interest in the Notice of Motion in that he has an interest in land within the Distinctive Areas and Landscapes.

*** Cr Murnane left the meeting room at 7.07pm.*

PUBLIC QUESTION AND SUBMISSION TIME:

Question submitted by Christie Hall will be responded to in writing.

Barry White asked, "Where is the Lara Traffic Management Plan"?

Guy Wilson Browne responded the public exhibition for the Lara Traffic Management Plan has closed. Council has assessed the submissions and are finalising the draft plan to reflect community and stakeholder feedback. A revised plan will be presented to Council early in the New Year. Guy added Council will be in touch with Mr White and the group to provide an idea of the final plan.

Question asked on behalf of **Erica Hunt:**

What is Council doing to address the ecological crisis and sixth mass extinction at local government level? How is Council addressing Josie Horne, Junior Mayor's recommendation regarding declaring a climate emergency?

The City has an extensive range of actions helping to improve our natural environment and reduce extinctions in the region. This includes programs protecting nationally significant plants and animals as well as ecosystems – including the Hooded Plover and Victorian Volcanic Plains Grasslands. The City is committed to creating more habitat for species and has expanded our conservation areas under management by approximately 50% in the last five years. In these reserves (and other areas) we have undertaken extensive planting programs to increase habitat.

The City recognises that we need to do more and is currently finalising a Sustainability Framework which will guide all of our decision making. This will be a tangible way, along with the many actions currently underway which will help address climate change and improve our natural environment.

*** Cr Murnane re-entered the meeting room at 7.13pm*

Sanja Van Huet asked :

1) How does Council intend to revive public confidence around their actions toward sustainability in the City of Greater Geelong? One suggestion is to remove continual commentary around the One Plant Living and instead align with a group such as the Global Covenant of Mayors for Climate and Energy, which will ensure that Council remain accountable rather than self-reporting.

   Guy Wilson Browne responded there are extensive sustainability initiatives being undertaken right across the City's programs – this includes building efficiency upgrades, changes to our vehicle fleet and installation of renewable energy. We agree that more work needs to be done – hence we have committee to major initiatives such as changing our streetlights to energy efficient LED's and sourcing electricity for our buildings from renewable energy.

   One Planet Living was integrated into the City's programs following consultation with the community and stakeholders as part of the development of the previous Environment Management Strategy. The City became just the third in Australia to be certified under this International Framework. A number of local community sustainability groups have also adopted the principles since this time.

   There are a number of sustainability frameworks that are commonly used with local government. The City is currently reviewing these as part of the development of the Sustainability Framework.

2) Cease answering correspondence to questions and letters with rhetoric and self-aggrandising comments. The letters received are patronising, inherently incorrect in terms of action and are not in line with some of the verbal commentary made during Council meetings.

   Your feedback is noted.

3) Make publicly available both the brief provided to the environmental consultancy, and also the correspondence from Councillors to Council employees related to the construction of the brief for environmental consultants?

   Council is happy to provide a copy of the scope for the development of the sustainability framework that was used as the basis to seek the engagement of an environmental consultancy.

Lionel McWilliam asked about the proposed new fire station, originally to be sited on the corner of Caddy's Road and Windermere Road. We now believe it will be located at 147-153 Windermere, this will create extreme environmental problems for Serendip Sanctuary and Serendip Creek?

Gareth Smith responded the proposal is subject to a planning permit and consultation period.

The following questions in relation to Agenda Item 3 – Amendment C363 – Central Road, Drysdale – Consideration of Submissions:

Glenda MacNaughton:

How much time and resources have Council officers spent with interested property developers in drafting Planning Amendment C363 to assist its passage through the planning approval process? How much time and resources have they spent with the 63 objectors to C363 in drafting objections to prevent its passage, and do these comparative figures support the officer's statement in their report to tonight's meeting that, "The Amendment has appropriately considered social equity principles"?

Mercedes Drummond:

In their report to tonight's meeting, Council officers state that C363 has "appropriately considered social equity principles". Do you agree with them in light of the fact that they have changed C363 in response to objections by 21 residents of Marsh Court, but rejected a further 42 objections, including 6 from community associations across the Bellarine Peninsula, representing the views of hundreds of your constituents?

Patrick Hughes:

Do you think it is acceptable for Council officers to reject the professional advice of an independent hydrology consultant – that a drainage basin could be created on our property 5 metres from our home without destroying it – yet accept unquestioningly the assertion by the developer driving C363 that it could be 17 years before such a drainage basin on our property is needed (quoted on P28)? Do you also think it acceptable for Council officers to state that our home should be destroyed because it would be less than 15 metres from the proposed drainage basin, despite several houses in the neighbouring Curlewis estate being less than 15 metres from a drainage basin?

The Mayor responded the above questions in relation to Amendment C363 will be addressed during debate of the item later in the evening.

PETITIONS:

A petition was presented by Frankie in relation to recycling and asked that Council improve waste and resource recovery efforts.

Jan Calaby presented a petition containing 130 signatures from concerned residents in relation to the proposed Drug Rehabilitation Centre in Mt Duneed.

1. WASTE AND RESOURCE RECOVERY STRATEGY

Source: **City Services – Environment and Waste Services**
Director: **Guy Wilson-Browne**
Portfolio: **Environment and Sustainability**

Purpose

1. To seek Council endorsement to release the draft Waste and Resource Recovery Strategy for community consultation for a period of 8 weeks.

Background

2. The draft Waste and Resource Recovery Strategy sets a vision that leads the City and our community to manage waste and resource recovery and minimise impacts on the environment. It sets a series of actions and targets for the next 10 years to achieve our vision and goals.

Key Matters

3. The proposed vision for the Strategy is 'The City contributes to a circular economy by leading and supporting the community to actively avoid waste and increase resource recovery'.
4. The draft Strategy has set 3 goals to guide the City's operations, services and programs to achieve our vision to reduce, re-use and eliminate waste. The goals are:
   - 4.1 Avoid creating waste – to reduce waste by actively avoiding it;
   - 4.2 Recover more resources – to value waste as a resource and recover more from it; and
   - 4.3 Protect the environment – to reduce the impact waste has on the environment.
5. Actions and targets that support our vision and goals have been developed from the feedback received during consultation with the community, Councillors, the waste industry, government agencies, stakeholders and staff.
6. By implementing this new Strategy, the City and our community will transition to a more circular economy and drive changes in waste management. New programs, services and infrastructure will be delivered for community needs and aspirations.
7. The draft Strategy will enable improved recyclable materials processing and recovery, which has been highlighted in the City's October 2019 Recycling Options Report that focussed on the challenges and opportunities in addressing the recycling crises. The Draft Strategy was produced before the Victorian Government released its report from the inquiry into recycling and waste management and the Infrastructure Victoria Recycling and Resource Recovery Interim Report which will inform additional actions at a later stage.
8. The Victorian Government is also developing a Circular Economy Policy and is reviewing Victoria's kerbside services. These along with the Infrastructure Victoria Final Report will guide the City's waste services and planning. The City's final Waste Strategy will incorporate community feedback and align with the new Victorian policies and targets.

Cr Nelson moved, Cr Harwood seconded -

9. That Council approve the release of the draft Waste and Resource Recovery Strategy (Attachment 3) for public exhibition for a period of 8 weeks.

Carried.

Attachment 1

Financial Implications

1. Funding required to implement the actions of the Waste and Resource Recovery Strategy will be considered in the annual planning and budget cycles. The City will also seek external funding opportunities to further progress our vision, goals and actions.

Community Engagement

2. Extensive community and stakeholder engagement between November 2018 and September 2019 has informed the Draft Waste and Resource Recovery Strategy. Over 850 people have participated and thousands of comments were received.

3. Four discussion papers and a draft Background Report (**Attachment 4**) were released during the Geelong's War on Waste community consultation process. Our community's feedback was received through the Have Your Say survey and the Online Advisory Community forums during February and April 2019. The details and results are in **Attachment 2.**

4. The City has also consulted external and internal stakeholders through open house events and workshops. External stakeholders such as Sustainability Victoria, Barwon South West Waste and Resource Recovery Group, Barwon Water, Barwon Health, Deakin University and various waste services providers have participated and provided feedback. Councillors, executive team and staff from different departments within the City have also been engaged to design goals and actions for the Strategy.

5. The Draft Waste and Resource Recovery Strategy (**Attachment 3**) will be released for community consultation following Council's endorsement.

Social Equity Considerations

6. The delivery of actions under the Waste and Resource Recovery Strategy enables all residents and community members to manage their waste and resources and minimise impacts on the environmental.

Policy/Legal/Statutory Implications

7. The Waste and Resource Recovery Strategy aligns with the Victorian Waste and Resource Recovery Framework outlined in the Environment Protection Act 2017 and the Environment Protection Amendment Act 2018.

8. It supports the Victorian Waste and Resource Recovery Infrastructure Plan and the Barwon South West Waste and Resource Recovery Implementation Plan under the Victorian waste management framework.

Alignment to Council Plan

9. The Waste and Resource Recovery Strategy supports the strategic priority of effective environmental management and shows leadership to address waste, climate change and environmental challenges.

Conflict of Interest

10. No City officers or contractors involved in the preparation of this report have a direct or indirect interest in the matters to which this report relates.

Risk Assessment

11. The delivery of actions under the Waste and Resource Recovery Strategy will enable the City to adjust to the changes in the waste industry, support a circular economy and prepare for Geelong's population and economic growth. It is a future proofing document to minimise and control the City's risks in waste and resource recovery management.

12. The City is only one player in the complex waste management system. All levels of government and our community have responsibilities and roles to play. The partnerships and advocacy actions in the Strategy will guide the City to advocate and influence issues that we do not have control over to reduce and manage our risks.

Environmental Implications

13. The purpose of the Waste and Resource Recovery Strategy is to set vision and goals that provide leadership for the City and our community to manage waste and resource recovery and to minimise impacts on the environment.

Attachment 2

Discussion

1. Through the extensive consultation process we found that the community want more resource recovery services, alternatives to landfill and ways to protect the environment from waste.

2. Food organics makes up about 33 per cent of the City's kerbside household garbage and this currently goes to landfill. While over 50 per cent of survey respondents indicated that they compost at home, there is still very high support for a kerbside service.

3. Recovering resources was the most common topic commented on by participants in the engagement process. Suggestions to do this included developing a container deposit scheme and offering more soft plastic drop off sites.

4. The key actions for the City within the Strategy include:

    4.1. Phase out single use plastics across City owned buildings;

    4.2. Implement a trial food organics collection services;

    4.3. Investigate options and prepare a business case for establishing a food organics processing facility;

    4.4. Prepare a business case to establish a best practice facility for bulk transport of residual waste;

    4.5. Provide education and behaviour change programs that reduce kerbside bin contamination and increase resource recovery; and

    4.6. Partner with government agencies, local governments and organisations to explore opportunities for resource recovery and alternative waste technologies.

5. The development of a circular economy is essential to ensure the viability of kerbside recycling. The Strategy highlights examples of how the City, research institutions, local businesses and community are working towards a circular economy. This includes Cleantech Innovations Geelong which supports businesses in the Geelong region to develop markets for clean technologies that help address waste issues.



THE CITY OF
GREATER GEELONG

WASTE AND RESOURCE RECOVERY STRATEGY 2020-2030

DRAFT

CITY OF GREATER GEELONG



CONTENTS

MAYOR'S MESSAGE	4
EXECUTIVE SUMMARY	5
INTRODUCTION	6
THE BIGGER PICTURE	8
A SNAPSHOT OF OUR SERVICES	12
WASTE – A SHARED RESPONSIBILITY	14
THE ENGAGEMENT PROCESS	15
WHAT WE HEARD	16
WHAT SHAPED THIS STRATEGY	18
STRATEGY OVERVIEW	21
GOAL 1 – AVOID CREATING WASTE	22
GOAL 2 – RECOVER MORE RESOURCES	24
GOAL 3 – PROTECT THE ENVIRONMENT	28
DELIVERING THE STRATEGY	31
REFERENCES	31

MAYOR'S MESSAGE



The issue of waste is at a critical point worldwide.

Across the globe, humans are producing waste at unsustainable levels, and the traditional methods we've used to manage or dispose of it are failing.

Locally, many Victorian councils, including the City of Greater Geelong felt the impact in 2019 with the collapse of our kerbside recycling provider.

As a region aiming to be clever and creative, our community expects its council to lead the way with innovative ideas and practical solutions to reduce, re-use and eliminate waste.

It's time for us all to approach things differently. This Strategy is the first step along that path to doing exactly that. Over the life of this document, the City of Greater Geelong and our community will transition to a new era of waste and resource recovery management.

Our efforts will focus on all aspects of a circular economy.

The starting point is for all of us to try to avoid generating waste, but we know that something that seems so simple is not an easy task in reality. We need to do this through our operations and we need to educate and encourage the community to do the same.

Where it's not possible to avoid generating waste, we'll explore options to recover and re-use it. Through the actions in this Strategy, waste will increasingly be viewed as a resource.

In recent years the council has taken some significant steps on this journey through our previous strategic planning.

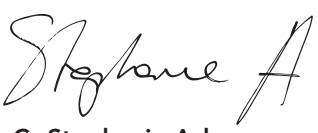
Our new garden organics composting facility at Anakie is an example of the circular economy in action. It processes green bin materials into compost, which is then put back into local farmland.

The City uses sustainable and recycled materials in our construction projects and we increasingly choose products with recycled contents.

For example, we used recycled rubber for the Goldsworthy Reserve athletics track; 'green concrete' mix at the Highton, Drysdale and Purnell Road Child and Family Centres, and we regularly use road surfacing materials with high recycled content of steel slag, recycled rubber and/or recycled asphalt pavement.

By implementing this new Strategy, we will move closer to our ultimate goal of zero waste to landfill, and further support the circular economy concept. This document was produced before the Victorian Government released its report from the Inquiry into Recycling and Waste Management. The Government report will inform more actions for our final Strategy, which will be communicated as we learn more.

The City of Greater Geelong is keen to be a leader amongst Victorian councils. Ultimately, our goal is to minimise the impacts of waste and protect the beautiful natural environment that we all love so much.



Cr Stephanie Asher
Mayor
City of Greater Geelong

EXECUTIVE SUMMARY

The purpose of this strategy is to set a vision that can help the City of Greater Geelong community manage waste and resource recovery in a way that minimises impacts on the environment. It also sets the goals, actions and targets we need to help us get there.

There is a lot happening in waste and resource recovery at the moment:

The global recycling industry has changed. The recycling sector has been responding and adjusting to the end market changes.

Government policy is moving toward a circular economy. This is a big change from the existing take-make-use-dispose model. The circular economy model aims to keep resources in the system for as long as possible.

Community interest in waste is increasing. The ABC's War on Waste drew attention to how much waste our society generates and the negative impact this is having on our natural environment.

We are always going to generate some waste. To manage waste better, we need to change the way our communities view, create and handle the waste.

In developing this strategy, we've taken into account the following:

- the regulatory and policy environment impacting on waste and resource recovery
- broader issues and opportunities that shape how we make and handle waste and resources
- what we're already doing to manage and process waste
- models, principles and questions that are relevant to waste management
- the shared responsibility of governments and communities to reduce and manage waste
- the views of over 850 people who participated in our community and stakeholder engagement from November 2018 to September 2019.

From what we learnt, we have put together the following vision and goals to guide our efforts over the next ten years:

VISION

The City contributes to a circular economy by leading and supporting the community to actively avoid waste and increase resource recovery.

GOALS

1. AVOID CREATING WASTE

To reduce waste by actively avoiding it

2. RECOVER MORE RESOURCES

To value waste as a resource and recover more from it

3. PROTECT THE ENVIRONMENT

To reduce the impact waste has on the environment

Under each goal, we have established a series of measurable targets and actions that will help us move toward achieving the vision. We will develop a rolling implementation plan every two years to progress the actions. Actions will be funded as part of our annual planning and budget cycle, and seek external funding where possible. At the end of every two-year implementation cycle, we will report our progress to Council and community.

Key actions include:

- phase out single use plastics across City-owned buildings
- implement a trial food organics collection service
- investigate options and prepare a business case for establishing a food organics processing facility
- prepare a business case to establish a best environmental practice facility for bulk transport of residual waste
- provide education and behaviour-change programs that reduce kerbside bin contamination and increase resource recovery
- partner with government agencies, local governments and organisations to explore opportunities for resource recovery and alternative waste technologies.

INTRODUCTION

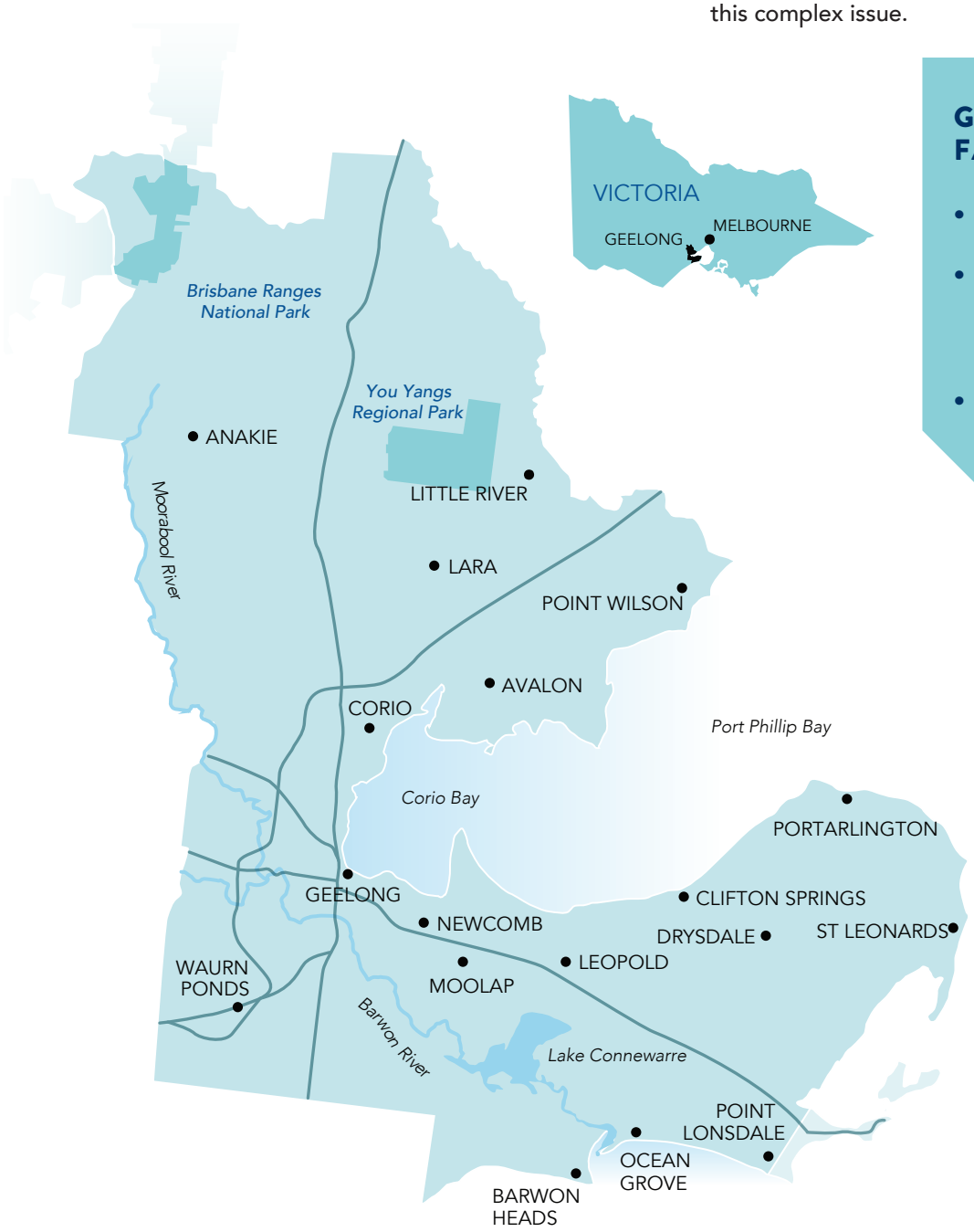
When it comes to managing the growing logistical and environmental challenges of waste and recycling, local governments are on the frontline.

While industries create much of the waste, people in the community consume it and state and federal governments set policies that determine how it is handled. Local governments roles include the collection, sorting, processing and disposal of waste, strategic planning and community education.

The purpose of this strategy is to set a vision that can lead the City of Greater Geelong community manage waste and resource recovery in a way that minimises impacts on the environment. It also sets the goals, actions and targets we need to help us get there.

The strategy reflects the context globally and nationally that shapes our waste management system, as well as the community views we heard during our extensive engagement process.

The result is a strategic plan that will help guide us through the next ten years as we continue to negotiate this complex issue.



GREATER GEELONG FAST FACTS

- **Land area 1,252 km²**
- **Estimated resident population (2018) 252,217**
- **Population growth rate (2018) 2.64%**

CASE STUDY – THE SHELLFISH REEF PROJECT AT PORTARLINGTON

By reusing waste scallop shells harvested from the Bass Strait that would otherwise end up at landfill, the City has made a significant contribution to reduction in waste and innovation in the management of the coastal zone.

A 130 metre long shellfish reef, made up of steel cages filled with rocks and waste scallop shells, was established in 2018 off the Ramblers Road foreshore in Portarlington, which was heavily impacted by erosion.

The reuse of waste scallop shells to construct the artificial reef has provided a cost efficient and environmentally friendly alternative engineering solution to preventing erosion.

This innovative approach to combating coastal erosion with waste scallop shells has been honoured with an Australian Coastal Councils Award in 2019.



THE BIGGER PICTURE

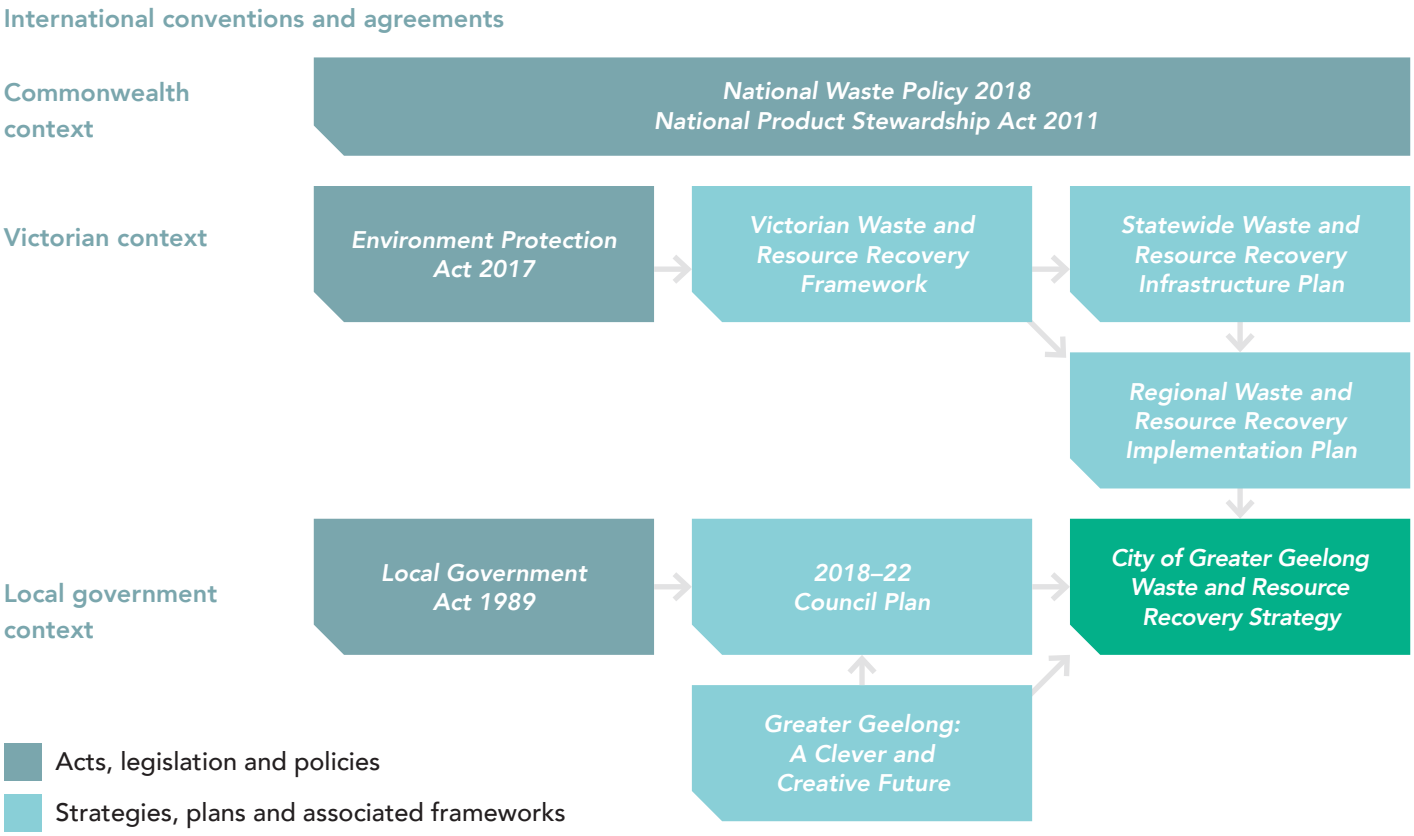
All waste and resource recovery happens in a broader context. For this strategy to be effective, we have to consider and respond to the regulatory and policy environment, as well as the local and international issues and opportunities that shape how we make and handle waste and resources.

REGULATION AND POLICY

This strategy was informed by national, state and local government legislation and policies. It aligns with the community-led clever and creative vision, our *2018–22 Council Plan* and other relevant City corporate policies and strategies. It has also been influenced by waste sector issues and opportunities, community expectations and industrial knowledge.

Figure 1 below illustrates the legislation, policy and planning framework relevant to the management of waste at a local government level. It shows how this strategy fits within the framework.

Figure 1 Strategic waste management framework



OPPORTUNITIES AND ISSUES IMPACTING WASTE IN GEELONG

International practices

The global recycling industry has changed significantly since the China National Sword policy was implemented. The policy led to a ban on imports of the 24 categories of recyclables (solid waste) that did not meet the 0.5 per cent contamination threshold. The ban had a dramatic effect on the recycling industry worldwide, as well as Australian local governments. Since the ban was introduced, we have been looking for new places to process materials, as well as new methods for processing waste and recycling in the future.

Transitioning towards a circular economy

As part of a broader global shift, Australia is transitioning towards a circular economy.[1] The Victorian Government is currently investigating its role in this model and plans to release a circular economy policy and action plan in late 2019. Once this policy is implemented, it will change how local governments, including the City of Greater Geelong, manage waste.

Environmental impacts of waste

The growing amount of waste modern society produces is impacting the environment worldwide. When this waste is not disposed of properly, through littering or dumping, it can have a significant impact on plants, animals and the ecosystems that sustain them.

Increased use of plastics for single-use items and packaging has significantly increased the amount of plastics in the oceans. If we continue to rely on disposable plastics, this trend will continue.

More waste being produced

To help us plan future housing supply, the City's *Settlement Strategy* is projecting a population growth rate of 2.5 per cent per annum until 2036. More household waste will be produced as population increases. This increase in waste will put more pressure on our existing services and waste infrastructure. We therefore need to plan and change how we manage waste to meet the needs of our growing communities.



Waste at landfill. Photo credit: Karen Casey

[1] Commonwealth of Australia (2018) *2018 National Waste Policy: less waste more resources*. Department of the Environment and Energy.

Increase in community interest

Recent changes in the recycling industry combined with the ABC's War on Waste series have pushed waste into the spotlight. The community is more engaged and interested in what happens to their waste and recycling than ever before.

With this interest comes higher expectations. The community want more resource recovery services, alternatives to landfill and ways to protect the environment from waste.

Increasing diversion rates

To divert waste from landfill, there needs to be a corresponding change to the way we separate waste at home, in the workplace and in public. As food organics make up a considerable amount of landfill waste, an increasing number of local governments are implementing services to collect and process food organics.

Unfortunately, we do not currently have sufficient food organics processing capacity in the Greater Geelong region. Therefore we need to explore the City's options including upgrading our current organic processing capability to include food organics.

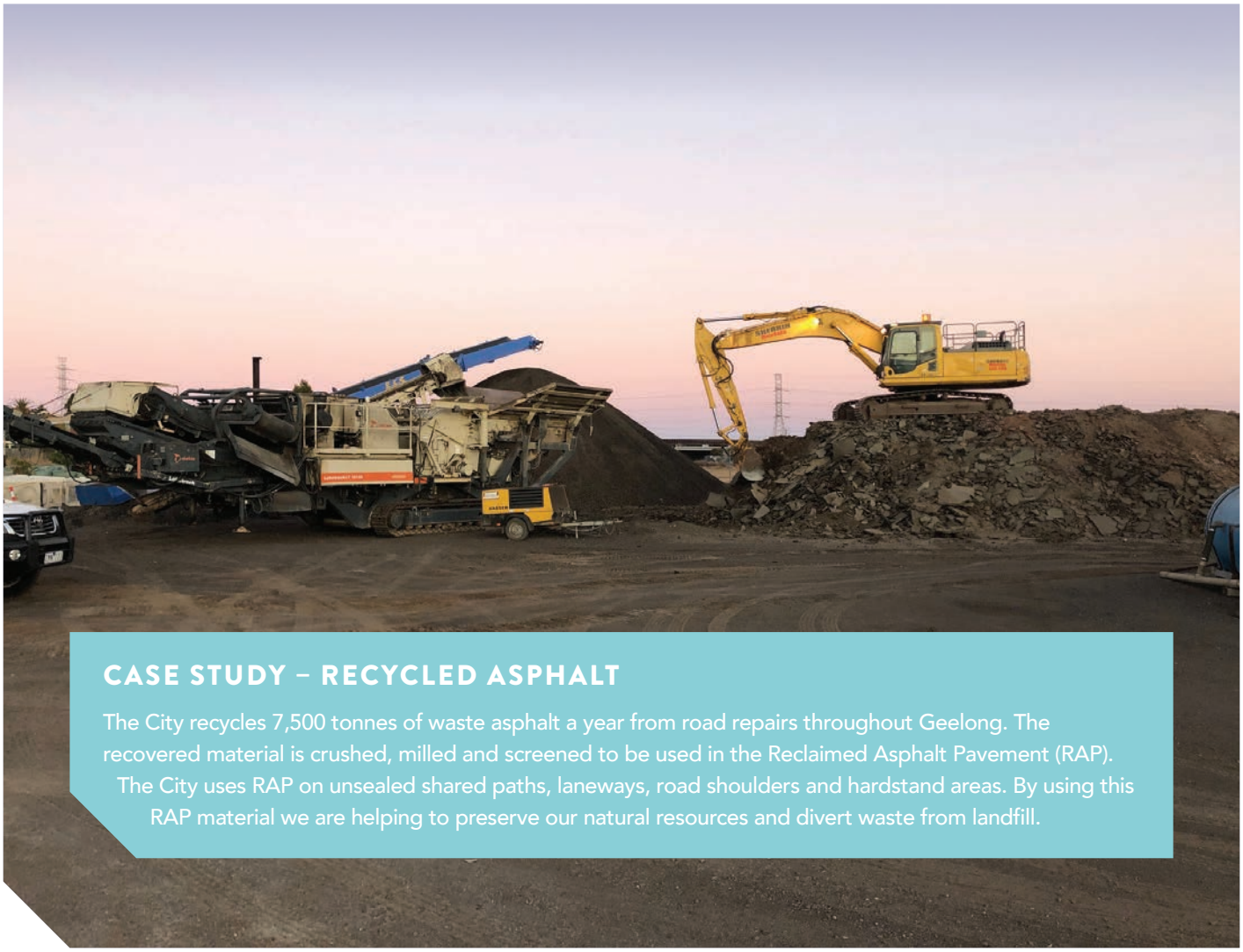
The changing focus of residual waste infrastructure

Even with a well-functioning circular economy, where resource recovery is at its highest level, we will continue to generate waste that needs to be disposed. This residual waste will include:

- products that cannot be recycled or reused, and
- waste that should not be reused or recycled for public health or other reasons – for example, clinical waste and asbestos.

With the Victorian Government planning to reduce our reliance on landfill,[2] managing the residual waste will become a growing challenge – a challenge that must be answered with alternatives methods of disposal.

Alternative waste treatments are technologies that can recover more resources from waste streams and turn waste into products, such as compost, fuel or biogas. Examples of such treatments being used across the world include combustion, gasification, pyrolysis and anaerobic digestion.



CASE STUDY – RECYCLED ASPHALT

The City recycles 7,500 tonnes of waste asphalt a year from road repairs throughout Geelong. The recovered material is crushed, milled and screened to be used in the Reclaimed Asphalt Pavement (RAP). The City uses RAP on unsealed shared paths, laneways, road shoulders and hardstand areas. By using this RAP material we are helping to preserve our natural resources and divert waste from landfill.

[2] Sustainability Victoria (2018) Statewide Waste and Resource Recovery Infrastructure Plan. Sustainability Victoria.

CASE STUDY – GEELONG'S CIRCULAR ECONOMY

The City introduced garden organics kerbside collection service in 2003. Over the years, the City has undergone a number of tendering processes however struggled to identify operators capable of processing over 30,000 tonnes of garden organics collected each year. In 2013 Council decided to establish an open windrow composting facility to ensure that all garden organics are processed locally and to create job opportunities.

After 5 years of planning, licence applications and funding approvals, the $3.5 million Geelong Garden Organic Composting Facility opened in 2018. Our garden organics collected from kerbside collection are now processed in this local facility. Garden organics are turned into compost and used in local farms to support Geelong's circular economy.

Photo credit: Barwon South West and Metropolitan Waste and Resource Recovery Groups



A SNAPSHOT OF OUR SERVICES IN 2019

We manage a complex waste management system that includes kerbside and public place waste collection, sorting and recovery and residual waste transport and disposal.

WASTE COLLECTION SERVICES

Kerbside collection services

- We provide three wheelie bins for residential properties.
- The collection services use a fleet of 31 trucks.
- Over 170,000 kerbside bin lifts every week.

Figure 2 Residential bins collected by the City

SERVICE	STANDARD BIN SIZE	COLLECTION FREQUENCY
Garbage	140 litres	Weekly
Recycling	240 litres (120 litres for units and townhouses)	Fortnightly
Garden Organics	240 litres (120 litres for units and townhouses)	Fortnightly

Hard waste collection

- A hard waste collection service trial started in April 2019.
- Residential properties can book one hard waste collection per financial year.
- The trial is funded by the residential waste collection charge.

Public place bin collection

- A variety of bin types collected from reserves, town centres and shopping precincts.
- Daily, weekly or fortnightly collections, depending on where the bin is located.

Waste education and community awareness

- Education programs aim to increase resource recovery and minimise waste generation.
- Focused on changing behaviour through education, audit programs, events and reuse and recycling service promotions.

DURING JULY 2018–JUNE 2019, OUR RESIDENTIAL KERBSIDE SERVICE COLLECTED:

45,000
tonnes waste

27,000
tonnes recyclables

33,000
tonnes garden organics

WASTE AND RESOURCE RECOVERY INFRASTRUCTURE

We manage a range of waste and resource recovery facilities to support our community and local businesses.

Geelong and Drysdale Resource Recovery Centres

- Serve as drop-off points for excess domestic waste, recycling, electronic equipment and white goods.
- Provides additional recycling options for recyclables and items that are not suitable for residential kerbside bins.

Geelong Garden Organics Composting Facility

- Processes garden organics collected from residential kerbside bins.
- Turns up to 35,000 tonnes a year of garden organics into organic compost using open-window composting.
- Accepts grass clippings, branches and other garden organics, but not food organics.

Drysdale Landfill

- A City-owned and operated site since 1983.
- Site users pay a disposal charge that includes a landfill levy on municipal and industrial waste.
- Managed in accordance with EPA Victoria's requirements.
- Landfill levy rates are set and collected by the Victorian Government under the Sustainability Fund.

Point Henry Transfer Station

- Uses to prepare kerbside waste for bulk haulage to landfill.
- Uses to prepare kerbside garden organics for bulk haulage to composting facility.
- Provides a contingency location if the local material recovery facility is temporarily not operational.

SNAPSHOT ON 1 JULY 2019



77 dog waste bins and dispensers managed across the municipality



1,441 public place garbage bins



90 public place recycling bins



60 cigarette butt bins serviced in shopping precinct across the municipality



$332 annual waste service charge for residential property

$65.90 per tonne municipal and industrial waste landfill levy collected by Victorian Government

$149 per tonne municipal and industrial waste disposal cost at Drysdale Landfill (including levy)

WASTE – A SHARED RESPONSIBILITY

As the snapshot of our services show, we invest a lot of time and resources into managing waste and resource recovery. However we are only one player in a complex system.

OUR RESPONSIBILITIES

While much of what shapes the Greater Geelong waste management system is determined by global and national forces, there is still many aspects of the system we can influence and control (see Figure 3). For example, we can:

- control the products used, waste generated and waste separated in our buildings and operations
- establish policies and practices that avoid waste and increase resource recovery
- provide services and infrastructure that support the community to collect, sort and recover waste
- educate the community about reducing contamination, improving resource recovery and avoid waste, and
- use partnership and advocacy to influence the Greater Geelong waste management system.

WHOLE-OF-COMMUNITY RESPONSIBILITIES

Everyone has a role to play in supporting a circular economy – whether it's by purchasing more sustainable products or correctly separating waste. Some examples of how we can have a positive impact include:

- avoiding waste, by making sustainable consumer choices
- separating resources from the waste produced in homes, public places and workplaces
- reducing contamination of kerbside recycling and garden organic bins, and
- taking action to increase resource recovery and improve understanding about waste issues.



Photo credit: BSWWRRG and MWRRG

Figure 3 Our areas of control and influence

ADVOCATE	• Government legislation and policies • Public and private investment on waste technologies	• Industry capabilities and market changes • For our community at state and federal levels
INFLUENCE	• Infrastructure and services • Industry, research and development and commercial sectors.	• Community's waste consumption and resource recovery practices
CONTROL	• Greater Geelong's waste services and infrastructure • Community education about waste and resource recovery	• Waste and resource recovery plans and policies for our buildings and operations • Procurement decisions to move markets towards products that adhere to circular economy principles

THE ENGAGEMENT PROCESS

We consulted community and stakeholders using a range of engagement activities to help us develop this strategy.

We carried out an extensive community and stakeholder engagement process that started in November 2018 and concluded in September 2019 (see Figure 4).

We collated the diverse range of ideas, concerns, issues and opportunities we heard throughout the process and used the results to inform our vision, goals and strategic actions.

For a more detailed account of the community survey and online forum outcomes, please refer to our *Geelong's War on Waste Community Consultation Report 2019.*

Figure 4 Community and stakeholders engagement process



Stakeholder open house

- 64 participants including councillors, employees and stakeholders from government agencies, community groups and the waste sector
- received feedback and ideas from stakeholders.

Have Your Say survey

- received 573 online survey responses
- consultation period: 11 February–15 March 2019
- released two discussion papers: *Geelong's war on waste* and *Reducing our food waste* and draft Background Report.

Community open house

- over 35 community members participated at the Geelong Library and Heritage Centre
- consulted on waste as part of the Environment Management Strategy.

Online advisory community

- consultation period: 18 March–12 April 2019
- received 77 comments from two discussion forums
- released two discussion papers: *Supporting a circular economy* and *The future of waste disposal.*

Workshops with stakeholders

- shared a snapshot of community feedback received from Have Your Say survey and the Online Advisory Community
- engaged with councillors and leadership team to design strategic goals and actions
- engaged sustainability, strategy and communication experts to establish strategy structure
- consulted stakeholders on collaboration opportunities and corporate strategic directions.

WHAT WE HEARD

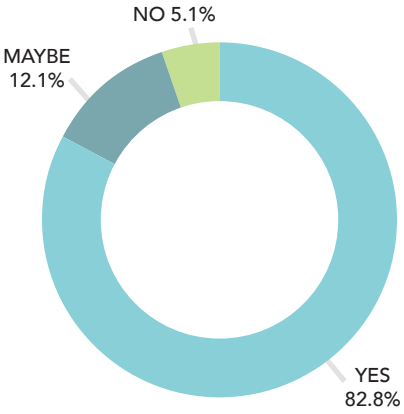
There were four key themes that came out of the community and stakeholder engagement process.

SUPPORT FOR FOOD ORGANICS COLLECTION SERVICE

Food organics makes up about 33 per cent of the City's kerbside household garbage and currently goes to landfill.

While over 50 per cent of survey respondents indicated that they compost at home, there is still very high support for a kerbside service, as demonstrated below:

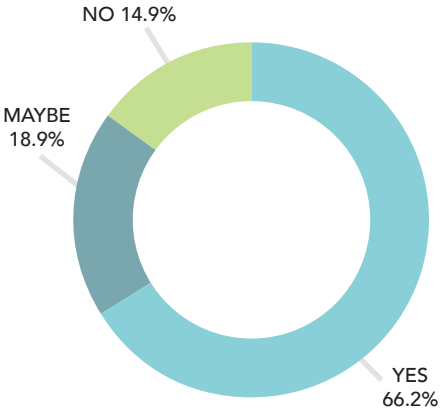
Would you support a food organics collection service?



82%

of survey respondents would support a food organics collection service offered by the City.

Would you use a food organics collection service?



66%

stated that they would use the service.

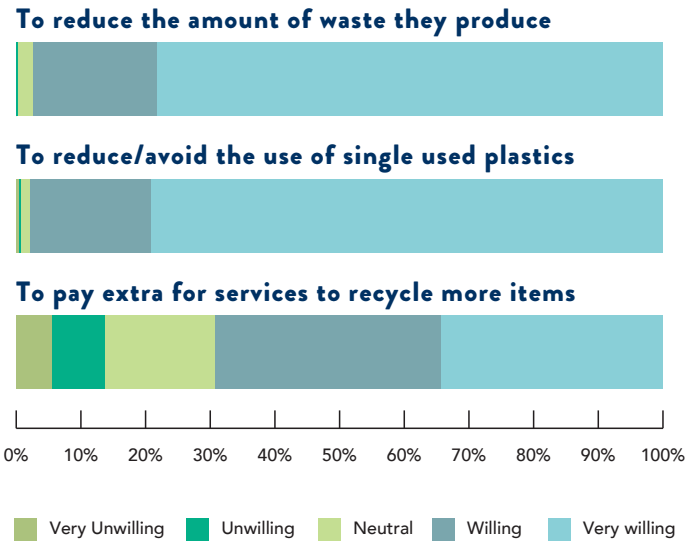


ABC's War on Waste host Craig Reucassel with local students on Geelong Waterfront. Photo credit: Bellarine Catchment Network

AVOID CREATING WASTE

The concept of avoiding waste by taking responsibility for consumption and making better, more conscious choices was something that generated a lot of discussion and feedback through the engagement process.

- 97.4 per cent of survey respondents are willing to reduce the amount of waste they produce.
- 97.7 per cent of survey respondents are supportive of reducing or avoiding the use of single used plastics.
- Over 65 per cent of survey respondents would pay extra for services to recycle more items.



RECOVER MORE RESOURCES

Recovering resources was the most common topic commented on by all participants in the engagement process. Suggestions included:

- develop a container deposit scheme
- ban single use plastics
- separate paper, cardboard and glass out of the co-mingle recycling and
- offer more soft plastic drop off sites.

EDUCATE THE COMMUNITY

Education was a popular topic and generated many comments during the engagement process. It was observed that education was fundamental to changing the way people think about waste. There was demand for more education focusing on avoiding waste and resource recovery.

Suggested areas of focus included:

- co-mingled recycling
- reducing contamination
- avoiding waste in the first place
- increasing opportunities for electronic waste capture and
- procuring more recycled materials.

WHAT SHAPED THIS STRATEGY

As well as the extensive community and stakeholder engagement process, we have used a range of different models, principles and questions to guide the development of this strategy.

Models

- The circular economy framework (see Figure 5)
- The waste management hierarchy (see Figure 6).

Principles

- One Planet Living principles (see Figure 7)
- Lead by example
- We are all responsible for the waste we produce.

Questions

These questions not only guided us in developing the strategy, but will continue to help us as we make decisions about the ongoing implementation of the plan.

- Will this support one or more of the following:
  – avoiding waste?
  – increasing resource recovery?
  – protecting our environment?
- Will this support a move towards a circular economy?
- Does this prepare us for the future?
- Will this receive community and/or political support?
- Will this bring economic return or community benefit?
- Will this improve the quality, effectiveness or efficiency of services and infrastructure?

Figure 5 The circular economy framework [3]

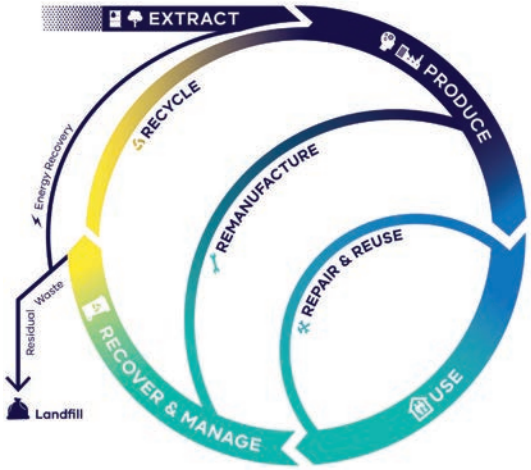


Figure 6 The waste management hierarchy

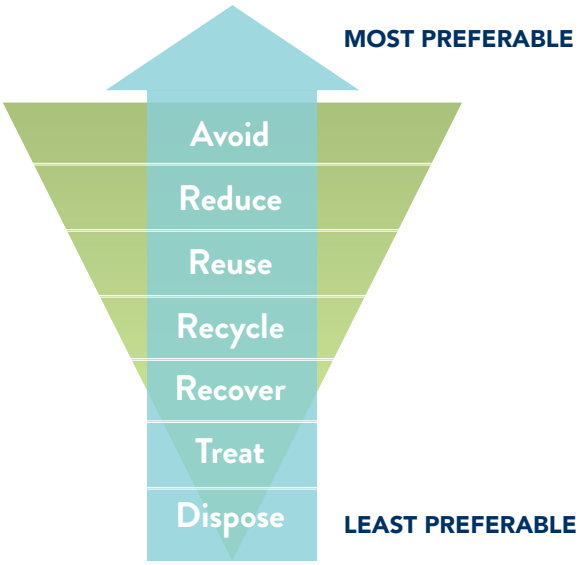


Figure 7 One Planet Living Principles



[3] State of Victoria (2019) *A Circular Economy for Victoria Issues Paper July 2019*. Department of the Environment, Land, Water and Planning.

CASE STUDY - CLEANTECH INNOVATIONS GEELONG

The Cleantech Innovations Geelong program supports businesses in the Geelong region to develop markets for clean technologies that address waste issues. This program is a partnership between the City, the Geelong Manufacturing Council and the State Government. Projects delivered include:

- facilitating Deakin University and CSIRO to develop technologies to process their food waste on the Waurn Ponds campus. Deakin University installed a Closed Loop food composter, built by Australian business Closed Loop Recycling, at their Waurn Ponds Estate. The unit converts up to 60 kilograms food waste a day into nutrient-rich soil improver and reduced waste by 90%.
- funding a market research project that has identified Australian based customers for new tyre crumb derived composite material and its expected volume of sales. This project has contributed to the establishment of a manufacturing plant in Geelong.
- supporting an innovative procurement process to reduce waste through creating age defying and maintenance free recreational bridges. The successful submission came from a consortium including Geelong manufacturer Austeng, Deakin University's Carbon Nexus research facility and Australian engineering company Rocla. The consortium undertook research and developed an innovative building product made from geopolymer (with partly recycled materials) and reinforced with carbon fibre, which is stronger and longer lasting than existing products.





CASE STUDY - USE OF SUSTAINABLE AND RECYCLED MATERIALS IN THE CITY'S CONSTRUCTION PROJECTS

The City uses sustainable and recycled materials in our construction projects to support sustainable procurement and a circular economy. We choose products with recycled contents and use less energy and water during manufacturing. Examples include using:

- recycled rubber for Goldsworthy Reserve athletics track in the base layer.
- green concrete mix on Highton, Drysdale and Purnell Road Child and Family Centres. These bulidings have used a recycled concrete product that incorporates crushed blast furnace slag, a by-product of steel manufacture that would otherwise go to landfill. The concrete production process uses recycled water and less energy than traditional process.
- road surfacing materials with high recycled content of steel slag, recycled rubber and/or recycled asphalt pavement. Such products are not only a better choice for the environment but also providing higher skid resistance for road sections of high braking and surface stress in the City.

STRATEGY OVERVIEW

From what we heard and learnt, we put together the following vision and goals to guide our efforts over the next ten years.

VISION

The City contributes to a circular economy by leading and supporting the community to actively avoid waste and increase resource recovery.

GOALS

1. AVOID CREATING WASTE

To reduce waste by actively avoiding it

2. RECOVER MORE RESOURCES

To value waste as a resource and recover more from it

3. PROTECT THE ENVIRONMENT

To reduce the impact waste has on the environment

GOAL 1 – AVOID CREATING WASTE

We place waste avoidance at the forefront of approaches for managing waste. Avoiding and reducing the generation of waste has the highest priority in the waste management hierarchy.

We recognise that reducing the amount of waste generated requires significant and sustained behaviour change by governments, businesses and households to achieve this goal. Waste avoidance relies on awareness and commitment by both individuals and organisations. We all can make decisions to reduce the impacts of our purchase and consumption. We can select items with the least packaging, avoid disposable or single-use goods, buy reusable and repairable products and use leftover food.

By reducing waste, we reduce our reliance on landfill and recycling infrastructure, reduce the impact of waste on the environment, and reduce the financial cost for disposal and waste services.



Photo credit: BSWWRRG and MWRRG

OUR AIM

To reduce waste by actively avoiding it.

OUR TARGETS

- The increase in residential waste tonnage is below the rate of population growth.
- City-run and public events requiring a permit to minimise and separate waste, and recover resources, as part of their waste management and recycling plan by 2022.
- 20 per cent reduction of waste produced from selected City-owned office buildings 2020 levels by 2025.
- Single-use plastics phased out of City-owned buildings by 2025.

STRATEGIC ACTIONS

SERVICES AND INFRASTRUCTURE		TIMEFRAME
1.1	Investigate services and infrastructure options that support and incentivise waste avoidance.	2020 to 2025

MANAGEMENT PRACTICES		TIMEFRAME
1.2	Develop a plastic-wise program by 2020 to phase out single-use plastics across the organisation by 2025.	Commence in 2019
1.3	Review council policies and procedures to identify opportunities that reduce waste and increase resource recovery in the workplace, and in the community.	2020 to 2022
1.4	Review event planning processes and templates to reduce waste and improve how we manage recycling at all City-run events.	2020 to 2022
1.5	Review approvals required for event waste management and recycling plans, and develop guidelines to support event organisers to reduce waste and increase resource recovery.	2020 to 2022

MANAGEMENT PRACTICES		TIMEFRAME
1.6	Develop waste management guideline for planning permit applications, to guide applicants to prepare a plan to manage the waste and recycling needs of residential and commercial developments.	2020 to 2022
1.7	Establish a community waste minimisation and innovation fund through the existing Environment and Sustainability Grants Program.	2020 to 2022
1.8	Establish a baseline of waste generated by selected City buildings and operations.	2020 to 2022

EDUCATION AND BEHAVIOUR CHANGE		TIMEFRAME
1.9	Implement an education and behaviour-change campaign for our employees focused on avoiding and reducing waste and increasing resource recovery in the workplace and at home.	2020 to 2025
1.10	Host regular community engagement open house sessions to improve communications and promote waste reduction.	2020 to 2025
1.11	Use communication and social media channels to promote ways of reducing waste, reusing and recycling.	Ongoing
1.12	Implement ongoing education and behaviour-change campaigns focused on avoiding and reducing waste and increasing resource recovery in local businesses and the community.	Ongoing
1.13	Promote programs and businesses that focus on avoiding waste and increasing resource recovery.	Ongoing
1.14	Encourage and assist businesses to promote practices to their customers that help avoid waste and improve resource recovery.	Ongoing

PARTNERSHIPS AND ADVOCACY		TIMEFRAME
1.15	Continue to partner and support government agencies, stakeholders and community groups to develop programs and initiatives that focus on avoiding waste and increasing resource recovery.	Ongoing
1.16	Partner with other organisations to assist with waste-sector research and development.	Ongoing
1.17	Investigate ways to help schools minimise their waste, such as the ResourceSmart school program.	Ongoing
1.18	Advocate to state and federal governments for waste-minimising design, manufacturing and packaging policy and legislation.	Ongoing
1.19	Advocate for, promote and support a circular economy.	Ongoing

GOAL 2 – RECOVER MORE RESOURCES

Where avoiding waste generation is not possible, we support and make effort to recover more value and resources from waste by planning and providing enabling infrastructure and services. Recovering more resources supports a circular economy that keeps materials in the productive economy, and benefits the environment by reducing the need for virgin materials and waste disposal.

We all can make choices in re-using, repairing and recycling household and industrial items. We can recycle more recyclable items such as electronic waste, batteries, white goods, etc at the City's resource recovery centres. The community can use the City's online recycling guide to check what can be recycled at kerbside collection.

The City is also committed to increase the recovery of food waste and avoid sending this resource to landfill. We will roll out community scale trials while we seek funding and approvals for municipal-wide organics processing in order to support a full scale food recovery program.

OUR AIM

To value waste as a resource and recover more from it.

OUR TARGETS

- Increase organics removed from residual waste stream by 5 per cent by 2022, and 20 per cent by 2030.
- Reduce contamination rates in residential recycling bins to less than 10 per cent by 2025, 7 per cent by 2030.
- Reduce contamination rates in residential garden organic bins to less than 3 per cent by 2025, 1.5 per cent by 2030.
- Increase the recycling rate in all City of Greater Geelong CBD offices by 10 per cent from 2020 levels by 2025.
- Increase food organics diverted from select City-owned buildings by 50 per cent from 2020 levels by 2025.
- Increase visits to online recycling guide by 30 per cent, and subscriptions to waste education e-newsletter by 50 per cent, from 2020 to 2022.



Opening of the Geelong garden organics composting facility in Anakie

STRATEGIC ACTIONS

SERVICES AND INFRASTRUCTURE		TIMEFRAME
2.1	Identify options and incentives that increase resource recovery through kerbside waste collection, resource recovery centres and landfill.	2019 to 2025
2.2	Investigate options to divert food organics from landfill, including implementing a trial food organics collection service.	2019 to 2022
2.3	Investigate options and prepare a business case for establishing a food organics processing facility.	2020 to 2022
2.4	Review the existing public place bin network and consider opportunities to improve and expand public place recycling.	2020 to 2025
2.5	Identify and implement new technologies to improve our waste services – for example, optimising waste collection runs and reducing collection vehicle emissions.	Ongoing
2.6	Evaluate the hard waste collection trial service and recommend next steps.	2019 to 2021
2.7	Investigate and trial different resource recovery service options for residents, such as on-demand collection services.	Ongoing
2.8	Investigate alternative waste technology options for residual waste.	Ongoing
2.9	Develop a waste and resource recovery infrastructure plan that fosters a circular economy.	2020 to 2022
2.10	Aim for a 6-Star NABERS waste rating (or equivalent) on all new City-owned buildings and select existing buildings to retrofit towards a similar rating.	Ongoing
2.11	Investigate better waste and recycling systems and services, and develop waste management planning guide for subdivision, multi-tenement and higher-density developments.	2020 to 2025

MANAGEMENT PRACTICES		TIMEFRAME
2.12	Implement a program to divert food organics in the Civic Precinct and other City-owned buildings.	2020 to 2025
2.13	Provide infrastructure and services in our buildings that support increased recycling rates.	2020 to 2025
2.14	Maximise recycling of plant and infrastructure at the time of asset replacement or disposal.	Ongoing
2.15	Provide opportunities and support for employees to upskill in workplace waste management and explore new waste technologies.	Ongoing
2.16	Identify new markets for recovered resources and waste currently going to landfill and support existing ones.	Ongoing
2.17	Develop markets for products that adhere to circular economy principles.	Ongoing
2.18	Review and improve waste data capture and reporting processes for landfill, kerbside collection and resource recovery.	2020 to 2025
2.19	Support and implement the Municipal Association of Victoria's *Rescue Our Recycling Action Plan.*	Ongoing
2.20	Establish a baseline of recycling rates across a selected sample of our buildings.	2020 to 2021

EDUCATION AND BEHAVIOUR CHANGE		TIMEFRAME
2.21	Provide education and behaviour-change programs that reduce kerbside bin contamination and increase resource recovery.	Ongoing
2.22	Provide information on waste management, recycling options and site contamination for the construction and demolition businesses.	Ongoing
2.23	Develop and support a waste ambassador program for communities and workplaces, and promote local waste and recycling stories.	Ongoing
2.24	Continue to monitor and reduce contamination rates in kerbside recycling and garden organics bins through the City's kerbside bin audit program and waste education.	Ongoing

PARTNERSHIPS AND ADVOCACY		TIMEFRAME
2.25	Partner with the Barwon South West Waste and Resource Recovery Group to support schools, hospitals, catering and other businesses to improve their waste practices and reduce landfill waste.	Ongoing
2.26	Collaborate with the Barwon South West Waste and Resource Recovery Group, local governments and the waste industry to develop and implement the Regional Recycling Action Plan for the Barwon South West region.	2019-2021
2.27	Continue to collaborate with G21 councils on collaborative procurement.	Ongoing
2.28	Partner with government agencies and local industries to bring new waste and resource efficient products to market by stimulating demand and providing grants.	Ongoing
2.29	Use Procurement for Innovation principles to bring new products to market that adhere to circular economy principles.	Ongoing
2.30	Through Cleantech Innovations Geelong partnership program, invite proposals for circular economy and waste related demonstration projects.	2020 to 2021
2.31	Explore the creation of a clean technology precinct which will include and support resource efficient products and businesses.	2020 to 2025
2.32	Work with government agencies, local governments and organisations to increase the use of recycled materials in road, building and other infrastructure constructions.	Ongoing
2.33	Partner with other local governments and waste regional groups to identify and develop waste management and infrastructure solutions.	Ongoing
2.34	Partner with government agencies, local governments and organisations to explore opportunities on resource recovery and alternative waste technologies.	Ongoing
2.35	Advocate to the State Government for a Victorian container deposit scheme.	Ongoing
2.36	Advocate for waste reduction targets at the State Government level.	Ongoing



Public place garbage collection service

GOAL 3 – PROTECT THE ENVIRONMENT

The transport, processing and disposal of waste all have the potential to impact the environment. It is important that our waste and recycling systems are designed and operated according to best practice in order to protect the environment from the negative impacts of waste.

The City is committed to continue managing waste responsibly and adopting best practice in our current waste and recycling facilities. To plan for future population and economic growth in Geelong, we will prepare a business case to establish future waste facilities in accordance with best environmental practice.

Litter and illegal dumping can significantly damage our environment. It not only costs the community money, but also causes public health and safety hazards. The City protects the environment from litter and dumped materials problems by enforcement, community education and control measures.

For community members, we can all avoid littering in the first place and assist by picking up rubbish, or joining clean-up activities. We can also report dumping or other environment pollution by contacting the EPA Victoria, or reporting dumped materials to the City.

OUR AIM

To reduce the impact waste has on the environment.

OUR TARGETS

- Capture 95 per cent of landfill gas generated at the Drysdale Landfill for energy production by 2025.
- Progressively rehabilitate the Drysdale Landfill to improve the local landscape.
- Review and update council policies to support a circular economy by 2022.
- Implement sustainable government procurement practices, including the use of sustainable and recycled materials

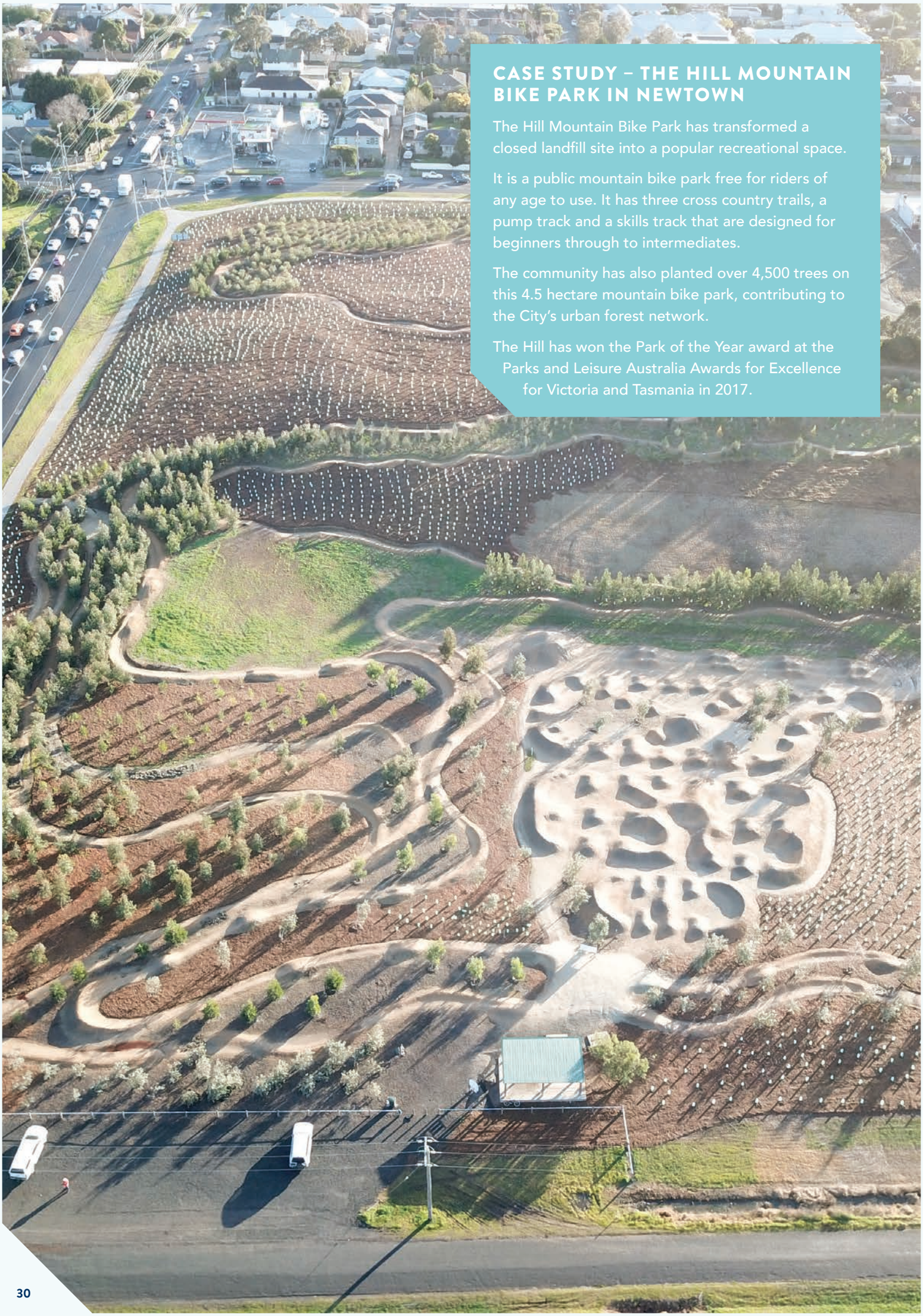
STRATEGIC ACTIONS

SERVICES AND INFRASTRUCTURE		TIMEFRAME
3.1	Protect the environment from litter pollution in public and open spaces through enforcement, education and control measures.	Ongoing
3.2	Review and improve management processes and measures designed to address illegal dumping across the municipality.	Ongoing
3.3	Review and monitor litter reduction measures aimed at wetlands and waterways. Investigate opportunities to capture more litter from stormwater runoff through appropriate infrastructure and measures.	Ongoing
3.4	Prepare a business case to establish best environmental practice facility for bulk transport of residual waste.	2020 to 2022
3.5	Continue to monitor landfill gas capture and energy generation at the Drysdale Landfill.	Ongoing
3.6	Develop and implement a progressive landfill landscape and rehabilitation plan for the Drysdale Landfill.	Ongoing
3.7	Protect the environment using best practice and management of existing waste infrastructure, including landfills, recycling facilities and services.	Ongoing
3.8	Investigate opportunities to rehabilitate and develop green spaces at closed landfills.	Ongoing
3.9	Identify and support initiatives to reuse waste to protect our environment, such as using waste scallop shells to construct artificial reefs that reduce coastal erosion.	Ongoing

MANAGEMENT PRACTICES		TIMEFRAME
3.10	Continue to implement sustainable procurement practices, including the use of sustainable and recycled materials to create end markets.	Ongoing
3.11	Review and update policy and procedures to reflect the changes in Environment Protection Amendment Act 2018 which takes effect from 1 July 2020.	Commence in 2019
3.12	Continue to implement environmental monitoring and operational plans for Drysdale Landfill. Conduct annual environment audit and implement recommendations.	Ongoing
3.13	Continue to comply with EPA requirements and guidelines at all City-managed waste infrastructure.	Ongoing
3.14	Identify opportunities to minimise the impact of waste on the environment for the Northern and Western Geelong Growth Areas.	Ongoing

EDUCATION AND BEHAVIOUR CHANGE		TIMEFRAME
3.15	Expand community education program to highlight the impacts of waste on the environment.	Ongoing
3.16	Deliver community engagement and education campaign to raise awareness of illegal dumping and its impacts.	Ongoing
3.17	Undertake community engagement on the future closure of Drysdale Landfill and explore possible uses for the site after it closes.	Ongoing
3.18	Promote and celebrate success in protecting the environment through community education campaigns.	Ongoing
3.19	Promote programs and businesses that take actions to reduce the impacts of waste on the environment.	Ongoing

PARTNERSHIPS AND ADVOCACY		TIMEFRAME
3.20	Partner with government agencies, land managers, land owners and relevant stakeholders to reduce and prevent illegal dumping across the municipality.	Ongoing
3.21	Partner with government agencies to reduce and prevent littering using community education and enforcement.	Ongoing
3.22	Continue to partner with government agencies and stakeholders to secure funding for environmental protection works.	Ongoing
3.23	Collaborate with government agencies and stakeholders to develop programs and initiatives that focus on reducing the impacts of waste on the environment.	Ongoing
3.24	Advocate for increased enforcement, technical advice and support from the Environment Protection Authority Victoria.	Ongoing



CASE STUDY – THE HILL MOUNTAIN BIKE PARK IN NEWTOWN

The Hill Mountain Bike Park has transformed a closed landfill site into a popular recreational space.

It is a public mountain bike park free for riders of any age to use. It has three cross country trails, a pump track and a skills track that are designed for beginners through to intermediates.

The community has also planted over 4,500 trees on this 4.5 hectare mountain bike park, contributing to the City's urban forest network.

The Hill has won the Park of the Year award at the Parks and Leisure Australia Awards for Excellence for Victoria and Tasmania in 2017.

DELIVERING THE STRATEGY

NEXT STEPS

This draft *Waste and Resource Recovery Strategy* will be released for public consultation and comment in late 2019. Feedback will be reviewed to recommend changes to the draft strategy where required.

The final draft will then be considered by Council in late 2019 or early 2020. If the plan is endorsed by Council it will then be implemented.

HOW WE WILL IMPLEMENT THE PLAN

Once the strategy is endorsed, we will develop a rolling implementation plan for strategic actions to be delivered every two years. The implementation plan will identify:

- the strategic actions we will be working on
- more specific timelines for each action
- resources required and available, and
- our progress to date.

Waste and resource recovery management is constantly changing. We have chosen to plan implementation two years in advance in order to respond to rapidly changing variables, such as:

- trends in the waste sector
- community expectations
- our annual budget
- changes in the our priorities and programs and
- changes in federal and state government policies and programs.

HOW WE WILL FUND THE IMPLEMENTATION

The funding we need to implement the strategic actions for each two-year period will be considered in our annual planning and budgeting cycles. We will also seek external funding opportunities to further progress our vision, goals and strategic actions.

HOW WE WILL REPORT

At the end of every two-year implementation cycle, we will report our progress to Council and community. This report will be made publicly accessible via our website. The first report will be delivered to Council in 2022.

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CUSTOMER SERVICE CENTRE

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8.00am – 5.00pm

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DRAFT BACKGROUND REPORT

WASTE AND RESOURCE RECOVERY STRATEGY

NOVEMBER 2019

CITY OF GREATER GEELONG

Contents

1. Introduction 3

2. Context 4

2.1 Policies and regulations 4

2.2 Victorian strategic directions and initiatives 6

2.3 Regional strategic directions and initiatives 10

2.4 City of Greater Geelong strategies, plans and Policies 13

2.5 City of Greater Geelong Council resolutions 16

3. Current Issues and Opportunities 21

4. Past Performance 24

4.1 Waste Management in the City of Greater Geelong 24

4.2 Waste management performance against comparable councils 26

4.3 Local government Community satisfaction survey 28

5. Current Situation 30

5.1 Materials generated 30

5.2 Waste and resource recovery services 33

5.3 Waste education and community awareness 39

5.4 Waste and resource recovery infrastructure 44

References 47

1. Introduction

The Draft Background Report 2019 (the Report) for the Waste and Resource Recovery Strategy identifies current and future waste management and resource recovery in the City of Greater Geelong. The Report collates information, analyses waste and resource recovery issues and trends, and informs the strategic waste direction for the City.

The Report supports the development of the Waste and Resource Recovery Strategy (the Strategy). The Strategy offers long-term strategic direction for sustainable waste management and identifies the City's goals to be achieved in the waste sector.

The City of Greater Geelong is a member of the Barwon South West Waste and Resource Recovery Group and the Strategy will be developed in accordance with the Barwon South Waste and Resource Recovery Implementation Plan.

This Draft Background Report was developed through consideration of:

- existing waste and recycling collection and management services provided
- consultation with relevant stakeholders
- review of local, state and national policies, regulations and plans
- review of the City's achievements and outcomes to date
- analysis of current and future waste trends
- assessment of existing waste and resource recovery infrastructure
- analysis of options for improving waste and recycling services
- assessment of the environmental, social and financial impacts of future strategies for sustainable waste management.

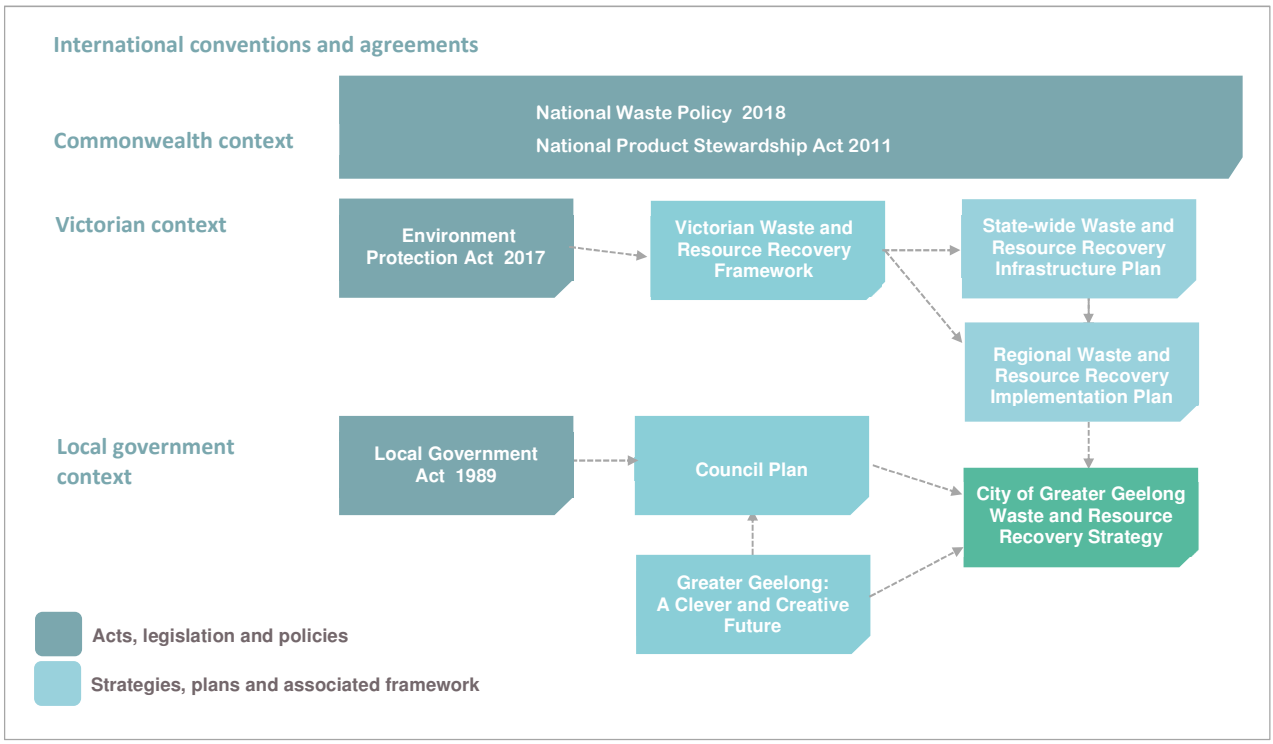
2. Context

Development of the Strategy is influenced by national, state and local government acts, legislation and policies, as well as regional initiatives of the Barwon South West Waste Resource Recovery Group. It is also developed within the context of community expectations, past performance and other issues.

2.1 POLICIES AND REGULATIONS

This section provides an outline of the legislation, policy and planning framework relevant to the management of waste at Council level. An overview of the strategic framework for development of the Strategy is shown in Figure 2-1.

Figure 2-1 Waste Management Planning Framework



Commonwealth Government



The National Waste Policy: Less Waste, More Resources was developed in 2018 by the Commonwealth Government. The National Waste Policy provides a national framework for waste and resource recovery in Australia. It outlines roles and responsibilities for collective action by businesses, governments, communities and individuals. It responds to the challenges facing waste management and resource recovery in Australia and reflects the global shift towards a circular economy.

The policy identifies five overarching principles underpinning waste management in a circular economy. These include:

- Avoid waste
- Improve resource recovery
- Increase use of recycled material and build demand and markets for recycled products

- Better manage material flows to benefit human health, the environment and the economy
- Improve information to support innovation, guide investment and enable informed consumer decisions.

The Commonwealth Government also established National Environment Protection Measures (NEPMs). These set the basis for agreed national objectives for protecting or managing aspects of the environment (and are enforced through State legislation). Waste-related NEPMs currently in place address used packaging materials and the movement of hazardous waste between states/territories.

National product stewardship arrangements (between government and industry) are in place for televisions and computers, end-of-life tyres, waste oil, mobile phones and other products. Future arrangements for other materials are likely to be established.

Victorian Government

The Environment Protection Authority Victoria is responsible for the enforcement of the Environment Protection Act 2017 which is the key legislative mechanism for environmental protection in Victoria. This Act outlines the Victorian waste and resource recovery planning framework and scope for the development of state and regional waste plans, the establishment of landfill levies and industrial waste policies, as well as supporting regulations for waste and recycling facilities. Under this Act councils are required to perform waste management functions that are consistent with the Statewide Waste and Resource Recovery Infrastructure Plan and the Regional Waste and Resource Recovery Implementation Plans.

The Department of Environment, Land, Water and Planning (DEWLP) has a role in setting the State policy for waste and resource recovery. Specifically, they prepare legislative amendments and provide policy, planning, leadership, coordination and oversight of the environment portfolio. They also collaborate with other government departments, particularly the Department of Economic Development, Jobs, Transport and Resources and the Department of Health and Human Services to maximise investment and employment opportunities, and to address the community, environment and public health problems posed by waste.

The Local Government Act 1989 outlines the roles and responsibilities of Victorian Councils, with additional waste management responsibilities set out in the Public Health and Wellbeing Act 2008. These responsibilities include: maintaining the municipality in a clean and sanitary condition; planning for and providing community services and infrastructure; ensuring that services are delivered in accordance with best value principles; and striving for continuous improvement in service delivery.

The Victorian Government also established the Local Government Performance Reporting Framework in 2014, which is a mandatory system for consistent local government reporting across the state. Councils are required to measure and report annually on performance measures set out in the Framework, including waste management services. Council performance levels can be viewed and compared with other councils via the Know Your Council website[1].

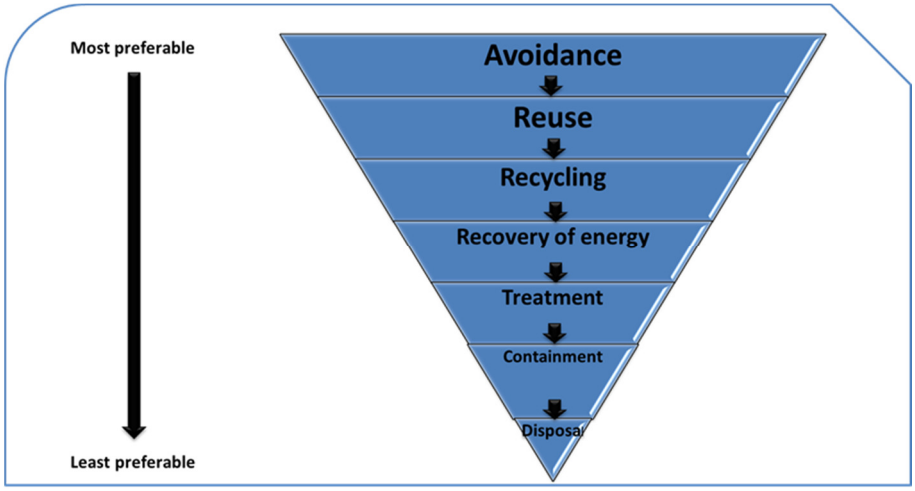
For specific information and graphs on the City of Greater Geelong's performance measures for 2017-18 in relation to waste management services, refer to Section 4 Past Performance.

[1] knowyourcouncil.vic.gov.au

Waste Management Hierarchy

The waste management hierarchy is the underlying principle of waste management policies in Australia and is included in the Environment Protection Amendment Act 2018. The hierarchy establishes the order of preference for waste management as outlined in Figure 2-2.

Figure 2-2 Waste Management Hierarchy



2.2 VICTORIAN STRATEGIC DIRECTIONS AND INITIATIVES

Statewide Waste and Resource Recovery Infrastructure Plan

Sustainability Victoria is responsible for implementing Victorian Government policies on resource recovery and waste management including the development of the Statewide Waste and Resource Recovery Infrastructure Plan: A 30-year roadmap for Victoria. This plan provides strategic directions for improving waste and resource recovery infrastructure to achieve its long-term vision by stating:

'Victoria has an integrated statewide waste and resource recovery system that provides an essential community service to: protect the community environment and public health; recover valuable materials from our waste; and minimise long term costs to households, industry and governments.'

The Statewide Waste and Resource Recovery Infrastructure Plan outlines the following four goals.

- Goal 1: Landfills will only be used for receiving and treating waste streams from which all materials that can be viably recovered have been extracted.
- Goal 2: Materials are made available to the resource recovery market through aggregation and consolidation of volumes, to create viability in recovering valuable resources from waste.
- Goal 3: Waste and resource recovery facilities, including landfills, are established and managed over their lifetime to provide best economic, community, environment and public health outcomes for local communities and the state, and ensure their impacts are not disproportionately felt across communities.
- Goal 4: Targeted information provides the evidence base to inform integrated statewide waste and resource recovery infrastructure planning and investment at the state, regional and local levels by industry, local government, waste and resource recovery groups, government agencies and the broader community.

The Statewide Waste and Resource Recovery Infrastructure Plan identifies six strategic directions.

Strategic direction 1	Strategic direction 2	Strategic direction 3
Prioritise viable recovery	Reduce landfill reliance	Aggregate materials

Strategic direction 4	Strategic direction 5	Strategic direction 6
Utilised land	Evidenced-based decision making	Integrated planning

Key focusses of the Statewide Waste and Resource Recovery Infrastructure Plan include;

- Increasing Victoria's diversion of materials being recovered for recycling or energy from landfill from 67 per cent to 72 per cent by 2020. This represents a reduction of over 500,000 tonnes of valuable materials going to landfill across Victoria.
- Supporting more strategically located and sophisticated collection and sorting facilities.
- Supporting the introduction of innovative technologies to process materials into new products.
- The conversion of organic and residual wastes to energy where higher order recovery is not viable.

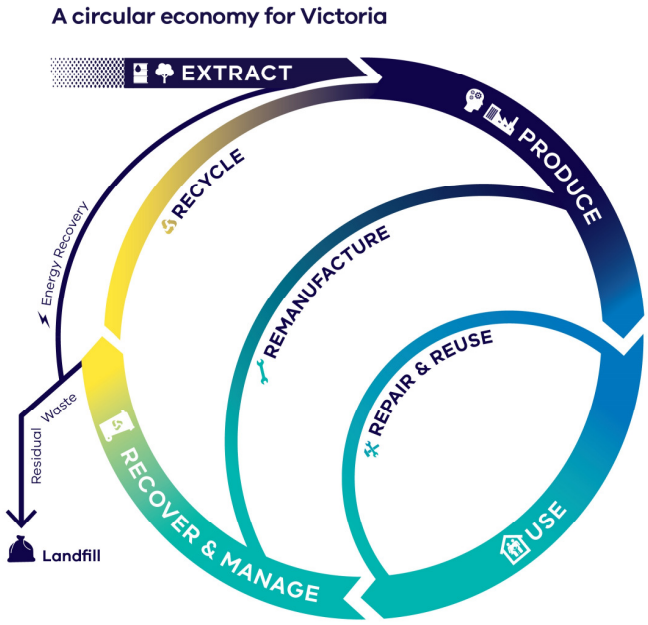
Victoria Transitioning to a Circular Economy

The Statewide Waste and Resource Recovery Infrastructure Plan is underpinned by the concept of a circular economy. In a circular economy resources flow through a system to be productively reused. The Statewide Waste and Resource Recovery Infrastructure Plan seeks to ensure that Victoria's waste and resource recovery system, particularly its infrastructure, not only manages this increasing amount of material, but maximises circular flows whilst minimising impacts on the community and the environment. The Statewide Waste and Resource Recovery Infrastructure Plan focuses on the resource recovery aspect of the circular economy.

The Victorian Government is developing a circular economy policy and action plan by late 2019. The policy and action plan will identify ways to grow the economy and increase jobs by improving resource productivity. In July 2018, the Victorian Government launched the Recycling Industry Strategic Plan – a blueprint to transition Vitoria's recycling system to a more resilient and sustainable model.

Figure 2-3 presents high level resource flows when circular economy principles are applied to Victoria. It identifies three key processes: repair and reuse, remanufacture, and recycle; together with four key phases. The phases include extract, produce, use, and recover and manage. The linear 'take-make-dispose' supply chain approach to manufacturing and consumption is made circular by resource recovery, which brings materials back into the cycle for remanufacturing. This, together with better product design in the form of product stewardship, results in a high level of resource recovery and a small component of waste going to landfill.

Figure 2-3 Flow of Resources in Victoria's Circular Economy[2]



Parliamentary inquiry into recycling and waste management

On 6 March 2019, the Legislative Council agreed to the motion that requires the Environment and Planning Committee to inquire into the circumstances in municipal and industrial recycling and waste management, and provide a report on the crisis in Victoria's recycling and waste management system. This inquiry looks into, but not limited to:

- the responsibility of the Victorian government to establish and maintain a coherent, efficient and environmentally responsible approach to solid waste management across the state, including assistance to local councils
- whether the China National Sword policy was anticipated and responded to properly
- identifying short and long-term solutions to the recycling and waste management system crisis
- strategies to reduce waste generation and better manage all waste
- relevant reviews, inquiries and reports into the waste and recycling industry in other Australian jurisdictions and internationally.

The reporting date for this inquiry has been extended from 13 August to 29 November 2019.

[2] State of Victoria (2019) *A Circular Economy for Victoria Issues Paper July 2019*. Department of Environment, Land, Water and Planning.

Infrastructure Victoria: advice on recycling and resource recovery infrastructure in Victoria

Infrastructure Victoria has been asked to provide advice to the State Government on recycling and resource recovery infrastructure in Victoria. Terms of reference provided by the Special Minister of State set out the scope of the advice.

Specifically, the State is seeking advice on the infrastructure that would be required and the role for government in providing support to:

- develop Victoria's re-processing sector for recycled material, particularly those that currently rely heavily on overseas markets such as plastics
- better enable the use of products containing recycled materials in a variety of Victoria industries, such as manufacturing, construction and agriculture
- support a waste to energy sector that prioritises the extraction of recyclable material and recovers energy only from the residual waste (i.e. without diverting waste from reuse or recycling)
- support high levels of resource for organics, particularly food organics.

Infrastructure Victoria has released an interim report *Recycling and Resource Recovery Infrastructure – Evidence Base Report* in October 2019. Their final advice to the State Government is due in April 2020.

Other Key Documents

Sustainability Victoria has also developed a range of other strategies and frameworks related to waste including the following:

- The Collaborative Procurement Framework, which outlines a consistent approach to identifying, assessing and planning collaborative procurement of waste and resource recovery infrastructure and services.
- The Infrastructure Facilitation Framework, which provides a coordinated, consistent and long-term approach to promoting and facilitating waste and resource recovery investment opportunities locally and abroad.
- The Victorian Market Development Strategy for Recovered Resources, which aims to stimulate markets for recovered resources by reducing barriers and supporting the right conditions for material and product markets to grow and mature.
- The Victorian Organics Resource Recovery Strategy, which outlines the goals, directions, outcomes and actions for improving the management and recovery of organic waste.
- The Victorian Waste Education Framework, which provides a coordinated approach to waste and resource recovery education in Victoria.
- National Market Development Strategy for Used Tyres, which provides a five-year approach to improve market conditions to better manage end-of-life types and drive the growth of a domestic tyre derived products market

2.3 REGIONAL STRATEGIC DIRECTIONS AND INITIATIVES

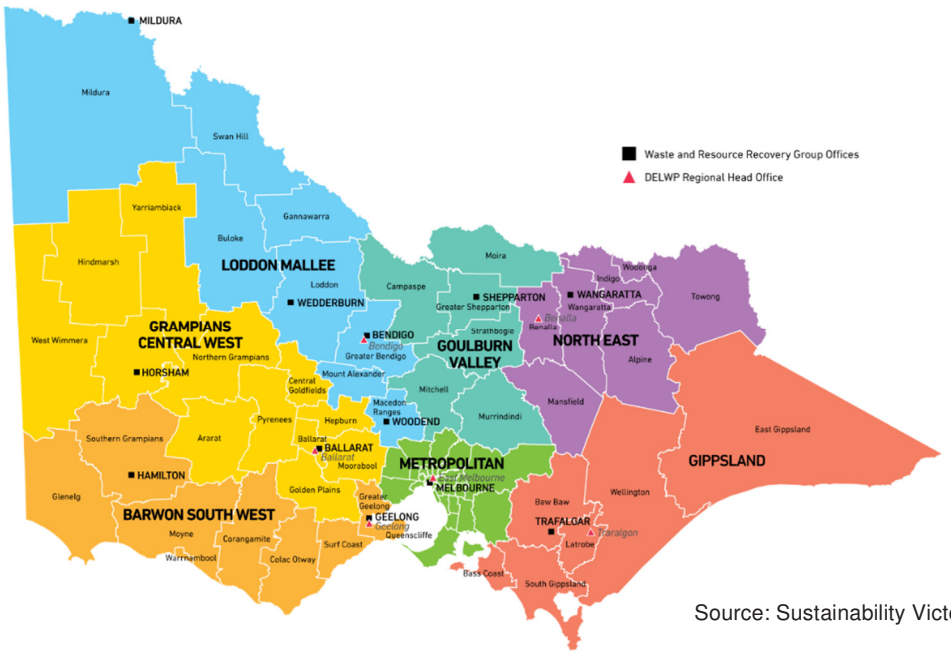
Waste and Resource Recovery Groups

Victoria is divided into seven waste and resource recovery regions as shown in Figure 2.4. Each region is managed by a Waste and Resource Recovery Group, which is responsible for facilitating a coordinated approach to the planning and delivery of infrastructure and services for all waste streams, municipal solid waste (MSW), commercial and industrial waste (C&I) and construction and demolition waste (C&D) across their region. The City of Greater Geelong sits within the Barwon South West Waste and Resource Recovery Region, which consists of the municipal districts of nine councils.

As defined in the Environment Protection Amendment Act 2018, a Waste and Resource Recovery Group aims to achieve the following in relation to its waste and resource recovery region:

- to undertake waste and resource recovery infrastructure planning to meet future needs while minimising risks of harm to human health or the environment from waste and resource recovery infrastructure;
- to facilitate efficient procurement of waste and resource recovery infrastructure and services through the collective procurement of waste management facilities and waste and resource recovery services;
- to integrate regional and local knowledge into State-wide waste and resource recovery market development strategies;
- to educate businesses and communities to reduce waste going to landfill by using waste and resource recovery infrastructure and services efficiently;
- to ensure Regional Waste and Resource Recovery Implementation Plans and related activities are informed by local government, business and the community and inform the Statewide Waste and Resource Recovery Infrastructure Plan and related activities.

Figure 2-4 Waste and Resource Recovery Groups of Victoria



Source: Sustainability Victoria

Regional Waste and Resource Recovery Implementation Plan

The Barwon South West Waste and Resource Recovery Implementation Plan was developed by Barwon South West Waste Resource Recovery Group in 2016. It identifies the infrastructure capacity needs and priorities of the region. The Barwon South West Waste and Resource Recovery Implementation Plan is informed by the vision, goals and strategic directions of the Statewide Waste and Resource Recovery Infrastructure Plan. The regional strategic objectives outlined in the Barwon South West Waste and Resource Recovery Implementation Plan are outlined below.

- Behaviour change: Achieve behaviour change that reduces waste generation and increases resource recovery.
- Resource recovery and innovation: Encourage innovative and cost-effective ways to increase resource recovery.
- Market development: Identify and establish industry relationships to build market opportunities to maximise resource recovery.
- Collaborative procurement: Facilitate the aggregation of services through joint procurement to maximise resource recovery and cost effectiveness.
- Strategic planning: Plan for future waste and resource recovery infrastructure and service needs for the region.

To deliver on these objectives, Barwon South West Waste Resource Recovery Group has developed twelve priority actions. Each priority action has sub-activities and initiatives involving various stakeholders such as, councils, industry, and Sustainability Victoria. These priority actions and any sub actions pertaining to the City of Greater Geelong are summarised in Table 2-1.

Table 2-1 Actions and Initiatives from the Barwon South West Waste and Resource Recovery Implementation Plan

No.	Priority Action
1	Facilitate behavioural change to reduce waste generation, improve source separation and recovery rates.
2	Support the development of innovative and viable opportunities to increase recovery of priority materials including organics, wood/timber, plastics, and textiles.
3	Facilitate viable systems to increase recovery rates, including those from mixed loads of waste and bin collection arrangements.
4	Facilitate viable solutions to increase the recovery of materials currently going to landfill including those sourced from municipal, agricultural industries and commercial businesses.
5	Facilitate regional and cross sectoral linkages to improve markets for materials that could be diverted from landfill and used by another industry as a resource.
6	Facilitate collaborative procurements to improve economies of scale and cost efficiencies. Work with councils to identify and introduce collaborative resourcing opportunities.
7	Facilitate the aggregation of material streams to improve economies of scale and cost efficiencies.
8	Assess the future strategic role of landfill and resource recovery needs within the Barwon South West Region. Provide support to owners and operators of resource recovery centres / transfer stations to meet best practice operations and maximise resource recovery.

No.	Priority Action
9	Work with planning authorities to recognise and protect existing facilities and hubs from encroachment and ensure that waste and resource recovery infrastructure planning is appropriately integrated with land use and transport planning. Work with councils and industry to review the need for additional land use planning controls to protect buffers for existing and future landfills and resource recovery infrastructure.
10	Work with councils and other relevant authorities to reduce risk and to ensure contingency plans are in place for managing waste. Work with councils and state authorities to develop mechanisms/ contingency plans to appropriately manage waste and material during and after emergency or unplanned event. Work with councils to develop mechanisms/contingency plans to appropriately manage waste and materials during seasonal fluctuations.
11	Work collaboratively with all stakeholders to ensure statewide policy, planning and funding programs support the region's infrastructure needs. Support the establishment of a regional template for the development of municipal waste and resource recovery strategies that will align with the regional implementation plan. Work with the Local Government Forum to develop a decision-making framework to support councils to identify viable opportunities to recover organics and residual material. Work with the Local Government Forum to investigate optimal efficiencies in infrastructure to manage residual waste across the region. Develop tools to assist operators to understand viability, operating and whole-of-life costs of existing and new resource recovery infrastructure (e.g. transition of landfills to materials processing).
12	Work with all stakeholders to establish an integrated and effective data network.

G21 Geelong Region Alliance

G21 Geelong Regional Alliance is the formal alliance of government, business and community organisations working together to improve the lives of people within the Geelong region across five, member municipalities – Colac Otway Shire, Golden Plains Shire, City of Greater Geelong, Borough of Queenscliff and Surf Coast Shire. Figure 2.5 shows the location of each of these Councils.

Figure 2-5 Five Councils in the G21 Regional Alliance



Source: G21 Geelong Region Alliance website

G21 is the official Strategic Planning Committee for the G21 region and is responsible for leading the development and implementation of the region's strategic plan. It works as a forum to discuss regional issues across interest groups and municipalities resulting in better co-ordinated planning and consultation.

G21 supports the delivery of projects that benefit the region across municipal boundaries. G21 councils work collaboratively in the procurement of services such as the kerbside waste, recyclables and garden organics collection contract. This collaborative approach enabled councils to negotiate contract variations collectively in response to the recycling crisis in 2018.

2.4 CITY OF GREATER GEELONG STRATEGIES, PLANS AND POLICIES

A number of existing City of Greater Geelong plans and strategies provide guidance for waste and resource recovery in the Geelong region. Table 2-2 below provides a list of these plans and strategies and a snapshot of how they inform waste management and resource recovery through identified strategic direction, key priorities, measures of success and actions.

It is important to ensure these documents are considered and aligned to during the development of the Waste and Resource Recovery Strategy.

Table 2-2 Summary of the City's Strategic Documents and their Strategic Direction, Key Priorities, Measure and Actions for Waste and Resource Recovery Management

City of Greater Geelong's Strategic Documents	
	**Greater Geelong: A Clever and Creative Future** By 2047, Greater Geelong will be internationally recognised as a clever and creative city-region that is forward looking, enterprising and adaptive, and cares for its people and environment. One area of focus is the development and implementation of sustainable solutions. **Greater Geelong community values:** Easy access to recycling **Success will be achieved by:** Moving to a zero-waste community **The measure of success is:** Performing better than the Victorian average in solid and green waste diverted from landfill
	**Council Plan 2018-22 – putting our community first** The Council Plan 2018-22 outlines how we will work towards making Greater Geelong a cleaver and creative city-region. It will guide the City of Greater Geelong's resources to deliver infrastructure, services and programs to the community in a sustainable way. **Purpose:** Working together for a thriving community **Strategic Priority 5:** *Effective Environmental Management* – We will show leadership to address waste, climate change and environmental challenges.

City of Greater Geelong's Strategic Documents

Key priorities

- Educating and assisting our community to act on climate change, by reducing waste, emissions and water usage
- Commencing Drysdale landfill rehabilitation
- Constructing a green organics facility
- Reducing single-use plastics across the region

Aims for 2018-19

- Identify waste to energy options for our region
- Trail a hard waste collection service
- Investigate options to achieve zero waste to landfill and support the community to do likewise
- Continue to embed one planet living principles across the organisation

Measure of success

- 60 per cent of garbage, recyclables and green organics collected from kerbside bins diverted from landfill.

Strategic Priority 10: *Innovative finances and technology* – Clever and sustainable financial management, matched with digital growth, will advance our future

Key priority

- Deliver smart technology solutions to areas such as street lighting, parking, waste management and children's services.



One Planet Living

The City became a One Planet Council in 2015 and implemented a number of projects under the One Planet Living principles including: construction of the 5-star Green Star rated Geelong Library and Heritage Centre; implementation of the Low Carbon Growth Plan; new cycling facilities across Geelong and adoption of the Principle Bicycle Network; and adoption of the Urban Forest Strategy.

The One Planet Living has a vision of a world in which people enjoy happy, healthy lives within their fair share of the earth's resources, leaving space for wildlife and wilderness.

It is based on ten guiding principles of sustainability as a framework of which Principle 9: Zero waste: *Reducing waste, reusing where possible, and ultimately sending zero waste to landfill* is relevant to the new waste and resource recovery strategy.

City of Greater Geelong's Strategic Documents

Environment Management Strategy 2014-17

The Environment Management Strategy 2014-17 is the key document that guides Council planning, decision-making and activities that impact on the Greater Geelong environment. The Strategy provides a framework to build healthy, connected communities, which are able to live in a clean environment that is respected and cared for.

One Planet Principles have been adopted with the environment Strategy which specifically states a principle for Zero Waste to be 'Reducing waste, reusing where possible and ultimately sending zero waste to landfill'.

Actions:

1 Council leadership

- Review and update Council's Waste Strategy
- Operate Drysdale landfill under EPA licence conditions and Best practise environmental management – siting, design, operations and rehabilitation of landfills
- Increase waste (solid & green) diverted from Landfill (kg & percentage)
- Increase usage rate for transfer stations/resource recovery centres (transactions per annum)
- Reduce landfill pollutant levels for odour, dust, complains, groundwater and gas leaks
- Reduce contamination rates of kerbside recycling collection service
- Reduce greenhouse emissions by sector (e.g. waste)



3 Sustainable urban and rural development

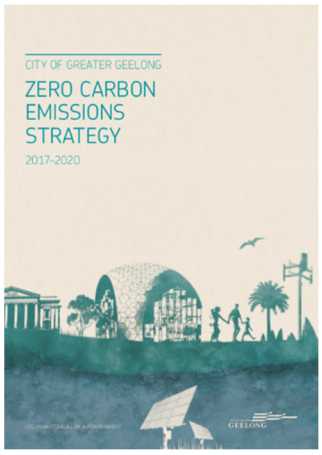
- Remove contaminates from Council managed land

5. Sustainable living

- Implement recycling recovery initiatives
- Increase recycling of items not collected during kerbside collection
- Maintain Public Place Recycling bin program
- Maintain Public Place butt bin program
- Implement best practise green organics disposal of material collected via kerbside collection
- Increase community satisfaction rating for overall performance in waste management (annual Local Government Community Satisfaction Survey)
- One planet living community strategy as it applies to reducing council and community ecological footprint
- Waste avoidance and recycling

City of Greater Geelong's Strategic Documents

Zero Carbon Emissions Strategy 2017-20



The City of Greater Geelong recognises the need to show leadership in reducing carbon emissions in the region. The Zero Carbon Emissions Strategy provides a pathway and fosters greater support to reduce greenhouse emissions by the Greater Geelong Community and Council.

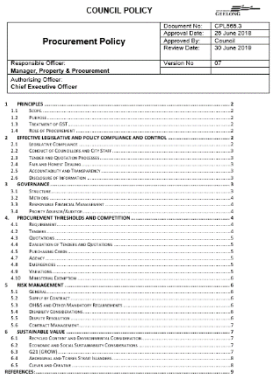
Current carbon emissions from waste and future projections stated within the Strategy include:

- Municipal waste 52 $ktCO_2e$ emissions in 2015 (1.1%) and is projected to be 73 $ktCO_2e$ emission in 2035, which is 1.3% of community emissions; and
- Commercial/industrial waste 59 $ktCO_2e$ emissions in 2015 (1.2%), is projected to be 76 $ktCO_2e$ emissions in 2035 which is 1.3% of community emissions.

Greenhouse Emissions Reduction actions are:

- Develop an updated waste strategy that will aim to divert and reduce waste going to landfill and landfill emissions
- Work with community to facilitate broad community emission reduction

Procurement Policy


COUNCIL POLICY

Procurement Policy

Document No:	CPL568.3
Approval Date:	26 June 2018
Approved By:	Council
Review Date:	30 June 2019
Responsible Officer: Manager, Property & Procurement	Version No: 07
Authorising Officer: Chief Executive Officer	

The Procurement Policy provides a framework for the purchase of goods, works, and services that emphasises value-for-money while conducting business in a fair and equitable manner.

The City's Procurement Policy has been updated and adopted in June 2018. It has included mandatory qualitative assessment criteria for Recycled Content and Environmental Consideration, aimed at trying to get suppliers and purchases to consider the impacts on the environment and ways to reduce our environmental footprint through the City's purchases and ongoing activities.

2.5 CITY OF GREATER GEELONG COUNCIL RESOLUTIONS

During 2018-19, the City of Greater Geelong Council reviewed and passed four resolutions on waste and recycling issues. Below is a summary of these issues and the resolutions that gained approval.

Plastic Wise Program

Key waste related issues which were identified include the fact that millions of tonnes of plastic enter the world's rivers and oceans each year and single-use plastics have a negative impact on our environment, harm wildlife including aquatic species and marine bird life. The Council has a leadership opportunity to reduce single use plastics by developing a Plastic Wise Program that applies to Council staff, office buildings, contractors and events organised or approved by Council.

It was recommended that the event permit process be reviewed to include provisions relating to single-use plastics. Key issues for consideration include:

- A staged implementation of the updated event permit process and Plastic Wise Program to ensure their successful implementation.
- Exemptions may be required to allow the use of single-use plastics for some events which will address OH&S requirements relating to the use of alternatives such as glass in public places.

It was identified that other Council policies such as the Procurement Policy and Sustainable Buildings Policy, as well as building tenancy lease agreements would be reviewed and updated to provide consistency and support for the delivery of a Plastic Wise Program including:

- Reviewing the Procurement Policy to consider further provisions to reduce and/or eliminate sources of single use plastics in contracts and tenders.
- Reviewing the Sustainable Building Policy to include provisions that inform leased buildings and tenancy agreements in relation to best practice waste management.
- The development of Waste Management Plans for Council buildings which will provide an audit of current performance. The Plans will optimise bin set-up, develop custom signage and labels, protocols for tenants, cleaners and building operations. These measures will help engage tenants and raise awareness.

Council Resolution:

- Support the development of a Plastic Wise Program by December 2019.
- Note the estimated cost of $55,000 to develop and implement the Plastic Wise Program, which will be considered as part of the 2019/20 budget process.
- Note that a review of Council's Sustainable Buildings Policy, Procurement Policy, and Events Permit process will take place to include additional provisions to reduce the use of single-use plastics.

Report on the Learnings from the UNESCO Creative Cities Network Annual General Meeting, The Waste to Energy Study Tour and Air Asia

The Mayor's attendance to the UNESCO Creative Cities Network Annual General Meeting 2018 in Poland and study tour included visits to two waste to energy plants in Dundee, Scotland, and Turin, Italy. The visits aimed to assist Geelong establish a position to progress an alternative solution to landfill for municipal waste. It provided valuable insight into the waste to energy operations, the commercial structures, the policies driving the decision by local municipalities to invest and partner with the private sector, the timeframes involved and the challenges encountered to commission a plant.

Council Resolution:

- Progress discussions with other councils to explore opportunities for a waste to energy operation west of Melbourne, while continuing to advocate for a circular economy as the City of Greater Geelong's primary waste management objective.

Response to Municipal Association of Victoria – Recycling Action Plan

Recycling is a key component of waste management in Geelong. The public are strong supporters of recycling and the principles that underpin it. However, the recycling industry in Geelong, and indeed the whole country, is in crisis. This is a result of under investment in the industry, reduced options for exporting our recyclable materials, and a variety of market failures. These issues, coupled with unsustainable levels of waste generation, have meant that significant amounts of potentially recyclable material have been going into landfill at times when recycling processing is disrupted.

In order to resolve the crisis, a range of short, medium and long-term strategies are required, and cooperation between the public and all three tiers of government is essential. The Municipal Association of Victoria has developed an Action Plan – 'Rescue our Recycling' – that outlines key steps that must be taken by relevant stakeholders.

This motion is a public endorsement by the City of Greater Geelong of this action plan, a commitment to undertake the steps required by local governments, and an agreement to lobby our state and federal government counterparts to work with local government to address the recycling crisis as a matter of urgency.

Council Resolution:

- endorse the Municipal Association of Victoria's 'Rescue Our Recycling' Action Plan.
- commit to undertaking the steps required by local governments outlined in the Action Plan.
- will write to our local state and federal government MPs calling on them to urgently undertake the required steps outlined in the Action Plan.
- engage with providers of recycling services in the G21 Region to identify opportunities to enhance local recycling.
- explore options for stream separation in kerbside recycling collections to reduce contamination rates and maximise the value of recyclable material including paper and cardboard, glass, and aluminium.

Response to the recycling crisis

The City's recycling challenges have been escalating for a period of more than 18 months since early 2018. On 26 July 2019, the City's recycling contractor SKM Recycling announced it was unable to accept materials due to challenges managing its stockpiles according to EPA requirements.

The current recycling crisis is a state and nation-wide problem and needs to be addressed urgently by all levels of government working together.

The State Government is reported to hold more than half a billion dollars in the Sustainability Fund which has the potential to fix this crisis, for example by investing in infrastructure.

Council Resolution:

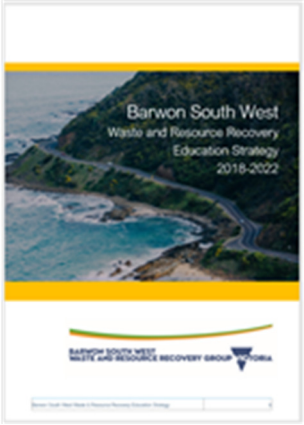
- By letter from the Mayor, write to
    1. the Minister for the Environment requesting that the Australian Sustainable Packaging Guidelines be mandated as a matter of priority
    2. the State Premier calling for the State Government to introduce a Container Deposit Scheme as a matter of urgency, and
    3. the State Premier calling for the State Government to immediately publish guidelines for Councils to apply for funding from the State Sustainability Fund that has been established by the EPA Landfill levy.
- Note and supports the State Government announcement to develop a Circular Economy Policy and Action Plan to be released in 2019 and that the City actively promotes the opportunity to provide feedback from the Greater Geelong community and prepare a submission.
- Requests that the CEO reports to Council by September 2019 on the options and costs for alternatives to collect and process recycled materials.

2.6 REGIONAL WASTE STUDIES AND REPORTS

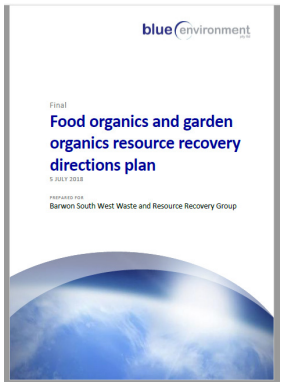
The Barwon South West Local Government Waste Forum has established an annual Local Government Program. The annual program is funded by the member councils of the Local Government Forum, and is managed in partnership with the Barwon South West Waste and Resource Recovery Group.

The Local Government Program has developed a number of technical studies and reports that are relevant to waste management and resource recovery for the City of Greater Geelong. Table 2-3 provides a brief list and key findings of these documents.

Table 2-3: Key Findings of Regional Waste and Resource Recovery Studies and Reports

Key Findings	
	**Barwon South West Waste and Resource Recovery Education Plan 2018-22** The purpose of the education plan is to facilitate improved waste education across the Barwon South West region and aims to achieve behaviour change that reduces waste generation and increases resource recovery. The document has five Strategic Directions and provides goals, outcomes and initiatives for each Strategic Direction, as well as the approach to education, project delivery and governance structures. **Strategic Directions:** • Increase the community's and businesses perception of waste management as an essential service. • Increase community and business awareness of waste avoidance -support and encourage waste avoidance. • Improve resource recovery and reduce contamination. • Reduce litter and illegal dumping. • Strengthen regional capacity to deliver education and behaviour change. • Increase correct disposal of problem wastes and target education to specific audiences.
	**Priority Materials Plan** This is a plan for improving the management of 'hard to recycle' items across the Barwon South West region. It identifies and ranks hard to recycle "priority" materials, investigates the issues and barriers that restrict the recovery and recycling of these materials, and pinpoints specific opportunities that Barwon South West Waste Resource Recovery Group and councils can implement to improve conditions for priority materials.

Key Findings



Food Organics and Garden Organics Resource Recovery Directions Plan

Key findings:

- Universal/compulsory provision of a Food Organics Garden Organics service is preferred unless council already has high (>70%) voluntary participation in existing Garden Organics service. As none of the Barwon South West Waste Resource Recovery Group have high-performing voluntary Garden Organics services, so compulsory Food Organics Garden Organics is recommended.
- The ability for residents to 'opt out' should be limited and simple. It is recommended no financial incentive is offered to not use the service, and only households accepting a smaller (e.g. 80L) garbage bin should be allowed to refuse receiving the Food Organics Garden Organics bin.
- It is recommended Food Organics Garden Organics services are weekly or fortnightly and garbage collection
- All councils to have Food Organics Garden Organics processing infrastructure by 2023.



Assessment of Resource Recovery Centres

This document provides structured assessment of 36 Resource Recovery Centre facilities across the region of the Barwon South West Waste and Resource Recovery Group. The key findings are:

Geelong Resource Recovery Centre: to undertake long term strategic planning and options analysis to determine the network of sites required for Geelong. This would likely include the identification of a new site that is additional to the current Douro Street site. The role of Drysdale Resource Recovery Centre, which is well located to service growing areas to the east of the City, should be considered as part of the options analysis.

Drysdale Resource Recovery Centre services medium to large population centre and would benefit from investment in site infrastructure and/or long-term planning.



Regional Kerbside Waste Audit 2018

All nine Barwon South West councils participated in a regional kerbside bin audit during April and July 2018. The project measured the current performance of the various bin systems, update its characterisation of bin streams for the region, monitor the trend through the years, as well as provide key data indicator results for the individual member councils.

Key Findings for the City:

- 34% of waste collected in kerbside garbage bin is food organics.
- A further 14% of garbage bin content can be recyclable.
- Garden organics bin shows 98.61% compliance rate.
- Recyclable items presented in plastic bags are one of the main contaminants found in recycling bins.

3. Current Issues and Opportunities

Australia is facing a wide range of challenges in the waste sector. Some key drivers of change include major shifts in global markets for recyclables, a global shift towards a global economy, and how best to manage our residual waste. Some key challenges include landfills reaching capacity and increasing volumes of waste being generated as our population increases.

Changes to China's Recycled Materials Import Policy

In January 2018, China banned the import of 24 types of recyclable materials that cannot meet their contamination level requirements. The Victorian recycling sector, along with the rest of the world and Australia, has been responding and adjusting to a post-China National Sword industry. Major issues have included:

- poor packaging and too much of it,
- processing facilities unable to meet contamination standards for waste export as China has introduced more recycling for their own domestic market, and
- failure to establish circular economy within Australia.

Victorian Government has prepared the Recycling Industry Strategic Plan to respond to these challenges and outlines medium to long-term actions to make Victoria's recycling sector stronger and more stable.

Municipal Association of Victoria (MAV) has prepared the Rescue Our Recycling Action Plan.

Move Towards a Circular Economy

As part of the response towards the challenges facing waste management and resource recovery in Australia, the Department of Environment, Land, Water and Planning is developing a whole-of-government Circular Economy Policy and Action Plan by 2020. This policy reflects the global shift towards a circular economy. The implementation of this Policy will see a shift in how we manage waste in the City.

New Environment Protection Legislation

New Environment Protection legislation (the Environment Protection Act 2017 as amended by the Environment Protection Amendment Act 2018) will commence on 1 July 2020. This is the single greatest overhaul of environment protection legislation in Victoria since the tabling of the Environment Protection Act 1970.

This new legislation introduces a new approach to environmental issues for Victoria, focusing on preventing waste and pollution impacts rather than managing those impacts after they have occurred. An important part of the Act is the general environmental duty (GED). The GED says that any person engaging in an activity that can cause harm to public health or the environment, from pollution or waste, must minimise those risks.

The implementation of this new legislation, its subordinate legislation, industry guidance and policy documents will have significant changes to how we currently plan and manage the City's waste services and infrastructure.

E-waste Landfill Ban July 2019

The Victorian Government has banned e-waste from landfill on 1 July 2019. An e-waste policy package has been developed that includes both regulatory and non-regulatory measures aimed at keeping e-waste out of landfill. The regulatory measures involve new rules to ban e-waste from landfill and specify how e-waste is to be managed safely. The non-regulatory measures include upgrades to Victoria's existing e-waste collection network and an education and awareness campaign.

Councils who manage e-waste in Victoria are required to become familiar with and adapt to the new rules, budget for future costs relating to the ban, update or establish new waste contracts and adapt existing systems and strategies.

E-waste collection sites have been prioritised for funded upgrades, and the City of Greater Geelong received $200,000 to upgrade the e-waste infrastructure at the Geelong and Drysdale Resource Recovery Centres.

Single-use Plastic Bag Ban

The Victorian Government aims to ban single-use, lightweight plastic shopping bags to protect our environment from plastic pollution. The ban will come into effect late 2019 and will include all plastic shopping bags less than 35 microns in thickness – like those commonly used at supermarket checkouts. The ban will also include shopping bags made from degradable, biodegradable and compostable plastic, and the use of singe use plastic bags. The State Government is currently exploring the impact of enabling legislation and developing a plan to address plastic pollution.

Container Deposit Scheme

With recent legislations and commitment announced by all other states including Tasmania, Victoria is the only state in Australia without container deposit scheme legislation in place or planned to be introduced.

The container deposit scheme is one of the first pieces of environmental legislation to focus on the 'polluter pays' principle, where beverage suppliers are responsible for funding a refund for returned drink containers. This occurs when someone discards an empty container and forfeits the right to the refund.

It is also an example of product stewardship legislation in which the beverage industry is obliged to take greater responsibility for its packaging after it has been sold. Beverage suppliers must ensure that a system is in place for the recovery and recycling of their empty beverage containers.

Management of Our Residual Waste

As we move towards a future where a circular economy is in place and resource recovery is at its highest level, we shall continue to generate some waste that needs to be disposed of somehow. This residual waste includes products that aren't designed to be recycled or reused (lacking product stewardship), products that are made out of materials we have not yet been able to process, and waste, that for public health or other reasons, cannot be re-use or recycled, such as clinical waste and asbestos. Challenges lie in how we manage this residual waste in the future.

Landfill Airspace Reaching Capacity Across the Region

One of the goals of the State Waste and Resource Recovery Infrastructure Plan is to reduce our reliance on landfills. This supports the Government's policy objective that "the development and use of landfills for the management of waste in Victoria be minimised". Historically, we have disposed of waste by sending it to landfill, where it is contained and buried. However, it is estimated that airspace in existing landfill sites across Victoria will be at capacity by 2025. Landfill airspace is the volume of space available in a landfill site for disposal of waste. There is also concern about the availability of land for future landfill sites. With this in mind, and with Victoria's waste growing as fast as our population, there is a driving force to seek out new and innovative approaches to increase our resource recovery and keep waste from being sent to landfill.

Alternative Waste Treatments

Alternative waste treatment describes a range of activities that process mixed solid waste into products such as compost, fuel or biogas, and increase recovery of resources including plastics, glass and metals.

Alternative waste treatments are used to recover waste as alternatives to landfilling. Waste (feedstock) that can be treated by an alternative waste treatment generally has specific requirements such as pre-treatment, or homogenous characteristics. These technologies are designed to recover more resources from the waste stream while minimising the impact on the environment. Alternative waste treatment technologies that are used or being considered in Australia can be broadly classified to:

- Aerobic Composting – open windrow or enclosed systems.
- Waste to Energy – combustion, gasification, pyrolysis and anaerobic digestion.

Aerobic Composting

Composting is the microbial decomposition of organic material in the presence of oxygen (aerobic conditions) to produce compost and waste gases, primarily carbon dioxide, and heat. Composting processes can accommodate a range of organic waste inputs and can be configured to produce a variety of outputs depending on the specific requirements of a project.

- Open composting is the controlled biological breakdown and pasteurisation of organic material in open windrows. It is relatively low-cost technology. Odour control systems however are required when adding food organics and will increase the costs of operation.
- In-vessel composting or enclosed composting is the aerobic breakdown of organic material by bacteria and other microorganisms and is done so an enclosed system. If not treated properly the process can switch to anaerobic and begin to create methane gas.
- Vermicomposting is the breakdown of organic matter with the joint action of earthworms and microorganisms and does not have a high heat stage.

Anaerobic Digestion

Anaerobic digestion is the breakdown of organic material in the absence of oxygen. This process generates methane or biogas rather than carbon dioxide, and can handle large quantities of material. By-products of this process is solid and liquid composing material for soils and a gas for energy production.

Thermal Combustion

Pyrolysis/gasification is thermal breakdown of organic material in an oxygen-free or low oxygen environment. It produces thee main products: char, oil and gas. Gasification technologies can accept materials such as shredded plastics, agricultural waste, green and paper pulp, which increase the ability to divert more waste from landfill.

Turning Waste into Energy

‘Waste to energy’ is a term commonly used to describe the process of generating energy—such as electricity, heat or fuels—from waste. Generating energy from waste can extract value from waste that would otherwise go to landfill.

In October 2017 Victorian Government released a discussion paper on converting waste to energy to support the development of new waste treatment technologies. A position paper on waste to energy was planned to be released in mid-2018. However, since the release of the discussion paper, Australia has faced a new set of challenges from major shifts in global markets for recyclables and the paper has not been released.

4. Past Performance

4.1 WASTE MANAGEMENT IN THE CITY OF GREATER GEELONG

Waste Management Strategy 2012-2016 Position Paper

For the period 2012 to 2016, the City of Greater Geelong focused on the consolidation of its existing waste services while observing and positioning itself to take advantage of opportunities to process additional waste materials should a proven means of processing be identified. Table 3.1 below lists the critical issues identified in the 2012-16 Strategy, whether they have been achieved and comments on specific actions taken.

Table 4-1 The Status of Critical Issues Identified in Waste Management Strategy 2012-16 Position Paper

Critical Issues	Achieved	Comments
To optimize the transition to Drysdale Landfill operations following the closure of the Corio Landfill.	Yes	After the closure of Corio Landfill, the transition to Drysdale landfill for waste disposal was optimised by: Leasing Point Henry transfer Station as a key supporting facility. Upgrading the Drysdale landfill, including the construction of new waste cells which incorporate best practice technology to minimise environmental impacts.
To secure a sustainable means of processing green organics collected at kerbside from residential properties.	Yes	Received a $500,000 grant from the State Government for the development of a $3.5 million green organics composting facility in Anakie. Operation is due to commence in early 2019.
To prepare for the establishment of the new residential kerbside collection contract commencing mid-2013 and to review the kerbside collection policy.	Yes	Established kerbside collection contract in mid-2013 in a collaborative procurement process with G21 councils. Extended the contract for a 5-year term in mid-2018. Reviewed Recycling and Waste Collection System Council Policy, with the latest version approved in April 2017.
To maximize environmental and financial benefit from the existing recyclables collection and processing service.	Yes	Undertaken kerbside bin surveys and utilised the results to implement education programs resulting in a significant reduction in green organics and recycling bin contamination levels.
To maximise environmental and financial benefit from the operations of residential self-haul resource recovery centres and ancillary services and increase the opportunities for access to these centres.	Yes	Expanded the range of items that can be dropped off at resource recovery centres including items such as electrical items, TV's and computers, car and household batteries, and fluorescent tubes.

Critical Issues	Achieved	Comments
To investigate and implement opportunities to increase materials recovery in the industrial and commercial (including retail) sectors.	Yes	Provided support to businesses via Future Proofing Geelong and Cleantech Innovations Geelong.
To investigate and introduce programs to address illegal dumping	Yes	Established cross divisional Illegally Dumped Rubbish Taskforce within the City of Greater Geelong. The Task Force develops and implements strategies to address litter and dumping hots spots, liaises with business and community groups and gather data on illegal dumping. City of Greater Geelong is a partner in the Caring for Our Bay program. The program works with students and business groups, special events and festival organisers to minimise the impact of litter on waterways and coastal areas.
To investigate and implement opportunities to minimise waste generation.	Yes	Developed and implemented community education and awareness program for waste minimisation.
To monitor and respond to carbon pricing issues arising from the operations of the Drysdale landfill	Yes	Collected carbon levies when required to and reinvested accordingly.
Other	Yes	Informed and engaged communities through waste education programs and community meetings such as the Drysdale Landfill Community Consultation Group. Continued to work with the Barwon South West Waste and Resource Recovery Group to help implement community waste education programs, joint procurement and development of waste strategies. Received a $100,000 grant from the Alcoa Foundation and collaborated with local communities and primary schools to introduce public place recycling bins in Portarlington, Drysdale, Ocean Grove and St Leonards. Developed a hard waste collection service for Home and Community Care clients and other residents in need of assistance.

4.2 WASTE MANAGEMENT PERFORMANCE AGAINST COMPARABLE COUNCILS

The following section explores the City's waste management performance level against comparable councils using data from the 'Know Your Council' website from the 2014-15 year to the 2017-18 year. This website improves transparency and accountability of council performance through the provision of transparent information. Councils that have been selected for comparison against the City of Greater Geelong (Geelong) include the City of Ballarat (Ballarat), City of Wodonga (Wodonga) and Wyndham City Council (Wyndham).

Figure 4-1 Number of Bin Collection Requests – Comparison with Other Victorian Councils – 2014 to 2018

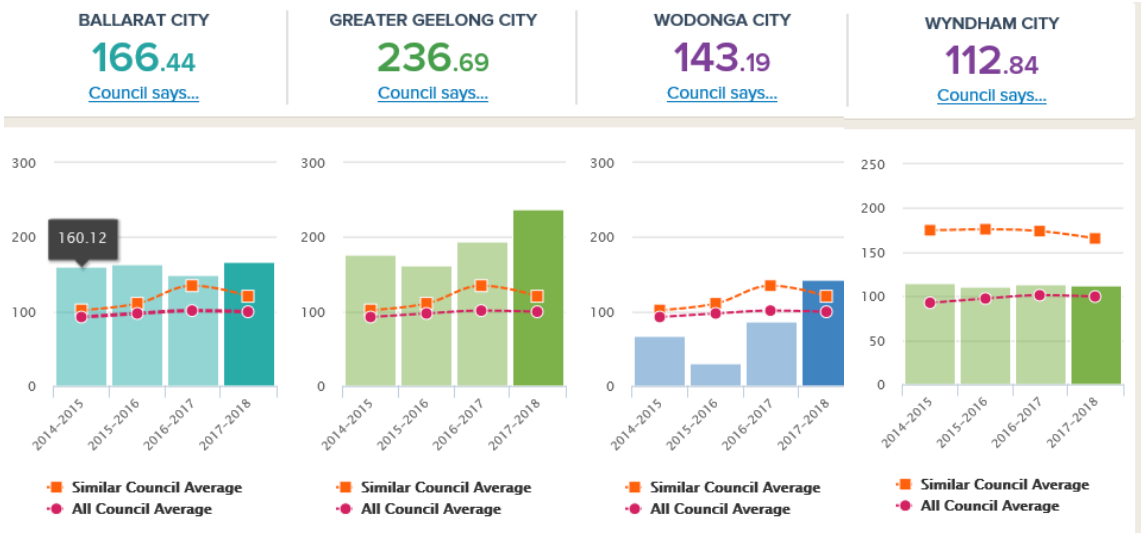


Figure 4-1 shows the number of kerbside bin collection requests received by council per 1000 kerbside bin collection households from 2014 to 2018. In the 2017-18 year, Geelong's bin requests were 236 per 1000. As a result of a change in the council policy for the recycling and waste collection system, a program occurred in 2017-18 to convert to a user pays system the 9,500 previously issued non-paying "free" additional bins. This resulted in a large number of additional customer requests to track and record the conversion to either a paying additional bin service or the removal of the non-paying additional bins.

Figure 4-2 Number of Bins Missed – Comparison with Other Victorian Councils – 2014 to 2018

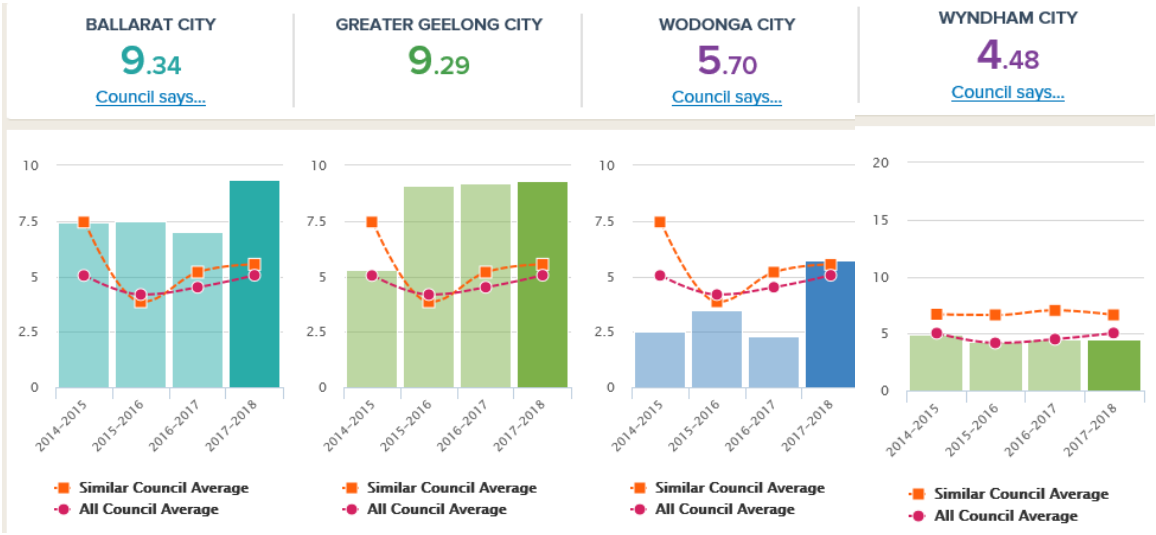


Figure 4-2 shows the number of kerbside collection bins missed per 10,000 scheduled collection bin lifts from the 2014-15 year to the 2017-18 year. Geelong averaged just over 9 bins missed per 10,000 properties. Scheduled collections are calculated based on the number of waste charges and the number of collections due. Data is calculated on 52 garbage collections and 26 recycle collections (fortnightly collection) per year. Geelong's missed bins figures for 2017-18 are high, when compared to similar councils and the 'All Council Average', which are around 5 bins per 10,000 households.

Figure 4-3 Cost of Garbage Collection – Comparison with Other Victorian Councils – 2014 to 2018

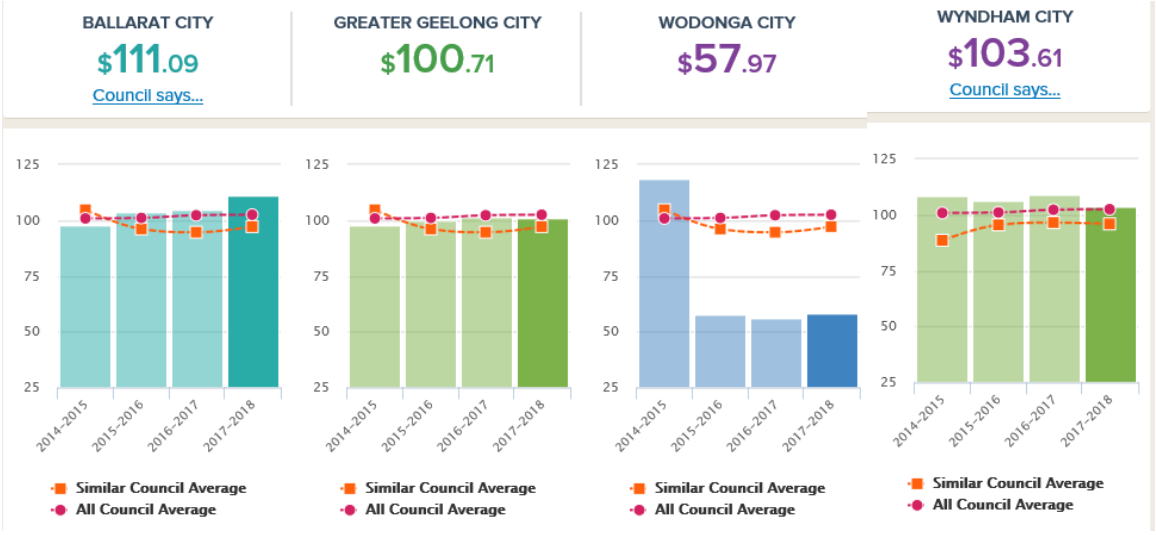


Figure 4-3 shows the direct cost to council of the kerbside garbage bin collection service per kerbside garbage collection bin. The cost per kerbside garbage collection bin in Geelong over the three years has remained relatively stable, with the 2017-18 cost at $100.71. This is comparable to Wyndham's costs and the All Council Average.

Figure 4-4 Cost of Recycling Collection per Bin – Comparison with Other Victorian Councils – 2014 to 2018

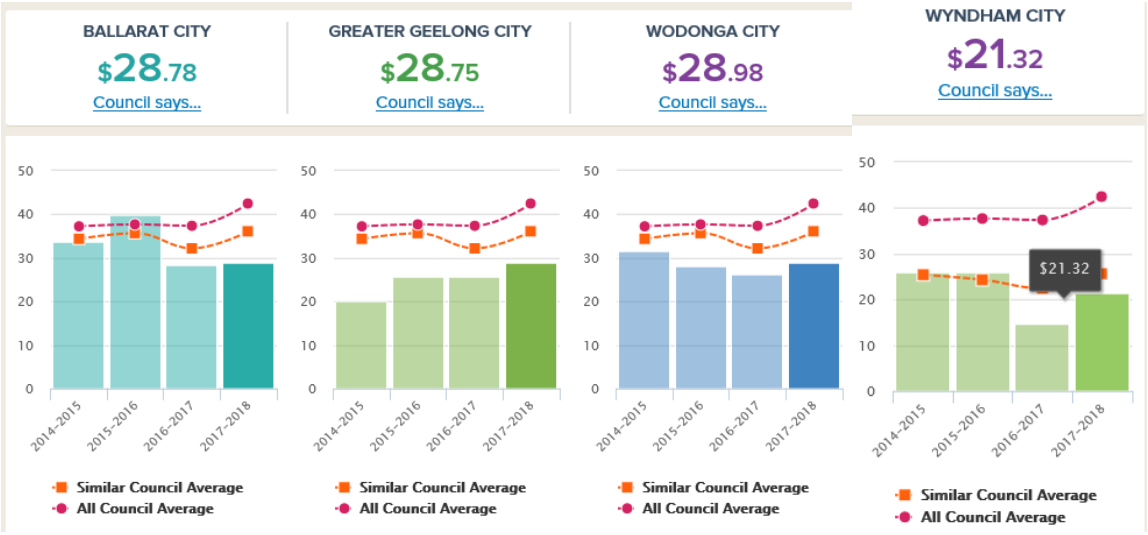


Figure 4-4 shows the direct cost to council of the kerbside recyclables collection service per kerbside recyclable collection bin. The cost per kerbside recyclable collection bin in Geelong sits at $28.75, well below

the ‘All Council Average’ and ‘Similar Council Average’. This cost is very similar to Ballarat City and Wodonga city with the discrepancy 3 cents and 23 cents respectively. In comparison to Wyndham the cost is $7.43 more expensive.

Figure 4-5 Diversion of Waste from Landfill – Comparison with Other Victorian Councils – 2014 to 2018

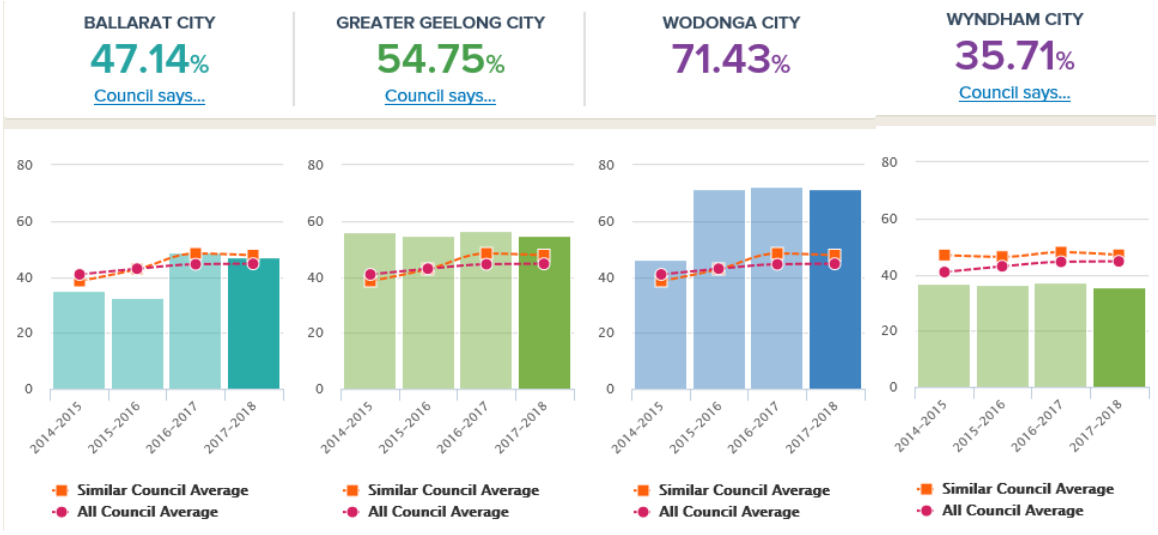


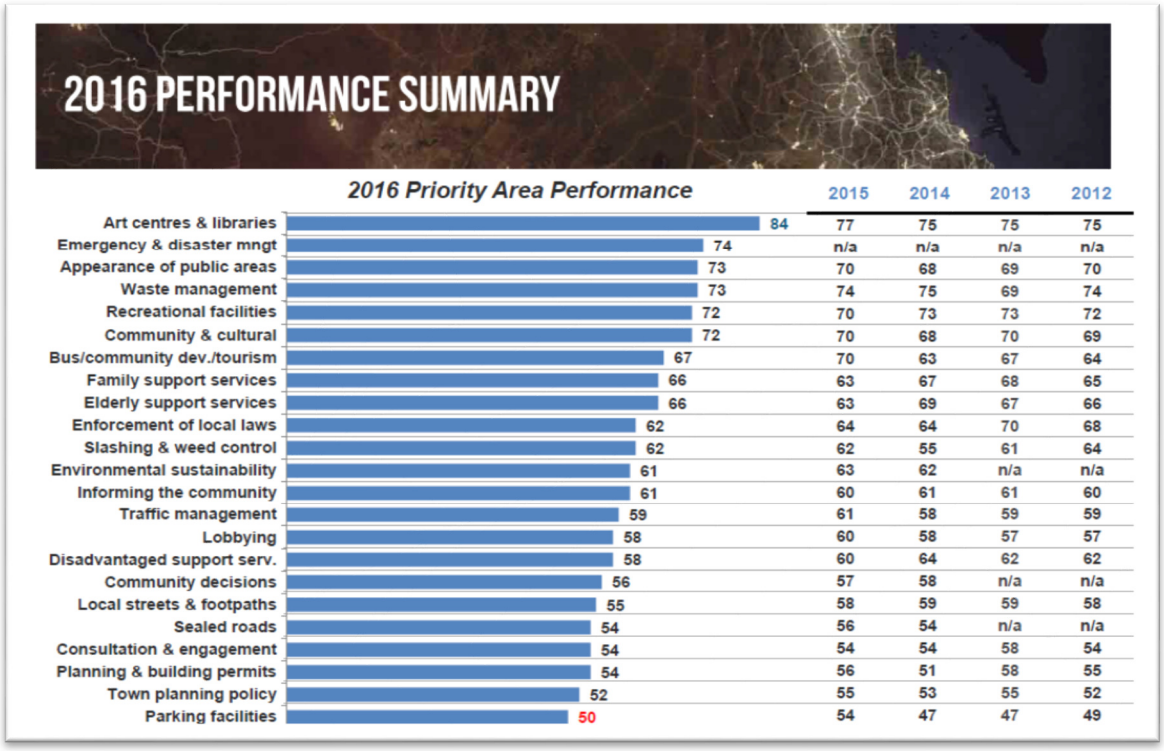
Figure 4-5 shows the percentage of garbage, recyclables and green organics collected from kerbside bins that is diverted from landfill in 2014 to 2018. The percentage of material being diverted from landfill through kerbside collection in Geelong is 54.75%. This is higher than both the ‘Similar Council Average’ and the ‘All Council Average’. City of Wodonga is one of the highest performing councils in landfill diversion since the introduction of kerbside Food Organics Garden Organics collection in 2015-16.

4.3 LOCAL GOVERNMENT COMMUNITY SATISFACTION SURVEY

Local Government Victoria’s annual community satisfaction survey compiles community feedback on councils’ performance. This statewide telephone survey collects direct feedback form the community about councils. A minimum of 400 local residents and ratepayers in each municipality over 18 years of age are selected at random. The main objectives of the survey are to assess the performance of councils throughout Victoria across a range of measures and to seek insight into ways to provide improved or more effective service delivery.

The results of the 2016 Local Government Community Satisfaction Survey showed that the City’s performance in waste management has been rated by our community as one of the top five best service areas and scored 73 points.

Figure 4-6 Local Government Community Satisfaction Survey 2016 Performance Summary



5. Current Situation

This section reviews the current status of waste management within the City of Greater Geelong, including data on waste and recyclable generation, collection services and waste and resource recovery facilities.

5.1 MATERIALS GENERATED

Waste Generated and Materials Recovered

Figure 5-1 Waste and Materials Generation – 2015-2018

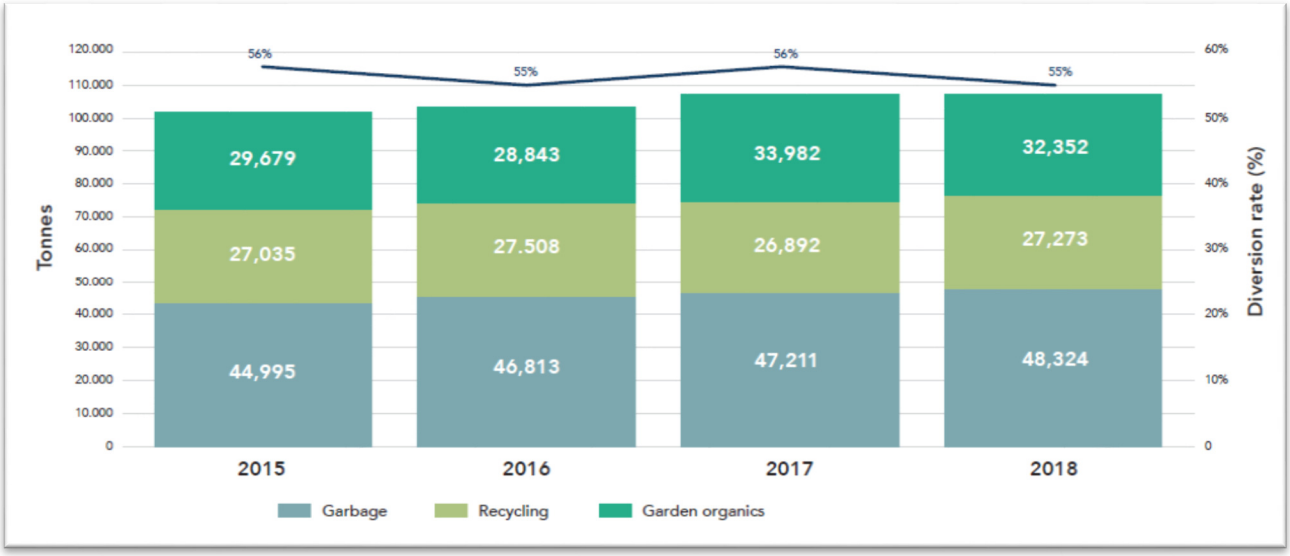


Figure 5-1 shows a breakdown of the volume in tonnes of municipal solid waste collected from residential kerbside in the City of Greater Geelong from 2015 to 2018. The graph also indicates the rate of waste that is diverted from landfill either through recycling, or garden organic waste separation and recovery. In 2018 the City of Greater Geelong sent 48,324 tonnes of municipal solid waste to landfill, while 59,625 tonnes of waste were diverted through recovery processes, a diversion rate of 55%.

Kerbside Bins Compositions

Waste audits are carried out to determine the composition of municipal kerbside bins, the results of which inform council in regards to contamination and diversion rates. Council conducts a series of audits of landfill, garden organics and recyclable kerbside bins as well as more detailed product sorting audits. The following graphs depict results from the Regional Kerbside Bin Audit carried out in 2018.

Figure 5-2 Kerbside Garbage Bin Composition 2018 (% by weight)

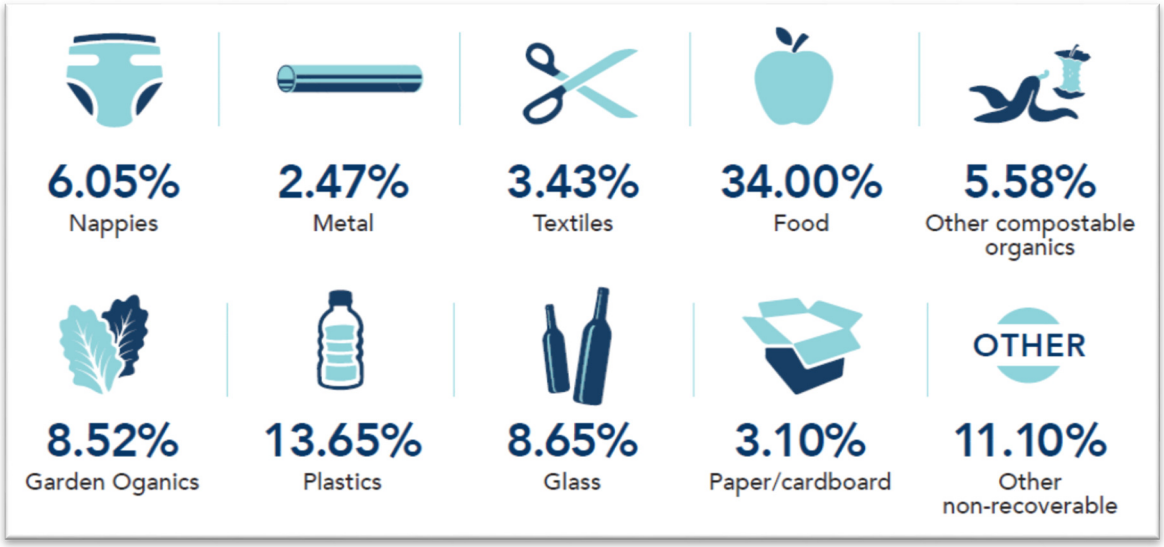


Figure 5-2 shows the breakdown of the kerbside garbage bin composition (by weight) identified from the 2018 Barwon South West regional bin audit. It shows 34% of waste collected in kerbside garbage bins in City of Greater Geelong is food organics, 6% potentially compostable organics. A further 14.16% of garbage bin content can be recyclable.

Figure 5-3 Kerbside Recycling Bin Composition 2018 (% by weight)

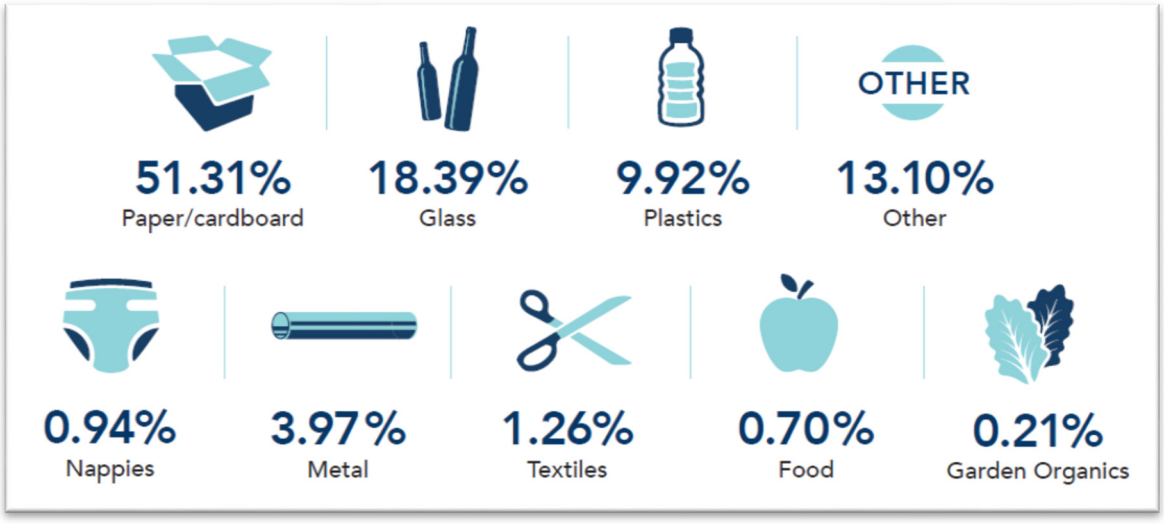


Figure 5-3 shows a breakdown of the kerbside recycling bin composition (by weight) from the 2018 Barwon South West regional bin audit. Metal, textiles, nappies, food, e-waste and non-recyclable paper/ plastics are the non-recyclable items found as contamination. It was also noticed that 11.88% of materials were presented in bags.

Figure 5-4 Kerbside Garden Organics Bin Composition 2018 (% by weight)

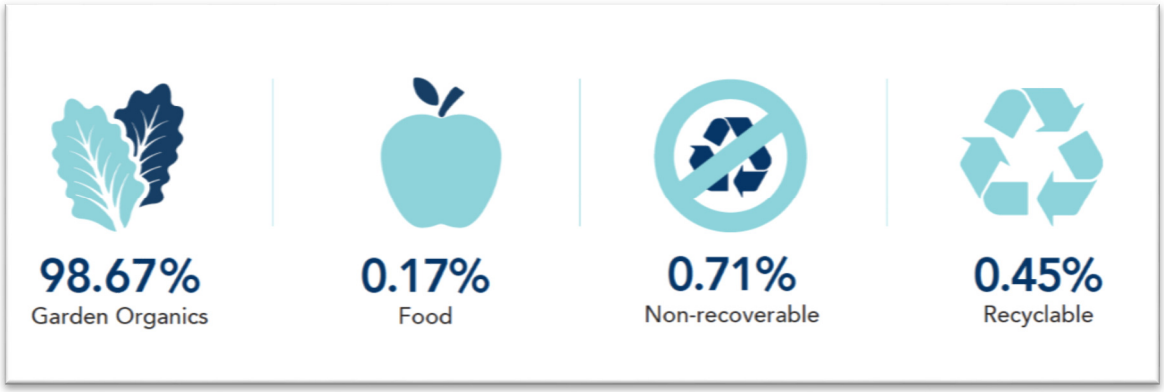


Figure 5-4 shows a breakdown of the kerbside garden organics bin composition (by weight) from the 2018 Barwon South West regional bin audit. It shows 98.67% compliance rate. Materials that contaminate the garden organics are mainly textiles, food and paper.

Business-As-Usual

In developing strategic options for continual improvement of waste management, it is useful to consider future waste quantities generated under a 'business as usual' scenario. Future projections for the City of Greater Geelong use an average growth in population of 2.5 per cent per year and an increase of 1,800 dwellings per year to 2035.

Under a 'business as usual' scenario, overall waste generation in the City of Greater Geelong is predicted to increase from 2018 to 2026 with the diversion rate to remain steady at 56%. This trend is not consistent with statewide trends identified by Sustainability Victoria which project rates of recovery increasing above those of landfilling into the future. However, this trend is not uniform across all councils, with variations in rates of population growth affecting the trend.

In 2018 the City of Greater Geelong generated 107,889 tonnes of waste, sending 48,324 tonnes to landfill. This represents approximately 207 kilograms of waste for each person living in the City of Greater Geelong area.

Figure 5-5 Projected Population and Waste and Material Generation

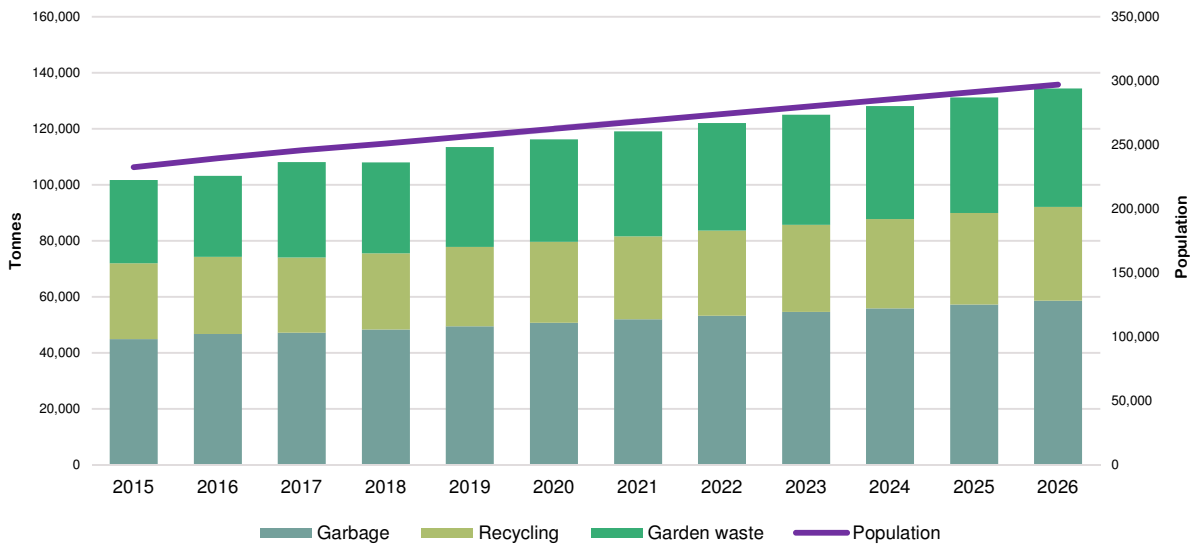


Figure 5-5 shows that under the business as usual scenario, it is projected that by 2026 waste generation in the City of Greater Geelong will grow to approximately 134,407 tonnes annually, with an estimated 75,698 tonnes to be recovered through recycling and green organic collection and 58,709 tonnes landfilled.

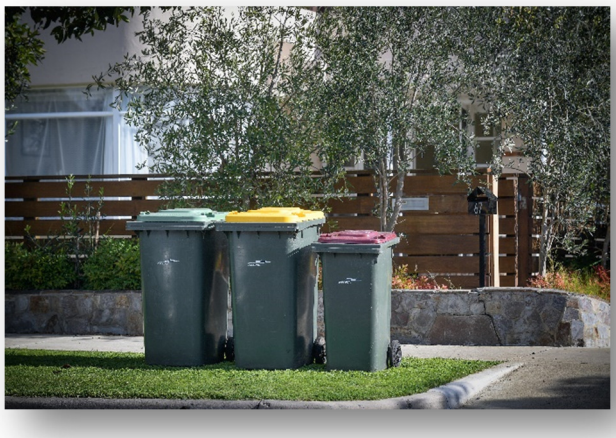
5.2 WASTE AND RESOURCE RECOVERY SERVICES

The City is responsible for the collection of waste and recyclables from households and public places, as well as sorting and recovery of materials, and disposal of waste. We provide a range of services and infrastructure to ensure this happens in a regular and safe manner.

The annual budget for the delivery of waste services for 2017/18 financial year was $30,848,701.

Kerbside Collection Services

The kerbside collection provided by the City of Greater Geelong is delivered in three services: Garbage, Recycling and Garden Organics. In the financial year of 2017/2018, 48,324 tonnes of garbage, 27,273 tonnes of recyclables and 32,352 tonnes of garden organics were collected from households. To achieve this, a fleet of 31 trucks is employed annually to collect over 170,000 kerbside bins every week.



The kerbside collection service is described in more detail in Table 5-1 and covers bin sizes, costs, number of bins and collection frequency.

The annual waste service charge for 2018-19 is $316.90 and the number of tenements was 109,700 as of July 2018.

Table 5-1 Council Kerbside Collection Services

Service	Bin Size	Collection Frequency
Garbage	140 litres	Weekly
Recycling	240 litres (120 litres for unit and townhouse)	Fortnightly
Garden Organics	240 litres (120 litres for unit and townhouse)	Fortnightly

Figure 5-6 Collection Areas and Days for Residential Kerbside Waste and Recycling Collection Services

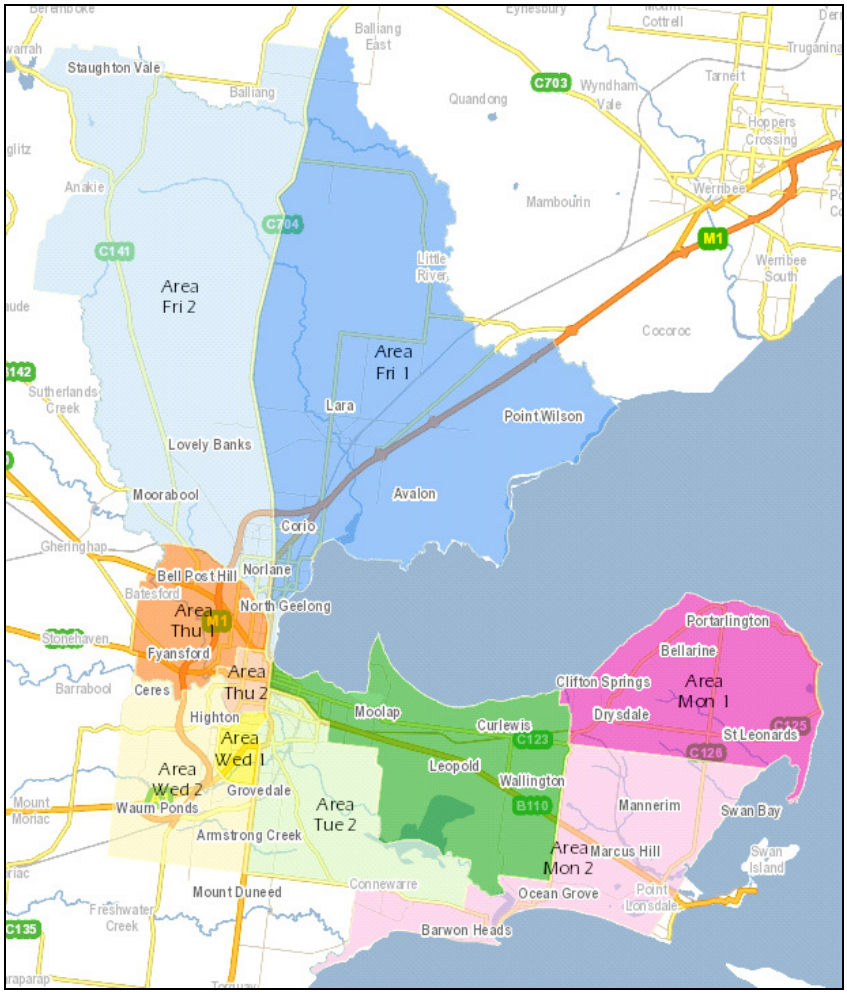


Table 5-2 Waste and Recycling Transport Arrangement on Different Collection Days

Collection Day	Garbage		Recycling	Garden Organics	
	Collection Trucks to	Bulk-haulage to	Collection Trucks to	Collection Trucks to	Bulk-haulage / Send to
Monday	Drysdale Landfill	-	Material Recovery Facility at South Geelong	Point Henry Transfer Station	Garden Organics Composting Facility in Anakie
Tuesday	Point Henry Transfer Station	Drysdale Landfill			
Wednesday	Point Henry Transfer Station	Drysdale Landfill			
Thursday	Point Henry Transfer Station	Drysdale Landfill			
Friday	Werribee Landfill	-			

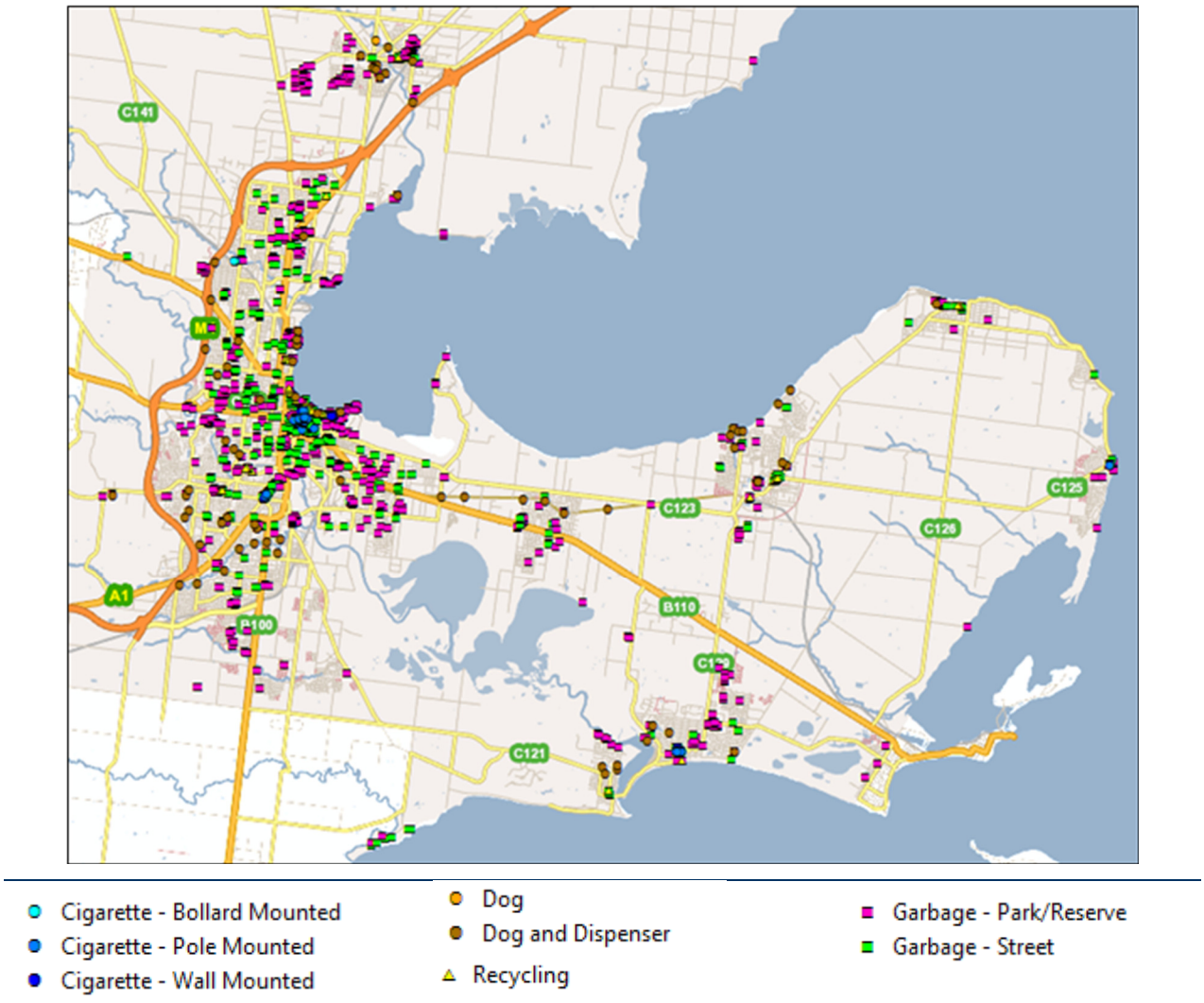
Public Place Waste and Recycling bins

In the City of Greater Geelong there are 1,425 public place garbage bins, 85 public place recycling bins, 75 dog waste bins and 60 cigarette butt bins. Figure 5-8 provides an overview of their location. Overlapping icons depict where bin densities are high. These bins are emptied on a weekly basis, with services being increased to daily in high use areas and during holiday seasons.

Figure 5-7 Public Place Bins Located in City of Greater Geelong



Figure 5-8 Map of Public Place Waste and Recycling Bins



Issues related to public place waste and recycling bins services include the frequency of use and level of contamination, which may be attributed to:

- the location of the bin (position/visibility/ease of access);
- number of people utilising it (including sites experiencing peaks and troughs and some issues may occur only during the peak times);
- space available in preferred bin and high usage (such as during public events); and
- blockages due to the small opening size of the bin entrances for waste disposal (may also contribute to nearby littering)

Combatting Litter

Litter by definition is the presence of material in a location that is not meant to be there. It can consist of waste products that have been disposed improperly, without consent and at inappropriate locations. It often occurs when waste has been dropped, thrown, blown off vehicles, or scattered by animals and can exist in the environment for long periods of time before degrading.

Victorian Litter Action Alliance (VLAA) has conducted research to identify who is more likely to litter. This information is vital in understanding who to target in community awareness and education campaigns in order to change people's behaviour and reduce litter. Results show that:

- young people are more likely to litter when they are in a group;
- older people are more likely to litter when alone;
- men litter more than women;
- women use bins more than men;
- in a group of ten people in public place, three will litter and seven will do the right thing;
- more smokers will litter their butts than use a bin;
- people are more likely to litter in an already littered or unkempt location; and
- less than one third of older people who were seen littering admitted their behaviour when questioned.

The most common reasons for littering include: being too lazy; not having an available ashtray or bin. The research categorised why people litter into three descriptors: unaware; careless; and premediated.

The top litter items include:

- Cigarette butts
- Glass bottles (alcohol and soft drink)
- Plastic bottles/PET drink bottles
- Aluminium cans (alcohol and soft drink)
- Plastic bags.

Even though daily street sweepers and a network of gross pollutant traps are employed and a network of publicly placed waste and recycling bins are in place, litter continues to be an ongoing issue in the City of Greater Geelong. Litter often finds its way into our waterways and the ocean. Best practice is usually to address the issue at the point of source, however this often proves a challenge to identify as litter is often mobile, moving with water or wind.

In order to combat litter, the City of Greater Geelong has employed the actions listed below.

Community clean ups

The City provides skips for community groups involved in cleaning up local parks, reserves and other littered areas.

Participation in the annual Clean Up Australia event

The City provides volunteer groups with waste skips to assist in the collection and disposal of rubbish. The City also provides promotional support for the event.

Support for the Caring for Our Bays

The program aims to lift the profile and appreciation of Corio Bay and the Bellarine shoreline of Port Phillip Bay, raise awareness of litter and its impact, and reduce the amount of litter, sediments and nutrients that enter the waterways.

“Be A Hero” Campaign

The “Be A Hero” Campaign is a key part of the campaign with a focus on promoting the incredible diversity of species that exist in Port Phillip Bay and its catchments and how litter affects their environment. The program gathers data on the amount and type of litter at its selected hot spots. The program involves local communities, schools and businesses and the City of Greater Geelong.

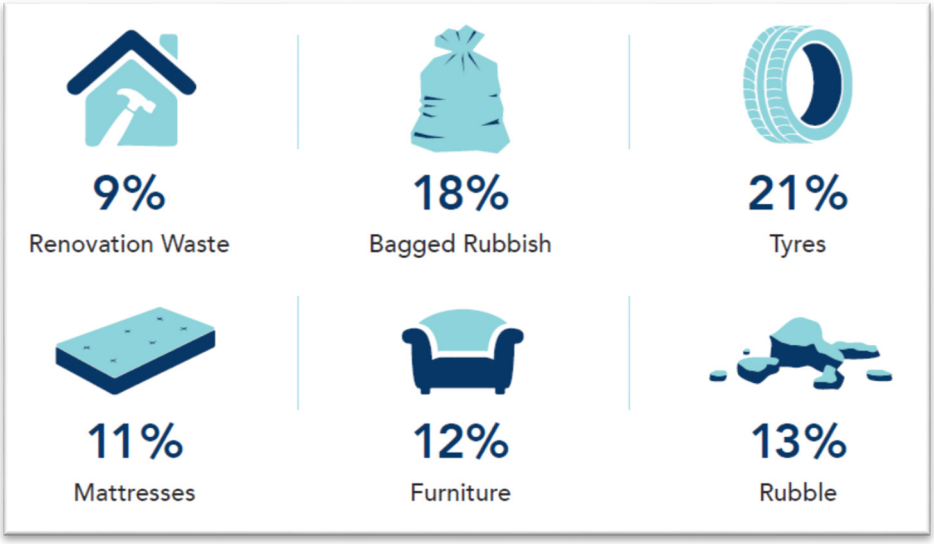
Education

The City also has a range of informative articles on the Council website that feature litter issues such as, the most common types, identifies the profile of a typical litterer, and the impact of litter on the environment, as well as hotline to report littering.

Combatting Illegally Dumped Rubbish

Illegal dumping of rubbish costs the community thousands of dollars, is damaging to the environment and causes many hazards. It is an issue for the City of Greater Geelong where the full extent and cost is not wholly understood. Illegal dumping ‘hot-spots’ often include roadways, bushlands and multi-unit premises.

Figure 5-9 Commonly Dumped Items in the Geelong Region



The City has established a joint illegal dumping task force comprised of representatives from key council departments including Waste Services, City Services and Local Laws. Other departments are involved, as required. The taskforce identifies dumping hotspots and develop strategies to address the issues. These include the installation of signage and cameras, as well as liaising with relevant community groups and businesses.

In order to reduce illegal dumping the City also operates a mattress promotion during May and November each year. The promotion allows residents to drop off their old mattress at a significant discount. The promotion is well supported by residents and results in a reduction in the number of mattress being dumped.

Until recently, the City also operated a lounge pick up service. This service allowed residents to have their lounge suite picked up for $20. Over the past 12 months 1,200 lounge suites were collected as part of the service. The City is currently looking for a new contractor to continue this service.

The City runs a comprehensive campaign promoting the free services available at both the Drysdale and Geelong Resource Recovery Centres. Residents are able to drop off a range of items at no costs. These include televisions, computers, white goods, metal items, paint and small electrical appliances.

E-waste Recycling Service



The City of Greater Geelong offers free electronic waste (e-waste) recycling services at the Geelong and Drysdale Resource Recovery Centres. The e-waste is sent to Clayton where it is manually dismantled or shredded and then recycled. Each year about 260,000kg of e-waste is sent to be recycled A good example of e-waste are computers, which contain more than 95 per cent of components that can be recycled and used in new products. These materials include plastic, gold, glass and copper. The following lists e-waste items collected at the resource recovery centres:

- televisions;
- computers and laptops;
- computer accessories;
- DVD, video and cassette players; and
- all other electronic appliances.

Hard Waste Collection Trial

In April 2019 a new hard waste collection trial commenced in the City of Greater Geelong. Residents are able to have their bulky household items picked up from their property. It is free to book in, with the cost covered by residential rates. The service is trialled for a 15-month period.

5.3 WASTE EDUCATION AND COMMUNITY AWARENESS

The City's waste education program helps to minimise material going to landfill. The program achieves this by changing behaviour through education, audit programs, events, promotion and building confidence in the recycling and reuse system.

The waste education program is based around recognising residents recycling and disposal behaviour and understanding their knowledge gaps. It aims to identify disposal difficulties residents may be having and provide solutions or alterative options. Knowing this information has enabled the educational program to identify recycling and reuse opportunities and provide incentives and special offers to increase adoption. The program utilises a wide range of communication channels to ensure it reaches a wide audience. The communication channels that the City utilises include:

- social media posts;
- online articles and videos;
- presentation to community groups;
- retail outlets;
- radio and press advertisement;
- bin stickers;
- letter box drops; and
- customer service at customer service centre, resource recovery centres, community centres, libraries and relevant organisations.

Annual Calendar of Events and Promotions

The City offers or promotes a number of programs, events and promotions that encourage residents to reduce waste going to landfill throughout the year. Details of these programs can be found in Table 5-3.

Table 5-3 List of Events and Services Provided by the City of Greater Geelong

Programs	Description
Distribution of waste collection calendars	Distributed to community through customer service centres.
Discount offer mattresses Nov & May	• Available at the resource recovery centres • Residents can drop off mattresses for $10 • Includes a pick-up component • Campaign includes press, radio, retail and social media promotional elements.
National Recycling Week	• Online articles highlighting recycling services at resource recovery centres • Online and social medial promotion.
Paint promotion	• November – February • Promotes the paint drop off facility at Douro St.
Chemical drop off day (February)	• One day event at the City's Corio Depot • Residents are able to drop off household chemicals for free • The program is run in conjunction with Sustainability Victoria • Council promotes the event and provides a suitable site.
Clean Up Australia Day (March)	• One day event – various locations • Council promotes the event and provides skips for around 20- 25 sites.
Rethink Your Rubbish monthly email update (monthly)	Provides residents with: • Advance notice of special offers • Background details on waste/environmental issues • Details on free services • Findings from recent research projects • Carry out surveys on waste related issues • 2500 subscribers base.
Recycling services at resource recovery centres	• Global email to City of Greater Geelong staff • Highlights a free service each month • Free drop off all year round.
Close the loop program	• Part of the Joint Community Education Advisory Committee (JCEAC) program • Identifies what recyclables become • Implement advertising program

Programs	Description
	• Funding is through the recyclables processing contract.
New residents	• Provides collection calendars, recycling and bin information to new residents • Material is mailed to customers via Customer Service.
Contamination of recycling bins	• Monitors recycling bins for contamination • Alerts residents on what items are causing contamination • February – November • Implements media program to address contamination issues.
E-Waste	• Residents drop off televisions and computer equipment at Drysdale and Geelong Resource Recovery Centres for free • Part of the National Television and Computer Recycling Scheme • Program is promoted in newspapers, social media, email marketing and online advertisements.
Battery Collection	• Monitor sites at customer service centres • Assist in the promotion of the program • Record data on quantity • Rotary maintain the service.
CD and DVD recycling program	• Monitor sites at customer service centres • Assist in the promotion of the program • Record data on quantity.
Douro Street New Customer	• Provides new customers with a guide as to what items may be dropped off for free.
Detox your Home Permanent site	• Residents are able to drop off the following items for free at the Geelong Resource Recovery Centre. Batteries (Alkaline, NiMH, NiCad), BBQ bottles, Car batteries, Fluorescent tubes, Motor oil, Cooking Oils, Paint, Paint tins (dry) • Service is promoted through a series of press and online advertisements.
Lounge suite pick up service	• Promotion of the program • Record data on quantity.
Illegal dumping	• Collecting data on hot spots, frequency and dumped items • Investigation on residential items and strategies • Implementing and evaluating intervention strategies in known hot spots • Providing advice for charities with dumping issues.

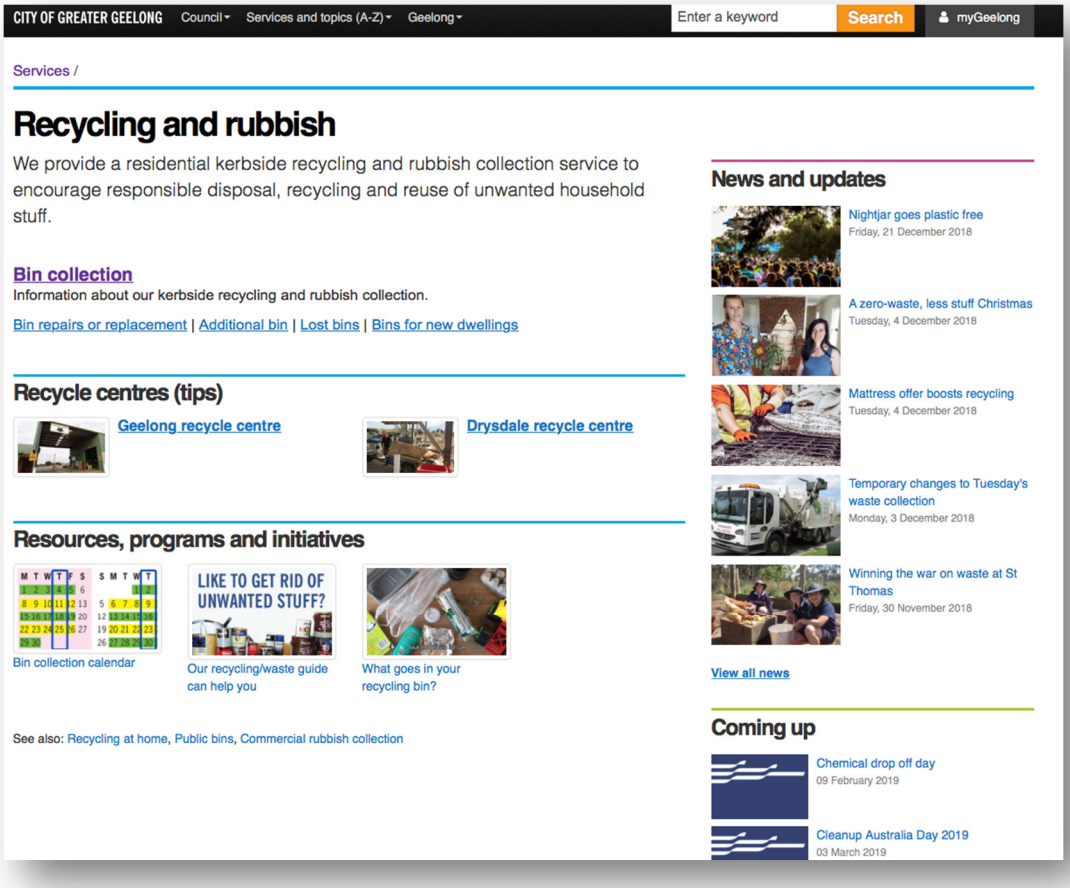
Rethink Your Rubbish – Monthly Email

A monthly email is sent to subscribers that provides tips on recycling, reuse and disposal. The emails highlight current recycling and waste issues and provide advanced notice on offers. Currently the monthly email has 2,500 subscribers. To subscribe, visit www.geelongaustralia.com.au/recycling/sign-up.aspx

Educational Materials

To complement their pro-active approaches to reduce waste going to landfill through changed behaviour, the City offers a range of passive information on their website. Figure 5-10 provides a snapshot of the information regarding recycling and waste available on the website. This platform enables the community to find their questions answered with factual information and in a quick and timely manner.

Figure 5-10 Snapshot of City of Greater Geelong's Recycling and Rubbish Webpage



Targeted Behaviour Campaigns

A key component of the Waste Education Program is the unique approach of targeting specific behaviour the City wants to change.

Plastic bags

A recent campaign targeted soft plastic bags with the intention of reducing their presence in the kerbside green organics and recycling bins. Bin audits were carried out before and after the education campaign. The first audit resulted in a contamination rate of 8.9% with the second audit resulting in a lower contamination rate of 7.9%. The key findings from this campaign were:

- Residents lack of knowledge regarding contamination and plastic bags
- Capacity
- The low number of repeat offenders.

Disposal habits

Another targeted behaviour campaign focused on the disposal habits of the residents. Table 4.3 shows items found in recyclable bins between 2011 and 2016. There has been a marked improvement placement of the correct material in the recycling bin in from 2011 to 2016. However, there was confusion regarding placement of the following materials: soft plastic; meat trays; plastic plant pots; plastic toys; aerosol cans; food cans; and jars and lids.

Table 5-4 Items Found in Recyclable Bins Between 2011 and 2016

Items	Into the recycling bin	
	2011	2016
Ice cream containers	83%	98.60%
Shampoo bottles	74%	98.60%
Pet food tins	76%	97.10%
Plastic plant pot	57%	76.80%
Plastic meat tray	57%	69.60%
Cooking oil containers	48%	81.20%
Plastic toys	33%	48.60%
Yoghurt containers	72%	96.40%
Pizza boxes	74%	87.70%

Collaboration with Other Councils and Management Groups

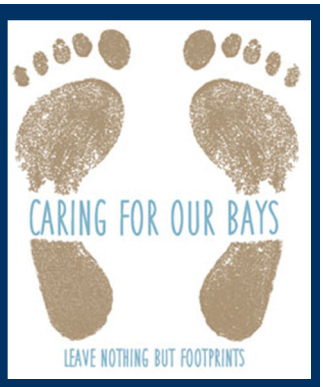
The City of Greater Geelong is part of the 'Think Recycle' program that aims to educate the community to increase recycling and reduce contamination. It is in partnership with Surf Coast Shire, Colac Otway Shire, Golden Plains Shire and Borough of Queenscliff. A range of resources with consistent messaging and branding was developed as part of the program, including an A-Z recycling guide, recycling game, FAQ, articles, calendar and downloadable posters.

Snapshot: Caring for Our Bays

The Caring for Our Bays Program aims to lift the profile and appreciation of Corio Bay and the Bellarine shoreline of Port Phillip Bay and reduce the amount of litter, sediments and nutrients that enter the waterways.

Research and litter monitoring shows there is a significant litter problem in these areas. Soft plastics in particular have been found in high numbers both on the shoreline and in the water. These plastics are unsightly and detrimental to marine life.

As part of the program, the City works with Bellarine Catchment Network and other local management authorities in helping educate and encourage people to look after their local area and improve the health of both the bay and the foreshore.



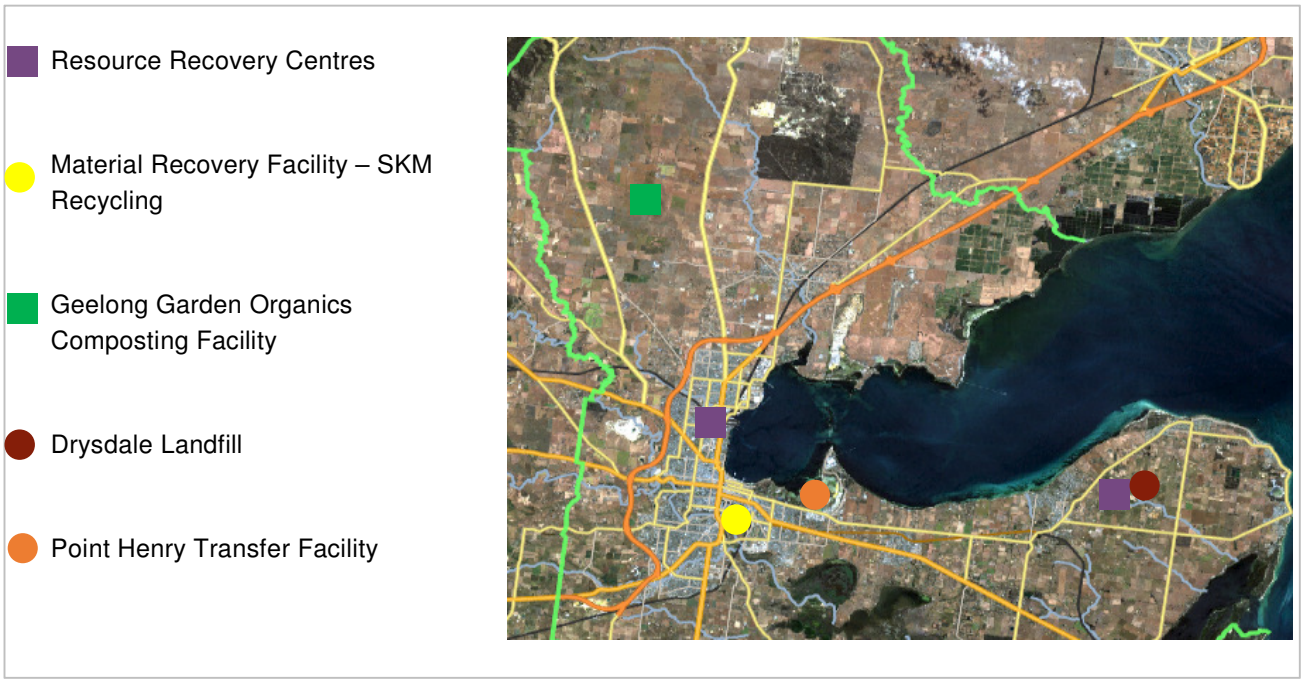
5.4 WASTE AND RESOURCE RECOVERY INFRASTRUCTURE

Recycling and waste disposal facilities

To service over 100,000 homes and the various businesses, commercial operations and industries in the region, the City manages a range of waste and recycling facilities. These facilities include:

- Drysdale Landfill
- Geelong Resource Recovery Centre
- Drysdale Resource Recovery Centre
- Geelong Garden Organics Composting Facility
- Point Henry Transfer Station

Figure 5-11 Existing Waste and Resource Recovery Infrastructure in the City of Greater Geelong



Drysdale Landfill

The Drysdale landfill is located on Becks Road and is owned by *The City of Greater Geelong*. The landfill is one of the *City of Greater Geelong*'s larger assets. The site opened in 1983 and has seven to eight years left of its life expectancy.

Location: Becks Road (off Murradoc Road) Drysdale

Type: Commercial and industrial

Products that are accepted: Mixed rubble, prescribed material (animal carcass, fish waste, scallop shell poultry), industrial waste, truck tyres, car tyres, clean fill, garden organics, seaweed

Tonnage of waste disposed: 115,000 tonnes (17/18)

Resource Recovery Centres

The Centres are drop off points for excess domestic waste, recycling, computer equipment and white goods. These facilities help the Geelong community reduce contamination in household waste bins and provide a site to take large items for re-use or recycling.

Drysdale Resource Recovery Centre

Location: Becks Road, Drysdale.

Operation: Operated and staffed by City of Greater Geelong.

Type: Public (domestic quantities)

Products that are accepted: Various sizes of waste, clean cardboard, refrigerators/pressed metal goods, aluminum and steel cans, milk and juice cartons, bottles (plastic, milk, juice and soft drink), BBQ gas cylinders, oil/containers, car batteries, scrap metal, glass bottles & jars, computer items, hot water services, rigid plastic containers, televisions, tools, white goods (fridges, ovens, dyers, dishwashers).

Tonnage processed: 7,000 tonnes (17/18).

Geelong Resource Recovery Centre



Location: 100 Douro Street, North Geelong.

Operation: Operated and staffed by GDP Industries.

Type: Public (domestic quantities)

Products that are accepted: various sizes of waste, clean cardboard, refrigerators/pressed metal goods, aluminum and steel cans, milk and juice cartons, bottles (plastic, milk, juice and soft drink), BBQ gas cylinders, oil/containers, car batteries, scrap metal, glass bottles & jars, car/machine, oil, paint, fluorescent tubes, fluorescent lights, computer items, household & car batteries, hot water services, paint and paint tins, rigid plastic containers, televisions, tools, white goods (fridges, ovens, dyers, dishwashers), polystyrene.

Tonnage processed: 12,000 tonnes (17/18)

Geelong Garden Organics Composting Facility

This new facility uses open windrow composting to process up to 35,000 tonnes a year of garden organics collected from the City's kerbside collection service.

Location: Between Anakie and Lovely Banks

Type: Garden organics, no food organics

Products that are accepted: grass clippings, branches and other garden organics

Point Henry Transfer Station

The City leased a portion of the site for internal waste transfer operation. This facility does not open to the public. Kerbside garbage is being transferred here for bulk haulage to Drysdale Landfill. Kerbside garden organics are decontaminated at this site before sending to processing facilities.

This facility has played an essential role at emergency situations in maintaining kerbside collections for the City and the G21 region. For instance, it has served as an approved backup transfer facility when the local material recovery facility was temporarily not operational.

Location: 50 Point Henry Road, Moolap

Type: internal waste transfer, not a service to public or commercial.

Garbage transferred: 17,263 tonnes (17/18)

Green Organics processed: 34,510 tonnes (17/18)

Private Waste and Resource Recovery Operations in the City of Greater Geelong

To compliment the services provided by the City there are a number of private waste and resource recovery operators. Table 5-5 provides a brief list of who they are and which form of waste and/or resource recovery they operate in. It is envisaged that in the future this list will grow with the intention of extracting more and new recoverable materials and supplying it to existing and emerging recovery markets in the region and beyond.

Table 5-5 Private Waste and Resource Recovery Facilities in the City of Greater Geelong

Facility	Form of waste or resource recovery	Location
SUEZ Transfer Station	Transfer Station	Corio
SKM Material Recovery Facility	Material Recovery Facility for recyclables	South Geelong
Visy Material Recovery Facility	Material Recovery Facility, mainly paper/cardboard	North Geelong
GDP Industries	Paper/cardboard, plastics, metals, glass, textiles, e-waste, polystyrene	North Geelong
GT Recycling	Plastics, paper/cardboard	Moolap
The Mattress Recycler	Mattress and furniture	Moolap
Sims Metal Management	Metals	North Geelong
Fyansford Landfill	Landfill	Fyansford

Source: Barwon South West Waste and Resource Recovery Implementation Plan

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THE CITY OF
GREATER GEELONG

COMMUNITY CONSULATION REPORT 2019

GEELONG'S WAR ON WASTE

CITY OF GREATER GEELONG

Contents

Introduction.....3

1 Have Your Say survey 4

1.1 Purpose and Background.....4

1.2 Engagment methodology 4

1.3 Marketing and communications.....4

1.4 Survey results.....5

1.5 Summary 19

1.6 Recommendations for strategy development 19

2 Online Advisory Community 20

2.1 Purpose and Background.....20

2.2 Forum methodology 20

2.3 Marketing of forums 21

2.4 Circular Economy Forum 22

2.5 Waste Disposal Forum.....29

2.6 Summary 35

2.7 Recommendations for strategy development 35

Introduction

The City of Greater Geelong sought input from our community, stakeholders and staff to understand the local concerns, issues and opportunities surrounding waste management and resource recovery. This comprehensive engagement program was conducted over a ten-month period, with over 850 people participating in a wide range of engagement activities. The City received over 1,700 comments, suggestions and actions related to waste management. This information has informed the development of the City's new Waste and Resource Recovery Strategy.

The City of Greater Geelong is developing a new Waste and Resource Recovery Strategy in 2019.

We prepared two discussion papers *Geelong's War on Waste* and *Reducing Our Food Waste* as part of the consultation process to provide information for the Have Your Say online survey. The consultation period was between 11 February and 15 March 2019.

Following the online survey, the City has hosted an Online Advisory Community forum for community members to discuss strategic waste topics. Another two discussion papers *Supporting a Circular Economy* and *The Future of Waste Disposal* were prepared for the community to review. During 18 March and 12 April 2019, the Online Advisory Community were asked to nominate questions and comments about the discussion papers. Responses to questions and comments were offered by the City's Waste Services Team in real time offering a genuine open discussion about waste issues and shared perspectives.

A Background Report was also released to provide detailed information to support the consultation process. It included the statutory and strategic context in waste management, the overview of the City's existing waste and recycling services and infrastructure, and the review of the City's strategic achievements and outcomes to date. This report is a key reference document that is updated throughout the strategy development process.

The feedback and input received from the community and stakeholders through the online survey and the Online Advisory Community has contributed and informed to the development of the draft Waste and Resource Recovery Strategy.

ABOUT THIS REPORT

This report presents the feedback received from the community consultations on the Geelong's War on Waste discussion papers. It summarises the key findings and observations from the community survey results and the online forum dialogues during the 8 week community consultation period in two parts:

- Have Your Say survey
- Online Advisory Community

1 Have Your Say survey

1.1 PURPOSE AND BACKGROUND

The City developed two discussion papers *Geelong's War on Waste* and *Reducing Our Food Waste* as part of the consultation process to provide information on the Have Your Say survey. We seek feedback and input from the community and stakeholder to contribute to the development of the draft Waste and Resource Recovery Strategy.

Draft Background Report – February 2019 was also released to provide background information for the consultation process. It included the statutory and strategic context in waste management, the overview of the City's existing waste and recycling services and infrastructure, and the review of the City's strategic achievements and outcomes to date. This report is a key reference document that is updated throughout the strategy development process. It provides relevant and updated information of the waste industry.

1.2 ENGAGMENT METHODOLOGY

Community and stakeholders were invited to provide their feedback by filling out an online survey between 11 February and 15 March 2019.

The online survey formed the basis of the engagement. The survey sought feedback and level of support on potential future waste management options for the City's.

1.3 MARKETING AND COMMUNICATIONS

The Have Your Say engagement was promoted widely with the aim to seek feedback and input from the whole community. Communications and engagement activities used include:

- Have Your Say page on website
- Social media post
- Media release
- Article in Community Update newsletter (120,000 copies are circulated in the region)
- Email to stakeholders

Figure 1 Have Your Say on Geelong's War on Waste web page



1.4 SURVEY RESULTS

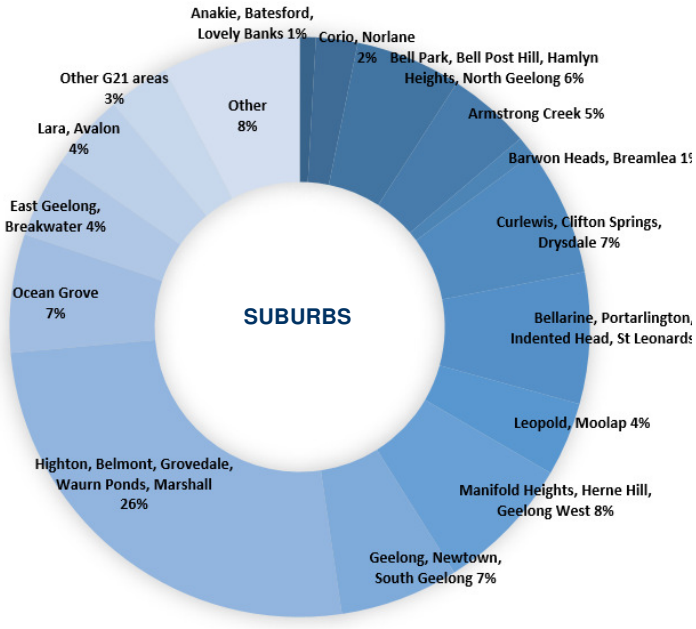
The Geelong's War on Waste engagement page has over 3,000 page views during the engagement period. 573 survey responses were received via the Have Your Say online survey.

Suburbs

Respondents came from across the municipality and further afield. High percentage of respondents were from postcode 3216, which includes Belmont, Grovedale, Highton, Marshall, Waurn Ponds and Wandana Heights.

See Figure 2 below for further breakdown.

Figure 2 Suburb representation

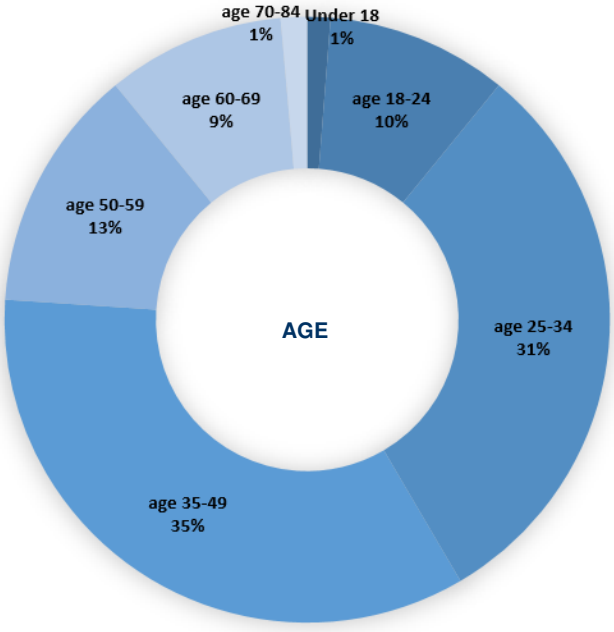


Age

Over half of the respondents (66 per cent) were aged 25-49 years of age. The age group with the greatest representation was 35-49 years, representing 35 per cent of responses.

The voices of the 18-24 years and over 60s were also heard. 10 per cent of respondents were aged 18-24 years of age, and 11 per cent of respondents were over 60s.

Figure 3 Age representation



Waste generation practices

Respondents were asked about their actions currently taken to reduce their waste generation.

This question provided a range of data regarding waste minimisation actions our community members are undertaking, as well as an understanding of what drives people's thinking. We used this to inform the development of the strategy. Of those surveyed:

- 93.3 per cent use a reusable water bottle;
- 86 per cent avoid disposable items, such as straws, plastic cutlery, take away coffee cups;
- 79.7 per cent chose products with no packaging over packaged products where possible;
- 70 per cent buy more durable, long lasting products; and
- 68.9 per cent placed 'nude food' in containers for lunch rather than plastic wrap.

Other ways the community identified waste minimisation actions included: composting, upcycling, cloth nappies and napkins, drop-off soft plastics at RedCycle, reuse containers, bulk buy, rethink before buying, and feeding food scraps to animals.

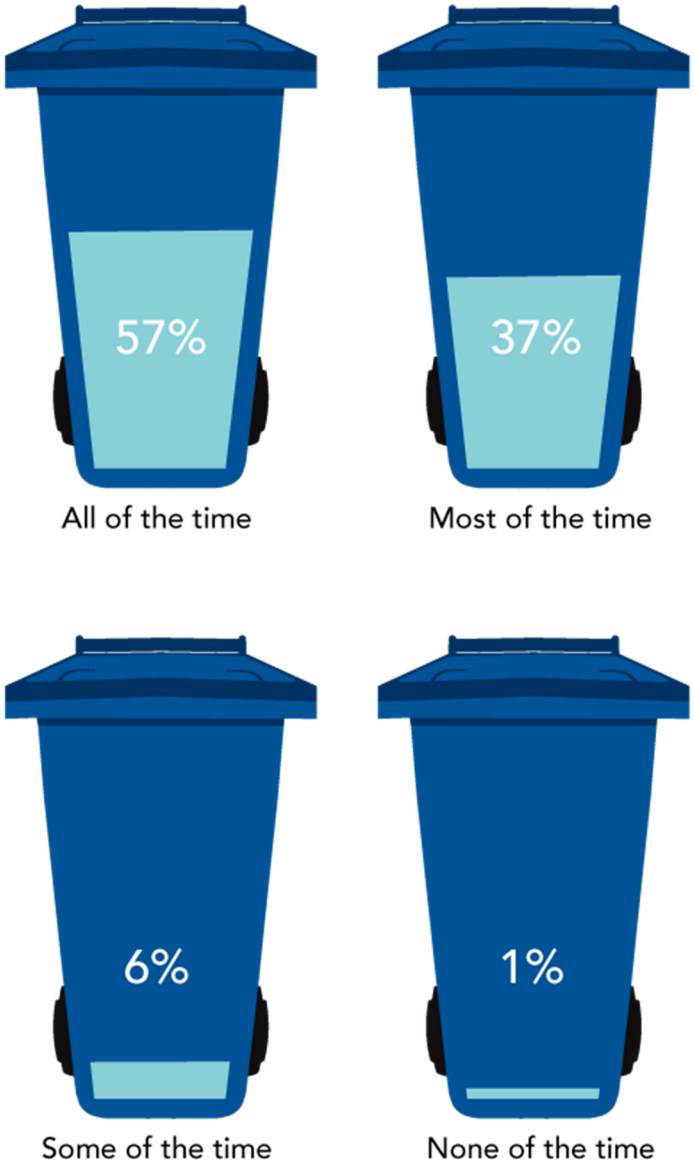
Figure 4 In what ways do you try to minimise the amount of waste you produce?

Value	Percent	Responses
Buy more durable, long lasting products	70.0%	389
Choose products with recycled content when buying new products	60.1%	334
Choose products with no packaging over packaged products where possible	79.7%	443
Use packaging alternatives when buying food products (i.e. reusable bags to buy vegetables, bring own plastic containers to bulk stores).	71.4%	397
Avoid disposable items, such as straws, plastic cutlery, takeaway coffee cups.	86.0%	478
Buy second-hand or op shop items	55.6%	309
Repair old items	52.2%	290
'Nude Food' putting lunches in containers rather than plastic wrap	68.9%	383
Using a reusable water bottle	93.3%	519
None, I don't minimise my waste	1.3%	7

With such a high percentage of respondents taking action to minimise their waste, it was interesting to note that the level of effort consistently undertaken was also high with 57 per cent of respondents doing it all the time and 37 per cent reduced their waste most of the time.

Figure 5 How often do you minimise waste

Note: the data represents the percentage of respondents



Waste separation and disposal practices

To plan for the future, we wanted a snapshot of how residents currently disposed of their waste.

Through the online survey, respondents were asked about their current waste separation practices and how they disposed of their waste. The results indicated that:

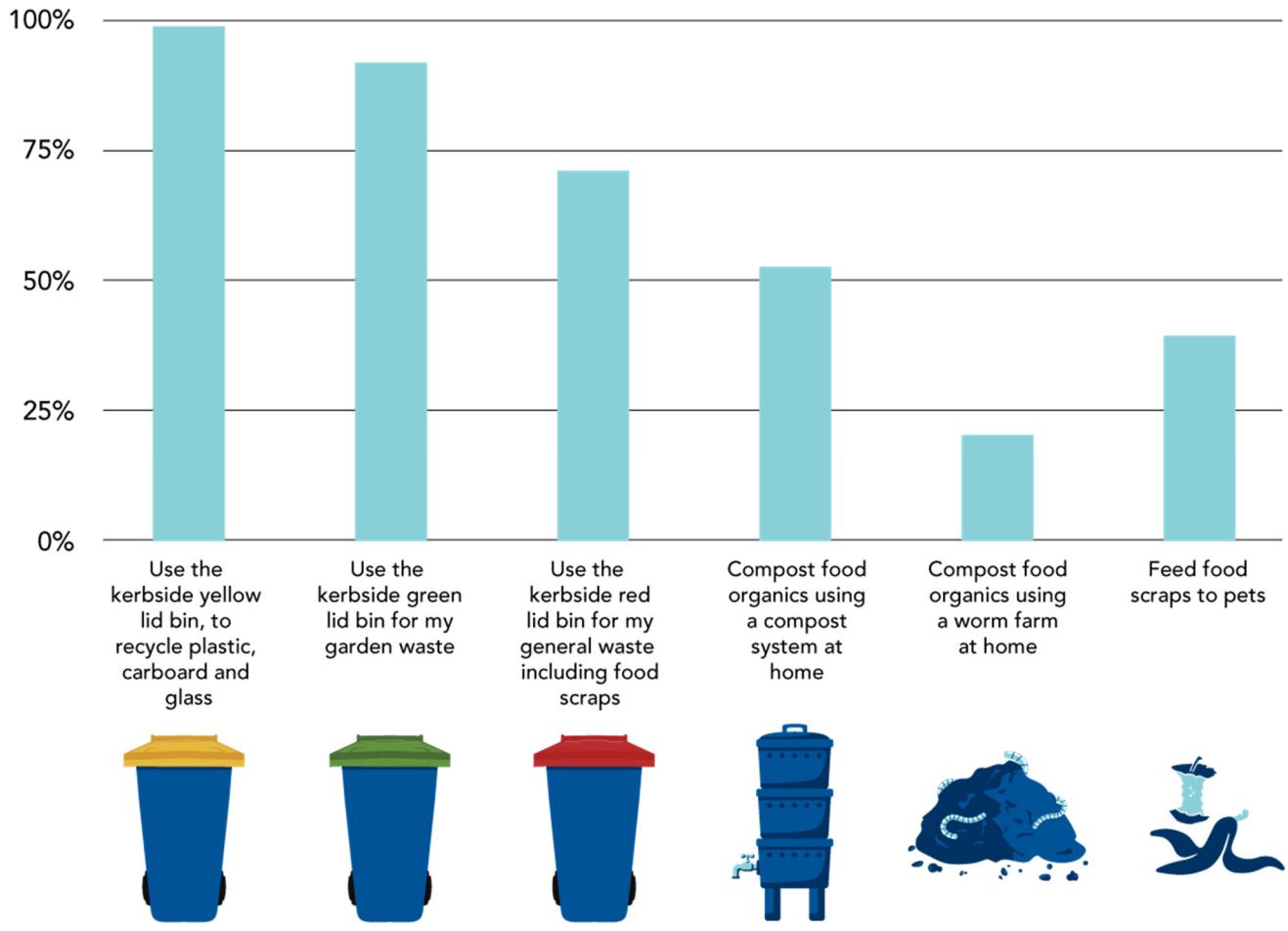
- 99.6 per cent of the respondents used the kerbside yellow-lid bin to recycle
- 94.1 per cent use the kerbside garden organics service.

It is interesting to note that only 72.9 per cent of residents stated they use the kerbside red-lid bin for their general waste including food scraps. It could have been the caveat of 'including food scraps' that lowered the percentage of use with over 50 per cent of respondents composting food waste at home.

Other ways to separate waste include taking rubbish and recycling home, taking batteries and printer cartridges to drop-off points and donation to charity shop.

Contamination of recycling was highlighted by a variety of concerned respondents. Many suggested the introduction of additional education programs focused on reducing the contamination levels in the kerbside service.

Figure 6 How do you separate your waste at home



Questions regarding the disposal of recyclables in public areas provided a variation in usage of the different facilities.

Public place bins (87.7 per cent) and bins in the workspace (71.6 per cent) were popular methods of disposing of recyclables.

Over half of the respondents recycle soft plastics using RedCycle (57.3 per cent).

On the other hand, only 37.4 per cent of the respondents deposited recyclable items at the Resource Recovery Centres and even less (23.6 per cent) deposited recyclable items at other locations (e.g. mobile muster etc).

The above data highlights ease of access as a contributing factor. If the recycling service is placed either at home or in the work place it is used by a high proportion of the community, however where is travel involved, the participation rate significantly drops.

Figure 7 How do you separate your waste when you are not at home

Value	Percent	Responses
Use public bins to recycle plastics, cardboard and glass plastics, cardboard and glass	87.7%	476
Use dedicated bins in the workplace to recycle plastics, cardboard and glasswaste	71.6%	389
Recycle soft plastics using the RedCycle drop off spots at Coles or Woolworths	57.3%	311
Deposit recyclable items at the Geelong or Drysdale Resource Recovery Centres	37.4%	203
Deposit recyclable items at other locations (e.g. Mobile Muster at a workplace etc.)	23.6%	128

Current waste services and infrastructure

Respondents were asked about their level of satisfaction regarding the waste and recycling services provided by the City. The community's feedback can help to inform where are the areas we need to improve services and infrastructure.

The level of satisfaction was high for the kerbside collection service, with:

- 76.3 per cent satisfied with weekly kerbside garbage collection at home;
- 67.3 per cent satisfied with fortnightly kerbside recycling collection at home; and
- 77.7 per cent satisfied with fortnightly kerbside garden organics collection at home.

However, the community has indicated less satisfaction to the kerbside recycling services especially at times when recyclables were not able to be processed and sent to landfill.

Figure 8 Over the past year, how satisfied were you with the City's waste services and infrastructure

	Did not use in the last 12 months	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisifed	Responses
Weekly kerbside garbage collection at home (red lid) Count	10	199	197	79	23	11	519
Row %	1.9%	38.3%	38.0%	15.2%	4.4%	2.1%	
Fortnightly kerbside recycling collection at home (yellow lid) Count	8	179	170	58	74	30	519
Row %	1.5%	34.5%	32.8%	11.2%	14.3%	5.8%	
Fortnightly kerbside garden organics collection at home (green lid) Count	23	205	198	60	25	8	519
Row %	4.4%	39.5%	38.2%	11.6%	4.8%	1.5%	

The City has two resource recovery centres at North Geelong and Drysdale.

- 55 per cent of the respondents have used the Geelong Resource Recovery Centre in the last 12 months. Majority of these users are satisfied with the service.
- About 30 per cent of the respondents have used the Drysdale Resource Recovery Centre in the last 12 months.

Figure 9 Resource recovery centres

	Did not use in the last 12 months	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisified	Responses
Drysdale Resource Recovery Centre Count Row %	349 70.9%	36 7.3%	42 8.5%	48 9.8%	14 2.8%	3 0.6%	492
Geelong Resource Recovery Centre Count Row %	226 44.9%	72 14.3%	117 23.3%	52 10.3%	28 5.6%	8 1.6%	503

In the last twelve months, a high proportion of respondents had not used three additional recycling services offered by the City.

- 84.7 per cent had not used the mattress pick up service.
- 79.3 per cent had not used the CD/DVD and battery drop off at City customer service centres.
- 86.4 per cent had not used the annual chemical collection.
- Low proportion of respondents were dissatisfied with these services. However the following ideas were raised through the survey.
- Unaware of what waste and recycling services were offered and therefore unable to utilise them
- Higher separation of recyclables – separate glass, plastic, aluminium, metal and cardboard/paper
- Need for recovery of food waste
- need to review kerbside collection frequency
- Lack of financial incentives to reduce waste

Figure 10 Additional recycling services

	Did not use in the last 12 months	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisified	Responses
Mattress Pick Up Service Count Row %	415 84.7%	19 3.9%	11 2.2%	31 6.3%	6 1.2%	8 1.6%	490
Drop off CD/DVD and battery at Customer Service Centres Count Row %	391 79.3%	42 8.5%	26 5.3%	27 5.5%	5 1.0%	2 0.4%	493
Annual Chemical Collection Count Row %	425 86.4%	24 4.9%	12 2.4%	25 5.1%	4 0.8%	2 0.4%	492

When asked ‘Are there enough street and park bins in Geelong?’, 76 per cent stated yes.

Of the people who said yes, 7 per cent thought we needed less bins. 25 per cent said no, we need more bins and they understood it would cost more to service the bins.

Although a high percentage thought there were enough public place bins, 52 per cent suggested an increase in the number of recycling bins.

Figure 12 shows the most frequent words from respondents’ feedback when they were asked for services that are not currently offered by the City but they would like to see provided to help dispose of or recycle waste.

Figure 11 Public Place Bins: are there enough street and park bins in Geelong?

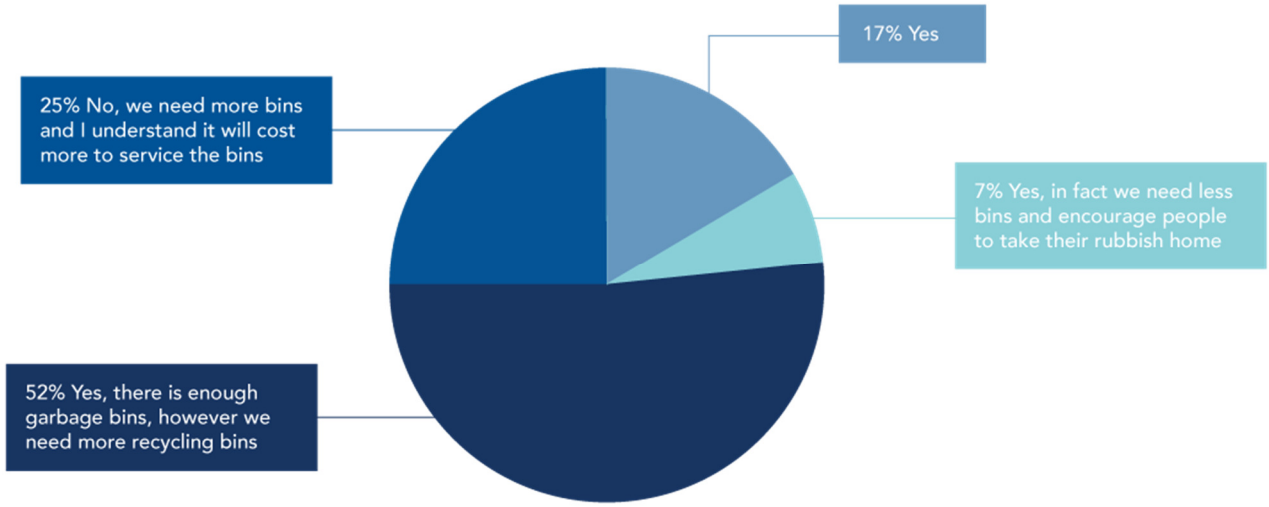


Figure 12 Most frequent feedback when asked for future service suggestions to help disposal and recycle waste



Planning for our future

Understanding the level of willingness of our community to reduce their waste generation was important. This type of information can inform the strategic direction regarding future waste services and infrastructure requirements.

The community's willingness to act and reduce their waste generation was very encouraging with 97.4 per cent of respondents willing to reduce the amount of waste they produce and 97.7 per cent willing to reduce/avoid the use of single use plastics.

With such a high level of action and willingness to reduce the amount of waste produced, it is interesting to note that there was still a need for more information and education around waste minimisation. Raising the community's awareness about waste minimisation and educating the community on how this can be achieved was consistently raised throughout all of the engagement activities.

Single use plastic was a specific waste item that was also consistently raised throughout the engagement process. There is a strong desire to address single use plastics, ranging from minimising their availability and use, to outright banning them from shops, stores and in homes.

Community members were strongly supportive of exploring ways to encourage the community to reduce the volume of waste they dispose upstream.

People recognise waste avoidance requires a collaborative, community-based approach that both changes attitudes and supports behaviour change.

Figure 13 How willing are you to do the following to reduce your waste to landfill?

	Very willing	Willing	Neutral	Unwilling	Very unwilling	Responses
To reduce the amount of waste you produce Count Row %	388 78.2%	95 19.2%	11 2.2%	2 0.4%	0 0.0%	496
To pay extra for services to recycle more items Count Row %	169 34.3%	172 34.9%	84 17.0%	41 8.3%	27 5.5%	493
To reduce/avoid the use of single used plastics Count Row %	391 79.1%	92 18.6%	7 1.4%	2 0.4%	2 0.4%	494

There is a strong willingness within the community to separate and recover as many resources as possible from their waste. Responses show that:

- 99.6 per cent were willing to continue to separate their waste and recyclables at home
- 97.8 per cent were willing to taking unwanted items to op-shops or second hand stores
- 94.5 per cent were willing to use a hard-waste service to remove unwanted large items from their home
- 92.9 per cent were willing to separate food organics to a kitchen caddy from the kerbside waste bin
- 92.7 per cent were willing to repurpose items
- 90.5 per cent were willing to use a container deposit scheme
- 87.3 per cent were willing to take recyclable items to drop off locations
- 85.5 per cent were willing to take recyclable items to a Resource Recovery Centre
- 76.3 per cent were willing to use repair cafes to fix broken items
- 61.7 were willing to visit a community environment hub for waste education.

Figure 14 Willingness to sort waste

	Very willing	Willing	Neutral	Unwilling	Very unwilling	Responses
Continue to separate my waste and recyclables at home Count Row %	462 93.3%	31 6.3%	1 0.2%	1 0.2%	0 0.0%	495
Take recyclable items to drop off locations e.g.soft plastic at supermarkets and printer cartridges at retail outlets. Count Row %	281 57.2%	148 30.1%	39 7.9%	19 3.9%	4 0.8%	491
Separate food organics to a kitchen caddy from your kerbside waste bin Count Row %	362 73.9%	93 19.0%	28 5.7%	6 1.2%	1 0.2%	490

	Very willing	Willing	Neutral	Unwilling	Very unwilling	Responses
Use a hardwaste service to remove unwanted large items from my home Count Row %	369 75.3%	94 19.2%	23 4.7%	4 0.8%	0 0.0%	490
Repurposing items Count Row %	318 64.4%	140 28.3%	33 6.7%	1 0.2%	2 0.4%	494
Taking unwanted items to op shops or second-hand stores Count Row %	409 82.8%	74 15.0%	9 1.8%	2 0.4%	0 0.0%	494
Take recyclable items to a Resource Recovery Centre Count Row %	257 52.2%	164 33.3%	56 11.4%	14 2.8%	1 0.2%	492
Use a container deposit scheme e.g. cash for cans Count Row %	362 73.3%	85 17.2%	36 7.3%	10 2.0%	1 0.2%	494
Use repair cafes to fix broken items Count Row %	240 49.0%	134 27.3%	98 20.0%	15 3.1%	3 0.6%	490
Visit a community environment hub for waste education Count Row %	156 32.0%	145 29.7%	133 27.3%	43 8.8%	11 2.3%	488

Food organics were the most discussed topic and theme from all the engagement activities. 82.8 per cent of the surveyed respondents stated they would support the collection of food organics as a City service. While only 66.2 per cent would actually use the food organic collection service.

This data clearly shows there is a gap in support for the idea of the service and actual uptake of the service. A possible reason in the drop of use when compared to support is that over 50 per cent of the respondents already remove food organics from their waste stream through the use of either a home composting system or worm farm.

Figures 15 Food Organics Collection Service

	Yes	Maybe	No	Responses
Would you support a food organics collection service?				
Count	409	60	25	494
Row %	82.8%	12.1%	5.1%	
Would you use a food organics collection service?				
Count	325	93	73	491
Row %	66.2%	18.9%	14.9%	

Projections suggest that over the next ten years our current systems will not be able to process the increasing amount of waste we generate. Significant changes are required to address this challenge.

The community was asked 'How supportive are you on the following ways to dispose of our waste in the future?' This question provided an insight into the level of community support for the potential waste disposal and or treatment options the City is currently investigating.

The below is a ranking of the future waste processing options in order of level of support.

1. Explore advanced recovery and recycling technologies
2. Install a composting facility and service
3. Increase items received at recovery centres
4. Provide additional resource recovery centres
5. Use a Waste to Energy facility
6. Continue to use landfill at a new site once the Drysdale landfill closes.

Figure 16 How supportive are you on the following ways to dispose of our waste in the future?

	Very high	High	Medium	Low	Very low	Responses
Continue to use landfill at a new site once Drysdale Landfill closes	53	77	151	104	104	489
Count	10.8%	15.7%	30.9%	21.3%	21.3%	
Row %						
Waste to energy facility (e.g. incineration, anaerobic digestion)	219	131	92	29	21	492
Count	44.5%	26.6%	18.7%	5.9%	4.3%	
Row %						
Composting facility	395	73	24	2	1	495
Count	79.8%	14.7%	4.8%	0.4%	0.2%	
Row %						
Additional resource recovery centres	259	137	76	17	4	493
Count	52.5%	27.8%	15.4%	3.4%	0.8%	
Row %						
Increase items received at recovery centres	277	133	68	12	1	491
Count	56.4%	27.1%	13.8%	2.4%	0.2%	
Row %						
Continue to explore advanced recovery and recycling technologies	424	54	14	1	2	495
Count	85.7%	10.9%	2.8%	0.2%	0.4%	
Row %						

1.5 SUMMARY

There was strong support for everyone to take personal responsibility for reducing and avoiding the waste they generate. Many people are already doing things to reduce the waste they produce, with 78 per cent of respondents willing to do more to reduce the amount of waste they produce. Respondents expressed a strong desire to address single use plastics, ranging from minimising their availability and use, to banning them from shops, stores and in homes. People recognise waste avoidance requires a collaborative, community-based approach that both changes attitudes and supports behaviour change.

Majority of respondents use the kerbside bin collection service to help sort their waste. There is a strong willingness within the community to separate and recover as many resources as possible from their waste. However, contamination was highlighted as an issue by many. A significant number of people had not used additional waste services provided by the City in the last twelve months, with ease of access and awareness of services available forming a barrier for some.

Food organics were the most discussed topic and theme. The community is very aware that food organics is a waste problem that can be resolved with a food waste composting system. 82.8 per cent of respondents stating they would support the collection of food organics service.

Education was a popular topic and fundamental to changing the way people think about waste. There was a need for more education focusing on waste avoidance and resource recovery. Suggested areas to focus on include co-mingled recycling, reduce contamination, don't make the waste in the first place, increasing opportunities for e-waste capture, and procurement of more recyclable building materials.

The community strongly supported the option of exploring advanced recovery and recycling technologies, installing a food organics composting facility, increasing items received at recycling centres, and providing additional resource recovery centres.

1.6 RECOMMENDATIONS FOR STRATEGY DEVELOPMENT

The below recommendations were made to inform the development of the Waste and Resource Recovery Strategy following analysis of outputs from the engagement process:

- Ensure education and raising community awareness and engagement is a priority action
- Develop new initiatives and programs that address waste minimisation and avoidance
- Have confidence in the community in regards to their willingness to act and participate in new programs that target waste avoidance and minimisation
- Advocate for the reduction or ban of single use plastic items
- Consider food waste collection, or at home compost solutions to divert organic waste from going to landfill
- Explore community-based social marketing campaigns to change attitudes and support behaviour change within the community
- Explore actions to support the reuse and recycling of building materials, and to utilise recyclable materials
- Support opportunities to implement or enhance community driven repair and resale shops
- Explore alternative waste technologies, for example waste to energy as a strategy for managing unsorted residual waste
- Explore financial incentives to give residents and businesses economic reasons to reduce the amount of waste they dispose, and ensure this option coincides with investment in anti-dumping strategies.

2 Online Advisory Community

2.1 PURPOSE AND BACKGROUND

An Online Advisory Community Forum was hosted between 18 March and 12 April 2019 for community members to discuss strategic waste topics on Geelong's future waste management and our circular economy.

Two discussion papers "Supporting a Circular Economy" and "The Future of Waste Disposal" were prepared for the community to review. The Online Advisory Community were asked to nominate questions and comments about the discussion papers. Responses to questions and comments were offered by the City's Waste Services Team in real time offering a genuine open discussion about the issues and shared perspectives.

2.2 FORUM METHODOLOGY

An interactive War on Waste page was published on OurSay.org providing discussion papers and background information to the City's long term waste strategy.

Two interactive forums were initiated allowing members of the community to join discussion threads about the future of waste disposal and the circular economy.

Two staff from the City of Greater Geelong's Waste Services team provided response comments to questions throughout the forum, facilitating further and deeper discussion.

Figure 17 Geelong's War on Waste Online Advisory Community Home Page



2.3 MARKETING OF FORUMS

First invitation email was sent out on 19 March 2019 to all those provided email addresses (over 220 people) after completing the Have Your Say survey and key stakeholders.

A second email was sent on 31 March 2019 to remind people of the opportunity.

An article was published on the City of Greater Geelong website to raise awareness of the project.

From: Waste Admin

Sent: Tuesday, 19 March 2019

To: Waste Admin

Subject: Online Advisory Community - Waste and Resource Recovery Strategy - Geelong's War on Waste



Thank you for providing your feedback through the Geelong's War on Waste community survey and expressing your interest to take part in the Waste and Resource Recovery Strategy Online Advisory Community.

The Online Advisory Community is formed to provide a community platform to discuss strategic waste topics on Geelong's future waste management and circular economy. The online forum is now open for four weeks until Friday 12 April. You can visit oursay.org/geelongwaronwaste to start the conversation.

Do you have any questions about future waste disposal and the circular economy concept that you want to ask the City of Greater Geelong? You can post and vote for questions important to you in the Online Advisory Community. The City's Waste Services Team will respond to your questions. Two discussion papers *Supporting a Circular Economy* and *The Future of Waste Disposal* have been prepared for more details.

Your input via the Online Advisory Community will be very valuable to help develop the City's new Waste and Resource Recovery Strategy.

Click here to join the Online Advisory Community

Kind regards

Waste Services Team

City of Greater Geelong

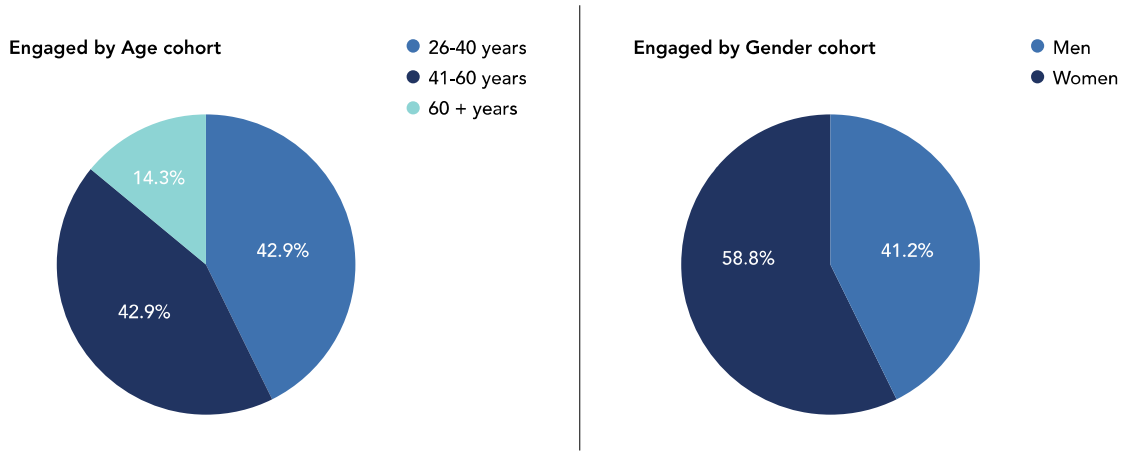
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2.4 CIRCULAR ECONOMY FORUM

Engagement Results

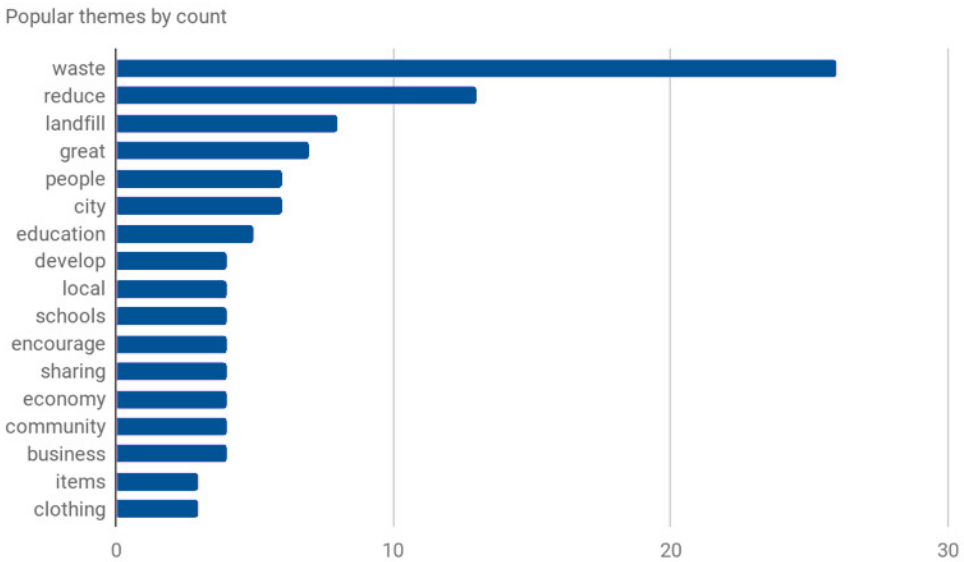
The Circular Economy interactive discussion forum received:

- 94 unique visitors to forum
- 21 total people engaged
- 13 submissions
- 11 submission authors
- 44 comments
- 17 commenters
- 779 page views



Popular themes in discussion

Text analysis reveals the following popular themes by count across all the discussion threads:



Discussion Threads

➔ Discussion thread (reduce packaging, single use items)

"The word 'Reduce' doesn't appear in the circular economy picture above. I think reduce is the number one focus point for waste management. Reduce what we buy, reduce the packaging, reduce the single use items we buy. If we start there then we need less of everything else (eg less Generation, less Separation, less Collection, less Sorting....etc...)"

> "I agree, reduction is a huge part of this ongoing issues. Some councils are supporting people to reduce waste e.g City of Casey provides rebates for using cloth nappies."
>
> > "An interesting idea. Disposable nappies are a huge waste problem. I find that children today stay longer in nappies (exacerbating the waste problem) because a disposable nappy is comfortable for the child and convenient for the parent, whereas as a cloth nappy is neither comfortable nor convenient so earlier toilet training is desirable."
>
> "Hi, this is a really great point. How do you think the City can encourage or help people across the municipality to reduce?" (OurSay Moderator)
>
> > "1. Education, education, education. Get the message out there to everyone. In particular into our schools. If we can get our children leading this then change will happen.
> > 2. Get on board with local businesses, big supermarkets are hard to tackle in terms of changing ways. But local businesses would be great. Offer them free produce bags to give to customers,
> > 3. Provide all rate paying households with some reusable items - shopping bags, produce bags etc. Or rebate to shop local or something along those lines"
> >
> > "A few ideas:
> > - Promoting wholesale shops in town. Publish info on how people can purchase, store & use wholesale foods.
> > - Provide reusable containers for food purchases eg. metal or plastic tubs to purchase meat/grain...etc... with a council logo even ;-)
> > - Promote & fund local Repair cafes.
> > - A council rate saving provided to businesses who promote the councils vision of reduce/reuse...etc.. (incentives not extra costs/taxes)
> > - Promote (somehow?) buy better quality items that can be repaired, that last, that don't add to landfill as much.
> > - Identify the largest % of landfill waste and target the 'reduction' of those items. Is the largest $ food-waste? (I could be wrong) If so, promote & support composting at home but also for business? Need to reduce business food waste....(not sure how, though)"
>
> "I agree entirely. We have to help people change their behaviour to reduce in the first place. Reduction in use of resources is key to this problem. Once upon a time there weren't plastic bags and packaging for everything so we need to start winding back the clock. Workshops, education, supporting local businesses."
>
> "Yes, I agree we need to reduce waste production, but more people = more waste, so we can't expect to reduce overall waste without also addressing the primary driver of consumption and waste production which is population growth through procreation and migration. Every single person is a waste producer, so strategy for managing waste needs to address that basic fact."
>
> "Relevant to the circular economy model, no matter how many wins we have in; reducing - reusing and recycling, there is always going to be waste, therefore we'd be naive if we didn't look at the whole picture…"
>
> "I agree - education on reducing waste should be top priority. We all have a responsibility for our behaviors around consumption. Making better and conscious decisions is where it begins. Questioning ourselves before purchasing, or

asking whether we can do things differently etc. is very important. And as already mentioned, education is key to all of this. There are many documentaries out there (True Cost and Cowspiracy for example) that show the real impact on the everyday purchases we make and the impacts they have on the environment. We have made huge changes just from watching these alone."

"Agree 100%. Far too much unnecessary packaging everywhere"

➔ Discussion thread (exporting of waste)

"Why is export there? To have a circular economy surely export is not part of this? Shipping our problem somewhere else doesn't seem to be an answer?"

"Thanks, supporting our regional and Victoria's circular economy is very important to a sustainable resource management system. We need to change our reliance on export and overseas markets. The State Government is currently developing policy on circular economy. Our waste and resource recovery strategy will certainly look into our strategies in supporting this change.
Exporting recyclable supports a global circular economy, which is a less preferable option but at least resources won't be buried at landfills.
In the Supporting a Circular Economy Discussion Paper we have provided a case study on the REDcycle program which demonstrates our regional circular economy. Soft plastics collected from supermarkets are re-manufactured in Ballarat to recycled-plastic outdoor furniture and bollards."

➔ Discussion thread (population growth)

"Our current economic system is based upon an infinite growth model that relies upon more people consuming more, thus supports and encourages procreation, migration, and population growth. It's obvious to me that more people = more waste, so how can we expect to have a sustainable waste solution when we have an unsustainable population? If governments are serious about solving the waste problem, then they need to look at solving the more fundamental problem of unsustainable population growth. So, what is the COGG going to do to address the primary driver of waste production, human population growth?"

"Thanks for your comment. We need to be thinking about the waste system now and for the future. As a side note, the City has been doing some planning around sustainable urban growth, which you can see in our Settlement Strategy www.geelongaustralia.com.au/strategicplanning/documents/item/8d5b438a9620da8.aspx" (Geelong City Facilitator)

➔ Discussion thread (waste to energy)

"I think we need to add Waste to Energy options in here. There has been amazing advances in this area and energy can be created by using any unsorted rubbish as "Fuel" for the plant that generates Energy. It is simply collect the waste, shred it to a certain size and feed the plant - no flame, no emission, al by product can be used & clean energy. It is called Plasma Gasification. (http://www.phoenixenergy.com.au/plasma_gasification.php) If we used this type of technology there would no longer be a need for Landfill & produce much needed clean energy to make up for the current shortfall in supply. We could even remove all our buried landfill going a long way to stopping the awful effects of buried waste to our soil, air and water tables. I know Melbourne has a trial planned but I would like to see this trial implemented here also. Is this a consideration at all?"

"I also think that some form of waste to energy could be a consideration for unsorted waste."

"Thank you for your feedback and information. Waste has historically been sent to landfill, which is a linear model of resource use. As we move towards a circular economy and better resource recovery, there is leftover waste that we cannot recycle, compost or repurpose. Alternatives to landfill including waste to energy and other processes/technologies will need to be considered and explored for our future." (Geelong City Facilitator)

"Some W2E is a good idea but there are known issues with it too. For instance, after a short time it requires waste to feed it. It sucks up everything that can be provided and other disposal methods are not used. Reduction and re-cycling are better options but W2E demands that waste still be generated."

➔ **Discussion thread five (CoGG purchasing, community education)**

"All great words, and sustainable looking diagrams… And reading the discussion paper, which has some great points under what needs to be done...
- Yes, COGG need to look at their own waste and purchasing streams.
- Yes, there needs to be community education around "reducing waste in the home - with it's associated dot points".
BUT
This whole "we are doing it"; and perhaps "you should do it too" just doesn't wash; when there is portion of ratepayers who (say) put their bins out once a month and are directly subsidizing those households who manage to fill a bin every week, same with recycling AND the green bin. Until this inequality is addressed, you will not have a significant enough incentive for real reductions in the waste stream. What are peoples INCENTIVE to reduce their waste; when someone takes it away 'for free'? I know council charge for a 2nd red bin; which is great. But how about a reduction in rates, or coupons or something, for not putting out a bin? It's a discount - not a surcharge. This has been done in other councils around the world. Again, thanks for the opportunity for feedback... This topic has been on my mind for a while.

In our household; the red bin goes out once every 3 weeks (at most, and some people are much less than us); the recycling bin once a month, the green bin not at all - and we're on 1/4 acre, most of it gardens."

"Thanks for raising this good point on incentive to reduce waste." (Geelong City Facilitator)

➔ **Discussion thread (construction waste, container deposit legislation)**

"In my opinion residential waste is only the start of our waste problems. We have been in the middle of a housing construction boom which shows little signs of abating. Houses are on average larger than ever and of course, that means even greater waste. I know that some materials such as waffle pods, plaster board and even bricks can be turned into useful by-products. However, foam pods can also cause a huge environmental problem if not laid down and the unused picked up in a timely manner. I look at all that waste in builders skips and cages and realise it will eventually end up in landfill. People are still dumping in skips and on vacant blocks. Not only large items but even household waste. I've seen garbage bags full of cans that could have been reclaimed if we only had a CDS (container deposit scheme). Businesses that develop innovative ways of turning waste into useable products should be given as much support and encouragement as possible. People's attitudes aren't going to change any time soon. I see all the litter that is thrown around by tradies building houses and all the dumping and realize it is only by retrieving these resources on a large scale that will make any difference at all. I also volunteer at a charity op-shop and the amount of plastics and other rubbish that goes into landfill is mind-boggling."

"Thanks - we at the Barwon South West Waste & Resource Recovery Group do give support to innovative businesses - through help with grants, connections and advice. Construction waste continues to be a challenge but there are some great

options for businesses who want to do the right thing and recycle their construction & demolition waste. For more info contact our group via https://www.bswwrrg.vic.gov.au/contact-us/"

"Hi, thanks a lot for the good suggestions and feedback.
For the hard waste trial starting in April, our team are going to review how we can improve in delivering this new service, especially in promotion and communicating messages across. The City also works in collaboration with the Barwon South West Waste and Resource Recovery Group (State Government agency) to promote and encourage waste reduction and recovery across the region." (Geelong City Facilitator)

"Firstly, the hard rubbish pick-up starting in April is a great initiative and I hope it will be successful enough to continue into the future. Once it becomes an annual event, I'm sure it will take off. However, I'm disappointed that it hasn't been promoted enough. In the Curlewis area I've seen no evidence of flyers being dropped into letter boxes an no literature or posters at the Drysdale Customer Service Centre. Dumping continues as normal so the message isn't getting through. These types of people aren't going to seek out information on the Council's website etc. It's a case of out of sight out of mind. You're dealing with people who are blatantly committing a criminal act. Do you think they would be bothered to go to the transfer station to dispose of waste correctly? Much more advertising needs to be done in this area by Council. As stated in my initial comments, in my opinion, the problem needs to be tackled at landfill. Council should be supporting businesses that turn waste into useable products even more than ever. I know of a company (Mobius Material Recovery) that only a few builders use that recycles building waste. Perhaps council should be encouraging builders to use these services with incentives. Also, a ramped-up advertising campaign that informs residents where they can take their recyclable materials for FREE or at a reduced cost. Another possible way is to reduce the cost to residents who use the transfer stations/ tips with a voucher/vouchers which could be supplied when rate notices go out to residents. The cost in providing this service would be offset by the current cost incurred by sending out Local Laws Council officers to investigate and remove existing dumped materials."

"Hi, thanks for sharing your insight. How do you think the City can encourage or help people across the municipality to change?" (OurSay Moderator)

"Unfortunately, most of the trade rubbish, and plastic trash is really a byproduct of our consumer society... Maybe there could be a way of reducing trade waste with some sort of machine processing. Regarding dumping etc, the headlines are depressing...

- "But the director had quickly shut the company down and reopened under a different name, avoiding having to clean up the dump."
- "Lara tip operator abandons site, sets sail for Whitsundays"
- "FED-UP Torquay residents say a rubbish drop-off point has become an ... and asked if what people, if any, it had fined for illegal dumping in the past 12 months".

I've already offered suggestions for how to reward people for doing the right thing... but what is being done to prosecute people doing the wrong thing. People will change if you fine them large amounts of money. I mean, how hard is it to put a hidden camera at a popular dumping site, to get the comings and goings of illegal dumpers?"

➔ Discussion thread (school engagement)

"It seems to me that the key to ensuring compliance with waste management regulations into the future is to involve schools in a meaningful and ongoing way. Children are the future and are capable of changing the habits of a household by bringing ideas home from the classroom, such as starting a backyard worm farm or taking charge of the household recycling bin and questioning product-purchasing choices. Schools can be involved in speciality recycling programs such as Terracycle. Can the council encourage schools in the region to be more active in an ongoing waste-management education program?"

"This makes a lot of sense. As you said, children are our future. They can also be a great influence on their families. If children take home and share what they are learning in school about waste reduction and circular economy, their families may take it on board too."

"Hi, thanks for the feedback. The ResourceSmart Schools program is a free State Government initiative that helps schools embed sustainability including waste management in their curriculum and operations. They have tailored programs to give students the opportunity to learn about sustainability and waste management.
https://www.thefarmersplace.com.au/resourcesmart-schools" (Geelong City Facilitator)

➔ **Discussion thread (product design)**

"Thanks for this opportunity to comment. Could we include in the design aspects designing waste out of the production process and making products to ensure they are recycled at the end of life?

"Hi, thanks for participating in the online forum. It'd be great to have more smarter product designs with end of product life be considered in the first place. This also includes waste wise packaging designs. I believe the BSWWRRG and the City will continue to work with the industry on this design aspects. Changing the procurement model from buying/owning to sharing/renting is a great idea to consider. There are circumstances that are suitable for this model, such as hiring machines that we don't use frequently. E.g. the City has accumulated 12 month worth of asphalt spoils from road repairs, and we hired machine once a year to crush, mill and screen it to become recycled asphalt pavement product for reuse." (Geelong City Facilitator)

➔ **Discussion thread (sharing economy)**

"Has the Council considered other aspects of the Circular Economy such as opportunities to encourage sharing or renting products instead of buying and owning them?"

"It'd be great to have more smarter product designs with end of product life be considered in the first place. This also includes waste wise packaging designs. I believe the BSWWRRG and the City will continue to work with the industry on this design aspects. Changing the procurement model from buying/owning to sharing/renting is a great idea to consider. There are circumstances that are suitable for this model, such as hiring machines that we don't use frequently. E.g. the City has accumulated 12 month worth of asphalt spoils from road repairs, and we hired machine once a year to crush, mill and screen it to become recycled asphalt pavement product for reuse."

➔ **Discussion thread (reduce packaging)**

"While the discussion paper does talk about reducing waste by avoiding unnecessary packaging, more pressure by government needs to be placed on manufacturers so that this wast is not created to begin with. Better sorting of recyclable materials by householders would avoid contamination or the bins or recyclable going to landfill by mistake. A really comprehensive on-line list might help. It is pretty good already but could be more specific and offering alternatives. Even knowledge whether the lids should be left on or off plastic bottles might making sorting the waste easier. Let us know more about those fix-it cafes. Where are they, how do they work, what cost is involved to users?"

"Thanks for your feedback. I'm not sure if you have ever seen the City of Greater Geelong online recycling guide but I have found that it's a great resource. https://www.geelongaustralia.com.au/recycling/guide.aspx
Fix-it/repair cafes are run by volunteers who fix, repurpose and repair items for free that would otherwise be headed for landfill. I understand there are a number of fix-it/repair cafes operating in Geelong.
https://www.onecaregeelong.org.au/what-we-do/the-repair-cafe" (Geelong City Facilitator)

➔ Discussion thread (food waste collection)

"Hi. Thanks for the opportunity to participate and contribute to the forum/discussion. I notice there is a lot of food waste - generated by households and also chefs in cafes/restaurants with few having systems for food waste collection or disposal without adding to landfill. More community education and support/initiatives on food waste management at home/households could be helpful. I wonder whether it might be possible for some mechanisms/process to be established for chefs to link with local farmers/market gardeners for collection/use of food waste and coffee grounds for composting - to improve soil quality and nutrition content of food grown (and perhaps sold/supplied to cafes/restaurants and/or NGOs providing food for community groups - eg. homeless people, persons with a mental illness, aged care facilities, schools providing children's breakfasts). Another suggestion - surely someone could also develop an app for chefs to purchase seasonally available fresh produce from local farmers (that would otherwise go to waste - do not meet supermarket requirements) - reducing food miles and costs. Perhaps schools and the local TAFE could be assisted with grants/expertise to develop their own local closed loop for food waste management (cooking and gardening - composting systems)"

> "Thank you for your feedback, you've highlighted a number of important issues. Reducing the volumes of food waste going to landfill is an issue that the City of Greater Geelong is closely investigating and is one of the key focuses in developing our new waste and resource recovery strategy." (Geelong City Facilitator)

➔ Discussion thread (mending clothes)

"One of the principles the document says is a key part of a circular economy is long-lasting product design. While this sounds great, there are shops such as Kmart that have a cheap fashion (and cheap everything) business model. Despite clothes are cheap, they can still be repaired. How about a clothes mending/sewing course offered to people on Centrelink benefits. You could offer it to them as a money saving program. Helping people to learn how to mend clothes would reduce waste to landfill while teaching people a valuable life skill."

> Hi, thanks for your ideas and feedback. While I'm not aware of sewing courses being offered in the Geelong region I understand there are several fix-it/repair cafes that are run by volunteers who fix, repurpose and repair items for free (including clothing) that would otherwise be headed for landfill. This could be a great opportunity for members of the community to get introduced into clothing repair. (Geelong City Facilitator)

➔ Discussion thread (e-waste)

"One of the fastest sources of growth for landfill is E waste. Phones are a good example. Since people are motivated by money, why not have a cash for E waste scheme. Similar to a container deposit scheme."

> "Hi, that's a great idea and something that could definitely be expanded upon once the E-waste ban to landfill comes into effect on July 1st 2019." (Geelong City Facilitator)

➔ Discussion thread (avoid buying new)

"I think the simple truth is that people are motivated by money. We need to somehow find a way to discourage people buying new stuff, without causing a spike in unemployment, and without causing people in bad financial situations to suffer even more. I think the answer is to put a tax on sales of new items, but I can't see that going down well."

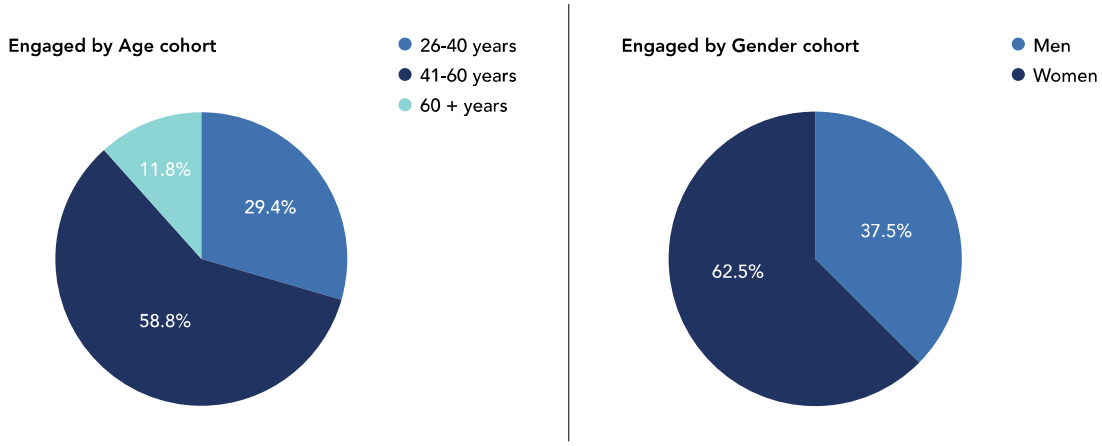
> Hi, thanks for your feedback. Does anyone else have any creative ideas on how we can reduce the amount of waste generated in the community? (OurSay Moderator)

2.5 WASTE DISPOSAL FORUM

Engagement Results

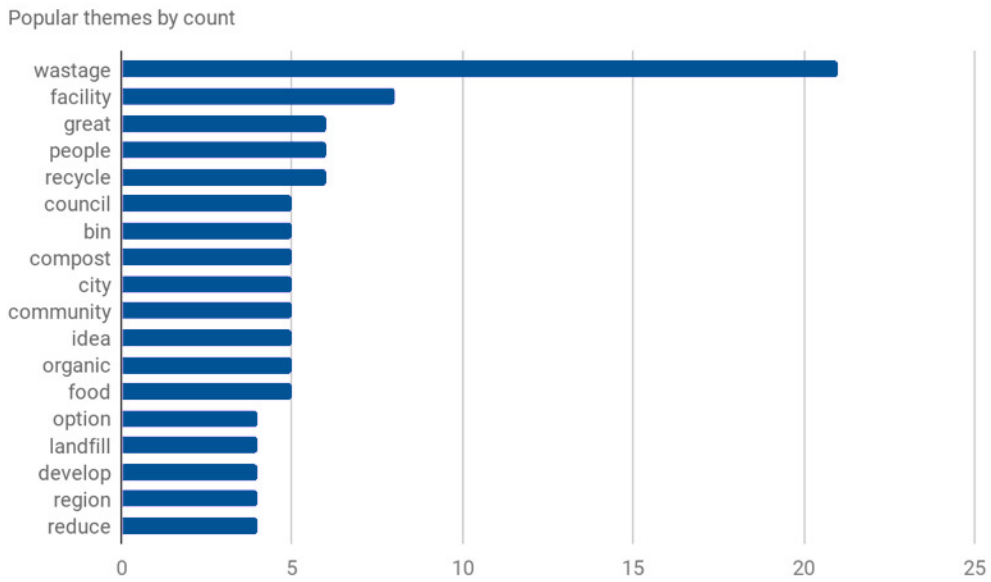
The Waste Disposal interactive discussion forum received:

- 64 unique visitors to forum
- 17 total people engaged
- 12 submissions
- 11 submission authors
- 33 comments
- 9 commenters
- 515 page views



Popular themes in discussion

Text analysis reveals the following popular themes by count across all the discussion threads:



Discussion Threads

➔ Discussion thread (single use products)

"The waste plan and community questions seem to be tackling the waste issue once it is created rather than looking at significant ways to reduce the amount in the first place. Stopping single use products would be the first target - what steps are CoGG taking to combat this issue?"

> "Great question. I support this 100%. We need to help everyone in the community understand to consume less of everything in the first place!"
>
> "Great point. The City is looking at two approaches here - one about managing residual waste, another about promoting a circular economy. A few people have shown interest in the "reduce" approach." (OurSay Moderator)
>
> "Hi, thanks a lot for your feedback. The City is developing a Plastic Wise Program this year to reduce the use of single-use plastics and to support waste reduction. We will also look into strategies in waste reduction and avoidance in first place when developing the waste strategy. Please let us know your thoughts and what you would like to see in the strategy." (Geelong City Facilitator)
>
> "I agree that we should be stopping the use of single use products. I am going to try and tackle it in my home with my family. My understanding is that CoGG can stop single use plastics in their organisation - but how can they stop people? the community? industries? businesses? companies that are responsible for making and using single use products? CoGG waste service has traditionally been solely responsible for collecting and disposing of the waste. My sense is that they don't have any control over what and quantity that gets placed in the bins. They have 100% control and can change their ways in what they use in the Council. A question I have is - how can the Council change what we (a resident) does, to consume and buy less and to put less or no waste in my bin? Some people might, I am curious as to how many people are willing to change their behaviour, pay more for their council rates to invest in new infrastructure...."
>
> > "Thanks for your feedback and question. You are right, the City alone cannot change individual's behaviour in waste generation. The City's education program and supporting infrastructure can help support our community to reduce waste and increase resource recovery. However everyone of us in the community can contribute to this change, collaborate and work together to reduce waste."(Geelong City Facilitator)
>
> "Definitely agree. Go for a proactive approach."

➔ Discussion thread (composting facility)

"What is the CoGG's plan to move towards Aerobic composting? If home composting is not affordable to households - eg buying a compost bin, worm farm etc, how can the council develop an Aerobic composting facility to provide this service to households?"

> "An important question! Any ideas on where we could locate a facility like this?"
>
> "Hi, the City has constructed a $3.5 million Garden Organics Composting Facility in Anakie to process household green waste collected at kerbside. The facility uses aerobic composting to turn garden organics into compost. The compost is used in parks and sports grounds as well as farm and agricultural land around the region. (This is an example of supporting Geelong's circular economy: local green waste, processing and reusing the recovered material locally) https://www.geelongaustralia.com.au/gardenorganics/news/item/8d69717e6e0eb41.aspx" (Geelong City Facilitator)
>
> > "Thanks for your answer. Is this facility able to be upgraded to also accommodate household organic (food) waste?"

"Hi, the composting facility has been planned and designed to allow for future upgrade to include food organics. The City will need to go through the EPA Works Approval and Planning Permit application processes, and invest in additional equipment to meet the food organics processing requirements. Our current operating licence issued by the EPA only allows garden organics.

We have heard from the Have Your Say survey that our community is supportive to a food organics collection. We will investigate our food organics diversion options when funding is available in 2019/20 budget. Unfortunately there is no facility available in the region to take the large amount of our organic waste (35-39,000 tonnes a year) we generate until this site is being upgraded." (Geelong City Facilitator)

➔ **Discussion thread (hard rubbish)**

"All great words... but it is stark contrast with what Council are currently doing, which is the absolute bare minimum. Take the new hard waste collection as case in point... It is extremely hard to find any information as to what actually happens to this hard waste, but it is buried in there somewhere, as though COGG is ashamed to admit that it is actually incapable of dealing with waste. Cancellations and service info:
"What happens to the hard waste? All recyclable material will be directed to recycling businesses. The hard waste that cannot be recycled will be sent to landfill".
This is NOT good enough.
Firstly there is direct discouragement of the community itself taking and re-using items, which I don't care what you say, is absolutely the most sustainable and low-cost way of re-using these items. You don't need to "encourage it"; you just need to let it happen.
2nd, there is no mention of ANY separation of 'useful' items, eg items that might suit the re-use or re-purpose mantra. Eg, what happens with old roof tiles, or pavers, or wood, or a nice plastic bucket without a recycle symbol, or a garden hose? These are items that should NOT be going to landfill.
There's a 'tip shop' out in North Geelong, but there used to be one at the Geelong tip in Fyansford but was removed... While this does a pretty good job of removing items for re-use, they probably only scratch the surface, and this program should be expanded upon in other locations. As long as items are cheap, people will absolutely support this service... not to mention create some extra jobs."

"Hi, thank you for your feedback. Our team will review how we can improve in delivering the new hard waste trial service, especially in communicating messages across. The City provides a recycling guide to help our community with kerbside recycling. Unfortunately items like garden hose cannot be recycled through our services at this stage until a recycling processor who can take this material is available.

https://www.geelongaustralia.com.au/recycling/guide.aspx

The Fyansford landfill is a privately owned and operated landfill that is not managed by the City. More recyclable items can be dropped off at the North Geelong and Drysdale Resource Recovery Centres." (Geelong City Facilitator)

➔ **Discussion thread (recycle education program)**

"As I understand it, one of the biggest issues with recycling is contamination - the wrong rubbish going in the wrong bin. Better separation at the start of the cycle improves outcomes throughout the process. While some people simply don't care, I believe that many don't know exactly what is acceptable or the importance of getting it right. Simple actions to educate people are easy/cheap to employ and could make a large difference. Both broad based methods, such as letter drops, or messages targeted at the non-compliant (if they can be identified) may well be quite effective."

"Hi, thanks for your feedback. The City has a bin audit program that inspect recycling and green waste bins. Educational stickers are placed on bins found to contain items that shouldn't be there. The program has led to a significant decrease in contamination levels in the bins inspected. https://www.geelongaustralia.com.au/news/item/8d4c9e096f5cac2.aspx" (Geelong City Facilitator)

"I would love to see households issued with stickers to apply to their household inside bins regarding what goes in what bin. I am the person who re-separates the rubbish in our house and it's not because no-one in the house wants to do the right thing, it's that their is quite a bit of confusion about what goes into what bins regarding recycling, soft plastics and rubbish."

"Thanks for the feedback.I know the State Government has allocated funding in 2019 for kerbside recycling campaign targeting the confusion. The City will continue with our education program and also build on this opportunity to support our community with recycling. The online recycling guide provides up-to-date information on what can and can't be recycled through the City's kerbside recycling service. https://www.geelongaustralia.com.au/recycling/guide.aspx" (Geelong City Facilitator)

➔ **Discussion thread (reuse waste)**

"Lets think BIG! Use the opportunity to create something amazing that reuses our waste! Creates jobs as well. the waste isn't going away. Of course we need better recycle options that are easy to use!"

"Hi, that's a great point and thanks for the feedback. From the previous Have Your Say survey, we received strong support from the community in exploring alternatives to landfill especially those reuse and recover our waste." (Geelong City Facilitator)

➔ **Discussion thread (wastage, facility)**

"Where does COGG plan to establish the new facility for dealing with waste?"

"Hi, the City is currently analysing survey feedback from the community and exploring ideas on future waste management. The new Waste and Resource Recovery Strategy will guide us to explore the future options, and will require further financial, environmental and social analysis before proposing a plan to invest in upgrading existing or establishing new facility. On a side note, the City has recently established a new Garden Organics Composting facility in Anakie to process our garden waste collected from kerbside green bins. https://www.geelongaustralia.com.au/news/item/8d69717e6e0eb41.aspx" (Geelong City Facilitator)

➔ **Discussion thread (business partnerships)**

"What are the opportunities for the City to join forces with business to process residual waste?"

"Hi, collaboration with the region, other councils and businesses is certainly the key for waste management solutions. We have heard from our community on the importance of waste minimisation and to reduce the amount of residual waste generated. A regional approach to tackle the remaining residual waste would be more viable with economies of scale. Does the BSW waste regional group have any plans to investigate this option for the region?" (Geelong City Facilitator)

"Thanks, yes that is a key part of our group's role in looking at the longer term needs of the region, whether it is recycling infrastructure or garden/food organics or residual waste (the latter depending on how the former are developed). We are certainly keen to provide that link with business and other councils."

"Thanks. The City certainly supports the BSW waste regional group to take leadership in planning for future waste infrastructure. It would be best to know the regional needs and transport logistics before getting business and technology companies involved." (Geelong City Facilitator)

➔ **Discussion thread (single use plastics, coffee cups)**

"Hi there! My biggest concern is the number of people actually joining in with the movement to reduce waste. I still see SO MANY people using take away coffee cups, asking for plastic bags in shops (especially our local fruit shop - plastic carry bags for all of their individually bagged fruit and veg items), buying the 15c "reusable" plastic bags at the supermarket (It's pretty easy to part with 15c every time you shop), and the list goes on. There is still a large "don't care" attitude and a reluctance to make changes. I have heard many times that it is "too hard". How can we work to change the attitudes of the masses?"

> "Hi, that's a very good point. It is certainly not easy but we have to persevere and lead by example (turn it to a norm in the society). I notice there is a subtle and gradual change in the Geelong community - more people are supporting bulk buy and there's a first rentable bowl option for takeaway in Geelong. The City will also continue to promote waste reduction options to our community. https://www.geelongaustralia.com.au/news/item/8d6b693f80a2963.aspx" (Geelong City Facilitator)
>
> > "Yes it is slowly changing. It would be good if the council could do something from their level as well. I'm not flush with ideas at the moment! Maybe an incentive? Could you explain this rentable bowl idea for me? Thank you"
> >
> > "Hi, the City is working on this change at all levels. E.g. we'll continue the education work to raise awareness, as well as improving our internal operations to reduce waste and improve recycling. We will continue to liaise with the State Government and advocate for more incentives and policy/legislations on waste reduction initiatives.
> >
> > Sorry I didn't explain the rentable bowl option before. I saw on social media that there's a café in Central Geelong (Belly Bowls) who has just introduced a stainless steel bowl option for their takeaway meals. People can 'rent a bowl' and return the container afterwards to avoid single used containers - this is a great move and hope we'll see more of these initiatives.
> >
> > The stainless steel bowl is by Returnr (https://returnr.co). You pay a deposit (around $5) and you basically get to keep the bowl and keep using it until it comes to the end of its life or you return it and get your deposit back. The lid is paper which can be recycled or composted." (Geelong City Facilitator)
> >
> > "Thank you for the details. It's a great initiative to reduce single use containers"
> >
> > "Oh this is a great idea!"
> >
> > "It was once the norm that food got wrapped in paper or that people took their own containers. I've found that in some shops this just isn't expected and they don't know how to deal with it. I'd like to see more education for food businesses to help encourage people to bring their own food safe containers to get their produce. Food safety concerns are valid, but better education can help encourage reduced single use items and higher use of reusable options. I also think that our lives have got too busy and the convenient option often wins out. It takes a little more thought to prepare to do a shop where you take your own containers, produce bags, etc."
> >
> > > "All very true! We have to try change our habits back around to what they used to be if we can. Food safety regulations play a HUGE role in food packaging and handling which will cause barriers to reducing single use plastic and wastage etc. In some good news, Shultz Organic Dairy is going to be offering reusable glass bottles for their milk. They've just started with their crowd funding customers and the local retailers that signed up will be getting their bottles soon too. I'm looking forward to being able to get my milk in glass again and return it to be reused!"

➔ **Discussion thread (compost collection)**

"A major source of waste is kitchen scraps. Many people are time poor, or merely not interested, and do not have a compost heap at home. Could the council organise a compost collection scheme, similar to the recycling and general waste bins that are collected currently? It could be a bucket with a lid that people keep in their kitchen and then on bin night, they put it out with their other bins, to be collected by council. Having a small bin in the kitchen makes it easy for otherwise uninterested or time poor people."

> "Hi, Thank you for your feedback, the City of Greater Geelong currently investigating our food organics diversion options. Food organics is a key waste stream that we are focusing on while we develop our new waste and resource recovery strategy." (Geelong City Facilitator)

➔ **Discussion thread (Council leadership)**

"The Geelong Council is the biggest council outside of Melbourne. It can take much more leadership in waste matters. There are many opportunities for it to be a leader and not wait for the slow moving state wide strategies to be formed over too many bureaucratic years. Plastic bags is a good example of moving forward but there are many more. Let's get on with it as a matter of greater urgency. Lets be more clever and creative, .. and decisive . Do you agree??"

> "Thank you for your feedback. I agree there is a fantastic opportunity for the City of Greater Geelong to take the lead on a number of waste related issues in the region. You mentioned plastic bags as a good example, are there other ideas that you can put forward where you would like to see more leadership from Council?
> I think it's also important to talk about some of the exciting things that Council are currently doing in the waste and resource recovery space. A great example of how Council have shown leadership in this area is the development of our garden organics processing facility in Lara. This facility has secured our ability to process the garden organic waste produced in the Geelong region while creating a fantastic end product. This is such an exciting facility and will allow the City of Greater Geelong to become a leader in organics processing across the region in the years ahead." (Geelong City Facilitator)

2.6 SUMMARY

Members of the circular economy discussion forum are supportive of more action in waste avoidance. Ideas for council are to work with schools, businesses and residents on direct action campaigns to reduce the amount of single use packaging, food and clothing produced across the municipality. Similarly, members of the waste disposal discussion forum are strongly supportive of more action on single use waste materials and exploring ways to encourage the community to reduce the volume of waste they dispose upstream.

Questions on food scraps and organic waste streams were raised during the forum. Challenges around increased capacity for composting residential wastes at scale were discussed. Members of the discussion would like practical options available to them to better manage these wastes, including a dedicated organics bin included in weekly waste collection. Members of the circular waste discussion forum raised the possibility of incorporating waste to energy option in the circular economy. As technology evolves for waste to energy options, this is seen as an opportunity to manage unsorted wastes.

People recognise waste avoidance requires a collaborative, community-based approach which changes attitudes and supports behaviour change. A number of positive case studies were highlighted. Further ideas relate to stronger education campaigns on co-mingled recycling, increasing opportunities for e-waste capture, procurement of more recyclable building materials, and advocating Federal and State governments to install container deposit legislation or other market incentives for reducing waste disposal.

2.7 RECOMMENDATIONS FOR STRATEGY DEVELOPMENT

Based on the online discussion the following recommendations are offered:

- Explore action to support the reuse and recycling of building materials. This includes developing strategies to encourage industry to utilise recyclable materials.
- Support opportunities to implement or enhance community driven repair and resale shops. Building on existing successes, these social enterprises may provide jobs repairing and upgrading electronics, furniture and other household items, while reducing waste at the same time
- Explore alternative waste technologies, for example waste to energy as a strategy for managing unsorted waste.
- Explore economic incentives to give residents and businesses economic reasons to reduce the amount of waste they dispose. Ensure this option coincides with investment in anti-dumping strategies.
- Offer stronger guidance on separating out anything that can be recycled, reused or composted before it is placed in residential bins.
- Consider organics collection or at home compost solutions to extract all organic matter from waste going to landfill.
- Explore community-based social marketing campaigns to change attitudes and support behaviour change within the community.

2. DRAFT STORMWATER SERVICES STRATEGY 2020-30

Source:	**City Services – Engineering Services, Infrastructure Planning**
Director:	**Guy Wilson-Browne**
Portfolio:	**Parks, Gardens and City Services**

Purpose

1. To seek Council's endorsement to release the Draft Stormwater Service Strategy 2020-30, (**Attachment 2**) for stakeholder and community engagement.

Background

2. The City's role in managing stormwater ensures equitable services associated with land use planning, responding to storm events, maintaining the drainage network, protecting local waterways and the marine environment, providing and maintaining public open space and recreation assets and protecting transport corridors.

3. The City's stormwater networks are valued at over $600 million and include approximately 1,900km of pipes, over 64,000 stormwater pits, over 300 retarding basins, 20 pump stations, over 150km of open stormwater drains, 5km of flood levees and over 150 Water Sensitive Urban Design (WSUD) assets including wetlands and swale drains.

4. It is estimated only 20% of urban areas have reliable flood intelligence, and less than 5% of the drainage network has recorded condition data. This limits the City's capacity to prepare for and respond to storm events, such as the heavy rainfall in 2017 which caused extensive overland flows and above-floor flooding in many buildings.

5. Significant and rapid change as a result of unprecedented rates of population growth and economic development over the next 10 years will see a consequential impact on stormwater systems with an expected 20% growth in the extent of the drainage network. In addition, climate change is challenging our existing stormwater systems which will be impacted by more intense storm events.

6. The development of a Stormwater Service Strategy (Strategy) will establish a 10 year approach to managing flooding, protecting the environment from stormwater pollution, and increasing stormwater reuse through adaptation and integration.

Key Matters

7. The Strategy identifies four "flagship projects" which bridge the gap in stormwater service performance across multiple service objectives. These projects will support and encourage advocacy and engagement with the community and stakeholders:

   7.1 The Northern Geelong Green Corridor Project;

   7.2 Waterproofing Urban Geelong;

   7.3 Lake Connewarre Protection Project; and

   7.4 Bellarine Peninsula Sustainable Water Project.

8. The Strategy supports a basic level of service funded from current rates and charges. Flagship projects, and extension of service (new and upgraded assets) or accelerated service delivery actions, are to be considered for funding via special rates and charges, development contributions, government grants, partnerships or other external sources.

9. A series of objectives have been established to address specific aspects of the Strategy's four goals which align with best practice for water sensitive cities in Australia. Each objective is measured to enable the City, and the community, to assess the extent to which objectives have been achieved.

10. Consultation with the general public will be open for approximately eight weeks to ensure a wide range of people are able to provide feedback on the draft strategy to inform the development of a final Stormwater Service Strategy and action plan (with resource and budget implications) which is scheduled to commence implementation from July 2020.

Cr Aitken moved, Cr Mason seconded -

11. That Council endorse the release of the Draft Stormwater Service Strategy 2020-30, for stakeholder and community engagement from January 2020 until March 2020 (8 weeks).

Carried.

Attachment 1

Financial Implications

1. The Stormwater Service Strategy forms part of a $200,000 project, supported by the Victorian Planning Authority (VPA) who have contributed $100,000 through the Streamlining for Growth program, recognising this project contributes to:

   1.1 Unblocking strategic planning projects;

   1.2 Accelerating the delivery of employment and residential land;

   1.3 Achieving employment growth; and

   1.4 Increasing housing choice and affordability.

2. Community engagement is estimated to be $15,000 and will be funded from the existing project budget.

3. The Strategy supports a basic level of service funded from current rates and charges. Flagship Projects, and extension of service or accelerated service delivery actions, are to be considered for funding via special rates and charges, development contributions, Government grants, partnerships or other external sources.

4. The final Strategy will include an action plan (with resource and budget implications) to commence implementation from July 2020.

Community Engagement

5. The project has been led by Engineering Services, with support from across internal departments involved in 1-to-1 sessions and four workshops:

   5.1 Internal Workshop 1, 30 April 2019 – service objectives;

   5.2 Internal Workshop 2, 30 May 2019 – prioritisation approach;

   5.3 Internal Workshop 3, 19 September 2019 – catchment opportunities; and

   5.4 Internal Workshop 4, 16 October 2019 – priority actions.

6. A number of external agencies have been informed of the Strategy development, and were referred information and invited to contribute at two workshops:

   6.1 Agency Workshop 1, 30 May 2019 – background and service objectives;

   6.2 Agency Workshop 2, 16 October 2019 – prioritisation approach and actions; and

   6.3 Agencies who been engaged during the Strategy development include:

      (a) Barwon Water;

      (b) Corangamite Catchment Management Authority (CCMA);

      (c) Deakin University;

      (d) Department of Environment Land Water and Planning (DELWP);

      (e) Environment Protection Authority (EPA) – Victoria;

      (f) Institute of Public Works Engineering Australasia (IPWEA) – Victoria;

      (g) Local Government – neighbouring Councils;

      (h) Local Government Infrastructure Design Association (LGIDA);

      (i) Melbourne Water;

(j) Urban Development Institute of Australia (UDIA) – Geelong Chapter;

(k) Southern Rural Water; and

(l) Stormwater Victoria.

7. Broader community engagement is planned through an exhibition and submission process following Council's endorsement to release the Strategy:

7.1 The community engagement will be undertaken for a period of approximately eight weeks, commencing in January 2020 to ensure all groups and individuals that wish to make comment will have the opportunity to do so;

7.2 The Strategy is written specifically for the community, and should enable the community to understand the range of stormwater services provided by the City, reflect on their service needs and provide feedback on the City's priorities; and

7.3 Following the engagement process, feedback will be collated, summarised and considered in the finalisation of the Stormwater Service Strategy to be presented to Council anticipated in June 2020.

Social Equity Considerations

8. The Strategy will establish a 'Service Planning Framework' for stormwater management which can recognise the varying service needs and be consistently applied across the municipality which:

8.1 Determine the purpose and desired outcomes of the service, in line with the City's strategic objectives;

8.2 Ensure services meet the requirements of relevant Federal and State Government legislation, regulations and frameworks, and are delivered consistent with the City's policies;

8.3 Determine the level of community need and standards for the service being delivered, and consider if changes are required to current service provision levels or if additional/different services are required;

8.4 Clarify the City's role in the service, determine if the City is the most appropriate and cost-effective agency to deliver the service, and identify the community's capacity to contribute to the services;

8.5 Consider, and as required seek, community/service user's feedback about the adequacy and satisfaction of services in responding to needs and expectations;

8.6 Assess and monitor the effectiveness, efficiency and quality of the service delivery model;

8.7 Identify service resource requirements for the longer term and consider what impact, if any, this will have on the City's long-term sustainability;

8.8 Consider, and if necessary take steps to manage risks and community impacts associated with delivering (or not delivering) the service; and

8.9 Ensure that services are being delivered in a responsible, prudent and cost effective manner, providing value for ratepayer money.

Policy/Legal/Statutory Implications

9. There are a number of acts, regulations, policies and plans that guide how we manage stormwater, and the City's role is not always clear.

10. The *Local Government Act (Vic) 1989* (Act) has the provision for the management and control of drains to Councils, however the Act provides no information about how this 'management and control' should be conducted.

11. Funding of stormwater, in particularly for new and upgrade works are likely to be reliant on special charge schemes and development contribution plans as prescribed in the Act and the *Planning and Environment Act (Vic) 1987* respectively to enable implementation of these services.

12. The State Environment Protection Policy (Waters of Victoria), plays a significant role in improving the environmental management of urban stormwater. The Environmental Protection Agency (EPA) are leading a review of the policy likely to include:

    12.1 Recognition that stormwater as a resource should be retained where it falls;

    12.2 Retention of the Best Practice Environmental Management guidelines as the main regulatory tool for new developments (consistent standard with Victorian Planning Provisions);

    12.3 The need to strengthen obligations for owners / managers of stormwater assets to maintain them for the purpose they were constructed (including a maintenance program) and ensure outfalls meet requirements of receiving waters; and

    12.4 Retention of the obligation for local government and partners to develop and implement stormwater management plans.

13. Water for Victoria is a strategic plan for management of water resources to ensure management of water to support a healthy environment, a prosperous economy and thriving communities is achieved. The Plan:

    13.1 Aims to meet the challenges of climate change and population growth, to ensure that water systems are efficient and innovative and make better use of alternative water resources – like recycled water and stormwater – to reduce the impact on our rivers and environment;

    13.2 Sets out better stormwater management for a healthy and resilient urban environments by supporting:

        (a) Improved stormwater management for greener environments and healthier waterways through green priority spaces for community health and wellbeing using stormwater and recycled water; and

        (b) Integrated water management through a new planning framework to guide the development of place-based integrated water management plans to provide integrated water services and support liveable and resilient urban places.

    13.3 The Victorian Government's Integrated Water Management Framework and regional initiatives are a starting point for agencies to collaborate on water related projects, but this does not cover all aspects of stormwater management.

Alignment to Council Plan

14. The *Council Plan 2018-22* has a number of strategic priorities that can be supported by the Stormwater Service Strategy, in particular:

    14.1 Planned sustainable development;

    14.2 Effective environmental management; and

    14.3 Organisational leadership, strategy and governance.

    14.4 Some key priorities include:

(a) Educate and assist our community to act on climate change, by reducing waste, emissions and water usage;

(b) Work with partners for an integrated water strategy for the Northern and Western Geelong Growth Areas;

(c) Support Barwon Water to deliver a regional Integrated Water Management Strategy;

(d) Improve the environmental performance of new developments using planning controls;

(e) Preserve nature reserves, rural and coastal environments; and

(f) Implement Council program of infrastructure upgrades including streets, roads and drains

Conflict of Interest

15. No Council officers or contractors who have provided advice in relation to this report have declared a conflict of interest regarding the matter under consideration.

Risk Assessment

16. The Stormwater Service Strategy is the foundation document for all the stormwater management practices and actions by the City, and will guide the improvement in response to many issues associated with:

16.1 Flood Risks:

(a) Heavy rainfall in the Geelong region in 2017 caused extensive overland flows and above-floor flooding in many buildings. Due to the significance of these events and the subsequent response required, many actions are still outstanding over 2 years later due to the need for flood investigations; and

(b) Investigations help to define the nature and extent of flood hazards, and it is estimated we have flood knowledge and mapping for only 20% of our urban areas. Completed investigations have identified opportunities to mitigate and reduce flood risk.

(c) Flood emergency planning has identified challenges related to:

1. Increasing number of basins with no water level monitoring equipment and ageing infrastructure;

2. 15 stormwater pump stations with no effective telemetry that allows for remote monitoring;

3. Two flood warning systems reliant on six stations;

4. A large number of flood-ways with no monitoring and in some cases no gauge boards or warning signs; and

5. More than 5km of flood levees (including protection of Barwon Heads) with no remote monitoring equipment.

16.2 Legislation Gaps and Agency Collaboration

(a) There are a number of acts, regulations, policies and plans that guide how we manage stormwater, and our role is not always clear. The Act has the provision for the management and control of drains to councils, however

the Act provides no information about how this 'management and control' should be conducted.

(b) The Victorian Government's Integrated Water Management Framework and regional initiatives are a starting point for agencies to collaborate on water related projects, but this does not cover all aspects of stormwater management.

16.3 City Growth and Development Coordination

(a) Our Settlement Strategy identifies that our close proximity to Melbourne, strong employment growth and affordable housing and lifestyle has seen the population grow over the last five years. During this time, the growth rate increased from 1.5%, to 2.7%, resulting in residential growth challenges such as:

1. Increased demand on the existing stormwater network;
2. Increased stormwater runoff, which can adversely impact waterways, if not managed properly; and
3. Increased number of assets in our network (estimated to increase by approximately 20% in the next five years).

(b) Historically, urban growth planning has occurred at a local level not necessarily assessing development in a coordinated way. This has led to multiple (and sometimes different) stormwater management strategies being implemented at the same time (as was demonstrated in parts of the Armstrong Creek Growth Area). The Settlement Strategy and Precinct Structure Plans (PSP) are intended to address these challenges in a more organised approach to whole-of-catchment planning.

16.4 Ageing Infrastructure and Budget Pressure

(a) Typically, drainage assets have a long-life, with some of the first pipelines constructed in Geelong in the late 19th century still be in service today. Our older, developed areas are at greatest risk of flooding because their drainage systems were built to standards no longer considered adequate.

In these areas, overland flows have not always been considered, and this has resulted in properties and buildings being built in active flow paths and hazardous flooding areas. Addressing this issue with new and upgraded drainage infrastructure is at best very expensive and, at worst, impractical and unfeasible.

(b) Our ability to fund renewal work is significantly impeded by the new and upgrade works required. Most of our annual $1.2 million renewal budget goes towards responding to customer requests, rather than addressing larger network issues. Our assessment of the annual renewal requirement is estimated to be between $3.5 million and $6.0 million, resulting in a significant 'renewal gap' and increased risk to service delivery.

(c) We spend annually over $2.5 million on operations and maintenance specific to stormwater infrastructure. This is less than 0.5% of the total replacement value of this infrastructure, whereas we spend over 1% or the total replacement value of roads on road operations and maintenance.

16.5 Asset Information

(a) We estimate we have mapped 90% of the drainage network, however the data is considered to have a relatively high number of inaccuracies. Less than 5% of the drainage network has recorded condition data and unlike roads and footpaths, our drainage network has never been subject to regular monitoring and review due to the majority being underground. We do not currently have any established asset performance related to the quality, function and capacity for service standards of our drainage assets.

16.6 Customer Experience

(a) We acknowledge that customers are frustrated with the progress being made on resolving flooding issues on their property, with a number of property owners feeling compelled to escalate their complaints with many feeling a great sense of anxiety every time heavy rain is forecast. We are regularly requested to respond to drainage complaints with advice indicating we are yet to start works or we have made limited progress – and the issue remains unresolved.

(b) In order for us to plan for works we prioritise the responses to drainage requests generally focusing on escalated, committed to, or properties with flooding above their floor level.

17. The City of Greater Stormwater Services Strategy establishes a 10-year approach to managing floods, protecting the environment from stormwater pollution, and increasing stormwater reuse through integrated water management. The strategy's mission is to:

17.1 "Lead the adaptation and integration of stormwater services to support the City's growth, health and liveability."

17.2 This mission is supported by four supporting goals:

(a) Goal 1: Foster healthy and resilient communities

(b) Goal 2: Support innovative and sustainable growth

(c) Goal 3: Enhance the natural and built environments

(d) Goal 4: Create positive community experiences

17.3 The goals are further supported by 14 best-practice objectives, targets and measures to guide us.

Environmental Implications

18. The Stormwater Services Strategy has a strong connection to the City's Climate Adaption Strategy and Environmental Management Strategy in that it will guide communities to be more resilient and adapt to the impacts of climate change.

18.1 Goal 3 to “Enhance built and natural environments” is intended support the integration of natural and built environments to create pleasant outdoor environments in parks, streets and gardens; protects and enhances bays and waterways, particularly those with international significance; supports conservation of drinking water supplies; and improves community health and wellbeing through urban cooling.

19. Service plans support the strategy as part of the service planning framework by documenting the technical assessments undertaken to inform the strategy on flood management, stormwater quality and integrated water management.

19.1 The Stormwater Quality Plan (2015) which forms part of this framework:

(a) Explores stormwater treatment opportunities, such as stormwater treatment wetlands within parks and retarding basins near waterways, streetscape opportunities and stormwater harvesting and implement those where the greatest progress can be made towards protecting high value waterways, wetlands and bays.

(b) Will be reviewed and amended following the adoption of the final Stormwater Service Strategy to reflect the levels of service and create a greater connection to waterway management and the Environmental Management Strategy.

Attachment 2

THE CITY OF
GREATER GEELONG

STORMWATER SERVICES STRATEGY 2020-30

DRAFT

CITY OF GREATER GEELONG

Contents

Executive summary **4**

Glossary **6**

Introduction **7**

Background to this strategy **8**

Challenges and opportunities **10**

How this strategy was developed **13**

Stormwater Services Strategy 2020–30 ..... **14**

How the strategy will be implemented **28**

Appendix A **31**

Appendix B **33**

Appendix C – Catchment management units **34**

Appendix D **92**

List of figures

Figure 1 – Projected population in 2036 under growth scenarios 10

Figure 2 – Projected areas of growth 10

Figure 3 –Image of a stormwater pond in the Geelong region 12

Figure 4 –Image of the Moorabool River 12

Table 5 – Links between *Stormwater Services Strategy 2020–30* and the clever and creative vision 14

Figure 6 – Image from Point Lonsdale 15

Figure 7 – High priority catchment management units ... 21

Figure 8 – Adaptive strategy delivery approach 25

Figure 9 – Strategy on a page 27

Figure 10 - Catchment management units 41

List of tables

Table 1 – Strategy objectives 16

Table 2 – Objectives used for prioritisation 20

Table 3 – Flagship project overview 23

Table 4 – Action plan years 0–2 (2021 to 2023).....29

Table 5 - Action plan years 2–5 (2023 to 2026) 29

Table 6 - Action plan years 6–10 (2026 to 2031).....30

Table 7 – Relationship with other strategies.....31

Table 8 – Datasets used for prioritisation.....33

Table 9 - Catchment management units and actions 34

Executive summary

The City of Greater Stormwater Services Strategy 2020–30 **establishes a 10-year approach to managing floods, protecting the environment from stormwater pollution, and increasing stormwater reuse through integrated water management. The overall aim is to support Geelong's growth, health and liveability.**

Stormwater management is involved in many different aspects of our work, including:

- land use planning
- responding to storm events
- maintaining the drainage network
- protecting local waterways and the marine environment
- providing and maintaining public open space and recreation assets and
- protecting transport corridors.

However, factors like our increasing population, a rapidly growing economy and climate change are putting increasing pressure on our stormwater systems. With these changes expected to continue for the foreseeable future, it is necessary to consider how we can best act on the challenges and opportunities the changes will continue to bring.

This strategy directly supports the delivery of the clever and creative vision – in particular, the community aspiration for 'sustainable development that supports population growth and protects the natural environment.'

Key elements of the strategy, outlined in more detail below, include:

- our four strategic goals that are linked closely with the clever and creative vision
- priority improvement actions that can be funded from existing rates and charges to achieve basic levels of service
- four flagship projects proposed for the north, east, south and centre of the municipality.

STRATEGIC GOALS AND OBJECTIVES

The strategy's mission is to:

"Lead the adaptation and integration of stormwater services to support the city's growth, health and liveability."

This mission is supported by four supporting goals:

Goal 1: Foster healthy and resilient communities

Goal 2: Support innovative and sustainable growth

Goal 3: Enhance the natural and built environments

Goal 4: Create positive community experiences

The goals are further supported by 14 best-practice objectives, targets and measures to guide us.

STRATEGIC ACTIONS AND OUTCOMES

The strategy recommends action across 25 catchment management units, which incorporate approximately 300 stormwater catchments. Planned improvements have been prioritised by comparing how well each catchment management unit is performing when compared to best-practice objectives. Proposed actions are designed to bring all catchment management units to a basic level of service over the coming 10 years, or create an agreed plan to achieve this level of service in cases where a more significant investment of time or money is required.

The strategy has also identifies four flagship projects for areas where multiple deficiencies have been identified in the system. The proposed flagship projects are:

- The Northern Geelong Green Corridor Project
- Lake Connewarre Protection Project
- Bellarine Peninsula Sustainable Water Project
- Water Proofing Urban Geelong.

Each of these projects will require us to develop partnerships and attract significant levels of funding to realise them.

STRATEGY DELIVERY

We will deliver the services and actions in the strategy predominantly through:

- infrastructure maintenance
- renewals
- investigation studies
- improved emergency warnings and
- building and planning controls.

Our plan is to fund basic levels of stormwater service using income from rates and charge. This is to make sure our service and actions in this area are financially sustainable. Flagship projects, and other more ambitious projects, will likely be funded via special charges, development contributions, government grants, partnerships or other external sources.

Local communities have been placed at the centre of the strategy, as they'll be involved in helping us to set acceptable levels of service and choose management options that work within our financial and other constraints.

The first two years of the strategy implementation will be critical to its long-term success and we will review this strategy every 5 years, or as circumstances require.

Glossary

Asset solutions: Stormwater management actions which involve the construction of long-lived physical assets.

Non-asset solutions: Solutions which do not require us to construct long-lived, physical assets in the urban environment – for example:

- applying building and planning controls to protect existing and future residents from flooding and
- creating better warning systems to notify the community about potentially damaging flood events.

Blue/green Infrastructure: Infrastructure incorporated in an urban area that uses natural systems to both support urban greening and manage stormwater

Catchment management unit: A collation of drainage catchments based on similar urban environments, hydrological catchments, risks, opportunities and discharge points.

Drainage system: The network of roads, kerbs, channels, pits, pipes, pumps, drains, retention basins and wetlands used to transport stormwater.

G21: Geelong Region Alliance (G21) a formal alliance of government, business and community organisations working together to improve the lives of people across five municipalities, including Greater Geelong

Improvement action: An action to be taken to resolve a risk or capture an opportunity identified in a catchment management unit.

Integrated water management: A collaborative way of working with communities and other organisations to plan for, and manage, all elements of the water cycle. This includes managing and protecting waterway and bay health, managing wastewater, alternative and potable water supply, managing stormwater and treating water. Planning in this way allows organisations to identify and deliver greater-value water cycle initiatives and improve liveability and resilience in cities and towns.

Level of service: The outcomes expected to be delivered from the delivery of stormwater services.

Ramsar: Refers to an International Convention on Wetlands that was signed in 1971, in Ramsar, Iran,

Water sensitive urban design: An approach to designing urban areas to make use of stormwater, and minimise the damaging impact of stormwater on rivers, creeks and Bays/Oceans.

Introduction

Stormwater is surface water run-off from rain and storm events that has entered the drainage system.[1]

Historically, stormwater management focused almost exclusively on drainage. Rainwater fell on roofs, roads and other impervious surfaces. It was then collected in pits and pipes and conveyed to lakes, streams, waterways, bays and oceans to minimise the impact this run-off had on homes, businesses and the environment.

Today, stormwater is seen as much more than just a hazard that should be conveyed to the nearest waterway. It is seen as a resource that, with careful management, can bring many benefits to the local community.

Stormwater services therefore include:

- understanding customer expectations about flood risk and control, environmental protection and water use in our urban environment.
- planning and controlling land use
- constructing infrastructure and performing maintenance and renewal works
- enhancing the sustainability of urban landscapes
- designing capacity and flexibility in stormwater systems that can keep pace with projected population growth and climate change
- preparing and recovering from flood events
- supporting the improvement of open space to provide healthier environments for the community
- fostering partnerships with other regional water managers, to make sure stormwater is used to its fullest potential
- maintaining and improving the health of receiving waterways.

As a local government, we are required to do all of this in the most cost-effective way and for the benefit of the whole community.

[1] Environment Protection Authority Victoria

Background to this strategy

In total, Geelong's drainage systems convey millions of litres of stormwater every year into local waterways, Bass Strait and Port Philip Bay.

The stormwater network we manage includes:

- approximately 1,900 km of pipes
- over 64,000 stormwater pits
- over 300 retarding basins
- 20 pump stations
- over 150 km of open stormwater drains
- 5 km of flood levees and
- over 150 water sensitive urban design assets, including wetlands and swale drains.

These assets have a total value of over $600 million. Laid end-on-end, our network of stormwater assets would stretch from Geelong to Alice Springs.

We manage stormwater in over 300 drainage catchments. For the purpose of this strategy, we've collated these drainage catchments into 25 catchment management units, each with similar characteristics and environmental sensitivities.

OUR LEGISLATIVE RESPONSIBILITIES

We are empowered by several pieces of legislation and regulation[2] to;

- make land use planning and development decisions
- establish emergency management plans, to help communities respond to and recover from flood events when they occur
- deliver and manage urban stormwater infrastructure and
- manage flooding on roads and open spaces.

This legislated authority gives us considerable scope to change the way stormwater is managed in our municipality.

Furthermore, unlike Melbourne's metropolitan councils, we are wholly responsible for stormwater services and the assets that deliver them.

RELEVANT STRATEGIES AND POLICIES

This strategy aligns with the community-led clever and creative vision, our *2018-22 Council Plan* and a range of other relevant strategies, including:

- *Environment Management Strategy*
- *Social Infrastructure Plan*
- *Open Space Strategy*
- *Integrated Comprehensive Transport Plan*
- *Settlement Strategy*
- *Biodiversity Strategy*
- *Urban Forest Strategy*
- *Climate Change Adaptation Strategy*
- *Customer Focus Strategy*
- *Geelong Play Strategy*
- *Greater Geelong Cycle Strategy*
- *Greater Geelong Physical Activity Strategy*.

It also links to regional strategies and priorities including:

- Victorian Planning Scheme
- Integrated Water Management Forum (Barwon) Strategic Directions Statement
- *Corangamite Regional Catchment Strategy*
- Geelong Region Alliance (G21) pillars (Sport and Recreation, Environment, Health and Wellbeing, Planning and Services)
- various best-practice guidelines endorsed by government and industry bodies.

More detail about this relationship is provided in Appendix A.

OUR PARTNERS

To deliver this strategy, we will partner with:

- **State and federal government** – to clarify our authority to deliver services and source additional funding.
- **Regional groups** – we'll work with groups, such as G21 and the Integrated Water Management Forum, asking

[2] Local Government Act 1989, Planning and Environment Act (1987), Environment Protection Act (1970), Water Act (1989), Building Act 1993, Emergency Management Act (2013), State Environment Protection Policy – Waters of Victoria, Victorian Infrastructure Plan, Victorian Water Plan, Integrated Water Management Framework for Victoria, Victorian Floodplain Management Strategy, Victorian Planning Provisions, Building Regulations (2006), Corangamite Floodplain Management Strategy,

them to support requests for external funding and provide governance structures.

- **Barwon Water –** as the government-owned statutory authority responsible for the supply of drinking and recycled water, we'll partner with Barwon Water on water reuse and irrigation initiatives.
- **Corangamite Catchment Management Authority** – as the authority responsible for waterway and land health, we'll work together on waterway enhancement and quality initiatives.
- **Community groups, developers and industry bodies** – we'll engage and partner with local groups who will influence the development and outcomes of the actions.

Challenges and opportunities

Underground drainage systems are expensive and, for practical and financial reasons, have limited capacity. As such, severe storm events can cause stormwater to exceed the capacity of the underground drainage network and flow overland to local creeks and rivers. This can sometimes lead to very damaging consequences, impacting homes, businesses and transport corridors.

While this is an ongoing challenge inherent in stormwater systems, there are also many other challenges (and opportunities) we need to consider in this strategy.

CHALLENGES

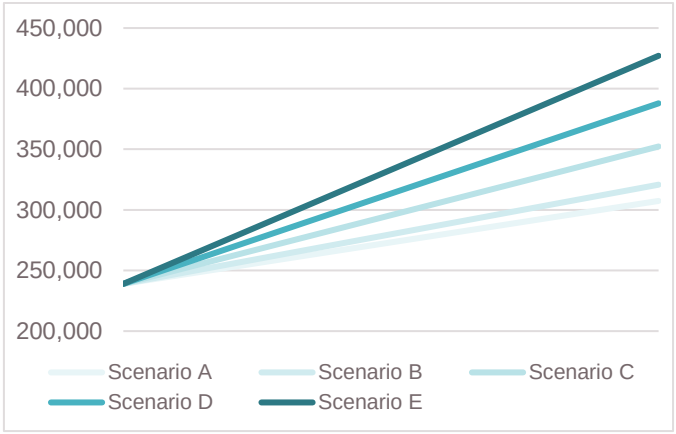
Growth and urban change

Greater Geelong's population has grown from 216,000 to 239,000 over the past 5 years, which is a growth rate of 2 per cent per year[3]. As Figure 3 shows, this elevated rate of growth is expected to continue, with population expected to rise to between 307,000 and 427,000 by 2036.

As urban environments become more intensely developed, total roof area increases, and so too does stormwater runoff. This level of population growth will therefore have consequences for our stormwater system.

In total, we're expecting the drainage network will grow at least 19 per cent, while water sensitive urban design assets will increase by 100 per cent.

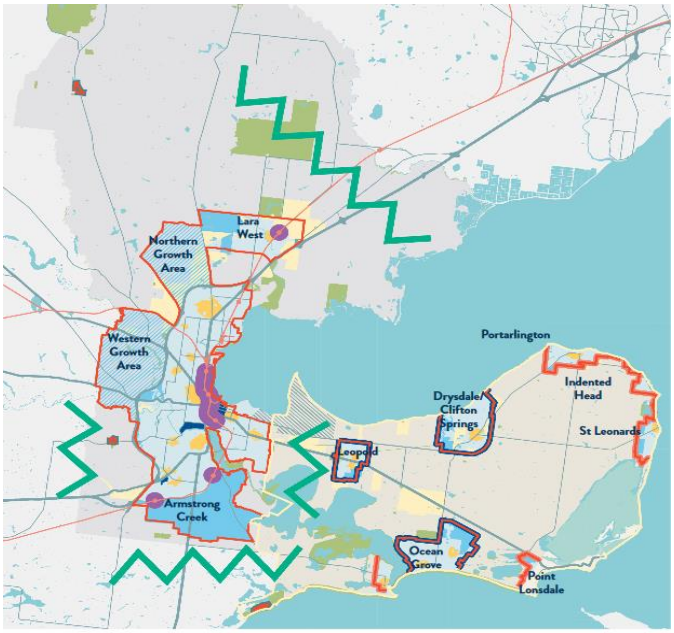
Figure 1 – Projected population in 2036 under growth scenarios



Source: Settlement Strategy 2018

As Figure 4 shows, this growth will be attained through a combination of infill development, within existing township boundaries, and greenfield development in Armstrong Creek and the Northern and Western Geelong Growth Areas.

Figure 2 – Projected areas of growth



Source: Settlement Strategy 2018

To successfully meet projected growth, we need to plan a stormwater system that can meet the demands of new and existing residents. Failure to do so may result in significant flooding, pollution, deterioration of urban amenity and significantly higher rates and charges.

[3] Settlement Strategy 2018

Climate change

Geelong's climate is expected to change significantly over the coming century. Predicted climate change impacts include:

- higher intensity storm events, causing higher peak flow rates within stormwater systems and bringing pollution from urban environments into sensitive waterways
- more extreme and frequent heat waves that result in higher urban temperatures, increased health risks and the a greater likelihood of blue-green algal blooms in water sensitive urban design infrastructure (such as vegetated swale drains)
- increased coastal erosion and inundation, due to sea level rise, potentially limiting the capacity of stormwater outfalls.

In effect, these changes will challenge our existing assumptions about the level of service we can be expect from our stormwater system.

To meet the challenge, we need to establish sustainable water strategies that can cool urban landscapes and minimise damage to landscapes and waterways.

An ageing asset base

Drainage assets are physical assets and, though they have a long lifespan, they're still prone to collapsing and becoming blocked, even with regular maintenance.

Much of Geelong's stormwater network was installed post-World War II. However, some assets date back to the 1800s, particularly in inner-urban areas. Drainage assets of this age can't always meet modern service demands.

The challenge for us is to understand our asset base well enough to complete renewals cost efficiently and before any critical assets fail.

Constrained funding

We derive a large proportion of our funding for stormwater services from residential rates and charges. However, income from rates and charges is used to fund everything from library services to childcare.

For some time now, there has been a gap in the investment required for renewing, maintaining and operating our stormwater system to meet a basic level of service. This is a critical constraint for our ageing asset network

Funding for stormwater services, in particular new works and upgrades to the network, are reliant on funding from government grants, rates and charges, or otherwise must be raised through development contribution plans and special charge schemes.

OPPORTUNITIES

Geelong: A water sensitive city

There has been a transformative change in global stormwater management practice over the last 20 years as cities have become more water sensitive4. At the same time, there is a growing expectation for urban landscapes to be leafy, green and include well-connected spaces. This creates an enormous opportunity to consider how we can make better use of stormwater within the urban environment to:

- create greener, healthier landscapes
- reduce demand on drinking water supplies and
- improve the health of waterways.

Bringing community to the centre of our service

There is a review of legislative arrangements regarding stormwater management at the moment. The aim of the review is to make sure stormwater managers are better enabled to deliver on community expectations.

We recognise there is a great opportunity for us to work more closely with the community to create a more responsive and accountable service. By doing this, we hope to change our day-to-day conversations from reactive ones – for example, when stormwater services don't meet expectations – to proactive ones.

Partnering opportunities

Stormwater managers are starting to think and act more holistically as they follow a global trend towards more water sensitive cities.

There are excellent opportunities to partner with regional water managers Barwon Water, Corangamite Catchment Management Authority and Melbourne Water to consider how we might work together to deliver whole-of-water-cycle services.

As stormwater passes through the control of multiple parties – including homeowners, councils and other authorities – it is currently difficult to define and control the rights and responsibilities of each party. By working with our partner organisations, we hope to both clarify our individual roles as defined by legislation, but also develop more inclusive decision-making frameworks that can account for competing objectives

[4] "Water Sensitive Cities" Brown (2009)

Speeding up strategic planning

Taking a more strategic approach to planning and delivering stormwater services can help to unblock delays in the strategic planning system. This in turn will speed up the delivery of projects that provide employment growth, as well as increased housing choice, diversity and affordability.

Creating more water resilient communities

The *Stormwater Services Strategy 2020–30* has a strong connection to both our *Climate Adaption Strategy* and *Environmental Management Strategy* in that it will guide communities to be more resilient and adapt to the impacts of climate change.

Leading by example

Australia already employs best practice guidelines for the quality of water discharged to waterways[5], and guidelines for modelling rainfall events[6]. But, as Victoria's largest non-metropolitan municipality, we have an opportunity to one day be an example for other local governments who are looking improve the way they manage their stormwater services.



Figure 3 –Image of a stormwater pond in the Geelong region



Figure 4 –Image of the Moorabool River

[5] Best Practice Environmental Management Guidelines 1999

[6] Australian Rainfall and Runoff (2019) Geosciences Australia

How this strategy was developed

We developed this strategy in four key phases, with the final phase – engaging with the community about the proposed actions – due to be complete in early 2020.

PHASE 1: DEVELOPMENT OF BEST PRACTICE OBJECTIVES

The field of stormwater management is rapidly evolving, so we looked at best practice examples from Victorian and Australian stormwater managers, as well as drawing on the experience of the Co-operative Research Centre for Water Sensitive Cities.

From this process, we developed four strategic goals and 14 objectives to form the basis for all subsequent service decisions.

PHASE 2: PRIORITISATION OF CATCHMENTS

We applied the objectives we developed in phase one to our 25 catchment management units. By working out the gap between current service levels and desired service levels, we then prioritised them – the larger the gap, the higher the priority.

The resulting prioritisation framework is designed to help us allocate available budget to the most critical stormwater services and associated infrastructure.

There was a lot of quantitative data available to inform the prioritisation, such as flooding, water quality, and tree canopy coverage data (see Appendix B for more information). However, not all data needed was available.

To fill the gaps, some subjective assessments were made by our own experts. In cases where that wasn't possible – for example, we were unable to assess the vulnerability of the road, rail and cycling networks to flood events – we have left these measures out of our prioritisation, with plans to add them in once the data becomes available.

For more information about this process, refer to page 20.

PHASE 3: STRATEGY DEVELOPMENT

The prioritisation exercise identified actions for each catchment management unit within the municipality. Generally, these actions were focused on:

- solutions – both asset and non-asset
- investigations – designed to confirm stormwater service risks and opportunities
- flagship projects – we identified several of these more complex projects, which require partnerships with regional water managers and, most likely, external funding and external oversight.

We then prepared an implementation plan to guide actions over the next 20 years, with a particular focus on the next five (until 2026).

PHASE 4: STAKEHOLDER ENGAGEMENT

We have already engaged with a range of external stakeholders about this strategy, including the Environment Protection Authority, Corangamite Catchment Management Authority, Barwon Water, the Department of Environment Land Water and Planning, neighbouring councils, and land development groups and associations.

The next step in the process will involve hosting a series of events to inform the community about what is planned for the future and better inform our recommendations.

Stormwater Services Strategy 2020–30

As Table 5 shows, the *Stormwater Services Strategy 2020–30* mission is directly linked to the 30-year vision described in *Greater Geelong: A Clever and Creative Future*. It describes how we'll work to support the city's growth, the health of residents and visitors, and sustainable development.

Table 5 – Links between *Stormwater Services Strategy 2020–30* and the clever and creative vision

STORMWATER SERVICES STRATEGY	GREATER GEELONG: A CLEVER AND CREATIVE FUTURE
Mission To lead the adaptation and integration of stormwater services to support the city's growth, health and liveability.	**Vision** By 2047, Greater Geelong will be internationally recognised as a clever and creative city-region that is forward looking, enterprising and adaptive, and cares for its people and environment.
Goal 1: Foster healthy and resilient communities A city that can: function without severe flooding that disrupts major transport routes, houses and businesses; supports healthy lifestyles by enhancing areas for outdoor activities; and help people to feel safe in all types of weather, by reducing overland flows of stormwater (where not by design) and urban temperatures in heatwaves.	**Linked community aspirations** • People feel safe wherever they are • A fast, reliable and connected transport network • An inclusive, diverse, healthy and socially connected community
Goal 2: Support innovative and sustainable growth A city where development in new and existing areas is catered for using innovative stormwater management approaches that are fit-for-purpose, and well-planned and delivered.	**Linked community aspirations** • Sustainable development that supports population growth and protects the natural environment • A leader in developing and adopting technology
Goal 3: Enhance built and natural environments A city where development: integrates natural and built environments to create pleasant outdoor environments in parks, streets and gardens; protects and enhances bays and waterways, particularly those with international significance; supports conservation of drinking water supplies; and improves community health and wellbeing through urban cooling.	**Linked community aspirations** • Development and implementation of sustainable solutions
Goal 4: Create positive community experiences A city that understands: community expectations for stormwater services; how to develop service options that are sustainable, equitable and transparent; and how to deliver best-practice approaches using a variety of funding models.	**Linked community aspiration** • Development of implementation of sustainable solutions

GOALS, OBJECTIVES AND MEASURES

To help deliver the goals, we've created a series of objectives that reflect the context we're operating in, as well as Australian best practice. While each objective is aligned with one goal in Table 1 (see page 18 onwards), some objectives may apply to multiple goals.



Figure 6 – Image from Point Lonsdale

For each objective, we've also created:

- measures – these help us assess how well we're tracking towards achieving each objective
- targets – this is what we believe we can reasonably expect to achieve within available resources and designated time periods.

Table 1 – Strategy objectives

Goal 1: Foster healthy and resilient communities

Objective	Context	Measure	Target
Reduce dangerous stormwater flooding, which impacts people, places and the environment, through adaptation programs.	Deep and/or fast-moving water (high hazard) can cause significant injury and damage to people, places and the environment. Stormwater assets may not remove or reduce all risks, but adaptation programs supported by information and education can help.	Extent of the municipality which has current and well-informed stormwater management plans.	Catchment management strategies are developed for all catchment management units before 2026, with ongoing implementation, monitoring and periodical review.
Support urban greening by applying integrated water management practices.	Urban environments with a higher proportion of urban forest (tree canopy) and green space maintain lower temperatures during extreme heat, reducing risk of heat-related illness and death in the community. Stormwater can support urban greening through practices, such as stormwater harvesting schemes.	Total area of tree coverage, open space and landscaping passively and/or actively irrigated with stormwater, in addition to another alternative water source.	Establish a target for tree coverage and green spaces supported by stormwater irrigation before 2026. This initiative will in turn help support the clever and creative vision of 25 per cent tree coverage.
Reduce demand on drinking water supplies through alternative water supplies.	Stormwater can be used in City-owned facilities and to support urban greening initiatives. However, the seasonality and variability of rainfall, and lack of water storage capacity in existing urban areas, does make it best used as a supplement to alternative water supplies – for example, recycled water.	Volume of drinking water replaced by stormwater to maintain urban forest and green spaces, as well as service City-owned facilities.	Twenty per cent of our water is sourced from alternative water sources, including stormwater, by 2031.
Integrate stormwater with natural and built environments to create multifunctional community spaces.	We want to create community spaces that encourage activity in all seasons, without compromising public safety. Stormwater can help, but only once we understand community expectations and maintain these assets in a safe way.	Number of recreation and public open spaces impacted by flooding that restricts access to buildings and other services.	All recreation and public open spaces already using stormwater, or with the potential to be maintained with alternative water use, are recognised in catchment management strategies before 2026.

Objective	Context	Measure	Target
Limit disruption to transport corridors caused by stormwater, and support access to places and services.	Stormwater over roads, pathways and community spaces can be very disruptive, restricting access to important places and services, such as hospitals and railway stations. This in turn can impact on community safety and can result in economic loss to both people and businesses. Including critical transport corridors in adaptation programs will mitigate the extent of these impacts.	Scale and duration of stormwater flooding impacting the local transport network.	All critical transport links – road, rail, cycling – and customers are identified, the risk of disruption understood, and mitigation actions identified in catchment management strategies before 2026.

Goal 2: Support innovative and sustainable growth

Objective	Context	Measure	Target
Implement whole-of-stormwater-catchment practices that respond to growth in existing and new urban environments.	Development in urban environments does not necessarily occur sequentially and can result in isolated changes to the stormwater catchment. By taking a whole-of-stormwater-catchment approach to the planning and delivery of stormwater services, it will enable us to identify all impacts and give us the opportunity to work more effectively with developers.	Extent of growth areas in existing and new development with whole-of-catchment management strategies in place.	Catchment management strategies identify active and known future development and are completed for all catchment management units before 2026.
Implement stormwater solutions that are financially sustainable and minimise cost to the community.	Stormwater solutions should align with best practice, take into account whole-of-life costs and optimise benefits to the environment and communities, at a reasonable cost. This can be achieved using well-established approaches, as well as by drawing on innovation and new technologies.	Cost to the community to provide services.	Funding for delivery of stormwater services is sourced from the City's rates and charges. Actions deliver the minimum service level and risk tolerance of communities noted in asset management plans before 2031. Investment decisions use an appropriate benefit/cost assessment.

Objective	Context	Measure	Target
Develop partnerships with governments, water corporations, key agencies, organisations and individuals, to plan and deliver stormwater solutions.	Collaboration, exploration, sharing knowledge and building collective capacity enables the most innovative, effective and sustainable water solutions to be implemented. Also, it puts us all in the best possible position to deliver on agreed outcomes.	Partnerships with governments, water corporations and other key agencies, organisations and individuals.	Consider the feasibility and benefits of establishing a formal sustainable water partnership with Barwon Water and the Corangamite Catchment Management Authority before 2026. Participate in legislative reviews to clarify and improve our authority to deliver actions by 2026.

Goal 3: Enhance built and natural environments

Objective	Context	Measure	Target
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Stormwater flows can bring high volumes of fast-moving water and pollutants into waterways. Assessing and mitigating the impacts urban environments have on waterways – for example erosion, gross pollution, nutrient pollution and flora/fauna degradation – will protect and enhance the health of these waterways.	Waterway Health Assessments completed through modelling or sampling, as appropriate.	Undertake water quality and flow monitoring for all catchment management units that are a priority for stormwater quality. Highlight those catchment management units that don't currently comply with best-practice targets in a relevant catchment management strategy before 2026.
Enhance biodiversity corridors through the effective management and reuse of stormwater.	A healthy natural environment relies on effectively-managed stormwater, either as irrigation for parks and gardens, or as inflows to natural waterways.	Number of integrated water management projects that benefit waterway quality or urban greening initiatives through the use of alternative water sources (supplemented by stormwater).	All catchment management strategies identify opportunities for integrated water management. Integrated water management plans are completed for all priority catchment management units before 2031.

Objective	Context	Measure	Target
Implement stormwater systems that can adapt to future needs.	It is unknown how well stormwater services will cope with future climate change and population growth. Trends suggest an increase in the variability and severity of extreme weather events, along with unprecedented rates of population growth. Stormwater systems must be able to manage these changes.	Long-term infrastructure demand is identified and included in adaptation programs.	Capital works programs are adopted for a minimum 10-year period, informed by asset management plans and included in our long-term financial plan before 2026. Long-term programs of works documented within catchment management strategies before 2026.

Goal 4: Create positive community experiences

Objective	Context	Measure	Target
Engage with community to inform them about how we deliver stormwater services.	An informed community is best placed to understand its needs and provide critical information that can shape how stormwater is managed.	Extent of engagement (and participation) with community on the delivery of stormwater services.	Undertake extensive community engagement on stormwater services at least every five years to support the development of future stormwater service strategies.
Enable communities to better prepare for, and recover from, stormwater events that lead to flooding.	Modern-day technologies make communities better able to prepare for forecast flooding events. We are well-prepared to work with emergency management groups, such as the SES, to support response and recovery.	Extent of preparedness for a stormwater event.	Incorporate capability to warn and recover from stormwater events in the *Municipal Emergency Management Plan* and flood emergency plans by 2026.
Establish a stormwater service framework which is transparent, equitable and sustainable.	Stormwater services require funding from a range of sources. To deliver a sustainable service, it is likely that rate revenue will underpin the ongoing (base) cost of the service, whereas user charges (Special Charge Schemes) and gifted assets from development will be a primary source of funding for new and upgraded services.	Stormwater service costs covered by rates, special charges, development contribution plans and gifted assets.	All adopted catchment management strategies identify new and upgraded infrastructure demand (scope and cost) and funding options (benefiting properties and apportioned cost) for high-priority projects before 2026.

PRIORITISING CATCHMENT MANAGEMENT UNITS

We have used pre-existing datasets to help us assess how well each catchment management unit currently meets the best-practice objectives set out in Table 1.

However, catchment management units could not be assessed against all objectives – either because the objectives were too generic, or can't yet be measured. Table 2 (below) therefore sets out the objectives used for the prioritisation process.

We believe we have sufficient data for the purposes of this strategy. But as we develop a better understanding of stormwater service performance and accrue more data, we expect this will further improve.

Table 2 – Objectives used for prioritisation

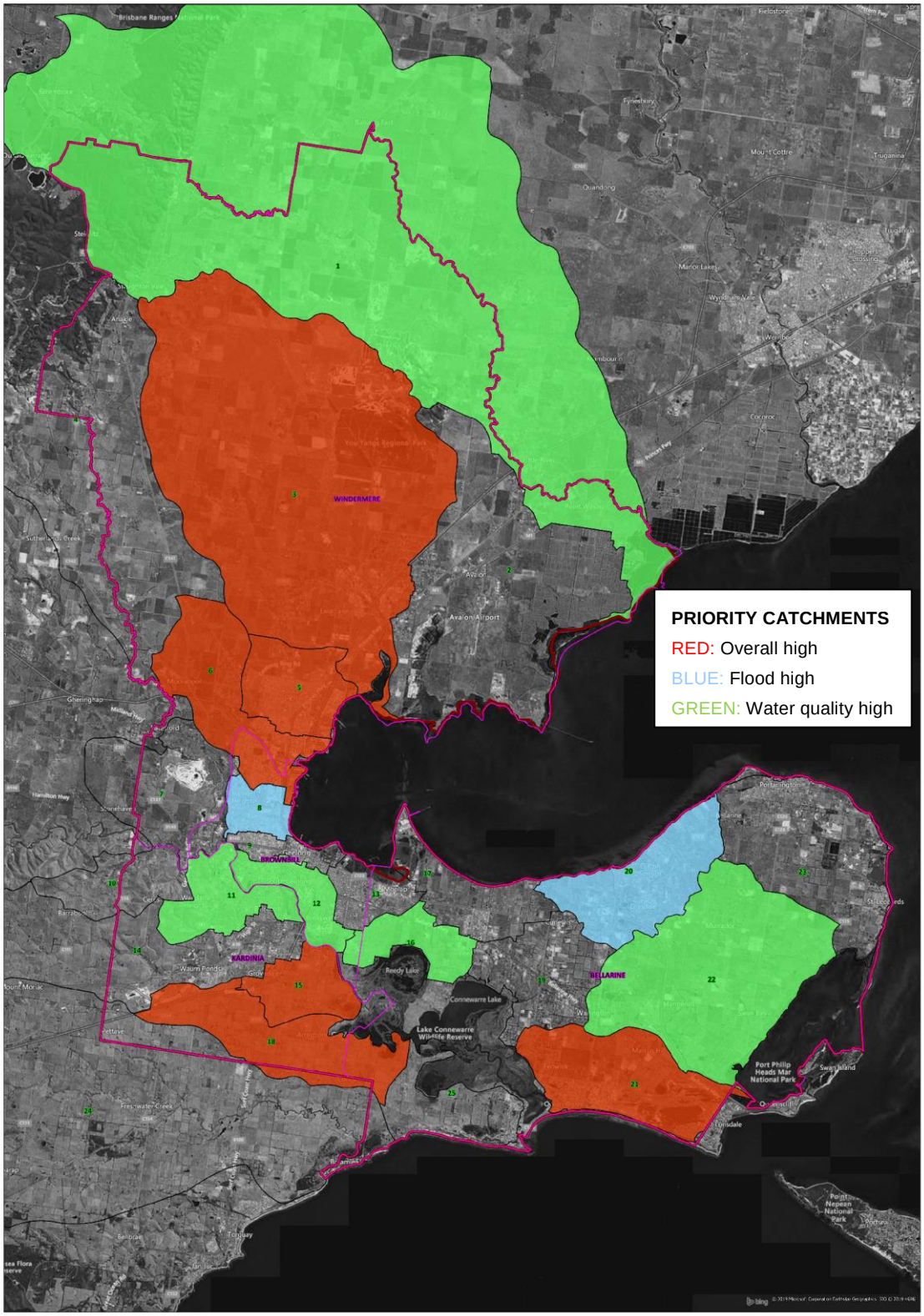
Objective
Reduce dangerous stormwater flooding, which impacts people, places and the environment, through adaptation programs.
Support urban greening by applying integrated water management practices.
Integrate stormwater with natural and built environments to create multifunctional community spaces.
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.
Implement whole-of-stormwater-catchment practices that respond to growth in existing and new urban environments.
Develop partnerships with governments, water corporations, key agencies, organisations and individuals, to plan and deliver stormwater solutions.
Implement stormwater systems that can adapt to future needs.

Emerging from the analysis of catchment management units was a series of priority catchments, which included:

- catchments with 'single' priorities, broadly related to managing flooding risk, waterway risk and integrated water management opportunities and
- catchments with 'multiple' priorities, which will require a concerted focus to improve performance across several objectives (flagship projects).

These priority catchment management units are highlighted in Figure 7. Flagship projects are also described in more detail below.

Figure 7 – High priority catchment management units



FLAGSHIP PROJECTS

The Northern Geelong Green Corridor Project – Northern Geelong (Norlane, Corio, Lara)

This area includes the degraded Cowies Creek. Combined with increased infill development currently occurring in established areas, development of the Northern Growth Area will bring further challenges by worsening existing flooding problems. Furthermore, the area has low tree canopy and open space coverage, increasing the risk of heat-related injury and death in heatwave conditions.

A significant opportunity exists to improve flood management, urban amenity and waterway health through the development of a nationally-significant project. This project would need to be managed in partnership with Barwon Water, Corangamite Catchment Management Authority and the Wadawurrung community, which has strong connections with Cowies Creek. It would also needed significant government funding.

Lake Connewarre Protection Project – South Geelong

Suburbs south of Geelong are known for flooding and are the source of waterway pollution in the lower sections of the Barwon River.

Further south, the urban areas of Armstrong Creek and Charlemont are complex developments which are rapidly expanding. While they've been designed to meet modern standards, they must be carefully managed to protect Lake Connewarre. Also, as new growth areas allow less space for gardens than older developments, there is a great need for effective street trees and irrigated open spaces to improve urban amenity during heatwaves.

By upgrading existing infrastructure in South Geelong and maintaining a close watch over new growth at the head of the Connewarre complex, we can make sure that environmental values are protected, and that urban amenity is maintained.

Bellarine Peninsula Sustainable Water Project

The Bellarine Peninsula is an area of outstanding natural beauty and tourism value. It is also has the potential to become the site of an ambitious regional integrated water management priority project, incorporating stormwater management that would:

- manage flooding and waterway problems
- improve biodiversity corridors
- improve tourism and economic outcomes
- improve urban amenity
- support regional agricultural activities
- reduce reliance on drinking water supplies and
- promote the unique identity of the Bellarine communities.

The project could also incorporate coastal inundation management, which will be required to manage rising sea levels and coastal erosion over time.

By working closely with the Corangamite Catchment Management Authority, Barwon Water, tourism operators and other regional partners, we could:

- reduce stormwater flooding at Ocean Grove and Clifton Springs
- better manage the quality of water entering Swan Bay and Port Philip Bay
- develop sustainable biodiversity, transport, and recreation corridors, which follow natural waterways between Bellarine communities, using stormwater and recycled water harvested from the region (this would also have tourism and economic benefits)
- establish high-quality public open space and green canopies, supported by harvested stormwater and recycled water, to reduce the impact of coastal inundation and erosion in existing communities.

This project would allow Bellarine communities to further express their unique identities and set the region on a path toward a future of sustainable water management.

Waterproofing Urban Geelong – Central Geelong, Geelong West, Rippleside

These inner urban suburbs of Geelong often do not meet contemporary standards for urban design and stormwater management. This has created areas that are significantly flood-prone.

By implementing new drainage assets, flood warning systems, better drainage maintenance and planning controls, this situation can be greatly improved. These solutions can also bring further benefits to the community by delivering improved blue/green infrastructure (see glossary).

Table 3 – Flagship project overview

Flagship Project	Risks and Opportunities	Proposed City Actions
Northern Geelong Green Corridor Project	Existing and worsening flood risk. Low tree canopy coverage. Degraded Cowies Creek has great potential to be improved for environmental and cultural reasons, and could promote connectivity between communities. Irrigation of passive open space, in addition to sporting areas.	Develop partnerships with Barwon Water, Corangamite Catchment Management Authority and the Wadawurrung community to develop a project steering committee. Engage with the community to understand project preferences and expectations. Develop a well-justified case to support applications for state and federal funding. Establish widespread street tree and understory planting and irrigation program, using harvested stormwater with recycled water backup, delivered via zero-emission trucks. Offer tree and plant 'give-away' to local schools to encourage the development of tree canopy in private gardens. Engage with Landcare, community and 'friends of' groups to support tree planting and revegetation. Complete significant flow and water quality upgrades to Cowies Creek, while improving walking trails and recreational facilities.
Lake Connewarre Protection Project	Highly sensitive, Ramsar-listed environment. Current development in Armstrong Creek and Charlemont requires a complex network of water sensitive urban design assets and drainage network. Existing urban development in South Geelong is known to contribute low-quality stormwater into the lower reaches of the Barwon River. Opportunity to transition from industrial to mixed-use development in Fyans Street precinct, incorporating best practice stormwater management.	Develop partnership with Corangamite Catchment Management Authority to understand the current health of Lake Connewarre. Monitor ongoing pollution levels and carry out audits to identify the source of pollution and stormwater flows. Maintain rigorous oversight of infrastructure delivery, with regular audits of progress and actions of developers.
Bellarine Peninsula Sustainable Water Project	Existing flood risk in several Bellarine communities – for example, Ocean Grove and Clifton Springs. Highly-sensitive, Ramsar-listed environments. Subject to coastal erosion and inundation, due to sea level rise.	Develop partnerships with Barwon Water and community groups to promote a regional integrated water management project that is comparable to other major integrated water management projects in Victoria. Engage with the community to understand project preferences and expectations. Develop a well-justified case to support applications for state and federal funding.

Flagship Project	Risks and Opportunities	Proposed City Actions
	Opportunities for individual communities to express their unique identity through innovative water management projects.	Plan and implement flood mitigation actions. Monitor ongoing pollution levels and carry out audits to locate the source. Develop biodiversity-rich transit corridors between Bellarine communities to improve connectivity and tourism in the region. These corridors could follow waterways and existing biodiversity corridors, with pedestrian, road, cycling and rail linkages. Deliver community-specific sustainable water projects that will enhance identity and promote resilience to flooding, coastal inundation and erosion.
Waterproofing Urban Geelong	Existing flooding of older areas of Geelong, Geelong West and Rippleside. Expected increase in flooding due to infill development, ageing assets and drainage system design which does not meet current needs.	Improve preventative asset maintenance and renewal to reduce our overall asset management cost and deliver community level of service expectations. Install blue/green infrastructure when drainage or roads are remade – for example, linear swale drains, biodiversity corridors and modified roads – to better convey stormwater flows and reduce flooding.

ACTIONS BY CATCHMENT MANAGEMENT UNIT

Notwithstanding the flagship projects identified, this is a strategy of practical measures designed to guide us to achieve basic levels of service for all catchment management units over the next 10 years. These actions have been summarised in Appendix C.

As mentioned, we also intend to spend the next five years working with the community to create strategies for managing each catchment management unit. These strategies will be the link between the *Stormwater Services Strategy 2020–30* and actions on the ground in local communities.

DELIVERING AN ADAPTIVE STRATEGY

The delivery of the recommended actions for each catchment management unit will rely on ongoing engagement with communities to:

- establish and manage desired service outcomes
- contribute to effective decision-making and
- develop successful partnerships that can help to attract the funding required.

The approach is summarised in Figure 8 below.

Figure 8 – Adaptive strategy delivery approach



Engage with and educate the community

Typically, we engage with the community during and after flooding events that impact the community in varying degrees. These conversations are often singular in focus and reactive. With this strategy, we hope to start more proactive conversations about why stormwater services are important, and how the community can benefit when services are considered holistically. At the very least, we will take more time to provide the community with valuable information on stormwater, which will hopefully promote better understanding and planning for events and changes.

Establish reasonable service outcomes

We currently manage stormwater services to comply with established standards, but these levels of service do not always meet community expectations. For example, current flood protection standards require us to protect infrastructure against a one-in-one-hundred-year event. This can be a difficult concept to explain to the general community, especially when a one-in-one-hundred-year event can happen several times in one year.

We think that working with communities to establish agreed service levels will bring better outcomes. In developing these agreed service levels, we will have an opportunity to:

- explain how stormwater services operate
- explain that services may vary by location and over time and
- discuss the finite resources we have available to deliver services.

Once a standard has been established, we can create technical standards that shape asset and non-asset solutions that are more easily understood by the community.

Identify and agree management solutions

A robust stormwater management approach contains both asset and non-asset solutions, and considers the costs and benefits of each solution. We will engage with communities about the management solutions proposed in each catchment management strategy to make sure we're achieving the best outcome for the funding available.

Fund and manage stormwater solutions

We have a large number of critical assets that we must manage and maintain at a level that supports sustained delivery of service over time.

We will establish and maintain asset management plans that can deliver on reasonably expected levels of service and inform an adaptation program that will deliver capital works, maintenance and operations within our available resources.

These asset management plans will:

- record expected levels of service, accounting for future changes in climate and development
- highlight the importance of systematic programming, funding and preventative maintenance to maintain services and meet community expectations
- use ongoing monitoring programs to demonstrate how well we're performing and our plan for the future.

We will work toward delivering a basic level of service that can be funded from rates and charges. This basic level would include asset renewal, maintenance and operations. We will be required to draw on funding from other areas – for example, government agencies, developers and users – in cases where we have to go above and beyond a basic level of service. This funding might include grants, special charge schemes, development contribution plans, fees and charges.

Reviewing performance

We will regularly review our performance in delivering catchment management strategies. More information about this process will be known once the catchment management strategies are developed.

OUR STRATEGY ON A PAGE

Our *Stormwater Services Strategy 2020–30* operates in collaboration with many other city policies and strategies, and has multiple elements. These are illustrated in in Figure 9.

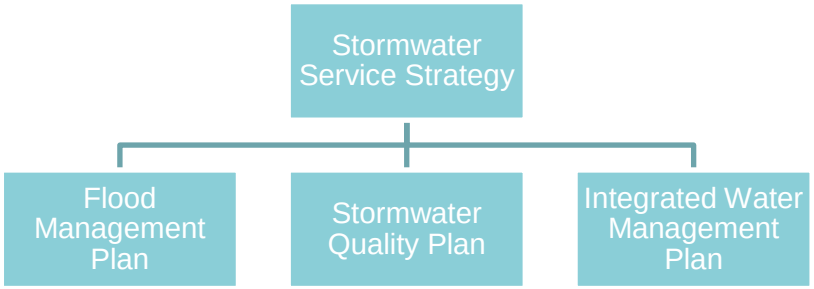
Figure 9 – Strategy on a page

Clever & Creative Vision

- City of Greater Geelong, major strategies (i.e. Environmental Management Strategy, Settlement Strategy, Social Infrastructure Plan, Climate Change Adaptation Strategy, Integrated Comprehensive Transport Plan)

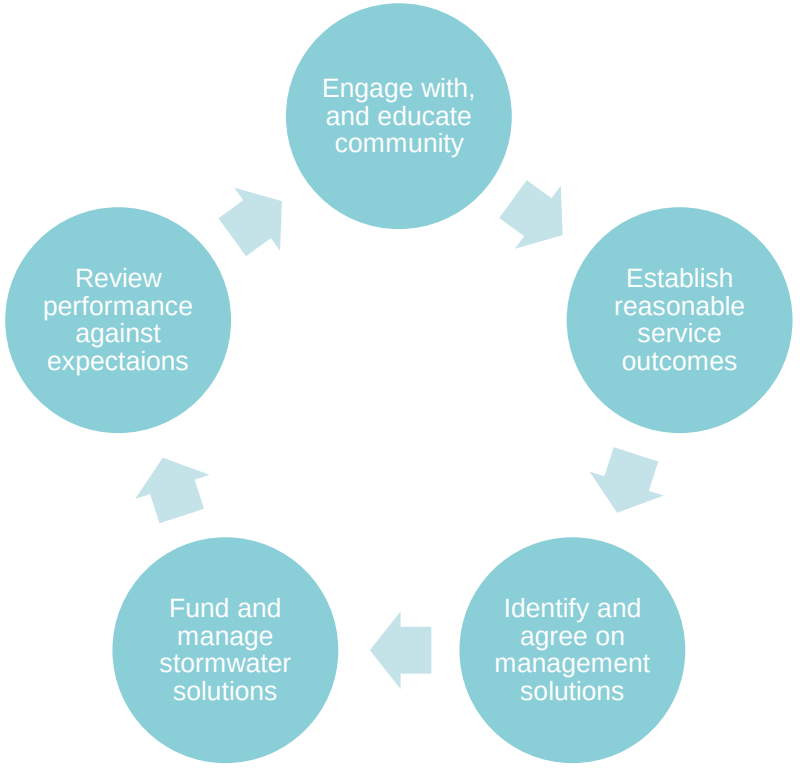
Stormwater Service Strategy Mission

- Catchment Management Strategies, Flood Management Plan, Stormwater Quality Plan, Barwon Region Integrated Water Management Strategic Directions Statement



Delivery Management

- Fund Services from current rates and charges, unless services "above and beyond" warrant special charges
- Deliver agreed actions
- Seek to bring all Catchment Management Units to a basic level of service within 10 years (as agreed with communities)
- Maintain a shared understanding of actions and outcomes with the community



Asset Management Plans

Long Term Financial Plan

Council Plan

How the strategy will be implemented

To fully implement this strategy, we must apply a consistent and focused effort over many years.

The Stormwater Service Strategy is considered a major strategy under our strategic governance framework, and directly supports the clever and creative vision.

It is an overarching strategy that will inform asset management planning, community engagement, settlement strategies and so on. It will also influence how funding from rates and charges will be allocated.

Once each catchment management strategy is developed, it will influence the following service plans:

- ***Flood Management Plan 2013*** **(currently under review)**

  With the aim of supporting a resilient community that is safe, prepared and informed, this plan will assemble river and stormwater flooding knowledge from relevant agencies to plan, develop and deliver best-practice flood management.

- ***Stormwater Quality Plan 2015***

  The aim of this plan is to implement stormwater treatment into areas where the greatest gains can be made for high-value waterways, wetlands and bays.

  The plan explores treatment options, such as stormwater treatment wetlands within parks, retarding basins near waterways, streetscape treatments and stormwater harvesting.

  A review of this plan is scheduled for 2020, as part of its evolution into a waterway management plan.

- **Integrated water management plan (date to be determined)**

  This plan will describe an integrated and collaborative approach to water planning and management that considers all facets of the water cycle, including water supply, waste water, surface water, groundwater and stormwater.

  Managing these aspects together can result in better and more cost-effective outcomes, bringing together organisations with an interest in all aspects of the water cycle.

STRATEGY UPDATE

We will review the *Stormwater Services Strategy 2020–30* every 5 years to ensure it remains up-to-date, accounts for community expectations and stays up-to-date with best practice for stormwater management.

KEY ACTIONS

Table 4, 5 and 6 (below) set out key actions we hope to achieve by 2031. Catchment management unit are described in more detail in Appendix C.

Table 4 – Action plan years 0–2 (2021 to 2023)

Action	Outcome
Prepare the strategy delivery approach and complete a trial on the Lara, Ocean Grove and Little River catchment management units.	Levels of service will be developed and tested with these communities, then committed to through the adoption of catchment management strategies.
Complete an integrated water management plan to support the *Stormwater Services Strategy 2020–30.*	Our approach to delivering integrated water management will be clarified and communicated with key stakeholders.
Prepare catchment management strategies for high-priority catchment management units, as identified in Figure 8.	The detailed approach to managing services in priority catchments will be established.
Scope flagship projects and prepare proposal for Council endorsement, as per actions listed in Table 3.	Flagship projects will be scoped and funding opportunities identified.
Establish partnership with Barwon Water and Corangamite Catchment Management Authority.	The partnership between water managers in Greater Geelong will be drafted and executed.
Prepare asset management plans to support basic levels of service in priority catchment management units identified in Figure 8.	Asset management approach and funding clarified.
Influence legislative changes.	Our authority, as well as that of our regional water partners, will be clarified. This will enable us to deliver improved stormwater and integrated water management outcomes across the community.

Table 5 - Action plan years 2–5 (2023 to 2026)

Action	Outcome
Expand the strategy delivery approach to the remaining catchment management units.	Delivery and engagement approach proven in all catchment management units, including the development and adoption of catchment management strategies.
Complete catchment management strategies.	All communities aware of our approach to managing their closest catchment management unit.
Commence advocacy for flagship projects	High-profile projects are well-defined and understood by communities, while necessary partnerships and funding will be sought.

Action	Outcome
Review asset management plans in all remaining catchment management units.	Asset management approach and funding clarified, with updated information from completed catchment management strategies, including development and adoption of long-term capital works programs and non-asset solutions.

Table 6 - Action plan years 6–10 (2026 to 2031)

Action	Outcome
Update the stormwater services strategy in 2026.	Targets and actions updated. Catchment management unit priorities updated to account for additional knowledge acquired.
Continue delivery of priority actions, including flagship projects.	Basic level of service delivered to all communities by 2031.

Appendix A

Table 7 – Relationship with other strategies

Strategy	Relationship with *Stormwater Services Strategy 2020–30*
City Strategies	
Environment Management Strategy	The Environment Management Strategy includes strategic priorities relating to enhanced natural areas and ecosystem health and sustainable urban and rural development
Social Infrastructure Plan	The Social Infrastructure Plan covers the planning, investment and delivery of social infrastructure including parks and playgrounds which provide amenity
Open Space Strategy	The Open Space Strategy establishes the extent and quality of existing open space and sets out future actions. The use of stormwater in these spaces can increase the quality of the space and support health lifestyles
Integrated Comprehensive Transport Plan	The Integrated Comprehensive Transport Plan sets out the actions for the planning, development and management of the City's transport system. A critical component of transport planning is the management of stormwater flows
Settlement Strategy	The Settlement Strategy provides the planning framework to deliver growth within the City, ensuring development is planned and delivered appropriately
Biodiversity Strategy	The Biodiversity Strategy outlines the status of biodiversity in Geelong and required future monitoring, review and actions to manage the protection of conservation areas and vegetation
Urban Forest Strategy	The Urban Forest Strategy focuses on enhancing the public and private tree population throughout the City. There are opportunities for stormwater reuse to support tree canopy coverage
Climate Change Adaptation Strategy	The Climate Change Adaptation Strategy support the City to develop responses under a range of possible climate futures. The possible impacts of climate change must be considered when planning for stormwater
Customer Focus Strategy	The Customer Focus Strategy sets to shared vision for customer service across the City with a priority for the City to be a customer focused organisation. An important element of the *Stormwater Services Strategy 2020–30* is community engagement to ensure services meet customer and community expectations
Geelong Play Strategy	The Geelong Play Strategy plans for the provision of well located, well designed and accessible play spaces across the City, providing increased amenity and supporting health lifestyles
Greater Geelong Cycle Strategy	The Greater Geelong Cycle Strategy provides guidance on expanding the City's cycle network and encouraging cycling as a means of transport. Stormwater flows over paths can create access restrictions and can impact safety
Greater Geelong Physical Activity Strategy	The Greater Geelong Physical Activity Strategy focuses on identifying cost effective opportunities that are likely to increase people's on-going participation in physical

Strategy	Relationship with *Stormwater Services Strategy 2020–30*
	activity. Stormwater can support urban design that encourages activity and comfortable open public areas
Regional Strategies and Priorities	
Victorian Planning Scheme	The Victoria Planning Scheme sets out the objectives, policies and provisions for the use, development and protection of land. The scheme regulates the use and development of land. Where known, this prevents or manages development in areas that are flood prone.
Integrated Water Management Forum (Barwon) Strategic Directions Statement	The Integrated Water Management Forum provides the opportunity to progress water cycle planning and management within the Barwon region through collaboration with Barwon Water and the CCMA.
Corangamite Regional Catchment Strategy	The Corangamite Regional Catchment Strategy provides a plan for natural resource management within the region. Stormwater flows can impact on waterway health, the *Stormwater Services Strategy 2020–30* seeks to protect and even enhance the health of waterways through mitigating the impacts of stormwater flows
Geelong Region Alliance (G21) pillars (Sport and Recreation, Environment, Health and Wellbeing, Planning and Services)	The G21 pillars foster community wellbeing, protect and enhance our environment and ensure sustainable development within the G21 region. The pillars include projects to support the objectives of the G21 Geelong Regional Plan – A Sustainable Growth Strategy'.

Appendix B

Table 8 – Datasets used for prioritisation

Dataset	Description	Theme
Request for Service Dataset	A record of reported flooding across the city.	Flood Management
Rate of recent development	Number and location of new dwellings across the City	Flood Management
Future Flood Potential	An assessment made by Engineering Services experts on which areas are prone to future flooding due to topography, expected growth and existing asset capacity	Flood Management
Knowledge of Catchment flooding risk	The current status of knowledge regarding capability of existing drainage networks to manage flood flows	Flood Management
Existing development's capability to impact receiving waterways	An analysis of the nature of existing urban development, and its potential to cause pollution in receiving waterways	Waterway Management
Sensitivity of receiving waterways	An assessment of the quality and sensitivity of receiving waterways	Waterway Management
Tree Canopy Coverage	A measurement of the canopy coverage across the City	Integrated Water Management
Open Space Availability	A measurement of the number and quality of open spaces available to the community for recreational purposes	Integrated Water Management
Integrated Water Management Opportunities	Identified priority sites for IWM actions (created by the IWM Forum)	Integrated Water Management
Biodiversity Value	Identified priority sites of biodiversity value which could be protected or enhanced by stormwater management actions	Integrated Water Management

Appendix C – Catchment management units

OVERVIEW

We have established 25 catchment management units, and completed an assessment against the Strategy's Objectives.

The extent to which the City is currently meeting its objectives is indicated by a Priority Rating of "High", "Medium" and "Low". The larger the gap between current performance and the objective, the higher the priority for action. The allocation of the priority rating is a relative score across the City. A "Low" score does not mean that a problem or opportunity does not exist. Rather, it implies that there are other areas of the City where the gaps in basic levels of services are greater, i.e. problems are worse, or opportunities for improvement are greater.

The type and priority of action has directed the recommended actions for each catchment management unit.

The name and location of each catchment management unit is set out below in Table 9, and illustrated in Figure 10. The overall prioritisation score for each catchment management unit in Table 9 is colour coded:

Priority	Colour Coding
Low	
Medium	
High	

Table 9 - Catchment management units and actions

Catchment Management Unit	Overall Assessment "Score"	Location	Priority Assessment
Little River	Low	The catchment management unit of Little River is located in the north of the City's service area, and generally includes the suburbs of Little River, Balliang and Staughton Vale.	The City has assigned a high priority for the management of water quality in this Management Unit. The City's knowledge of waterway risks is limited and investigation and engagement with Melbourne Water is required to understand actual risk.
Avalon	Low	The catchment management unit of Avalon is located in the north east of the City's service area, and generally includes the suburbs of Avalon and Point Wilson, sections of Little River and Lara and the Avalon Airport.	No priority actions identified. Catchment will be monitored for changes.

Catchment Management Unit	Overall Assessment "Score"	Location	Priority Assessment
Lara / Hovells Creek	High	The catchment management unit of Lara / Hovells Creek is located in the north of the City's service area, and generally includes the suburb of Lara and sections of Little River, Anakie and Lovely Banks.	The City has assigned a high priority for the management of water quality. The City's knowledge of waterways is currently limited, and investigation/partnership with CCMA is required to understand and monitor actual risk. There is a high priority for flood management to manage existing risk and the impacts of future development. Following the 2018 Flood study, flooding risks are now better understood, so solutions can be developed over the coming years which account for current service shortfalls and future catchment changes. Opportunities for IWM have been identified and will be explored as part of solutions for Waterways, Flooding or improvement in urban amenity.
Sutherland Creek	Low	The catchment management unit of Sutherland Creek is located in the north west of the City's service area, and generally includes the suburbs of Anakie and Lovely Banks.	No priority actions identified. The City will monitor the catchment for change.
Corio	High	The catchment management unit of Corio is located towards the north of the City's service area, and generally includes the suburb of Corio	The City has assigned a high priority to improve IWM actions in the Management Unit, including through increased tree canopy coverage and irrigated open space. The management of flooding risk is a high priority given current flooding performance and expected future growth in the Management Unit. The City's understanding of flooding risk will be enhanced through flood modelling.
Cowies Creek	High	The catchment management unit of Cowies Creek is located towards the north of the City's service area, and generally includes the suburbs of North Shore, North Geelong, Bell Park, Bell Post Hill, Lovely Banks and Moorabool.	Improved management of water quality is considered to be a high priority in this catchment management unit. Additional investigations will be conducted with partners to improve knowledge of water quality risk. Flood management is considered to be a high priority given current levels of flooding and the potential for future problems due to additional growth. The City's understanding of flooding risk will be enhanced through flood modelling. Significant opportunities exist for integrated water management outcomes to be delivered. These may include increasing tree canopy coverage and improving the irrigation of open space.

Catchment Management Unit	Overall Assessment "Score"	Location	Priority Assessment
			Furthermore, opportunities exist to link integrated water management improvements with improved cultural values, through partnership with the Wadawurrung community.
Fyansford	Medium	The catchment management unit of Fyansford is located towards the north west of the City's service area, and generally includes the suburb of Fyansford and part of Batesford	The City will prioritise an effective planning process, implementation of building controls and appropriate, timely, delivery of stormwater assets in this growth catchment management unit.
Rippleside	Medium	The catchment management unit of Rippleside is located in the central area the City's service area, and generally includes the suburbs Rippleside, Drumcondra, Geelong West, Herne Hill, Manifold Heights and Hamlyn Heights.	The catchment management unit has an existing flooding risk that is being investigated through a flood study (2019). This is expected to yield a number of improvement actions such as changes to planning overlays and/or development of assets in and around the Saleyards precinct in North Geelong. These actions should provide flexibility for future catchment changes as growth continues.
Central Geelong	Medium	The catchment management unit of Central Geelong is located within the central area the City's service area, and generally includes the suburbs of Geelong and parts of Newtown and Geelong West.	The City has a medium priority for flood management in the area, with actions underway to manage historical flooding issues. Given the highly urbanized character of the management Unit, the City will establish IWM actions which can be implemented when opportunities arise.
Ceres North	Low	The catchment management unit of Ceres North is located towards the west of the City's service area, and generally includes the suburb of Ceres.	There is no history of flooding or growth expected to require the City to take action to better understand the catchment. The City will continue to monitor changes in the Management Unit.
Highton	Medium	The catchment management unit of Highton is located within the central area the City's service area, and generally includes the suburbs of Highton, Wandana Heights and Belmont.	The catchment management unit of Highton drains into the Barwon River, which in turn flows into Lake Connewarre. Existing knowledge of water quality outcomes will be improved to better understand risks to this sensitive environment. Flooding risks require ongoing management, but these risks are well understood. Several high criticality retention basins located within the catchment require review.

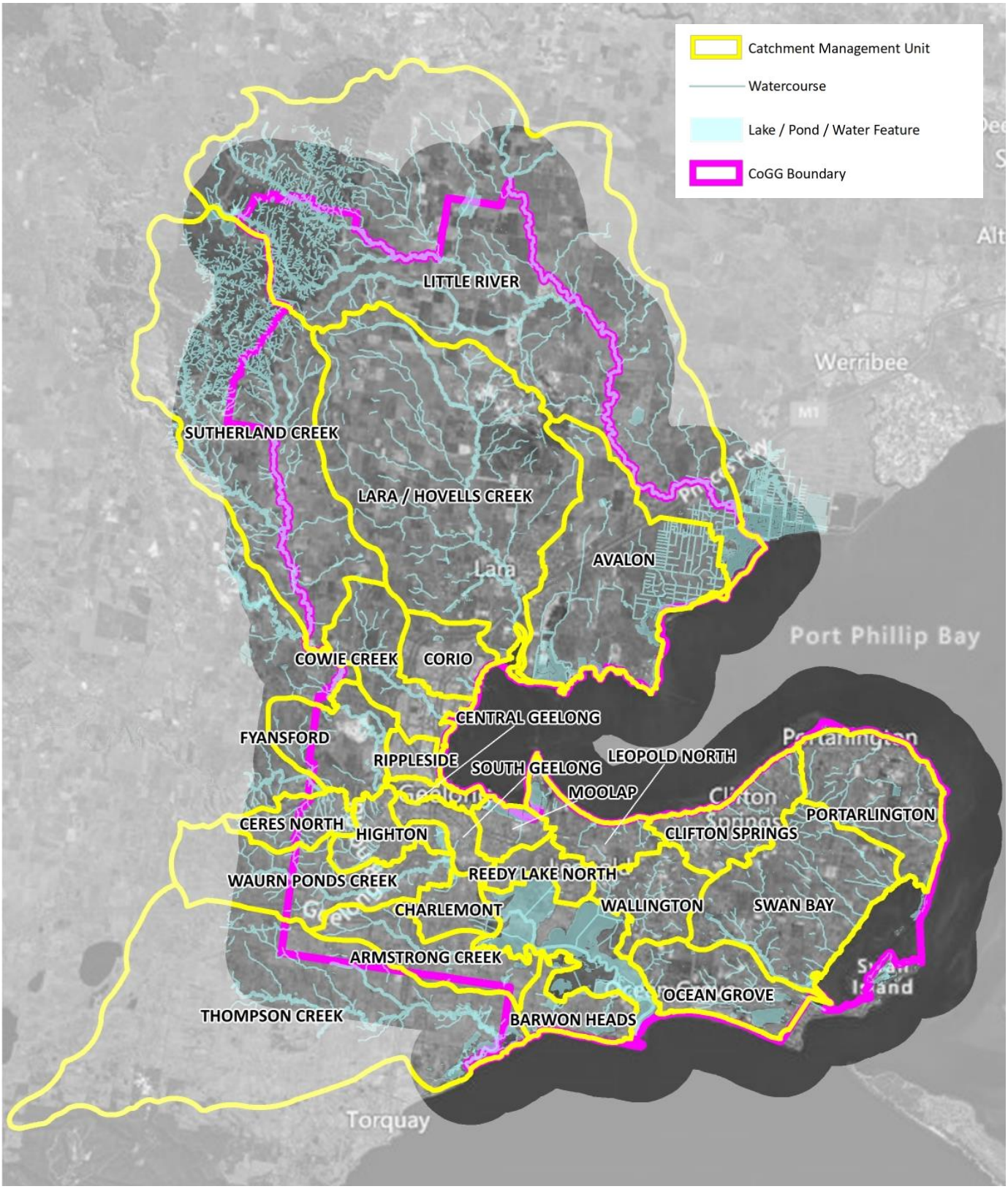
Catchment Management Unit	Overall Assessment "Score"	Location	Priority Assessment
			IWM opportunities have been identified within the catchment and will be explored as part of Waterway and Flooding works
South Geelong	Medium	The catchment management unit of South Geelong is located within the central area the City's service area, and generally includes the suburbs of South Geelong, Newtown, Breakwater and Thompson.	The catchment management unit of South Geelong drains into the Barwon River, which in turn flows into Lake Connewarre. Existing knowledge of waterway outcomes will be improved to better understand risks to this sensitive environment. Flooding risks require ongoing management, but these risks are well understood.
Moolap	Medium	The catchment management unit of Moolap is located within the central area the City's service area, and generally includes the suburbs of Moolap, Newcomb and Whittington	The City has assigned a medium priority to continue to monitor water quality from the catchment, given the sensitivity of the receiving environment. The City places a high priority on the exploration of IWM opportunities through partnership projects within the catchment
Waurn Ponds	Medium	The catchment management unit of Waurn Ponds Creek is located towards the south and west of the City's service area, and generally includes the suburbs of Waurn Ponds and Grovedale.	The City has a medium priority to explore and deliver IWM opportunities. The City has a medium priority on actions to manage flooding, with emphasis to be placed on mitigating localised flooding issues.
Charlemont	High	The catchment management unit of Charlemont is located towards the south of the City's service area, and generally includes the suburbs of Charlemont and Marshall.	The catchment management unit of Charlemont drains into the Lake Connewarre system. Consequently, the City places a high priority on understanding and managing water quality in this Management Unit. Additional investigation / partnerships will improve understanding of waterway risks. The management of flooding is a high priority due to the flat topography and future urban development of the area. Current knowledge of flood risk is limited. Significant opportunities for IWM actions to be delivered as Charlemont develops. These will be particularly important to manage urban heating through tree canopy coverage in an area where residential garden space is expected to be less than in older residential areas of Geelong.

Catchment Management Unit	Overall Assessment "Score"	Location	Priority Assessment
Reedy Lake North	Medium	The catchment management unit of Reedy Lake North is located in towards the east of the City's service area, and generally includes sections of the suburbs of St Albans Park, Moolap and Leopold.	The City has assigned a high priority assessment for the management of water quality in this Management Unit. This will involve partnerships and ongoing water quality investigations. A medium priority is assigned to implement IWM actions, and integrate stormwater into urban environments, which may include some irrigation of existing open space and delivery of identified IWM priorities
Leopold North	Low	The catchment management unit of Leopold North is located in towards the east of the City's service area, and generally includes the suburbs of Leopold and parts of Moolap and Curlewis	The catchment management unit of Leopold generally exhibits low priority for action by the City. Ongoing monitoring of stormwater service performance and rates of growth will occur over time.
Armstrong Creek	High	The catchment management unit of Armstrong Creek is located in the west of the City's service area, and generally includes the suburbs of Armstrong Creek, Mount Duneed and Connewarre.	The catchment management unit of Armstrong Creek is planned and constructed to modern standards. Nevertheless, it is considered a high priority to ensure that the systems and assets (including Sparrovale wetlands) are installed correctly and in a timely fashion to protect water quality outcomes for Lake Connewarre. Managing flooding issues are a medium priority for the City, ensuring that assets are installed as designed to protect existing residents from the impacts of future development.
Wallington	Low	The catchment management unit of Wallington is located in the east of the City's service area, and generally includes parts of the suburbs of Wallington, Leopold and Curlewis.	The City has assigned a high priority to identifying and delivering opportunities to integrate stormwater into the towns of the Bellarine. Otherwise, the City will maintain an ongoing monitoring of stormwater services performance.
Clifton Springs	Low	The catchment management unit of Clifton Springs is located in the east of the City's service area, and generally includes the suburbs of Clifton Springs and Drysdale.	Managing flooding risk in the Clifton Springs catchment management unit is considered to be a high priority for the City, particularly given expected future growth in the community. This includes the development of asset and non-asset solutions, for example a formal drainage system and building overlays.

Catchment Management Unit	Overall Assessment "Score"	Location	Priority Assessment
Ocean Grove	High	The catchment management unit of Ocean Grove is located in the east of the City's service area, and generally includes the suburbs of Ocean Grove and parts of Wallington, Point Lonsdale and Marcus Hill.	The City considers it a high priority to understand and manage water quality from the Ocean Grove catchment management unit Existing and expected additional future flooding issues, exacerbated by future growth make a focus on flood management a priority. Furthermore, the City's understanding of flooding risk should be updated Some opportunities identified to deliver improved IWM outcomes through irrigation of open space and development of biodiversity corridors (as part of the Flagship program for the Bellarine)
Swan Bay	Medium	The catchment management unit of Swan Bay is located in the east of the City's service area, and generally includes the suburbs of Swan Bay and Mannerim and parts of Drysdale and St Leonards.	The City has assigned a high priority for the ongoing management of water quality into Swan Bay.
Portarlington	Low	The catchment management unit of Portarlington is located in the east of the City's service area, and generally includes the suburbs of Portarlington, Indented Head and St Leonards	No priority actions identified. The City will monitor the catchment for change.
Thomson Creek	Low	The catchment management unit of Thompson Creek is located in the south west of the City's service area, and generally includes the suburbs of Breamlea and Mount Duneed.	No priority actions identified. The City will monitor the catchment for change.
Barwon Heads	Medium	The catchment management unit of Barwon Heads is located in the south of the City's service area, and generally includes the suburbs of Barwon Heads and Connewarre.	The City will explore the creation of multifunctional assets for the catchment management unit of Barwon Heads. These are likely to be opportunistic if/when they occur. No other actions identified, other than ensuring that existing stormwater assets such as pumps and levies are maintained appropriately. The impacts of coastal inundation and erosion may increase risk in the catchment management unit. Consequently,

Catchment Management Unit	Overall Assessment "Score"	Location	Priority Assessment
			the City will monitor the catchment management unit for change and service performance.

Figure 10 - Catchment management units

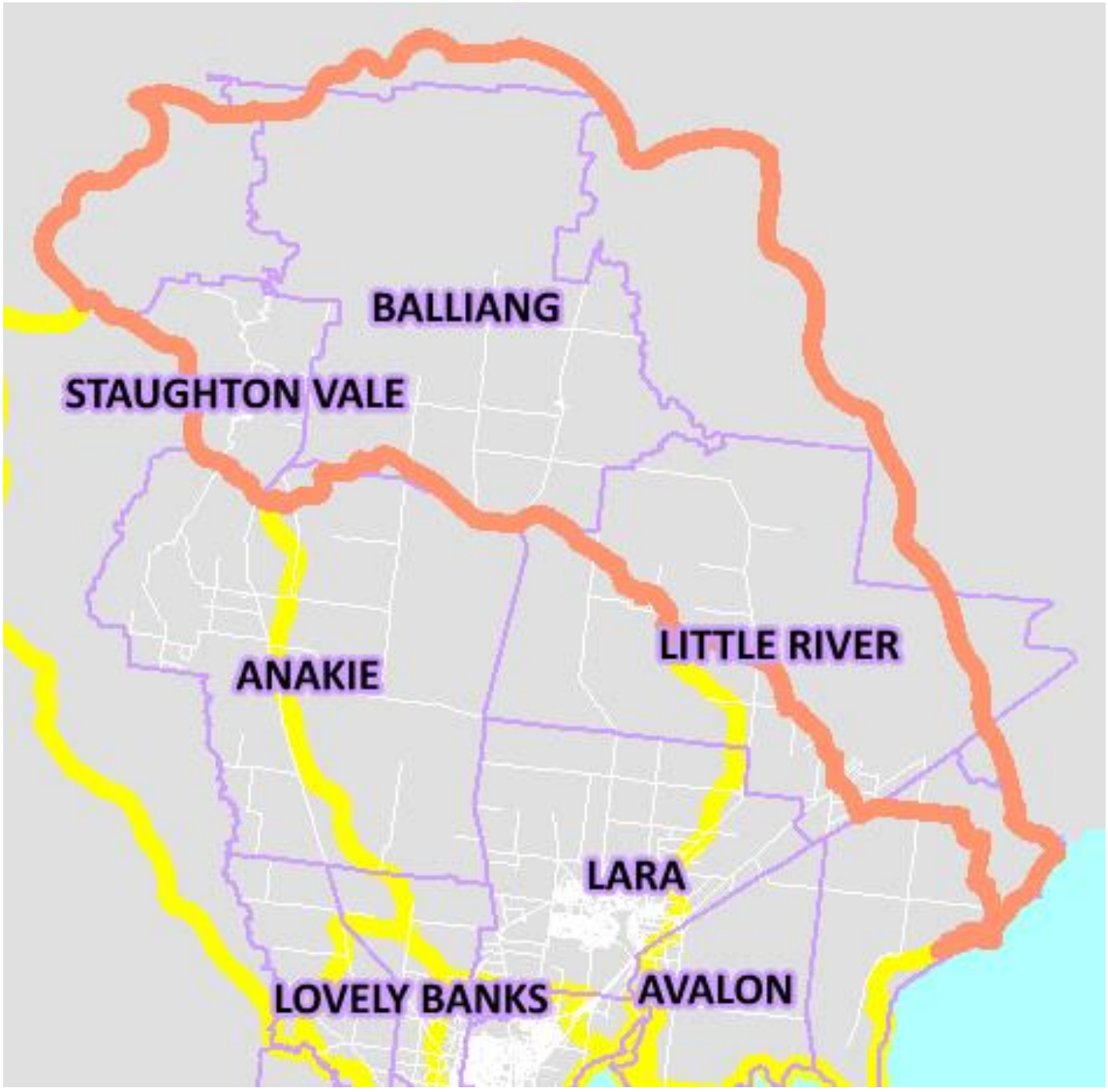


LITTLE RIVER CATCHMENT MANAGEMENT UNIT

The catchment management unit of Little River is located in the north of the City's service area, and generally includes the suburbs of Little River, Balliang and Staughton Vale.

Prioritisation Summary

Overall Priority	Summary
Low	The City has assigned a high priority for the management of water quality in this Management Unit. The City's knowledge of waterway risks is limited and investigation and engagement with Melbourne Water is required to understand actual risk.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Rural catchment. Low priority for open space irrigation and multifunctional spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority for enhanced water quality as catchment drains to environmentally sensitive areas of Port Philip Bay
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Low level of current and future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

0–2 years	2–5 years	5–10 years
Partnership: Partner with relevant environmental groups and Melbourne Water to ensure Council understands emerging waterway issues	**Investigation:** If required, complete sampling for water quality and establish a waterway and estuarine health baseline. Capture outcomes in Catchment Management Strategy to inform required actions and funding	**Investigation:** Continue to monitor water quality

AVALON CATCHMENT MANAGEMENT UNIT

The catchment management unit of Avalon is located in the north east of the City's service area, and generally includes the suburbs of Avalon and Point Wilson, sections of Little River and Lara and the Avalon Airport.

Prioritisation Summary

Overall Priority	Summary
Low	No priority actions identified. Catchment will be monitored for changes.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Rural catchment. Low priority for irrigated open space or multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for water quality based on importance of receiving waterway and extent/type of development in the catchment
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Low level of current and future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	Low opportunity for partnership projects currently identified
Implement stormwater systems which are adaptable to future needs.	Medium	Formal knowledge of catchment (flood risk) is moderate

Actions

0–2 years	2–5 years	5–10 years
Continue to monitor for change	Continue to monitor for change	Continue to monitor for change

LARA / HOVELLS CREEK CATCHMENT MANAGEMENT UNIT

The catchment management unit of Lara / Hovells Creek is located in the north of the City's service area, and generally includes the suburb of Lara and sections of Little River, Anakie and Lovely Banks.

Prioritisation Summary

Overall Priority	Summary
High	The City has assigned a high priority for the management of water quality. The City's knowledge of waterways is currently limited, and investigation/partnership with CCMA is required to understand and monitor actual risk. There is a high priority for flood management to manage existing risk and the impacts of future development. Following the 2018 Flood study, flooding risks are now better understood, so solutions can be developed over the coming years which account for current service shortfalls and future catchment changes. Opportunities for IWM have been identified and will be explored as part of solutions for Waterways, Flooding or improvement in urban amenity.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Medium	Moderate number of historical flooding events relative to other catchments in the City
Support Urban Greening through the application of integrated water management practices	Low	Higher level of tree canopy coverage than other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Medium	Moderate opportunity for irrigation of open space and the creation of multifunctional community space
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority for water quality management because the catchment drains to Limeburners Bay (Ramsar listed). Development and industry within the catchment may impact water quality
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	Moderate level of current development and significant expected future development associated with the Northern Growth Area
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	High	Opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is contemporary and comprehensive, and hence flood management solutions can be designed for future flexibility

Actions

0–2 years

Partnership: Partner with relevant environmental groups and CCMA to ensure the City understands waterway issues

Action: Capture recent flood study recommendations in Catchment Management Plan to inform required actions and funding

2–5 years

Investigation: Complete a detailed water quality investigation to confirm actual risk to receiving waterways and environment and capture recommendations in Catchment Management Plan

Action: Subject to funding, implement actions identified through the flood study

Action: Seek to incorporate identified IWM opportunities with flood management works

5–10 years

Investigation: Continue to monitor water quality

Investigation: Assess need to renew the 2018 flood study to ensure impacts of development are appropriately managed

Action: Review and deliver IWM opportunities

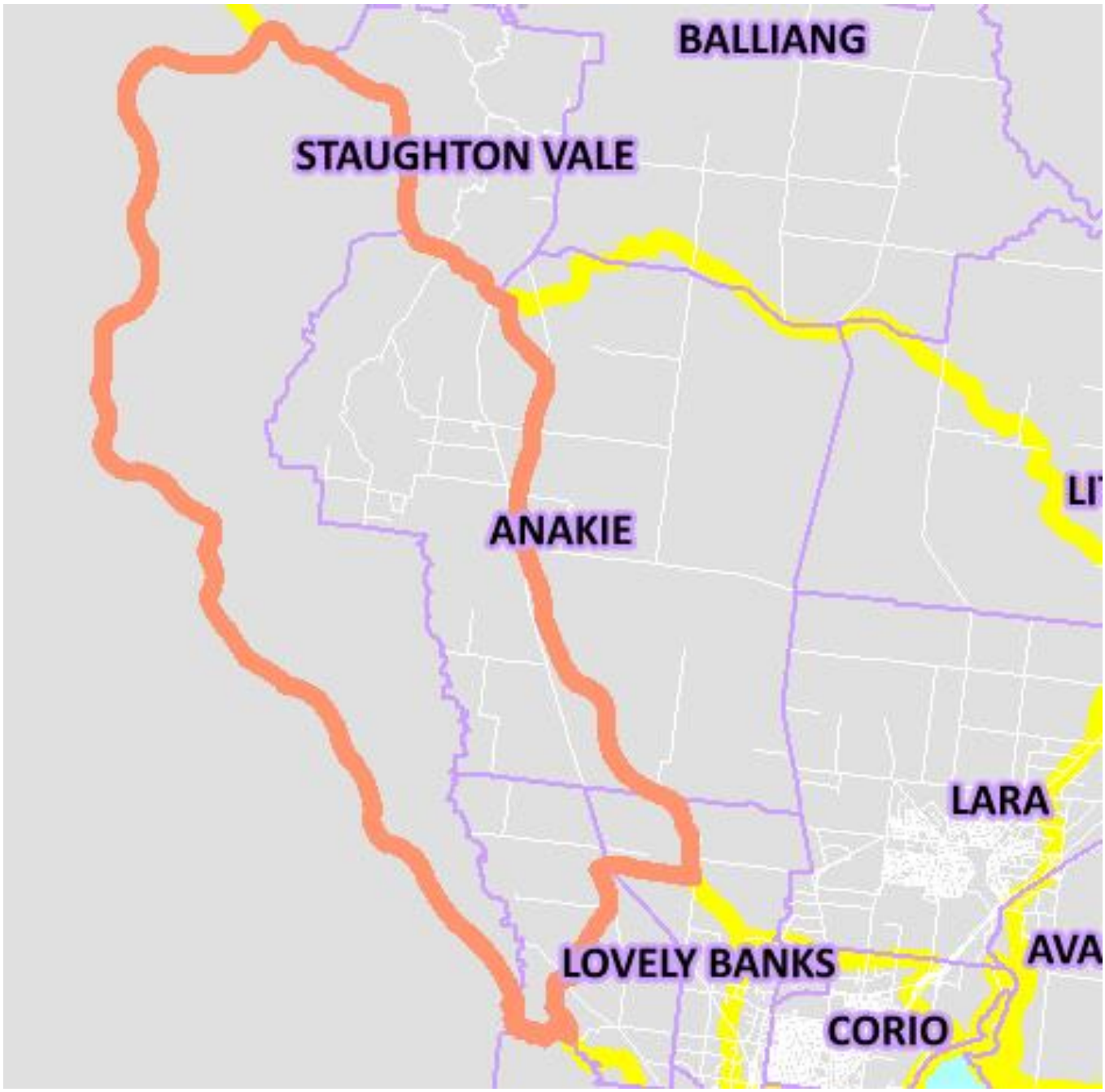
Investigation: Demonstrate better health and amenity outcomes in the catchment

SUTHERLAND CREEK CATCHMENT MANAGEMENT UNIT

The catchment management unit of Sutherland Creek is located in the north west of the City's service area, and generally includes the suburbs of Anakie and Lovely Banks.

Prioritisation Summary

Overall Priority	Summary
Low	No priority actions identified. The City will monitor the catchment for change.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Rural catchment. Low priority for open space or the creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for water quality management based on the nature/extent of development and values of waterways within the catchment
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Low level of current and future development, however future Northern Growth Area development will encroach on the Sutherland Creek Management Unit in the future
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

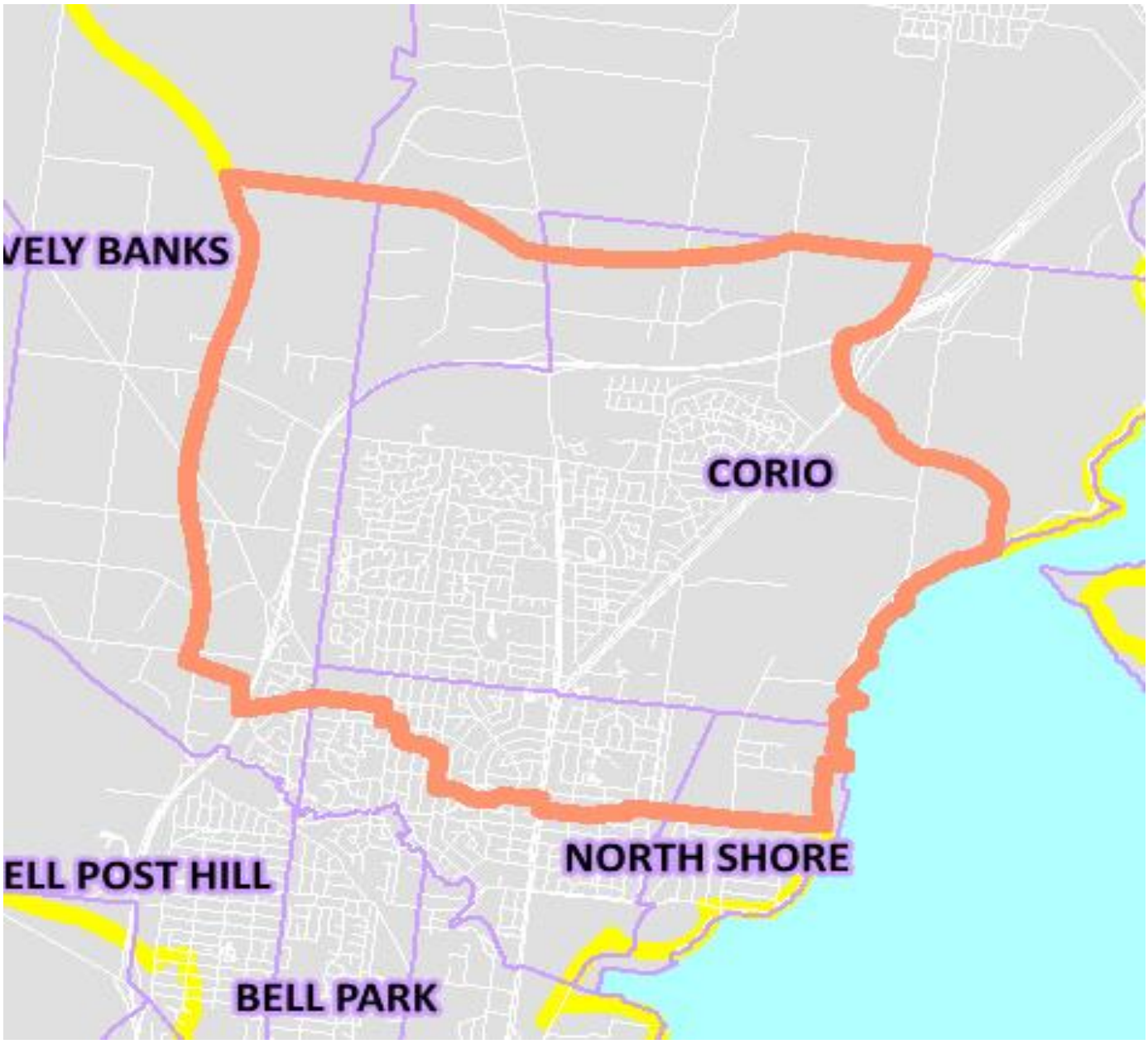
0–2 years	2–5 years	5–10 years
Continue to monitor for change	Continue to monitor for change	Continue to monitor for change

CORIO CATCHMENT MANAGEMENT UNIT

The catchment management unit of Corio is located towards the north of the City's service area, and generally includes the suburb of Corio.

Prioritisation Summary

Overall Priority	Summary
High	The City has assigned a high priority to improve IWM actions in the Management Unit, including through increased tree canopy coverage and irrigated open space. The management of flooding risk is a high priority given current flooding performance and expected future growth in the Management Unit. The City's understanding of flooding risk will be enhanced through flood modelling.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Medium	Moderate number of historical flooding events
Support Urban Greening through the application of integrated water management practices	High	Low level of tree canopy coverage relative to other areas of the City. Coverage is well below the City's target
Integrate stormwater with natural and built environments which create multifunctional community spaces.	High	High opportunity for irrigation of open space and creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for water quality management based on the nature/extent of development and values of waterways within the catchment
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	The Management Unit is already highly urbanized, and is expected to see significant infill development and new development in the Northern Growth Area
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	High	High level of opportunity for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

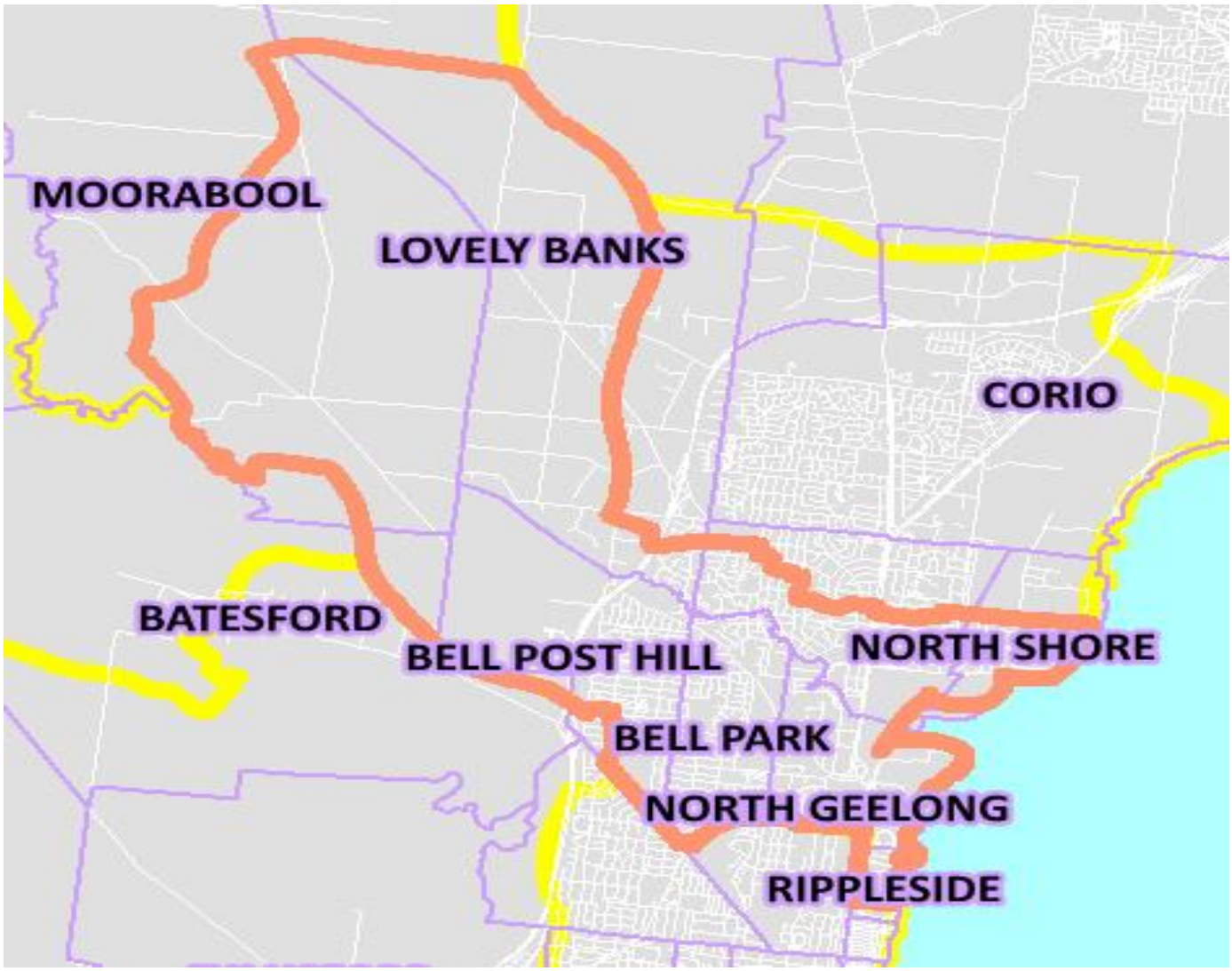
0–2 years	2–5 years	5–10 years
Investigation: Complete flood study of the catchment to understand the current flood risks and capture recommendations in Catchment Management Plan to inform required actions and funding	**Action:** Subject to funding, implement actions identified through the flood study **Action:** Plan for widespread street scaping (to improve canopy cover) and passive open space irrigation across the catchment with linkage to stormwater storage and recycled water supplies from Barwon Water **Action:** Support delivery of identified IWM partnership projects within the catchment	**Action:** Assess need to repeat or renew the flood study to ensure the impacts of development are appropriately managed **Action:** Review and deliver IWM opportunities **Investigation:** Demonstrate better health and amenity outcomes in the catchment

COWIES CREEK CATCHMENT MANAGEMENT UNIT

The catchment management unit of Cowies Creek is located towards the north of the City's service area, and generally includes the suburbs of North Shore, North Geelong, Bell Park, Bell Post Hill, Lovely Banks and Moorabool.

Prioritisation Summary

Overall Priority	Summary
High	Improved management of water quality is considered to be a high priority in this catchment management unit. Additional investigations will be conducted with partners to improve knowledge of waterway risk. Flood management is considered to be a high priority given current levels of flooding and the potential for future problems due to additional growth. The City's understanding of flooding risk will be enhanced through flood modelling. Significant opportunities exist for IWM outcomes to be delivered. These may include increasing tree canopy coverage and improving the irrigation of open space. Furthermore, opportunities exist to link IWM improvements with improved cultural values through partnership with the Wathaurong People.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Medium	Moderate number of historical flooding events
Support Urban Greening through the application of integrated water management practices	High	Low level of tree canopy coverage than other areas of the City. Coverage is well below the City's target
Integrate stormwater with natural and built environments which create multifunctional community spaces.	High	High opportunity for irrigation of open space and creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority to manage water quality because the catchment drains, via Cowies Creek, to Corio Bay. The nature and extent of development within the catchment requires particular focus on the waterway and receiving environment to ensure these are protected from stormwater pollution, both water quality and volume
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	The catchment is already well developed. It is expected that future infill development will change stormwater management requirements
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	High	High level of opportunity for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

0–2 years

Partnership: Partner with relevant environmental groups and Wathaurong to ensure Council understands emerging waterway issues

Investigation: Complete flood study of the catchment to understand the current flood risks and capture recommendations in Catchment Management Plan to inform required actions and funding

Investigation: Complete Growth Area Planning

2–5 years

Investigation: Complete a detailed water quality investigation to confirm actual risk to receiving waterways and environment and capture recommendations in Catchment Management Plan

Action: Subject to funding, implement actions identified through the flood study

Action: Plan for widespread street scaping (to improve canopy cover) and passive open space irrigation across the catchment with linkage to stormwater storage and recycled water supplies from Barwon Water

Action: Plan for Flagship Cowies Creek Project and seek external funding

5–10 years

Action: Deliver the Flagship Cowies Creek Project

Investigation: Continue to monitor water quality

Action: Assess need to renew/repeat flood study to ensure impacts of development are appropriately managed

Action: Subject to funding, continue to implement actions identified through the flood study

Action: Continue to review and deliver IWM opportunities

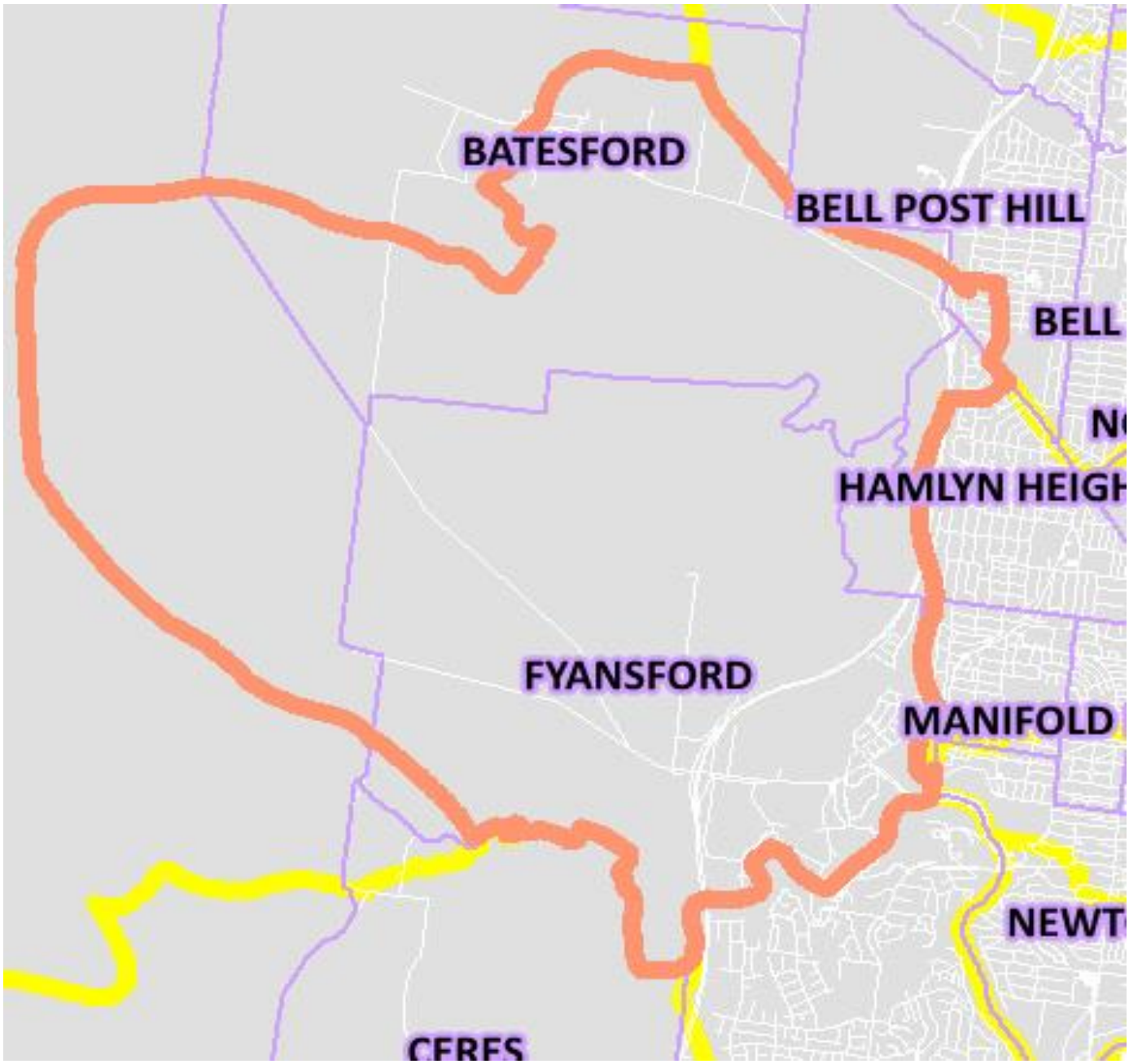
Investigation: Demonstrate better health and amenity outcomes in the catchment

FYANSFORD CATCHMENT MANAGEMENT UNIT

The catchment management unit of Fyansford is located towards the north west of the City's service area, and generally includes the suburb of Fyansford and part of Batesford.

Prioritisation Summary

Overall Priority	Summary
Medium	The City will prioritise an effective planning process, implementation of building controls and appropriate, timely, delivery of stormwater assets in this growth catchment management unit.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Low priority for open space irrigation at present. However, it is acknowledged that the Western Growth Area Precinct Structure Plan will place heavy emphasis on future IWM opportunities as growth commences.
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	The catchment drains into the Barwon river. Given the nature of catchment development, a medium priority for water quality management is appropriate.
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	Very high expected future development means that the City must be vigilant to ensure stormwater is managed appropriately over the next 10 to 20 years
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is high

Actions

0–2 years	2–5 years	5–10 years
Investigation: Ensure downstream impacts to the Fyansford catchment are considered in the Western Geelong Growth Area flood studies **Investigation:** Complete Western Growth Area Precinct Planning	**Investigation:** Monitor health of the Barwon and Moorabool Rivers	**Action:** Implement any stormwater improvement actions within the catchment to manage future growth **Investigation:** Monitor health of the Barwon and Moorabool Rivers

RIPPLESIDE CATCHMENT MANAGEMENT UNIT

The catchment management unit of Rippleside is located in the central area the City's service area, and generally includes the suburbs Rippleside, Drumcondra, Geelong West, Herne Hill, Manifold Heights and Hamlyn Heights.

Prioritisation Summary

Overall Priority	Summary
Medium	The catchment management unit has an existing flooding risk that is being investigated through a flood study (2019). This is expected to yield a number of improvement actions such as changes to planning overlays and/or development of assets in and around the Saleyards precinct in North Geelong. These actions should provide flexibility for future catchment changes as growth continues.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	High	High number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City.
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Medium	Moderate opportunity for irrigation of open space or creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for water quality management based on the nature/extent of development in the catchment, and the sensitivity of receiving environments
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	Moderate level of current development. Infill development is expected to be significant, and will affect stormwater management requirements
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	High	Significant opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

0–2 years	2–5 years	5–10 years
Action: Capture flood study recommendations (once complete) in Catchment Management Plan to inform required actions and funding	**Action:** Subject to funding, implement actions identified through the flood study **Action:** Identify and deliver IWM opportunities within the catchment aligned with flood study actions	**Action:** Identify and deliver IWM opportunities within the catchment

CENTRAL GEELONG CATCHMENT MANAGEMENT UNIT

The catchment management unit of Central Geelong is located within the central area the City's service area, and generally includes the suburbs of Geelong and parts of Newtown and Geelong West.

Prioritisation Summary

Overall Priority	Summary
Medium	The City has a medium priority for flood management in the area, with actions underway to manage historical flooding issues. Given the highly urbanized character of the management Unit, the City will establish IWM actions which can be implemented when opportunities arise.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	High	High number of historical flooding events in a densely populated area, due in large part to the high impervious area of the catchment, and older infrastructure not designed to current standards
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage, less than the City's objective
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Numerous existing open spaces that are irrigated. Opportunities do exist to further integrate stormwater management into these areas
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for water quality based on the nature/extent of development and the value of receiving environments
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Medium	The suburbs of Geelong, Geelong West and Newtown are already densely populated. This trend is expected to intensify, creating changes to stormwater management in the area.
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is high

Actions

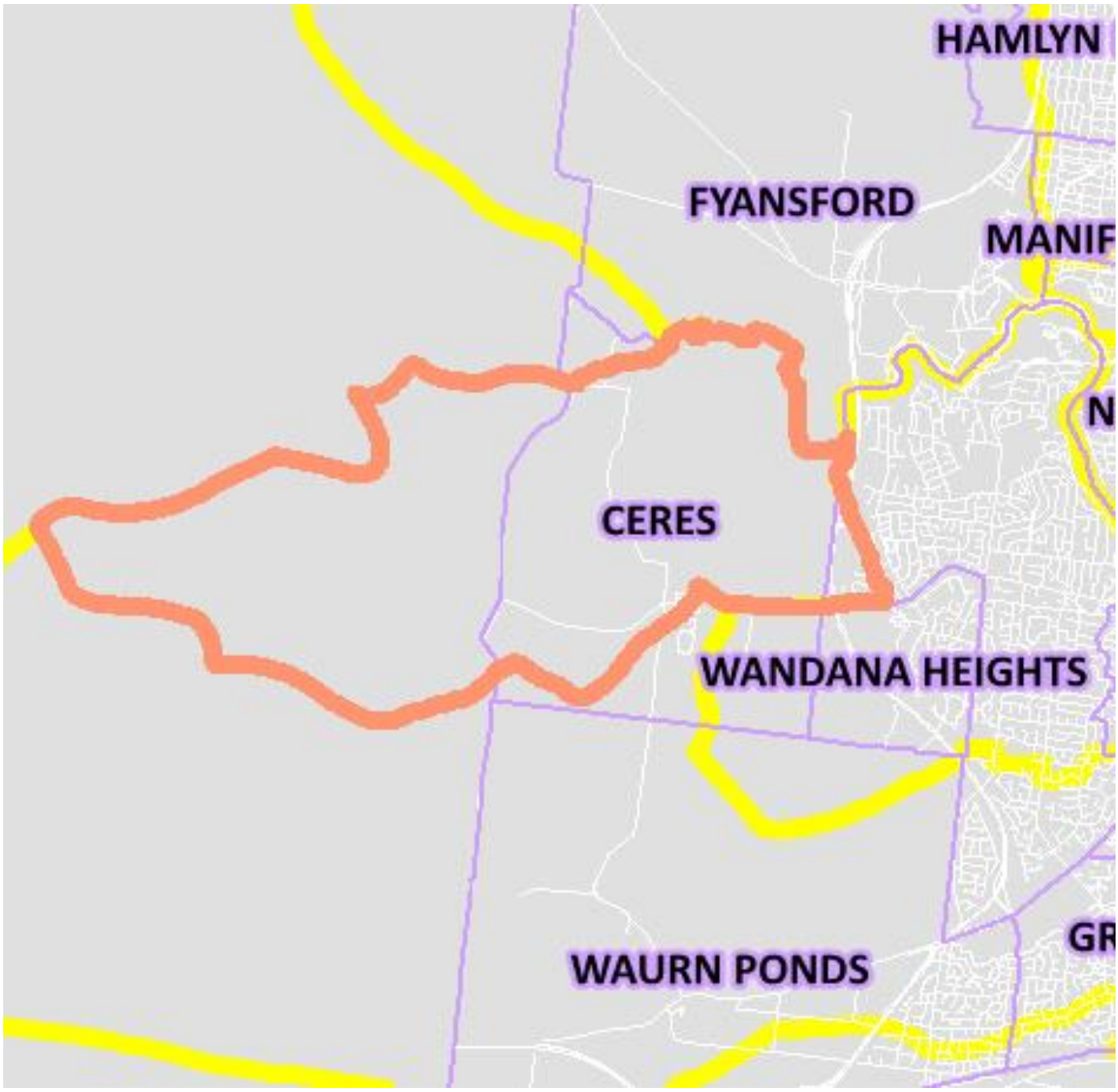
0–2 years	2–5 years	5–10 years
Action: Complete flood mitigation works underway **Action:** Identify and deliver IWM opportunities within the catchment **Investigation:** Monitor health of Corio Bay	**Action:** Identify and deliver IWM opportunities within the catchment **Investigation:** Monitor health of Corio Bay	**Action:** Identify and deliver IWM opportunities within the catchment **Investigation:** Monitor health of Corio Bay

CERES NORTH CATCHMENT MANAGEMENT UNIT

The catchment management unit of Ceres North is located towards the west of the City's service area, and generally includes the suburb of Ceres.

Prioritisation Summary

Overall Priority	Summary
Low	There is no history of flooding or growth expected to require the City to take action to better understand the catchment. The City will continue to monitor changes in the Management Unit.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage, relative to other areas of the City. Also, the area is predominantly rural.
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Rural catchment. Low priority for open space or creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Low	Low priority for water quality based on the nature/extent of development and values of the receiving waterway
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Low level of current and expected low rates of future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

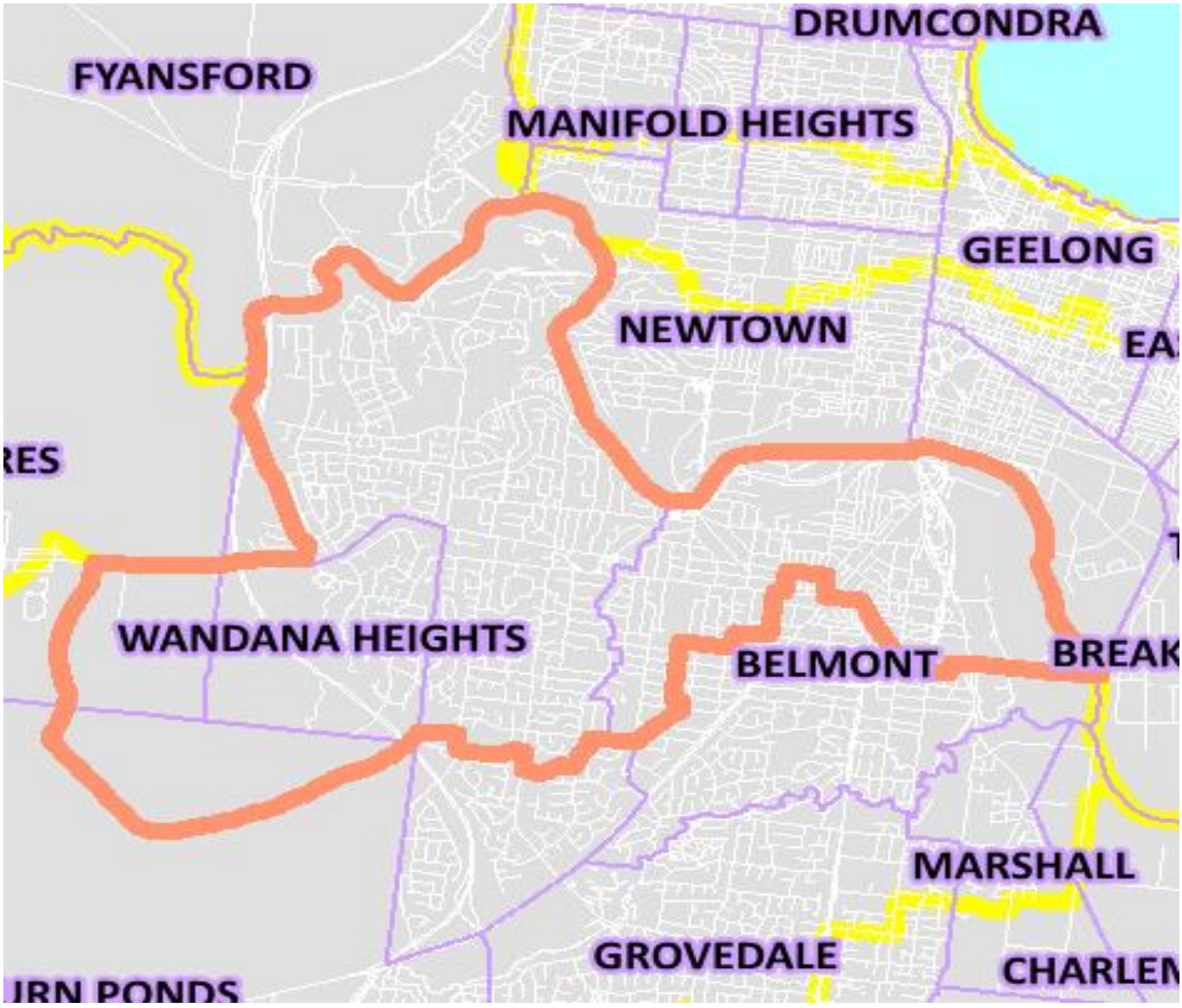
0–2 Years	2–5 years	5–10 years
Continue to monitor for change	Continue to monitor for change	Continue to monitor for change

HIGHTON CATCHMENT MANAGEMENT UNIT

The catchment management unit of Highton is located within the central area the City's service area, and generally includes the suburbs of Highton, Wandana Heights and Belmont.

Prioritisation Summary

Overall Priority	Summary
Medium	The management unit of Highton drains into the Barwon River, which in turn flows into Lake Connewarre. Existing knowledge of water quality outcomes will be improved to better understand risks to this sensitive environment. Flooding risks require ongoing management, but these risks are well understood. Several high criticality retention basins located within the catchment require review. IWM opportunities have been identified within the catchment and will be explored as part of Waterway and Flooding works



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	High	High number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Medium	Moderate opportunity for irrigation of open space and creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority for ongoing water quality management because the catchment drains through Lake Connewarre (Ramsar listed). Development within catchment may impact water quality
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Medium	Moderate level of current development, with ongoing future infill expected in some areas.
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	High	Opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is contemporary and comprehensive following recent flooding studies

Actions

0–2 years

Partnership: Partner with relevant environmental groups to ensure Council understands emerging waterway issues

Action: Capture flood study recommendations in Catchment Management Plan to inform required actions and funding

Investigation: Review retention basins against Australian National Committee on Large Dams (ANCOLD) Standard

2–5 years

Investigation: Complete sampling for water quality and establish a waterway and estuarine health baseline. Capture outcomes in Catchment Management Plan

Action: Implement identified IWM opportunities within the catchment

Action: Subject to funding, implement actions identified through the flood study to manage flood risk and localised customer impact

5–10 years

Investigation: Continue to monitor water quality and flood risk

Investigation: Review retention basins against ANCOLD Standard

SOUTH GEELONG CATCHMENT MANAGEMENT UNIT

The catchment management unit of South Geelong is located within the central area the City's service area, and generally includes the suburbs of South Geelong, Newtown, Breakwater and Thompson.

Prioritisation Summary

Overall Priority	Summary
Medium	The catchment management unit of South Geelong drains into the Barwon River, which in turn flows into Lake Connewarre. Existing knowledge of waterway outcomes will be improved to better understand risks to this sensitive environment. Flooding risks require ongoing management, but these risks are well understood.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	High	High number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Low priority for irrigation of open space or creation of multifunctional community spaces, given existing extensive river-side areas
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority for water quality management as catchment drains through Lake Connewarre (Ramsar listed). Stormwater discharges into the Barwon River may impact water quality
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Further development is likely in the Management Unit.
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Medium	Opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is contemporary and comprehensive

Actions

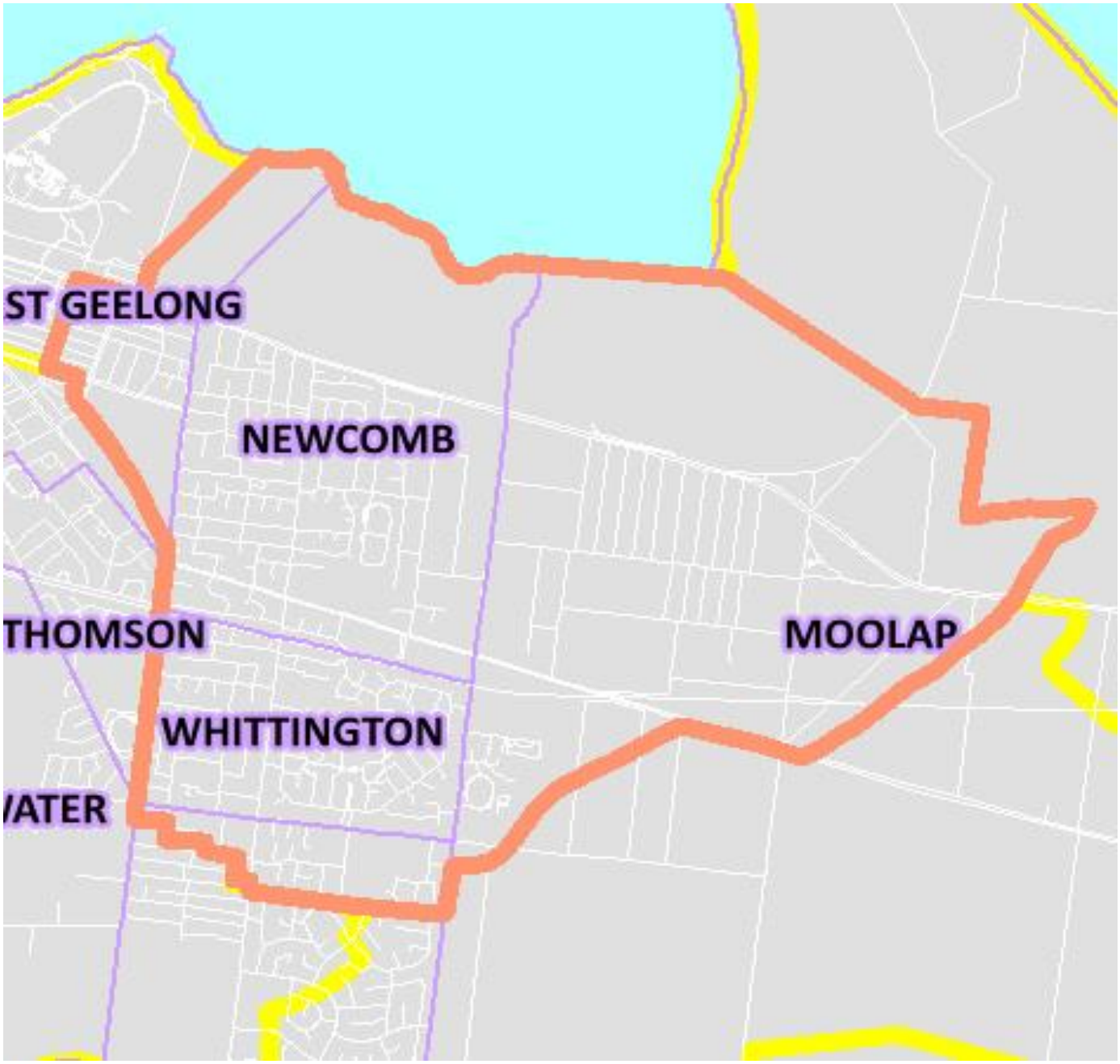
0–2 years	2–5 years	5–10 years
Partnership: Partner with relevant environmental groups to ensure Council understands emerging waterway issues	**Investigation:** Complete a detailed study into water quality outcomes for the Barwon River and capture recommendations in Catchment Management Plan to inform required actions and funding	**Action:** Subject to funding, implement actions identified through the water quality study **Investigation:** Continue to monitor water quality

MOOLAP CATCHMENT MANAGEMENT UNIT

The catchment management unit of Moolap is located within the central area the City's service area, and generally includes the suburbs of Moolap, Newcomb and Whittington.

Prioritisation Summary

Overall Priority	Summary
Medium	The City has assigned a medium priority to continue to monitor water quality from the catchment, given the sensitivity of the receiving environment. The City places a high priority on the exploration of IWM opportunities through partnership projects within the catchment



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Low priority for irrigation of open space or creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for enhanced management of water quality based on nature/extent of development and the quality of receiving environments (which include RAMSAR sites)
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Medium	Moderate level of current and future development as infill continues in some areas
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	High	Several opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is contemporary and comprehensive

Actions

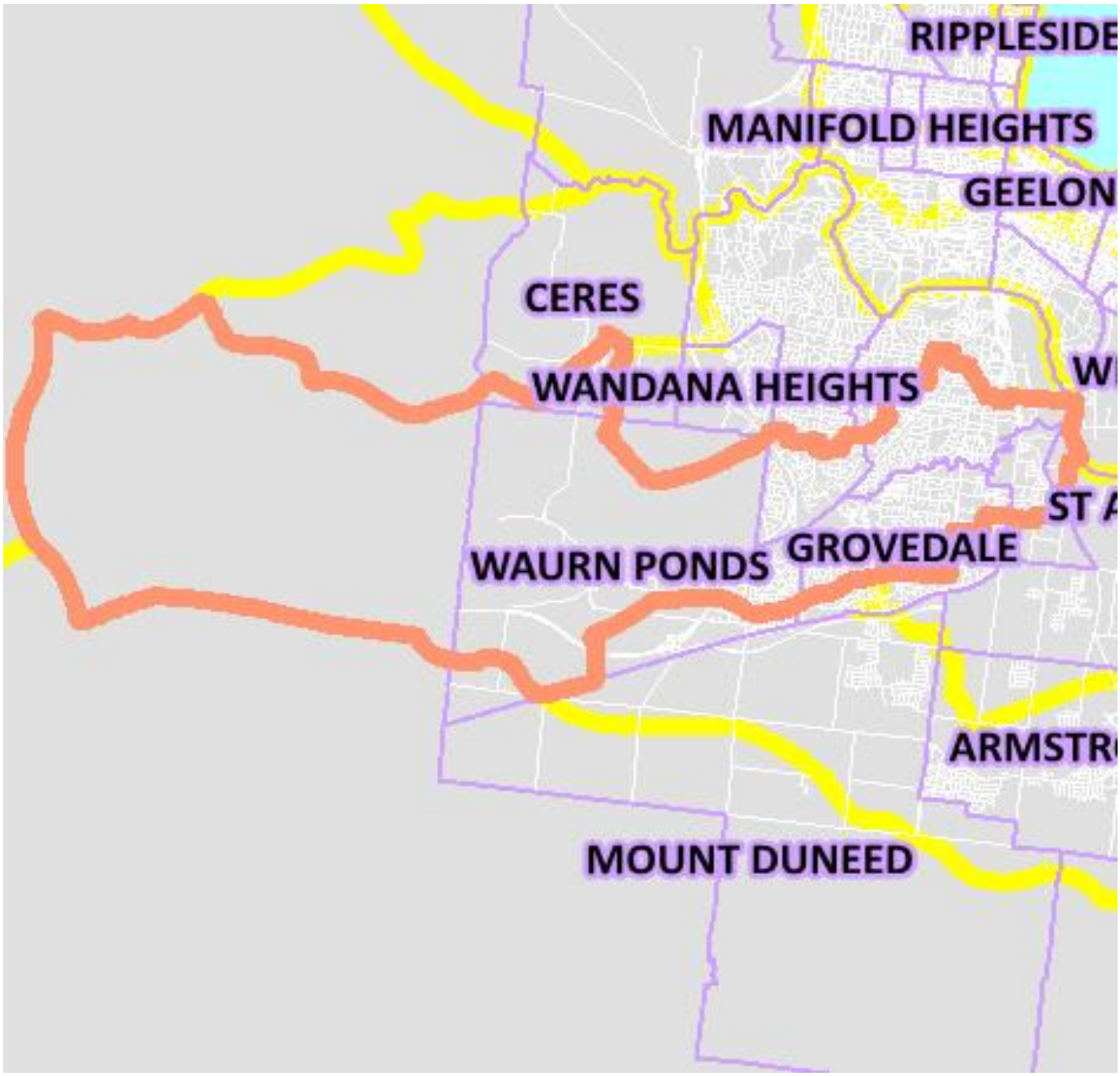
0–2 years	2–5 years	5–10 years
Action: Deliver identified IWM opportunities within the catchment **Investigation:** Monitor water quality out of the catchment	**Action:** Continue to deliver IWM opportunities within the catchment **Investigation:** Monitor water quality out of the catchment	**Action:** Continue to deliver IWM opportunities within the catchment **Investigation:** Monitor water quality out of the catchment

WAURN PONDS CREEK CATCHMENT MANAGEMENT UNIT

The catchment management unit of Waurn Ponds Creek is located towards the south and west of the City's service area, and generally includes the suburbs of Waurn Ponds and Grovedale.

Prioritisation Summary

Overall Priority	Summary
Medium	The City has a medium priority to explore and deliver IWM opportunities. The City has a medium priority on actions to manage flooding, with emphasis to be placed on mitigating localised flooding issues.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	High	High number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Low	Higher level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	High	High priority for irrigation of open space and the creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for enhanced water quality management based on nature/extent of development and values of receiving environment
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Medium	Moderate level of current and future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Medium	Opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Medium	Partial knowledge of catchment (flood risk)

Actions

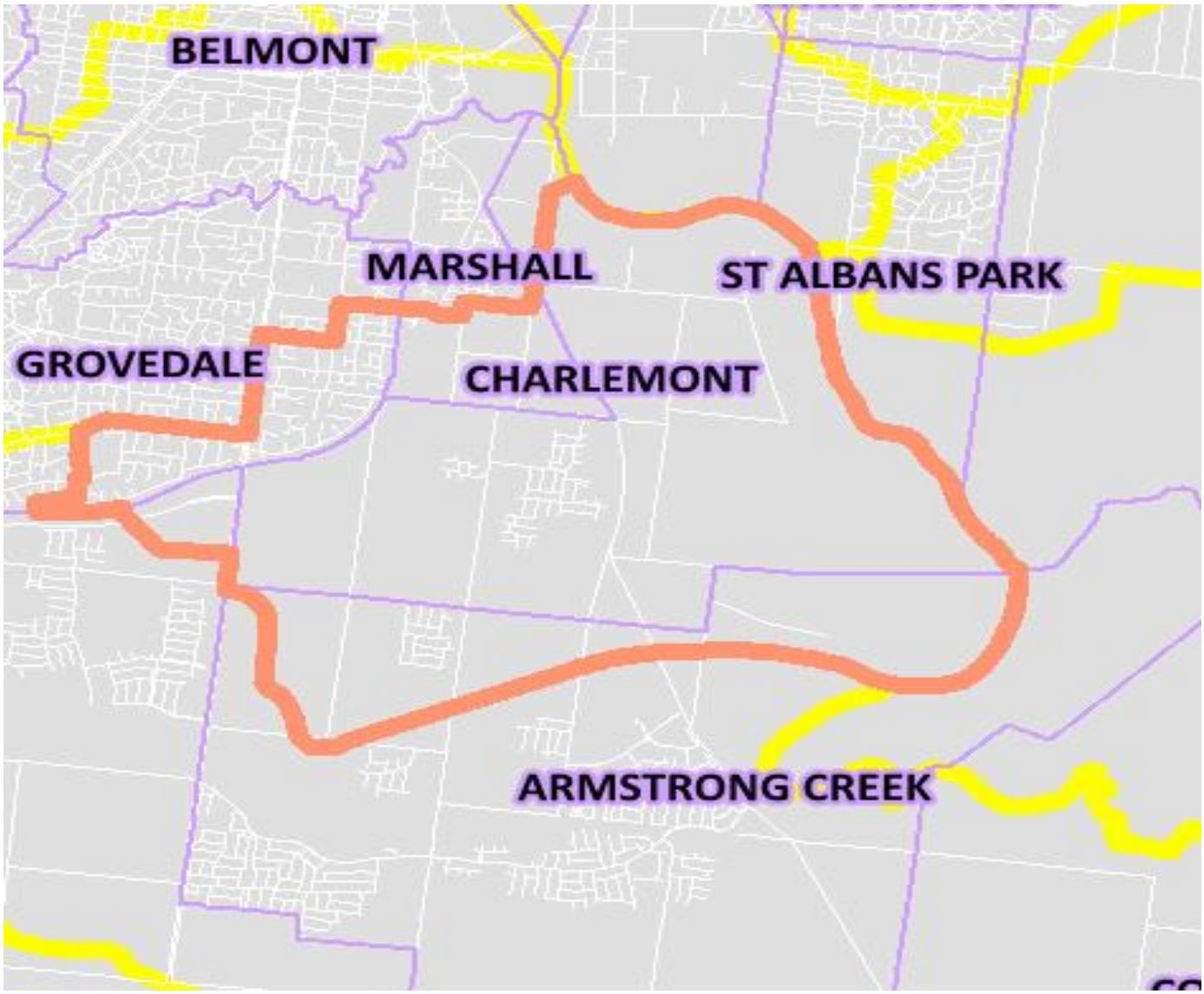
0–2 years	2–5 years	5–10 years
Investigation: Capture flood management recommendations in Catchment Management Plan to inform required actions and funding	**Action:** Subject to funding, implement flood management actions to manage flood risk and localised customer impact **Action:** Seek opportunities to improve open space when implementing flood management actions	**Investigation:** Continue to monitor repeat/renew flood risk and assess need to complete flood study to ensure impact of surrounding development is appropriately management

CHARLEMONT CATCHMENT MANAGEMENT UNIT

The catchment management unit of Charlemont is located towards the south of the City's service area, and generally includes the suburbs of Charlemont and Marshall.

Prioritisation Summary

Overall Priority	Summary
High	The catchment management unit of Charlemont drains into the Lake Connewarre system. Consequently, the City places a high priority on understanding and managing water quality in this Management Unit. Additional investigation / partnerships will improve understanding of waterway risks. The management of flooding is a high priority due to the flat topography and future urban development of the area. Current knowledge of flood risk is limited. Significant opportunities for IWM actions to be delivered as Charlemont develops. These will be particularly important to manage urban heating through tree canopy coverage in an area where residential garden space is expected to be less than in older residential areas of Geelong.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Medium	Medium number of historical flooding events
Support Urban Greening through the application of integrated water management practices	High	Lower level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Medium	Medium priority for irrigation of open space and creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority to manage water quality because the catchment drains through Lake Connewarre (Ramsar listed). Development within catchment may impact water quality
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	Moderate level of current development and significant rates of future development are expected as the Armstrong Creek / Charlemont area develops
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

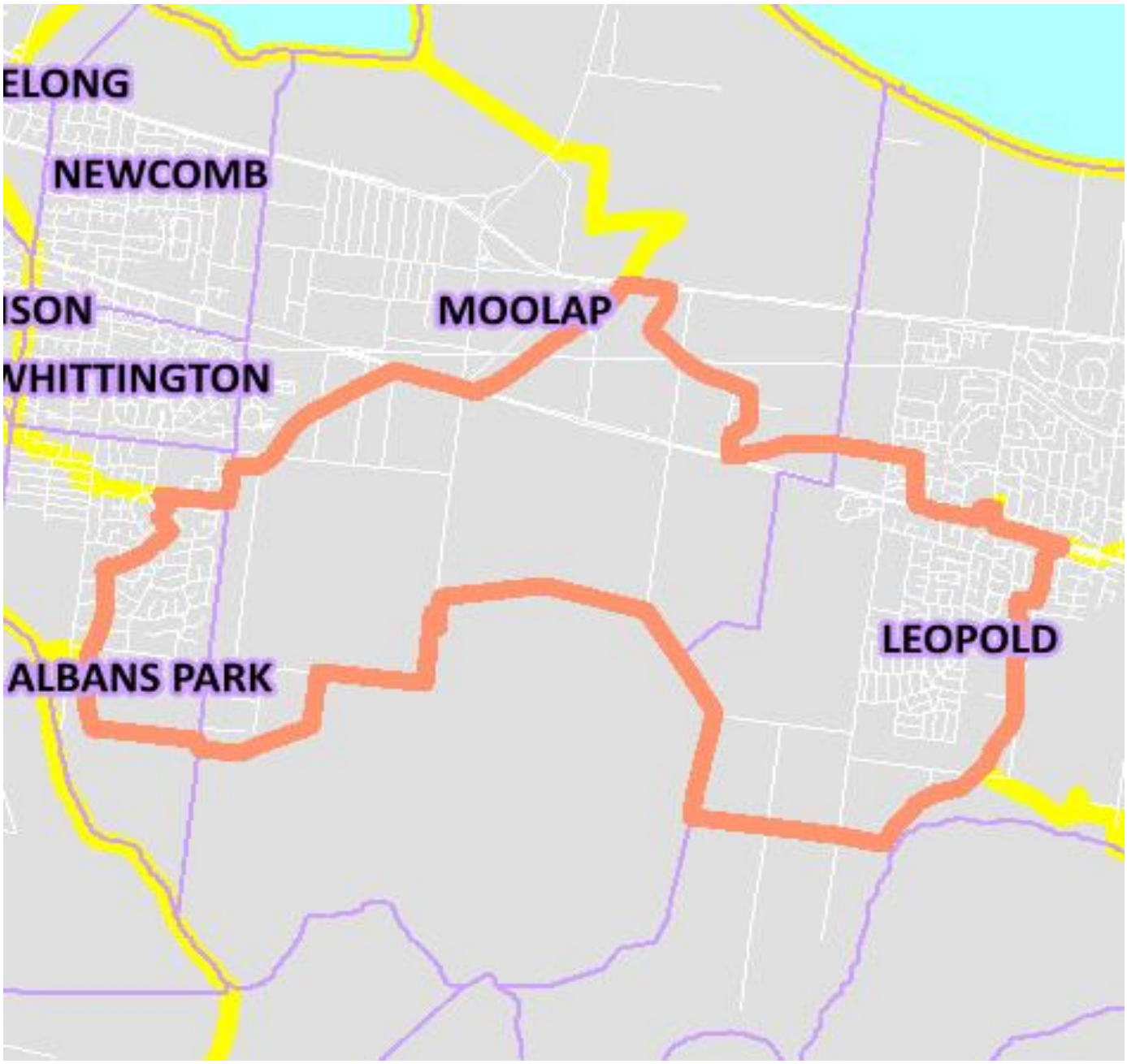
0–2 years	2–5 years	5–10 years
Partnership: Partner with relevant environmental groups to ensure Council understands emerging waterway issues **Investigation:** Complete flood study of the catchment to understand the flood risks and capture recommendations in Catchment Management Plan to inform required actions and funding	**Investigation:** Commence a detailed study into water quality outcomes for the Barwon River **Investigation:** Complete planning for infrastructure required to service development and plan how that infrastructure will be delivered **Investigation:** Funding arrangements to be reviewed for potential special charge	**Action:** Deliver infrastructure to support development while seeking to incorporate IWM opportunities **Investigation:** Continue to monitor water quality outcomes **Investigation:** Assess the need to renew/repeat a flood study to ensure infrastructure is appropriate to service development

REEDY LAKE NORTH CATCHMENT MANAGEMENT UNIT

The catchment management unit of Reedy Lake North is located in towards the east of the City's service area, and generally includes sections of the suburbs of St Albans Park, Moolap and Leopold.

Prioritisation Summary

Overall Priority	Summary
Medium	The City has assigned a high priority assessment for the management of water quality in this Management Unit. This will involve partnerships and ongoing water quality investigations. A medium priority is assigned to implement IWM actions, and integrate stormwater into urban environments, which may include some irrigation of existing open space and delivery of identified IWM priorities



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	High	High priority for irrigation of open space and creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority for maintaining water quality because the catchment drains through Lake Connewarre (Ramsar listed). Development within catchment may impact water quality
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Limited current development and low rates of expected future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Medium	Opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

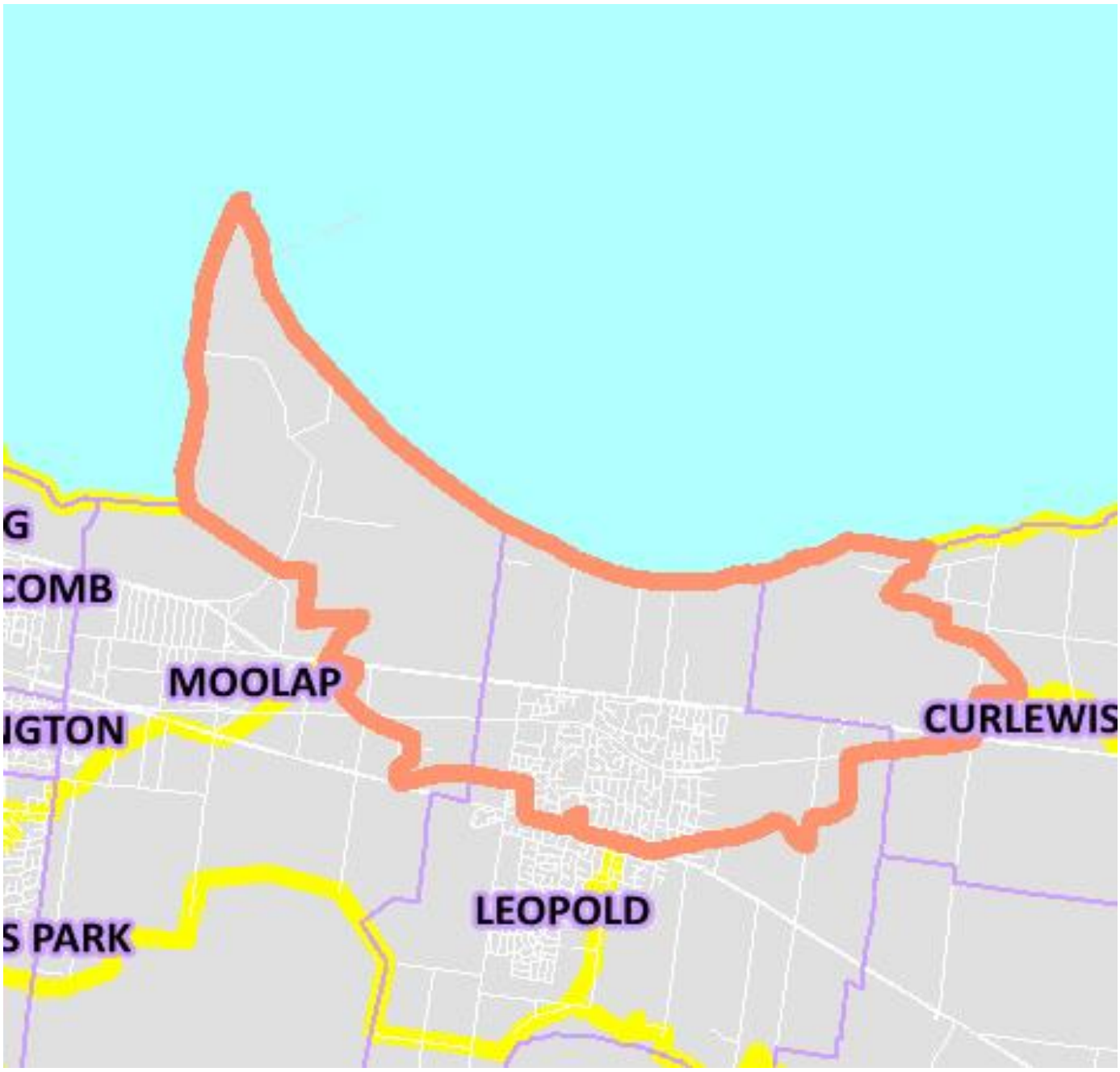
0–2 years	2–5 years	5–10 years
Partnership: Partner with relevant environmental groups to ensure Council understands emerging waterway issues	**Investigation:** Complete a water quality investigation to confirm actual risk to receiving environment and capture recommendations in Catchment Management Plan to inform required actions and funding **Action:** Deliver identified IWM opportunities within the catchment	**Investigation:** Continue to monitor water quality **Action:** Continue to identify and deliver IWM opportunities within the catchment

LEOPOLD NORTH CATCHMENT MANAGEMENT UNIT

The catchment management unit of Leopold North is located in towards the east of the City's service area, and generally includes the suburbs of Leopold and parts of Moolap and Curlewis.

Prioritisation Summary

Overall Priority	Summary
Low	The catchment management unit of Leopold generally exhibits low priority for action by the City. Ongoing monitoring of stormwater service performance and rates of growth will occur over time.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Low priority for irrigation of open space
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Low	Low priority for enhanced water quality management based on nature/extent of existing development and waterway values
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Low rates of projected future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	Limited opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

0–2 years	2–5 years	5–10 years
Continue to monitor for change	Continue to monitor for change	Continue to monitor for change

ARMSTRONG CREEK CATCHMENT MANAGEMENT UNIT

The catchment management unit of Armstrong Creek is located in the west of the City's service area, and generally includes the suburbs of Armstrong Creek, Mount Duneed and Connewarre.

Prioritisation Summary

Overall Priority	Summary
High	The catchment management unit of Armstrong Creek is planned and constructed to modern standards. Nevertheless, it is considered a high priority to ensure that the systems and assets (including Sparrovale wetlands) are installed correctly and in a timely fashion to protect water quality outcomes for Lake Connewarre. Managing flooding issues are a medium priority for the City, ensuring that assets are installed as designed to protect existing residents from the impacts of future development.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Medium	Medium priority for irrigation of open space, and creation of multifunctional spaces. Many of these spaces are already planned or in place across the catchment
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority to manage water quality because the catchment drains through Lake Connewarre (Ramsar listed). Particular emphasis will be placed on the development and management of Sparrovale Wetland
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	Extensive existing development and high rates of expected future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is contemporary and comprehensive

Actions

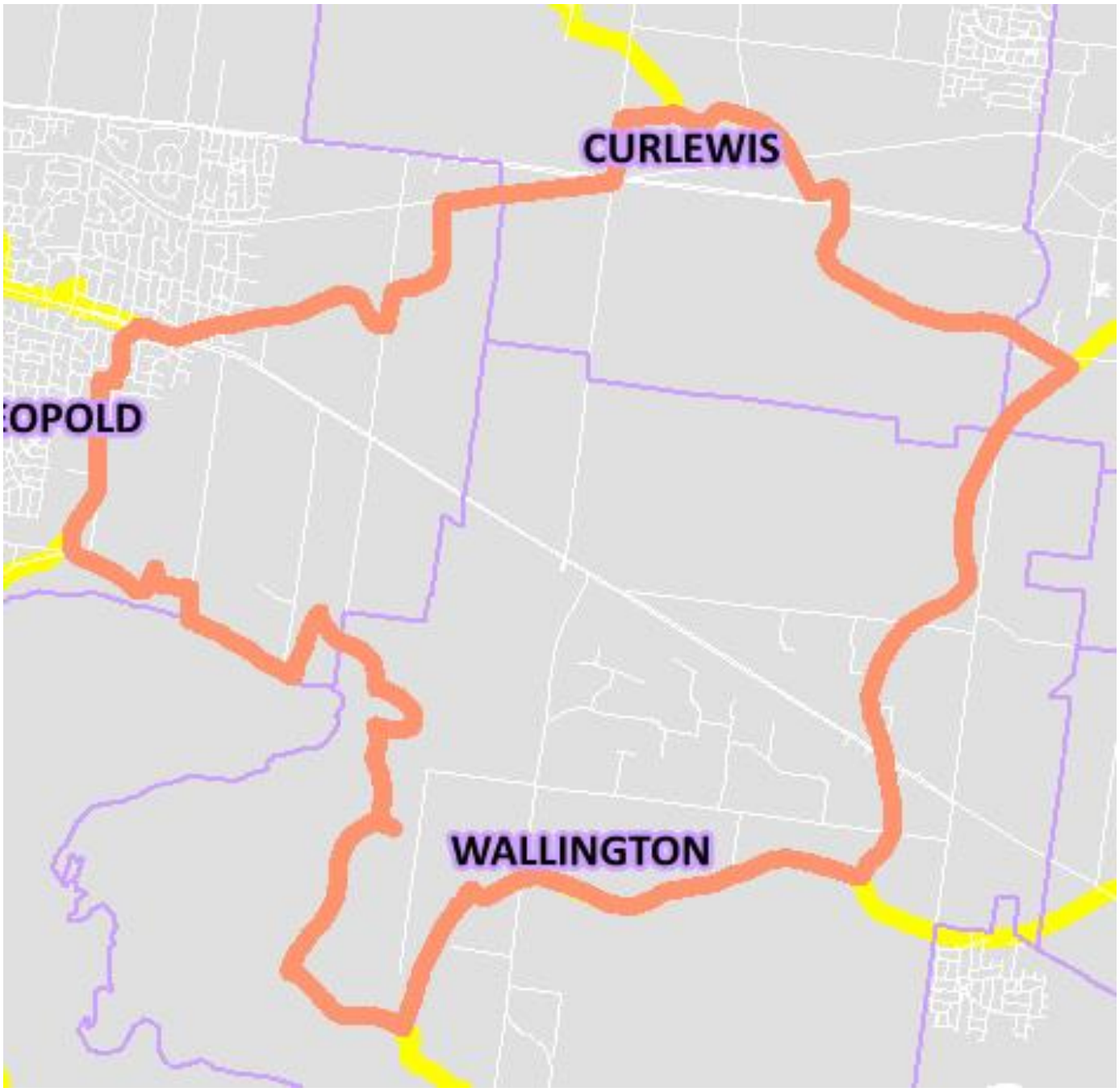
0–2 years	2–5 years	5–10 years
Partnership: Partner with relevant environmental groups to ensure Council understands emerging waterway issues **Investigation:** Commence a detailed study into water quality outcomes for the Barwon River and capture recommendations in Catchment Management Plan to inform required actions and funding	**Investigation:** Assess the need to repeat or renew a flood study to ensure infrastructure is appropriate to manage flood risk associated with development **Investigation:** Continue to monitor water quality	**Investigation:** Continue to monitor water quality

WALLINGTON CATCHMENT MANAGEMENT UNIT

The catchment management unit of Wallington is located in the east of the City's service area, and generally includes parts of the suburbs of Wallington, Leopold and Curlewis.

Prioritisation Summary

Overall Priority	Summary
Low	The City has assigned a high priority to identifying and delivering opportunities to integrate stormwater into the towns of the Bellarine. Otherwise, the City will maintain an ongoing monitoring of stormwater services performance.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Low	Higher level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	High	High priority for irrigation of open space and creation of multifunctional community spaces given the lack of current irrigated parks, and opportunities for biodiversity / tourism corridors
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority for water quality based on nature/extent of existing development and the values of receiving waterways
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Low rates of future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

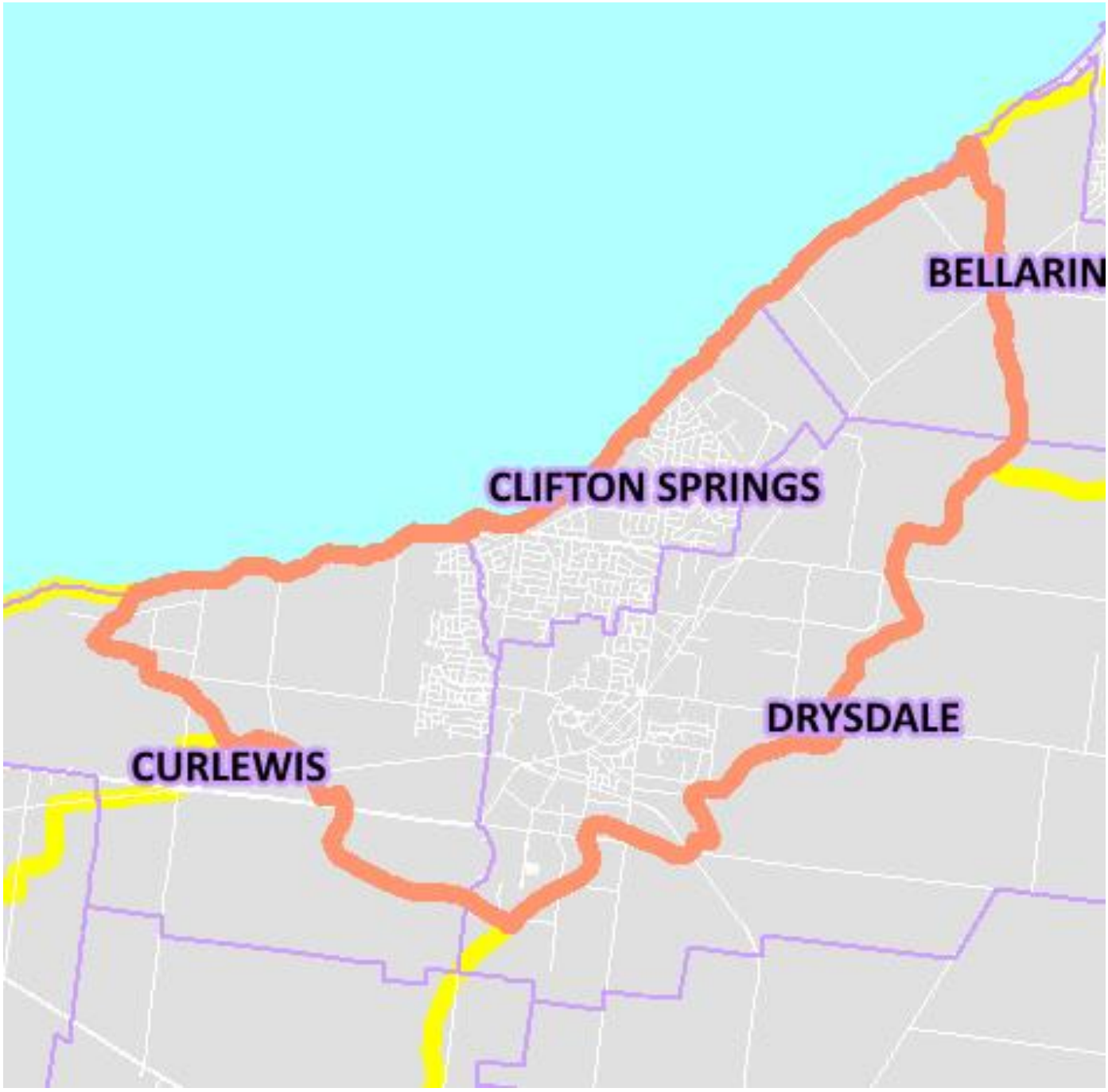
0–2 years	2–5 years	5–10 years
Investigation: Explore opportunities to integrate stormwater into natural and built environment.	Continue to monitor for change	Continue to monitor for change

CLIFTON SPRINGS CATCHMENT MANAGEMENT UNIT

The catchment management unit of Clifton Springs is located in the east of the City's service area, and generally includes the suburbs of Clifton Springs and Drysdale.

Prioritisation Summary

Overall Priority	Summary
Low	Managing flooding risk in the Clifton Springs catchment management unit is considered to be a high priority for the City, particularly given expected future growth in the community. This includes the development of asset and non-asset solutions, for example a formal drainage system and building overlays.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	High	High number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Low	Higher level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Medium	Medium priority for irrigation of open space and creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Low	Low priority for water quality based on the nature/extent of current development and the importance of the receiving waterway
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	Significant urban development in some areas and moderate rate of ongoing expected future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

0–2 years	2–5 years	5–10 years
Investigation: Complete flood study of the catchment to understand the flood risks and capture recommendations in Catchment Management Plan to inform required actions and funding	**Action:** Subject to funding, implement actions identified through the flood study to manage flood risk and localised issues	**Action:** Subject to funding, continue to implement actions identified through the flood study to manage flood risk and localised issues **Investigation:** Continue to monitor catchment for change

OCEAN GROVE CATCHMENT MANAGEMENT UNIT

The catchment management unit of Ocean Grove is located in the east of the City's service area, and generally includes the suburbs of Ocean Grove and parts of Wallington, Point Lonsdale and Marcus Hill.

Prioritisation Summary

Overall Priority	Summary
High	The City considers it a high priority to understand and manage water quality from the catchment management unit of Ocean Grove. Existing and expected additional future flooding issues, exacerbated by future growth make a focus on flood management a priority. Furthermore, the City's understanding of flooding risk should be updated Some opportunities identified to deliver improved IWM outcomes through irrigation of open space and development of biodiversity corridors (as part of the Flagship program for the Bellarine)



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	High	High number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Low	Higher level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	High	High priority for irrigation of open space and creation of multifunctional community spaces due to relative lack of these assets at present
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority to manage water quality risks because the catchment drains through Swan Bay (Ramsar listed). Development and industry within the catchment may impact water quality unless controls are implemented
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	High	Significant development of the catchment management unit has already occurred. Moderate levels of future development expected
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Medium	Opportunities for partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

0–2 years	2–5 years	5–10 years
Partnership: Partner with relevant environmental groups to ensure Council understands emerging waterway issues **Investigation:** Complete flood study of the catchment to understand the flood risks and capture recommendations in Catchment Management Plan to inform required actions and funding	**Investigation:** Complete a water quality investigation to confirm actual risk to receiving environment and capture recommendations in Catchment Management Plan **Action:** Subject to funding, implement actions identified through the flood study to manage flood risk and localised issues **Action:** Plan for passive open space irrigation with linkage to stormwater storage and recycled water supplies from Barwon Water	**Action:** Subject to funding, continue to implement actions identified through the flood study to manage flood risk and localised issues **Investigation:** Continue to monitor water quality

SWAN BAY CATCHMENT MANAGEMENT UNIT

The catchment management unit of Swan Bay is located in the east of the City's service area, and generally includes the suburbs of Swan Bay and Mannerim and parts of Drysdale and St Leonards.

Prioritisation Summary

Overall Priority	Summary
Medium	The City has assigned a high priority for the ongoing management of water quality into Swan Bay.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage in relation to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Low priority for irrigation of open space or creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	High	High priority for maintaining water quality because the catchment drains through Swan Bay (Ramsar listed)
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Low level of current development and limited expected future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

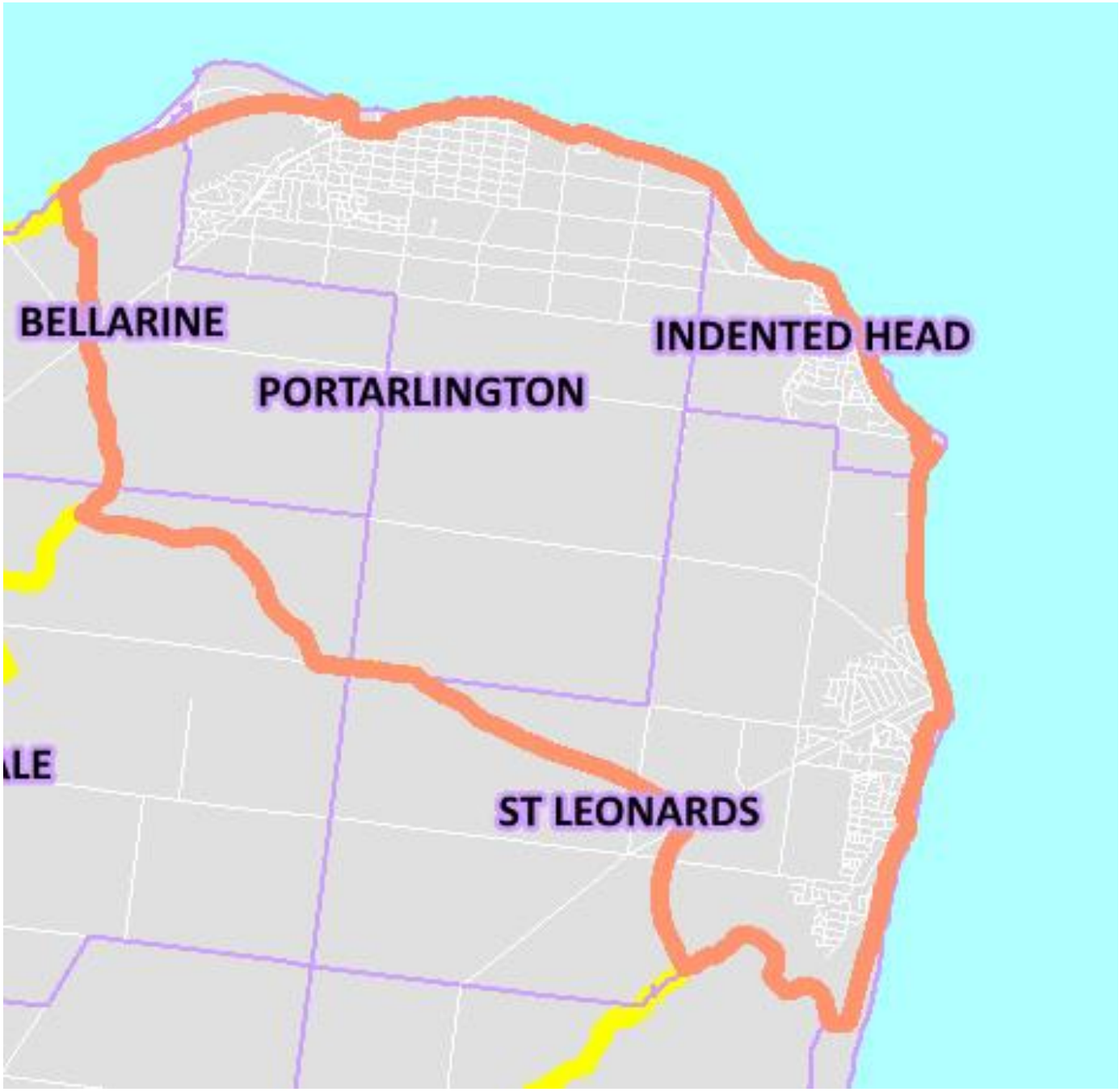
0–2 years	2–5 years	5–10 years
Partnership: Partner with relevant environmental groups to ensure Council understands emerging waterway issues	**Investigation:** Complete sampling for water quality and establish a waterway and estuarine health baseline. Capture outcomes in Catchment Management Plan to inform required actions and funding	**Investigation:** Continue to monitor water quality

PORTARLINTON CATCHMENT MANAGEMENT UNIT

The catchment management unit of Portarlington is located in the east of the City's service area, and generally includes the suburbs of Portarlington, Indented Head and St Leonards.

Prioritisation Summary

Overall Priority	Summary
Low	No priority actions identified. The City will monitor the catchment for change.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Medium	Medium number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Medium	Medium level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Medium	Medium priority for irrigation of open space or creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Low	Low priority for enhanced water quality management actions based on nature/extent of existing development and values of receiving waterways
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Medium	Medium level of current development in the catchment management unit, with medium levels of expected future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited

Actions

0–2 years	2–5 years	5–10 years
Continue to monitor for change	Continue to monitor for change	Continue to monitor for change

THOMPSON CREEK CATCHMENT MANAGEMENT UNIT

The catchment management unit of Thompson Creek is located in the south west of the City's service area, and generally includes the suburbs of Breamlea and Mount Duneed.

Prioritisation Summary

Overall Priority	Summary
Low	No priority actions identified. The City will monitor the catchment for change.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Low	Higher level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	Low	Low priority for irrigation of open space given existing rural environment
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Low	Low priority for enhanced water quality management based on nature / extent of development and value of receiving waterways
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Low	Limited existing development and low level of expected future development
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	High	Formal knowledge of catchment (flood risk) is limited
Priority Assessment Summary	No priority actions identified. The City will monitor the catchment management unit for change.	

Actions

0–2 years	2–5 years	5–10 years
Continue to monitor for change	Continue to monitor for change	Continue to monitor for change

BARWON HEADS CATCHMENT MANAGEMENT UNIT

The catchment management unit of Barwon Heads is located in the south of the City's service area, and generally includes the suburbs of Barwon Heads and Connewarre.

Prioritisation Summary

Overall Priority	Summary
Medium	The City will explore the creation of multifunctional assets for the catchment management unit of Barwon Heads. These are likely to be opportunistic if/when they occur. No other actions identified, other than ensuring that existing stormwater assets such as pumps and levies are maintained appropriately. The impacts of coastal inundation and erosion may increase risk in the Catchment Management Unit. Consequently, the City will monitor the catchment management unit for change and service performance.



Status

Objective	Priority	Commentary
Reduce dangerous stormwater flooding which impacts people, places and the environment to be delivered through adaptation programs.	Low	Low number of historical flooding events
Support Urban Greening through the application of integrated water management practices	Low	Higher level of tree canopy coverage relative to other areas of the City
Integrate stormwater with natural and built environments which create multifunctional community spaces.	High	High priority for the City to explore irrigation of open space and creation of multifunctional community spaces
Protect the health of receiving waterways, maximising the value and amenity these waterways provide to urban environments.	Medium	Medium priority to manage water quality risks based on nature/extent of current development and the sensitive receiving environments of the Barwon River estuary
Implement whole of stormwater catchment practices which respond to growth in existing and new urban environments.	Medium	Medium level of current development which may be affected by ongoing growth
Develop partnerships with governments, water corporations and other key agencies, organisations and individuals to plan and deliver stormwater solutions.	Low	No partnership projects identified
Implement stormwater systems which are adaptable to future needs.	Low	Formal knowledge of catchment (flood risk) is contemporary and comprehensive

Actions

0–2 Years	2–5 years	5–10 years
Continue to monitor for change **Action:** Explore opportunities to irrigate public open spaces and multifunctional facilities **Action:** Ensure active infrastructure is appropriately maintained (e.g. pumps)	Continue to monitor for change **Action:** Ensure active infrastructure is appropriately maintained (e.g. pumps)	Continue to monitor for change **Action:** Ensure active infrastructure is appropriately maintained (e.g. pumps)

Appendix D

CATCHMENT MANAGEMENT STRATEGY OUTLINE

This Appendix includes an outline of a catchment management unit plan.

Catchment Management Unit Stormwater Management Plan

City of Greater Geelong

Table of Contents

1. Catchment Management Unit (CMU) Strategic Objectives and Key Service Outcomes

2. CMU Performance

    a. Achievement of Strategic Objectives
    b. Capability to Meet Required Service Outcomes
    c. Opportunities to Improve Service Outcomes
    d. Targets and Timelines for Improvement
        i. Achievement of Minimum Level of Service Outcomes
        ii. Further Value Added Service Outcomes
    e. Summary Table – Key Areas of Specific Focus for Action
        i. 5 year planning horizon
        ii. 5-15 year outlook

3. Key Actions to Improve and Ensure Ongoing Delivery of Service Outcomes (5 year planning horizon)

    a. Investigations Programs
        i. Customer and community engagement on service outcomes
        ii. Monitoring and data collection
            - Climate and flow
            - Water quality and environmental/ecological impacts
            - Asset condition and performance
        iii. Hydraulic, hydrologic and flood modelling and mapping
        iv. Environmental and ecological impact studies
        v. Development of programs to address shortfalls in service capability
            - Asset service solutions
            - Non-asset service solutions
    b. Program of Asset Improvement Works
    (under sub-categories such as: drainage and flood protection, water quality protection, amenity/open space, stormwater harvesting and irrigation)
        i. New assets – growth
        ii. Asset augmentation – performance improvement
        iii. Asset management plan works (linked to Asset Management Plan)
            - Renewals – restore condition and capacity
            - Maintenance – maintain condition and capacity
    c. Non-Asset Services Programs
        i. Planning and overlay controls to prevent adverse service impacts
        ii. Drainage system and flood monitoring
        iii. Flood alerts and warnings
        iv. Flood event assistance
        v. Flood event recovery
        vi. Linkages and coordination with other agencies
            - SES
            - Victoria Police
            - Emergency Management Victoria
            - CMA

- Barwon Water
- Melbourne Water
- DELWP

d. Funding
    i. Investigations Programs
    ii. Asset Improvement Works Programs
    iii. Non-Asset Services Programs

4. Key Linkages to Related Strategies, Operational and Delivery Plans, Strategic Projects and Initiatives
    a. Stormwater Services Strategy
    b. Asset Management Plan
    c. Flood Management Plan
    d. Water Quality Management Plan
    e. Strategic flagship projects
    f. Barwon IWM Forum

5. Monitoring and Review
    a. Management Plan Implementation Governance
    b. Process for Monitoring Implementation and Service Performance
    c. Process and Timing of Management Plan and Service Performance Review (suggest annual reporting and 5 year review cycle)
    d. Review of and Reporting on Implementation of Key Actions Programs
        i. Investigations Programs
        ii. Asset Improvement Works Programs
        iii. Non-Asset Services Programs
    e. Periodic Review of Information Update Requirements
        i. Flood modelling and mapping
        ii. Water quality impact assessments
        iii. Environmental and ecological impact assessments
        iv. Asset condition and performance assessments
        v. Climate data and service performance monitoring
    f. Periodic Review of and Reporting on Service Capability
        i. Asset condition and performance
        ii. Service systems performance
        iii. Customer and community expectations
    g. Periodic Review of Key Action Programs and Funding Arrangements
        i. Managing residual service capability risks
        ii. Managing emerging and future service capability risks
        iii. Opportunities to further improve broader service outcomes
        iv. Adaptive planning and maintaining flexibility for the future
        v. Customer and community engagement
            - Evolving service outcome requirements
            - Revision of Management Plan

3. AMENDMENT C363 - CENTRAL RD DRYSDALE REZONING - CONSIDERATION OF SUBMISSIONS

Source:	**Planning, Design & Development - Strategic Implementation**
Director:	**Gareth Smith**
Portfolio:	**Sustainable Development**

Purpose

1. To consider submissions to Planning Scheme Amendment C363 and recommend all the submissions be referred to an Independent Planning Panel.

Background

1. On 28 May 2019 Council resolved to prepare and exhibit Amendment C363.

2. The Amendment seeks to rezone 28 Rural Living zoned properties on either side of Central Road, Drysdale, to facilitate residential development. The rezoning is supported by overlay controls to manage orderly planning, subdivision design, connectivity and developer contributions. The area proposed to be rezoned is shown in **Attachment 2**.

Key Matters

3. Exhibition of Amendment C363 commenced on 5 September and closed on 14 October 2019. Notices were sent to 236 landowners and occupiers and appeared in local newspapers. The Amendment documentation was made available on the Geelong Australia website and at the Drysdale Library.

4. 71 submissions were received. 40 submissions from local residents and Bellarine community groups, as well as two owners whose land is proposed to be rezoned, do not support the Amendment. There were also 21 objections from residents of Marsh Court to the proposed Marsh Court road connection to the new residential estate.

5. Generally supportive submissions were received from six owners whose land is proposed to be rezoned, including the proponent, Bellarine Springs Retirement Village and owners on the east side of Central Road with development interests.

6. Key issues can therefore be summarised as: (1) the Amendment is contrary to the town's character and planning policy; (2) the proposed road connection to Marsh Court should be removed; and (3) a broad range of concerns, objections or support from directly affected landowners.

7. In accordance with the *Planning and Environment Act* Council must now either: change the Amendment in the manner requested by the submitters, refer the submissions to an Independent Panel or abandon the Amendment.

8. Council officers have considered the submissions and recommend:

   9.1 Removal of the proposed road connection to Marsh Court and replacement with a linear reserve for pedestrian, bicycle and stormwater drainage use only; and

   9.2 Removal of the application of GST costings from the draft Central Road Drysdale Development Contributions Plan.

9. It is recommended that all submissions be referred to an Independent Panel appointed by the Minister for Planning.

Cr Sullivan moved, Cr Mason seconded -

11. That the report be deferred.

Carried.

4. MALOP STREET GREEN SPINE – TRAFFIC FLOW: INTERIM REPORT

Source: **City Services – Engineering Services**
Director: **Guy Wilson-Browne**
Portfolio: **Transport and Connections**

Purpose

1. To update Council with the results of the independent traffic review undertaken for Malop Street Green Spine including the assessment of the installation of vehicle turning lanes at the intersection of Malop Street and Yarra Street and Malop Street and Moorabool Street.

Background

2. At the 12 February 2019 Community Focus Council Meeting, Council resolved to seek a review of the operations of the Malop Street Green Spine post implementation, particularly how it related to traffic flow and safety.

3. At the 25 June 2019 Council Meeting, Council resolved to:

   Request the Chief Executive Officer to provide a report to Council by November 2019, which includes an outline of the work scope, the potential impacts on the Green Spine design, pros and cons, costs and timelines for implementation to install/introduce vehicle turning lanes at the intersections of Malop Street and Yarra Street and Malop Street and Moorabool Street.

4. The Malop Street Green Spine is highlighted as a catalyst project in the Vision 2 strategy and is identified in Council's 2013 Central Geelong Action Plan, including the Victorian Government's Revitalising Central Geelong Action Plan.

5. The objective of the project is to develop a streetscape that makes the city more liveable and encourages people to spend longer in the space.

Key Matters

6. In response to the request to review operations and impacts of introducing turning lanes, Traffic Engineering Consultants GHD were engaged to undertake data collection and traffic modelling to produce the Malop Street Traffic Assessment Report (the Report) **(Attachment 2).**

7. The Report provides a summary of existing conditions on the Malop Street Green Spine corridor between Mercer Street and Bellarine Street in central Geelong.

8. The conclusion of the Report is that there are minimal improvements with either additional right turn lanes or left turn lanes out of the Malop Street Green Spine. As such, introducing right turn lanes or left turns lanes on Malop Street at Yarra Street and Moorabool Street will not provide significant benefits to the community.

9. The Report also recommends that the current delays to pedestrians at all crossings could be improved.

10. A concept design with turning lane layouts at Yarra Street and Moorabool Street intersections was prepared. An engineering cost assessment determined the total capital cost at $1.1M to install right and left turning lanes at each of the intersections.

Cr Kontelj moved, Cr Nelson seconded -

11. That Council:

11.1 Note the findings of the Malop Street Traffic Assessment Report (GHD October 2019); and

11.2 Continue to evaluate the changes in traffic conditions and driver behaviour and receive a further report on the measures in March 2020 as per Council's 25 June 2019 resolution.

11.3 Request the Chief Executive Officer to provide a report to Council by no later than March 2020 which includes an outline of various options, work scope, the potential impacts on the Green Spine design, pros and cons, costs and timelines, including but not limited to:

a) build capacity into Malop Street between Moorabool Street and Yarra Street, which will efficiently service an increase in traffic flow of 11,000 plus car movements per day,

b) achieve service levels for vehicle movements equal to or better than April 2016 (pre-Green Spine);

c) install left and right vehicle turning lanes at the intersections of Malop Street and Yarra Street and Malop Street and Moorabool Street;

d) increase on street 2P car parking locations on Malop Street between Moorabool Street and Yarra Street by up to 100% more than current;

e) improve pedestrian safety and vehicle delays at pedestrian crossings;

f) ensure relevant costings are provided to Councillors in order to consider inclusion into the 2020 / 2021 Council budget.

Carried.

Division Requested:

For: **Crs Aitken, Murrihy, Kontelj, Asher, Grzybek, Mason, Sullivan, Nelson**
Against: **Crs Mansfield, Harwood, Murnane**

Cr Grzybek left the meeting room at 8.49pm
Cr Grzybek re-entered the meeting room at 8.51pm

Attachment 1

Financial Implications

1. The total cost to install right and left turn lanes on Malop Street at the intersections of Yarra Street and Moorabool Street is $1,100,000.

Community Engagement

2. Community engagement was not undertaken in the development of this report or the traffic data and movement review.

Social Equity Considerations

3. Social equity has been considered in the development of the Green Spine project, particularly relating to provision of access for those community members with a disability or impairment. The concept design to include turning lanes in the Green Spine has prioritised bicycle lanes or pedestrian accessibility, and utilises space from parking (these are concept designs only and would need further detailed design undertaken).

Policy/Legal/Statutory Implications

4. There are no policy, legal or statutory implications arising from this report.

Alignment to Council Plan

5. The Green Spine is identified as a key catalyst project in Vision 2, Central Geelong Action Plan, Revitalising Central Geelong and Council Plan supporting Integrated Transport Connections and A Thriving and Sustainable Economy.

Conflict of Interest

6. No City officers or contractors involved in the preparation of this report have a direct or indirect interest in the matters to which this report relates.

Risk Assessment

7. Safety is paramount and the City adopts the Safe System Principles lead by TAC in reviewing and monitoring the municipalities road network. Traffic speed in Central Geelong has been reduced to 40km/h in recognition of the need to reduce traffic speed and prioritise the safety of vulnerable users, pedestrians and cyclists.

8. The Green Spine is designed to make the City more liveable and encourage people to spend longer along the Malop Street Green Spine. As such, we have considered the need to reduce the impact of vehicles in this space and reprioritise for pedestrians.

9. The traffic investigation identified risks to pedestrians with vehicles stopping within pedestrian crossings in Central Geelong. We have been liaising with Victoria Police to monitor and assist enforcing poor driver behaviour, as well as developing an education campaign '*don't block the intersection'*.

Environmental Implications

10. There are no identified environmental implications arising from this report.

Discussion

11. At the 25 June 2019 Council Meeting, Council amended the resolution to:

    11.1 Note the findings of the Malop Street Green Spine Investigation report;

    11.2 Note the measures outlined in the report Malop Street Green Spine Investigation report; and

    11.3 Note that with the exception of the PM east bound traffic, all other legs of the Moorabool / Malop Street intersection have resulted in comparatively minor increases or decreases in travel times and that any decreases are largely due to the decrease in vehicular traffic entering or egressing the Malop Street Green Spine.

    11.4 Note that officers will implement the following short term actions:

        (a) Continue to work with Regional Roads Victoria to improve traffic signal phasing;

        (b) Develop an education campaign to reduce traffic blocking intersections; and

        (c) Implement the identified directional signage improvements.

    11.5 Further evaluate the changes in traffic conditions and driver behaviour following the implementation of the above actions and that Council receive a further report on the measures in March 2020.

    11.6 *Request the Chief Executive Officer to provide a report to Council by November 2019, which includes an outline of the work scope, the potential impacts on the Green Spine design, pros and cons, costs and timelines for implementation to install/introduce vehicle turning lanes at the intersections of Malop Street and Yarra Street and Malop Street and Moorabool Street.*

12. Consultants, GHD, were engaged to undertake:

    12.1 Further data collection, including vehicle volumes, vehicle travel time, vehicle queue lengths and pedestrian delays; and

    12.2 Traffic modelling to assess the impacts of installing right or left turn lanes, relative to existing conditions.

13. GHD prepared a *Malop Street Traffic Assessment* report **(Attachment 2)**. This report details the methodology, survey results, and comparisons between data from April 2016 (pre-Green Spine), February 2019 (post-Green Spine) and September 2019 (post-Green Spine).

14. In summary, the results from GHD's investigations and survey data conclude that:

    14.1 Traffic volumes in the Green Spine are consistent from February to September 2019, approximately 6,000 vehicles per day. This compares to almost half the traffic volumes in April 2016, 11,500 vehicles per day;

    14.2 Turning movements between February and September 2019 at the intersections of Moorabool and Yarra Streets are generally consistent, which are at much lower levels compared to 2016 volumes due to lower overall traffic volumes;

    14.3 The pedestrian movements at the recorded locations are all consistent between February and September 2019;

    14.4 Travel time survey was collected between Gheringhap Street and Bellarine Street, for both westbound and eastbound traffic. As expected, travel time varies through the day relative to the traffic volumes;

14.5 The 'free flow' time between Gheringhap and Bellarine Streets is just over one minute (assuming 40km/h speed). The cumulative delay imposed with the traffic signals at the Clare Street signalised pedestrian crossing, the Moorabool/Malop Street traffic signals, the Westfield/Market Square signalised pedestrian crossing; and, the Yarra/Malop Street traffic signals in total, is 1 minute 3 seconds. Peaking just over 2 minutes for a 15 minute period in the PM peak;

14.6 Intersection modelling was undertaken for Moorabool/Malop Street and Yarra/Malop Street intersections. Two options were modelled, Option 1 included right turns to the Malop Street legs of the Green Spine, Option 2 included left turn lanes to the Malop Street legs of the Green Spine;

14.7 Intersection modelling results determined that on average the inclusion of either a left or right turn has an overall benefit of, at most, 1 second to the overall delay;

14.8 Pedestrian delays were estimated from video footage and vary from 25 to 40 seconds per phase; and

14.9 GHD's findings conclude that there are minimal improvements with either additional right turn lanes or left turn lanes out of the Malop Street Green Spine. As such, introducing right turn lanes or left turns lanes on Malop Street at Yarra Street and Moorabool Street will not provide significant benefits to the City of Greater Geelong or the driving community.

15. An engineering assessment was undertaken to determine the estimated capital cost to install turn lanes to the; Malop Street east approach of the Moorabool/Malop Street intersection; and, Malop Street west approach of the Yarra/Malop Street intersection. The estimate was derived from concept designs of the proposed additional turning lanes were they to be installed. The estimate came to a total cost of $1,100,000. Should the installation of turning lanes progress in the future, a detailed design would be required in order to provide a detailed estimate and breakdown of costs.



City of Greater Geelong

Malop Street Traffic Assessment

Summary of Results

October 2019

Table of contents

1. Introduction....1
   - 1.1 Purpose of this report....1
   - 1.2 Scope and limitations....1
   - 1.3 Assumptions....1
2. Existing Conditions....2
   - 2.1 Overview....2
   - 2.2 Site Surveys....3
   - 2.3 Travel Times and Delay....4
   - 2.4 Traffic Movements....7
   - 2.5 Vehicle Queue Lengths....11
   - 2.6 Pedestrian Delays....17
3. Intersection Modelling....18
   - 3.1 Introduction....18
   - 3.2 SIDRA modelling....18
   - 3.3 Summary of Results....32
4. Conclusions....33
   - 4.1 Overview....33
   - 4.2 Existing Conditions....33
   - 4.3 Modelling Assessment....33

Table index

Table 1 Malop St/Moorabool St Pedestrian Delays....17

Table 2 Malop St Pedestrian Crossing - Pedestrian Delays....17

Table 3 Malop St/Yarra St Pedestrian Delays....17

Table 4 Degree of Saturation Criteria Thresholds....22

Table 5 Level of Service Criteria Thresholds....22

Table 6 Malop St/Moorabool St Existing Layout - AM Peak Results....24

Table 7 Malop St/Moorabool St Existing Layout - Inter Peak Results....24

Table 8 Malop St/Moorabool St Existing Layout - PM Peak Results....24

Table 9 Malop St/Yarra St Existing Layout - AM Peak Results....25

Table 10 Malop St/Yarra St Existing Layout - Inter Peak Results....25

Table 11 Malop St/Yarra St Existing Layout - PM Peak Results....25

Table 12 Malop St/Moorabool St Option 1 - AM Peak Results....27

Table 13 Malop St/Moorabool St Option 1 - Inter Peak Results....27

Table 14 Malop St/Moorabool St Option 1 - PM Peak Results 27
Table 15 Malop St/Yarra St Option 1 - AM Peak Results 28
Table 16 Malop St/Yarra St Option 1 - Inter Peak Results 28
Table 17 Malop St/Yarra St Option 1 - PM Peak Results 28
Table 18 Malop St/Moorabool St Option 2 - AM Peak Results 30
Table 19 Malop St/Moorabool St Option 2 - Inter Peak Results 30
Table 20 Malop St/Moorabool St Option 2 - PM Peak Results 30
Table 21 Malop St/Yarra St Option 2 - AM Peak Results 31
Table 22 Malop St/Yarra St Option 2 - Inter Peak Results 31
Table 23 Malop St/Yarra St Option 2 - PM Peak Results 31
Table 24 Malop St/Moorabool St Summary Results 32
Table 25 Malop St/Yarra St Summary Results 32
Table 26 Malop St/Moorabool St Overall Level of Service Results 35
Table 27 Malop St/Yarra St Overall Level of Service Results 35

Figure index

Figure 1 Study Area 2
Figure 2 Malop Street Eastbound Travel Times 4
Figure 3 Malop Street Westbound Travel Times 5
Figure 4 Malop Street Directionality Travel Times 5
Figure 5 Malop Street Directionality Delay 6
Figure 6 AM Peak Turning Movements (08:30-09:30) 7
Figure 7 AM Peak Pedestrian Crossing Movements (08:30-09:30) 8
Figure 8 Inter Peak Turning Movements (12:00-13:00) 8
Figure 9 Inter Peak Pedestrian Crossing Movements (12:00-13:00) 9
Figure 10 PM Peak Turning Movements (15:45-16:45) 9
Figure 11 PM Peak Pedestrian Crossing Movements (15:45-16:45) 10
Figure 12 AM Peak Moorabool St/Malop St Maximum Vehicle Queue Length (08:30-09:30) 11
Figure 13 AM Peak Malop St Central Pedestrian Crossing Maximum Vehicle Queue Length (08:30-09:30) 12
Figure 14 AM Peak Moorabool St/Yarra St Maximum Vehicle Queue Length (08:30-09:30) 12
Figure 15 Inter Peak Moorabool St/Malop St Maximum Vehicle Queue Length (12:00-13:00) 13
Figure 16 Inter Peak Malop St Central Pedestrian Crossing Maximum Vehicle Queue Length (12:00-13:00) 13
Figure 17 Inter Peak Moorabool St/Yarra St Maximum Vehicle Queue Length (12:00-13:00) 14

Figure 18 PM Peak Moorabool St/Malop St Maximum Vehicle Queue Length (15:45-16:45) 15
Figure 19 PM Peak Malop St Central Pedestrian Crossing Maximum Vehicle Queue Length (15:45-16:45) 15
Figure 20 PM Peak Moorabool St/Yarra St Maximum Vehicle Queue Length (15:45-16:45).....16
Figure 21 SIDRA Layout – Existing.....19
Figure 22 SIDRA Layout – Option 1.....20
Figure 23 SIDRA Layout – Option 2.....21

Appendices

Appendix A – Comparison of Traffic Datasets
Appendix B – SIDRA Outputs

1. Introduction

1.1 Purpose of this report

The purpose of this report is to provide a summary of the following investigations in relation to intersections along Malop Street in Geelong, Victoria

- Site survey results including video footage and Wi-Fi sensor date to obtain turning movement and travel time data; and
- SIDRA modelling results for the existing layout and proposed treatments.

1.2 Scope and limitations

This report: has been prepared by GHD for City of Greater Geelong and may only be used and relied on by City of Greater Geelong for the purpose agreed between GHD and the City of Greater Geelong as set out in Section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than City of Greater Geelong arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer Section 1.2 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by City of Greater Geelong and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.3 Assumptions

It has been assumed in the preparation of this report that there will be no changes in traffic routing through central Geelong as a result of the Option layout treatments.

2. Existing Conditions

2.1 Overview

The study area is focussed on the road corridor along Malop Street between Gheringhap Street and Yarra Street in Central Geelong, commonly known as the Malop Street Green Spine. This corridor contains two signalised intersections and one signalised pedestrian crossing, all of which are considered and analysed within this report.

Within the study area Malop Street operates with one lane in each direction with a designated speed limit of 40km/h with bike lanes along both directions and a high frequency of on-street parking.

The study area is shown in Figure 1.

2.1.1 Malop St/Moorabool St

This intersection connects Moorabool Street running north-south and Malop Street running east-west. All approaches/exits contain one primary lane with the north, west and south approach containing additional short lane turning-bays. All approaches allow for all turning movements.

2.1.2 Malop St/Yarra St

This intersection connects Yarra Street running north-south and Malop Street running east-west. The Yarra Street southern approach has two through lanes and one left turn and one right turn lane. The Yarra Street northern approach has one through, one left and one right turn lane. The Yarra Street legs each have two traffic lanes in each direction, the Malop Street western leg has one traffic lane for all left, through and right turn movements. The Malop Street eastern leg has one through, one left and one right turn lane for approach and one traffic lane for departure.

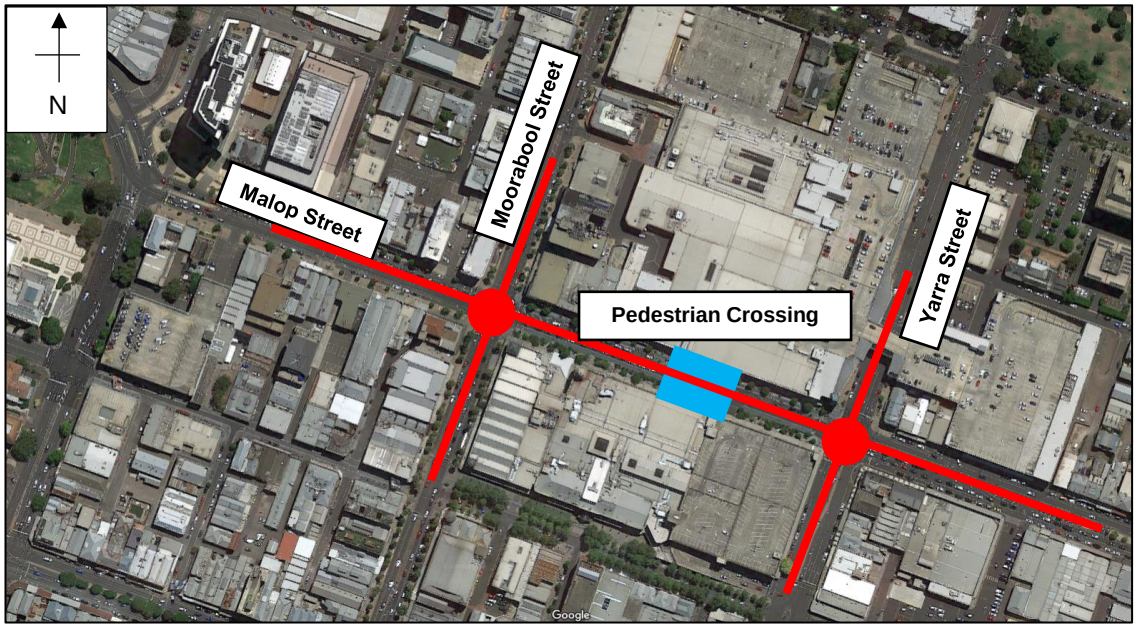


Figure 1 Study Area

2.2 Site Surveys

GHD commissioned survey subconsultants to collect traffic data for this study as follows:

- Wi-Fi surveys to determine travel times along Malop Street. Wi-Fi sensors were placed along Malop Street at the following locations:
  - Immediately east of Mercer Street;
  - Immediately east Moorabool Street; and
  - Immediately west of Bellarine Street.
- Collection of video footage data that was then utilised by GHD to determine turning movements and queue lengths at the identified locations on Malop Street.

Data was collected between 08:00 and 18:00 on Thursday 19 September 2019 in fine weather conditions.

- The focus of the travel time data was to assess travel times by 15 minute period between 08:00 and 16:00.
- The focus of the turning movement surveys was the following time periods:
  - AM Peak: 08:30-09:30.
  - Inter Peak: 12:00-13:00.
  - PM Peak: 15:45-16:45.

2.3 Travel Times and Delay

Data was collected for both eastbound and westbound traffic along this route. The following is a summary of the travel time results:

- Eastbound travel times generally increase through the daytime before reducing after 16:00. (Figure 2 presents eastbound travel time data.)
- Westbound travel times increase steadily through the day peaking at around 17:30. (Figure 3 presents westbound travel time data.)
- Figure 4 presents the total travel time across the corridor in both the eastbound and westbound directions to provide context about the travel times in each direction.

These trends correlate to traffic volumes, the more traffic the greater the travel time, which is to be expected.

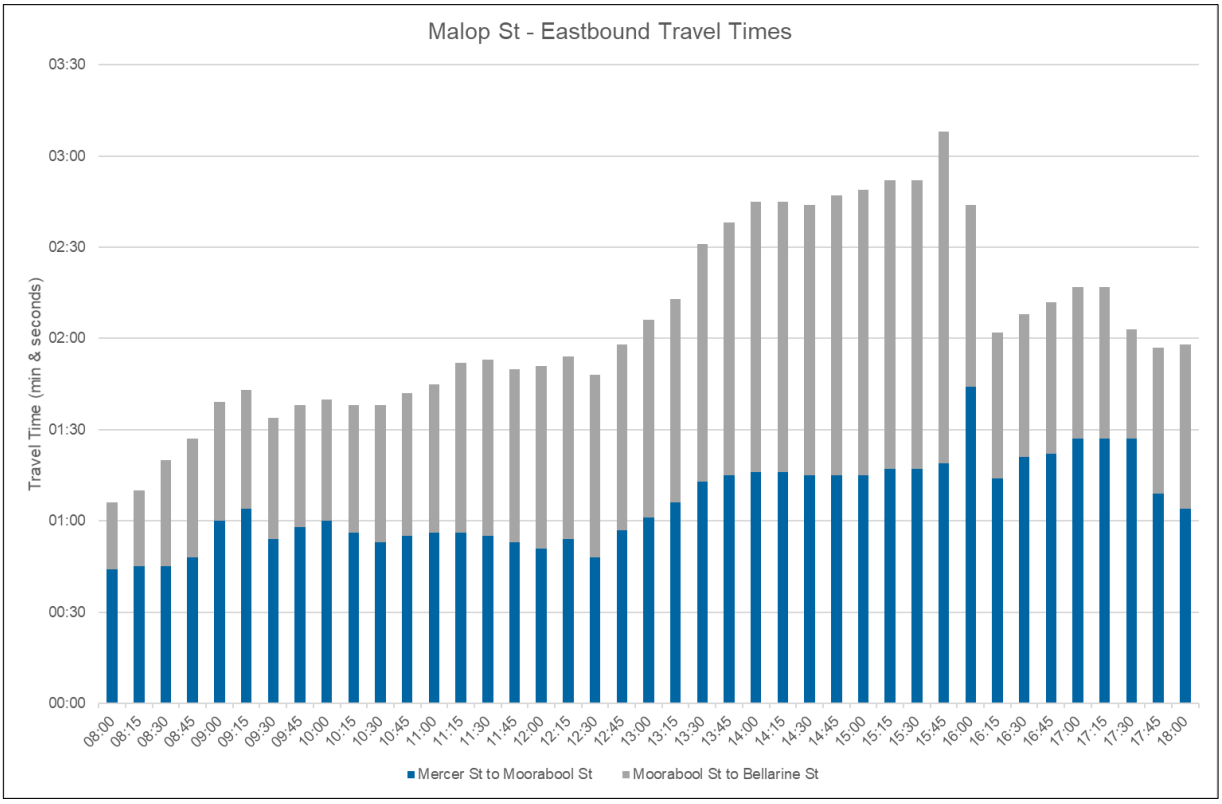


Figure 2 Malop Street Eastbound Travel Times

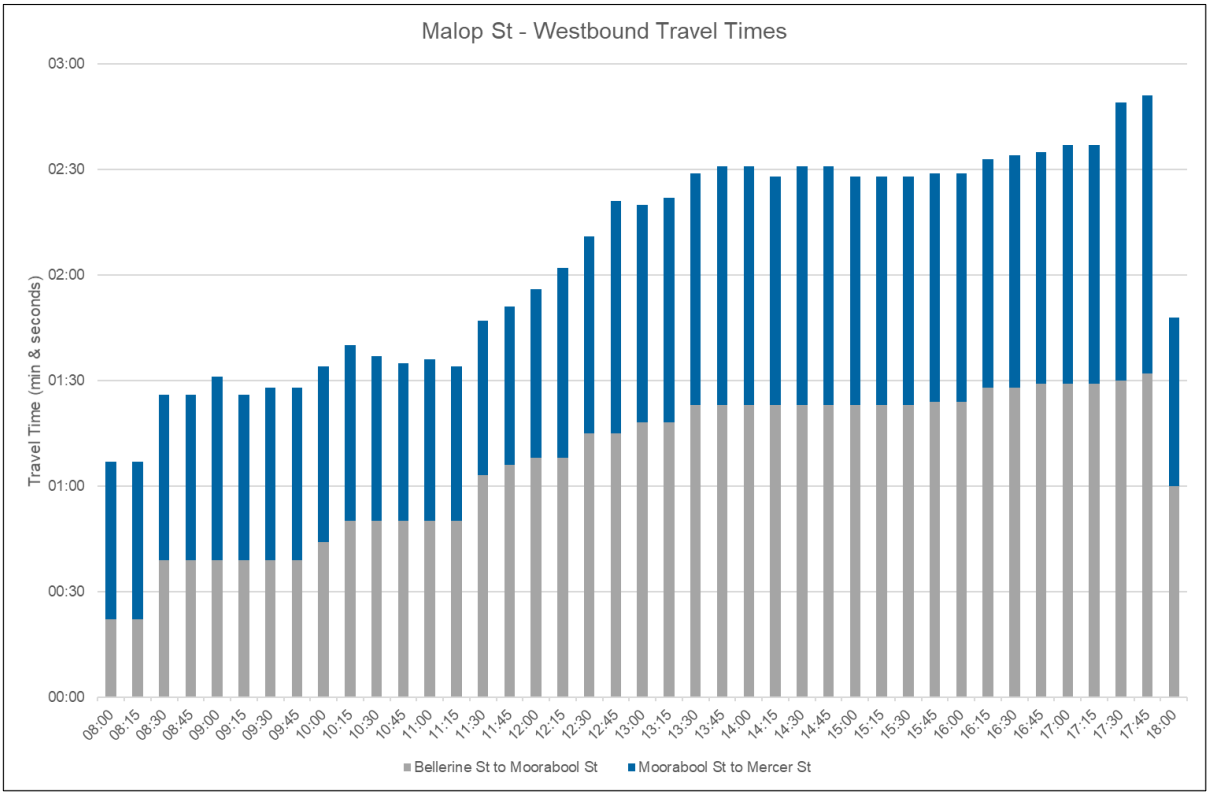


Figure 3 Malop Street Westbound Travel Times

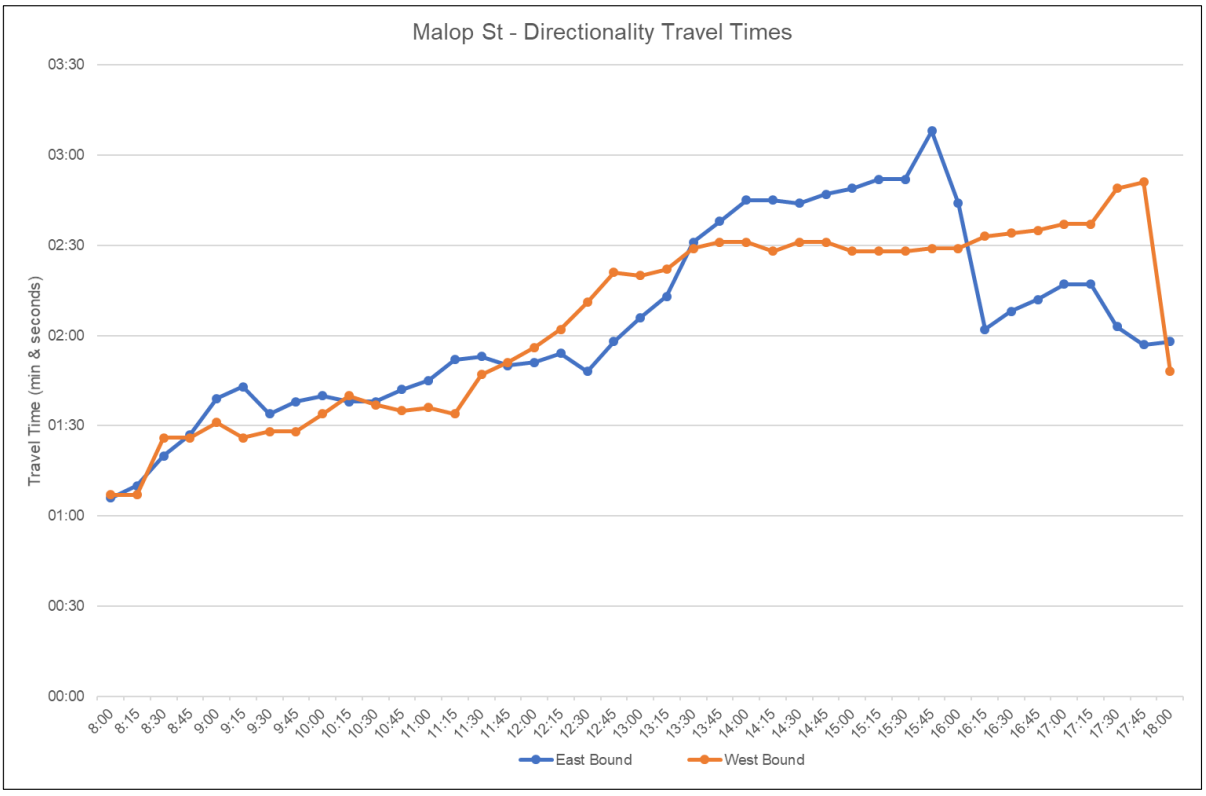


Figure 4 Malop Street Directionality Travel Times

Average delay for each fifteen minute period has also been calculated based upon this Wi-Fi data set and this is shown in Figure 5. This assumes a 40kph speed limit between Mercer Street and Bellarine Street meaning that if a vehicle were to travel along this section at the posted speed limit then it would take just over one minute. The chart shows that delay increases through the day peaking at over two minutes eastbound at 15:45. Overall average delay in both directions is 1 minute and three seconds.

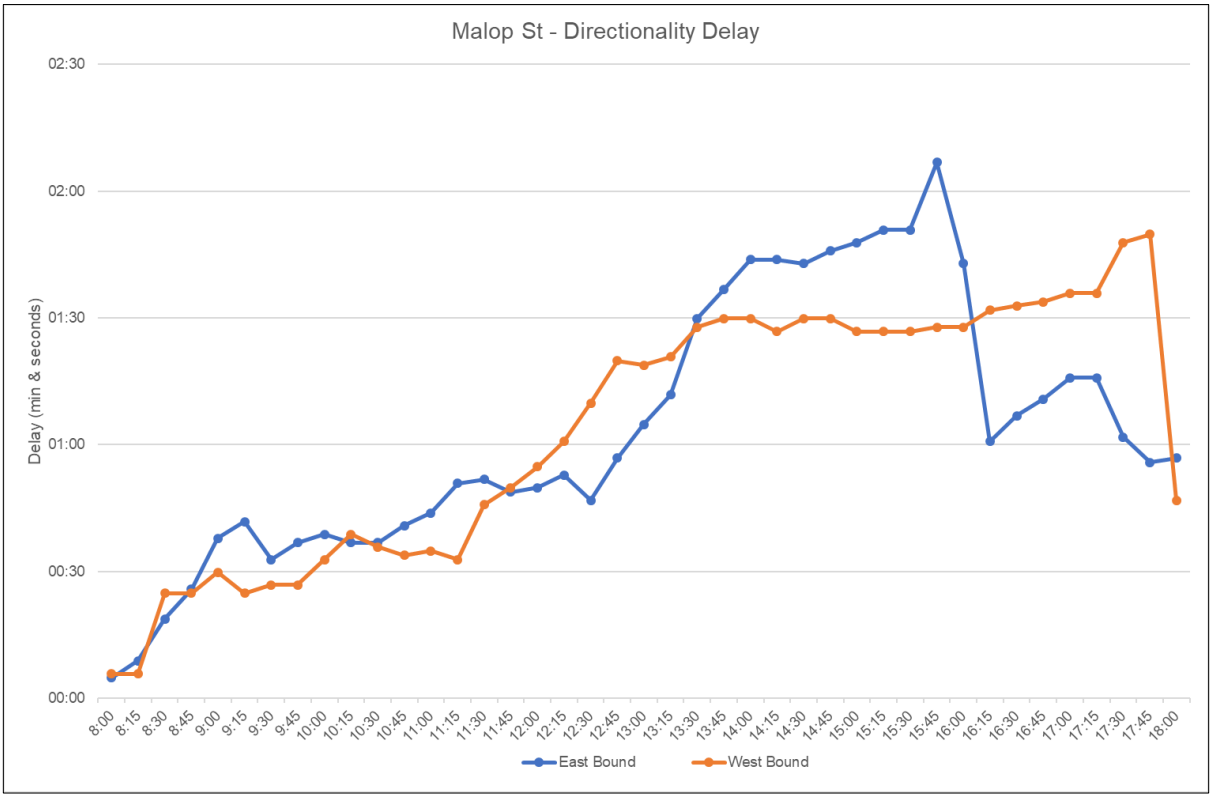


Figure 5 Malop Street Directionality Delay

2.4 Traffic Movements

As an indicator of Malop Street's function data sourced from the VicRoads SCATS dataset indicates that Malop Street carried 6,138 vehicles per day – 3,167 in the westbound direction and 2,971 in the eastbound direction. This is discussed further in Appendix A.

To assess peak periods on Malop Street video footage was undertaken at all legs of the Moorabool Street and Yarra Street intersections of Malop Street and the Pedestrian Operated Signals on Malop Street between Yarra and Moorabool Streets. The video footage was analysed at the peak time periods as follows:

- AM peak from 08:30 to 09:30;
- Inter peak from 12:00 to 13:00; and
- PM peak from 15:45 to 16:45.

This data was then converted into turning movement summaries and the following sections are a summary of the results.

2.4.1 AM Peak Data

- Figure 6 presents AM peak turning movements. It can be seen that there is traffic movements of between 200-500 vehicles entering/exiting each leg with the higher volumes being along Moorabool Street. Traffic volumes turning right out of Malop Street onto both Moorabool Street and Yarra Street are quite low – 24 vehicles and 55 vehicles respectively.
- Figure 7 presents AM peak hour pedestrian crossing movements. There is between 50-200 pedestrians on each of the signalised crossings with approximately 300 using the central crossing within the peak hour.

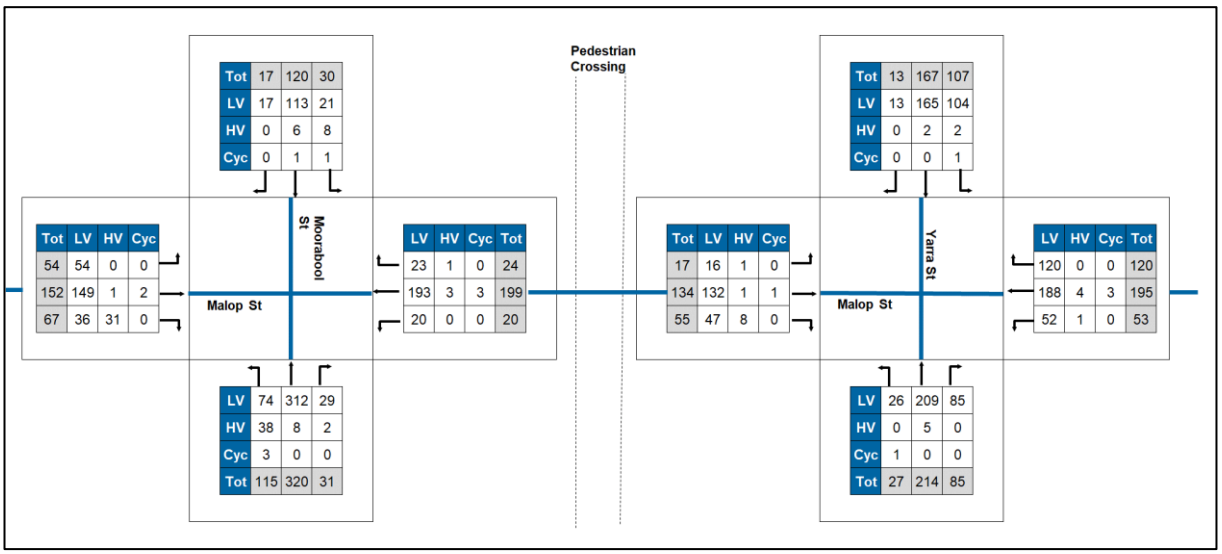


Figure 6 AM Peak Turning Movements (08:30-09:30)

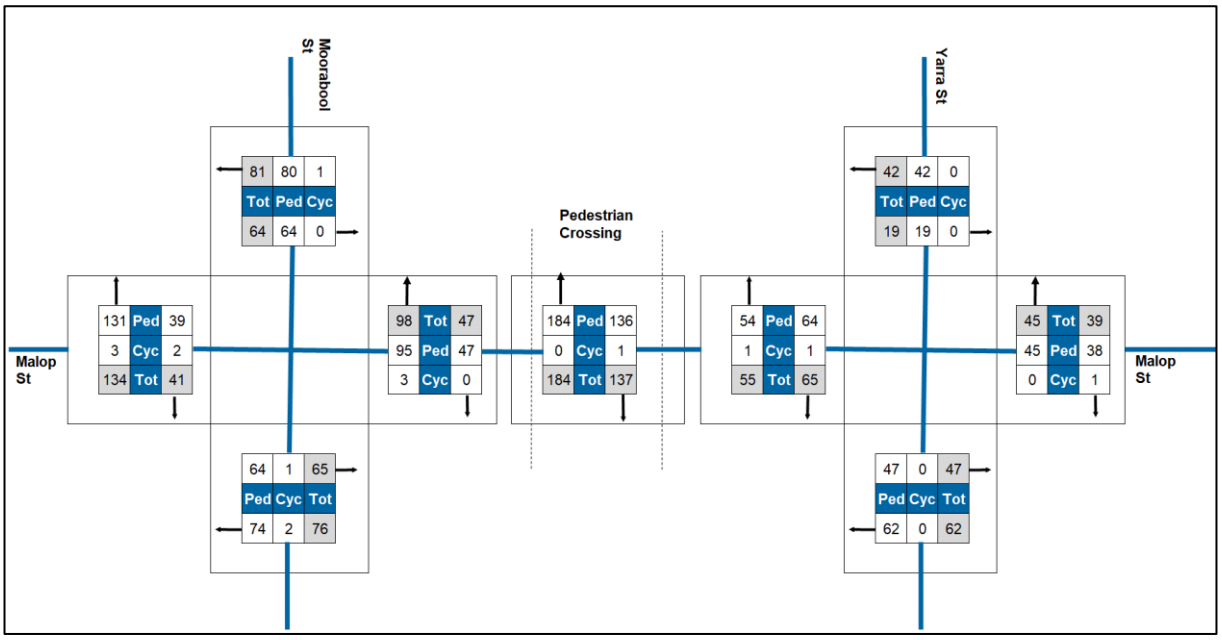


Figure 7 AM Peak Pedestrian Crossing Movements (08:30-09:30)

2.4.2 Inter Peak Data

- Figure 8 presents the Inter peak turning movements. It can be seen that there are generally slightly smaller traffic volumes overall compared to AM volumes. As with the AM peak vehicle volumes turning right out of Malop Street are quite low.
- Figure 9 presents the Inter peak pedestrian crossing movements. There is between 150-500 pedestrians on each of the signalised crossings with approximately 1,300 using the central crossing.

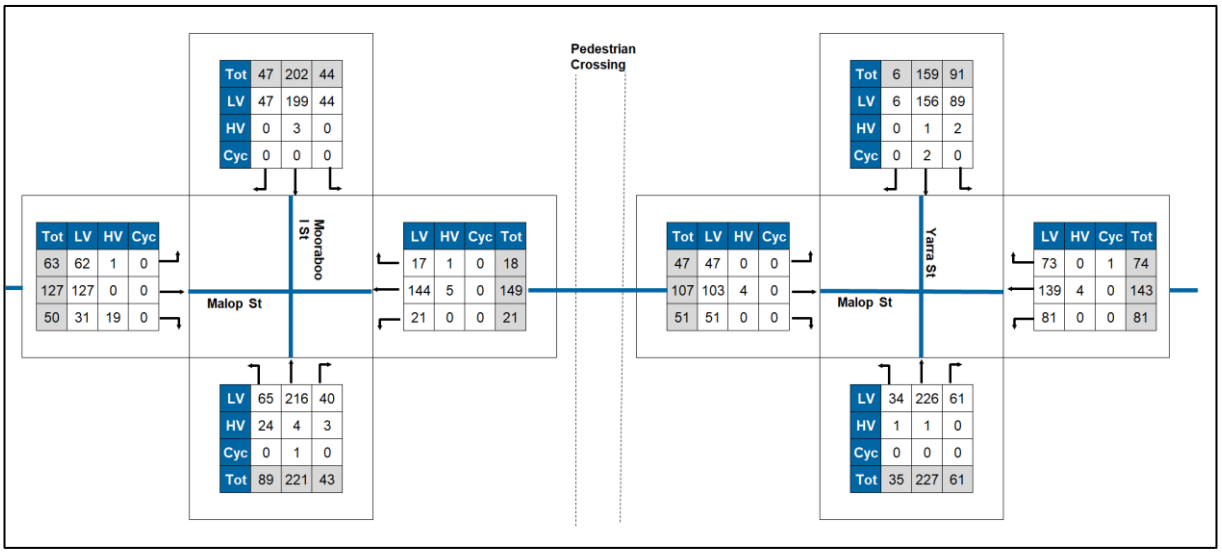


Figure 8 Inter Peak Turning Movements (12:00-13:00)

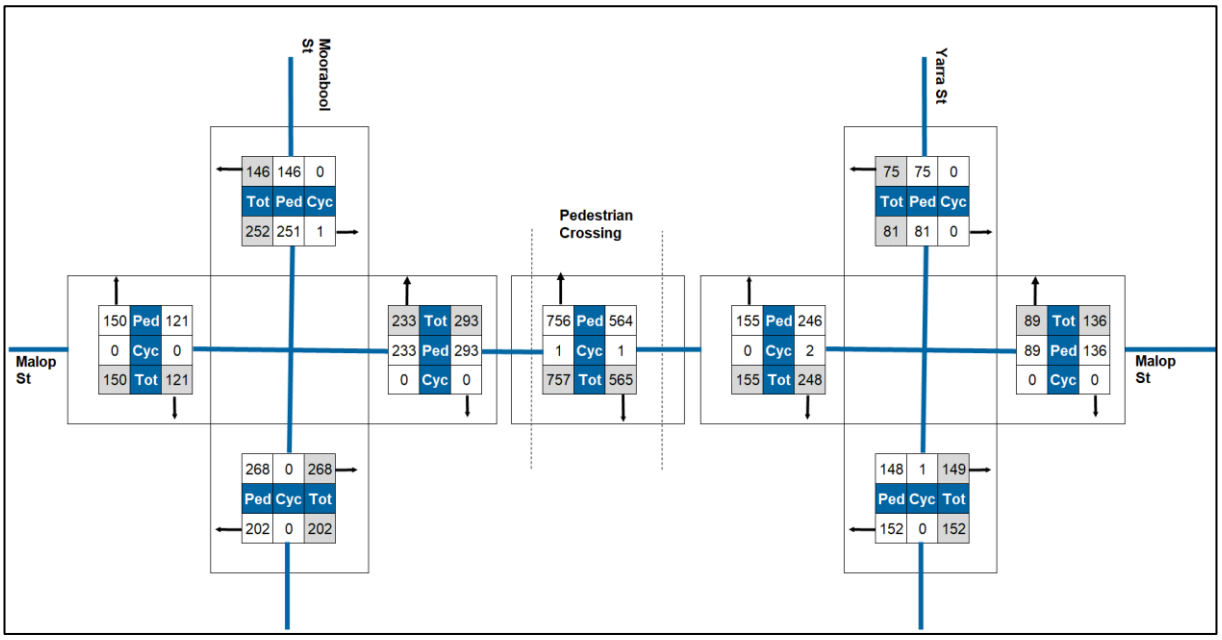


Figure 9 Inter Peak Pedestrian Crossing Movements (12:00-13:00)

2.4.3 PM Peak Data

- Figure 10 presents PM peak turning movements. It can be seen that there is traffic movements of between 250-500 vehicles entering/exciting each leg. As with the AM and Inter peak vehicle volumes turning right out of Malop Street are quite low – 15 vehicles onto Moorabool Street and 50 vehicles onto Yarra Street.
- Figure 11 presents PM pedestrian crossing movements. There is between 100-300 pedestrians on each of the signalised crossings with approximately 900 using the central crossing.

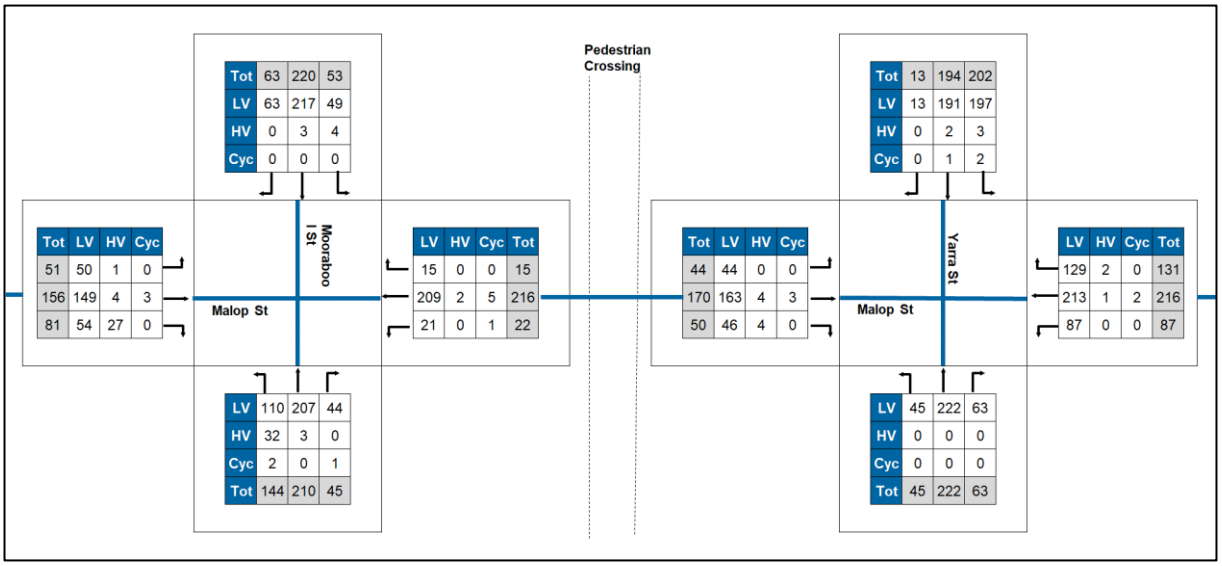


Figure 10 PM Peak Turning Movements (15:45-16:45)

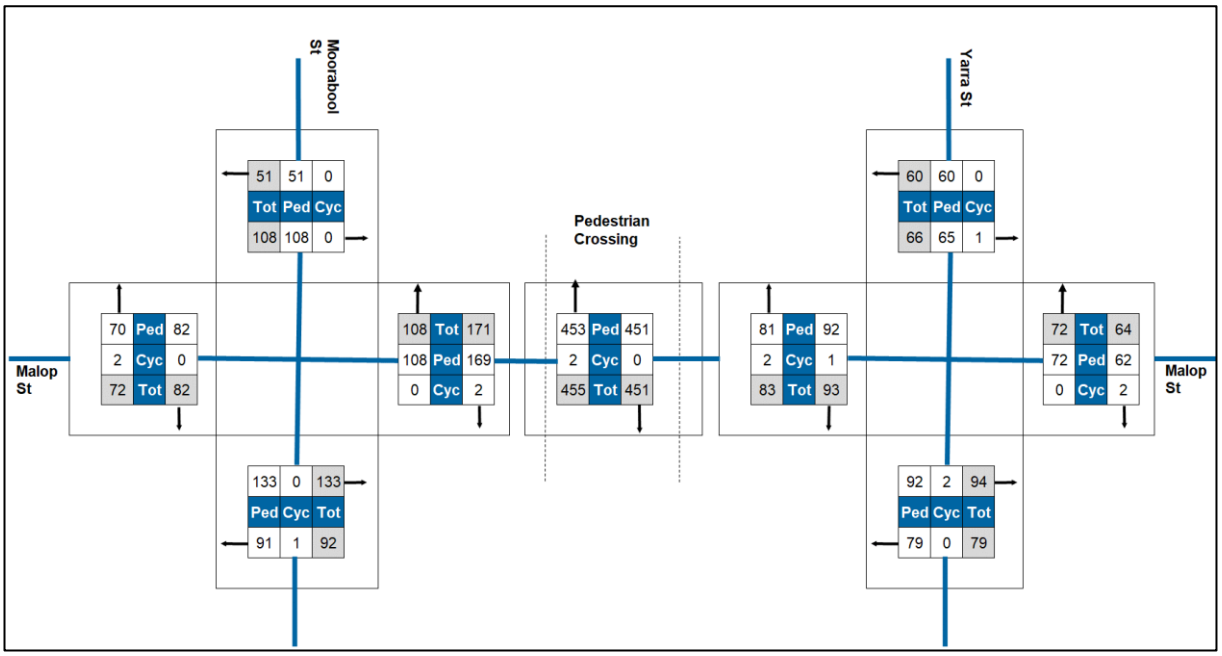


Figure 11 PM Peak Pedestrian Crossing Movements (15:45-16:45)

2.4.4 Overall

- Traffic volumes stay generally consistent for the three peak areas of values generally between 200-450 entering/exiting each leg, with PM volumes slightly busier overall
- Pedestrian movements differ significantly between times with the inter peak having the largest pedestrian movements, particularly on the central pedestrian crossing.

2.5 Vehicle Queue Lengths

Queue length data is summarised as follows:

- Figure 12 to Figure 14 present maximum queue lengths every five minutes during each of the AM Peak,
- Figure 15 to Figure 17 presents queue length data for the Inter Peak and
- Figure 18 to Figure 20 presents data for the PM Peak.

It can be seen in each figure that queue lengths along Malop Street can be longer in the peak periods but are typically around five vehicles at other times. This is consistent with on-site observations.

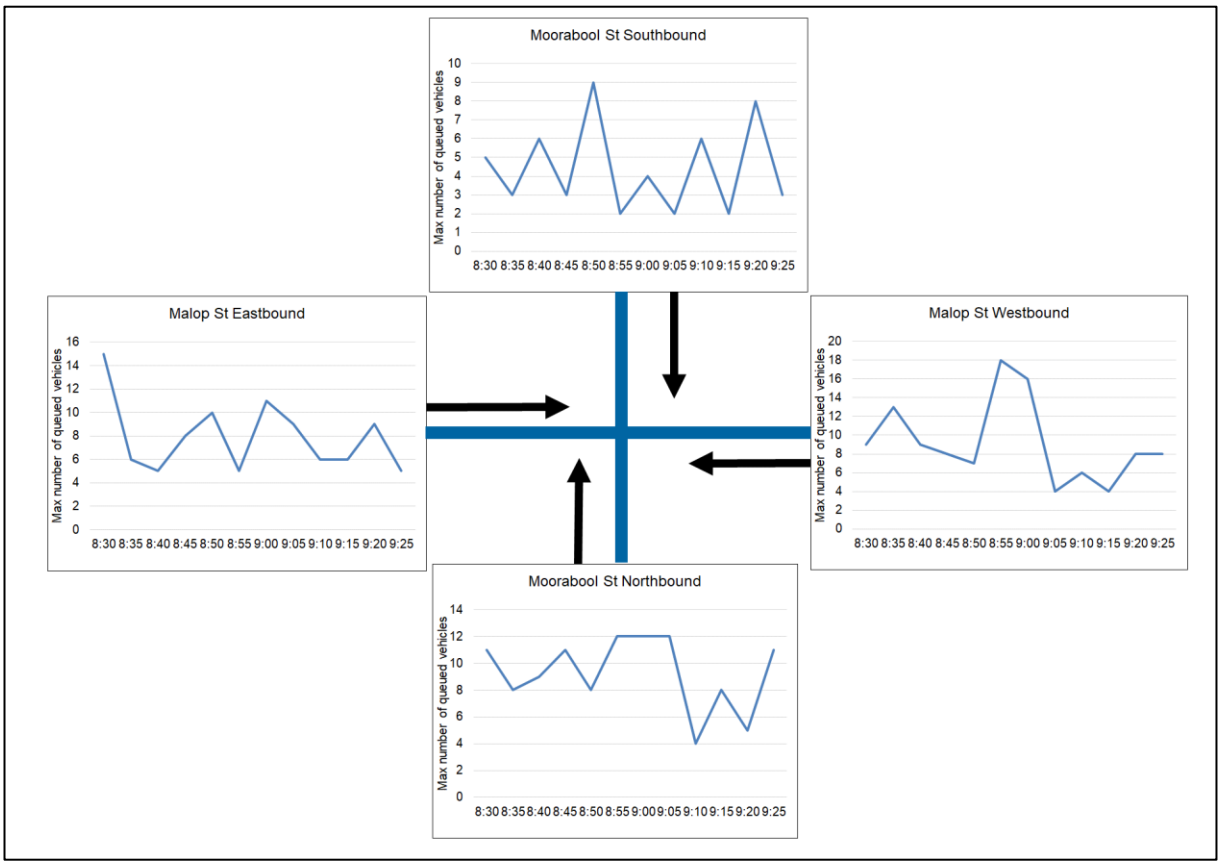


Figure 12 AM Peak Moorabool St/Malop St Maximum Vehicle Queue Length (08:30-09:30)

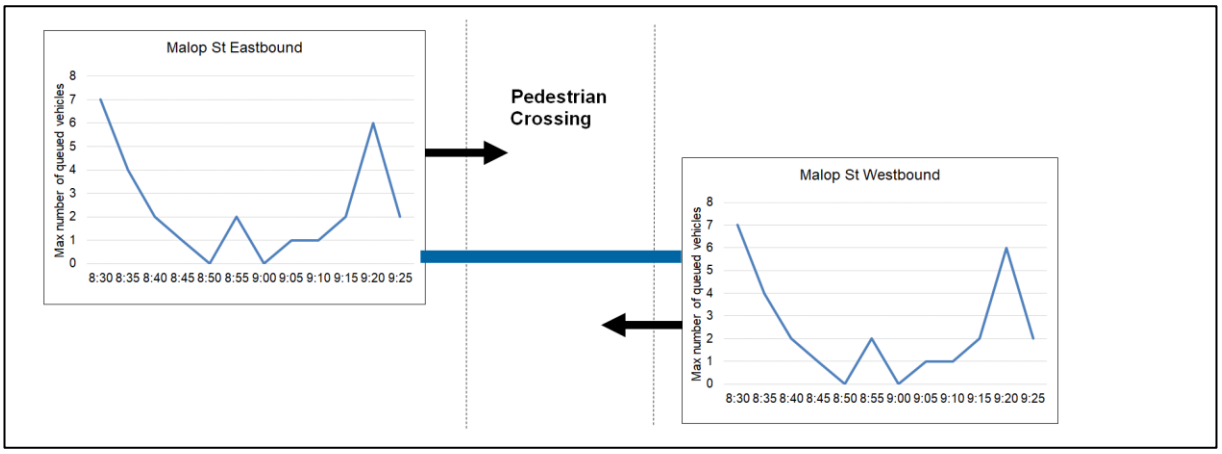


Figure 13 AM Peak Malop St Central Pedestrian Crossing Maximum Vehicle Queue Length (08:30-09:30)

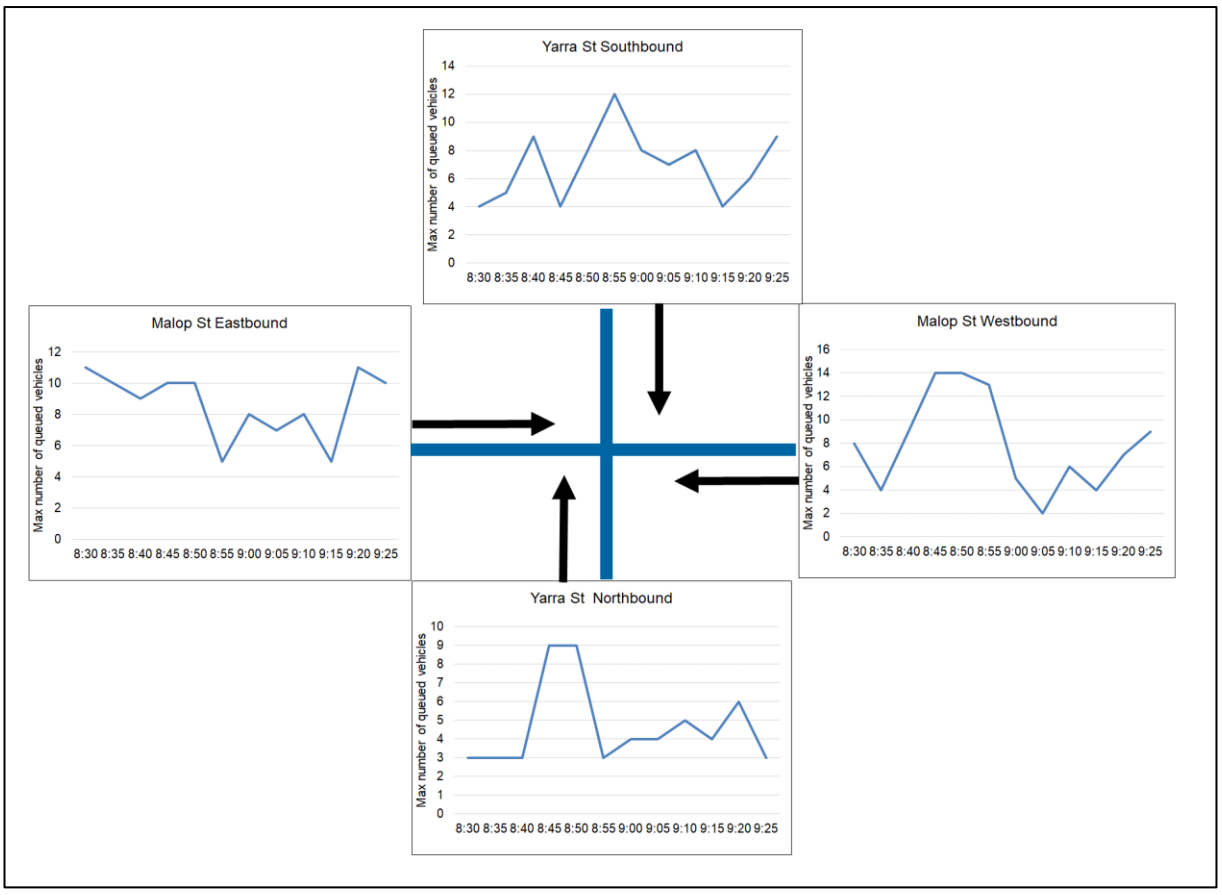


Figure 14 AM Peak Moorabool St/Yarra St Maximum Vehicle Queue Length (08:30-09:30)

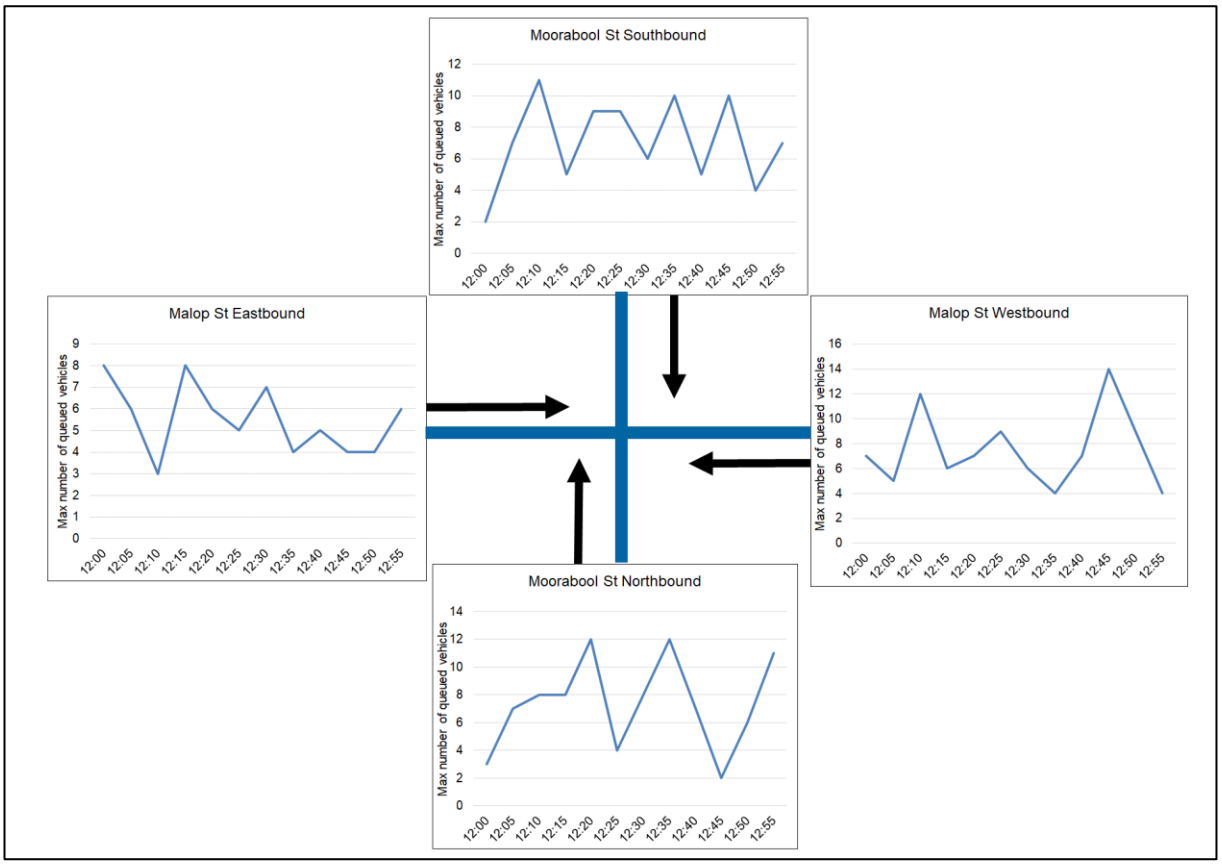


Figure 15 Inter Peak Moorabool St/Malop St Maximum Vehicle Queue Length (12:00-13:00)

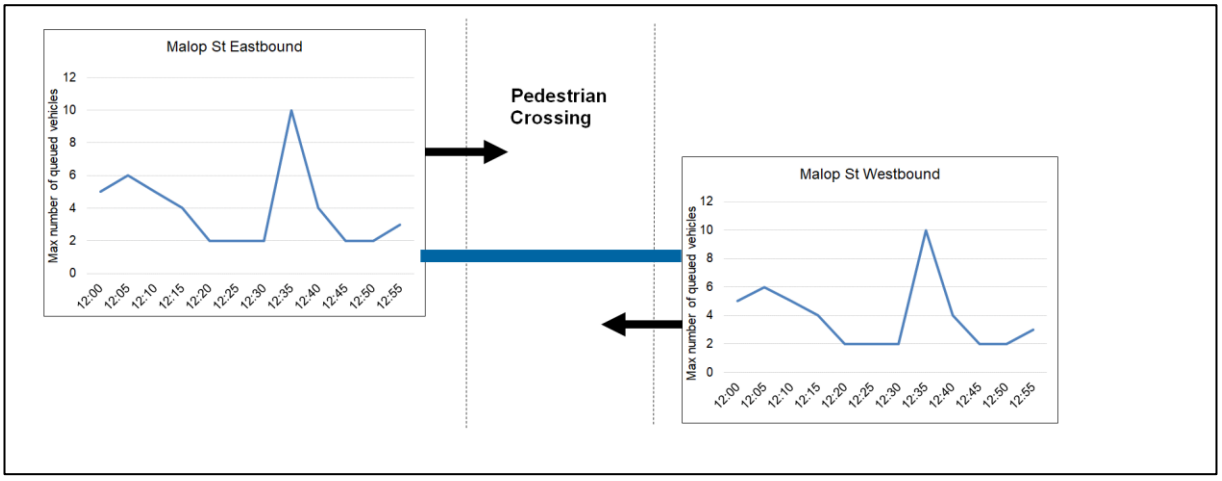


Figure 16 Inter Peak Malop St Central Pedestrian Crossing Maximum Vehicle Queue Length (12:00-13:00)

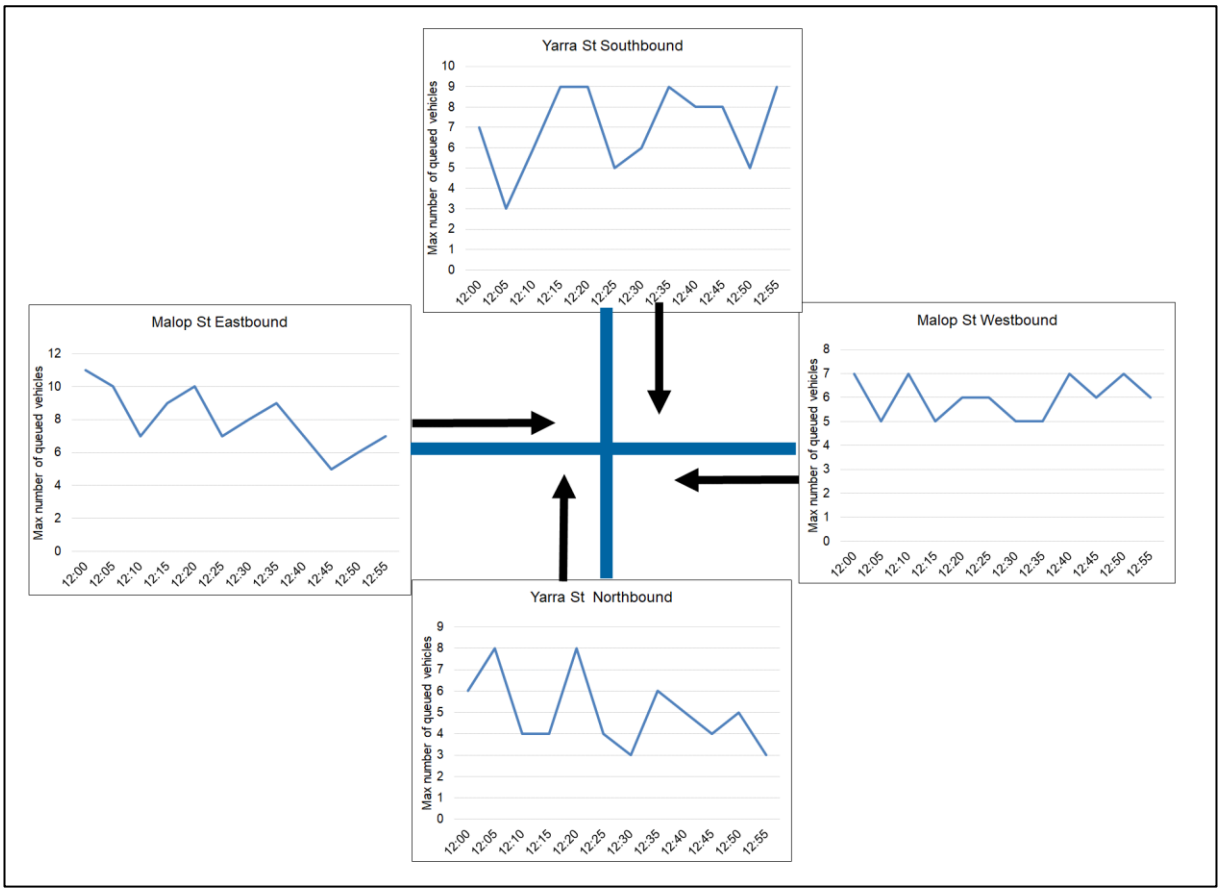


Figure 17 Inter Peak Moorabool St/Yarra St Maximum Vehicle Queue Length (12:00-13:00)

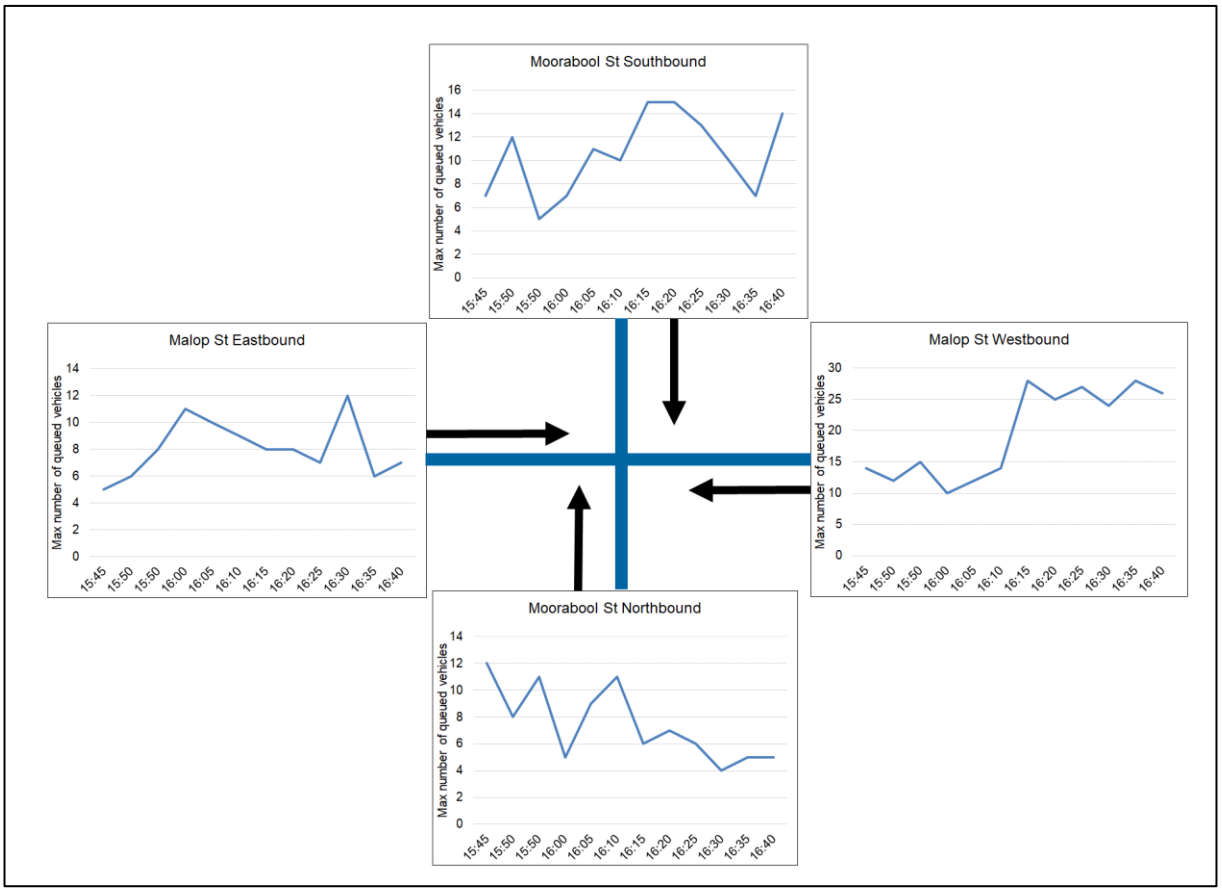


Figure 18 PM Peak Moorabool St/Malop St Maximum Vehicle Queue Length (15:45-16:45)

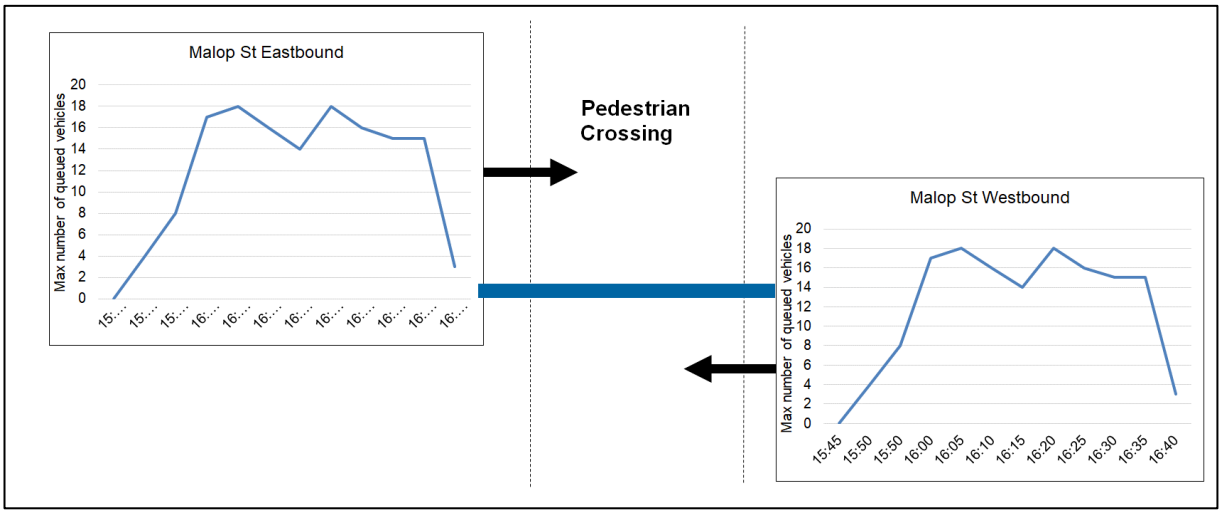


Figure 19 PM Peak Malop St Central Pedestrian Crossing Maximum Vehicle Queue Length (15:45-16:45)

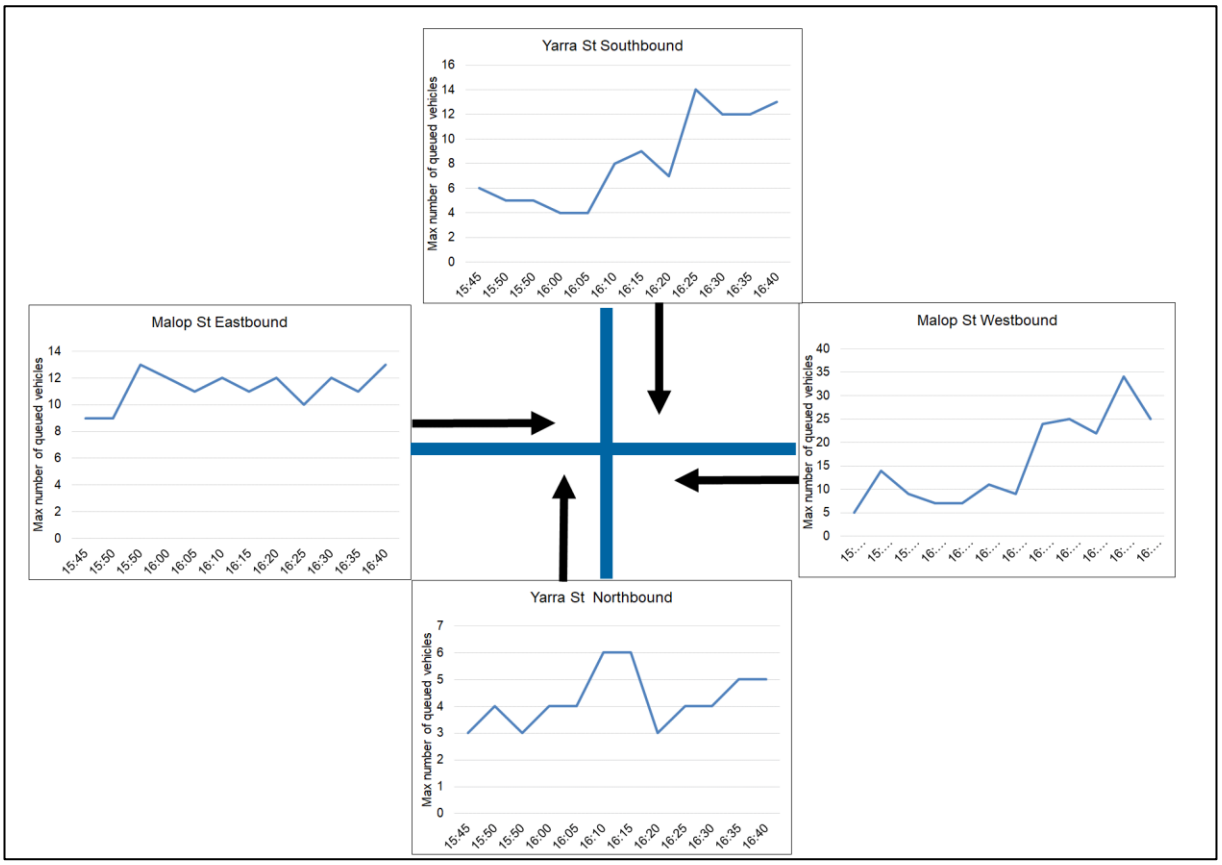


Figure 20 PM Peak Moorabool St/Yarra St Maximum Vehicle Queue Length (15:45-16:45)

2.6 Pedestrian Delays

Pedestrian delays have been estimated by using the video footage supplied of each pedestrian crossing point at the two intersections in the study area and the main pedestrian crossing point. The results of this analysis are shown in Table 1 to Table 3. Average delay per pedestrian trying to cross the road is around 24 to 40 seconds.

The Department of Transport's Movement and Place Framework states that delays to pedestrians in priority pedestrian areas such as the Malop Street Green Spine should be minimised to maintain a good Level of Service. Delays greater than 30 second result in a Level of Service C. As seen in Table 1 to Table 3, there is a mixed result of Level of Service, with most crossing delays resulting in Level of Service C (greater than 30 seconds).

Table 1 Malop St/Moorabool St Pedestrian Delays

	AM Peak (mm:ss)	Inter Peak (mm:ss)	PM Peak (mm:ss)
South Leg	00:38	00:37	00:41
East Leg	00:24	00:25	00:29
North Leg	00:36	00:34	00:37
West Leg	00:26	00:25	00:28

Table 2 Malop St Pedestrian Crossing - Pedestrian Delays

	AM Peak (mm:ss)	Inter Peak (mm:ss)	PM Peak (mm:ss)
Pedestrian Crossing	00:34	00:33	00:38

Table 3 Malop St/Yarra St Pedestrian Delays

	AM Peak (mm:ss)	Inter Peak (mm:ss)	PM Peak (mm:ss)
South Leg	00:34	00:32	00:37
East Leg	00:31	00:30	00:33
North Leg	00:38	00:36	00:40
West Leg	00:33	00:32	00:37

3. Intersection Modelling

3.1 Introduction

This section outlines the results from the SIDRA assessment of the Malop Street Green Spine. Three SIDRA models were developed – an existing layout model to model current operating conditions and two Option models to demonstrate the performance of two proposed layouts.

3.2 SIDRA modelling

3.2.1 Methodology

Network SIDRA models were developed to represent the existing layout for the AM peak, Inter peak and PM Peak periods under the following assumptions:

- The layouts were developed based on Google Earth Aerial photography and on site observations;
- Signal phase and cycle times were based upon video footage recorded by AusTraffic and information from the VicRoads Strategic Monitor Data;
- The two intersections and pedestrian operated signals all run on the same signal cycle times as part of the route management strategy.

Figure 21 presents the SIDRA layout of the existing layout models.

The Option 1 layout was prepared based upon information supplied to GHD by CoGG to include short right turn bays on the Malop Street East leg at the Moorabool Street intersection and on the Malop Street West leg at the Yarra Street intersection. The Option layout is shown in Figure 22 with the assumption that signal phase and cycle times would remain consistent with the existing layout models – this is to isolate the impacts of the additional right turn bays on the respective legs to see what immediate impacts the right turn bays have.

A subsequent Option 2 layout was tested based upon discussions between GHD and CoGG and the layout is shown in Figure 23. The main difference between Option 1 and with Option 2 is the replacement of the short right turn bays with short left turn bays on the Malop Street East leg at the Moorabool Street intersection and on the Malop Street West leg at the Yarra Street intersection.

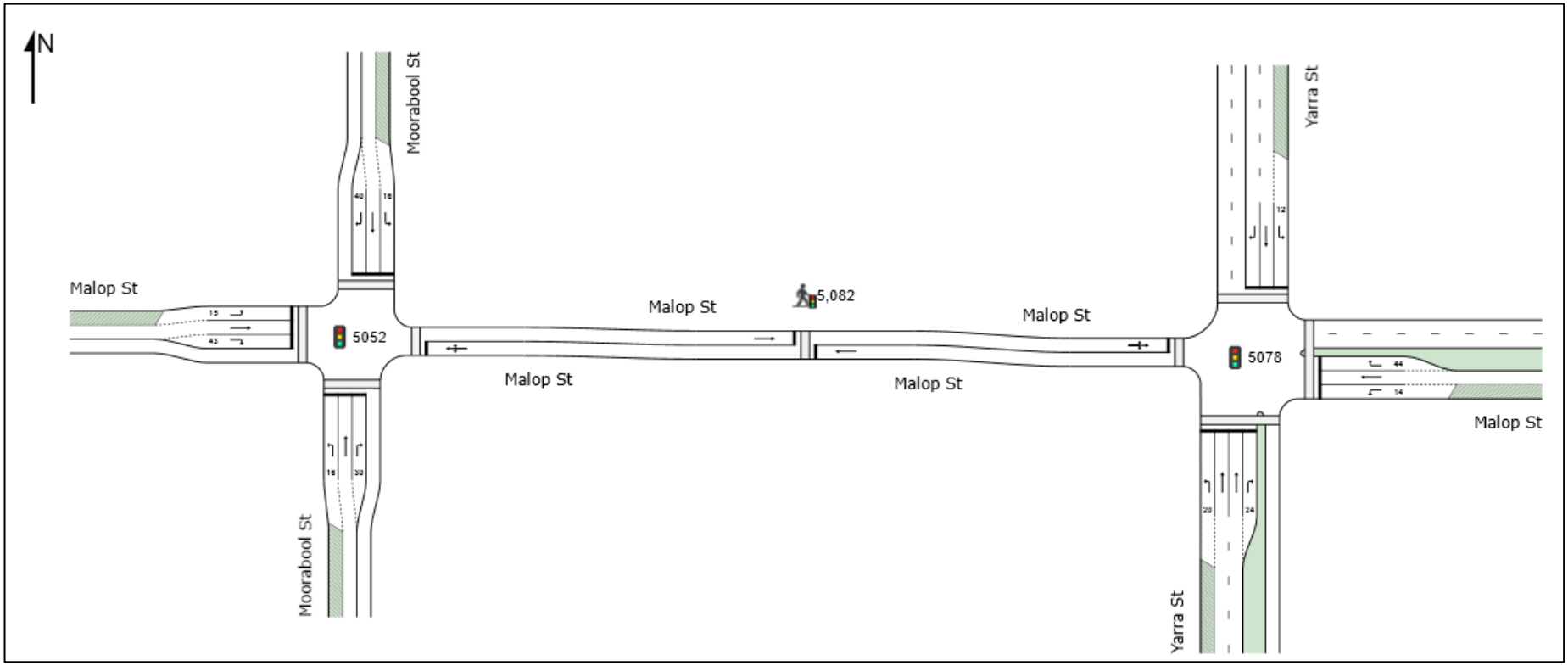


Figure 21 SIDRA Layout – Existing

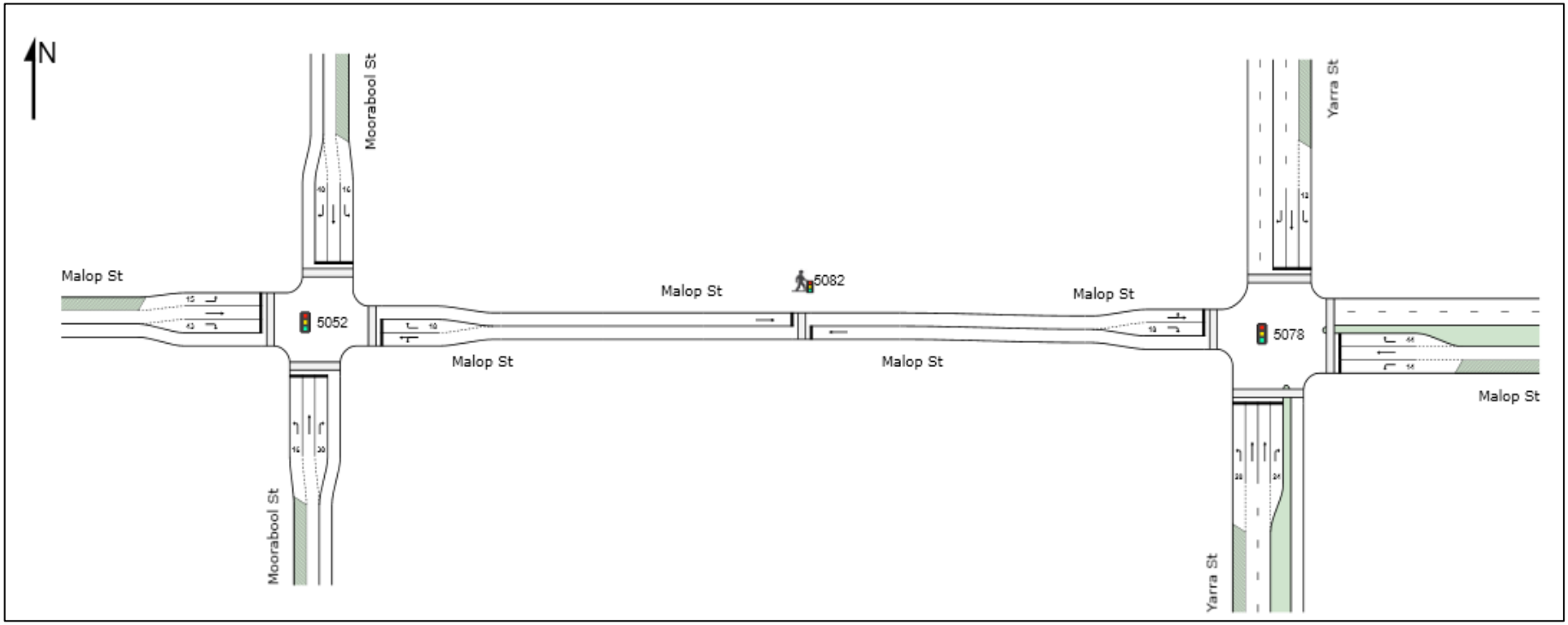


Figure 22 SIDRA Layout – Option 1

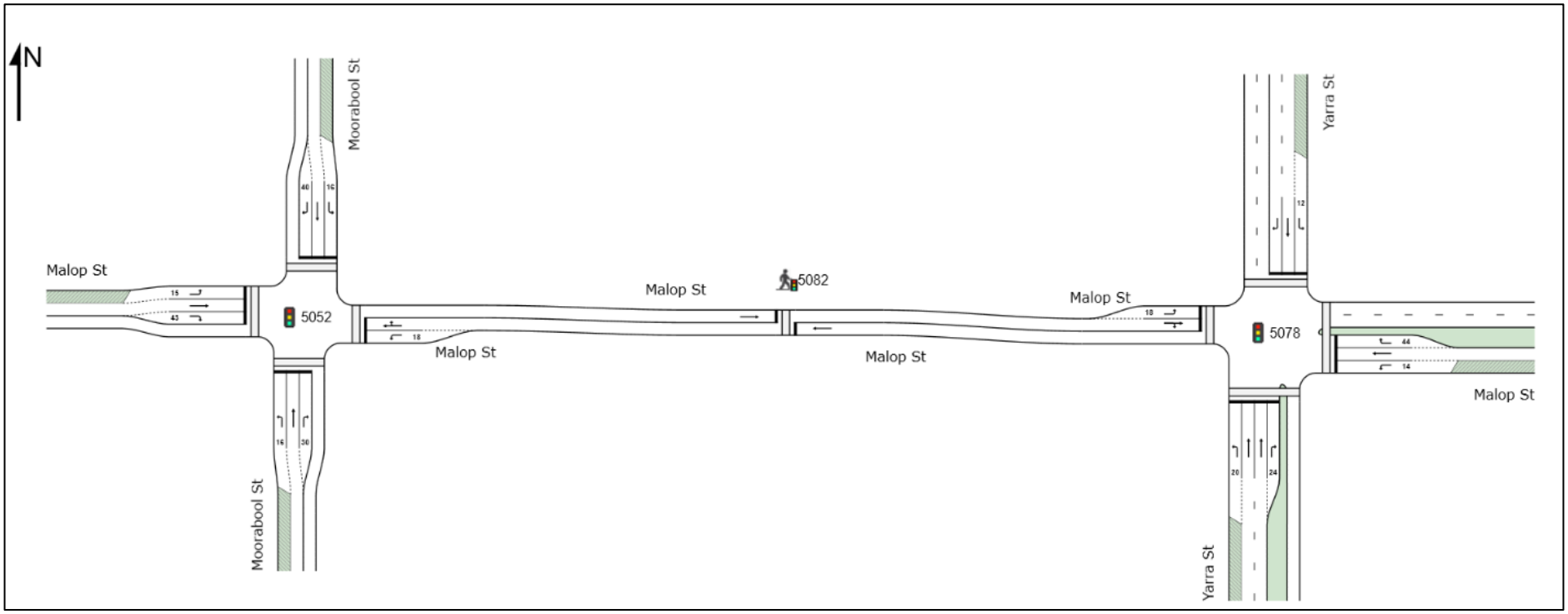


Figure 23 SIDRA Layout – Option 2

3.2.2 Level of Service Definitions

The performance of intersections has been measured against the Degree of Saturation and Level of Service as outlined in the Austroads *Guide to Traffic Management (GTM) Part 3: Traffic Studies and Analysis* (2017) and summarised in Table 4 and Table 5, respectively, for different types of intersections.

Degree of Saturation is the volume-to-capacity ratio (VCR) which is the ratio of demand or arrival flow to capacity, where a value larger than 1.0 represents oversaturation.

Level of Service is defined as a "qualitative measure for ranking operating conditions based on speed, travel time, delay, density, freedom to manoeuvre, interruptions, comfort and convenience".

Table 4 Degree of Saturation Criteria Thresholds

Unsignalised Intersection	Roundabout	Signalised Intersection
0.80	0.85	0.90

Table 5 Level of Service Criteria Thresholds

Level of Service	Average delay per vehicle (seconds)		
	Unsignalised Intersection	Roundabout	Signalised Intersection
A	≤ 10	≤ 10	≤ 10
B	10 – 15	10 – 20	10 – 20
C	15 – 25	20 – 35	15 – 35
D	25 – 35	35 – 50	35 – 55
E	35 – 50	50 – 70	55 – 80
F	> 50	> 70	> 80

3.2.3 Existing Layout

The results from the SIDRA assessment of the existing layout for the Malop Street and Moorabool Street intersection are shown in Table 6 to Table 8 with the key findings as follows:

- Table 6 presents the AM peak results and shows an overall Level of Service C at this intersection. Both Malop Street legs show a Level of Service D.
- Table 7 presents the Inter peak results and shows an overall Level of Service D at this intersection. Both Malop Street legs show a Level of Service D.
- Table 8 presents the PM peak results and shows an overall Level of Service C. Both Malop Street legs show a Level of Service D.

The results from the SIDRA assessment of the existing layout for the Malop Street and Yarra Street intersection are shown in Table 9 to Table 11 as follows:

- Table 9 presents the AM peak results and shows an overall Level of Service C. The worst performing legs are the Malop Street legs with a Level of Service D.
- Table 10 presents the Inter peak results and shows an overall Level of Service C. As with the AM Peak the worst performing legs are the Malop Street legs with a Level of Service D.
- Table 11 presents the PM peak results and shows an overall Level of Service D. However, the table does show a Level of Service E on both Malop Street legs with significant queues on the Malop Street East leg (over 20 vehicles).

Table 6 Malop St/Moorabool St Existing Layout - AM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.646	19.3	B	12.4
Malop Street East	0.660	44.4	D	12.6
Moorabool Street North	0.207	18.3	B	4.3
Malop Street West	0.543	37.6	D	6.6
Overall	**0.650**	**28.5**	**C**	**12.6**

Table 7 Malop St/Moorabool St Existing Layout - Inter Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.450	22.4	C	8.9
Malop Street East	0.517	47.6	D	11.5
Moorabool Street North	0.507	31.5	C	9.1
Malop Street West	0.522	43.4	D	6.6
Overall	**0.522**	**34.0**	**C**	**11.5**

Table 8 Malop St/Moorabool St Existing Layout - PM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.506	20.1	C	8.8
Malop Street East	0.649	50.1	D	13.2
Moorabool Street North	0.648	31.4	C	11.7
Malop Street West	0.649	42.6	D	8.7
Overall	**0.743**	**31.1**	**C**	**13.2**

Table 9 Malop St/Yarra St Existing Layout - AM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Yarra Street South	0.692	27.9	C	4.7
Malop Street East	0.835	42.1	D	10.1
Yarra Street North	0.443	22.4	C	6.3
Malop Street West	0.817	49.8	D	10.3
Overall	**0.835**	**34.6**	**C**	**10.3**

Table 10 Malop St/Yarra St Existing Layout - Inter Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Yarra Street South	0.521	29.7	C	4.3
Malop Street East	0.545	36.6	D	7.0
Yarra Street North	0.465	25.5	C	7.1
Malop Street West	0.780	49.3	D	12.7
Overall	**0.780**	**34.5**	**C**	**12.7**

Table 11 Malop St/Yarra St Existing Layout - PM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Yarra Street South	0.451	28.5	C	4.0
Malop Street East	1.065	68.0	E	20.5
Yarra Street North	0.763	25.1	C	10.2
Malop Street West	0.937	62.7	E	15.9
Overall	**1.065**	**46.1**	**D**	**20.5**

3.2.4 Modified Design – Option 1

The results from the SIDRA assessment of the Option 1 layout for the Malop Street and Moorabool Street intersection are shown in Table 12 to Table 14 with the key results being as follows:

- Table 12 presents the AM peak results and shows an overall Level of Service C. On the Malop Street East leg there is a marginal improvement in delay to 43 seconds and queue length to just over 11 vehicles.
- Table 13 presents the Inter peak results and shows an overall Level of Service D. On the Malop Street East leg the results are very similar to that shown in Table 7 for the existing layout.
- Table 14 presents the PM peak results and shows an overall Level of Service C. On the Malop Street East leg there is marginal reduction in delay and queue lengths.

The key results from the SIDRA assessment of the modified layout for the Malop Street and Yarra Street intersection are shown in Table 15 to Table 17 as follows:

- Table 15 presents the AM peak results and shows an overall Level of Service C. On the Malop Street West leg there is a reduction of around five seconds in delay on this leg.
- Table 16 presents the Inter peak results and shows an overall Level of Service C. As with the AM peak on the Malop Street West leg there is a reduction of around five seconds in delay on this leg.
- Table 17 presents the PM peak results and shows an overall Level of Service D. On the Malop Street West leg there is a reduction in delay of approximately 10 seconds to 53.8 seconds meaning that the Level of Service changes on this leg from E in the existing layout to D.

From the analysis above it is clear that the short right turn bay does not have a significant impact on intersection Level of Service across both intersections:

- The most significant improvement for Option 1 is in the PM peak where there is approximately a ten second reduction in delay on the Malop Street West leg at the Yarra Street intersection.
- The main reason for the comparatively small improvements in Level of Service is that the volumes of vehicles using the right turn bays to turn out of Malop Street are relatively low compared to left and (particularly) through movements. Therefore the overall impact is quite limited on overall traffic performance.
- It is unlikely that changing from the current split phasing arrangement to a diamond overlap phasing arrangement would have much impact either as the traffic volumes on these right turn bays are low and therefore the right turn phase may not be called often anyway.

Table 12 Malop St/Moorabool St Option 1 - AM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.646	19.3	B	12.4
Malop Street East	0.637	43.2	D	11.5
Moorabool Street North	0.207	18.3	B	4.3
Malop Street West	0.543	37.6	D	6.6
Overall	**0.650**	**28.2**	**C**	**12.4**

Table 13 Malop St/Moorabool St Option 1 - Inter Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.437	21.7	C	8.7
Malop Street East	0.516	47.1	D	10.4
Moorabool Street North	0.487	30.7	C	8.9
Malop Street West	0.522	43.4	D	6.6
Overall	**0.522**	**33.5**	**C**	**10.4**

Table 14 Malop St/Moorabool St Option 1 - PM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.506	20.1	C	8.8
Malop Street East	0.629	49.2	D	12.3
Moorabool Street North	0.648	31.4	C	11.7
Malop Street West	0.649	42.6	D	8.7
Overall	**0.725**	**33.5**	**C**	**12.3**

Table 15 Malop St/Yarra St Option 1 - AM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Vehicles (veh)
Yarra Street South	0.692	27.9	C	4.7
Malop Street East	0.835	42.1	D	10.1
Yarra Street North	0.443	22.3	C	6.3
Malop Street West	0.661	45.2	D	7.2
Overall	**0.835**	**33.8**	**C**	**10.1**

Table 16 Malop St/Yarra St Option 1 - Inter Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Vehicles (veh)
Yarra Street South	0.521	29.7	C	4.3
Malop Street East	0.545	36.6	D	7.0
Yarra Street North	0.465	25.5	C	7.1
Malop Street West	0.682	44.8	D	9.1
Overall	**0.682**	**33.6**	**C**	**9.1**

Table 17 Malop St/Yarra St Option 1 - PM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Vehicles (veh)
Yarra Street South	0.451	28.5	C	4.0
Malop Street East	1.070	68.7	E	20.7
Yarra Street North	0.763	25.1	C	10.2
Malop Street West	0.860	53.8	D	12.0
Overall	**1.070**	**44.9**	**D**	**20.7**

3.2.5 Modified Design – Option 2

The results from the SIDRA assessment of the Option 2 layout for the Malop Street and Moorabool Street intersection are shown in Table 18 to Table 20 with the key results being as follows:

- Table 18 presents the AM peak results and shows an overall Level of Service C. On the Malop Street East leg there is a marginal improvement in delay to 43 seconds relative to the base and queue length to just over 11 vehicles. These results are very similar to Option 1.
- Table 19 presents the Inter peak results and shows an overall Level of Service D. On the Malop Street East leg the results are very similar to that shown in Table 7 for the existing layout and Table 13 for Option 1.
- Table 20 presents the PM peak results and shows an overall Level of Service C. As with Option 1 the results on Malop Street show a marginal improvement.

The key results from the SIDRA assessment of the modified layout for the Malop Street and Yarra Street intersection are shown in Table 21 to Table 23 as follows:

- Table 21 presents the AM peak results and shows an overall Level of Service C. On the Malop Street West leg there is a slight increase of around four seconds in delay relative to Option 1.
- Table 22 presents the Inter peak results and shows an overall Level of Service C. As with the AM peak on the Malop Street West leg there is a reduction of around five seconds in delay on this leg.
- Table 23 presents the PM peak results and shows an overall Level of Service D. On the Malop Street West leg there is a very slight reduction in delay relative to Option 2.

From the analysis above it is clear that the short left turn bay in Option 2 does not have a significant impact on intersection Level of Service across both intersections. The most significant improvement is in the PM peak where there is approximately an 11 second reduction in delay on the Malop Street West leg at the Yarra Street intersection. This is a similar reduction in delay to Option 1.

Table 18 Malop St/Moorabool St Option 2 - AM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.646	19.3	B	12.4
Malop Street East	0.629	43.0	D	11.1
Moorabool Street North	0.207	18.3	B	4.3
Malop Street West	0.543	37.6	D	6.6
Overall	**0.646**	**28.1**	**C**	**12.4**

Table 19 Malop St/Moorabool St Option 2 - Inter Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.450	22.3	C	8.9
Malop Street East	0.513	47.0	D	10.2
Moorabool Street North	0.507	31.5	C	9.1
Malop Street West	0.491	42.3	D	6.5
Overall	**0.513**	**33.6**	**C**	**10.2**

Table 20 Malop St/Moorabool St Option 2 - PM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Queues (veh)
Moorabool Street South	0.491	19.5	B	8.6
Malop Street East	0.647	49.6	D	11.7
Moorabool Street North	0.624	30.6	C	11.5
Malop Street West	0.649	42.6	D	8.7
Overall	**0.649**	**33.1**	**C**	**11.7**

Table 21 Malop St/Yarra St Option 2 - AM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Vehicles (veh)
Yarra Street South	0.692	27.9	C	4.7
Malop Street East	0.835	42.1	D	10.1
Yarra Street North	0.443	22.3	C	6.3
Malop Street West	0.782	48.0	D	9.3
Overall	**0.835**	**34.3**	**C**	**10.1**

Table 22 Malop St/Yarra St Option 2 - Inter Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Vehicles (veh)
Yarra Street South	0.521	29.7	C	4.3
Malop Street East	0.545	36.6	D	7.0
Yarra Street North	0.465	25.5	C	7.1
Malop Street West	0.692	45.2	D	9.4
Overall	**0.692**	**33.7**	**C**	**9.4**

Table 23 Malop St/Yarra St Option 2 - PM Peak Results

	Degree of Saturation	Average Delay (secs)	Level of Service	95th Percentile Vehicles (veh)
Yarra Street South	0.451	28.5	C	4.0
Malop Street East	1.067	68.3	E	20.6
Yarra Street North	0.763	25.1	C	10.2
Malop Street West	0.876	52.0	D	12.8
Overall	**1.067**	**44.4**	**D**	**20.6**

3.3 Summary of Results

Table 25 and Table 26 provide an overall summary of Degree of Saturation, Average Delay, and Level of Service at the Moorabool Street and Yarra Street intersections. As discussed in Section 3.2 the overall difference in each of the Options is very limited.

Table 24 Malop St/Moorabool St Summary Results

Peak Period	Option	Degree of Saturation	Average Delay (secs)	Level of Service
AM Peak	Existing Layout	0.650	28.5	C
	Option 1	0.650	28.2	C
	Option 2	0.646	28.1	C
Inter Peak	Existing Layout	0.522	34.0	C
	Option 1	0.522	33.5	C
	Option 2	0.513	33.6	C
PM Peak	Existing Layout	0.743	31.1	C
	Option 1	0.725	33.5	C
	Option 2	0.649	33.1	C

Table 25 Malop St/Yarra St Summary Results

Peak Period	Option	Degree of Saturation	Average Delay (secs)	Level of Service
AM Peak	Existing Layout	0.835	34.6	C
	Option 1	0.835	33.8	C
	Option 2	0.835	34.3	C
Inter Peak	Existing Layout	0.780	34.5	C
	Option 1	0.682	33.6	C
	Option 2	0.692	33.7	C
PM Peak	Existing Layout	1.065	46.1	D
	Option 1	1.070	44.9	D
	Option 2	1.067	44.4	D

4. Conclusions

4.1 Overview

This report has provided a summary of existing conditions on the Malop Street Green Spine corridor between Mercer Street and Bellarine Street in central Geelong. Camera and Wi-Fi surveys were conducted on Thursday 19 September 2019 between 08:00 and 09:00.

4.2 Existing Conditions

4.2.1 Traffic Movements

Traffic volumes along the Malop Street Green Spine are relatively low (around 6,000 vehicles per day and 200 to 250 vehicles per hour per direction). The number of vehicles turning out of the Malop Street Green Spine onto Moorabool Street and Yarra Street (the movements that are the focus of this project) are quite low – between 15 vehicles and 50 vehicles per hour at both intersections.

Pedestrian movements across the central pedestrian crossing increase from around 300 pedestrians per hour in the AM peak to 1,300 in the Inter peak and 900 pedestrians in the PM peak.

4.2.2 Travel Times and Delay

In both the eastbound and westbound directions travel times increase throughout the day from around one and a half minutes in the morning to two and a half minutes throughout the afternoon.

Delay to traffic increases across the day, increasing travel time from just over one minute during low traffic conditions to adding over two minutes delay to eastbound at 15:45. Overall average delay in both directions is 1 minute and three seconds.

4.2.3 Queue Lengths

Queue lengths vary across the day along the Malop Street corridor. The extent of queueing along Malop Street is higher in the peak periods when compared to the other periods, especially in the PM peak period.

4.2.4 Pedestrian Delays

Pedestrian delays were estimated based on video footage supplied. Estimated delays for pedestrians crossing the roads in the study area is around 25 to 40 seconds per movement.

4.3 Modelling Assessment

A network SIDRA assessment was undertaken for the Malop Street Green Spine corridor. Three scenarios were tested:

- An existing layout;
- Option 1 layout based on the introduction of two short right turn lanes on Malop Street onto Moorabool Street and Yarra Street; and
- Option 2 layout based on the introduction of two short left turn lanes on Malop Street onto Moorabool Street and Yarra Street.

The Level of Service results from the SIDRA assessment of the existing and option layouts for the Malop Street and Moorabool Street intersection and Malop Street and Yarra Street intersections are as follows:

- Table 26 presents the AM, Inter and PM peak results for the Malop Street and Moorabool Street intersection comparing the existing layout against either of the option layouts. Overall there is little difference in the Level of Service achieved in each period.
- Table 27 presents the AM, Inter and PM peak results for the Malop Street and Yarra Street intersection and shows slight benefits to the Option layout. As with the Moorabool Street intersection there is little overall difference in the Level of Service results with the key change being the Malop Street West leg in Option 1 and Option 2 during the PM peak where Level of Service improves from E to D.

From the analysis in this report it is clear that the short right turn bay does not have a significant impact on intersection Level of Service across both intersections:

- The most significant improvement is in the PM peak at the Yarra Street intersection where Level of Service on the Malop Street leg improves from E to D.
- The main reason for the comparatively small improvements in Level of Service is that the volumes of vehicles using the left and right turn bays to turn out of Malop Street are relatively low compared to the through movements. Therefore the overall impact is quite limited on overall traffic performance.

Generally the conclusions of this study are that there are minimal improvements with either additional right turn lanes or left turn lanes out of the Malop Street Green Spine. As such, introducing right turn lanes or left turn lanes on Malop Street at Yarra Street and Moorabool Street will not provide significant benefits to the City of Greater Geelong or the driving community.

It is recommended that City of Greater Geelong consider the current delays to pedestrians at all crossings to improve pedestrian permeability. The current Level of Service for crossing at all intersections is Level of Service C and is recommended that this could be improved.

Table 26 Malop St/Moorabool St Overall Level of Service Results

	AM			Inter			PM		
	Exist	Opt 1	Opt 2	Exist	Opt 1	Opt 2	Exist	Opt 1	Opt 2
Moorabool Street South	B	B	B	C	C	C	C	C	B
Malop Street East	D	D	D	D	D	D	D	D	D
Moorabool Street North	B	B	B	C	C	C	C	C	C
Malop Street West	D	D	D	D	D	D	D	D	D
Overall	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**

Table 27 Malop St/Yarra St Overall Level of Service Results

	AM			Inter			PM		
	Exist	Opt 1	Opt 2	Exist	Opt 1	Opt 2	Exist	Opt 1	Opt 2
Yarra Street South	C	C	C	C	C	C	C	C	C
Malop Street East	D	D	D	D	D	D	E	E	E
Yarra Street North	C	C	C	C	C	C	C	C	C
Malop Street West	D	D	D	D	D	D	E	D	D
Overall	**C**	**C**	**C**	**C**	**C**	**C**	**D**	**D**	D

Appendices

Appendix A – Comparison of Traffic Datasets

Introduction

The purpose of this Appendix is to provide a comparison of various traffic datasets in the study area:

- VicRoads SCATS data was collected and analysed to compare traffic movements along the Malop Street Green Spine.
- Information was obtained from CoGG in the form of the CoGG Council Minutes Report on Tuesday 25 June 2019. Data was then assessed regarding 2016 and 2019 traffic and pedestrian counts for the Moorabool Street/Malop Street intersection.
- Travel time data along the Gheringhap Street to Bellarine Street corridor was obtained from the CoGG report. This data was then prepared and compared alongside the September 2019 data collected by GHD.

SCATS Traffic Data

SCATS information was sourced from the VicRoads Open Data website for the Moorabool Street/Malop Street and Yarra Street/Malop Street intersections as well as the Pedestrian Operated Signals on Malop Road Green Spine. The purpose of this was to compare data sourced from specific periods to ascertain what changes may have occurred in traffic volumes.

Twenty four hour traffic volumes for each of the time periods are as follows:

- April 2016: 11,500 vehicles per day;
- February 2019: 5,944 vehicles per day; and
- September 2019: 6,138 vehicles per day.

Therefore traffic volumes have decreased by approximately 50% between 2016 and 2019. The difference in February 2019 and September 2019 traffic volumes are not significant, being within day to day variations that would be expected at a site such as this on a weekday.

Figures A1, A2 and A3 present hourly SCATS data for the Malop Street midblock between Moorabool Street and Yarra Street for two way, westbound and eastbound directions respectively. This data is sourced from the SCATS data for the Pedestrian Operated Signals on Malop Road Green Spine. In all charts the trend is particularly consistent in that the hourly traffic volumes for both February 2019 and September 2019 are much smaller than the May 2016 hourly volume data.

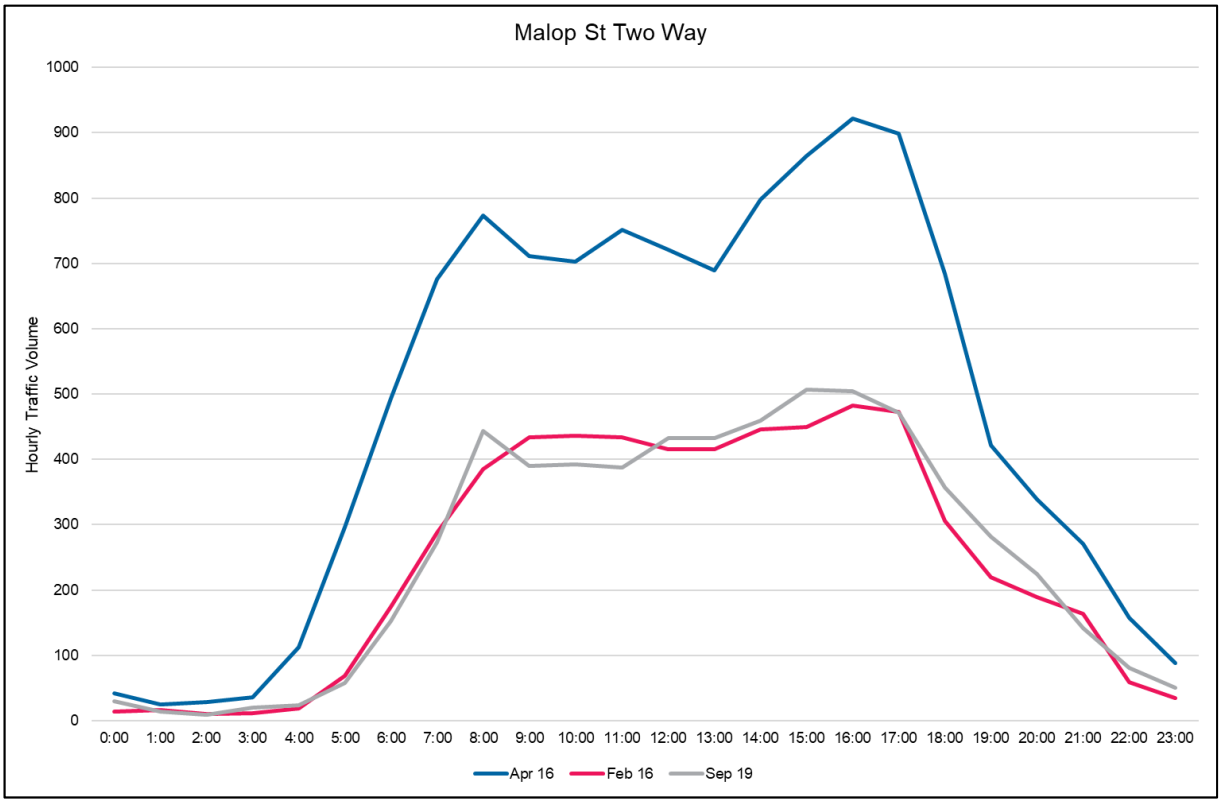


Figure A1 Malop Street Two Way Hourly Traffic Volumes

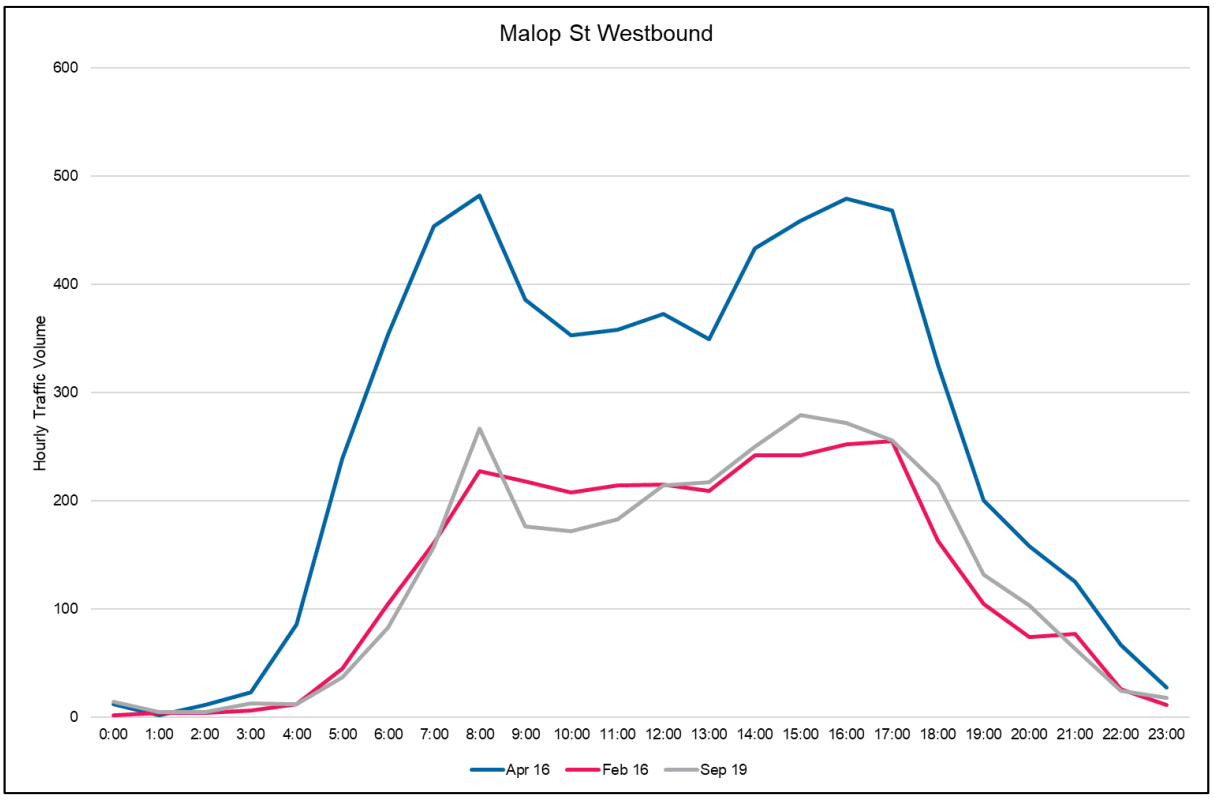


Figure A2 Malop Street Westbound Hourly Traffic Volumes

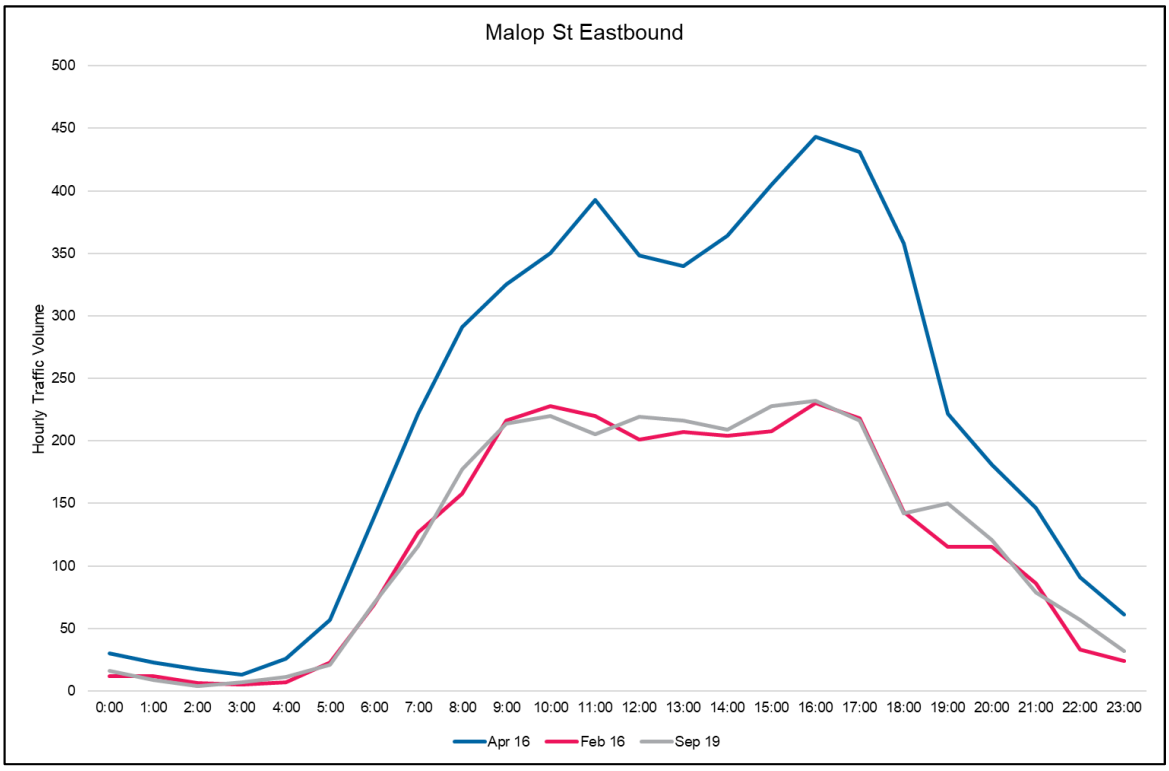


Figure A3 Malop Street Eastbound Hourly Traffic Volumes

Twenty four hour traffic data was also analysed at the Yarra Street and Moorabool Street intersections on Malop Street for the following dates:

- Thursday 5 May 2016:
  - This is to reflect pre Malop Street Green Spine conditions.
  - Note that it was originally proposed to analyse data for Tuesday 19 April 2019 (consistent with the data shown above) but the SCATS data showed several errors with the detector loops. This error was also present in the days preceding and after this April date.
- Tuesday 5 February 2019 – this is to be consistent with the data recently collected by CoGG as discussed in Appendix B.
- Thursday 19 September 2019 – consistent with the data collected for this report by GHD.

Overall daily volumes on each approach to the Moorabool Street/Malop Street and Yarra Street/Malop Street intersections are presented in Figure A4. The following can be noted:

- On Malop Street between Moorabool Street and Yarra Street traffic volumes have declined significantly between the 2016 and 2019 datasets. However, there is an increase in traffic volumes between the February 2019 and September 2019 datasets.
- Traffic volumes on both Yarra Street intersection legs are relatively consistent between each of the datasets.
- On Moorabool Street there is a trend that the traffic volumes have increased in each of the datasets. This is apparent for both directions.

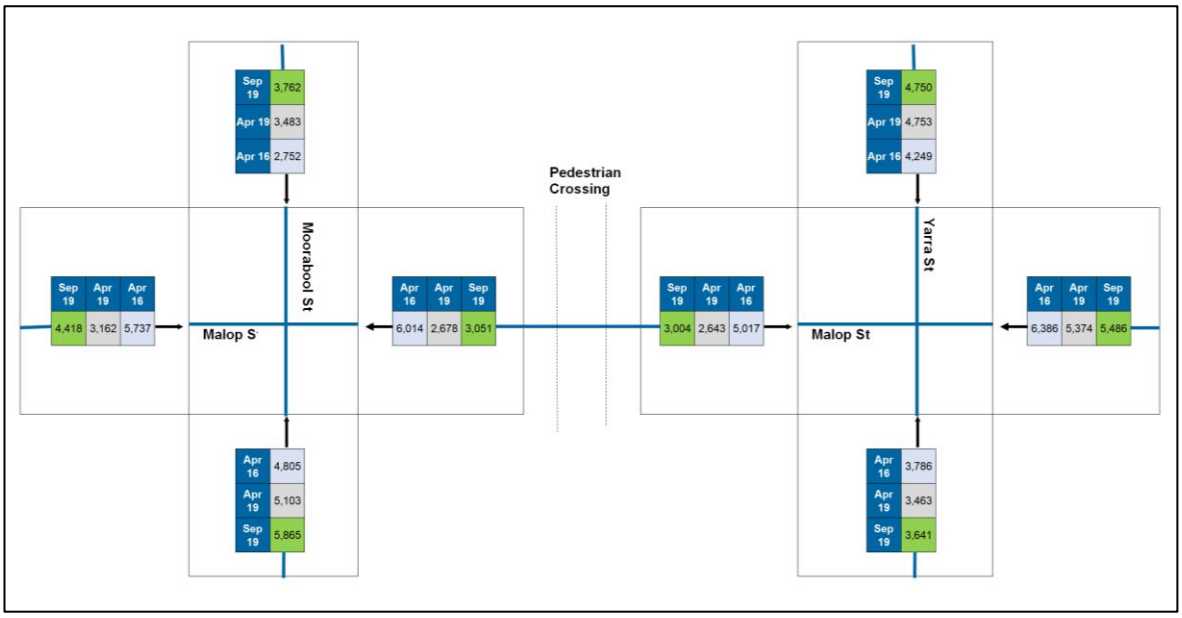


Figure A4 24 Hour Traffic Volumes by Intersection Approach

Intersection Turning Movements

The Council Minutes Report provided turning movements counts at the Moorabool Street/Malop Street intersection for 2016 and 2019 during the AM (8:30-9:30) and PM (15:45-16:45) peaks. This was then compared to the traffic data collected by GHD in September 2019. The following is a summary of the results.

- Figure A5 presents AM turning movements. It can be seen that:
  - The September 2019 counts are generally consistent with the February 2019 counts with the exception of Moorabool Street South where traffic volumes in the data have increased (particularly on the left turn leg onto Malop Street East from 88 vehicles to 115 vehicles).
  - Both the February 2019 and April 2019 counts show a significant reduction in vehicle volumes travelling along Malop Street relative to the 2016 counts.
  - The number of vehicles turning right out of Malop Street East onto Moorabool Street North has continued to decline significantly.
- Figure A6 presents PM turning movements. It can be seen that:
  - Both the February 2019 and April 2019 traffic counts show a reduction in traffic volumes on Malop Street east of Moorabool Street. Traffic volumes have dropped significantly in the eastbound direction in the September 2019 counts.
  - Traffic volumes on Moorabool Street South are particularly high in the February 2019 counts relative to the April 2016 and September 2019 counts.

The general conclusions from the analysis of the turning movement counts is that there has been a drop in traffic volumes on Malop Street Green Spine between the 2016 surveys and the two 2019 surveys.

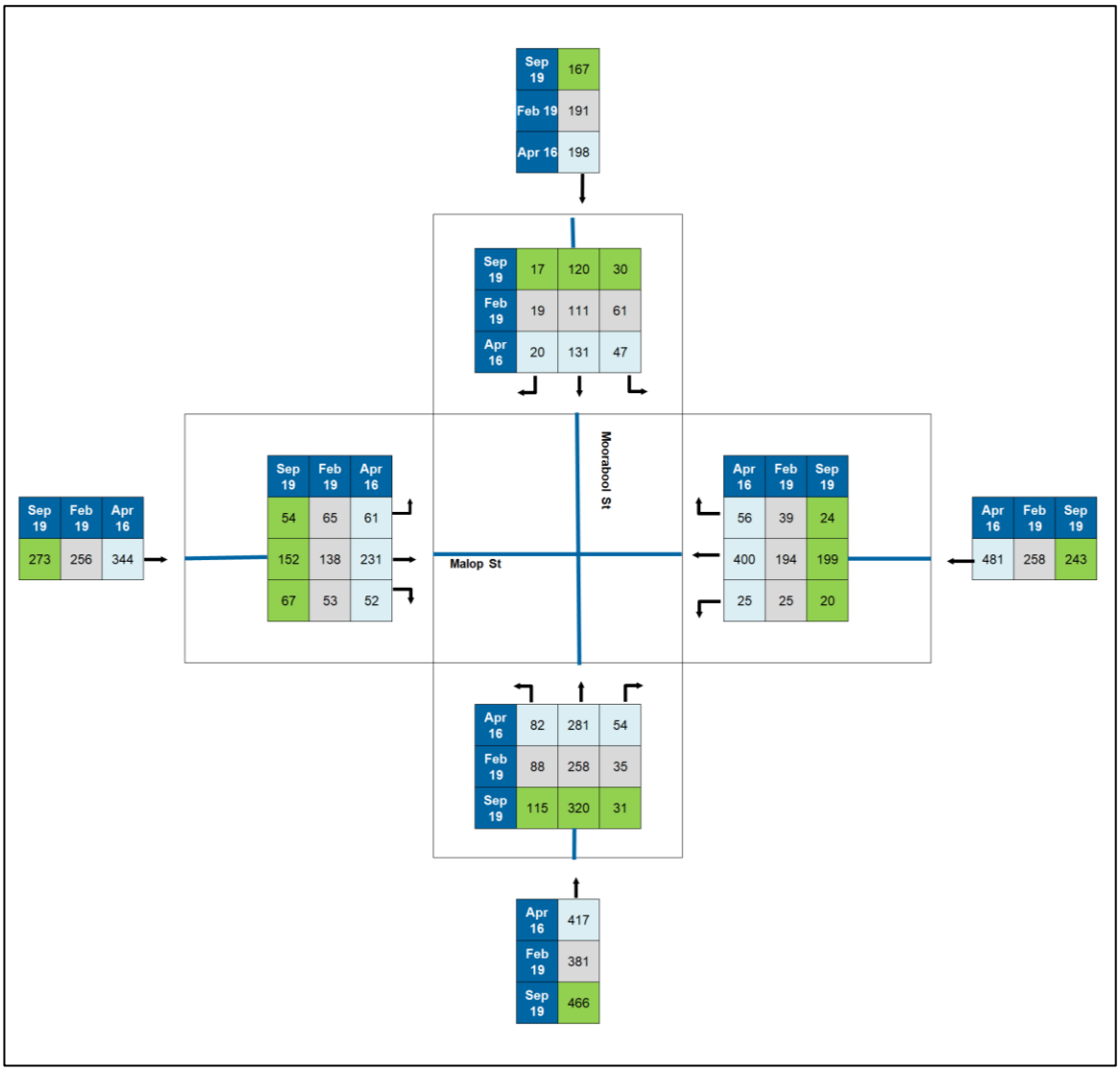


Figure A5 AM Peak Turning Movements Comparison

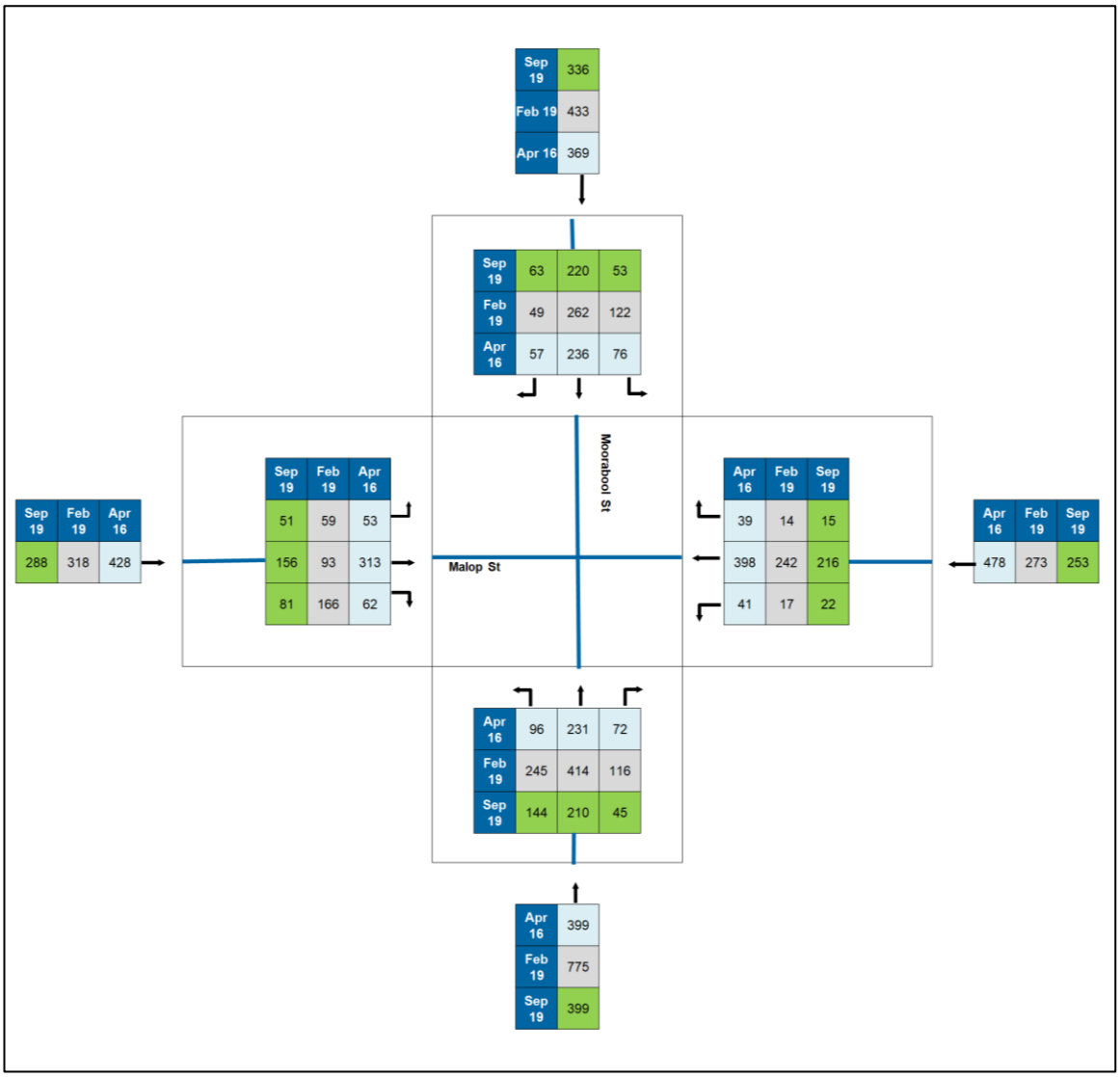


Figure A6 PM Peak Turning Movements Comparison

Pedestrian Movements

The CoGG Council Minutes Report provided pedestrian movements for all legs of the Moorabool Street/Malop Street Intersection for April 2016 and February 2019 during the Inter peak (12:00-13:00) as well as the midblock pedestrian crossing on Malop Street. Figure A7 presents a summary of these pedestrian volumes and it can be seen that pedestrian volumes at the midblock pedestrian crossing are relatively similar in all counts.

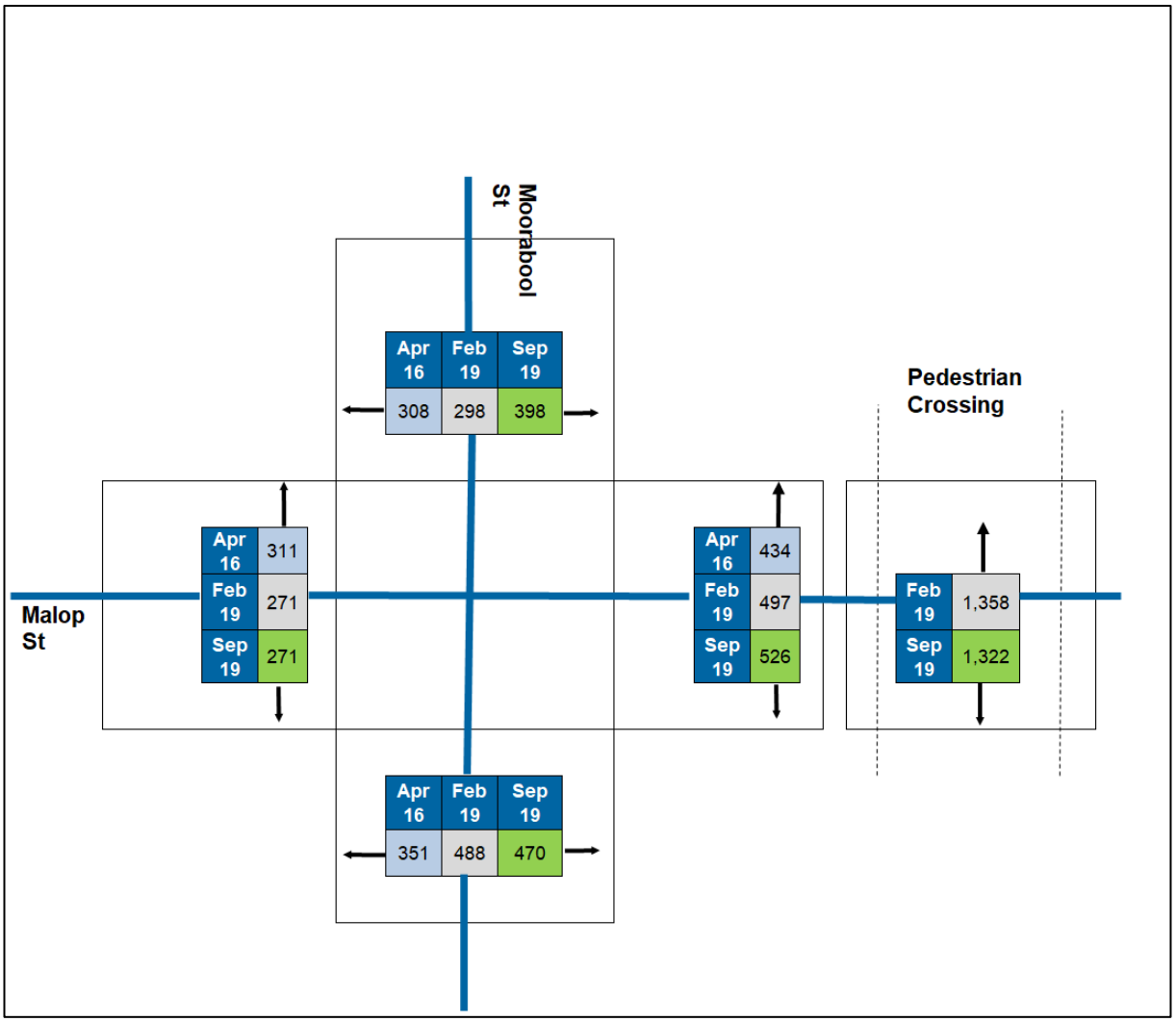


Figure A7 Inter Peak Pedestrian Movements Comparison

Travel Times

Travel Times were obtained for the Gheringhap Street to Bellarine Street corridor in February 2019 and September in both the eastbound and westbound directions. The following is a summary of the results.

- Figure A8 presents eastbound travel times. It can be seen that the February 2019 travel time data is generally higher than the September 2019 travel time data. It can also be seen that travel times generally increase across the day for both data sets, with the February 2019 showing a peak period between 4 -5 PM.
- Figure A9 presents westbound travel times. It can be seen that the February 2019 travel time data is generally higher than the September 2019. It can also be seen that travel times generally increase across the day for both data sets.

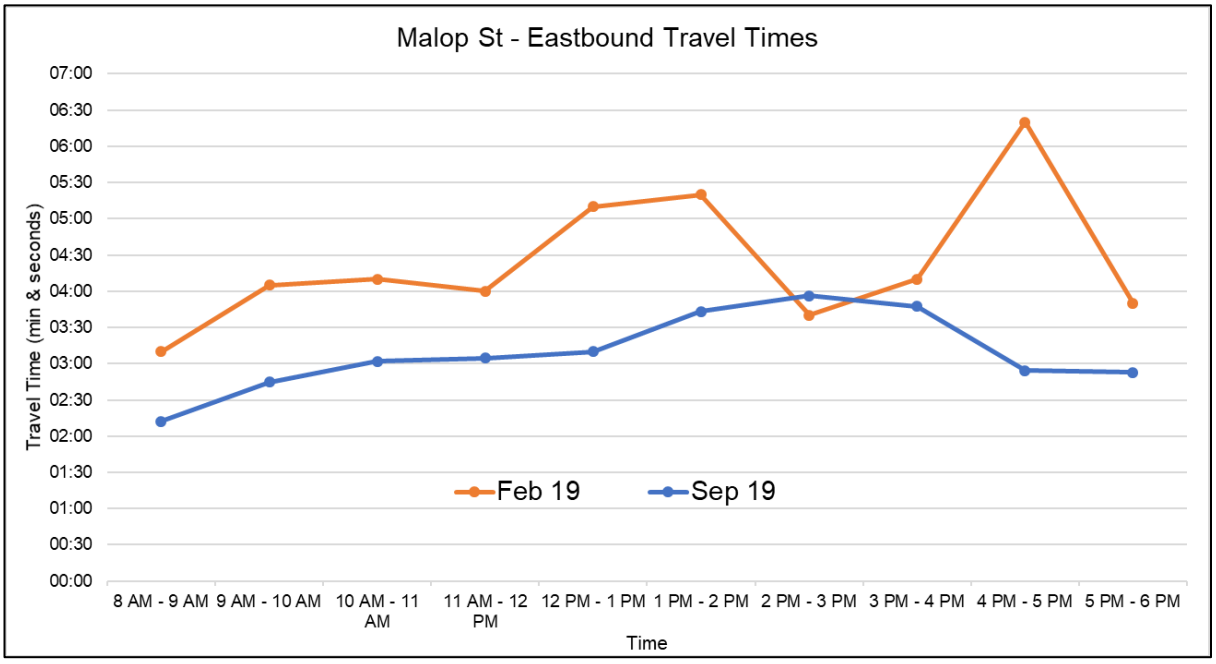


Figure A8 Eastbound Travel Times Comparison

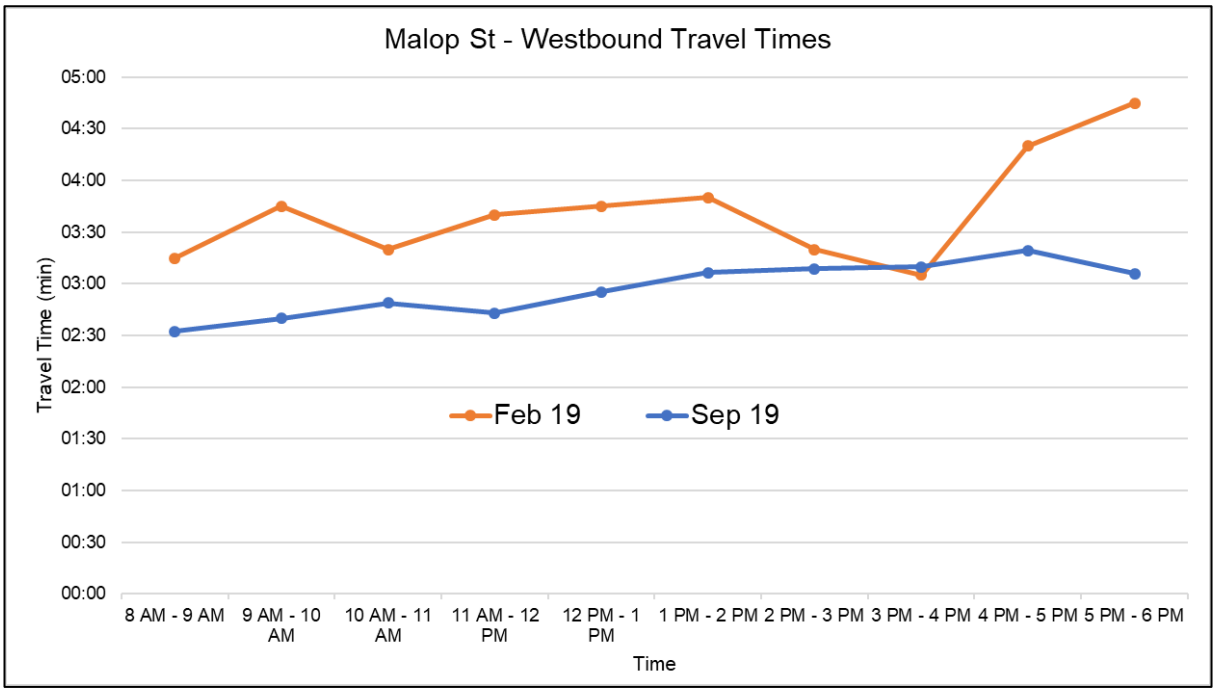


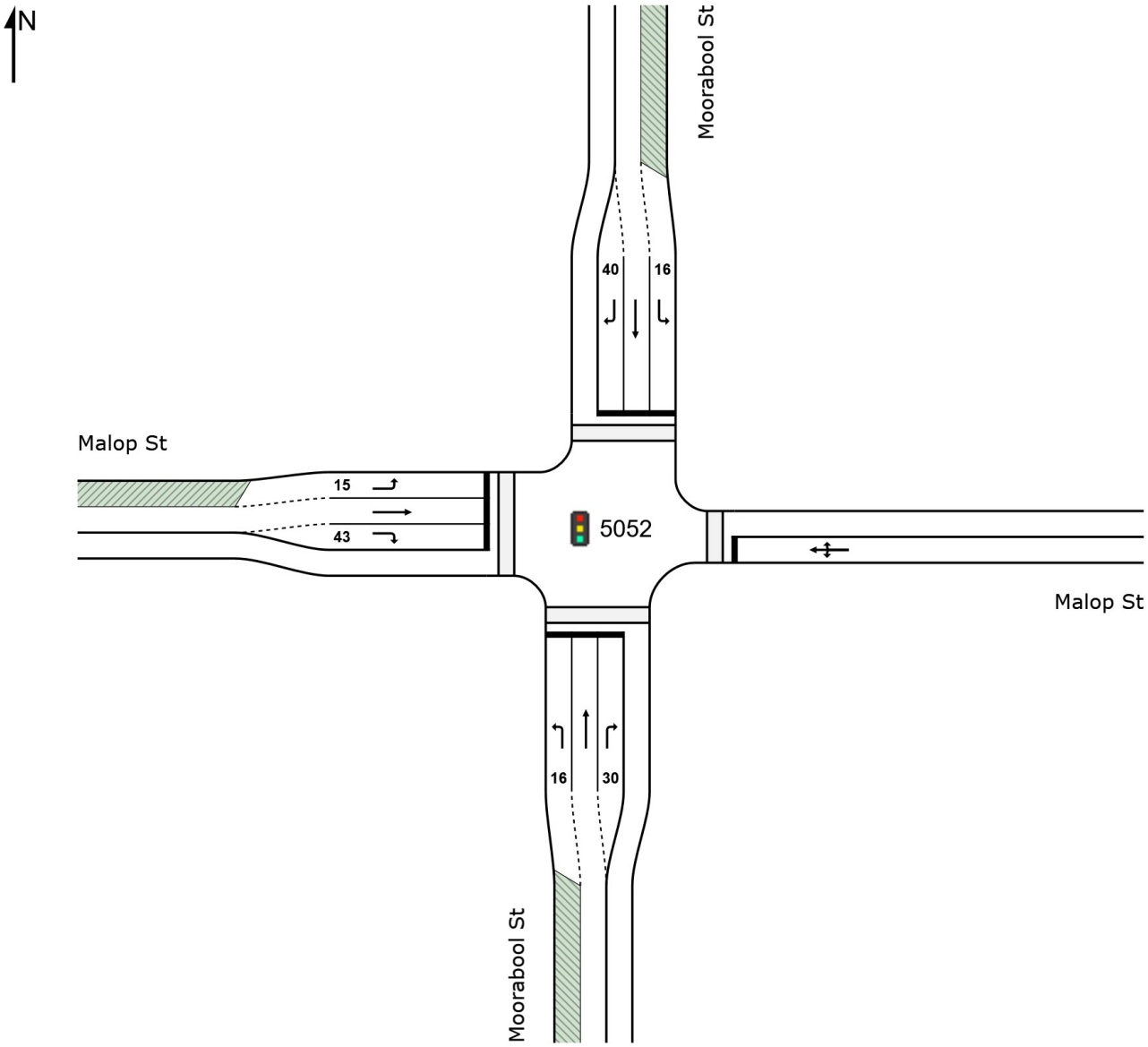
Figure A9 Westbound Travel Times Comparison

Appendix B – SIDRA Outputs

SITE LAYOUT

Site: 5052 [AM Malop/Moorabool St - Base]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



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MOVEMENT SUMMARY

Site: 5052 [AM Malop/Moorabool St - Base]

Network: N101 [AM Malop Street Network]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	135	33.0	135	33.0	0.138	10.2	LOS B	2.3	20.3	0.41	0.61	0.41	36.1
2	T1	376	2.5	376	2.5	0.646	21.7	LOS C	12.4	88.3	0.80	0.69	0.80	32.3
3	R2	36	6.5	36	6.5	0.093	27.5	LOS C	1.1	8.5	0.74	0.69	0.74	25.0
Approach		548	10.3	548	10.3	0.646	19.3	LOS B	12.4	88.3	0.70	0.67	0.70	32.9
East: Malop St														
4	L2	28	4.2	28	4.2	0.660	47.3	LOS D	12.6	88.6	1.00	0.85	1.01	22.3
5	T1	231	1.5	231	1.5	0.660	43.8	LOS D	12.6	88.6	1.00	0.85	1.01	22.2
6	R2	23	0.0	23	0.0	0.660	47.2	LOS D	12.6	88.6	1.00	0.85	1.01	22.3
Approach		283	1.6	283	1.6	0.660	44.4	LOS D	12.6	88.6	1.00	0.85	1.01	22.2
North: Moorabool St														
7	L2	38	26.7	38	26.7	0.035	8.3	LOS A	0.5	4.4	0.33	0.56	0.33	34.1
8	T1	152	5.0	152	5.0	0.207	18.9	LOS B	4.3	31.5	0.69	0.56	0.69	33.2
9	R2	22	0.0	22	0.0	0.082	31.6	LOS C	0.7	5.2	0.79	0.68	0.79	29.8
Approach		211	8.4	211	8.4	0.207	18.3	LOS B	4.3	31.5	0.64	0.57	0.64	32.8
West: Malop St														
10	L2	58	0.0	58	0.0	0.176	37.9	LOS D	2.2	15.5	0.89	0.73	0.89	28.4
11	T1	163	0.7	163	0.7	0.543	36.7	LOS D	6.6	46.2	0.94	0.76	0.94	22.4
12	R2	72	46.3	72	46.3	0.290	39.6	LOS D	2.9	27.9	0.91	0.75	0.91	28.0
Approach		294	11.7	294	11.7	0.543	37.6	LOS D	6.6	46.2	0.92	0.75	0.92	25.6
All Vehicles		1336	8.5	1336	8.5	0.660	28.5	LOS C	12.6	88.6	0.80	0.71	0.80	29.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	148	39.4	LOS D	0.4	0.4	0.94	0.94
P2	East Full Crossing	153	39.5	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	153	39.5	LOS D	0.4	0.4	0.94	0.94
P4	West Full Crossing	184	39.5	LOS D	0.4	0.4	0.94	0.94
All Pedestrians		638	39.5	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5052 [INTER Malop/Moorabool St - Base]

Network: N101 [INTER Malop Street Network]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	100	27.0	100	27.0	0.105	12.1	LOS B	2.0	17.2	0.44	0.61	0.44	35.4
2	T1	248	1.8	248	1.8	0.450	25.0	LOS C	8.9	62.9	0.77	0.65	0.77	31.4
3	R2	48	7.0	48	7.0	0.199	30.6	LOS C	1.7	12.4	0.91	0.72	0.91	24.0
Approach		397	8.8	397	8.8	0.450	22.4	LOS C	8.9	62.9	0.70	0.65	0.70	31.7
East: Malop St														
4	L2	26	0.0	26	0.0	0.517	50.3	LOS D	11.5	82.6	1.00	0.83	1.00	21.6
5	T1	184	3.4	184	3.4	0.517	46.9	LOS D	11.5	82.6	1.00	0.83	1.00	21.5
6	R2	22	5.6	22	5.6	0.517	50.4	LOS D	11.5	82.6	1.00	0.83	1.00	21.6
Approach		232	3.2	232	3.2	0.517	47.6	LOS D	11.5	82.6	1.00	0.83	1.00	21.5
North: Moorabool St														
7	L2	47	0.0	47	0.0	0.049	10.4	LOS B	0.7	5.1	0.52	0.61	0.52	32.7
8	T1	215	1.5	215	1.5	0.507	35.0	LOS C	9.1	64.2	0.90	0.74	0.90	28.9
9	R2	50	0.0	50	0.0	0.159	36.1	LOS D	2.0	13.8	0.82	0.72	0.82	28.8
Approach		312	1.0	312	1.0	0.507	31.5	LOS C	9.1	64.2	0.83	0.72	0.83	29.2
West: Malop St														
10	L2	38	3.0	38	3.0	0.130	43.4	LOS D	1.6	11.6	0.89	0.71	0.89	27.2
11	T1	144	0.0	144	0.0	0.522	42.7	LOS D	6.6	46.4	0.96	0.77	0.96	20.9
12	R2	57	38.0	57	38.0	0.245	45.0	LOS D	2.5	23.5	0.91	0.74	0.91	26.9
Approach		239	9.5	239	9.5	0.522	43.4	LOS D	6.6	46.4	0.94	0.75	0.94	23.9
All Vehicles		1179	5.8	1179	5.8	0.522	34.0	LOS C	11.5	82.6	0.84	0.72	0.84	27.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	495	45.6	LOS E	1.4	1.4	0.96	0.96
P2	East Full Crossing	554	45.7	LOS E	1.5	1.5	0.96	0.96
P3	North Full Crossing	419	45.5	LOS E	1.2	1.2	0.96	0.96
P4	West Full Crossing	285	45.2	LOS E	0.8	0.8	0.95	0.95
All Pedestrians		1753	45.6	LOS E			0.96	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5078 [PM Malop/Yarra St - Base]

Network: N101 [PM Malop Street Network]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	47	0.0	47	0.0	0.050	12.5	LOS B	1.0	6.7	0.44	0.60	0.44	31.5
2	T1	234	0.0	234	0.0	0.173	24.5	LOS C	4.0	27.8	0.73	0.59	0.73	31.6
3	R2	66	0.0	66	0.0	0.451	54.1	LOS D	3.3	23.2	0.99	0.76	0.99	25.2
Approach		347	0.0	347	0.0	0.451	28.5	LOS C	4.0	27.8	0.74	0.62	0.74	30.0
East: Malop St														
4	L2	107	0.0	107	0.0	0.227	29.5	LOS C	3.8	26.4	0.75	0.71	0.75	30.3
5	T1	267	0.5	267	0.5	1.065	98.4	LOS F	20.5	143.4	1.00	1.39	1.76	12.6
6	R2	162	1.5	162	1.5	0.468	43.5	LOS D	7.3	51.5	0.94	0.79	0.94	27.3
Approach		536	0.7	536	0.7	1.065	68.0	LOS E	20.5	143.4	0.93	1.07	1.31	20.0
North: Yarra St														
7	L2	240	1.5	240	1.5	0.314	11.9	LOS B	4.3	30.0	0.62	0.69	0.62	35.5
8	T1	231	1.0	231	1.0	0.763	36.6	LOS D	10.2	71.6	0.87	0.83	1.01	28.6
9	R2	15	0.0	15	0.0	0.246	59.4	LOS E	0.8	5.7	1.00	0.69	1.00	17.5
Approach		487	1.2	487	1.2	0.763	25.1	LOS C	10.2	71.6	0.75	0.75	0.81	31.3
West: Malop St														
10	L2	47	0.0	47	0.0	0.937	64.9	LOS E	15.9	113.5	1.00	1.02	1.26	18.5
11	T1	181	2.4	181	2.4	0.937	61.5	LOS E	15.9	113.5	1.00	1.02	1.26	18.4
12	R2	53	8.0	53	8.0	0.937	64.8	LOS E	15.9	113.5	1.00	1.02	1.26	18.5
Approach		281	3.0	281	3.0	0.937	62.7	LOS E	15.9	113.5	1.00	1.02	1.26	18.4
All Vehicles		1651	1.1	1651	1.1	1.065	46.1	LOS D	20.5	143.4	0.85	0.88	1.04	24.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

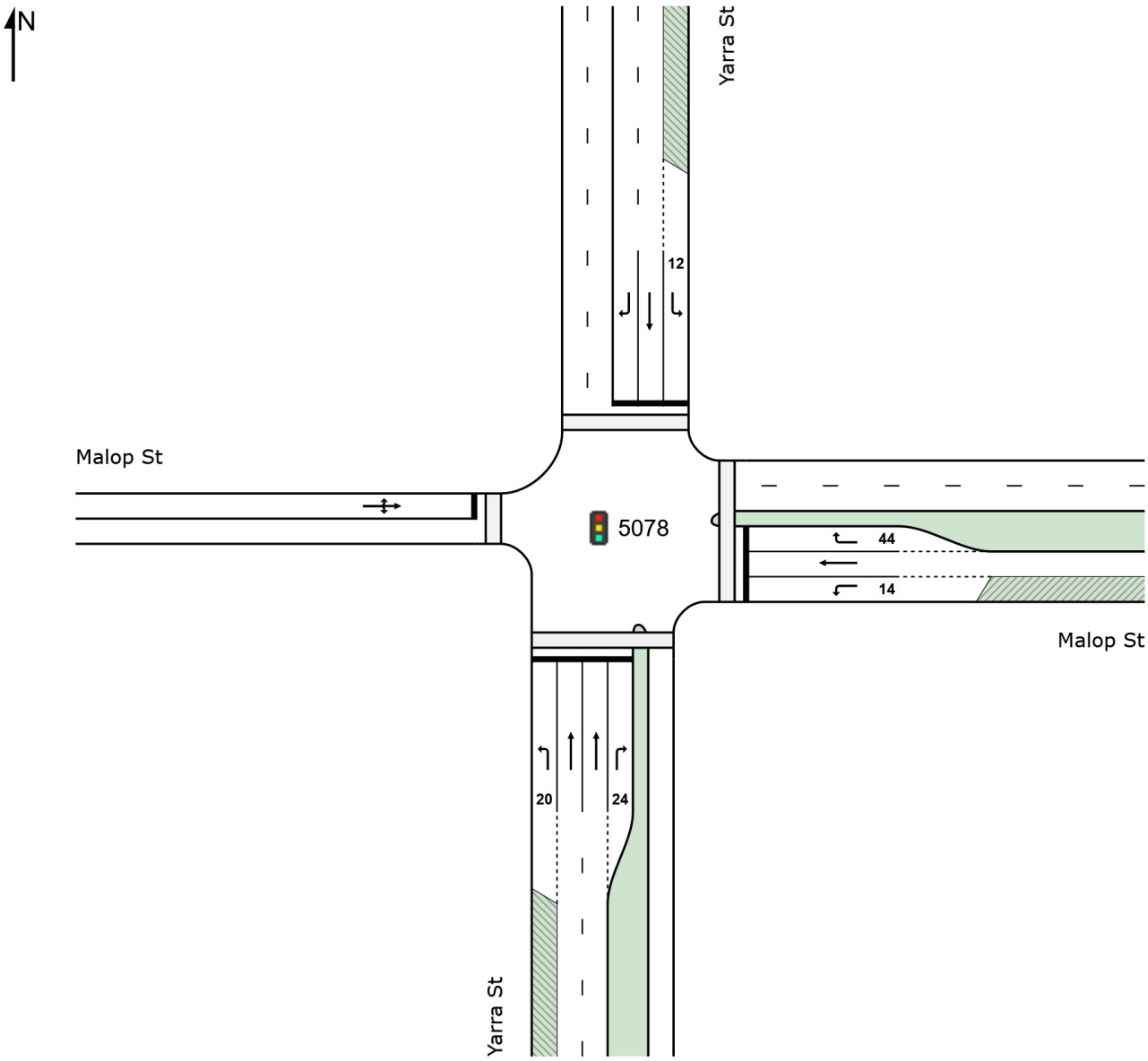
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	182	45.0	LOS E	0.5	0.5	0.95	0.95
P2	East Full Crossing	143	44.9	LOS E	0.4	0.4	0.95	0.95
P3	North Full Crossing	133	44.9	LOS E	0.4	0.4	0.95	0.95
P4	West Full Crossing	185	45.0	LOS E	0.5	0.5	0.95	0.95
All Pedestrians		643	45.0	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 5078 [AM Malop/Yarra St - Base]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 5078 [AM Malop/Yarra St - Base]

Network: N101 [AM Malop Street Network]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	32	0.0	32	0.0	0.027	10.7	LOS B	0.5	3.7	0.41	0.58	0.41	32.5
2	T1	252	2.3	252	2.3	0.179	20.7	LOS C	3.7	26.7	0.71	0.58	0.71	32.6
3	R2	100	0.0	100	0.0	0.692	51.3	LOS D	4.7	32.8	1.00	0.86	1.15	25.7
Approach		384	1.5	384	1.5	0.692	27.9	LOS C	4.7	32.8	0.76	0.65	0.80	30.4
East: Malop St														
4	L2	58	1.9	58	1.9	0.106	27.9	LOS C	1.8	13.2	0.76	0.69	0.76	30.7
5	T1	214	2.1	214	2.1	0.835	46.1	LOS D	10.1	71.5	1.00	1.01	1.28	20.2
6	R2	132	0.0	132	0.0	0.456	41.8	LOS D	5.4	38.1	0.95	0.78	0.95	27.6
Approach		404	1.4	404	1.4	0.835	42.1	LOS D	10.1	71.5	0.95	0.89	1.10	24.7
North: Yarra St														
7	L2	116	1.9	116	1.9	0.132	10.9	LOS B	1.7	12.3	0.59	0.66	0.59	35.9
8	T1	182	1.2	182	1.2	0.443	27.2	LOS C	6.3	44.6	0.83	0.68	0.83	30.8
9	R2	14	0.0	14	0.0	0.228	54.2	LOS D	0.7	4.7	1.00	0.68	1.00	18.4
Approach		312	1.4	312	1.4	0.443	22.4	LOS C	6.3	44.6	0.75	0.67	0.75	32.0
West: Malop St														
10	L2	18	5.9	18	5.9	0.817	52.0	LOS D	10.3	74.9	1.00	0.91	1.13	20.8
11	T1	143	0.7	143	0.7	0.817	48.6	LOS D	10.3	74.9	1.00	0.91	1.13	20.7
12	R2	59	14.5	59	14.5	0.817	51.9	LOS D	10.3	74.9	1.00	0.91	1.13	20.9
Approach		219	4.9	219	4.9	0.817	49.8	LOS D	10.3	74.9	1.00	0.91	1.13	20.8
All Vehicles		1319	2.0	1319	2.0	0.835	34.6	LOS C	10.3	74.9	0.86	0.77	0.93	27.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	115	39.4	LOS D	0.3	0.3	0.94	0.94
P2	East Full Crossing	88	39.3	LOS D	0.2	0.2	0.94	0.94
P3	North Full Crossing	64	39.3	LOS D	0.2	0.2	0.94	0.94
P4	West Full Crossing	126	39.4	LOS D	0.3	0.3	0.94	0.94
All Pedestrians		394	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5078 [INTER Malop/Yarra St - Base]

Network: N101 [INTER Malop Street Network]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	38	2.9	38	2.9	0.036	12.3	LOS B	0.8	5.5	0.43	0.59	0.43	31.6
2	T1	249	0.4	249	0.4	0.191	25.4	LOS C	4.3	30.5	0.75	0.60	0.75	31.3
3	R2	67	0.0	67	0.0	0.521	55.6	LOS E	3.4	23.9	1.00	0.76	1.00	24.9
Approach		355	0.6	355	0.6	0.521	29.7	LOS C	4.3	30.5	0.76	0.63	0.76	29.8
East: Malop St														
4	L2	90	0.0	90	0.0	0.148	29.2	LOS C	3.1	21.9	0.74	0.71	0.74	30.4
5	T1	159	2.8	159	2.8	0.545	38.8	LOS D	7.0	50.0	0.92	0.75	0.92	21.9
6	R2	82	0.0	82	0.0	0.221	40.4	LOS D	3.4	23.9	0.88	0.74	0.88	27.9
Approach		331	1.3	331	1.3	0.545	36.6	LOS D	7.0	50.0	0.86	0.73	0.86	26.3
North: Yarra St														
7	L2	102	2.2	102	2.2	0.113	11.3	LOS B	1.7	12.2	0.56	0.65	0.56	35.7
8	T1	179	0.6	179	0.6	0.465	32.3	LOS C	7.1	49.8	0.85	0.70	0.85	29.6
9	R2	7	0.0	7	0.0	0.122	59.9	LOS E	0.4	2.5	1.00	0.65	1.00	17.4
Approach		288	1.2	288	1.2	0.465	25.5	LOS C	7.1	49.8	0.75	0.68	0.75	31.3
West: Malop St														
10	L2	57	0.0	57	0.0	0.780	51.1	LOS D	12.7	90.6	1.00	0.91	1.11	20.9
11	T1	129	3.7	129	3.7	0.780	47.7	LOS D	12.7	90.6	1.00	0.91	1.11	20.8
12	R2	61	0.0	61	0.0	0.780	51.0	LOS D	12.7	90.6	1.00	0.91	1.11	21.0
Approach		247	2.0	247	2.0	0.780	49.3	LOS D	12.7	90.6	1.00	0.91	1.11	20.9
All Vehicles		1221	1.2	1221	1.2	0.780	34.5	LOS C	12.7	90.6	0.83	0.73	0.86	27.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	317	45.3	LOS E	0.9	0.9	0.95	0.95
P2	East Full Crossing	237	45.1	LOS E	0.6	0.6	0.95	0.95
P3	North Full Crossing	164	45.0	LOS E	0.4	0.4	0.95	0.95
P4	West Full Crossing	424	45.5	LOS E	1.2	1.2	0.96	0.96
All Pedestrians		1142	45.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5078 [PM Malop/Yarra St - Base]

Network: N101 [PM Malop Street Network]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	47	0.0	47	0.0	0.050	12.5	LOS B	1.0	6.7	0.44	0.60	0.44	31.5
2	T1	234	0.0	234	0.0	0.173	24.5	LOS C	4.0	27.8	0.73	0.59	0.73	31.6
3	R2	66	0.0	66	0.0	0.451	54.1	LOS D	3.3	23.2	0.99	0.76	0.99	25.2
Approach		347	0.0	347	0.0	0.451	28.5	LOS C	4.0	27.8	0.74	0.62	0.74	30.0
East: Malop St														
4	L2	107	0.0	107	0.0	0.227	29.5	LOS C	3.8	26.4	0.75	0.71	0.75	30.3
5	T1	267	0.5	267	0.5	1.065	98.4	LOS F	20.5	143.4	1.00	1.39	1.76	12.6
6	R2	162	1.5	162	1.5	0.468	43.5	LOS D	7.3	51.5	0.94	0.79	0.94	27.3
Approach		536	0.7	536	0.7	1.065	68.0	LOS E	20.5	143.4	0.93	1.07	1.31	20.0
North: Yarra St														
7	L2	240	1.5	240	1.5	0.314	11.9	LOS B	4.3	30.0	0.62	0.69	0.62	35.5
8	T1	231	1.0	231	1.0	0.763	36.6	LOS D	10.2	71.6	0.87	0.83	1.01	28.6
9	R2	15	0.0	15	0.0	0.246	59.4	LOS E	0.8	5.7	1.00	0.69	1.00	17.5
Approach		487	1.2	487	1.2	0.763	25.1	LOS C	10.2	71.6	0.75	0.75	0.81	31.3
West: Malop St														
10	L2	47	0.0	47	0.0	0.937	64.9	LOS E	15.9	113.5	1.00	1.02	1.26	18.5
11	T1	181	2.4	181	2.4	0.937	61.5	LOS E	15.9	113.5	1.00	1.02	1.26	18.4
12	R2	53	8.0	53	8.0	0.937	64.8	LOS E	15.9	113.5	1.00	1.02	1.26	18.5
Approach		281	3.0	281	3.0	0.937	62.7	LOS E	15.9	113.5	1.00	1.02	1.26	18.4
All Vehicles		1651	1.1	1651	1.1	1.065	46.1	LOS D	20.5	143.4	0.85	0.88	1.04	24.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

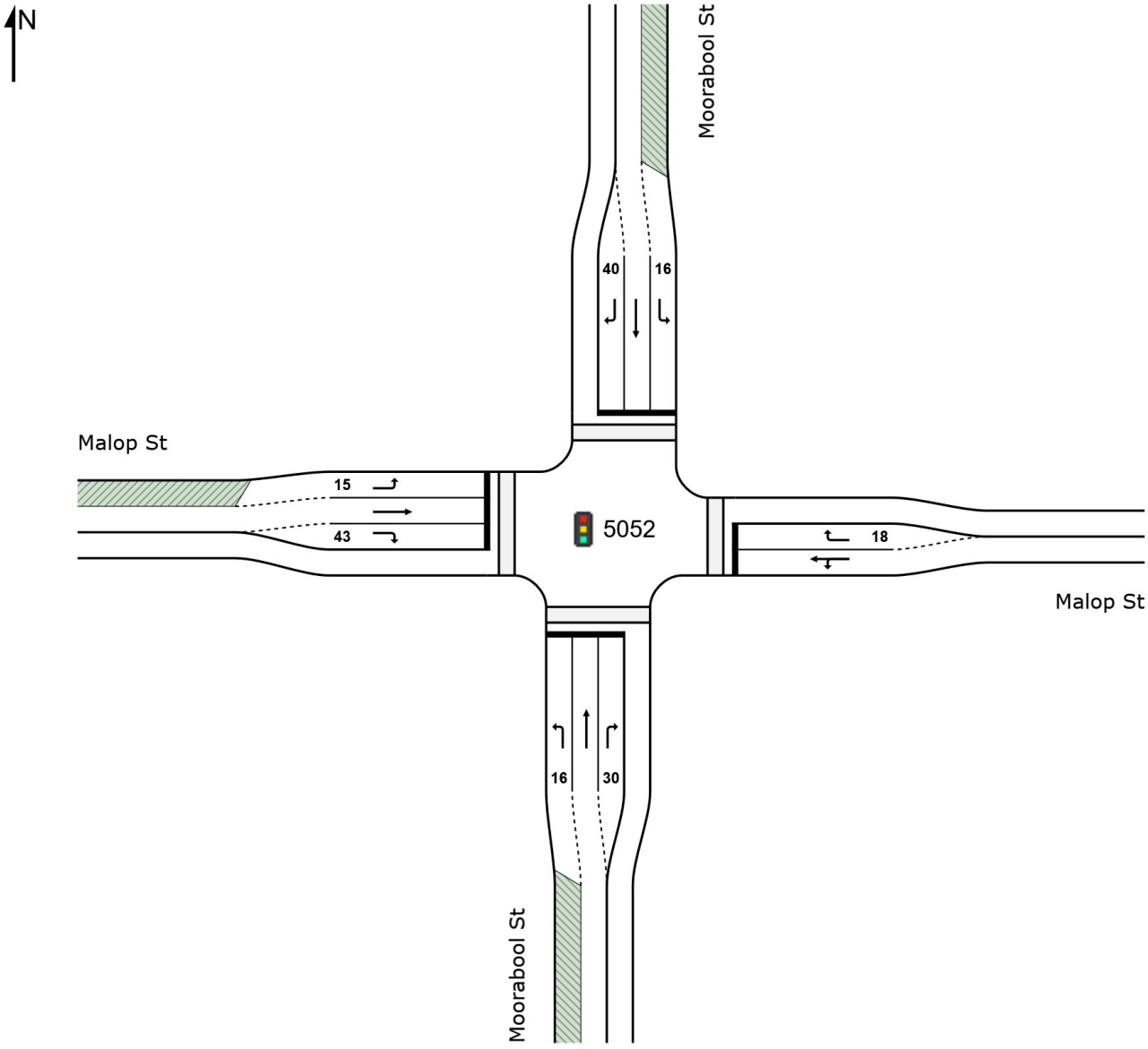
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	182	45.0	LOS E	0.5	0.5	0.95	0.95
P2	East Full Crossing	143	44.9	LOS E	0.4	0.4	0.95	0.95
P3	North Full Crossing	133	44.9	LOS E	0.4	0.4	0.95	0.95
P4	West Full Crossing	185	45.0	LOS E	0.5	0.5	0.95	0.95
All Pedestrians		643	45.0	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 5052 [AM Malop/Moorabool St - Option 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 5052 [AM Malop/Moorabool St - Option 1 (RT Bays)]

Network: N101 [AM Malop Street Network - Opt 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	135	33.0	135	33.0	0.138	10.2	LOS B	2.3	20.3	0.41	0.61	0.41	36.1
2	T1	376	2.5	376	2.5	0.646	21.7	LOS C	12.4	88.3	0.80	0.69	0.80	32.3
3	R2	36	6.5	36	6.5	0.093	27.5	LOS C	1.1	8.5	0.74	0.69	0.74	25.1
Approach		548	10.3	548	10.3	0.646	19.3	LOS B	12.4	88.3	0.70	0.67	0.70	32.9
East: Malop St														
4	L2	28	4.2	28	4.2	0.637	46.5	LOS D	11.5	81.0	1.00	0.84	1.00	22.5
5	T1	231	1.5	231	1.5	0.637	43.0	LOS D	11.5	81.0	1.00	0.84	1.00	22.4
6	R2	23	0.0	23	0.0	0.056	40.7	LOS D	1.0	7.0	1.00	0.73	1.00	23.2
Approach		283	1.6	283	1.6	0.637	43.2	LOS D	11.5	81.0	1.00	0.83	1.00	22.5
North: Moorabool St														
7	L2	38	26.7	38	26.7	0.035	8.3	LOS A	0.5	4.4	0.33	0.56	0.33	34.1
8	T1	152	5.0	152	5.0	0.207	18.9	LOS B	4.3	31.5	0.69	0.56	0.69	33.2
9	R2	22	0.0	22	0.0	0.082	31.6	LOS C	0.7	5.2	0.79	0.68	0.79	29.8
Approach		211	8.4	211	8.4	0.207	18.3	LOS B	4.3	31.5	0.64	0.57	0.64	32.8
West: Malop St														
10	L2	58	0.0	58	0.0	0.176	37.9	LOS D	2.2	15.5	0.89	0.73	0.89	28.4
11	T1	163	0.7	163	0.7	0.543	36.7	LOS D	6.6	46.2	0.94	0.76	0.94	22.4
12	R2	72	46.3	72	46.3	0.290	39.6	LOS D	2.9	27.9	0.91	0.75	0.91	28.0
Approach		294	11.7	294	11.7	0.543	37.6	LOS D	6.6	46.2	0.92	0.75	0.92	25.6
All Vehicles		1336	8.5	1336	8.5	0.646	28.2	LOS C	12.4	88.3	0.80	0.70	0.80	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	148	39.4	LOS D	0.4	0.4	0.94	0.94
P2	East Full Crossing	153	39.5	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	153	39.5	LOS D	0.4	0.4	0.94	0.94
P4	West Full Crossing	184	39.5	LOS D	0.4	0.4	0.94	0.94
All Pedestrians		638	39.5	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5052 [INTER Malop/Moorabool St - Option 1 (RT Bays)]

Network: N101 [INTER Malop Street Network - Opt 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	100	27.0	100	27.0	0.103	11.6	LOS B	1.9	16.8	0.42	0.60	0.42	35.6
2	T1	248	1.8	248	1.8	0.437	24.2	LOS C	8.7	61.8	0.76	0.64	0.76	31.6
3	R2	48	7.0	48	7.0	0.191	29.8	LOS C	1.6	12.2	0.90	0.72	0.90	24.3
Approach		397	8.8	397	8.8	0.437	21.7	LOS C	8.7	61.8	0.69	0.64	0.69	32.0
East: Malop St														
4	L2	26	0.0	26	0.0	0.516	50.3	LOS D	10.4	74.5	1.00	0.83	1.00	21.7
5	T1	184	3.4	184	3.4	0.516	46.9	LOS D	10.4	74.5	1.00	0.83	1.00	21.6
6	R2	22	5.6	22	5.6	0.055	45.1	LOS D	1.1	7.9	1.00	0.73	1.00	22.2
Approach		232	3.2	232	3.2	0.516	47.1	LOS D	10.4	74.5	1.00	0.82	1.00	21.6
North: Moorabool St														
7	L2	47	0.0	47	0.0	0.049	10.4	LOS B	0.7	5.1	0.52	0.61	0.52	32.7
8	T1	215	1.5	215	1.5	0.487	34.0	LOS C	8.9	63.3	0.88	0.73	0.88	29.2
9	R2	50	0.0	50	0.0	0.154	35.2	LOS D	1.9	13.6	0.81	0.71	0.81	29.0
Approach		312	1.0	312	1.0	0.487	30.7	LOS C	8.9	63.3	0.82	0.71	0.82	29.4
West: Malop St														
10	L2	38	3.0	38	3.0	0.130	43.4	LOS D	1.6	11.6	0.89	0.71	0.89	27.2
11	T1	144	0.0	144	0.0	0.522	42.7	LOS D	6.6	46.4	0.96	0.77	0.96	20.9
12	R2	57	38.0	57	38.0	0.245	45.0	LOS D	2.5	23.5	0.91	0.74	0.91	26.9
Approach		239	9.5	239	9.5	0.522	43.4	LOS D	6.6	46.4	0.94	0.75	0.94	23.9
All Vehicles		1179	5.8	1179	5.8	0.522	33.5	LOS C	10.4	74.5	0.84	0.72	0.84	27.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	495	45.6	LOS E	1.4	1.4	0.96	0.96
P2	East Full Crossing	554	45.7	LOS E	1.5	1.5	0.96	0.96
P3	North Full Crossing	419	45.5	LOS E	1.2	1.2	0.96	0.96
P4	West Full Crossing	285	45.2	LOS E	0.8	0.8	0.95	0.95
All Pedestrians		1753	45.6	LOS E			0.96	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5052 [PM Malop/Moorabool St - Option 1 (RT Bays)]

Network: N101 [PM Malop Street Network - Opt 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	171	22.2	171	22.2	0.165	11.1	LOS B	3.3	27.4	0.42	0.62	0.42	35.8
2	T1	250	1.4	250	1.4	0.506	24.2	LOS C	8.8	62.3	0.76	0.64	0.76	31.6
3	R2	54	0.0	54	0.0	0.207	29.7	LOS C	1.8	12.6	0.90	0.72	0.90	24.3
Approach		475	8.8	475	8.8	0.506	20.1	LOS C	8.8	62.3	0.66	0.64	0.66	32.5
East: Malop St														
4	L2	24	0.0	23	0.0	0.629	52.5	LOS D	12.3	85.3	1.00	0.83	1.00	21.2
5	T1	235	0.9	224	1.0	0.629	49.1	LOS D	12.3	85.3	1.00	0.83	1.00	21.1
6	R2	16	0.0	16	0.0	0.040	45.9	LOS D	0.8	5.3	1.00	0.71	1.00	22.0
Approach		275	0.8	263[N1]	0.8	0.629	49.2	LOS D	12.3	85.3	1.00	0.83	1.00	21.2
North: Moorabool St														
7	L2	70	7.0	70	7.0	0.079	11.3	LOS B	1.2	8.7	0.55	0.63	0.55	32.2
8	T1	272	1.3	272	1.3	0.648	35.3	LOS D	11.7	82.9	0.92	0.77	0.92	28.9
9	R2	77	0.0	77	0.0	0.237	36.0	LOS D	3.1	21.4	0.83	0.74	0.83	28.8
Approach		418	2.0	418	2.0	0.648	31.4	LOS C	11.7	82.9	0.84	0.74	0.84	29.1
West: Malop St														
10	L2	61	2.0	61	2.0	0.188	42.0	LOS D	2.6	18.6	0.89	0.73	0.89	27.5
11	T1	188	2.6	188	2.6	0.649	42.0	LOS D	8.7	61.5	0.96	0.81	0.99	21.0
12	R2	98	33.3	98	33.3	0.365	44.1	LOS D	4.4	39.3	0.92	0.77	0.92	27.1
Approach		347	11.1	347	11.1	0.649	42.6	LOS D	8.7	61.5	0.94	0.78	0.95	24.5
All Vehicles		1515	6.0	1503[N1]	6.1	0.649	33.5	LOS C	12.3	85.3	0.83	0.73	0.84	27.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

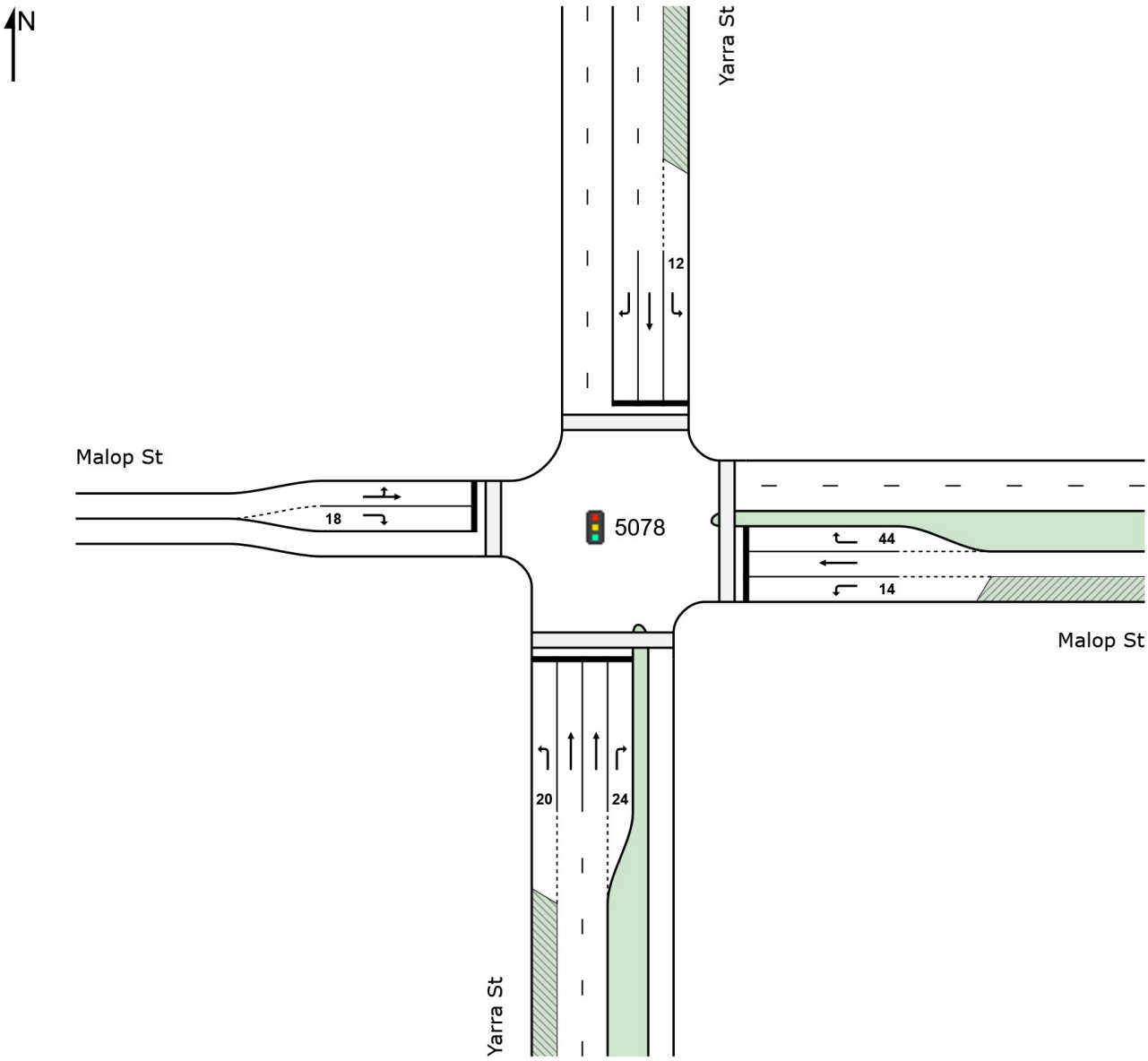
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	237	45.1	LOS E	0.6	0.6	0.95	0.95
P2	East Full Crossing	294	45.2	LOS E	0.8	0.8	0.95	0.95
P3	North Full Crossing	167	45.0	LOS E	0.5	0.5	0.95	0.95
P4	West Full Crossing	162	45.0	LOS E	0.4	0.4	0.95	0.95
All Pedestrians		860	45.1	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

SITE LAYOUT

Site: 5078 [AM Malop/Yarra St - Option 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 5078 [AM Malop/Yarra St - Option 1 (RT Bays)]

Network: N101 [AM Malop Street Network - Opt 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	32	0.0	32	0.0	0.027	10.7	LOS B	0.5	3.7	0.41	0.58	0.41	32.5
2	T1	252	2.3	252	2.3	0.179	20.7	LOS C	3.7	26.7	0.71	0.58	0.71	32.6
3	R2	100	0.0	100	0.0	0.692	51.3	LOS D	4.7	32.8	1.00	0.86	1.15	25.7
Approach		384	1.5	384	1.5	0.692	27.9	LOS C	4.7	32.8	0.76	0.65	0.80	30.4
East: Malop St														
4	L2	58	1.9	58	1.9	0.106	27.9	LOS C	1.8	13.2	0.76	0.69	0.76	30.7
5	T1	214	2.1	214	2.1	0.835	46.1	LOS D	10.1	71.5	1.00	1.01	1.28	20.2
6	R2	132	0.0	132	0.0	0.456	41.8	LOS D	5.4	38.1	0.95	0.78	0.95	27.6
Approach		404	1.4	404	1.4	0.835	42.1	LOS D	10.1	71.5	0.95	0.89	1.10	24.7
North: Yarra St														
7	L2	116	1.9	116	1.9	0.132	10.9	LOS B	1.7	12.3	0.59	0.66	0.59	35.9
8	T1	182	1.2	182	1.2	0.443	27.2	LOS C	6.3	44.6	0.83	0.68	0.83	30.8
9	R2	14	0.0	14	0.0	0.228	54.1	LOS D	0.7	4.7	1.00	0.68	1.00	18.5
Approach		312	1.4	312	1.4	0.443	22.3	LOS C	6.3	44.6	0.75	0.67	0.75	32.0
West: Malop St														
10	L2	18	5.9	18	5.9	0.661	48.3	LOS D	7.2	50.9	1.00	0.83	1.04	21.7
11	T1	143	0.7	143	0.7	0.661	44.9	LOS D	7.2	50.9	1.00	0.83	1.04	21.7
12	R2	59	14.5	59	14.5	0.241	45.0	LOS D	2.5	19.9	0.99	0.76	0.99	21.9
Approach		219	4.9	219	4.9	0.661	45.2	LOS D	7.2	50.9	1.00	0.81	1.02	21.7
All Vehicles		1319	2.0	1319	2.0	0.835	33.8	LOS C	10.1	71.5	0.86	0.76	0.92	27.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	115	39.4	LOS D	0.3	0.3	0.94	0.94
P2	East Full Crossing	88	39.3	LOS D	0.2	0.2	0.94	0.94
P3	North Full Crossing	64	39.3	LOS D	0.2	0.2	0.94	0.94
P4	West Full Crossing	126	39.4	LOS D	0.3	0.3	0.94	0.94
All Pedestrians		394	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5078 [INTER Malop/Yarra St - Option 1 (RT Bays)]

Network: N101 [INTER Malop Street Network - Opt 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	38	2.9	38	2.9	0.036	12.3	LOS B	0.8	5.5	0.43	0.59	0.43	31.6
2	T1	249	0.4	249	0.4	0.191	25.4	LOS C	4.3	30.5	0.75	0.60	0.75	31.3
3	R2	67	0.0	67	0.0	0.521	55.6	LOS E	3.4	23.9	1.00	0.76	1.00	24.9
Approach		355	0.6	355	0.6	0.521	29.7	LOS C	4.3	30.5	0.76	0.63	0.76	29.8
East: Malop St														
4	L2	90	0.0	90	0.0	0.148	29.2	LOS C	3.1	21.9	0.74	0.71	0.74	30.4
5	T1	159	2.8	159	2.8	0.545	38.8	LOS D	7.0	50.0	0.92	0.75	0.92	21.9
6	R2	82	0.0	82	0.0	0.221	40.4	LOS D	3.4	23.9	0.88	0.74	0.88	27.9
Approach		331	1.3	331	1.3	0.545	36.6	LOS D	7.0	50.0	0.86	0.73	0.86	26.3
North: Yarra St														
7	L2	102	2.2	102	2.2	0.113	11.3	LOS B	1.7	12.2	0.56	0.65	0.56	35.7
8	T1	179	0.6	179	0.6	0.465	32.3	LOS C	7.1	49.8	0.85	0.70	0.85	29.6
9	R2	7	0.0	7	0.0	0.122	59.9	LOS E	0.4	2.5	1.00	0.65	1.00	17.5
Approach		288	1.2	288	1.2	0.465	25.5	LOS C	7.1	49.8	0.75	0.68	0.75	31.3
West: Malop St														
10	L2	57	0.0	57	0.0	0.682	47.6	LOS D	9.1	65.4	1.00	0.85	1.05	21.7
11	T1	129	3.7	129	3.7	0.682	44.2	LOS D	9.1	65.4	1.00	0.85	1.05	21.7
12	R2	61	0.0	61	0.0	0.197	43.5	LOS D	2.9	20.0	0.97	0.75	0.97	22.3
Approach		247	2.0	247	2.0	0.682	44.8	LOS D	9.1	65.4	0.99	0.83	1.03	21.8
All Vehicles		1221	1.2	1221	1.2	0.682	33.6	LOS C	9.1	65.4	0.83	0.71	0.84	27.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	317	45.3	LOS E	0.9	0.9	0.95	0.95
P2	East Full Crossing	237	45.1	LOS E	0.6	0.6	0.95	0.95
P3	North Full Crossing	164	45.0	LOS E	0.4	0.4	0.95	0.95
P4	West Full Crossing	424	45.5	LOS E	1.2	1.2	0.96	0.96
All Pedestrians		1142	45.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5078 [PM Malop/Yarra St - Option 1 (RT Bays)]

Network: N101 [PM Malop Street Network - Opt 1 (RT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	47	0.0	47	0.0	0.050	12.5	LOS B	1.0	6.7	0.44	0.60	0.44	31.5
2	T1	234	0.0	234	0.0	0.173	24.5	LOS C	4.0	27.8	0.73	0.59	0.73	31.6
3	R2	66	0.0	66	0.0	0.451	54.1	LOS D	3.3	23.2	0.99	0.76	0.99	25.2
Approach		347	0.0	347	0.0	0.451	28.5	LOS C	4.0	27.8	0.74	0.62	0.74	30.0
East: Malop St														
4	L2	107	0.0	107	0.0	0.227	29.5	LOS C	3.8	26.4	0.75	0.71	0.75	30.3
5	T1	267	0.5	267	0.5	1.070	99.9	LOS F	20.7	144.5	1.00	1.40	1.77	12.5
6	R2	162	1.5	162	1.5	0.468	43.5	LOS D	7.3	51.5	0.94	0.79	0.94	27.3
Approach		536	0.7	536	0.7	1.070	68.7	LOS E	20.7	144.5	0.93	1.08	1.32	19.9
North: Yarra St														
7	L2	240	1.5	240	1.5	0.314	11.9	LOS B	4.3	30.0	0.62	0.69	0.62	35.5
8	T1	231	1.0	231	1.0	0.763	36.6	LOS D	10.2	71.6	0.87	0.83	1.01	28.6
9	R2	15	0.0	15	0.0	0.247	59.4	LOS E	0.8	5.7	1.00	0.69	1.00	17.5
Approach		487	1.2	487	1.2	0.763	25.1	LOS C	10.2	71.6	0.75	0.75	0.81	31.3
West: Malop St														
10	L2	47	0.0	47	0.0	0.860	57.7	LOS E	12.0	84.9	1.00	0.94	1.16	19.8
11	T1	181	2.4	181	2.4	0.860	54.3	LOS D	12.0	84.9	1.00	0.94	1.16	19.7
12	R2	53	8.0	53	8.0	0.191	48.4	LOS D	2.5	19.0	0.99	0.76	0.99	21.2
Approach		281	3.0	281	3.0	0.860	53.8	LOS D	12.0	84.9	1.00	0.91	1.13	20.0
All Vehicles		1651	1.1	1651	1.1	1.070	44.9	LOS D	20.7	144.5	0.85	0.86	1.02	25.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

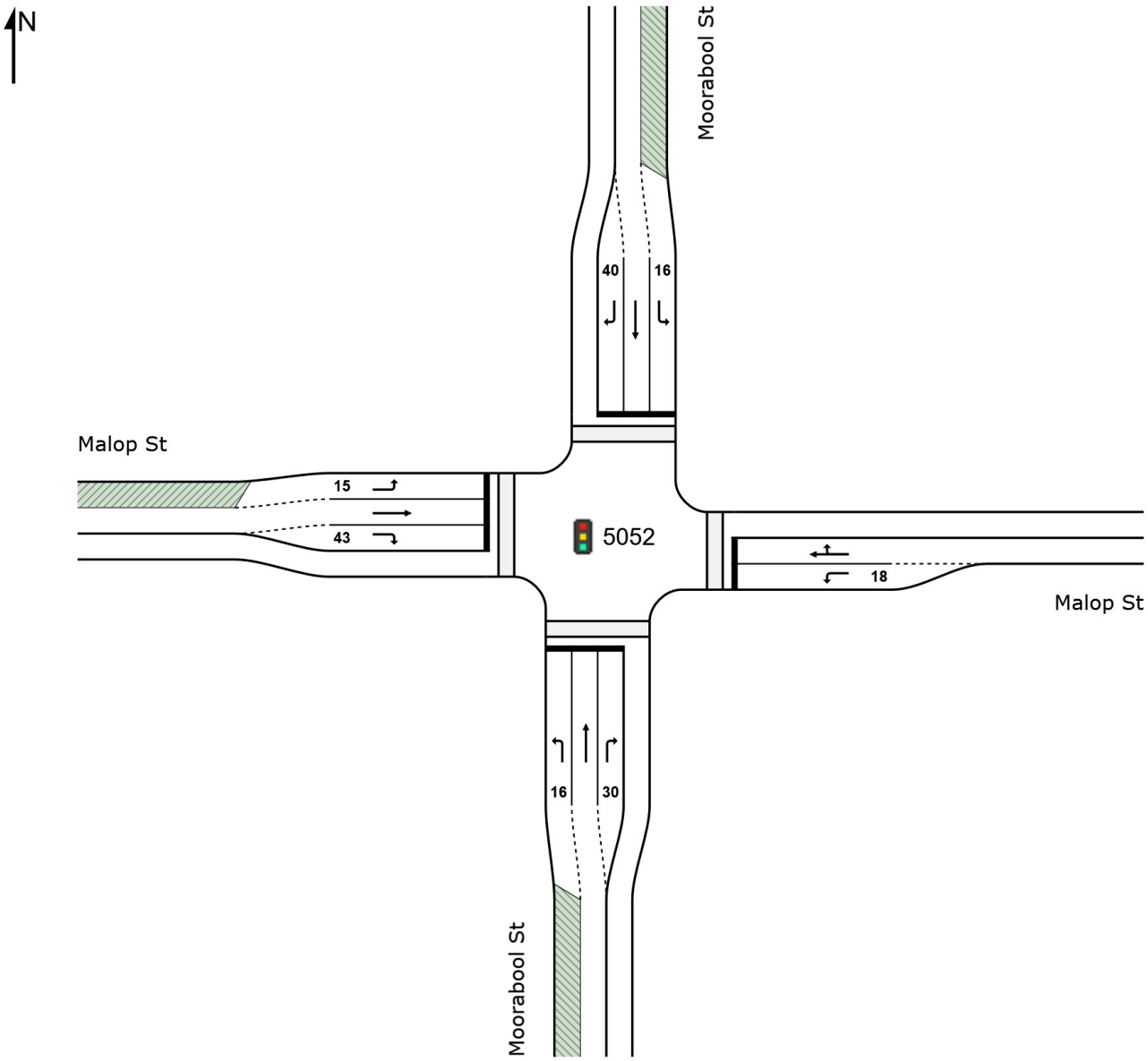
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	182	45.0	LOS E	0.5	0.5	0.95	0.95
P2	East Full Crossing	143	44.9	LOS E	0.4	0.4	0.95	0.95
P3	North Full Crossing	133	44.9	LOS E	0.4	0.4	0.95	0.95
P4	West Full Crossing	185	45.0	LOS E	0.5	0.5	0.95	0.95
All Pedestrians		643	45.0	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 5052 [AM Malop/Moorabool St - Option 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 5052 [AM Malop/Moorabool St - Option 2 (LT Bays)]

Network: N101 [AM Malop Street Network - Opt 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	135	33.0	135	33.0	0.138	10.2	LOS B	2.3	20.3	0.41	0.61	0.41	36.1
2	T1	376	2.5	376	2.5	0.646	21.7	LOS C	12.4	88.3	0.80	0.69	0.80	32.3
3	R2	36	6.5	36	6.5	0.093	27.5	LOS C	1.1	8.5	0.74	0.69	0.74	25.1
Approach		548	10.3	548	10.3	0.646	19.3	LOS B	12.4	88.3	0.70	0.67	0.70	32.9
East: Malop St														
4	L2	28	4.2	28	4.2	0.070	40.6	LOS D	1.2	8.7	1.00	0.73	1.00	23.2
5	T1	228	1.5	228	1.5	0.629	43.0	LOS D	11.1	78.9	1.00	0.83	1.00	22.5
6	R2	23	0.0	23	0.0	0.629	46.4	LOS D	11.1	78.9	1.00	0.83	1.00	22.6
Approach		279	1.7	279	1.7	0.629	43.0	LOS D	11.1	78.9	1.00	0.82	1.00	22.5
North: Moorabool St														
7	L2	38	26.7	38	26.7	0.035	8.3	LOS A	0.5	4.4	0.33	0.56	0.33	34.1
8	T1	152	5.0	152	5.0	0.207	18.9	LOS B	4.3	31.5	0.69	0.56	0.69	33.2
9	R2	22	0.0	22	0.0	0.082	31.6	LOS C	0.7	5.2	0.79	0.68	0.79	29.8
Approach		211	8.4	211	8.4	0.207	18.3	LOS B	4.3	31.5	0.64	0.57	0.64	32.8
West: Malop St														
10	L2	58	0.0	58	0.0	0.176	37.9	LOS D	2.2	15.5	0.89	0.73	0.89	28.4
11	T1	163	0.7	163	0.7	0.543	36.7	LOS D	6.6	46.2	0.94	0.76	0.94	22.4
12	R2	72	46.3	72	46.3	0.290	39.6	LOS D	2.9	27.9	0.91	0.75	0.91	28.0
Approach		294	11.7	294	11.7	0.543	37.6	LOS D	6.6	46.2	0.92	0.75	0.92	25.6
All Vehicles		1332	8.5	1332	8.5	0.646	28.1	LOS C	12.4	88.3	0.80	0.70	0.80	29.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	148	39.4	LOS D	0.4	0.4	0.94	0.94
P2	East Full Crossing	153	39.5	LOS D	0.4	0.4	0.94	0.94
P3	North Full Crossing	153	39.5	LOS D	0.4	0.4	0.94	0.94
P4	West Full Crossing	184	39.5	LOS D	0.4	0.4	0.94	0.94
All Pedestrians		638	39.5	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5052 [INTER Malop/Moorabool St - Option 2 (LT Bays)]

Network: N101 [INTER Malop Street Network - Opt 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	100	27.0	100	27.0	0.103	11.6	LOS B	1.9	16.8	0.42	0.60	0.42	35.6
2	T1	248	1.8	248	1.8	0.450	25.0	LOS C	8.9	62.9	0.77	0.65	0.77	31.4
3	R2	48	7.0	48	7.0	0.199	30.6	LOS C	1.7	12.4	0.91	0.72	0.91	24.1
Approach		397	8.8	397	8.8	0.450	22.3	LOS C	8.9	62.9	0.70	0.65	0.70	31.8
East: Malop St														
4	L2	26	0.0	26	0.0	0.061	45.1	LOS D	1.3	8.8	1.00	0.73	1.00	22.1
5	T1	184	3.4	184	3.4	0.513	46.8	LOS D	10.2	73.6	1.00	0.83	1.00	21.6
6	R2	22	5.6	22	5.6	0.513	50.3	LOS D	10.2	73.6	1.00	0.83	1.00	21.7
Approach		232	3.2	232	3.2	0.513	47.0	LOS D	10.2	73.6	1.00	0.82	1.00	21.7
North: Moorabool St														
7	L2	47	0.0	47	0.0	0.050	10.8	LOS B	0.7	5.2	0.53	0.62	0.53	32.5
8	T1	215	1.5	215	1.5	0.507	35.0	LOS C	9.1	64.2	0.90	0.74	0.90	28.9
9	R2	50	0.0	50	0.0	0.159	36.1	LOS D	2.0	13.8	0.82	0.72	0.82	28.8
Approach		312	1.0	312	1.0	0.507	31.5	LOS C	9.1	64.2	0.83	0.72	0.83	29.2
West: Malop St														
10	L2	38	3.0	38	3.0	0.123	42.4	LOS D	1.6	11.4	0.88	0.71	0.88	27.4
11	T1	144	0.0	144	0.0	0.491	41.6	LOS D	6.5	45.8	0.94	0.76	0.94	21.1
12	R2	57	38.0	57	38.0	0.231	43.9	LOS D	2.5	23.2	0.90	0.74	0.90	27.1
Approach		239	9.5	239	9.5	0.491	42.3	LOS D	6.5	45.8	0.93	0.75	0.93	24.2
All Vehicles		1179	5.8	1179	5.8	0.513	33.6	LOS C	10.2	73.6	0.84	0.72	0.84	27.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	495	45.6	LOS E	1.4	1.4	0.96	0.96
P2	East Full Crossing	554	45.7	LOS E	1.5	1.5	0.96	0.96
P3	North Full Crossing	419	45.5	LOS E	1.2	1.2	0.96	0.96
P4	West Full Crossing	285	45.2	LOS E	0.8	0.8	0.95	0.95
All Pedestrians		1753	45.6	LOS E			0.96	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5052 [PM Malop/Moorabool St - Option 2 (LT Bays)]

Network: N101 [PM Malop Street Network - Opt 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Moorabool St														
1	L2	171	22.2	171	22.2	0.162	10.7	LOS B	3.2	26.7	0.41	0.61	0.41	35.9
2	T1	250	1.4	250	1.4	0.491	23.4	LOS C	8.6	61.3	0.75	0.63	0.75	31.8
3	R2	54	0.0	54	0.0	0.207	29.3	LOS C	1.8	12.4	0.90	0.72	0.90	24.5
Approach		475	8.8	475	8.8	0.491	19.5	LOS B	8.6	61.3	0.64	0.63	0.64	32.7
East: Malop St														
4	L2	23	0.0	22	0.0	0.059	46.8	LOS D	1.1	7.4	1.00	0.72	1.00	21.8
5	T1	229	0.9	218	1.0	0.647	49.7	LOS D	11.7	82.5	1.00	0.83	1.00	21.1
6	R2	16	0.0	16	0.0	0.647	53.1	LOS D	11.7	82.5	1.00	0.83	1.00	21.1
Approach		268	0.8	256[N1]	0.9	0.647	49.6	LOS D	11.7	82.5	1.00	0.82	1.00	21.1
North: Moorabool St														
7	L2	70	7.0	70	7.0	0.079	11.3	LOS B	1.2	8.7	0.55	0.63	0.55	32.2
8	T1	272	1.3	272	1.3	0.624	34.3	LOS C	11.5	81.7	0.91	0.76	0.91	29.1
9	R2	77	0.0	77	0.0	0.229	35.1	LOS D	3.0	21.1	0.82	0.73	0.82	29.0
Approach		418	2.0	418	2.0	0.624	30.6	LOS C	11.5	81.7	0.83	0.73	0.83	29.3
West: Malop St														
10	L2	61	2.0	61	2.0	0.188	42.0	LOS D	2.6	18.6	0.89	0.73	0.89	27.5
11	T1	188	2.6	188	2.6	0.649	42.0	LOS D	8.7	61.5	0.96	0.81	0.99	21.0
12	R2	98	33.3	98	33.3	0.365	44.1	LOS D	4.4	39.3	0.92	0.77	0.92	27.1
Approach		347	11.1	347	11.1	0.649	42.6	LOS D	8.7	61.5	0.94	0.78	0.95	24.5
All Vehicles		1509	6.0	1496[N1]	6.1	0.649	33.1	LOS C	11.7	82.5	0.83	0.73	0.83	27.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

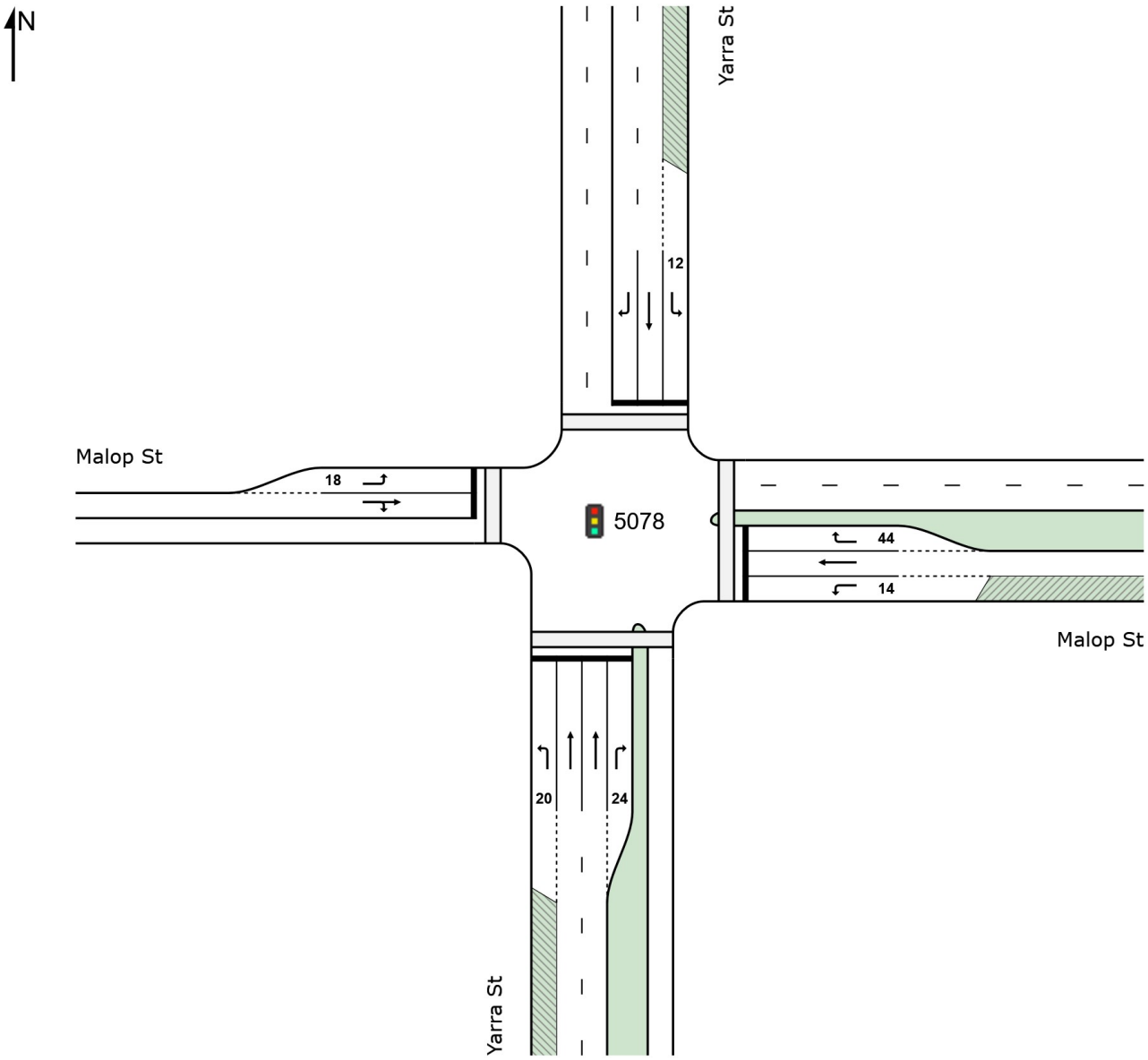
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	237	45.1	LOS E	0.6	0.6	0.95	0.95
P2	East Full Crossing	294	45.2	LOS E	0.8	0.8	0.95	0.95
P3	North Full Crossing	167	45.0	LOS E	0.5	0.5	0.95	0.95
P4	West Full Crossing	162	45.0	LOS E	0.4	0.4	0.95	0.95
All Pedestrians		860	45.1	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

SITE LAYOUT

Site: 5078 [AM Malop/Yarra St - Option 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Isolated



MOVEMENT SUMMARY

Site: 5078 [AM Malop/Yarra St - Option 2 (LT Bays)]

Network: N101 [AM Malop Street Network - Opt 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 90 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	32	0.0	32	0.0	0.027	10.7	LOS B	0.5	3.7	0.41	0.58	0.41	32.5
2	T1	252	2.3	252	2.3	0.179	20.7	LOS C	3.7	26.7	0.71	0.58	0.71	32.6
3	R2	100	0.0	100	0.0	0.692	51.3	LOS D	4.7	32.8	1.00	0.86	1.15	25.7
Approach		384	1.5	384	1.5	0.692	27.9	LOS C	4.7	32.8	0.76	0.65	0.80	30.4
East: Malop St														
4	L2	58	1.9	58	1.9	0.106	27.9	LOS C	1.8	13.2	0.76	0.69	0.76	30.7
5	T1	214	2.1	214	2.1	0.835	46.1	LOS D	10.1	71.5	1.00	1.01	1.28	20.2
6	R2	132	0.0	132	0.0	0.456	41.8	LOS D	5.4	38.1	0.95	0.78	0.95	27.6
Approach		404	1.4	404	1.4	0.835	42.1	LOS D	10.1	71.5	0.95	0.89	1.10	24.7
North: Yarra St														
7	L2	116	1.9	116	1.9	0.132	10.9	LOS B	1.7	12.3	0.59	0.66	0.59	35.9
8	T1	182	1.2	182	1.2	0.443	27.2	LOS C	6.3	44.6	0.83	0.68	0.83	30.8
9	R2	14	0.0	14	0.0	0.228	54.1	LOS D	0.7	4.7	1.00	0.68	1.00	18.5
Approach		312	1.4	312	1.4	0.443	22.3	LOS C	6.3	44.6	0.75	0.67	0.75	32.0
West: Malop St														
10	L2	18	5.9	18	5.9	0.070	43.8	LOS D	0.8	5.7	0.98	0.70	0.98	22.0
11	T1	143	0.7	143	0.7	0.782	47.4	LOS D	9.3	67.7	1.00	0.89	1.10	21.0
12	R2	59	14.5	59	14.5	0.782	50.7	LOS D	9.3	67.7	1.00	0.89	1.10	21.2
Approach		219	4.9	219	4.9	0.782	48.0	LOS D	9.3	67.7	1.00	0.87	1.09	21.2
All Vehicles		1319	2.0	1319	2.0	0.835	34.3	LOS C	10.1	71.5	0.86	0.77	0.93	27.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	115	39.4	LOS D	0.3	0.3	0.94	0.94
P2	East Full Crossing	88	39.3	LOS D	0.2	0.2	0.94	0.94
P3	North Full Crossing	64	39.3	LOS D	0.2	0.2	0.94	0.94
P4	West Full Crossing	126	39.4	LOS D	0.3	0.3	0.94	0.94
All Pedestrians		394	39.4	LOS D			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5078 [INTER Malop/Yarra St - Option 2 (LT Bays)]

Network: N101 [INTER Malop Street Network - Opt 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	38	2.9	38	2.9	0.036	12.3	LOS B	0.8	5.5	0.43	0.59	0.43	31.6
2	T1	249	0.4	249	0.4	0.191	25.4	LOS C	4.3	30.5	0.75	0.60	0.75	31.3
3	R2	67	0.0	67	0.0	0.521	55.6	LOS E	3.4	23.9	1.00	0.76	1.00	24.9
Approach		355	0.6	355	0.6	0.521	29.7	LOS C	4.3	30.5	0.76	0.63	0.76	29.8
East: Malop St														
4	L2	90	0.0	90	0.0	0.148	29.2	LOS C	3.1	21.9	0.74	0.71	0.74	30.4
5	T1	159	2.8	159	2.8	0.545	38.8	LOS D	7.0	50.0	0.92	0.75	0.92	21.9
6	R2	82	0.0	82	0.0	0.221	40.4	LOS D	3.4	23.9	0.88	0.74	0.88	27.9
Approach		331	1.3	331	1.3	0.545	36.6	LOS D	7.0	50.0	0.86	0.73	0.86	26.3
North: Yarra St														
7	L2	102	2.2	102	2.2	0.113	11.3	LOS B	1.7	12.2	0.56	0.65	0.56	35.7
8	T1	179	0.6	179	0.6	0.465	32.3	LOS C	7.1	49.8	0.85	0.70	0.85	29.6
9	R2	7	0.0	7	0.0	0.122	59.9	LOS E	0.4	2.5	1.00	0.65	1.00	17.5
Approach		288	1.2	288	1.2	0.465	25.5	LOS C	7.1	49.8	0.75	0.68	0.75	31.3
West: Malop St														
10	L2	57	0.0	57	0.0	0.181	43.7	LOS D	2.6	18.4	0.97	0.75	0.97	22.0
11	T1	129	3.7	129	3.7	0.692	44.6	LOS D	9.4	67.4	1.00	0.86	1.05	21.6
12	R2	61	0.0	61	0.0	0.692	47.9	LOS D	9.4	67.4	1.00	0.86	1.05	21.8
Approach		247	2.0	247	2.0	0.692	45.2	LOS D	9.4	67.4	0.99	0.83	1.03	21.7
All Vehicles		1221	1.2	1221	1.2	0.692	33.7	LOS C	9.4	67.4	0.83	0.71	0.84	27.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	317	45.3	LOS E	0.9	0.9	0.95	0.95
P2	East Full Crossing	237	45.1	LOS E	0.6	0.6	0.95	0.95
P3	North Full Crossing	164	45.0	LOS E	0.4	0.4	0.95	0.95
P4	West Full Crossing	424	45.5	LOS E	1.2	1.2	0.96	0.96
All Pedestrians		1142	45.3	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 5078 [PM Malop/Yarra St - Option 2 (LT Bays)]

Network: N101 [PM Malop Street Network - Opt 2 (LT Bays)]

New Site
Site Category: (None)
Signals - Fixed Time Coordinated Cycle Time = 101 seconds (Network Site User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Yarra St														
1	L2	47	0.0	47	0.0	0.050	12.5	LOS B	1.0	6.7	0.44	0.60	0.44	31.5
2	T1	234	0.0	234	0.0	0.173	24.5	LOS C	4.0	27.8	0.73	0.59	0.73	31.6
3	R2	66	0.0	66	0.0	0.451	54.1	LOS D	3.3	23.2	0.99	0.76	0.99	25.2
Approach		347	0.0	347	0.0	0.451	28.5	LOS C	4.0	27.8	0.74	0.62	0.74	30.0
East: Malop St														
4	L2	107	0.0	107	0.0	0.227	29.5	LOS C	3.8	26.4	0.75	0.71	0.75	30.3
5	T1	267	0.5	267	0.5	1.067	99.0	LOS F	20.6	143.9	1.00	1.39	1.77	12.6
6	R2	162	1.5	162	1.5	0.468	43.5	LOS D	7.3	51.5	0.94	0.79	0.94	27.3
Approach		536	0.7	536	0.7	1.067	68.3	LOS E	20.6	143.9	0.93	1.08	1.31	20.0
North: Yarra St														
7	L2	240	1.5	240	1.5	0.314	11.9	LOS B	4.3	30.0	0.62	0.69	0.62	35.5
8	T1	231	1.0	231	1.0	0.763	36.6	LOS D	10.2	71.6	0.87	0.83	1.01	28.6
9	R2	15	0.0	15	0.0	0.246	59.4	LOS E	0.8	5.7	1.00	0.69	1.00	17.5
Approach		487	1.2	487	1.2	0.763	25.1	LOS C	10.2	71.6	0.75	0.75	0.81	31.3
West: Malop St														
10	L2	47	0.0	47	0.0	0.159	44.2	LOS D	2.2	15.3	0.97	0.74	0.97	21.9
11	T1	181	2.4	181	2.4	0.876	52.8	LOS D	12.8	91.4	1.00	1.01	1.25	20.0
12	R2	53	8.0	53	8.0	0.876	56.1	LOS E	12.8	91.4	1.00	1.01	1.25	20.2
Approach		281	3.0	281	3.0	0.876	52.0	LOS D	12.8	91.4	0.99	0.97	1.20	20.3
All Vehicles		1651	1.1	1651	1.1	1.067	44.4	LOS D	20.6	143.9	0.85	0.87	1.03	25.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	182	45.0	LOS E	0.5	0.5	0.95	0.95
P2	East Full Crossing	143	44.9	LOS E	0.4	0.4	0.95	0.95
P3	North Full Crossing	133	44.9	LOS E	0.4	0.4	0.95	0.95
P4	West Full Crossing	185	45.0	LOS E	0.5	0.5	0.95	0.95
All Pedestrians		643	45.0	LOS E			0.95	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
A	Toby Cooper	Aimee Wescombe		Aimee Wescombe		7/10/19
B	Toby Cooper	Aimee Wescombe		Aimee Wescombe		11/10/19
C	Toby Cooper	Aimee Wescombe		Aimee Wescombe		29/10/19
D	Toby Cooper	Aimee Wescombe		Aimee Wescombe		31/10/19

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5. ESTABLISHING AN AGEING WELL ADVISORY COMMITTEE

Source: **Community Life – Community Care**
Director: **Robyn Stevens**
Portfolio: **Community Health, Wellbeing and Safety**

Purpose

1. To seek approval from Council to establish an Ageing Well Advisory Committee, present the draft terms of reference and request a Chair be appointed for the Committee.

Background

2. Advisory committees act in an advisory role to Council on matters within their respective portfolios across the municipality. They have no executive authority but provide an important platform for consultation with the community.

3. Council currently has seven advisory committees across areas such as youth, heritage, gender equity, multiculturalism and access and inclusion.

4. At present, the City provides direct service delivery to less than ten per cent of the 65+ population. The City will soon begin work on an *Ageing Well Strategy* to help identify how we can best support all older people in our community in the future.

Key Matters

5. Establishing an Ageing Well Advisory Committee will provide an important forum and opportunity for informed discussion, consultation and collaboration on issues affecting older members of the Municipality.

6. The Committee will utilise the experience and expertise of older people and bring new perspectives to both existing and emerging issues ensuring effective policy and future provision of services.

7. Feedback from local government authorities who have developed an ageing well strategy is that an advisory committee has been an essential mechanism for engagement with a diverse group of older residents and that it contributed to the successful development of a robust and meaningful age-friendly strategy.

Cr Murnane moved, Cr Mansfield seconded -

8. That Council:

8.1 Approve the establishment of an Ageing Well Advisory Committee to begin in 2020;

8.2 Approve the terms of reference for the Ageing Well Advisory Committee; and

8.3 Appoint a Councillor as Chair for the Ageing Well Advisory Committee.

Carried.

Cr Nelson moved, Cr Grzybek seconded –

That Cr Pat Murnane be nominated to the position as Chair for the Ageing Well Advisory Committee.

Carried.

Cr Murnane was duly elected to the position as Chair for the Ageing Well Advisory Committee.

Attachment 1

Financial Implications

1. Financial implications will be managed within existing budgets for staff time to provide secretariat and support to the committee.

2. Advisory committee positions are volunteer positions and not remunerated.

Community Engagement

3. Council currently has seven advisory committees:

   3.1 the Access and Inclusion Advisory Committee;

   3.2 the Heritage Advisory Committee;

   3.3 the Karreenga Aboriginal Advisory Committee;

   3.4 the Multicultural Action Plan Advisory Committee;

   3.5 the Rural and Peri-Urban Advisory Committee;

   3.6 the Women in Community Life Advisory Committee; and

   3.7 the Youth Council Advisory Committee.

4. This committee will allow the voices of diverse older communities within our Municipality to be heard and will be instrumental in shaping how the City supports older members of our community.

5. The committee will particularly have input in the City's Ageing Well Strategy through its development, though it should be noted there will be other engagement opportunities in the development of the strategy for older people other than Committee members.

Social Equity Considerations

6. Through provision of services, Council has built a strong social contract with a segment (less than 10 per cent of the population aged 65+) of the community. An Ageing Well Advisory Committee will extend this engagement and help determine more broadly how we support all older people within our community.

Policy/Legal/Statutory Implications

7. There are no foreseen policy or legal issues in establishing an advisory committee and their terms of reference. The *Local Government Act* 1989 requires Council to provide governance and leadership for its community through advocacy, decision making and action.

8. Advisory committees are not a statutory requirement and are established under a resolution of Council.

Alignment to Council Plan

9. This proposal aligns to two strategic priorities in the *Council Plan*:

   9.1 Improved health and safety of our community by engaging with members to identify what assists older people feel safe within their homes and communities.

   9.2 A more inclusive and diverse community by engaging with members to ensure older people are connected with their community and by defining what opportunities we have within our community that support this to occur.

Conflict of Interest

10. No Council officers or contractors who have provided advice in relation to this report have declared a conflict of interest regarding the matter under consideration.

11. Committee members and staff participating in this advisory committee may need to declare a conflict of interest if recommendations made may affect their personal or family use of, or employment within, services offered by the City.

Risk Assessment

12. Establishing an Ageing Well Advisory Committee reduces the risk of the City developing an *Ageing Well Strategy* not supported by, or relevant to, the older population of Geelong. Conversely, the Committee will be an integral part of developing a robust *Ageing Well Strategy.*

Environmental Implications

13. There are no significant environmental issues arising from this report.

COMMITTEE TERMS OF REFERENCE

Ageing Well Advisory Committee	Document No:	D19-655081
	Approval Date:	Draft
	Approved By:	
	Review Date:	
Responsible Officer:		
	Version No:	
Authorising Officer:		**Chief Executive Officer**

1. SUMMARY

The Ageing Well Advisory Committee provides an important forum and opportunity for informed discussion, consultation and collaboration on issues impacting older residents of, and visitors to, the City.

The Advisory Committee will:

- assist in shaping and creating inclusive age-friendly communities within the City for older people, by utilising their experience and expertise in bringing new perspectives to both existing and emerging issues;
- advise Council about effective policy and the future provision of services in relation to older people in the City of Greater Geelong; and
- review and make recommendations to inform the City's Ageing Well strategy.

In 2005 the World Health Organisation (WHO) brought together 33 cities to discuss what makes a city a good place to grow old. They identified eight domains for age friendly communities:

- Outdoor spaces and buildings;
- Transportation;
- Housing;
- Social participation;
- Respect and social inclusion;
- Civic participation and employment;
- Communication and information; and
- Community support and health services.

In 2016, the City became signatory to an *Age Friendly Declaration* to work toward building an age-friendly community. The Ageing Well Committee will be actively involved in all aspects of the eight domains.

2. OBJECTIVES

The Ageing Well Advisory Committee will provide a mechanism in which community representatives can:

1) Collect and consider evidence, ideas and community input about how the City can best create an age friendly city where older people are valued, supported and empowered to live well;
2) Advise and advocate for improvements in:
    - social inclusion and social & civic participation;
    - built environment, transport and housing;
    - community support, health services and existing aged services;
3) Provide a voice on City strategies and plans and their impact on older people;
4) Provide a voice and develop principles that will guide planning on the City's future role in providing services, programs and facilities to older people, within the context of the federal government's aged care reforms and changing community needs;
5) Advise Council on effective ways to engage with our older community members; and
6) Assist with and provide feedback on the positive profile of older people through City publications, media and social media.

3. DEFINITIONS

- Nil

4. TERMS OF REFERENCE

4.1. Expected / Definite Life of the Committee

- The Ageing Well Advisory Committee will be appointed for a period of up to two years, or in line with the development or completion of the *Ageing Well Strategy*.
- Should there be a need for the Ageing Well Advisory Committee to continue beyond this time, a re-appointment process will be undertaken for all members in accordance with the selection process outlined in these terms of reference.

4.2. Constituency of the Committee

Membership of the Ageing Well Advisory Committee is voluntary, and all community members must be over 55 years of age.

The Committee will comprise a maximum of 12 individuals and organisational representatives, including:

- One Councillor, appointed by Council annually to be Chair (other Councillors may attend from time to time as observers);
- Up to four clients/carers of City of Greater Geelong Community Care program;

- Up to four local community members;
- Manager, Community Care (or representative); and
- Coordinator, Healthy Communities (or representative).

4.3. Role of Committee Members

A committee member's involvement includes reading through any material forwarded prior to the meeting, attending scheduled meetings, contributing to the discussion and maintaining confidentiality as required.

4.4. Authority of the Committee

- The Advisory Committee will make recommendations to Council in line with its functions outlined above.
- The Advisory Committee does not have any formal delegated powers to act on the Council's behalf.
- Advisory Committee recommendations or decisions have no legal standing unless they are adopted by the Council at a formal Council meeting. Council is also not bound to accept the recommendation of the Advisory Committee.

4.5. Meeting Procedure

- The Committee will meet at least four times a year. Meeting frequency will need to be flexible due to the development of the *Ageing Well Strategy*.
- Sub-committees can be convened as needed, for specific tasks or projects for interested and available members.
- Quorum for decision making will be five Committee members external to Council.
- Members are expected to attend Committee meetings and contribute to outputs of the group. Three or more consecutive, unexplained non-attendances by a member without Committee approval will deem that member's position as having been vacated. The Committee shall allow the granting of leave of absence as required.
- Committee members are required to send agenda items at least 10 business days prior to the meeting, to a nominated City staff member who will prepare the agenda in consultation with the Chairperson. The City will also be responsible for recording of the minutes and presenting these to the Chairperson for approval, prior to sending out to Committee members.
- Recommendations for action by Council may be included in the minutes.

4.6. Reporting Requirements

- In accordance with the City's statutory reporting, a periodic report will be submitted to Council on achievements against the objectives, and the Councillor representative will speak to the report on behalf of the Ageing Well Advisory Committee.

4.7. Secretariat

- The City will provide secretariat. The Healthy Ageing Officer will record the minutes of the meeting and present these to the Chairperson for approval, prior to sending out to the Committee members.

4.8. Facilities & Resources

- All meetings will be held in City offices.

5. QUALITY RECORDS

Quality Records shall be retained for at least the period shown below.

Record	Retention/Disposal Responsibility	Retention Period	Location

6. ATTACHMENTS

- Nil

6. ROAD RENAMING DUE TO DRYSDALE BYPASS STAGE 1

Source: **Customer & Corporate Services – Financial Services**
Director: **Michael Dugina**
Portfolio: **Finance**

Purpose

1. To seek approval to rename roads that have been truncated (definition: shortened by; or as if having a part cut off) by the Drysdale Bypass Project.

Background

2. The Drysdale Bypass is 6km of roads between Jetty Road and Whitcombes Road, Drysdale to improve safety and ease congestion on the Bellarine Peninsula.

3. The project is expected to be completed mid-2020.

4. This has caused nine roads to be truncated and they must be renamed. The suggested names have come from the previously approved ANZAC register (refer attached maps).

5. The Naming Rules for Places in Victoria 2016 requires all roadways which become non-navigable from point A to point B in a direct manner to be separately named.

Key Matters

6. An advertisement was placed in the Geelong Advertiser newspaper on 7 September 2019. The proposed renaming was also placed on the City's website for 30 days as per statutory requirement.

7. Affected property owners and residents have been consulted with regards to the renaming(s).

8. Submissions have been reviewed as per the Naming Rules for Places in Victoria 2016.

9. Four of the nine road renamings are supported by the community:

In favour	No Response*	Total	Not in Favour	Street Name
3	7	10	1	High Street (from Portarlington Road)
2	8	10	2	McKiernan Street (from Andersons Road)
2	5	7	3	Hackwill Place (from Jetty Road)
2	0	2	0	Benham Street (from Princess Street)

*non return of surveys indict in favour of the preferred option

10. Further consultation with the community is underway for the five sections of the Drysdale Bypass where alternate names have been suggested. A separate report will be presented to Council in January 2020.

11. The Naming Rules for Places in Victoria 2016 do not allow the use of suffix's with road names i.e.; east, west, etc.

12. The Office of Geographic Names supports the approach taken by the City regarding public consultation.

13. All submissions for the recommended roads have been addressed.

Cr Aitken moved, Cr Mason seconded -

14. That Council approve the renaming of:

14.1 Section of Portarlington Road from Jetty Road to Railway Crescent, rename to "High Street, Drysdale";

14.2 Section of Andersons Road from Grubb Road to Princess Street, rename to "McKiernan Street, Drysdale";

14.3 Section of Jetty Road accessed off Portarlington Road, rename to "Hackwill Place, Drysdale"; and

14.4 Section of Princess Street to Andersons Road Intersection, rename to "Benham Street, Drysdale".

Carried.

Attachment 1

Financial Implications

1. The approximate cost to the City is $500 per renaming. This includes advertising, notification to adjoining property owners and residents, notification to authorities and street signage.

Community Engagement

2. Surveys were sent to all affected and adjoining property owners and residents advising of the proposals and seeking feedback.

3. An advertisement was placed in the "Have your say" section of City News in the Geelong Advertiser on 7 September 2019.

4. The proposal was open for comment on the Geelong Australia website for 30 days from the date of the newspaper advertisement.

5. Names from the previously approved ANZAC register were suggested as the new road names.

6. Submissions were reviewed as per Naming Rules for Places in Victoria 2016.

7. Four of the nine names have been accepted and are proceeding in this report.

8. Five of the nine names were rejected by the community, and new surveys have been issued using the names suggested by the community (where compliant).

9. Property owners are given assistance packages to support them in the transition to their new address.

10. Business owners will be supported by Council and Major Roads Victoria with signage and other assistance as appropriate.

Social Equity Considerations

11. The City has a responsibility to the community to ensure that all properties are able to be identified in a clear and logical manner for emergency services and visitors to the area.

Policy/Legal/Statutory Implications

12. The *Local Government Act 1989,* the *Geographic Place Names Act 1998* and The Naming Rules for Places in Victoria 2016 have been followed.

Alignment to Council Plan

13. The proposed road renaming's are consistent with Council Plan strategic priorities for:

    13.1 Improved Health and Safety of our Community by enabling emergency services to locate properties on these roadways in a timely manner with minimal confusion; and

    13.2 A more inclusive and diverse Community by respecting the language barrier with different cultures and the way in which words are pronounced.

Conflict of Interest

14. No Council officers or contractors who have provided advice in relation to this report have declared a conflict of interest regarding the matter under consideration.

Risk Assessment

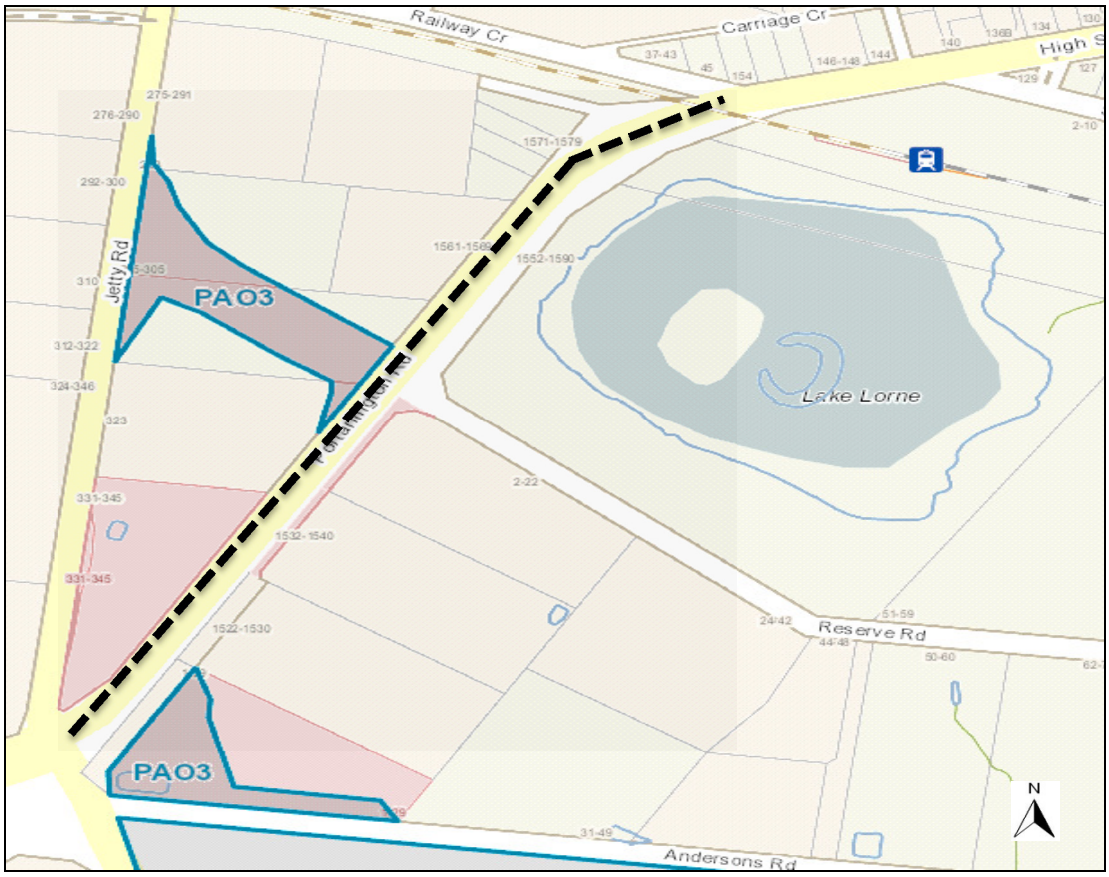
15. If an emergency situation occurred, the City's proposal to rename these sections of roadway could minimise the risk or failure to be able to access a situation in a timely manner.

Environmental Implications

16. There are no environmental implications arising from the subject of this report.

Attachment 2

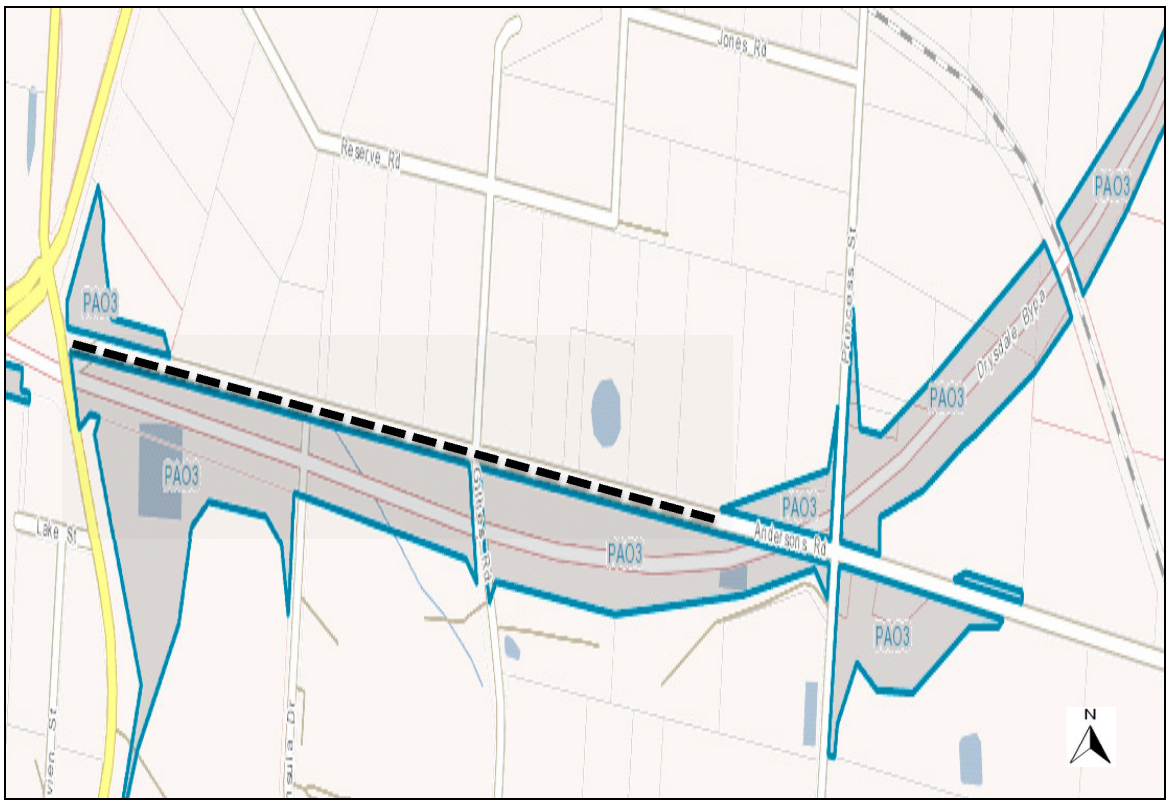
It is proposed to rename Portarlington Road to High Street, Drysdale. Section to be renamed is highlighted below by the broken line.



High Street

We will need to rename this section of Portarlington Road continuing the name High Street. There will be no need to renumber these properties as the numbering will flow correctly. This will allow the bypass to be known as Portarlington Road.

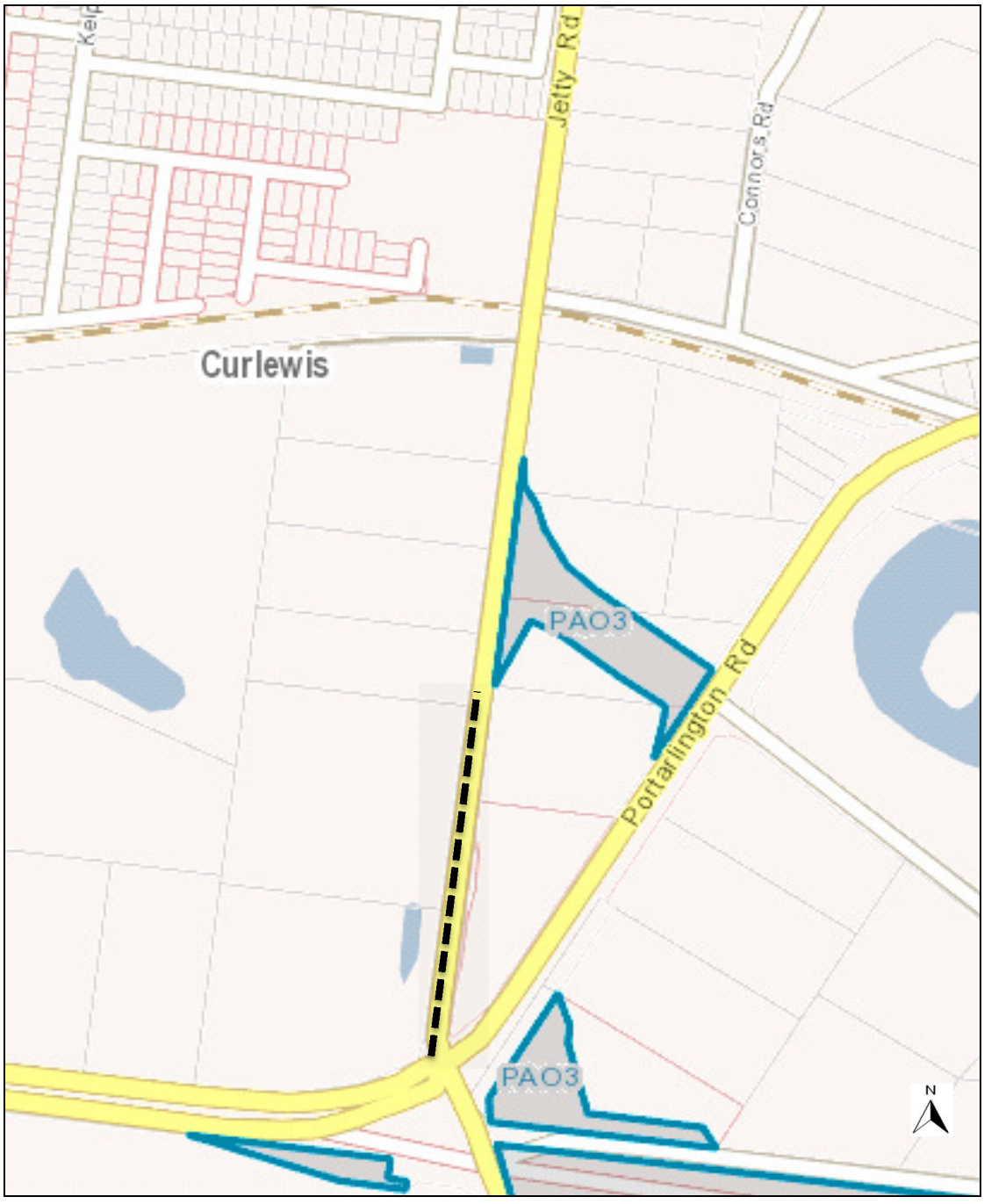
It is proposed to rename Andersons Road to McKiernan Street, Drysdale. Section to be renamed is highlighted below by the broken line.



McKIERNAN – Lawrence Nicholas

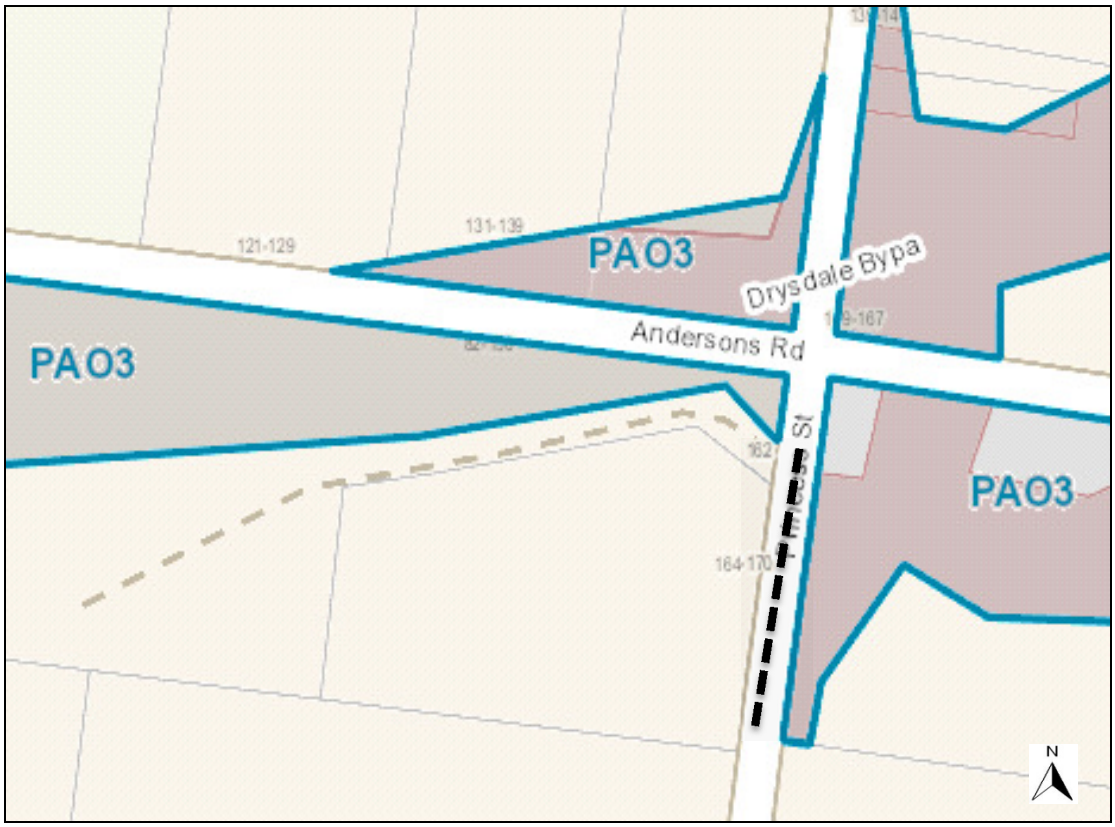
Born in Drysdale. Enlisted November 1942 in the Field. Served as Private with 20 Australian Pioneer Battalion AIF. Discharged in November 1945.

It is proposed to rename Jetty Road to Hackwill Place, Drysdale. Section to be renamed is highlighted below by the broken line.



HACKWILL – William Mercer
Born in Drysdale on 12 March 1899. Enlisted on 14 March 1941. Served as a Lieutenant with District Accounts Office. Discharged on 21 June 1946.

It is proposed to rename Princess Street to Benham Street, Drysdale. Section to be renamed is highlighted below by the broken line.



BENHAM – Winifred Mae

Born in Drysdale on 30 March 1927. Enlisted on 13 April 1945. Served as a private with the Australian Women's Army Service. Discharged on 5 December 1946.

7. COMMUNITY LIFE COUNCIL ADVISORY COMMITTEES REPORT

Source: **Community Life – Healthy Communities**
Director: **Robyn Stevens**
Portfolio: **Social Inclusion**

Purpose

1. To present an annual report to Council on the work of the Access & Inclusion Advisory Committee, the Multicultural Action Plan Advisory Committee, the Women in Community Life Advisory Committee and the Karreenga Aboriginal Advisory Committee.

Background

2. Advisory committees act in an advisory role to Council on matters within their respective portfolios across the municipality. They have no executive authority but provide an important platform for consultation with the community.

3. Council established the Access & Inclusion Advisory Committee in 2003, the Multicultural Action Plan Advisory Committee in 2010, the Women in Community Life Advisory Committee in 2013 and the Karreenga Aboriginal Advisory Committee in 2017.

4. These four advisory committees are provided support and secretariat by the Community Life directorate.

5. The advisory committees operate within their terms of reference and set the following strategic priorities:

   5.1 Identifying barriers to participation and inclusion in community and civic life;

   5.2 Providing advice to Council on social equity principles of access, diversity, inclusion and equality;

   5.3 Providing advice and information to Council on social and political trends relevant to the City's key priorities; and

   5.4 Providing advice and input with regards to the future direction of the committees.

6. The advisory committees meet four to eight times per year depending on the nature of activities.

Key Matters

7. The City is hosting an end of year event on 16 December 2019 at City Hall to thank the members of the Council's advisory committees for their contribution throughout the year.

Cr Mansfield moved, Cr Murnane seconded -

8. That Council note the annual report to Council on the work of the Access and Inclusion Advisory Committee, the Multicultural Action Plan Advisory Committee, the Women in Community Life Advisory Committee and the Karreenga Aboriginal Advisory Committee.

Carried.

Attachment 1

Financial Implications

1. Activities related to the work of advisory committees are funded by relevant departments within existing resources and budget. Any actions that require additional funding will form a business case as part of the annual budget process.

Community Engagement

2. The advisory committees comprise community representatives and a range of organisations and stakeholders.

Social Equity Considerations

3. The main objective of the advisory committees is to enhance and increase community participation and inclusion in all aspects of community life including economic and civic participation and collaborate with those accessing particular services and programs from the City.

Policy/Legal/Statutory Implications

4. The work of the advisory committees aligns with:

   4.1 The City of Greater Geelong Community Engagement Policy;

   4.2 The Victorian Charter of Human Rights and Responsibilities (2006);

   4.3 Access & Inclusion Action Plan 2018-2022;

   4.4 Ba-gurrk Gender Equity Framework;

   4.5 Karreenga Aboriginal Action Plan 2014-2017; and

   4.6 Multicultural Action Plan 2018-2022.

Alignment to Council Plan

5. The actions of the advisory committees align with City's key priority in the *Council Plan* of 'Creating a more inclusive and diverse community' and with the City's *Municipal Public Health and Wellbeing Plan*.

Conflict of Interest

6. No Council officer involved in the preparation of this report has a direct or indirect interest in the matter to which the report relates.

Risk Assessment

7. Risk assessment arising from actions of the advisory committees will be carried out by the departments responsible for each action.

Environmental Implications

8. There are no environmental implications arising from the subject of this report.

Attachment 2

THE CITY OF
GREATER GEELONG

COMMUNITY LIFE COUNCIL ADVISORY COMMITTEES

ANNUAL REPORT 2019

CITY OF GREATER GEELONG

Contents

ACKNOWLEDGEMENT OF COUNTRY 3

Karreenga Aboriginal Advisory Committee 4

BACKGROUND 4

TERMS OF REFERENCE AND COMMITTEE COMPOSITION 4

MEETINGS 4

ACTIVITIES AND ACHIEVEMENTS 4

FUTURE ACTIVITIES 4

Access & Inclusion Advisory Committee 7

BACKGROUND 7

TERMS OF REFERENCE AND COMMITTEE COMPOSITION 7

MEETINGS 7

ACTIVITIES AND ACHIEVEMENTS 7

FUTURE ACTIVITIES 7

Women in Community Life Advisory Committee (WiCLAC) 9

BACKGROUND 9

MEETINGS 9

ACTIVITIES AND ACHIEVEMENTS 9

FUTURE ACTIVITIES 10

Multicultural Action Plan Advisory Committee 12

BACKGROUND 12

TERMS OF REFERENCE AND COMMITTEE COMPOSITION 12

MEETINGS 12

ACTIVITIES AND ACHIEVEMENTS 12

FUTURE ACTIVITIES 12

ACKNOWLEDGEMENT OF COUNTRY

Council acknowledges Wadawurrung Traditional Owners of this land and all Aboriginal and Torres Strait Islander People who are part of the Greater Geelong community today.

City of Greater Geelong is home to Victoria's largest Aboriginal and Torres Strait Islander community.

Greater Geelong lies within the lands of the Wadawurrung People, the Traditional Owners of the land that has been home to the oldest continuing culture in the world. The story of the Aboriginal and Torres Strait Islander Peoples is now been passed on from generation to generation.

The City of Greater Geelong has a long history of working with the local Aboriginal communities in the region, to promote the strength of the local Aboriginal culture as a vital aspect of the Geelong identity.

Karreenga Aboriginal Advisory Committee

BACKGROUND

Council resolved to form the Karreenga Aboriginal Advisory Committee in February 2017 and it held its first meeting on 25 September 2017. The primary purpose of the Committee is to provide advice to Council on how to conserve and promote the unique Aboriginal cultural heritage of Greater Geelong, and to act as an advocate for all cultural heritage matters within the Municipality.

The formation of the committee demonstrates the City's commitment to building strong partnership with the Aboriginal community in the Geelong region.

TERMS OF REFERENCE AND COMMITTEE COMPOSITION

The Karreenga Aboriginal Advisory Committee acts in an advisory role to Council on Aboriginal matters across the municipality. It has no executive authority and operates in accordance with the terms of reference, which were adopted by Council in February 2017, with a review date of February 2019.

The terms of reference provide for a voting membership consisting of at least one Councillor (Chair), one representative from Wathaurung Aboriginal Corporation and Wathaurong Aboriginal Co-operative and other identified member organisations listed, two community representatives unaffiliated with any of these organisations and non-Aboriginal community group and City staff members. Member organisations can nominate an alternate delegate to ensure continuity of representation.

MEETINGS

The Committee meets quarterly. One working group has been formed, that meets as required and reports back to the Committee.

ACTIVITIES AND ACHIEVEMENTS

The following activities have been undertaken by the Committee in 2019:

- The Committee were kept informed on significant Aboriginal events including NAIDOC week, themed 'Truth, Treaty and Voice' in 2019. National Reconciliation week 2019 theme 'Grounded in Truth, Walk together with Courage' and the recent Wada-Ngal event held during Closing the Gap day in March 2019. Various activities were held by the City to mark these significant days/week events.
- Attendance at the Reconciliation Victoria 'Maggolee' workshop in August 2019.
- Advocated for Aboriginal Workforce and Employment Advisor position which is now filled.
- Heard presentations from City officers on a range of Aboriginal related matters including the new civic precinct, Aboriginal significant events, CEO, Reconciliation Digital Projections, Reconciliation Action Plan and NAIDOC week update.
- A working group was formed with an agreed terms of reference and met on a monthly basis for the duration of the year. At each meeting an update was included on the progress of the *Reflect - Reconciliation Action Plan* and the first draft submitted to Reconciliation Australia.
- The committee sought to have the Victorian Treaty included on the agenda including progress updates. Voting is underway to elect a First Peoples' Assembly to agree the rules for Victorian Treaty negotiations (October 2019).

FUTURE ACTIVITIES

The *Reflect - Reconciliation Action Plan* identifies a range of deliverables that will form part of the future activities for discussion and monitoring by the Advisory Committee throughout 2020. These include but are not limited to:

- Review the Karreenga Aboriginal Advisory Group terms of reference and refresh the guiding principles and vision.
- Establish a preferred communication strategy of engagement with Aboriginal stakeholder and organisation networks.
- Identify how to capture Aboriginal status of current staff and new staff, for example, staff survey or recruitment portal.
- Conduct a review of HR policies and procedures to identify existing anti-discrimination provisions, and future needs.
- Investigate the opportunity to use Wadawurrung language in the naming of the new civic precinct.
- Increase staff understanding of the purpose and significance behind cultural protocols, including

Acknowledgement of Country and Welcome to Country protocols.

- Coordinate cultural celebration event on Close the Gap Day annually and encourage staff and community to attend and ensure Aboriginal people are central in planning the event; and
- Develop a business case for procurement from Aboriginal and Torres Strait Islander owned businesses.

Karreenga Aboriginal Advisory Committee Members	
Wathaurung Aboriginal Corporation	Corrina Eccles (Traditional Owner) and Paul Davis (CEO)
Wathaurong Aboriginal Co-Operative	Lisa Briggs and Mark Edwards (alt)
Barwon Health	Renee Owen, Program Manager Aboriginal Health
Department of Health and Human Services	Sharelle McGuirk (resigned) and Deb Kearney
Geelong One Fire Reconciliation group	Vicky Grosser
Aboriginal Community members	Lowell Hunter Jodie Ryschka
City of Greater Geelong	Councillor Sarah Mansfield, Chair
City of Greater Geelong	Robyn Stevens, Director Community Life Janice Lane, Manager Healthy Communities Kaley Nicholson, Aboriginal Workforce and Engagement Advisor Kevin Krastins, Community Development Officer

Access & Inclusion Advisory Committee

BACKGROUND

The Access and Inclusion Advisory Committee – previously the Disability Advisory Committee – was established by Council in 2003, and continues to offer a forum for structured dialogue, discussion and exchange of ideas regarding universal access and inclusion for people of all abilities. The Committee advises on and supports the *Disability Access and Inclusion Action Plan* through each new four-year plan, implementation and review. The plan addresses the City's provision of equitable access to goods, services and facilities and Universal Design.

TERMS OF REFERENCE AND COMMITTEE COMPOSITION

The terms of reference guide the role and composition of the Committee, and potential members formally apply and are interviewed for a position on the Advisory Committee. The term of committee membership is for two years, and then positions are declared vacant, with the ability to reapply.

The committee is an advisory committee, and not a Section 86 committee that handles finance decisions. The committee however has the authority to appoint working groups or appoint speakers with the expertise to pursue specific topics and issues on an 'as needs' basis. The City provides administrative support, and also any disability-related support and access requirements, for example, Auslan interpreter, attendant care, and travel costs to the meeting.

MEETINGS

The committee meets every two months to advise on and support the *Access and Inclusion Action Plan 2018-2022*, a plan for equitable access to goods, services and facilities across the municipality

ACTIVITIES AND ACHIEVEMENTS

Members have been very active with additional sub-group meetings and gathering of information. A broad range of information and areas for comment have been brought to the Advisory Committee:

- Sub-group meetings with V-line and Public Transport Victoria to feed information into the Advisory Committee meetings so that decisions could be actioned.
- Hosting meetings with the Victorian Disability Advisory Council (VDAC) who report directly to the Minister, with a standing invitation to send up matters to VDAC for the Minister's attention.
- Feedback on Victorian State Disability Plans and Local Government Strategic Frameworks, e.g. MAV and Office for Disability progress on Civic Participation and Inclusive Consultation.
- Comment on City strategies and plans e.g. Play Strategy, Avalon Airport Disability Facilitation Plan.
- Input into major policies and plans, including but not limited to:
  - Plans for the Geelong Library Heritage Centre presented to the committee and subsequent sub group meeting with the architect regarding accessibility.
  - Liveable housing – advice on North and Western Growth Zones.
  - Receiving an overview of the social infrastructure plan.
  - Accessible Housing Forums and consultation on options.
  - Northern ARC and Wellbeing Hub – range of feedback given.
  - Rippleside Inclusive Play Space development.

FUTURE ACTIVITIES

The role of the Advisory Committee and the vast range of community and social topics addressed is in accord with the *Disability Discrimination Act 1992*, which at its core is about equal and dignified access for all.

In accordance with the committee terms of reference and ongoing role with supporting the *Disability Access and Inclusion Action Plan*, the Advisory Committee will continue to advise on Council responsibility within the Action Plan to:

- Reduce barriers to persons with a disability accessing goods, services and facilities.
- Reduce barriers to persons with a disability obtaining and maintaining employment.
- Promote inclusion and participation in the community of persons with a disability.
- Achieve tangible changes in attitudes and practice which discriminate against persons with a disability.

Access & Inclusion Advisory Committee Members	
Community Members	Liz Spurdle
	Rob Kuebler
	Roger Napthine
	Terry Osborne
	Hank Wylie
	Oliver Lynch
	Richard Colman
	Steph Southby
	Kirraly Nix
	Kayla Denham
City of Greater Geelong	Councillor Anthony Aitken, Chair
City of Greater Geelong	Robyn Stevens, Director Community Life
	Guy Wilson-Browne, Director City Services
	Emma Wheatland, Coordinator Community Inclusion

Women in Community Life Advisory Committee (WiCLAC)

BACKGROUND

Established in 2013, the purpose of the Women in Community Life Advisory Committee (WiCLAC) is to provide advice to Council on matters relating to women's participation, representation and leadership in community life.

The *Ba-gurrk Gender Equity Framework for the Greater Geelong Region*, endorsed by Council in February 2019, informs the direction of WiCLAC.

Through the development of the *Ba-gurrk Gender Equity Framework*, the City has identified relevant current research, policy and community expectations to achieve gender equality. It addresses gender equity as a governance, community and organisational issue and will provide a guide to develop, implement and monitor actions.

WiCLAC strengthens Council's commitment to the Victorian Local Government Women's Charter, which was endorsed by Council in 2010.

The Victorian Local Government Women's Charter also provides direction to the Committee. Each key principle of this Charter assists to create a strong framework for action and change.

The Charter identifies support of three principles:

1. Gender Equity
2. Diversity
3. Active Citizenship

TERMS OF REFERENCE AND COMMITTEE COMPOSITION

The Committee comes from a combined community development and human rights approach of working with, and supporting people 'where they are at', while recognising that every person has the right to take part in public affairs without discrimination (Section 18 *Victorian Charter of Human Rights and Responsibilities Act 2006*). Through strong links, partnerships, strategies and opportunities, some existing barriers to participation will be diminished. This will enable an increased number and diversity of women in greater decision-making processes and participatory events.

The Committee is an advisory committee for the purposes of the *Local Government Act 1989*, therefore does not have delegated authority, and reports to Council as required.

The Committee consists of 10–12 members plus City representatives. Membership of the Committee is open to both women and men. This recognises that to achieve gender equity, changes in all areas of communities, organisations and government, understanding, commitment and effort will be required by both men and women.

Council has two representatives to the Committee; one Councillor is a Social Inclusion portfolio holder and chairs the Committee.

The Committee must reflect the diversity of local communities and it is expected that they use their influence to impact change within their organisations, networks and the wider Geelong community.

MEETINGS

The Committee meets quarterly and provides advice to Council on barriers to women's participation, emerging women's issues, aspirations and initiatives so as to further progress gender equity in the Geelong community.

ACTIVITIES AND ACHIEVEMENTS

The following activities have been undertaken by the committee:

- Hosted the 2019 International Women's Day Awards event for the City with nominations in six award categories.
- Completed filming for the Women in Everyday Leadership Project.
- Advised on the final *Ba-gurrk Gender Equity Framework* for the City.
- Successfully recruited, from an inspiring range of applicants, a highly skilled and passionate group of six new members to the Committee.
- Met with Manager Community Care about aged care reforms and Council's role and responsibilities in aged care.

- Prepared a response to the Victorian State Government's Gender Equality Exposure Draft – to contribute to understanding planned requirements for, and forward planning for the City.
- Contributed to the Gender Equity and Prevention of Violence of Against Women (PVAW) consultative review for the City.
- Supported Women in Local Democracy (WILD) events that aim to support more women to run for Council elections in 2020.

FUTURE ACTIVITIES

The Committee has identified the following priorities for 2019-2020:

- Hosting a community workshop with the Department of Premier and Cabinet to inform and encourage more nominations of local women for honour rolls and national awards.
- Actively support the pre-election candidate workshops for women.
- Host the City's International Women's Day Awards event in March 2020
- Continue to develop a strategic plan for the Committee, highlighting key advisory roles and responsibilities
- Continue to advocate for more women and diversity in the images used by the City in various publications and website
- Support and implement, where possible, a number of actions that improve gender equity across the workforce and community
- Review the terms of reference to align with election periods

Women in Community Life Advisory Committee Members	
Community Members	Amanda Sherring Christine Couzens, MP Erica Wastell Emily Kerr Emma Cvitak Jeni Wills Kara Tieman Rachel Drady Shurlee Swain Simone Stevens Stevie van der Chys
City of Greater Geelong	Councillor Sarah Mansfield, Chair Councillor Kylie Grzybek, Deputy Chair
City of Greater Geelong	Robyn Stevens, Director Community Life Janice Lane, Manager Healthy Communities Cathy Walker, Social Equity Officer

Multicultural Action Plan Advisory Committee (MAPAC)

BACKGROUND

The City endorsed the formation of the Multicultural Action Plan Working Group (MAPWG), which subsequently became an advisory committee through a Council resolution in 2010.

The Multicultural Action Plan Advisory Committee (MAPAC) provided advice and guidance to Council in the development and implementation of the City's inaugural Multicultural Action Plan 2011-2014.

The Committee has played a critical role to contribute to the planning of *Multicultural Action Plan 2018- 2022* and continues to provide advice on the implementation, promotion of the MAP and supports the City to celebrate successes, milestones and participation of the multicultural community in civic life.

TERMS OF REFERENCE AND COMMITTEE COMPOSITION

The central function of MAPAC is to provide advice and guidance to Council, special committees or staff with delegated powers on multicultural affairs in the implementation of the City's *Multicultural Action Plan 2018-2022* and any ensuing plans and policies related to the multicultural community.

The MAPAC is an advisory committee to the City of Greater Geelong, for the purposes of the Local Government Act 1989, therefore does not have delegated authority, and reports to Council as required.

The Committee consists of up to 15 community members, with a minimum of 7, including Council representatives. The Director or delegate of Community Life will hold full membership of this committee.

The MAPAC aligns with the City's election cycles (every four years). Members who have served their terms on the MAPAC shall resign prior to the election. Recruitment for new MAPAC members will commence no less than 12 weeks before an election. New members will be recommended to Council at the first Council meeting post the election.

MEETINGS

The Committee meets quarterly and provides advice to Council on barriers to participation, emerging issues, aspirations and initiatives so as to further progress multiculturalism in the Geelong community.

ACTIVITIES AND ACHIEVEMENTS

The following key milestones have been achieved with the guidance and support of the MAPAC:

- Development of *Multicultural Action Plan 2018-2022*
- Participation in s workshop to identify Multicultural Action Plan priority areas
- Diwali, Refugee Week, Cultural Diversity Week & Harmony Day events in 2019
- Mayoral Welcome to new arrivals to the City of Greater Geelong
- Christchurch Interfaith Memorial service to pay respect to the victims of the Christchurch terror attacks
- Active participation and support to CALD youth initiatives at the fOrT
- Key contributor in the consultation process for Council's initiatives including the Clever and Creative Future
- Members valued the opportunity to connect and network with others

FUTURE ACTIVITIES

The following activities have been identified for 2019-2020;

- Geelong Design Week collaborative work
- Multi-faith event during Cultural Diversity week 2020
- Contribute to the *Diversity and Inclusion Policy* draft (expanded from Diversity Policy)
- Cultural Diversity and Refugee Weeks initiatives in 2020
- Multi-agency approach to the implementation of the identified priority actions of the Multicultural Action Plan 2018-2022
- Meeting locations to include sites of cultural significance to give members the opportunity to experience different cultures

Multicultural Action Plan Committee Members	
Diversitat	Strategic Engagement Coordinator
Geelong Ethnic Communities Council	President
Victoria Police	Local Area Commander
	Multicultural Liaison Officer
Multicultural Aged Care Services Geelong Inc	CEO
Deakin University	Jo Cook, International Student Advisor Helen Nicholls-Stary, Operations Manager, Student Engagement and Experience
Islamic Society of Geelong	Shaykh Mohammad Ramzan, Director Education & Imam
Geelong Interfaith Network	Vanessa Wooley, Chair Farhang Afshar, Deputy Chair Randall Apps, Member
Community member	Mukhles Habash
City of Greater Geelong	Councillor Kylie Grzybek, Chair Councillor Sarah Mansfield, Deputy Chair
City of Greater Geelong	Robyn Stevens, Director Community Life Janice Lane, Manager Healthy Communities Veema Mooniapah, Multicultural Community Development Officer Danielle Parker, Youth Development Officer

D19-635584

8. COUNCIL MEETING DATES 2020

Source:	**Governance, Strategy & Performance - Governance**
Director:	**Rebecca Leonard**
Portfolio:	**Leadership and Governance**

Purpose

1. To seek Council endorsement of the schedule of Council meeting dates for 2020.

Background

2. Council establishes the schedule of meeting dates in order to arrange meeting venues and associated logistics and for the planning of Council business.

Key Matters

3. **Attachment 2** sets out the schedule of 2020 meeting dates.

4. The schedule shows that Ordinary Council Meetings in 2020:

   4.1 Are generally planned for the fourth Tuesday of each month. Exceptions to this are:

      (a) The October meeting, which will be held on the second Tuesday of that month. It will replace the Community Focus Council meeting as that meeting date falls within the election period for the general election, during which community focus council meetings are not permitted. Also, the fourth Tuesday in October occurs just after the election day which will be before election results are declared and councillors sworn in; and

      (b) The December meeting, which is held on the second Tuesday of that month

   4.2 Are set to commence at 7:00pm at the Council Chambers at City Hall, Geelong; and

   4.3 Provisionally include a January 2020 meeting subject to operational needs.

5. Community Focus Council Meetings in 2020 are:

   1.1 Generally planned for the second Tuesday of each month from February through to September, noting that:

      (a) The October meeting will not occur because it falls inside the election period for the general election, during which community focus council meetings are not permitted; and

      (b) A newly elected council will be sworn in on the November meeting date at City Hall together with the election of the mayor and deputy mayor.

   1.2 Set to commence at 7:00pm at locations across the municipality.

Cr Asher moved, Cr Grzybek seconded -

2. That Council endorse the schedule of Council meeting dates for 2020 listed in Attachment 2.

Carried.

Attachment 1

Financial Implications

1. Hall hire and audio system hire costs are incurred at locations other than City Hall. These costs can be met from Council's budget.

Community Engagement

2. Provision of meetings at locations other than City Hall together with internet live streaming of City Hall meetings will enhance community participation in Council decision making processes.

Social Equity Considerations

3. The proposal continues to provide for improved access for community participation in the decision making processes of Council.

Policy/Legal/Statutory Implications

4. This proposal complies with the provisions of the Public Question and Submission Time Policy, the Greater Geelong City Council - Council Meeting Procedures Local Law 2017 and the Election Period Policy.

Alignment to Council Plan

5. The recommendation supports the Council Plan 2018-22 strategic priority of organisational leadership, strategy and governance by supporting the key priority of communicating and engaging more effectively with the community, in areas of need.

Conflict of Interest

6. No City officers who have provided advice in relation to this report have declared a conflict of interest regarding the matter under consideration.

Risk Assessment

7. There are no significant risks associated with the matter under consideration.

Environmental Implications

8. There are no environmental implications identified for the subject of this report.

Attachment 2

Schedule of 2020 Council Meeting Dates

Tuesday, 28 Jan 2020	Ordinary meeting (subject to operational needs)
Tuesday, 11 Feb 2020	Community Focus Council meeting - Brownbill
Tuesday, 25 Feb 2020	Ordinary meeting
Tuesday, 10 Mar 2020	Community Focus Council meeting - Windermere
Tuesday, 24 Mar 2020	Ordinary meeting
Tuesday, 14 Apr 2020	Community Focus Council meeting - Kardinia
Tuesday, 28 Apr 2020	Ordinary meeting
Tuesday, 12 May 2020	Community Focus Council meeting - Bellarine
Tuesday, 26 May 2020	Ordinary meeting
Tuesday, 9 Jun 2020	Community Focus Council meeting - Brownbill
Tuesday, 23 Jun 2020	Ordinary meeting
Tuesday, 14 Jul 2020	Community Focus Council meeting - Windermere
Tuesday, 28 Jul 2020	Ordinary meeting
Tuesday, 11 Aug 2020	Community Focus Council meeting - Kardinia
Tuesday, 25 Aug 2020	Ordinary meeting
Tuesday, 8 Sep 2020	Community Focus Council meeting - Bellarine
Tuesday, 22 Sep 2020	Ordinary meeting (Election Period)
Tuesday, 13 Oct 2020	Ordinary meeting (Election Period – Annual Report)
Tuesday, 24 Nov 2020	Ordinary meeting
Tuesday, 8 Dec 2020	Ordinary meeting

9. PLANNING AUTHORISATIONS - COUNCIL TO STAFF

Source:	**Planning, Design & Development – City Development**
Director:	**Gareth Smith**
Portfolio:	**Planning**

Purpose

1. To appoint a City officer as an authorised officer under the *Planning and Environment Act 1987* (P&EA).

Background

2. City officers are appointed as authorised officers to exercise statutory powers under various Acts and regulations. Appointments as authorised officers are to individual staff members.

3. The P&EA regulates enforcement and is reliant on authorised officers acting on behalf of the responsible authority (Council).

Key Matters

4. Where there is a specific power within an Act, Council should appoint authorised officers pursuant to that Act. This is the case for the P&EA.

5. A planning staff member has recently been employed by the City and is required to be authorised under the P&EA.

6. **Attachment 2** sets out the Instrument of Appointment and Authorisation under the P&EA and lists the staff member to whom this authorisation applies (instrument).

Cr Sullivan moved, Cr Mason seconded -

7. In the exercise of the powers conferred by section 224 of the *Local Government Act 1989* and the other legislation referred to in the Greater Geelong City Council Instrument of Appointment & Authorisation - *Planning & Environment Act 1987* only (instrument) (Attachment 2), Greater Geelong City Council (Council) resolves that the:

7.1 Member of City staff referred to in the instrument be appointed and authorised as set out in the instrument;

7.2 Instrument comes into force immediately upon the common seal of Council being affixed to the instrument, and remains in force until Council determines to vary or revoke it; and

7.3 Instrument be sealed.

Carried.

Attachment 1

Financial Implications

1. There are no financial implications arising from the subject of this report.

Community Engagement

2. Relevant City managers have been consulted regarding this recommended appointment and authorisation.

Social Equity Considerations

3. There are no social equity implications arising from the subject of this report.

Policy/Legal/Statutory Implications

4. The recommended appointment and authorisation of the staff members complies with the relevant provisions of the P&EA and the *Local Government Act 1989*.

Alignment to Council Plan

5. The recommended appointment and authorisation of the staff members supports the delivery of Council planning services.

Conflict of Interest

6. No City officers who have provided advice in relation to this report have declared a conflict of interest regarding the matter under consideration.

Risk Assessment

7. There are no significant or high risks associated with the subject of this report.

Environmental Implications

8. There are no environmental implications arising from the subject of this report.

Greater Geelong City Council

Instrument of Appointment and Authorisation

(*Planning and Environment Act* 1987 only)

Instrument of Appointment and Authorisation
(*Planning and Environment Act* 1987)

In this instrument "**officer**" means -

Sarah Drago **Senior Statutory Planner**

By this instrument of appointment and authorisation Greater Geelong City Council -

1. under section 147(4) of the *Planning and Environment Act* 1987 - appoints the officer to be authorised officers for the purposes of the *Planning and Environment Act* 1987 and the regulations made under that Act; and

2. under section 232 of the *Local Government Act* 1989 authorises the officer generally 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 Greater Geelong City Council on 10 December 2019

THE COMMON SEAL of GREATER)
GEELONG CITY COUNCIL was affixed)
hereto in the presence of:)

_____
Mayor

_____
Chief Executive Officer

Date: / /

10. TENDER T2000008 FREE WI-FI AND ENHANCED BROADBAND SERVICES

Source:	**Customer & Corporate Services – Property, Procurement and Assets**
Director:	**Michael Dugina**
Portfolio:	**Finance**

Purpose

1. To award Contract C2000008 for the Free Wi-Fi and Enhanced Broadband Services project to ENE.HUB Pty Ltd (ABN 25 165 757 559).

Background

2. The State of Victoria as represented by the Department of Jobs, Precincts and Regions has developed a $45 million Connecting Regional Communities Program (CRCP) aimed to address multiple digital issues in regional Victoria. Geelong has been identified as regional partner in the CRCP to establish an Enhanced Broadband Pilot and expand the public free Wi-Fi network focusing on improving digital connectivity and addressing disparities of access and affordability of internet access to the northern suburbs of Geelong.

3. The City of Greater Geelong is seeking to deliver and maintain new or upgraded infrastructure that enables affordable new technical and commercial business grade broadband offerings that drives uptake in the northern suburbs of Geelong.

Key Matters

4. Procurement Services undertook an open tender process seeking to appoint a suitably qualified and experienced contractor to undertake services associated with the Free Wi-Fi and Enhanced Broadband Services project.

5. The submissions were evaluated in accordance with the processes detailed in the City's *'Procurement and Contracts Manual'.*

6. Based on the tenderers project experience, expertise and value for money the Tender Evaluation Panel (TEP) recommend that ENE.HUB Pty Ltd to be awarded the contract for the provision of these services.

7. Subject to Council awarding the Contract, the project will commence 6 January 2020.

8. The lump sum price for the delivery of the project is $1,500,000.00 (excl. GST). This is the contribution required by the City for the provision, installation and operation of delivering Free Wi-Fi and Enhanced Broadband Services, for the term of this contract ending January 2024.

Cr Aitken moved, Cr Grzybek seconded -

9. That Council:

9.1 Award Contract C2000008 for the Free Wi-fi and Enhanced Broadband Services project to ENE.HUB Pty Ltd (ABN 25 165 757 559) for the tendered lump sum price of $1,500,000.00; and

9.2 Authorise the Chief Executive Officer to execute Contract No. C2000008 and any other documents required by or to give effect to the terms of the Contract on behalf of Council.

Carried.

Attachment 1

Financial Implications

1. The project is fully funded by the City of Greater Geelong through a $1,825,000 million grant from the Department of Jobs, Precincts and Regions Victoria.

2. The remaining $325,000 of the grant is to manage additional costs associated with the project over the contract term until January 2024. Additional costs include project management and governance, procurement, community engagement, marketing and communications, contingencies, wi-fi and enhanced broadband usage and reporting requirements.

3. On completion of the contract there will be ongoing costs of $136,000 pa, which will be funded by the City.

Community Engagement

4. The project proposal has been guided by a Project Working Group that includes representatives from internal departments are well as Victorian State Government. Consultation with the local community has provided supporting reference to address specific location access issues through installation of new infrastructure. Further consultation is planned in early 2020 with internal stakeholders and the community to establish the final location of proposed infrastructure.

Social Equity Considerations

5. This project will provide the infrastructure that addresses the needs of the Free Wi-Fi connectivity and enhanced broadband services for local community while generating economic benefits to local businesses through reduced service fees for fast internet access.

Policy/Legal/Statutory Implications

6. This tender was publicly advertised in accordance with the requirements of section 186 of the *Local Government Act 1989* and the tender process has been conducted in accordance with the City's Procurement Policy.

7. Council to CEO delegation requires that when awarding a contract exceeding $1m where it is proposed not to accept the lowest priced tenderer the decision must rest with Council.

Alignment to Council Plan

8. This project aligns to several of the City's strategic priorities:

    8.1 Improved Health and Safety of our Community, enabling safer public spaces, crime prevention and improving safety in our community;

    8.2 Informed Social Infrastructure and Planning where one of our key priorities is to deliver accessible and attractive community infrastructure, based on community need;

    8.3 A more Inclusive and Diverse Community, improving access and affordability;

    8.4 A Thriving and Sustainable Economy, by attracting new investments and supporting local business; and

    8.5 Innovative Finances and Technology, delivering smart technology, increasing free public Wi-Fi and improving data collect to better manage assets and resources.

Conflict of Interest

9. No Officers or contractors involved in the preparation of this report have a direct or indirect interest in matters to which this report relates.

Risk Assessment

10. The tender evaluation process involved the assessment of Work, Health and Safety policies, procedures and risk assessment documents. Any other risks associated with the acceptance of this tender will be managed through the contract conditions.

11. The City engaged the services of Pitcher Partners to provide independent, experienced and objective probity advice to ensure the integrity of the tender process.

Environmental Implications

12. Any environmental implications associated with this contract will arise from the execution of the works. It is considered that these are the responsibility of the Contractor and will be managed through the contract documentation.

Attachment 2

Tender Details

Contract Details

1. Contract C2000008 for Free Wi-Fi and Enhanced Broadband Services

Invitation to Tender

2. The City issued tender T2000008, closing 2:00pm Wednesday 2 October 2019, seeking to appoint a suitably qualified and experienced contractor to undertake services associated with the Free Wi-Fi and Enhanced Broadband Services project.

Table 1 Invitations to Tender

3.	Medium	4.	Date Advertised
5.	Geelong Advertiser	6.	24 August 2019
7.	eProcure	8.	24 August 2019
9.	Geelong Australia Website	10.	24 August 2019

Tender Evaluation Panel

3. The Tender Evaluation Panel comprised the following staff.

Table 2 Tender Evaluation Panel

Position Title	Panel role
Procurement Specialist	Chair (non-voting)
Senior Lead Smart City	Member (voting)
Strategic Projects Officer	Member (voting)
Co-ordinator Information Technology	Member (voting)
Manager Economic Development & Events	Member (voting)
Director Economy, Investment & Attraction	Member (non-voting)

4. The independent advisors to the Tender Evaluation Panel comprised the following staff.

Table 3 Independent Advisors to the Tender Evaluation Panel

Position Title	Panel role
Probity Adviser	Advice
Enhanced Broadband and Public Wi-Fi Lead, Victorian Government	Advice

Tender Submissions

5. Tenderers had to comply with the following mandatory criteria:

   5.1 OH&S system – if the tenderers OH&S processes and procedures do not meet a minimum standard determined by the City, the tenderer will not be considered for the Contract;

5.2 Tenderer must have a heat and UV radiation exposure management procedure, and if not, must be willing to abide by the City's Heat and UV Radiation Exposure and Outdoor Clothing Procedures (Long/Long);

5.3 Tenderer must hold a Carriers Licence as defined by the Australian Communications and Media Authority or have a contractual arrangement with a holder of a Carriers Licence; and

5.4 Tenderer must offer services which are guaranteed to the customer by a service level agreement.

6. All tenderers complied with the mandatory criteria and all submissions were received before tender close.

Table 4 Tender Submissions Received

(a) Tender		(b) Conforming tender
A	ENE.HUB Pty Ltd	Yes
B	Tender B	Yes
C	Tender C	Yes
D	Tender D	Yes
E	Tender E	Yes

Tender Evaluation

7. The Evaluation Panel used the following qualitative criteria (in order of weighting) to assess the submissions:

Table 5 Comparative Criteria Weighting

Comparative Criteria	Weighting %
Proposed Solution	50%
Proposed Resources and Systems	25%
Economic & Local Content Contribution	10%
Clever and Creative (Innovation)	10%
Experience	5%

8. The tender was evaluated by the evaluation panel in a two staged process:

8.1 Qualitative assessment of a weighted score totalling 100%.

8.2 Evaluation of price against weighted score:
VFM = Tendered Price ÷ Weighted Score (lowest VFM Score = preferred supplier).

9. ENE.HUB Pty Ltd were deemed the best value for money tenderer, with the third lowest price and highest ranked tender, demonstrating best value for money for the City, and placing them as the preferred tenderer to progress to interview stage.

Tender Evaluation Scores

10. At the conclusion of the evaluation the tenders were ranked in the following order. The tender evaluation panel elected to set aside Tender E as they concluded that they were

unlikely to be recommended as the preferred tender, even if the tender was fully evaluated, due to the tendered prices being significantly over budget.

Table 6 Tender Evaluation Scores

Tender		Rank
A	ENE.HUB Pty Ltd	1
B	Tender B	2
C	Tender C	3
D	Tender D	4

Post-Tender Contact

11. The Evaluation Panel sought identical clarifications from all tenderers (in writing) regarding tendered price breakdown, required approvals, mitigation of risks and end user experience of services offered. Scoring was reviewed post clarifications, identifying ENE.HUB Pty Ltd as a shortlist for interview (held Tuesday 12 November at 10:00am). At interview, ENE.HUB Pty Ltd demonstrated their ability to deliver the contract and illustrated that they have undertaken the appropriate due diligence and have allocated the required resources.

12. ENE.HUB Pty Ltd demonstrated a thorough understanding of the requirements of the specification with a proven record of delivering comparable contracts. The Tender Evaluation Panel noted that ENE.HUB Pty Ltd are an experienced provider of comparable projects requiring experience in the delivery of free wi-fi and broadband services. They have undertaken contracts of similar scope and value for other government clients over past three (3) years including Royal Botanic Garden and Domain Trust (NSW), City of Canada Bay (NSW), City of Los Angeles (USA) and City of Blacktown (NSW).

13. ENE.HUB Pty Ltd submission identified all the experienced personnel, infrastructure and subcontractors required for this program.

14. ENE.HUB Pty Ltd project methodology demonstrated that they have the available resources and expertise to successfully deliver the services as tendered and provided evidence of their capability to deliver the project within the City's timeframes.

15. ENE.HUB Pty Ltd OHS documentation addressed the high risk tasks associated with the works providing examples of SWMS used on a project with a comparable risk profile and all relevant qualifications required.

Probity

16. No probity issues identified.

11. REVOCATION OF FLOOD-PRONE AREA DESIGNATION OF NEW LOTS AT ARMSTRONG ESTATE, STAGES 40, 40A, 40B, 42, 43 AND 48

Source:	**City Services – Engineering Services**
Director:	**Guy Wilson-Browne**
Portfolio:	**Social and Infrastructure Planning**

Purpose

1. To revoke Council's designation of 12 December 2006 of flood affected land Armstrong Estate, Stages 40, 40A, 40B, 42, 43 and 48 inclusive as liable to flooding pursuant to regulation 153 of the *Building Regulations 2018*.

Background

2. Council has a statutory obligation under the *Building Regulations 2018* to designate land as liable to flooding where it reasonably knows it to be prone to flooding. Conversely, there is an obligation to remove the encumbrance of designation from land that is no longer considered to be flood-prone.

3. The current designated flood mapping (**Attachment 2**) was designated by Council at its meeting of 12 December 2006.

4. This revocation will result in another stage of new lots in Armstrong Estate fronting 165 – 191 Boundary Road, Mount Duneed being free of their flood prone status, paving the way for owners to build homes on their land.

Key Issues

5. The flood mapping is subject to a revision due to the subdivision and development at 165 – 191 Boundary Road, Mount Duneed. Prior to subdivision the parent lot was considered to be liable to flooding. This development site, which is also known as Armstrong Estate, Stages 40, 40A, 40B, 42, 43 and 48 inclusive, achieves flood immunity for newly created lots for flood events up to and including the 100 year Average Recurrence Interval (**ARI**) event due to approved internal earthworks.

6. The decision by the City that the flood prone status can be removed includes assessment of internal drainage, road construction and earthworks to contain potential floodwaters from the 100 year ARI event within road and drainage reserves (**Attachment 3**).

7. It should be noted that designation is separate to the creation of flood overlays within the Planning Scheme, which generally follows designation. In the case of this development, the planning scheme amendment to create post-development flood zones or overlays is proposed after the design of the proposed precincts.

Cr Harwood moved, Cr Murnane seconded -

8. That Council revoke the Council designation of 12 December 2006 of flood affected land at Armstrong Estate, Stages 40, 40A, 40B, 42, 43 and 48 inclusive as liable to flooding pursuant to regulation 153 of the *Building Regulations 2018*.

Carried.

Attachment 1

Financial Implications

1. No impact to budget.

Community Engagement

1. A revocation of designation does not warrant public consultation as it constitutes the removal of an encumbrance on land.

2. Relevant Council databases and flood maps will be revised and updates sent to the Corangamite Catchment Management Authority and Building Control Commission.

Social Equity Considerations

3. Council have a responsibility to the community to provide the best possible information on areas that are flood prone. The removal of flood prone designation allows owners to build on their land without a special permit from the City, and without raising the floor level of their home. It also reduces the cost of property insurance.

Policy/Legal/Statutory Implications

4. The City has various statutory responsibilities for drainage management and flood management (prevention, response and recovery) as set out in the *Local Government Act 1989, Local Government Regulations 1990, Planning and Environment Act 1987, Building Regulations 2018, Water Act 1989, Subdivision Act 1988* and *Emergency Management Act 1986*.

5. The works have resulted in the lots being protected from flooding during a major storm event that has a one per cent probability of occurring in any one year, and occurs on average once in 100 years. This is the required standard for new subdivisions.

Alignment to Council Plan

6. The recommendations of this report are consistent with Council Plan, in relation to planned sustainable development.

Conflict of Interest

7. There are no officer direct or indirect interests with respect to this report.

Risk Assessment

8. Council also has some risk exposure with any failure to disclose the flood-prone status of a property in a Land Information Certificate.

9. The revocation of the designation is the final step in minimising Council's risk.

Environmental Implications

10. The revocation of flood-prone areas designation and designation of revised flood data through the design of this stage is considered unlikely to result in any known adverse environmental impacts.

Attachment 2

Current Flood Map



Attachment 3

Revised Flood Map



12. REVOCATION OF FLOOD-PRONE AREA DESIGNATION OF NEW LOTS AT WATERMARK ESTATE, STAGES 10 - 12

Source: **City Services – Engineering Services**
Director: **Guy Wilson-Browne**
Portfolio: **Social and Infrastructure Planning**

Purpose

1. To revoke Council's designation of 12 December 2006 of flood affected land Watermark Estate, Stages 10 – 12 inclusive as liable to flooding pursuant to regulation 153 of the *Building Regulations 2018*.

Background

2. Council has a statutory obligation under the *Building Regulations 2018* to designate land as liable to flooding where it reasonably knows it to be prone to flooding. Conversely, there is an obligation to remove the encumbrance of designation from land that is no longer considered to be flood-prone.

3. The current designated flood mapping (**Attachment 2**) was designated by Council at its meeting of 12 December 2006.

4. This revocation will result in another stage of new lots in Watermark Estate fronting 520 – 540 Barwon Heads Road, Charlemont being free of their flood prone status, paving the way for owners to build homes on their land.

Key Issues

5. The flood mapping is subject to a revision due to the subdivision and development at 520 – 540 Barwon Heads Road, Charlemont. Prior to subdivision the parent lot was considered to be liable to flooding. This development site, which is also known as Watermark Estate, Stages 10 – 12 inclusive, achieves flood immunity for newly created lots for flood events up to and including the 100 year Average Recurrence Interval (**ARI**) event due to approved internal earthworks.

6. The decision by the City that the flood prone status can be removed includes assessment of internal drainage, road construction and earthworks to contain potential floodwaters from the 100 year ARI event within road and drainage reserves (**Attachment 3**).

7. It should be noted that designation is separate to the creation of flood overlays within the Planning Scheme, which generally follows designation. In the case of this development, the planning scheme amendment to create post-development flood zones or overlays is proposed after the design of the proposed precincts.

Cr Murnane moved, Cr Nelson seconded -

8. That Council revoke the Council designation of 12 December 2006 of flood affected land at Watermark Estate, Stages 10 – 12 inclusive as liable to flooding pursuant to regulation 153 of the *Building Regulations 2018*.

Carried.

Attachment 1

Financial Implications

1. No impact to budget.

Community Engagement

2. A revocation of designation does not warrant public consultation as it constitutes the removal of an encumbrance on land.

3. Relevant Council databases and flood maps will be revised and updates sent to the Corangamite Catchment Management Authority and Building Control Commission.

Social Equity Considerations

4. Council have a responsibility to the community to provide the best possible information on areas that are flood prone. The removal of flood prone designation allows owners to build on their land without a special permit from the City, and without raising the floor level of their home. It also reduces the cost of property insurance.

Policy/Legal/Statutory Implications

5. The City has various statutory responsibilities for drainage management and flood management (prevention, response and recovery) as set out in the *Local Government Act 1989, Local Government Regulations 1990, Planning and Environment Act 1987, Building Regulations 2018, Water Act 1989, Subdivision Act 1988* and *Emergency Management Act 1986*.

6. The works have resulted in the lots being protected from flooding during a major storm event that has a one per cent probability of occurring in any one year, and occurs on average once in 100 years. This is the required standard for new subdivisions.

Alignment to Council Plan

7. The recommendations of this report are consistent with Council Plan, in relation to planned sustainable development.

Conflict of Interest

8. There are no officer direct or indirect interests with respect to this report.

Risk Assessment

9. Council also has some risk exposure with any failure to disclose the flood-prone status of a property in a Land Information Certificate.

10. The revocation of the designation is the final step in minimising Council's risk.

Environmental Implications

11. The revocation of flood-prone areas designation and designation of revised flood data through the design of this stage is considered unlikely to result in any known adverse environmental impacts.

Attachment 2

Current Flood Map



Attachment 3

Revised Flood Map



13. CONTRACTUAL MATTER

Source:	**Customer and Corporate Services**
Director:	**Michael Dugina**
Portfolio:	**Finance**

Cr Grzybek moved, Cr Aitken seconded -

That in accordance with Section 89 (2) (d) of the Local Government Act 1989, this contractual matter be considered at the conclusion of all other business at which time the meeting be closed to members of the public.

Carried.

14. CONTRACTUAL MATTER

Source:	**Chief Executive – Office of the CEO**
Chief Executive Officer:	**Martin Cutter**
Portfolio:	**Leadership and Governance**

Cr Harwood moved, Cr Grzybek seconded -

That in accordance with Section 89 (2) (d) of the Local Government Act 1989, this contractual matter be considered at the conclusion of all other business at which time the meeting be closed to members of the public.

Carried.

15. CONTRACTUAL MATTER

Source: **Chief Executive**
Director: **Kaarina Phyland**
Portfolio: **Leadership and Governance**

Cr Asher moved, Cr Grzybek seconded -

That in accordance with Section 89 (2) (d) of the Local Government Act 1989, this contractual matter be considered at the conclusion of all other business at which time the meeting be closed to members of the public.

Carried.

Cr Harwood declared a Direct Interest in the Notice of Motion in that he has an interest in land within the Distinctive Areas and Landscapes and left the meeting room prior to discussion at 9.50pm.

TIME LIMIT:

As per Council Meeting Procedures Local Law 2017 (3.31.2), a meeting may not continue after 10pm unless a majority of members present vote in favour of its continuance.

Cr Asher moved, Cr Grzybek seconded –

That the meeting continue to proceed as per Council Meeting Procedures Local Law 2017 (3.31.2).

Carried.

NOTICE OF MOTION – Cr Murnane

CITY OF GREATER GEELONG OBJECTION TO THE INCLUSION OF THE MOUNT DUNEED AREA WITHIN THE SURF COAST DISTINCTIVE AREAS AND LANDSCAPES DECLARATION AREA

Background

In September 2018 the State Government issued a press release stating a re-elected Labor Government would permanently protect the Surf Coast and Bellarine Peninsula from over development, via the Distinctive Areas and Landscapes (DAL) section of the Planning and Environment Act. Upon its re-election the Department of Environment, Land, Water & Planning (DELWP) started developing the projects including engaging with the City as a key stakeholder.

From May to June 2019 phase 1 of the Surf Coast public engagement occurred with a focus on understanding the environment, landscape and lifestyle values the community want to protect. This phase did not directly consider the declaration area boundary.

Phase 2 of public engagement on the Surf Coast DAL project was to assist with developing the draft Statement of Planning Policy and has now closed. Phase 3 engagement includes consultation on the draft Statement of Planning Policy (public submissions process) and will occur in early 2020.

On 17 September 2019 the Surf Coast Distinctive Area was declared by the Governor in Council. The declaration area includes the area north of the Surf Coast and Greater Geelong municipal boundary (Mount Duneed Road) taking in Mount Duneed up to the Armstrong Creek Urban Growth Boundary (land zoned Urban Growth Zone). It also included a small area of Breamlea. A map of the declared Surf Coast Distinctive area is shown in **Attachment 1**.

DELWP have advised the northern boundary of the Surf Coast DAL was recommended as it acknowledges the importance of Thompson Valley green break, to preserve the landscape character between the urban areas of Armstrong Creek and Torquay. It reinforces and defines the state significant coastal landscapes by maintaining the distinct township identity of Torquay-Jan Juc within its landscapes setting. Taking the declaration boundary to the City's settlement boundary allows for the existing green break to be considered holistically.

Prior to the declaration, Officers advised DELWP in relation to the inclusion of Greater Geelong land within the Surf Coast area that:

- All landholders within and directly adjacent to the proposed designation boundary in the Greater Geelong municipality be notified in writing with the implications of the designation and opportunities for engagement clearly articulated;

- The need and benefits of including land within the Greater Geelong municipality in the Surf Coast declaration area is clearly understood and supported by publicly available technical reports and expert advice;

- The designation does not prejudice the implementation of Council's adopted Settlement Strategy including the logical inclusions process for defining a long term settlement boundary. This will be relevant to the Armstrong Creek Growth Area; and

- The City has further input on the implications for the Greater Geelong Planning Scheme including any proposed changes.

DELWP wrote to landholders to advise them of their inclusion in the Surf Coast declaration area in October 2019, after the area was declared. At this time a number of landholders in the Mount Duneed area formed the Mount Duneed Working Group to oppose the inclusion of the Mount Duneed area within the Surf Coast DAL declaration area and to express their concerns over the lack of consultation with Greater Geelong landholders in the declaration process. The Mount Duneed Working Group tabled a petition at the 29 October Council meeting to express these concerns. The City has responded in writing to the questions raised in the petition.

In response to the Mount Duneed community feedback, DELWP held a public information meeting for Mount Duneed residents on 13 November as part of the phase 2 public engagement (18 Oct – 15 Nov) which sought feedback on seven policy domains: landscape, environment and biodiversity, risk and resilience, Aboriginal cultural heritage, post-contact heritage, economy and infrastructure and settlement.

The Mount Duneed Working Group submitted a number of questions to DELWP to which they requested a written response. At the public meeting DELWP advised landholders to remain engaged with the public engagement process including phase 3 which includes consultation on draft Statement of Planning Policy (public submissions process) in early 2020.

The lack of direct engagement prior to the declaration with City of Greater Geelong landholders in relation to the Surf Coast DAL boundary is concerning to the majority of Mount Duneed residents raising issues around fairness and transparency.

Cr Murnane moved, Cr Nelson seconded -

That Council:

1) **Endorse the Mayor write to the Minister for Planning advising the Council does not support the inclusion of the area north of Mount Duneed Road (inside Greater Geelong) within the Surf Coast Distinctive Areas and Landscapes declared area;**
2) **Acknowledge the Victorian State Government's election commitment in September 2018 to protect the values of the Bellarine Peninsula and Surf Coast via the distinctive area and landscape provision under the Planning and Environment Act 1987;**
3) **Note land holders within the Greater Geelong municipality were not engaged with phase 1 of the Surf Coast Distinctive Areas and Landscapes project given they are not located within the Surf Coast Shire and therefore missed the opportunity to have input into the phase that informed the declaration area boundary;**
4) **Note the City did not object to Greater Geelong properties being included in the declaration area subject to a number of conditions including technical reports would be publicly available. To date the expert advice and technical work informing the declaration area has not been made public;**

5) **Acknowledge the Department wrote to and held a public meeting for landholders within Greater Geelong affected by the inclusion of their properties within the Surf Coast Distinctive Area and Landscape declaration area to provide more information and receive feedback, however this was after the declaration of the boundary; and**

6) **Note the area north of Mount Duneed Road already has adequate protection as a significant landscape through the implementation of the Armstrong Creek Urban Growth Boundary and clause 11.01-1R in the Greater Geelong Planning Scheme which includes the protection of the Thompson Valley settlement break.**

Carried.

URGENT BUSINESS – Cr Nelson

Note: Introduction of Urgent Business requires two-thirds majority of Councillors present.

Cr Nelson proposes to raise the following item as Urgent Business:

Cr Nelson moved, Cr Asher seconded -

That Council considers as Urgent Business a motion concerning the funding for a crossing supervisor at St Catherine of Siena Catholic Primary School, Armstrong Creek.

Carried.

CROSSING SUPERVISOR FUNDING

Background

St Catherine of Siena Catholic Primary School is a new school located at 125 Warralily Boulevard, Armstrong Creek (school). The school will open its doors for the first time at the commencement of term one 2020.

Over 140 students have enrolled for 2020. The school is located on one of the main connector roads in Armstrong Creek. The school has emphasised that the safety of students and families is paramount and believes that a school crossing supervisor is required to ensure their safety.

The City seeks funding contributions for the cost of school crossing supervisors from the state government. In order for a school crossing supervisor funding to be approved by the state government, pedestrian and vehicle counts are required to be undertaken after the school is opened to verify the need for a school crossing supervisor. Generally, there is no provision in the state government funding model to fund an interim school crossing supervisor while the assessment process takes place.

Given the increasing traffic volumes around the school and the anticipated enrolments, and to provide for the safety of the students and families of the school, there appears to be a need for a school crossing supervisor to be placed at the school. In anticipation of the school opening in 2020, in September 2019 the City lodged an application to decrease the speed from 50km/h to 40km/h with VicRoads.

Cr Nelson moved, Cr Murnane seconded -

That Council:

1) **Allocate funding from the 2019-2020 Budget to fund a crossing supervisor to be located at *St Catherine* of Siena Catholic Primary *School,* 125 Warralily Boulevard, Armstrong Creek (school crossing) to commence on the first day of the 2020 school term;**
2) **Note that the City has already committed to install the appropriate infrastructure for a crossing at the school; and**
3) **Request the City make an application to Regional Roads Victoria for a funding contribution for the school crossing supervisor from the commencement of the first term of school 2020.**

Carried.

ASSEMBLY OF COUNCIL RECORD

Source: **Governance, Strategy and Performance**
Chief Executive Officer: **Martin Cutter**
Portfolio: **Leadership & Governance**

Summary

1. Section 80A (2) of the Local Government Act 1989 requires the record of an Assembly of Council be reported to the next practicable Ordinary Meeting of Council.
2. A record of Assembly of Council meeting(s) is attached as an Appendix to this report.

Cr Mansfield moved, Cr Kontelj seconded -

3. That the information be received.

Carried.

RECORD OF ASSEMBLIES OF COUNCIL
(Council Meeting 10 December 2019)

Assembly Details	Councillors	Officer Attendees	Agenda Items	Conflict of Interest Disclosures
Council Briefing **3 December 2019**	Crs Asher, Aitken, Grzybek, Harwood, Kontelj, Mansfield, Mason, Murrihy, Murnane, Nelson, Sullivan	M Cutter (CEO B Luxford (DIR) G Smith (DIR) G Wilson-Browne (DIR) M Dugina (DIR) G Wilson-Browne (DIR) R Leonard (DIR) I Hicks (MGR) J Van Slageren (MGR) J Lane (MGR) J Hurse (MGR) V Shelton (MGR) S Provillj (CO ORD) L Raimondo (ADV TO MAYOR & CEO) M Macgugan (SNR COMM ADV) K Ivens (SNR ADV TO MAYOR & CEO)	• Waste and Resource Recovery Strategy • Malop Street Green Spine – Traffic Flow – Interim Report • Draft Stormwater Services Strategy 2020-30 • Amendment C363 – Central Road, Drysdale – Consideration of Submissions • Establishing an Ageing-Well Advisory Committee • Council Meeting Dates • Planning Authorisations – Council to Staff • Community Life Council Advisory Committee's Report • Road Renaming Due to Drysdale Bypass • Tender T2000008 Free Wi-Fi and Enhanced Broadband Services • Revocation of Flood Prone Area Designation of New Lots at Armstrong Estate, Stages 40, 40A, 40B, 42, 43 and 48 • Revocation of Flood Prone Area Designation of New Lots at Watermark Estate, Stages 10-12 • Contractual Matter *(Confidential)* • Contractual Matter *(Confidential)* • Contractual Matter *(Confidential)*	• Nil

PLANNING DELEGATIONS

Source:	**Planning, Design & Development – City Development**
Director:	**Gareth Smith**
Portfolio:	**Planning**

Purpose

1. To provide the schedule of planning permit applications determined under delegation since the last report.

Background

2. Section 98 of the *Local Government Act 1989* and section 188 of the *Planning and Environment Act 1987* empower Council to delegate its powers, duties and functions under relevant legislation to members of Council staff.

3. Sections 86 and 87 of the *Local Government Act 1989* and section 188 of the *Planning and Environment Act 1987* allow Council to establish special committees with delegated powers to determine planning permit applications.

4. At its meeting on 9 July 2019, Council:

   4.1 Amended the Council to staff instrument of delegation to allow staff delegates to determine planning permit applications where there are less than 6 objections lodged; and

   4.2 Amended the Planning Committee's terms of reference to provide for its determination, if required, of planning permit applications where there are 6 or more objections lodged.

5. The City is required by Council to provide information on planning permit applications determined under delegation.

Key Matters

6. The Schedule attached to this report provides information on the planning permit applications determined under delegation since the last report.

Cr Sullivan moved, Cr Mason seconded -

7. That Council receive the information in the Schedule.

Carried.

Planning Decisions Report - November 2019

App Number	Location	Application Type	Decision Date	Description	Authority Description/No of objectors
PP-1305-2017	20 Evans Road, BELL POST HILL VIC 3215	Use of a Function Centre	6/11/2019	Permit Refused - VCAT	VCAT
PP-441-2018	713-729 Portarlington Road, LEOPOLD VIC 3224	Works to remove rocks at the entrance of an artificial water body to Corio Bay	27/11/2019	No Appeal Lodged Permit Issued	Planning Committee
PP-470-2018	40 Pitman Street, NEWCOMB VIC 3219	Development of Multi-Unit Development, and Removal of Easement E-1 on TP122519N	1/11/2019	Permit Issued - VCAT	VCAT
PP-607-2018	74-92 The Parade, OCEAN GROVE VIC 3226	Use and Development of a Telecommunications Facility	15/11/2019	Permit Issued - VCAT	VCAT
PP-937-2018	24 Bellarine Highway, NEWCOMB VIC 3219	Construction of four dwellings on a lot and four lot subdivision adjacent to a Road Zone Category 1	19/11/2019	Permit Issued - VCAT	VCAT
PP-26-2019	446 The Esplanade, ST LEONARDS VIC 3223	Construction of Two Dwellings over 7.5m in Height from NGL, within 2m of a boundary and Creation and Alteration of Two Accesses to a Road in a Road Zone Category 1	15-Nov-2019	NOD - Delegate	2
PP-423-2019	32 Stubbs Avenue, NORTH GEELONG VIC 3215	Construction of Two (2) Dwellings	11-Nov-2019	NOD - Delegate	1
PP-53-2018	4 Elcho Street, NEWTOWN VIC 3220	Construction of Three (3) Double Storey Dwellings, Three (3) Lot Subdivision and Removal of Drainage Easement (E-5) from Lot 3 on LP33856	14-Nov-2019	NOD - Delegate	1
PP-574-2019	125 Francis Street, BELMONT VIC 3216	Construction of Two (2) Dwellings and Two (2) Lot Subdivision	15-Nov-2019	NOD - Delegate	1
PP-577-2019	50-52 Christies Road, LEOPOLD VIC 3224	Use of the land for a Childcare Centre, Associated Buildings and Works and Business Identification Signage	11-Nov-2019	NOD - Delegate	3
PP-591-2019	66-68 Christies Road, LEOPOLD VIC 3224	Constructions of Ten (10) Dwellings	26-Nov-2019	NOD - Delegate	3

PP-606-2019	16 Carr Street, BELMONT VIC 3216	Buildings and Works Associated with the Construction of Two (2) Dwellings and Two (2) Lot Subdivision	25-Nov-2019	NOD - Delegate	3
PP-678-2019	285 Torquay Road, GROVEDALE VIC 3216	Use and Development of a Medical Centre and Reduction of Car Parking Requirements	6-Nov-2019	NOD - Delegate	4
PP-691-2019	12E Sunset Strip, OCEAN GROVE VIC 3226	Construction of a Dwelling on a Lot Less than 300sqm	22-Nov-2019	NOD - Delegate	1
PP-738-2019	291 Scenic Road, HIGHTON VIC 3216	Construction of Two (2) Additional Dwellings and a Three (3) Lot Subdivision and access to a Road Zone Category 1	22-Nov-2019	NOD - Delegate	1
PP-740-2019	17 Rutland Street, NEWTOWN VIC 3220	Change of Use to Offices and Display of Business Identification Signage	26-Nov-2019	NOD - Delegate	1
PP-744-2019	17 Trigg Street, GEELONG WEST VIC 3218	Construction of Two (2) Dwellings	6-Nov-2019	NOD - Delegate	3
PP-808-2019	13 Welch Court, CORIO VIC 3214	Construction of Three (3) Dwellings	28-Nov-2019	NOD - Delegate	1
PP-866-2019	45 Wellington Street, GEELONG WEST VIC 3218	Partial Demolition, Buildings and Works Associated with Alterations and Additions to a Dwelling, External Painting and Construction of a Front Fence and Gates	29-Nov-2019	NOD - Delegate	1
PP-885-2019	2 Chesterfield Court, NEWTOWN VIC 3220	Construction of a Dwelling over 7.5m in Height	21-Nov-2019	NOD - Delegate	5

Cr Sullivan moved, Cr Nelson seconded -

That the meeting be closed to the public.

Carried.

The Meeting was closed to the public at 10.02pm

A record of the proceedings of this section of the meeting is contained in a Confidential Minute Book.

Cr Sullivan moved, Cr Mason seconded -

That the Meeting be opened to the public.

Carried.

The Meeting was opened to the public at 10.07pm

CLOSE OF MEETING

As there was no further business the meeting closed at 10.07pm Tuesday, 10 December 2019.

Signed: _____

Cr Stephanie Asher (Mayor)

Date of Confirmation: _____